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Pneumatic Products

Air Control Valves & Accessories

Catalog 0600P-E

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VALVE SERIES	PORT SIZE											NO. of PORTS	FLOW (Cv)	OPERATORS						
														Solenoid				Manual/ Mechanical	Air	
														Direct		Pilot Operated				
	4mm (5/32) Tube	M3 M5 10-32	1/8	1/4	1/4 Tube	3/8	3/8 Tube	1/2	3/4	1	1-1/4 to 1-1/2			Single	Double	Single	Double		Single	Double
A00		X										3	.01	X						
15mm		X										3	.033	X						
XM			X									3/4	.15	X						
A05	X	X										5	.18			X	X			
Moduflex	X				X		X					3/4	0.18-0.80			X	X		X	X
DA2			X									3/5	.20					X		
HM	X				X							5	.35			X	X			
A12			X		X							5	.47			X	X			
Sliding Seal			X	X								3/4	.5 - 1.25					X		
DX02			X									5	.55			X	X		X	X
HB			X									5	.55			X	X		X	X
PVLB			X		X							5	.6			X	X		X	X
PVLB10			X		X							5	.6			X	X			
P2LAZ			X									5	.6			X	X			
P2LAX			X									5	.7			X	X	X	X	X
DX01			X									5	.75			X	X		X	X
B3			X	X								3/5	.75			X	X		X	X
DA4				X								3/5	.84					X		
Brass Poppet				X								2/3	.94					X		
HA				X								5	1.1			X	X		X	X
DX1				X		X						5	1.15			X	X		X	X
PVLC				X			X					5	1.2			X	X		X	X
PVLC10				X			X					5	1.2			X	X			
P2LBX				X								5	1.3			X	X		X	X
42 Manual				X		X						5	1.3 - 2.8					X		
B5				X		X						3/5	1.4			X	X		X	X
P2LBX				X								5	1.5			X	X			
H1				X		X						5	1.5			X	X		X	X
Valvair II						X		X		X	X	5	1.9 - 12.0			X	X		X	X
PL / VL				X		X		X				4	2.2 - 5.3					X		
DX2						X		X				5	2.5			X	X		X	X
P2LCZ								X				5				X	X			
P2LCX						X						5	2.5			X	X		X	X
P2LDX								X				5	2.7			X	X		X	X
B6						X						3/5	2.7			X	X		X	X
H2						X		X				5	3.0			X	X		X	X
LV / EZ				X		X		X	X	X		3	3.0 - 13.7					X		
N				X		X		X	X	X	X	3	3.6 - 29.9			X			X	
DX3								X	X			5	4.15			X	X		X	X
B7								X				3/5	5.8			X	X		X	X
H3								X	X			5	6.0			X	X		X	X
B8									X			3/5	7.0			X	X		X	X

Notes:
1) Some Valve Series can operate below 35 PSIG with the use of an external pilot supply. Consult the individual Technical Data page for any valve in question.
2) ***WCS*** – Wear Compensation System – Unique seals installed on the spool expand radially under pressure and compensate for wear during extended operation.

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Valve Selector Chart (By Flow)

TYPE			POSITIONS				MOUNTING					PRESSURE RANGE PSIG (Note 1)	TEMPERATURE RANGE	CONSTRUCTION	VALVE SERIES	SECTION
2 Way	3 Way	4 Way	2	3			Single Subbase	Manifold		Inline	Stacking					
				APB	CE	PC		Individual	Bar							
	X			X			X		X			VAC-100	32 – 122°F	Poppet	A00	D
	X			X			X		X			VAC-145	5 – 140°F	Poppet	15mm	B
	X	X					X		X	X	X	VAC-125	32 – 125°F	Poppet	XM	B
		X	X	X	X	X	X		X	X		VAC-100	32 – 122°F	*WCS (Note 2)*	A05	D
	X		X	X	X	X				X	X	VAC-120	5 – 140°F	*WCS (Note 2)*	Moduflex	C
	X	X	X							X		VAC-150	32 – 175°F	Poppet/Spool	DA2	F
		X	X	X	X	X		X				VAC -145	5 – 140°F	*WCS (Note 2)*	HM	E
		X	X	X	X	X	X		X			VAC-100	32 – 122°F	*WCS (Note 2)*	A12	D
	X	X	X	X						X		VAC-200	-40 – 212°F	Lapped Disc	Sliding Seal	F
		X	X	X	X		X	X				VAC-145	14-140°F	Ceramic Spool	DX02	E
		X	X	X	X	X	X	X				VAC-145	5 – 120°F	*WCS (Note 2)*	HB	E
		X	X	X	X					X	X	30-150	5 – 140°F	Lip Seal	PVLB	C
		X	X	X	X						X	30-150	5 – 140°F	Lip Seal	PVLB10	C
	X	X	X	X	X	X						VAC-145	14-122°F	*WCS (Note 2)*	P2LAZ	D
	X	X	X	X	X	X			X	X		VAC-232	-40 – 158°F	Overmold Seal	P2LAX	D
		X	X	X	X		X	X				VAC-145	14-140°F	Ceramic Spool	DX01	E
	X	X	X	X	X	X	X	X	X	X		VAC-145	5 – 120°F	*WCS (Note 2)*	B3	D
	X	X	X	X	X	X				X		VAC-150	32 – 175°F	Packed Bore	DA4	F
X	X		X						X	X		0-150	-20 – 180°F	Poppet	Brass Poppet	F
		X	X	X	X	X	X	X				VAC-145	5 – 120°F	*WCS (Note 2)*	HA	E
		X	X	X	X	X	X	X				VAC-145	14-140°F	Ceramic Spool	DX1	E
		X	X	X	X					X	X	30-150	5 – 140°F	Lip Seal	PVLC	C
		X	X	X	X						X	30-150	5 – 140°F	Lip Seal	PVLC10	C
	X	X	X	X	X	X			X	X		VAC-232	-40 – 158°F	Overmold Seal	P2LBX	D
		X	X	X	X					X		VAC-150	0 – 160°F	Overmold Seal	42 Manual	F
	X	X	X	X	X	X		X	X	X		VAC-145	5 – 120°F	*WCS (Note 2)*	B5	D
	X	X	X	X	X	X			X	X		VAC-145	14-122°F	*WCS (Note 2)*	P2LBZ	D
		X	X	X	X	X	X	X				VAC-145	5 – 120°F	*WCS (Note 2)*	H1	E
			X	X	X	X				X		VAC-225	0 – 200°F	Packed Bore	Valvair II	E
		X		X	X		X			X		0-150	0 – 160°F	Lapped Disc	PL / VL	F
		X	X	X	X		X	X				VAC-145	14-140°F	Ceramic Spool	DX2	E
	X	X	X	X	X	X			X	X		VAC-145	14-122°F	*WCS (Note 2)*	P2LCZ	D
	X	X	X	X	X	X			X	X		VAC-232	-40 – 158°F	Overmold Seal	P2LCX	D
	X	X	X	X	X	X			X	X		VAC-232	-40 – 158°F	Overmold Seal	P2LDX	D
	X	X	X	X	X	X			X	X		VAC-145	5 – 120°F	*WCS (Note 2)*	B6	D
		X	X	X	X	X	X	X				VAC-145	5 – 120°F	*WCS (Note 2)*	H2	E
	X		X							X		0-250	32 – 175°F	Poppet	LV / EZ	F
X	X		X							X		VAC-250	0 – 150°F	Poppet	N	D
		X	X	X	X	X	X	X				VAC-145	14-140°F	Ceramic Spool	DX3	E
		X	X	X	X	X						VAC-145	5 – 120°F	*WCS (Note 2)*	B7	D
		X	X	X	X	X	X	X				VAC-145	5 – 120°F	*WCS (Note 2)*	H3	E
	X	X	X	X	X	X						VAC-145	5 – 120°F	*WCS (Note 2)*	B8	D

Notes:
1) Some Valve Series can operate below 35 PSIG with the use of an external pilot supply. Consult the individual Technical Data page for any valve in question.
2) ***WCS*** – Wear Compensation System – Unique seals installed on the spool expand radially under pressure and compensate for wear during extended operation.

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Protocol	Fieldbus Solution	Valve Platform	Max. Sol.	Add. I/O	Flow Range	Subnet Feature	Page Number
DeviceNet™	Turck	Isys Micro Isys ISO	256 256	Any combination up to 256	0.30-0.35 Cv 0.45-6.0 Cv	CANopen expansion	**E1-E30** **E31-E102**
	Isysnet	Isys Micro Isys ISO	128* 32	256 In & 256 Out	0.30-0.35 Cv 0.45-6.0 Cv	Bus expansoion on Isys Micro	**E1-E30** **E31-E102**
	Moduflex	Isys Micro Isys ISO Moduflex	16 16 16	—	0.30-0.35 Cv 0.45-6.0 Cv 0.18-0.80 Cv	—	**E1-E30** **E31-E102** **C1-C57**
EtherNet/IP™	Turck	Isys Micro Isys ISO	256 256	Any combination up to 256	0.30-0.35 Cv 0.45-6.0 Cv	CANopen expansion & DeviceNet subnet	**E1-E30** **E31-E102**
	Isysnet	Isys Micro Isys ISO	128* 32	256 In & 256 Out	0.30-0.35 Cv 0.45-6.0 Cv	Bus expansoion on Isys Micro	**E1-E30** **E31-E102**
ControlNet™	Isysnet	Isys Micro Isys ISO	128* 32	256 In & 256 Out	0.30-0.35 Cv 0.45-6.0 Cv	Bus expansoion on Isys Micro	**E1-E30** **E31-E102**
PROFIBUS PROCESS FIELD BUS	Turck	Isys Micro Isys ISO	256 256	Any combination up to 256	0.30-0.35 Cv 0.45-6.0 Cv	CANopen expansion	**E1-E30** **E31-E102**
	Isysnet	Isys Micro Isys ISO	128* 32	256 In & 256 Out	0.30-0.35 Cv 0.45-6.0 Cv	Bus expansoion on Isys Micro	**E1-E30** **E53-E164**
	Moduflex	Isys Micro Isys ISO Moduflex	16 16 16	—	0.30-0.35 Cv 0.45-6.0 Cv 0.18-0.80 Cv	—	**E1-E30** **E31-E102** **C1-C57**
PROFINET INDUSTRIAL ETHERNET	Turck	Isys Micro Isys ISO	256 256	Any combination up to 256	0.30-0.35 Cv 0.45-6.0 Cv	CANopen expansion	**E1-E30** **E31-E102**
Modbus/TCP	Turck	Isys Micro Isys ISO	256 256	Any combination up to 256	0.30-0.35 Cv 0.45-6.0 Cv	CANopen expansion & DeviceNet subnet	**E1-E30** **E31-E102**
AS-i INTERFACE	Moduflex	Isys Micro Isys ISO Moduflex	8 8 8	8 In	0.30-0.35 Cv 0.45-6.0 Cv 0.18-0.80 Cv	—	**E1-E30** **E31-E102** **C1-C57**
CANopen	Turck	Isys Micro Isys ISO	256 256	Any combination up to 256	0.30-0.35 Cv 0.45-6.0 Cv	CANopen expansion	**E1-E30** **E31-E102**
	Moduflex	Isys Micro Isys ISO Moduflex	16 16 16	—	0.30-0.35 Cv 0.45-6.0 Cv 0.18-0.80 Cv	—	**E1-E30** **E31-E102** **C1-C57**
INTERBUS-S	Moduflex	Isys Micro Isys ISO Moduflex	16 16 16	—	0.30-0.35 Cv 0.45-6.0 Cv 0.18-0.80 Cv	—	**E1-E30** **E31-E102** **C1-C57**

*128 Solenoids possible with Bus Extension functionality. Up to 4 manifolds with 32 solenoids each can be control with a single communication module.

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Isysnet Fieldbus Solution

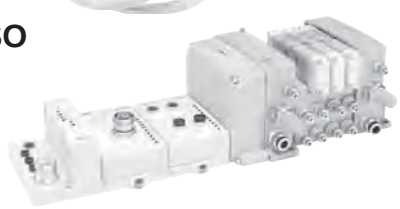
Isysnet fieldbus offers full functionality for large, complex machines using many valves, inputs, and outputs.

- Digital inputs and outputs, analog inputs and outputs, and high watt relay outputs available.
- Up to 256 inputs and 256 outputs can be configured on a single node.

Valve Platforms

Isys Micro

Isys ISO



The Isys Micro is designed with an innovative back-to-back valve mounting style where 4 valves are assembled on a 42mm wide manifold, producing an equivalent 10.5mm valve width.

By incorporating bus expansion capability, the Isys Micro with Isysnet is able to take full advantage of fieldbus systems. Up to 4 Valve Driver Modules, controlling 32 solenoids each, can be coupled to a single fieldbus node. With additional input and output modules at each expansion point, a full 256 inputs and 256 outputs can be connected, offering a simple wiring solution for the machine.

The Isys ISO valve line offers a complete ISO valve package, conforming to ISO specification 15407 for 18mm and 26mm wide valves, and ISO specification 5599 for the larger ISO size 1, 2, and 3 valves.

Additional Features – Preferred Connectivity

By partnering with Rockwell Automation, Isysnet provides a fieldbus solution with Preferred Connectivity to the Rockwell Automation Logix™ Architecture. Because all the information needed for the device profile is already loaded into the Allen Bradley RSLogix5000™ software, configuration time is reduced by up to 70%.

The configuration process is reduced from 4 clicks and 7 data fields to merely 3 clicks, with no additional values for the user to find and enter. This means there are no installation manuals to search through, no chance of entering incorrect information, and you can work with confidence knowing the device is configured properly.

Rockwell Automation
Encompass™
Product Partner
Americas • Europe

Moduflex Fieldbus Solution

Moduflex fieldbus offers a low cost fieldbus connection for manifolds with fewer solenoids and no additional inputs and outputs, except for AS-i which has 8 inputs.

- Fieldbus connection for up to 16 solenoids.
- AS-i protocol provides a connection for up to 8 solenoids and 8 inputs.

Valve Platforms

Moduflex

Isys Micro

Isys ISO

Moduflex offers the complete choice of stand-alone and manifold systems. The ability to mount size 1 (0.3 Cv) valves and size 2 (0.8 Cv) valves on the same manifold give the machine builder the opportunity to maximize the valve system for the application. With functions such as dual 4/2 and dual 3/2 there will be opportunities for space and cost savings. Moduflex gives maximum flexibility to assemble each automation system step by step using modules to expand islands, control flow, and have multiple pressures or functions.

The Isys Micro is designed with an innovative back-to-back valve mounting style where 4 valves are assembled on a 42mm wide manifold, producing an equivalent 10.5mm valve width.

The Isys ISO valve line offers a complete ISO valve package, conforming to ISO specification 15407 for 18mm and 26mm wide valves, and ISO specification 5599 for the larger ISO size 1, 2, and 3 valves.

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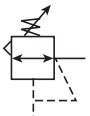
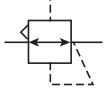
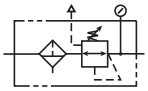
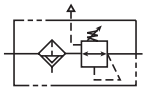
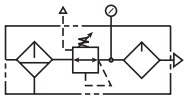
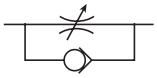
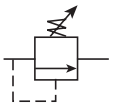
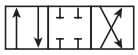
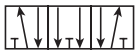
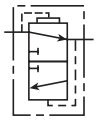
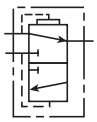
Air Preparation Units

Symbol	Description
	**Filter / Separator** with manual drain
	**Filter / Separator** with automatic drain
	**Oil Removal Filter**
	**Automatic Drain**
	**Lubricator** less drain
	**Lubricator** with manual drain
	**Lubricator** with automatic filling
	**Air Line Pressure Regulator** adjustable, relieving
	**Air Line Pressure Regulator** pilot controlled, relieving
	**Filter / Regulator** (piggyback) manual drain relieving (with gauge)
	**Filter / Regulator** (piggyback) auto drain relieving
	**Air Line Combo F-R-L** simplified

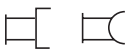
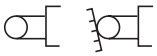
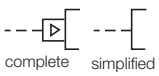
Pneumatic Valves

Symbol	Description
	Check
	**Flow Control**
	**Relief Valve**
	**2-Position, 2-Way**
	**2-Position, 3-Way**
	**2-Position, 4-Way**
	**2-Position, 4-Way 5-Ported**

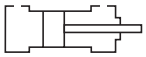
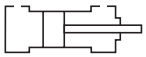
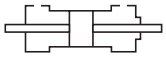
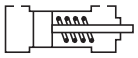
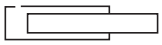
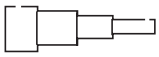
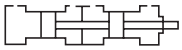
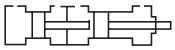
Pneumatic Valves

Symbol	Description
	**3-Position, 4-Way, APB** ports closed, center pos.
	**3-Position, 4-Way, CE 5-Ported** cylinder ports open to exhaust in center position
	**3-Position, 4-Way, PC 5-Ported** pressure ports open to exhaust in center position
	**Quick Exhaust**
	**Shuttle**

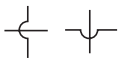
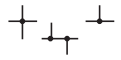
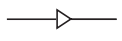
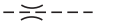
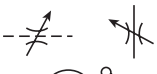
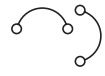
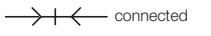
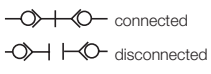
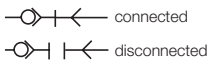
Valve Actuators

Symbol	Description
	**Manual** general symbol
	**Push Button**
	**Lever**
	**Pedal or Treadle**
	**Mechanical** cam, toggle, etc.
	**Spring**
	**Detent** line indicates which detent is in use
	**Piezo**
	**Solenoid**
	**Internal Pilot Supply**
 complete simplified	**Remote Pilot Supply**
	**And / Or Composite** solenoid and pilot or manual override
	**And / Or Composite** solenoid and pilot or manual override and pilot

Cylinders

Symbol	Description
	**Standard** double acting
	**Single Acting**
	**Double Rod**
	**Spring Return**
	**Ram Type**
	**Telescope**
	**Tandum**
	**Duplex**

Lines and Functions

Symbol	Description
	Solid Line – Main Line
	Dashed Line – Pilot Line
	Dotted Line – Exhaust or Drain Line
	Center Line – Enclosure Outline
	**Lines Crossing** (90° intersection not necessary)
	**Lines Joining** (90° intersection not necessary)
	**Lines Joining**
	Flow Direction hydraulic medium
	**Flow Direction** gaseous medium
	Energy Source
	**Line with Fixed Restriction**
	**Line with Adjustable Restriction**
	**Flexible Line**
	**Plugged Port, Test Station, Power Take-off**
 connected disconnected	**Quick Disconnect Without Checks**
 connected disconnected	**Quick Disconnect With Checks**
 connected disconnected	**Quick Disconnect With One Check**

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Pneumatic Division
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Saving Money and Space by Sizing Your Valves Properly
This catalog gives you a flow rating (Cv) for each valve in the Parker Hannifin line. You can "plug" *your* requirements into the following simple formula, and determine the Cv needed to do the job. By not oversizing, you'll save space and money, and you'll ensure the valve you select will do the job.

Converting the Job Requirements Into Cv (Capacity Co-efficient).

$$C_V = \frac{\text{Cylinder Area (Sq. In.) (See Table 1)} \times \text{Cylinder Stroke (In.)} \times \text{Compression Factor (Table 2)} \times \text{"A" (Table 2)}}{\text{Stroke Time (sec.)} \times 28.8}$$

Let's work through an example:

We want to extend a $3^1/_4$" bore cylinder which has a 12" stroke in one second, and we have a supply pressure of 80 PSI to do the work. Here's what we know:

Cylinder Area for a 3-1/4" Bore, from Table 1 ..... 8.30 sq. in.
Cylinder Stroke ..... 12 in.
Stroke Time Required in Seconds ..... 1 sec.
Compression Factor at 80 PSI, from Table 2 ..... 6.4
"A" Constant for 80 PSI, from Table 2 ..... .048

Substituting in the formula, we have:

$$C_V = \frac{8.30 \times 12 \times 6.4 \times .048}{1 \times 28.8} = 1.06$$

Any valve, therefore, which has a Cv of *at least* 1.06, will extend our cylinder the specified distance in the required time.

Choosing the Valve "Series"
Your next step is to choose a basic valve design to do the job. For a quick guide to valve designs, see Table 3.

Having selected the basic valve design, consult the Capacity Co-efficient (Cv) tables which describe the individual valve capacities.

Selecting the Valve Model, Options and Accessories
Having determined Cv, series, port size, flow-path configuration (pre-determined by circuit design), and actuation method, you're ready to choose the *exact* valve model number.

Read the pertinent catalog pages; note the exact model numbers, options and accessories you want. Then phone or write your Parker Hannifin air valve distributor. They will give you prompt, accurate service.

Note: Need circuit design help? Contact your local Parker Hannifin distributor. They are backed up by our regional Sales Engineers and offices. Between them, you'll find answers to all of your questions.

Table 1

Effective Square-Inch Areas for Standard-Bore-Size Cylinders

Bore Size	Cylinder Area (Sq. In.)	Bore Size	Cylinder Area (Sq. In.)
3/4"	.44	4"	12.57
1"	.79	4-1/2"	15.90
1-1/8"	.99	5"	19.64
1-1/4"	1.23	6"	28.27
1-1/2"	1.77	7"	38.48
1-3/4"	2.41	8"	50.27
2"	3.14	10"	78.54
2-1/2"	4.91	12"	113.10
3-1/4"	8.30	14"	153.94
3-5/8"	10.32		

Table 2

Compression Factors and "A" Constants

Inlet Pressure (PSIG)	Compression Factor	"A" Constants for Various Pressure Drop*		
		2 PSI △P	5 PSI △P	10 PSI △P
10	1.6	.152	.103	
20	2.3	.126	.084	.065
30	3.0	.111	.073	.055
40	3.7	.100	.065	.048
50	4.4	.091	.059	.044
60	5.1	.085	.055	.040
70	5.7	.079	.051	.037
80	6.4	.075	.048	.035
90	7.1	.071	.046	.033
100	7.8	.068	.044	.032
110	8.5	.065	.042	.030
120	9.2	.063	.040	.029
130	9.9	.061	.039	.028
140	10.6	.058	.037	.027
150	11.2	.057	.036	.026
160	11.9	.055	.035	.025
170	12.6	.053	.034	.024
180	13.3	.052	.033	.024
190	14.0	.051	.032	.023
200	14.7	.050	.032	.023

Note: Use "A" constant at 5 PSI △P for most applications. On very critical applications, use "A" at 2 PSI △P. You will find in many cases, a 10 PSI △P is not detrimental, and can save money and mounting space.

* Tabulated values are the solution of $\frac{1}{22.48}\sqrt{\frac{GT}{(P_1 - P_2)\,P_2}}$ where T is for 68°F and G =1 for Air.

Table 3

Characteristics of the Major Valve Designs

A. Poppet 3-Way and 4-Way	1. High flow capacities 2. Minimum lubrication requirements 3. Fast response 4. Self-cleaning poppet seats 5. Pressures of 15 to 150 PSIG (modifications for vacuum to 250 PSIG)
B. Spool Valves (WCS) 3-Way and 4-Way	1. Low friction 2. Lower operating pressures 3. Fast response 4. Less wear 5. Long Cycle Life - Under pressure, radial expansion of the seal occurs to maintain sealing contact with the valve bore 6. Non-Lube Service - No lubrication required for continuous valve shifting 7. Bi-Directional Spool Seals - Common spool used for any pressure, including vacuum
C. Packed Bore 4-Way	1. Wide range of flow capacities 2. Wide range of flow-path configurations 3. Pilot-operated models available 4. Pressures of vacuum to 150 PSIG
D. Rotary Or Reciprocating Disc 4-Way, manually operated	1. Inexpensive 2. Versatility in manual actuation

Cv – Capacity Co-efficients (sometimes called Flow Factors). Each flow path through the valve has its own Cv value. All Cv ratings for each valve cataloged on this page are listed on the front side of this sheet.

$$C_V = \frac{Q}{22.48}\sqrt{\frac{GT}{(P_1 - P_2)\,P_2}}$$

Q = Flow in Standard Cubic Feet per minute (14.7 PSIA at 60°F)
P_1 = Inlet Absolute Pressure (gauge pressure + 14.7)
P_2 = Outlet Absolute Pressure (gauge pressure + 14.7)
Note: P_2 must be greater than .53 x P_1
G = Specific Gravity of flowing medium (Air, G =1)
T = Absolute Temperature of Air (460 + °F.)

Cv = Q x "A" (Table 2)

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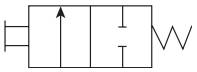
Electrical Enclosure IP Ratings

1st Numeral: Degree of Protection with respect to persons and solid objects		2nd Numeral: Degree of protection with respect to harmful ingress of water								
		0	1	2	3	4	5	6	7	8
		Non Protected	Protected against dripping water	Protected against dripping water of ±15° angle	Protected against spraying water of ±60° angle	Protected against splashing water	Protected against water jets	Protected against heavy seas	Protected against immersion	Protected against submersion
Non-Protected	**0**	**IP00**	**IP01**	**IP02**						
Protected against solid objects greater than Ø50mm	**1**	**IP10**	**IP11**	**IP12**	**IP13**					
Protected against solid objects greater than Ø12mm	**2**	**IP20**	**IP21**	**IP22**	**IP23**					
Protected against solid objects greater than Ø2.5mm	**3**	**IP30**	**IP31**	**IP32**	**IP33**	**IP34**				
Protected against solid objects greater than Ø1.0mm	**4**	**IP40**	**IP41**	**IP42**	**IP43**	**IP44**	**IP45**	**IP46**		
Dust protected Depression 200mm water column, air flow 80 x volume of enclosure	**5**					**IP54**	**IP55**	**IP56**		
Dust-tight Same test procedure	**6**						**IP65**	**IP66**	**IP67**	**IP68**

Functionality Explanation

Fluid Power			Universal Description	Electrical	
Function	Symbol			Function	Symbol
Normally Closed (N.C.)	**2-Way** 	**3-Way** 	**Normally Non-Passing (NNP)**	**Normally Open (N.O.)**	
Normally Open (N.O.)	**2-Way** 	**3-Way** 	**Normally Passing (NP)**	**Normally Closed (N.C.)**	

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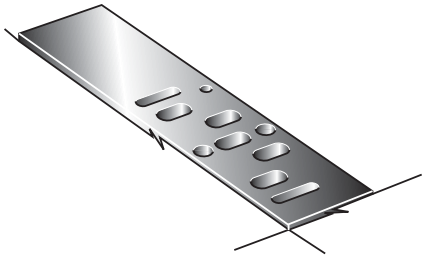
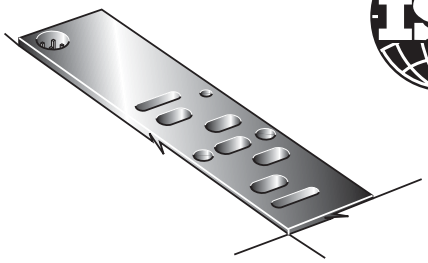


15407-1

External Electrical Connection Subbase Valves

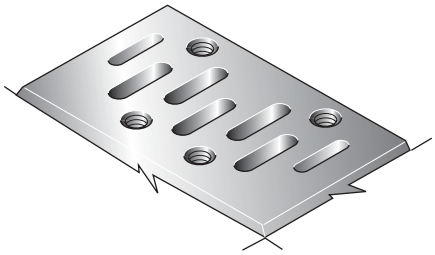
The ISO Standard 15407-1 specifies an interface pattern for a common subbase valve consisting of pressure passages 1, 3, 5, 2, & 4, pilot passages 12 & 14. The width of the pattern and location of the 2-bolt holes are also specified. This ISO standard specifies 2 different sizes – 18mm as the smallest and 26mm as the largest.



15407-2

Body-to-Base Plug-In Subbase Valves

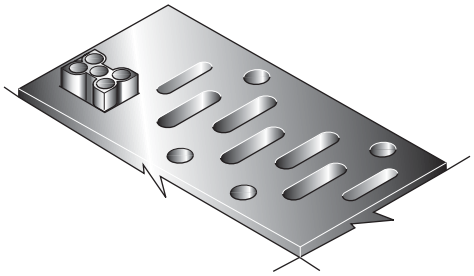
The ISO Standard 15407-2 specifies an interface pattern for a common subbase valve consisting of pressure passages 1, 3, 5, 2, & 4, pilot passages 12 & 14, and a plug-in electrical connector. The width of the pattern and location of the 2-bolt holes are also specified. This ISO standard specifies 2 different sizes – 18mm as the smallest and 26mm as the largest.



5599-1

External Electrical Connection Subbase Valves

The ISO Standard 5599-1 specifies an interface pattern for a common subbase valve consisting of pressure passages 1, 3, 5, 2, & 4, and pilot passages 12 & 14. The width of the pattern and location of the 4 bolt holes are also specified. There are no specifications for the type of external electrical connection used to control the valve.



5599-2

Body-to-Base Plug-In Subbase Valves

The ISO Standard 5599-2 specifies an interface pattern for a common subbase valve consisting of pressure passages 1, 3, 5, 2, & 4, pilot passages 12 & 14, and a plug-in electrical connector. The width of the pattern and location of the 4-bolt holes are also specified. This ISO standard specifies 6 different sizes – 1 as the smallest up to 6 as the largest. Manufacturers who produce ISO 5599-2 valves typically offer sizes 1, 2 & 3.

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The Parker 5-Year Extended Warranty

Parker Hannifin Corporation will extend its warranty on all pneumatic components to sixty (60) months providing they are correctly installed and protected by Parker pneumatic filters which are properly maintained. Components covered by this warranty include all cylinders, valves and pneumatic automation components manufactured by Parker in any of our global facilities. This warranty covers our components anywhere in the world you may ship your equipment.

Parker's obligation under this warranty is limited to the replacement or repair of any failed components. The buyer understands that the seller will not be liable for any other costs or damages.

The buyers of quality Parker components and filters benefit by having ONE source for all pneumatic needs - **Parker.**

Yoon Chung

Yoon "Michael" Chung
President
Automation Group

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"XM" Series

Air Control Valves
Direct Acting, 1/8" Port
3-Way & 4-Way: .15 Cv

Section B

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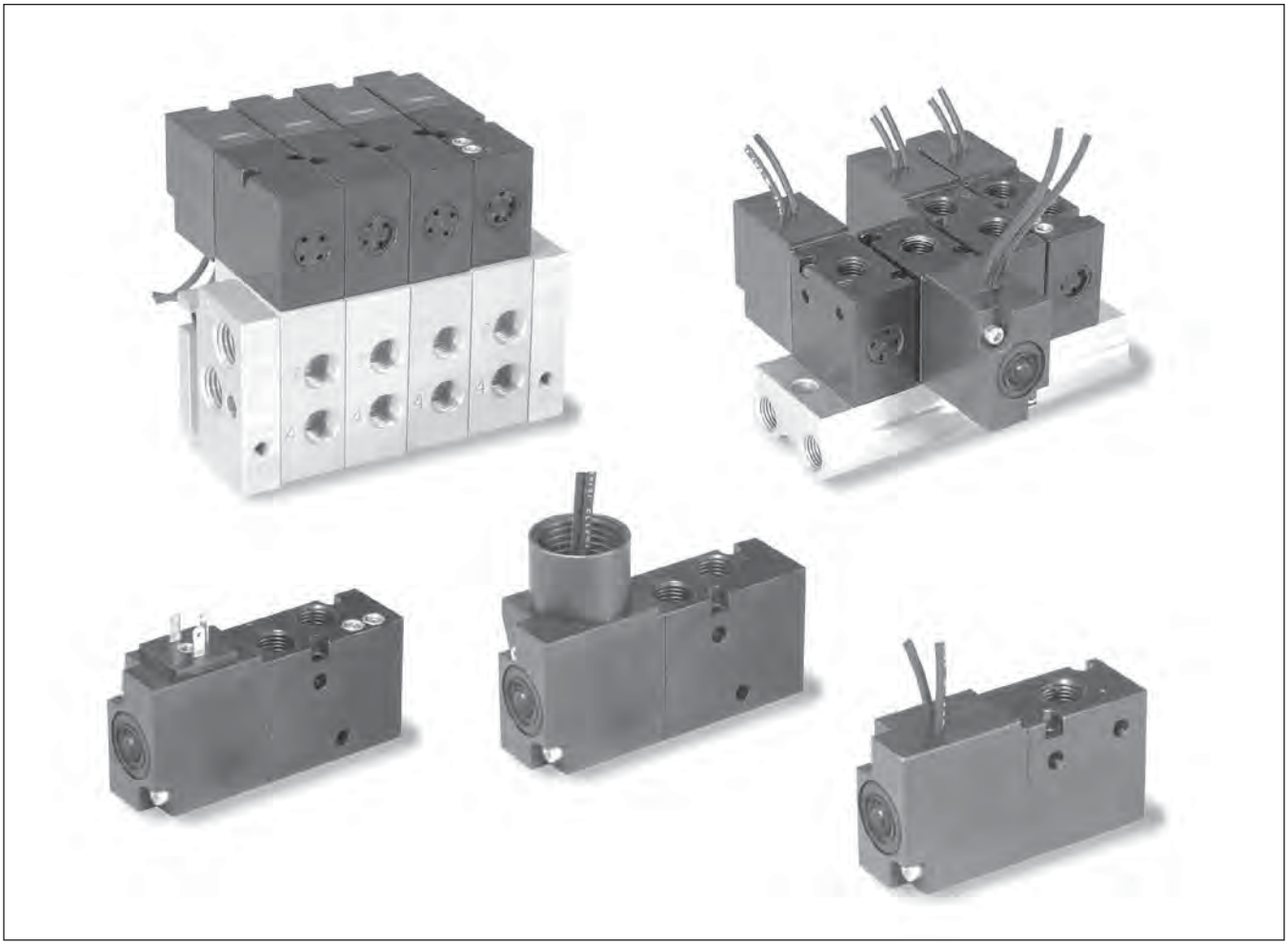

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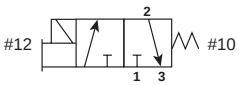
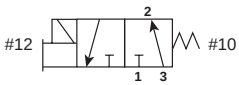
3-Way, 2-Position, Normally Closed



De-energized position – Solenoid #12 de-energized. Pressure at inlet port 1 blocked, outlet port 2 connected to exhaust port 3.

Energized position – Solenoid #12 energized. Pressure at inlet port 1 is connected to outlet port 2, exhaust port 3 is blocked.

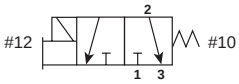
3-Way, 2-Position, Normally Open



De-energized position – Solenoid #12 de-energized. Pressure at inlet port 3 connected to outlet port 2, exhaust port 1 is blocked.

Energized position – Solenoid #12 energized. Pressure at inlet port 3 blocked, outlet port 2 connected to exhaust port 1.

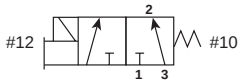
3-Way, 2-Position, Diverter



De-energized position – Solenoid #12 de-energized. Pressure at inlet port 2 connected to outlet port 3. Port 1 is blocked.

Energized position – Solenoid #12 energized. Pressure at inlet port 2 is connected to outlet port 1. Port 3 is blocked.

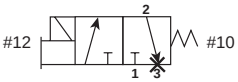
3-Way, 2-Position, Selector



De-energized position – Solenoid #12 de-energized. Pressure at inlet port 1 is blocked. Pressure at inlet port 3 is connected to outlet port 2.

Energized position – Solenoid #12 energized. Pressure at inlet port 1 is connected to outlet port 2. Pressure at port 3 is blocked.

2-Way, 2-Position, Normally Closed

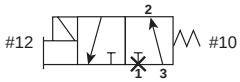


De-energized position – Solenoid #12 de-energized. Pressure at inlet port 1 blocked, port 2 is connected to port 3, which is plugged.

Energized position – Solenoid #12 energized. Pressure at inlet port 1 is connected to outlet port 2. Port 3 is blocked.

* Plug port 3.

2-Way, 2-Position, Normally Open

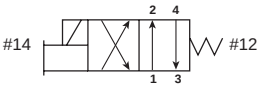


De-energized position – Solenoid #12 de-energized. Pressure at inlet port 3 is connected to outlet port 2. Port 1 is blocked.

Energized position – Solenoid #12 energized. Pressure at inlet port 3 is blocked. Port 2 is connected to port 1, which is plugged.

* Plug port 1.

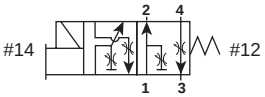
4-Way, 2-Position



De-energized position – Solenoid #14 de-energized. Pressure at inlet port 1 connected outlet port 2. Outlet port 4 connected to exhaust port 3.

Energized position – Solenoid #14 energized. Pressure at inlet port 1 is connected to outlet port 4. Outlet port 2 connected to exhaust port 3.

4-Way, 2-Position with Flow Controls



De-energized position – Solenoid #14 de-energized. Pressure at inlet port 1 connected outlet port 2. Outlet port 4 connected to exhaust port 3.

Energized position – Solenoid #14 energized. Pressure at inlet port 1 is connected to outlet port 4. Outlet port 2 connected to exhaust port 3.

Flow Controls meter exhaust from ports 2 and 4 separately into port 3.

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Flow Characteristics

- 3-Way: .15 Cv
- 4-Way: .15 Cv

3-Way Operating Pressure

- 0 to 125 PSIG
- 0.28" Hg Vacuum

4-Way Operating Pressure

- -14.7 to 125 PSIG

Ports

- 1/8" NPT

Mounting

- Inline
- IEM Bar Manifold
- Subbase Valve Manifold

Solenoids

- Continuous Duty Rated
- 24" Grommet
- 15mm 3-Pin (9.4mm Pin Spacing)
- 1/2" Conduit
- 12VDC to 240VAC

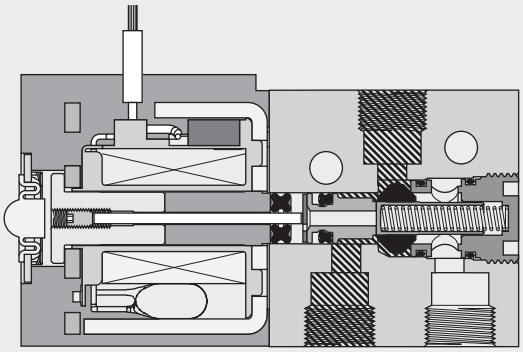
Balanced Poppet

- 3-Way N.O. & N.C.
- Diverter
- Selector
- Vacuum Option (V-Option)

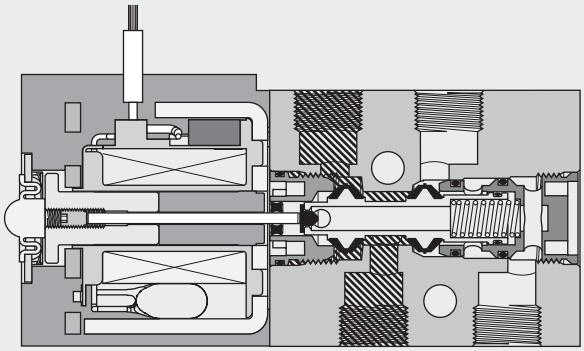
ROHS Compliant

Materials

- Body.....Aluminum
- Center Post & Armature.....Stainless Steel
- Stem.....Brass
- Spring.....Stainless Steel
- Seals.....Buna N



3-Way Inline Valve
Shown Energized



4-Way Inline Valve
Shown De-Energized

Pressure **Exhaust**

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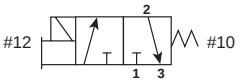
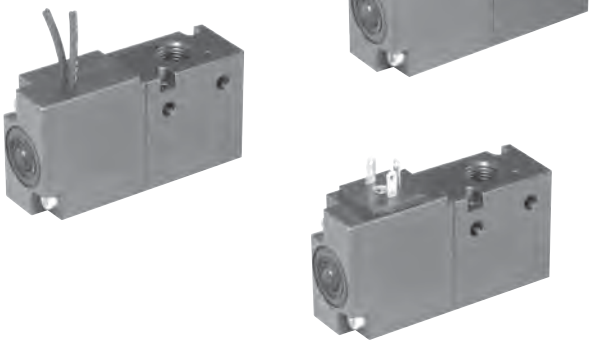
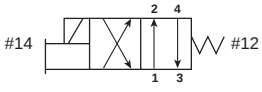
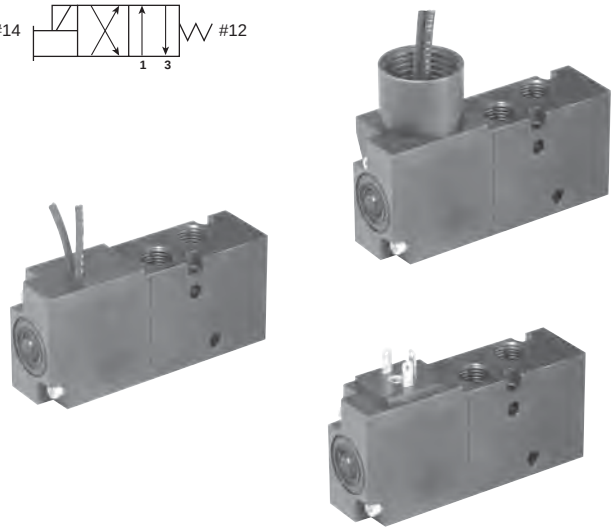
Inline Valves



N.C. Function Shown







3-Way

24" Grommet	3-Pin 15mm DIN 9.4mm	1/2" Conduit / 24" Leads	Voltage
XM30NBG49A	**XM30NB549A**	**XM30NBH49A**	24VDC
XM30NBG53A	**XM30NB553A**	**XM30NBH53A**	120VAC

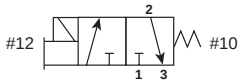
Note: All units with non-locking flush override.
Can be used as N.O / N.C. / Diverter / Selector function.

4-Way

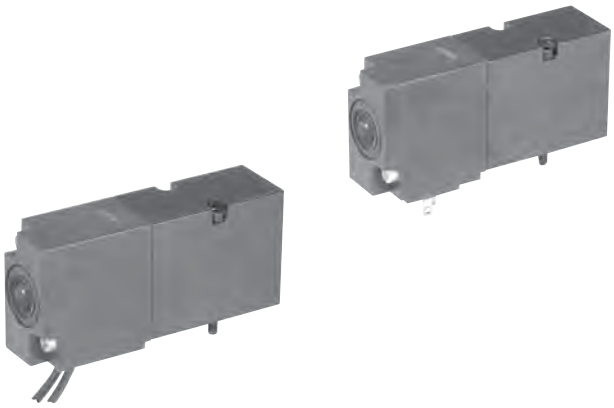
24" Grommet	3-Pin 15mm DIN 9.4mm	1/2" Conduit / 24" Leads	Voltage
XM40NBG49A	**XM40NB549A**	**XM40NBH49A**	24VDC
XM40NBG53A	**XM40NB553A**	**XM40NBH53A**	120VAC

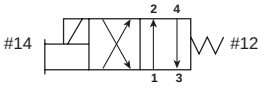
Note: All units with non-locking flush override.

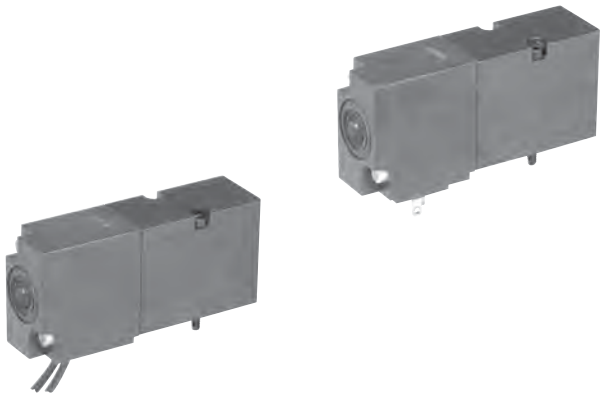
Subbase Mount



N.C. Function Shown







3-Way

24" Grommet	3-Pin 15mm DIN 9.4mm	Voltage
XM3VNBG49A	**XM3VNB549A**	24VDC
XM3VNBG53A	**XM3VNB553A**	120VAC

Note: All units with non-locking flush override.
Can be used as N.O / N.C. / Diverter / Selector function.

4-Way

24" Grommet	3-Pin 15mm DIN 9.4mm	Voltage
XM4VNBG49A	**XM4VNB549A**	24VDC
XM4VNBG53A	**XM4VNB553A**	120VAC

Note: All units with non-locking flush override.

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XM 4 0 N B G49 — A

Operator / Function	
3-Way, Direct Operated, Single Solenoid, Spring Return	**3**
4-Way, Direct Operated, Single Solenoid, Spring Return	**4**

Port Size / Thread Type	
1/8" NPT Inline	**0***
Subbase Valve Less Base	V

* Available on IEM manifolds.

Pilot Source / Exhaust	
Direct Operated / Standard Pressure	**N***
Direct Operated / Vacuum Service	V**

* 3-Way Valve Positive Pressure, 4-Way Valve Vacuum or Positive Pressure
** 3-Way Valve Vacuum Pressure.

Overrides	
Flush - Non-Locking	**B**

Options	
Blank	**None**
F0*	Flow Control

* 4-Way Valves Only.

Engineering Level	
A	**Current**

Enclosures / Lead Length

		Voltage		
		AC		DC
		60Hz	50Hz	
542	15mm 3-Pin DIN 9.4mm	24	22	
545*	15mm 3-Pin DIN 9.4mm			12
549*	**15mm 3-Pin DIN 9.4mm**			**24**
553	**15mm 3-Pin DIN 9.4mm**	**120**	**110**	
G42	Grommet / Flying Leads 24"	24	22	
G45*	**Grommet / Flying Leads 24"**			**12**
G49*	**Grommet / Flying Leads 24"**			**24**
G53	**Grommet / Flying Leads 24"**	**120**	**110**	
G57	Grommet / Flying Leads 24"	240	220	
H42†	1/2" Conduit / Flying Leads 24"	24	22	
H45*†	1/2" Conduit / Flying Leads 24"			12
H49*†	**1/2" Conduit / Flying Leads 24"**			**24**
H53†	**1/2" Conduit / Flying Leads 24"**	**120**	**110**	

* Mobile Voltage Rated.
† Inline Version Only.

Notes:

Inline Valves
Conduit Inline valves cannot be mounted to IEM or Subbase Manifolds.

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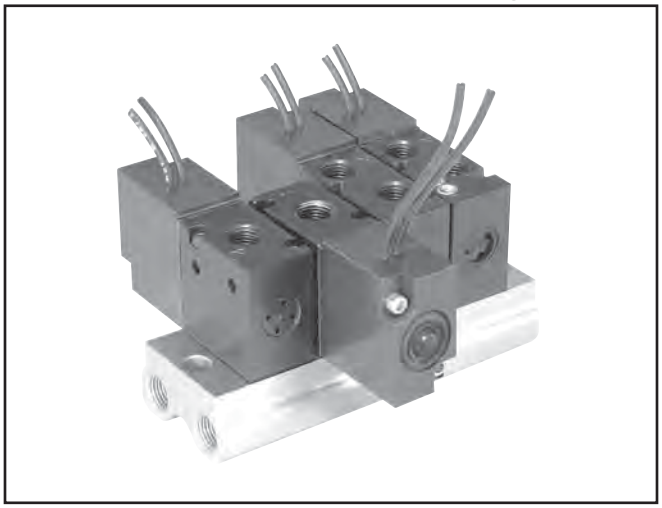
IEM Bar Manifold Assembly

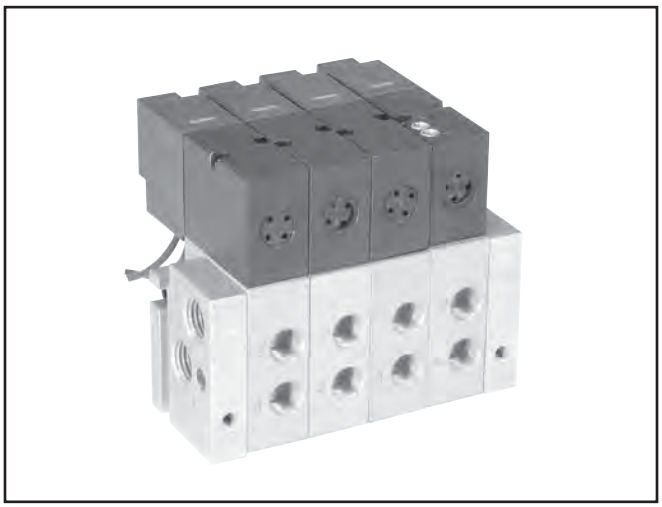


IEM Bar Manifold

Allows for mounting of 3-Way and 4-Way Inline valves on the same manifold. 3-Way Valves can be mounted on the same manifold to provide a Normally Closed or Normally Open function by rotating the valves 180°. 4-Way valves can be mounted with or without Flow Controls.

IEM Bar Manifold Assemblies consist of valves and an IEM Manifold. Valves and IEM Manifold can be ordered separately.

Subbase Manifold Assembly



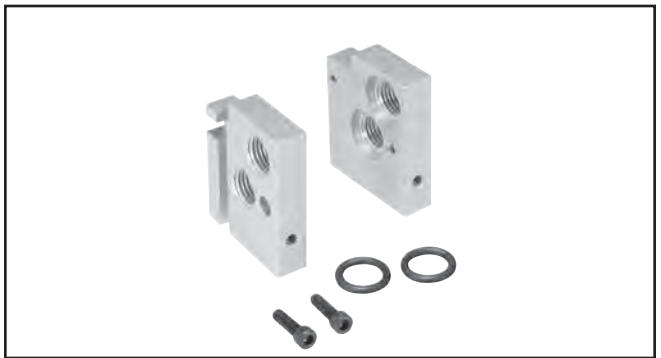
Subbase Manifold

Allows for mounting of 3-Way and 4-Way Subbase Valves can be mounted on the same manifold. 3-Way Valves can be mounted on the same manifold to provide a Normally Closed or Normally Open function through the use of port isolation kits. 4-Way valves can be mounted with or without Flow Controls.

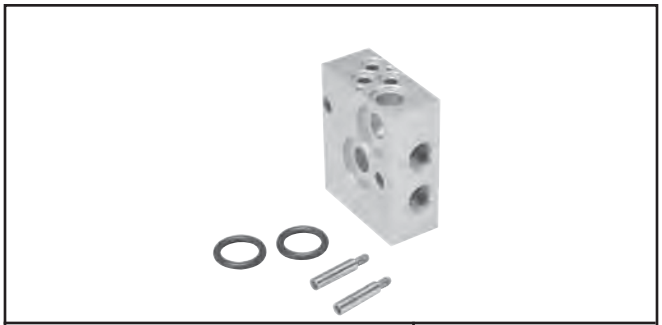
Subbase Manifold Assemblies consist of Valves, End Plate Kit and Manifold Subbase Kits. Valves, End Plate Kit and Manifold Subbase Kits can be ordered separately.

IEM Bar Manifold (NPT)	**PSMXNXN##NP**

– stations 02 to 12



End Plate Kit (NPT)	**PSXM31010P**



Manifold Subbase Kit (NPT)	**PSXM530CP**

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How to Order Manifold Assemblies

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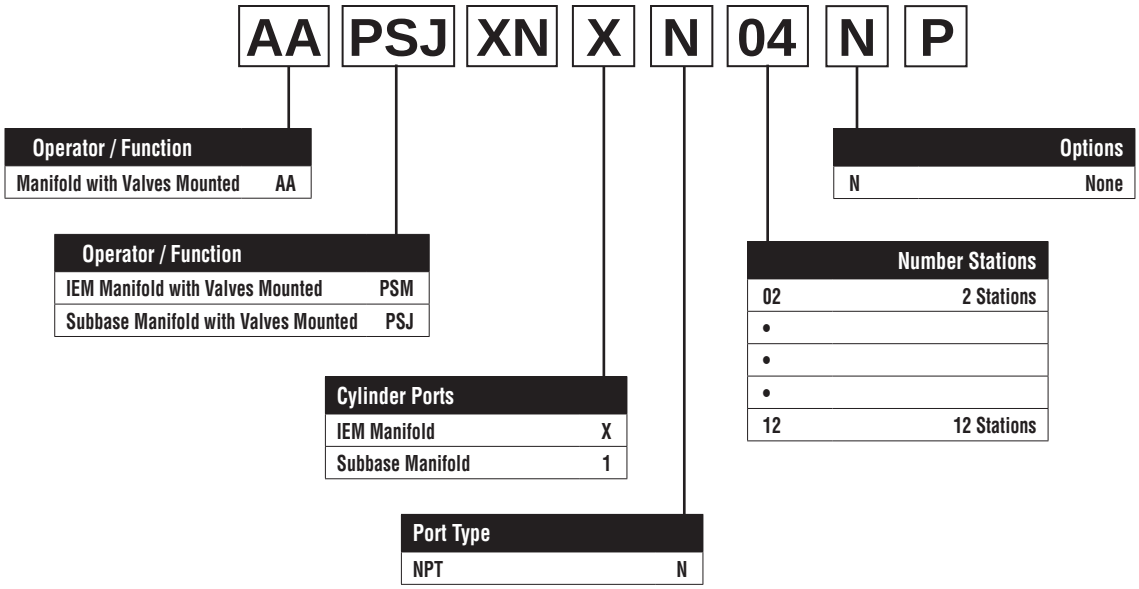

IEM Bar Manifold Assembly

First line item describes IEM Assembly. Subsequent line items listed identify each station in the Manifold starting with Station Number 1.

Manifold Assembly Ordering Example

Item	Qty	Part Number
001	1	AAPSMXNXN04NP
002	2	XM30NBG49A - **Station 1, 2 - Normally Closed**
003	1	XM40NBG49A - **Station 3**
004	1	XM40NBG49F0A - **Station 4**

Notes: When ordering Add-A-Folds, list valves left to right when looking at the Port 1/3 side of the manifold. All 3-Way valves will be assembled as 3-Way N.C. valves.

Component Ordering Example

Item	Qty	Part Number
001	1	PSMXNXN04NP (IEM Kit)
002	2	XM30NBG49A (Valve)
003	1	XM40NBG49A (Valve)
004	1	XM40NBG49F0A (Valve)

Subbase Manifold Assembly

First line item describes Subbase Assembly. Subsequent line items listed identify each station in the Manifold starting with Station Number 1.

Subbase Manifold Ordering Example

Item	Qty	Part Number
001	1	AAPSJXN1N04NP
002	2	XM3VNBG49A - **Station 1, 2 - Normally Closed**
003	1	XM4VNBG49A - **Station 3**
004	1	XM4VNBG49F0A - **Station 4**

Notes: When ordering Add-A-Folds, list valves left to right when looking at the Port 2/4 side of the manifold. All 3-Way valves will be assembled as 3-Way N.C. valves. Isolator Discs are required for N.O. functions

Component Ordering Example

Item	Qty	Part Number
001	1	PSXM31010P (End Plate Kit)
002	4	PSXM530CP (Subbase Kit)
003	2	XM3VNBG49A (Valve)
004	1	XM4VNBG49A (Valve)
005	1	XM4VNBG49F0A (Valve)

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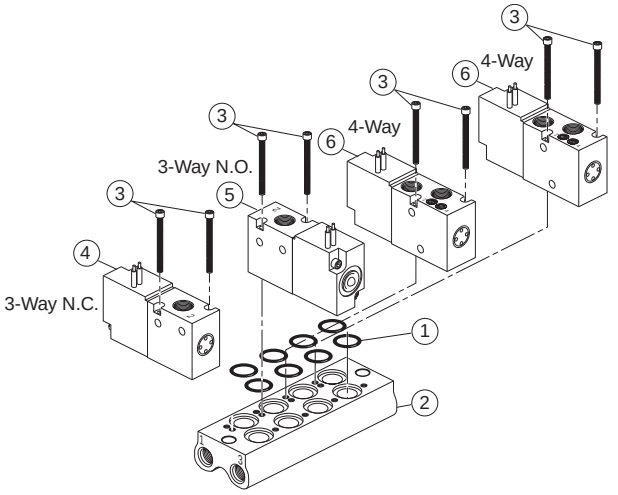
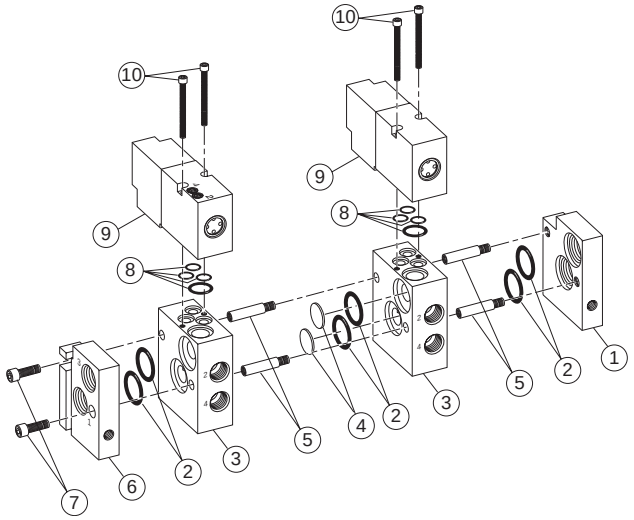
Inline Valve on IEM Bar Manifold Assembly

IEM Bar Manifold Assembly's are assembled by adding Inline Valves to an IEM Bar Manifold. O-rings are installed at each valve station in the counterbore on the top of the manifold. Valves are installed with 2 mounting screws. For 3-Way N.C. valve operation, line up the solenoid end of the Valve with Port 1 on the Manifold. For 3-Way N.O. operation, line up the solenoid end of the valve with Port 3 on the manifold. For 4-Way valve operation, line up the Solenoid end of the valve with Port 1 on the manifold. If manifolds are factory assembled, all 3-Way valves are N.C. To convert from N.C. to N.O. operation, remove valve from the base and place valve 180° from the original position with the solenoid end lined up with the 3-Port on the manifold.



Subbase Valve and Manifold Assembly

Subbase Manifold Assembly's are assembled by adding tie rods and manifold bases to the end plate kit of the subbase end plate kit as shown below. Valves are added to each subbase per manifold design. 4-Way and 3-Way valves are mounted with Solenoids Coils facing away from subbase delivery ports 2 and 4. For 3-Way N.O. Functions, valves must be isolated from the other 3-Way N.C. and 4-Way valves on the manifold. This is achieved by placing port isolator discs in between the subbase of the first 3-Way N.O. Valve and the subbase of the last 3-Way N.C. or 4-Way valve in the Subbase Manifold. Inlet pressure is connected to Port 3 of the manifold for the 3-Way N.O. valves. Inlet pressure is connected to the Port 1 of the manifold for the 3-Way N.C. and 4-Way valves. Separate Inlet Pressure Ports and Exhaust Ports are required for N.O. and N.C. 3-way function valves.



Performance Information

Electrical						Flow		Seals
Code	Voltage			Power Consumption	Holding Current	Cv Chart		
	AC		DC			3-Way	4-Way	
	60Hz	50Hz		(W / VA)	(Amps)			
42	24	22	—	4.8VA	.200	.15	.15	Buna N
45*	—	—	12	4.5W	.375	.15	.15	
49*	—	—	24	4.5W	.188	.15	.15	
53	120	110	—	4.32VA	.036	.15	.15	
57	240	220	—	4.32VA	.018	.15	.15	
Note: Voltage Tolerance: +10 / -15%						Cv tested per ANSI / (NFPA) T3.21.3		

* Mobile Voltage, +25/-30%

Response Time

Code	Voltage	0 Cu. In. Test Chamber		12 Cu. In. Test Chamber	
		Fill	Exhaust	Fill	Exhaust
49	24VDC	.011	.007	.240	.384
53	120VAC	.011	.020	.240	.384

Average Fill Time (Seconds): With 100 PSIG supply, time required to fill from 0-90 PSIG and exhaust from 100 PSIG to 10 PSIG is measured from instant of energizing, or de-energizing solenoid. Times shown are average.
Tested per ANSI / (NFPA) T3.21.8.

Operating Pressure

Function / Pilot Source	Minimum	Maximum
3-Way, N	0 PSIG	125 PSIG
3-Way, V	0.28" Hg	125 PSIG
4-Way, N	0.28" Hg	125 PSIG

Temperature Rating

32°F to 125°F (0°C to 50°C)

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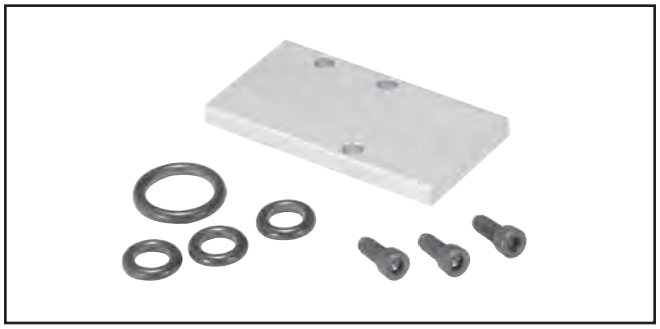
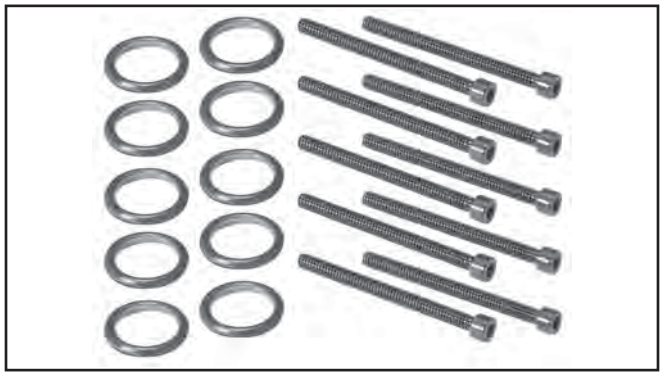
Blanking Plate



Kit Number	
Part Number	**Description**
PSXM8310P	**Subbase Blank Kit**

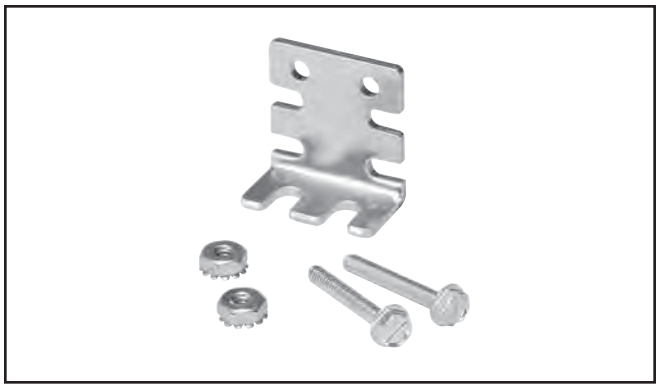
Subbase Kit includes: (1) Plate, (3) Screws, (4) Gaskets
Fits Subbase or IEM type Manifold.

IEM Valve / Manifold O-ring Kit



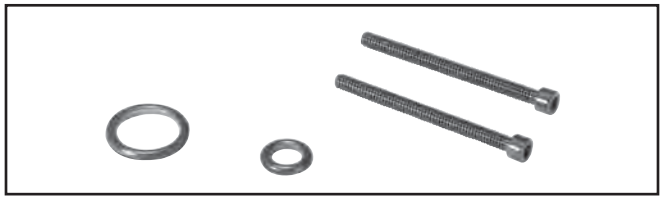
Part Number	
PSXM2186P	IEM Valve / Manifold O-ring Kit

Mounting Bracket - Inline Valve



Part Number	Description
PSXM8288P	Mounting Bracket

Subbase Valve / Manifold Bolt Kit

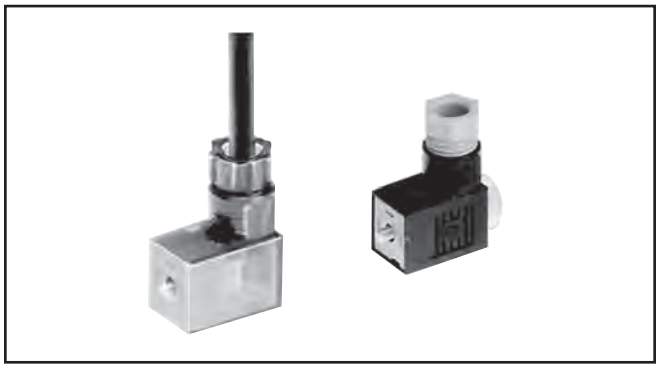


Part Number	Description
PSXM8100P	Subbase Valve / Manifold Bolt Kit

Isolator Plugs - Subbase Manifold

Part Number	Description
PSXM40900P	Isolation Plugs

Plug-in Electrical Connectors - 9.4mm



Indication	Voltage	Unwired Plug	Plug with 6' Lead
None	N/A	**PESC10**	**PESC12**
LED & Suppression	12/24V	**PESC2020B**	**PESC2220B**
	120VAC	**PESC2001F**	**PESC2201F**

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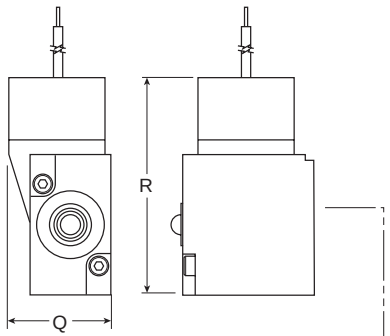
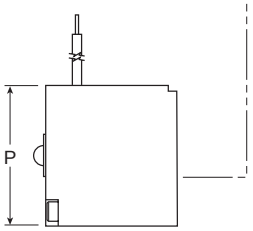
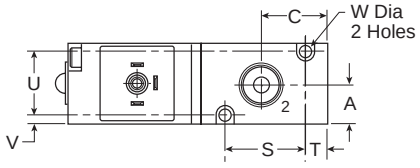


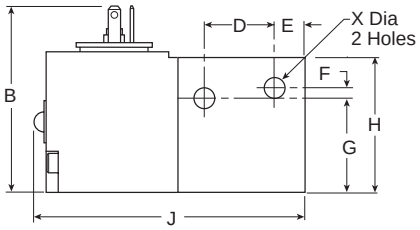
1/2" CONDUIT

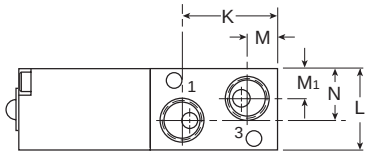


GROMMET / FLYING LEADS



15MM 3-PIN DIN





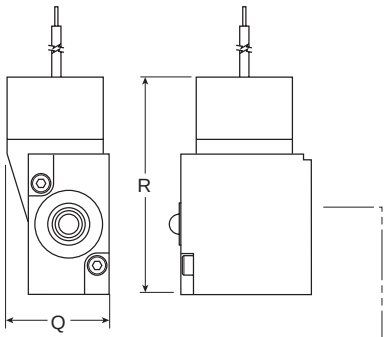
XM 3-Way Inline

A	B	C	D	E
.38 (10)	1.69 (43)	.62 (16)	.66 (17)	.28 (7.0)
F	**G**	**H**	**J**	**K**
.10 (2.5)	.87 (22)	1.25 (32)	2.50 (64)	.87 (22)
L	**M**	**M1**	**N**	**P**
.75 (19)	.28 (7.0)	.28 (7.0)	.48 (12)	1.32 (34)
Q	**R**	**S**	**T**	**U**
.98 (24.9)	2.10 (53)	.75 (19)	.21 (5.4)	.59 (15)
V	**W**	**X**		
.08 (2.0)	.11 (2.9)	.16 (4.0)		

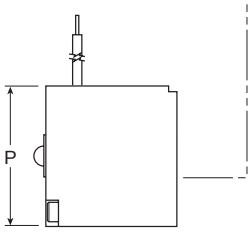
Inches (mm)

Valve Weight
- Grommet..... 4 oz (.11 Kg)
- DIN ..... 4 oz (.11 Kg)
- Conduit ..... 5 oz (.14 Kg)

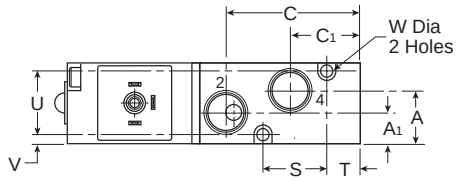
Note: 22 AWG black cross linked polyethylene insulated lead wire.



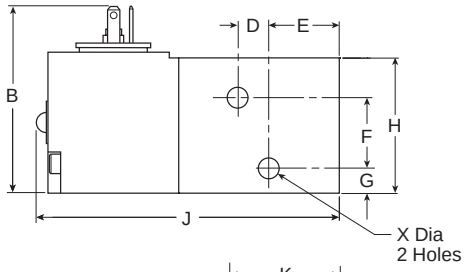
1/2" CONDUIT

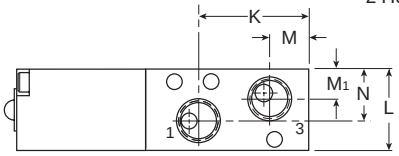


GROMMET / FLYING LEADS



15MM 3-PIN DIN





XM 4-Way Inline

A	A1	B	C	C1
.48 (12)	.28 (6.9)	1.69 (43)	1.23 (31)	.64 (16)
D	**E**	**F**	**G**	**H**
.24 (6.5)	.68 (17)	.65 (16.5)	.22 (5.6)	1.25 (32)
J	**K**	**L**	**M**	**M1**
2.80 (71)	1.01 (26)	.75 (19)	.36 (9.1)	.28 (7.1)
N	**P**	**Q**	**R**	**S**
.48 (12)	1.32 (34)	.98 (25)	2.10 (53)	.59 (15)
T	**U**	**V**	**W**	**X**
.32 (8.0)	.59 (15)	.08 (2.0)	.11 (2.9)	.16 (4.0)

Inches (mm)

Valve Weight
- Grommet..... 4.3 oz (.12 Kg)
- DIN ..... 4.3 oz (.12 Kg)
- Conduit ..... 5.3 oz (.15 Kg)

Note: 22 AWG black cross linked polyethylene insulated lead wire.

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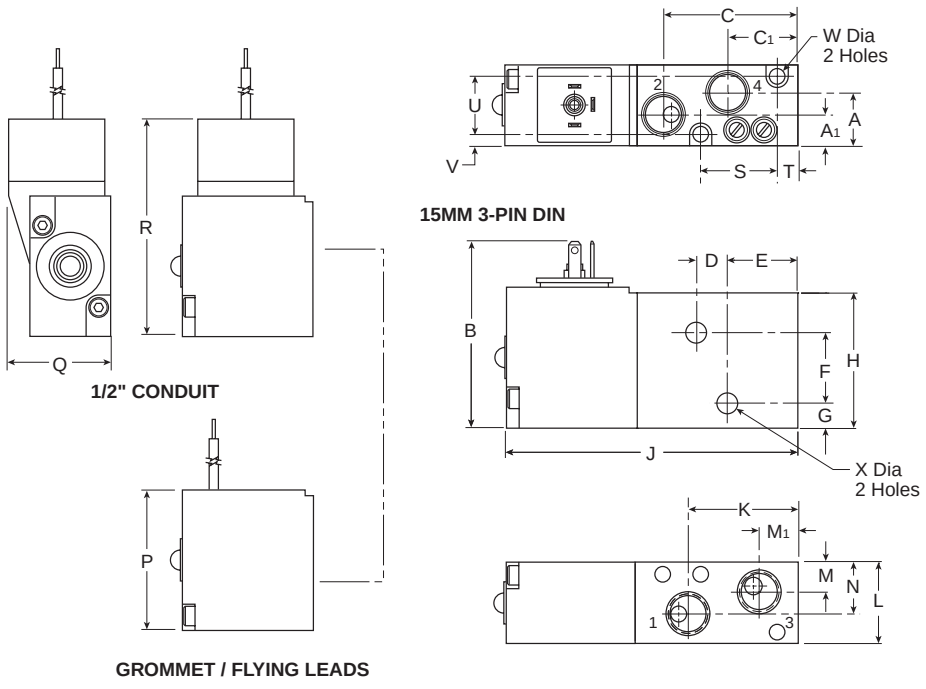


XM 4-Way Inline with Flow Controls

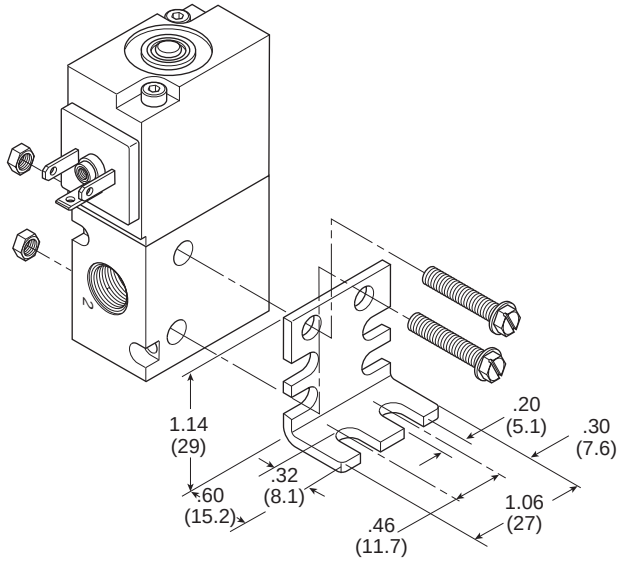
A	A1	B	C	C1
.48 (12)	.28 (6.9)	1.69 (43)	1.23 (31)	.64 (16)
D	**E**	**F**	**G**	**H**
.24 (6.5)	.68 (17)	.65 (16.5)	.22 (5.6)	1.25 (32)
J	**K**	**L**	**M**	**M1**
2.80 (71)	1.01 (26)	.75 (19)	.36 (9.1)	.28 (7.1)
N	**P**	**Q**	**R**	**S**
.48 (12)	1.32 (34)	.98 (25)	2.10 (53)	.59 (15)
T	**U**	**V**	**W**	**X**
.32 (8.0)	.59 (15)	.08 (2.0)	.11 (2.9)	.16 (4.0)

Inches (mm)

Valve Weight
Grommet..... 4.3 oz (.12 Kg)
DIN ..... 4.3 oz (.12 Kg)
Conduit ..... 5.3 oz (.15 Kg)

Note: 22 AWG black cross linked polyethylene insulated lead wire.

Mounting Bracket Dimensions



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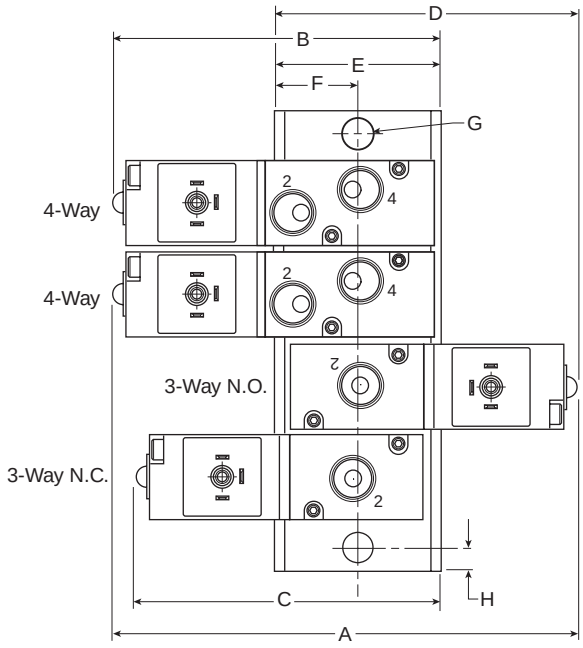

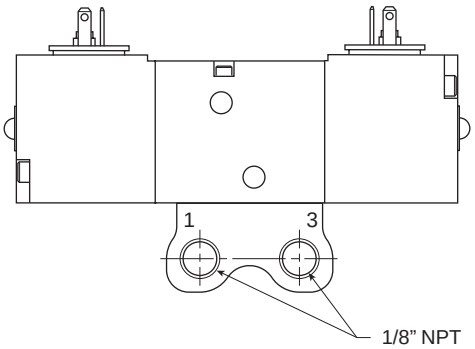

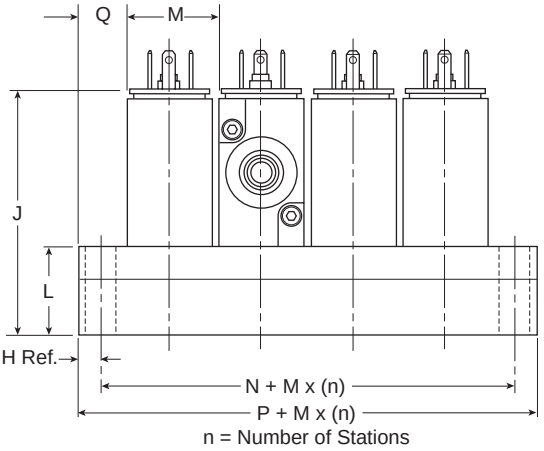

n = Number of Stations

XM IEM Manifold

A	B	C	D	E
4.04 (103)	2.86 (73)	2.67 (68)	2.67 (68)	1.47 (37)
F	**G**	**H**	**J**	**L**
.74 (19)	Ø .28 Ø (7.0)	.20 (5.0)	2.11 (54)	.79 (20)
M	**N**	**P**	**Q**	
.80 (20.5)	.48 (12)	.88 (22)	.44 (11)	

Inches (mm)

Manifold Weight
2 Station ..... 2.5 oz (.07 Kg)
Each Additional ..... 1 oz (.03 Kg)

Valve Weight
3-Way ..... 4 oz (.11 Kg)
4-Way ..... 4.3 oz (.12 Kg)

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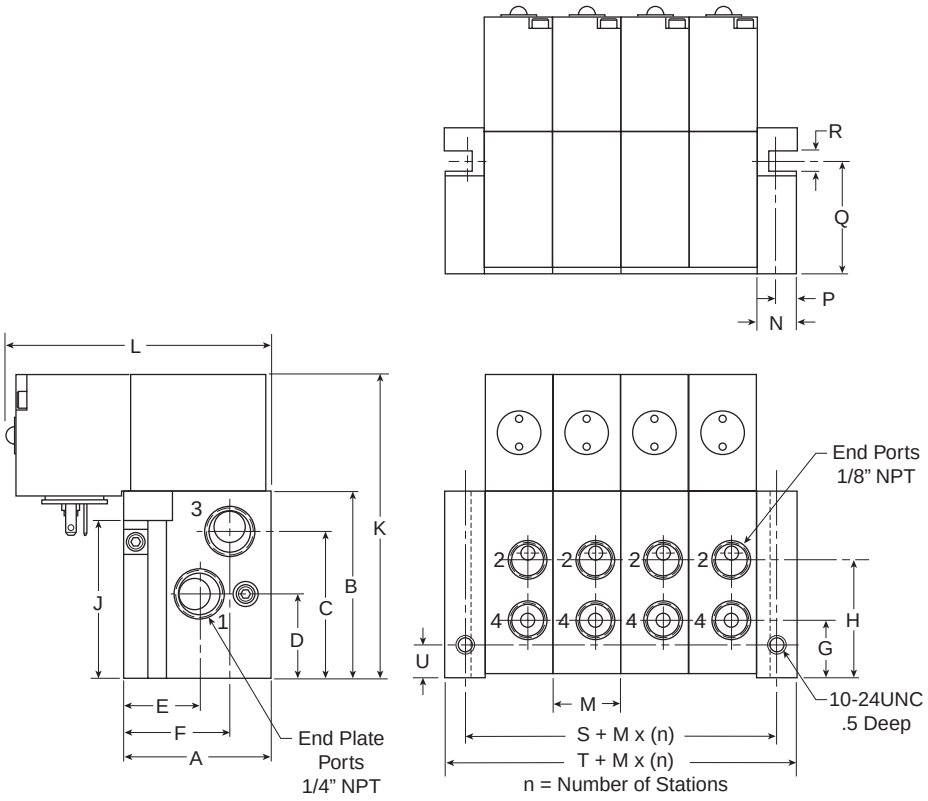

XM Subbase

A	B	C	D	E
1.62 (41)	2.00 (51)	1.58 (40)	.92 (23)	.85 (22)
F	**G**	**H**	**J**	**K**
1.19 (30)	.61 (16)	1.26 (32)	1.70 (43)	3.25 (83)
L	**M**	**N**	**P**	**Q**
2.85 (72)	.75 (19)	.44 (11)	.28 (7.0)	1.25 (32)
R	**S**	**T**	**U**	
.22 (5.6)	.44 (11)	.88 (22)	.51 (13)	

Inches (mm)

Subbase Weight
Single Subbase .... 3.2 oz (.09 Kg)
End Plates ..... 3.2 oz (.09 Kg)

Valve Weight
3-Way ..... 3.7 oz (.10 Kg)
4-Way ..... 4.6 oz (.13 Kg)

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Notes

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15mm Solenoid Valve

Manifold and Subbase

Section B

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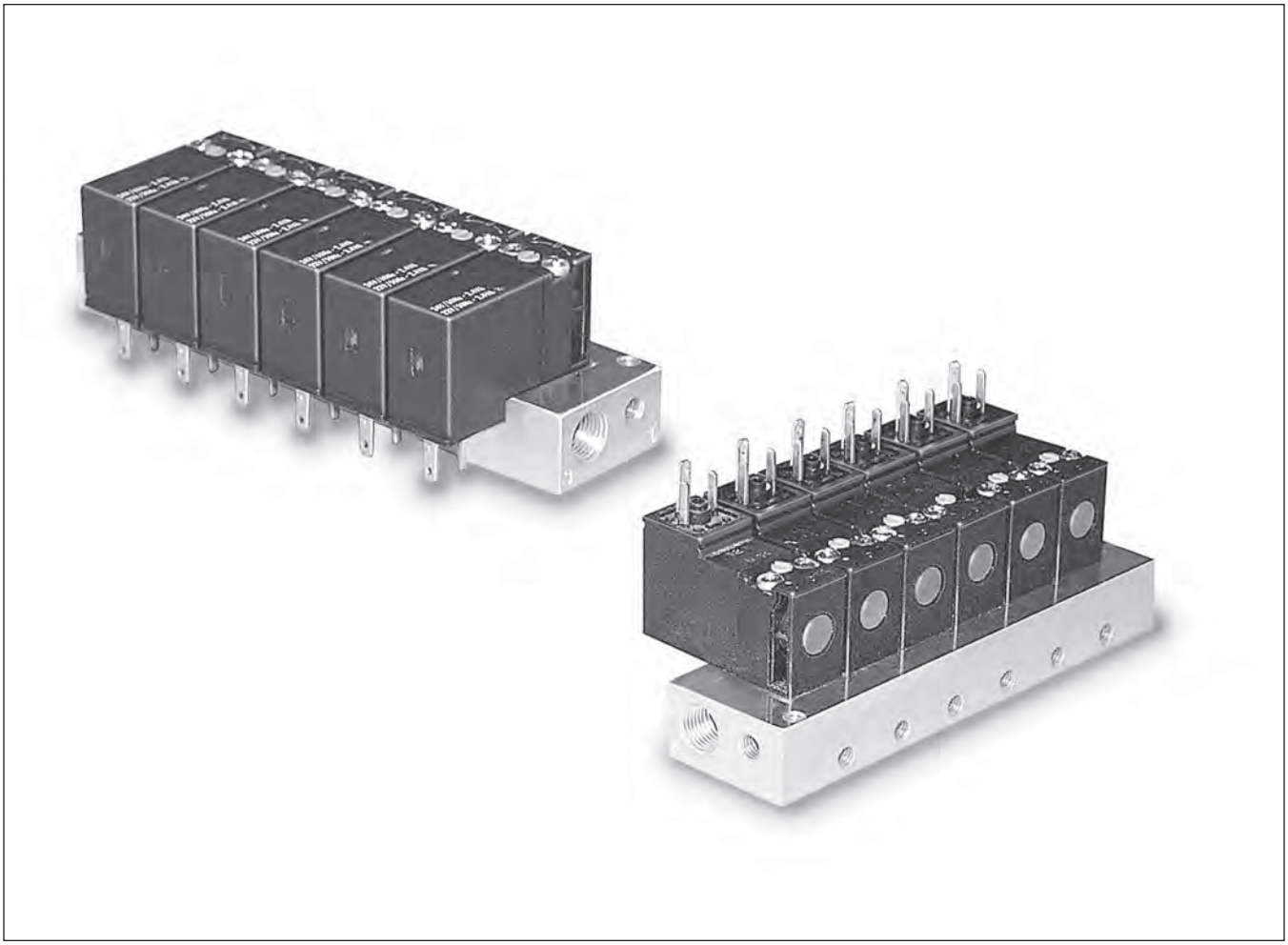

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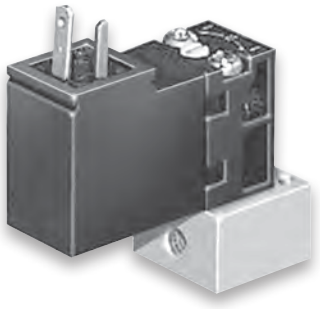
Features

- Compact and Simple Design
- Utilizes 15mm Solenoid Operators
- Manifold Allows Mounting of Normally Open and Normally Closed Operators Simultaneously
- Up to 20 Stations Available



Specifications

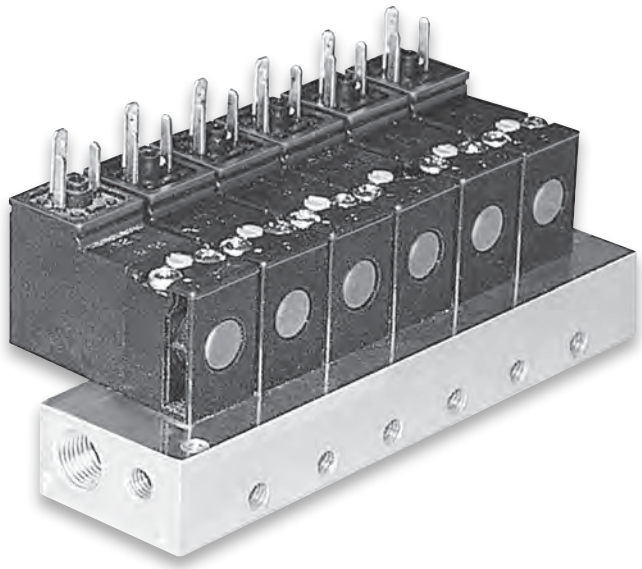
Operating Pressure:
Vacuum to 145 PSIG
(Vacuum to 10 bar)

Operating Temperature:
5° to 140°F
(-15° to 60°C)

Materials:
Manifold: Aluminum
Solenoid: Glass Filled Polyamide

Solenoids:

- 15mm Low Watt Solenoids are UL Certified and Approved to be CE Marked
- Wide Range of Voltages Available



Applications

- Piloting for Process Control Valves
  - Pharmaceutical Equipment
  - Waste Water Treatment Systems
  - Food Processing
  - Chemical Batching
- Industrial Laundry Equipment
- Paint Spray & Dyeing Equipment
- Textile Winding Applications
- Vacuum and Conveyor Applications

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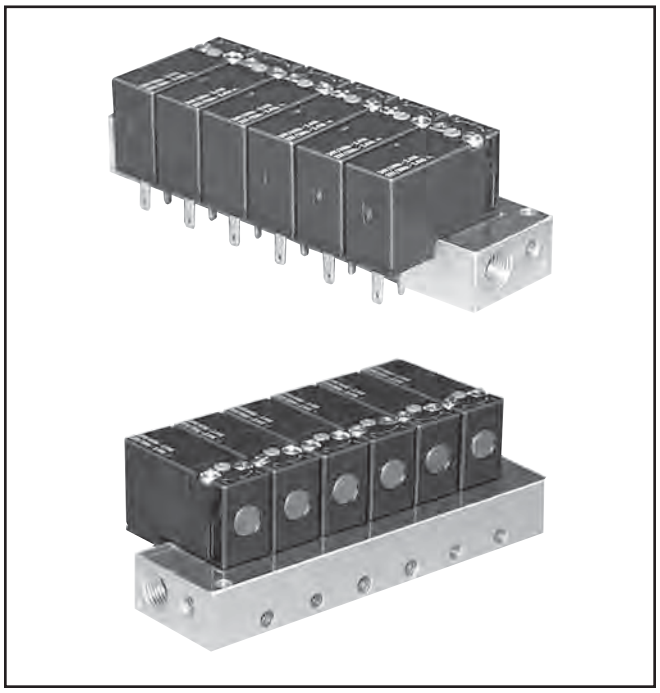
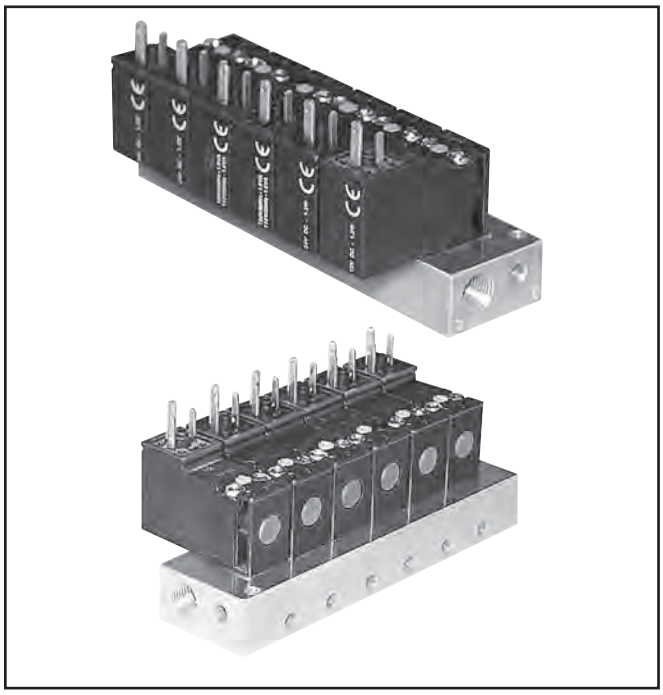
Manifold - Pins Down

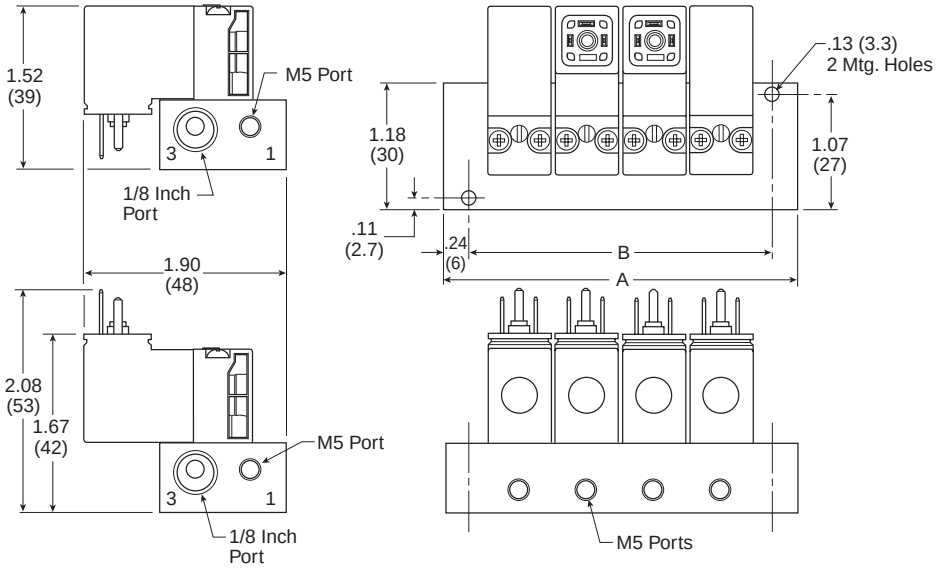


Manifold - Pins Up



Manifold Dimensions

Special mounting considerations must be made for connector assembly clearance when mounting solenoid valves with pins down.



Number of Stations	Dim. A	Dim.B
2	2.04 (52)	1.57 (40)
3	2.68 (68)	2.20 (56)
4	3.31 (84)	2.83 (72)
5	3.94 (100)	3.46 (88)
6	4.57 (116)	4.09 (104)
7	5.20 (132)	4.72 (120)
8	5.83 (148)	5.35 (136)
9	6.46 (164)	5.98 (152)
10	7.09 (180)	6.61 (168)
11	7.72 (196)	7.24 (184)
12	8.35 (212)	7.87 (200)
13	8.98 (228)	8.50 (216)
14	9.61 (244)	9.13 (232)
15	10.23 (260)	9.76 (248)
16	10.87 (276)	10.39 (264)
17	11.50 (292)	11.02 (280)
18	12.13 (308)	11.65 (296)
19	12.76 (324)	12.28 (312)
20	13.39 (340)	12.91 (328)

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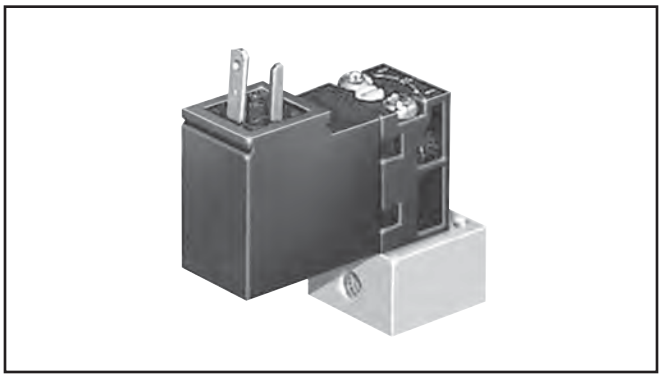
B

XM

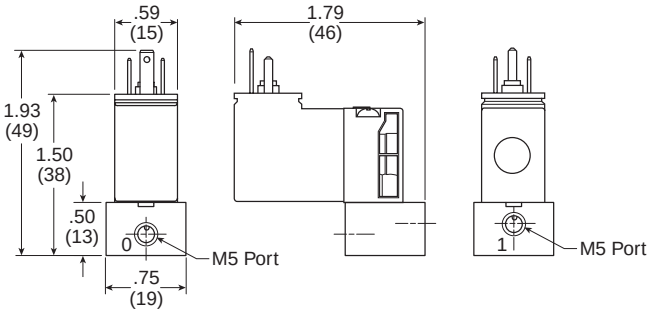
15mm Solenoid

Subbase



Subbase Dimensions

Pins up only.



Model Number Index

PSF	T	N	0	N	02	N	P

Basic Series

Subbase 3/2 Bottom Port	PSE
Subbase 3/2 End Port	**PSF**

Manifold Type

15mm Solenoid Valve Manifold (Machined to accept NC / NO on Same Bar)	S
15mm Solenoid Valve Manifold (Machined to accept All NC or All NO)	**T**
15mm Solenoid Valve Subbase	R

* Pins Up Only.
** End Ported Only.

Pilot Source

Direct	**N**

Cylinder Port Size

M5	**0**

Port Type

0*	M5
N**	**NPT**

* Use for Valve Manifold R Only - Single Subbase
** Use for Valve Manifold S & T Only - Manifold

Number of Stations

02	**2 Stations**
03	**3 Stations**
20	**20 Stations**
XX	**Single***

* Use for "R" Manifold Type Only

Options

N**	**Standard - Cylinder Port on Non-Electrical Side (Port 1 Side)**
E*	Cylinder Port on Electrical Side (Port 3 Side)

* N/A with Valve Series "S"
* N/A with Manifold "PSE"
** Use for Bottom Ported Manifold Type

Brand Label

P	**Parker**

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Examples:
PSFTN0N16EP - End Port Manifold - Cyl Ports and Electrical on Same Side
PSESN0N10NP - Bottom Port Manifold - N/C and N/O can be Interchanged
PSFTN0N10NP - End Port Manifold - Cyl Ports and Electrical are Opposite

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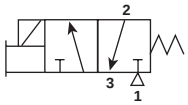
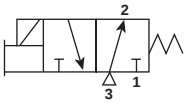
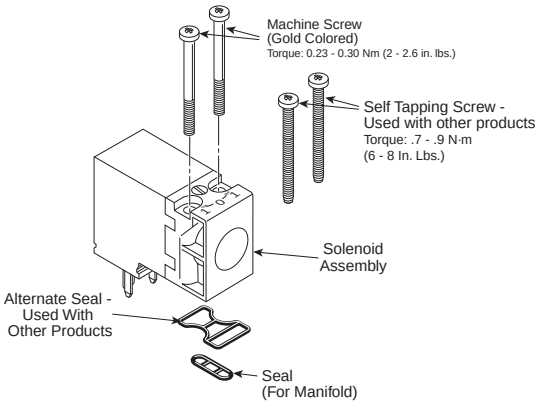
15mm Solenoid Kit Information

3/2 Normally Non-passing (NNP) / Normally Closed (NC) Valves



3/2 Normally Passing (NP) / Normally Open (NO) Valves





NC (NNP) Solenoids / Kits

Kit No.	* Override	## Voltage (S = Standard, O = Optional, — = N/A)				
		42 (24VAC)	45 (12VDC)	49 (24VDC)	53 (120VAC)	57 (230VAC)
PS2982*##P Pins: UP NC / NNP 1.2W / 1.6VA	**B (Non-lock, Flush)**	O	O	**S**	**S**	O
	C (Lock, Flush)	O	O	**S**	**S**	O
	D (Non-lock, Ext)	—	—	O	O	—
PS3541*##P Pins: DOWN NC / NNP 1.8W / 2.4VA	**B (Non-lock, Flush)**	O	O	**S**	**S**	—
	C (Lock, Flush)	O	O	**S**	**S**	—
	D (Non-lock, Ext)	—	—	O	O	—
	E (Lock, Ext)	—	—	O	O	—
PS3441*##P Pins: DOWN NC / NNP 1.2W / 1.6VA	**B (Non-lock, Flush)**	O	O	O	O	O
	C (Lock, Flush)	O	O	O	O	O
PS3202*##P Pins: UP NO / NP 1.2W / 1.6VA	**B (Non-lock, Flush)**	O	O	**S**	**S**	—

* Override
Voltage
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Technical Data

Electrical Interface Per:
Din 43650 Form C (EN175301-803C)

Pneumatic Interface Per:
Afnor E 0652 110 N

Protection:
IP65 (Washdown)

Air Flow:
Standard Flow 0.033 Cv (33 Lpm) (1.2W) (1.6VA)
High Flow 0.05 Cv (50 Lpm) (1.8W) (2.4VA)

Operating Temperature:
Standard Flow: 5°F to 140°F (-15°C to 60°C)
High Flow: 5°F to 122°F (-15°C to 50°C)
Mobile Applications (47 & 48 Voltage Options):
-40°F to 158°F (-40°C to 70°C)

Operating Pressure:
Vacuum to 145 PSIG (Vacuum to 10 bar)

Storage Temperature:
All Applications: -40°F to 158°F (-40°C to 70°C)

Voltage Tolerance:
All Voltages Except 47 & 48: Rated Voltage +10% / -15%
Options 47 & 48: Rated Voltage +25% / -30%

Materials

Valve:
Body: Glass Filled Polyamide
Internal Metal Parts: Steel
Screws: Steel
Bottom Plug: Thermoplastic
Poppet Seals: Nitrile for Standard, Fluorocarbon for Mobile

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Female Electrical Connectors

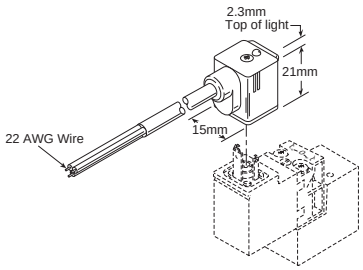
15mm 3-Pin DIN 43650C (Use with Enclosure "5")

Connector	Connector with Cord	Description
PS2932BP	PS2932HBP 18 Inches	Unlighted
PS2932BP	PS2932JBP 6 Feet	Unlighted
PS294675BP	PS2946J75BP* 6 Feet	Light – 12VAC or DC
PS294679BP	PS2946J79BP* 6 Feet	Light – 24VAC or DC
PS294683BP	PS2946J83BP* 6 Feet	Light – 110/120VAC
PS294687BP	N/A	Light – 240/230VAC

* LED with surge suppression.

Note: Max ø6.5mm cable size required for connector w/o 6' (2m) cord. IP65 rated when properly installed.

Engineering Data:
Conductors: 2 Poles Plus Ground
Cable Range (Connector Only): 4 to 6mm (0.16 to 0.24 Inch)
Contact Spacing: 8mm



**Molded 6'
Cord Shown**

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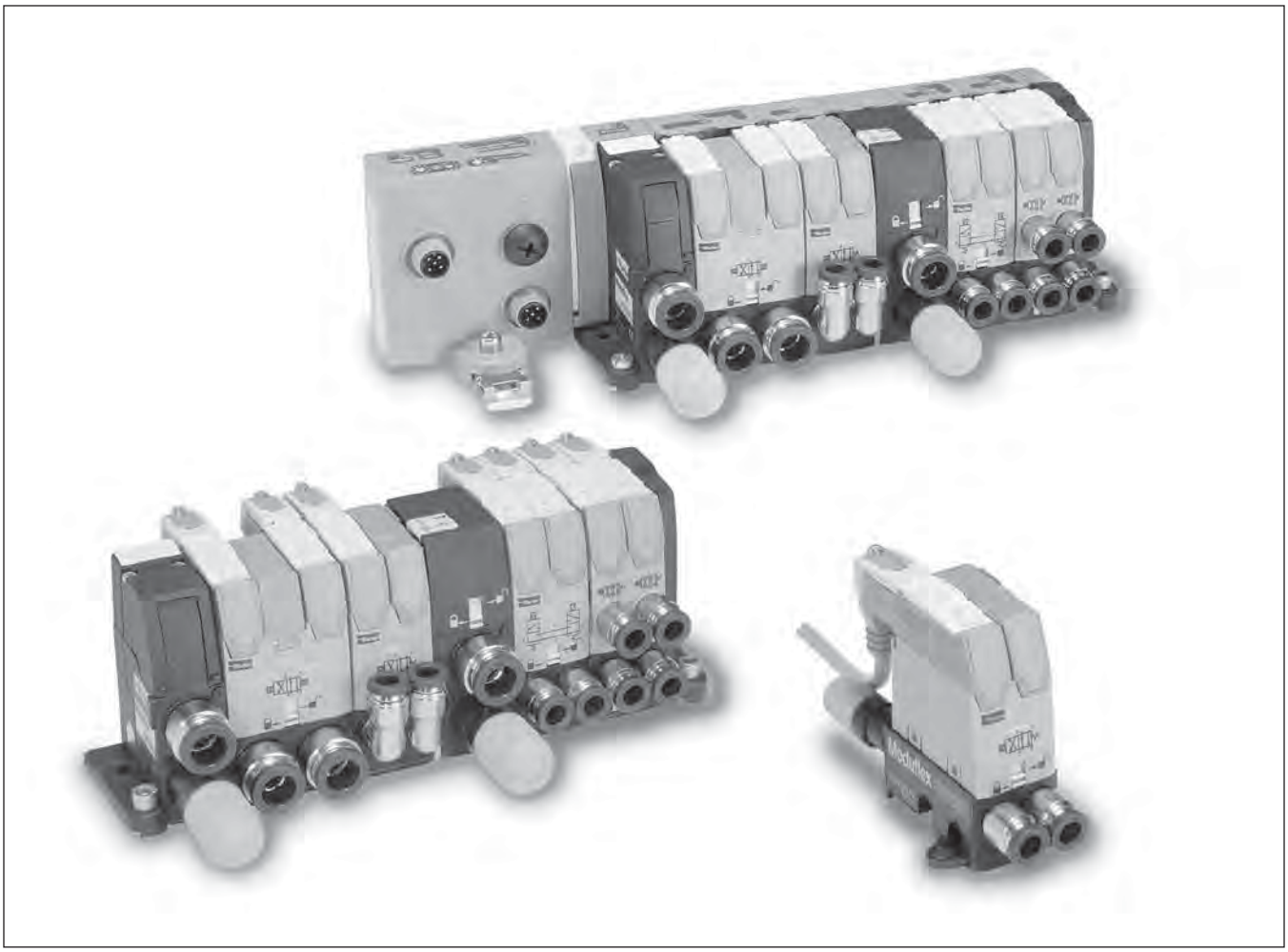
Moduflex Valve System

Instant Control For All Pneumatic Actuators

Modular Valve Islands or Stand-Alone Valves

Section C

www.parker.com/pneu/moduflex



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C

Moduflex

PVL

Module Series Selection and Assembly Procedures

Moduflex system provides a complete choice of either stand-alone valves, short-build valve islands, or large valve island configurations. Electrical control connections may be individual or island integrated. Peripheral modules add complementary functions — flow control, pressure regulation, P.O. check valves and vacuum generators can be added directly to the valve or used as a stand alone product.

Moduflex gives machine builders maximum flexibility to assemble each automation system step by step using basic modules.

Valve islands can be easily assembled using the following procedure.

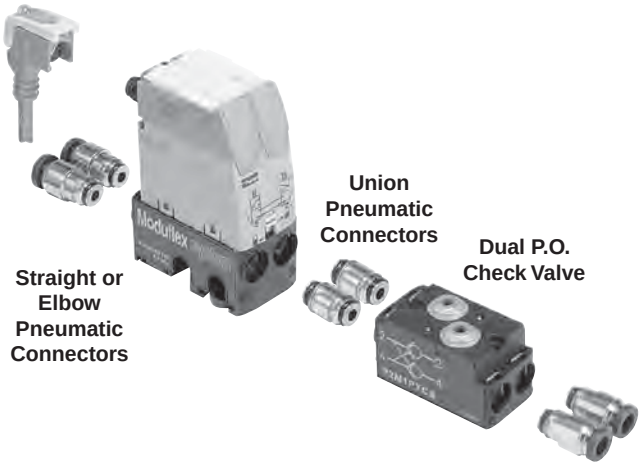
1. Assemble the required valve island with the basic modules.
2. Mount the valve island on the machine together with any stand-alone valves and peripheral modules.
3. Select and install the required clip-on pneumatic and electrical connectors.

“S” Series Stand Alone Valves

For isolated cylinders on a machine, it is preferable to locate the valve close by. Therefore a stand-alone module is ideal. Response time and air consumption are then reduced to a minimum. Peripheral modules can be installed directly into the valve.

“S” Series Size 1 Single Solenoid

“S” Series Size 1 Single Air Pilot

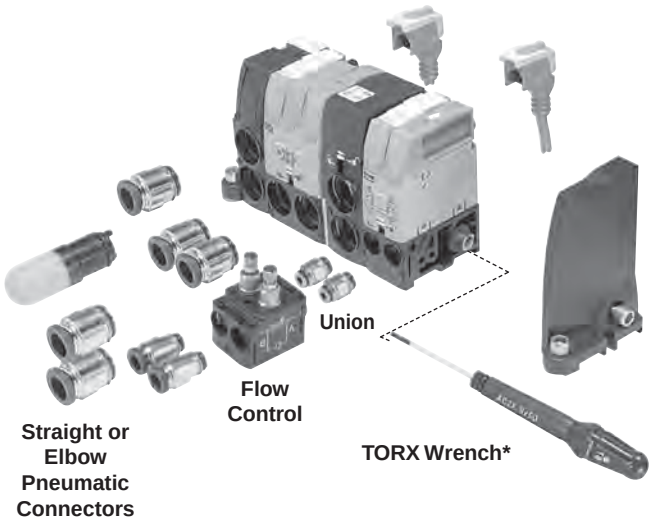


“T” Series Valve Island Modules with Individual Connectors

For small groups of cylinders requiring short localized valve islands, it is convenient to use individual electrical connector islands.

“T” Series Island Modules

“T” Series modules are easily assembled to form a complete manifold. All electrical connectors are individual and pneumatic connectors are of the push-in tube type. Modules with different functions and flow passages may be combined in the same island manifold, giving total flexibility to adapt to all machine requirements.



*** Maximum torque rating 10.6 in. lbs. (1.2 Nm).**

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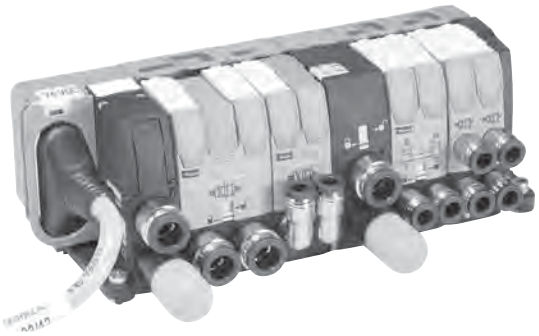
"V" Series Valve Island Modules with Integrated Connections

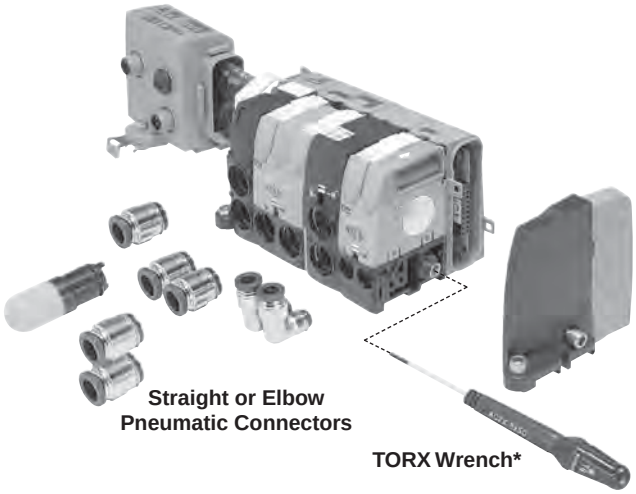
When the number of valves is larger, modular islands are easily assembled using the integrated electrical connection series. These islands are then connected to the control PLC, with a multi-connector cable or with a field bus connection.



"V" Series with 20-Pin Connector

"V" Series with Field Bus Connection

"V" Series modules are easily assembled to form a complete manifold. All pneumatic connectors are of the push-in tube type. When the valve island has been installed, it is a simple operation to separate the field bus module from the valve island using the quick release lever. Modules with different functions and flow passages may be combined in the same island manifold, giving total flexibility to adapt to all machine requirements.



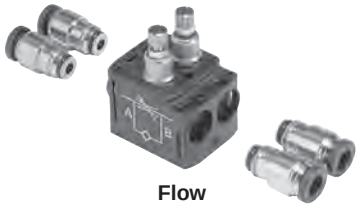
Straight or Elbow Pneumatic Connectors

TORX Wrench*

*** Maximum torque rating 10.6 in. lbs. (1.2 Nm).**

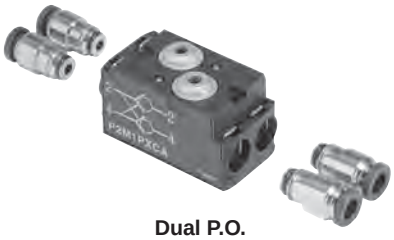
"P" Series Peripheral Modules

Peripheral Modules are available and can be mounted directly to valves or used as a stand alone product. These modules answer the complementary needs of the cylinders, flow controls, pressure regulation or positioning.



Flow Control

Pressure Regulator



Dual P.O. Check Valve

Pressure Sensor

Vacuum Generator

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Pneumatic Division
Richland, Michigan
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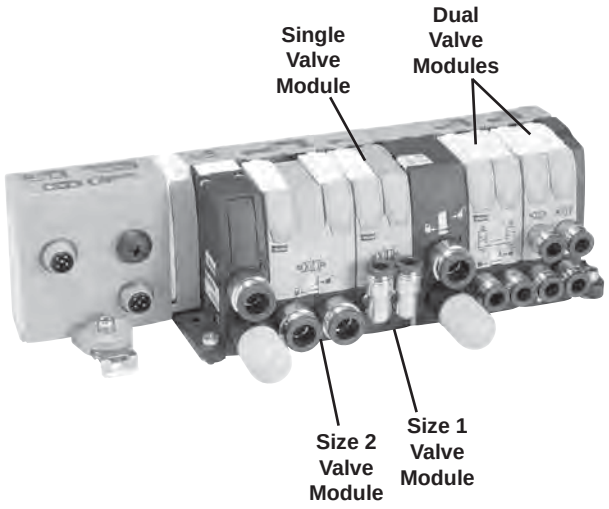
Valve Function



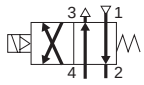
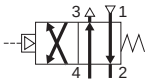
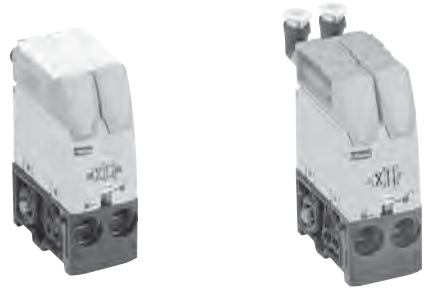
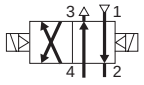
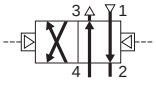
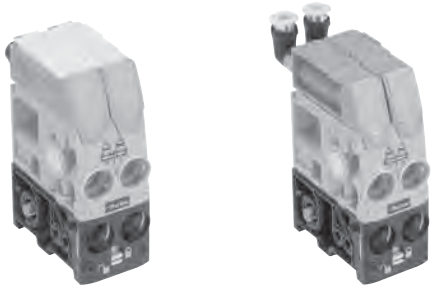
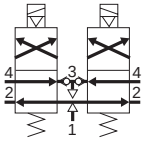
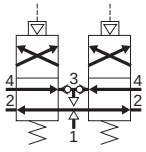
Moduflex Valve Islands offer the greatest flexibility for your design requirements.

Valve Modules are available as 4-Way or 3-Way valves and can be ordered as single or dual valves. A Single Valve Module has one valve in one valve body. A Dual Valve Module will have 2 valves in one valve body. Each Valve in the Dual Valve Body is controlled by a solenoid or air pilot and can be operated independently from the other valve in the same body. There are no dimensional difference between a single and a dual valve. Flow Rates are reduced on the dual valves.

Single valve modules offer Ceramic Slide Valve Technology while dual valve modules offer WCS – Wear Compensation System Technology. Both offer low friction shift forces, fast response and less spool wear.

Valve Modules are available in two different valve body sizes. Size 1 and Size 2 Valve Modules can be combined in both "T" and "V" Series Valve Islands without transition kits.

4/2, 4-Way, 2-Position Valves

Single Valves	ANSI Symbol	Description	Size 1 Body	Size 2 Body
		Single Solenoid, Spring Return Valve	Cv = .32	Cv = .80
		Single Air Pilot, Spring Return Valve		
		Double Solenoid Valve	Cv = .32	Cv = .80
		Double Air Pilot Valve		
Dual Valves	**ANSI Symbol**	**Description**	**Size 1 Body**	**Size 2 Body**
		(2) Single Solenoid, Spring Return Valve with Exhaust Check. Double Solenoid Valve Body	Cv = .18	N/A
		(2) Single Air Pilot, Spring Return Valve with Exhaust Check. Double Air Pilot Valve Body		

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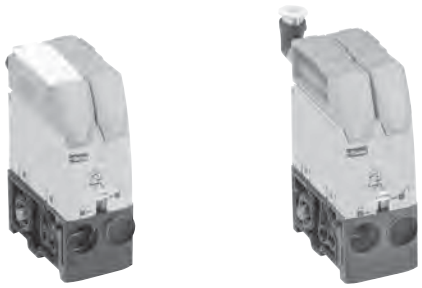
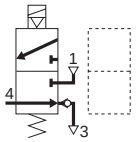
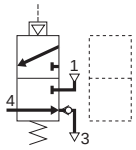
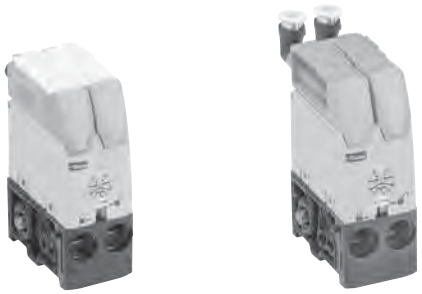
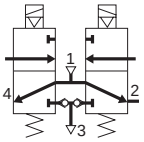
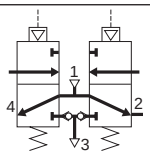
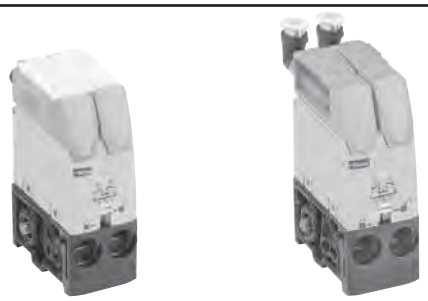
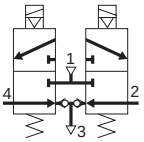
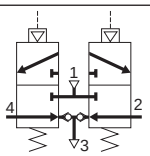
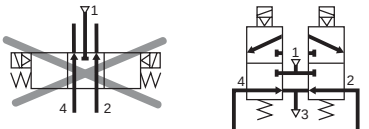
3/2, 3-Way, 2-Position Valves

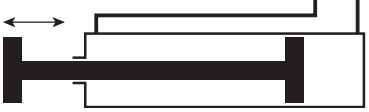
Single Valves	ANSI Symbol	Description	Size 1 Body	Size 2 Body
		Single Solenoid, NC, Spring Return Valve with Exhaust Check.	Cv = .22	Cv = .44
		Single Air Pilot, NC, Spring Return Valve with Exhaust Check.		
Dual Valves	**ANSI Symbol**	**Description**	**Size 1 Body**	**Size 2 Body**
		(2) Single Solenoid, NO, Spring Return Valve with Exhaust Check. Double Solenoid Valve Body	Cv = .22	Cv = .44
		(2) Single Air Pilot, NO, Spring Return Valve with Exhaust Check. Double Air Pilot Valve Body		
		(2) Single Solenoid, NC, Spring Return Valve with Exhaust Check. Double Solenoid Valve Body	Cv = .22	Cv = .44
		(2) Single Air Pilot, NC, Spring Return Valve with Exhaust Check. Double Air Pilot Valve Body		

Dual 3/2 Valves Replace All 3-Position Valves for a Better Performance

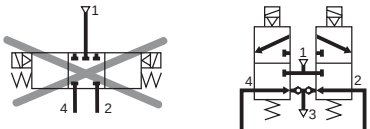
3-Position Center Exhaust



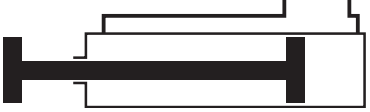
A traditional 5/3 center exhaust valve is now replaced by a double 3/2 NC+NC valve module (version with no exhaust check valves). Both cylinder chambers are exhausted and rod and piston are free to move.



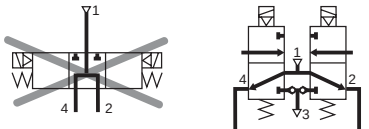
3-Position All Ports Blocked



A traditional 5/3 all ports blocked valve is now replaced by a double 3/2 NC+NC valve module and a dual P.O. check module that will block the flow to and from the cylinder. Cylinder positioning is more precise.



3-Position Pressure Center



A traditional 5/3 pressure center valve is now replaced by a double 3/2 NO+NO valve module. The function is identical.

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"S" Series Individual Subbase Valves Size 1
(Valve & Base without Pneumatic Connectors)

Single Solenoid

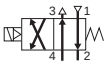
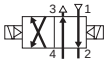
Double Solenoid

Single Air Pilot

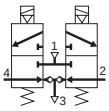
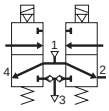
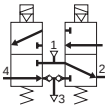
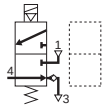
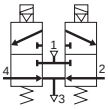
Double Air Pilot

Size 1 Electro-Pneumatic Individual Subbase Valves, 24VDC

4-Way / 2-Position / Single Valve

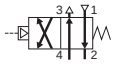
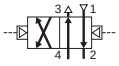
	Solenoid	Weight	Part Number
	Single Solenoid (Monostable)	2.54 oz	**P2M1S4ES2C**
	Double Solenoid (Bistable)	3.07 oz	**P2M1S4EE2C**

3-Way / 2-Position / Dual Valve

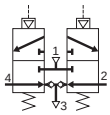
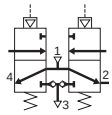
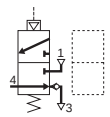
	Solenoid	Weight	Part Number
	Double Solenoid NC + NC with Exhaust Check	3.00 oz	**P2M1SDEE2C**
	Double Solenoid NO + NO with Exhaust Check	3.00 oz	P2M1SCEE2C
	Double Solenoid NC + NO with Exhaust Check	3.00 oz	P2M1SEEE2C
	Single Solenoid NC with Exhaust Check	2.82 oz	P2M1S3ES2C
	Center Exhaust = dual 3/2 NC + NC without Exhaust Check	3.00 oz	P2M1SGEE2C

Size 1 Air Pilot Individual Subbase Valves

4-Way / 2-Position / Single Valve

	Solenoid	Weight	Part Number
	Single Air Pilot (Monostable)	2.54 oz	P2M1S4PS
	Double Air Pilot (Bistable)	3.07 oz	P2M1S4PP

3-Way / 2-Position / Dual Valve

	Solenoid	Weight	Part Number
	Double Air Pilot NC + NC with Exhaust Check	2.82 oz	P2M1SDPP
	Double Air Pilot NO + NO with Exhaust Check	2.82 oz	P2M1SCPP
	Single Air Pilot NC	2.68 oz	P2M1S3PS

Note: Includes 5/32" (4mm) Air Pilot Connectors.

Note: Bold Options Standard

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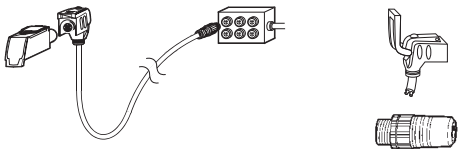
M8 Female Individual Connectors with Flying Lead Cable
(For Solenoid Pilots)

		Weight (oz)	Order Code
With LED Voltage Surge Protection and Flying Lead Cable IP67 Protected	2 m Cable	2.19	**P8LS08L226C**
	5 m Cable	5.47	P8LS08L526C
	9 m Cable	9.88	P8LS08L926C
Thread Connector, IP67 Protected	M8 Cable Quick Connect		P8CS0803J
	M12 Cable Quick Connect		P8CS1204J



"S" Series Size 1 Pneumatic Connectors

PMDYY1 **HMDXX1** **MMDVA1**

FMD04-1 **CMD04-1** **FMD07-1B** **CMD07-1B**

		Elbow Version		Straight Version	
		Weight (oz)	Order Code	Weight (oz)	Order Code
Tube Push-in Connector	5/32" = 4mm OD	0.18	**CMD04-1**	0.07	**FMD04-1**
	6mm OD	0.18	CMD06-1	0.11	**FMD06-1**
	1/4" OD	0.18	**CMD07-1B**	0.11	**FMD07-1B**
Muffler for Exhaust Port	—	—	—	0.11	**MMDVA1**
Plug	—	—	—	0.18	**PMDYY1**
Double Male Union (For Peripheral Valve Modules)	—	—	—	0.21	**HMDXX1**

Note: 85 Durometer minimum for pneumatic connectors.

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"S" Series Individual Subbase Valves Size 2
(Valve & Base without Pneumatic Connectors)

Single Solenoid

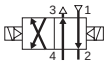
Double Solenoid

Single Air Pilot

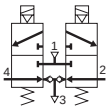
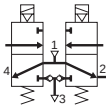
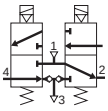
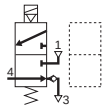
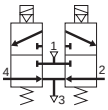
Double Air Pilot

Size 2 Electro-Pneumatic Individual Subbase Valves, 24VDC

4-Way / 2-Position / Single Valve

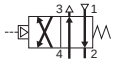
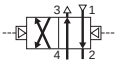
	Solenoid	Weight	Part Number
	Single Solenoid (Monostable)	2.75 oz	**P2M2S4ES2C**
	Double Solenoid (Bistable)	3.28 oz	**P2M2S4EE2C**

3-Way / 2-Position / Dual Valve

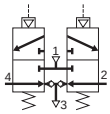
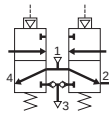
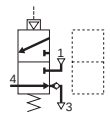
	Solenoid	Weight	Part Number
	Double Solenoid NC + NC with Exhaust Check	3.53 oz	**P2M2SDEE2C**
	Double Solenoid NO + NO with Exhaust Check	3.53 oz	P2M2SCEE2C
	Double Solenoid NC + NO with Exhaust Check	3.53 oz	P2M2SEEE2C
	Single Solenoid NC with Exhaust Check	3.35 oz	P2M2S3ES2C
	Center Exhaust = dual 3/2 NC + NC without Exhaust Check	3.53 oz	P2M2SGEE2C

Size 2 Air Pilot Individual Subbase Valves

4-Way / 2-Position / Single Valve

	Solenoid	Weight	Part Number
	Single Air Pilot (Monostable)	2.75 oz	P2M2S4PS
	Double Air Pilot (Bistable)	3.28 oz	P2M2S4PP

3-Way / 2-Position / Dual Valve

	Solenoid	Weight	Part Number
	Double Air Pilot NC + NC with Exhaust Check	3.53 oz	P2M2SDPP
	Double Air Pilot NO + NO with Exhaust Check	3.53 oz	P2M2SCPP
	Single Air Pilot NC with Exhaust Check	3.35 oz	P2M2S3PS

Note: Includes 5/32" (4mm) Air Pilot Connectors.

Note: Bold Options Standard

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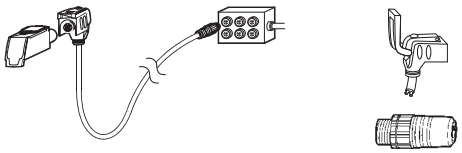
M8 Female Individual Connectors with Flying Lead Cable
(For Solenoid Pilots)

		Weight (oz)	Order Code
With LED Voltage Surge Protection and Flying Lead Cable IP67 Protected	2 m Cable	2.19	**P8LS08L226C**
	5 m Cable	5.47	P8LS08L526C
	9 m Cable	9.88	P8LS08L926C
Thread Connector, IP67 Protected	M8 Cable Quick Connect		P8CS0803J
	M12 Cable Quick Connect		P8CS1204J



"S" Series Size 2 Pneumatic Connectors

PMDYY2

MMDVA2

HMDXX2

FMD09-2B

CMD09-2B

		Elbow Version		Straight Version	
		Weight (oz)	Order Code	Weight (oz)	Order Code
Tube Push-in Connector	6mm OD	0.18	CMD06-2	0.11	FMD06-2
	1/4" OD	0.18	**CMD07-2B**	0.11	**FMD07-2B**
	8mm OD	0.21	CMD08-2	0.14	FMD08-2
	3/8" OD	0.21	**CMD09-2B**	0.14	**FMD09-2B**
	10mm OD	0.25	CMD10-2	0.18	FMD10-2
	12mm OD	0.28	CMD12-2	0.21	FMD12-2
	1/2" OD	—	**—**	0.21	**FMD13-2B**
Muffler for Exhaust Port	—	—	—	0.11	**MMDVA2**
Plug	—	—	—	0.18	**PMDYY2**
Double Male Union (For Peripheral Valve Modules)	—	—	—	0.28	**HMDXX2**

Note: 85 Durometer minimum for pneumatic connectors.

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"S" Series Individual Subbase Valve

(Complete with Pneumatic and Electrical Connectors)

BOLD OPTIONS ARE MOST POPULAR.

P2M	1	S	4ES	2C	00	A	F4

Basic Series	
Moduflex	**P2M**

Size	
Size 1	**1**
Size 2	**2**

Valve Series	
Individual Subbase	**S**

Valve Type / Function	
3-Way / 2-Position	
Single Solenoid, NC Spring Return	**3ES**
Single Air Pilot, NC Spring Return	3PS
4-Way / 2-Position	
Single Solenoid, Spring Return	**4ES**
Single Air Pilot, Spring Return	4PS
Double Solenoid	4EE
Double Air Pilot	4PP
Dual 3-Way, 2-Position, Spring Return	
Solenoid, NC / NC + PO Check (4/3 APB)	BEE*
Air Pilot, NC / NC + PO Check (4/3 APB)	BPP*
Solenoid, NO / NO (4/3 Pressure Ctr.)	CEE
Air Pilot NO / NO (4/3 Pressure Ctr.)	CPP
Solenoid, NC / NC with Exhaust Check	**DEE**
Air Pilot, NC / NC with Exhaust Check	DPP
Solenoid, NO / NC with Exhaust Check	EEE
Solenoid, NC / NC without Check (4/3 Exh. Ctr.)	GEE

* Valve includes peripheral P. O. Check Valve and union fittings.

Operator Voltage	
24VDC	**2C**
Remote Pilot - 5/32" (4mm) Tube	00

Ports (All Ports)	
C0*	10mm Elbow Fitting
C2*	12mm Elbow Fitting
C4	**5/32" (4mm) Elbow Fitting**
C6	6mm Elbow Fitting
C7	**1/4" Elbow Fitting**
C8*	8mm Elbow Fitting
C9*	**3/8" Elbow Fitting**
F0*	10mm Straight Fitting
F2*	12mm Straight Fitting
F3*	**1/2" Straight Fitting**
F4	**5/32" (4mm) Straight Fitting**
F6	6mm Straight Fitting
F7	**1/4" Straight Fitting**
F8*	8mm Straight Fitting
F9*	**3/8" Straight Fitting**

* Only Available with Size 2 Valves.

Fitting Configuration	
A*	**Straight Fittings**
B*	**Elbow Fittings**
C*†	**Straight Fitting & Muffler**
D*†	**Elbow Fitting & Muffler**

* Ports 1 & 3 fittings sizes are same as Ports 2 & 4 (See example at left.)
† Fitting in Port 1, Muffler in Port 3.

LED / Cable	
00	**No Cable, No LED, No Surge Suppression**
V2	**2 Meter Cable with LED and Surge Suppression**
V5	5 Meter Cable with LED and Surge Suppression
V9	9 Meter Cable with LED and Surge Suppression

EXAMPLE for Fitting Configuration:

Size 1

CF7 Ports 1 & 3
1/4" Straight Fitting
& Muffler
Ports 2 & 4
1/4" Straight Fittings

Size 2

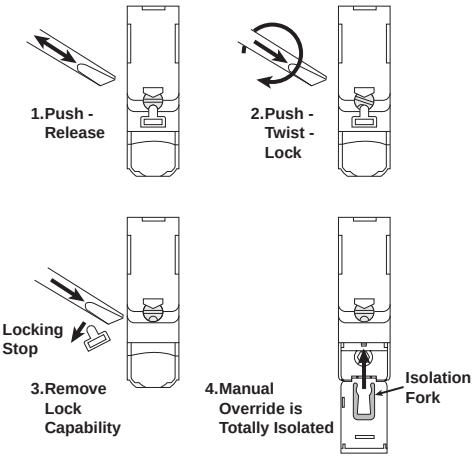
AC0 Ports 1 & 3
10mm Elbow Fittings
Ports 2 & 4
10mm Elbow Fittings

With Only One Universal Solenoid Pilot for all Configurations

24VDC is now a global standard for all machines.

The Moduflex 24VDC unique solenoid pilot is supplied with the multi-function manual override that can be adapted to all requirements, as explained by the drawings.

Multi-Function Adaptable Manual Override



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“S” Series Single Solenoid

Example:

Size 1, 4-Way Single Solenoid valve with 1/4" Straight Connectors in Ports 1, 2 and 4. Exhaust Muffler in Port 3. Valve to include 2m cable with LED and surge suppression.

How to Order Complete Valve Assembly

Line Item	Quantity	Part Number	Description
1	1	P2M1S4ES2CV2CF7	Size 1, Individual Subbase Valve, 4 Way, Single Solenoid, 2m Cable with LED / Surge Suppression, Exhaust Muffler with 1/4” OD Straight Port Fittings

Notes:
1. Cables supplied loose with valve.
2. For LED and Surge Suppressor, cable must be supplied with valve.

How to Order Components

Line Item	Quantity	Part Number	Description
1	1	P2M1S4ES2C	Size 1, Individual Subbase Valve, Single Solenoid, 4 Way
2	1	P8LS08L226C	2m Cable with LED / Surge Suppression
3	3	FMD07-1B	Size 1, 1/4” OD Tube Push In Connector
4	1	MMDVA1	Size 1, Muffler for Exhaust Port

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"T" Series Manifold Valves with Individual Connectors Size 1

Single Solenoid

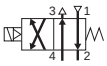
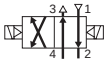
Double Solenoid

Single Air Pilot

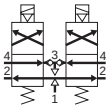
Double Air Pilot

Size 1 Electro-Pneumatic Manifold Valves, 24VDC

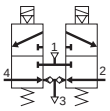
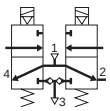
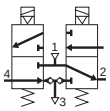
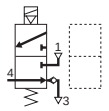
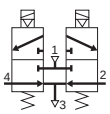
4-Way / 2-Position / Single Valve

	Solenoid	Weight	Part Number
	Single Solenoid (Monostable)	2.40 oz	**P2M1T4ES2C**
	Double Solenoid (Bistable)	2.72 oz	**P2M1T4EE2C**

4-Way / 2-Position / Dual Valve

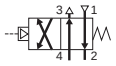
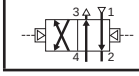
	Solenoid	Weight	Part Number
	Solenoid Spring with Exhaust Check	2.72 oz	**P2M1TJEE2C**

3-Way / 2-Position / Dual Valve

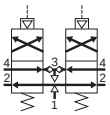
	Solenoid	Weight	Part Number
	Double Solenoid NC + NC with Exhaust Check	2.82 oz	**P2M1TDEE2C**
	Double Solenoid NO + NO with Exhaust Check	2.82 oz	P2M1TCEE2C
	Double Solenoid NC + NO with Exhaust Check	2.82 oz	P2M1TEEE2C
	Single Solenoid NC with Exhaust Check	2.68 oz	**P2M1T3ES2C**
	Center Exhaust = dual 3/2 NC + NC without Exhaust Check	2.84 oz	**P2M1TGEE2C**

Size 1 Air Pilot Manifold Valves

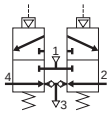
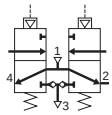
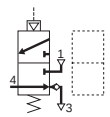
4-Way / 2-Position / Single Valve

	Solenoid	Weight	Part Number
	Single Air Pilot (Monostable)	2.40 oz	**P2M1T4PS**
	Double Air Pilot (Bistable)	2.72 oz	**P2M1T4PP**

4-Way / 2-Position / Dual Valve

	Solenoid	Weight	Part Number
	Air Pilot Spring with Exhaust Check	2.72 oz	**P2M1TJPP**

3-Way / 2-Position / Dual Valve

	Solenoid	Weight	Part Number
	Double Air Pilot NC + NC with Exhaust Check	2.82 oz	P2M1TDPP
	Double Air Pilot NO + NO with Exhaust Check	2.82 oz	P2M1TCPP
	Single Air Pilot NC with Exhaust Check	2.68 oz	P2M1T3PS

Note: Includes 5/32" (4mm) Air Pilot Connectors.

Note: Bold Options Standard

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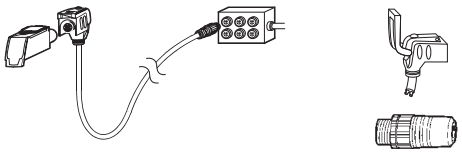
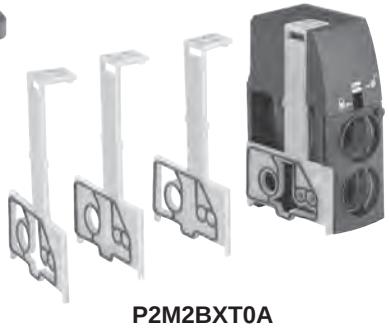
M8 Female Individual Connectors with Flying Lead Cable
(For Solenoid Pilots)

		Weight (oz)	Order Code
With LED Voltage Surge Protection and Flying Lead Cable IP67 Protected	2 m Cable	2.19	**P8LS08L226C**
	5 m Cable	5.47	P8LS08L526C
	9 m Cable	9.88	P8LS08L926C
Thread Connector, IP67 Protected	M8 Cable Quick Connect		P8CS0803J
	M12 Cable Quick Connect		P8CS1204J



P2M1K0TASD

P2M2HXT01



P2M2BXT0A

Manifold Options

Module	Weight (oz)	Order Code
Pneumatic Head and Tail Set	2.26	**P2M2HXT01***
Pneumatic Head and Tail Set with TORX Screwdriver	2.50	**P2M2HXT0T***
TORX Screwdriver Only	.24	**P2M1K0TASD**
Intermediate Supply Module (With a set of 4 Configuration Plates)	1.48	**P2M2BXT0A***

* Use Fittings for Size 2 Modules Only.

"T" Series Size 1 Pneumatic Connectors

PMDYY1 **HMDXX1** **MMDVA1**

FMD04-1 **CMD04-1** **FMD07-1B** **CMD07-1B**

		Elbow Version		Straight Version	
		Weight (oz)	Order Code	Weight (oz)	Order Code
Tube Push-in Connector	5/32" = 4mm OD	0.18	**CMD04-1**	0.07	**FMD04-1**
	6mm OD	0.18	CMD06-1	0.11	**FMD06-1**
	1/4" OD	0.18	**CMD07-1B**	0.11	**FMD07-1B**
Muffler for Exhaust Port	—	—	—	0.11	**MMDVA1**
Plug	—	—	—	0.18	**PMDYY1**
Double Male Union (For Peripheral Valve Modules)	—	—	—	0.21	**HMDXX1**

Note: 85 Durometer minimum for pneumatic connectors.

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C

Moduflex

PVL

"T" Series Manifold Valves with Individual Connectors Size 2

Single Solenoid

Double Solenoid

Single Air Pilot

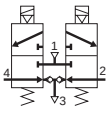
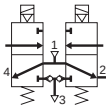
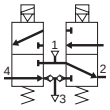
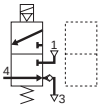
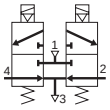
Double Air Pilot

Size 2 Electro-Pneumatic Manifold Valves, 24VDC

4-Way / 2-Position / Single Valve

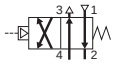
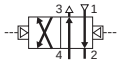
	Solenoid	Weight	Part Number
	Single Solenoid (Monostable)	2.61 oz	**P2M2T4ES2C**
	Double Solenoid (Bistable)	2.93 oz	**P2M2T4EE2C**

3-Way / 2-Position / Dual Valve

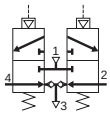
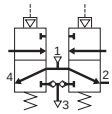
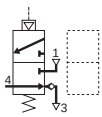
	Solenoid	Weight	Part Number
	Double Solenoid NC + NC with Exhaust Check	3.32 oz	**P2M2TDEE2C**
	Double Solenoid NO + NO with Exhaust Check	3.32 oz	P2M2TCEE2C
	Double Solenoid NC + NO with Exhaust Check	3.32 oz	P2M2TEEE2C
	Single Solenoid NC with Exhaust Check	3.17 oz	**P2M2T3ES2C**
	Center Exhaust = dual 3/2 NC + NC without Exhaust Check	3.32 oz	**P2M2TGEE2C**

Size 2 Air Pilot Manifold Valves

4-Way / 2-Position / Single Valve

	Solenoid	Weight	Part Number
	Single Air Pilot (Monostable)	2.61 oz	**P2M2T4PS**
	Double Air Pilot (Bistable)	2.93 oz	**P2M2T4PP**

3-Way / 2-Position / Dual Valve

	Solenoid	Weight	Part Number
	Double Air Pilot NC + NC with Exhaust Check	3.32 oz	P2M2TDPP
	Double Air Pilot NO + NO with Exhaust Check	3.32 oz	P2M2TCPP
	Single Air Pilot NC with Exhaust Check	2.61 oz	P2M2T3PS

Note: Includes 5/32" (4mm) Air Pilot Connectors.

Note: Bold Options Standard

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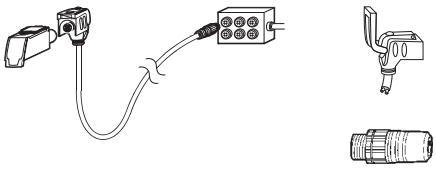
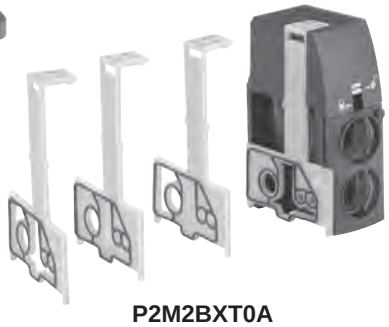
M8 Female Individual Connectors with Flying Lead Cable
(For Solenoid Pilots)

		Weight (oz)	Order Code
With LED Voltage Surge Protection and Flying Lead Cable IP67 Protected	2 m Cable	2.19	**P8LS08L226C**
	5 m Cable	5.47	P8LS08L526C
	9 m Cable	9.88	P8LS08L926C
Thread Connector, IP67 Protected	M8 Cable Quick Connect		P8CS0803J
	M12 Cable Quick Connect		P8CS1204J



P2M1K0TASD

P2M2HXT01



P2M2BXT0A

Manifold Options

Module	Weight (oz)	Order Code
Pneumatic Head and Tail Set	2.26	**P2M2HXT01***
Pneumatic Head and Tail Set with TORX Screwdriver	2.50	**P2M2HXT0T***
TORX Screwdriver Only	.24	**P2M1K0TASD**
Intermediate Supply Module (With a set of 4 Configuration Plates)	1.48	**P2M2BXT0A***

* Use Fittings for Size 2 Modules Only.

"T" Series Size 2 Pneumatic Connectors

PMDYY2

MMDVA2

HMDXX2

FMD09-2B

CMD09-2B

		Elbow Version		Straight Version	
		Weight (oz)	Order Code	Weight (oz)	Order Code
Tube Push-in Connector	6mm OD	0.18	CMD06-2	0.11	FMD06-2
	1/4" OD	0.18	**CMD07-2B**	0.11	**FMD07-2B**
	8mm OD	0.21	CMD08-2	0.14	FMD08-2
	3/8" OD	0.21	**CMD09-2B**	0.14	**FMD09-2B**
	10mm OD	0.25	CMD10-2	0.18	FMD10-2
	12mm OD	0.28	CMD12-2	0.21	FMD12-2
	1/2" OD	—	**—**	0.21	**FMD13-2B**
Muffler for Exhaust Port	—	—	—	0.11	**MMDVA2**
Plug	—	—	—	0.18	**PMDYY2**
Double Male Union (For Peripheral Valve Modules)	—	—	—	0.28	**HMDXX2**

Note: 85 Durometer minimum for pneumatic connectors.

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"T" Series Manifold Valve with Individual Connectors

(Complete with Pneumatic and Electrical Connectors)

BOLD OPTIONS ARE MOST POPULAR.

P2M 1 T 4ES 2C 00 0 F4

Basic Series	
Valvetronic Modules	P2M

Size	
Size 1	1
Size 2	2

Valve Series	
Individual Wire	T

Valve Type / Function	
3-Way / 2-Position	
Single Solenoid, NC Spring Return	3ES
Single Air Pilot, NC Spring Return	3PS
4-Way / 2-Position	
Single Solenoid, Spring Return	4ES
Single Air Pilot, Spring Return	4PS
Double Solenoid	4EE
Double Air Pilot	4PP
Dual 3-Way, 2-Position, Spring Return	
Solenoid, NC / NC + PO Check (4/3 APB)	BEE*
Air Pilot, NC / NC + PO Check (4/3 APB)	BPP*
Solenoid, NO / NO (4/3 Pressure Ctr.)	CEE
Air Pilot NO / NO (4/3 Pressure Ctr.)	CPP
Solenoid, NC / NC with Exhaust Check	DEE
Air Pilot, NC / NC with Exhaust Check	DPP
Solenoid, NO / NC with Exhaust Check	EEE
Solenoid, NC / NC without Check (4/3 Exh. Ctr.)	GEE
Dual 4-Way, 2-Position, Spring Return	
Solenoid	JEE**
Air Pilot	JPP**

* Valve includes peripheral P. O. Check Valve and union fittings.
** Size 1 Only.

Operator Voltage	
2C	24VDC
00	Remote Pilot - 5/32" (4mm) Tube

LED / Cable	
00	No Cable, No LED, No Surge Suppression
V2	2 Meter Cable with LED and Surge Suppression
V5	5 Meter Cable with LED and Surge Suppression
V9	9 Meter Cable with LED and Surge Suppression

Ports 1 & 3	
0	None

Ports 2 & 4	
C0*	10mm Elbow Fitting
C2*	12mm Elbow Fitting
C4	5/32" (4mm) Elbow Fitting
C6	6mm Elbow Fitting
C7	1/4" Elbow Fitting
C8*	8mm Elbow Fitting
C9*	3/8" Elbow Fitting
F0*	10mm Straight Fitting
F2*	12mm Straight Fitting
F3*	1/2" Straight Fitting
F4	5/32" (4mm) Straight Fitting
F6	6mm Straight Fitting
F7	1/4" Straight Fitting
F8*	8mm Straight Fitting
F9*	3/8" Straight Fitting

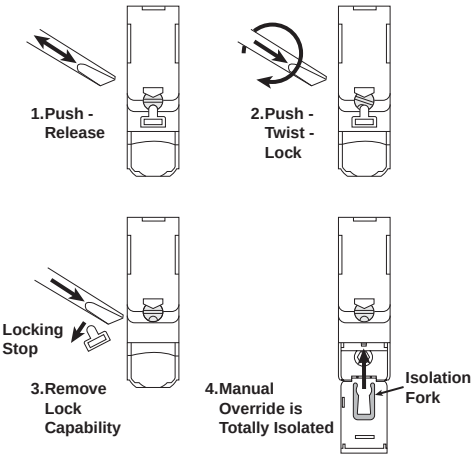
* Only Available with Size 2 Valves.

With Only One Universal Solenoid Pilot for all Configurations

24VDC is now a global standard for all machines.

The Moduflex 24VDC unique solenoid pilot is supplied with the multi-function manual override that can be adapted to all requirements, as explained by the drawings.

Multi-Function Adaptable Manual Override



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“T” Series Single Solenoid

Example:

Size 1, 4-Way Single Solenoid valve with 1/4" Straight Connectors in Ports 2 and 4. Valve to include 2m cable with LED and surge suppression.

How to Order Complete Valve Assembly

Line Item	Quantity	Part Number	Description
1	1	P2M1T4ES2CV20F7	Size 1, T Series Manifold Valves, 4 Way, Single Solenoid, 2m Cable with LED / Surge Suppression, 1/4” OD Straight Port Fittings

Notes:
1. Cables supplied loose with valve.
2. For LED and Surge Suppressor, cable must be supplied with valve.
3. To assemble into a manifold, Pneumatic Head and Tail Set must be ordered separately.

How to Order Components

Line Item	Quantity	Part Number	Description
1	1	P2M1T4ES2C	Size 1, T Series Manifold Valves, Single Solenoid, 4 Way
2	1	P8LS08L226C	2m Cable with LED / Surge Suppression
3	2	FMD07-1B	Size 1, 1/4” OD Tube Push In Connector

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C

Moduflex

PVL

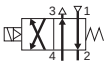
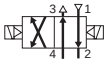
"V" Series Manifold Valves with Collective Wiring Size 1

Single Solenoid

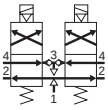
Double Solenoid

Size 1 Electro-Pneumatic Manifold Valves, 24VDC

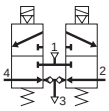
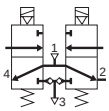
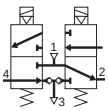
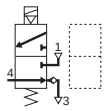
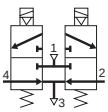
4-Way / 2-Position / Single Valve

	Solenoid	Weight	Part Number
	Single Solenoid (Monostable)	3.32 oz	**P2M1V4ES2CV**
	Double Solenoid (Bistable)	3.63 oz	**P2M1V4EE2CV**

4-Way / 2-Position / Dual Valve

	Solenoid	Weight	Part Number
	Solenoid Spring with Exhaust Check	3.63 oz	**P2M1VJEE2CV**

3-Way / 2-Position / Dual Valve

	Solenoid	Weight	Part Number
	Double Solenoid NC + NC with Exhaust Check	3.74 oz	**P2M1VDEE2CV**
	Double Solenoid NO + NO with Exhaust Check	3.74 oz	**P2M1VCEE2CV**
	Double Solenoid NC + NO with Exhaust Check	3.74 oz	P2M1VEEE2CV
	Single Solenoid NC with Exhaust Check	3.60 oz	**P2M1V3ES2CV**
	Center Exhaust = dual 3/2 NC + NC without Exhaust Check	3.74 oz	**P2M1VGEE2CV**

"V" Series Size 1 Pneumatic Connectors

PMDYY1

HMDXX1

MMDVA1

FMD04-1

CMD04-1

FMD07-1B

CMD07-1B

		Elbow Version		Straight Version	
		Weight (oz)	Order Code	Weight (oz)	Order Code
Tube Push-in Connector	5/32" = 4mm OD	0.18	**CMD04-1**	0.07	**FMD04-1**
	6mm OD	0.18	CMD06-1	0.11	**FMD06-1**
	1/4" OD	0.18	**CMD07-1B**	0.11	**FMD07-1B**
Muffler for Exhaust Port	—	—	—	0.11	**MMDVA1**
Plug	—	—	—	0.18	**PMDYY1**
Double Male Union (For Peripheral Valve Modules)	—	—	—	0.21	**HMDXX1**

Note: 85 Durometer minimum for pneumatic connectors.

Note: Bold Options Standard

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P2M2HEV0A

P2M2HEV0D

Electrical Connector

Module	Weight (oz)	Order Code
20-Pin, Multi-Connector Electrical Head Module	1.34	**P2M2HEV0A**
25-Pin, D-Sub, Electrical Head Module	1.34	**P2M2HEV0D**

Electrical 20-Pin Multi-Connector with Flying Lead Cable

Cable Length	Weight (oz)	IP	Order Code
2 m	10.97	65	**P8LMH20M2A**
5 m	27.41	65	P8LMH20M5A
9 m	49.38	65	P8LMH20M9A

P2M1K0TASD

P2M2HXT01

P2M2BXV0A

Electrical 25-Pin D-Sub Cable

Length (meters)	Weight (oz)	IP	Order Code
3	14.3	20	**P8LMH25M3A**
3	14.3	65	**SCD253W**
9	55.8	20	SCD259D
9	55.8	65	SCD259WE

Manifold Options

Module	Weight (oz)	Order Code
Pneumatic Head and Tail Set	2.26	**P2M2HXT01***
Pneumatic Head and Tail Set with TORX Screwdriver	2.50	**P2M2HXT0T***
TORX Screwdriver Only	.24	**P2M1K0TASD**
Intermediate Supply Module (With a set of 4 Configuration Plates)	1.48	**P2M2BXV0A***

* Use Fittings for Size 2 Modules Only.

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Moduflex

PVL

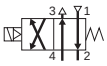
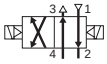
"V" Series Manifold Valves with Collective Wiring Size 2

Single Solenoid

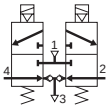
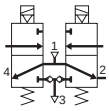
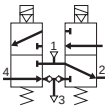
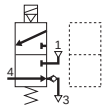
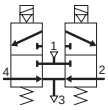
Double Solenoid

Size 2 Electro-Pneumatic Manifold Valves, 24VDC

4-Way / 2-Position / Single Valve

	Solenoid	Weight	Part Number
	Single Solenoid (Monostable)	3.53 oz	**P2M2V4ES2CV**
	Double Solenoid (Bistable)	3.88 oz	**P2M2V4EE2CV**

3-Way / 2-Position / Dual Valve

	Solenoid	Weight	Part Number
	Double Solenoid NC + NC with Exhaust Check	4.06 oz	**P2M2VDEE2CV**
	Double Solenoid NO + NO with Exhaust Check	4.06 oz	**P2M2VCEE2CV**
	Double Solenoid NC + NO with Exhaust Check	4.06 oz	P2M2VEEE2CV
	Single Solenoid NC with Exhaust Check	3.88 oz	**P2M2V3ES2CV**
	Center Exhaust = dual 3/2 NC + NC without Exhaust Check	4.06 oz	**P2M2VGEE2CV**

"V" Series Size 2 Pneumatic Connectors

PMDYY2

MMDVA2

HMDXX2

FMD09-2B

CMD09-2B

		Elbow Version		Straight Version	
		Weight (oz)	Order Code	Weight (oz)	Order Code
Tube Push-in Connector	6mm OD	0.18	CMD06-2	0.11	FMD06-2
	1/4" OD	0.18	**CMD07-2B**	0.11	**FMD07-2B**
	8mm OD	0.21	CMD08-2	0.14	FMD08-2
	3/8" OD	0.21	**CMD09-2B**	0.14	**FMD09-2B**
	10mm OD	0.25	CMD10-2	0.18	FMD10-2
	12mm OD	0.28	CMD12-2	0.21	FMD12-2
	1/2" OD	—	**—**	0.21	**FMD13-2B**
Muffler for Exhaust Port	—	—	—	0.11	**MMDVA2**
Plug	—	—	—	0.18	**PMDYY2**
Double Male Union (For Peripheral Valve Modules)	—	—	—	0.28	**HMDXX2**

Note: 85 Durometer minimum for pneumatic connectors.

Note: Bold Options Standard

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P2M2HEV0A

P2M2HEV0D

Electrical Connector

Module	Weight (oz)	Order Code
20-Pin, Multi-Connector Electrical Head Module	1.34	**P2M2HEV0A**
25-Pin, D-Sub, Electrical Head Module	1.34	**P2M2HEV0D**

Electrical 20-Pin Multi-Connector with Flying Lead Cable

Cable Length	Weight (oz)	IP	Order Code
2 m	10.97	65	**P8LMH20M2A**
5 m	27.41	65	P8LMH20M5A
9 m	49.38	65	P8LMH20M9A

P2M1K0TASD

P2M2HXT01

P2M2BXV0A

Electrical 25-Pin D-Sub Cable

Length (meters)	Weight (oz)	IP	Order Code
3	14.3	20	**P8LMH25M3A**
3	14.3	65	**SCD253W**
9	55.8	20	SCD259D
9	55.8	65	SCD259WE

Manifold Options

Module	Weight (oz)	Order Code
Pneumatic Head and Tail Set	2.26	**P2M2HXT01***
Pneumatic Head and Tail Set with TORX Screwdriver	2.50	**P2M2HXT0T***
TORX Screwdriver Only	.24	**P2M1K0TASD**
Intermediate Supply Module (With a set of 4 Configuration Plates)	1.48	**P2M2BXV0A***

* Use Fittings for Size 2 Modules Only.

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"V" Series Manifold Valve with Collective Wiring

(Complete with Pneumatic Connectors)

BOLD OPTIONS ARE MOST POPULAR.

P2M 1 V 4ES 2C V0 0 F4

Basic Series	
Valvetronic Modules	P2M

Size	
Size 1	1
Size 2	2

Valve Series	
Collective Wiring	V

Valve Type / Function	
3-Way / 2-Position	
Single Solenoid, NC Spring Return	3ES
4-Way / 2-Position	
Single Solenoid, Spring Return	4ES
Double Solenoid	4EE
Dual 3-Way, 2-Position, Spring Return	
Solenoid, NC / NC + PO Check (4/3 APB)	BEE*
Solenoid, NO / NO (4/3 Pressure Ctr.)	CEE
Solenoid, NC / NC with Exhaust Check	DEE
Solenoid, NO / NC with Exhaust Check	EEE
Solenoid, NC / NC without Check (4/3 Exh. Ctr.)	GEE
Dual 4-Way, 2-Position, Spring Return	
Solenoid	JEE**

* Valve includes peripheral P. O. Check Valve and union fittings.
** Size 1 Only.

Operator Voltage	
2C	24VDC

LED / Cable	
V0	No Cable with LED and Surge Suppression

Ports 1 & 3	
0	None

Ports 2 & 4	
C0*	10mm Elbow Fitting
C2*	12mm Elbow Fitting
C4	**5/32" (4mm) Elbow Fitting**
C6	6mm Elbow Fitting
C7	**1/4" Elbow Fitting**
C8*	8mm Elbow Fitting
C9*	**3/8" Elbow Fitting**
F0*	10mm Straight Fitting
F2*	12mm Straight Fitting
F3*	**1/2" Straight Fitting**
F4	**5/32" (4mm) Straight Fitting**
F6	6mm Straight Fitting
F7	**1/4" Straight Fitting**
F8*	8mm Straight Fitting
F9*	**3/8" Straight Fitting**

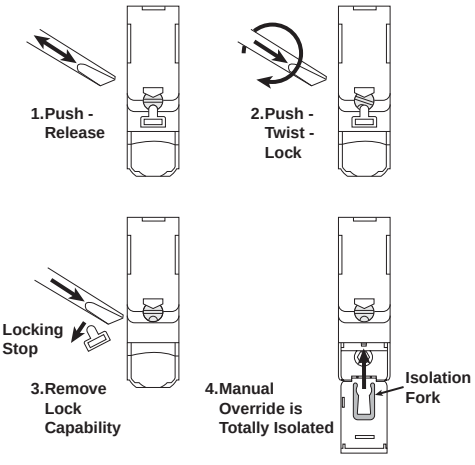
* Only Available with Size 2 Valves.

With Only One Universal Solenoid Pilot for all Configurations

24VDC is now a global standard for all machines.

The Moduflex 24VDC unique solenoid pilot is supplied with the multi-function manual override that can be adapted to all requirements, as explained by the drawings.

Multi-Function Adaptable Manual Override



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“V” Series Single Solenoid

Example:

Size 1, 4-Way Single Solenoid valve with 1/4" Straight Connectors in Ports 2 and 4. Valve to include LED and surge suppression.

How to Order Complete Valve Assembly

Line Item	Quantity	Part Number	Description
1	1	P2M2V4ES2CV00F7	Size 1, V Series Manifold Valves, 4 Way, Single Solenoid, LED / Surge Suppression, 1/4” OD Straight Port Fittings

Notes:
1. LED and Surge Suppressor included with valve.
2. To assemble into a manifold, Pneumatic Head and Tail Set and Electrical Connector must be ordered separately.

How to Order Components

Line Item	Quantity	Part Number	Description
1	1	P2M1V4ES2CV	Size 1, V Series Manifold Valves, Single Solenoid, 4 Way
2	2	FMD07-1B	Size 1, 1/4” OD Tube Push In Connector

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Moduflex

PVL

"V" Series 25-Pin, D-Sub Addressing

Valve Island Head 25-Pin, Multi-Connector

On the island head module, the multi-connector integrates the HE10 connector standard in its 25-Pin version.

Its plug-in function is secured in position with a guillotine lock with easy access from the front of the island.

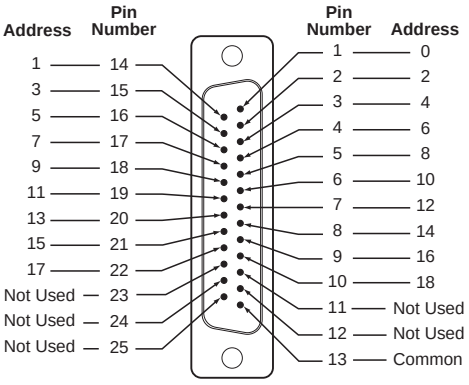
The 25-Pin, D-Sub multi-connector is rated for IP40.

P8LMH25M3A - Cable

25-Pin, Multi-Connector Addressing

When assembling a **V Series** island, modules are automatically connected to the head module through the modular principle of the integrated electrical connections.

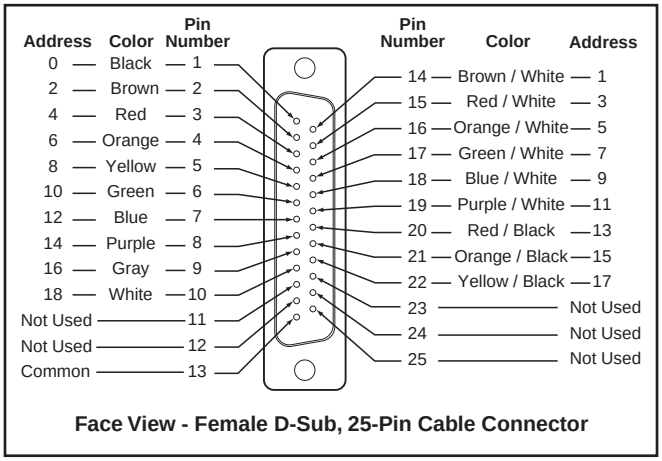
Each wire color code corresponds a solenoid pilot position in the island.



Face View - Male D-Sub, 25-Pin Head Module Connector

Electrical 25-Pin D-Sub Cable

Length (meters)	Weight (oz)	IP	Order Code
3	14.3	20	**P8LMH25M3A**
3	14.3	65	**SCD253W**
9	55.8	20	**SCD259D**
9	55.8	65	**SCD259WE**



Face View - Female D-Sub, 25-Pin Cable Connector

Electrical Specifications

Rated Voltage	24VDC
Maximum Addresses	19
Maximum Energized Simultaneously	19
Electrical Connection	25-Pin, D-Sub DIN41652, MIL-C-24308, NFC93425 Type HE5
Polarity	Insensitive: PNP and NPN compatible
Dust and Water Protection	IP40 / IP65

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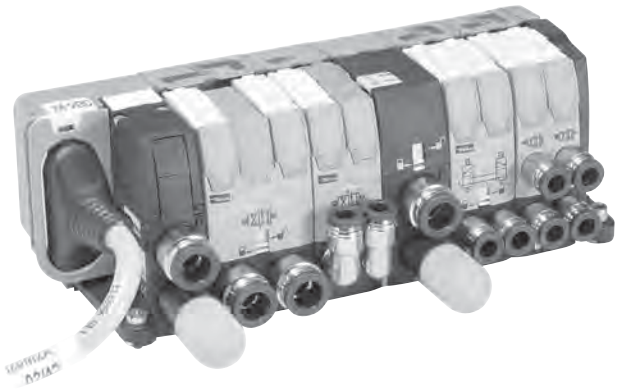
"V" Series 20-Pin, Multi-Connector and Addressing



Valve Island Head 20-Pin, Multi-Connector

On the island head module, the multi-connector integrates the HE10 connector standard in its 20-Pin version.

Its plug-in function is secured in position with a guillotine lock with easy access from the front of the island.

Just like the whole island, the multi-connector follows the IP65 protection standard.

Cable Specification:

8.6 mm dia., UL, 20 wires, 0.22mm^2 , AWG 24

Minimum Static Radius: 6.5 mm (.255")

Available with 6.56 ft. (2 m), 16.4 ft. (5 m) and 29.5 ft. (9 m) lengths.

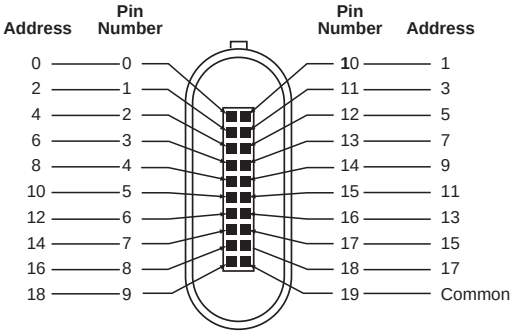
20-Pin, Multi-Connector Addressing

When assembling a **V Series** island, modules are automatically connected to the head module through the modular principle of the integrated electrical connections.

The color code addressing given below conforms to the DIN 47100 standard.

Each wire color code corresponds a solenoid pilot position in the island.

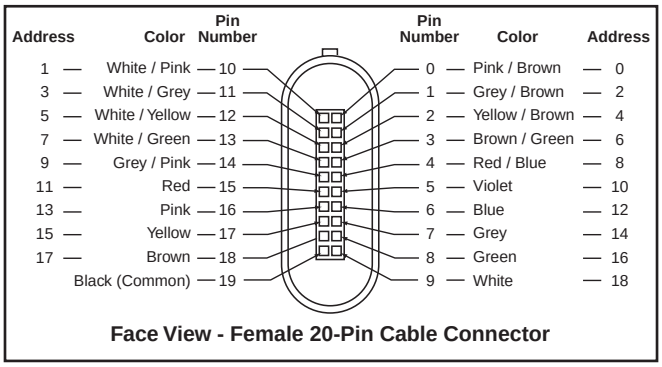
P8LMH20M2A - Cable



Face View - Male 20-Pin Head Module Connector

Electrical 20-Pin Multi-Connector with Flying Lead Cable

Cable Length	Weight (oz)	IP	Order Code
2 m	10.97	65	**P8LMH20M2A**
5 m	27.41	65	**P8LMH20M5A**
9 m	49.38	65	**P8LMH20M9A**



Face View - Female 20-Pin Cable Connector

Electrical Specifications

Rated Voltage	24VDC
Maximum Addresses	19
Maximum Energized Simultaneously	19
Electrical Connection	Type HE10
Polarity	Insensitive: PNP and NPN compatable
Dust and Water Protection	IP65

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The Moduflex Fieldbus System

Moduflex communication modules directly attach to the Moduflex head set. It offers a compact and low cost fieldbus solution.

Moduflex Features

- Small, compact product design
- Broad protocol offering, including DeviceNet, Profibus, AS-i, CANopen, and Interbus
- Channel-level diagnostics (LED and Electronic)
- Inputs available with AS-i modules
- Horizontal and vertical mounting without derating
- 5g vibration
- Quick-disconnects for I/O and network connectivity
- Built-in panel grounding
- CE certification

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"V" Series Fieldbus Connections

Valve Island Electrical Head Modules for Bus Connections and Control

DeviceNet™ CANopen PROFIBUS PROCESS FIELD BUS INTERBUS-S

Device Bus Electrical Head Modules

Electrical Module for 16 Outputs Max.
(V Series islands may have up to 16 solenoids)

P2M2HBVP11600

Bus Protocol	Weight (oz)	Order Code
Profibus DP	8.82	**P2M2HBVP21600**
DeviceNet	8.82	**P2M2HBVD21600**
CANopen	8.82	**P2M2HBVC21600**
InterBus-S	10.58	P2M2HBVS11600

Fieldbus Accessories

	Bus Protocol	Connector Type	Weight (oz)	Order Code
Power Supply Female Straight Field Wireable Connector	Profibus DP / InterBus-S / DeviceNet / CANopen	M12 type A	0.88	**P8CS1205AA**
Line Termination Resistor	Profibus DP	M12 type B	0.88	**P8BPA00MB**
	DeviceNet / CANopen	M12 type A	0.88	**P8BPA00MA**

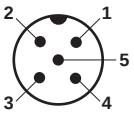
Note: Use standard cables and connectors for bus communications from your electrical supplier.

M12 (Male) Power Supply Connector

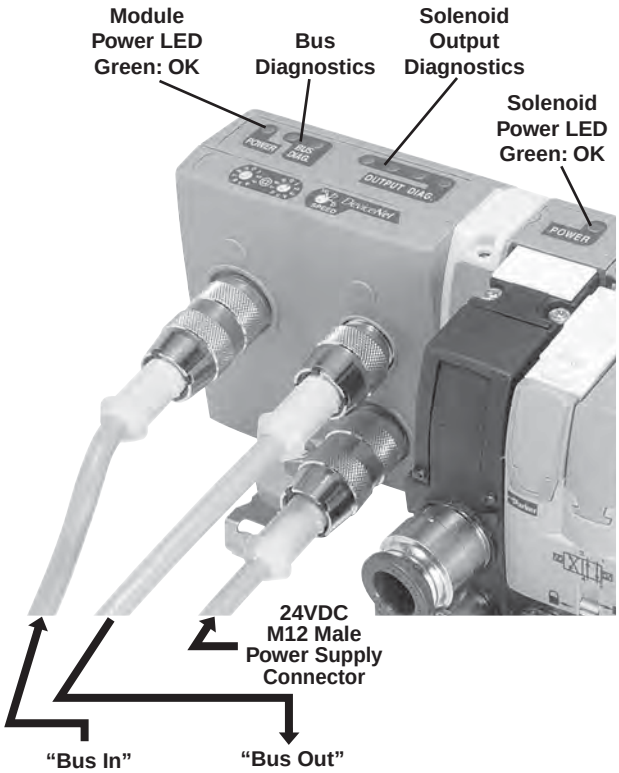
1 - 24VDC Module (Not Connected for DeviceNet and CANopen)
2 - Not Connected
3 - 0VDC Module and Solenoid
4 - 24VDC Solenoid
5 - Protected Earth (PE)

Profibus DP / DeviceNet / CANopen / InterBus-S

24VDC
(As Seen On Module)



M12 Male Type A



Connection

All bus modules have an M12 male connector for power supply.

Connector on Moduflex Modules are labeled. Bus Connectors are labeled "Bus In" and "Bus Out" while, Power Supply Connections are labeled "24VDC". Connect Fieldbus to "Bus In" and "Bus Out" and Power Supply to "24VDC".

Diagnostic

The two "power" indicators shown on the illustrations provide visual indication of the module and solenoid supply status.

Note: Output power to the solenoids can be wired to allow the user to turn the outputs off while allowing communications to remain on. This can be done by placing the user's Emergency Stop switch or other hard-wired control contact between Pin 1 and Pin 4. If this feature is not required, Pin 1 and Pin 4 should be wired together.

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"V" Series Valvetronic™
Device Bus Module: Connections, Addressing, Diagnostic

Bus Cable Connections

Profibus DP standard male and female type B M12 connectors.

Use of prefabricated cables available from your local electrical supplier is recommended.

Line termination P8BPA00MB, is necessary on the "bus out" connector of the last station.

This module incorporates an Autobaud detect feature, eliminating the need to set switches.

Addressing

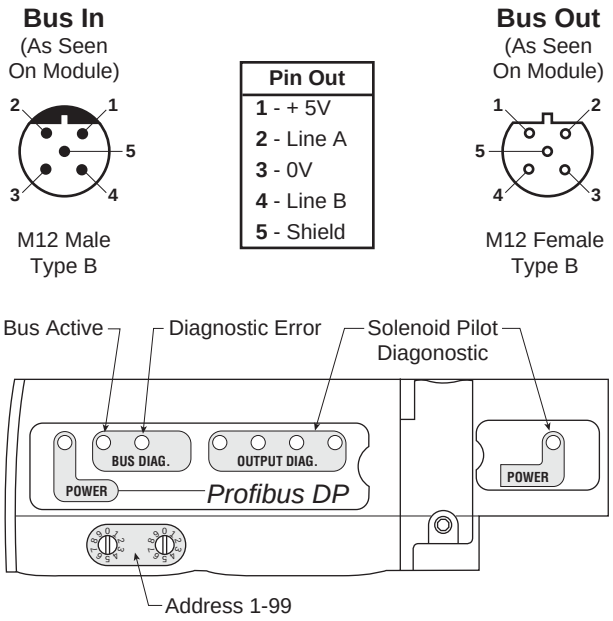
Use the GSD file on web site.

The rotary switches enable configuration of the decimal address.

• www.parker.com/pneu/moduflex

Diagnostic

Diagnostic according to the module dialog shown on the illustration.



Bus Cable Connections

DeviceNet standard male and female type A M12 connectors.

Use of prefabricated cables available from your local electrical supplier is recommended.

Line termination P8BPA00MA, is necessary on the "bus out" connector of the last station.

Addressing

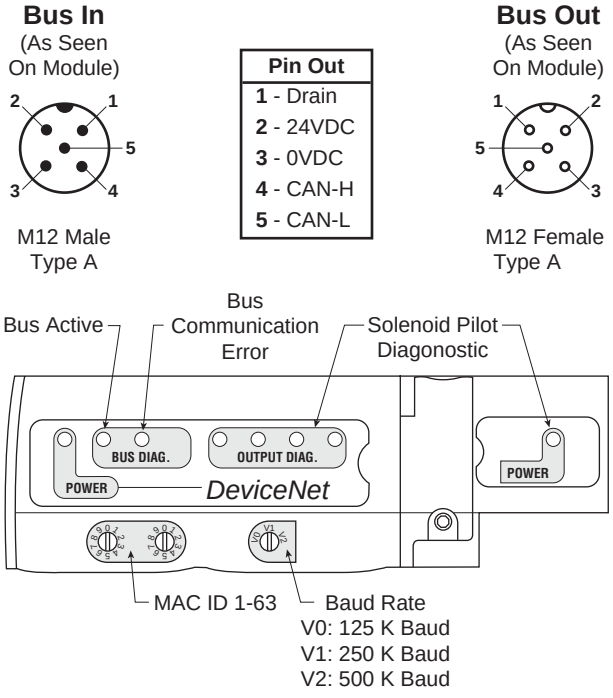
Use the EDS file on web site.

The rotary switches enable configuration of the node address (MAC ID) and the baud rate.

• www.parker.com/pneu/moduflex

Diagnostic

Diagnostic according to the module dialog shown on the illustration.



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CANopen

Bus Cable Connections

CANopen standard male and female type A M12 connectors.

Use of prefabricated cables available from your local electrical supplier is recommended.

Line termination P8BPA00MA, is necessary on the “bus out” connector of the last station.

Addressing

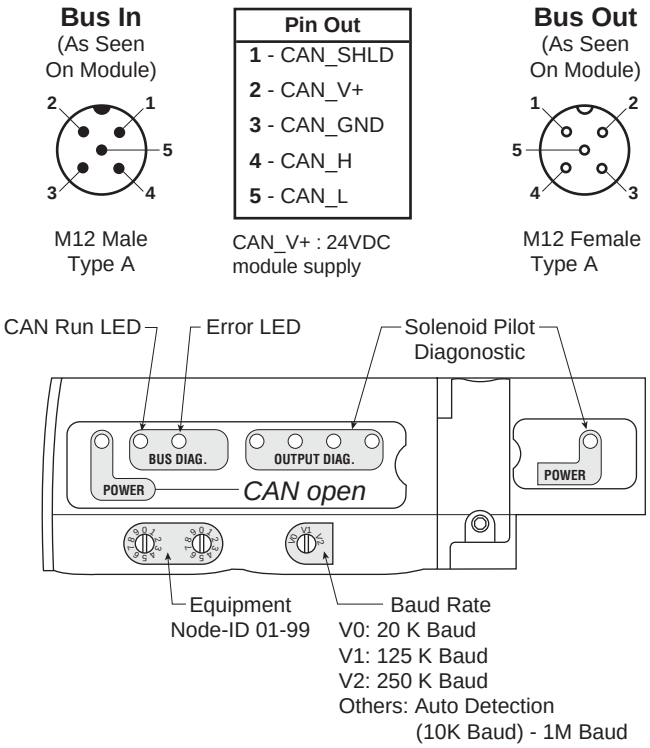
Use the EDS file on web site.

The rotary switches enable configuration of the decimal address.

- www.parker.com/pneu/moduflex

Diagnostic

Diagnostic according to the module dialog shown on the illustration.



INTERBUS-S

Bus Cable Connections

The M23 connectors conform to “Interbus remote bus”.

Use of prefabricated cables available from your usual electrical supplier is recommended.

This module operates at 500 kbps.

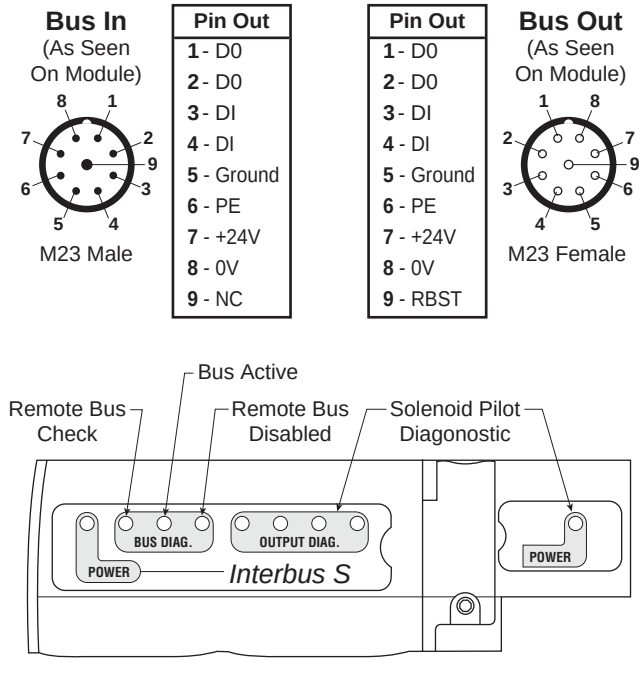
Addressing

InterBus-S is self addressing; therefore, it does not need any software or hardware configuration.

Diagnostic

Diagnostic according to the module dialog shown on the illustration.

This diagnostic conforms to the InterBus-S standard.



Note: For more details, please consult “Interbus remote bus” documentation.

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C

Moduflex

PVL

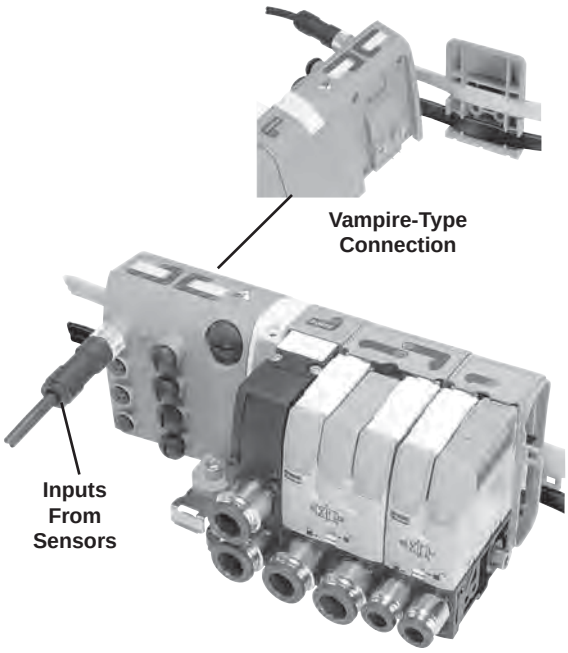
"V" Series Bus Connections

Valve Island Electrical Head Modules for Bus Connections and Control

P2M2HBVA10808A

P2M2HBVA10808B

P2M2HBVA10800



Standard AS-i Protocol (up to 31 nodes) Electrical Head Modules

Electrical Module for 8 Solenoids Max.
(V Series islands may have up to 8 solenoids)
(2 nodes per module, 4 inputs, 4 solenoids per node)

Input / Output Capability	Weight (oz)	Order Code
0 inputs and 8 solenoid outputs	5.29	**P2M2HBVA10800**
8 (PNP) inputs on eight (M8) connectors and 8 solenoid outputs	7.05	**P2M2HBVA10808A**
8 (PNP) inputs on four (M12) connectors and 8 solenoid outputs	7.05	P2M2HBVA10808B

AS-i Version 2.1 Protocol (up to 62 nodes) Electrical Head Modules

Electrical Module for 6 Solenoids Max.
(V Series islands may have up to 6 solenoids)
(2 nodes per module, 4 inputs, 3 solenoids per node)

Input / Output Capability	Weight (oz)	Order Code
0 inputs and 6 solenoid outputs	5.29	**P2M2HBVA20600**
8 (PNP) inputs on eight (M8) connectors and 6 solenoid outputs	7.05	**P2M2HBVA20608A**
8 (PNP) inputs on four (M12) connectors and 6 solenoid outputs	7.05	P2M2HBVA20608B

AS-i Bus Accessories

M12 Cable with Jack for Addressing

Length	Weight (oz)	Order Code
1 m	3.53	**P8LS12JACK**

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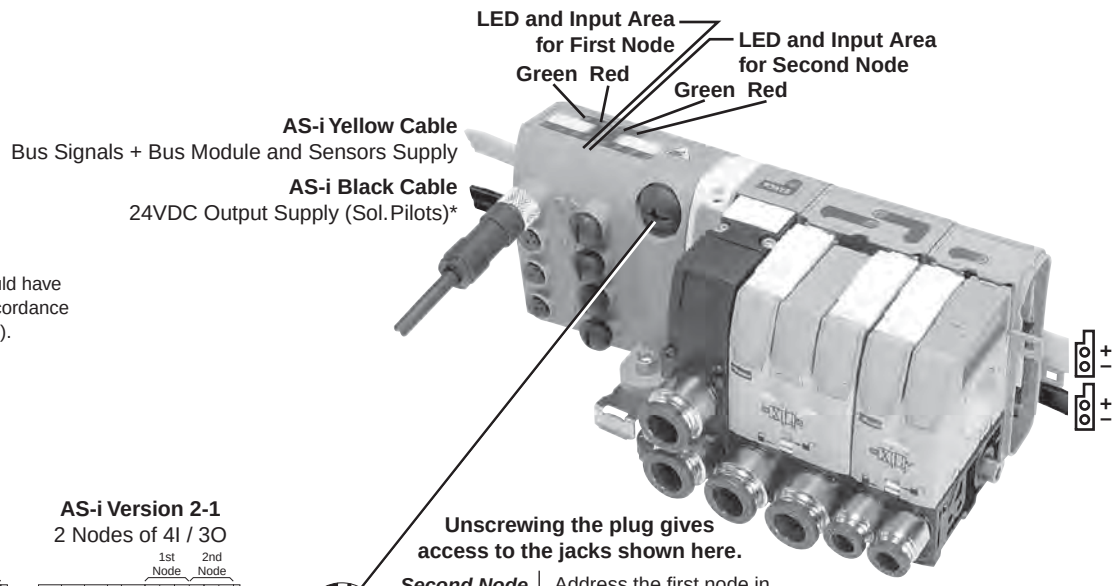
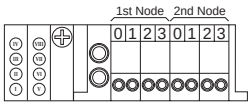
"V" Series AS-i Bus Module

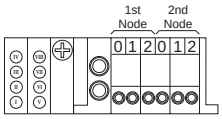


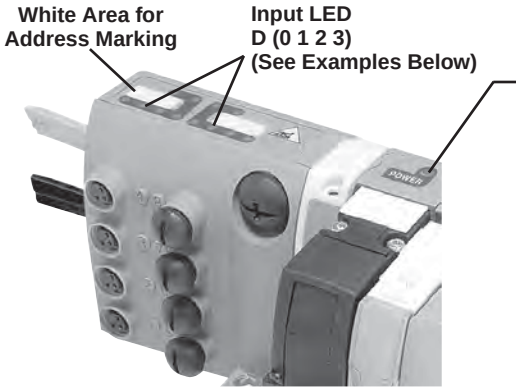
* The external supply should have protective isolation in accordance with IEC 364-4-41 (PELV).

AS-i Standard
2 Nodes of 4I / 4O



AS-i Version 2-1
2 Nodes of 4I / 3O





Bus Diagnostic

"Power" LED State	Off	Green	Red
Power Supply	Sol. Pilot Supply	Normal Operation	Solenoid Overload

First Node LEDs State		Second Node LEDs State		System Condition
Green LED	Red LED	Green LED	Red LED	
✷	❍	✷	❍	Normal Operation
❍	❍	❍	❍	No Module + Sensor Supply
❍	✳	❍	✳	Input Overload
❍	✷	❍	✳	No AS-i Communication
✳	✷	❍	✳	Address First Node = 0
✷	❍	✳	✷	Address Second Node = 0

✷ ON ❍ OFF ✳ BLINK

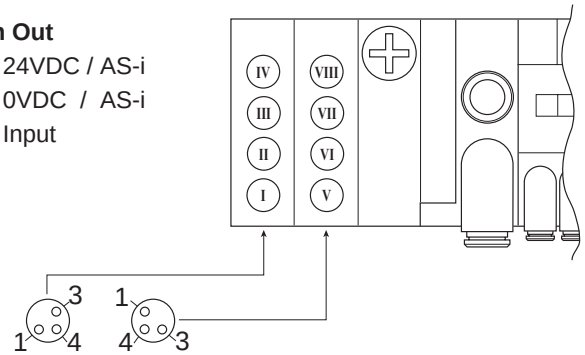
Input Wiring

Physical Input (I, II, III, IV) = D (0 1 2 3) First Node,
Physical Input (V, VI, VII, VIII) = D (0 1 2 3) Second Node.

Examples: Physical Input III = Logical Input 6.2,
Physical Input V = Logical Input 7.0.

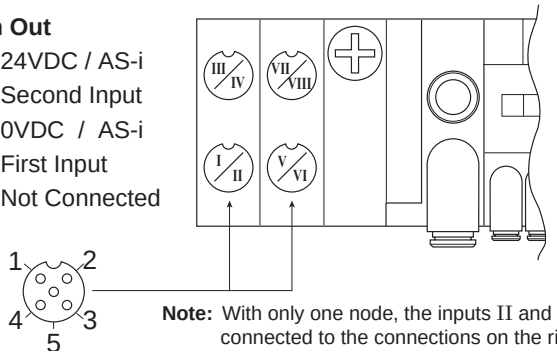
M8 Female Connectors

Pin Out
1 - 24VDC / AS-i
3 - 0VDC / AS-i
4 - Input



M12 Female Connectors

Pin Out
1 - 24VDC / AS-i
2 - Second Input
3 - 0VDC / AS-i
4 - First Input
5 - Not Connected



Note: With only one node, the inputs II and IV are connected to the connections on the right.

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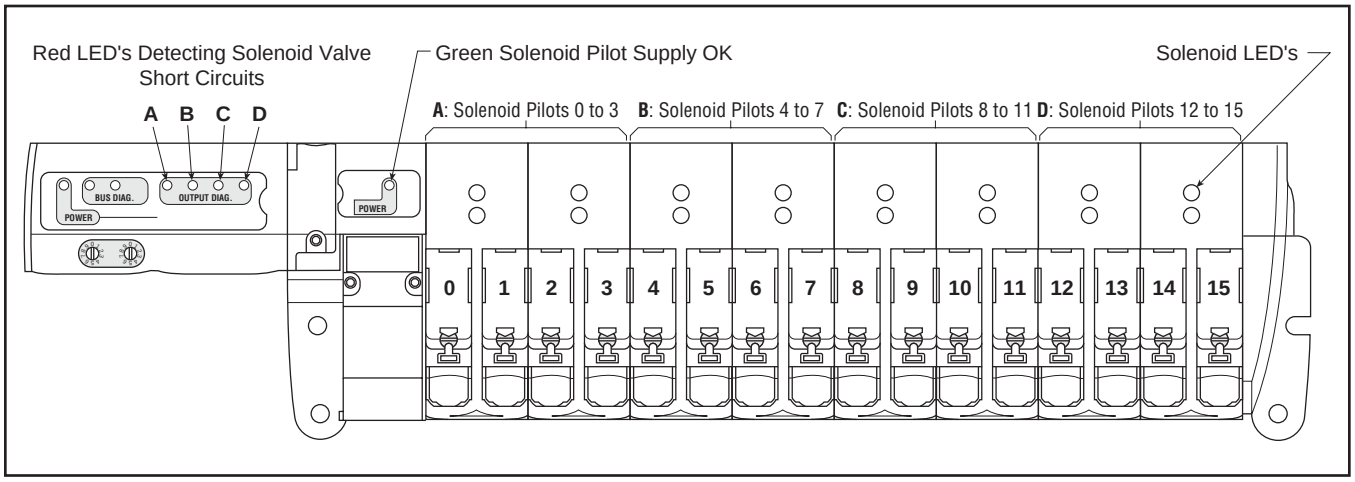
Solenoid Pilot Diagnostic Common to All Device Bus Modules



Inside the bus module, solenoid valve control is protected against short-circuits with the following visual indication provided:

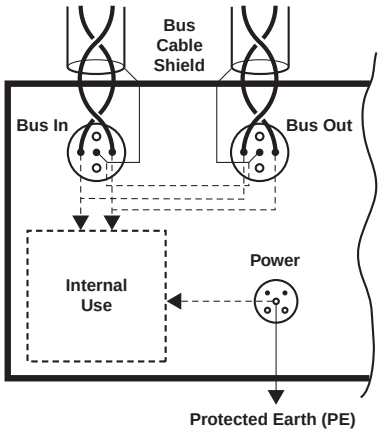
- The red LEDs with code, shown above, detect solenoid valve short-circuits.
- Supply is OK when the solenoid pilot power supply indicator is green.

Bus Cable Protection

Shield Connections for Profibus DP, DeviceNet and CANopen

To provide protection against electro-magnetic interferences, the bus cables are shielded. The module “bus in” and “bus out” connectors each includes a pin for connecting the cable shield (see next pages). It is safer to connect the shield to the protected earth (PE) at both ends of the bus. Within the bus module, provision is made to enable shield continuity by connection between the two shield pins.

The protected earth have to be connected locally on each module for CE accordance.



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Serial Bus Specifications

All Buses	EMC / CE Mark	According to EN 61 000-6-2	EN 50081-2

AS-i Bus	AS-i Line	According to EN 50295
	Solenoid Pilot Voltage	24VDC
	Module Consumption	max. 70 mA (2 nodes)
	Max. Supply for All Inputs	240 mA (including internal input consumption)
	Internal Input Consump.	9 mA for each active input
	Inputs	According to IEC 1131-2 class 2
	Certification	These products have been developed according to the association complete specification (v.2.11) and to the slave profiles S-7.F.E or S-B.F.E

Device Bus	Bus Line	According to each bus specification		
	Module Voltage	20 to 30VDC		
	Solenoid Pilot Voltage	24VDC		
	Module Consumption	Profibus DP max. 1.5W	DeviceNet / CANopen max. 1.5W	InterBus-S max. 2W
	Outputs	Overload protection		
	Certification	DeviceNet: Compliant to Composite Test Revision 17, Test Suite: M002		
		Profibus-DP: Compliant to Test Specifications for Profibus DP Slaves, Version 2.0, February 2000, based on EN 50170-2 at Siemens AG in Furth.		
		InterBus-S: This product has passed the relevant tests in accordance with the Interbus conformance requirements Certified No. 385.		

I/O Tables Common to All Device Bus Modules

Input Data Table								
Byte	**Bit 0**	**Bit 1**	**Bit 2**	**Bit 3**	**Bit 4**	**Bit 5**	**Bit 6**	**Bit 7**
0	Discrete Input 0 (Diagnostic LED 0-3)	Discrete Input 1 (Diagnostic LED 4-7)	Discrete Input 2 (Diagnostic LED 8-11)	Discrete Input 3 (Diagnostic LED 12-15)	—	—	—	—
Output Data Table								
Byte	**Bit 0**	**Bit 1**	**Bit 2**	**Bit 3**	**Bit 4**	**Bit 5**	**Bit 6**	**Bit 7**
0	Discrete Output 0	Discrete Output 1	Discrete Output 2	Discrete Output 3	Discrete Output 4	Discrete Output 5	Discrete Output 6	Discrete Output 7
1	Discrete Output 8	Discrete Output 9	Discrete Output 10	Discrete Output 11	Discrete Output 12	Discrete Output 13	Discrete Output 14	Discrete Output 15

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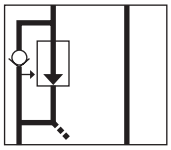
C

Moduflex

PVL

Size 1
Pressure Regulator

The thrust developed by a cylinder often requires adjustment by controlling pressure to the front or back of the piston. The pressure regulation module enables manual adjustment of pressure with visual indication provided by the pressure gauge.



P2M1PXSN

PMDYY1

HMDXX1

FMD04-1

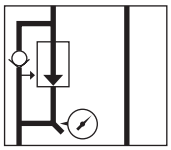
CMD04-1

FMD07-1B

CMD07-1B

Pressure Regulator without Gauge Size 1

Pressure Range	Size 1
0 to 30 PSI	**P2M1PXST** Weight 4.06 oz
0 to 60 PSI	**P2M1PXSL** Weight 4.06 oz
0 to 120 PSI	**P2M1PXSN** Weight 4.06 oz



P2M1PXSG

P2M1K0GN

Pressure Regulator with Gauge Size 1

Pressure Range	Size 1	Replacement Gauge
0 to 30 PSI	**P2M1PXSR** Weight 5.12 oz	**P2M1K0GT** Weight 1.06 oz
0 to 60 PSI	**P2M1PXSM** Weight 5.12 oz	**P2M1K0GL** Weight 1.06 oz
0 to 120 PSI	**P2M1PXSG** Weight 5.12 oz	**P2M1K0GN** Weight 1.06 oz

Pneumatic Connectors for Size 1 Regulators

		Elbow Version		Straight Version	
		Weight (oz)	Order Code	Weight (oz)	Order Code
Tube Push-in Connector	5/32" = 4mm OD	0.18	**CMD04-1**	0.07	**FMD04-1**
	6mm OD	0.18	CMD06-1	0.11	**FMD06-1**
	1/4" OD	0.18	**CMD07-1B**	0.11	**FMD07-1B**
Plug	—	—	—	0.18	**PMDYY1**
Double Male Union (For Peripheral Valve Modules)	—	—	—	0.21	**HMDXX1**

Note: 85 Durometer minimum for pneumatic connectors.

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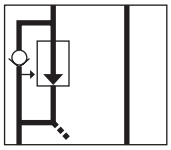
Size 2
Pressure Regulator

The thrust developed by a cylinder often requires adjustment by controlling pressure to the front or back of the piston. The pressure regulation module enables manual adjustment of pressure with visual indication provided by the pressure gauge.



P2M2PXSN

PMDYY2

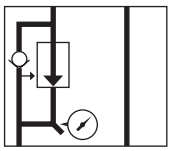
HMDXX2

FMD09-2B

CMD09-2B

Pressure Regulator without Gauge Size 2

Pressure Range	Size 2
0 to 30 PSI	**P2M2PXST** Weight 6.00 oz
0 to 60 PSI	**P2M2PXSL** Weight 6.00 oz
0 to 120 PSI	**P2M2PXSN** Weight 6.00 oz



P2M2PXSR

P2M1K0GN

Pressure Regulator with Gauge Size 2

Pressure Range	Size 2	Replacement Gauge
0 to 30 PSI	**P2M2PXSR** Weight 4.94 oz	**P2M1K0GT** Weight 1.06 oz
0 to 60 PSI	**P2M2PXSM** Weight 4.94 oz	**P2M1K0GL** Weight 1.06 oz
0 to 120 PSI	**P2M2PXSG** Weight 4.94 oz	**P2M1K0GN** Weight 1.06 oz

Pneumatic Connectors for Size 2 Regulators

		Elbow Version		Straight Version	
		Weight (oz)	Order Code	Weight (oz)	Order Code
Tube Push-in Connector	6mm OD	0.18	CMD06-2	0.11	FMD06-2
	1/4" OD	0.18	**CMD07-2B**	0.11	**FMD07-2B**
	8mm OD	0.21	CMD08-2	0.14	FMD08-2
	3/8" OD	0.21	**CMD09-2B**	0.14	**FMD09-2B**
	10mm OD	0.25	CMD10-2	0.18	FMD10-2
	12mm OD	0.28	CMD12-2	0.21	FMD12-2
	1/2" OD	—	—	0.21	**FMD13-2B**
Plug	—	—	—	0.18	**PMDYY2**
Double Male Union (For Peripheral Valve Modules)	—	—	—	0.28	**HMDXX2**

Note: 85 Durometer minimum for pneumatic connectors.

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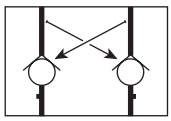
C

Moduflex

PVL

Dual P.O. Check Valve

Combined with a double 3/2 NC + NC valve, this module will block both flows and stop cylinder movement as soon as the valve's outputs are both exhausted. Better than a 3-Position valve, it provides more precise positioning when fitted close to the cylinder. Standard with manual release buttons.

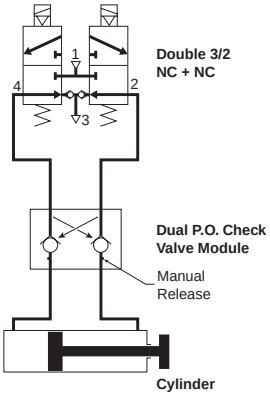


P2M1PXCA

Application

At the outputs of a double 3/2 NC + NC valve, the dual P.O. check valve module achieves efficient and stable cylinder positioning. As soon as both lines are exhausted by the main control valve, the two internally piloted check valves close tight. The cylinder is then stabilized.

The manual pressure releases may then eventually be used for an adequate machine positioning.



Dual P.O. Check Valve Size 1

Description	Size 1
Dual Pilot Operated	**P2M1PXCA** Weight .88 oz

Dual P.O. Check Valve Size 2

Description	Size 2
Dual Pilot Operated	**P2M2PXCA** Weight .88 oz

HMDXX1

FMD04-1

CMD04-1

FMD07-1B

CMD07-1B

Pneumatic Connectors for Size 1 Dual P.O. Check Valves

		Elbow Version		Straight Version	
		Weight (oz)	Order Code	Weight (oz)	Order Code
Tube Push-in Connector	5/32" = 4mm OD	0.18	**CMD04-1**	0.07	**FMD04-1**
	6mm OD	0.18	CMD06-1	0.11	**FMD06-1**
	1/4" OD	0.18	**CMD07-1B**	0.11	**FMD07-1B**
Double Male Union (For Peripheral Valve Modules)	—	—	—	0.21	**HMDXX1**

Note: 85 Durometer minimum for pneumatic connectors.

HMDXX2

FMD09-2B

CMD09-2B

Pneumatic Connectors for Size 2 Dual P.O. Check Valves

		Elbow Version		Straight Version	
		Weight (oz)	Order Code	Weight (oz)	Order Code
Tube Push-in Connector	6mm OD	0.18	CMD06-2	0.11	FMD06-2
	1/4" OD	0.18	**CMD07-2B**	0.11	**FMD07-2B**
	8mm OD	0.21	CMD08-2	0.14	FMD08-2
	3/8" OD	0.21	**CMD09-2B**	0.14	**FMD09-2B**
	10mm OD	0.25	CMD10-2	0.18	FMD10-2
	12mm OD	0.28	CMD12-2	0.21	FMD12-2
	1/2" OD	—	—	0.21	**FMD13-2B**
Double Male Union (For Peripheral Valve Modules)	—	—	—	0.28	**HMDXX2**

Note: 85 Durometer minimum for pneumatic connectors.

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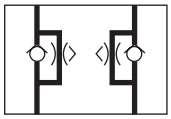
Dual Flow Control

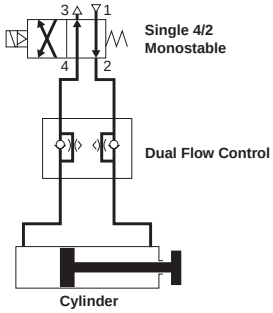
By controlling the exhaust flows of a double-acting cylinder, this module can adjust both speeds — extend and retract. It may be plugged into the valve module output ports or mounted close to the cylinder in its in-line version.



P2M1PXFA

Application

On a double-acting cylinder, extend and retract speeds are adjusted separately by control of air flow exhaust. The control becomes more precise when the flow adjustment is close to the cylinder. The examples show different solutions which are dependent upon the valve-to-cylinder distance and accessibility to the cylinder



Dual Flow Control Size 1

Description	Size 1
Dual Flow Control Module	**P2M1PXFA** Weight 1.06 oz

Dual Flow Control Size 2

Description	Size 2
Dual Flow Control Module	**P2M2PXFA** Weight 1.59 oz

HMDXX1

FMD04-1

CMD04-1

FMD07-1B

CMD07-1B

Pneumatic Connectors for Size 1 Dual P.O. Check Valves

		Elbow Version		Straight Version	
		Weight (oz)	Order Code	Weight (oz)	Order Code
Tube Push-in Connector	5/32" = 4mm OD	0.18	**CMD04-1**	0.07	**FMD04-1**
	6mm OD	0.18	CMD06-1	0.11	**FMD06-1**
	1/4" OD	0.18	**CMD07-1B**	0.11	**FMD07-1B**
Double Male Union (For Peripheral Valve Modules)	—	—	—	0.21	**HMDXX1**

Note: 85 Durometer minimum for pneumatic connectors.

HMDXX2

FMD09-2B

CMD09-2B

Pneumatic Connectors for Size 2 Dual P.O. Check Valves

		Elbow Version		Straight Version	
		Weight (oz)	Order Code	Weight (oz)	Order Code
Tube Push-in Connector	6mm OD	0.18	CMD06-2	0.11	FMD06-2
	1/4" OD	0.18	**CMD07-2B**	0.11	**FMD07-2B**
	8mm OD	0.21	CMD08-2	0.14	FMD08-2
	3/8" OD	0.21	**CMD09-2B**	0.14	**FMD09-2B**
	10mm OD	0.25	CMD10-2	0.18	FMD10-2
	12mm OD	0.28	CMD12-2	0.21	FMD12-2
	1/2" OD	—	—	0.21	**FMD13-2B**
Double Male Union (For Peripheral Valve Modules)	—	—	—	0.28	**HMDXX2**

Note: 85 Durometer minimum for pneumatic connectors.

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"P" Series Peripheral Modules Model Number Index

(Complete with Pneumatic Connectors)

BOLD OPTIONS ARE MOST POPULAR.

P2M	1	PX	S	L	F4	F4

Basic Series	
Electro-Pneumatic Valve Modules	P2M

Size	
Size 1	1
Size 2	2

Style / Function	
Peripheral	PX

Accessory Type	
Dual Pilot Operated Check	C
Dual Flow Control	F
Single Pressure Regulator	S

Accessory Option	
Flow Control or Pilot Operated Check	A*
0 - 120 PSI - Gauge	G
0 - 60 PSI - No Gauge	L
0 - 60 PSI - Gauge	M
0 - 120 PSI - No Gauge	N
0 - 30 PSI - Gauge	R
0 - 30 PSI - No Gauge	T

* Must be used with Accessory Type "C" or "F".

Ports 1 & 3 (Supply / Exhaust)	
C0*	10mm Elbow Fitting
C2*	12mm Elbow Fitting
C4	**5/32" (4mm) Elbow Fitting**
C6	6mm Elbow Fitting
C7	**1/4" Elbow Fitting**
C8*	8mm Elbow Fitting
C9*	**3/8" Elbow Fitting**
F0*	10mm Straight Fitting
F2*	12mm Straight Fitting
F3*	**1/2" Straight Fitting**
F4	**5/32" (4mm) Straight Fitting**
F6	6mm Straight Fitting
F7	**1/4" Straight Fitting**
F8*	8mm Straight Fitting
F9*	**3/8" Straight Fitting**
JJ	**Double Male Union**

* Only Available with Size 2 Valves.

Ports 2 & 4 (S, T & V Series)	
C0*	10mm Elbow Fitting
C2*	12mm Elbow Fitting
C4	**5/32" (4mm) Elbow Fitting**
C6	6mm Elbow Fitting
C7	**1/4" Elbow Fitting**
C8*	8mm Elbow Fitting
C9*	**3/8" Elbow Fitting**
F0*	10mm Straight Fitting
F2*	12mm Straight Fitting
F3*	**1/2" Straight Fitting**
F4	**5/32" (4mm) Straight Fitting**
F6	6mm Straight Fitting
F7	**1/4" Straight Fitting**
F8*	8mm Straight Fitting
F9*	**3/8" Straight Fitting**
JJ	**Double Male Union**
PP	**Clip-In Plug**

* Only Available with Size 2 Valves.

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Regulator with Gauge

Example:

Size 1, Regulator with gauge, 1/4” OD straight fittings.

How to Order Complete Peripheral Module

Line Item	Quantity	Part Number	Description
1	1	P2M1PXSGF7F7	Size 1, Regulator with 0-160 PSI Gauge, 1/4" OD Straight Port Fittings in port 1, 2, 3, 4

How to Order Components

Line Item	Quantity	Part Number	Description
1	1	P2M1PXSG	Size 1, Regulator with 0-160 PSI Gauge
2	4	FMD07-1B	Size 1-1/4" OD Tube Push-In Connector

Flow Control with Fittings

Example:

Size 1, Dual Flow Control, 1/4” OD Straight Fittings.

How to Order Complete Peripheral Module

Line Item	Quantity	Part Number	Description
1	1	P2M1PXFAF7F7	Size 1, Dual Flow Control, 1/4" OD Straight Port Fittings in Port 1, 2, 3, 4

How to Order Components

Line Item	Quantity	Part Number	Description
1	1	P2M1PXFA	Size 1, Dual Flow Control
2	4	FMD07-1B	Size 1-1/4" OD Tube Push-In Connector

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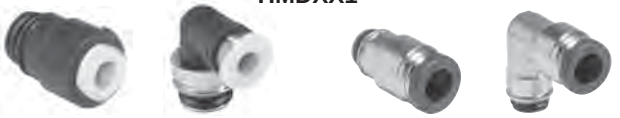
Vacuum Generators

Depending on the application requirements, this vacuum generator may be controlled by single or by a dual 3/2 Moduflex valve. The Vacuum Generator has an integrated blow-off chamber that helps destroy the degree of vacuum. Blow-off can be increased with the addition of a control air input to the blow-off port on the vacuum module. A Ø6 mm port is available for an optional plug-in vacuum sensor for delivering a vacuum feedback signal.

Vacuum Generator Size 1

Description	Size 1
Vacuum Generator	**P2M1PXVA** Weight .88 oz

HMDXX1



FMD04-1 **CMD04-1** **FMD07-1B** **CMD07-1B**

Pneumatic Connectors for Size 1 Vacuum Generators

		Elbow Version		Straight Version	
		Weight (oz)	Order Code	Weight (oz)	Order Code
Tube Push-in Connector	5/32" = 4mm OD	0.18	**CMD04-1**	0.07	**FMD04-1**
	6mm OD	0.18	CMD06-1	0.11	**FMD06-1**
	1/4" OD	0.18	**CMD07-1B**	0.11	**FMD07-1B**
Muffler for Exhaust Port	—	—	—	0.11	**MMDVA1**
Double Male Union (For Peripheral Valve Modules)	—	—	—	0.21	**HMDXX1**

Note: 85 Durometer minimum for pneumatic connectors.

Vacuum Generator Model Number Index

P2M1PXVA **F7** **A** **F7** **C** **MA**

Basic Configuration	
Basic Unit	**P2M1PXVA**

#1 Pressure Port	
5/32" (4mm) Elbow	**C4**
6mm Elbow	C6
1/4" Elbow	**C7**
Joint Fitting	**JJ**
5/32" (4mm) Straight	**F4**
6mm Straight	F6
1/4" Straight	**F7**

Port #1 Configuration	
Fitting in Pressure Port and Blow-off Port	**A**
Fitting in Pressure Port and Blow-off Port Plugged*	B

* Can Not be directly mounting to valve.

#2 Sensor Port	
A	6mm Plug
B	**Plug**
C	Sensor, PNP, M8
D	Sensor, NPN, M8
K	1/4" Straight
L	1/4" Elbow
M	6mm Elbow

#2 Vacuum Port	
C4	**5/32" (4mm) Elbow**
C6	6mm Elbow
C7	**1/4" Elbow**
F4	**5/32" (4mm) Straight**
F6	6mm Straight
F7	**1/4" Straight**

#3 Exhaust Port	
C4	**5/32" (4mm) Elbow**
C6	6mm Elbow
C7	**1/4" Elbow**
F4	**5/32" (4mm) Straight**
F6	6mm Straight
F7	**1/4" Straight**
MA	**Muffler**

BOLD OPTIONS ARE MOST POPULAR.

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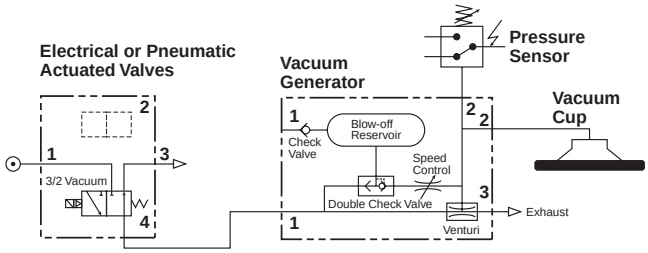
Vacuum Generator Applications

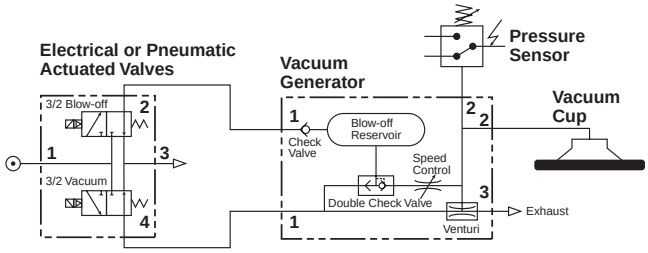
Single 3/2 NC Air Control Valve

The 3/2 valve delivers the air supply to generate vacuum through the venturi. It also pressurizes the integrated blow-off chamber. When the 3/2 valve cuts-off the air supply, this chamber is automatically exhausted into the vacuum channel in order to speed-up the part release. In this type of application, it is preferred to have the vacuum generator mounted away from the control valve.



Dual 3/2 3/2 Valve Control

One 3/2 valve controls air supply for vacuum. The other 3/2 valve will generate an additional blow-off that may prove necessary to obtain quick part release from large vacuum pads. The effect of the blow-off can be controlled with an adjustable screw. In this type of circuit, the Vacuum Generator can be mounted directly to the valve by using Double Male Unions or as a stand alone item away from the control valve.



MPS-6 Sensor Ordering Numbers

Pressure Range	Port Size	Output Circuit	Electrical Connector	Part Number
0 to -30 inHg	6mm Tube Stud	PNP Sourcing	4 Pin, M8	**MPS-V6T-PC***
		NPN Sinking		**MPS-V6T-NC***

* If ordering the sensor separate from the vacuum module, install a 6mm straight fitting in #2 sensor port for direct mounting.

Sensor Cable Part Numbers

Item	Connector	Contacts	Length	Cover
CB-M8-4P-2M	M8 Female	4	2m	PVC
CB-M8-4P-5M	M8 Female	4	5m	PUR

Vacuum Flow (SCFM)

Nozzle Diameter	inHg										
	0	**3**	**6**	**9**	**12**	**15**	**18**	**21**	**24**	**27**	**30**
P2M1PXVA	0.84	0.76	0.67	0.55	0.42	0.30	0.18	0.06	—	—	—

Evacuation Time

Series / Nozzle Diameter	Air Supply Pressure	Air Consumption	Evacuation Time in sec / ft³ * to reach different Vacuum Levels (inHg)								
	PSI	**SCFM**	**3**	**6**	**9**	**12**	**15**	**18**	**21**	**24**	**27**
P2M1PXVA	70	1.60	5.6	14.2	22.0	42.4	62.3	85.0	116	198	—

* 1 ft³ = 28.31 liters

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Intermediate Supply Module Model Number Index

BOLD OPTIONS ARE MOST POPULAR.

P2M2BX V 0 4 F9 MM

Intermediate Supply Module	
Basic Unit	P2M2BX

Valve Type	
Individually Wired	T
Collective Wiring	V

Wiring Style	
No Cable	0

Plate Configuration	
#1 & #3 Blocked	1
#1 Open & #3 Blocked	2
#1 Blocked & #3 Open	3
#1 & #3 Open	4

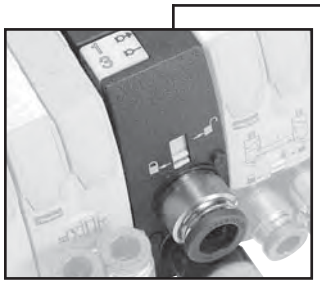
Exhaust Port Type (#3 Exhaust)*	
C0	10mm Elbow Fitting
C2	12mm Elbow Fitting
C6	6mm Elbow Fitting
C7	**1/4" Elbow Fitting**
C8	8mm Elbow Fitting
C9	**3/8" Elbow Fitting**
F0	10mm Straight Fitting
F2	12mm Straight Fitting
F3	**1/2" Straight Fitting**
F6	6mm Straight Fitting
F7	**1/4" Straight Fitting**
F8	8mm Straight Fitting
F9	**3/8" Straight Fitting**
MM	**Clip-In Muffler**
PP	**Clip-In Plug**

* Elbow Fittings Face Up.

Inlet Port Type (#1 Pressure)*	
C0	10mm Elbow Fitting
C2	12mm Elbow Fitting
C6	6mm Elbow Fitting
C7	**1/4" Elbow Fitting**
C8	8mm Elbow Fitting
C9	**3/8" Elbow Fitting**
F0	10mm Straight Fitting
F2	12mm Straight Fitting
F3	**1/2" Straight Fitting**
F6	6mm Straight Fitting
F7	**1/4" Straight Fitting**
F8	8mm Straight Fitting
F9	**3/8" Straight Fitting**
MM	**Clip-In Muffler**
PP	**Clip-In Plug**

* Elbow Fittings Face Up.

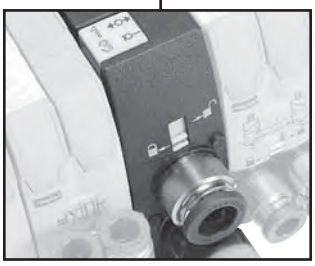
Plate Configuration



#1 & #3 Blocked

#1 Port connected to valves on the right only. Left is blocked.

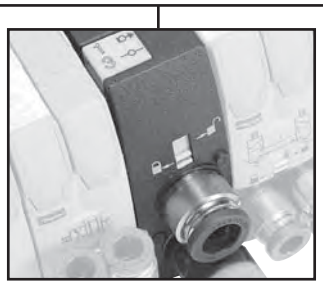
#3 Port connected to valves on the right only. Left is blocked.



#1 Open, #3 Blocked

#1 Port connected to valves on the right and the left.

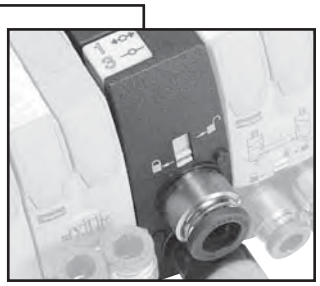
#3 Port connected to valves on the right only. Left is blocked.



#1 Blocked, #3 Open

#1 Port connected to valves on the right only. Left is blocked.

#3 Port connected to valves on the right and the left.



#1 & #3 Open

#1 Port connected to valves on the right and the left.

3 Port connected to valves on the right and the left.

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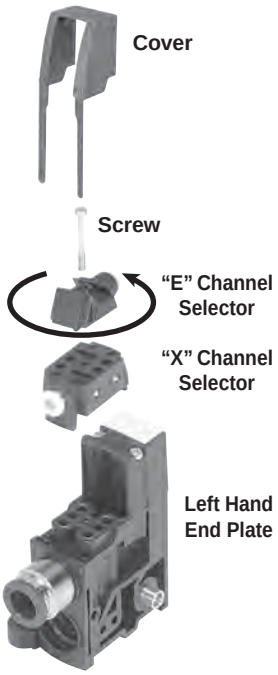
Internal and External Pilot Supply Options

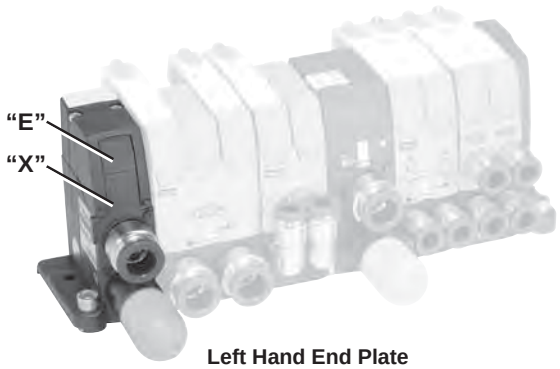
All T and V Series valve bases incorporate an auxiliary channel **"X"** to supply pressure to the solenoid pilots. The **"X"** galley is pressurized from the left hand end plate. Depending on the configuration of the left hand end plate, this pressure is either supplied from the #1 port in the left hand end plate or supplied externally through a 4mm OD tube fitting in the left hand end plate. This fitting is supplied in all left hand end plates and can be converted in the field.

Internal and External Solenoid Pilot Exhaust Options

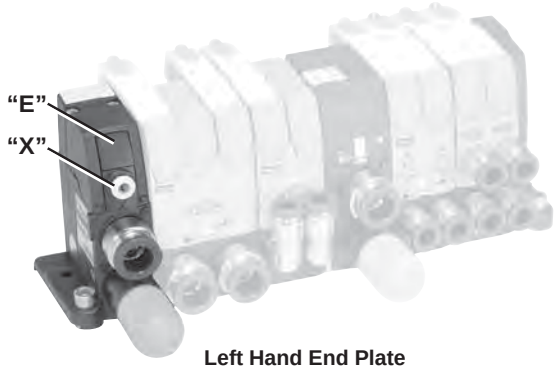
All T and V Series valve bases incorporate an auxiliary channel **"E"** which is used to exhaust the solenoid pilot pressure from each solenoid valve. The **"E"** galley is connected to the left hand end plate. Depending on the configuration of the left hand end plate, this exhaust is either connected to the #3 exhaust port or is connected to a 4mm OD Tube fitting in the left hand end plate. This fitting is supplied in all left hand end plates and can be converted in the field.

To configure the left hand end plate, with pressure off, remove head cover to expose the selector section. Loosen selector section and rotate **"X"** or **"E"** channel selector to desired position. Tighten selector section and assemble head cover.

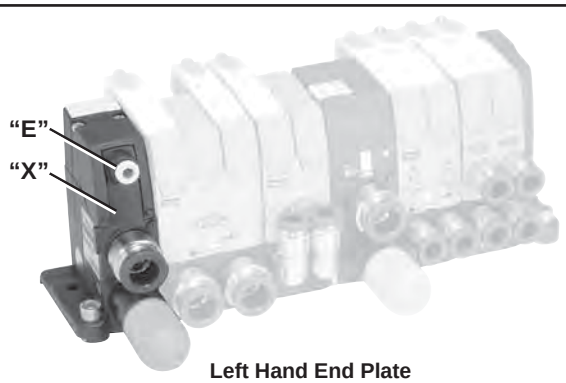




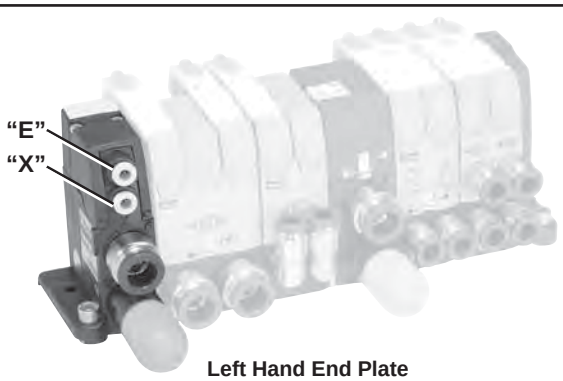
Left Hand End Plate
"E" Channel Internal Exhaust
"X" Channel Internal Pilot



Left Hand End Plate
"E" Channel Internal Exhaust
"X" Channel External Pilot



Left Hand End Plate
"E" Channel External Exhaust
"X" Channel Internal Pilot



Left Hand End Plate
"E" Channel External Exhaust
"X" Channel External Pilot

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Moduflex Add-A-Fold Assembly Model Number Index

(Complete with Pneumatic and Electrical Connectors)

BOLD OPTIONS ARE MOST POPULAR.

P2MA	V	0	1	C9	C9	##

Moduflex Island Assembly	
Add-A-Fold	**P2MA***

* Includes pneumatic H & T end plate kit.

Style	
Individually Wired	**T**
Collective Wiring	**V***

* Includes 20-Pin multi-connector or 25-Pin, D-Sub electrical head module.

Wiring / Bus Protocol	
No Cable (20-Pin or Multi-Connector T Series)	**0**
2 Meter Cable (20-Pin)	**2**
5 Meter Cable (20-Pin)	5
9 Meter Cable (20-Pin)	9
Bus	**B***
No Cable (25-Pin, D-Sub)	**D**
3 Meter Cable (25-Pin, D-Sub)	**F**

* Order Bus module as a separate line item.
† Default to option "0" for T Series.

Pilot Source	
Internal Supply / Internal Exhaust	**1**
Internal Supply / External Exhaust	2
External Supply / Internal Exhaust	3
External Supply / External Exhaust	4

Number of Stations†	
01 - 19*	**V-Type**
01 - 30	**T-Type**

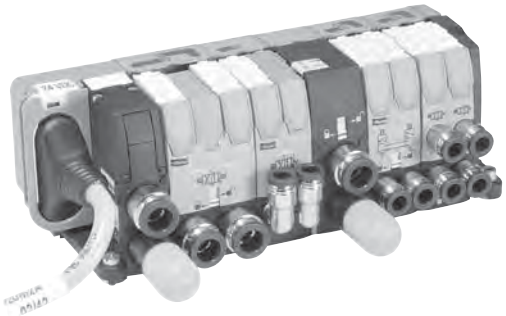
* Max. Number of Addresses for V type is 19. Single Solenoid Valves equal one address. Double Solenoid Valves equal two addresses. Maximum address may depend upon choice of bus protocol.
† Intermediate Modules are considered Stations, but do not count against maximum number of addresses for manifold.

Exhaust Port Type (#3 Exhaust)*	
C0	10mm Elbow Fitting
C2	12mm Elbow Fitting
C6	6mm Elbow Fitting
C7	**1/4" Elbow Fitting**
C8	8mm Elbow Fitting
C9	**3/8" Elbow Fitting**
F0	10mm Straight Fitting
F2	12mm Straight Fitting
F3	**1/2" Straight Fitting**
F6	6mm Straight Fitting
F7	**1/4" Straight Fitting**
F8	8mm Straight Fitting
F9	**3/8" Straight Fitting**
MM	**Clip-In Muffler**
PP	**Clip-In Plug**

* Elbow Fittings Face Up.

Inlet Port Type (#1 Pressure)*	
C0	10mm Elbow Fitting
C2	12mm Elbow Fitting
C6	6mm Elbow Fitting
C7	**1/4" Elbow Fitting**
C8	8mm Elbow Fitting
C9	**3/8" Elbow Fitting**
F0	10mm Straight Fitting
F2	12mm Straight Fitting
F3	**1/2" Straight Fitting**
F6	6mm Straight Fitting
F7	**1/4" Straight Fitting**
F8	8mm Straight Fitting
F9	**3/8" Straight Fitting**
MM	**Clip-In Muffler**
PP	**Clip-In Plug**

* Elbow Fittings Face Up.



"V" Series with 20-Pin Connector

"V" Series with Field Bus Connection

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Pneumatic Division
Richland, Michigan
www.parker.com/pneumatics

Example:

Application requires V Series valves with 20-Pin, D-Sub and 2 Meter cable. Manifold to include (1) Size 2, 4/2 Double Solenoid Valve - 3/8" OD fitting, (1) Size 1, 4/2 Single Solenoid Valve - 1/4" OD Elbow Fitting, Intermediate Module - 3/8" OD Fitting with Exhaust Muffler, Port 1 and 3 Blocked, (1) Size 1, Dual 3/2 NC Valve and (1) Size 1, 4-Way Double Solenoid Valve both with 1/4" OD Straight Fittings. Includes 3/8 OD Inlet Fitting and Exhaust Muffler.

How to Order Complete Manifold Assembly

Line Item	Quantity	Part Number	Description
1	1	P2MAV21F9MM05	Moduflex Island Assembly, Pneumatic Head and Tail Module Set, Internal Pilot Supply, Internal Pilot Exhaust, 3/8" Straight Fitting Port 1, Port 3 Muffler.
2	1	P2M2V4EE2CV00F9	Size 2, Double Solenoid, 4/2, 3/8" Straight Pneumatic Connectors.
3	1	P2M1V4ES2CV00C7	Size 1, Single Solenoid, 1/4" Elbow Pneumatic Connectors.
4	1	P2M2BXV0A1F9MM	Intermediate Module 3/8" Straight Fitting with Exhaust Muffler
5	1	P2M1VDEE2CV00C7	Size 1, Dual 3/2 NC + NC, 1/4" Elbow Pneumatic Connectors.
6	2	P2M1VJEE2CV00F7	Size 1, Dual 4/2, 1/4" Straight Pneumatic Connectors.

How to Order Components

Line Item	Quantity	Part Number	Description
1	1	P2M2HXT01	Pneumatic Head and Tail Module Set
2	1	P2M2HEV0A	20-Pin, Multi-Connector Electrical Head Module
3	1	P8LMH20M2A	2 Meter, 20-Pin Cable
4	1	P2M2V4EE2CV	Size 2, V Series Island Valve Module, Double Solenoid, 4-Way
5	1	P2M1V4ES2CV	Size 1, V Series Island Valve Module, Single Solenoid, 4-Way
6	1	P2M2BXV0A	Intermediate Module
7	1	P2M1VGEE2CV	Size 1, V Series Island Valve Module, Dual 3/2 NC + NC
8	2	P2M1VJEE2CV	Size 1, V Series Island Valve Module, Dual 4/2
9	2	CMD07-1B	Size 1, 1/4" OD Tube Elbow Push-in Connector
10	6	FMD07-1B	Size 1, 1/4" OD Tube Straight Push-in Connector
11	4	FMD09-2B	Size 2, 3/8" OD Tube Straight Push-in Connector
12	2	MMDVA2	Clip-on Muffler

Example:

Application requires V Series valves with DeviceNet Communications Module. Manifold to include (1) Size 2, 4/2 Double Solenoid Valve - 3/8" OD fitting, (1) Size 1, 4/2 Single Solenoid Valve - 1/4" OD Elbow Fitting, Intermediate Module - 3/8" OD fitting with Exhaust Muffler, Port 1 and 3 Blocked, (1) Size 1, Dual 3/2 NC Valve and (1) Size 1, 4-Way Double Solenoid Valve both with 1/4" OD Straight Fittings. Include 3/8 OD Inlet Fitting and Exhaust Muffler.

How to Order Complete Manifold Assembly

Line Item	Quantity	Part Number	Description
1	1	P2MAVB1F9MM05	Moduflex Island Assembly, Pneumatic Head and Tail Module Set, Internal Pilot Supply, Internal Pilot Exhaust, 3/8" Straight Fitting Port 1, Port 3 Muffler.
2	1	P2M2HBVD11600	DeviceNet Module
3	1	P2M2V4EE2CV00F9	Size 2, Double Solenoid, 4/2, 3/8" Straight Pneumatic Connectors.
4	1	P2M1V4ES2CV00C7	Size 1, Single Solenoid, 1/4" Elbow Pneumatic Connectors.
5	1	P2M2BXV0A1F9MM	Intermediate Module 3/8" Straight Fitting with Exhaust Muffler
6	1	P2M1VDEE2CV00C7	Size 1, Dual 3/2 NC + NC, 1/4" Elbow Pneumatic Connectors.
7	2	P2M1VJEE2CV00F7	Size 1, Dual 4/2, 1/4" Straight Pneumatic Connectors.

How to Order Components

Line Item	Quantity	Part Number	Description
1	1	P2M2HXT01	Pneumatic Head and Tail Module Set
2	1	P2M2HBVD11600	DeviceNet Module
3	1	P2M2V4EE2CV	Size 2, V Series Island Valve Module, Double Solenoid, 4-Way
4	1	P2M1V4ES2CV	Size 1, V Series Island Valve Module, Single Solenoid, 4-Way
5	1	P2M2BXV0A	Intermediate Module
6	1	P2M1VGEE2CV	Size 1, V Series Island Valve Module, Dual 3/2 NC + NC
7	2	P2M1VJEE2CV	Size 1, V Series Island Valve Module, Dual 4/2
8	2	CMD07-1B	Size 1, 1/4" OD Tube Elbow Push-in Connector
9	6	FMD07-1B	Size 1, 1/4" OD Tube Straight Push-in Connector
10	4	FMD09-2B	Size 2, 3/8" OD Tube Straight Push-in Connector
11	2	MMDVA2	Clip-on Muffler

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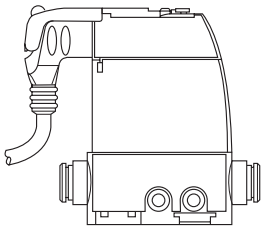
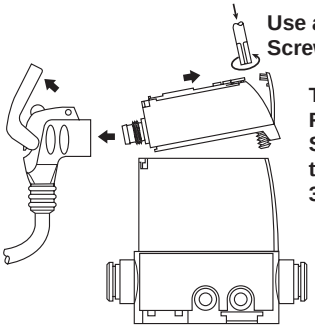
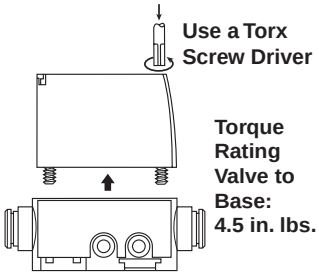
"V", "T" and "S" Series Maintenance

The latest generations of compact pneumatic valves have a life expectancy which generally exceeds the equipment they control. Therefore, maintenance is seldom required. When it is necessary to change the solenoid pilot, valve or connector, they can be easily replaced without removing the island base, as shown below.

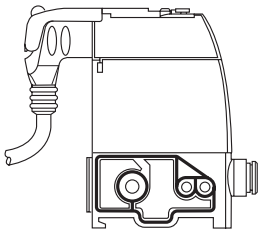
"S" Series

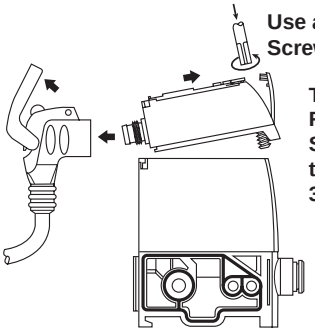


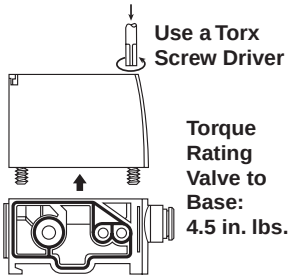




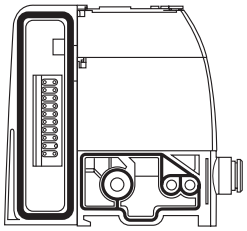
"T" Series

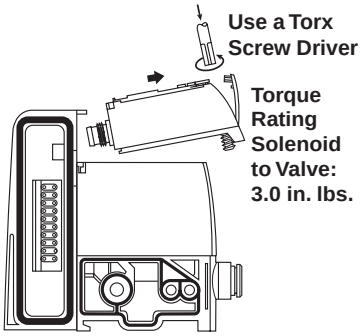


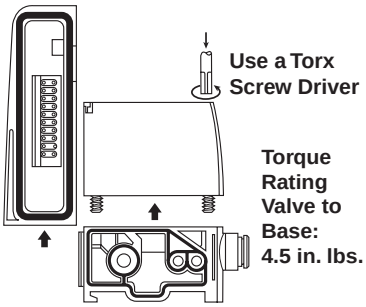




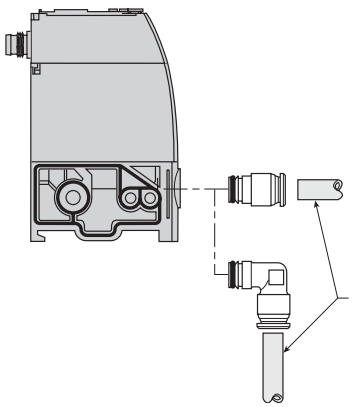
"V" Series







Fitting and Tubing Installation



Fitting Assembly: Pneumatic Connectors are retained by a clip in each module. Assembly is achieved by pushing the fitting into the module and sliding the clip down over the groove in the fitting. Pull fitting to check that it is secure.

Tubing Assembly: Cut tubing squarely & cleanly. Inspect the tubing to insure there are no sharp edges that may nick or cut the o-ring seal. Insert tubing into fitting until it bottoms out. A slight pull on the tube afterwards can help verify it is properly retained / inserted.

Tubing Disassembly: When it is required to remove the tubing from the fitting push the release button in towards the fitting & remove the tubing.

Tubing Reassembly: Inspect the tubing before re-inserting it for any scoring or other damage that would affect the o-ring sealing. It is recommended that for every insertion, the tubing end be trimmed, especially if it has any scoring or damage.

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Valve Module Solenoid Pilot 24VDC

Description	Weight	Part Number
Solenoid Pilot (Without Plug-in Electrical Connector)	0.53 oz	P2D8V32C5
Air Pilot with 5/32" (4mm) Tube Fitting	0.30 oz	P2M2K0PA

P2D8V32C5

P2M2K0PA

Size 1 Valve Modules Without Solenoid Pilot and Without Subbase

P2M1X4EE

4-Way / 2-Position / Single Valve

	Solenoid	Weight	Part Number
	Single Solenoid (Monostable)	0.92 oz	P2M1X4ES
	Double Solenoid (Bistable)	0.88 oz	P2M1X4EE

4-Way / 2-Position / Dual Valve

	Solenoid	Weight	Part Number
	Solenoid Spring with Exhaust Check	0.99 oz	P2M1XJEE

3-Way / 2-Position / Dual Valve

	Solenoid	Weight	Part Number
	Double Solenoid NC + NC with Exhaust Check	0.99 oz	P2M1XDEE
	Double Solenoid NO + NO with Exhaust Check	0.99 oz	P2M1XCEE
	Double Solenoid NC + NO with Exhaust Check	0.99 oz	P2M1XEEE
	Single Solenoid NC with Exhaust Check	0.88 oz	P2M1X3ES

Size 2 Valve Modules Without Solenoid Pilot and Without Subbase

P2M2X4EE

4-Way / 2-Position / Dual Valve

	Solenoid	Weight	Part Number
	Single Solenoid (Monostable)	0.99 oz	P2M2X4ES
	Double Solenoid (Bistable)	1.06 oz	P2M2X4EE

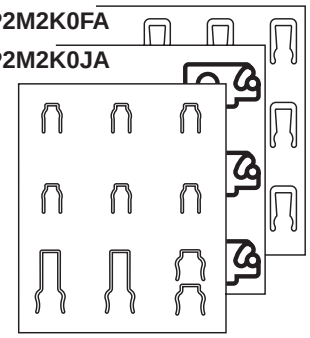
3-Way / 2-Position / Dual Valve

	Solenoid	Weight	Part Number
	Double Solenoid NC + NC with Exhaust Check	1.13 oz	P2M2XDEE
	Double Solenoid NO + NO with Exhaust Check	1.13 oz	P2M2XCEE
	Double Solenoid NC + NO with Exhaust Check	1.13 oz	P2M2XEEE
	Single Solenoid NC with Exhaust Check	0.99 oz	P2M2X3ES

Set of Maintenance Parts

Description		Part Number
Clips	Set of 10 Clips: 6 for Size 1 Valves, 2 for Size 2 Valves, 2 for Island Head and Intermediate Modules	**P2M2K0CA**
Seals	Set of 10 Seals: 3 for Manifold to Manifold Seals, 3 Under Solenoid Pilot Seals, 4 Under Valve Seals (Two Size 1 Seals, Two Size 2 Seals)	**P2M2K0JA**
Forks	Set of 10 Isolation Forks for Solenoid Pilot Manual Override	**P2M2K0FA**

P2M2K0FA
P2M2K0JA



P2M2K0CA

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C

Moduflex

PVL

Pneumatic Valve Specifications

Fluid	Air, inert gas, filtered 40µ [1], dry [2] or lubricated [3]		
Operating Pressures	Vacuum to 120 PSI		
Piloting Pressure	43 to 120 PSI for operating pressures below, use external pilot supply available on all head modules [5]		
Pilot Supply	Internal with “S” Series, mixed internal / external with “T” and “V” Series		
Exhaust Collection	All exhausts are collectable, including solenoid pilot exhaust		
Life Cycle	100 million operations [4] (with dry air, 3 Hz, 20°C, 6 bar)		
Operating Temperatures	5°F to 140°F (32°F to 130°F for field bus systems)		
Stocking Temperatures	-40°F to 155°F		
Vibration Resistance	According to IEC 68 - 2 - 6	2G	2 to 150 Hz
Impact Resistance	According to IEC 68 - 2 - 27	15G	11 ms

1. Class 5 according to ISO 8573-1
2. Class 4 according to ISO 8573-1
3. 3. With main air supply lubricated, monitor lubrication rate so that valve bank is not flooded with lubricant.
4. 4/2 valve
5. Double 3/2 minimum 50 PSI

Electrical Specifications

Rated Coil Voltage	24VDC		
Allowable Voltage Fluctuation	-15% to +10 % of nominal voltage		
Electrical Connection	Polarity insensitive: PNP and NPN compatible		
Coil insulation Type	Class B		
Power Consumption	1W (42 mA)		
Manual Override	Locking or non-locking, isolated if required		
Response Time of the Complete Valve	9.6 ms ± 1.2 on 4/2 Double Solenoid Valve Size 1 12.0 ms ± 1.2 on 4/2 Single Solenoid Valve Size 1 14.8 ms ± 2 on 4/2 Double Solenoid Valve Size 2 17.0 ms ± 2 on 4/2 Single Solenoid Valve Size 2	According to ISO 12238	
Type of Use	Continuous-duty Solenoid		
Dust and Water Protection	According to EN 60 529	“S” and “T” Series:	IP67
		“V” Series:	IP65

Specifications for 1/4", 3/8" and 1/2" Fittings

Construction

Nickel Plated Brass Body; O-ring: Nitrile (Buna N) lubricated with Silicone lubricant; Grab Ring: 301 Stainless Steel; One Piece Button Collet: Acetal – black

Recommended Parker Tubing Series:

E (Linear Low Density Polyethylene), PP (Polypropylene), N (Plasticized Polyamide,Nylon), NR (Unplasticized Polyamide, Rigid Nylon), U (Polyurethane 90 Durometer Shore A), HU (Polyurethane 95 Durometer Shore A)

Other materials: Polyurethane 85 Durometer Shore A – Applications and service conditions vary and therefore the use of a tube support may be required for any 85A PU tubing. The following commercially available O.D. – I.D. 85A tubing sizes require the use of a tube support regardless of application. (5/32" – 3/32", 3/16" – 1/8", 1/4" - .170", 1/4" – 3/16", 5/16" – 1/4", 3/8" – 5/16", 1/2" – 3/8")

Prestolok fittings should not be used for live swivel applications. Vacuum applications dependent upon temperature and type of tubing used.

Specifications for 6mm, 8mm, 10mm, 12mm Fittings

Construction

Polyamide HR Body; O-ring: Nitrile (Buna N) lubricated with Silicone lubricant; Sleeve: Nickel Plate Brass; Grab Ring: 301 Stainless Steel; One Piece Button Collet: Polyacetal – yellow

Recommended Parker Tubing Series for 6mm, 8mm, 10mm, 12mm Fittings:

E (Linear Low Density Polyethylene), N (Plasticized Polyamide, Nylon), U (Polyurethane 90 Durometer Shore A), HU (Polyurethane 95 Durometer Shore A)

Prestolok fittings should not be used for live swivel applications. Vacuum applications dependent upon temperature and type of tubing used.

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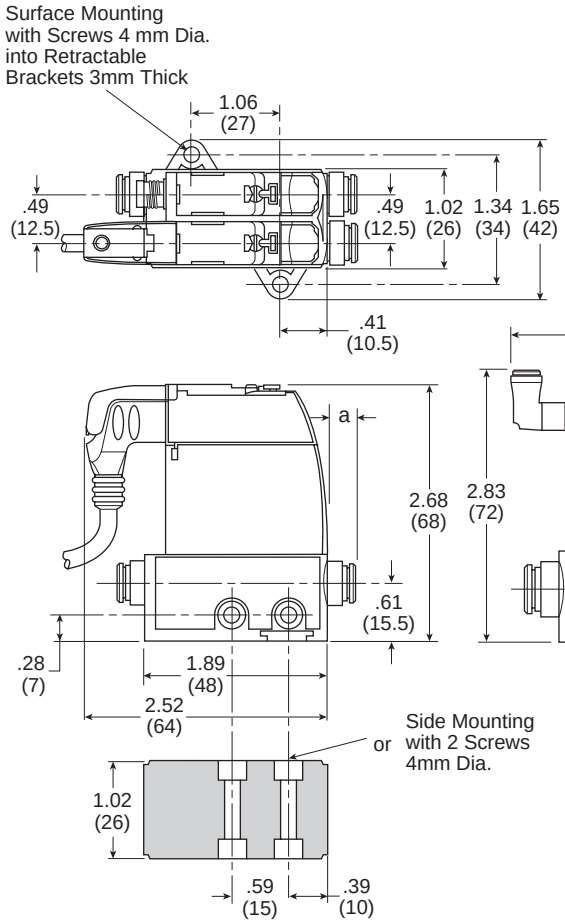
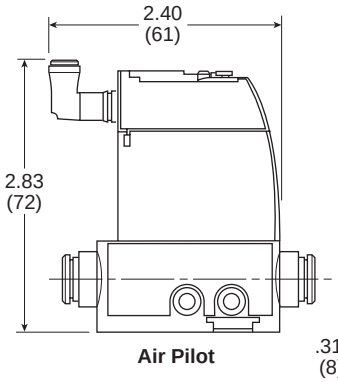
"S" Series Individual Subbase Valve Dimensions and Mounting

Subbase Valve Size 1

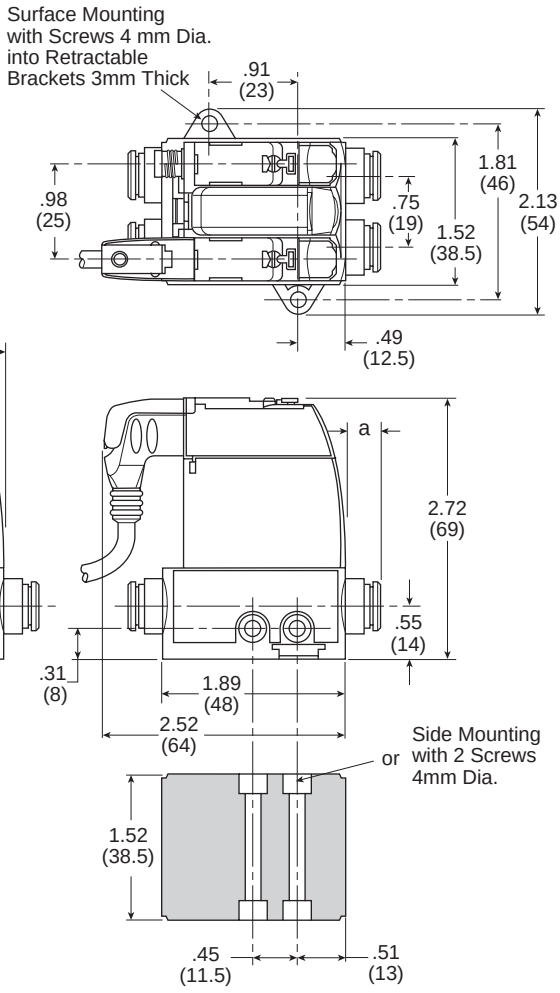
Subbase Valve Size 2



Size 1

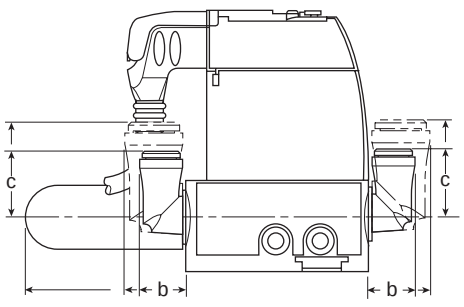


Air Pilot



Size 2

OD Tube Ext.		a	b	c
Size 1 Valves	5/32" (4 mm)	8	10	12
	6 mm	8	13	16
	1/4"	15	18	22
	Muffler		31	
Size 2 Valves	1/4"	12	18	22
	8 mm	9	16	19
	3/8"	16	23	26
	10 mm	13	18	22
	Muffler		40	



Special Case: 4/3 all ports blocked. Add the dual P.O. check valve module that has been plugged in the basic valve.

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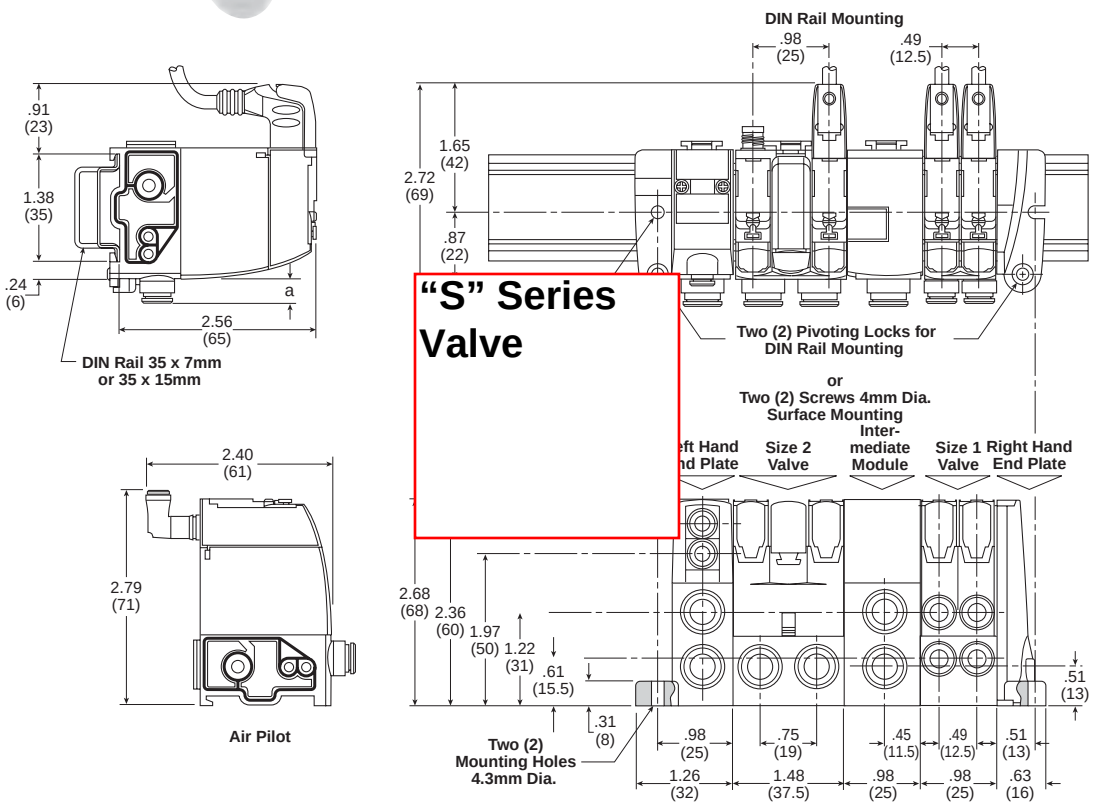
C

Moduflex

PVL

"T" Series Manifold Valve Dimensions and Mounting

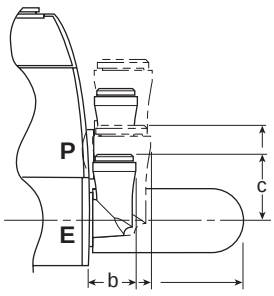
Island Total Width Depends on Valve Composition



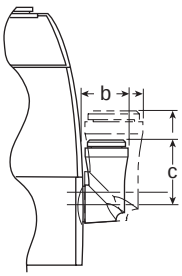
Special Case: 4/3 all ports blocked function within island version, add the dimensions of the dual P.O. check valve module plugged into the island.

End Plate and Intermediate Modules

	a	b	c
6 mm Tube OD	8	13	16
1/4" Tube OD	12	18	22
8 mm Tube OD	9	16	19
3/8" Tube OD	16	23	26
10 mm Tube OD	13	18	25
12 mm Tube OD	13	19	25
1/2" Tube OD	13		
Muffler		40	



OD Tube	Ext.	a	b	c
Size 1 Modules	5/32" (4 mm)	8	10	12
	6 mm	8	13	16
	1/4"	15	18	22
Size 2 Modules	1/4"	12	18	22
	8 mm	9	16	19
	3/8"	16	23	26
	10 mm	13	18	22



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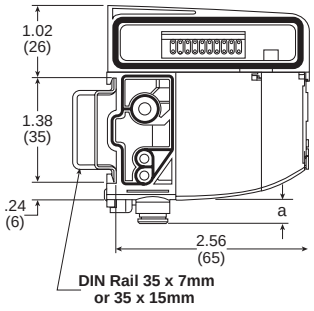
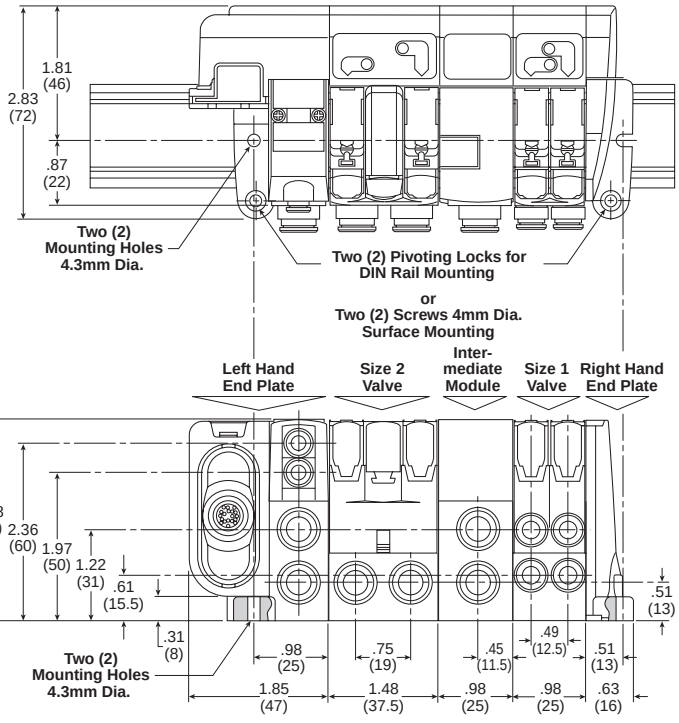
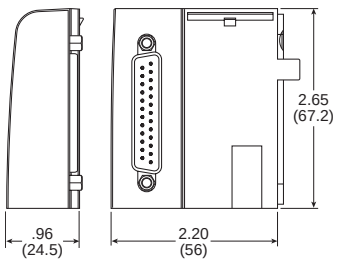
"V" Series Manifold Valve Dimensions and Mounting

20-Pin, Multi-Connector Valve Manifold

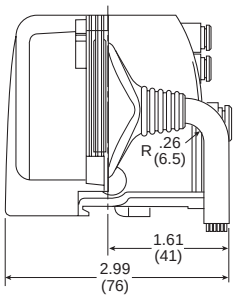
Island Total Width Depends on Valve Composition







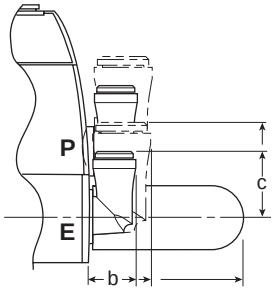
**25-Pin,
D-Sub Module**



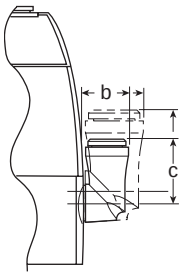
**20-Pin,
Multi-Connector**

End Plate and Intermediate Modules

	a	b	c
6 mm Tube OD	8	13	16
1/4" Tube OD	12	18	22
8 mm Tube OD	9	16	19
3/8" Tube OD	16	23	26
10 mm Tube OD	13	18	25
12 mm Tube OD	13	19	25
1/2" Tube OD	13		
Muffler		40	



OD Tube	Ext.	a	b	c
Size 1 Modules	5/32" (4 mm)	8	10	12
	6 mm	8	13	16
	1/4"	15	18	22
Size 2 Modules	1/4"	12	18	22
	8 mm	9	16	19
	3/8"	16	23	26
	10 mm	13	18	22



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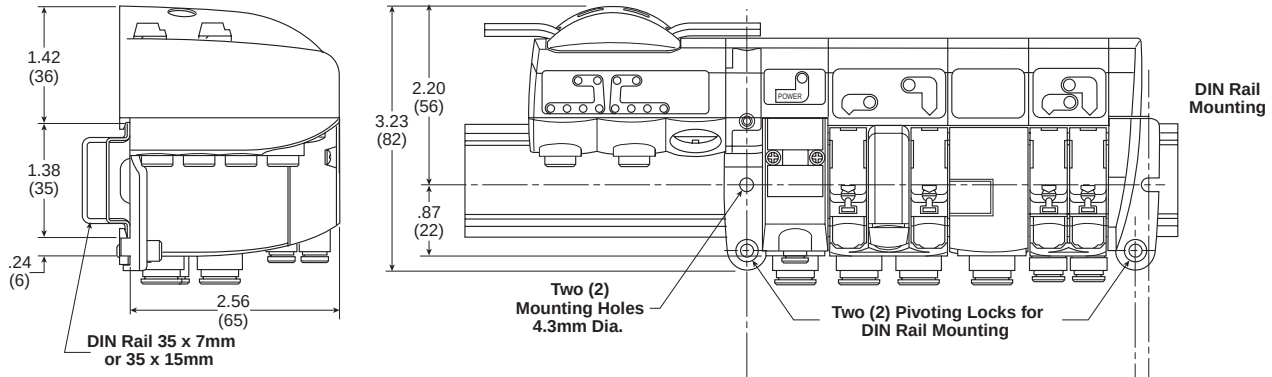
"V" Series Manifold Valve Dimensions and Mounting

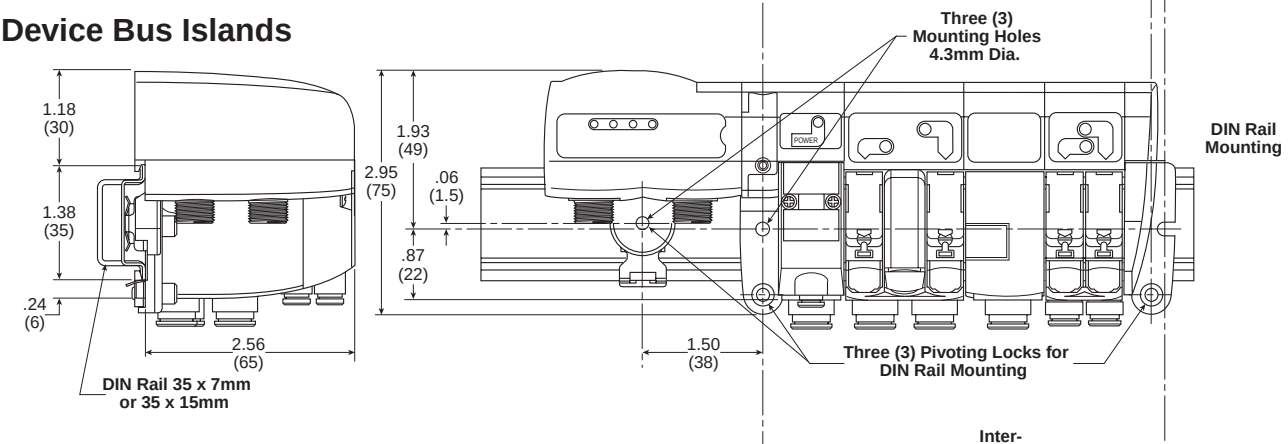
Field Bus Connected Islands

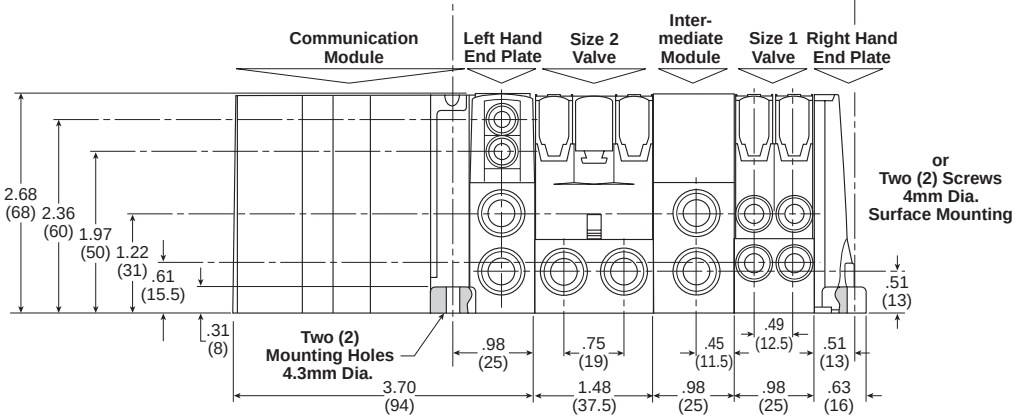
Island Total Width Depends on Valve Composition

AS-i Bus Islands



Device Bus Islands





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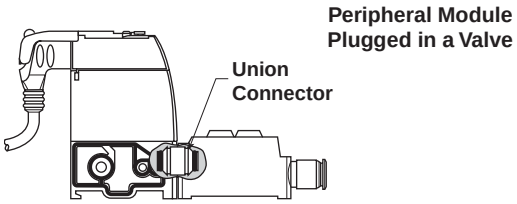
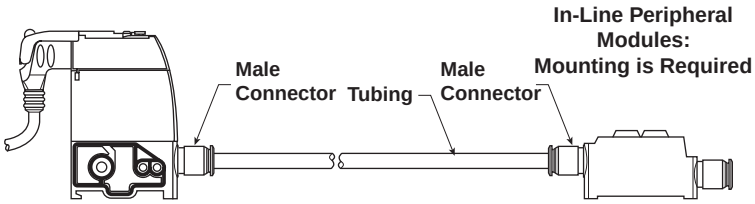
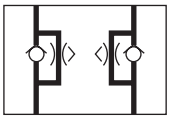
“P” Series Peripheral Modules Dimensions and Mounting

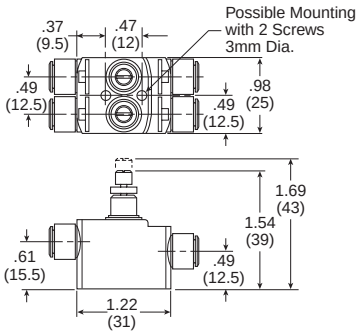
Reminder: Peripheral modules may either be plugged in the valve output ports or mounted in-line separate from the valve.





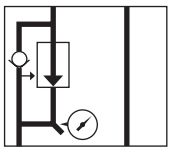
Dual Flow Control Size 1

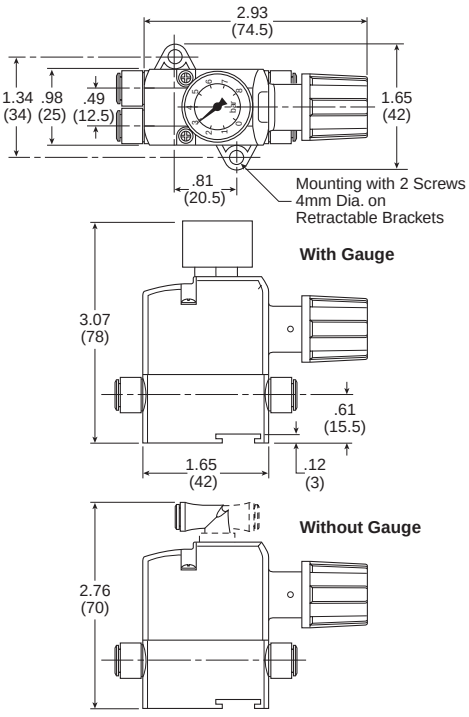




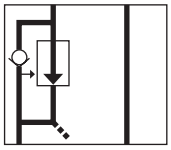
Pressure Regulator Size 1

With Gauge

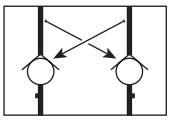


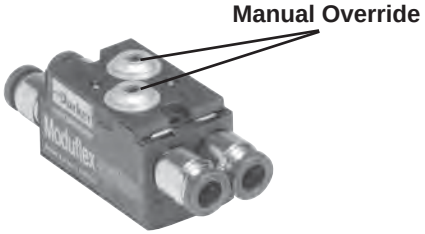


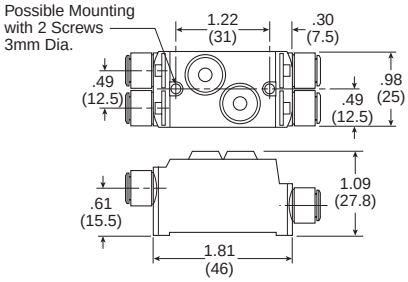
Without Gauge



Dual P.O. Check Valve Size 1







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C

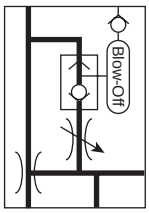
Moduflex

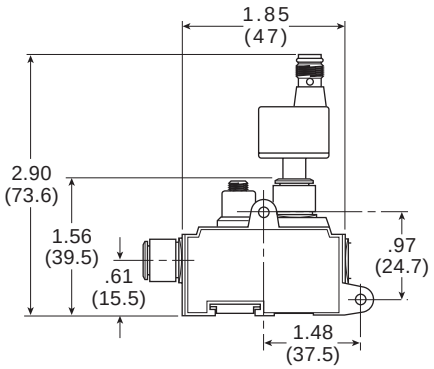
PVL

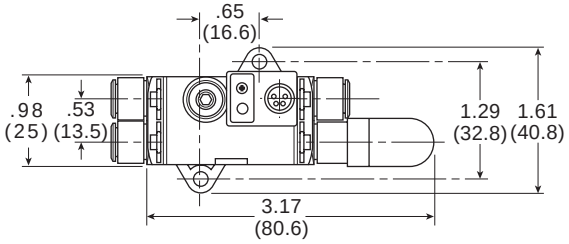
"P" Series Peripheral Modules Dimensions and Mounting

Reminder: Peripheral modules may either be plugged in the valve output ports or mounted in-line separate from the valve.

Vacuum Generator Size 1



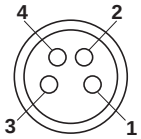




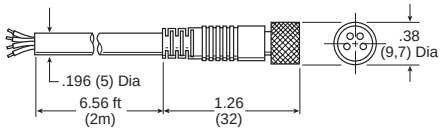
Sensor Pin Out

Pin #

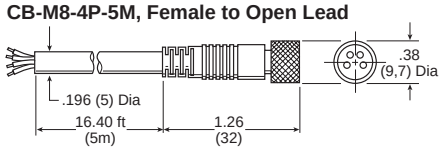
1 Brown: 24VDC
2 White: NPN / PNP Open Collector Output
3 Blue: 0VDC
4 Black: NPN / PNP Open Collector Output



CB-M8-4P-2M, Female to Open Lead



CB-M8-4P-5M, Female to Open Lead



Sensor Specifications

Media	Air and Non-Corrosives Gases
Proof Pressure	**(V)** 72.5 PSI
Operating Temperature	32 to 122°F (0 to 50°C)
Storage Temperature	14 to 140°F (-10 to 60°C)
Humidity	35 to 85% RH
Electrical Connection	**(C)** 4-Pin, M8 Connector
Power Supply	10.8 to 30 VDC, Ripple Vp-p 10% max., Reverse Voltage Protection
Switch Output	1 Output Signal Open and Closed, NPN or PNP, 30VDC, 125mA
Linear Output	Analog Output 1 to 5 VDC
Switch Point Setting	2/3 Turn Trimmer
Hysteresis Setting	≤ 2% of F.S.
Output Response Time	<1ms
Repeatability	≤0.2% F.S.
Shock Resistance	100 G, XYZ
Material	**Housing:** Polycarbonate, **Pressure Port:** Zinc Die-cast
Mass	**T Port:** 0.25 oz. (7g)

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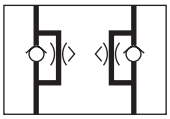
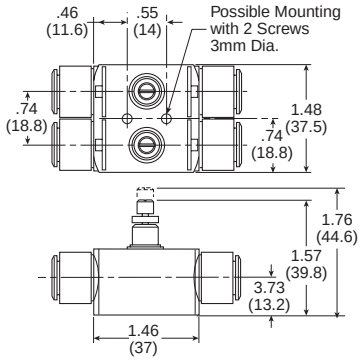
“P” Series Peripheral Modules Dimensions and Mounting

Reminder: Peripheral modules may either be plugged in the valve output ports or mounted in-line separate from the valve.

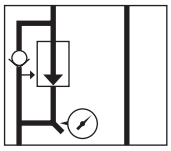
Dual Flow Control Size 2

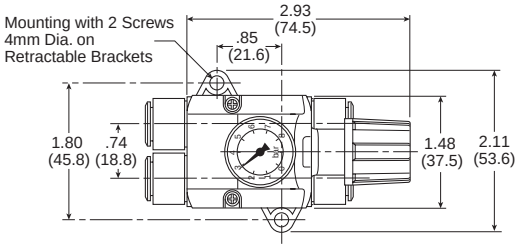


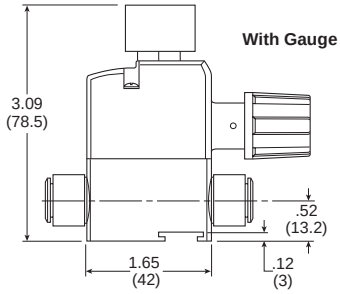


Pressure Regulator Size 2

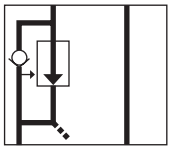
With Gauge

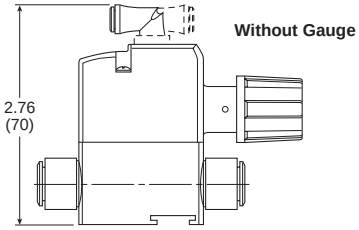




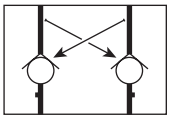


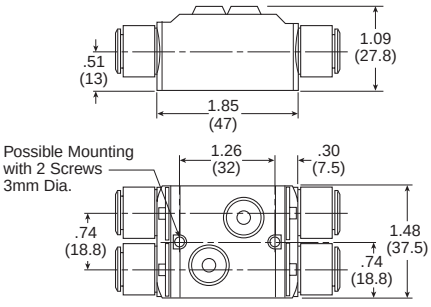
Without Gauge





Dual P.O. Check Valve Size 2





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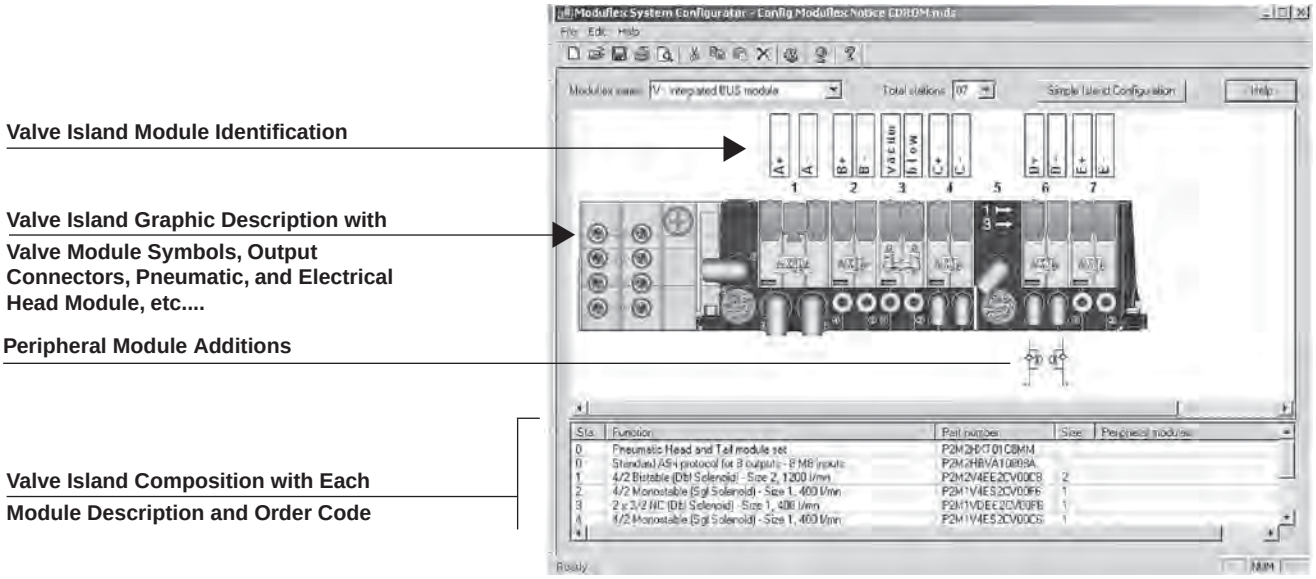
"V" or "T" Series Valve Island Configurator CD-ROM

Use CD-ROM "Standard Valve Island" Configuration



With the Moduflex Valve Island Configurator CD-ROM, you may configure the Moduflex V or T series valve islands that a given application requires.

With the CD-ROM, once the valve island is configurated, the following items may be edited for the application:

1. Valve Island Print with Symbols and Marking

This graphic gathers all information required:

- For assembling, marking and connecting the valve island;
- For commissioning and maintaining the machine.

No additional valve circuit is necessary.

2. Report (4 pages) (1)

- Page 1 - Valve island complete modules part numbers
- Page 2 - Valve island basic modules and connectors listing
- Page 3 - Bill of material
- Page 4 - Warnings

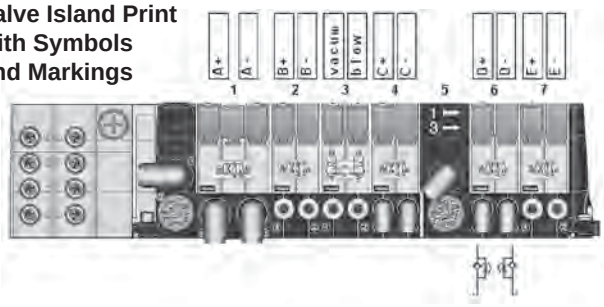
3. 2D Drawings Exported DX File

This transfer on the machine drawings enables defining the valve island mounting onto the machine.

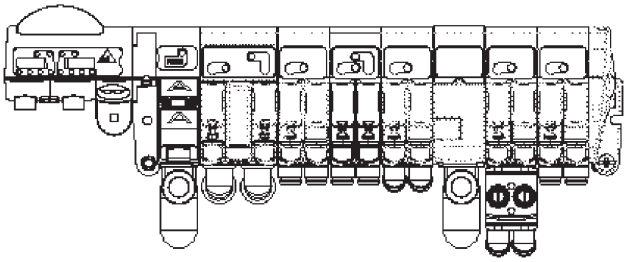
Note: 3D files (IGES, STEP and PRO-ENG) are available in the CD-ROM, for import in your CAD software of separate basic modules and connectors.

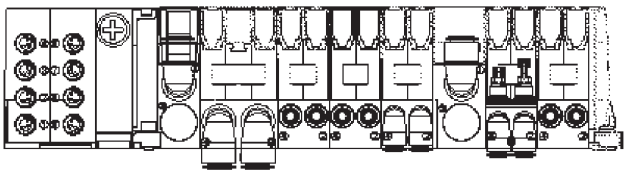
(1) If an assembled valve island is ordered, please combine this 4-page report in order.

Valve Island Print with Symbols and Markings



Valve Island 2D Drawing Exported DX File





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Ask for Your Moduflex Valve Island Configurator CD-ROM

Order Code: PDE2536CDV3.1-ev

This multi-language CD-ROM allows installation in English, French, German, Swedish, Italian and Spanish.

"S", "V", & "T" Valve CAD Configurator go to: www.parker.com/moduflex

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Notes

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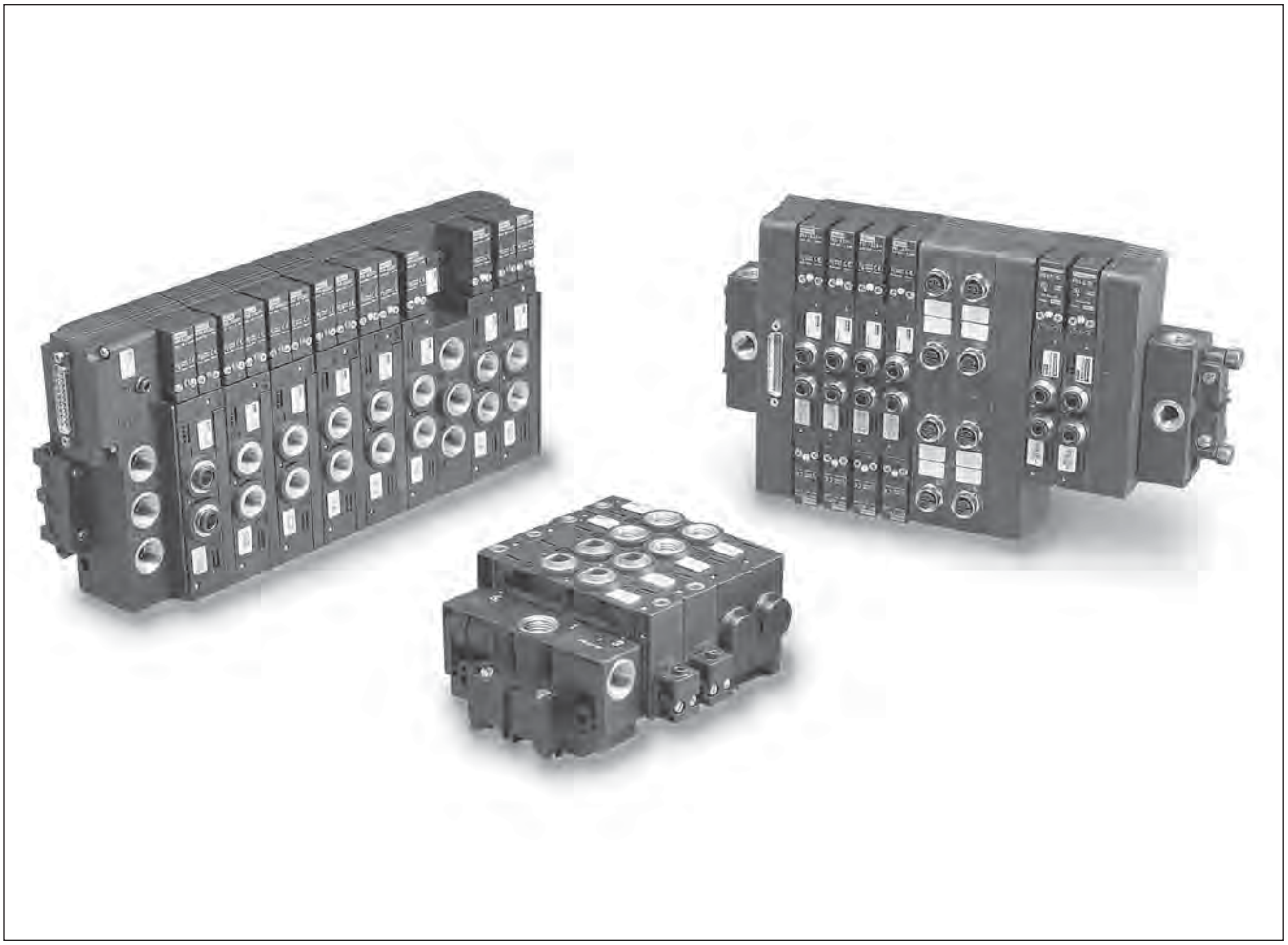
"PVL" Series

Solenoid & Remote Pilot Operated 1/8" & 1/4" Valves

Section C

www.parker.com/pneu/pvl



BOLD ITEMS ARE MOST POPULAR.

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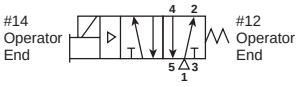
C

Moduflex

PVL

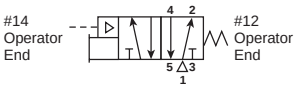
Single Solenoid
4-Way, 2-Position



De-energized position – Solenoid operator #14 de-energized. Pressure at inlet port 1 connected to outlet port 2. Outlet port 4 connected to exhaust port 5.

Energized position – Solenoid operator #14 energized. Pressure at inlet port 1 connected to outlet port 4. Outlet port 2 connected to exhaust port 3.

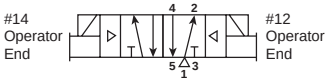
Single Remote Pilot
4-Way, 2-Position



Normal position – Pressure at inlet port 1 connected to outlet port 2. Outlet port 4 connected to exhaust port 5.

Operated position – Maintained air signal at port 14. Pressure at inlet port 1 connected to outlet port 4. Outlet port 2 connected to exhaust port 3.

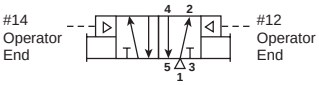
Double Solenoid
4-Way, 2-Position



Solenoid operator #14 energized last. Pressure at inlet port 1 connected to outlet port 4. Outlet port 2 connected to exhaust port 3.

Solenoid operator #12 energized last. Pressure at inlet port 1 connected to outlet port 2. Outlet port 4 connected to exhaust port 5.

Double Remote Pilot
4-Way, 2-Position



Momentary air signal at port 14 last. Pressure at inlet port 1 connected to outlet port 4. Outlet port 2 connected to exhaust port 3.

Momentary air signal at port 12 last. Pressure at inlet port 1 connected to outlet port 2. Outlet port 4 connected to exhaust port 5.

Double Solenoid
3-Position

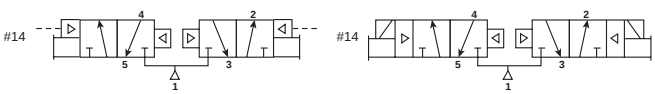
With #12 operator energized – inlet port 1 connected to cylinder port 2, cylinder port 4 connected to exhaust port 5.

With #14 operator energized – inlet port 1 connected to cylinder port 4, cylinder port 2 connected to exhaust port 3.

All Ports Blocked
All ports blocked in the center position.

Center Exhaust
Cylinder ports 2 and 4 connected to exhaust ports 3 and 5 in center position. Port 1 is blocked.

Double Solenoid / Remote Pilot
Dual 3-Way, 2-Position NC (NNP)



With #14 & #12 operators both de-energized – pressure at inlet port 1 blocked, outlet port 4 connected to exhaust port 5, outlet port 2 connected to exhaust port 3.

With #14 operator energized – pressure at inlet port 1 connected to outlet port 4, exhaust port 5 blocked, outlet port 2 connected to exhaust port 3.

With #12 operator energized – pressure at inlet port 1 connected to outlet port 2, exhaust port 3 blocked, outlet port 4 connected to exhaust port 5.

With #14 & #12 operators both energized –
pressure at inlet port 1 connected to outlet ports 4 & 2, exhaust ports 3 & 5 blocked.

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Application

The PVL Series stacking system permits assembly of several valves into one manifold. Supply is connected at either a single or dual head / tail set.* Two common exhaust galleries are provided. Connections to outlet ports #2 and #4 on each valve can be accomplished by threaded pipe or instant tube fittings.

Electrical connection is made to each solenoid utilizing a 15mm, 3-Pin connector plug (PVLB & PVLC).

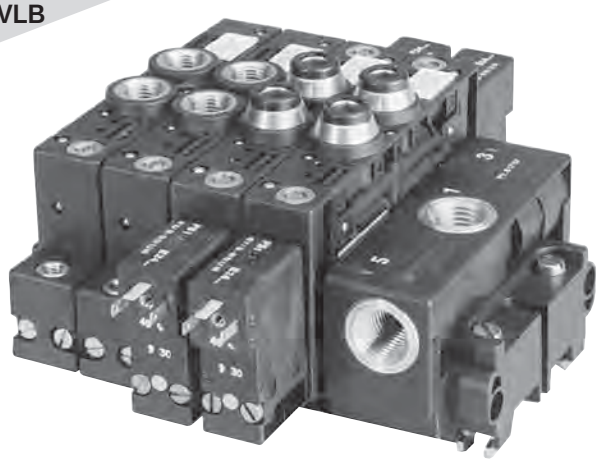
Each manifold assembly can handle any combination of the following valve types:

- Single Solenoid
- Double Solenoid
- Single Remote Pilot
- Double Remote Pilot

Two valve sizes can be combined in one manifold using a transition kit.

* For simultaneous operation of more than 5 valves, a dual head / tail set is recommended.

PVLB



Manifold shows solenoid and remote pilot valves, threaded pipe ports, instant tube fittings, and a single supply head / tail set.

Features

- Greatly reduces installation costs.
- Reduces piping and the risk of leaks.
- Consolidates controls, saves space.
- Provides custom valving arrangements with standard components.
- Improves appearance of pneumatic equipment.
- Common main supply port.
- Allows for two common exhausts which can easily be plumbed away for cleanliness.
- Indicator lights and surge suppression available.
- Designed for 35mm DIN rail mounting. May be surface mounted by removing DIN rail clips.
- Servicing valves can be accomplished quickly without disassembling the entire manifold or removing plumbing.

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C

Moduflex

PVL

Mounting on 35mm DIN Rail

Valve manifolds mount quickly and easily to 35mm DIN rail with the use of a pneumatic head / tail set. The dual head / tail set provides input and exhaust ports at both ends and is recommended if more than 5 valves are to be operated simultaneously.

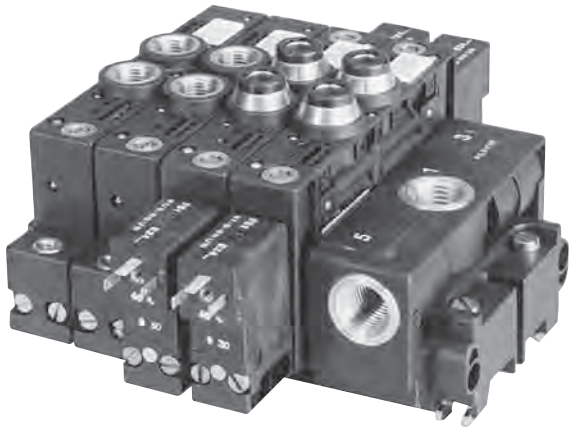
Surface Mounting

Manifolds may be surface mounted by removing the 35mm DIN mounting hardware on the pneumatic head / tail set.

Removal or Replacement

Modules are removed in reverse of the order shown at right. Before removing a module for service or replacement, loosen the *pneumatic* tail piece.

PVLB

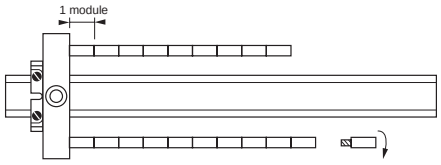


Manifold shows solenoid and remote pilot valves, threaded pipe ports, instant tube fittings, and a single supply head / tail set.

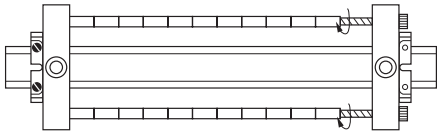
Mounting Procedure

1. Clip on and tighten the pneumatic head piece.

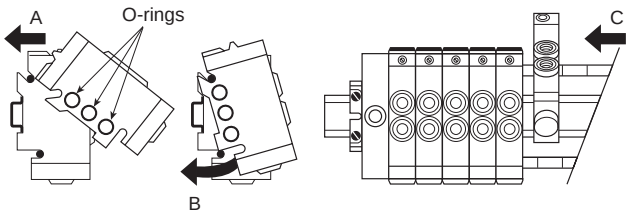
2. Assemble the two parallel mounting rods using cross rods provided with modules.



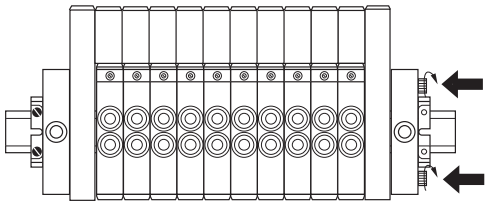
3. Clip on the pneumatic tail piece. Start screws into mounting rod but leave loose for module insertion.



4. To mount valves, position upper slot then push-lock lower slot. Mount modules (valves, modules, transition pieces, etc.) and press together.



5. Tighten the assembly.



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"PVLB" Series
"PVLC" Series

Specifications

- 4-Way, 5-Port, 2 or 3-Position Valves
- Single & Double Solenoid
- Single & Double Remote Pilot
- Dual 3/2

PVLB - .6 Cv

- 1/8" NPT & BSPP
- 1/4" & 6mm Tube Porting

PVLC - 1.2 Cv

- 1/4" NPT & BSPP
- 3/8" & 6mm Tube Porting

Mounting Style

- Stacking Manifold Valve
- DIN Rail Mounting (35mm)

Solenoid Pilot Actuation

- Continuous Duty Rated

PVLB, PVLC

- 1.2W - 12VDC & 24VDC
- 1.6VA - 24VAC, 120VAC, 240VAC
- 3-Pin, 15mm

Manual Overrides

- Brass Locking & Non-Locking

Operating Pressure

- 30 to 150 PSI (310 to 1035 kPa)

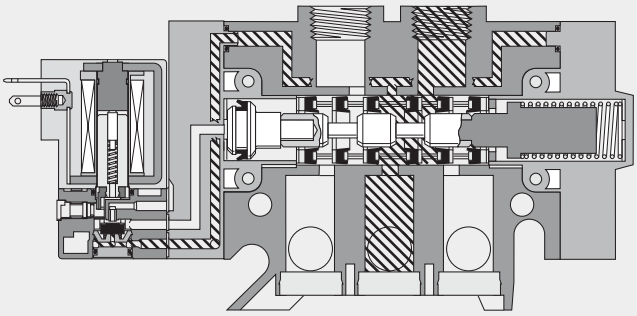
Operating Temperature

- 5°F to 140°F (-15°C to 60°C)

Certification / Approval

- Approved to be CE Marked
- UL (PVLB10 only)
- NFC 79 300

Note: DC units are polarity sensitive.



PVLB (1/8"), PVLC (1/4")
Shown De-Energized

Pressure **Exhaust**

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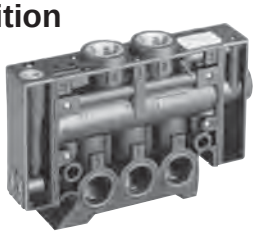
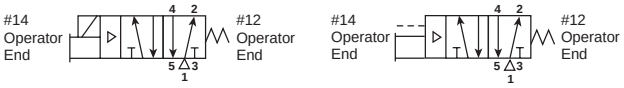
C

Moduflex

PVL

Single Solenoid / Remote Pilot
4-Way, 2-Position

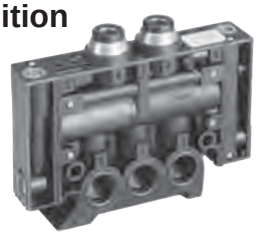


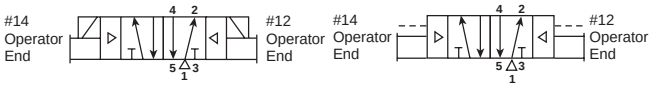


Valve Only			
PVLB	PVLB121618	1/8" BSP	0.6 Cv
	PVLB1216187	1/8" NPT	
	PVLB121606	6mm Tube	
	PVLB1216067	1/4" Tube	
PVLC	**PVLC1216197**	1/4" NPT	1.2 Cv
	PVLC1216097	3/8" Tube	

Locking Manual Override, Valve Less Solenoid.

Double Solenoid / Remote Pilot
4-Way, 2-Position

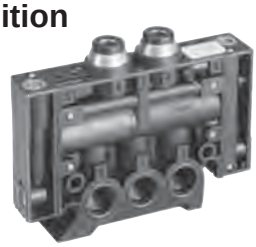




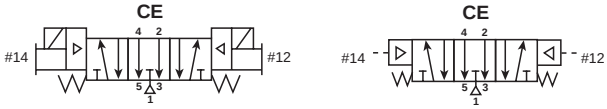
Valve Only			
PVLB	PVLB122618	1/8" BSP	0.6 Cv
	PVLB1226187	1/8" NPT	
	PVLB122606	6mm Tube	
	PVLB1226067	1/4" Tube	
PVLC	**PVLC1226197**	1/4" NPT	1.2 Cv
	PVLC1226097	3/8" Tube	

Non-Locking Manual Override, Valve Less Solenoid.

Double Solenoid / Remote Pilot
4-Way, 3-Position



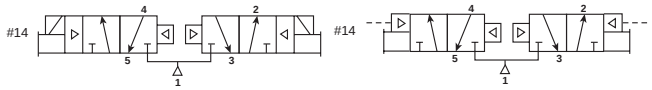
Valve Only			
PVLB	**PVLB1276187**	1/8" NPT	0.6 Cv
PVLC	**PVLC1276197**	1/4" NPT	1.2 Cv



Valve Only			
PVLB	**PVLB1286187**	1/8" NPT	0.6 Cv
PVLC	**PVLC1286197**	1/4" NPT	1.2 Cv

Non-Locking Manual Override, Valve Less Solenoid.

Double Solenoid / Remote Pilot
Dual 3/2 Normally Closed



Valve Only			
PVLB	**PVLB1256187**	1/8" NPT	0.6 Cv
	PVLB1256067	1/4" Tube	
PVLC	**PVLC1256197**	1/4" NPT	1.2 Cv

Non-Locking Manual Override, Valve Less Solenoid.

NOTES:
Solenoids or Remote Pilot Adapter must be ordered separately from page C67.

Each valve is shipped with 2 tie rods for stacking assembly.

BOLD OPTIONS ARE MOST POPULAR.

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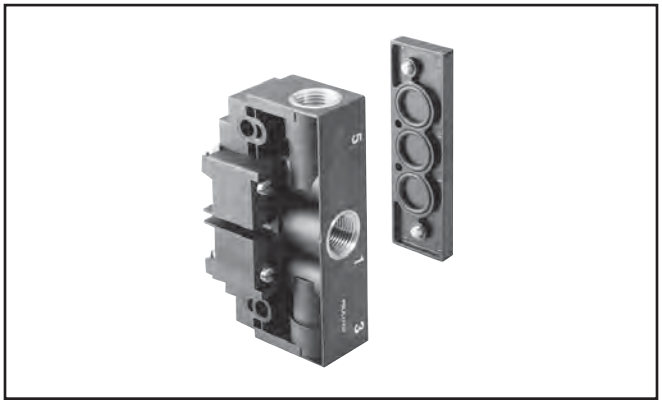
Single Supply Head / Tail Sets



Series	Model Number	Port Size
PVL	**PVLB17197**	1/4" NPT
	PVLB1719	1/4" BSP
PVLC**	**PVLC17137**	3/8" NPT
	PVLC1713	3/8" BSP

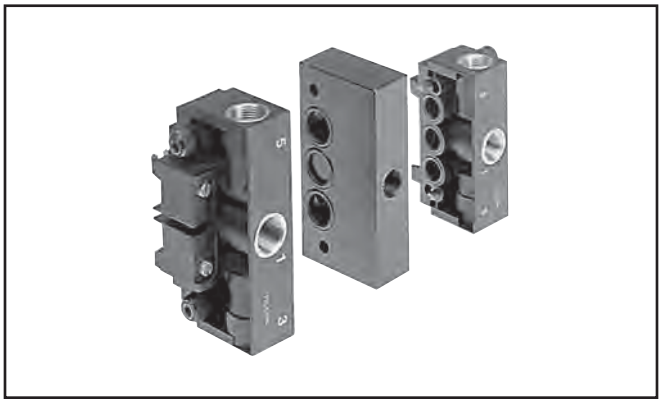
Kit includes: 1 Ported End (head) and 1 Blank End (tail) plus all necessary hardware.

* DIN rail mounting clips on both head and tail. Maximum stack length of 16 valves.

** ⚠ ***Caution:*** DIN rail mounting clips *on head piece only. Maximum stack length of 8 valves.*

Note: DIN rail mounting clips may be removed for surface mounting.

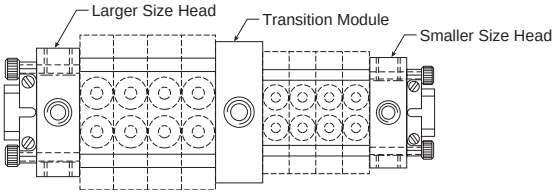
Transition Kits



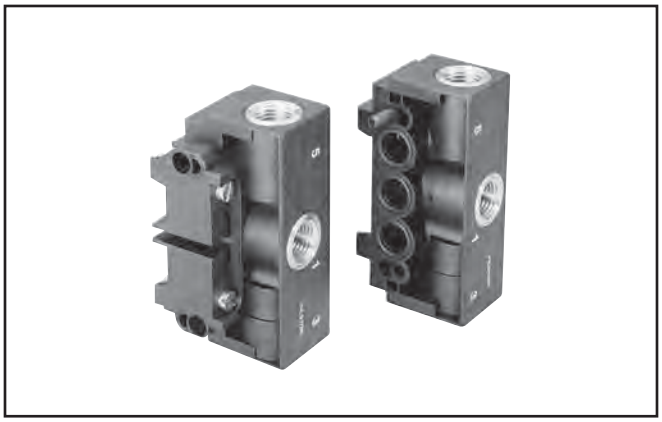
Combination	Model Number	Port Size
PVLB & PVLC	**PVULCB1197**	NPT
	PVULCB119	BSP

Kit enables valves of two different sizes to be combined in the same stack.

Kit includes: 2 Ported Heads (one for each valve size) and a Transition Module with an Auxiliary Supply Port. Maximum number of valves for each size is 16.



Dual Supply Head / Tail Sets

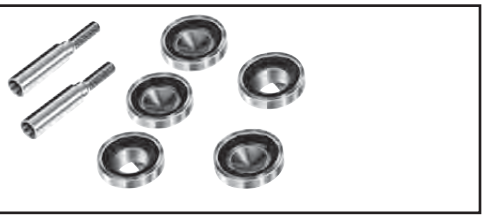


Series	Model Number	Port Size
PVLB	**PVLB17297**	1/4" NPT
	PVLB1729	1/4" BSP
PVLC	**PVLC17237**	3/8" NPT
	PVLC1723	3/8" BSP

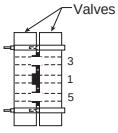
Kit includes: 2 Ported Ends (head and tail) plus all hardware.
Mounts to 35mm DIN rail at both ends.
Maximum stack length of 16 valves.

Note: DIN rail mounting clips may be removed for surface mounting.

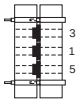
Pressure Isolation Kit



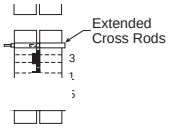
Assembly Instructions



Example 1: Two different pressures P1 and P2 can supply the same bank of power valves, the exhausts remaining common.



Example 2: Complete isolation of the commons in the same bank of power valves: main pressure and exhaust commons.



Example 3: The exhaust commons can be isolated within the same bank of power valves, while the main pressure supply remains common.

Series	Model Number	Kit includes:
PVLB	**PVLB1901**	3 isolation plugs, 2 open port plugs and 2 extended cross rods.
PVLC	**PVLC1901**	
PVLB	**PVLB1902**	10 isolation discs and 10 O-rings.
PVLC	**PVLC1902**	

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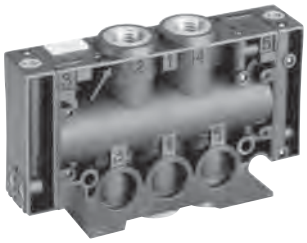
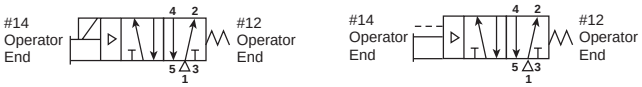
C

Moduflex

PVL

Single Solenoid / Remote Pilot
4-Way, 2-Position

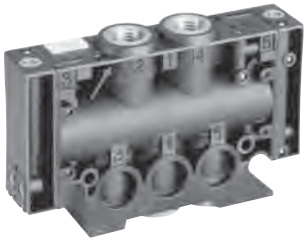


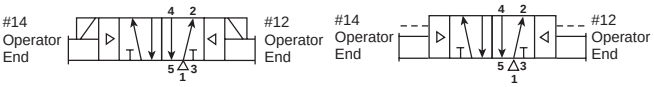


Valve Only			
PVLB	PVLB111618	1/8" BSP	0.6 Cv
	PVLB1116187	1/8" NPT	
	PVLB1116067	1/4" Tube	
PVLC	**PVLC1116197**	1/4" NPT	1.2 Cv
	PVLC1116097	3/8" Tube	

Solenoids or Remote Pilot Adapter must be ordered separately from page C67.

Double Solenoid / Remote Pilot
4-Way, 2-Position





Valve Only			
PVLB	PVLB112618	1/8" BSP	0.6 Cv
	PVLB1126187	1/8" NPT	
	PVLB1126067	1/4" Tube	
PVLC	**PVLC1126197**	1/4" NPT	1.2 Cv
	PVLC1126097	3/8" Tube	

Solenoids or Remote Pilot Adapter must be ordered separately from page C67.

NOTE: BOLD OPTIONS ARE MOST POPULAR.

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PVLB & PVLC 3-Pin,
15mm Solenoids, Non-Locking, Flush Override (w/o electrical connectors)

Voltage	8mm Pin Spacing Kit Number	8mm Pin Spacing Solenoid	Power Consumption
12VDC	**PS2982B45P**	**P2E-KV32B1**	1.2W
24VDC	**PS2982B49P**	**P2E-KV32C1**	1.2W
24V-50/60Hz	**PS2982B42P**	**P2E-KV31C1**	1.6VA
120V/60Hz	**PS2982B53P**	**P2E-KV31F1**	1.6VA
240V/60Hz	**PS2982B57P**	**P2E-KV31J1**	1.6VA

Notes:
Kit includes: solenoid, (2) machine screws, (2) self threading screws, (1) gasket,
(1) 3-cell gasket.

Electrical connectors must be ordered separately from the chart shown on page C68.

Remote Pilot Connectors
PVLB (1/8") & PVLC (1/4") Valves

Model Number	Port Fitting
PVAP111	**5/32" Tube**
PVAP115	**10-32 UNF (M5)**

Supplied with two screws to quickly mate with the valve body.

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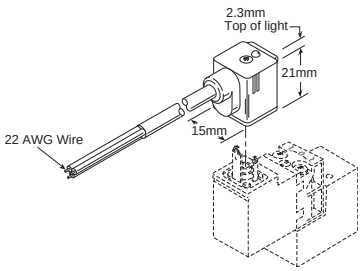
C

Moduflex

PVL

Female Electrical Connectors
15mm 3-Pin DIN 43650C - 8mm



**Molded 6'
Cord Shown**

Connector	Connector with Cord	Description
PS2932BP	PS2932HBP 18 Inches	Unlighted
PS2932BP	PS2932JBP 6 Feet	Unlighted
PS294675BP	PS2946J75BP* 6 Feet	Light – 12VAC or DC
PS294679BP	PS2946J79BP* 6 Feet	Light – 24VAC or DC
PS294683BP	PS2946J83BP* 6 Feet	Light – 110/120VAC
PS294687BP	N/A	Light – 240/230VAC

* LED with surge suppression.

Note: Max ø6.5mm cable size required for connector w/o 6' (2m) cord. IP65 rated when properly installed.

Engineering Data:

Conductors: 2 Poles Plus Ground
Cable Range (Connector Only): 4 to 6mm (0.16 to 0.24 Inch)
Contact Spacing: 8mm

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"PVLB10" Series
"PVLC10" Series

Specifications

- 4-Way, 5-Port, 2 or 3-Position Valves
- Single & Double Solenoid
- Dual 3/2 Valves

PVLB10 - 0.6 Cv

- 1/8" NPT & BSPP
- 1/4" & 6mm Tube Porting

PVLC10 - 1.2 Cv

- 1/4" NPT & BSPP
- 3/8" & 8mm Tube Porting

Mounting Style

- DIN Rail Mounting (35mm)
- Stacking Manifold Valve

Solenoid Pilot Actuation

- Low watt solenoid pilots: 1.2W/1.6VA
- Lights & Surge Suppression Standard
- 12VDC to 120VAC

Operating Pressure

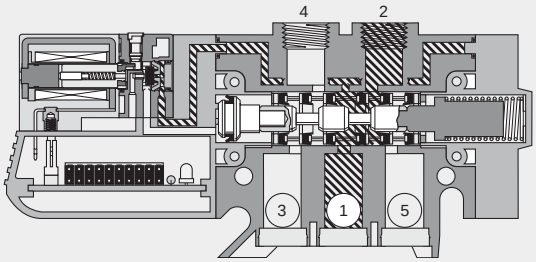
- 30 to 150 PSI (310 to 1035 kPa)

Operating Temperature

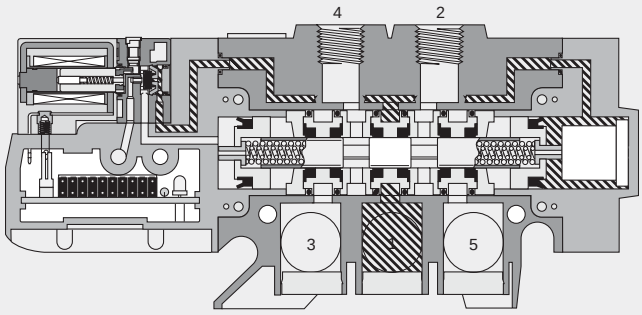
- 5°F to 140°F (-15°C to 60°C)

Certification / Approval

- Approved to be CE Marked
- IP65



PVLB10 Single Solenoid
Shown De-Energized



PVLC10 3-Position APB

Pressure **Exhaust**

Note: DC units are polarity sensitive.

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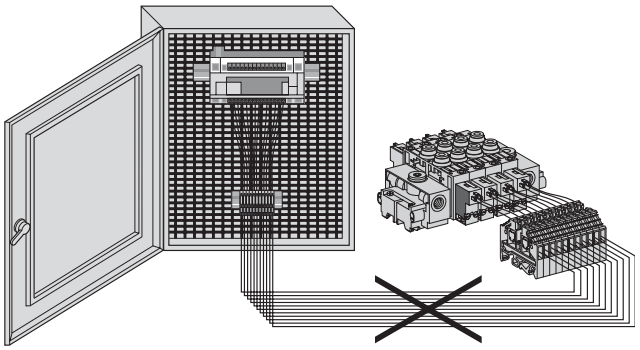
C

Moduflex

PVL

Simplified Electrical Wiring

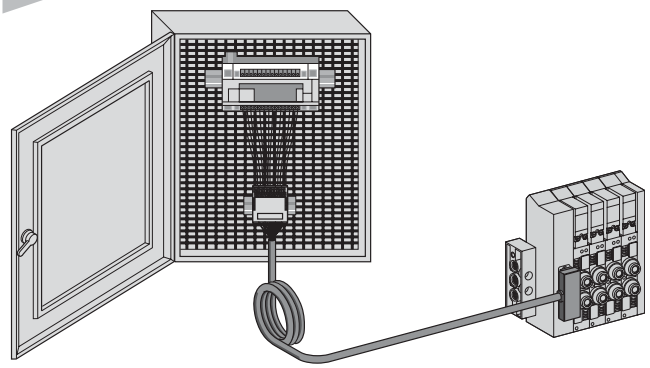
Eliminate costly wiring of individual solenoids with compact PVLB10 or PVLC10 stacks of up to 16 modules with built-in electrical connectors.



Simplified Setup

A single cable provides electrical connection to PLC or special terminal block.

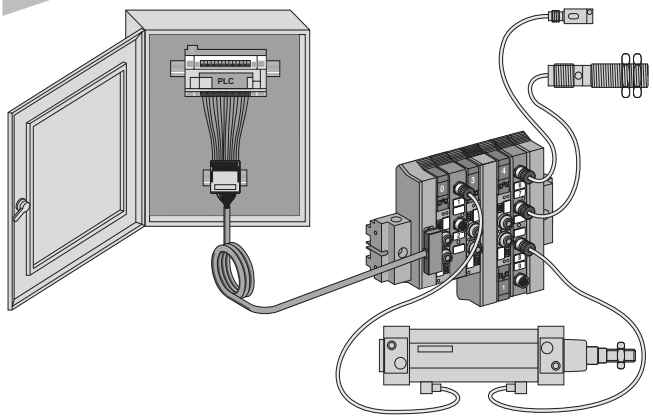
PVLB10



External Connections

External connection modules with PVLB10 valves allow sensor feedback or output connections to be integrated into the valve stack.

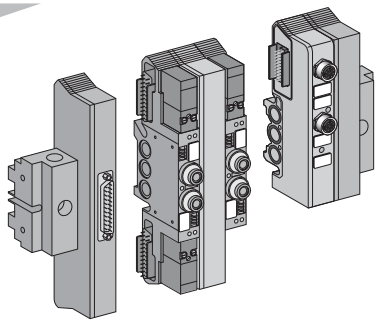
PVLB10



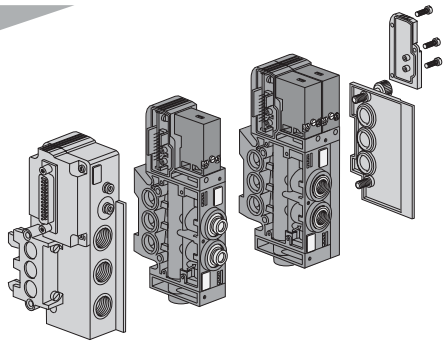
Modular Stacking

- The modular stacking system permits easy assembly of valves and external connection modules into a single stack.
- Integral supply and exhaust ports are manifolded as the stack is assembled.
- Intermodular electrical connection is accomplished through integral 20-Pin electrical connectors, eliminating the need for harnessing or wiring within the stack.
- PVLB10 single and double solenoid valves can be combined into one stack with the use of transition modules.
- PVLC10 single and double solenoid valves can be combined into one stack without any transition modules.
- The electrical head / tail set provides a single electrical connection from the stack to a PLC or terminal block.
- Each stack mounts easily to 35mm DIN rail by means of a pneumatic head / tail set, which also provides common air supply and exhaust.

PVLB10



PVLC10



Stacking System Benefits

- Reduces wiring, saves space.
- Allows custom arrangements with standard components.
- Further reduces wiring by integrating feedback and output connections into the PVLB10 valve stack.
- Greatly reduces installation time and costs.
- Servicing valves can be accomplished quickly without disassembling the entire stack.

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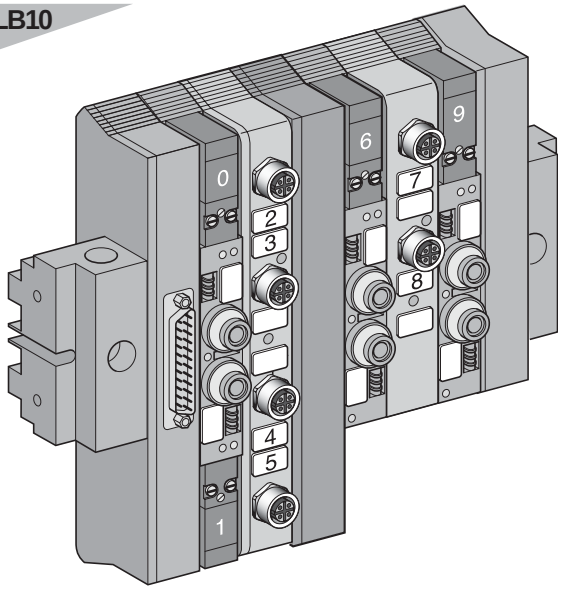
Autoconfiguration

The construction of the stack determines the relationship of each connector pin and the device it is to control. The address of each solenoid valve and each feedback or output connection is based on its physical position in the stack. For PVLB10, addresses are assigned consecutively from top to bottom and left to right beginning at top left with 0. For PVLC10, addresses are assigned consecutively from left to right and beginning at top left with 0.

PVLB10



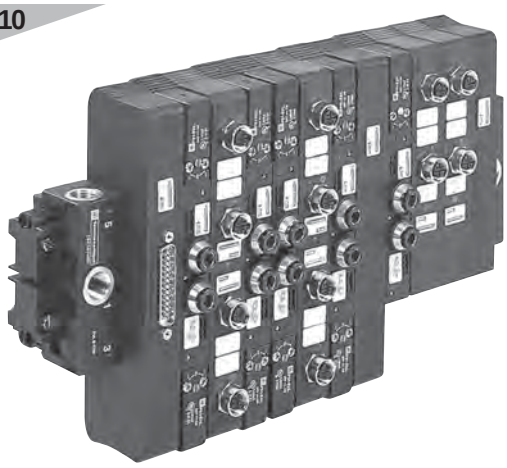
It is easy to add or remove one or more modules to adapt to machine modifications. Once the controller is programmed, however, it is recommended that, where possible, the addition or permanent removal of any module be done at the tail (right-hand) end of the stack to prevent affecting the addresses of other modules in the stack. A change in address requires reprogramming of the controller.

Connector Options

PVLB10

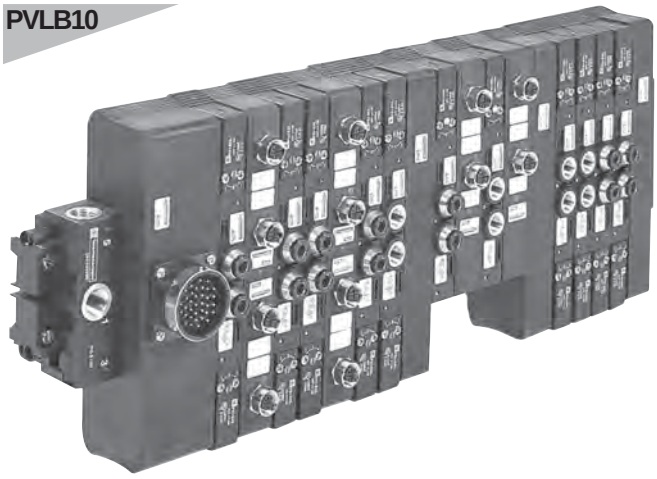
25-Pin Connector, Single Size Stack
Maximum 16 Addresses

PVLB10



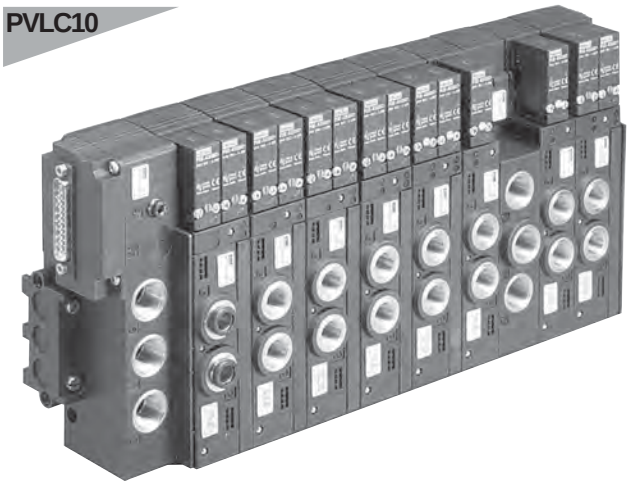
25-Pin Connector, Dual Size Stack
Maximum 21 Addresses

PVLB10



35-Pin Connector, Dual Size Stack
Maximum 32 Addresses

PVLC10



25-Pin Connector,
Maximum 16 Addresses

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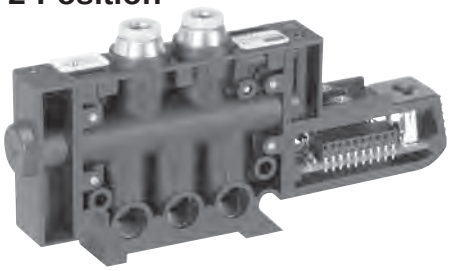
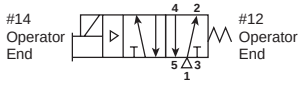
C

Moduflex

PVL

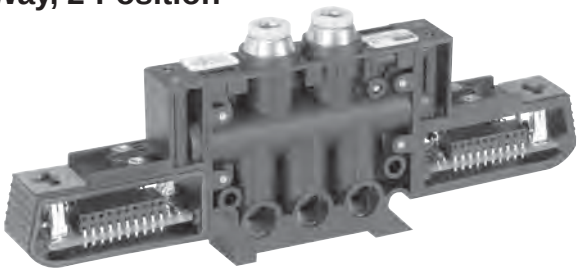
Single Solenoid
4-Way, 2-Position

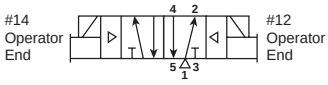




Valve Only				
PVLB10	**PVLB1016187W2**	1/8" NPT	12-24 VDC	0.6 Cv
	PVLB1016187W1		24-120 VAC	
	PVLB1016067W2	1/4" Tube	12-24 VDC	
	PVLB1016067W1		24-120 VAC	

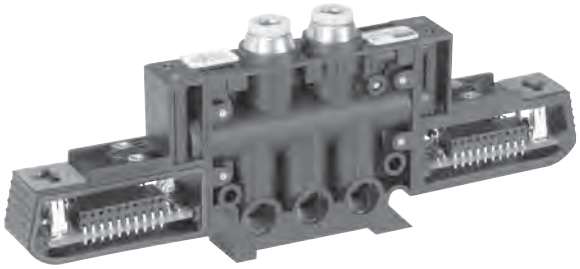
Double Solenoid
4-Way, 2-Position



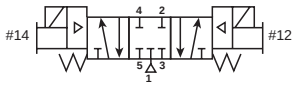


Valve Only				
PVLB10	**PVLB1026187W2**	1/8" NPT	12-24 VDC	0.6 Cv
	PVLB1026187W1		24-120 VAC	
	PVLB1026067W2	1/4" Tube	12-24 VDC	
	PVLB1026067W1		24-120 VAC	

Double Solenoid
4-Way, 3-Position APB

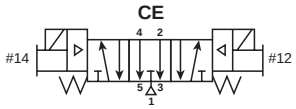


APB



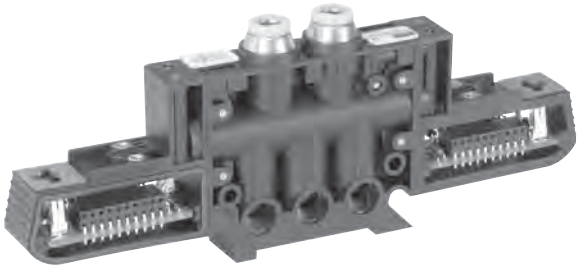
Valve Only				
PVLB10	**PVLB1076187W2**	1/8" NPT	12-24 VDC	0.6 Cv
	PVLB1076187W1		24-120 VAC	
	PVLB1076067W2	1/4" Tube	12-24 VDC	
	PVLB1076067W1		24-120 VAC	

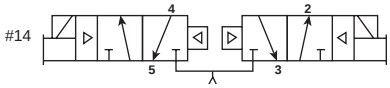
CE



Valve Only				
PVLB10	**PVLB1086187W2**	1/8" NPT	12-24 VDC	0.6 Cv
	PVLB1086187W1		24-120 VAC	
	PVLB1086067W2	1/4" Tube	12-24 VDC	
	PVLB1086067W1		24-120 VAC	

Double Solenoid
Dual 3/2 Normally Closed





Valve Only				
PVLB10	**PVLB1056187W2**	1/8" NPT	12-24 VDC	0.6 Cv
	PVLB1056187W1		24-120 VAC	

NOTES:
Solenoids sold separately on page C74.

Part Numbers Do Not include Solenoids.

BOLD OPTIONS ARE MOST POPULAR.

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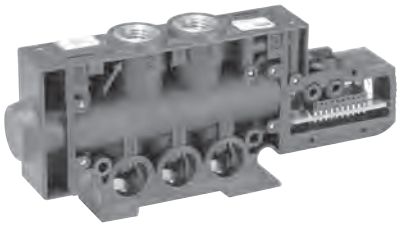
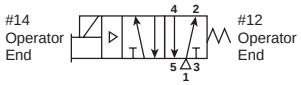
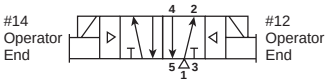
Single Solenoid
4-Way, 2-Position





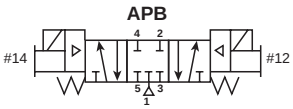
Valve Only				
PVLC10	**PVLC1016197W2**	1/4" NPT	12-24 VDC	1.2 Cv
	PVLC1016197W1		24-120 VAC	
	PVLC1016097W2	3/8" Tube	12-24 VDC	
	PVLC1016097W1		24-120 VAC	

Double Solenoid
4-Way, 2-Position

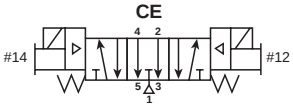


Valve Only				
PVLC10	**PVLC1026197W2**	1/4" NPT	12-24 VDC	1.2 Cv
	PVLC1026197W1		24-120 VAC	
	PVLC1026097W2	3/8" Tube	12-24 VDC	
	PVLC1026097W1		24-120 VAC	

Double Solenoid
4-Way, 3-Position APB

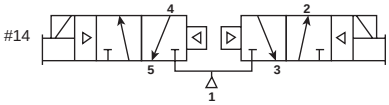


Valve Only				
PVLC10	**PVLC1076197W2**	1/4" NPT	12-24 VDC	1.2 Cv
	PVLC1076197W1		24-120 VAC	



Valve Only				
PVLC10	**PVLC1086197W2**	1/4" NPT	12-24 VDC	1.2 Cv
	PVLC1086197W1		24-120 VAC	

Double Solenoid
Dual 3/2 Normally Closed



Valve Only				
PVLC10	**PVLC1056197W2**	1/4" NPT	12-24 VDC	1.2 Cv
	PVLC1056197W1		24-120 VAC	

NOTES:

Solenoids sold separately on page C74.

Part Numbers Do Not include Solenoids.

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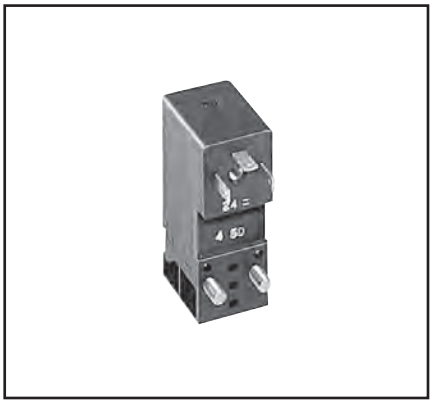
PVLB10 & PVLC10 3-Pin,
15mm Solenoids / Kits
(8mm Pin Spacing) DIN43650C



Voltages	Power Consumption	Holding Current	Id (Drop-Out Current)*	Kit Numbers With Non-Locking Flush Manual Override	Solenoid Only	Kit Numbers With Locking Flush Manual Override	Solenoid Only
12VDC	1.2W	100 mA	10 mA	**PS3441B45P**	**P2E-KS32B1**	**PS3441C45P**	**P2E-KS32B2**
24VDC	1.2W	50 mA	5 mA	**PS3441B49P**	**P2E-KS32C1**	**PS3441C49P**	**P2E-KS32C2**
24VAC	1.6VA	65 mA	22 mA	**PS3441B42P**	**P2E-KS31C1**	**PS3441C42P**	**P2E-KS31C2**
110VAC, 50Hz 120VAC, 60Hz	1.6VA	13.3 mA	5 mA	**PS3441B53P**	**P2E-KS31F1**	**PS3441C53P**	**P2E-KS31F2**

* When using a programmable controller, be sure that the leakage current of the controller outputs is lower than the drop-out current value.

Notes:
Kit includes: Solenoid, (2) machine screws, (2) self threading screws, (1) gasket, (1) 3-cell gasket, (1) L-shaped 3-cell gasket.

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Constructing a PVLB10 Stack

When constructing a stack, the following rules apply:

1. A stack must have a pneumatic and an electrical head / tail set.
2. A stack has a physical limit of 16 active modules (valves, feedback modules and output modules), regardless of whether they are double or single.
3. Single feedback and output modules must be stacked with single solenoid valves, and double feedback and output modules must be stacked with double solenoid valves.
4. Double and single modules can be combined in a stack with the use of a transition module. A stack order of double to single is recommended to maximize the number of possible addresses.

⚠ ***CAUTION:*** *If the application requires simultaneous operation of valves and/or external connection modules, see Technical Data page for operating limits.*

Addressing

Addresses are automatically assigned to each solenoid and each external connection based on its position in the stack. Addresses are numbered consecutively from top to bottom and left to right beginning at the top left of the stack with 0.

To find the total number of addresses that will be required for a stack, calculate the following for each type of module based on table below and total:

Addresses x Quantity of Units = Addresses Required

Type of Module	Addresses Assigned		Quantity In stack		Addresses Required
Double solenoid valve	2	x		=	
Double ck module	4	x		=	
Double output module	4	x		=	
Single solenoid valve	1	x		=	
Single feedback module	2	x		=	
Single output module	2	x		=	
TOTAL ADDRESSES				=	

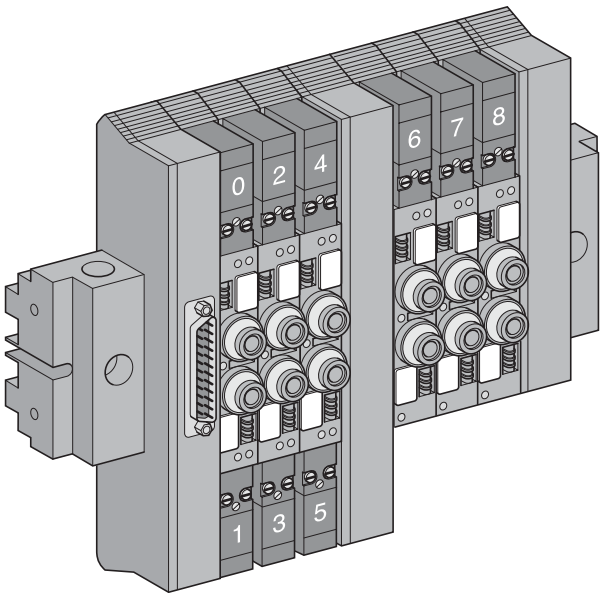
Electrical Connection

When selecting the electrical head / tail set, the following must be considered:

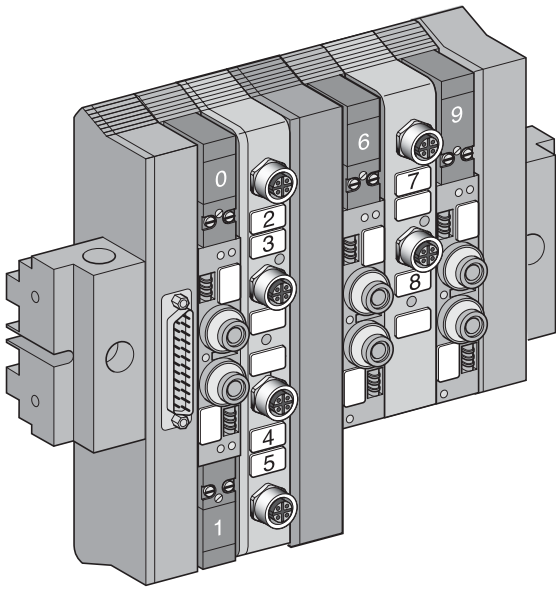
1. The size (double or single) of the electrical head piece must match that of the first module to its right.
2. The electrical connector must provide sufficient addresses for the stack.

The number of addresses possible with each type of head / tail set is shown in the following table. Based on the head type needed, select the connector that provides sufficient addresses for the stack.

PVLB10



Double Solenoid to Single Solenoid Valve Manifold with 25-Pin Connector:
6 valves
9 addresses



Double Solenoid to Single Solenoid Mixed Manifold with 25-Pin Connector:
5 active modules
10 addresses

Head Type	Connector	Possible Addresses
Single Solenoid	25-Pin	16
Double Solenoid	25-Pin	21
	35-Pin	32

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C

Moduflex

PVL

External Connection Modules

With 20-Pin intermodular system and 12mm (mini) connectors, these modules can be combined with valves and/or other modules. Feedback modules supply voltage to sensors and accept signals for communication back to the PLC. Feedback modules can be used for PNP or NPN sensors, indicator lights will only work on PNP sensors. Output modules allow connection and control of valves mounted externally from the stack.

Type	Size	Connections	Model Number
Feedback	Single	2 Inputs	**PVLB1E1302**
	Double	4 Inputs	**PVLB1E2304**
Output	Single	2 Outputs	**PVLB1S1302**
	Double	4 Outputs	**PVLB1S2304**

Double **Single**

Head / Tail Sets

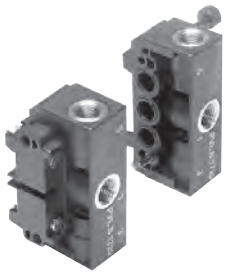
Pneumatic

Single air supply head / tail are used for shorter manifolds and dual air supply head / tail are used for longer manifolds.

Dual air supply head / tail sets contains 2 ported ends plus all hardware. Clamps to 35mm DIN rail. Removing 35mm hardware provides mounting holes for surface mounting. Single air supply head / tail sets clamp on one side only, Dual air supply head / tail sets clamp on both sides.

Type	Port Size	Model Number
Single Supply	1/4" NPT	**PVLB17197**
	1/4" BSP	PVLB1719
Double Supply	1/4" NPT	**PVLB17297**
	1/4" BSP	PVLB1729

Single Air Supply Head / Tail Set



Dual Air Supply Head / Tail Set

Pressure Isolating Disc

Description	Model Number
Sold in lots of 10.	PVLB1902

Electrical

For use with manifolds of all single solenoid valves or all double solenoid valves. Provides electrical link between all functions in the stack and the PLC.

Size	Connector	Model Number
Single Solenoid	25-Pin (Male), D-Sub	**PVLB191125**
Double Solenoid	25-Pin (Male), D-Sub	**PVLB192125**
	35-Pin (Male)	**PVLB192235**

Single Size Stacks

For use with manifolds using both single and double solenoid valves. Provides electrical connection to PLC and transition between single and double solenoid valves.

Valve Order	Connector	Model Number
Double Solenoid then Single Solenoid	25-Pin (Male), D-Sub	**PVLB194125**
	35-Pin (Male)	**PVLB194235**
Single Solenoid then Double Solenoid	25-Pin (Male), D-Sub	**PVLB193125**

Dual Size Stacks

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Constructing a PVLC10 Stack

When constructing a stack, the following rules apply:

1. A stack must have a pneumatic and an electrical head / tail set.
2. A stack has a physical limit of 16 solenoids.
3. Single and double solenoid valves can be combined into one stack without any transition module.

⚠ ***CAUTION:*** *If the application requires simultaneous operation of valves and/or external connection modules, see Technical Data page for operating limits.*

Addressing

Addresses are automatically assigned to each solenoid and each external connection based on its position in the stack. Addresses are numbered consecutively from left to right beginning at the top left of the stack with 0.

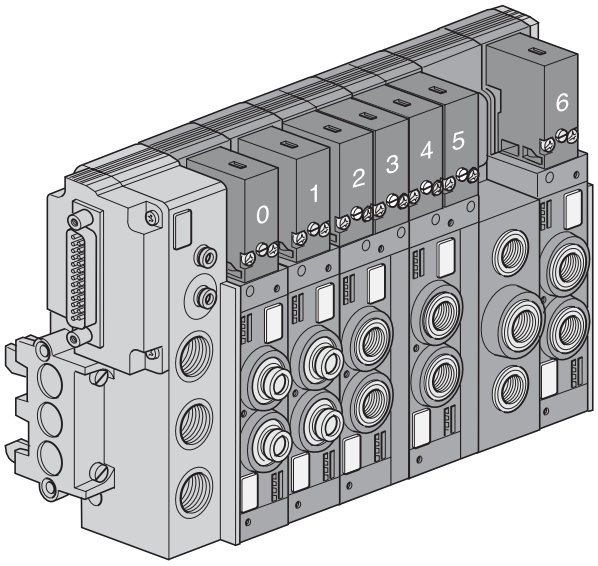
To find the total number of addresses that will be required for a stack, calculate the following for each type of module based on table below and total:

Addresses x Quantity of units = Addresses Required

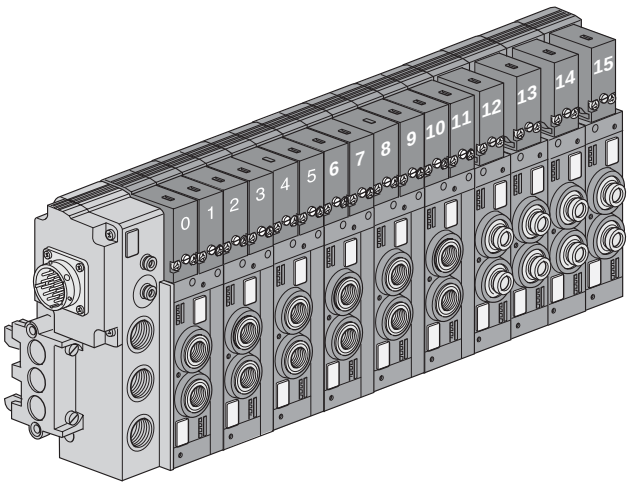
Type of Module	Addresses Assigned		Quantity In stack	Addresses Required
Double solenoid valve	2	x		=
Single solenoid valve	1	x		=
TOTAL ADDRESSES				=

Head Type	Connector Possible Addresses
25-Pin	16
19-Pin	16

PVLC10



25-Pin Connector with Intermediate Air Supply Module:
5 valves
7 addresses



19-Pin Connector:
10 valves
16 addresses

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C

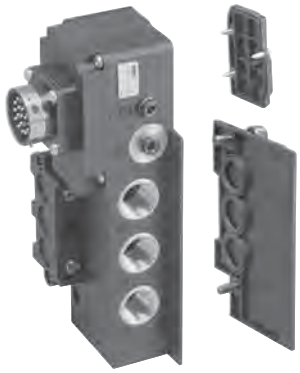
Moduflex

PVL

Head / Tail Sets
Electrical / Pneumatic

Port Size / Type	Connector	Model Number
3/8" NPT, Single	D-Sub, 25-Pin w/ External Pilot (Px)	PVLC27137D25A
3/8" NPT, Single	D-Sub, 25-Pin w/o External Pilot (Px)	**PVLC17137D25A**
3/8" NPT, Single	Circular, 19-Pin w/o External Pilot (Px)	PVLC17137C19A

D-Sub, 25-Pin



Circular, 19-Pin

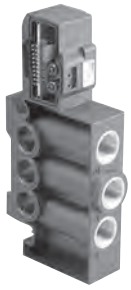
Air Supply Modules

Tail Air Supply Module to be mounted at the end of the manifold for dual air supply for longer manifolds.

Intermediate Air Supply Module used when multiple pressures are required on a manifold.

Port Size / Type	Tail Air Supply Module	Intermediate Air Supply Module
3/8" NPT	**PVULC2137**	**PVULC2137E**
3/8" BSP	PVULC213	PVULC213E

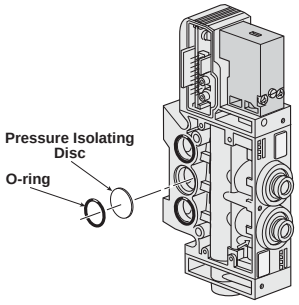
Tail Air Supply Module



Intermediate Air Supply Module

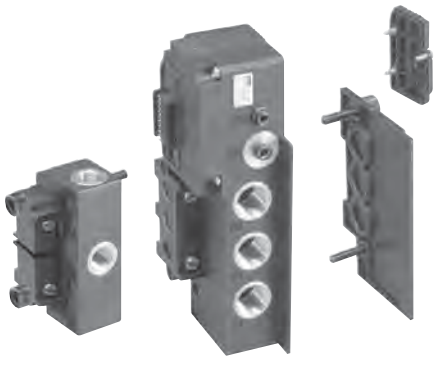
Pressure Isolating Disc

Description	Model Number
Sold in lots of 10	**PVLC1902**



Transition Kits
(PVLB10 to PVLC10)

Port Size / Type	Connector	Model Number
1/4" NPT to 3/8" NPT	Transition Kit with External Pilot (Px)	**PVLC27137B19**
1/4" NPT to 3/8" NPT	Transition Kit without External Pilot (Px)	**PVLC17137B19**
1/4" BSP to 3/8" BSP	Transition Kit with External Pilot (Px)	PVLC2713B19
1/4" BSP to 3/8" BSP	Transition Kit without External Pilot (Px)	PVLC1713B19



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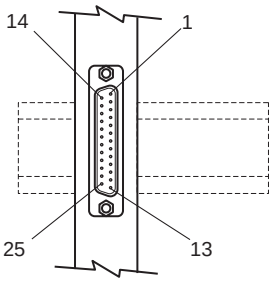
D-Sub, 25-Pin Single Size Head / Tail Set

Pin No.	Stack Address	Pin No.	Stack Address
13	0	8	10
25	1	20	11
12	2	7	12
24	3	19	13
11	4	6	14
23	5	18	15
10	6	5	Not Used
22	7	17	24V (feedback) (PVBL10)
9	8	4	0V (feedback) (PVBL10)
21	9	16	Common 0v



D-Sub, 25-Pin Double Size Head / Tail Set*

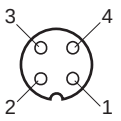
Pin No.	Stack Address	Pin No.	Stack Address
13	0	19	13
25	1	6	14
12	2	18	15
24	3	5	Not Used
11	4	17	24V (feedback)
23	5	4	0V (feedback)
10	6	16	Common 0v
22	7	3	16
9	8	15	17
21	9	2	18
8	10	14	19
20	11	1	20
7	12		

Feedback Connector*

Pin No.	I/O
1	24V (feedback)
2	—
3	0V (feedback)
4	Input

Output Connector*

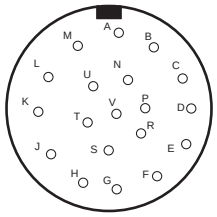
Pin No.	I/O
1	—
2	—
3	Common 0v
4	Output



Notes: Solenoids are polarity sensitive. The common must be at 0V. Switching must be at the high potential.

* Available with PVLB10 Only

19-Pin Circular Connector†

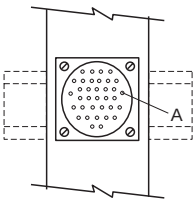


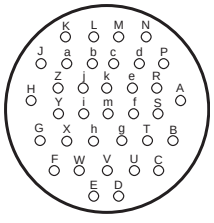
Pin No.	Stack Address
A	0
B	1
C	2
D	3
E	4
F	5
G	6
H	7
J	8
K	9
L	10
M	11
N	12
P	13
R	14
S	15
T	Common 0V
U	Not Used
V	Not Used

† Available with PVLC10 Only

Cylindrical, 35-Pin type "Trident Ringlock" Double Size Head / Tail Set*

Pin No.	Stack Address	Pin No.	Stack Address
A	0	V	18
B	1	W	19
C	2	X	20
D	3	Y	21
E	4	Z	22
F	5	a	23
G	6	b	24
H	7	c	25
J	8	d	26
K	9	e	27
L	10	f	28
M	11	g	29
N	12	h	30
P	13	i	31
R	14	j	Common 0V
S	15	k	0V (feedback)
T	16	m	24V (feedback)
U	17		





* Available with PVLB10 only.

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C

Moduflex

PVL

Operating Pressure Range:

Single Pilot ..... 45 to 150 psi (311 to 1035 kPa)
Double Pilot..... 30 to 150 psi (207 to 1035 kPa)

Temperature Range (Ambient)

Operating..... 5° to 140°F (-15° to 60°C)
Storage..... -40° to 158°F (-40° to 70°C)

⚠ ***CAUTION:***
If it is possible that the ambient temperature may fall below freezing, the medium must be moisture free to prevent internal damage or unpredictable behavior.

Medium:..... Dry or lubricated air or inert gas

Medium Quality:

PVLB & PVLC.....Dry or lubricated air at 50 micron filtration

Materials:

Body .....Glass filled polyamide
Seals .....Polyurethane
Fittings.....Brass

Mounting:

Inline.....Surface mount on flat surface
Stacking .....Mount on 35mm DIN rail or flat surface

Mounting Orientation:.....All positions

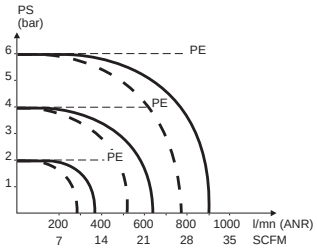
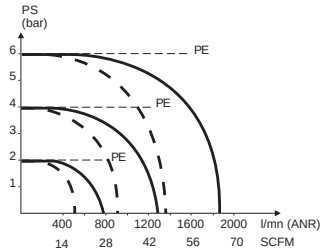
Manual Overrides:..... Locking or non-locking

Lubrication

Valves are pre-lubricated and may be operated with dry air. If lubrication is desired, use F442 oil.

Cycle Life: ..... 30 million (dry air)

Specific Characteristics

Description		1/8" Valves (PVLB) (PVLB10)		1/4" Valves (PVLC) (PVLC10)	
Cv		0.6		1.2	
Flow Rates ——— Threaded connector – – – Instant tube fitting PE = input pressure PS = output pressure					
Port Sizes	Instant tube fitting	1/4"		3/8"	
	Threaded	1/8" Pipe		1/4" Pipe	
Maximum Valve Fitting Torque		7.4 ft-lb (10Nm)		14.8 ft-lb (20Nm)	
Head / Tail Port Size / Max. Torque		1/4" Pipe / 14.8 ft-lb (20Nm)		3/8" Pipe / 40.6 ft-lb (55Nm)	
For Air Operated Valves:		**Single Acting**	**Double Acting**	**Single Acting**	**Double Acting**
Response Time (Input to Output)*		14 ms	8 ms	25 ms	11 ms
Pilot Pressure (@ 90 PSIG Inlet)		44 PSI	29 PSI	44 PSI	29 PSI
Depilot Pressure (@ 90 PSIG Inlet)		15 PSI	—	22 PSI	—
Maximum Operating Frequency		5 Hz	10 Hz	5 Hz	10 Hz
For Solenoid Operated Valves:		**Single Acting**	**Double Acting**	**Single Acting**	**Double Acting**
Response Time (Input to Output)*		22 ms	12 ms	39 ms	17 ms
Maximum Operating Frequency		5 Hz	10 Hz	5 Hz	10 Hz
Power Consumption Hold		DC = 1.2 Watt, AC = 1.6VA		DC = 1.2 Watt, AC = 1.6VA	
Power Consumption Inrush		DC = 1.2 Watt, AC = 3.5VA		DC = 1.2 Watt, AC = 3.5VA	
Voltage Tolerance		+10% to -15% rated voltage @ 70° F (20° C)		+10% to -15% rated voltage @ 70° F (20° C)	
Standard Voltages		12 and 24 VDC 24 and 120 VAC		12 and 24 VDC 24 and 120 VAC	
Rated Insulation Voltage		1500 Volts		1500 Volts	
Protection Rating		IP65		IP65	
Standards		(UL) (except 240 VAC) and NFC 79 300			

* Valves tested with test chamber at 90 PSIG inlet pressure.

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Electrical Characteristics

Standard Voltages:

Solenoid ..... DC = 12 and 24
AC = 24V 50/60 Hz and 120V 60 Hz

Feedback module.....24VDC (designed for sourcing sensor)

Output module.....24VDC

Voltage Tolerance:

+10% to -15% of rated voltage @ 70° F (20° C)

Power Consumption (Solenoid):

Hold .....DC = 1.2W.....AC = 1.6VA
Inrush .....DC = 1.2W.....AC = 3.5VA

Rated Currents (Solenoid)

Voltage	Holding Current	I_d (Drop-out Current)*
12VDC	100 mA	10 mA
24VDC	50 mA	5 mA
48VDC	25 mA	2.5 mA
24VAC	65 mA	22 mA
120VAC	13.3 mA	5 mA

* When using a programmable controller, be sure that the leakage current of the controller outputs is lower than the drop-out current value.

Maximum Allowable Currents:

Stack = 1000 mA (1 Amp)
Output module = 1000 mA (1 Amp)
Feedback Module = 100 mA (supply + load)

Indication:

By LED – one for each stack address

PVLB10 External Connection:

Round connector M12

Protection Rating IP65

⚠ Simultaneous Operation

Some applications require simultaneous use of devices during setup or operation. Under normal single device operation, reliability can be assured by staying within the stated "Maximum Allowable Currents". During simultaneous operation, however, the currents for each device must be added together with the total current not exceeding the 1000 mA (1 Amp) rating for the stack (example: only ten 12VDC solenoids can be operated simultaneously because their total accumulated current = 1000 mA). This is especially true for any connected external load when using the output module. While each output module is rated for 1000 mA, simultaneous operation of this load will reduce this rating. Calculate maximum available current for any externally connected load during simultaneous operation according to the following formula:

Available Current = 1,000 mA - simultaneous current*

* Add all solenoid currents based on system voltage and any other external load operating simultaneously.

Type of Device	Current Required		Quantity (simultaneous)		Current Used
Solenoid	_____	mA(1) x	_____	=	_____ mA
External Load(2)	_____	mA(3) x	_____	=	_____ mA
Total Required Current				=	_____ mA(4)

(1) Depending on system voltage (see "Rated Currents").

(2) Feedback modules use a separate common so are not used for this calculation, but total feedback current cannot exceed 1000 mA (1 Amp).

(3) Depending on device connected to the output module. Use rated current (mA) for device or calculate: mA = Watts/Volts x 1000.

(4) Must not exceed 1000 mA (1 Amp).

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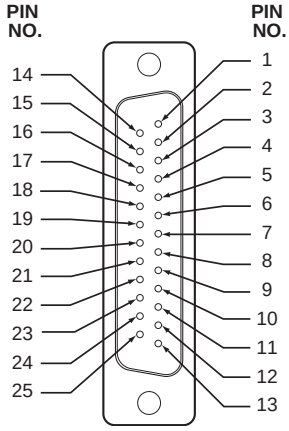
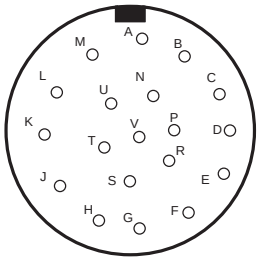
Pin Out Detail D-Sub, 25-Pin Connector*



Output Solenoid No.	D-Sub 25-Pin No.	IP65 Cable Colors	Output Solenoid No.	D-Sub 25-Pin No.	IP65 Cable Colors
0	13	Green	10	8	Blue / Black
1	25	Transparent	11	20	White / Black
2	12	Dark Blue	12	7	Khaki
3	24	Light Blue	13	19	Orange
4	11	Pink	14	6	White
5	23	Purple	15	18	Gray
6	10	Dark Green / Black	Not Used	5	Red / Black
7	22	Yellow	Not Used	17	Red
8	9	Light Green / Black	Not Used	4	Brown
9	21	Yellow / Black	Valve Common	16	Black

Notes: Solenoids are polarity sensitive. The common must be at OV. Switching must be at the high potential.
* Available with PVLB10 Only.

19-Pin Circular Connector*

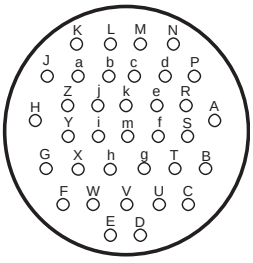


* Available with PVLC10 Only.

Output Solenoid No.	19-Pin Connector	IP65 Cable Colors	Output Solenoid No.	19-Pin Connector	IP65 Cable Colors
0	A	Pink / Brown	10	L	Blue
1	B	White / Green	11	M	Pink
2	C	White / Yellow	12	N	Grey
3	D	White / Grey	13	P	Yellow
4	E	White / Pink	14	R	White
5	F	Brown / Green	15	S	Green
6	G	Red / Blue	Valve Common	T	Black
7	H	Grey / Pink	Not Used	U	Brown
8	J	Brown / Yellow	Not Used	V	Red
9	K	Violet			

Notes: Solenoids are polarity sensitive. The common must be at OV. Switching must be at the high potential. Maximum 16 solenoid outputs with one valve (negative) common line on Pin T.

35-Pin Circular Connector*



* Available with PVLB10 Only.

Output Solenoid No.	35-Pin Connector	IP65 Cable Colors	Output Solenoid No.	35-Pin Connector	IP65 Cable Colors
0	A	White / Brown	18	V	Brown / Pink
1	B	White / Green	19	W	Brown / Blue
2	C	White / Yellow	20	X	Brown / Red
3	D	White / Grey	21	Y	Brown / Black
4	E	White / Pink	22	Z	Green / Grey
5	F	White / Blue	23	a	Green / Pink
6	G	White / Red	24	b	Green / Blue
7	H	White / Black	25	c	Green / Red
8	J	Brown / Yellow	26	d	Green / Black
9	K	Violet	27	e	Yellow / Grey
10	L	Blue	28	f	Yellow / Pink
11	M	Pink	29	g	Yellow / Blue
12	N	Grey	30	h	Yellow / Red
13	P	Yellow	31	i	Yellow / Black
14	R	White	0 V valves	j	Black
15	S	Green	0 V inputs	k	Brown
16	T	Brown / Green	24 V inputs	m	Red
17	U	Brown / Grey			

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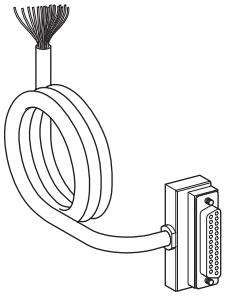
Cable with Female D-Sub, IP65 Rated, 25-Pin Connector

P8L-MD25A5B	5 Meters / 16.40 Ft

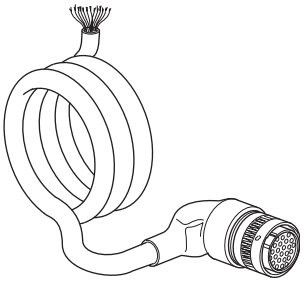
Connection to the control system is through 20 colored wires AWG 24, rated at 2.5 amp.



Cable with Female IP65 Rated, 19-Pin Connector

P8L-MC19A5	5 Meters / 16.40 Ft

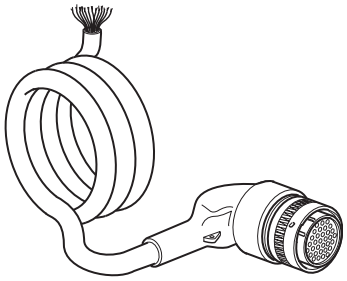
Connection to the control system is through 19 colored wires AWG 20, rated at 5 amp.



Cable with Female IP65 Rated, 35-Pin Connector

P8L-MC35A5	5 Meters / 16.40 Ft

Connection to the control system is through 35 colored wires AWG 20, rated at 5 amp.



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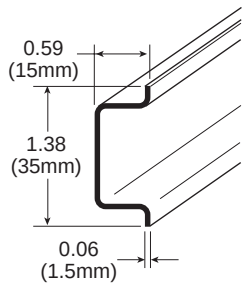
35mm DIN Rail

AM1DE200	6 Feet

Zinc chromated steel rail for easy mounting of stacks.

DIN rail can be mounted to grids or other surfaces to allow snap in mounting of pneumatic and electrical components.



Adapter Kits

Contains a size transition module and a replacement tail piece for field conversion to a combination stack.

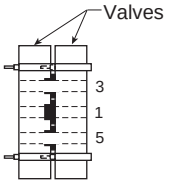
PVLB1940	Double then Single
PVLB1930	Single then Double

Pressure Isolation Kit

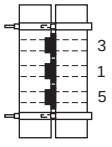
Series	Model Number	Kit includes:
PVLB	**PVLB1901**	3 Isolation Plugs, 2 Open Port Plugs and 2 Extended Cross Rods.
PVLC	**PVLC1901**	
PVLB	**PVLB1902**	10 Isolation Discs
PVLC	**PVLC1902**	

Assembly Instructions

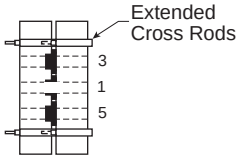
Example 1: Two different pressures P1 and P2 can supply the same bank of power valves, the exhausts remaining common.



Example 2: Complete isolation of the commons in the same bank of power valves: main pressure and exhaust commons.



Example 3: The exhaust commons can be isolated within the same bank of power valves, while the main pressure supply remains common.



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Seals and Gaskets

Series	O-Rings [1]	Gaskets [2]
PVLB	PPRV23	PPRV20
PVLC	PPRV24	PPRV20

Series	O-Rings
PVLB10	PPRV23
PVLC10	PPRV24

Notes:
[1] O-rings seal between stackable valve bodies. Sold in set of 30.
[2] 3-cell gaskets seal between pilot and valve body. Sold as one set of 20 gaskets.

PPRV23

PPRV20

Cross Rods

Series	Model Number
PVLB	PPRV21
PVLC	PPRV22

Used in valve stack mounting.
Sold as 1 set of 10 cross rods.

DIN Rail Clip Assembly

PPRL09	Head / Tail Set – All Sizes

Assembly includes: clamp, screw, and spring.
Sold as 1 set of 20 each.

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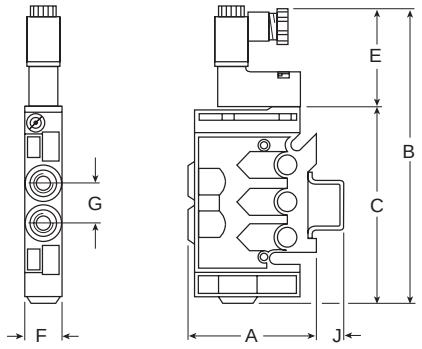
C

Moduflex

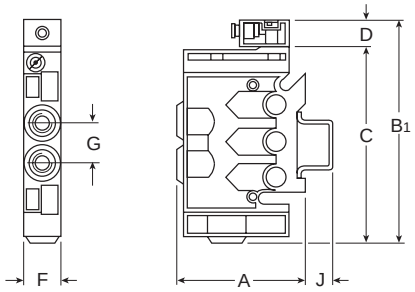
PVL

PVLB Valves

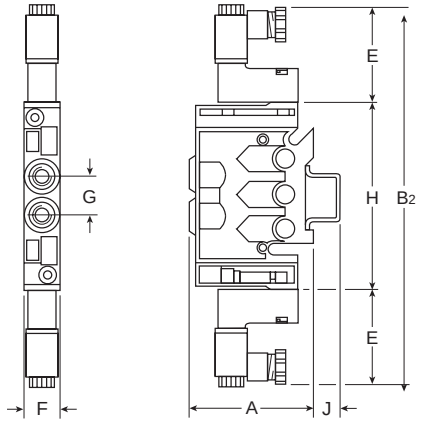
Single Solenoid



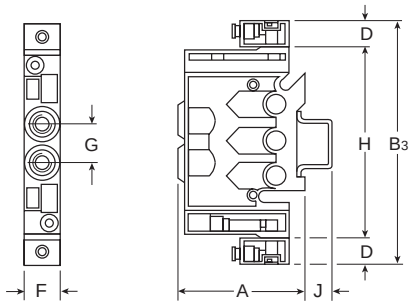
Single Remote Pilot



Double Solenoid



Double Remote Pilot



Dimensions

A (Inline Pipe)	2.40 (61)
A (Inline Tube)	2.80 (71)
A (Stacking Pipe)	2.40 (61)
A (Stacking Tube)	2.68 (68)

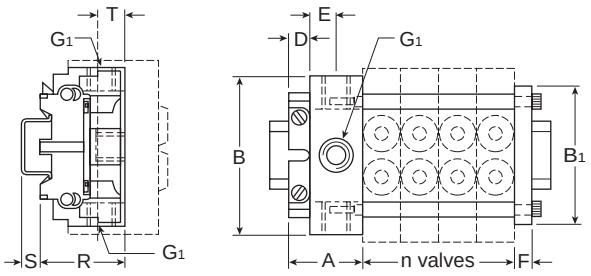
B	**B1**	**B2**	**B3**	**C**
5.91 (150)	4.25 (108)	7.91 (201)	4.60 (117)	3.74 (95)
D	**E**	**F**	**G**	**H**
.51 (13)	2.17 (55)	.71 (18)	.79 (20)	3.58 (91)
J				
.47 (12)				

Inches (mm)

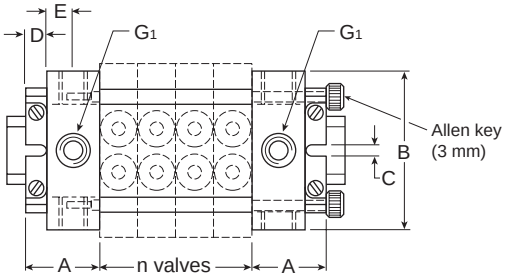
1/8" Pipe or 1/4" tube or 6mm tube for main ports.

Stacking System – PVLB

Single Air Supply



Double Air Supply



Dimensions

A	**B**	**B1**	**C***	**D**
1.50 (38)	3.27 (83)	2.76 (70)	.17 (4.2)	.39 (10)
E	**F**	**G1**	**R**	**S**
.47 (12)	.31 (8)	1/4"	1.73 (44)	.35 (9)
T				
.43 (11)				

Inches (mm)

* Clearance for #6 screw.

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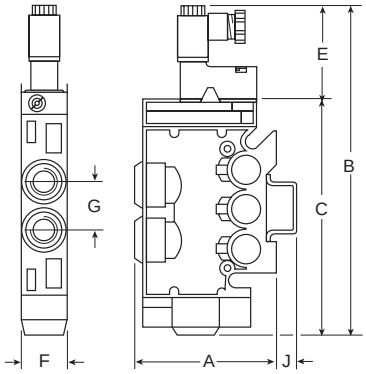
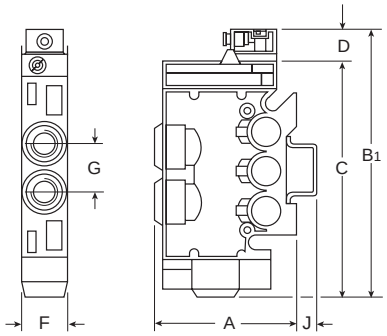
PVLC Valves

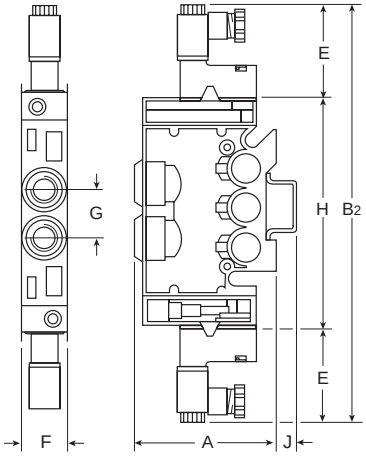
Single Solenoid



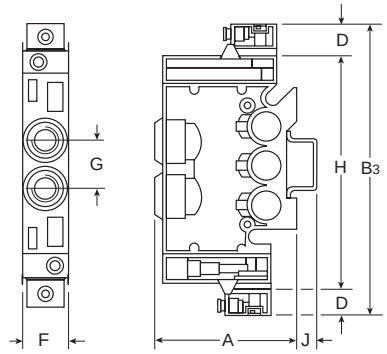
Single Remote Pilot



Double Solenoid



Double Remote Pilot



Dimensions

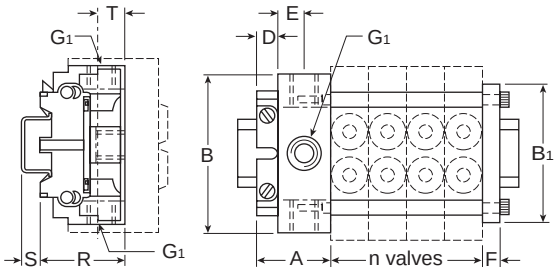
A (Inline Pipe)	2.87 (73)			
A (Inline Tube)	3.66 (93)			
A (Stacking Pipe)	2.87 (73)			
A (Stacking Tube)	3.27 (83)			
B 7.00 (178)	**B1** 5.35 (136)	**B2** 8.94 (227)	**B3** 5.62 (143)	**C** 4.84 (123)
D .51 (13)	**E** 2.17 (55)	**F** .98 (25)	**G** 1.00 (26)	**H** 4.61 (117)
J .43 (11)				

Inches (mm)

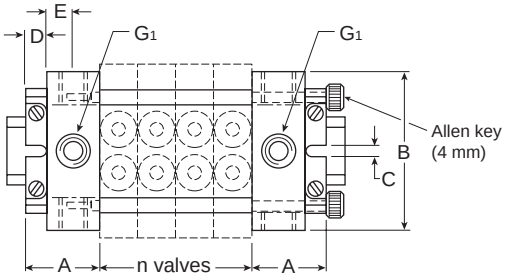
1/4" Pipe or 3/8" tube or 8mm tube for main ports.

Stacking System – PVLC

Single Air Supply



Double Air Supply



Dimensions

A 1.50 (38)	**B** 4.25 (108)	**B1** 3.94 (100)	**C*** .17 (4.2)	**D** .39 (10)
E .47 (12)	**F** .31 (8)	**G1** 3/8"	**R** 2.17 (55)	**S** .35 (9)
T .51 (13)				

Inches (mm)

* Clearance for #6 screw.

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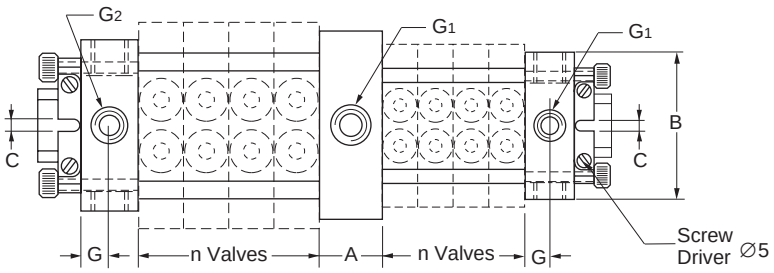
C

Moduflex

PVL

Transition Kits – PVLB & PVLC Valves



Dimensions

A	B	C	G	G1
.98 (25)	3.94 (100)	.17 (4.2)	.47 (12)	1/4"
G2 3/8"				

Inches (mm)

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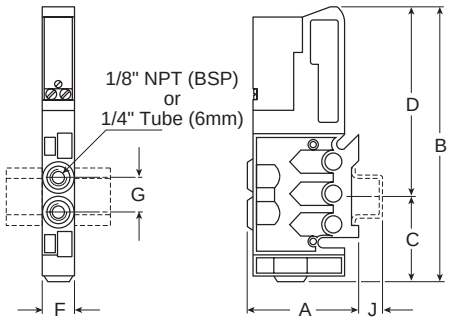
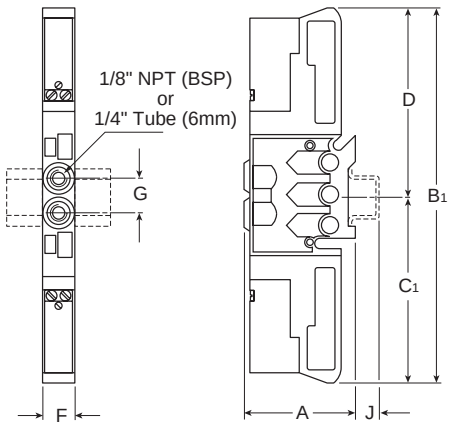
Single Solenoid



Double Solenoid



Dimensions

A (Inline Pipe)	2.87 (73)
A (Inline Tube)	3.66 (93)
A (Stacking Pipe)	2.87 (73)
A (Stacking Tube)	3.27 (83)

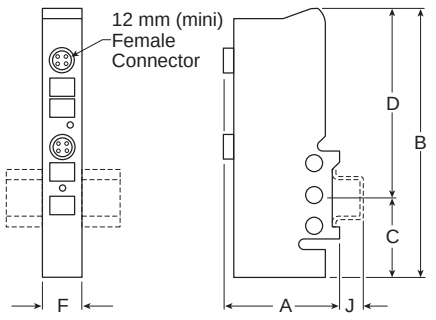
B	**B1**	**C**	**C1**	**D**
5.43 (138)	6.97 (177)	1.93 (49)	3.46 (88)	3.50 (89)

F	**G**	**J**
.71 (18)	.79 (20)	.47 (12)

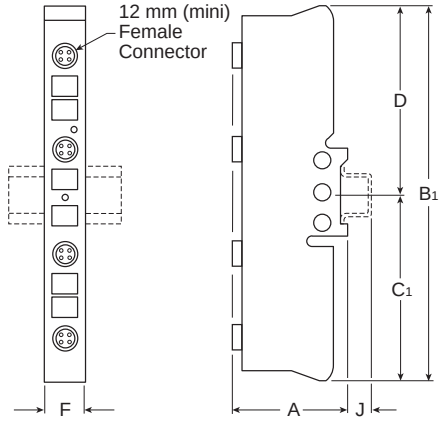
Inches (mm)

External Connection Modules

Single



Double



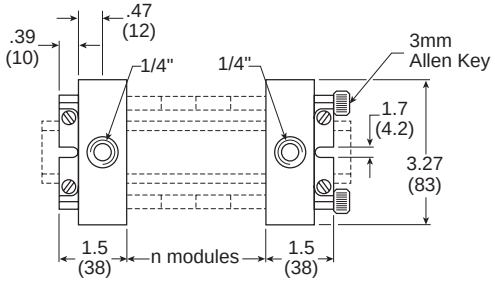
Dimensions

A	**B**	**B1**	**C**	**C1**
2.72 (69)	5.31 (135)	6.97 (177)	1.81 (46)	3.46 (88)

D	**F**	**J**
3.50 (89)	.87 (22)	.47 (12)

Inches (mm)

Pneumatic Head / Tail Set



To calculate stack length, add the width of the pneumatic and electrical head / tail sets plus (quantity x width) for each type of active module. Widths shown in inches (mm).

Module	Qty		Width		Total Width
Pneumatic head / tail set	1	x	3.00" (76)	=	3.00" (76)
Electrical head / tail set:	1	x		=	
Select 25-Pin head / tail			*1.73" (44)*		
or 25-Pin w/ transition			*2.60" (66)*		
or 35-Pin head / tail			*2.76" (70)*		
or 35-Pin w/ transition			*3.62" (92)*		
Valves		x	.71" (18)	=	
Feedback/output modules		x	.87" (22)	=	
TOTAL STACK LENGTH				=	

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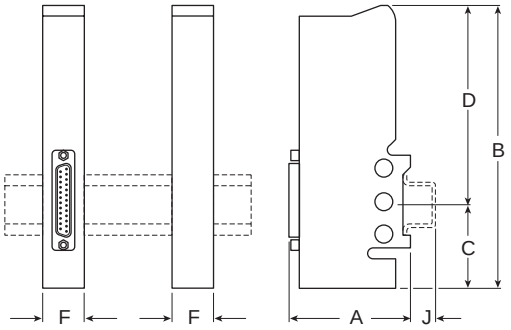
Electrical Head / Tail Sets*

Single Stack D-Sub, 25-Pin Connector



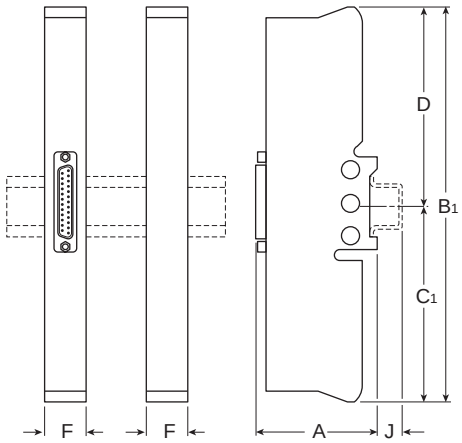
* When the stack contains both single and double modules, you must use a head / tail set that includes a size transition module (shown below).

Dimensions

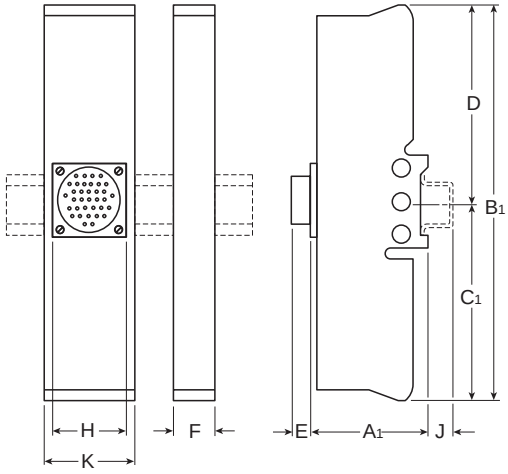
A	A_1	B	B_1	C
2.48 (63)	2.40 (60)	5.31 (135)	6.97 (177)	1.81 (46)
C_1	**D**	**E**	**F**	**H**
3.46 (88)	3.50 (89)	.39 (10)	.87 (22)	1.57 (40)
J	**K**			
.47 (12)	1.89 (48)			

Inches (mm)

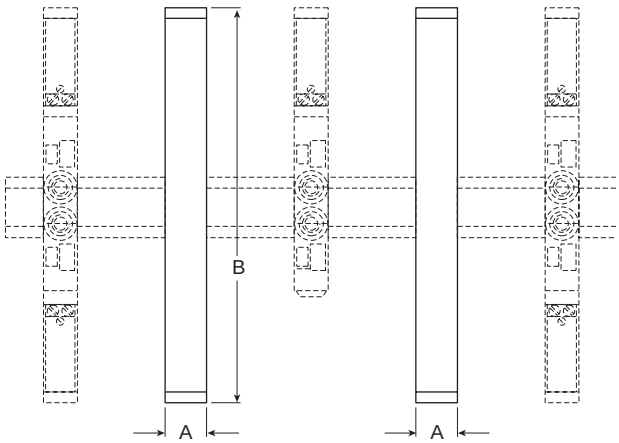
Double Stack D-Sub, 25-Pin Connector



Cylindrical 35-Pin Double Size Head / Tail Set



Size Transition Module



Dimensions

A	B			
.87 (22)	6.97 (177)			

Inches (mm)

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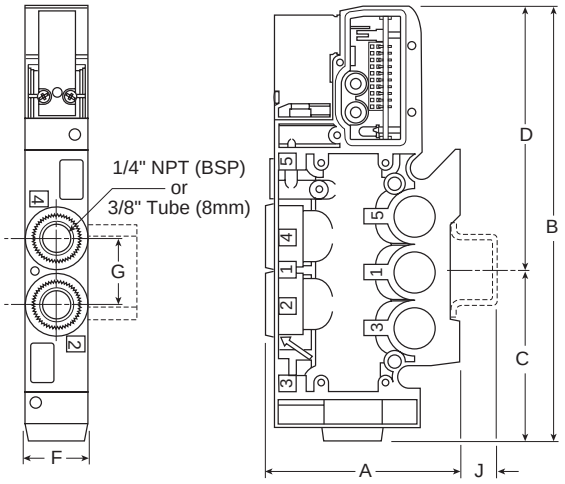
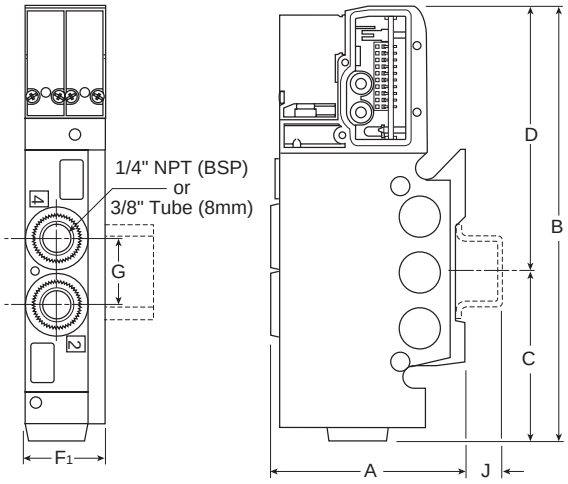
Single Solenoid



Double Solenoid

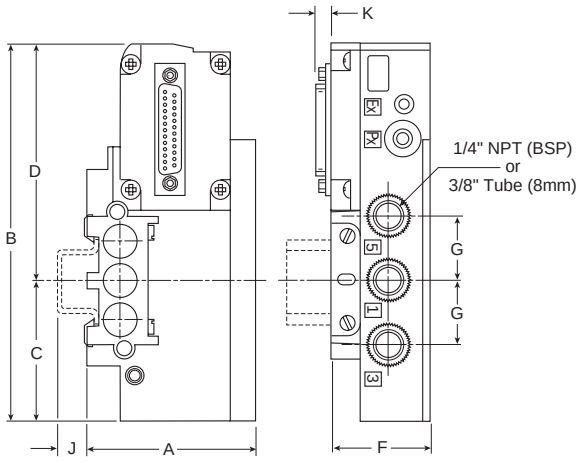


Dimensions

A (Inline Pipe)	2.87 (73)			
A (Inline Tube)	3.66 (93)			
A (Stacking Pipe)	2.87 (73)			
A (Stacking Tube)	3.27 (83)			
B 6.50 (165)	**C** 2.56 (65)	**D** 3.94 (100)	**F** 1.00 (25.4)	**F1** 1.31 (33)
G 1.00 (25.4)	**J** .47 (12)			

Inches (mm)

D-Sub, 25-Pin Connector

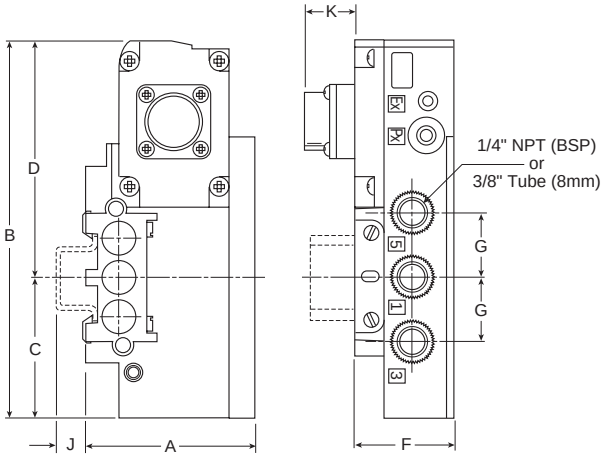


Dimensions

A 2.75 (70)	**B** 6.22 (158)	**C** 2.28 (58)	**D** 3.94 (100)	**F** 1.65 (42)
G 1.06 (27)	**J** .39 (10)	**K** .12 (3)		

Inches (mm)

Cylindrical Connector



Dimensions

A 2.75 (70)	**B** 6.22 (158)	**C** 2.28 (58)	**D** 3.94 (100)	**F** 1.65 (42)
G 1.06 (27)	**J** .39 (10)	**K** .30 (8)		

Inches (mm)

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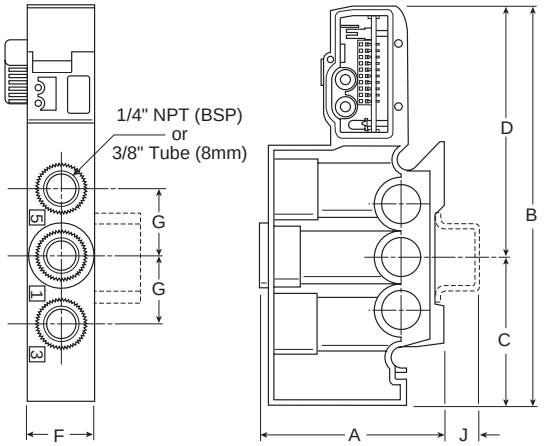
C

Moduflex

PVL

Intermediary Air Supply Module

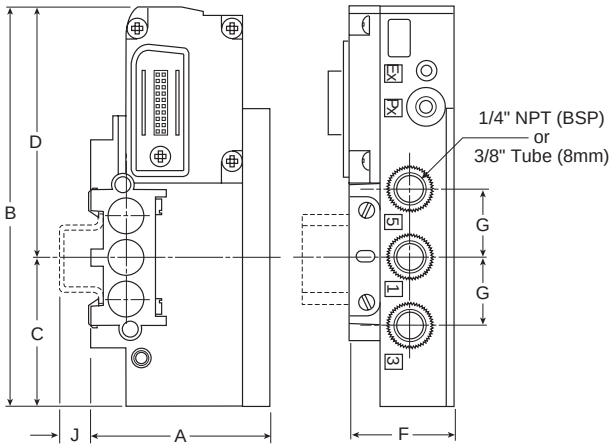


Dimensions

A	B	C	D	F
2.94 (75)	6.22 (158)	2.28 (58)	3.94 (100)	1.08 (28)
G	**J**			
1.06 (27)	.47 (12)			

Inches (mm)

Transfer Module



Dimensions

A	B	C	D	F
2.75 (70)	6.22 (158)	2.28 (58)	3.94 (100)	1.65 (42)
G	**J**			
1.06 (27)	.39 (10)			

Inches (mm)

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(Revised 10-21-2013)

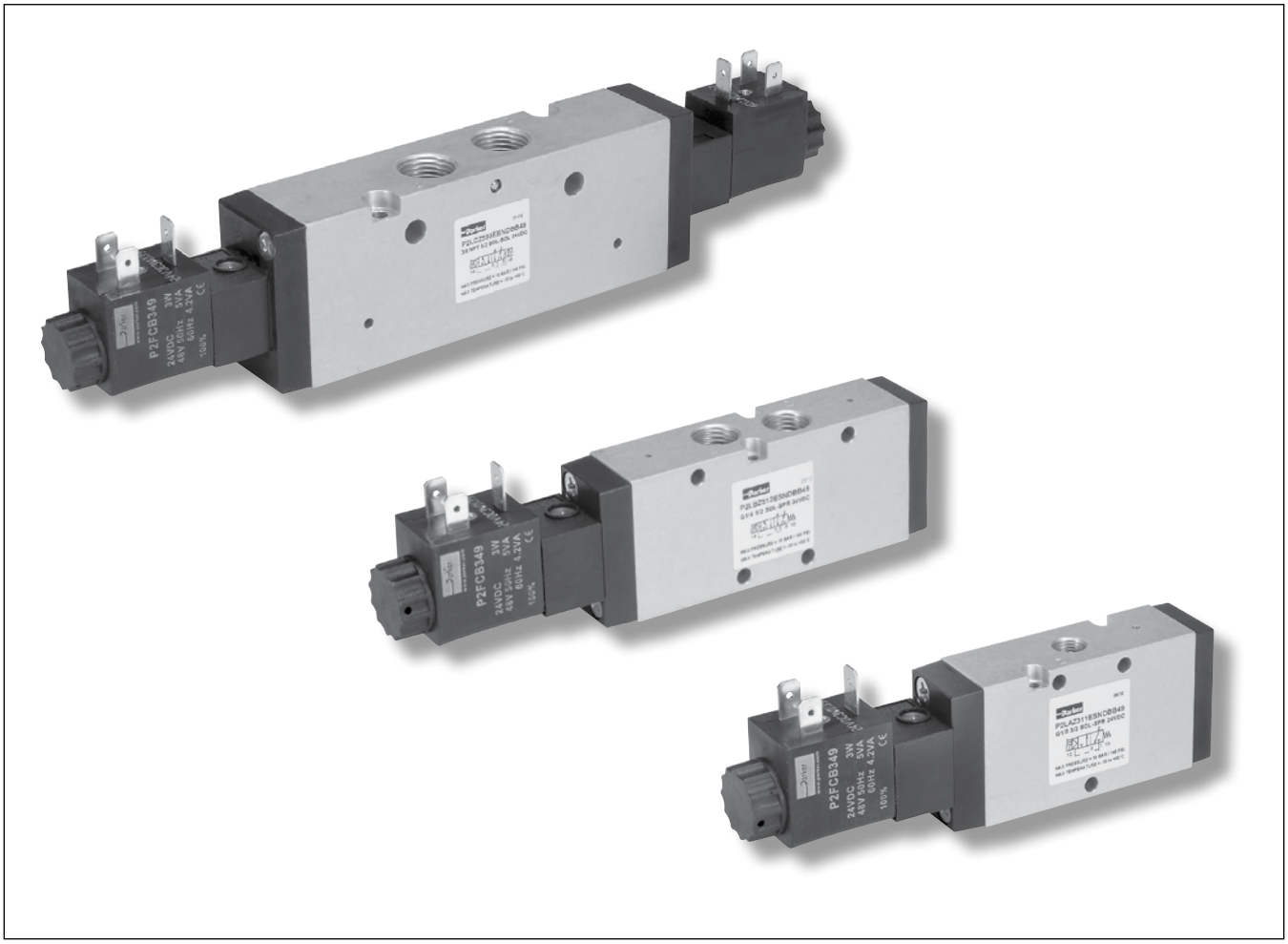
Viking Lite Inline Series

Air Control Valves

P2LAZ – 1/8"
P2LBZ – 1/4"
P2LCZ – 3/8"

Section D

www.parker.com/pneu/vikingx



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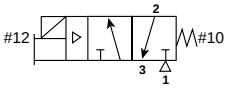
Single solenoid

3-Way, 2-Position NC (NNP)



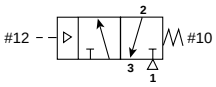
Normally Closed:

De-energized position – Solenoid #12 de-energized. Pressure at inlet port 1 blocked, outlet port 2 connected to exhaust port 3.

Energized position – Solenoid #12 energized. Pressure at inlet port 1 connected to outlet port 2, exhaust port 3 is blocked.

Single remote pilot

3-Way, 2-Position NC (NNP)



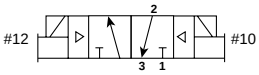
Normally Closed:

Normal position – Pressure at inlet port 1 blocked, outlet port 2 connected to exhaust port 3.

Operated position – Maintained air signal at port 12. Pressure at inlet port 1 connected to outlet port 2, exhaust port 3 is blocked.

Double solenoid

3-Way, 2-Position

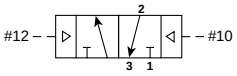


Solenoid operator #12 energized last. Pressure at inlet port 1 connected to outlet port 2, exhaust port 3 is blocked.

Solenoid operator #10 energized last. Pressure at inlet port 1 blocked, outlet port 2 connected to exhaust port 3.

Double solenoid

3-Way, 2-Position

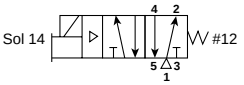


Momentary air signal at port 12 last. Pressure at inlet port 1 connected to outlet port 2, exhaust port 3 is blocked.

Momentary air signal at port 10 last. Pressure at inlet port 1 blocked, outlet port 2 connected to exhaust port 3.

Single solenoid

Single pressure at inlet port 1:

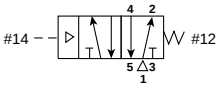


De-energized position – Solenoid operator #14 de-energized. Pressure at inlet port 1 connected to outlet port 2. Outlet port 4 connected to exhaust port 5.

Energized position – Solenoid operator #14 energized. Pressure at inlet port 1 connected to outlet port 4. Outlet port 2 connected to exhaust port 3.

Single remote pilot

Single pressure at inlet port 1:

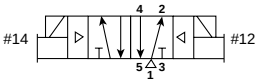


Normal position – Pressure at inlet port 1 connected to outlet port 2. Outlet port 4 connected to exhaust port 5.

Operated position – Maintained air signal at port 14. Pressure at inlet port 1 connected to outlet port 4. Outlet port 2 connected to exhaust port 3.

Double solenoid

Single pressure at inlet port 1:

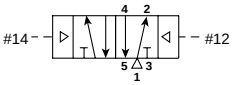


Solenoid operator #14 energized last. Pressure at inlet port 1 connected to outlet port 4. Outlet port 2 connected to exhaust port 3.

Solenoid operator #12 energized last. Pressure at inlet port 1 connected to outlet port 2. Outlet port 4 connected to exhaust port 5.

Double remote pilot

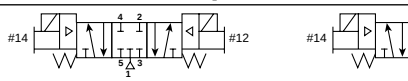
Single pressure at inlet port 1:



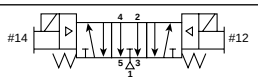
Momentary air signal at port 14 last. Pressure at inlet port 1 connected to outlet port 4. Outlet port 2 connected to exhaust port 3.

Momentary air signal at port 12 last. Pressure at inlet port 1 connected to outlet port 2. Outlet port 4 connected to exhaust port 5.

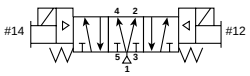
Double solenoid 3-position



All Ports Blocked



Center Exhaust



Pressure Center

With #12 operator energized – inlet port 1 connected to cylinder port 2, cylinder port 4 connected to exhaust port 5.

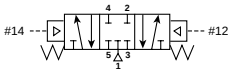
With #14 operator energized – inlet port 1 connected to cylinder port 4, cylinder port 2 connected to exhaust port 3.

All Ports Blocked
All ports blocked in the center position.

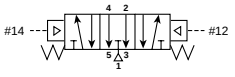
Center Exhaust
Cylinder ports 2 and 4 connected to exhaust ports 3 and 5 in center position. Port 1 is blocked.

Pressure Center
Pressure port 1 connected to cylinder ports 2 and 4, and exhaust ports 3 and 5 blocked in center position.

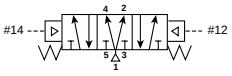
Double remote pilot 3-position



All Ports Blocked



Center Exhaust



Pressure Center

With #12 operator signaled – inlet port 1 connected to cylinder port 2, cylinder port 4 connected to exhaust port 5.

With #14 operator signaled – inlet port 1 connected to cylinder port 4, cylinder port 2 connected to exhaust port 3.

All Ports Blocked
All ports blocked in the center position.

Center Exhaust
Cylinder ports 2 and 4 connected to exhaust ports 3 and 5 in center position. Port 1 is blocked.

Pressure Center
Pressure port 1 connected to cylinder ports 2 and 4, and exhaust ports 3 and 5 blocked in center position.

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Specifications

P2LAZ P2LAZ: 0.6 Cv
P2LBZ P2LBZ: 1.5 Cv
P2LCZ P2LCZ: 2.5 Cv

Materials of Construction

- Valve Body: Anodized Aluminum
- Spool: Aluminum
- End Caps: Anodized Aluminum
- Piston: Acetal Plastic / Anodized Aluminum
- End Cover Sealings: Nitrile Rubber
- End Cover Screws: Stainless Steel
- Springs: Stainless Steel
- Spool Seals: Nitrile

Operating Temperature

- Normal: 14°F to 122°F (-10°C to 50°C)

Operating Pressure

- Normal: Vacuum to 145 PSIG (Vacuum to 10 bar)
- Minimum: Single solenoid - spring return 43.5 PSIG (3.0 bar)
  Double solenoid - 2-position 22 PSIG (1.5 bar)
  Double solenoid - 3-position 43.5 PSIG PSIG (3.0 bar)

Ports

P2LAZ P2LAX: 1/8" NPT & BSPP
P2LBZ P2LBX: 1/4" NPT & BSPP
P2LCZ P2LCX: 3/8" NPT & BSPP

Compliance / Approval

- IP65 Rated, RoHS, CE

Solenoids

- 2.5 Watts
  – 22mm, 3-Pin (DIN 43650),
- 24VDC to 120VAC

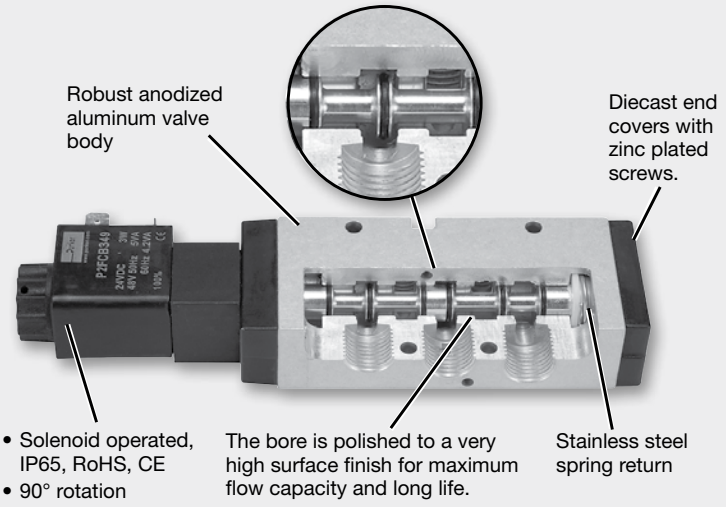
Mounting

- Inline
- IEM Aluminum Bar

WCS

- Maximum Performance
  – Low friction - fast response - less wear
- Long Cycle Life
  – Under pressure, radial expansion of the seal occurs to maintain sealing contact with the valve bore
- Non-Lube Service
  – No lubrication required for continuous valve shifting
- Bi-Directional Spool Seals
  – Common spool used for any pressure

WCS
***W*ear *C*ompensation *S*ystem**



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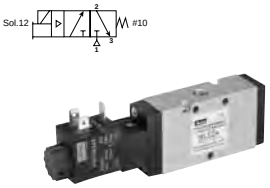
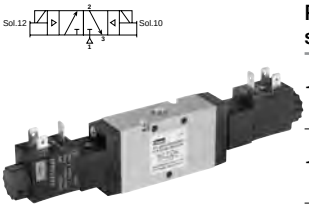
3/2 - 2 Position Single Solenoid



P2LAZ Shown

Port size	Cv	Response time (msec)	Weight lb (kg)	Voltage	Part number (NPT)	Part number (BSPP)
1/8	0.6	15 / 35	0.35 (0.16)	24VDC	**P2LAZ391ESNDBB49**	P2LAZ311ESNDBB49
				120VAC	**P2LAZ391ESNDBB53**	P2LAZ311ESNDBB53
1/4	1.5	18 / 45	0.35 (0.16)	24VDC	**P2LBZ392ESNDBB49**	P2LBZ312ESNDBB49
				120VAC	**P2LBZ392ESNDBB53**	P2LBZ312ESNDBB53
3/8	2.5	27 / 45	0.77 (0.35)	24VDC	**P2LCZ393ESNDBB49**	P2LCZ313ESNDBB49
				120VAC	**P2LCZ393ESNDBB53**	P2LCZ313ESNDBB53

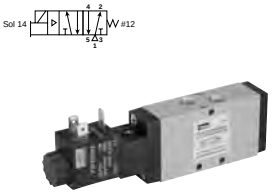
3/2 - 2 Position Double Solenoid



P2LAZ Shown

Port size	Cv	Response time (msec)	Weight lb (kg)	Voltage	Part number (NPT)	Part number (BSPP)
1/8	0.6	10 / 10	0.40 (0.18)	24VDC	**P2LAZ391EENDBB49**	P2LAZ311EENDBB49
				120VAC	**P2LAZ391EENDBB53**	P2LAZ311EENDBB53
1/4	1.5	12 / 12	0.40 (0.18)	24VDC	**P2LBZ392EENDBB49**	P2LBZ312EENDBB49
				120VAC	**P2LBZ392EENDBB53**	P2LBZ312EENDBB53
3/8	2.5	17 / 17	0.80 (0.36)	24VDC	**P2LCZ393EENDBB49**	P2LCZ313EENDBB49
				120VAC	**P2LCZ393EENDBB53**	P2LCZ313EENDBB53

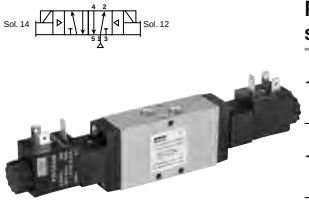
5/2 - 2 Position Single Solenoid



P2LAZ Shown

Port size	Cv	Response time (msec)	Weight lb (kg)	Voltage	Part number (NPT)	Part number (BSPP)
1/8	0.6	15 / 35	.037 (0.17)	24VDC	**P2LAZ591ESNDBB49**	P2LAZ511ESNDBB49
				120VAC	**P2LAZ591ESNDBB53**	P2LAZ511ESNDBB53
1/4	1.5	18 / 45	0.44 (0.20)	24VDC	**P2LBZ592ESNDBB49**	P2LBZ512ESNDBB49
				120VAC	**P2LBZ592ESNDBB53**	P2LBZ512ESNDBB53
3/8	2.5	27 / 45	0.95 (0.43)	24VDC	**P2LCZ593ESNDBB49**	P2LCZ513ESNDBB49
				120VAC	**P2LCZ593ESNDBB53**	P2LCZ513ESNDBB53

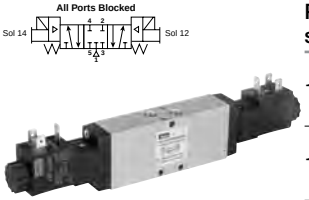
5/2 - 2 Position Double Solenoid



P2LAZ Shown

Port size	Cv	Response time (msec)	Weight lb (kg)	Voltage	Part number (NPT)	Part number (BSPP)
1/8	0.6	10 / 10	.042 (0.19)	24VDC	**P2LAZ591EENDBB49**	P2LAZ511EENDBB49
				120VAC	**P2LAZ591EENDBB53**	P2LAZ511EENDBB53
1/4	1.5	12 / 12	0.46 (0.21)	24VDC	**P2LBZ592EENDBB49**	P2LBZ512EENDBB49
				120VAC	**P2LBZ592EENDBB53**	P2LBZ512EENDBB53
3/8	2.5	17 / 17	0.97 (0.44)	24VDC	**P2LCZ593EENDBB49**	P2LCZ513EENDBB49
				120VAC	**P2LCZ593EENDBB53**	P2LCZ513EENDBB53

5/3 - 3 Position, All Ports Blocked



P2LAZ Shown

Port size	Cv	Response time (msec)	Weight lb (kg)	Voltage	Part number (NPT)	Part number (BSPP)
1/8	0.6	18 / 40	0.57 (0.26)	24VDC	**P2LAZ691EENDBB49**	P2LAZ611EENDBB49
				120VAC	**P2LAZ691EENDBB53**	P2LAZ611EENDBB53
1/4	1.5	22 / 55	0.62 (0.28)	24VDC	**P2LBZ692EENDBB49**	P2LBZ612EENDBB49
				120VAC	**P2LBZ692EENDBB53**	P2LBZ612EENDBB53
3/8	2.5	30 / 90	1.32 (0.60)	24VDC	**P2LCZ693EENDBB49**	P2LCZ613EENDBB49
				120VAC	**P2LCZ693EENDBB53**	P2LCZ613EENDBB53

Notes: Response time: Actuate to 90% pressure / return to exhaust to 10% of supply pressure. 93 PSIG (6.3 bar) / temperature 68°F (20°C).

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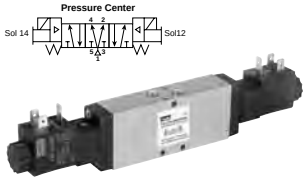
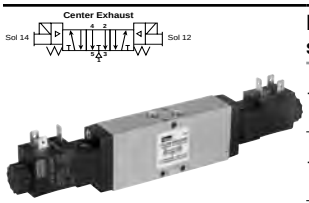
5/3 - 3 Position, Pressure Center



P2LAZ Shown

Port size	Cv	Response time (msec)	Weight lb (kg)	Voltage	Part number (NPT)	Part number (BSPP)
1/8	0.6	18 / 40	0.57 (0.26)	24VDC	**P2LAZ791EENDBB49**	P2LAZ711EENDBB49
				120VAC	**P2LAZ791EENDBB53**	P2LAZ711EENDBB53
1/4	1.5	22 / 55	0.62 (0.28)	24VDC	**P2LBZ792EENDBB49**	P2LBZ712EENDBB49
				120VAC	**P2LBZ792EENDBB53**	P2LBZ712EENDBB53
3/8	2.5	30 / 90	1.32 (0.60)	24VDC	**P2LCZ793EENDBB49**	P2LCZ713EENDBB49
				120VAC	**P2LCZ793EENDCB53**	P2LCZ713EENDBB53

5/3 - 3 Position, Center Exhaust



P2LAZ Shown

Port size	Cv	Response time (msec)	Weight lb (kg)	Voltage	Part number (NPT)	Part number (BSPP)
1/8	0.6	18 / 40	0.57 (0.26)	24VDC	**P2LAZ891EENDBB49**	P2LAZ811EENDBB49
				120VAC	**P2LAZ891EENDBB53**	P2LAZ811EENDBB53
1/4	1.5	22 / 55	0.62 (0.28)	24VDC	**P2LBZ892EENDBB49**	P2LBZ812EENDBB49
				120VAC	**P2LBZ892EENDBB53**	P2LBZ812EENDBB53
3/8	2.5	30 / 90	1.32 (0.60)	24VDC	**P2LCZ893EENDBB49**	P2LCZ813EENDBB49
				120VAC	**P2LCZ893EENDBB53**	P2LCZ813EENDBB53

Notes: Response time: Actuate to 90% pressure / return to exhaust to 10% of supply pressure. 93 PSIG (6.3 bar) / temperature 68°F (20°C).

Single & Double Solenoid Operated Valves

P2L A Z 5 91 E S N D C B 49

Valve size

1/8"	A
1/4"	B
3/8"	C

Series

Viking Lite	Z

Valve type / function

Internal pilot supply to solenoid	
3/2 NC - 2-position	3
5/2 2-position	5
5/3 3-position, APB	6
5/3 3-position, PC	7
5/3 3-position, CE	8

Main port thread

G1/8 (P2LA)	11
G1/4 (P2LB)	12
G3/8 (P2LC)	13
1/8" NPT (P2LA)	91
1/4" NPT (P2LB)	92
3/8" NPT (P2LC)	93

12 End operator

E	Double solenoid operated valve
S*	Single solenoid spring return

* Not available with 3-position valves.

Valve type

N	14°F to 122°F (-10°C to 50°C)

Solenoid pilot type

D	Pilot exhaust vented

Overrides

C	Extended - locking
B	Flush - non-locking

Enclosures / lead length

B	22mm rectangular 3-pin – type B industrial (male only)
N	Valve less coil

Voltage / frequency

49	24VDC
53	120VAC
Blank	Valve less coil

BOLD ITEMS ARE MOST POPULAR.

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IEM Bar Manifold, Inline Valve Only*

Valve series	Valve function	# of Stations	Weight lb (kg)	Manifold only (NPT)	Manifold only (BSPP)
P2LAZ / P2LBZ	3-way	2	0.84 (0.38)	**91213202SXZN**	91213202SXZ
P2LAZ / P2LBZ	3-way	4	1.41 (0.64)	**91213204SXZN**	91213204SXZ
P2LAZ / P2LBZ	3-way	6	1.96 (0.89)	**91213206SXZN**	91213206SXZ
P2LAZ / P2LBZ	3-way	8	2.54 (1.15)	**91213208SXZN**	91213208SXZ
P2LAZ / P2LBZ	3-way	10	3.09 (1.40)	**91213210SXZN**	91213210SXZ

Kits include: Manifold, valve hold down bolts, gaskets.

Valve series	Valve function	# of Stations	Weight lb (kg)	Manifold only (NPT)	Manifold only (BSPP)
P2LAZ	4-way	2	0.68 (0.31)	**9121658068N**	9121658068
P2LAZ	4-way	4	1.06 (0.48)	**9121658075N**	9121658075
P2LAZ	4-way	6	1.39 (0.63)	**9121658076N**	9121658076
P2LAZ	4-way	8	1.76 (0.80)	**9121658077N**	9121658077
P2LAZ	4-way	10	2.16 (0.98)	**9121658078N**	9121658078

Kits include: Manifold, valve hold down bolts, gaskets.

Valve series	Valve function	# of Stations	Weight lb (kg)	Manifold only (NPT)	Manifold only (BSPP)
P2LBZ	4-way	2	1.53 (0.69)	**9121594805XN**	9121594805X
P2LBZ	4-way	4	2.49 (1.13)	**9121594806XN**	9121594806X
P2LBZ	4-way	6	3.44 (1.56)	**9121594807XN**	9121594807X
P2LBZ	4-way	8	4.41 (2.00)	**9121594808XN**	9121594808X
P2LBZ	4-way	10	5.40 (2.45)	**9121594812XN**	9121594812X

Kits include: Manifold, valve hold down bolts, gaskets.
* For odd number of stations, consider Viking Xtreme bar manifold.

IEM Bar Manifold, Inline Valve Only

Valve series	Valve function	# of Stations	Manifold only (NPT)	Manifold only (BSPP)
P2LCZ	4-way	Use Viking Xtreme IEM bar manifold		

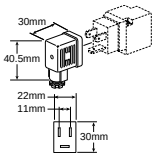
Note: P2LCZ 3-way has no IEM manifold

Manifold Accessories / Parts

Valve series	Description	Weight lb (kg)	Kit number
P2LAZ / P2LBZ *	3-way: Blanking kit with mounting screws (2)	0.22 (0.10)	**912132BPSXZ**
P2LAZ *	4-way: Blanking kit with mounting screws (2)	0.11 (0.05)	**9121658063**
P2LBZ *	4-way: Blanking kit with mounting screws (2)	0.04 (0.02)	**9121594809X**

***Note:** O-ring for blanking kit included with manifold. For replacement o-rings or fastener bolts, use Viking Xtreme Kits.

22mm Rectangular 3-Pin – Type B Industrial
(Use with Enclosure "B")



Description	Connector with 6' (2m) cord	Connector
Unlighted	PS2429JBP	**PS2429BP**
Light – 24VDC	PS2430J79BP*	**PS243079BP**
Light – 120V/60Hz	PS2430J83BP*	**PS243083BP**

* LED with surge suppression.
Note: Max ø6.5mm cable size required for connector w/o 6' (2m) cord. IP65 rated when properly installed.
Engineering data:
conductors: 2 poles plus ground; cable range (connector only): 6 to 8mm (0.24 To 0.31 Inch); contact spacing: 11mm

Most popular.

Valve Less Coil

Remove the last 3 digits of the part number of the full valve and add "N" at the end for valve less coil.

Part number example :
P2LBZ592ESNDBBB49 valve with 24VDC solenoid
P2LBZ592ESNDBN valve less coil

Replacement Solenoid Coil

Description	Part number
24VDC coil kit	**P2FCB449**
110VAC coil kit	**P2FCB453**

Replacement Solenoid Nut

Description	Part number
Solenoid diffuser nut	**PS1556**

Description	Part number
Solenoid vented nut	**PS2892P**

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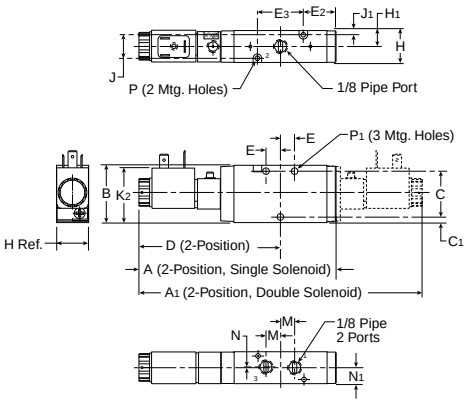
P2LAZ 3/2 Single & Double Operators – Solenoid

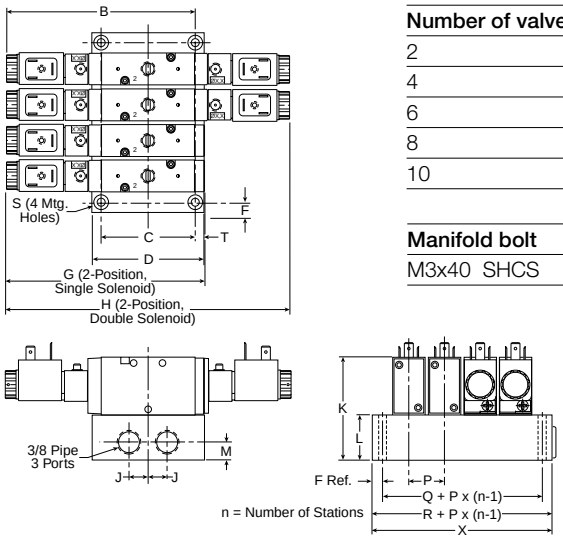


P2LAZ 3/2 (solenoid)

A	A1	B	C	C1
5.35 (136)	7.68 (195)	1.57 (40)	1.26 (32)	.16 (4)
D	**E**	**E2**	**E3**	**H**
3.84 (97.5)	.39 (10)	.91 (23)	1.26 (32)	.87 (22)
H1	**J**	**J1**	**K2**	**M**
.43 (11)	.65 (16.5)	.11 (2.75)	1.50 (38)	.39 (10)
N	**N1**	**P**	**P1**	
.02 (.5)	.43 (11)	Ø .12 Ø (3.1)	Ø .17 Ø (4.3)	

Inches (mm)

P2LAZ 3/2 Single & Double Operators – IEM Aluminum Bar Manifold



Number of valves	X
2	2.91 (74)
4	4.80 (122)
6	6.69 (170)
8	8.58 (218)
10	10.47 (266)

Inches (mm)

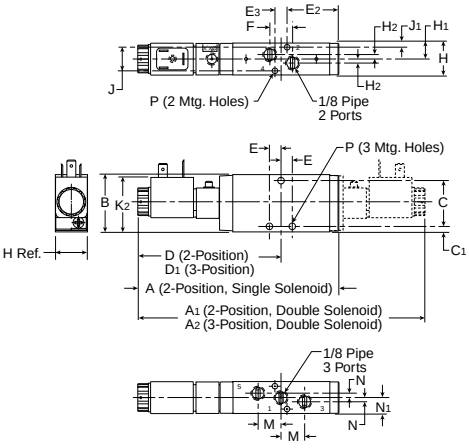
Manifold bolt	Torque value
M3x40 SHCS	4 in.lb (0.45 Nm)

P2LAZ 3/2
IEM Aluminum bar manifold

B	C	D	F	G
5.06 (128.5)	2.44 (62)	2.99 (76)	.28 (7)	5.35 (136)
H	**J**	**K**	**L**	**M**
7.68 (195)	.51 (13)	2.78 (70.5)	1.20 (30.5)	.47 (12)
P	**Q**	**R**	**S**	**T**
.94 (24)	1.42 (36)	1.97 (50)	Ø .22 Ø (5.5)	.88 (7)

Inches (mm)

P2LAZ 5/2 & 5/3 Single & Double Operators – Solenoid



P2LAZ 5/2 & 5/3 (solenoid)

A	A1	A2	B	C
5.47 (139)	7.76 (197)	8.70 (221)	1.57 (40)	1.30 (33)
C1	**D**	**D1**	**E**	**E2**
.14 (3.5)	3.88 (98.5)	4.35 (110.5)	.31 (8)	1.86 (47.3)
E3	**F**	**H**	**H1**	**H2**
.33 (8.5)	.63 (16)	.87 (22)	.43 (11)	.12 (3)
J	**J1**	**K2**	**M**	**N**
.63 (16)	.12 (3)	1.50 (38)	.63 (16)	.12 (3)
N1	**P**			
.43 (11)	Ø .16 Ø (4.1)			

Inches (mm)

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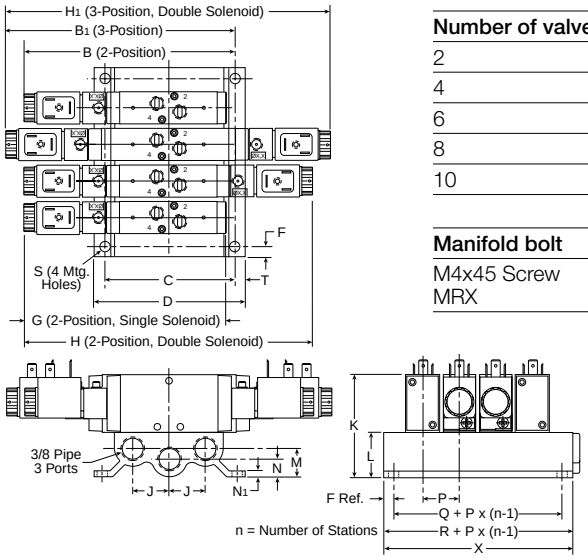
P2LAZ 5/2 & 5/3 Single & Double Operators – IEM Aluminum Bar Manifold



Number of valves	X
2	3.07 (78)
4	4.96 (126)
6	6.85 (174)
8	8.74 (222)
10	10.63 (270)

Inches (mm)

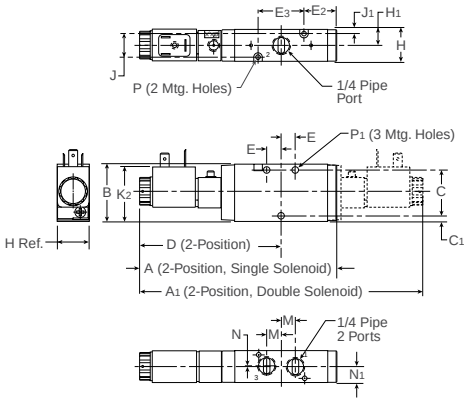
Manifold bolt	Torque value
M4x45 Screw MRX	9 in.lb (0.75 Nm)

P2LAZ 5/2 & 5/3
IEM Aluminum bar manifold

B	B1	C	D	F
5.10 (149.5)	6.36 (161.5)	3.46 (88)	4.02 (102)	.28 (7)
G	**H**	**H1**	**J**	**K**
5.47 (139)	7.76 (197)	8.70 (221)	.96 (24.5)	2.76 (70)
L	**M**	**N**	**N1**	**P**
1.18 (30)	.75 (19)	.47 (12)	.16 (4)	.94 (24)
Q	**R**	**S**	**T**	
1.57 (40)	2.13 (54)	Ø .28 Ø (7)	.28 (7)	

Inches (mm)

P2LBZ 3/2 Single & Double Operators – Solenoid

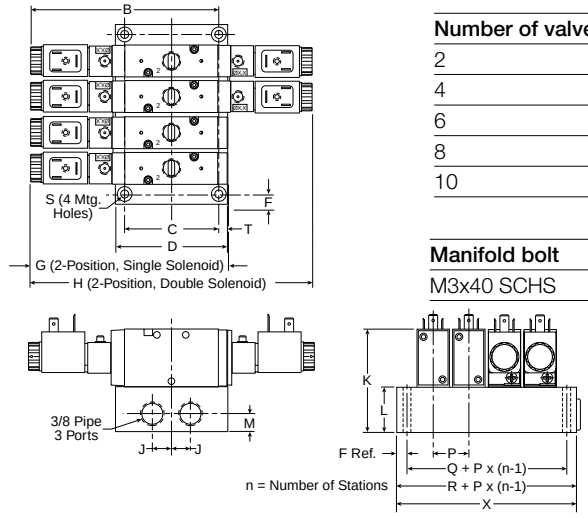


P2LBZ 3/2 (solenoid)

A	A1	B	C	C1
5.35 (136)	7.68 (195)	1.57 (40)	1.26 (32)	.16 (4)
D	**E**	**E2**	**E3**	**H**
3.84 (97.5)	.39 (10)	.91 (23)	1.26 (32)	.87 (22)
H1	**J**	**J1**	**K2**	**M**
.43 (11)	.65 (16.5)	.11 (2.75)	1.50 (38)	.39 (10)
N	**N1**	**P**	**P1**	
.02 (.5)	.43 (11)	Ø .12 Ø (3.1)	Ø .17 Ø (4.3)	

Inches (mm)

P2LBZ 3/2 Single & Double Operators – IEM Aluminum Bar Manifold



Number of valves	X
2	2.91 (74)
4	4.80 (122)
6	6.69 (170)
8	8.58 (218)
10	10.47 (266)

Inches (mm)

Manifold bolt	Torque value
M3x40 SCHS	4 in.lb (0.45 Nm)

P2LBZ 3/2
IEM Aluminum bar manifold

B	C	D	F	G
5.06 (128.5)	2.44 (62)	2.99 (76)	.28 (7)	5.35 (136)
H	**J**	**K**	**L**	**M**
7.68 (195)	.51 (13)	2.78 (70.5)	1.20 (30.5)	.47 (12)
P	**Q**	**R**	**S**	**T**
.94 (24)	1.42 (36)	1.97 (50)	Ø .22 Ø (5.5)	.88 (7)

Inches (mm)

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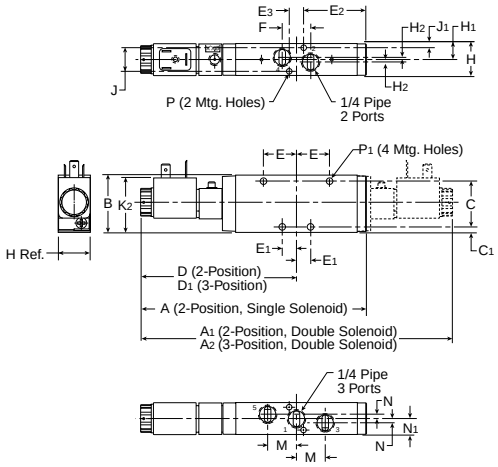
P2LBZ 5/2 & 5/3 Single & Double Operators – Solenoid

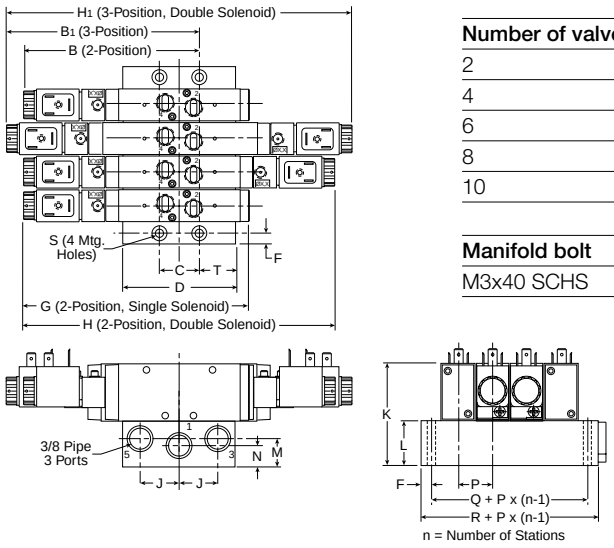


P2LBZ 5/2 & 5/3 (solenoid)

A	A1	A2	B	C
6.14	8.46	9.29	1.57	1.26
(156)	(215)	(236)	(40)	(32)
C1	**D**	**D1**	**E**	**E1**
.16	4.23	4.65	.91	.39
(4)	(107.5)	(118)	(23)	(10)
E2	**E3**	**F**	**H**	**H1**
1.14	.39	.79	.87	.43
(29)	(10)	(20)	(22)	(11)
H2	**J**	**J1**	**K2**	**M**
.06	.65	.11	1.50	.79
(1.5)	(16.5)	(2.8)	(38)	(20)
N	**N1**	**P**	**P1**	
.08	.43	Ø .12	Ø .17	
(2)	(11)	Ø (3.1)	Ø (4.3)	

Inches (mm)

P2LBZ 5/2 & 5/3 Single & Double Operators – IEM Aluminum Bar Manifold



Number of valves	X
2	2.91 (74)
4	4.80 (122)
6	6.69 (170)
8	8.58 (218)
10	10.47 (266)

Inches (mm)

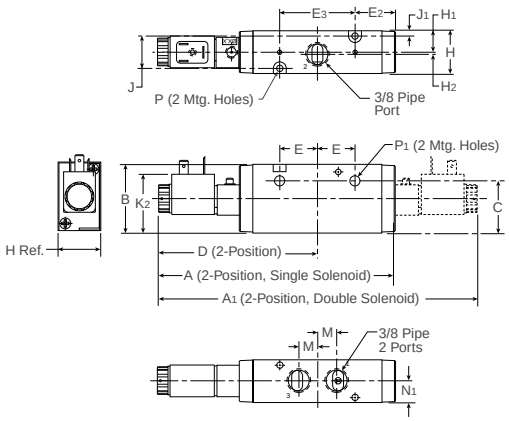
Manifold bolt	Torque value
M3x40 SCHS	9 in.lb (0.75 Nm)

P2LBZ 5/2 & 5/3
IEM Aluminum bar manifold

B	B1	C	D	F
4.43	4.84	1.04	2.99	.28
(112.5)	(123)	(26.5)	(76)	(7)
G	**H**	**H1**	**J**	**K**
6.14	8.46	9.29	1.02	2.781
(156)	(215)	(236)	(26)	(70.5)
L	**M**	**N**	**P**	**Q**
1.20	.75	.57	.94	1.57
(30.5)	(19)	(14.5)	(24)	(40)
R	**S**	**T**		
1.97	Ø .22	.97		
(50)	Ø (5.5)	(25)		

Inches (mm)

P2LCZ 3/2 Single & Double Operators – Solenoid



P2LCZ 3/2 (solenoid)

A	A1	B	C	D
6.50	8.66	1.89	1.46	4.33
(165)	(220)	(48)	(37)	(110)
E	**E2**	**E3**	**H**	**H1**
1.04	1.10	2.09	1.18	.59
(26.5)	(28)	(53)	(30)	(15)
H2	**J**	**J1**	**K2**	**M**
.06	.91	.14	1.50	.53
(1.55)	(23)	(3.5)	(38)	(13.5)
N1	**P**	**P1**		
.59	Ø .17	Ø .27		
(15)	Ø (4.4)	Ø (6.9)		

Inches (mm)

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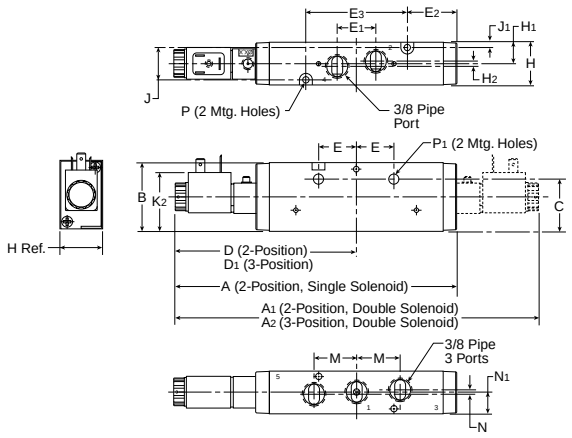
P2LCZ 5/2 & 5/3 Single & Double Operators – Solenoid

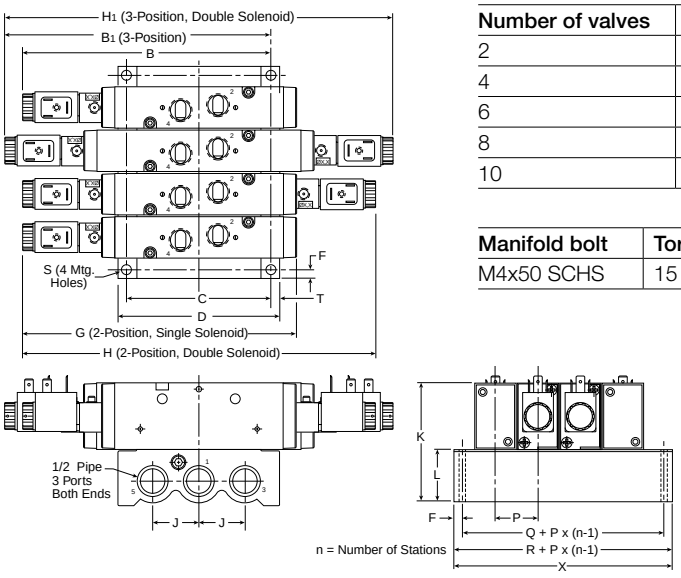


P2LBZ 5/2 & 5/3 (solenoid)

A	A1	A2	B	C
7.68 (195)	9.88 (251)	10.70 (272)	1.89 (48)	1.46 (37)
D	**D1**	**E**	**E1**	**E2**
4.94 (125.5)	5.35 (136)	1.04 (26.5)	1.06 (27)	1.71 (43.5)
E3	**H**	**H1**	**H2**	**J**
2.80 (71)	1.18 (30)	.59 (15)	.12 (.3)	.91 (23)
J1	**K2**	**M**	**N**	**N1**
.14 (3.5)	1.50 (38)	1.18 (30)	.08 (2)	.59 (15)
P	**P1**			
Ø .17 (Ø 4.4)	Ø .27 (Ø 6.9)			

Inches (mm)

P2LCZ 5/2 & 5/3 Single & Double Operators – IEM Aluminum Bar Manifold



Number of valves	X
2	3.29 (84)
4	5.96 (152)
6	8.44 (215)
8	10.93 (278)
10	13.41 (341)

Inches (mm)

Manifold bolt	Torque value
M4x50 SCHS	15 in.lb (2.0 Nm)

P2LCZ 5/2 & 5/3
IEM Aluminum bar manifold

C	D	F	G	H
3.97 (101)	4.41 (112)	.24 (6)	7.68 (195)	9.88 (251)
H1	**J**	**K**	**L**	**P**
10.70 (272)	1.26 (32)	3.43 (87)	1.54 (39)	1.24 (31.5)
Q	**R**	**S**	**T**	
1.77 (45)	2.24 (57)	Ø .26 (Ø 6.5)	.24 (6)	

Inches (mm)

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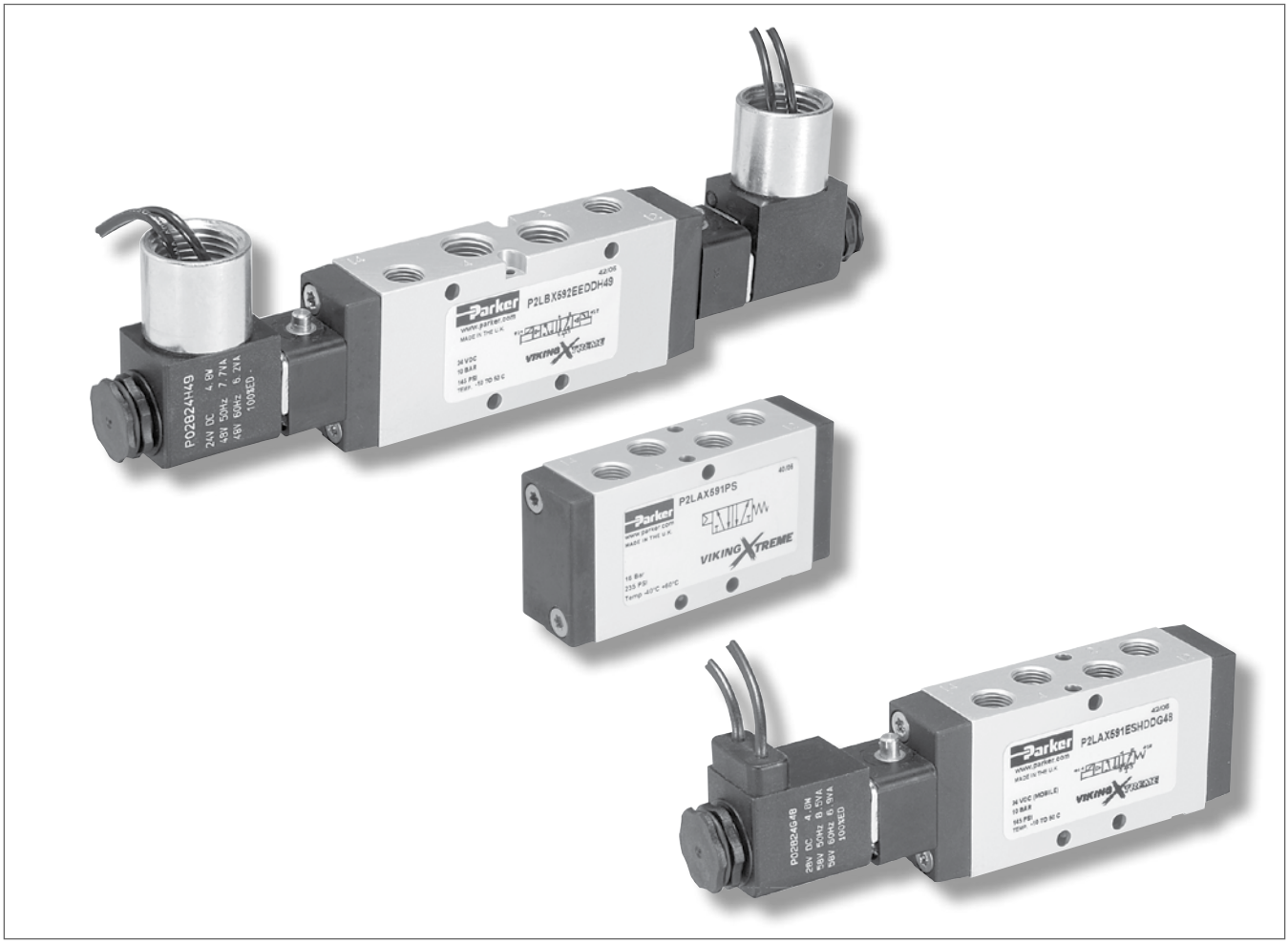
VIKING XTREME

Air Control Valves

P2LAX – 1/8"
P2LBX – 1/4"
P2LCX – 3/8"
P2LDX – 1/2"

Section D

www.parker.com/pneu/vikingx



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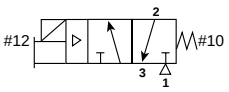
Single solenoid

3-Way, 2-Position NC (NNP)



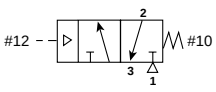
Normally Closed:

De-energized position – Solenoid #12 de-energized. Pressure at inlet port 1 blocked, outlet port 2 connected to exhaust port 3.

Energized position – Solenoid #12 energized. Pressure at inlet port 1 connected to outlet port 2, exhaust port 3 is blocked.

Single remote pilot

3-Way, 2-Position NC (NNP)



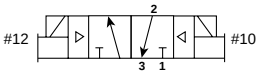
Normally Closed:

Normal position – Pressure at inlet port 1 blocked, outlet port 2 connected to exhaust port 3.

Operated position – Maintained air signal at port 12. Pressure at inlet port 1 connected to outlet port 2, exhaust port 3 is blocked.

Double solenoid

3-Way, 2-Position

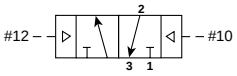


Solenoid operator #12 energized last. Pressure at inlet port 1 connected to outlet port 2, exhaust port 3 is blocked.

Solenoid operator #10 energized last. Pressure at inlet port 1 blocked, outlet port 2 connected to exhaust port 3.

Double solenoid

3-Way, 2-Position

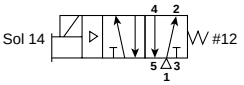


Momentary air signal at port 12 last. Pressure at inlet port 1 connected to outlet port 2, exhaust port 3 is blocked.

Momentary air signal at port 10 last. Pressure at inlet port 1 blocked, outlet port 2 connected to exhaust port 3.

Single solenoid

Single pressure at inlet port 1:

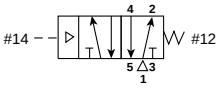


De-energized position – Solenoid operator #14 de-energized. Pressure at inlet port 1 connected to outlet port 2. Outlet port 4 connected to exhaust port 5.

Energized position – Solenoid operator #14 energized. Pressure at inlet port 1 connected to outlet port 4. Outlet port 2 connected to exhaust port 3.

Single remote pilot

Single pressure at inlet port 1:

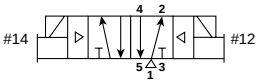


Normal position – Pressure at inlet port 1 connected to outlet port 2. Outlet port 4 connected to exhaust port 5.

Operated position – Maintained air signal at port 14. Pressure at inlet port 1 connected to outlet port 4. Outlet port 2 connected to exhaust port 3.

Double solenoid

Single pressure at inlet port 1:

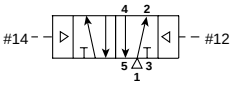


Solenoid operator #14 energized last. Pressure at inlet port 1 connected to outlet port 4. Outlet port 2 connected to exhaust port 3.

Solenoid operator #12 energized last. Pressure at inlet port 1 connected to outlet port 2. Outlet port 4 connected to exhaust port 5.

Double remote pilot

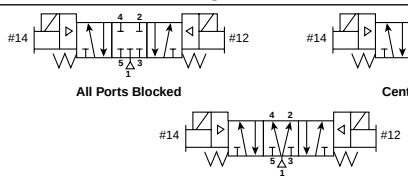
Single pressure at inlet port 1:



Momentary air signal at port 14 last. Pressure at inlet port 1 connected to outlet port 4. Outlet port 2 connected to exhaust port 3.

Momentary air signal at port 12 last. Pressure at inlet port 1 connected to outlet port 2. Outlet port 4 connected to exhaust port 5.

Double solenoid 3-position



With #12 operator energized – inlet port 1 connected to cylinder port 2, cylinder port 4 connected to exhaust port 5.

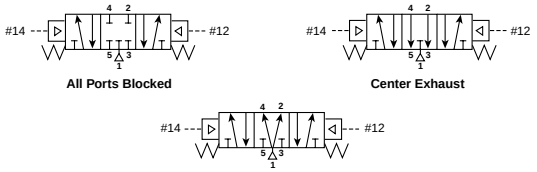
With #14 operator energized – inlet port 1 connected to cylinder port 4, cylinder port 2 connected to exhaust port 3.

All Ports Blocked
All ports blocked in the center position.

Center Exhaust
Cylinder ports 2 and 4 connected to exhaust ports 3 and 5 in center position. Port 1 is blocked.

Pressure Center
Pressure port 1 connected to cylinder ports 2 and 4, and exhaust ports 3 and 5 blocked in center position.

Double remote pilot 3-position



With #12 operator signaled – inlet port 1 connected to cylinder port 2, cylinder port 4 connected to exhaust port 5.

With #14 operator signaled – inlet port 1 connected to cylinder port 4, cylinder port 2 connected to exhaust port 3.

All Ports Blocked
All ports blocked in the center position.

Center Exhaust
Cylinder ports 2 and 4 connected to exhaust ports 3 and 5 in center position. Port 1 is blocked.

Pressure Center
Pressure port 1 connected to cylinder ports 2 and 4, and exhaust ports 3 and 5 blocked in center position.

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Specifications

P2LAX P2LAX: 0.7 Cv
P2LBX P2LBX: 1.3 Cv
P2LCX P2LCX: 2.5 Cv
P2LDX P2LDX: 2.7 Cv

Materials of Construction

- Valve Body: Anodized Aluminum
- Spool: Aluminum & Nitrile Rubber
- End Caps: Anodized Aluminum
- Coils: Thermoplastic
- Fasteners: Stainless Steel

Operating Temperature

- Normal: 14°F to 122°F (-10°C to 50°C)
- Xtreme: -40°F to 140°F (-40°C to 60°C)

Operating Pressure XTREME

- Normal: Vacuum to 145 PSIG (Vacuum to 10 bar)
- Xtreme:
  (P2LAX & P2LBX) Vacuum to 232 PSIG (Vacuum to 16 bar)
  (P2LCX & P2LDX) Vacuum to 174 PSIG (Vacuum to 12 bar)

Ports XTREME

P2LAX P2LAX: 1/8" NPT & BSPP
P2LBX P2LBX: 1/4" NPT & BSPP
P2LCX P2LCX: 3/8" NPT & BSPP
P2LDX P2LDX: 1/2" NPT & BSPP

Compliance / Approval

- IP65 Rated
- CSA Approved to 145 PSIG (10 bar)
- ATEX Option Available

Solenoids

- 2.5 to 7.3 Watt – Conduit, Grommet, 22mm & 30mm 3-Pin (DIN 43650), Hazardous Duty, Intrinsically Safe
- 12VDC to 240VAC

Mounting

- Inline
- IEM Aluminum Bar

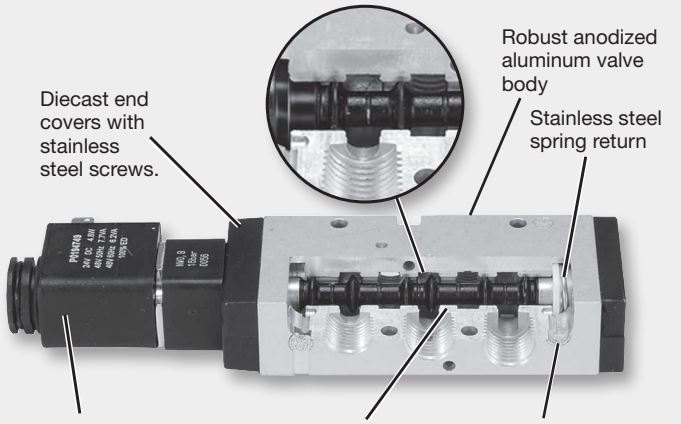
Mobile Applications XTREME

- Viking Xtreme Tested to +5g Shock and Vibration
- Solenoids Operate with Wide Voltage Tolerance Bands
- Corrosion Resistant Design

Over Molded Spool

- Aluminum spool with nitrile rubber coating ground to exact size for optimum performance
- Precision ground for maximum performance
- Wide operating temperature range
  – Low temperature to -40°

Over Molded Spool



- Solenoid operated, IP65, RoHS, CE
- Wide variety of electrical connections
- 90° rotation
- Air pilot available

The bore is polished to a very high surface finish for maximum flow capacity and long life.

Sintered bronze pilot chamber breathers provide increased protection against ingress of dust and dirt.

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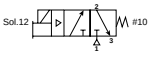
Single Solenoid, 3-way, 2-position, Normal Operating Pressure / Temperature

	Solenoid	Port size (NPT)	Cv	Valve type	Response time (msec)	Weight lb (kg)	Voltage	Part number
		1/8"	0.7	P2LAX	18 / 40	0.84 (0.38)	24VDC	**P2LAX391ESNDDB49**
							120VAC	**P2LAX391ESNDDB53**
	22mm DIN	1/4"	1.3	P2LBX	18 / 45	0.84 (0.38)	24VDC	**P2LBX392ESNDDB49**
							120VAC	**P2LBX392ESNDDB53**
		3/8"	2.5	P2LCX	25 / 75	1.72 (0.78)	24VDC	**P2LCX393ESNDDB49**
							120VAC	**P2LCX393ESNDDB53**
		1/2"	2.7	P2LDX	25 / 75	1.72 (0.78)	24VDC	**P2LDX394ESNDDB49**
P2LAX 22mm DIN Shown							120VAC	**P2LDX394ESNDDB53**
		1/8"	0.7	P2LAX	18 / 40	0.84 (0.38)	24VDC	**P2LAX391ESNDDG49**
							120VAC	**P2LAX391ESNDDG53**
	18" Grommet	1/4"	1.3	P2LBX	18 / 45	0.84 (0.38)	24VDC	**P2LBX392ESNDDG49**
							120VAC	**P2LBX392ESNDDG53**
		3/8"	2.5	P2LCX	25 / 75	1.72 (0.78)	24VDC	**P2LCX393ESNDDG49**
							120VAC	**P2LCX393ESNDDG53**
		1/2"	2.7	P2LDX	25 / 75	1.72 (0.78)	24VDC	**P2LDX394ESNDDG49**
P2LAX 18" Grommet Shown							120VAC	**P2LDX394ESNDDG53**

Notes: Above valves are rated for an operating temperature from 14°F to 122°F (-10°C to 50°C). See model code matrix for additional options.
Response time: Actuate to 90% pressure / return to exhaust to 10% of supply pressure. 93 PSIG (6.3 bar) / temperature 68°F (20°C).

Single Solenoid, 4-way, 2-position, Normal Operating Pressure / Temperature

	Solenoid	Port size (NPT)	Cv	Valve type	Response time (msec)	Weight lb (kg)	Voltage	Part number
		1/8"	0.7	P2LAX	15 / 35	0.49 (0.22)	24VDC	**P2LAX591ESNDDB49**
							120VAC	**P2LAX591ESNDDB53**
	22mm DIN	1/4"	1.3	P2LBX	18 / 45	0.84 (0.38)	24VDC	**P2LBX592ESNDDB49**
							120VAC	**P2LBX592ESNDDB53**
		3/8"	2.5	P2LCX	27 / 75	1.68 (0.76)	24VDC	**P2LCX593ESNDDB49**
							120VAC	**P2LCX593ESNDDB53**
		1/2"	2.7	P2LDX	25 / 75	1.68 (0.76)	24VDC	**P2LDX594ESNDDB49**
P2LBX 22mm DIN Shown							120VAC	**P2LDX594ESNDDB53**
		1/8"	0.7	P2LAX	15 / 35	0.49 (0.22)	24VDC	**P2LAX591ESNDDG49**
							120VAC	**P2LAX591ESNDDG53**
	18" Grommet	1/4"	1.3	P2LBX	18 / 45	0.84 (0.38)	24VDC	**P2LBX592ESNDDG49**
							120VAC	**P2LBX592ESNDDG53**
		3/8"	2.5	P2LCX	27 / 75	1.68 (0.76)	24VDC	**P2LCX593ESNDDG49**
							120VAC	**P2LCX593ESNDDG53**
		1/2"	2.7	P2LDX	25 / 75	1.68 (0.76)	24VDC	**P2LDX594ESNDDG49**
P2LAX 18" Grommet Shown							120VAC	**P2LDX594ESNDDG53**

Notes: Above valves are rated for an operating temperature from 14°F to 122°F (-10°C to 50°C). See model code matrix for additional options.
Response time: Actuate to 90% pressure / return to exhaust to 10% of supply pressure. 93 PSIG (6.3 bar) / temperature 68°F (20°C).

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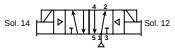
Double Solenoid, 4-way, 2-position, Normal Operating Pressure / Temperature



22mm DIN

P2LBX 22mm DIN Shown

18" Grommet

P2LAX 18" Grommet Shown

Solenoid	Port size (NPT)	Cv	Valve type	Response time (msec)	Weight lb (kg)	Voltage	Part number
22mm DIN	1/8"	0.7	P2LAX	10 / 10	0.60 (0.27)	24VDC	**P2LAX591EENDDB49**
						120VAC	**P2LAX591EENDDB53**
	1/4"	1.3	P2LBX	12 / 12	0.93 (0.42)	24VDC	**P2LBX592EENDDB49**
						120VAC	**P2LBX592EENDDB53**
	3/8"	2.5	P2LCX	17 / 17	1.78 (0.81)	24VDC	**P2LCX593EENDDB49**
						120VAC	**P2LCX593EENDDB53**
	1/2"	2.7	P2LDX	17 / 17	1.78 (0.81)	24VDC	**P2LDX594EENDDB49**
						120VAC	**P2LDX594EENDDB53**
18" Grommet	1/8"	0.7	P2LAX	10 / 10	0.60 (0.27)	24VDC	**P2LAX591EENDDG49**
						120VAC	**P2LAX591EENDDG53**
	1/4"	1.3	P2LBX	12 / 12	0.93 (0.42)	24VDC	**P2LBX592EENDDG49**
						120VAC	**P2LBX592EENDDG53**
	3/8"	2.5	P2LCX	17 / 17	1.78 (0.81)	24VDC	**P2LCX593EENDDG49**
						120VAC	**P2LCX593EENDDG53**
	1/2"	2.7	P2LDX	17 / 17	1.78 (0.81)	24VDC	**P2LDX594EENDDG49**
						120VAC	**P2LDX594EENDDG53**

Notes: Above valves are rated for an operating temperature from 14°F to 122°F (-10°C to 50°C). See model code matrix for additional options.
Response time: Actuate to 90% pressure / return to exhaust to 10% of supply pressure. 93 PSIG (6.3 bar) / temperature 68°F (20°C).

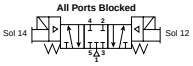
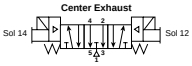
Double Solenoid, 4-way, 3-position All Ports Blocked, 3-position Center Exhaust, Normal Operating Pressure / Temperature

22mm DIN

P2LBX 22mm DIN Shown

18" Grommet

P2LBX 18" Grommet Shown

Solenoid	Port size (NPT)	Cv	Valve type	Response time (msec)	Weight lb (kg)	Voltage	Part number: All Ports Blocked 	Part number: Center Exhaust 
22mm DIN	1/8"	0.5	P2LAX	18 / 40	0.62 (0.28)	24VDC 120VAC	**P2LAX691EENDDB49 P2LAX691EENDDB53**	**P2LAX891EENDDB49 P2LAX891EENDDB53**
	1/4"	0.9	P2LBX	22 / 55	0.97 (0.44)	24VDC 120VAC	**P2LBX692EENDDB49 P2LBX692EENDDB53**	**P2LBX892EENDDB49 P2LBX892EENDDB53**
	3/8"	1.8	P2LCX	30 / 90	2.45 (1.11)	24VDC 120VAC	**P2LCX693EENDDB49 P2LCX693EENDDB53**	**P2LCX893EENDDB49 P2LCX893EENDDB53**
	1/2"	1.9	P2LDX	30 / 90	2.45 (1.11)	24VDC 120VAC	**P2LDX694EENDDB49 P2LDX694EENDDB53**	**P2LDX894EENDDB49 P2LDX894EENDDB53**
18" Grommet	1/8"	0.5	P2LAX	18 / 40	0.62 (0.28)	24VDC 120VAC	**P2LAX691EENDDG49 P2LAX691EENDDG53**	**P2LAX891EENDDG49 P2LAX891EENDDG53**
	1/4"	0.9	P2LBX	22 / 55	0.97 (0.44)	24VDC 120VAC	**P2LBX692EENDDG49 P2LBX692EENDDG53**	**P2LBX892EENDDG49 P2LBX892EENDDG53**
	3/8"	1.8	P2LCX	30 / 90	2.45 (1.11)	24VDC 120VAC	**P2LCX693EENDDG49 P2LCX693EENDDG53**	**P2LCX893EENDDG49 P2LCX893EENDDG53**
	1/2"	1.9	P2LDX	30 / 90	2.45 (1.11)	24VDC 120VAC	**P2LDX694EENDDG49 P2LDX694EENDDG53**	**P2LDX894EENDDG49 P2LDX894EENDDG53**

Notes: Above valves are rated for an operating temperature from 14°F to 122°F (-10°C to 50°C). See model code matrix for additional options.
Response time: Actuate to 90% pressure / return to exhaust to 10% of supply pressure. 93 PSIG (6.3 bar) / temperature 68°F (20°C).

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Richland, Michigan
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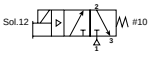
Single Solenoid, 3-way, 2-position, Xtreme Operating Pressure / Temperature



P2LBX 22mm DIN Shown

P2LBX 18" Grommet Shown

Solenoid	Port size (NPT)	Cv	Valve type	Response time (msec)	Weight lb (kg)	Voltage	Part number
22mm DIN	1/8"	0.7	P2LAX	15 / 45	0.84 (0.38)	12VDC	**P2LAX391ESHDDB47**
						24VDC	**P2LAX391ESHDDB48**
	1/4"	1.3	P2LBX	25 / 65	0.84 (0.38)	12VDC	**P2LBX392ESHDDB47**
						24VDC	**P2LBX392ESHDDB48**
	3/8"	2.5	P2LCX	25 / 85	1.01 (0.46)	12VDC	**P2LCX393ESHDDB47**
						24VDC	**P2LCX393ESHDDB48**
	1/2"	2.7	P2LDX	25 / 85	1.01 (0.46)	12VDC	**P2LDX394ESHDDB47**
						24VDC	**P2LDX394ESHDDB48**
18" Grommet	1/8"	0.7	P2LAX	15 / 45	0.84 (0.38)	12VDC	**P2LAX391ESHDDG47**
						24VDC	**P2LAX391ESHDDG48**
	1/4"	1.3	P2LBX	25 / 65	0.84 (0.38)	12VDC	**P2LBX392ESHDDG47**
						24VDC	**P2LBX392ESHDDG48**
	3/8"	2.5	P2LCX	25 / 85	1.01 (0.46)	12VDC	**P2LCX393ESHDDG47**
						24VDC	**P2LCX393ESHDDG48**
	1/2"	2.7	P2LDX	25 / 85	1.01 (0.46)	12VDC	**P2LDX394ESHDDG47**
						24VDC	**P2LDX394ESHDDG48**

Notes: Above valves have Mobile Rate Coils and are rated for an operating temperature from -40°F to 140°F (-40°C to 60°C). See model code matrix for additional options.
Response time: Actuate to 90% pressure / return to exhaust to 10% of supply pressure. 93 PSIG (6.3 bar) / temperature 68°F (20°C).

Single Solenoid, 4-way, 2-position, Xtreme Operating Pressure / Temperature

P2LBX 22mm DIN Shown

P2LAX 18" Grommet Shown

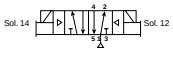
Solenoid	Port size (NPT)	Cv	Valve type	Response time (msec)	Weight lb (kg)	Voltage	Part number
22mm DIN	1/8"	0.7	P2LAX	15 / 45	0.84 (0.38)	12VDC	**P2LAX591ESHDDB47**
						24VDC	**P2LAX591ESHDDB48**
	1/4"	1.3	P2LBX	20 / 55	0.84 (0.38)	12VDC	**P2LBX592ESHDDB47**
						24VDC	**P2LBX592ESHDDB48**
	3/8"	2.5	P2LCX	25 / 85	1.01 (0.46)	12VDC	**P2LCX593ESHDDB47**
						24VDC	**P2LCX593ESHDDB48**
	1/2"	2.7	P2LDX	25 / 85	1.01 (0.46)	12VDC	**P2LDX594ESHDDB47**
						24VDC	**P2LDX594ESHDDB48**
18" Grommet	1/8"	0.7	P2LAX	15 / 45	0.84 (0.38)	12VDC	**P2LAX591ESHDDG47**
						24VDC	**P2LAX591ESHDDG48**
	1/4"	1.3	P2LBX	25 / 65	0.84 (0.38)	12VDC	**P2LBX592ESHDDG47**
						24VDC	**P2LBX592ESHDDG48**
	3/8"	2.5	P2LCX	28 / 85	1.01 (0.46)	12VDC	**P2LCX593ESHDDG47**
						24VDC	**P2LCX593ESHDDG48**
	1/2"	2.7	P2LDX	25 / 85	1.01 (0.46)	12VDC	**P2LDX594ESHDDG47**
						24VDC	**P2LDX594ESHDDG48**

Notes: Above valves have Mobile Rate Coils and are rated for an operating temperature from -40°F to 140°F (-40°C to 60°C). See model code matrix for additional options.
Response time: Actuate to 90% pressure / return to exhaust to 10% of supply pressure. 93 PSIG (6.3 bar) / temperature 68°F (20°C).

BOLD ITEMS ARE MOST POPULAR.

Parker Hannifin Corporation
Pneumatic Division
Richland, Michigan
www.parker.com/pneumatics

Double Solenoid, 4-way, 2-position, Xtreme Operating Pressure / Temperature



22mm DIN

P2LBX 22mm DIN Shown

18" Grommet

P2LAX 18" Grommet Shown

Solenoid	Port size (NPT)	Cv	Valve type	Response time (msec)	Weight lb (kg)	Voltage	Part number
	1/8"	0.7	P2LAX	11 / 11	0.60 (0.27)	12VDC	**P2LAX591EEHDDB47**
						24VDC	**P2LAX591EEHDDB48**
	1/4"	1.3	P2LBX	13 / 13	0.93 (0.42)	12VDC	**P2LBX592EEHDDB47**
						24VDC	**P2LBX592EEHDDB48**
	3/8"	2.5	P2LCX	18 / 18	1.06 (0.48)	12VDC	**P2LCX593EEHDDB47**
						24VDC	**P2LCX593EEHDDB48**
	1/2"	2.7	P2LDX	18 / 18	1.06 (0.48)	12VDC	**P2LDX594EEHDDB47**
						24VDC	**P2LDX594EEHDDB48**
	1/8"	0.7	P2LAX	11 / 11	0.60 (0.27)	12VDC	**P2LAX591EEHDDG47**
						24VDC	**P2LAX591EEHDDG48**
	1/4"	1.3	P2LBX	13 / 13	0.93 (0.42)	12VDC	**P2LBX592EEHDDG47**
						24VDC	**P2LBX592EEHDDG48**
	3/8"	2.5	P2LCX	18 / 18	1.06 (0.48)	12VDC	**P2LCX593EEHDDG47**
						24VDC	**P2LCX593EEHDDG48**
	1/2"	2.7	P2LDX	18 / 18	1.06 (0.48)	12VDC	**P2LDX594EEHDDG47**
						24VDC	**P2LDX594EEHDDG48**

Notes: Above valves have Mobile Rate Coils and are rated for an operating temperature from -40°F to 140°F (-40°C to 60°C). See model code matrix for additional options.
Response time: Actuate to 90% pressure / return to exhaust to 10% of supply pressure. 93 PSIG (6.3 bar) / temperature 68°F (20°C).

Double Solenoid, 4-way, 3-position All Ports Blocked, 3-position Center Exhaust, Xtreme Operating Pressure / Temperature

22mm DIN

P2LBX 22mm DIN Shown

18" Grommet

P2LBX 18" Grommet Shown

Solenoid	Port size	Cv	Valve type (NPT)	Response time (msec)	Weight lb (kg)	Voltage	Part number: All ports blocked	Part number: Center exhaust
	1/8"	0.5	P2LAX	18 / 40	0.62 (0.28)	12VDC	**P2LAX691EEHDDB47**	**P2LAX891EEHDDB47**
						24VDC	**P2LAX691EEHDDB48**	**P2LAX891EEHDDB48**
	1/4"	0.9	P2LBX	22 / 55	0.97 (0.44)	12VDC	**P2LBX692EEHDDB47**	**P2LBX892EEHDDB47**
						24VDC	**P2LBX692EEHDDB48**	**P2LBX892EEHDDB48**
	3/8"	1.8	P2LCX	30 / 90	2.45 (1.11)	12VDC	**P2LCX693EEHDDB47**	**P2LCX893EEHDDB47**
						24VDC	**P2LCX693EEHDDB48**	**P2LCX893EEHDDB48**
	1/2"	1.9	P2LDX	30 / 90	2.45 (1.11)	12VDC	**P2LDX694EEHDDB47**	**P2LDX894EEHDDB47**
						24VDC	**P2LDX694EEHDDB48**	**P2LDX894EEHDDB48**
	1/8"	0.5	P2LAX	18 / 40	0.62 (0.28)	12VDC	**P2LAX691EEHDDG47**	**P2LAX891EEHDDG47**
						24VDC	**P2LAX691EEHDDG48**	**P2LAX891EEHDDG48**
	1/4"	0.9	P2LBX	22 / 55	0.97 (0.44)	12VDC	**P2LBX692EEHDDG47**	**P2LBX892EEHDDG47**
						24VDC	**P2LBX692EEHDDG48**	**P2LBX892EEHDDG48**
	3/8"	1.8	P2LCX	30 / 90	2.45 (1.11)	12VDC	**P2LCX693EEHDDG47**	**P2LCX893EEHDDG47**
						24VDC	**P2LCX693EEHDDG48**	**P2LCX893EEHDDG48**
	1/2"	1.9	P2LDX	30 / 90	2.45 (1.11)	12VDC	**P2LDX694EEHDDG47**	**P2LDX894EEHDDG47**
						24VDC	**P2LDX694EEHDDG48**	**P2LDX894EEHDDG48**

Notes: Above valves have Mobile Rate Coils and are rated for an operating temperature from -40°F to 140°F (-40°C to 60°C). See model code matrix for additional options.
Response time: Actuate to 90% pressure / return to exhaust to 10% of supply pressure. 93 PSIG (6.3 bar) / temperature 68°F (20°C).

BOLD ITEMS ARE MOST POPULAR.

Parker Hannifin Corporation
Pneumatic Division
Richland, Michigan
www.parker.com/pneumatics

Single & Double Solenoid Operated Valves

P2L	A	X	5	91	E	S	H	D	D	G	49

Valve size	
1/8"	A
1/4"	B
3/8"	C
1/2"	D

Series	
Viking Xtreme	X

Valve type / function	
*Internal pilot supply to solenoid**	
3/2 NC - 2-position	3
5/2 2-position	5
5/3 3-position, APB	6
5/3 3-position, PC	7
5/3 3-position, CE	8
External pilot supply to the solenoids through ports #12 & #14	
3/2 NC - 2-position	L
5/2 2-position	N
5/3 3-position, APB	P
5/3 3-position, PC	Q
5/3 3-position, CE	R

* Size A & B solenoid valves can be field converted from internal to external pilot. See page D48 for details.

Main port thread	
G1/8 (P2LA)	11
G1/4 (P2LB)	12
G1/4 (P2LB) NAMUR Mount	1N*
G3/8 (P2LC)	13
G1/2 (P2LD)	14
1/8" NPT (P2LA)	**91**
1/4" NPT (P2LB)	**92**
1/4" NPT (P2LB) NAMUR Mount	**9N***
3/8" NPT (P2LC)	**93**
1/2" NPT (P2LD)	**94**

* NAMUR mount available for 5/2, 2-position only.

12 End operator	
Double solenoid operated valve	E
Single solenoid spring return	S*

* Not available with 3-position valves.

	Valve type
N	Normal, vacuum to 145 PSIG (10 bar) 14°F to 122°F (-10°C to 50°C) CSA Approved
K	Xtreme, vacuum to 145 PSIG (10 bar) -40°F to 140° F (-40°C to 60°C) CSA Approved
H*	Xtreme, vacuum to 232 PSIG (16 bar) -40°F to 140° F (-40°C to 60°C)

* P2LC and P2LD solenoid operated valves have a maximum pressure rating of 175 PSIG (12 bar)

	Solenoid pilot type
D	Pilot exhaust vented
N	Tapped pilot exhaust (M5)

	Overrides
A	No override
C*	Flush - locking
D	Extended non-locking

* Overide for valve type N only.

	Enclosures / lead length
A	30mm square 3-pin – ISO 4400 Form A (male only)
B	22mm rectangular 3-pin – type B industrial (male only)
E*	Intrinsically safe, FM / CSA
F‡	Hazardous duty, FM / CSA
G	Grommet - 18" leads
H	1/2" NPT conduit - 18" leads
N	Solenoid pilot operator less coil

* Only available with voltage code "49" & override option "A", valve type "N" Only. Solenoid coil only CSA approved.

‡ Valve Type "N" Only. Solenoid coil only CSA approved.

	Voltage / frequency
42	24VAC
45	12VDC
47*	**12 VDC mobile**
48*	**24 VDC mobile**
49	**24VDC**
53	**120VAC**
57	240VAC
Blank	Valve less coil

* Only available with enclosures "A", "B" & "G". Additional voltages are available upon request. Contact customer support for more information.

BOLD ITEMS ARE MOST POPULAR.

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Pneumatic Division
Richland, Michigan
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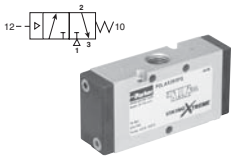
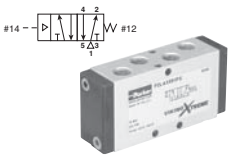
Single Remote Pilot, 3-way, 2-position, Xtreme Operating Pressure / Temperature



P2LAX Shown

Port size (NPT)	Cv	Response time (msec)	Weight lb (kg)	Valve type	Part number
1/8"	0.7	15 / 45	0.68 (0.31)	P2LAX	**P2LAX391PS**
1/4"	1.3	25 / 65	0.68 (0.31)	P2LBX	**P2LBX392PS**
3/8"	2.5	25 / 65	0.88 (0.40)	P2LCX	**P2LCX393PS**
1/2"	2.7	25 / 65	0.88 (0.40)	P2LDX	**P2LDX394PS**

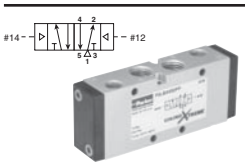
Single Remote Pilot, 4-way, 2-position, Xtreme Operating Pressure / Temperature



P2LAX Shown

Port size (NPT)	Cv	Response time (msec)	Weight lb (kg)	Valve type	Part number
1/8"	0.7	15 / 45	0.33 (0.15)	P2LAX	**P2LAX591PS**
1/4"	1.3	20 / 55	0.68 (0.31)	P2LBX	**P2LBX592PS**
3/8"	2.5	25 / 85	0.90 (0.41)	P2LCX	**P2LCX593PS**
1/2"	2.7	25 / 85	0.90 (0.41)	P2LDX	**P2LDX594PS**

Double Remote Pilot, 4-way, 2-position, Xtreme Operating Pressure / Temperature



P2LBX Shown

Port size (NPT)	Cv	Response time (msec)	Weight lb (kg)	Valve type	Part number
1/8"	0.7	11 / 11	0.33 (0.15)	P2LAX	**P2LAX591PP**
1/4"	1.3	13 / 13	0.68 (0.31)	P2LBX	**P2LBX592PP**
3/8"	2.5	18 / 18	0.90 (0.41)	P2LCX	**P2LCX593PP**
1/2"	2.7	18 / 18	0.90 (0.41)	P2LDX	**P2LDX594PP**

Double Remote Pilot, 4-way, 3-position All Ports Blocked, 3-position Center Exhaust, Xtreme Operating Pressure / Temperature

P2LBX Shown

Port size (NPT)	Cv	Response time (msec)	Weight lb (kg)	Valve type	Part number: All ports blocked	Part number: Center exhaust
1/8"	0.5	18 / 50	0.31 (0.14)	P2LAX	**P2LAX691PP**	**P2LAX891PP**
1/4"	0.9	25 / 65	0.73 (0.33)	P2LBX	**P2LBX692PP**	**P2LBX892PP**
3/8"	1.8	30 / 90	0.93 (0.42)	P2LCX	**P2LCX693PP**	**P2LCX893PP**
1/2"	1.9	30 / 90	0.93 (0.42)	P2LDX	P2LDX694PP	**P2LDX894PP**

Notes: Above valves are rated for an operating temperature from -40°F to 140°F (-40°C to 60°C). See model code matrix for additional options.
Response time: Actuate to 90% pressure / return to exhaust to 10% of supply pressure. 93 PSIG (6.3 bar) / temperature 68°F (20°C).

Remote Air Pilot Operated Valves

P2L A X 5 91 PS

Valve size	
1/8"	A
1/4"	B
3/8"	C*
1/2"	D*

* P2LCX and P2LDX manual & remote air pilot valves have a maximum pressure rating of 175 PSIG (12 bar).

Valve type / function	
Internal pilot supply to solenoid	
3/2 NC - 2-position	3
5/2 2-position	5
5/3 3-position, APB	6
5/3 3-position, PC	7
5/3 3-position, CE	8

Operators / return	
PP	Double remote pilot
PS*	Single remote pilot, spring return

* Not available with 3-position valves.

Main port thread	
11	G1/8 (P2LA)
12	G1/4 (P2LB)
13	G3/8 (P2LC)
14	G1/2 (P2LD)
91	**1/8" NPT (P2LA)**
92	**1/4" NPT (P2LB)**
93	**3/8" NPT (P2LC)**
94	**1/2" NPT (P2LD)**

Note: NAMUR Mount for P2LBX is available upon request.

BOLD ITEMS ARE MOST POPULAR.

Parker Hannifin Corporation
Pneumatic Division
Richland, Michigan
www.parker.com/pneumatics

IEM Bar Manifold, Viking Xtreme Solenoid / Remote Pilot Valves

Valve series	Valve function	## -Stations	Manifold only (NPT)	Manifold only (BSPP)
P2LAX*	3-way	02 - 12	**P2LAXGAXG##NP**	**P2LAXGAXG##NP**
P2LAX*	4-way	02 - 12	**P2LAXMAXN##NP**	**P2LAXMAXN##NP**
P2LBX*	3-way	02 - 12	**P2LBXGAXG##NP**	**P2LBXGAXG##NP**
P2LBX*	4-way	02 - 12	**P2LBXMAXN##NP**	**P2LBXMAXN##NP**
P2LCX	3-way / 4-way	02 - 12	**P2LCXMAXN##NP**	**P2LCXMAXN##NP**

Kits include: (1) manifold, valve hold down bolts and o-rings. Replace ## with number of valve stations.
* 30mm solenoid coil option "A" not available on IEM bar manifold P2LAX or P2LBX.

IEM Bar Manifold Add-A-Fold Assembly (Viking Xtreme Solenoid / Remote Pilot Valves Only)

Valve series	Valve function	## -Stations	Manifold only (NPT)	Manifold only (BSPP)
P2LAX*	3-way	02 - 12	**AAPL2AXGAXG##NP**	**AAPL2AXGAXG##NP**
P2LAX*	4-way	02 - 12	**AAPL2AXMAXN##NP**	**AAPL2AXMAXG##NP**
P2LBX*	3-way	02 - 12	**AAPL2BXGAXG##NP**	**AAPL2BXGAXG##NP**
P2LBX*	4-way	02 - 12	**AAPL2BXMAXN##NP**	**AAPL2BXMAXG##NP**
P2LCX	3-way / 4-way	02 - 12	**AAPL2CXMAXN##NP**	**AAPL2CXMAXG##NP**

Kits include: (1) manifold, valve hold down bolts, o-rings and assembly. Replace ## with number of valve stations.
* 30mm solenoid coil option "A" not available on IEM bar manifold P2LAX or P2LBX.

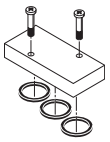
How to Order: 1. List Add-A-Fold assembly part number as line item 1

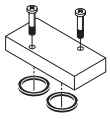
2. List the desired valves series part number in subsequent line items after the Add-A-Fold Assembly part number to complete the ordering code. Include all valves and blanking kits required. The left most station is station # 1 looking at the #12 end of the manifold.

Example: B3, 4-way manifold with station #1 blanked off with valves assembled

Line	Qty	Part number	Comment
1	1	AAPL2BXMAXN02NP	Add-A-Fold Assembly, 2-station IEM bar manifold
2	2	P2LBX591ESNNDDB49	4-way, Station 1, 2

Blanking Plate





Type		Kit number
P2LAX	4-way	**9121658063**
P2LBX	4-way	**9121594809X**
P2LCX	3 & 4 way	**P2LCXK20P**
P2LAX	3-way	**912132BPSXZ**
P2LBX	3-way	**912132BPSXZ**

Kit includes: plate, screws, o-rings

Manifold Bolts

Type	Qty.	Kit number
P2LAX	12	**P2LAXK87P**
P2LBX	12	**P2LBXK87P**
P2LCX	12	**P2LCXK87P**

Manifold O-rings

Type	Qty.	Kit number
P2LAX	30	**P2LAXK84P**
P2LBX	18	**P2LBXK84P**
P2LCX	12	**P2LCXK84P**

BOLD ITEMS ARE MOST POPULAR.

Parker Hannifin Corporation
Pneumatic Division
Richland, Michigan
www.parker.com/pneumatics

ATEX Certified Single & Double Solenoid Operated Valves

Vacuum to 145 PSIG (Vacuum to 10 bar)
14°F to 122°F 22mm Coils (Enclosure Option M)
-4°F to 122°F 30mm Coils (Enclosure Option S)

P2L	A	X	5	91	E	S	A	D	D	M	49

Valve Size	
1/8"	A
1/4"	B
3/8"	C
1/2"	D

Valve Type / Function	
Internal Pilot Supply to Solenoid	
2-Position Valve	5
3-Position Valve APB	6
3-Position Valve PC	7
3-Position Valve CE	8
External Pilot Supply to Solenoids through Ports #12 & #14	
2-Position Valve	N
3-Position Valve APB	P
3-Position Valve PC	Q
3-Position Valve CE	R

Main Port Thread	
G1/8 (P2LA)	11
G1/4 (P2LB)	12
G3/8 (P2LC)	13
G1/2 (P2LD)	14
1/8" NPT (P2LA)	91
1/4" NPT (P2LB)	92
3/8" NPT (P2LC)	93
1/2" NPT (P2LD)	94

12 End Operator	
E	Double Solenoid Operated Valve
S	Single Solenoid Spring Return

Solenoid Pilot Type	
D	Vented Pilot Exhaust
N	Tapped Pilot Exhaust (M5)

Overrides	
D	Extended Non-Locking

Enclosures	
M	ATEX 8-22T EExm T4 135°C

Voltage	
49	24VDC

NOTE: For ATEX Certified Manual and Remote Air Pilot Valves, build the valve part number from the model number index on page D81 and add "-EX" following the number.
Example: P2LAX591PS-EX

NOTE: All valves include a 3 Meter Sealed Cable with Assembly.

ATEX Certified Solenoid Pilot Assemblies

P2F	S	1	3	A	3	D	M	49

Voltage	
49	24VDC

Enclosures	
M	ATEX 8-22T EExm T4 135°C

NOTE: All valves include a 3 Meter Sealed Cable with Assembly.

BOLD ITEMS ARE MOST POPULAR.

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Pneumatic Division
Richland, Michigan
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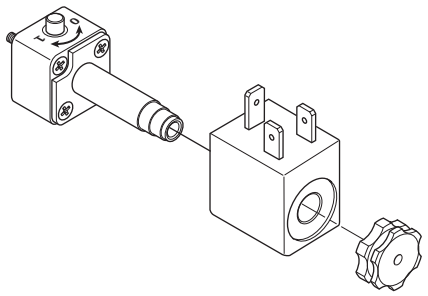
22mm Solenoid Pilot Operators & Coils



22mm Solenoid Pilot Options

The P2FP13*4* (NC) 3/2 solenoid pilot operators are designed for piloting pneumatic control valves with compressed air or other inert gases.

The P2FP operator is available for Normal operating pressures up to 10 bar or the Xtreme maximum operating pressure of 16 bar and wide band voltage tolerances required for mobile applications.

Corrosion Resistant Design

The pilot valve body is manufactured in thermoplastic PA6 material and the core tube brass / stainless steel. The plunger / core is made from stainless steel and the valve seats from FKM.

Solenoid Pilot Exhaust

These operators all exhaust out of the top of the core tube which is tapped M5. The standard solenoid nut fitted to the core tube is a diffuser nut which allows the exhaust to escape to atmosphere. This nut also minimizes ingress of dirt into the valve through this port. The alternative plastic knurled nut can be specified (refer to part number system) if the exhaust air needs captured and piped away using the M5 tapped port.

Mobile Applications

Viking Xtreme valves are tested to +5g shock and vibration. Solenoid operated valves are designed to operate with wide voltage tolerance bands within the ambient temperature ranges stated in the technical section.

Coils

Coils are wound with enameled copper wire, having a temperature index of 180°C with class F insulation (155°C) and are encapsulated in Thermoplastic resin. When fitted with suitable connector and correct gasket, they give protection to IP65.

Manual Override Options

The pilot operators can be supplied with locking or non-locking manual override. The standard manual override is the monostable (spring return) extended brass override. Alternatively the bistable (locking) override can be specified as an alternative for the Normal duty 10 bar option.

Spares

Solenoid operators are available as spares complete with mounting screws and seals. Coils and connectors should be ordered separately unless ATEX certified and intrinsically safe is needed. ATEX certified operators and coils must be ordered together.

Transients

Interrupting the current through the solenoid coil produces momentary voltage peaks which, under unfavorable conditions, can amount to several hundred times the rated operating voltage. Normally, these transients do not cause problems, but to achieve the maximum life of relays in the circuit (and particularly of transistors, thyristors and integrated circuits) it is desirable to provide protection by means of voltage-dependent resistors (varistors). All connectors / cable plugs with LEDs include this type of circuit protection.

Materials

Pilot Valve

Body ..... Polyamide

Armature Tube:
- Normal Pilot Operator ..... Brass
- Extreme Pilot Operator ..... Stainless Steel

Plunger & Core ..... Corrosion resistant Cr-Ni Steel

Seals ..... Fluorocarbon (FKM)

Screws ..... Stainless Steel

Coil

Encapsulation Material ..... Thermoplastic

ATEX

ATEX is a European Directive (94/9/EC) valid for products to be used within an explosive atmosphere.

Both ATEX certified solenoid, remote pilot and manual operated valves, as well as complete solenoid pilot assemblies are available. For specific information regarding ATEX certification please visit www.parker/pneumatics.

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Pilot Operator Kits

P2F P 1 3 N 4 C

Type	
Pilot operator kit	P

Pressure / temperature	
145 PSIG (10 bar) 14°F to 122°F (-10°C to 50°C)	N
232 PSIG (16 bar) -40°F to 158°F (-40°C to 70°C)	H

	Overrides
A	No override
C*	Locking (bistable) flush - plastic
D	Non-locking (monostable) extended - brass

* Only available with "N" Pressure / temperature option.

Solenoid Kits

P2F C A 4 49

Type	
Solenoid Kit	C

Enclosures / lead length	
30mm square 3-pin – ISO 4400 Form A (male only)	A
22mm rectangular 3-pin – Type B Industrial (male only)	B
Hazardous duty, FM / CSA	F*
Grommet - 18" leads	G
1/2" NPT conduit - 18" leads	H
Grommet 72" leads	Q
1/2" conduit 72" leads	R

* Only available with voltage codes "45", "49", "53" & "57". Not for use with the Xtreme version (-40°C to 70°C).

	Voltage / frequency
42	24VAC
45	12VDC
47*	12 VDC mobile
48*	24 VDC mobile
49	24VDC
53	120VAC
57	240VAC

* Only available with enclosures "A", "B" & "G". Additional voltages are available upon request. Contact customer support for more information.

Solenoid Enclosures

Option A
30mm Square,
3-Pin ISO 4400, DIN 43650A

Option B
22mm Rectangular,
3-Pin DIN, Type B Industrial

Option G & Q
Grommet, 18" or 72" Leads

Option H & R
1/2" Conduit, 18" or 72" Leads

Solenoid Information (Solenoids are rated for continuous duty.)

Voltage				Enclosure "A"		Enclosure "B" to "R"	
Code	AC 60Hz	AC 50Hz	DC	Power consumption	Holding (amps)	Power consumption	Holding (amps)
42	24	22		3.9VA	.14	7.3VA	.31
45	—	—	12	2.6W	.21	4.6W	.37
47*	—	—	12	6.2W	.52	5.5W	.46
48*	—	—	24	6.8W	.29	6.0W	.25
49	—	—	24	2.7W	.11	4.8W	.20
53	120	110	—	4.1VA	.04	6.3VA	.05
57	240	230	—	3.7VA	.02	6.4VA	.03

* Mobile voltages. Solenoid voltage characteristics for all coils located on page D49.

Replacement Solenoid Nut

	Description	Part number		Description	Part number
	Solenoid diffuser nut	**PS1556**		Solenoid vented nut	**PS2892P**

BOLD ITEMS ARE MOST POPULAR

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Intrinsically safe solenoid valves ("E" option)

Hazardous location class:

Class I; Groups A, B, C & D

Class II; Groups E, F, & G

Class III; Div. I

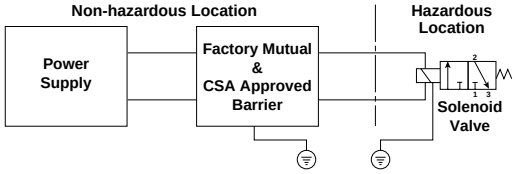
For use in low voltage (24VDC) Intrinsically Safe applications. NO OTHER VOLTAGE IS APPROVED.

Comes standard with non-lighted solenoid connector.

36mm Coil width.

Must be connected to an FM approved Barrier.

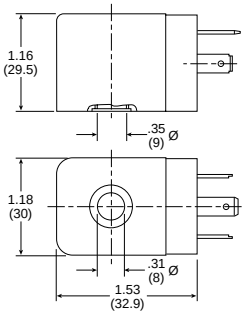
For dimensions, reference standard solenoid models. Maximum internally piloted valve pressure is 115 PSIG. Pressures to 145 PSIG can be used when external pilot is utilized and pilot pressure is limited to 115 PSIG.



Intrinsically safe solenoid pilot assembly kits

Description	Part number
24VDC	**P2FS13N1AE49**

Kit includes: coil, connector, o-ring & screws



Hazardous duty solenoid valves ("F" option)

Hazardous location class:

Class I; Zone I EX, M, II & T4

Class I; Div. I, Groups A, B, C, & D

Class II & III; Div. I, Groups E, F, & G

Comes standard with 1/2" conduit connection.

Voltage range = ±10%

Ambient temperature range = -20°C (-4°F) to 60°C (140°F)

Duty factor = 100%

IP65 Rated (with connected conduit connector)

Notes:

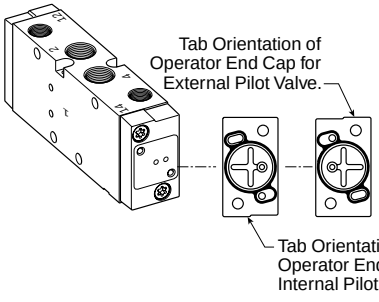
1. Maximum non-hazardous location voltage not to exceed 250V RMS.
2. Connect per Barrier Manufacturers instructions.
3. Factory Mutual requires connections per ISA RP 12.6 instructions.
4. CSA requires "Installation to be in accordance with the Canadian Electrical Code. Part I."
5. The hazardous duty coils are wider in size than size A, B, C & D valves.
   If mounted on a manifold, the valves need to be staggered to fit.

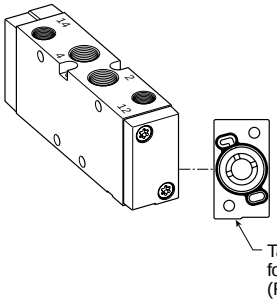
Option F
Hazardous Duty FM / CSA

Internal to external pilot conversion (size A & B only)

To convert from Internal to External Pilot Valve, simply remove the (2) fasteners that attach the end cap to the valve body. Rotate the end cap 180° and attach back to the valve body. For single solenoid valves, only the 14-End needs to be rotated. For double solenoid valves, both ends must be converted for proper function.

The 12 & 14-Ports are always tapped no matter what Valve Type / Function is selected. For Internal Pilot Function, ports do NOT need to be plugged.





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Operating Temperature

- **Normal** ..... 14°F to 122°F (-10°C to 50°C)
- **Extreme** ..... -40°F to 158°F (-40°C to 70°C)

Flow Rating

Valve Size	Port Size	2-Position	3-Position
P2LAX	1/8"	0.7	0.5
P2LBX	1/4"	1.3	0.9
P2LCX	3/8"	2.5	1.8
P2LDX	1/2"	2.7	1.9

Operating Pressure

Maximum: Normal.....145 PSIG (10 bar)
Extreme.....232 PSIG (16 bar)
Minimum:

Valve Type - Internal Pilot	Minimum PSIG (bar)			
	P2LAX	P2LBX	P2LCX	P2LDX
Single Sol - Spring Return	46 (3.2)	51 (3.5)	51 (3.5)	51 (3.5)
Single Remote Pilot - Spring Return	46 (3.2)	51 (3.5)	51 (3.5)	51 (3.5)
Double Solenoid - 2-Position	22 (1.5)	22 (1.5)	22 (1.5)	22 (1.5)
Double Remote Pilot - 2-Position	22 (1.5)	22 (1.5)	22 (1.5)	22 (1.5)
Double Solenoid - 3-Position (APB, PC, CE)	51 (3.5)	51 (3.5)	51 (3.5)	51 (3.5)
Double Remote Pilot - 3-Position (APB, PC, CE)	51 (3.5)	51 (3.5)	51 (3.5)	51 (3.5)

Valve Type - External Pilot	P2LAX	P2LBX	P2LCX	P2LDX
All Viking Series	Vacuum			

Solenoid Voltage Characteristics

Non-mobile Coils

+10% / -10% for all Coils with Normal and Extreme Operators

Mobile Coils - Normal Pilot Operator

22mm 12 & 24VDC - Mobile (47 & 48 Voltage Code)

Minimum Inlet Pressure (bar)		Operating Temperature		
		-10°C	+10°C	+50°C
	3	+30 / -25% VDC	+30 / -20% VDC	+25 / -15% VDC
	6	+30 / -30% VDC	+30 / -25% VDC	+25 / -20% VDC
	8	+30 / -30% VDC	+30 / -30% VDC	+25 / -25% VDC
	10	+30 / -30% VDC	+30 / -30% VDC	+25 / -30% VDC

30mm 12 & 24VDC - Mobile (47 & 48 Voltage Code)

Minimum Inlet Pressure (bar)		Operating Temperature		
		-10°C	+10°C	+50°C
	3	+30 / -30% VDC	+30 / -30% VDC	+25 / -30% VDC
	6	+30 / -30% VDC	+30 / -30% VDC	+25 / -30% VDC
	8	+30 / -30% VDC	+30 / -30% VDC	+25 / -30% VDC
	10	+30 / -30% VDC	+30 / -30% VDC	+25 / -30% VDC

Mobile Coils - Extreme Pilot Operator

22mm 12 & 24VDC - Mobile (47 & 48 Voltage Code)

Minimum Inlet Pressure (bar)		Operating Temperature			
		-40°C	+10°C	+50°C	+70°C
	4	+30 / -25% VDC	+30 / -25% VDC	+30 / -10% VDC	+20 / -10% VDC
	8	+30 / -30% VDC	+30 / -25% VDC	+30 / -15% VDC	+20 / -15% VDC
	12	+30 / -30% VDC	+30 / -30% VDC	+30 / -15% VDC	+20 / -15% VDC
	16	+30 / -30% VDC	+30 / -30% VDC	+30 / -20% VDC	+20 / -20% VDC

30mm 12 & 24VDC - Mobile (47 & 48 Voltage Code)

Minimum Inlet Pressure (bar)		Operating Temperature			
		-40°C	+10°C	+50°C	+70°C
	4	+30 / -30% VDC	+30 / -30% VDC	+25 / -30% VDC	+15 / -30% VDC
	8	+30 / -30% VDC	+30 / -30% VDC	+25 / -30% VDC	+15 / -30% VDC
	12	+30 / -30% VDC	+30 / -30% VDC	+25 / -30% VDC	+15 / -30% VDC
	16	+30 / -30% VDC	+30 / -30% VDC	+25 / -30% VDC	+15 / -30% VDC

Note: All table ratings are based on 100% continuous duty and 5G shock vibration. At 50% continuous duty all ratings are +30% / -30% for all Temperatures and Pressures.

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Female Electrical Connectors / Accessories

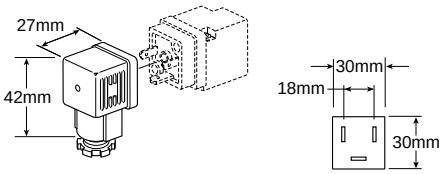
30mm Square 3-Pin – ISO 4400, DIN 43650A (Use with Enclosure "A")

Description	Connector with 6' (2m) cord	Connector
Unlighted	PS2028JCP	**PS2028BP**
Light – 6-48V, 50/60Hz, 6-48VDC	PS2032J79CP*	**PS203279BP**
Light – 120V/60Hz	PS2032J83CP*	**PS203283BP**
Light – 240V/60Hz	N/A	**PS203283BP**

* LED with surge suppression.

Note: Max ø6.5mm cable size required for connector w/o 6' (2m) cord. IP65 rated when properly installed.

Engineering data:
Conductors: 2 poles plus ground; cable range (connector only): 8 to 10mm (0.31 To 0.39 Inch); contact spacing: 18mm.



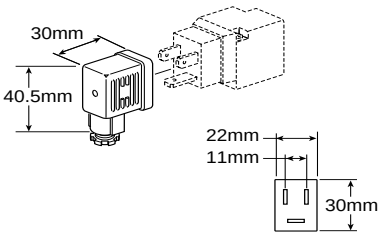
22mm Rectangular 3-Pin – Type B Industrial (Use with Enclosure "B")

Description	Connector with 6' (2m) cord	Connector
Unlighted	PS2429JBP	**PS2429BP**
Light – 24V60Hz, 24VDC	PS2430J79BP*	**PS243079BP**
Light – 120V/60Hz	PS2430J83BP*	**PS243083BP**
Light – 240V/60Hz	N/A	PS243087BP

* LED with surge suppression.

Note: Max ø6.5mm cable size required for connector w/o 6' (2m) cord. IP65 rated when properly installed.

Engineering data:
Conductors: 2 poles plus ground; cable range (connector only): 6 to 8mm (0.24 To 0.31 Inch); contact spacing: 11mm.



Exhaust Mufflers

Pipe thread	Part number
M5	**P6M-PAC5**
1/8" NPT	**EM12**
1/4" NPT	**EM25**
3/8" NPT	**EM37**
1/2" NPT	**EM50**

P6M - Plastic; EM - Sintered bronze

Plastic Silencers

Thread size	A (mm)	B (mm)	Part number NPT	Part number BSPT
M5	.43 (11)	.32 (8)	**AS-5**	
1/8"	1.57 (40)	.63 (16)	**ASN-6**	**AS-6**
1/4"	2.56 (65)	.83 (21)	**ASN-8**	**AS-8**
3/8"	3.35 (85)	.98 (25)	**ASN-10**	**AS-10**
1/2"	3.74 (95)	1.18 (30)	**ASN-15**	**AS-15**

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Exhaust Protector

Features

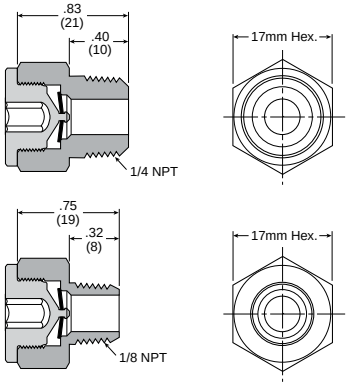
- 1/8 and 1/4 NPT male sizes
- Fitted with a brass pipe adapter and a fluorocarbon membrane
- Resistant to rust, clog, wash down and contamination

Applications

These protectors are intended for mobile applications, quick venting applications and alternative exhaust port breathers that require protection against clogging.

Ideal for valves exposed to harsh environmental conditions (which can cause a “caking up” in the exhaust pipe ports where the bronze mufflers or breather vents are installed).

Particularly suitable for time-sensitive applications such as axle-lift suspensions or pushers or tag axles.



Operating information

Operating pressure:	0 to 150 PSIG (0 to 10 bar)
Operating temperature:	-40°F to 140°F (-40°C to 60°C)

Flow data (SCFM)

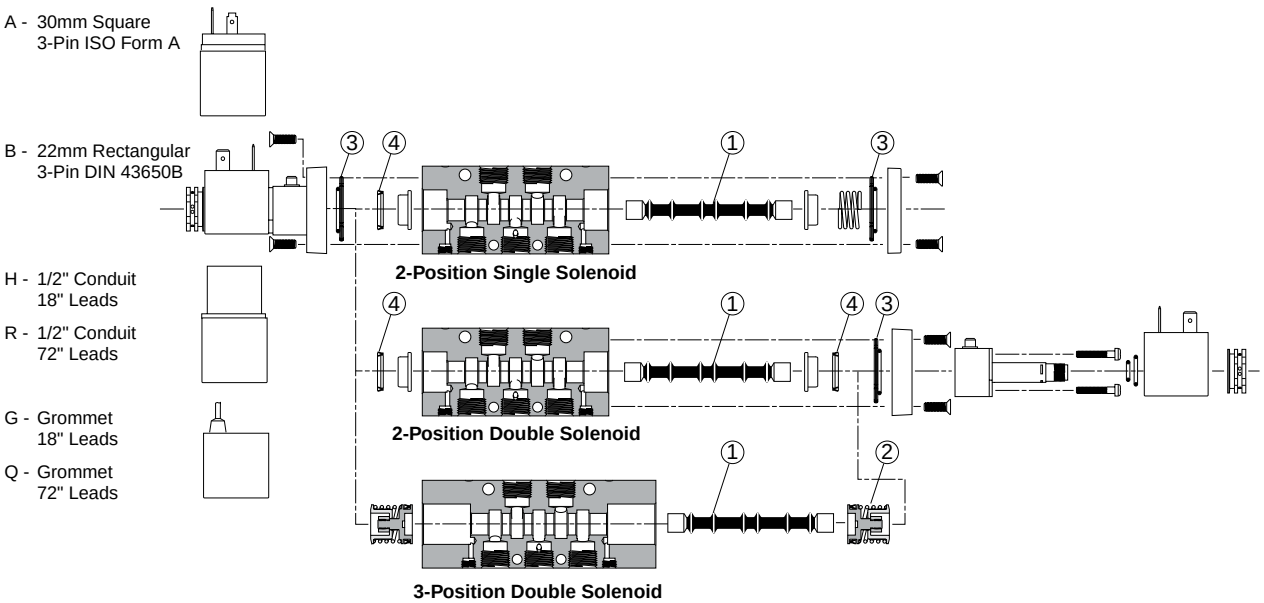
Size	60 PSIG Inlet	90 PSIG Inlet	125 PSIG Inlet	Part number
1/8"	40.1	56.5	75.5	**E90016**
1/4"	44.6	62.7	83.5	**E90017**

Material specifications

Body & pipe adapter	Brass
Membrane	Fluorocarbon

Spool Service Kits

Description	Includes items (qty.)	Part number
Size A, 4-way, 2-position, solenoid & air pilot valves	1 (1), 3 (2), 4 (2)	**P2LAXSK1**
Size A, 4-way, 3-position, solenoid & air pilot valves	1 (1), 2 (2), 3 (2), 4 (2)	**P2LAXSK2**
Size A, 4-way, 2-position, manual valves	Spool only (not shown)	**P2LAXSK3**
Size A, 4-way, 3-position, manual valves	Spool only (not shown)	**P2LAXSK4**
Size B, 4-way, 2 & 3-position valves	1 (1), 3 (2), 4 (2)	**P2LBXSK1**
Size C & Size D, 4-way, 2 & 3-position valves	1 (1), 3 (2), 4 (2)	**P2LCXDXSK1**



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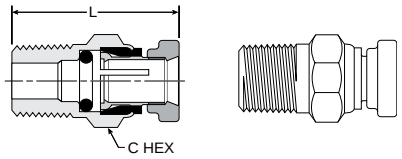
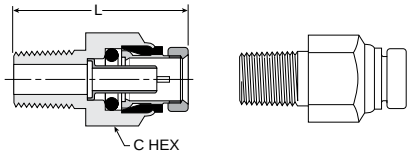
68PM Male Connector



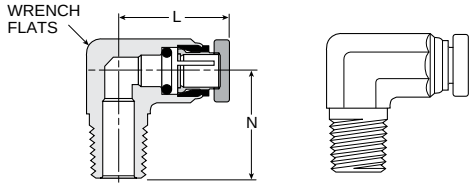
Part number	Tube size	Pipe thread (NPTF)	C hex	L
68PM-2-1	1/8	1/16	3/82	0.93
68PM-2-2	1/8	1/8	7/16	0.88
68PM-5/32-1	5/32	1/16	3/8	0.95
68PM-5/32-2	5/32	1/8	7/16	0.74
68PM-5/32-4	5/32	1/4	9/16	0.99
68PM-3-1	3/16	1/16	7/16	0.95
68PM-3-2	3/16	1/8	7/16	0.92
68PM-3-4	3/16	1/4	9/16	1.10

68PMT Male Connector



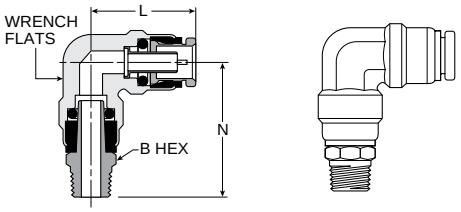
Part number	Tube size	Pipe thread (NPTF)	C hex	L
68PMT-4-2	1/4	1/8	1/2	1.06
68PMT-4-4	1/4	1/4	9/16	1.19
68PMT-4-6	1/4	3/8	3/4	1.27
68PMT-6-2	3/8	1/8	3/4	1.37
68PMT-6-4	3/8	1/4	3/4	1.43
68PMT-6-6	3/8	3/8	3/4	1.33
68PMT-6-8	3/8	1/2	7/8	1.38
68PMT-8-4	1/2	1/4	7/8	1.72
68PMT-8-6	1/2	3/8	7/8	1.52
68PMT-8-8	1/2	1/2	7/8	1.44
68PMT-10-6	5/8	3/8	1	1.88
68PMT-10-8	5/8	1/2	1	1.88
68PMT-12-8	3/4	1/2	1-3/16	2.03

169PMNS Male Elbow Non-Swivel 90°



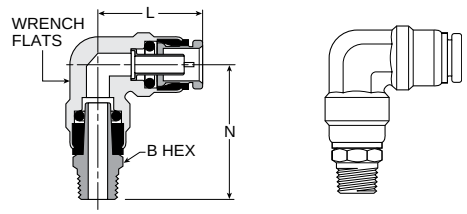
Part number	Tube size	Pipe thread (NPTF)	Wrench flats	L	N
169PMNS-2-2	1/8	1/8	3/8	0.86	0.68
169PMNS-5/32-2	5/32	1/8	3/8	0.88	0.68
169PMNS-3-2	3/16	1/8	3/8	0.75	0.67
169PMNS-3-4	3/16	1/4	1/2	0.74	0.93

169PMT Male Elbow Swivel 90°



Part number	Tube size	Pipe Thread (NPTF)	Wrench flats	B hex	L	N
169PMT-4-2	1/4	1/8	13/32	7/16	0.84	1.21
169PMT-4-4	1/4	1/4	13/32	9/16	0.84	1.43
169PMT-4-6	1/4	3/8	13/32	11/16	0.84	1.43
169PMT-6-2	3/8	1/8	9/16	9/16	1.11	1.41
169PMT-6-4	3/8	1/4	9/16	9/16	1.11	1.58
169PMT-6-6	3/8	3/8	9/16	11/16	1.11	1.58
169PMT-6-8	3/8	1/2	9/16	7/8	1.11	1.79
169PMT-8-4	1/2	1/4	11/16	5/8	1.27	1.73
169PMT-8-6	1/2	3/8	11/16	3/4	1.27	1.81
169PMT-8-8	1/2	1/2	11/16	7/8	1.27	1.96
169PMT-10-6	5/8	3/8	7/8	3/4	1.53	2.03
169PMT-10-8	5/8	1/2	7/8	7/8	1.53	2.18

169PMTL Male Elbow Long Non-Swivel 90°



Part number	Tube size	Pipe Thread (NPTF)	Wrench flats	B hex	L	N
169PMTL-6-4	3/8	1/4	9/16	9/16	1.06	1.63
169PMTL-6-6	3/8	3/8	9/16	7/8	1.19	2.50
169PMTL-6-8	3/8	1/2	9/16	7/8	1.19	2.50
169PMTL-8-8	1/2	1/2	11/16	7/8	1.22	2.50
169PMTL-10-8	5/8	1/2	7/8	7/8	1.46	2.50

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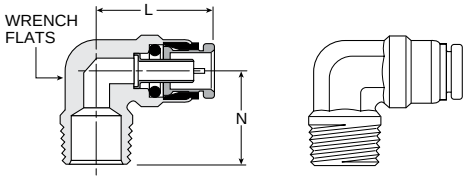
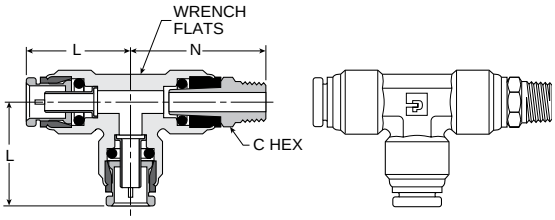
169PMTNS Male Elbow Non-Swivel 90°



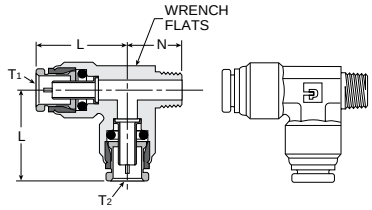
Part number	Tube size	Pipe thread (NPTF)	Wrench flats	L	N
169PMTNS-4-2	1/4	1/8	1/2	0.84	0.72
169PMTNS-4-4	1/4	1/4	1/2	0.84	0.90
169PMTNS-4-6	1/4	3/8	1/2	0.84	1.06
169PMTNS-6-2	3/8	1/8	9/16	1.05	0.75
169PMTNS-6-4	3/8	1/4	9/16	1.05	0.94
169PMTNS-6-6	3/8	3/8	3/4	1.05	0.94
169PMTNS-6-8	3/8	1/2	11/16	1.12	1.26
169PMTNS-8-4	1/2	1/4	11/16	1.17	1.06
169PMTNS-8-6	1/2	3/8	11/16	1.22	1.06
169PMTNS-8-8	1/2	1/2	11/16	1.22	1.26
169PMTNS-10-6	5/8	3/8	7/8	1.46	1.11
169PMTNS-10-8	5/8	1/2	7/8	1.46	1.32
169PMTNS-12-8	3/4	1/2	1	1.81	1.44

171PMT Male Run Tee Swivel



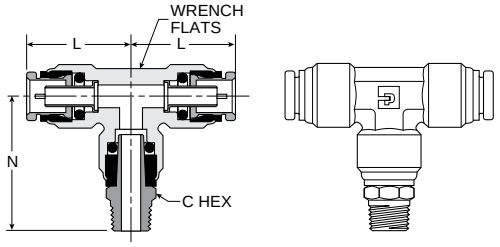
Part number	Tube size	Pipe thread (NPTF)	Wrench flats	L	N	N
171PMT-4-2	1/4	1/8	1/2	7/16	.85	1.25
171PMT-4-4	1/4	1/4	1/2	9/16	.85	1.48
171PMT-4-6	1/4	3/8	1/2	11/16	.85	1.43
171PMT-6-4	3/8	1/4	5/8	9/16	1.21	1.83
171PMT-6-6	3/8	3/8	5/8	11/16	1.21	1.83
171PMT-8-4	1/2	1/4	7/8	5/8	1.27	1.74
171PMT-8-6	1/2	3/8	7/8	3/4	1.27	1.83
171PMT-8-8	1/2	1/2	7/8	7/8	1.27	1.99

171PMTNS Male Run Tee Non-Swivel



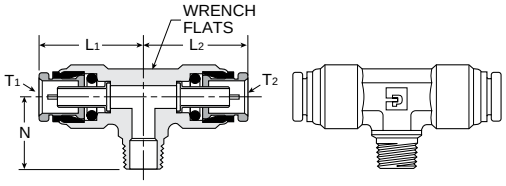
Part number	Tube 1 size	Tube 2 size	Pipe thread (NPTF)	Wrench flats	L1	L2	N
171PMTNS-4-4	1/4	1/4	1/4	15-32	0.91	0.91	0.94
171PMTNS-4-6-4	1/4	3/8	1/4	5/8	0.93	1.21	0.97
171PMTNS-6-4	3/8	3/8	1/4	5/8	1.21	1.21	0.97
171PMTNS-6-4-4	3/8	1/4	1/4	5/8	1.21	0.93	0.97
171PMTNS-6-4-6	3/8	1/4	3/8	5/8	1.22	0.97	0.93
171PMTNS-6-6	1/2	3/8	3/8	5/8	1.21	1.27	0.97
171PMTNS-6-8	1/2	3/8	1/2	5/8	1.17	1.27	1.26
171PMTNS-8-4	1/2	1/2	1/4	7/8	1.28	1.27	1.06

172PMT Male Branch Tee Swivel



Part number	Tube size	Pipe thread (NPTF)	Wrench flats	C hex	L	N
172PMT-4-2	1/4	1/8	1/2	7/16	0.85	1.25
172PMT-4-4	1/4	1/4	1/2	9/16	0.85	1.43
172PMT-6-2	3/8	1/8	5/8	9/16	1.22	1.66
172PMT-6-4	3/8	1/4	5/8	5/8	1.22	1.83
172PMT-6-6	3/8	3/8	5/8	3/4	1.22	1.83
172PMT-8-4	1/2	1/4	7/8	5/8	1.27	1.73
172PMT-8-6	1/2	3/8	7/8	3/4	1.27	1.79
172PMT-8-8	1/2	1/2	7/8	7/8	1.27	1.97

172PMTNS Male Branch Tee Non-Swivel



Part number	Tube 1 size	Tube 2 size	Pipe thread (NPTF)	Wrench flats	L1	L2	N
172PMTNS-4-2	1/4	1/4	1/8	1/2	0.91	0.91	0.78
172PMTNS-6-4	3/8	3/8	1/4	5/8	1.21	1.21	0.97
172PMTNS-6-4-4	3/8	1/4	1/4	5/8	1.21	.93	0.97
172PMTNS-6-6	3/8	3/8	3/8	5/8	1.21	1.21	0.97
172PMTNS-6-8	3/8	3/8	1/2	7/8	1.17	1.17	1.26
172PMTNS-8-6	1/2	1/2	3/8	7/8	1.28	1.28	1.06
172PMTNS-8-6-8	1/2	3/8	1/2	7/8	1.25	1.25	1.25
172PMTNS-8-8	1/2	1/2	1/2	7/8	1.34	1.25	1.25

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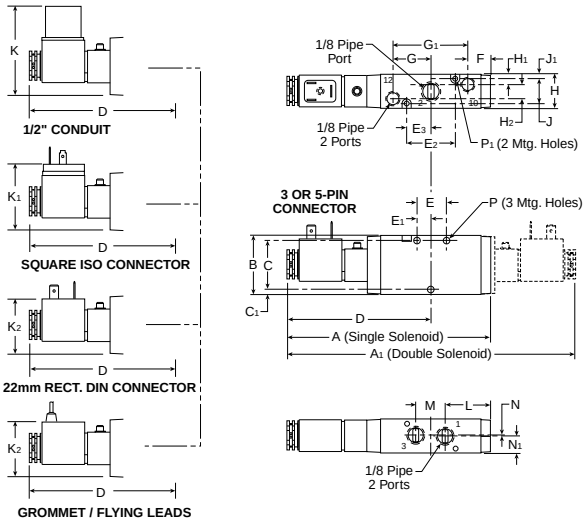
P2LAX 3/2 Single & Double Operators – Solenoid

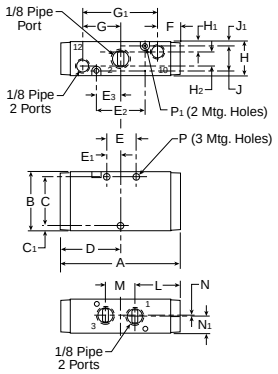


P2LAX 3/2 (solenoid)

A	A1	B	C	C1
5.35	7.60	1.57	1.26	.16
(136)	(193)	(40)	(32)	(4)
D	**E**	**E1**	**E2**	**E3**
3.80	.79	.39	1.26	.63
(97)	(20)	(10)	(32)	(16)
F	**G**	**G1**	**H**	**H1**
.55	.98	1.97	.87	.26
(14)	(25)	(50)	(22)	(6.6)
H2	**J**	**J1**	**K**	**K1**
.35	.65	.11	2.36	1.61
(9)	(16.5)	(2.9)	(60)	(41)
K2	**L**	**M**	**N**	**N1**
1.50	1.14	.79	.02	.42
(38)	(29)	(20)	(0.5)	(11)
P	**P1**			
Ø .17	Ø .12			
Ø (4.3)	Ø (3.1)			

Inches (mm)

P2LAX 3/2 Single & Double Operators – Remote Pilot

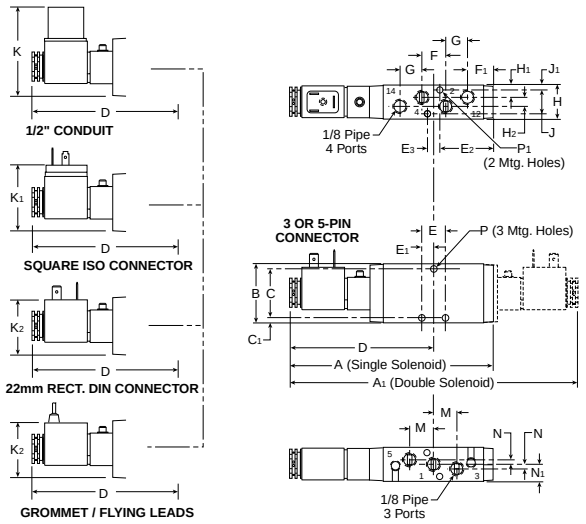


P2LAX 3/2 (remote)

A	B	C	C1	D
3.07	1.57	1.26	.16	1.54
(78)	(40)	(32)	(4)	(39)
E	**E1**	**E2**	**E3**	**F**
.79	.39	1.26	.63	.55
(20)	(10)	(32)	(16)	(14)
G	**G1**	**H**	**H1**	**H2**
.98	1.97	.87	.26	.35
(25)	(50)	(22)	(6.6)	(9)
J	**J1**	**L**	**M**	**N**
.65	.11	1.14	.79	.02
(16.5)	(2.9)	(29)	(20)	(0.5)
N1	**P**	**P1**		
.42	Ø .17	Ø .12		
(11)	Ø (4.3)	Ø (3.1)		

Inches (mm)

P2LAX 5/2 & 5/3 Single & Double Operators, 4-way



P2LAX 5/2 & 5/3 (solenoid)

A	A1	B	C	C1
5.47	7.72	1.57	1.30	.14
(139)	(196)	(40)	(33)	(3.5)
D	**E**	**E1**	**E2**	**E3**
3.86	.63	.31	1.42	.33
(98)	(16)	(8)	(36)	(8.5)
F	**F1**	**G**	**H**	**H1**
.63	.67	.59	.87	.31
(16)	(17)	(15)	(22)	(8)
H2	**J**	**J1**	**K**	**K1**
.24	.63	.12	2.36	1.61
(6)	(16)	(39)	(60)	(41)
K2	**M**	**N**	**N1**	**P**
1.50	.63	.12	.43	Ø .17
(38)	(16)	(3)	(11)	Ø (4.3)
P1				
Ø .12				
Ø (3.1)				

Inches (mm)

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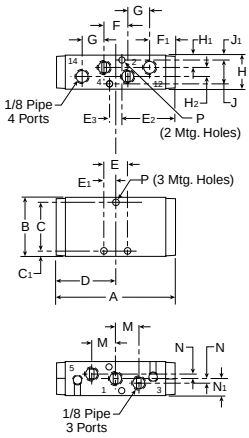
P2LAX 5/2 & 5/3 Single & Double Operators – Remote Pilot

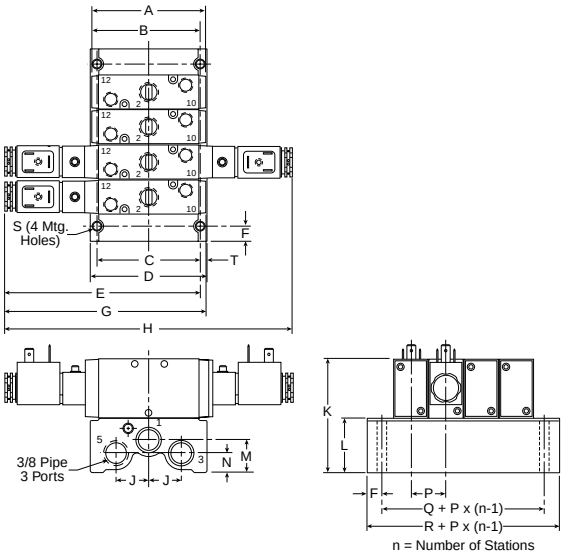


P2LAX 5/2 & 5/3 (remote)

A	B	C	C1	D
3.19	1.57	1.30	.14	1.59
(81)	(40)	(33)	(3.5)	(40.5)
E	**E1**	**E2**	**E3**	**F**
1.47	.31	1.42	.33	.63
(16)	(8)	(36)	(8.5)	(16)
F1	**G**	**H**	**H1**	**H2**
.67	.59	.87	.31	.24
(17)	(15)	(22)	(8)	(6)
J	**J1**	**M**	**N**	**N1**
.63	.12	.63	.12	.43
(16)	(3)	(16)	(3)	(11)
P	**P1**			
Ø .17	Ø .12			
Ø (4.3)	Ø (3.1)			

Inches (mm)

P2LAX 3/2 Single & Double Operators – IEM Aluminum Bar Manifold

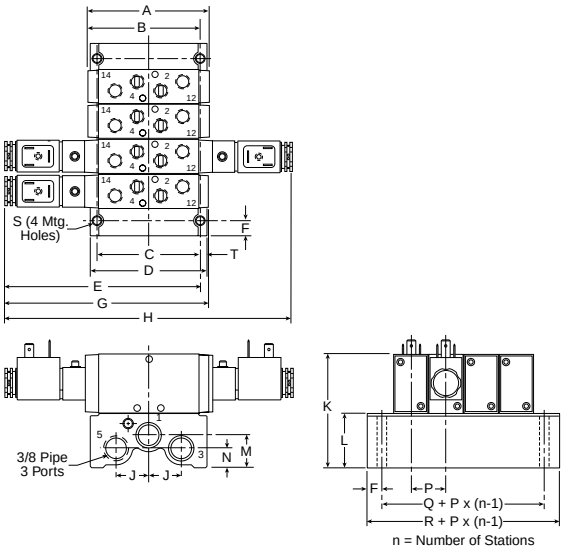


P2LAX 3/2
IEM Aluminum bar manifold

A	B	C	D	E
3.07	2.83	2.76	3.12	5.18
(78)	(72)	(70)	(79)	(132)
F	**G**	**H**	**J**	**K**
41	5.35	7.72	.87	3.11
(10.5)	(136)	(193)	(22)	(79)
L	**M**	**N**	**P**	**Q**
1.54	.87	.52	.93	1.56
(39)	(22)	(13.2)	(23.5)	(39.5)
R	**S**	**T**		
2.36	Ø .22	.18		
(60)	Ø (5.5)	(4.5)		

Inches (mm)

P2LAX 5/2 & 5/3 Single & Double Operators – IEM Aluminum Bar Manifold



P2LAX 5/2 & 5/3
IEM Aluminum bar manifold

A	B	C	D	E
3.19	2.97	2.76	3.12	5.26
(81)	(76)	(70)	(79)	(134)
F	**G**	**H**	**J**	**K**
41	5.47	7.72	.87	3.11
(10.5)	(139)	(196)	(22)	(79)
L	**M**	**N**	**P**	**Q**
1.54	**.87**	.52	.93	1.56
(39)	**(22)**	(13.2)	(23.5)	(39.5)
R	**S**	**T**		
2.36	Ø .22	.18		
(60)	Ø (5.5)	(4.5)		

Inches (mm)

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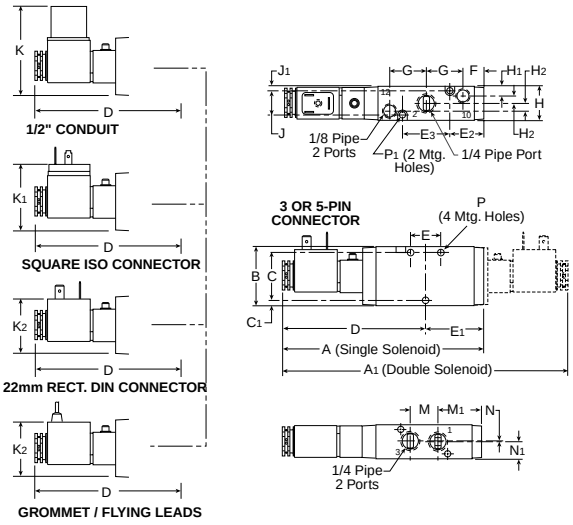
P2LBX 3/2 Single & Double Operators – Solenoid

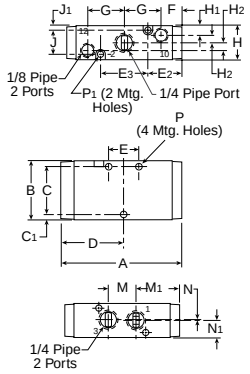


P2LBX 3/2 (solenoid)

A	A1	B	C	C1
5.35	7.60	1.57	1.26	.16
(136)	(193)	(40)	(32)	(4)
D	**E**	**E1**	**E2**	**E3**
3.80	.79	1.54	.51	1.26
(96.5)	(20)	(39)	(13)	(32)
F	**G**	**H**	**H1**	**H2**
.55	.98	.87	.26	.18
(14)	(25)	(22)	(6.6)	(4.5)
J	**J1**	**K**	**K1**	**K2**
.65	.11	2.36	1.61	1.50
(16.5)	(2.9)	(60)	(41)	(38)
M	**M1**	**N**	**N1**	**P**
.79	1.14	.02	.42	Ø .17
(20)	(29)	(0.5)	(11)	Ø (4.3)
P1				
Ø .12				
Ø (3.1)				

Inches (mm)

P2LBX 3/2 Single & Double Operators – Remote Pilot

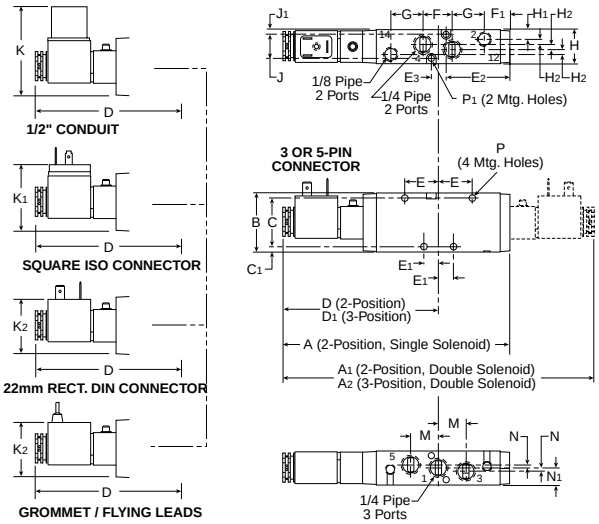


P2LBX 3/2 (remote)

A	B	C	C1	D
3.08	1.57	1.26	.16	1.54
(78)	(40)	(32)	(4)	(39)
E	**E2**	**E3**	**F**	**G**
.79	.51	1.26	.55	.98
(20)	(13)	(32)	(14)	(25)
H	**H1**	**H2**	**J**	**J1**
.87	.26	.18	.65	.11
(22)	(6.6)	(4.5)	(16.5)	(2.9)
M	**M1**	**N**	**N1**	**P**
.79	1.14	.02	.42	Ø .17
(20)	(29)	(0.5)	(11)	Ø (4.3)
P1				
Ø .12				
Ø (3.1)				

Inches (mm)

P2LBX 5/2 & 5/3 Single & Double Operators – Solenoid



P2LBX 5/2 & 5/3 (solenoid)

A	A1	A2	B	C
6.14	8.39	9.23	1.57	1.26
(156)	(213)	(235)	(40)	(32)
C1	**D**	**D1**	**E**	**E1**
.16	4.21	4.64	.91	.39
(4)	(107)	(118)	(23)	(10)
E2	**E3**	**F**	**F1**	**G**
1.73	.39	.79	.67	.87
(44)	(10)	(20)	(17)	(22)
H	**H1**	**H2**	**J**	**J1**
.87	.26	.12	.65	.12
(22)	(6.6)	(3)	(16.5)	(3)
K	**K1**	**K2**	**M**	**N**
2.36	1.61	1.50	.79	.08
(60)	(41)	(38)	(20)	(2)
N1	**P**	**P1**		
.43	Ø .17	Ø .12		
(11)	Ø (4.3)	Ø (3.1)		

Inches (mm)

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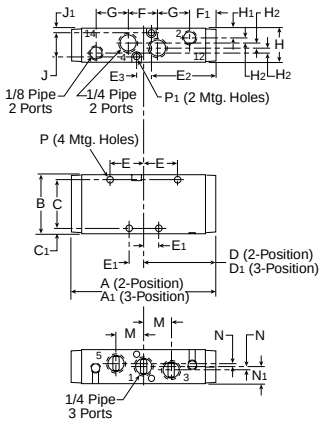
P2LBX 5/2 & 5/3 Single & Double Operators – Remote Pilot

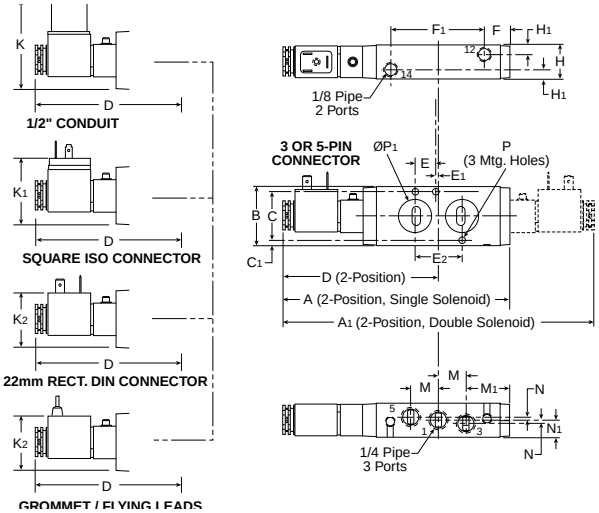


P2LBX 5/2 & 5/3 (remote)

A	A1	B	C	C1
3.95	4.61	1.57	1.26	.16
(100)	(117)	(40)	(32)	(4)
D	**D1**	**E**	**E1**	**E2**
1.93	2.28	91	.39	1.73
(49)	(58)	(23)	(10)	(44)
E3	**F**	**F1**	**G**	**H**
.39	.79	.67	.87	.8
(10)	(20)	(17)	(22)	(22)
H1	**H2**	**J**	**J1**	**K**
.26	.12	.65	.11	2.90
(6.6)	(3)	(16.5)	(2.8)	(74)
M	**N**	**N1**	**P**	**P1**
.79	.08	.43	Ø .17	Ø .12
(20)	(2)	(11)	Ø (4.3)	Ø (3.1)

Inches (mm)

P2LBX 5/2 Single & Double Operators – Solenoid _ NAMUR



P2LBX 5/2 (NAMUR)

A	A1	B	C	C1
6.15	8.39	1.57	1.26	.16
(156)	(213)	(40)	(32)	(4)
D	**E**	**E1**	**E2**	**F**
4.21	.47	.08	.94	.67
(107)	(12)	(2)	(24)	(17)
F1	**H**	**H1**	**M**	**M1**
2.52	.87	.26	.79	1.14
(64)	(22)	(6.6)	(20)	(29)
N	**N1**	**P**	**P1**	
.08	.43	Ø .22	Ø .76	
(2)	(11)	Ø (5.5)	Ø (19.4)	

Inches (mm)

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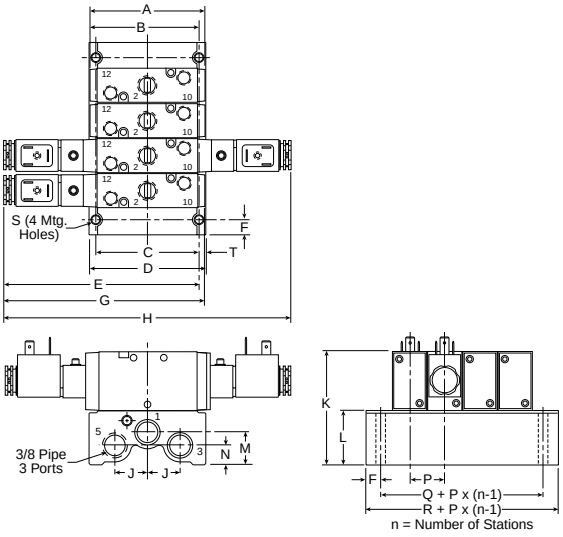
P2LBX 3/2 Single & Double Operators – IEM Aluminum Bar Manifold

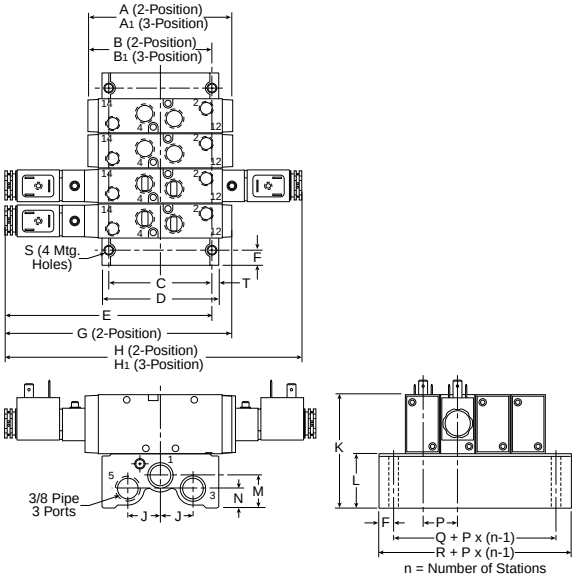


P2LBX 3/2
IEM Aluminum bar banifold

A	B	C	D	E
3.86	2.91	2.76	3.12	5.17
(78)	(74)	(70)	(79)	(131)
F	**G**	**H**	**J**	***K***
.40	5.33	7.6	.87	3.11
(10.2)	(136)	(193)	(22)	(79)
L	**M**	**N**	**P**	**Q**
1.47	.87	.52	.93	1.56
(37)	(22)	(13.2)	(23.5)	(39.6)
R	**S**	**T**		
2.36	Ø .22	.18		
(60)	Ø (5.5)	(4.6)		

Inches (mm)

P2LBX 5/2 & 5/3 Single & Double Operators – IEM Aluminum Bar Manifold



P2LBX 5/2 & 5/3
IEM Aluminum bar manifold

A	A_1	B	B_1	C
3.86	4.70	3.42	3.73	2.76
(98)	(120)	(84)	(95)	(70)
D	**E**	**F**	**G**	**H**
3.12	5.59	.40	6.14	8.39
(79)	(142)	(10.2)	(156)	(213)
H_1	**J**	**K**	**L**	**M**
9.23	.87	3.11	1.47	.87
(235)	(22)	(79)	(37)	(22)
N	**P**	**Q**	**R**	**S**
.52	.93	1.56	2.36	Ø .22
(13.2)	(23.5)	(39.6)	(60)	Ø (5.5)
T				
.18				
(4.6)				

Inches (mm)

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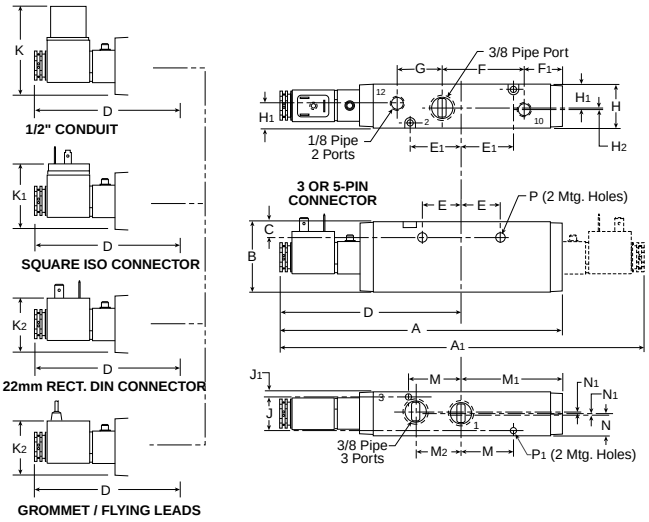
P2LCX 3/2 Single & Double Operators – Solenoid

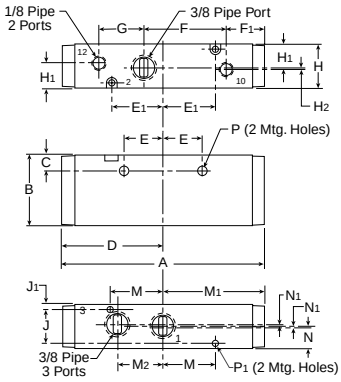


P2LCX 3/2 (solenoid)

A	A1	B	C	D
7.66 (194.5)	9.80 (249)	1.89 (48)	.43 (11)	4.90 (124.5)
E	**E1**	**F**	**F1**	**G**
1.04 (26.5)	1.40 (35.5)	2.24 (57)	1.02 (26)	1.22 (31)
H	**H1**	**H2**	**J**	**J1**
1.18 (30)	.67 (17)	.02 (0.5)	.91 (23)	.14 (3.5)
K	**K1**	**K2**	**M**	**M1**
2.52 (64)	1.77 (45)	1.65 (42)	1.40 (35.5)	2.76 (70)
M2	**N**	**N1**	**P**	**P1**
1.18 (30)	.55 (14)	.04 (1)	Ø .27 Ø (6.9)	Ø .17 Ø (4.4)

Inches (mm)

P2LCX 3/2 Single & Double Operators – Remote Pilot

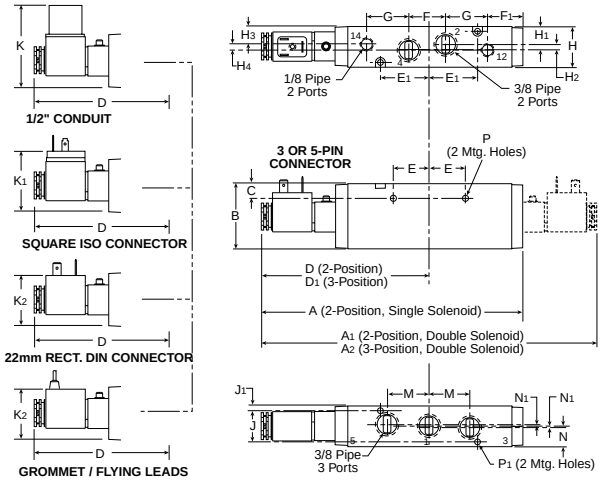


P2LCX 3/2 (remote)

A	B	C	D	E
5.51 (140)	1.89 (48)	.43 (11)	2.76 (70)	1.04 (26.5)
E1	**F**	**F1**	**G**	**H**
1.40 (35.5)	2.24 (57)	1.02 (26)	1.22 (31)	1.18 (30)
H1	**H2**	**J**	**J1**	**M**
.67 (17)	.02 (0.5)	.91 (23)	.14 (3.5)	1.40 (35.5)
M1	**M2**	**N**	**N1**	**P**
2.76 (70)	1.18 (30)	.55 (14)	.04 (1)	Ø .27 Ø (6.9)
P1				
Ø .17 Ø (4.4)				

Inches (mm)

P2LCX 5/2 & 5/3 Single & Double Operators – Solenoid



P2LCX 5/2 & 5/3 (solenoid)

A	A1	A2	B	C
7.68 (195)	9.84 (250)	10.71 (272)	1.89 (48)	.43 (11)
D	**D1**	**E**	**E1**	**F**
4.92 (125)	5.35 (136)	1.04 (26.5)	1.40 (35.5)	1.06 (27)
F1	**G**	**H**	**H1**	**H2**
1.02 (26)	1.22 (31)	1.18 (30)	.53 (13.5)	.12 (3)
H3	**H4**	**J**	**J1**	**K**
.51 (13)	.16 (4)	.91 (23)	.14 (3.5)	2.52 (64)
K1	**K2**	**M**	**N**	**N1**
1.77 (45)	1.65 (42)	1.18 (30)	.55 (14)	.04 (1)
P	**P1**			
Ø .27 Ø (6.9)	Ø .17 Ø (4.4)			

Inches (mm)

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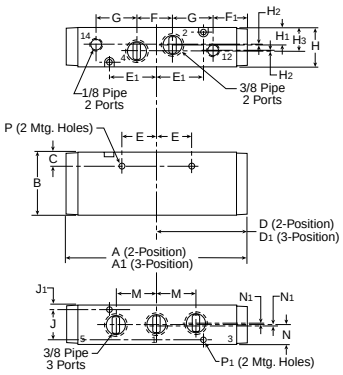
P2LCX 5/2 & 5/3 Single & Double Operators – Remote Pilot

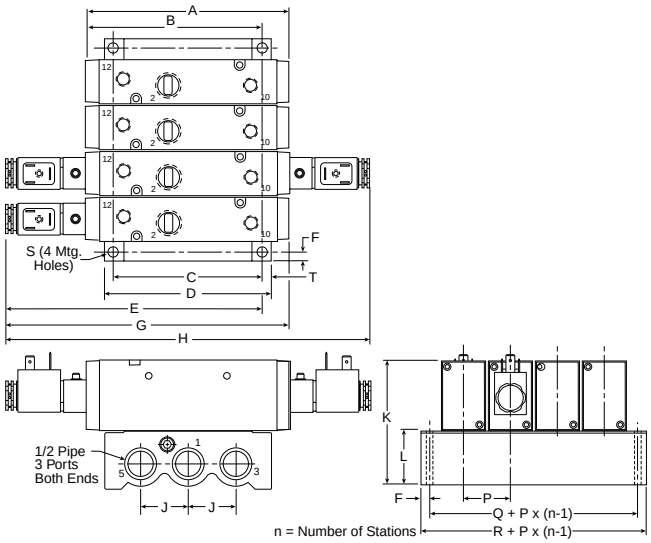


P2LCX 5/2 & 5/3 (remote)

A	A1	B	C	D
5.51	6.38	1.89	.43	2.76
(140)	(162)	(48)	(11)	(70)
D1	**E**	**E1**	**F**	**F1**
3.18	1.04	1.40	1.06	1.02
(81)	(26.5)	(35.5)	(27)	(26)
G	**H**	**H1**	**H2**	**H3**
1.22	1.18	.51	.02	.12
(31)	(30)	(13)	(0.5)	(3)
J	**J1**	**M**	**N**	**N1**
.91	.14	1.18	.55	.04
(23)	(3.5)	(30)	(14)	(1)
P	**P1**			
Ø .27	Ø .17			
Ø (6.9)	Ø (4.4)			

Inches (mm)

P2LCX 3/2 Single & Double Operators – IEM Aluminum Bar Manifold

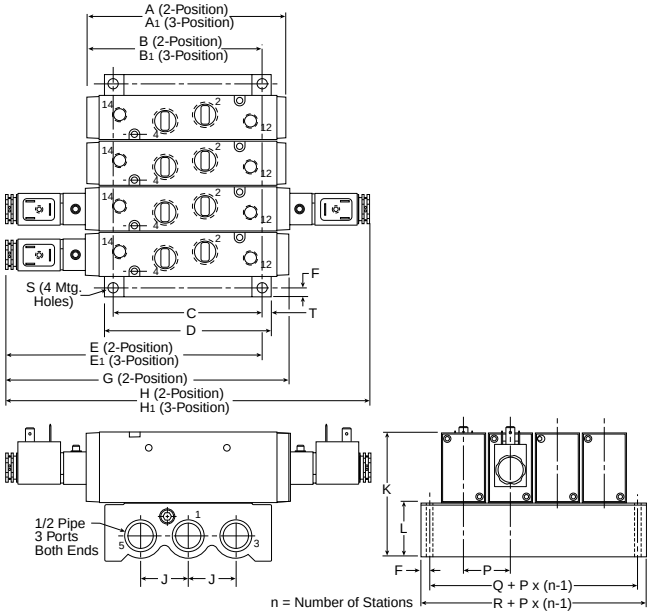


P2LCX 3/2
IEM Aluminum bar manifold

A	B	C	D	E
5.51	4.96	3.94	4.41	7.11
(140)	(126)	(100)	(112)	(180.5)
F	**G**	**H**	**J**	**K**
.24	7.66	9.80	1.26	3.43
(6)	(194.5)	(249)	(32)	(87)
L	**P**	**Q**	**R**	**S**
1.54	1.24	1.77	2.24	Ø .26
(39)	(31.5)	(45)	(57)	Ø (6.5)
T				
.24				
(6)				

Inches (mm)

P2LCX 5/2 & 5/3 Single & Double Operators – IEM Aluminum Bar Manifold



P2PCX 5/2 & 5/3
IEM Aluminum bar manifold

A	A1	B	B1	C
5.51	6.38	4.72	5.16	3.94
(140)	(162)	(120)	(131)	(100)
D	**E**	**E1**	**F**	**G**
4.41	6.89	7.13	.24	7.68
(112)	(170)	(181)	(6)	(195)
H	**H1**	**J**	**K**	**L**
9.84	10.71	1.26	3.43	1.54
(250)	(272)	(32)	(87)	(39)
P	**Q**	**R**	**S**	**T**
1.24	1.77	2.24	Ø .26	.24
(31.5)	(45)	(57)	Ø (6.5)	(6)

Inches (mm)

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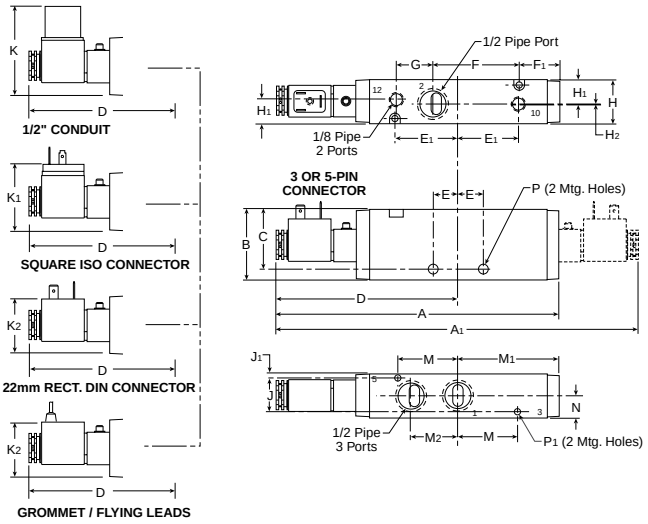
P2LDX 3/2 Single & Double Operators – Solenoid

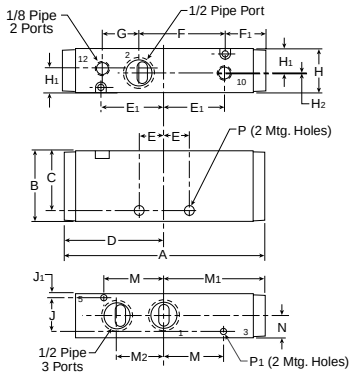


P2LDX 3/2 (solenoid)

A	A1	B	C	D
7.66	9.80	1.89	1.59	4.90
(194.5)	(249)	(48)	(40.5)	(124.5)
E	**E1**	**F**	**F1**	**G**
.67	1.65	2.36	1.08	.98
(17)	(42)	(60)	(27.5)	(25)
H	**H1**	**H2**	**J**	**J1**
1.18	.67	.02	.91	.14
(30)	(17)	(0.5)	(23)	(3.5)
K	**K1**	**K2**	**M**	**M1**
2.52	1.77	1.65	1.65	2.76
(64)	(45)	(42)	(42)	(70)
M2	**N**	**P**	**P1**	
1.30	.59	Ø .26	Ø .17	
(33)	(15)	Ø (6.6)	Ø (4.4)	

Inches (mm)

P2LDX 3/2 Single & Double Operators – Remote Pilot

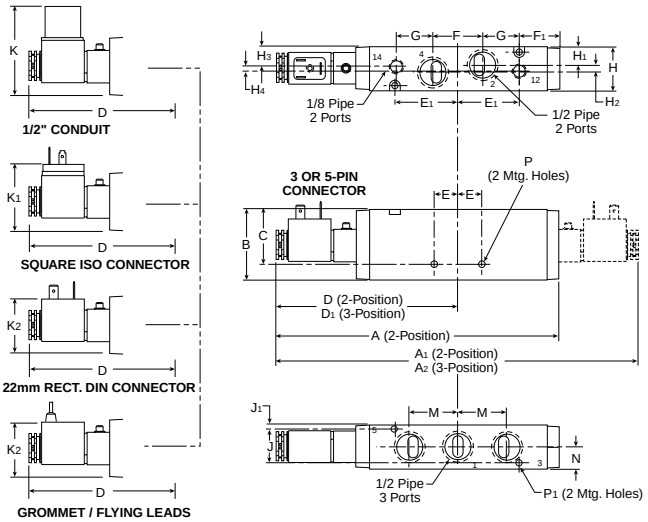


P2LDX 3/2 (remote)

A	B	C	D	E
5.51	1.89	1.59	2.76	.67
(140)	(48)	(40.5)	(70)	(17)
E1	**F**	**F1**	**G**	**H**
1.65	2.36	1.08	.98	1.18
(42)	(60)	(27.5)	(25)	(30)
H1	**H2**	**J**	**J1**	**M**
.67	.02	.91	.14	1.65
(17)	(0.5)	(23)	(3.5)	(42)
M1	**M2**	**N**	**P**	**P1**
2.76	1.30	.59	Ø .26	Ø .17
(70)	(33)	(15)	Ø (6.6)	Ø (4.4)

Inches (mm)

P2LDX 5/2 & 5/3 Single & Double Operators – Solenoid



P2LDX 5/2 & 5/3 (solenoid)

A	A1	A2	B	C
7.67	9.84	10.7	1.89	1.59
(195)	(250)	(272)	(48)	(40.5)
D	**D1**	**E**	**E1**	**F**
4.92	5.79	.67	1.65	1.34
(125)	(147)	(17)	(42)	(34)
F1	**G**	**H**	**H1**	**H2**
1.10	.98	1.18	.49	.20
(28)	(25)	(30)	(12.5)	(5)
H3	**H4**	**J**	**J1**	**K**
.51	.16	.91	.14	2.52
(13)	(4)	(23)	(3.5)	(64)
K1	**K2**	**M**	**N**	**P**
1.77	1.65	1.30	.59	Ø .26
(45)	(42)	(33)	(15)	Ø (6.6)

P1
Ø .17
Ø (4.4)

Inches (mm)

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Pneumatic Division
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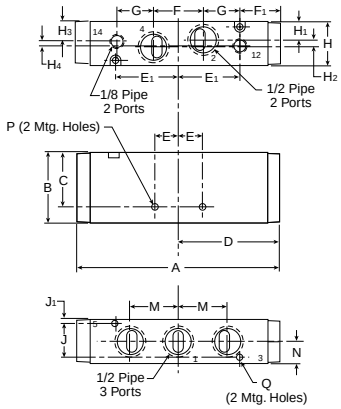
P2LDX 5/2 & 5/3 Single & Double Operators – Remote Pilot



P2LDX 5/2 & 5/3 (remote)

A	B	C	D	E
5.47	1.89	1.59	2.63	.67
(139)	(48)	(40.5)	(67)	(17)
E_1	**F**	**F_1**	**G**	**H**
1.65	1.34	1.08	.98	1.18
(42)	(34)	(27.5)	(25)	(30)
H_1	**H_2**	**H_3**	**H_4**	**J**
.49	.20	.51	.16	.91
(12.5)	(5)	(13)	(4)	(23)
J_1	**P**	**M**	**N**	**Q**
.14	Ø .26	1.29	.59	Ø .17
(3.5)	Ø (6.6)	(32.7)	(15)	Ø (4.4)

Inches (mm)

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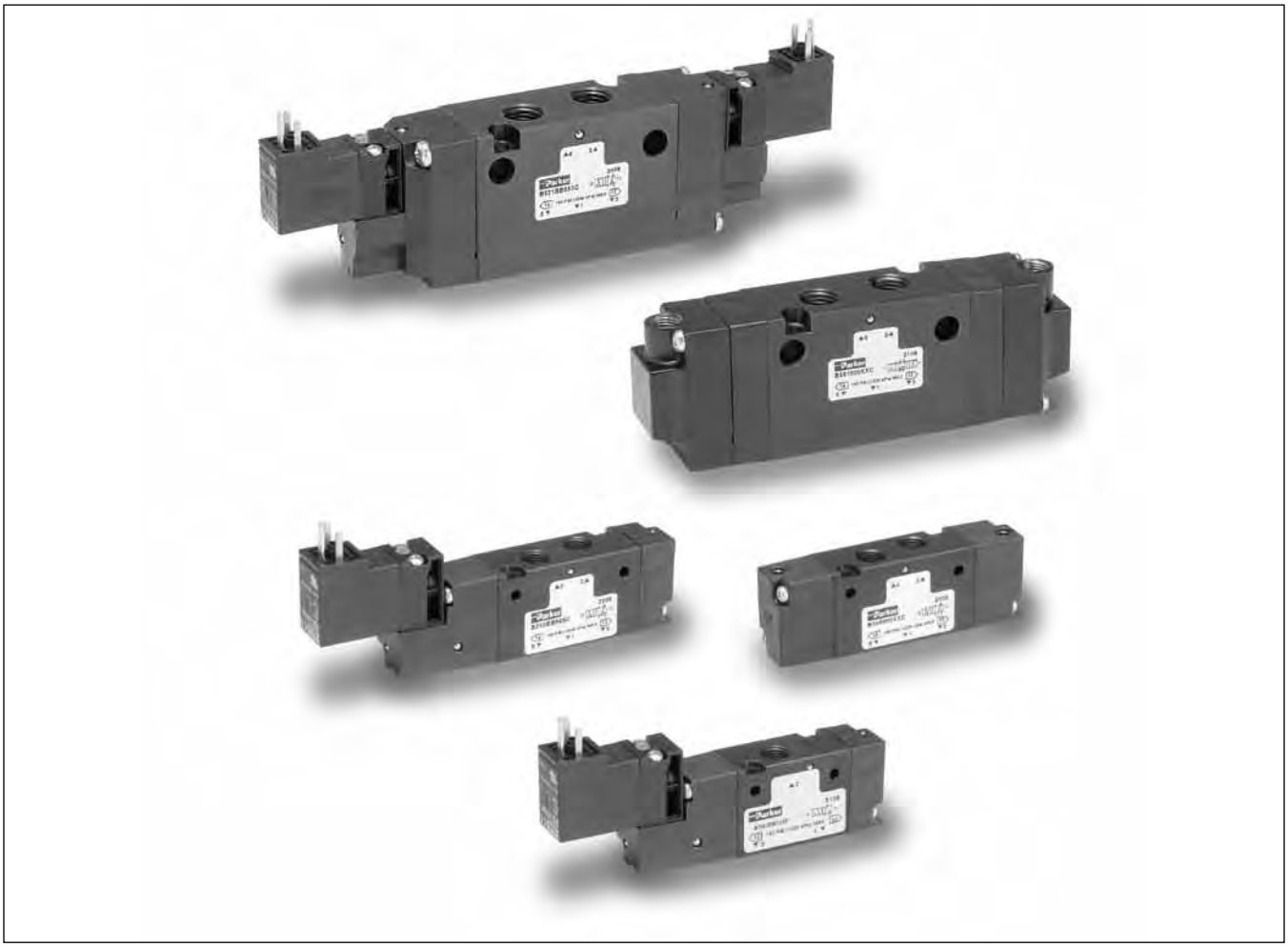
"B" Series

Air Control Valves

B3 – .75 Cv 1/8", 1/4" Port
B5 – 1.40 Cv 1/4", 3/8" Port
B6 – 2.70 Cv 3/8" Port
B7 – 5.90 Cv 1/2" Port
B8 – 7.00 Cv 3/4" Port

Section D
www.parker.com/pneu/b



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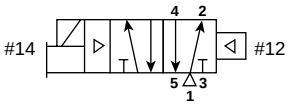
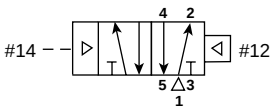
Single Solenoid
4-Way, 2-Position



De-energized position – Solenoid operator #14 de-energized. Pressure at inlet port 1 connected to outlet port 2. Outlet port 4 connected to exhaust port 5.

Energized position – Solenoid operator #14 energized. Pressure at inlet port 1 connected to outlet port 4. Outlet port 2 connected to exhaust port 3.

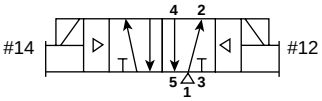
Single Remote Pilot
4-Way, 2-Position



Normal position – Pressure at inlet port 1 connected to outlet port 2. Outlet port 4 connected to exhaust port 5.

Operated position – Maintained air signal at port 14. Pressure at inlet port 1 connected to outlet port 4. Outlet port 2 connected to exhaust port 3.

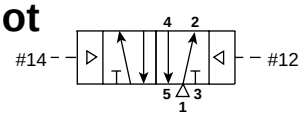
Double Solenoid
4-Way, 2-Position



Solenoid operator #14 energized last. Pressure at inlet port 1 connected to outlet port 4. Outlet port 2 connected to exhaust port 3.

Solenoid operator #12 energized last. Pressure at inlet port 1 connected to outlet port 2. Outlet port 4 connected to exhaust port 5.

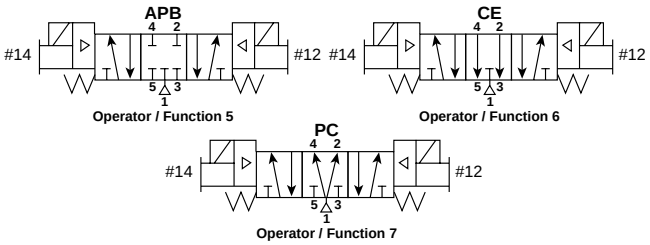
Double Remote Pilot
4-Way, 2-Position



Momentary air signal at port 14 last. Pressure at inlet port 1 connected to outlet port 4. Outlet port 2 connected to exhaust port 3.

Momentary air signal at port 12 last. Pressure at inlet port 1 connected to outlet port 2. Outlet port 4 connected to exhaust port 5.

Double Solenoid
4-Way, 3-Position



With #12 operator energized – inlet port 1 connected to cylinder port 2, cylinder port 4 connected to exhaust port 5.

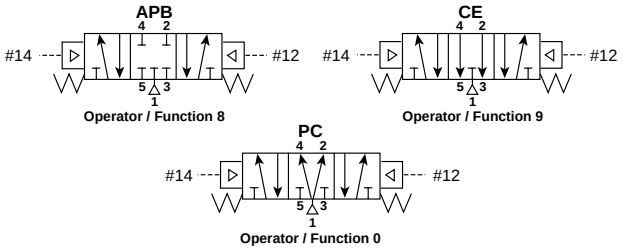
With #14 operator energized – inlet port 1 connected to cylinder port 4, cylinder port 2 connected to exhaust port 3.

Function 5: All Ports Blocked
All ports blocked in the center position.

Function 6: Center Exhaust
Cylinder ports 2 and 4 connected to exhaust ports 3 and 5 in center position. Port 1 is blocked.

Function 7: Pressure Center
Pressure port 1 connected to cylinder ports 2 and 4, and exhaust ports 3 and 5 blocked in center position.

Double Remote Pilot
4-Way, 3-Position



With #12 operator signaled – inlet port 1 connected to cylinder port 2, cylinder port 4 connected to exhaust port 5.

With #14 operator signaled – inlet port 1 connected to cylinder port 4, cylinder port 2 connected to exhaust port 3.

Function 8: All Ports Blocked
All ports blocked in the center position.

Function 9: Center Exhaust
Cylinder ports 2 and 4 connected to exhaust ports 3 and 5 in center position. Port 1 is blocked.

Function 0: Pressure Center
Pressure port 1 connected to cylinder ports 2 and 4, and exhaust ports 3 and 5 blocked in center position.

Dual Pressure:
May be used for dual pressure service with pressure at ports 3 & 5. (Use either external pilot source option "K", "W" or "X", or dual pressure pilot source option "D" or "E".) If pilot source "D" or "E" is selected. the high pressure must be at port #3. If pilot source "K", "W" or "X" is selected, the external pilot must be plumbed to port #14 or "X" respectively. NOTE: The "B6" valve is also available with dual pressure using Port 5 for high pressure (Option "G" & "H"). This is only to be used if converting from a "42" ("CM") Series traditional valve.

In the 3-Position valve, the effect of dual pressure is extremely important when the valve is in the center position, as the CE and PC functions are reversed. Therefore, care should be used when selecting a 3-Position valve.

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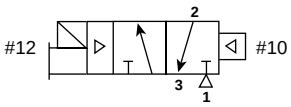
Single Solenoid
3-Way, 2-Position
NC (NNP)

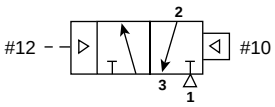


Normally Closed:

De-energized position – Solenoid #12 de-energized. Pressure at inlet port 1 blocked, outlet port 2 connected to exhaust port 3.

Energized position – Solenoid #12 energized. Pressure at inlet port 1 connected to outlet port 2, exhaust port 3 is blocked.

Single Remote Pilot
3-Way, 2-Position
NC (NNP)

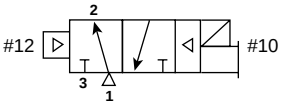


Normally Closed:

Normal position – Pressure at inlet port 1 blocked, outlet port 2 connected to exhaust port 3.

Operated position – Maintained air signal at port 12. Pressure at inlet port 1 connected to outlet port 2, exhaust port 3 is blocked.

Single Solenoid
3-Way, 2-Position
NO (NP)

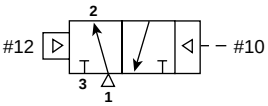


Normally Open:

De-energized position – Solenoid #10 de-energized. Pressure at inlet port 1 connected to outlet port 2, exhaust port 3 is blocked.

Energized position – Solenoid #10 energized. Pressure at inlet port 1 blocked, outlet port 2 connected to exhaust port 3.

Single Remote Pilot
3-Way, 2-Position
NO (NP)

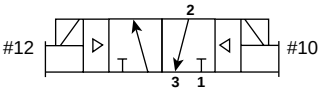


Normally Open:

Normal position – Pressure at inlet port 1 connected to outlet port 2, exhaust port 3 is blocked.

Operated position – Maintained air signal at port 10. Pressure at inlet port 1 blocked, outlet port 2 connected to exhaust port 3.

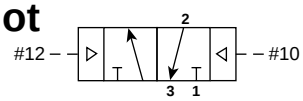
Double Solenoid
3-Way, 2-Position



Solenoid operator #12 energized last. Pressure at inlet port 1 connected to outlet port 2, exhaust port 3 is blocked.

Solenoid operator #10 energized last. Pressure at inlet port 1 blocked, outlet port 2 connected to exhaust port 3.

Double Remote Pilot
3-Way, 2-Position



Momentary air signal at port 12 last. Pressure at inlet port 1 connected to outlet port 2, exhaust port 3 is blocked.

Momentary air signal at port 10 last. Pressure at inlet port 1 blocked, outlet port 2 connected to exhaust port 3.

3-Way Configuration

B6, B7, B8:
Looking at the #1 and #3 ports, the solenoid (or remote operator) is always on the #3 port end. Different spools are used for NO and NC functions.

B3, B5:
Looking at the #1 and #3 ports, the solenoid (or remote operator) is on the #3 port end for NC and the #1 port end for NO. The same spool is used for both.

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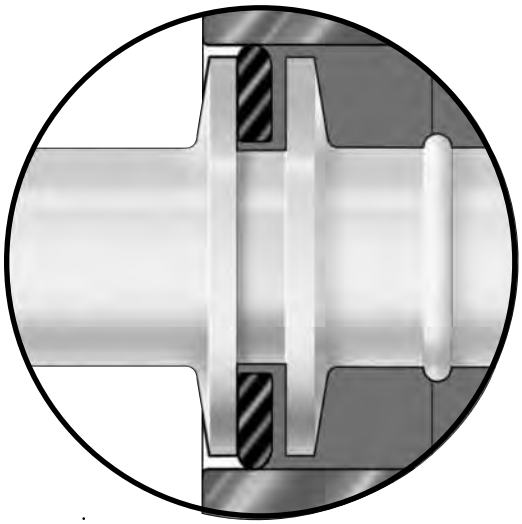
WCS

*W*ear *C*ompensation *S*ystem



- **Maximum Performance**
  - Low Friction - Lower Operating Pressures
  - Fast Response - Less Wear
- **Long Cycle Life** - Under pressure, radial expansion of the seal occurs to maintain sealing contact with the valve bore.
- **Non-Lube Service** - No lubrication required for continuous valve shifting.
- **Bi-Directional Spool Seals** - Common spool used for any pressure, including vacuum.

Refer to www.parker.com/pneu/b
Click on Catalog B Series-E/USA

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"B" Series

Flow Characteristics

- B3: .75 Cv
- B5: 1.40 Cv
- B6: 2.50 Cv
- B7: 5.90 Cv
- B8: 7.00 Cv

Operating Pressure

- Vacuum to 145 PSIG

Ports

- B3: 1/8, 1/4 Inch
- B5: 1/4, 3/8 Inch
- B6: 3/8 Inch
- B7: 1/2 Inch
- B8: 3/4 Inch

Mounting

- Inline
- Subbase
- IEM Stackable Base
- IEM Aluminum Bar
- 5-Port Subbase Aluminum Bar

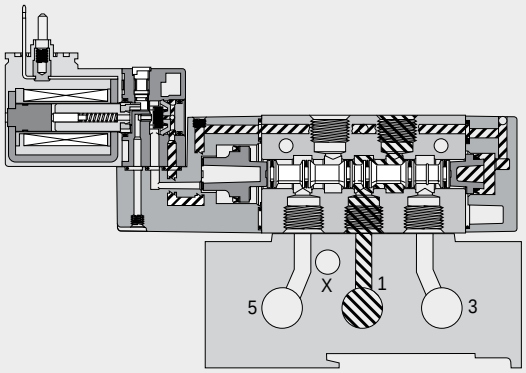
Solenoids

- 1.2 Watt – 15mm 3-Pin (EN 175301-803)
- 2.5 to 7.3 Watt – Conduit, Grommet, 22mm & 30mm 3-Pin DIN (43650)
- 12VDC to 240VAC
- Female DIN Electrical Connectors

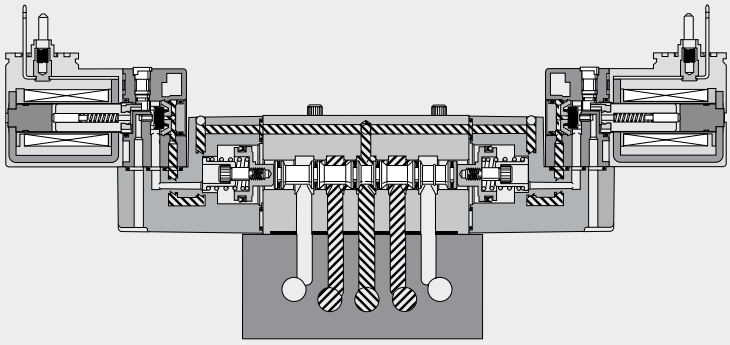
Certification / Approval

- Approved to be CE marked
- IP65 Rated
- CSA C/US*

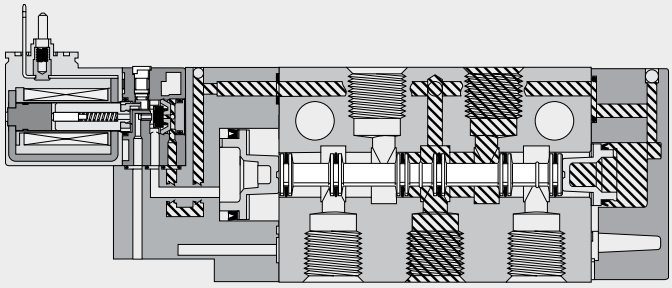
* See catalog technical section for more information.



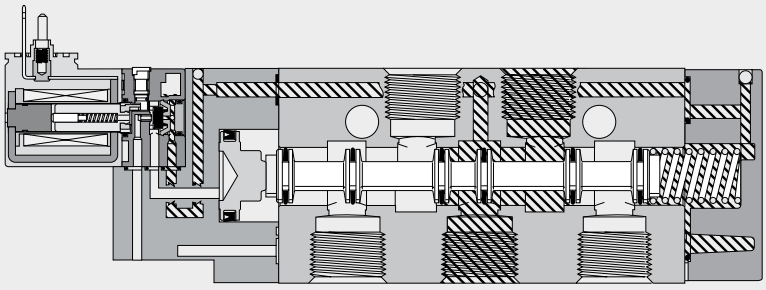
B3 Single Solenoid IEM Aluminum Bar Manifold
Shown De-Energized



B3 Double Solenoid 3-Position Subbase Mounted
Shown De-Energized



B5 Single Solenoid Inline - Air Return
Shown De-Energized



B6, B7 & B8 Single Solenoid Inline - Spring / Air Return
Shown De-Energized

Pressure **Exhaust**

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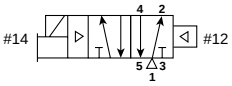
Single Solenoid
4-Way, 2-Position



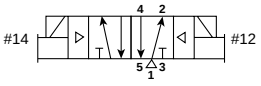
Inline

B3	**B310BB553C** **B310BB549C**	120VAC 24VDC	1/8"	0.75 Cv
B5	**B511BB553C** **B511BB549C**	120VAC 24VDC	1/4"	1.4 Cv
	B512BB553C **B512BB549C**	120VAC 24VDC	3/8"	
B6	**B612BB553A** **B612BB549A**	120VAC 24VDC	3/8"	2.7 Cv
B7	**B713BB553A** **B713BB549A**	120VAC 24VDC	1/2"	5.9 Cv
B8	**B814BB553A** **B814BB549A**	120VAC 24VDC	3/4"	7.0 Cv

Subbase

B3	**B31VBB553C** **B31VBB549C**	120VAC 24VDC	Less Base	0.65 Cv

Double Solenoid
4-Way, 2-Position



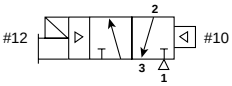
Inline

B3	**B320BB553C** **B320BB549C**	120VAC 24VDC	1/8"	0.75 Cv
B5	**B521BB553C** **B521BB549C**	120VAC 24VDC	1/4"	1.4 Cv
	B522BB553C **B522BB549C**	120VAC 24VDC	3/8"	
B6	**B622BB553A** **B622BB549A**	120VAC 24VDC	3/8"	2.7 Cv
B7	**B723BB553A** **B723BB549A**	120VAC 24VDC	1/2"	5.9 Cv
B8	**B824BB553A** **B824BB549A**	120VAC 24VDC	3/4"	7.0 Cv

Subbase

B3	**B32VBB553C** **B32VBB549C**	120VAC 24VDC	Less Base	0.65 Cv

Single Solenoid
3-Way, 2-Position, NC



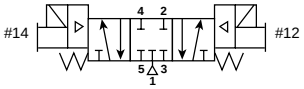
Inline

B3	**B3G0BB553C** **B3G0BB549C**	120VAC 24VDC	1/8"	0.75 Cv
B5	**B5G1BB553C** **B5G1BB549C**	120VAC 24VDC	1/4"	1.4 Cv
	B5G2BB553C **B5G2BB549C**	120VAC 24VDC	3/8"	
B6	**B6V2BB553A** **B6V2BB549A**	120VAC 24VDC	3/8"	2.7 Cv
B7	**B7V3BB553A** **B7V3BB549A**	120VAC 24VDC	1/2"	5.9 Cv
B8	**B8V4BB553A** **B8V4BB549A**	120VAC 24VDC	3/4"	7.0 Cv

3-Pin DIN 43650C Electrical Connection.
Non-Locking Flush Override.

Double Solenoid
4-Way, 3-Position, APB

APB



Inline

B3	**B350BB553C** **B350BB549C**	120VAC 24VDC	1/8"	0.60 Cv
B5	**B551BB553C** **B551BB549C**	120VAC 24VDC	1/4"	1.1 Cv
	B552BB553C **B552BB549C**	120VAC 24VDC	3/8"	
B6	**B652BB553A** **B652BB549A**	120VAC 24VDC	3/8"	2.1 Cv
B7	**B753BB553A** **B753BB549A**	120VAC 24VDC	1/2"	5.7 Cv
B8	**B854BB553A** **B854BB549A**	120VAC 24VDC	3/4"	6.6 Cv

Subbase

B3	**B35VBB553C** **B35VBB549C**	120VAC 24VDC	Less Base	0.50 Cv

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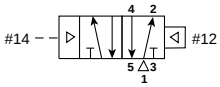
Single Remote Pilot
4-Way, 2-Position



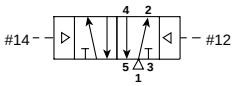
Inline

B3	**B330000XXC**	1/8"	0.75 Cv
B5	**B531000XXC**	1/4"	1.4 Cv
	B532000XXC	3/8"	
B6	**B632000XXA**	3/8"	2.7 Cv
B7	**B733000XXA**	1/2"	5.9 Cv
B8	**B834000XXA**	3/4"	7.0 Cv

Subbase

B3	**B33V000XXC**	Less Base	0.65 Cv

Double Remote Pilot
4-Way, 2-Position



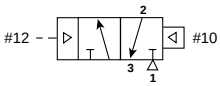
Inline

B3	**B340000XXC**	1/8"	0.75 Cv
B5	**B541000XXC**	1/4"	1.4 Cv
	B542000XXC	3/8"	
B6	**B642000XXA**	3/8"	2.7 Cv
B7	**B743000XXA**	1/2"	5.9 Cv
B8	**B844000XXA**	3/4"	7.0 Cv

Subbase

B3	**B34V000XXC**	Less Base	0.65 Cv

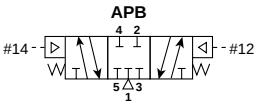
Single Remote Pilot
3-Way, 2-Position, NC



Inline

B3	**B3K0000XXC**	1/8"	0.75 Cv
B5	**B5K1000XXC**	1/4"	1.4 Cv
	B5K2000XXC	3/8"	
B6	**B6X2000XXA**	3/8"	2.7 Cv
B7	**B7X3000XXA**	1/2"	5.9 Cv
B8	**B8X4000XXA**	3/4"	7.0 Cv

Double Remote Pilot
4-Way, 3-Position, APB



Inline

B3	**B380000XXC**	1/8"	0.60 Cv
B5	**B581000XXC**	1/4"	1.1 Cv
	B582000XXC	3/8"	
B6	**B682000XXA**	3/8"	2.1 Cv
B7	**B783000XXA**	1/2"	5.7 Cv
B8	**B884000XXA**	3/4"	6.6 Cv

Subbase

B3	**B38V000XXC**	Less Base	0.50 Cv

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B3 Series

BOLD OPTIONS ARE MOST POPULAR.

B3 1 0 B B 5 49 – C

Basic Series	
B3 Series	B3

Engineering Level	
C	Current

Options	
Blank	None
02	Solenoid Rotated 180° - Pins Down

Operator Function	
3-Way	
Single Solenoid, 2-Position NC - Air Return	**G**
Single Solenoid, 2-Position NO - Air Return	H
Double Solenoid, 2-Position	J
Single Remote Pilot, 2-Position NC - Air Return	**K**
Single Remote Pilot, 2-Position NO - Air Return	L
Double Remote Pilot, 2-Position	M
Single Solenoid, 2-Position NC - Air Return / Spring Assist	V
Single Solenoid, 2-Position NO - Air Return / Spring Assist	W
Single Remote Pilot, 2-Position NC - Air Return / Spring Assist	X
Single Remote Pilot, 2-Position NO - Air Return / Spring Assist	Y
4-Way	
Single Solenoid, 2-Position - Air Return	**1**
Double Solenoid, 2-Position	**2**
Single Remote Pilot, 2-Position - Air Return	**3**
Double Remote Pilot, 2-Position	**4**
Double Solenoid, 3-Position - APB	**5**
Double Solenoid, 3-Position - CE	6
Double Solenoid, 3-Position - PC	7
Double Remote Pilot, 3-Position - APB	**8**
Double Remote Pilot, 3-Position - CE	9
Double Remote Pilot, 3-Position - PC	0
Single Solenoid, 2-Position - Air Return / Spring Assist	E
Single Remote Pilot, 2-Position - Air Return / Spring Assist	F

Voltage§	AC		DC
	60Hz	50Hz	
42	24	22	
45			12
49			**24**
53	**120**	**110**	
57	240	230	
XX	**Remote Pilot - M5 or Valve Less 15mm Solenoid**		
YY	Remote Pilot - 5/32" (4mm) Tube		

Enclosure / Lead Length	
0	None, Remote Pilot Valve
5	**15mm 3-Pin DIN 43650C (Male Only)**
X	Valve Less 15mm Solenoid

Overrides§	
0	**None, Remote Pilot Valve**
B	**Flush - Non-Locking**
C	**Flush - Locking**
D	Extended - Non-Locking
E	Extended - Locking
X	Valve Less 15mm Solenoid

Port Size / Thread Type	
3-Way	
1/8" NPT Inline	**0***
1/8" BSPP "G" Inline	5*
4-Way	
1/8" NPT Inline	**0***
1/8" BSPP "G" Inline	5*
1/4" NPT Subbase	H‡
1/8" NPT Face Mount	T**
Subbase Valve Less Base	**V‡**

* Available for use on IEM Manifolds.
** 4-Way only.
‡ Subbase valves available for 4-Way valves only.

Pilot Source / Pilot Exhaust	
0	**None, Remote Pilot Valve**
B†	**Internal - Port #1 / Vented**
E*	Dual Pressure - Port #3 / Vented
K†	External - Body / Tapped M5
X‡	External - Manifold / Vented

* Not available for 3-Way Valves.
† Not available for Remote Pilot Valves.
‡ See Pilot Source Note below.

Pilot Source 'X'
External-Manifold / Vented

INLINE & SUBBASE Valves –
Only used IF an IEM or 5-Ported Subbase Aluminum Bar Manifold requires a common external pilot signal thru the manifold for low pressure / vacuum applications OR when used with Sandwich Regulators.

§ Enclosure '5' – Override / Voltage Availability
S - Standard
O - Option

Voltage Code	Override Code			
	Standard			
	B	C	D	E
42	O	O	–	–
45	O	O	–	–
49	S	S	O	O
53	S	S	O	O
57	O	O	–	–

Voltage Code	"02" Option			
	B	C	D	E
42	O	O	–	–
45	O	O	–	–
49	S	S	O	O
53	S	S	O	O
57	O	O	–	–

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B5 Series

BOLD OPTIONS ARE MOST POPULAR.

B5 1 1 B B 5 49 – C

Basic Series	
B5 Series	**B5**

Engineering Level	
C	**Current**

Operator Function	
3-Way	
Single Solenoid, 2-Position NC - Air Return	**G**
Single Solenoid, 2-Position NO - Air Return	H
Double Solenoid, 2-Position	J
Single Remote Pilot, 2-Position NC - Air Return	**K***
Single Remote Pilot, 2-Position NO - Air Return	L*
Double Remote Pilot, 2-Position	M*
Single Solenoid, 2-Position NC - Air Return / Spring Assist	V
Single Solenoid, 2-Position NO - Air Return / Spring Assist	W
Single Remote Pilot, 2-Position NC - Air Return / Spring Assist	X*
Single Remote Pilot, 2-Position NO - Air Return / Spring Assist	Y*
4-Way	
Single Solenoid, 2-Position - Air Return	**1**
Double Solenoid, 2-Position	**2**
Single Remote Pilot, 2-Position - Air Return	**3***
Double Remote Pilot, 2-Position	**4***
Double Solenoid, 3-Position - APB	**5**
Double Solenoid, 3-Position - CE	6
Double Solenoid, 3-Position - PC	7
Double Remote Pilot, 3-Position - APB	**8***
Double Remote Pilot, 3-Position - CE	9*
Double Remote Pilot, 3-Position - PC	0*
Single Solenoid, 2-Position - Air Return / Spring Assist	E
Single Remote Pilot, 2-Position - Air Return / Spring Assist	F*

* Pilot Source / Pilot Exhaust, Override, and Enclosure must be "0".

Options	
Blank	**None**
02	Solenoid Rotated 180° - Pins Down
MD††	Manual Detent
V0*	Fluorocarbon Seals

* Not available with Enclosure "0", "5", "X", "E" or "F".
†† Only Available with Operator Function 1 & 3 and Enclosure "N", "X" or Mobile Voltages upon Request.

Voltage§			
	AC		DC
	60Hz	50Hz	
42	24	22	
45			12
49			**24**
53	**120**	**110**	
57	240	230	
XX	**Remote Pilot - M5 or Valve Less Solenoid**		
YY	Remote Pilot - 5/32" (4mm) Tube		

Enclosure / Lead Length	
0	None, Remote Pilot Valve
5	**15mm 3-Pin DIN 43650C (Male Only)**
A	30mm Square 3-Pin – ISO 4400 Form A (Male Only)
B	22mm Rectangular 3-Pin – Type B Industrial (Male Only)
C	3-Pin Automotive - Mini
D	5-Pin Automotive - Mini
E*	Intrinsically Safe - 30mm 3-Pin
F**	Hazardous Duty 1/2" NPT Conduit - 18" Leads
G	**Grommet - 18" Leads**
H	**1/2" NPT Conduit - 18" Leads**
N	Valve Less "A - R" Coil
Q	Grommet - 72" Leads
R	1/2" NPT Conduit - 72" Leads
X	Valve Less 15mm Solenoid

* 24 VDC & Override "A" Only.
** 12 VDC, 24 VDC, 120 VAC or 240 VAC.

Port Size / Thread Type	
3-Way	
1/4" NPT Inline	**1***
3/8" NPT Inline	**2***
1/4" BSPP "G" Inline	6*
3/8" BSPP "G" Inline	7*
4-Way	
1/4" NPT Inline	**1***
3/8" NPT Inline	**2***
1/4" BSPP "G" Inline	6*
3/8" BSPP "G" Inline	7*
3/8" NPT Subbase	J†
1/4" NPT NAMUR Mount	T‡†
Subbase Valve Less Base - NPT	V‡
1/4" BSPP "G" NAMUR Mount	W‡†

* Available for use on IEM Manifolds.
† 4-Way only.
‡ Available with pilot source "0", "A", and "B" only.

Pilot Source / Pilot Exhaust	
Enclosures "0, 5 & X"	
None, Remote Pilot Valve	0
Internal - Port #1 / Tapped M5	A†
Internal - Port #1 / Vented	**B†**
Dual Pressure - Port #3 / Vented	E*
External - Body / Tapped M5	K†
External - Manifold / Vented	X‡
Enclosures "A, B, C, D, E, F, G, H, N, Q & R"	
Internal - Port #1 / Tapped M5	**A†**
Internal - Port #1 / Vented	**B†**
Dual Pressure - Port #3 / Tapped M5	D*†
External - Body / Tapped 1/8"	K†

* Not available for 3-Way Valves.
† Not available for Remote Pilot Valves.
‡ See Pilot Source Note below.

Overrides§	
None. Remote Pilot Valve	**0**
No Override	A†
Flush - Non-Locking	**B***
Flush - Locking	**C**
Extended - Non-Locking	D
Extended - Locking	E*
Valve Less 15mm Solenoid	X

* Only Available with Encl. "5".
† Only Available with Encl. "E".

Pilot Source 'X'
External-Manifold / Vented or Tapped M5

INLINE & SUBBASE Valves –
Only used IF an IEM Aluminum Bar Manifold requires a common external pilot signal thru the manifold for low pressure / vacuum applications.

Note: For Mobile Voltages, Contact the Application Team.

§ Enclosure '5' – Override / Voltage Availability
S - Standard
O - Option

Voltage Code	Override Code Standard			
	B	C	D	E
42	O	O	–	–
45	O	O	–	–
49	S	S	O	O
53	S	S	O	O
57	O	O	–	–

Voltage Code	Override Code "02" Option			
	B	C	D	E
42	O	O	–	–
45	O	O	–	–
49	S	S	O	O
53	S	S	O	O
57	O	O	–	–

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B6 Series

BOLD OPTIONS ARE MOST POPULAR.

B6 1 2 B B 5 49 – A

Basic Series	
B6 Series	B6

Engineering Level	
A	Current

Operator Function	
3-Way	
Single Solenoid, 2-Position NC - Air Return / Spring Assist	V
Single Solenoid, 2-Position NO - Air Return / Spring Assist	W
Single Remote Pilot, 2-Position NC - Air Return / Spring Assist	X
Single Remote Pilot, 2-Position NO - Air Return / Spring Assist	Y
4-Way	
Single Solenoid, 2-Position - Air Return	**1**
Double Solenoid, 2-Position	**2**
Single Remote Pilot, 2-Position - Air Return	**3**
Double Remote Pilot, 2-Position	**4**
Double Solenoid, 3-Position - APB	**5**
Double Solenoid, 3-Position - CE	6
Double Solenoid, 3-Position - PC	7
Double Remote Pilot, 3-Position - APB	**8**
Double Remote Pilot, 3-Position - CE	9
Double Remote Pilot, 3-Position - PC	0
Single Solenoid, 2-Position - Air Return / Spring Assist	E
Single Remote Pilot, 2-Position - Air Return / Spring Assist	F

Options	
Blank	**None**
02	Solenoid Rotated 180° - Pins Down
42*	Series Cylinder Mount Replacement

* Only Available with Port Size "T" and "0", "A" and "B" Pilot Source.

	Voltage§		
	AC		DC
	60Hz	50Hz	
42	24	22	
45			12
49			**24**
53	**120**	**110**	
57	240	230	
XX	**Remote Pilot - M5 or Valve Less 15mm Solenoid**		
YY	Remote Pilot - 5/32" (4mm) Tube		

Enclosure / Lead Length	
0	None, Remote Pilot Valve
5	**15mm 3-Pin DIN 43650C (Male Only)**
A	30mm Square 3-Pin – ISO 4400 Form A (Male Only)
B	22mm Rectangular 3-Pin – Type B Industrial (Male Only)
E*	Intrinsically Safe - 30mm 3-Pin
F**	Hazardous Duty 1/2" NPT Conduit - 18" Leads
G	**Grommet - 18" Leads**
H	**1/2" NPT Conduit - 18" Leads**
N	Valve Less "A - R" Coil
Q	Grommet - 72" Leads
R	1/2" NPT Conduit - 72" Leads
X	Valve Less 15mm Solenoid

* 24 VDC & Override "A" Only.
** 12 VDC, 24 VDC, 120 VAC or 240 VAC.

Port Size / Thread Type	
3-Way / 4-Way	
3/8" NPT Inline	**2***
3/8" BSPP "G" Inline	7*
1/4" NPT NAMUR Mount	T†

* Available for use on IEM Manifolds.
† 4-Way only. Available with pilot source "0", "A" and "B" only.

Pilot Source / Pilot Exhaust	
Enclosures "0, 5 & X"	
None. Remote Pilot Valve	0
Internal - Port #1 / Tapped M5	A†
Internal - Port #1 / Vented	**B†**
Dual Pressure - Port #5 / Vented	H*
External - Body / Tapped M5	K†
Enclosures "A, B, C, D, E, F, G, H, N, Q & R"	
Internal - Port #1 / Tapped M5	**A‡**
Internal - Port #1 / Vented	**B‡**
External - Body / Tapped 1/8"	K†

* Not available for 3-Way Valves.
† Not available for Remote Pilot Valves.

Overrides§	
None, Remote Pilot Valve	**0**
No Override	A†
Flush - Non-Locking	**B***
Flush - Locking	**C**
Extended - Non-Locking	D
Extended - Locking	E*
Valve Less 15mm Solenoid	X

* Only Available with Encl. "5".
† Only Available with Encl. "E".

INLINE Valves –
Only used IF an IEM Aluminum Bar Manifold requires a common external pilot signal thru the manifold for low pressure / vacuum applications.

§ Enclosure '5' – Override / Voltage Availability
S - Standard
O - Option

Voltage Code	Override Code Standard			
	B	C	D	E
42	O	O	–	–
45	O	O	–	–
49	S	S	O	O
53	S	S	O	O
57	O	O	–	–

Voltage Code	Override Code "02" Option			
	B	C	D	E
42	O	O	–	–
45	O	O	–	–
49	S	S	O	O
53	S	S	O	O
57	O	O	–	–

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B7 & B8 Series

BOLD OPTIONS ARE MOST POPULAR.

B7 1 3 A B G 53 – A

Basic Series	
B7 Series	**B7**
B8 Series	**B8**

Engineering Level	
A	**Current**

Options	
Blank	**None**

Operator Function	
3-Way	
Single Solenoid, 2-Position NC - Air Return / Spring Assist	V
Single Solenoid, 2-Position NO - Air Return / Spring Assist	W
Single Remote Pilot, 2-Position NC - Air Return / Spring Assist	X
Single Remote Pilot, 2-Position NO - Air Return / Spring Assist	Y
4-Way	
Single Solenoid, 2-Position - Air Return	**1**
Double Solenoid, 2-Position	**2**
Single Remote Pilot, 2-Position - Air Return	**3**
Double Remote Pilot, 2-Position	**4**
Double Solenoid, 3-Position - APB	**5**
Double Solenoid, 3-Position - CE	6
Double Solenoid, 3-Position - PC	7
Double Remote Pilot, 3-Position - APB	**8**
Double Remote Pilot, 3-Position - CE	9
Double Remote Pilot, 3-Position - PC	0
Single Solenoid, 2-Position - Air Return / Spring Assist	E
Single Remote Pilot, 2-Position - Air Return / Spring Assist	F

Port Size / Thread Type	
B7 Series	
1/2" NPT Inline	**3***
1/2" BSPP "G" Inline	8*
B8 Series	
3/4" NPT Inline	**4***
3/4" BSPP "G" Inline	9*

* Available for use on IEM Manifolds.

Pilot Source / Pilot Exhaust	
Enclosures "0. 5 & X"	
None. Remote Pilot Valve	0
Internal - Port #1 / Tapped M5	A†
Internal - Port #1 / Vented	**B†**
External - Body / Tapped M5	K†
Enclosures "A, B, C, D, E, F, G, H, N, Q & R"	
Internal - Port #1 / Tapped M5	**A†**
Internal - Port #1 / Vented	**B†**
External - Body / Tapped 1/8"	K†

† Not available for Remote Pilot Valves.

Overrides§	
None, Remote Pilot Valve	**0**
No Override	A†
Flush - Non-Locking	**B***
Flush - Locking	**C**
Extended - Non-Locking	D
Extended - Locking	E*
Valve Less 15mm Solenoid	X

* Only Available with Encl. "5".
† Only Available with Encl. "E".

Voltage§	AC		DC
	60Hz	50Hz	
42	24	22	
45			12
49			**24**
53	**120**	**110**	
57	240	230	
XX	**Remote Pilot - M5 or Valve Less Solenoid**		
YY	Remote Pilot - 5/32" (4mm) Tube		

Enclosure / Lead Length	
0	None, Remote Pilot Valve
5	**15mm 3-Pin DIN 43650C (Male Only)**
A	30mm Square 3-Pin – ISO 4400 Form A (Male Only)
B	22mm Rectangular 3-Pin – Type B Industrial (Male Only)
E*	Intrinsically Safe - 30mm 3-Pin
F**	Hazardous Duty 1/2" NPT Conduit - 18" Leads
G	**Grommet - 18" Leads**
H	**1/2" NPT Conduit - 18" Leads**
N	Valve Less "A - R" Coil
R	1/2" NPT Conduit - 72" Leads
X	Valve Less 15mm Solenoid

* 24 VDC & Override "A" Only.
** 12 VDC, 24 VDC, 120 VAC or 240 VAC.

INLINE Valves –
Only used IF an IEM Aluminum Bar Manifold requires a common external pilot signal thru the manifold for low pressure / vacuum applications.

§ Enclosure '5' – Override / Voltage Availability
S - Standard
O - Option

Voltage Code	Override Code			
	Standard			
	B	C	D	E
42	O	O	–	–
45	O	O	–	–
49	S	S	O	O
53	S	S	O	O
57	O	O	–	–

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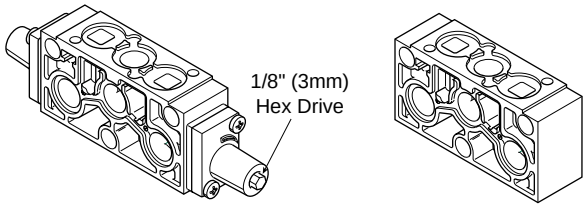
IEM Stackable Manifolds

Series	Type	Kit Number	
		Standard	Flow Control
B3	4-Way	PS2917P	PS2918P
B5	4-Way	PS2817P	PS2818P

- Individual Manifold Bases stack together to form lightweight custom length manifold system.
- Easy-to-connect male / female tie rods for modular assembly.
- Utilizes B3 and B5 4-Way Inline Valves.
- Low-cost built-in Flow Controls with heavy-duty brass adjusting needles to control meter-out exhaust flow.
- Accessories include Isolator Plugs for pressure isolation and Universal Blanking Plates for auxiliary inlet and exhaust supply and future valve additions.
- Kit includes: (1) Manifold Base, (2) Hold-down Bolts, Tie-rods, Gaskets and O-rings.

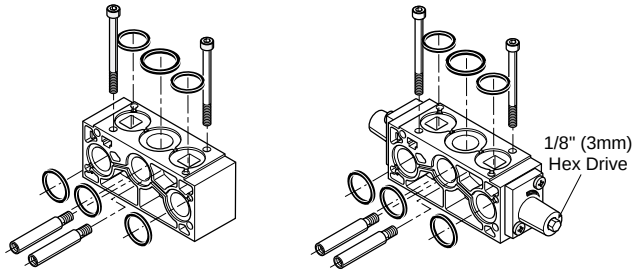
B3



4-Way Manifold with Flow Control

4-Way Manifold

B5



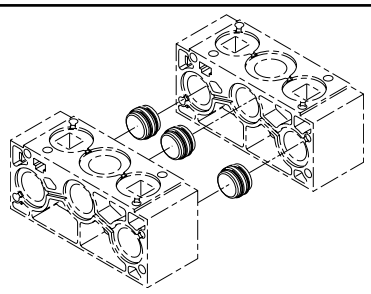
4-Way

4-Way w/ Flow Control

Isolator Plugs

Series	Kit Number
	4-Way
B3	PS2919P
B5	PS2819P

- Used to isolate the #1, #3 or #5 gallery between two Manifold Bases. (IEM STACKABLE ONLY)
- **Kit includes:** (3) plugs and (6) o-rings



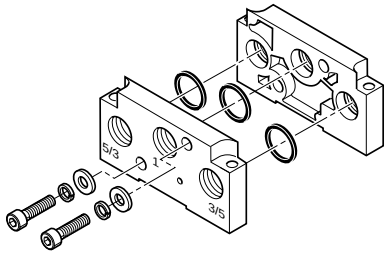
4-Way Isolator Plugs
IEM Stackable

End Plate Kits

Series	Type	Kit Number
		NPT
B3	4-Way	PS2915P
B5	4-Way	PS2815P*

Kit includes: Right and Left End Plate, O-rings, Socket Head Cap Screws, Flat Washers and Lockwashers.

* B5 4-Way use the same Kit.



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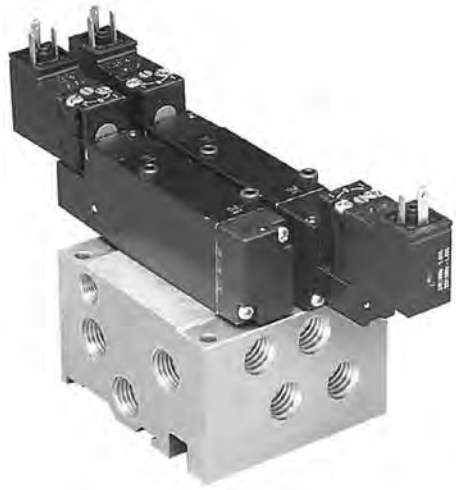
B3 Series



4-Way, 1/8" NPT	**AAPSJ3B1N##NP**	## – stations 02 to 12

B3 Series

4-Way, 1/8" NPT	**PSJ3B1N##NP**	## – stations 02 to 12

- Utilizes Subbase mount B3 valves.
- Available for 4-Way valves. If 3-Way function is required, plug a cylinder port.
- Common External Pilot galley is standard.
- Standard Internal Pilot valves need not use this galley, and the galley does not need to be plugged.
- External Pilot Valves – "X" or "W", must have Common External Galley pressurized.

Kit includes:
Subbase – (1) Manifold (bolts & gasket come with subbase valve).

Assembly Model Number

	PS	J	3	B	1	N	04	N	P

Manifold

Manifold Only	Blank
Manifold with Valves Mounted	AA

Type

4-Way	
Subbase Bottom Port	K
Subbase End Port	J

Series

B3 Series	3

Pilot

External (B3)	B

Cylinder Ports

1	1/8"

Port Type

G	BSPP "G"
N	NPT

Stations

02
•
•
•
12

Options

N	None

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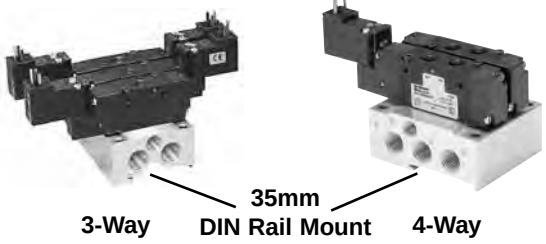
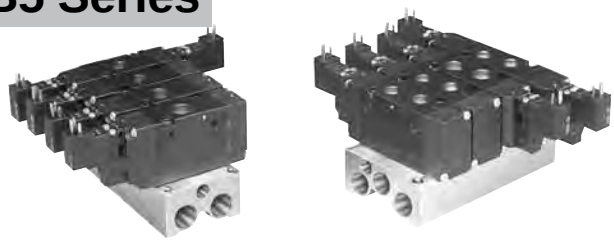
B3 Series



3-Way, NPT	**AAPSG3BXN##NP**	## – stations 02 to 12
4-Way, NPT	**AAPSM3BXN##NP**	

B5 Series



3-Way, NPT	**AAPSG5BXN##NP**	## – stations 02 to 12
4-Way, NPT	**AAPSM5BXN##NP**	

B6 Series

3-Way, NPT	**AAPSG6BXN##NP**	## – stations 02 to 12
4-Way, NPT	**AAPSM6BXN##NP**	

B7 & B8 Series

4-Way, NPT	**AAPSM7BXN##NP**	## – stations 02 to 12

- Utilizes Inline mount "B" Series valves.
- Different manifold for 3-Way & 4-Way valves (B7 and B8 use common manifolds).
- Common External Pilot galley is standard. Standard Internal Pilot valves need not use this galley. This galley does not require a plug for internally piloted valves.
- External Pilot Valves – "X" or "W", must have Common External Galley pressurized.
- **Kits (PS....) include:** (1) Manifold, Valve Hold Down Bolts, Gaskets.

IEM Bar Manifold Model Number

	PS	M	5	B	X	N	04	N	P

Manifold

Manifold Only	Blank
Manifold with Valves Mounted	AA

Type

IEM 3-Way	G*
IEM 4-Way	M

* Not available with B7 or B8.

Series

B3 Series	3
B5 Series	5
B6 Series	6
B7 / B8 Series	7

Pilot

External	B

Cylinder Ports

X	IEM Manifold

Port Type

G	BSPP "G"
N	NPT

Stations

02
•
•
•
12

Options

N	None

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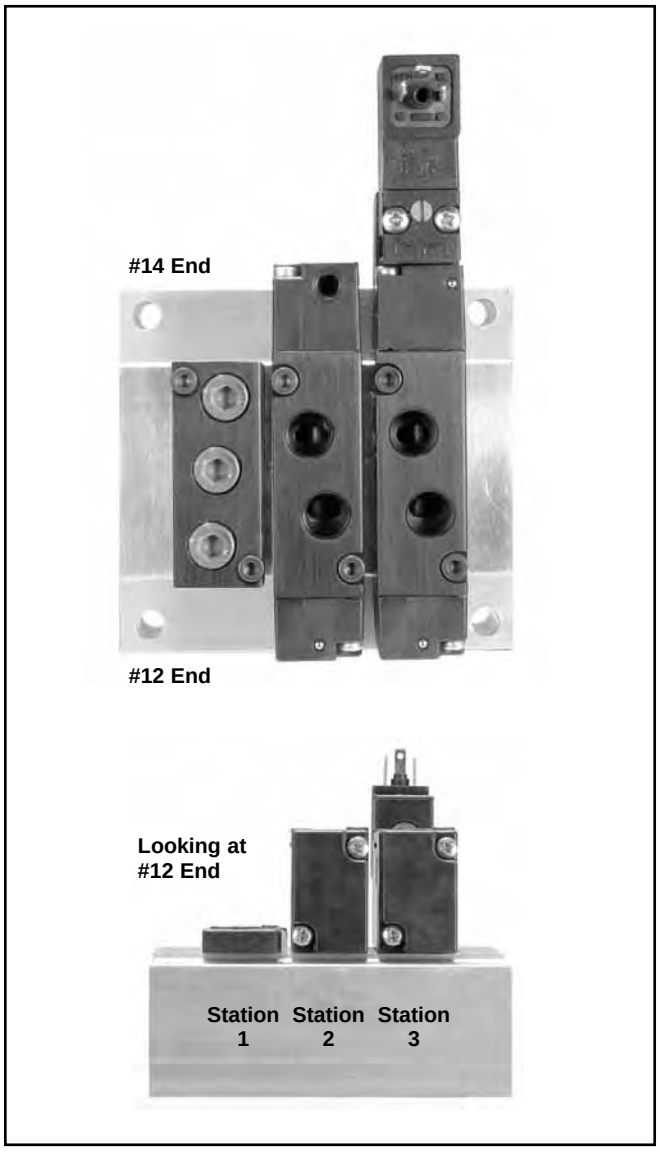

How To Order Aluminum Bar Manifold Assemblies

1. List Manifold Assembly call out. Use AA + the part number of the aluminum bar manifold. This automatically includes the aluminum bar manifold and assembly.

2. List complete valve model number, listing left to right, LOOKING AT THE #12 END of the manifold. The left most station is station 1.

(If a blank station is needed, list the blanking plate part number at the desired station.)

AA PS***##NP**

Use Aluminum Bar Manifold Kit Numbers from previous pages.

AA Manifold Assembly

Example: Application requires a 3-station "B3" 4-Way manifold with station #1 blanked off with valves assembled.

Qty.	Part No.	Comment
1	AAPSM3BXN03NP	
1	PS2920P	Station 1
1	B330000XXC.....	Station 2
1	B310BB549C.....	Station 3

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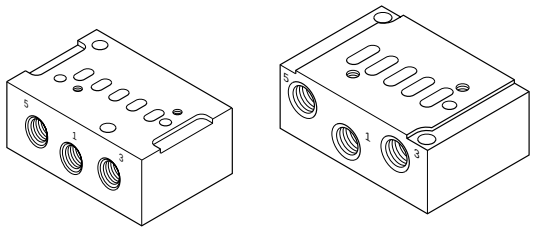
Subbase

Type	Size	Kit Number
		NPT
B3 4-Way	1/4"	**PS2934P**
B5 4-Way	3/8"	**PS2834P**

Kit includes: (1) subbase.
(Hold down bolts & gasket are included with valve.)

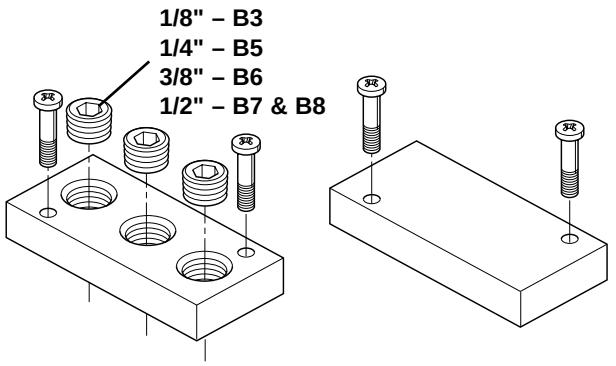


B3 **B5**

Blanking Plate

Type		Kit Number			
		IEM Universal		IEM	Subbase
		NPT	BSPP "G"	Blank	Blank
B3	3-Way	**PS2966P**	PS2967P	**PS2968P**	—
	4-Way	**PS2920P**	PS2921P	**PS2969P**	**PS2994P**
B5	3-Way	**PS2866P**	PS2867P	**PS2868P**	**—**
	4-Way	**PS2820P**	—	**PS2869P**	—
B6	3-Way 4-Way	**PS2620P**	—	—	—
B7 **B8**	4-Way	**PS2520P**	—	**PS2569P**	—

Kit includes:
(1) Plate, (2) Screws, Seal / Gaskets



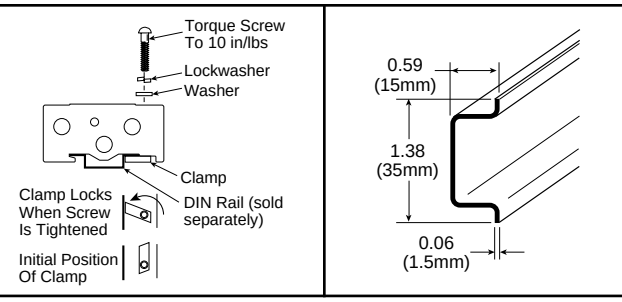
Universal Blanking Plate **Blank Plate**

DIN Rail Hardware Kits

Series	Length	Part Number
B3	6 Feet	AM1DE200

Series	IEM Bar	5-Port Subbase Bar
B3	PS2990P	PS2991P

Kit includes: (2) Screws, (2) Nuts, (2) Clamps



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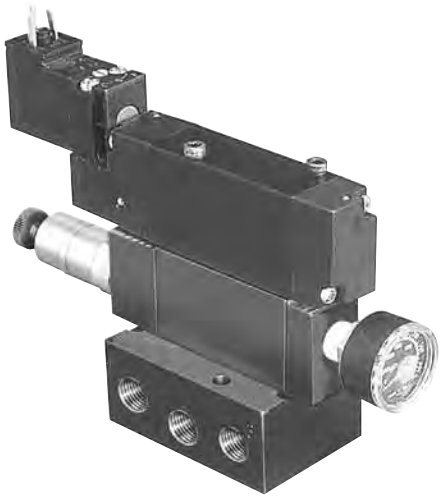
B3 Series



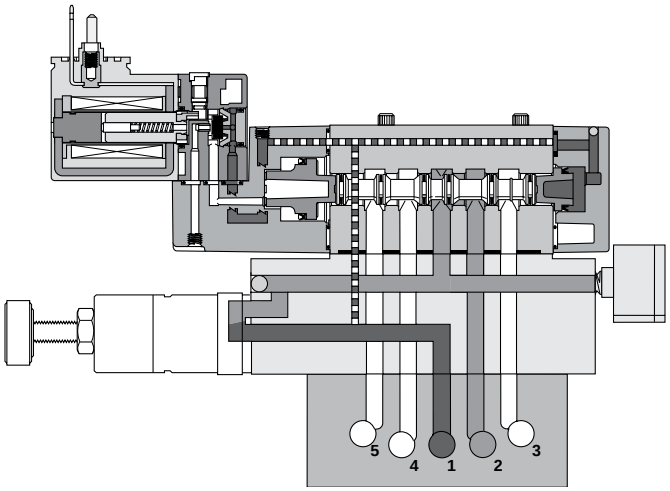
Sandwich Regulators

- Use with B3 Subbase Valves on 5-Ported Subbase Bar Manifolds.
- Common Port or Dual Port regulation control.
- Unregulated Pressure Supplied to Valve Pilot - Use Pilot Source - 'X'.
- Easy adjust knob control.

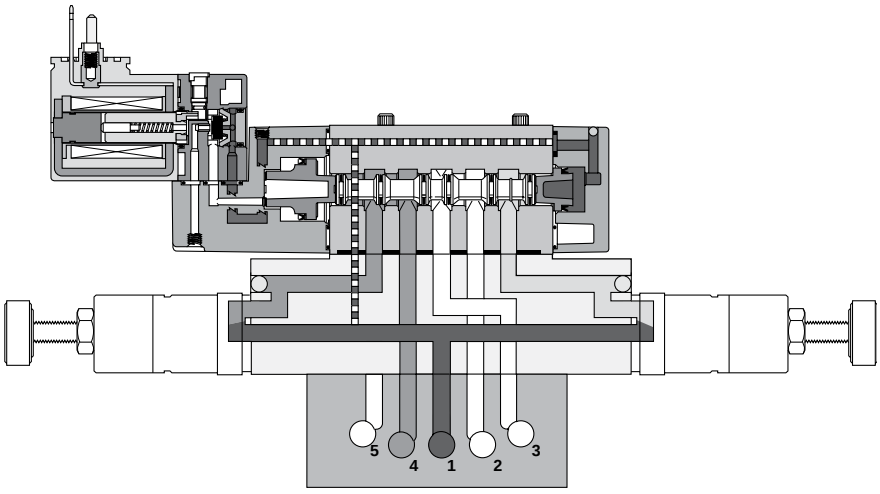
	Common Port with Gauge *	Dual Port without Gauge	Cv
B3 5-125 PSI	PS2930166P	PS2930233P	.33

* Gauge is 160 PSI. Gauge shipped unassembled. For different gauge mounting configuration, use brass adapters listed at bottom of page.

Common Port



Dual Port



Brass Adapters for Gauge –

1/8" to 1/8" Female Coupling..... 207P-2
1/8" Male Pipe Nippled 1.5"..... 215PNL-2-15
1/8" Male to Female Adapter..... 222P-2-2
1/8" to 1/8" 45° Female Elbow..... 2201P-2-2
1/8" to 1/8" 90° Female Elbow..... 2200P-2-2

Gauge 1" Face –

0-160 PSI.....PS4051160BP

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Solenoid Rotated 180° - Pins Down

B3 **B5** **B6** **B7** **B8**

- 1.8W (2.4VA) solenoids – Enclosure "5".
- Override on top for easy access.
- "02" in the Options code.

Valve Less Solenoid

B3 **B5** **B6** **B7** **B8**

- Valve ordered & shipped without solenoid.
- Efficient method in place of valve repair, fully tested at factory.

Alternate Solenoid Enclosures

B5 **B6** **B7** **B8**

- Enclosure "A": 2.6W - 4.1VA (Coil rotates in 45° increments)
- Enclosure "B" – "R": 4.6W - 7.3VA (Coil rotates in 90° increments)

"A" 30mm 3-Pin

"C" 3-Pin Mini

"G". "Q" Grommet

"B" 22mm 3-Pin

"D" 5-Pin Mini

"F". "H". "R" 1/2" Conduit

Tube Fitting Remote Pilot

B3 **B5** **B6** **B7** **B8**

- "YY" Option
- 5/32" (4mm) Tube Fitting

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Intrinsically Safe Solenoid Valves ("E" Option)

Hazardous Location Class:

Class I; Groups A, B, C & D

Class II; Groups E, F, & G

Class III; Div. I

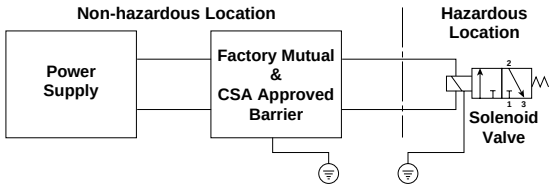
For use in low voltage (24VDC) Intrinsically Safe applications. NO OTHER VOLTAGE IS APPROVED.

36mm Coil width.

Comes standard with non-lighted solenoid connector.

Must be connected to an FM approved Barrier.

For dimensions. reference standard solenoid models. Maximum internally piloted valve pressure is 115 PSIG. Pressures to 145 PSIG can be used when external pilot is utilized and pilot pressure is limited to 115 PSIG.



Intrinsically Safe Solenoid Pilot Assembly Kits

Part Number	Description
P2FS13N1AE49	24VDC

Hazardous Duty Solenoid Valves ("F" Option)

Hazardous Location Class:

Class I; Zone I EX, M, II & T4

Class I; Div. I. Groups A, B, C, & D

Class II & III; Div. I. Groups E, F, & G

Comes standard with 1/2" conduit connection.

Voltage Range = ± 10%

Ambient Temp. Range = -20°C (-4°F) to 60°C (140°F)

Duty Factor = 100%

IP65 Rated (with Connected Conduit Connector)

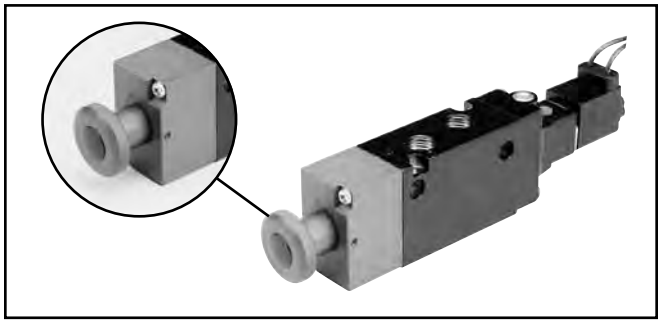
Notes:

1. Maximum non-hazardous location voltage not to exceed 250V RMS.
2. Connect per Barrier Manufacturers instructions.
3. Factory Mutual requires connections per ISA RP 12.6 instructions.
4. CSA requires "Installation to be in accordance with the Canadian Electrical Code. Part I."
5. The hazardous duty coils are wider in size than both the B5 and the B6 valve. If mounted on a manifold, the valves need to be staggered to fit.

Option F
Hazardous Duty FM / CSA

B5 With Manual Detent

- Positive mechanical contact of the override knob assures actuation of valve, however, knob does not move during normal cycling.
- Hard coated override to resist harsh environments.
- Override return spring is stainless steel, for harsh environments.
- Heavy duty locking mechanism to maintain position.
- Use in combination with mobile voltages or valve less solenoid.



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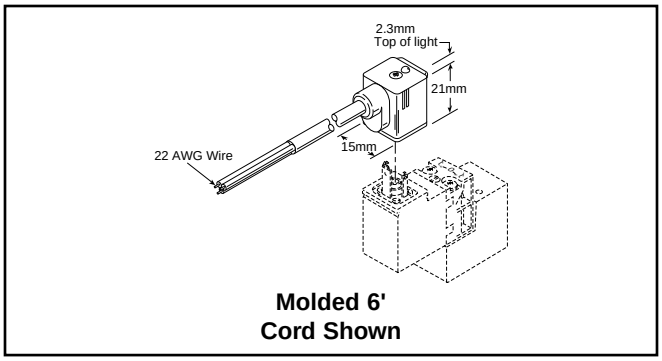
Female Electrical Connectors

15mm 3-Pin DIN 43650C (Use with Enclosure "5")

Connector	Connector with Cord	Description
PS2932BP	PS2932HBP 18 Inches	Unlighted
PS2932BP	PS2932JBP 6 Feet	Unlighted
PS294675BP	PS2946J75BP* 6 Feet	Light – 12VAC or DC
PS294679BP	PS2946J79BP* 6 Feet	Light – 24VAC or DC
PS294683BP	PS2946J83BP* 6 Feet	Light – 110/120VAC
PS294687BP	N/A	Light – 240/230VAC



Molded 6' Cord Shown

* LED with surge suppression.

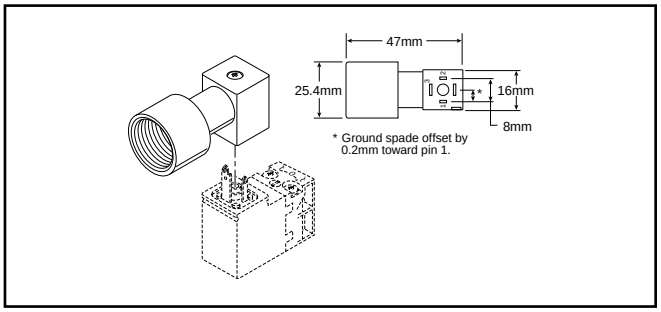
Note: Max ø6.5mm cable size required for connector w/o 6' (2m) cord.
IP65 rated when properly installed.

Engineering Data:
Conductors: 2 Poles Plus Ground
Cable Range (Connector Only): 4 to 6mm (0.16 to 0.24 Inch)
Contact Spacing: 8mm

15mm 3-Pin DIN 43650C to 1/2" Conduit (Use with Enclosure "5")

Connector	Description
PS2998P	1/2" NPTF Conduit – Unlighted with 3' (1m) Leads 20 AWG Wire

Note: Rated up to 250VAC or VDC; 6 Amps
IP65 rated when properly installed.



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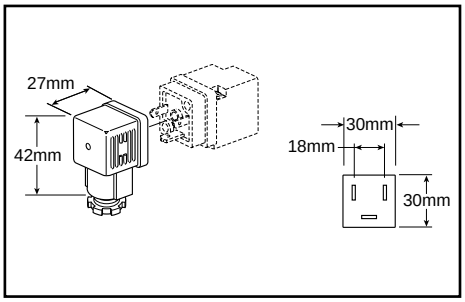
Female Electrical Connectors / Accessories

30mm Square 3-Pin – ISO 4400, DIN 43650A (Use with Enclosure "A")

Connector	Connector with 6' (2m) Cord	Description
PS2028BP	PS2028JCP	Unlighted
PS203279BP	PS2032J79CP*	Light – 6-48V. 50/60Hz. 6-48VDC
PS203283BP	PS2032J83CP*	Light – 120V/60Hz
PS203283BP	N/A	Light – 240V/60Hz



* LED with surge suppression.

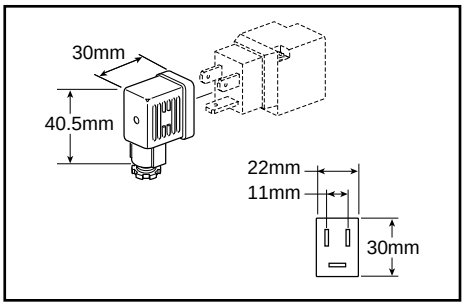
Note: Max ø6.5mm cable size required for connector w/o 6' (2m) cord. IP65 rated when properly installed.

Engineering Data:

Conductors: 2 Poles Plus Ground; Cable Range (Connector Only): 8 to 10mm (0.31 to 0.39 Inch); Contact Spacing: 18mm

22mm Rectangular 3-Pin – Type B Industrial (Use with Enclosure "B")

Connector	Connector with 6' (2m) Cord	Description
PS2429BP	PS2429JBP	Unlighted
PS243079BP	PS2430J79BP*	Light – 24V60Hz. 24VDC
PS243083BP	PS2430J83BP*	Light – 120V/60Hz
PS243087BP	N/A	Light – 240V/60Hz



* LED with surge suppression.

Note: Max ø6.5mm cable size required for connector w/o 6' (2m) cord. IP65 rated when properly installed.

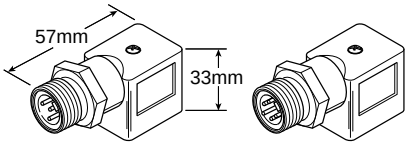
Engineering Data:

Conductors: 2 Poles Plus Ground; Cable Range (Connector Only): 6 to 8mm (0.24 to 0.31 Inch); Contact Spacing: 11mm

3-Pin / 5-Pin Male Automotive Connectors (Use on 22mm Rectangular 3-Pin Solenoid)

3-Pin	5-Pin	Description
PS2893CP	PS2893DP	Unlighted
PS2893C##P	PS2893D##P	Lighted - Voltage

— 79 = 6 to 48VAC/VDC
83 = 100 to 240VAC/48 to 120 VDC



3-Pin **5-Pin**

Exhaust Mufflers

Pipe Thread	Part Number
M5	**P6M-PAC5**
1/8" NPT	**EM12**
1/4" NPT	**EM25**
3/8" NPT	**EM37**
1/2" NPT	**EM50**

P6M - Plastic; EM - Sintered Bronze

Plastic Silencers

Thread Size	Part Number		A (mm)	B (mm)
	NPT	BSPT		
M5	**AS-5**		.43 (11)	.32 (8)
1/8"	**ASN-6**	**AS-6**	1.57 (40)	.63 (16)
1/4"	**ASN-8**	**AS-8**	2.56 (65)	.83 (21)
3/8"	**ASN-10**	**AS-10**	3.35 (85)	.98 (25)
1/2"	**ASN-15**	**AS-15**	3.74 (95)	1.18 (30)

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Flow Rating (Cv)

Size	Port Size	Mounting Style	2-Position	3-Position
B3	1/8" Ports	Inline	.75	.60
	1/4" Tube	Inline	.45	.45
	1/8" Ports	Subbase	.65	.45
	1/4" Ports	Subbase	.65	.50
B5	1/4" Ports	Inline	1.4	1.1
	3/8" Ports	Inline	1.4	1.1
	1/4" Ports	Subbase	1.4	1.1
	3/8" Ports	Subbase	1.4	1.1
B6	3/8" Ports	Inline	2.7	2.1
B7	1/2" Ports	Inline	5.9	5.7
B8	3/4" Ports	Inline	7.0	6.6

ANSI / (NFPA) T3.21.3-1990 standard for Cv measurement.

Temperature Rating

5°F to 120°F (-15°C to 49°C) ambient.
(Buna-N and Fluorocarbon)

Operating Pressure

Maximum: 145 PSIG (1000 kPa)
Minimum:

Operator / Function	Internal Pilot	Minimum PSIG (kPa)				
		B3	B5	B6	B7	B8
1. G. H	Single Solenoid - Air Return	20 (138)	20 (138)	20 (138)	35 (241)	35 (241)
2. A. J. S	Double Solenoid					
3. K. L	Single Remote Pilot - Air Return					
4. M	Double Remote Pilot	Vacuum				
5. 6. 7	Double Solenoid - APB, CE, PC	30 (207)	30 (207)	30 (207)	45 (310)	45 (310)
8. 9. 0	Double Remote Pilot - APB, CE, PC			Vacuum		
E. V. W	Single Solenoid - Air Return / Spring Assist	35 (241)	35 (241)	35 (241)	35 (241)	35 (241)
F. X. Y	Single Remote Pilot - Air Return / Spring Assist					
External Pilot*						
All	"B" Series	Vacuum				

* External Pilot Pressure / Remote Pilot Signal 35-145 PSIG (241-1000 kPa).

Note: For CSA-NRTL/C approved solenoid valves –
insert an 'L' at the end of the valve part number.
B3: Maximum pressure - 120 PSI
B5: Maximum pressure - 145 PSI*§
B6: Maximum pressure - 145 PSI*§
B7: Maximum pressure - 145 PSI*†
B8: Maximum pressure - 145 PSI*†

* Enclosure Option E is CSA / FM approved at source. For certification of valve / solenoid assembly, consult factory.
† Not Available with Enclosure 5
§ Not available with Enclosures 0. 5 & X

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Solenoid Information (Solenoids are rated for continuous duty.)

Voltage				Enclosure "5"		Voltage				B5 B6 B7 B8 Enclosure "A"		B5 B6 B7 B8 Enclosure "B" to "R"	
Code	AC 60Hz	AC 50Hz	DC	Power Consumption	Holding (Amps)	Code	AC 60Hz	AC 50Hz	DC	Power Consumption	Holding (Amps)	Power Consumption	Holding (Amps)
42	24	22		1.6VA	.065	42	24	22		3.9VA	.136	7.3VA	.309
45			12	1.2W	.098	45			12	2.6W	.208	4.6W	.365
47*			12	0.91W	.074	47*			12	—	—	4.9W	.298
48*			24	0.91W	.033	48*			24	—	—	4.8W	.142
49			24	1.2W	.049	49			24	2.7W	.112	4.8W	.200
53	120	110		1.6W	.013	53	120	110		4.1VA	.033	6.3VA	.047
57	240	230		1.6W	.007	57	240	230		3.7VA	.017	6.4VA	.026

Note: For enclosure "5" with "02" Option, solenoid wattage is 1.8W (2.4VA). Response time is 10% faster.
Voltage rated +10 / -15%.

***** 47 and 48 code are mobile voltages. voltage +25 / -30%.

Response Time

Valve Size	Port Size	Enclosure "5" 0 Cu. In. Test Chamber Fill	Enclosure "5" 0 Cu. In. Test Chamber Exhaust	Enclosure "5" 25* Cu. In. Test Chamber Fill	Enclosure "5" 25* Cu. In. Test Chamber Exhaust	Enclosure "A, B, C, D, G, H, Q & R" 0 Cu. In. Test Chamber Fill	Enclosure "A, B, C, D, G, H, Q & R" 0 Cu. In. Test Chamber Exhaust	Enclosure "A, B, C, D, G, H, Q & R" 25* Cu. In. Test Chamber Fill	Enclosure "A, B, C, D, G, H, Q & R" 25* Cu. In. Test Chamber Exhaust
2-Position Single Solenoid / Internal Air Return									
B3	1/8"	.024	.026	.149	.242	—	—	—	—
B5	1/4"	.038	.040	.106	.156	.025	.026	.090	.142
B5*	3/8"	.039	.041	.150	.245	.025	.027	.141	.241
B6*	3/8"	.037	.038	.096	.132	.016	.018	.084	.119
B7	1/2"	.073	.075	.195	.275	.049	.051	.167	.249
B8	3/4"	.072	.074	.166	.226	.049	.051	.142	.206
2-Position Single Solenoid Spring / Air Return									
B3	1/8"	.019	.022	.128	.217	—	—	—	—
B5	1/4"	.039	.041	.108	.162	.024	.026	.091	.143
B5*	3/8"	.040	.042	.169	.261	.024	.026	.143	.240
B6*	3/8"	.035	.036	.096	.133	.023	.024	.083	.120
B7	1/2"	.071	.074	.194	.275	.049	.051	.167	.249
B8	3/4"	.072	.074	.176	.239	.046	.048	.142	.204
2-Position Double Solenoid									
B3	1/8"	.013	.015	.122	.213	—	—	—	—
B5	1/4"	.016	.018	.082	.132	.012	.014	.077	.128
B5*	3/8"	.016	.018	.129	.222	.016	.018	.128	.225
B6*	3/8"	.016	.017	.074	.110	.012	.013	.071	.107
B7	1/2"	.026	.028	.145	.228	.022	.024	.138	.225
B8	3/4"	.026	.028	.123	.185	.022	.024	.115	.178
3-Position Double Solenoid									
B3	1/8"	.021	.023	.091	.141	—	—	—	—
B5	1/4"	.022	.023	.091	.141	.011	.011	.079	.135
B5*	3/8"	.022	.024	.135	.229	.016	.019	.135	.234
B6*	3/8"	.024	.026	.094	.139	.016	.018	.084	.132
B7	1/2"	.049	.051	.167	.257	.028	.030	.148	.238
B8	3/4"	.035	.037	.136	.206	.028	.030	.130	.195

Average Fill Time (Seconds): With 100 PSIG supply, time required to fill from 0-90 PSIG and exhaust from 100 PSIG to 10 PSIG is measured from instant of energizing, or de-energizing 120V/60Hz solenoid. Times shown are average.

***** For 3/8" ported, 50 cu. in. test chamber is used. For 1/2" & 3/4", a 200 cu. in. test chamber is used.

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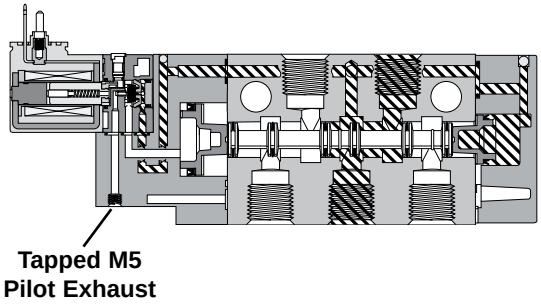
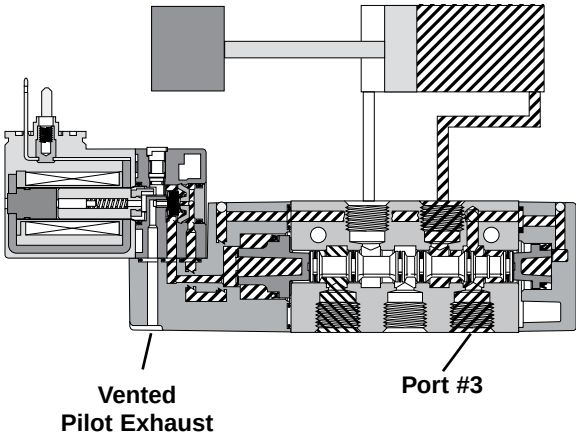
A - Internal - Port #1 / Tapped M5



B5 Shown

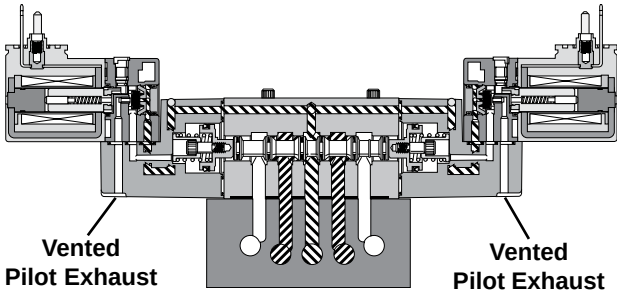
E - Dual Pressure - Port #3 / Vented

H - Dual Pressure - Port #5 / Vented (Similar)



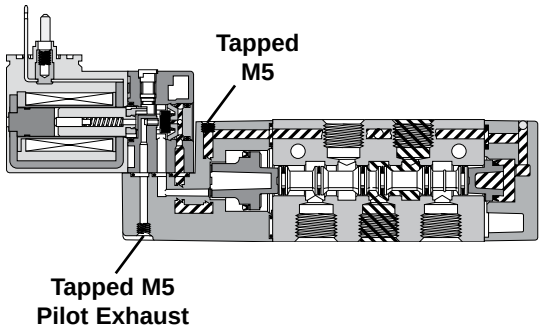
B3 Shown

B - Internal - Port #1 / Vented



B3 Shown

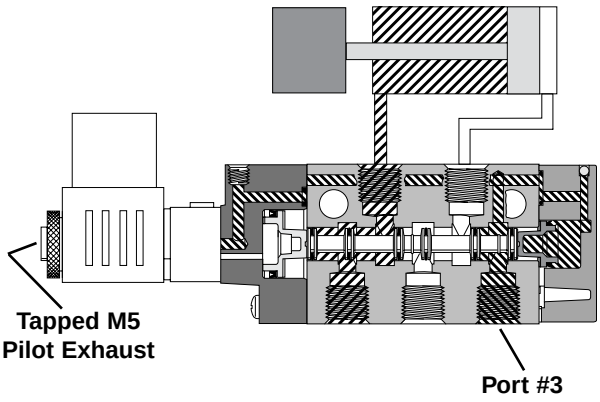
K - External - Body / Tapped M5



B3 Shown

D - Dual Pressure - Port #3 / Tapped M5

G - Dual Pressure - Port #5 / Tapped M5 (Similar)



B5 Shown

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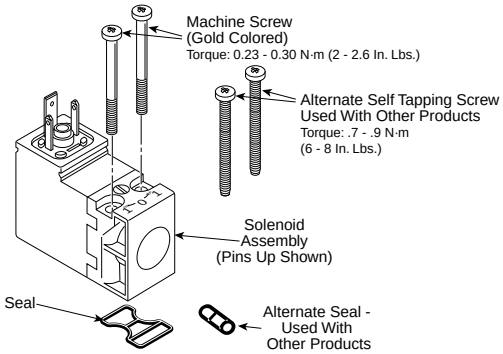
Solenoid Kits – B3 'C', B5 'C', B6 'A', B7 'A', B8 'A'

3-Pin, EN175301-803 (Former DIN 43650C), 15mm

STANDARD



"02" OPTION

PS2982*##P –
Enclosure '5'

Override	## Voltage						
	42	45	47*	48*	49	53	57
B	O	O	–	–	S	S	O
C	O	O	–	–	S	S	O
D	–	–	O	O	O	O	–
E	–	–	O	O	O	O	–

PS3541 *##P –
Enclosure '5 with "02" Option

Override	## Voltage				
	42	45	49	53	57
B	O	O	S	S	O
C	O	O	S	S	O
D	–	–	O	O	–
E	–	–	O	O	–

S - Standard; O - Option

***** Mobile Voltage

Kit Includes: Solenoid, (2) Machine Screws, (2) Self Threading Screws, (1) Gasket, (1) 3-cell Gasket.

Solenoid Kits Alternate Enclosures

P2F C A 4 49

Type	
Solenoid Kit	C

Enclosures / Lead Length	
30mm Square 3-Pin – ISO 4400 Form A (Male Only)	**A**
22mm Rectangular 3-Pin – Type B Industrial (Male Only)	**B**
Hazardous Duty, FM / CSA	**F***
Grommet - 18" Leads	**G**
1/2" NPT Conduit - 18" Leads	**H**
Grommet 72" Leads	Q
1/2" Conduit 72" Leads	R

* Only Available with Voltage Codes "45", "49", "53" & "57".

Voltage / Frequency	
42	24VAC
45	12VDC
47*	**12 VDC Mobile**
48*	**24 VDC Mobile**
49	**24VDC**
53	**120VAC**
57	240VAC

* Only Available with Enclosures "A", "B" & "G".

Option A & E
30mm Square
3-Pin ISO 4400, DIN 43650A

Option B
22mm Rectangular
3-Pin DIN, Type B Industrial

Option G & Q
Grommet, 18" or 72" Leads

Option F, H & R
1/2" Conduit, 18" or 72" Leads

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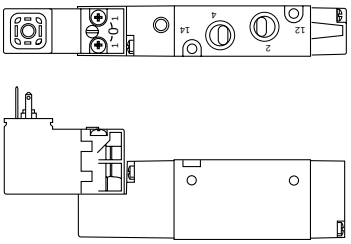
B3 Series

Spool / Body Service Kits

		Kit Includes:
PS2901CP	4-Way, 2-Pos	Item 15, 21 (2), 24, 25, 31 (2), grease packet
PS2902CP	4-Way, 3-Pos APB	Item 16, 21 (2), 31 (2), grease packet
PS2903CP	4-Way, 3-Pos CE	Item 16, 21 (2), 31 (2), grease packet
PS2904CP	4-Way, 3-Pos PC	Item 16, 21 (2), 31 (2), grease packet
PS2971CP	3-Way, 2-Pos	Item 15, 21 (2), 24, 25, 31 (2), grease packet



Valve to Manifold Kits

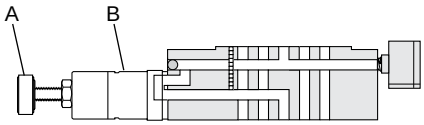
PS2980P	Gasket (10) - Inline 3-Way Valve to Segmented Manifold
PS2981P	Gasket (10) - Inline 4-Way Valve to Segmented Manifold
PS2984P	O-ring (10) - Inline Valve to IEM Bar Manifold
PS2986P	Gasket - Subbase Valve to Subbase Bar Manifold; Item 4 (10), 39 (10)
PS2987P	Mounting Bolts (10) - Inline Valve / Subbase Valve

Manifold to Manifold Kit

PS2995P	O-ring (10), Sleeves (10), Tie Rods (10) - 3-Way Manifold
PS2996P	Gasket (10), Tie Rods (10) - 4-Way Manifold

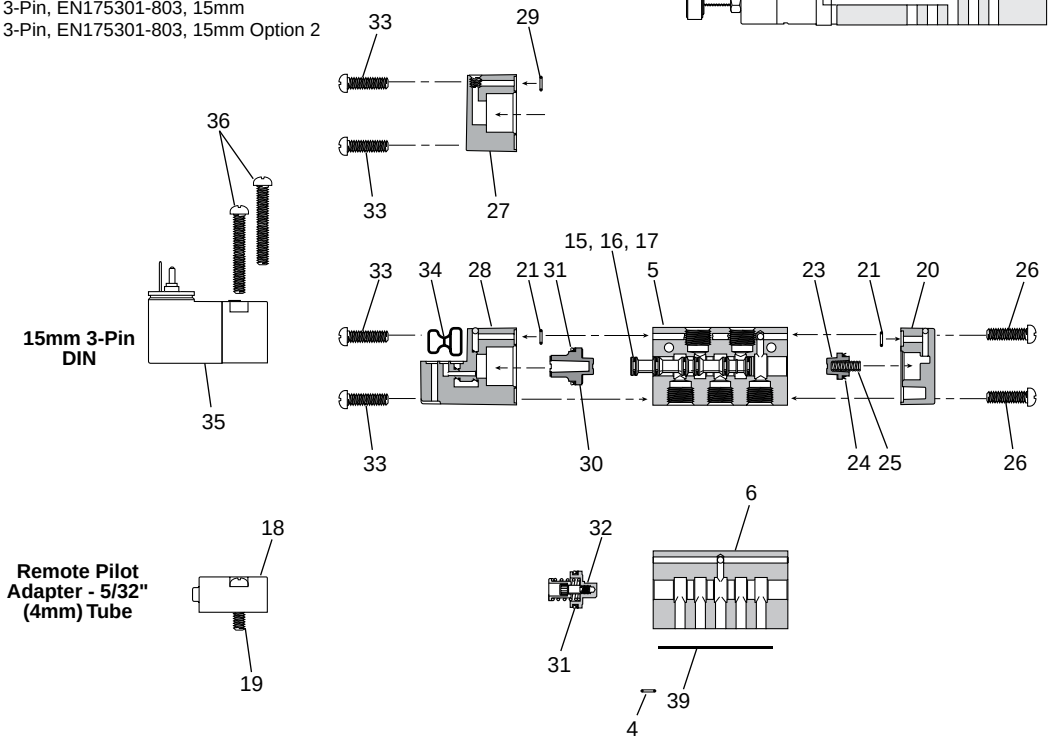
Sandwich Regulator Cartridge Kit

PS299922P	2-60 PSI Cartridge (Item A, B)
PS299933P	5-125 PSI Cartridge (Item A, B)



Solenoid Kit *Kit Includes: 35, 36, 34*

PS2982*##P	3-Pin, EN175301-803, 15mm
PS3541*##P	3-Pin, EN175301-803, 15mm Option 2



Item List – Parts not sold separately.

Item	Description	Item	Description	Item	Description
4*	O-ring - Ext Pilot Valve to Manifold	23	Return Piston	31*	Lip Seal - Operator Piston
5	Inline Body - Tapped Ports	24*	Lip Seal - Return Piston	32	Operator Piston Mechanism - 3-Position
6	Subbase Body	25*	Spring, Return Assist	33	Screws - Operator Adapter
7	Inline Body - Tube Ports	26	Screws - Return Operator	34*	Gasket - Solenoid to Adapter
15*	Spool - 2-Position (Seals Assembled)	27	Remote Pilot Operator	35*	15mm Solenoid
16*	Spool - 3-Position (Seals Assembled)	28a	Solenoid Adapter - Vent Exhaust	36*	Self Tapping Screw - Solenoid (Effective May 99)
17*	Spool Seal	28b	Solenoid Adapter - Ext Pilot. Vent Exhaust	36*	Machine Screw - Solenoid (Jan 96 - May 99)
18	Remote Pilot Adapter (PVAP111)	28c	Solenoid Adapter - Ext Pilot. Tapped Exhaust	39*	Gasket - Subbase Valve to Base
19	Screw - Remote Pilot Adapter	28d	Solenoid Adapter - Tapped Exhaust	40*	Mounting Screws - Subbase Valve
20	Return Operator	29	O-ring - Remote Pilot		
21*	Gasket - Body to Operator	30	Operator Piston - 2-Position		

Note: * Parts are available in kits shown. For kit components, order VALVE LESS SOLENOID for assembled and tested repair valve.

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B5 Series

Spool / Body Service Kits

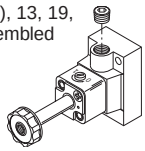
		Kit Includes:
PS2801*P	4-Way, 2-Pos	Item 2, 10 (2), 14, 15, 116, 6 (2), grease packet
PS2802*P	4-Way, 3-Pos APB	Item 3, 6 (2), 10 (2), 13 (2), grease packet
PS2803*P	4-Way, 3-Pos CE	Item 3, 6 (2), 10 (2), 13 (2), grease packet
PS2804*P	4-Way, 3-Pos PC	Item 3, 6 (2), 10 (2), 13 (2), grease packet
PS2871*P	3-Way, 2-Pos NC	Item 2, 10 (2), 14, 15, 116, 6 (2), grease packet

* Fluorocarbon Seal Kit (i.e. PS2801VP)

Pilot Replacement Kit – Alternate Enclosure

Kit Includes: Item 6, 9, 10, 11, 17 (2), 18 (2), 13, 19, 20, 22, 23, 24 (2), 57, 58 Assembled

PS2897GBP	Non-Locking, BSPP
PS2897GCP	Locking, BSPP
PS2897NBP	Non-Locking, NPT
PS2897NCP	Locking, NPT

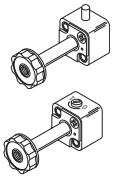


Armature / Override Kit

Kit Includes: Item 22, 23, 24 (2), 57, 58 Assembled

P2FP13N4D* Non-Locking

P2FP13N4C* Locking



* Comes with a Thru Nut and A Diffuser Nut.

Valve to Manifold Kits

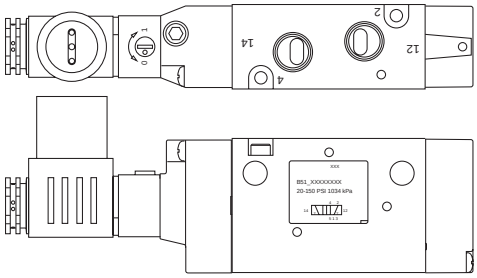
PS2884P	O-ring (10) - Inline Valve to IEM Manifold (All)
PS2886P	Gasket (10) - Subbase Valve to Subbase
PS2887P	Mounting Bolts (10) - Inline & Subbase Valve

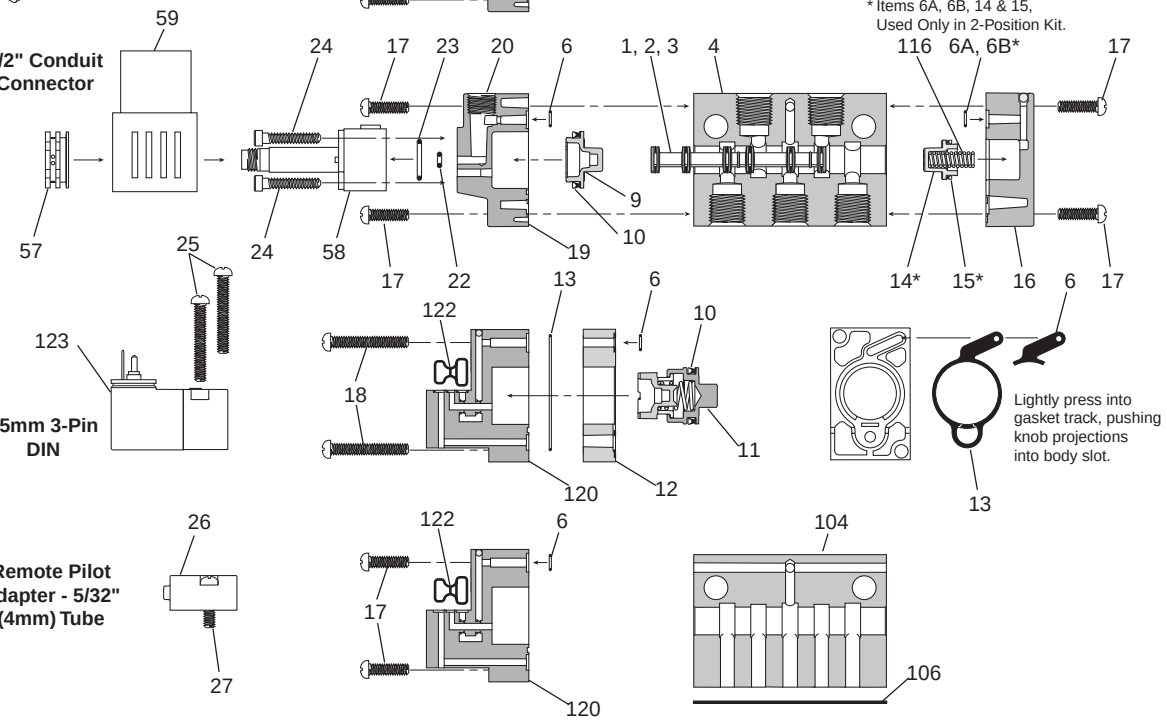
Manifold to Manifold Kit

PS2896P	Gasket (10), Tie Rods (10) - 4-Way Manifold

Solenoid Kit *Kit Includes: 25, 122, 123*

PS2982*##P	3-Pin, EN175301-803, 15mm
PS3541*##P	3-Pin, EN175301-803, 15mm Option 2





Item List – Parts not sold separately.

Item	Description	Item	Description	Item	Description
1*	Spool Seal	15*	Lip Seal - Return Piston	57*	Solenoid Nut
2*	Spool - 2-Position (Seals Assembled)	16	Return Operator	58a*	Solenoid Base Assembly - Locking
3*	Spool - 3-Position (Seals Assembled)	17*	Screws - Operator Adapter - 2-Position	58b*	Solenoid Base Assembly - Non Locking
4	Inline Body	18*	Screws - Operator Adapter - 3-Position	59*	Coil - Alternate Enclosure (see Page D87)
6A*	Gasket - Body to Operator	19*	Operator Adapter - Alt Enclosure	104	Subbase Body
6B	O-ring - Body to Operator (Effective July 2007)	20*	1/8" NPT Pipe Plug	106*	Gasket - Subbase Valve to Base
7	Remote Pilot Operator	22*	O-ring - Small - Solenoid Base	116*	Spring, Return Assist
9	Operator Piston - 2-Position	23*	O-ring - Large - Solenoid Base	120a	Solenoid Adapter - Vent Exhaust
10*	Lip Seal - Operator Piston	24*	Bolts - Solenoid Base	120b	Solenoid Adapter - Tapped Exhaust
11	Operator Piston Mechanism - 3-Position	25a*	Self Tapping Screw - Solenoid (Effective May 99)	120d	Solenoid Adapter - Ext Pilot. Vent Exhaust
12	Adapter - 3-Position	25b*	Machine Screw - Solenoid (Jan 96 - May 99)	120e	Solenoid Adapter - Ext Pilot. Tapped Exhaust
13*	Gasket - 3-Position Adapter to Body	26	Remote Pilot Adapter - 5/32" Tube (PVAP111)	122*	Gasket - Solenoid to Adapter
14	Return Piston	27	Screws - Remote Pilot Adapter	123*	15mm Solenoid

Note: * Parts are available in kits shown. For kit components, order VALVE LESS SOLENOID for assembled and tested repair valve.

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B6 Series

Spool / Body Service Kits

		Kit Includes:
PS2601P	4-Way, 2-Pos	Item 2, 6 (2), 9 (2), 11, 14, grease packet
PS2602P	4-Way, 3-Pos APB	Item 3, 6 (2), 9 (2), 13 (2), grease packet
PS2603P	4-Way, 3-Pos CE	Item 3, 6 (2), 9 (2), 13 (2), grease packet
PS2604P	4-Way, 3-Pos PC	Item 3, 6 (2), 9 (2), 13 (2), grease packet
PS267101P	3-Way, 2-Pos. NC	Item 2, 6, 9, 14, grease packet
PS267102P	3-Way, 2-Pos. NO	Item 2, 6, 9, 14, grease packet

Valve to Manifold Kits

PS2684P	O-ring (10) - Inline Valve to IEM Manifold
PS2887P	Mounting Bolts (10) - Inline Valve

Pilot Replacement Kit – Alternate Enclosure

Kit Includes: Item 6, 8, 9, 10, 16 (2), 17 (2), 18, 13, 20, 22, 23, 24 (2), 57, 58 Assembled

PS2897GBP	Non-Locking, BSPP
PS2897GCP	Locking, BSPP
PS2897NBP	Non-Locking, NPT
PS2897NCP	Locking, NPT

Armature / Override Kit –

Kit Includes: Item 22, 23, 24 (2), 57, 58 Assembled

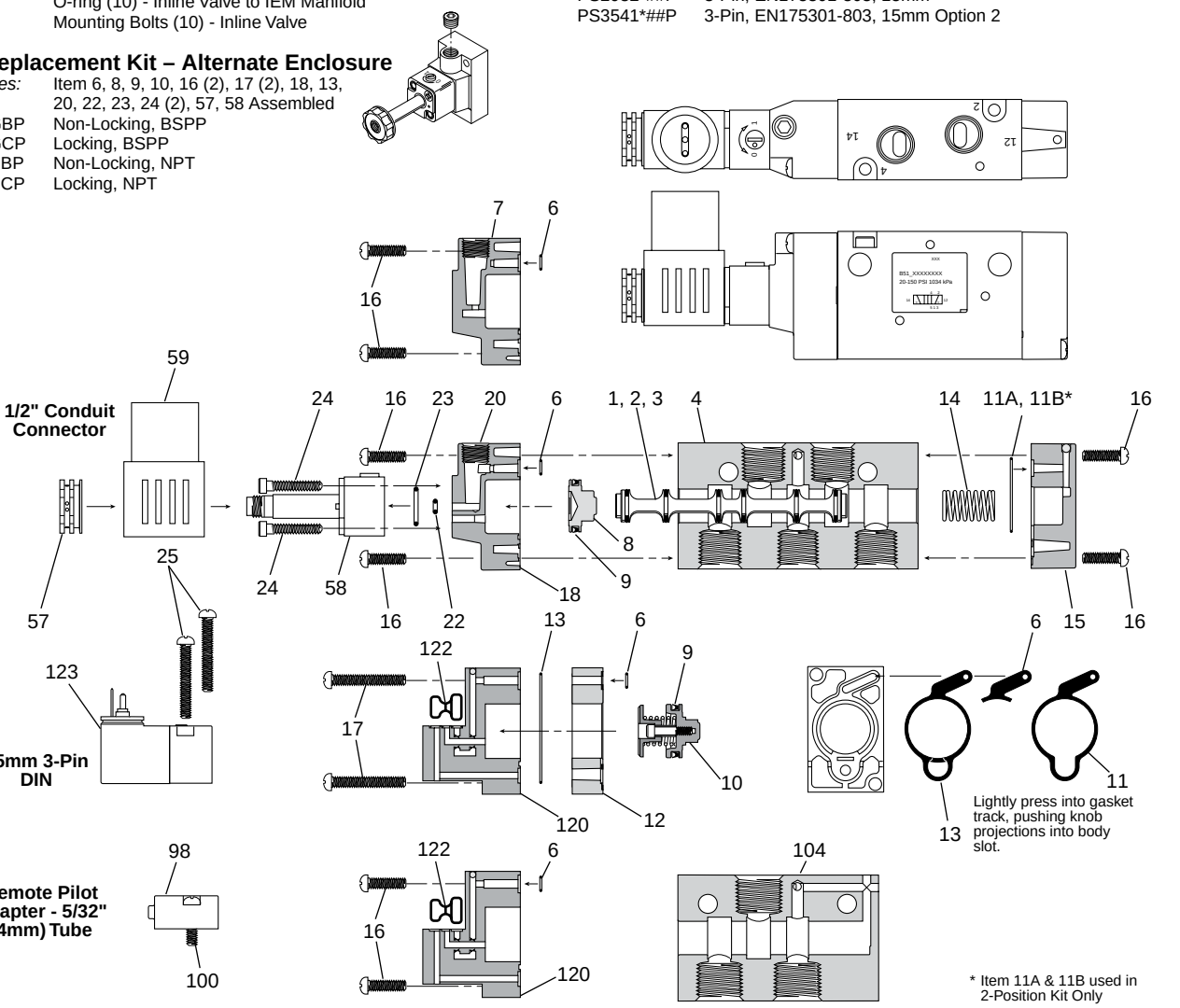
P2FP13N4D* Non-Locking

P2FP13N4C* Locking

* Comes with a Thru Nut and A Diffuser Nut.

Solenoid Kit *Kit Includes: 25, 122, 123*

PS2982*##P	3-Pin, EN175301-803, 15mm
PS3541*##P	3-Pin, EN175301-803, 15mm Option 2



Item List – Parts not sold separately.

Item	Description	Item	Description	Item	Description
1*	Spool Seal	14*	Spring, Return Assist	58a*	Solenoid Base Assembly - Locking
2*	Spool - 2-Position (Seals Assembled)	15a	Return Operator	58b*	Solenoid Base Assembly - Non Locking
3*	Spool - 3-Position (Seals Assembled)	15b	Return Operator - CSA Option	59*	Coil - Alternate Enclosure (see Page D87)
4	Inline Body - 4-Way	16*	Screws - Operator Adapter - 2-Position	98*	Remote Pilot Adapter - 5/32" Tube (PVAP111)
6*	Gasket - Body to Operator	17*	Screws - Operator Adapter - 3-Position	100	Screws - Remote Pilot Adapter
7	Remote Pilot Operator	18*	Operator Adapter - Alt Enclosure	104	Inline Body - 3-Way
8	Operator Piston - 2-Position	20*	1/8" NPT Pipe Plug	120a	Solenoid Adapter - Vent Exhaust
9*	Lip Seal - Operator Piston	22*	O-ring - Small - Solenoid Base	120b	Solenoid Adapter - Tapped Exhaust
10	Operator Piston Mechanism - 3-Position	23*	O-ring - Large - Solenoid Base	120c	Solenoid Adapter - Ext Pilot. Vent Exhaust
11A*	Gasket - Body to Return Cap	24*	Bolts - Solenoid Base	120d	Solenoid Adapter - Ext Pilot. Tapped Exhaust
11B*	O-ring - Body to Operator (Effective Feb. 2008)	25*	Self Tapping Screw - Solenoid (Effective Jan 00)	122*	Gasket - Solenoid to Adapter
12	Adapter - 3-Position	57*	Solenoid Nut	123*	15mm Solenoid
13	Gasket - 3-Position Adapter to Body				

Note: * Parts are available in kits shown. For kit components, order VALVE LESS SOLENOID for assembled and tested repair valve.

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B7 & B8 Series

Spool / Body Service Kits

		Kit Includes:
PS2501P	4-Way, 2-Pos	Item 2, 6 (2), 9 (2), 11, grease packet
PS2502P	4-Way, 3-Pos APB	Item 3, 6 (2), 9 (2), 13 (2), grease packet
PS2503P	4-Way, 3-Pos CE	Item 3, 6 (2), 9 (2), 13 (2), grease packet
PS2504P	4-Way, 3-Pos PC	Item 3, 6 (2), 9 (2), 13 (2), grease packet
PS257101P	3-Way, 2-Pos. NC	Item 2, 6, 9, grease packet
PS257102P	3-Way, 2-Pos. NO	Item 2, 6, 9, grease packet

Valve to Manifold Kits

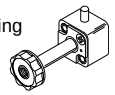
PS2584P	O-ring (10) - Inline Valve to IEM Manifold
PS2587P	Mounting Bolts (10) - Inline Valve

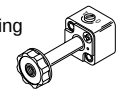
Pilot Replacement Kit – Alternate Enclosure

Kit Includes:	Item 6, 8, 9, 10, 16 (4), 18, 20, 22, 23, 24 (2), 57, 58 Assembled
PS2597GBP	Non-Locking, BSPP
PS2597GCP	Locking, BSPP
PS2597NBP	Non-Locking, NPT
PS2597NCP	Locking, NPT

Armature / Override Kit –

Kit Includes: Item 22, 23, 24 (2), 57, 58 Assembled

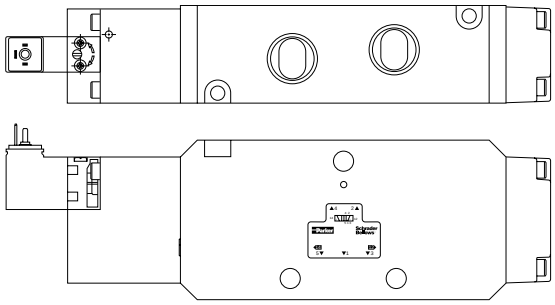
P2FP13N4D* Non-Locking 

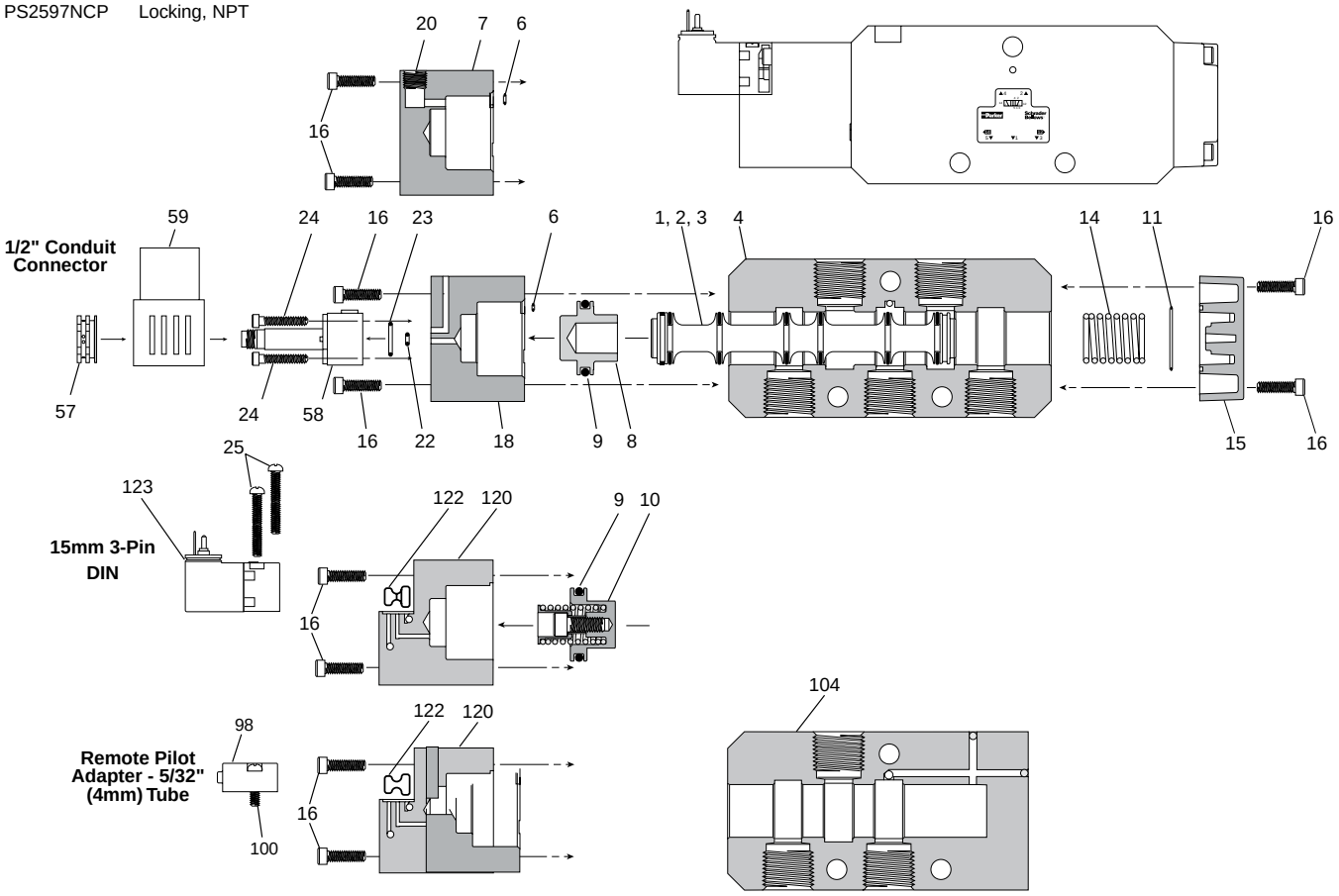
P2FP13N4C* Locking 

* Comes with a Thru Nut and A Diffuser Nut.

Solenoid Kit *Kit Includes: 25, 122, 123*

PS2982*##P	3-Pin, EN175301-803, 15mm
PS3541*##P	3-Pin, EN175301-803, 15mm Option 2





Item List – Parts not sold separately.

Item	Description	Item	Description	Item	Description
1*	Spool Seal	16*	Screws - Operator Adapter	98*	Remote Pilot Adapter - 5/32" Tube (PVAP111)
2*	Spool - 2-Position (Seals Assembled)	8*	Operator Adapter - Alt Enclosure	100	Screws - Remote Pilot Adapter
3*	Spool - 3-Position (Seals Assembled)	20*	1/8" NPT Pipe Plug	104	Inline Body - 3-Way
4	Inline Body - 4-Way	22*	O-ring - Small - Solenoid Base	120a	Solenoid Adapter - Vent Exhaust
6*	Gasket - Body to Operator	23*	O-ring - Large - Solenoid Base	120b	Solenoid Adapter - Tapped Exhaust
7	Remote Pilot Operator	24*	Bolts - Solenoid Base	120c	Solenoid Adapter - Ext Pilot. Vent Exhaust
8	Operator Piston - 2-Position	25*	Self Tapping Screw - Solenoid (Effective Jan 00)	120d	Solenoid Adapter - Ext Pilot. Tapped Exhaust
9*	Lip Seal - Operator Piston	57*	Solenoid Nut	122*	Gasket - Solenoid to Adapter
10	Operator Piston Mechanism - 3-Position	58a*	Solenoid Base Assembly - Locking	123*	15mm Solenoid
11*	Gasket - Body to Return Cap	58b*	Solenoid Base Assembly - Non Locking		
14*	Spring, Return Assist	59*	Coil - Alternate Enclosure (see Page D87)		
15a	Return Operator				

Note: * Parts are available in kits shown. For kit components, order VALVE LESS SOLENOID for assembled and tested repair valve.

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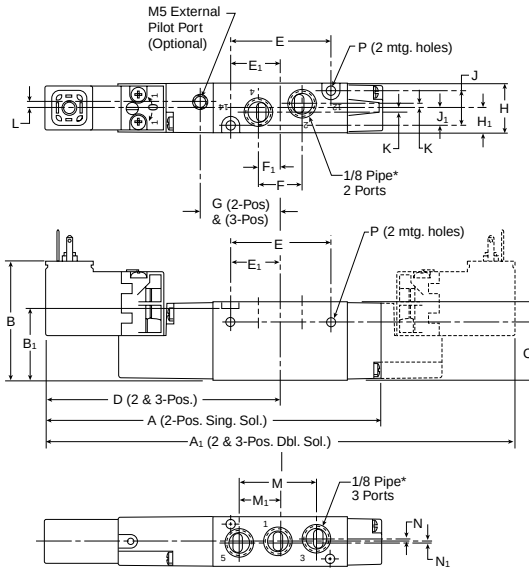
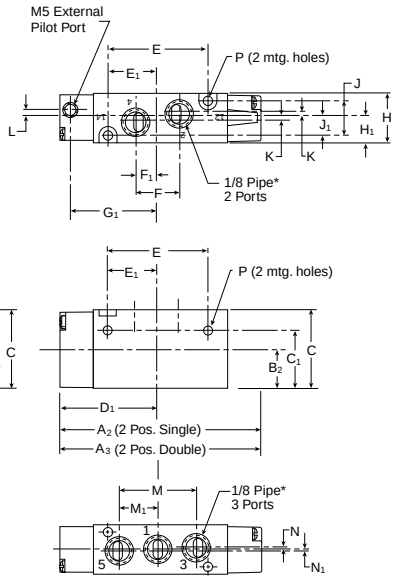
B3 Single & Double Operators – 4-Way Inline

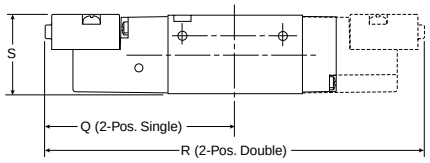
Solenoid



Remote Pilot



Remote Pilot ("YY" Option)



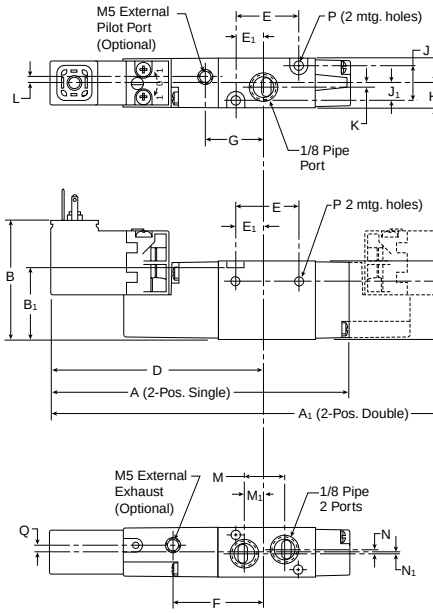
B3 4-Way Inline

A	A1	A2	A3	B
4.67 (119)	6.44 (164)	3.12 (79)	3.33 (85)	1.66 (42)
B1	**B2**	**C**	**C1**	**D**
1.05 (27)	.57 (14)	1.13 (39)	.84 (21)	3.22 (82)
D1	**E**	**E1**	**F**	**F1**
1.66 (42)	1.47 (37)	.732 (19)	.63 (16)	.32 (8)
G	**G1**	**H**	**H1**	**J**
1.13 (29)	1.50 (38)	.71 (18)	.36 (9)	.51 (13)
J1	**K**	**L**	**M**	**M1**
.26 (7)	.06 (2)	.11 (3)	1.12 (28)	.56 (14)
N	**N1**	**P**	**Q**	**R**
.05 (1)	.05 (1)	Ø .13 Ø (3.3)	2.69 (68)	5.37 (136)
S				
1.16 (29)				

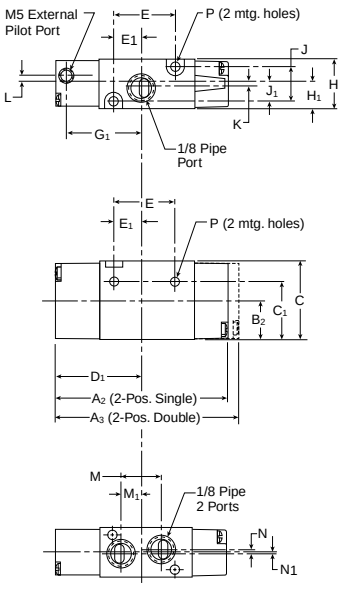
Inches (mm)

B3 Single & Double Operators – 3-Way Inline

Solenoid



Remote Pilot



B3 3-Way Inline

A	A1	A2	A3	B
4.20 (107)	5.96 (151)	2.65 (67)	2.86 (73)	1.66 (42)
B1	**B2**	**C**	**C1**	**D**
1.05 (27)	.57 (14)	1.13 (29)	.84 (21)	2.93 (74)
D1	**E**	**E1**	**F**	**G**
1.38 (35)	.98 (25)	.44 (11)	1.32 (34)	.85 (22)
G1	**H**	**H1**	**J**	**J1**
1.22 (31)	.71 (18)	.36 (9)	.51 (13)	.26 (7)
K	**L**	**M**	**M1**	**N**
.06 (2)	.11 (3)	.63 (16)	.27 (7)	.12 (3)
N1	**P**	**Q**		
.06 (2)	Ø .13 Ø (3.3)	.08 (2)		

Inches (mm)

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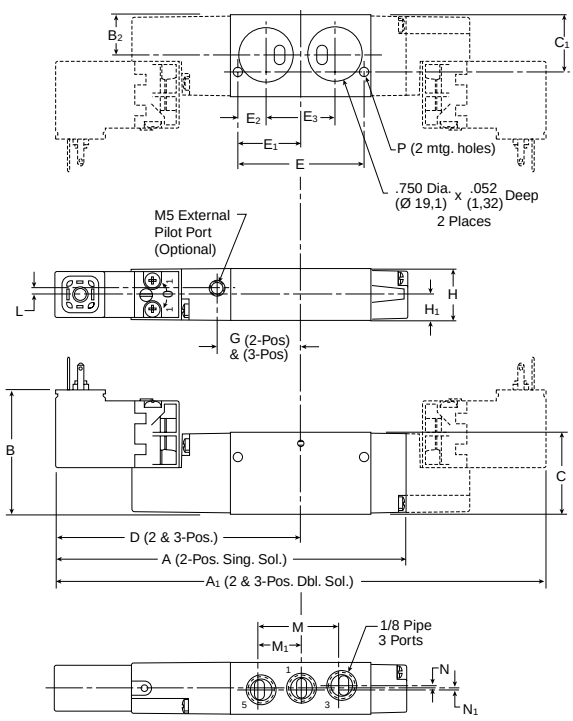
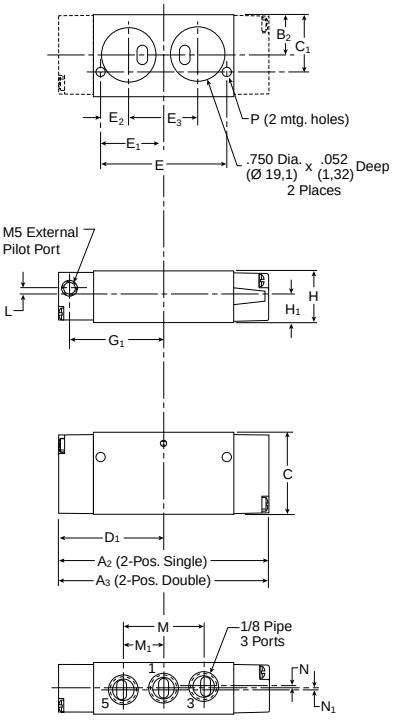
B3 Single & Double Operators – 4-Way Face Mount

Solenoid



Remote Pilot



B3 4-Way Face Mount

A	**A1**	**A2**	**A3**	**B**
4.67 (119)	6.44 (164)	3.12 (79)	3.33 (85)	1.66 (42)
B2	**C**	**C1**	**D**	**D1**
.58 (15)	1.13 (29)	.81 (21)	3.22 (82)	1.66 (42)
E	**E1**	**E2**	**E3**	**G**
1.74 (44)	.87 (22)	.39 (10)	.95 (24)	1.13 (29)
G1	**H**	**H1**	**L**	**M**
1.50 (38)	.71 (18)	.36 (9)	.11 (3)	1.12 (28)
M1	**N**	**N1**	**P**	
.56 (14)	.05 (1)	.05 (1)	Ø .13 Ø (3.3)	

Inches (mm)

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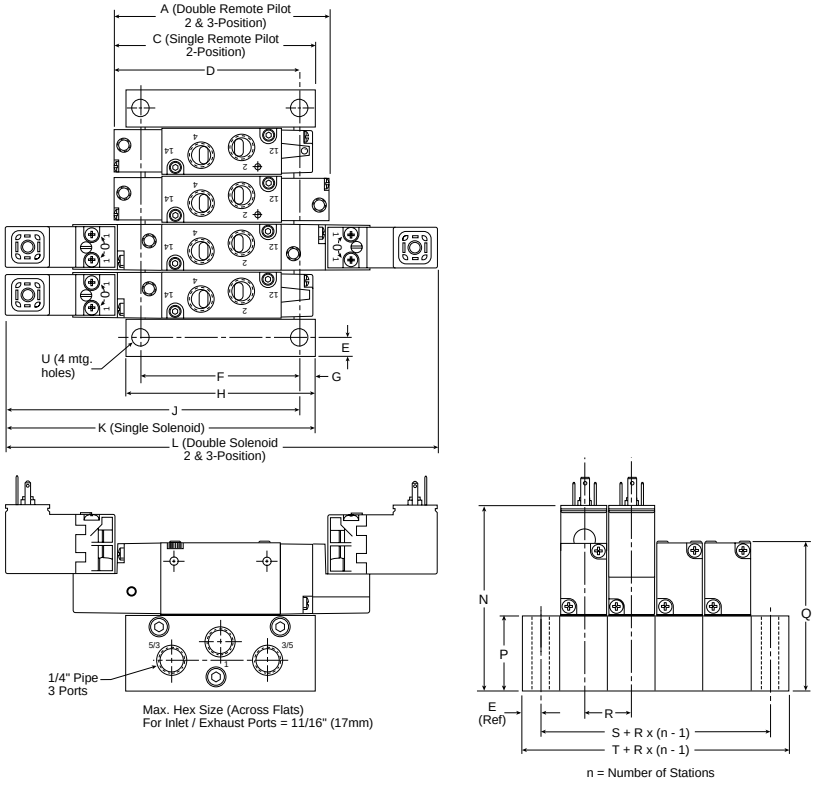
B3 Single & Double Operators – 4-Way IEM Stackable



B3 4-Way IEM Stackable

A	C	D	E	F
3.33 (84.6)	3.12 (79.2)	2.91 (73.9)	.30 (7.6)	2.49 (63.3)
G	**H**	**J**	**K**	**L**
.25 (6.4)	3.00 (76.2)	4.46 (113.3)	4.67 (118.6)	6.43 (163.3)
N	**P**	**Q**	**R**	
2.91 (73.9)	1.25 (31.8)	2.38 (60.5)	.74 ±.01 (18.8) ± .3	
S	**T**	**U**		
1.34 (34.0)	1.94 (49.3)	Ø .28 Ø (7.1)		

Inches (mm)

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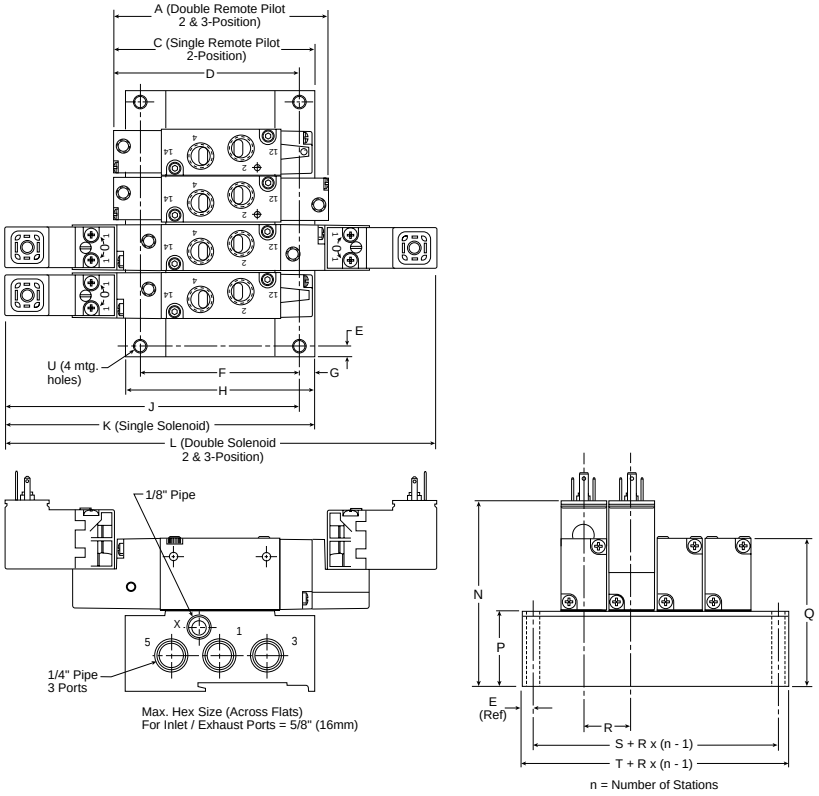
B3 Single & Double Operators – 4-Way IEM Aluminum Bar

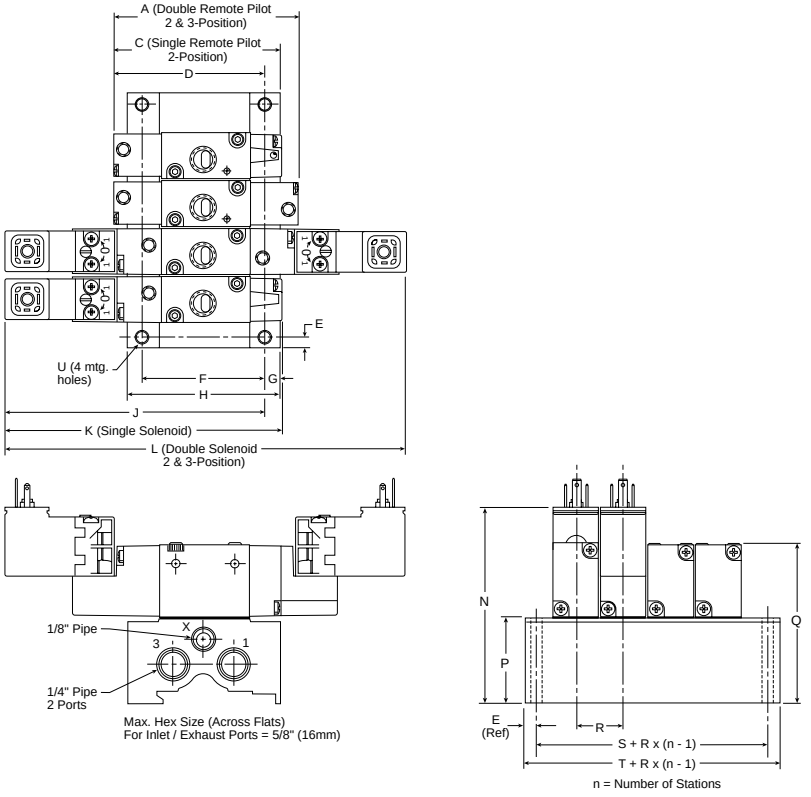


B3 4-Way IEM Aluminum Bar Manifold

A	C	D	E	F
3.33 (84.6)	3.17 (80.5)	2.94 (74.7)	.25 (6.4)	2.54 (64.5)
G	**H**	**J**	**K**	**L**
.23 (5.9)	3.00 (76.2)	4.50 (114.2)	4.73 (120.1)	6.43 (163.3)
N	**P**	**Q**	**R**	**S**
2.94 (74.7)	1.28 (32.5)	2.41 (61.2)	.81 (20.5)	1.13 (28.8)
T	**U**			
1.64 (41.6)	Ø .23 Ø (5.8)			

Inches (mm)

B3 Single & Double Operators – 3-Way IEM Aluminum Bar



B3 4-Way IEM Aluminum Bar Manifold

A	C	D	E	F
2.86 (72.6)	2.65 (67.3)	2.33 (59.2)	.25 (6.4)	1.80 (45.7)
G	**H**	**J**	**K**	**L**
.23 (5.9)	2.25 (57.2)	3.88 (98.6)	4.20 (106.7)	5.96 (151.4)
N	**P**	**Q**	**R**	**S**
2.93 (74.5)	1.27 (32.4)	2.40 (61.1)	.81 (20.5)	1.13 (28.8)
T	**U**			
1.64 (41.6)	Ø .23 Ø (5.8)			

Inches (mm)

Parker Hannifin Corporation
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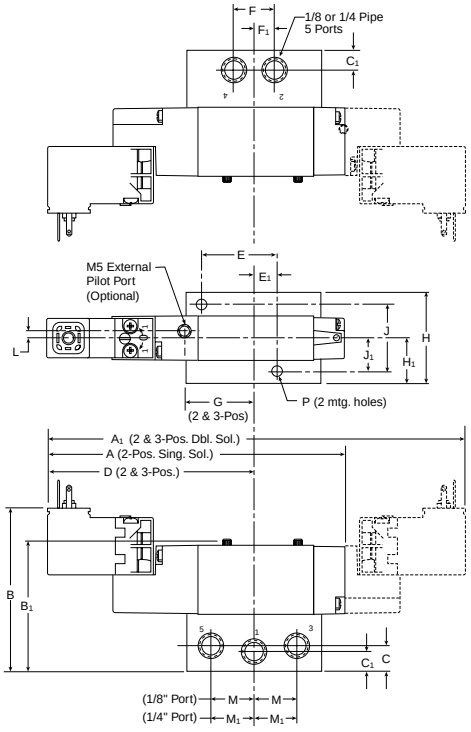
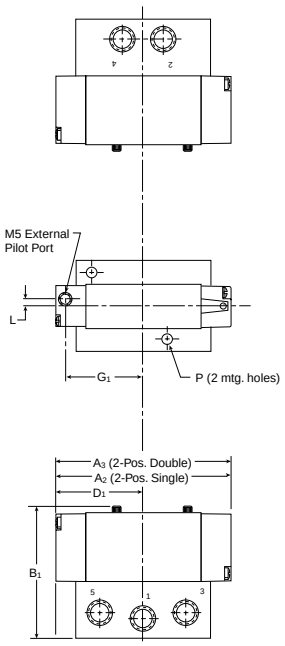
B3 Single & Double Operators – 4-Way Single Subbase

Solenoid



Remote Pilot

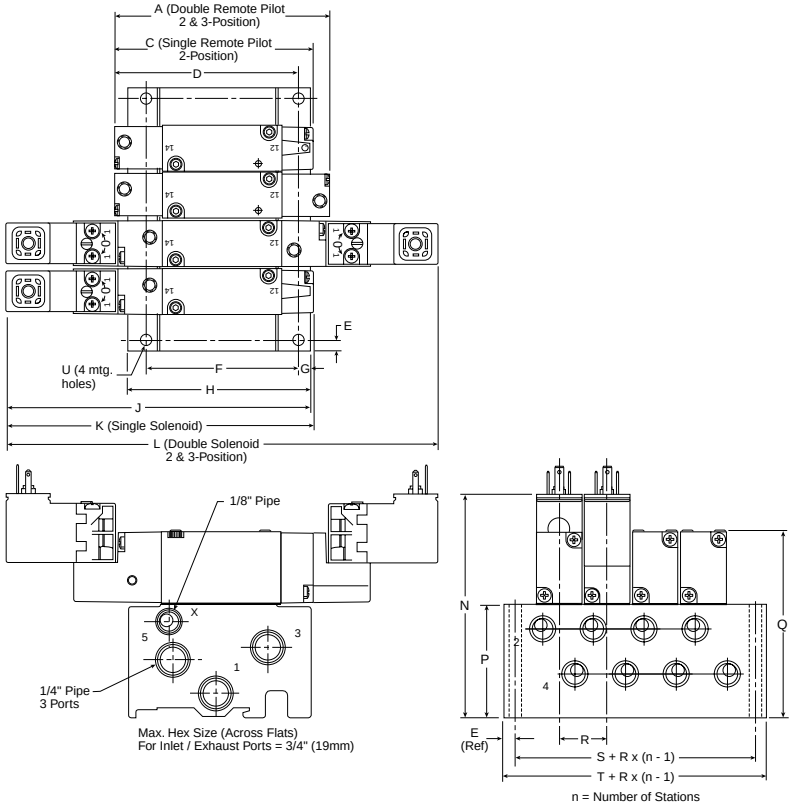


B3 4-Way Single Subbase

A	A1	A2	A3	B
4.67 (119)	6.44 (164)	3.12 (79)	3.33 (85)	2.63 (67)
B1	**C**	**C1**	**D**	**D1**
2.21 (56)	.47 (12)	.37 (9)	3.22 (82)	1.66 (42)
E	**E1**	**F**	**F1**	**G**
1.25 (32)	.38 (10)	.69 (18)	.34 (9)	1.13 (29)
G1	**H**	**H1**	**J**	**J1**
1.50 (38)	1.50 (38)	.75 (19)	1.12 (28)	.56 (14)
M	**M1**	**P**		
.71 (18)	.76 (19)	Ø .18 Ø (4)		

Inches (mm)

B3 Single & Double Operators – 5-Port Subbase Bar Manifold



B3 5-Port Subbase Bar Manifold

A	C	D	E	F
3.33 (84.6)	3.12 (79.2)	2.88 (73.2)	.25 (6.3)	2.43 (61.7)
G	**H**	**J**	**K**	**L**
.22 (5.5)	2.93 (74.5)	4.66 (118.3)	4.67 (118.6)	6.43 (166.3)
N	**P**	**Q**	**R**	**S**
3.47 (88.2)	1.81 (46.0)	2.94 (74.7)	.81 (20.5)	1.39 (35.4)
T	**U**			
1.89 (48.0)	Ø .22 Ø (5.6)			

Inches (mm)

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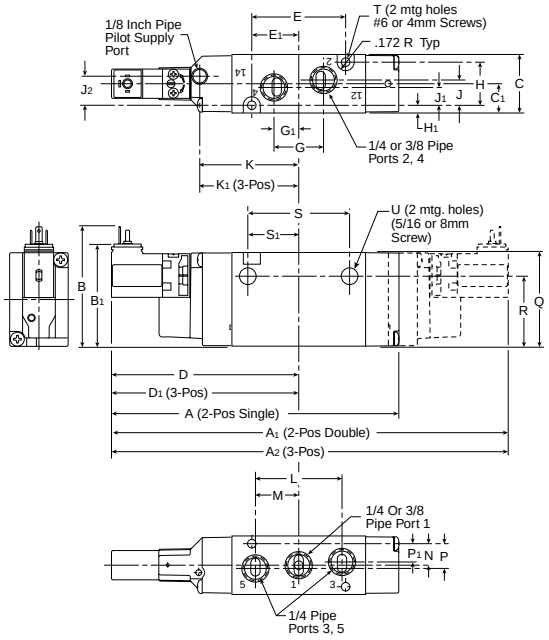
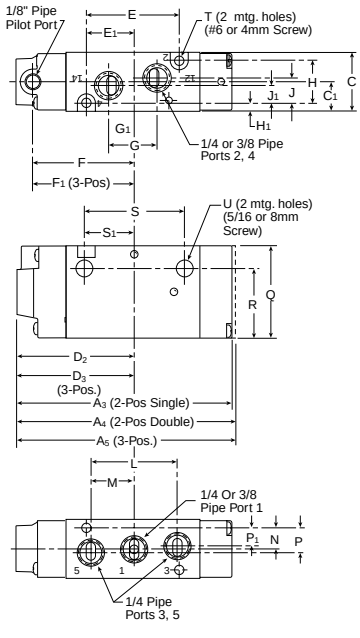
B5 Single & Double Operators – 4-Way Inline

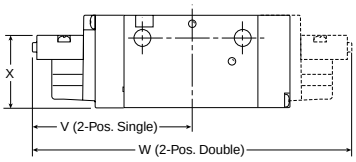
Solenoid



Remote Pilot



Remote Pilot ("YY" Option)



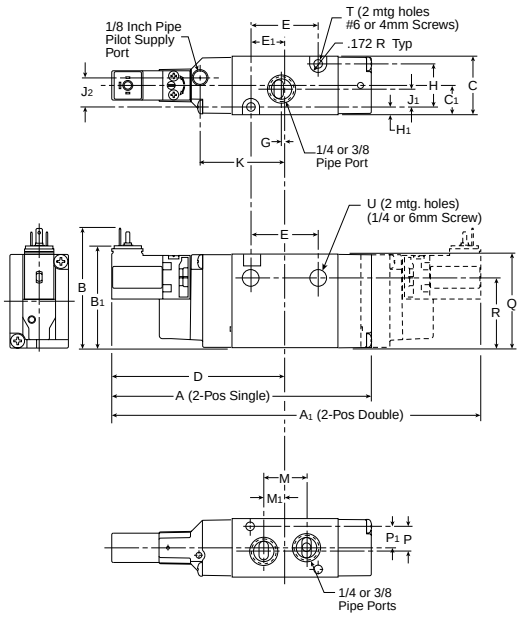
B5 4-Way Inline

A	A1	A2	A3	A4
5.78 (147)	7.51 (191)	8.45 (215)	4.37 (110)	4.70 (119)
A5	**B**	**B1**	**C**	**C1**
5.64 (143)	2.41 (61)	2.06 (52)	1.18 (30)	.59 (15)
D	**D1**	**D2**	**D3**	**E**
3.76 (96)	4.23 (107)	2.35 (60)	2.82 (72)	1.89 (48)
E1	**F**	**F1**	**G**	**G1**
.95 (24)	2.01 (51)	2.47 (63)	1.00 (25)	.50 (13)
H	**H1**	**J**	**J1**	**J**
.87 (22)	.16 (4)	.51 (13)	.36 (9)	.58 (15)
K	**K1**	**L**	**M**	**N**
2.00 (51)	2.47 (63)	1.75 (44)	.88 (22)	.43 (48)
P	**P1**	**Q**	**R**	**S**
.50 (13)	.37 (92)	1.89 (48)	1.41 (36)	2.05 (52)
S1	**T**	**U**	**V**	**W**
1.03 (26)	Ø .177 Ø (4.5)	Ø .34 Ø (9)	3.24 (82)	6.48 (165)
X				
1.50 (383)				

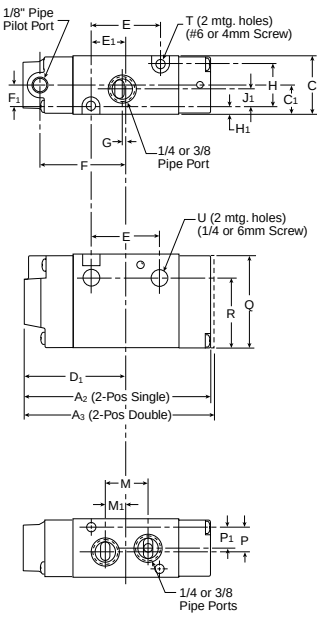
Inches (mm)

B5 Single & Double Operators – 3-Way Inline

Solenoid



Remote Pilot



B5 3-Way Inline

A	A1	A2	A3	B
5.29 (134)	7.03 (179)	3.88 (99)	4.21 (107)	2.41 (61)
B1	**C**	**C1**	**D**	**D1**
2.06 (52)	1.18 (30)	.59 (15)	3.43 (87)	2.11 (54)
E	**E1**	**F**	**F1**	**G**
1.40 (36)	.70 (18)	1.77 (45)	.43 (11)	.06 (2)
H	**H1**	**J1**	**J2**	**K**
.87 (22)	.16 (4)	.36 (9)	.58 (15)	1.67 (42)
M	**M1**	**P**	**P1**	**Q**
.88 (22)	.44 (11)	.50 (13)	.37 (9)	1.89 (48)
R	**T**	**U**		
1.41 (36)	Ø .177 Ø (4.5)	Ø .26 Ø (6.6)		

Inches (mm)

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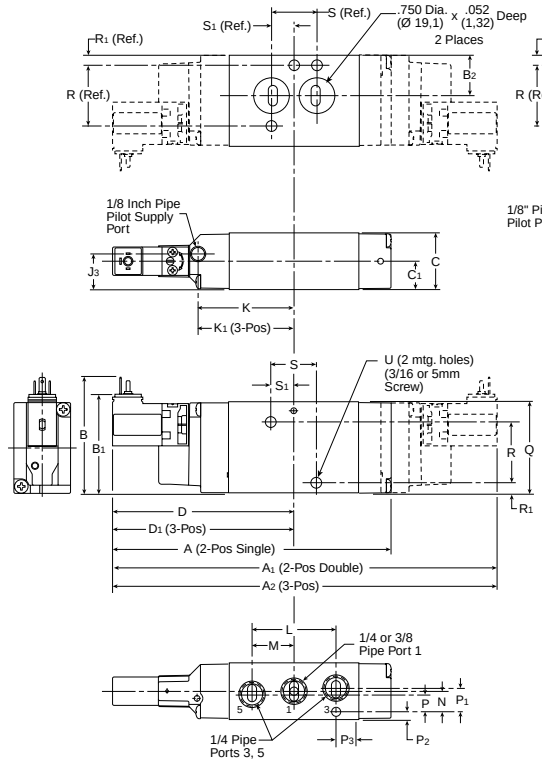
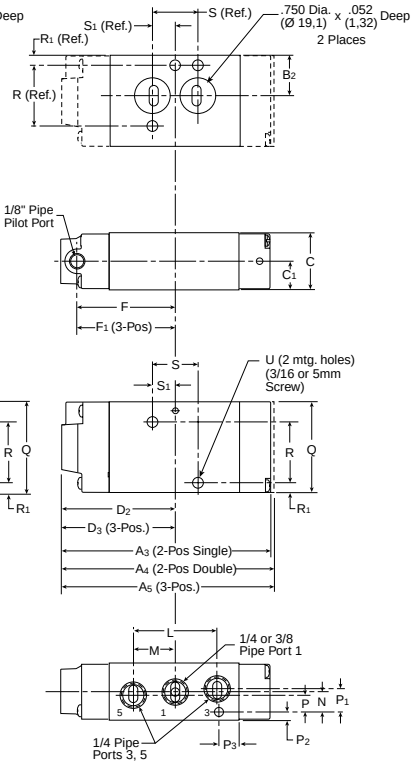
B5 Single & Double Operators – 4-Way NAMUR Mount

Solenoid



Remote Pilot

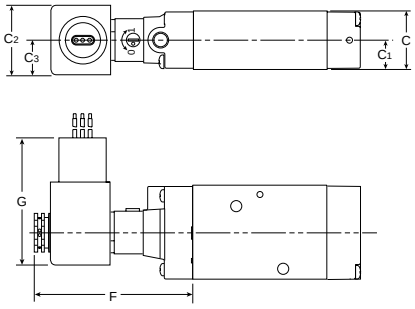


B5 4-Way NAMUR Mount

A	A1	A2	A3	A4
5.78 (147)	7.51 (191)	8.45 (215)	4.37 (110)	4.70 (119)
A5	**B**	**B1**	**B2**	**C**
5.64 (143)	2.41 (61)	2.06 (52)	.84 (21)	1.18 (30)
C1	**D**	**D1**	**D2**	**D3**
.59 (15)	3.76 (96)	4.23 (107)	2.35 (60)	2.82 (72)
F	**F1**	**J3**	**K**	**K1**
2.01 (51)	2.47 (63)	.74 (19)	2.00 (51)	2.47 (63)
L	**M**	**N**	**P**	**P1**
1.75 (44)	.88 (22)	.44 (11)	.37 (9.4)	.50 (13)
P2	**P3**	**Q**	**R**	**R1**
.16 (4)	.40 (10)	1.89 (48)	1.26 (32)	.21 (5)
S	**S1**	**U**		
.94 (24)	.47 (12)	Ø .224 Ø (5.7)		

Inches (mm)

B5 Alternative Electrical Enclosure Option F



Explosion Proof Solenoid Coil

B5 4-Way NAMUR Mount with Option F Enclosure

C	C1	C2	C3	F
1.18 (30)	.59 (15)	1.42 (36)	.71 (18)	3.15 (80)
G				
2.60 (66)				

Inches (mm)

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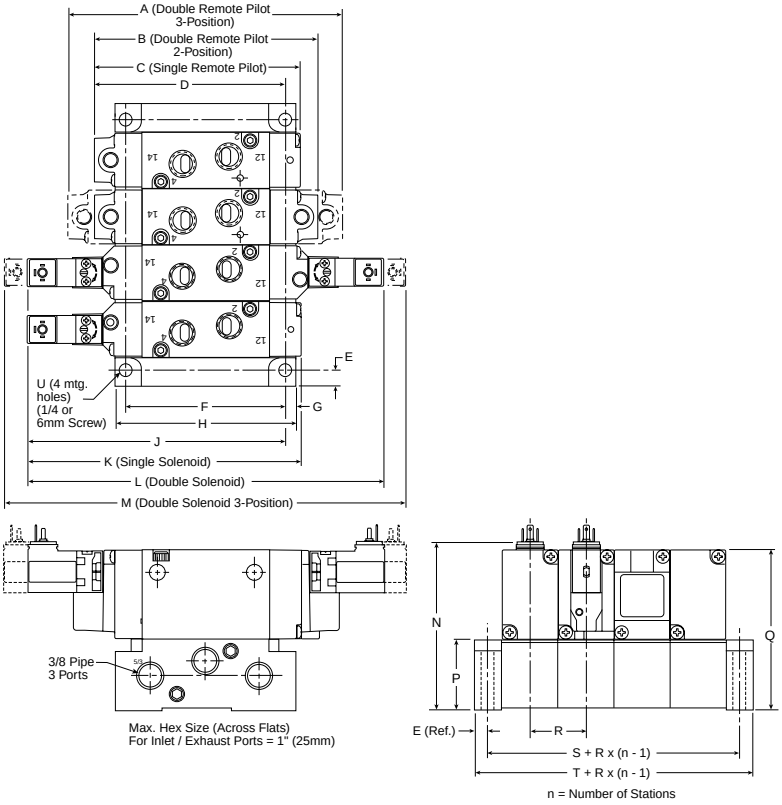
B5 Single & Double Operators – 4-Way IEM Stackable



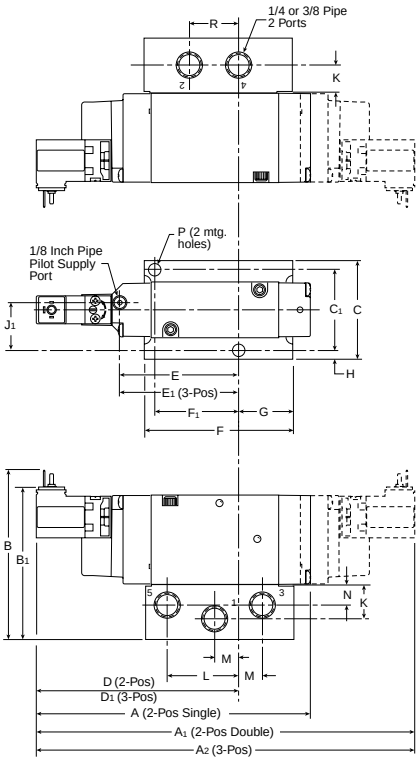
B5 4-Way IEM Stackable

A	B	C	D	E
5.64 (143.3)	4.70 (119.4)	4.37 (110.0)	4.29 (109.0)	.29 (7.4)
F	**G**	**H**	**J**	**K**
3.44 (87.4)	.24 (6.1)	3.92 (99.6)	5.48 (139.2)	5.78 (146.8)
L	**M**	**N**	**P**	**Q**
7.52 (191.0)	8.46 (214.9)	3.56 (90.4)	1.50 (38.1)	3.42 (86.9)
R		**S**	**T**	**U**
1.21 ± .01 (30.7) ± (.3)		1.79 (45.5)	2.37 (60.2)	Ø .28 Ø (7.1)

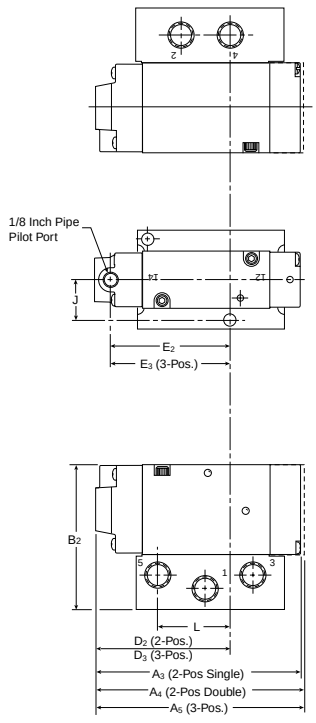
Inches (mm)

B5 Single & Double Operators – 4-Way Single Subbase

Solenoid



Remote Pilot



B5 4-Way Subbase

A	A1	A2	A3	A4
5.78 (147)	7.52 (191)	8.46 (215)	4.37 (110)	4.70 (119)
A5	**B**	**B1**	**B2**	**C**
5.64 (143)	3.56 (90)	3.21 (82)	3.03 (77)	2.12 (54)
C1	**D**	**D1**	**D2**	**D3**
1.69 (43)	4.26 (108)	4.73 (120)	2.85 (72)	3.32 (40)
E	**E1**	**E2**	**E3**	**F**
2.51 (65)	2.98 (76)	2.60 (66)	3.07 (80)	2.90 (74)
F1	**G**	**H**	**J**	**J1**
1.69 (43)	.95 (24)	.22 (5)	.84 (21)	.99 (25)
K	**L**	**M**	**N**	**P**
.71 (18)	1.50 (38)	.50 (13)	.46 (12)	Ø .27 Ø (7)
R				
1.00 (25)				

Inches (mm)

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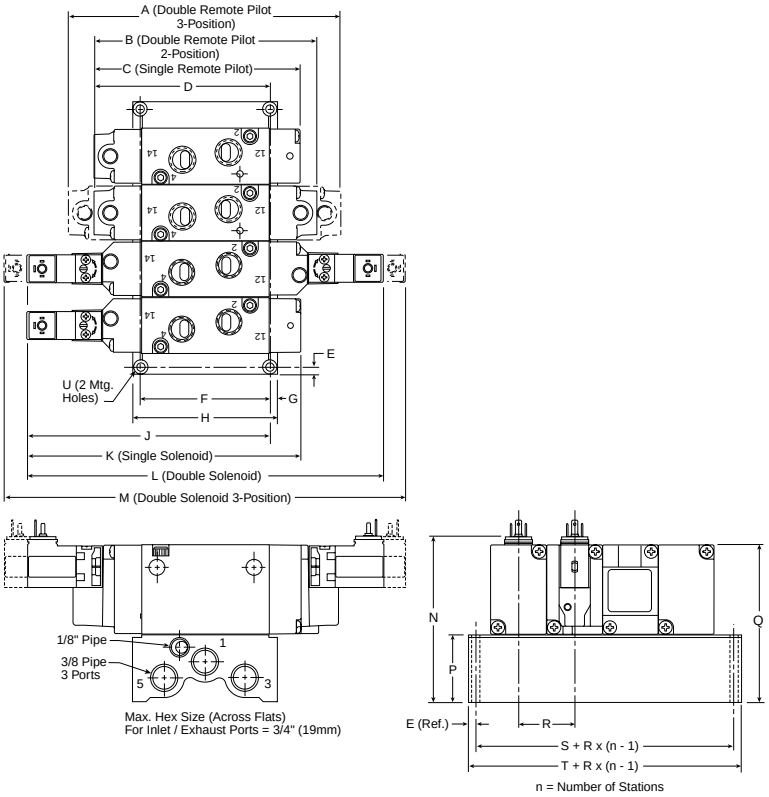
B5 Single & Double Operators – 4-Way IEM Aluminum Bar

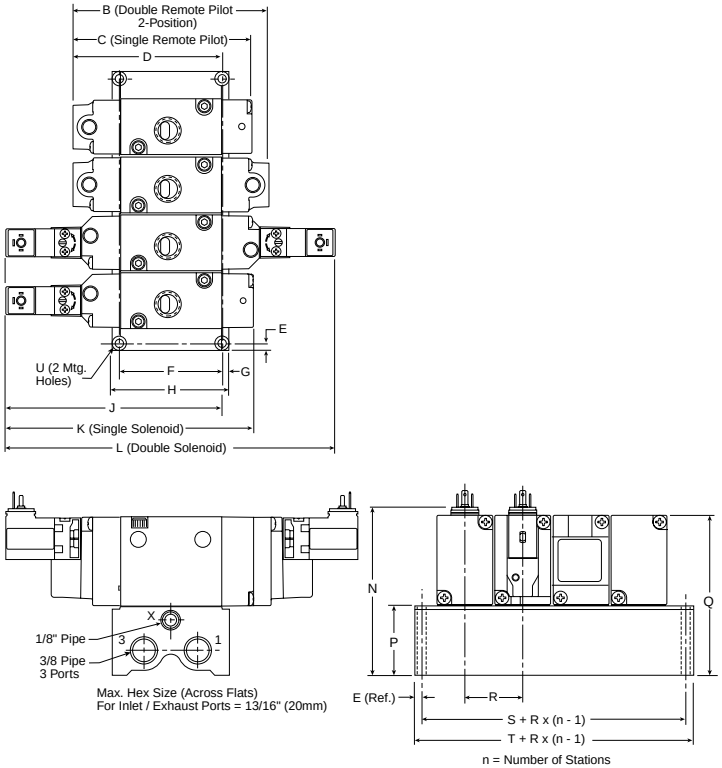


B5 4-Way IEM Aluminum Bar Manifold

A	B	C	D	E
5.64 (143.3)	4.70 (119.4)	4.37 (110.0)	3.74 (95.0)	.18 (4.6)
F	**G**	**H**	**J**	**K**
2.78 (70.6)	.17 (4.3)	3.12 (79.2)	5.15 (130.8)	5.78 (146.8)
L	**M**	**N**	**P**	**Q**
7.52 (191.0)	8.46 (214.9)	3.50 (89.0)	1.44 (36.6)	3.36 (85.3)
R	**S**	**T**	**U**	
1.26 (32.0)	1.78 (45.2)	2.14 (54.4)	Ø .22 Ø (5.5)	

Inches (mm)

B5 Single & Double Operators – 3-Way IEM Aluminum Bar



B5 3-Way IEM Aluminum Bar Manifold

B	C	D	E	F
4.21 (106.9)	3.88 (98.6)	3.41 (86.6)	.18 (4.6)	2.12 (53.8)
G	**H**	**J**	**K**	**L**
.17 (4.3)	2.46 (62.5)	4.82 (122.4)	5.29 (134.4)	7.03 (178.6)
N	**P**	**Q**	**R**	**S**
3.50 (89.0)	1.44 (36.6)	3.36 (85.3)	1.26 (32.0)	1.76 (44.7)
T	**U**			
2.12 (53.8)	Ø .18 Ø (4.6)			

Inches (mm)

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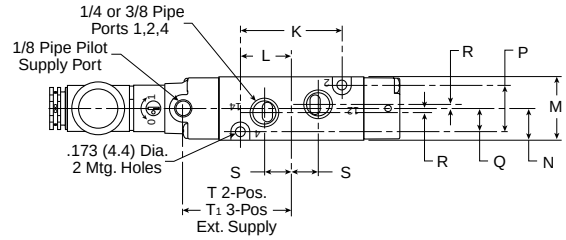
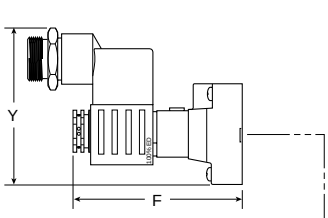
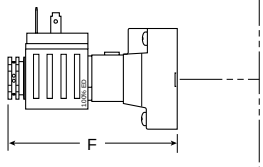
B5

4-Way Alternative Electrical Enclosures

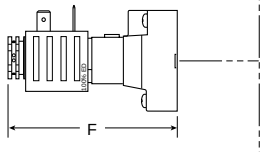




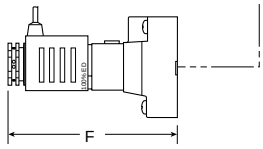
3 OR 5-PIN AUTOMOTIVE CONNECTOR



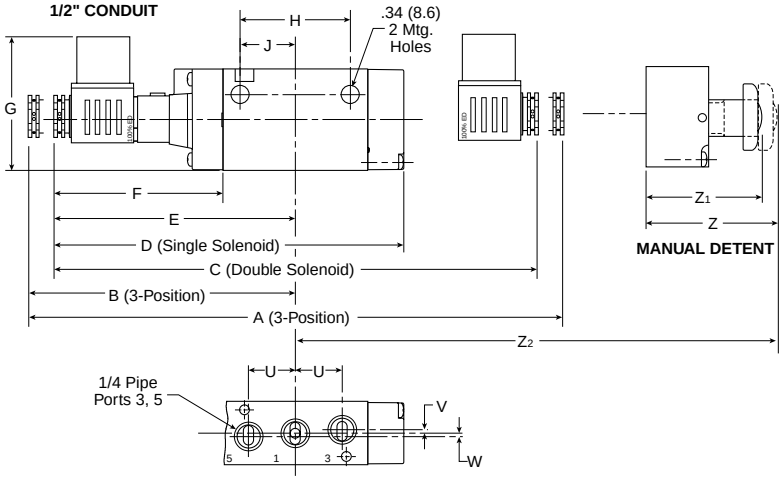
SQUARE ISO CONNECTOR



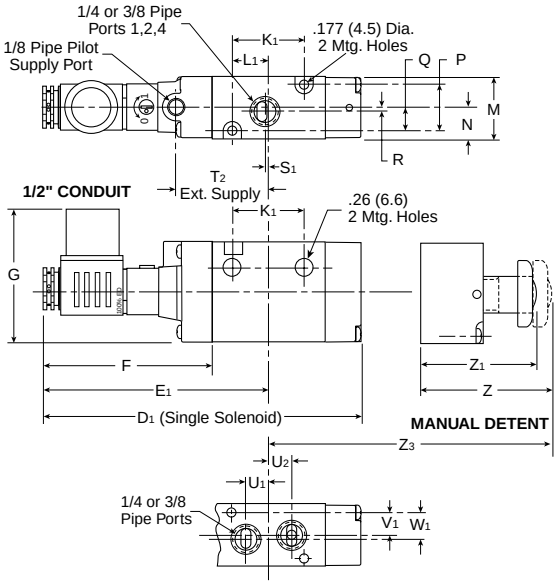
22mm RECT. DIN CONNECTOR



GROMMET/FLYING LEADS



3-Way Alternative Electrical Enclosures



B5 Alternative – Electrical Enclosures Inches (mm)

A	A1	B	C	D	D1	E	E1	F	G	H	J	K
9.94 (252.5)	.872 (221.4)	4.97 (126.2)	9.00 (228.6)	6.52 (165.6)	6.02 (152.9)	4.50 (114.3)	4.26 (108.1)	3.15 (80.0)	2.47 (62.8)	2.05 (52.1)	1.03 (26.2)	1.89 (48.0)
K1	**L**	**L1**	**M**	**N**	**P**	**Q**	**R**	**S**	**S1**	**T**	**T1**	**T2**
1.40 (35.5)	.95 (24.1)	.70 (17.8)	1.18 (30.0)	.59 (15.0)	.87 (22.1)	.43 (10.9)	.08 (2.0)	.50 (12.7)	.06 (1.5)	2.01 (51.1)	2.47 (62.7)	1.76 (44.8)
U	**U1**	**U2**	**V**	**V1**	**W**	**W1**	**Y**	**Z**	**Z1**	**Z2**	**Z3**	
.87 (22.1)	.43 (10.9)	.45 (11.3)	.06 (1.5)	.37 (9.3)	.07 (1.8)	.50 (13)	2.90 (73.6)	2.40 (60.9)	2.12 (53.8)	3.75 (95.2)	4.17 (105.8)	

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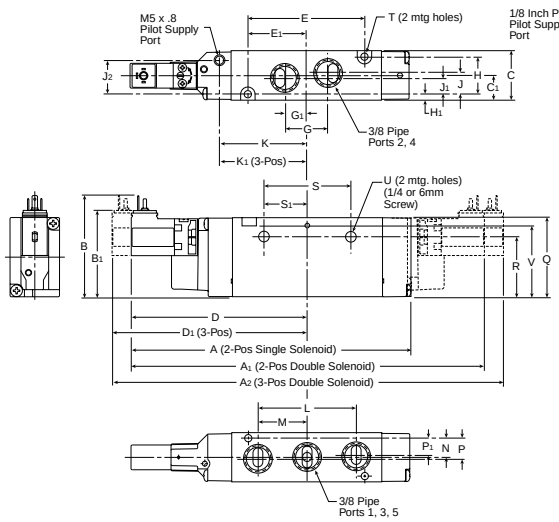
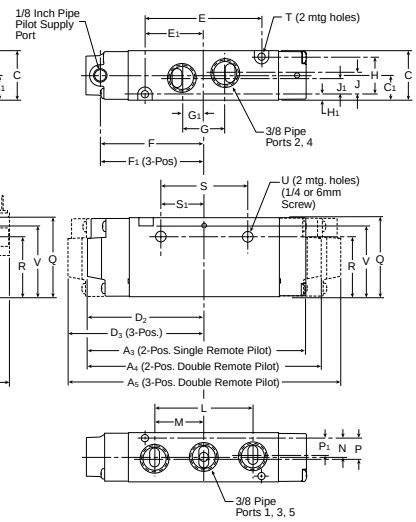
B6 Single & Double Operators – 4-Way Inline

Solenoid



Remote Pilot



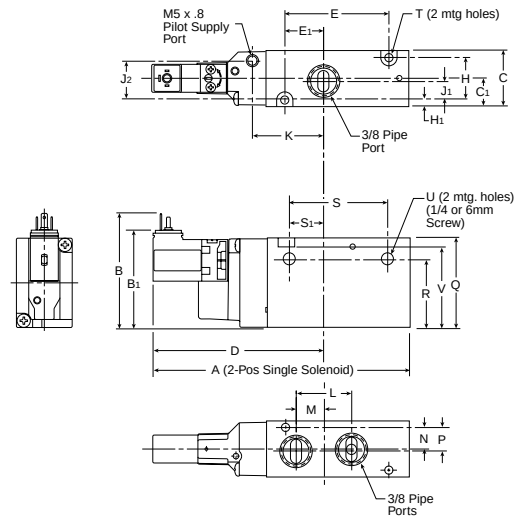
B6 4-Way Inline

A	A1	A2	A3	A4
6.67 (169.5)	8.41 (213.7)	9.35 (237.6)	5.26 (133.7)	5.59 (142.1)
A5	**B**	**B1**	**C**	**C1**
6.54 (166.0)	2.41 (61.3)	2.06 (52.3)	1.18 (30.0)	.59 (15.0)
D	**D1**	**D2**	**D3**	**E**
4.21 (106.8)	4.68 (118.8)	2.80 (71.0)	3.27 (83.0)	2.79 (70.8)
E1	**F**	**F1**	**G**	**G1**
1.39 (35.4)	2.45 (62.3)	2.92 (74.3)	1.03 (26.1)	.51 (13.1)
H	**H1**	**J**	**J1**	**J2**
.91 (23.0)	.14 (3.5)	.51 (13.1)	.39 (10.0)	.81 (20.6)
K	**K1**	**L**	**M**	**N**
2.09 (53.0)	2.56 (64.9)	2.34 (59.4)	1.17 (29.7)	.45 (11.5)
P	**P1**	**Q**	**R**	**S**
.49 (12.5)	.41 (10.5)	1.89 (48.0)	1.45 (36.8)	2.09 (53.0)
S1	**T**	**U**	**V**	
1.04 (26.5)	Ø .17 Ø (4.4)	Ø .27 Ø (6.9)	1.69 (43.0)	

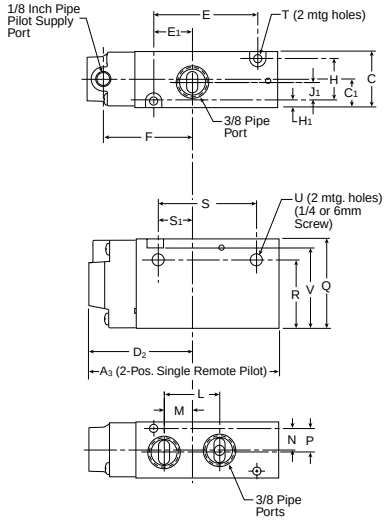
Inches (mm)

B6 Single Operators – 3-Way Inline

Solenoid



Remote Pilot



B6 3-Way Inline

A	A3	B	B1	C
5.42 (137.7)	4.01 (101.9)	2.41 (61.3)	2.06 (52.3)	1.18 (30.0)
C1	**D**	**D2**	**E**	**E1**
.59 (15.0)	3.63 (92.1)	2.22 (56.3)	2.19 (55.6)	0.82 (20.7)
F	**H**	**H1**	**J1**	**J2**
1.87 (47.6)	.91 (23.0)	.14 (3.5)	.39 (10.0)	.81 (20.6)
K	**L**	**M**	**N**	**P**
1.51 (38.3)	1.17 (29.7)	.59 (15.0)	.45 (11.5)	.49 (12.5)
Q	**R**	**S**	**S1**	**T**
1.89 (48.0)	1.45 (36.8)	2.09 (53.0)	0.76 (19.4)	Ø .17 Ø (4.4)
U	**V**			
Ø .27 Ø (6.9)	1.69 (43.0)			

Inches (mm)

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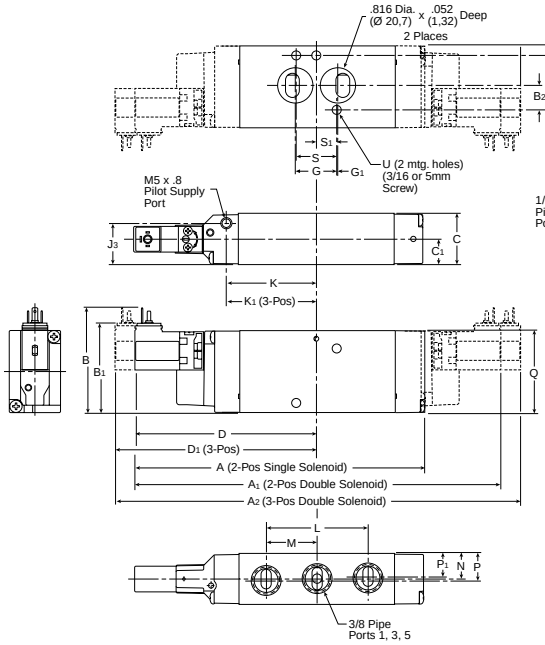
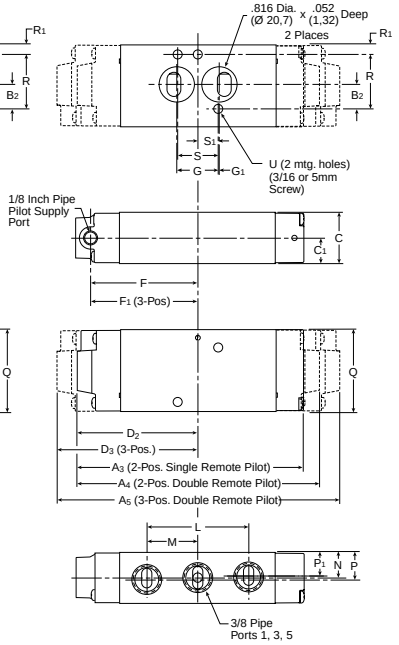
B6 Single & Double Operators – 4-Way NAMUR Mount

Solenoid



Remote Pilot

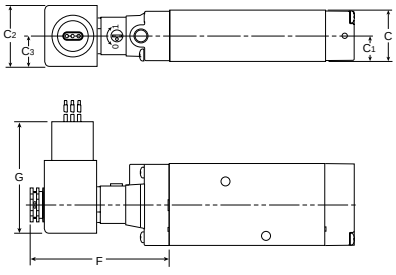


B6 4-Way NAMUR Mount

A	A1	A2	A3	A4
6.67 (169.5)	8.41 (213.7)	9.35 (237.6)	5.26 (133.7)	5.59 (142.1)
A5	**B**	**B1**	**B2**	**C**
6.54 (166.0)	2.41 (61.3)	2.06 (52.3)	.57 (14.4)	1.18 (30.0)
C1	**D**	**D1**	**D2**	**D3**
.59 (15)	4.21 (106.8)	4.68 (118.8)	2.80 (71.0)	3.27 (83.0)
F	**F1**	**G**	**G1**	**J3**
2.45 (62.3)	2.92 (74.3)	.95 (24.2)	.02 (0.53)	.95 24.1)
K	**K1**	**L**	**M**	**N**
2.09 (53.0)	2.56 (64.9)	2.34 (59.4)	1.17 (29.7)	.59 (15)
P	**P1**	**Q**	**R**	**R1**
.63 (16)	.55 (14)	1.89 (48.0)	1.26 (32)	.22 (5.5)
S	**S1**	**T**	**U**	
.94 (24)	.47 (12)	Ø .17 Ø (4.4)	Ø .27 Ø (6.9)	

Inches (mm)

B6 Alternative Electrical Enclosure Option F



Hazardous Duty Solenoid Coil

B6 4-Way NAMUR Mount with Option F Enclosure

C	C1	C2	C3	F
1.18 (30)	.59 (15)	1.42 (36)	.71 (18)	3.15 (80)
G				
2.60 (66)				

Inches (mm)

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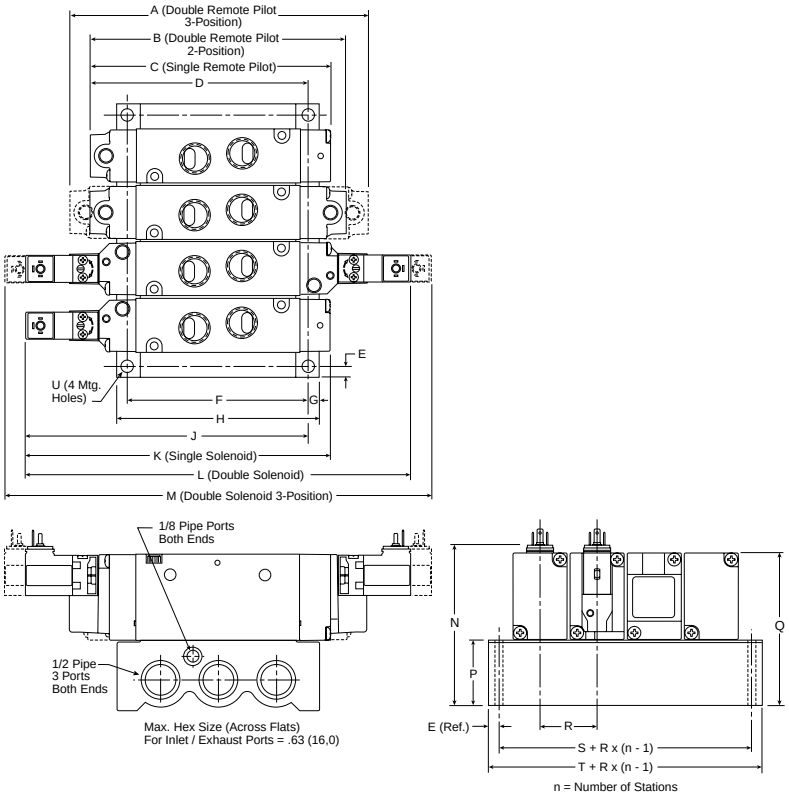
B6 Single & Double Operators – 4-Way IEM Aluminum Bar

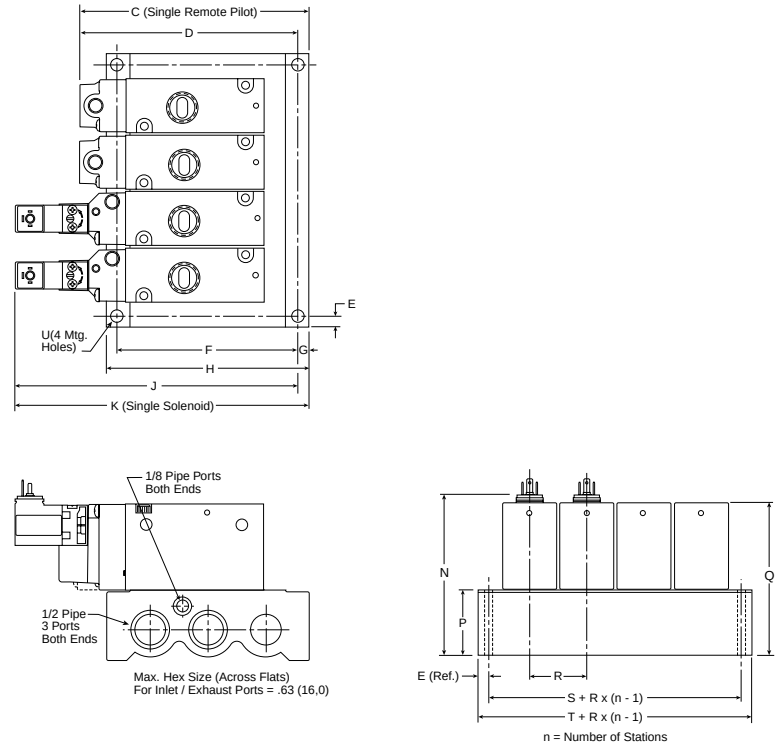


B6 4-Way IEM Aluminum Bar Manifold

A	B	C	D	E
6.54 (166.0)	5.59 (142.1)	5.26 (133.7)	4.76 (121.0)	.24 (6.0)
F	**G**	**H**	**J**	**K**
3.94 (100.0)	.24 (6.0)	4.41 (112.0)	6.17 (156.8)	6.67 (169.5)
L	**M**	**N**	**P**	**Q**
8.41 (213.7)	9.35 (237.6)	3.60 (91.3)	1.54 (39.0)	3.43 (87.0)
R	**S**	**T**	**U**	
1.24 (31.5)	1.77 (45.0)	2.24 (57.0)	ø .26 ø (6.5)	

Inches (mm)

B6 Single Operators – 3-Way IEM Aluminum Bar



B6 3-Way IEM Aluminum Bar Manifold

C	D	E	F	G
5.00 (127.0)	4.76 (121.0)	.24 (6.0)	3.94 (100.0)	.24 (6.0)
H	**J**	**K**	**N**	**P**
4.41 (112.0)	6.17 (156.8)	6.41 (162.8)	3.60 (91.3)	1.54 (39.0)
Q	**R**	**S**	**T**	**U**
3.43 (87.0)	1.24 (31.5)	1.77 (45.0)	2.24 (57.0)	Ø .26 Ø (6.5)

Inches (mm)

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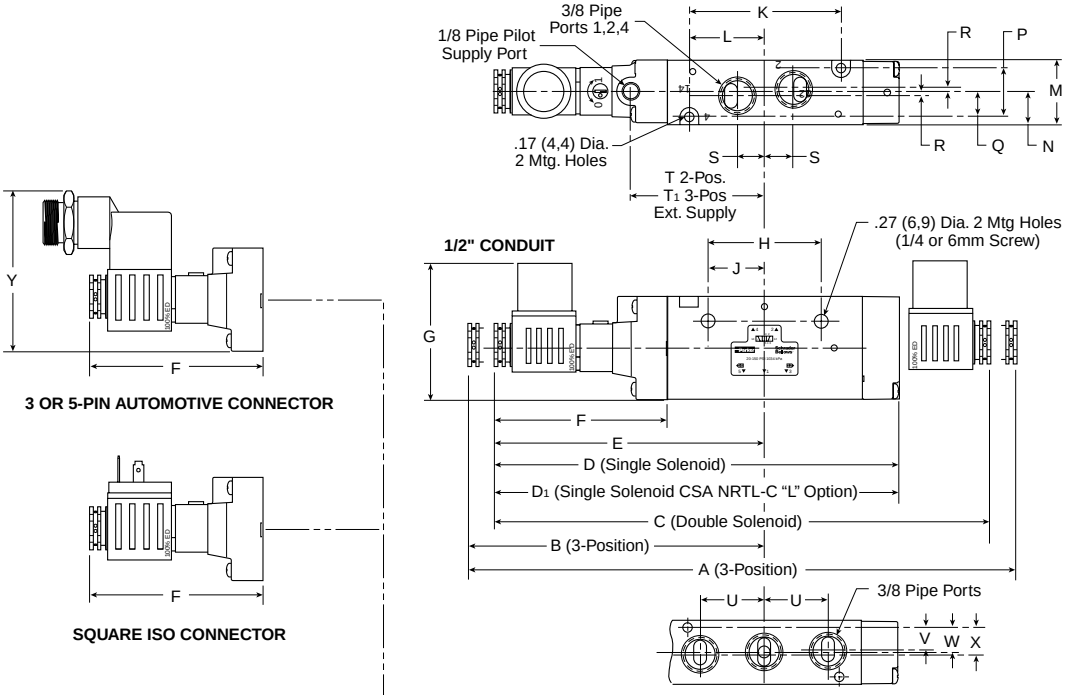
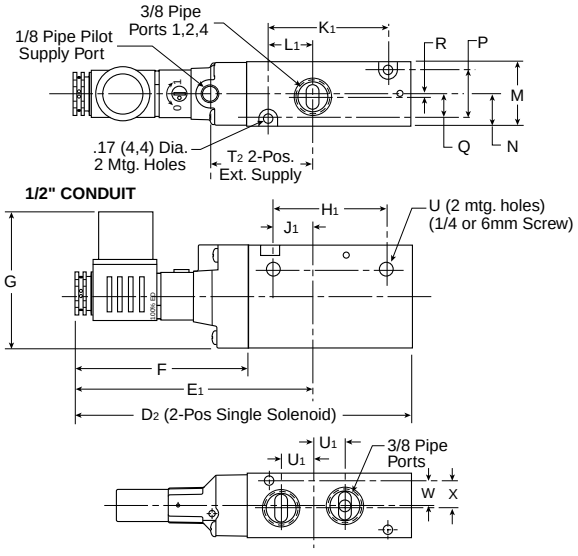
B6

4-Way Alternative Electrical Enclosures



3-Way Alternative Electrical Enclosures



B6 Alternative – Electrical Enclosures Inches (mm)

A	B	C	D	D_1	D_2	E	E_2	F	G	H	H_1	J
10.84 (275.3)	5.41 (137.5)	9.89 (251.3)	7.41 (188.2)	7.74 (196.6)	6.17 (156.6)	4.94 (125.6)	4.37 (111.0)	3.15 (80.0)	2.47 (62.8)	2.09 (53.0)	2.09 (53.0)	1.04 (26.5)
J_1	K	K_1	L	L_1	M	N	P	Q	R	S	T	T_1
0.76 (19.4)	2.79 (70.8)	2.19 (55.6)	1.39 (35.4)	.82 (20.7)	1.18 (30.0)	.59 (15.0)	.91 (23.0)	.45 (11.5)	.06 (1.6)	.51 (13.1)	2.45 (62.3)	2.93 (29.7)
T_2	U	U_1	V	W	X	Y						
1.89 (48.0)	.59 (15.0)	.59 (15.0)	.41 (10.5)	.45 (11.5)	.49 (12.5)	2.90 (73.6)						

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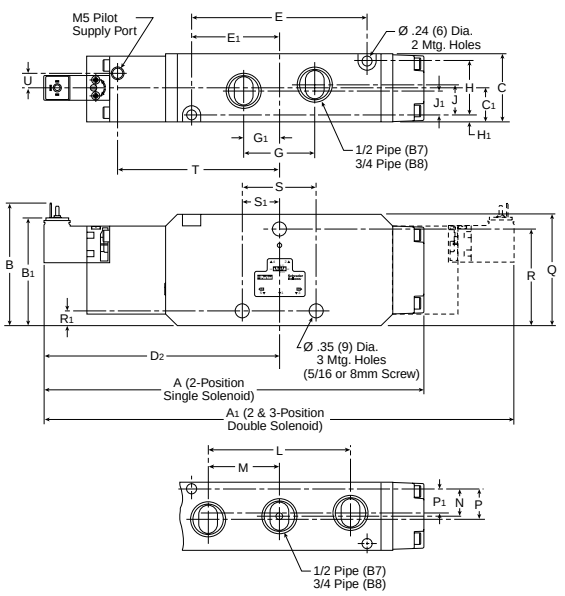
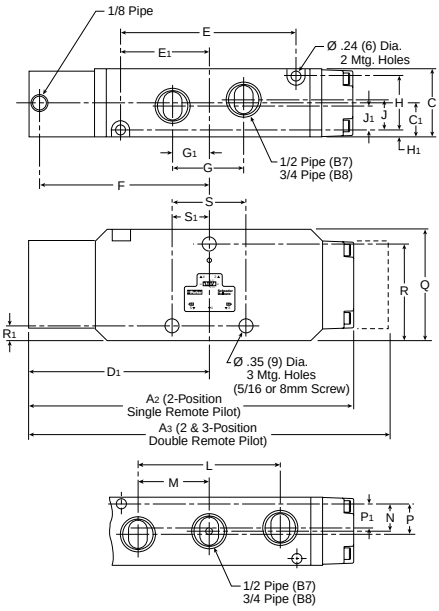
B7 / B8 Single & Double Operators – 4-Way Inline

Solenoid



Remote Pilot



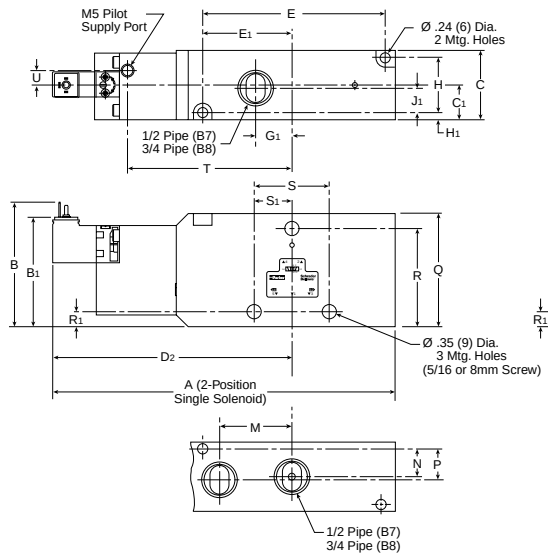
B7 & B8 4-Way Inline

A	A1	A2	A3
9.13 (232)	11.29 (287)	7.79 (198)	8.62 (219)
B	**B1**	**C**	**C1**
2.95 (75)	2.59 (66)	1.65 (42)	.83 (21)
D1	**D2**	**E**	**E1**
4.29 (109)	5.63 (143)	4.21 (107)	2.13 (54)
F	**G**	**G1**	**H**
4.06 (103)	1.73 (44)	.87 (22)	1.29 (33)
H1	**J**	**J1**	**L**
.16 (4)	.75 (19)	.59 (15)	3.39 (86)
M	**N**	**P**	**P1**
1.69 (43)	.67 (17)	.75 (19)	.59 (15)
Q	**R**	**R1**	**S**
2.68 (68)	2.32 (59)	.35 (9)	1.81 (46)
S1	**T**	**U**	
.90 (23)	3.94 (100)	.35 (9)	

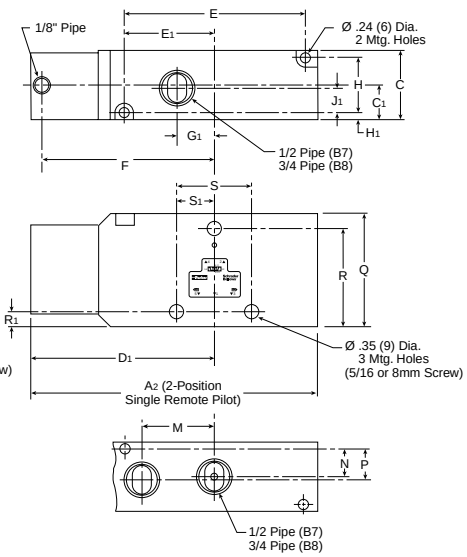
Inches (mm)

B7 / B8 Single Operators – 3-Way Inline

Solenoid



Remote Pilot



B7 & B8 3-Way Inline

A	A2	B	B1
7.99 (203)	6.65 (169)	2.95 (75)	2.59 (66)
C	**C1**	**D1**	**D2**
1.65 (42)	.83 (21)	4.29 (109)	5.63 (143)
E	**E1**	**F**	**G1**
4.21 (107)	2.13 (54)	4.06 (103)	.86 (22)
H	**H1**	**J1**	**M**
1.29 (33)	.16 (4)	.59 (15)	1.69 (43)
N	**P**	**Q**	**R**
.67 (17)	.75 (19)	2.68 (68)	2.32 (59)
R1	**S**	**S1**	**T**
.35 (9)	1.81 (46)	.90 (23)	3.94 (100)
U			
.35 (9)			

Inches (mm)

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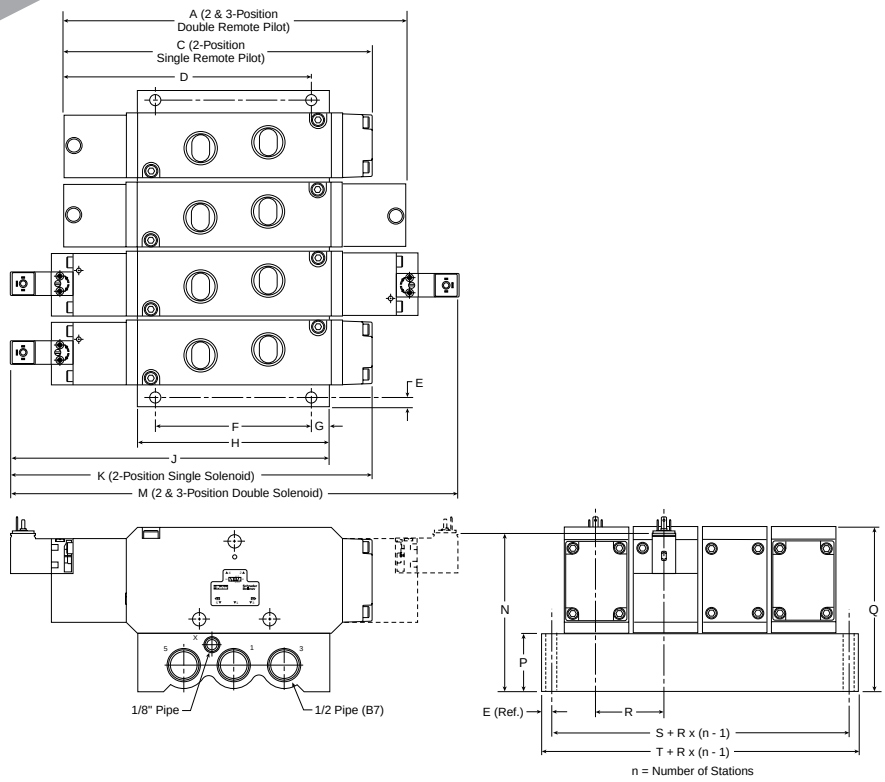
B7 Single & Double Operators – 4-Way IEM Aluminum Bar

B8



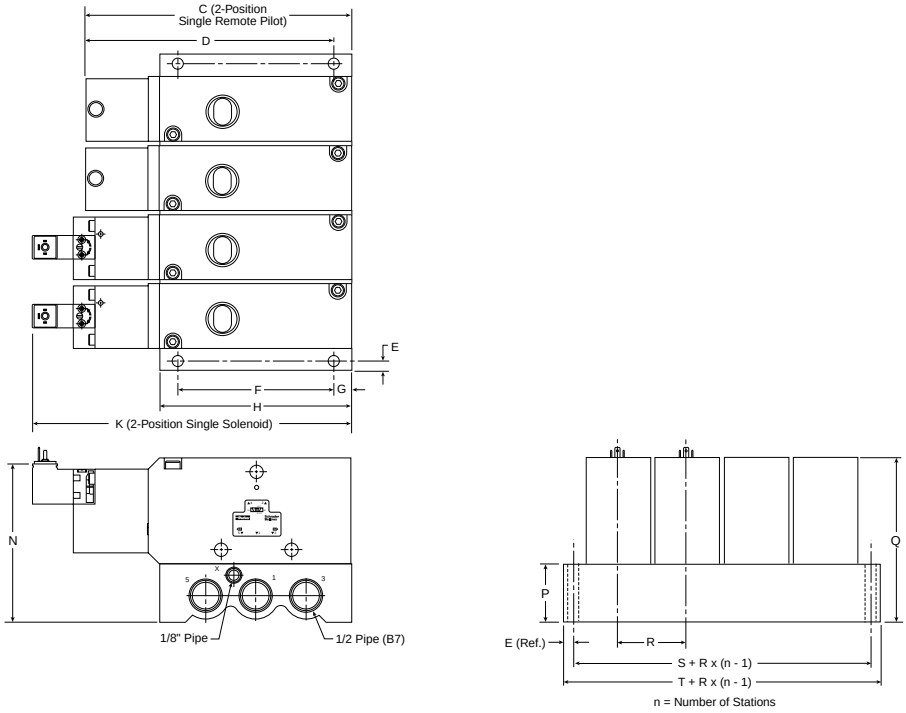
B7 & B8 4-Way IEM Aluminum Bar Manifold

A	C	D	E
7.79 (198)	8.62 (219)	6.26 (159)	.24 (6)
F	**G**	**H**	**J**
3.94 (100)	.45 (11.5)	4.84 (123)	8.07 (205)
K	**M**	**N**	**P**
9.13 (232)	11.29 (287)	4.00 (101.5)	1.48 (37.5)
Q	**R**	**S**	**T**
4.15 (105.5)	1.77 (45)	2.24 (57)	2.72 (69)

Inches (mm)

B7 Single Operators – 3-Way IEM Aluminum Bar

B8



B7 & B8 3-Way IEM Aluminum Bar Manifold

C	D	E	F
6.65 (169)	4.92 (124.9)	.24 (6)	3.94 (100)
G	**H**	**K**	**N**
.45 (11.5)	4.84 (123)	7.99 (203)	4.00 (101.5)
P	**Q**	**R**	**S**
1.48 (37.5)	4.15 (105.5)	1.77 (45)	2.24 (57)
T			
2.72 (69)			

Inches (mm)

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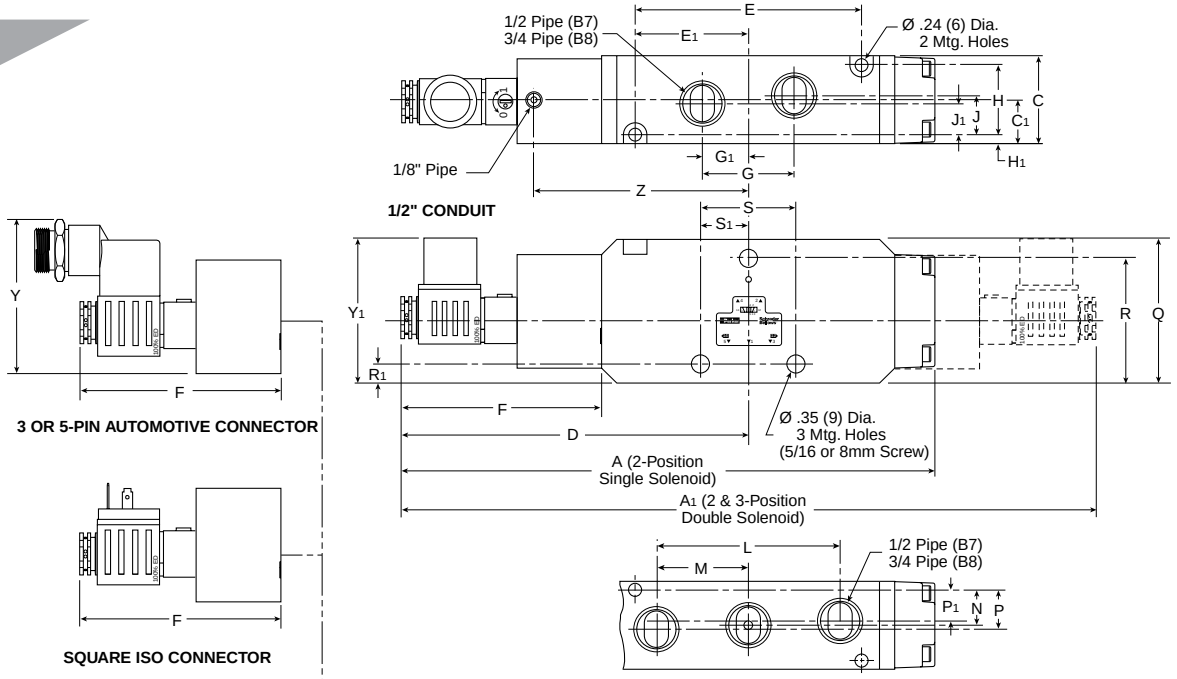
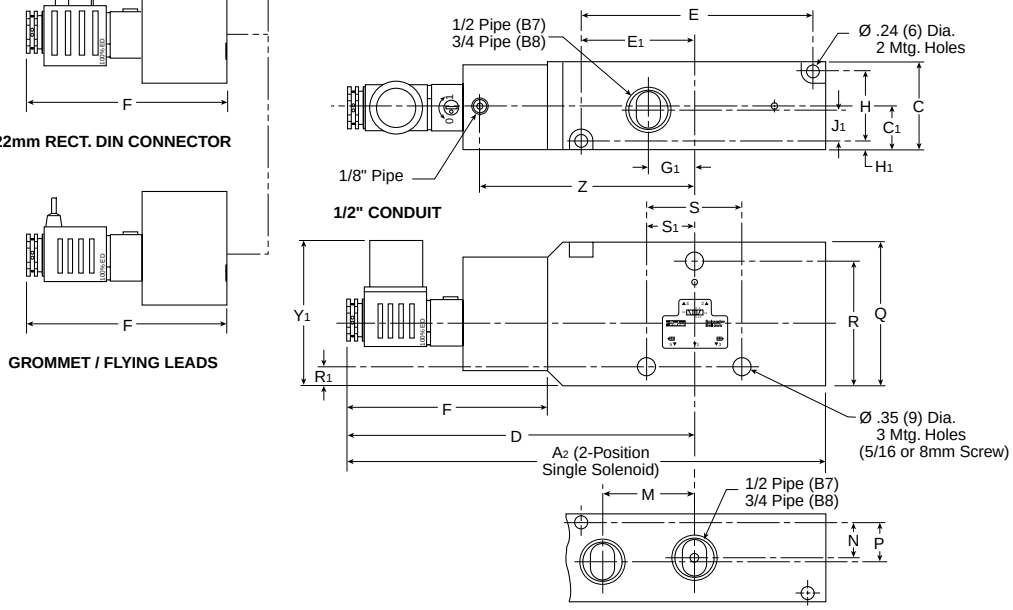
B7

B8

4-Way Alternative Electrical Enclosures



3-Way Alternative Electrical Enclosures



B7 & B8 3 & 4-Way Alternative – Electrical Enclosures Inches (mm)

A	A1	A2	C	C1	D	E	E1	F	G	G1	H	H1
9.92 (252)	12.91 (328)	8.78 (223)	1.65 (42)	.83 (21)	6.46 (164)	4.21 (107)	2.13 (54)	3.74 (95)	1.73 (44)	.86 (22)	1.29 (33)	.16 (4)
J	**J1**	**L**	**M**	**N**	**P**	**P1**	**Q**	**R**	**R1**	**S**	**S1**	**Y**
.75 (19)	.59 (15)	3.39 (86)	1.69 (43)	.67 (17)	.75 (19)	.59 (15)	2.68 (68)	2.32 (59)	.35 (9)	1.81 (46)	.90 (23)	2.87 (73)
Y1	**Z**											
2.71 (69)	3.98 (101)											

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Definitions

CSA C/US ..... Canadian Standards Association and UL Applicable.

IP65 ..... International classification system for sealing effectiveness for enclosures of electrical equipment. IP stands for "Ingress Protection" and the two digits XY stand for: X - protection from solid objects and Y - protection from moisture. IP 65 is protection from dust and water washdown.

NEMA 4 ..... National standard for electrical enclosure protection. NEMA 4 provides protection against dirt, dust, water hosedown and rain. (Similar to IP 65)

DIN 43650C ..... International standard for the 15mm 3-Pin connector. The pin spacing is 8mm.

3-WAY ..... Valve has three ways for air to flow. Also designated as 3/2.

4-WAY ..... Valve has four ways for air to flow. Also designated as 5/2 for 2-Position and 5/3 for 3-Position.

NC ..... Normally Closed. Pressure is blocked when in neutral position. (Normally Non-Passing)

NO ..... Normally Open. Pressure passes thru when in neutral position. (Normally Passing)

IEM ..... Inlet / Exhaust manifold. The inlet and exhaust ports are located in the manifold. The cylinder ports are accessed in the valve.

5-Port Subbase Bar Manifold
Manifold that includes the inlet and outlet ports as well as the #2 & #4 cylinder ports. Utilizes a subbase valve less base.

NLMOR ..... Non-Locking Manual Override. A constant actuation must be maintained for the valve to remain shifted.

LMOR ..... Locking Manual Override. Valve remains shifted without constant end user override actuation.

Surge Suppression
Nullifies reverse EMF generated when a solenoid is de-energized.

SCFM ..... Measure of air flow. Standard Cubic Feet per Minute at 68°F and 36% humidity at sea level.

PSIG ..... Pounds per Square Inch measured with a gage. (Catalog pressure reflects PSIG)

PSIA ..... Pounds per Square Inch atmospheric.

kPa ..... Kilopascals. International measure of pressure. 145 PSIG = 1000 kPa

PSIG = 0 → PSIA = 14.7 → In. of Hg = 0 → kPa = 0

Product Shipping Weights

Series	Single Solenoid	3-Position Solenoid	Manifold Stackable	Subbase	End Plate
B3	.25	.35	.20	.60	.50
B5	.70	.80	.20	.80	.70
B6	1.8	2.4	—	—	—
B7	2.5	2.9	—	—	—
B8	2.5	2.9	—	—	—

Weights are in pounds and are approximate.

Cv Calculations

Cv ..... Measure of calculating flow of a valve (or other pneumatic device) that takes into effect the temperature, pressure, pressure drop, and flow. As a rule of thumb. a Cv of 1.0 is 25 SCFM with a 5 PSIG pressure drop.

$$Cv = \frac{\text{Cylinder Area (Sq. In.) (See Table 2)} \times \text{Cylinder Stroke (In.)} \times \text{Compression Factor (Table 1)} \times \text{"A" (Table 1)}}{\text{Stroke Time (sec.)} \times 28.8}$$

Table 1
Compression Factors and "A" Constants

Inlet Pressure (PSIG)	Compression Factor	"A" Constants for Various Pressure Drop*		
		2 PSI △ P	5 PSI △ P	10 PSI △ P
10	1.6	.152	.103	
20	2.3	.126	.084	.065
30	3.0	.111	.073	.055
40	3.7	.100	.065	.048
50	4.4	.091	.059	.044
60	5.1	.085	.055	.040
70	5.7	.079	.051	.037
80	6.4	.075	.048	.035
90	7.1	.071	.046	.033
100	7.8	.068	.044	.032
110	8.5	.065	.042	.030
120	9.2	.063	.040	.029
130	9.9	.061	.039	.028
140	10.6	.058	.037	.027
150	11.2	.057	.036	.026
160	11.9	.055	.035	.025
170	12.6	.053	.034	.024
180	13.3	.052	.033	.024
190	14.0	.051	.032	.023
200	14.7	.050	.032	.023

Note: Use "A" constant at 5 PSI △ P for most applications. On very critical applications. use "A" at 2 PSI △ P. You will find in many cases, a 10 PSI △ P is not detrimental, and can save money and mounting space.

* Tabulated values are the solution of $\frac{1}{22.48}\sqrt{\frac{GT}{(P_1 - P_2)\,P_2}}$ where T is for 68°F and G =1 for Air.

Table 2
Effective Square-Inch Areas for Standard-Bore-Size Cylinders

Bore Size	Cylinder Area (Sq. In.)	Bore Size	Cylinder Area (Sq. In.)
3/4"	.44	4"	12.57
1"	.79	4-1/2"	15.90
1-1/8"	.99	5"	19.64
1-1/4"	1.23	6"	28.27
1-1/2"	1.77	7"	38.48
1-3/4"	2.41	8"	50.27
2"	3.14	10"	78.54
2-1/2"	4.91	12"	113.10
3-1/4"	8.30	14"	153.94
3-5/8"	10.32		

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Notes

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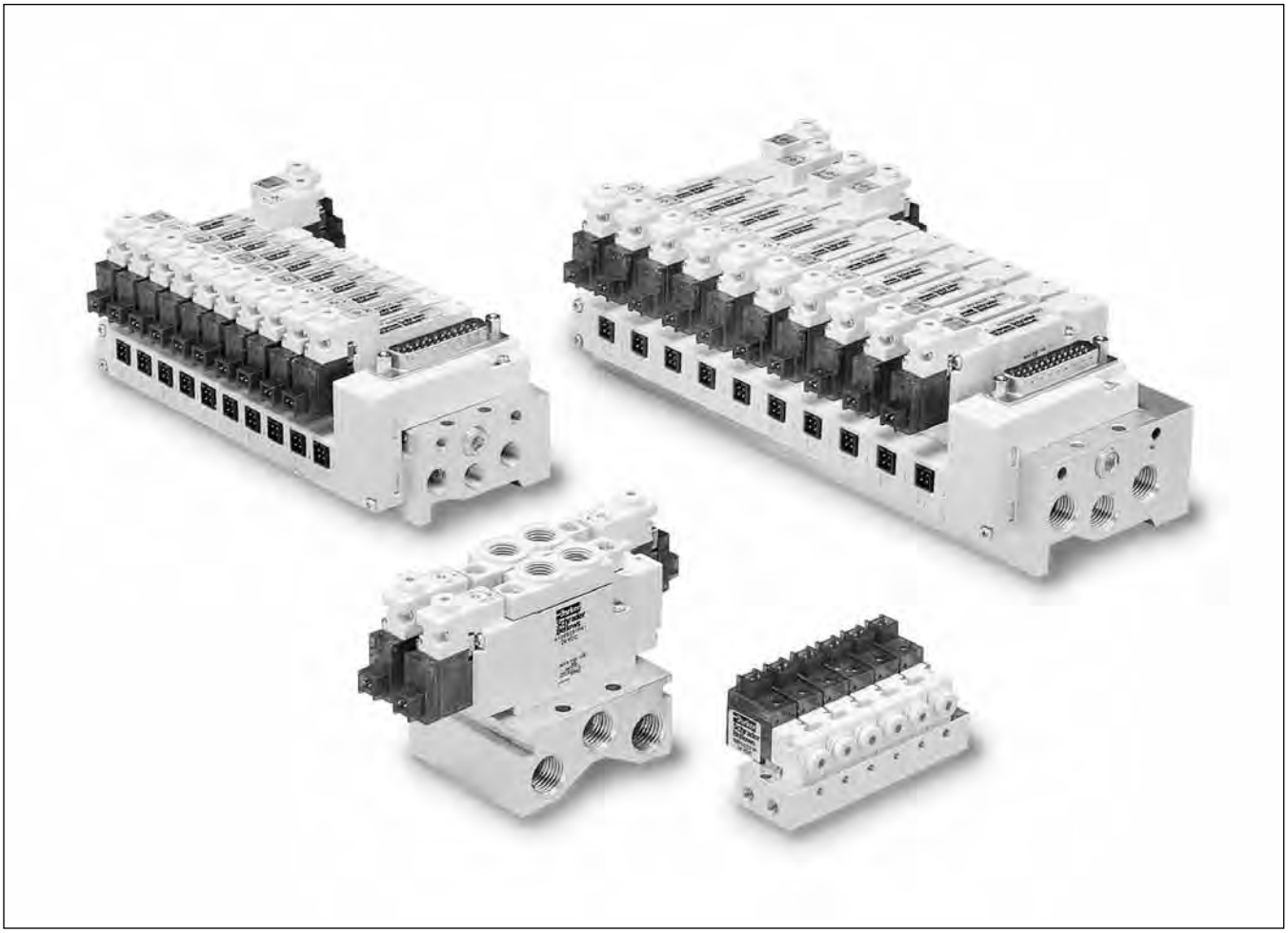
"ADEX" Series

Air Control Valves

A00 – .01 Cv M3 Port
A05 – .18 Cv M5 Port
A12 – .47 Cv 1/8" Port

Section D

www.parker.com/pneu/adex



BOLD ITEMS ARE MOST POPULAR.

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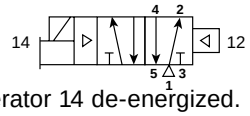
Single Solenoid

4-Way, 2-Position

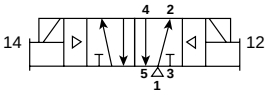


De-energized position – Solenoid operator 14 de-energized.
Pressure at inlet port 1 connected to outlet port 2.
Outlet port 4 connected to exhaust port 5.

Energized position – Solenoid operator 14 energized.
Pressure at inlet port 1 connected to outlet port 4.
Outlet port 2 connected to exhaust port 3.

Double Solenoid

4-Way, 2-Position

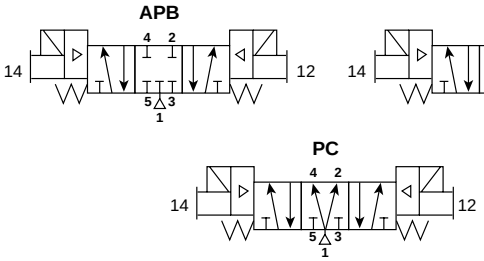


Solenoid operator 14 energized last.
Pressure at inlet port 1 connected to outlet port 4.
Outlet port 2 connected to exhaust port 3.

Solenoid operator 12 energized last.
Pressure at inlet port 1 connected to outlet port 2.
Outlet port 4 connected to exhaust port 5.

Double Solenoid

4-Way, 3-Position



With 12 operator energized – inlet port 1 connected to cylinder port 2, cylinder port 4 connected to exhaust port 5.

With 14 operator energized – inlet port 1 connected to cylinder port 4, cylinder port 2 connected to exhaust port 3.

Function 1: All Ports Blocked (APB)
All ports blocked in the center position.

Function 2: Center Exhaust (CE)
Cylinder ports 4 and 2 connected to exhaust ports 5 and 3 in center position. Port 1 is blocked.

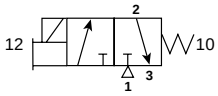
Function 3: Pressure Center (PC)
Pressure port 1 connected to cylinder ports 4 and 2, and exhaust ports 5 and 3 blocked in center position.

Dual Pressure (Subbase valves only):

May be used for dual pressure service with pressure at ports 3 & 5. **Specify External Pilot option "X" on Valve AND Manifold.** In the 3-Position valve, the effect of dual pressure is extremely important when the valve is in the center position, as the CE and PC functions are reversed. Therefore, care should be used when selecting a 3-Position valve.

Single Solenoid

3-Way, 2-Position NC



Normally Closed:

De-energized position – Solenoid 12 de-energized.
Pressure at inlet port 1 blocked, outlet port 2 connected to exhaust port 3.

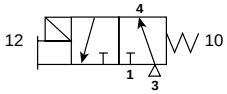
Energized position – Solenoid 12 energized.
Pressure at inlet port 1 connected to outlet port 2, exhaust port 3 is blocked.

Vacuum Applications (Device becomes NO):
'1' port is connected to atmosphere or compressed air † when required.
'2' port is outlet
'3' port is connected to vacuum

† When both vacuum and compressed air are required, maximum pressure is 85 PSIG (586 kPa).

Single Solenoid

3-Way, 2-Position NO*



Normally Open:

De-energized position – Solenoid 12 de-energized.
Pressure at inlet port 3 connected to outlet port 2, exhaust port 1 is blocked.

Energized position – Solenoid 12 energized. Pressure at inlet
port 3 blocked, outlet port 2 connected to exhaust port 1.

* To obtain NO function, ports 1 & 3 are reversed (1 becomes exhaust and 3 becomes supply).

Vacuum Applications (Device becomes NC):
'1' port is connected to vacuum
'2' port is outlet
'3' port is connected to atmosphere or compressed air † when required.

† When both vacuum and compressed air are required, maximum pressure is 58 PSIG (400 kPa).

***Caution:** Normally Open and Normally Closed 3-Way valve cannot be mixed on the same manifold.*

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"A00" Valve
"A05" Valve
"A12" Valve

Flow Ratings*

- A00: .02 Cv
- A05: .18 Cv
- A12: .47 Cv

Operating Pressure

- Vacuum to 100 PSIG*
- A00S (NO) vacuum to 70 PSIG

Ports

- A00: M3
- A05: M5
- A12: 1/8 Inch

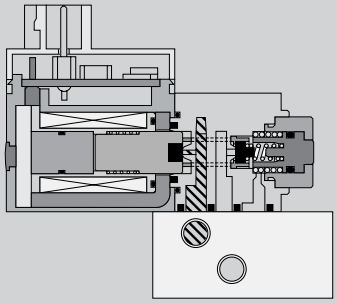
Mounting

- Inline
- Subbase Mount

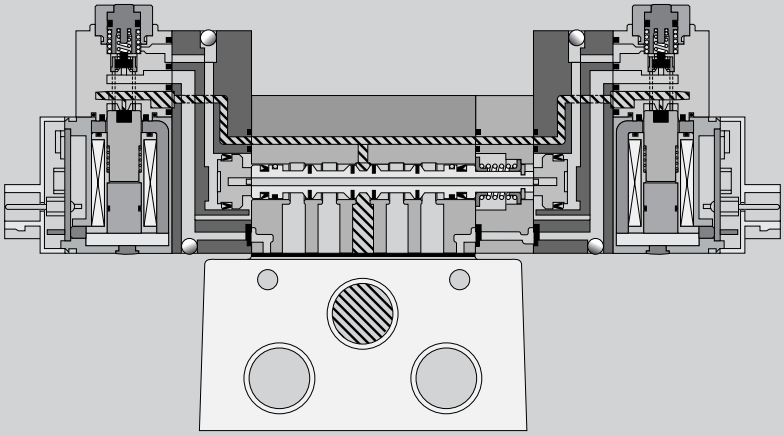
Solenoids

- 0.6 Watt
- 5VDC, 12VDC, 24VDC and 110/120VAC
- LED and Surge Suppression

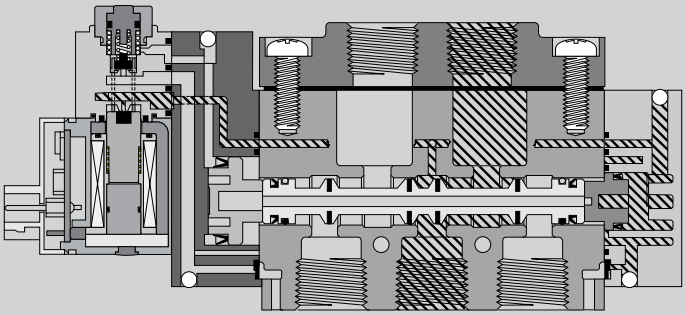
* See catalog technical section for more information.



A00S Single Solenoid Normally Closed (NC)



A05P Double Solenoid 3-Position Subbase Mounted



A12R Single Solenoid Inline

Pressure **Exhaust**

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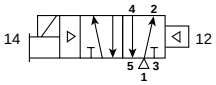
Single Solenoid
4-Way, 2-Position



Inline

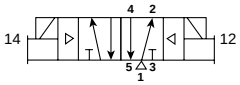
A05	**A05RS251PM5MF**	24VDC	M5	.17 Cv
	A05RS252PM5MF	12VDC		
A12	**A12RS251PN1MF**	24VDC	1/8"	.47 Cv
	A12RS252PN1MF	12VDC		

Subbase

A05	**A05PS251P**	24VDC	Less Base	.18 Cv
	A05PS252P	12VDC		
A12	**A12PS251P**	24VDC	Less Base	.44 Cv
	A12PS252P	12VDC		

Note: Wired electrical connectors sold separately. See Accessory Section.

Double Solenoid
4-Way, 2-Position



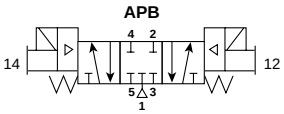
Inline

A05	**A05RD251PM5MF**	24VDC	M5	.17 Cv
	A05RD252PM5MF	12VDC		
A12	**A12RD251PN1MF**	24VDC	1/8"	.47 Cv
	A12RD252PN1MF	12VDC		

Subbase

A05	**A05PD251P**	24VDC	M5	.18 Cv
	A05PD252P	12VDC		
A12	**A12PD251P**	24VDC	1/8"	.44 Cv
	A12PD252P	12VDC		

Double Solenoid
4-Way, 3-Position, APB



Inline

A05	A05RD351PM5MF	24VDC	M5	.16 Cv
	A05RD352PM5MF	12VDC		
A12	A12RD351PN1MF	24VDC	1/8"	.43 Cv
	A12RD352PN1MF	12VDC		

Subbase

A05	A05PD351P	24VDC	Less Base	.16 Cv
	A05PD352P	12VDC		
A12	A12PD351P	24VDC	Less Base	.40 Cv
	A12PD352P	12VDC		

ANSI Cv vs. JIS Cv

*For Pneumatic Valve flow, the measurement **Cv** – Coefficient of Flow – is used to convey to the user how much air can flow through a given valve. Most valve manufactures publish this information in their catalogs to assist the user in choosing the proper valve for their application. In publishing this data however, there are discrepancies in how the **Cv** is calculated, resulting in some **Cv**'s being OVERSTATED by **20 to 40%**. This can adversely affect the user's application because the valve flows LESS than the published **Cv**.*

The reason for the large discrepancy is in the method of calculation - the ANSI (NFPA) or the JIS standard.

*Parker's **Cv** valve is calculated using the ANSI (NFPA) T3.21.3-1990 standard. The ANSI (NFPA) method is a structured test using very specific tube sizes and lengths, inlet pressures and pressure drops, and volume chambers.*

Locking Flush Override. Mounting screws and gaskets included with valve.

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"ADEX" Series

BOLD OPTIONS ARE MOST POPULAR.

A05	R	S25	—	1	P	M5	MF

Basic Series	
Series	**A05**
Series	**A12**

Body Type	
Subbase	**P**
Inline	**R**

Operator / Function	
4-Way	
Single Solenoid, 2-Position, Air Return	**S25**
Double Solenoid, 2-Position	**D25**
Double Solenoid, 3-Position, APB	D35
Double Solenoid, 3-Position,CE	E35
Double Solenoid, 3Position, PC	035

Pilot Source / Exhaust	
Internal	**Blank**
External	X*

Voltage	
1	**24VDC**
2	**12VDC**
9	120/60 VAC

Options	
P	**Lights / Surge Suppression**

Port Size / Thread Type†	
Blank	**None (Subbase)**
M5	**M5 (A05R Only)**
N1	**1/8" NPT (A12R Only)**
G1	1/8" BSPP "G" (A12R Only)

† Required for inline models only, port size code not used for subbase versions.

Valve Type	
Blank	**None (Subbase)**
MF	**Inline**

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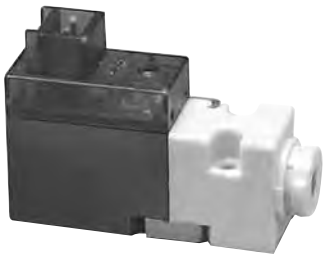
Valve Only – Single Solenoid
3-Way, 2-Position*



A00SC231P Shown

* Screwdriver-Operated, Locking Manual Override (LMOR).

A00S C23 — 1 P

Function	
Single Solenoid Normally Open	023
Single Solenoid Normally Closed	**C23**

Flow	
Standard Type	**Blank**
Large Flow Type	J

Voltage	
1	**24VDC**
2	12VDC
4*	5VDC
8*	110/50 VAC
9	120/60 VAC

* Special Order

Connector Position	
P	**With Indicator Light & Surge Suppression**

Subbase

A00SBM3 Shown

Model Number	All Ports
A00 **A00SBM3**	M3

Mounting screws and gaskets included with valve.

Manifold*

MMFS6A00M3 Shown

* Normally Closed valves (A00SC23•P) and Normally Open valves (A00S023•P) cannot be mounted on the same manifold simultaneously.

Mounting screws and gaskets included with valve.

MMFS 2 A00 M5

Number of Stations	
2 Stations	2
3 Stations	3
4 Stations	4
•	•
•	•
20 Stations	20

Port Size
M3
M5

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"A05" Valve

MMFU10A05F Shown

4-Way, NPTF (Individual Wiring Type)	**MMFU##A05F**
4-Way, NPTF (Collective Wiring Type)	**MMCU‡‡A05F**

– stations 2 to 20
‡‡ – stations 2 to 12
(Even numbers only)

"A12" Valve

MMFU10A12F Shown

4-Way, NPTF (Individual Wiring Type)	**MMFU##A12F**
4-Way, NPTF (Collective Wiring Type)	**MMCU‡‡A12F**

– stations 2 to 20
‡‡ – stations 2 to 12
(Even numbers only)

- Utilizes Inline mount ADEX valves.
- Bolts and Gaskets are included with valve.
- A05 Collective Wiring Type Manifold Kits also include an Adapter Plate for use with the MCS Module.

Pilot Exhaust for IEM Manifold –
is captured through the "3" and "5" galley.

Model Number

BOLD OPTIONS ARE MOST POPULAR.

M MF U 2 A05 F

Type	
Bar Manifold	M

Wiring	
Manifold, Individual	MF
Manifold Collective	MC

Type / Pilot	
IEM	U

Number of Stations	
MF (Individual)	MC (Collective)
2	2
3	4
4	6
•	8
•	10
20	12 †

† Maximum of 12 stations available for "MC" Type. (Even # stations only.)

Valve Size	
A05	10mm
A12	15mm

Port Type	
F	NPTF
G	BSPP "G"

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"A05" Valve

4-Way, M5 (Individual Wiring Type)	**MMFS##A05FM5**
4-Way, M5 (Collective Wiring Type)	**MMCS‡‡A05FM5**

– stations 2 to 20
‡‡ – stations 2 to 12
(Even numbers only)

"A12" Valve

4-Way, 1/8" NPTF (Individual Wiring Type)	**MMFS##A12FF1**
4-Way, 1/8" NPTF (Collective Wiring Type)	**MMCS‡‡A12FF1**

– stations 2 to 20
‡‡ – stations 2 to 12
(Even numbers only)

- Utilizes Subbase mount ADEX valves.
- Bolts and Gaskets are included with valve.

Internally Piloted Manifolds –
Pilot exhaust is captured through the "3" and "5" galley.

Externally Pilot Manifold –
Pilot exhaust is captured through the "Y" galley.

Model Number

BOLD OPTIONS ARE MOST POPULAR.

M MF S 2 A05 F M5

Type	
Bar Manifold	**M**

Wiring	
Manifold, Individual	**MF**
Manifold Collective	**MC**

Type/Pilot	
Subbase, Internally Piloted	**S**
Subbase, Externally Piloted	X

Number of Stations	
MF (Individual)	**MC (Collective)**
2	**2**
3	**4**
4	**6**
•	**8**
•	**10**
20	**12 †**

† Maximum of 12 stations available for "MC" Type. (Even # stations only.)

	Valve Size
A05	**10mm**
A12	**15mm**

	Port Type
F	**NPTF**
G	BSPP "G"

Port Type	
A05 Manifolds	
M5	**M5**
A12 Manifolds	
F1	1/8" NPFT
G1	1/8" BSPP "G"

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Collective Wiring

MCS10A05PDL Shown

MCS | 2 | A05 | P | DL

Type	
Manifold Collective Wiring System	MCS

Number of Stations*	
2 Stations	2
4 Stations	4
6 Stations	6
8 Stations	8
10 Stations	10
12 Stations	12

* Even Number of Stations Only.

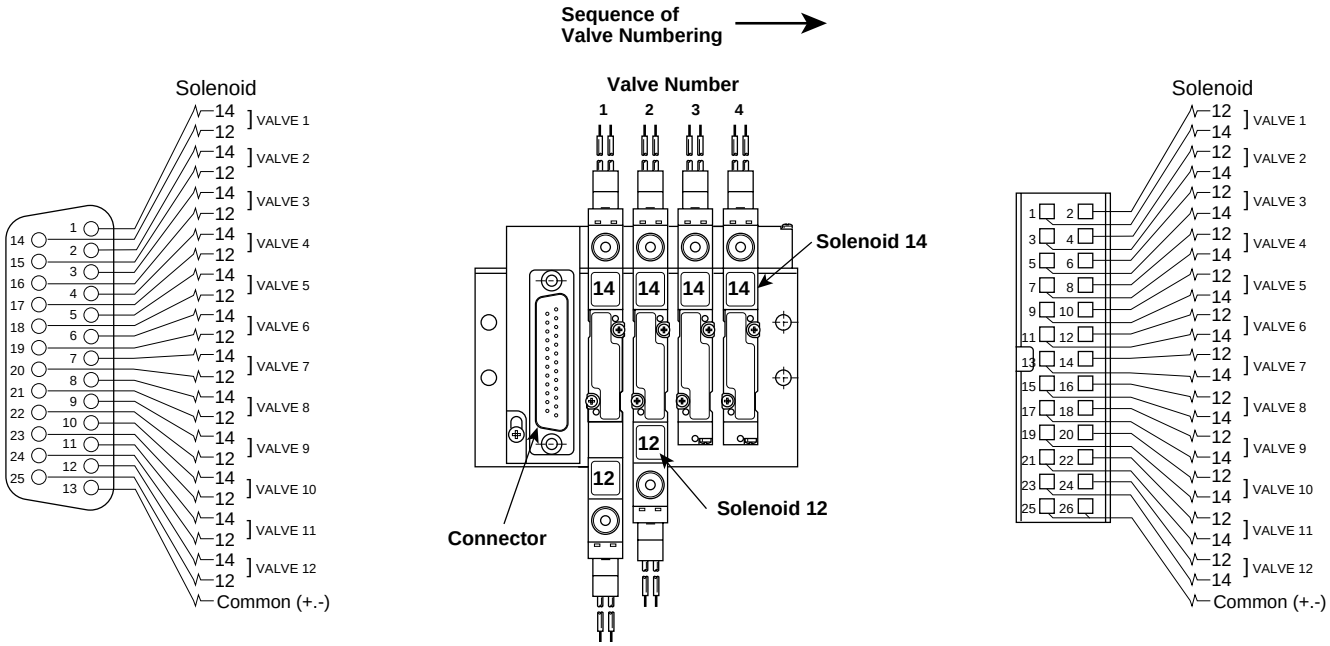
Valve Size	
A05	10mm
A12	15mm

Options	
DL	D-Sub 25
ML	26-Pin Ribbon

BOLD OPTIONS ARE MOST POPULAR.

Collective Wiring Pin Mapping

(Not Available for AC Voltages)



Pin Map for D-Sub 25 Connector | **Valve and Solenoid Addresses** | **Pin Map for 26-Pin Ribbon Connector**

Notes:

1. The MCS Collective Wiring System is "Polarity Neutral". Polarity is addressed with the Collective Wired Connectors (page D120).
   Example: When 'positive' common is used, an A05 single solenoid valve uses an A05PSCC. When 'negative' common is used, use A05PSCCM.
2. The MCS Collective Wiring System provides for both the "14" and "12" addresses at each valve location. When single solenoid valves are used, skip the "12" address for both wiring and controller programming.
3. Be sure that the leakage current of the controller outputs is less than 1.5 ma.

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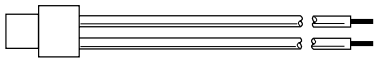
Individual Wired Connectors

P / R Type

Size	Voltage	Length	Part Number
A00	DC	.5 meter	A05PDCCL5
A05		1 meter	A05PDCCL10
A12		3 meter	A05PDCCL30
	AC	.5 meter	A05PACCL5
		1 meter	A05PACCL10

DC Voltage: Positive "+" (Red Wire)
Negative "–" (Black Wire)
AC Voltage: Both Wires are Blue (Polarity Neutral)



A05PDCCL##

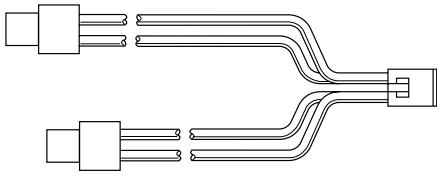
Collective Wired Connectors

P / R Type

Size		Part Number	
		PNP	NPN
A05	Single	A05PSCCM	A05PSCC
A12	Double	A05PDCCM	A05PDCC

PNP = SOURCING = "Negative Common" = Yellow Wires

NPN = SINKING = "Positive Common" = Red Wires

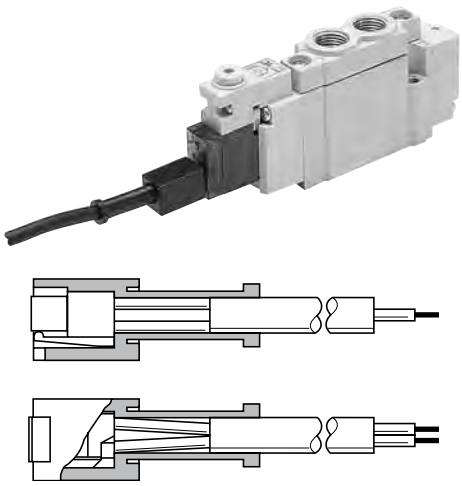


A05PDCC

Wired Connectors with Protective Cover - P / R Type

Size	Length	Part Number
A00	1 meter	A05PDCCB10
A05		
A12		

The cover is made of chloroprene rubber for electrical use, assuring excellent weather and insulation resistance. However, be careful not to place it under splash of cutting oil.



A05PDCCB10

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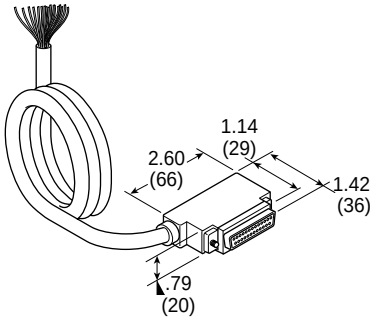
Cable with Female D-Sub, 25-Pin Connector

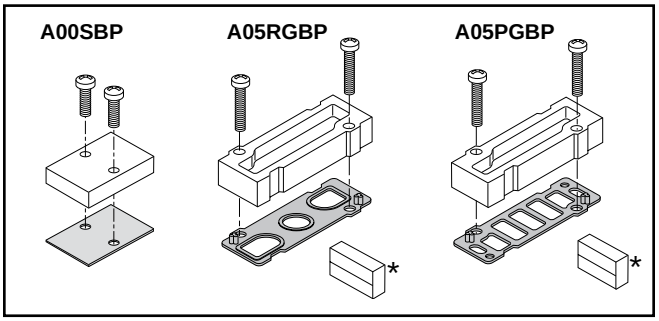
Part Number	Description
DSS25FB1K	25-Pin, D-Sub Cable, 1 meter (3.3 ft.)

Note: For use with ADEX MCS system only.
Connection to control system is through 25 colored wires AWG 24. Includes (2) M2.5 mm screws.



Blanking Plate

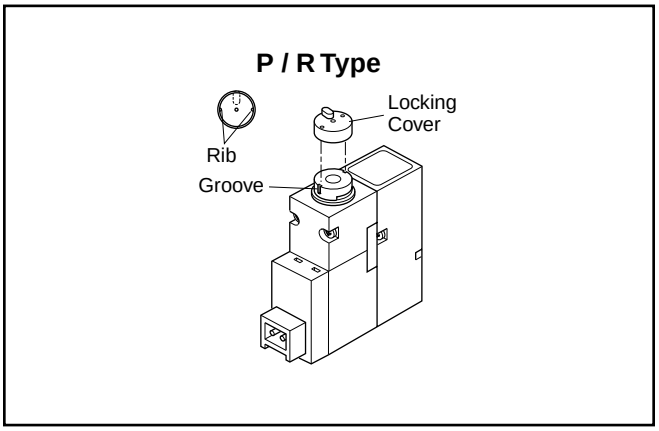
Size	Type	Part Number
A00	Subbase	**A00SBP**
A05	Body Ported	**A05RGBP**
	Subbase	**A05PGBP**
A12	Body Ported	**A12RGBP**
	Subbase	**A12PGBP**



* Outlet Pin Cover used with Collective Wiring System only.

Extended Override Cover

Size	Orange: For 14 Side Solenoid	Green: For 12 Side Solenoid
A00	**A05PLA**	**A05PLB**
A05		
A12		



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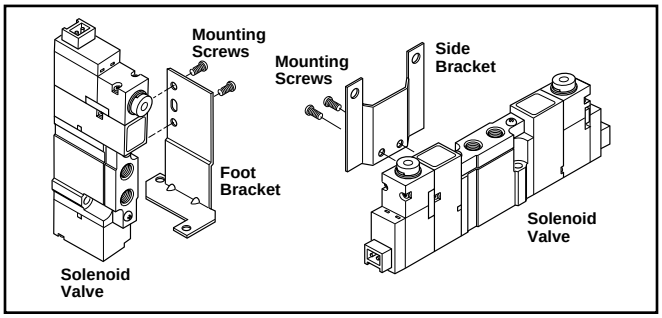
Mounting Bracket

Size	Type	Part Number
A05	Side	**A05RBS**
	Foot	A05RBF
A12	Side	**A12RBS**
	Foot	A12RBF

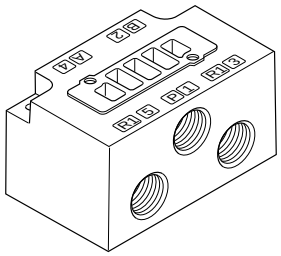
Kit Includes: (1) Bracket, (2) Screws



Subbases

Size	Port Size	Part Number
A05	1/8" NPT	**A05PBN1**
	1/8" BSPP "G"	A05PBG1
A12	1/4" NPT	**A12PBN2**
	1/4" BSPP "G"	A12PBG2

Kit Includes: (1) Subbase (Holddown Bolts and Gasket are included with valve)



A05PB

Individual Air Supply Spacer

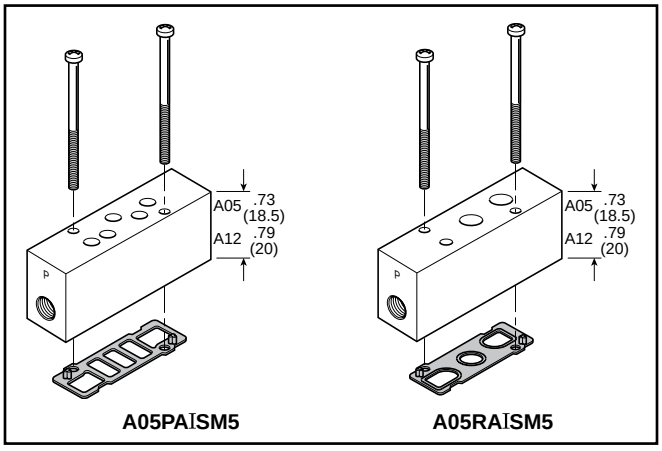
Mounts between valve and manifold. Supply from the manifold is blocked and only the valve mounted on the spacer receives the individual supply.

Size	Type	Port Size	Internal Pilot Part Number	External Pilot* Part Number
A05	Inline	M5	A05RAISM5	A05RAXISM5
	Subbase	M5	A05PAISM5	A05PAXISM5
A12	Inline	1/8" NPT	A12RAISN1	A12RAXISN1
	Subbase	1/8" NPT	A12PAISN1	A12PAXISN1

Can only be used on Collective wiring type manifolds.

* Can only be used with External Piloted valve. External pilot is located on the X Port of the manifold

Kit Includes: (1) Spacer, (2) Screws, and (1) Gasket



A05PAISM5 **A05RAISM5**

Individual Air Exhaust Spacer

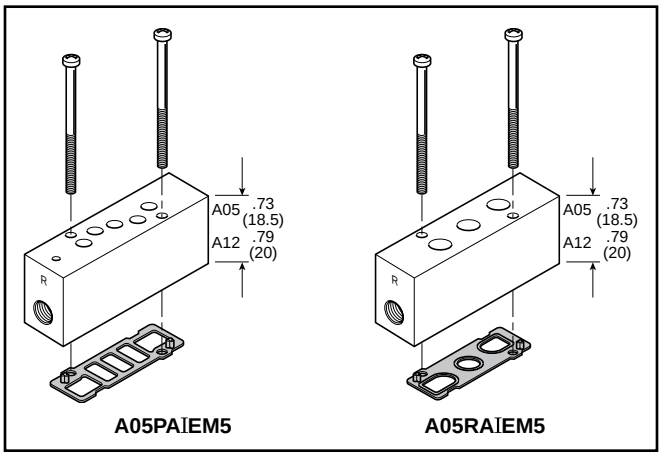
Mounts between valve and manifold. Exhaust from the manifold is blocked and only the valve mounted on the spacer has the individual exhaust.

Size	Type	Port Size	Internal Pilot Part Number	External Pilot* Part Number
A05	Inline	M5	A05RAIEM5	A05RAXIEM5
	Subbase	M5	A05PAIEM5	A05PAXIEM5
A12	Inline	1/8" NPT	A12RAIEN1	A12RAXIEN1
	Subbase	1/8" NPT	A12PAIE N1	A12PAXIEN1

Can only be used on Collective wiring type manifolds.

* Can only be used with External Piloted valve. External pilot is located on the X Port of the manifold

Kit Includes: (1) Spacer, (2) Screws, and (1) Gasket



A05PAIEM5 **A05RAIEM5**

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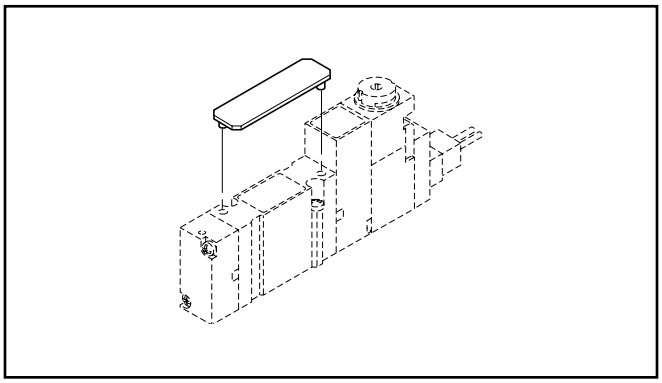
Labeling Tag

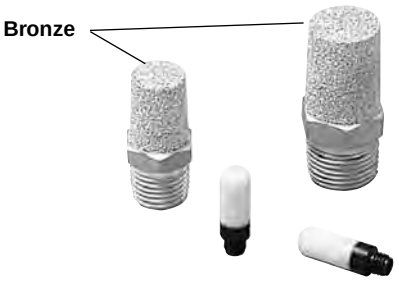
Size	Description	Part Number
A05 A12	White Label Tag	**A05PN**



Exhaust Mufflers

Male Thread	Model Number
M5	**P6M-PAC5**
1/8" NPT	**EM12**
1/4" NPT	**EM25**

P6M - Plastic; EM - Sintered Bronze

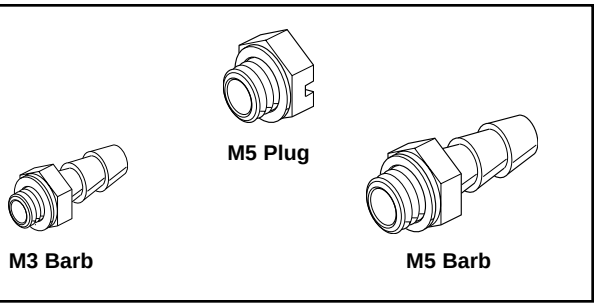


Plastic Silencers

Thread Size	Part Number		A (mm)	B (mm)
	NPT	BSPT "R"		
M5	**AS-5**		.43 (11)	.32 (8)
1/8"	**ASN-6**	**AS-6**	1.57 (40)	.63 (16)
1/4"	**ASN-8**	**AS-8**	2.56 (65)	.83 (21)

M3 & M5 Fittings

Description	Part Number
M5 Plug Fitting	**N220-1900J**
M3 to 3mm Barb	**BC03M3**
M3 to 4mm Barb	**BC04M3**
M5 to 3mm Barb	**BC03M5**



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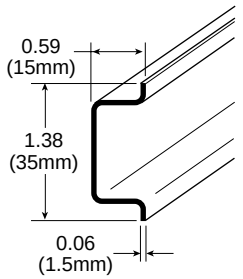
DIN Rail

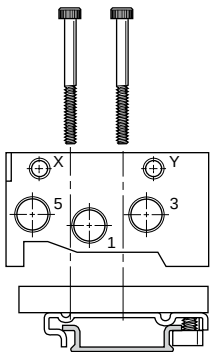
Part Number	Description
AM1DE200	6 Foot Rail Length

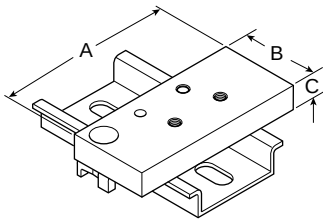


DIN Rail Hardware Kit

Size	Type	Part Number	Dimensions		
			A	B	C
A05	IEM	**MFUA05DB**	2.24	1.00	.31
	Subbase	**MFSA05DB**	(57)	(25)	(8)
A12	IEM	**MFUA12DB**	2.91	1.00	.39
	Subbase	**MFSA12DB**	(74)	(25)	(10)

Kit includes: (2) Screws, (2) Clamps

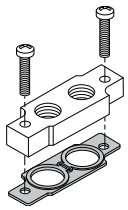




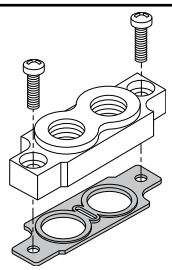
Replacement Kits

Cylinder Port Plate Kits

Size	Fitting	Part Number
A05	M5	**A05RABM5**
A12	1/8" NPT	A12RABN1
	1/8" BSPP "G"	A12RABG1



A05RABM5



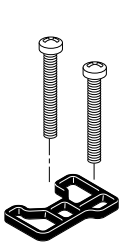
A12RABN1

Base Gasket Kits

Size	Type	Gasket Only	Screw
A00	Subbase	**A00SG**	**A00SS**
A05	Body Ported	**A05RG**	**A05RS**
	Subbase Int.	**A05PG**	**A05PS**
	Subbase Ext.	**A05PXG**	**A05PS**
A12	Body Ported	**A12RG**	**A12RS**
	Subase Int.	**A12PG**	**A12PS**
	Subbase Ext.	**A12PXG**	**A12PS**

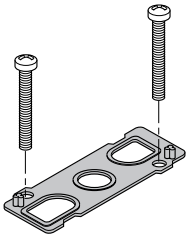
These are spare parts, mounting screws and gaskets included with valves.

A00SS



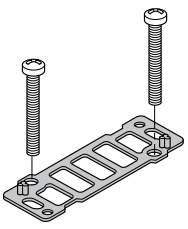
A00SG

Screws
A05RS



Gaskets
A05RG

A05PS



A05PXG

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Flow Rating (Cv)

Size	Port Size	Mounting Style	ANSI / (NFPA)		JIS Method	
			2-Position	3-Position	2-Position	3-Position
A00	M3	Subbase	.010	—	—	—
	M5	Subbase	.017	—	—	—
A00****J	M5	Subbase	.020	—	—	—
A05	M5	Inline	.18	.16	.22	.20
	M5	Subbase	.17	.16	.32	.32
A12	1/8" Ports	Inline	.47	.43	.48	.46
	1/8" Ports	Subbase	.44	.40	.61	.42

ANSI / (NFPA) T3.21.3-1990 standard for Cv measurement.

Response Time

Valve Size	Port Size	0 Cu. In. Test Chamber	
		Fill	Exhaust
2-Position Single Solenoid / Air Return			
A00	M3	.004	.006
A05	M5	.014	.025
A12	1/8"	.016	.030
2-Position Double Solenoid			
A00	M3	—	—
A05	M5	.011	.015
A12	1/8"	.010	.012
3-Position Double Solenoid			
A00	M3	—	—
A05	M5	.013	.017
A12	1/8"	.013	.014

Average Fill Time (Seconds): With 100 PSIG supply, time required to fill from 0-90 PSIG and exhaust from 100 PSIG to 10 PSIG is measured from instant of energizing, or de-energizing 24VDC solenoid. Times shown are average.

Tested per ANSI / (NFPA) T3.21.8.

Temperature Rating

Intermittent Duty (AC & DC Voltage):

32°F to 122°F (0°C to 50°C)
Voltage Rated +10 / –10%

Continuous Duty (DC Voltage Only):

32°F to 104°F (0°C to 40°C)
Voltage Rated +0 / –10%

Operating Pressure

Maximum: **4-Way:** 100 PSIG (690 kPa)
3-Way: 100 PSIG (690 kPa) NC*
70 PSIG (483 kPa) NO*

Minimum:

Description		Internal Pilot		External Pilot	
		PSIG	kPa	PSIG	kPa
4-Way	Single Solenoid	22	152	Vacuum	
				36	248
	Double Solenoid – 2-Position	15	104	Vacuum	
				36	248
	Double Solenoid – 3-Position	30	207	Vacuum	
				36	248
3-Way	A00 Series	Vacuum			

* When using vacuum and pressure on ports 1 & 3 – 85 PSIG (586 kPa) NC; 58 PSIG (400 kPa) NO (see page D112).

Solenoid Information

Power Consumption	**Standard**			
				With Indicator Light & Surge Suppressor
	DC		W	**0.6**
	AC	100V	VA	**1.2**
		110V	VA	**1.4**
	High Flow			
				With Indicator Light & Surge Suppressor
	DC		W	**0.91**
	AC	100V	VA	—
		110V	VA	—

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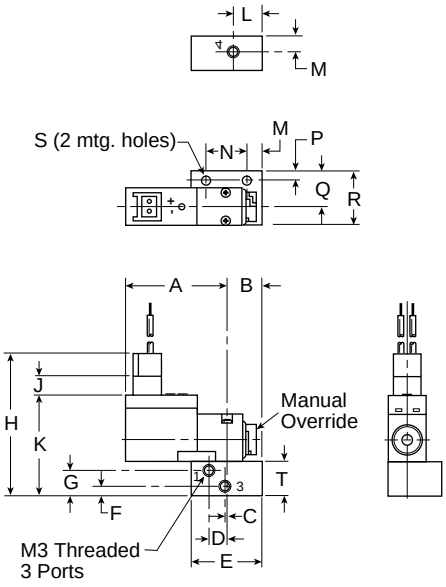
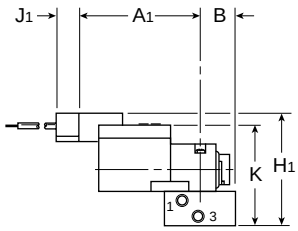
A00 Subbase



P & S Option



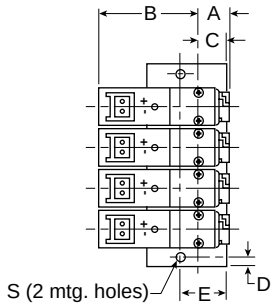
Q & B Option

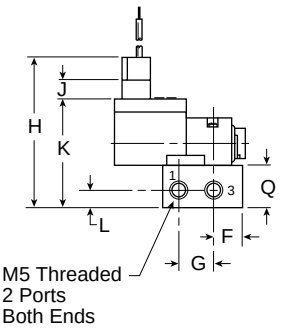
A00 - Subbase

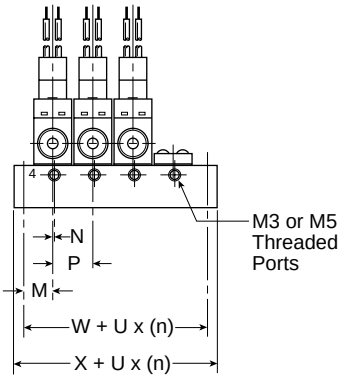
A	A1	B	C	D
1.00 (25)	1.18 (30)	.41 (11)	.015 (.4)	.17 (4)
E	**F**	**G**	**H**	**H1**
.79 (20)	.12 (3)	.28 (7)	1.54 (39)	1.38 (34)
J	**J1**	**K**	**L**	**M**
.24 (6)	.20 (5)	1.11 (28)	.32 (8)	.18 (5)
N	**P**	**Q**	**R**	**S**
.47 (12)	.10 (3)	.39 (10)	.59 (15)	.106 (2.7)
T				
.38 (10)				

Inches (mm)

A00 Manifold







A00 - Manifold

A	B	C	D	E
.36 (9)	1.00 (25)	.31 (8)	.10 (3)	.51 (13)
F	**G**	**H**	**J**	**K**
.31 (8)	.39 (10)	1.63 (42)	.20 (5)	1.22 (31)
L	**M**	**N**	**P**	**Q**
.20 (5)	.33 (9)	.02 (.6)	.41 (10.5)	.47 (12)
S	**U**	**X**	**W**	
.125 (3.2)	.41 (10.5)	.45 (11.5)	.26 (6.5)	

Inches (mm)

n = Number of stations.

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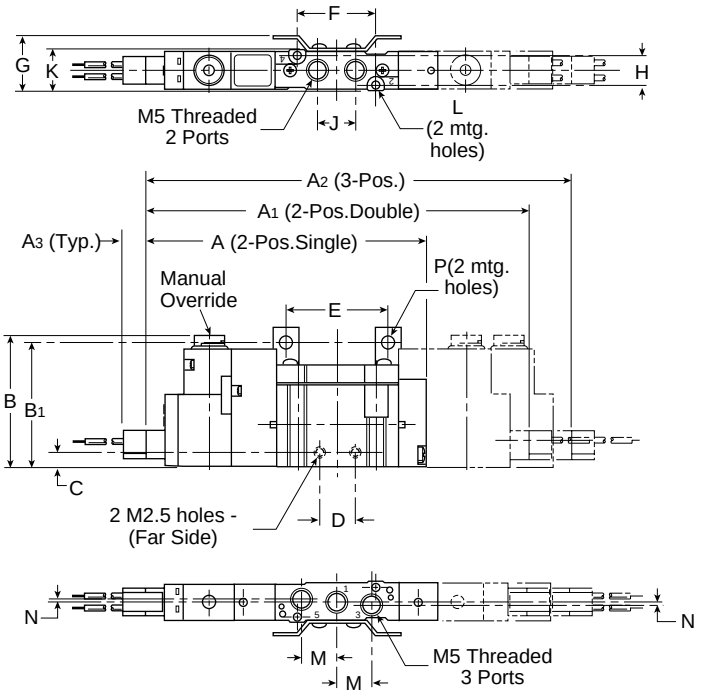
A05

Single & Double Operators – Inline



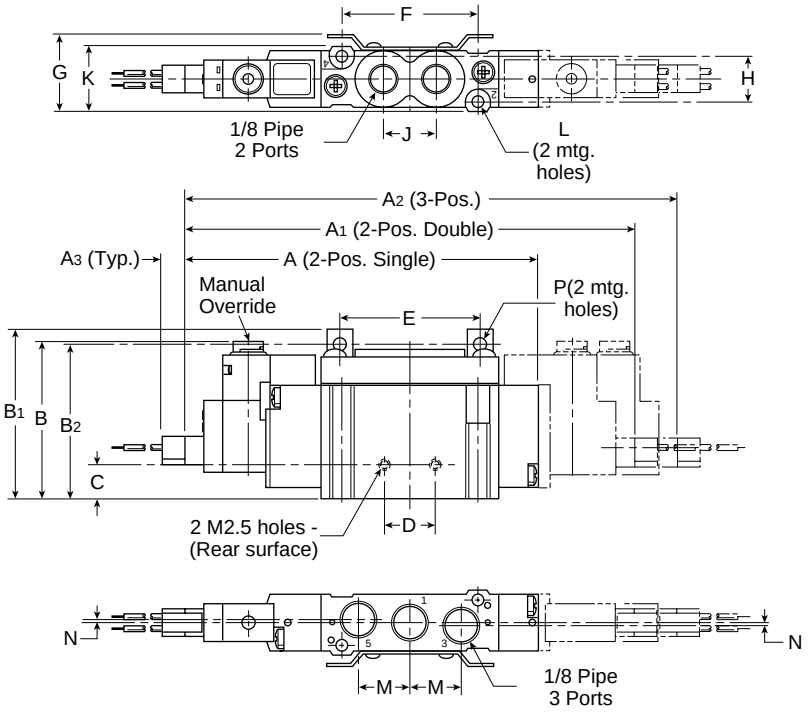
A05R – Inline

A	A1	A2	A3	B
2.91 (74)	3.94 (100)	4.25 (108)	.24 (6)	1.38 (35)
B1	**C**	**D**	**E**	**F**
1.30 (33)	.16 (4)	.38 (10)	1.06 (27)	.83 (21)
G	**H**	**J**	**K**	**L**
.57 (15)	.33 (9)	.40 (10)	.45 (11.4)	Ø .08 Ø (2.1)
M	**N**	**P**		
.37 (10)	.04 (1)	Ø .14 Ø (3.5)		

Inches (mm)

A12

Single & Double Operators – Inline



A12R – Inline

A	A1	A2	A3	B
3.68 (94)	4.69 (119)	5.12 (130)	.24 (6)	1.64 (42)
B1	**B2**	**C**	**D**	**E**
1.77 (45)	1.70 (43)	.35 (9)	.51 (13)	1.46 (37
F	**G**	**H**	**J**	**K**
1.42 (36)	.80 (20)	.47 (12)	.55 (14)	.68 (17)
L	**M**	**N**	**P**	
Ø .12 Ø (3.1)	.55 (14)	.03 (0.8)	Ø .14 Ø (3.5)	

Inches (mm)

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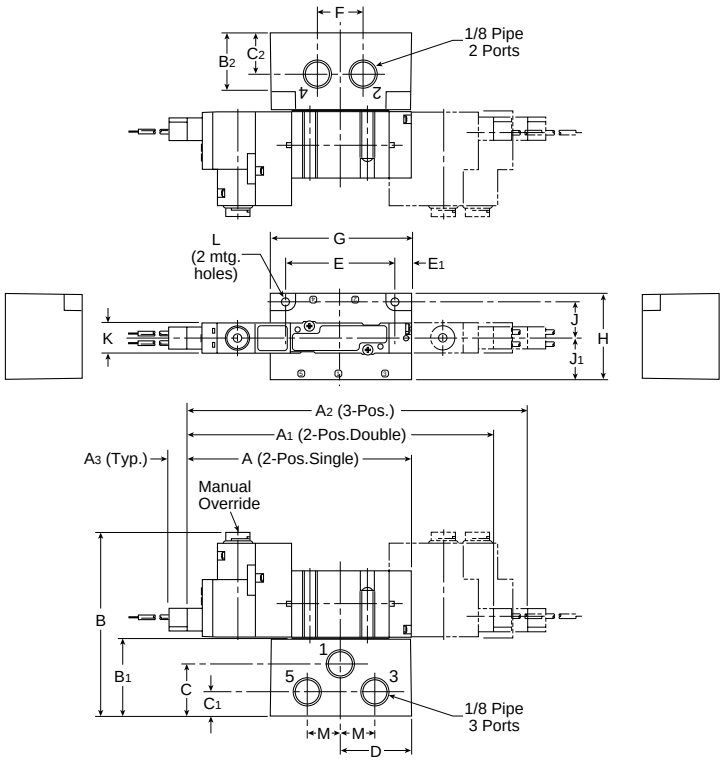
A05

Single & Double Operators – Subbase



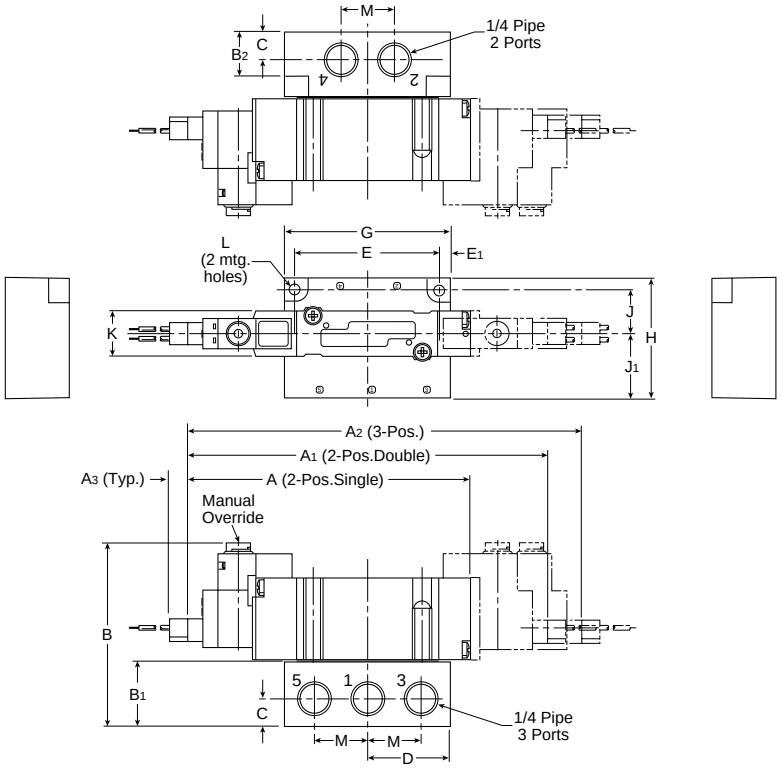
A05P – Subbase

A	A1	A2	A3	B
2.91 (74)	3.94 (100)	4.25 (108)	.24 (6)	2.35 (60)
B1	**B2**	**C**	**C1**	**C2**
.96 (25)	.75 (19)	.65 (17)	.30 (8)	.53 (14)
D	**E**	**E1**	**F**	**G**
.89 (23)	1.38 (35)	.20 (5)	.57 (15)	1.77 (45)
H	**J**	**J1**	**K**	**L**
.08 (28)	.45 (11.5)	.51 (13)	.39 (10)	Ø .13 Ø (3.2)
M				
.45 (12)				

Inches (mm)

A12

Single & Double Operators – Subbase



A12P – Subbase

A	A1	A2	A3	B
3.68 (94)	4.69 (119)	5.12 (130)	.24 (6)	2.41 (61)
B1	**B2**	**C**	**D**	**E**
.87 (22)	.75 (19)	.37 (10)	1.10 (28)	1.89 (48)
E1	**G**	**H**	**J**	**J1**
.16 (4)	2.20 (56)	1.59 (41)	.57 (14.5)	.87 (22)
K	**L**	**M**		
.59 (15)	Ø .17 Ø (4.3)	.71 (18)		

Inches (mm)

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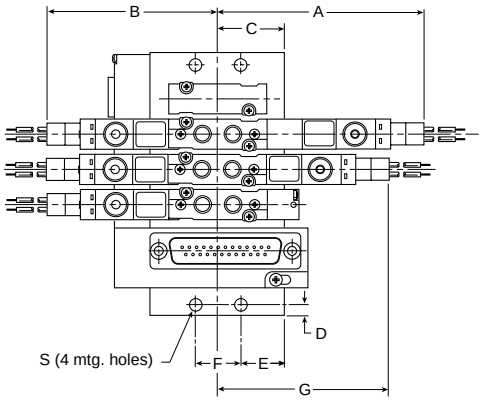
A05

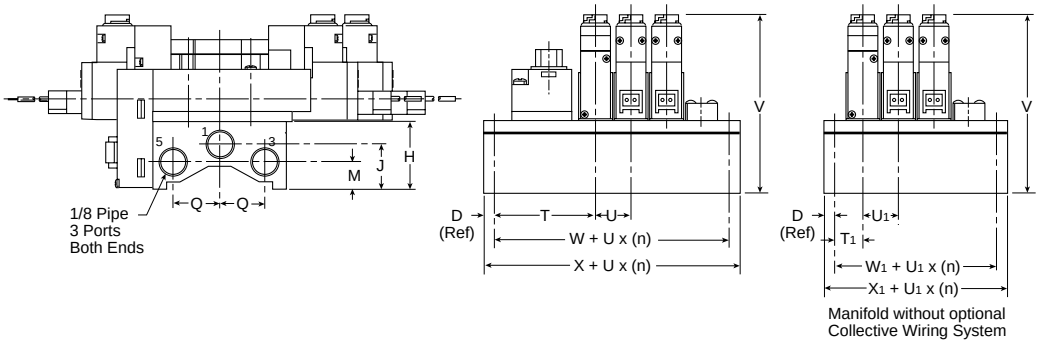
Manifold – Valve Inline



A05R - Manifold, Valve Inline

A	B	C	D	E	F
2.52 (64)	2.21 (56)	.94 (24)	.16 (4)	.61 (16)	.63 (16)
G	**H**	**J**	**M**	**Q**	**S**
2.21 (56)	.94 (24)	.61 (16)	.37 (10)	.63 (16)	Ø .18 Ø (4.5)
T	**T_1**	**U**	**U_1**	**V**	**W**
1.34 (34)	.51 (13)	.49 (12.5)	.41 (10.5)	2.32 (59)	1.36 (35)
W_1	**X**	**X_1**			
.37 (9.5)	167 (43)	.68 (17.5)			

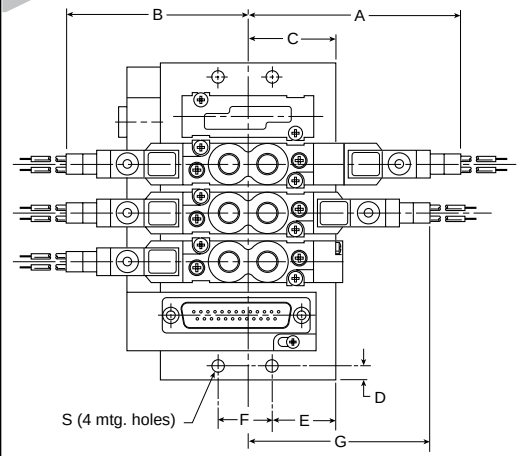
Inches (mm)



n = Number of stations.

A12

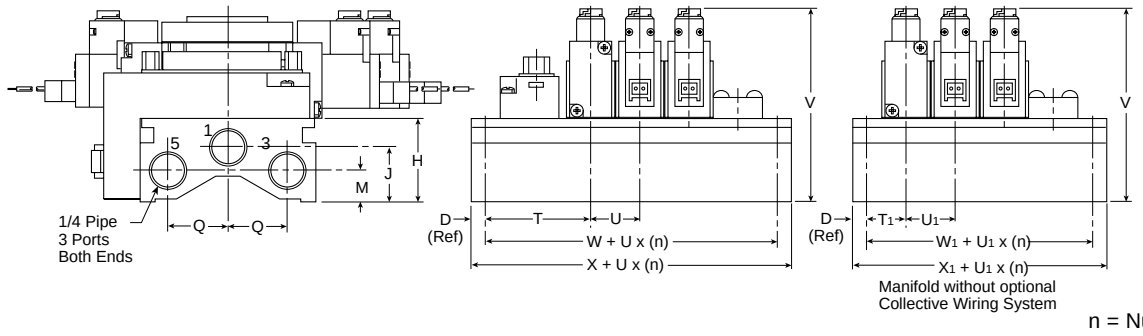
Manifold – Valve Inline



A12R - Manifold, Valve Inline

A	B	C	D	E	F
3.01 (77)	2.58 (66)	1.14 (29)	.20 (5)	.76 (19)	.77 (19.6)
G	**H**	**J**	**M**	**Q**	**S**
2.58 (66)	1.08 (28)	.71 (18)	.41 (11)	.77 (20)	Ø .18 Ø (4.5)
T	**T_1**	**U**	**U_1**	**V**	**W**
1.48 (38)	.51 (13)	.69 (17.5)	.63 (16)	2.74 (70)	1.34 (34)
W_1	**X**	**X_1**			
.39 (10)	1.73 (44)	.79 (20)			

Inches (mm)



n = Number of stations.

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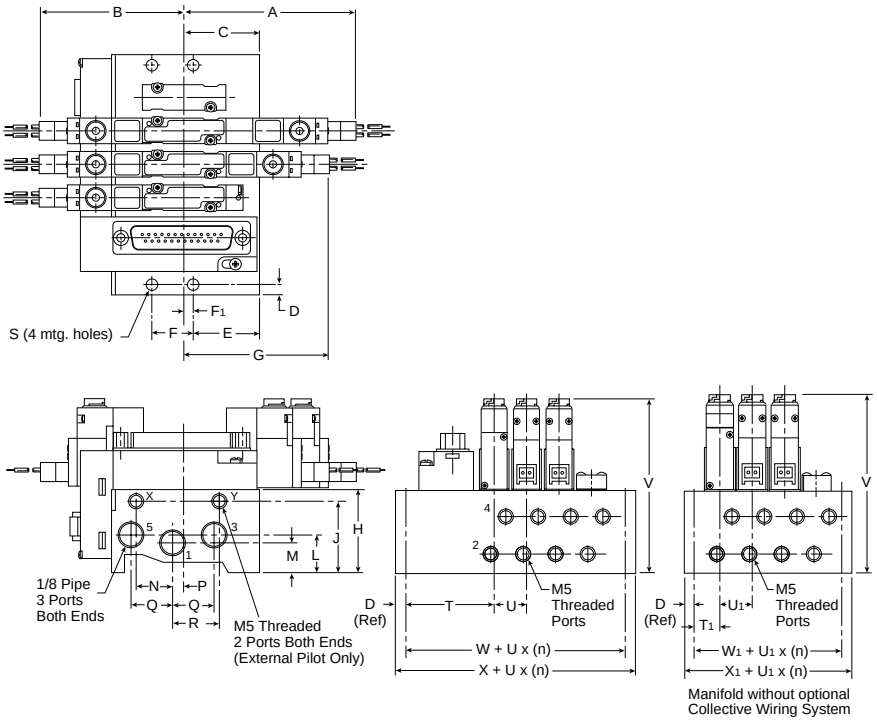
A05

Manifold – Side Ports



A05P – Manifold, Side Ports

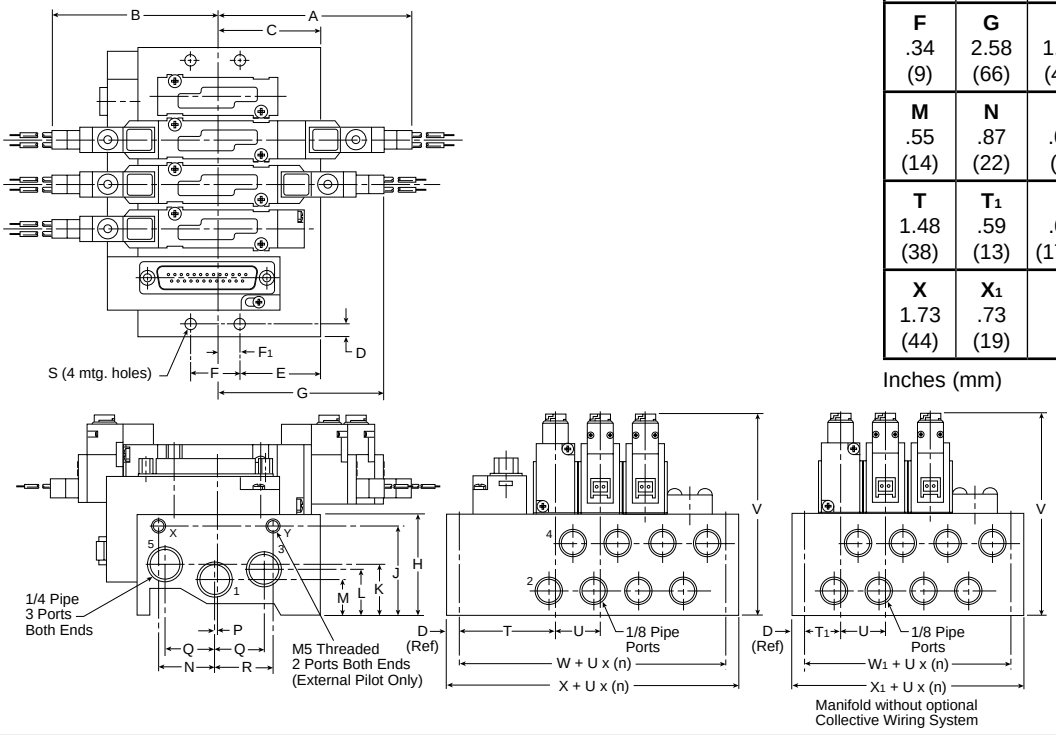
A	B	C	D	E	F
2.52 (64)	2.21 (56)	1.12 (29)	.16 (4)	1.00 (26)	.63 (16)
F_1	**G**	**H**	**J**	**L**	**M**
.19 (5)	2.21 (56)	1.26 (32)	1.08 (28)	.59 (15)	.45 (11.5)
N	**P**	**Q**	**R**	**S**	**T**
.55 (14)	.13 (3)	.63 (16)	.71 (18)	Ø .18 Ø (4.5)	1.34 (34)
T_1	**U**	**U_1**	**V**	**W**	**W_1**
.39 (10)	.49 (12.5)	.41 (10.5)	2.64 (67)	1.32 (34)	.37 (10)
X	**X_1**				
1.65 (42)	.67 (18)				

Inches (mm)

n = Number of stations.

A12

Manifold – Side Ports



A12P – Manifold, Side Ports

A	B	C	D	E	F
3.01 (77)	2.58 (66)	1.59 (40)	.20 (5)	1.25 (32)	.77 (20)
F	**G**	**H**	**J**	**K**	**L**
.34 (9)	2.58 (66)	1.57 (40)	1.38 (35)	.79 (20)	.71 (18)
M	**N**	**P**	**Q**	**R**	**S**
.55 (14)	.87 (22)	.04 (1)	.77 (20)	.91 (23)	Ø .18 Ø (4.5)
T	**T_1**	**U**	**V**	**W**	**W_1**
1.48 (38)	.59 (13)	.69 (17.5)	3.09 (79)	1.34 (34)	.33 (9)
X	**X_1**				
1.73 (44)	.73 (19)				

Inches (mm)

n = Number of stations.

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“N” Series

High Speed
Inline Poppet Valves
2 & 3-Way

Section D
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BOLD ITEMS ARE MOST POPULAR.

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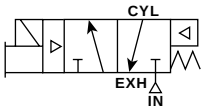
Single Solenoid 3-Way, 2-Position NC (NNP)



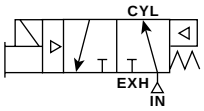
Normal position – Pressure at inlet port marked "IN" blocked. Cylinder port connected to exhaust port (3-Way).

Energized position – Solenoid operator energized, pressurized "IN" port connects to cylinder port. Exhaust port is blocked (3-Way).

⚠ **CAUTION:**
These are poppet valves, ***Do Not*** restrict the inlet.

Note: For 2-Way, Normally Closed, Exhaust Port is Plugged.

Single Solenoid 3-Way, 2-Position NO (NP)



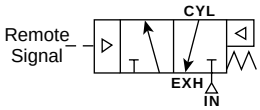
Normal position – Pressure at inlet port marked "IN" open to cylinder. Exhaust port is blocked (3-Way).

Energized position – Solenoid operator energized. Pressure at inlet port marked "IN" is blocked. Cylinder open to exhaust (3-Way).

⚠ **CAUTION:**
These are poppet valves, ***Do Not*** restrict the inlet.

Note: For 2-Way, Normally Open, Exhaust Port is Plugged.

Single Remote Pilot 3-Way, 2-Position, NC (NNP)



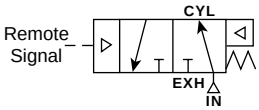
Normal position –
Pressure at inlet port marked "IN" blocked. Cylinder port connected to exhaust port (3-Way).

Operated position – With maintained air signal at pilot port, pressurized "IN" port connects to cylinder port. Exhaust port is blocked (3-Way).

⚠ **CAUTION:**
These are poppet valves, ***Do Not*** restrict the inlet.

Note: For 2-Way, Normally Closed, Exhaust Port is Plugged.

Single Remote Pilot 3-Way, 2-Position, NO (NP)



Normal position –
Pressure at inlet port marked "IN" open to cylinder. Exhaust port is blocked (3-Way).

Operated position – With maintained air signal at pilot port, pressure at inlet port marked "IN" is blocked. Cylinder open to exhaust (3-Way).

⚠ **CAUTION:**
These are poppet valves, ***Do Not*** restrict the inlet.

Note: For 2-Way, Normally Open, Exhaust Port is Plugged.

For Information on Options that are no longer available and the Suggested Cross Reference or Kit Info, refer to www.parker.com/pneumatic/classicvalves & Catalog N Series-E/USA

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"N" Series

Specifications

- 2-Way NC
- 3-Way NO & NC
- Selector Function

Flow

- 3/8" Body – 3.0 to 4.4 Cv
- 3/4" Body – 9.0 to 11.0 Cv
- 1-1/4" Body – 20.0 to 30.0 Cv

Port Sizes

- 3/8" Body – 3/8", 1/2" NPT
- 3/4" Body – 1/2", 3/4", 1" NPT
- 1-1/4" Body – 1", 1-1/4", 1-1/2" NPT
- BSPP "G" Threads Available

Operating Pressure

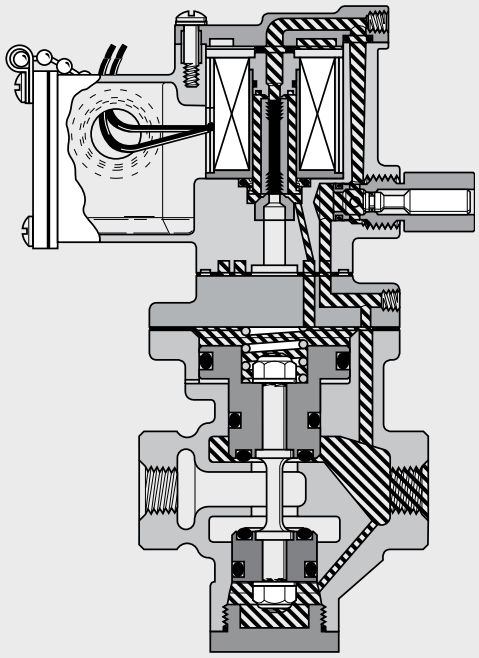
- 30 to 250 PSI (0 to 1000 kPa)
- Vacuum with External Pilot

Features

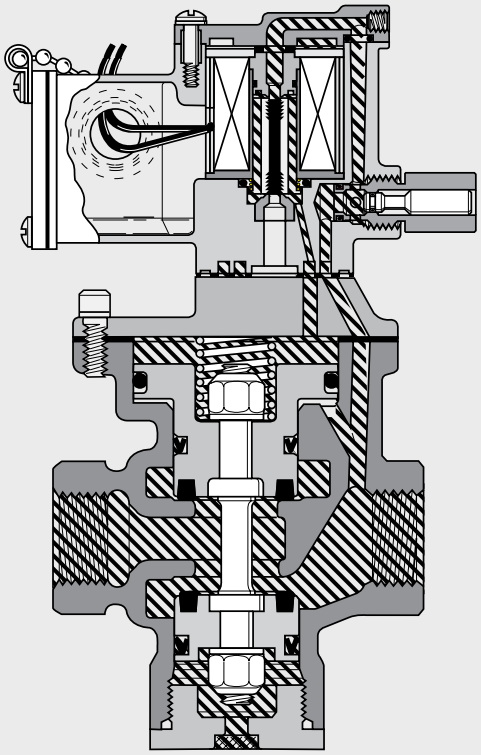
- Continuous Duty Rated Option
- Non-Lube Service
- Hi-Flow, Short Stroke Poppet
- Indicator Lights Available

Certification / Approval

- Approved to be CE Marked (Standard L-Pilot & P-Pilot)
- NEMA 4 Option
- Hazardous Duty Option



3/8" Solenoid Pilot De-Energized
Normally Closed



1-1/4" Solenoid Pilot De-Energized
Normally Open

Pressure **Exhaust**

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Single Solenoid Normally Closed

2-Way, 2-Position
3-Way, 2-Position

3/8" & 3/4" Body Size

	2-Way Normally Closed	3-Way Normally Closed	In/Cyl Ports	Exh. Port
3/8"	N3153904553	N3553904553	3/8"	1/2"
	N3154904553	N3554904553	1/2"	1/2"
3/4"	N3155904553	N3555904553	1/2"	3/4"
	N3156904553	N3556904553	3/4"	1"
	N3157904553	N3557904553	1"	1"

Locking Manual Override, Internal "P" Pilot 140 PSI, Standard Service, Junction Box w/ Light, 120VAC.

Single Solenoid Normally Open

3-Way, 2-Position

3/8" & 3/4" Body Size

	3-Way Normally Open	In/Cyl Ports	Exh Port
3/8"	N3753904553	3/8"	1/2"
	N3754904553	1/2"	1/2"
3/4"	N3755904553	1/2"	3/4"
	N3756904553	3/4"	1"
	N3757904553	1"	1"

Locking Manual Override, Internal "P" Pilot 140 PSI, Standard Service, Junction Box w/ Light, 120VAC.

1-1/4" Body Size

	2-Way Normally Closed	3-Way Normally Closed	In/Cyl Ports	Exh. Port
1-1/4"	N3257904753	N3657904753	1"	1-1/4"
	N3258904753	N3658904753	1-1/4"	1-1/2"
	N3259904753	N3659904753	1-1/2"	1-1/2"

Locking Manual Override, Internal "P" Pilot 125 PSI, Standard Service, P-Pilot Junction Box w/ Light, 120VAC.

1-1/4" Body Size

	3-Way Normally Open	In/Cyl Ports	Exh. Port
1-1/4"	N3857904753	1"	1-1/4"
	N3858904753	1-1/4"	1-1/2"
	N3859904753	1-1/2"	1-1/2"

Locking Manual Override, Internal "P" Pilot 125 PSI, Standard Service, P-Pilot Junction Box w/ Light, 120VAC.

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Single Remote Pilot Normally Closed

2-Way, 2-Position
3-Way, 2-Position

3/8" & 3/4" Body Size

	2-Way Normally Closed	3-Way Normally Closed	In/Cyl Ports	Exh. Port
3/8"	N31431091	N35431091	3/8"	1/2"
	N31441091	N35441091	1/2"	1/2"
3/4"	N31451091	N35451091	1/2"	3/4"
	N31461091	N35461091	3/4"	1"
	N31471091	N35471091	1"	1"

1/4" NPT Remote Pilot Port with Internal Pilot Return.

Single Remote Pilot Normally Open

3-Way, 2-Position

3/8" & 3/4" Body Size

	3-Way Normally Open	In/Cyl Ports	Exh. Port
3/8"	N37431091	3/8"	1/2"
	N37441091	1/2"	1/2"
3/4"	N37451091	1/2"	3/4"
	N37461091	3/4"	1"
	N37471091	1"	1"

1/4" NPT Remote Pilot Port with Internal Pilot Return.

1-1/4" Body Size

	2-Way Normally Closed	3-Way Normally Closed	In/Cyl Ports	Exh. Port
1-1/4"	N32471091	N36471091	1"	1-1/4"
	N32481091	N36481091	1-1/4"	1-1/2"
	N32491091	N36491091	1-1/2"	1-1/2"

1/4" NPT Remote Pilot Port with Internal Pilot Return.

1-1/4" Body Size

	3-Way Normally Open	In/Cyl Ports	Exh. Port
1-1/4"	N38471091	1"	1-1/4"
	N38481091	1-1/4"	1-1/2"
	N38491091	1-1/2"	1-1/2"

1/4" NPT Remote Pilot Port with Internal Pilot Return.

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"N" Series 3/8", 3/4" & 1-1/4" Body Sizes - Solenoid 'L' Pilot

N 315 3 9 0 45 53 —

Valve Function - Solenoid	
3/8" & 3/4" Body	
2-Way, Normally Closed	**315**
3-Way, Normally Closed	**355**
3-Way, Normally Open	**375**
1-1/4" Body	
2-Way, Normally Closed	**325**
3-Way, Normally Closed	**365**
3-Way, Normally Open	**385**

Port Size / Thread Type	
3/8" Body Size	
3/8" Inlet & Cyl - 1/2" Exhaust - NPT	3
1/2" Inlet & Cyl - 1/2" Exhaust - NPT	4
1/2" Inlet & Cyl - 1/2" Exhaust - BSPP	N
3/4" Body Size	
1/2" Inlet & Cyl - 3/4" Exhaust - NPT	5
3/4" Inlet & Cyl - 1" Exhaust - NPT	**6**
3/4" Inlet & Cyl - 1" Exhaust - BSPP	Q
1" Inlet & Cyl - 1" Exhaust - NPT	7
1-1/4" Body Size	
1" Inlet & Cyl - 1 1/4"Exhaust - NPT	**7**
1-1/4" Inlet & Cyl – 1-1/2" Exhaust - NPT	**8**
1-1/4" Inlet & Cyl – 1-1/2" Exhaust - BSPP	S*
1-1/2" Inlet & Cyl – 1-1/2" Exhaust - NPT	**9**
1-1/2" Inlet & Cyl – 1-1/2" Exhaust - BSPP	T*

* Not available with Valve Function 325.

Note: BSPP is to the ISO 228 Standard, and requires an R-BSPT male fitting.

Solenoid Enclosure	
Basic Pilot	**1**
Basic Pilot NLMO	2
Basic Pilot LMO	3
Junction Box NLMO	**5**
Junction Box LMO	6
Junction Box NLMO w/ Light	**8**
Junction Box LMO w/ Light	**9**
Basic Pilot Ext. LMO	W
JIC NLMO w/Light - 3-Pin Automotive	E
JIC NLMO w/ Light - 4-Pin M12	J
JIC NLMO w/ Light - 5-Pin Automotive	N

Solenoid Type	
0	**Standard**
5*	Hazardous Duty
8*	NEMA 4 Solenoid

* Available with Solenoid Enclosure 2 & 3, 'L' Pilot Configuration 04 & 48, and Voltage 49 & 53 ONLY.

"L" Pilot Configuration	
01*	External Pilot, Std Service, 140 PSI
04*	External Pilot, Cont Duty, 140 PSI
45	**Internal Pilot, Std Service, 140 PSI**
46	Internal Pilot, Std Service, 200 PSI
48	**Internal Pilot, Cont Duty, 140 PSI**

* Not available with Valve Function 325, 365, and 385 (1-1/4" Body).

Options	
Blank	**None**
L	72" Leads - '51' Voltage Code Only
C	Chrysler Wiring - Enclosure 'J' & 'N'
F	Ford Wiring - Enclosure 'E', 'J', & 'N'
G	GM wiring - Enclosure 'J' & 'N'

"L" Pilot Code						
	Voltage			Solenoid Enclosure Options		
Code	AC 60hz	AC 50hz	DC	Standard Duty (01, 45)	Cont. Duty (04, 48)	200 PSI (46)
42	24	24	6	5, 6	6	
45			12	1, 5, 6		
49			**24**	**1, 2, 3, 5, 6, 8, 9, W**	**6, 8, 9**	**9**
51			48	1		
53	**120**	**110**		**1, 2, 3, 5, 6, 8, 9, E, N, W**	**1, 6, 8, 9, N**	**8, 9, E**
57	240	220		1, 3, W		
61			120	5, 6		
79			24	E, J	E, J	E, J

BOLD OPTIONS ARE MOST POPULAR.

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"N" Series 1-1/4" Body Sizes - Solenoid Hi-Flow 'P' Pilot

N 365 8 9 0 47 53

Valve Function - Solenoid	
1-1/4" Body	
2-Way, Normally Closed	**325**
3-Way, Normally Closed	**365**
3-Way, Normally Open	**385**

Port Size / Thread Type	
1-1/4" Body Size	
1" Inlet & Cyl - 1 1/4"Exhaust - NPT	**7**
1-1/4" Inlet & Cyl – 1-1/2" Exhaust - NPT	**8**
1-1/4" Inlet & Cyl – 1-1/2" Exhaust - BSPP	S
1-1/2" Inlet & Cyl – 1-1/2" Exhaust - NPT	**9**
1-1/2" Inlet & Cyl – 1-1/2" Exhaust - BSPP	T

Note: BSPP is to the ISO 228 Standard, and requires an R-BSPT male fitting.

Solenoid Enclosure	
Junction Box NLMO	5
Junction Box LMO	6
Junction Box NLMO w/ Light	**8**
Junction Box LMO w/ Light	**9**

Solenoid Type	
0	**Standard**

"P" Pilot Configuration	
02	External Pilot, Std Service, 125 PSI
47	**Internal Pilot, Std Service, 125 PSI**

"P" Pilot Code				
	Voltage			Enclosure Options
Code	AC 60hz	AC 50hz	DC	Standard Duty
49			24	5, 6
53	**120**	**110**		**5, 6, 8, 9**

"N" Series 3/8", 3/4" & 1-1/4" Body Sizes - Remote Pilot

N 314 3 0 91

Valve Function - Solenoid	
3/8" & 3/4" Body	
2-Way, Normally Closed	**314**
3-Way, Normally Closed	**354**
3-Way, Normally Open	**374**
1-1/4" Body	
2-Way, Normally Closed	**324**
3-Way, Normally Closed	**364**
3-Way, Normally Open	**384**

Port Size / Thread Type	
3/8" Body Size	
3/8" Inlet & Cyl - 1/2" Exhaust - NPT	**3**
1/2" Inlet & Cyl - 1/2" Exhaust - NPT	**4**
1/2" Inlet & Cyl - 1/2" Exhaust - BSPP	N
3/4" Body Size	
1/2" Inlet & Cyl - 3/4" Exhaust - NPT	5
1/2" Inlet & Cyl - 3/4" Exhaust - BSPP	P
3/4" Inlet & Cyl - 1" Exhaust - NPT	**6**
3/4" Inlet & Cyl - 1" Exhaust - BSPP	Q
1" Inlet & Cyl - 1" Exhaust - NPT	7
1-1/4" Body Size	
1" Inlet & Cyl - 1 1/4"Exhaust - NPT	**7**
1-1/4" Inlet & Cyl – 1-1/2" Exhaust - NPT	**8**
1-1/4" Inlet & Cyl – 1-1/2" Exhaust - BSPP	S*
1-1/2" Inlet & Cyl – 1-1/2" Exhaust - NPT	**9**
1-1/2" Inlet & Cyl – 1-1/2" Exhaust - BSPP	T*

* Not available with Valve Function 325.

Note: BSPP is to the ISO 228 Standard, and requires an R-BSPT male fitting.

Pilot Configuration	
089	External Pilot Return
091	**Internal Pilot Return**

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Operating Pressure

Internal Pilot – Solenoid Valves

3/8" & 3/4" Body

- 20 to 140 PSIG (standard)

1-1/4" Body

- 25 to 140 PSIG (200 PSIG option available)

Internal Pilot – Remote Pilot Valve

Operating Pressure Limitations			
Air Pressure Thru Valve	Remote Pilot Pressure (PSI)		
	3/8" Basic	3/4" Basic	1-1/4" Basic
25 PSI	30-250	30-250	30-250
50 PSI	50-250	50-250	50-250
75 PSI	70-250	75-250	70-250
100 PSI	95-250	95-250	90-250
150 PSI	140-250	145-250	130-250
200 PSI	175-250	185-250	175-250
250 PSI	215-250	230-250	205-250

Solenoid Valves: External Supply

3/8" & 3/4" Basic

Air Pressure Thru Valve (PSI)	External Pilot Pressure Required (PSI)*	
	3/8" Basic	3/4" Basic
25 PSI	35-200	35-200
50 PSI	45-200	40-200
75 PSI	55-200	50-200
100 PSI	65-200	65-200

Vacuum up to 1" HG, less than a perfect vacuum.

* With 200 PSI option.

Do not exceed 140 PSI with standard pilots.

3/8" & 3/4" Body
Single Solenoid External Pilot
Normally Closed

3/8" & 3/4" Body
Single Solenoid External Pilot
Normally Open

3/8" & 3/4" Body **1-1/4" Body**
Remote Operated External Return
Normally Closed

3/8" & 3/4" Body **1-1/4" Body**
Remote Operated External Return
Normally Open

External Pilot supply should be used when the main valve needs to operate below the Minimum Operating Pressure or at Vacuum. A Selector function can also be achieved (pressurizing the IN and EXHAUST ports) with an External Pilot Supply. Refer to charts for required external pilot pressure.

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Flow

Basic Valve Size	Inlet Port Size	Exhaust Port Size	Cv Inlet to Cylinder	Cv Cylinder to Exhaust
3/8" 3-Way Normally Closed	3/8" Pipe	1/2" Pipe	3.6	4.2
	1/2" Pipe	1/2" Pipe	3.8	4.3
3/8" 3-Way Normally Open	3/8" Pipe	1/2" Pipe	3.6	4.1
	1/2" Pipe	1/2" Pipe	3.9	4.5
3/4" 3-Way Normally Closed	1/2" Pipe	3/4" Pipe	8.2	9.2
	3/4" Pipe	1" Pipe	9.3	10.8
3/4" 3-Way Normally Open	1/2" Pipe	3/4" Pipe	7.7	6.6
	3/4" Pipe	1" Pipe	9.6	11.4
1-1/4" 3-Way Normally Closed	1" Pipe	1-1/4" Pipe	19.5	23.5
	1-1/4" Pipe	1-1/2" Pipe	23.3	26.9
	1-1/2" Pipe	1-1/2" Pipe	23.3	26.9
1-1/4" 3-Way Normally Open	1" Pipe	1-1/4" Pipe	20.4	24.8
	1-1/4" Pipe	1-1/2" Pipe	25.0	29.1
	1-1/2" Pipe	1-1/2" Pipe	26.7	29.9

Temperature Rating

Operating Temperature Range:

Operator Type	Duty Cycle*	Minimum Ambient Temperature	Maximum Ambient Temperature
Standard Service	Intermittent	0°F (-18°C)	125°F (52°C)
Solenoid	Continuous	0°F (-18°C)	100°F (38°C)
Special Service	Intermittent	0°F (-18°C)	125°F (52°C)
Solenoid	Continuous	0°F (-18°C)	125°F (52°C)
Remote Pilot	Not Applicable	0°F (-18°C)	200°F (93°C

* Applications with pilot valves energized for ten (10) minutes or longer with a duty cycle greater than 70% are considered to be continuously energized.

$$\text{Duty cycle} = \frac{\text{Time energized}}{\text{Time energized + time off}} \times 100\% = \%\ \text{Duty Cycle}$$

Materials of Construction

Valve Body .....Cast Aluminum

Poppet Assembly..... Aluminum and Stainless Steel

Pilot Valve.....Zinc, Stainless Steel, Brass, Copper, Zinc Plated Steel

Seals .....Nitrile

Selection

Although reasonable safety factors are designed into each speed poppet valve, it is important that application requirements do not exceed the rated limitation of the valve. This precaution insures a sufficient safety factor.

Life Expectancy

Normal multimillion cycle life expectancy of high speed poppet series valves is based on the use of properly filtered and lubricated air at room temperature. In actual laboratory tests, the high speed poppet valves provide maintenance-free service life in excess of 20,000,000 cycles.

Lubrication

The high speed poppet valves are pre-lubricated to permit use with non-lubricated air. However, air should be lubricated to assure maximum seal life.

F442 lubricating oil is recommended. This oil is specially formulated to provide peak performance and maximum service life from air-operated equipment.

Other good air line lubricating oils may be used provided they atomize readily and are of the medium aniline type. Aniline point range must be between 180°F - 220°F. Viscosity SUS @ 100°F of 140-170. High aniline oils will shrink seals; low aniline oils will swell seals, reducing operating life and expectancy.

Installation

Valves should be installed with reasonable accessibility for service whenever possible. Care should be taken to hold piping length to a minimum and to protect valves from exposure to extreme heat, dirt and moisture. Piping should be clean and clear of dirt and chips. Threads should be the correct size and undamaged. Pipe joint compound should be used sparingly and only on pipe threads, never in the valve body. Care should be taken in installation to avoid undue strain on valve.

For the small port size options, it is recommended that an air reservoir is located close to the valve inlet as to not starve the valve of air pressure.

⚠ ***CAUTION:*** **DO NOT RESTRICT THE INLET TO POPPET VALVES**

Restriction of the inlet can starve the air supply to the pilot section of internally piloted poppet valves and result in slow shifting or failure of the valve to shift properly. Always connect the supply line directly to the inlet of the valve using the full pipe size of the valve inlet. Never use a quick coupling to connect a poppet valve to the air supply. On valves with a small inlet port, use of an upstream surge tank may be required at lower operating pressures to insure an adequate air supply and proper operation.

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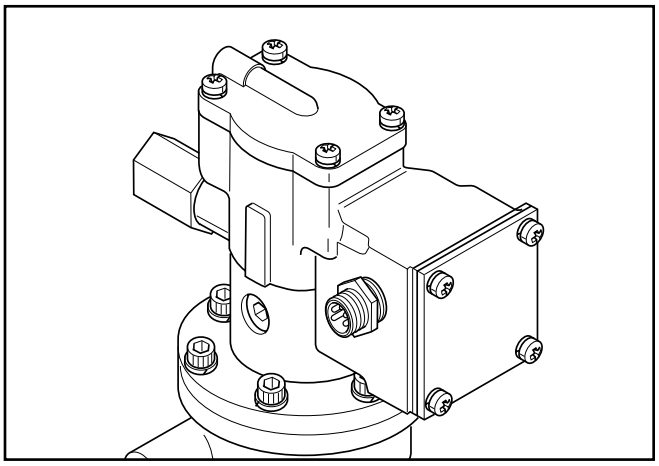


Automotive Connections

- 3-Pin & 5-Pin "Mini" (7/8 UNF Thread)
- 4-Pin "Micro" (M12 Thread)

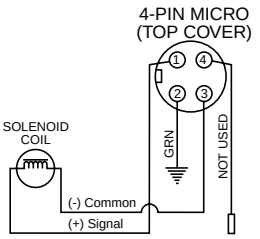
Solenoid Configurations

"E", "J", "N"

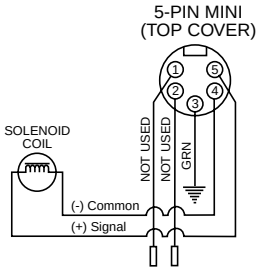
Wiring Connections

Chrysler Connection

4-Pin Male/Single Solenoid
(Encl. Option J, Wiring Option C)

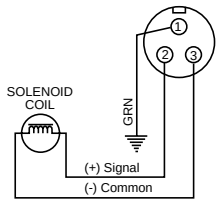


5-Pin Male/Single Solenoid
(Encl. Option N, Wiring Option C)

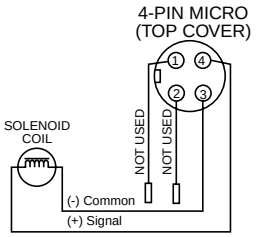


Ford Connection

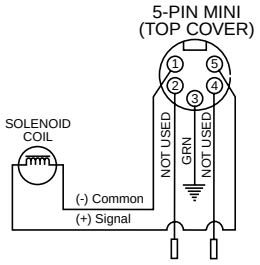
3-Pin Male/Single Solenoid
(Encl. Option E, Wiring Option F)



4-Pin Male/Single Solenoid
(Encl. Option J, Wiring Option F)

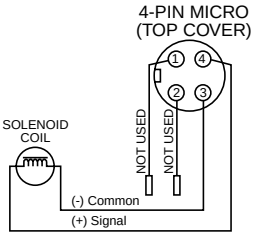


5-Pin Male/Single Solenoid
(Encl. Option N, Wiring Option F)

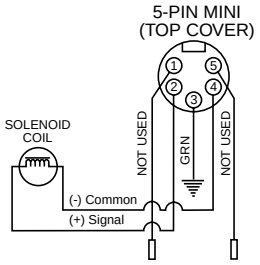


GM Connection

4-Pin Male/Single Solenoid
(Encl. Option J, Wiring Option G)



5-Pin Male/Single Solenoid
(Encl. Option N, Wiring Option G)



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Solenoid Characteristics Chart

Voltage Range +10/-15% of Nominal

3/8" & 3/4" Basic – L-Pilot					
Voltage/ Cycles	**Amps Inrush**	**Amps Holding**	**Resistance Ohms**	**Watts**	**Insulation Class**
120/60VAC	.29	.18	122	12	B
110/50VAC	.21	.14	122	12	B
240/60VAC	.18	.12	610	12	B
24/60VAC	1.6	1.0	4.5	9.5	B
24/50VAC	1.2	.75	6.4	9.5	B
6VDC	–	1.4	4.5	7.6	B
12VDC	–	.66	17.7	9	B
24VDC	–	.32	71	9	B
48VDC	–	.22	216	11	B

1-1/4" Basic – P-Pilot					
Voltage/ Cycles	**Amps Inrush**	**Amps Holding**	**Resistance Ohms**	**Watts**	**Insulation Class**
120/60VAC	.46	.25	35	18.5	B
110/50VAC	.36	.19	48	12	B
230/60VAC	.26	.15	125	19.5	B
220/50VAC	.20	.11	191	15	B
24/60VAC	2.3	1.4	1.3	20	B
24/50VAC	1.6	.9	2.1	12	B
12VDC	–	.7	17	8	B
24VDC	–	.33	68	8	B
48VDC	–	.16	275	7.5	B

NOTE: Continuous duty type service is for applications where pilot valve is energized more than ten (10) minutes.

Hazardous Duty Solenoid Listing

Valves with solenoid operators designed for hazardous locations are UL & CSA Approved as follows:

National Electric Code	Ambient Conditions	NEMA Classification
Class I Div. 1 Group C	Ethyl, Ether, Etc. Gases & Vapors	VII (7)
Class I Div. 1 Group D	Gasoline, Etc. Gases & Vapors	VII (7)
Class I Div. 2 Group B	Butadiene, Etc., Liquid, Fluid or Vapor Normally Contained, or Atmosphere Ventilated	VII (7)
Class II Div. 1 Group E	Metal Dust	IX (9)
Class II Div. 1 Group F	Coal, Coke, Carbon Black Dust	IX (9)
Class II Div. 1 Group G	Flour, Starch, Grain Dust	IX (9)

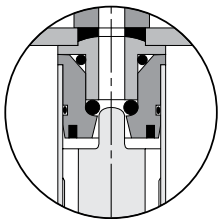
See Article 500 – Hazardous (Classified) Locations, National Electric Code.

Continuous Duty Pilots

Continuous duty pilots are designed for applications where cycling is infrequent and the pilot is to be energized for indefinite periods of time . . . hours, days or weeks. Typical uses include fail-safe or emergency shutdown circuits where the pilot is to be energized and the valve open as long as the main control is "live" in order to shut off air to equipment in the event of power failure.

The Continuous duty pilot operates satisfactorily in ambient temperatures up to 125°F, even when continuously energized and without the benefit of the cooling air which normally flows through the pilot during frequent cycling. Under certain conditions, satisfactory operation may be obtained at ambient temperatures above 125°F. CONSULT FACTORY.

Incorporating the performance-proven design features of the standard L-Pilot, the continuous duty pilot utilizes a bullet-shaped stem on the upper end of the plunger. This bullet-shaped stem, seating in a high-temperature rubber o-ring, provides both a bubble-tight seal and positive release.



Continuous Duty Pilot

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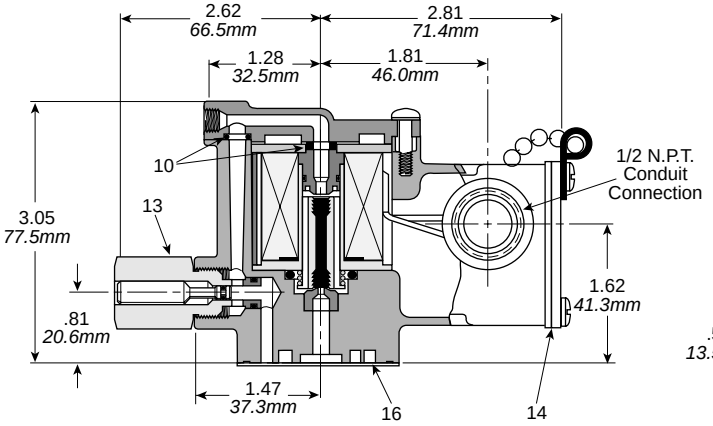
Basic L-Pilot

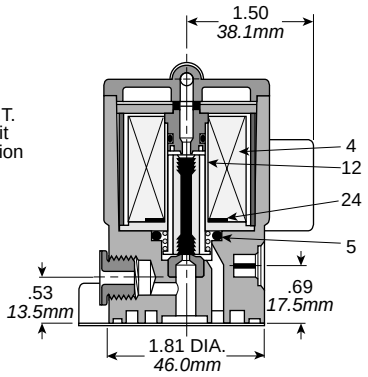
Junction Box L-Pilot

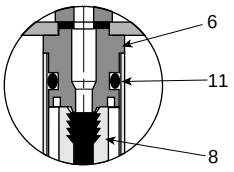
Replacement Pilots

Description	Standard L-Pilot		Continuous Duty L-Pilot	
Override Type	**Locking**	**Non-Locking**	**Locking**	**Non-Locking**
Basic with Override	K0653035**	K0652035**	K0853025**	K0852025**
JIC with Junction Box & Override	K0656035**	K0655035**	K0856025**	K0855025**
JIC Pilot with Junction Box & Override & Indicator Lights (120VAC Only)	K0659035**	K0658035**	K0859025**	K0858025**

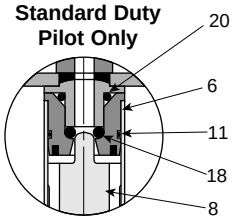
** Voltage Code - (Reference Model Index for Availability)







Standard Duty Pilot Only



Continuous Duty Pilot Only

Parts List

Item No.	Part Number	Description
4	**K593025**	**Coil 120V 60Hz / 110V 50Hz**
	K593035	**Coil 240V 60Hz / 220V 50Hz**
	K593003	Coil 6VDC / 24V 60Hz
	K593010	Coil 12VDC
	K593014	**Coil 24VDC**
	K593041	**Coil 120VDC**
5	H14213	Seal
6	K423006	Top Seat
	K423010	Top Seat (Continuous Duty)
8	**K343002**	**Plunger (STD. Service)**
	K343001	**Plunger (Continuous Duty)**
10*	H14201	Seal
11*	K41RB72011	O-Ring (STD. Service)
	H24969	O-Ring (Continuous Duty)

Item No.	Part Number	Description
12	K272004	Plunger Guide
13	K152003	Override Assembly
14	K183047	Cover Gasket
16*	K183001	Gasket
18*	H13473	O-Ring
20*	H13413	O-Ring
22	H19102	120 AC Only – Indicator Light
24	K183108	Gasket

Coil leads are 19" long.

* Parts included in Service Kit.
Continuous Duty Kit K352 366
Standard Service Kit K352 166

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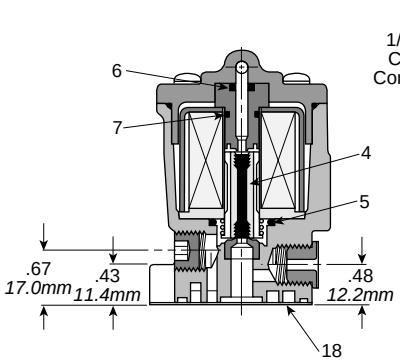
Hazardous Duty L-Pilot

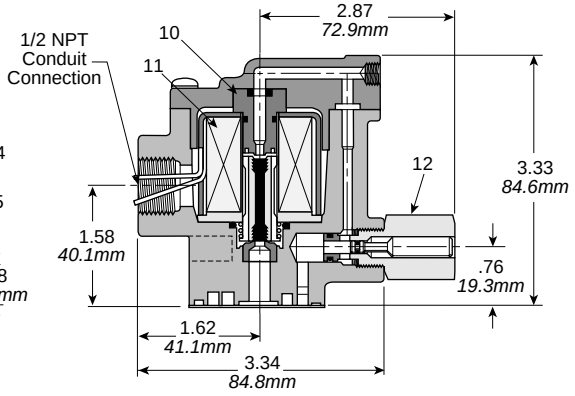
NEMA 4 L-Pilot

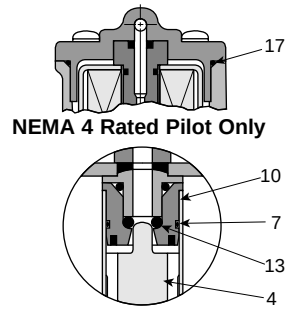
Replacement Pilots

Description	Continuous Duty L-Pilot	
Hazardous Duty L-Pilot - UL & CSA	K0451025**	—
Override Type	**Locking**	**Non-Locking**
Hazardous Duty with Override	K0453025**	K0452025**
NEMA 4 with Override	K2553025**	K255202549

** Voltage Code - 49 & 53







Parts List

Item No.	Part Number	Description
4*	**K343002**	**Plunger (STD. Service)**
	K343001	**Plunger (Continuous Duty)**
5*	K14213	Seal
6*	K41RB72009	O-Ring
	K41RB72008	O-Ring (STD. Service)
7*	K41RB72011	O-Ring (STD. Service)
	H24969	O-Ring (Continuous Duty)
10	K423001	Top Seat
	K423002	Top Seat (Continuous Duty)
11	**K593025**	**Coil 120V 60Hz / 110V 50Hz**
	K593035	**Coil 240V 60Hz / 220V 50Hz**
	K593003	Coil 6VDC / 24V 60Hz
	K593010	Coil 12VDC
	K593014	**Coil 24VDC**
	K593041	**Coil 120VDC**

Item No.	Part Number	Description
12	K152003	Override Assembly
13*	H13473	O-Ring
17*	H13716	Gasket (NEMA 4 Rated Pilot Only)
18*	K183001	Gasket

Coil leads are 19" long.

***** Parts included in Service Kit.
Continuous Duty Kit K352 366
Standard Service Kit K352 166

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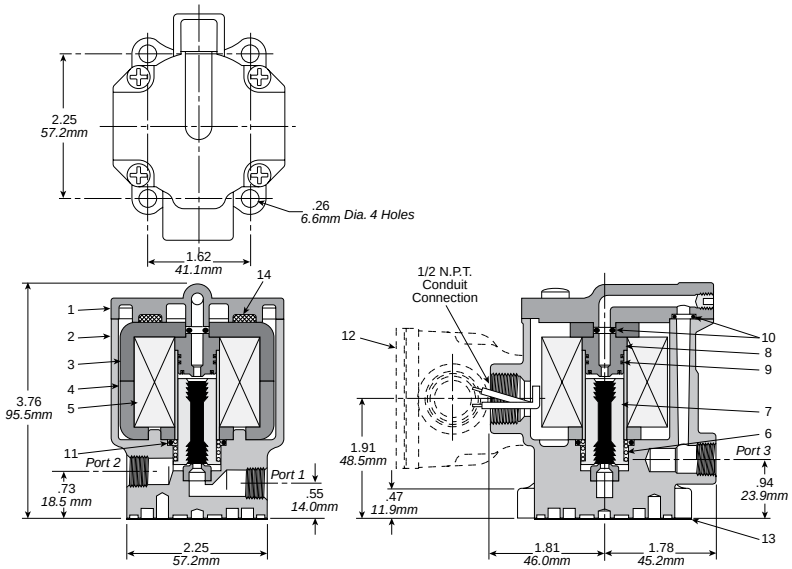
Heavy Duty P-Pilot

Replacement Pilots

Description	Standard P-Pilot		
Override Type	**No Override**	**Non-Locking**	**Locking**
Basic with Override	K1351045**	N/A	N/A
JIC with Junction Box & Override	N/A	K1355045**	K1356045**
JIC Pilot with Junction Box & Override & Indicator Lights (120VAC Only)	N/A	K135804553	K135904553

** Voltage Code - 49 & 53



Parts List

Item No.	Part Number	Description
1	K062005	Cover Assy
2	K112045	Body, Man. Mtd. (1/8" Bottom Seal)
	K112046	Body, Man. Mtd. (3/16" Bottom Seal)
3	K013001	Magnet Bar
4	K272002	Sleeve Sub Assy
5*	K593108	Coil (115V 60Hz)
	K593112	Coil (230V 60Hz)
	K593097	Coil 24VDC
	K593107	Coil 115VDC

Item No.	Part Number	Description
6	K473010	Spring N.O. Valve
	K473011	Spring N.C. Valve
• 7	K343042	Plunger
8	K423020	Top Seat (1/8" Orifice)
	K423022	Top Seat (3/16" Orifice)
• 9	H13436	Seal
• 10	H14202	Seal
• 11	H14215	Seal
12	K322004	Junction Box Kit
• 13	K183012	Gasket

* Coil leads are 19" long.

• Parts included in Seal Kit K352 064.

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Coils for L-Pilot Operated Valves

Voltage Code **	Voltage			Coil	
	60Hz	50Hz	DC	19" Leads	72" Leads
40	12	—	—	K593007	—
41,42	24	—	6	K593003	—
45*	**—**	**—**	**12**	**K593010**	**—**
49*	**—**	**—**	**24 (Standard)**	**K593014**	**—**
79	—	—	24 (Arc Suppressed)	K593271	—
51*	—	—	48	—	K593185
53*	**120**	**110**	**—**	**K593025**	**—**
57*	**240**	**240**	**—**	**K593035**	**—**
60	**240**	**220**	**—**	**K593035**	**—**
61	**—**	**—**	**120**	**K593041**	**—**

* Indicates voltages approved for solenoid operators designed for use in hazardous locations.

Coils for P-Pilot Operated Valves

Voltage Code **	Voltage			Coil	
	60Hz	50Hz	DC	19" Leads	72" Leads
42	24	—	—	K593099	—
43	—	24	—	K593098	—
45	**—**	**—**	**12**	**K593094**	**—**
49	**—**	**—**	**24**	**K593097**	**—**
51	—	—	48	—	K593254
53	**115**	**—**	**—**	**K593108**	**—**
58	**—**	**230**	**—**	**K593111**	**—**

N □□□ □□ □□□ **
Voltage Code

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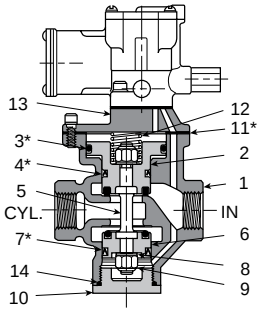
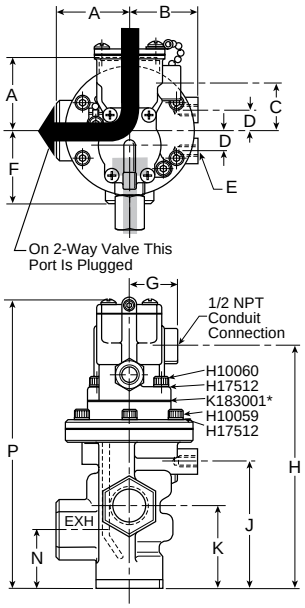
Normally Closed





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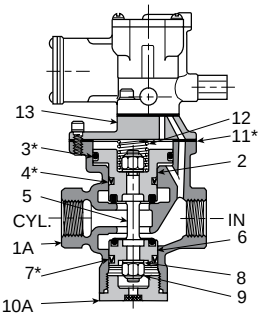

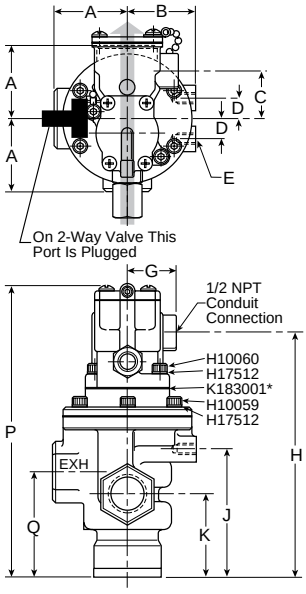

Exhaust
Pressure

Top view indicates flow through 3-Way valve with coil de-energized.

NOTE: For normal valve operation, override must be in "out" position.

Dimensions

Key	3/8" Body		3/4" Body	
	Inch	mm	Inch	mm
A	1.56	40	2.13	54
B	1.50	38	1.94	49
C	1.81	46	1.34	34
D	.56	14	.56	14
E	3/8-16UNC 7/16" deep		3/8-16UNC 9/16" deep	
F	1.75	44	2.25	57
G	1.50	38	1.50	38
H	5.92	150	7.14	181
J	3.19	81	3.75	95
K	1.88	47	2.44	62
N	1.44	37	1.78	45
P	7.36	196	8.58	218
Q	2.31	59	3.09	84

Service Kits

Include all parts normally required for in-service maintenance:

3/8" Basic Valve with standard service L-Pilots.....**K352076**

3/8" Basic Valve with continuous duty L-Pilots **K352276**

3/4" Basic Valve with standard service L-Pilots.....**K352077**

3/4" Basic Valve with continuous duty L-Pilots **K352277**

Key	3/8" Valve	3/4" Valve	Description
1	—	1/2" Tap K053075	Body (N.C.)
	3/8" Tap K053022	3/4" Tap K053076	
	1/2" Tap K053023	1" Tap K053220	
1A	—	3/4" Tap K053077	Body (N.O.)
	3/8" Tap K053025	3/4" Tap K053078	
	1/2" Tap K053026	1" Tap K053218	
2	K212001	K212002	Upper Piston Assy
3*	H13648	H13728	Seal
4*	H14510	H13676	U-Cup (3/8), O-Ring (3/4)

Key	3/8" Valve	3/4" Valve	Description
5	K493002	K493009	Stem
6	K202001	K202002	Lower Piston Assy.
7*	H14509	H13676	U-Cup (3/8), O-Ring (3/4)
8	H17811	H17813	Washer (2)
9	H06326	H06332	Stop Nut (2)
10	K103035	K103053	Bottom Cap (N.C.)
10A	K092020	K092034	Bottom Cap Assy. (N.O.)
11*	K183049	K183057	Gasket
12	K473014	K473015	Spring
13	K563015	K563017	Adapter
14*	K41RB72121	K41RB72221	O-Ring

*** Parts included in seal kit**

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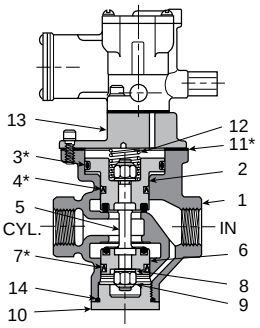
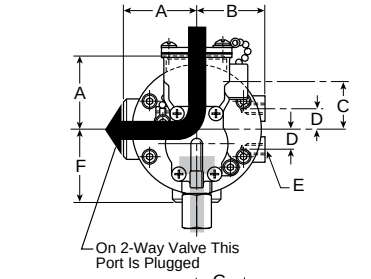
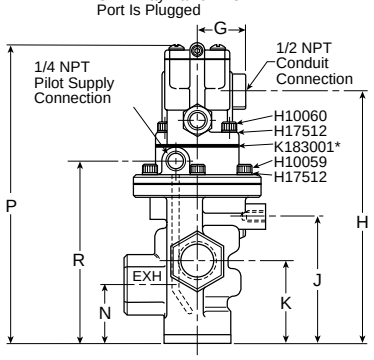
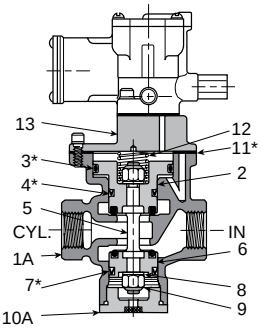
Normally Closed

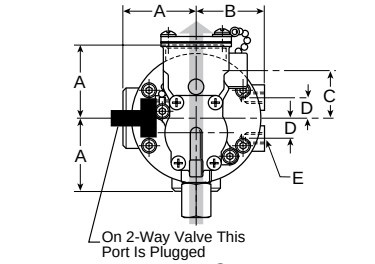


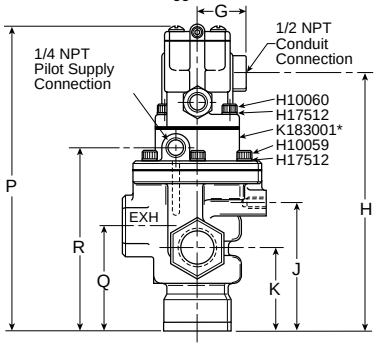




Normally Open







Exhaust
Pressure

Top view indicates flow through 3-Way valve with coil de-energized.

NOTE: For normal valve operation, override must be in "out" position.

Dimensions

Key	3/8" Body		3/4" Body	
	Inch	mm	Inch	mm
A	1.56	40	2.13	54
B	1.50	38	1.94	49
C	1.81	46	1.34	34
D	.56	14	.56	14
E	3/8-16UNC 7/16" deep		3/8-16UNC 9/16" deep	
F	1.75	44	2.25	57
G	1.50	38	1.50	38
H	6.42	163	7.45	189
J	3.19	81	3.75	95
K	1.88	47	2.44	62
N	1.44	37	1.78	45
P	7.86	200	8.89	226
Q	2.31	59	3.09	84
R	4.34	110	5.38	137

Service Kits

Include all parts normally required for in-service maintenance:

3/8" Basic Valve with standard service L-Pilots.....**K352076**

3/8" Basic Valve with continuous duty L-Pilots **K352276**

3/4" Basic Valve with standard service L-Pilots.....**K352077**

3/4" Basic Valve with continuous duty L-Pilots **K352277**

Key	3/8" Valve	3/4" Valve	Description
1	—	1/2" Tap K053067	Body (N.C.)
	3/8" Tap K053019	3/4" Tap K053069	
	1/2" Tap K053157	1" Tap K053221	
1A	—	3/4" Tap K053065	Body (N.O.)
	3/8" Tap K053018	3/4" Tap K053070	
	1/2" Tap K053064	1" Tap K053219	
2	K212001	K212002	Upper Piston Assy
3*	H13648	H13728	Seal
4*	K41RB72211	H13676	O-Ring

Key	3/8" Valve	3/4" Valve	Description
5	K493002	K493009	Stem
6	K202001	K202002	Lower Piston Assy.
7*	K41RB72210	H13676	O-Ring
8	H17811	H17813	Washer (2)
9	H06326	H06332	Stop Nut (2)
10	K103035	K103053	Bottom Cap (N.C.)
10A	K092020	K092034	Bottom Cap Assy. (N.O.)
11	K473014	K473015	Spring
12*	K183049	K183057	Gasket
13	K563016	K563021	Adapter
14*	K41RB72121	K41RB72221	O-Ring

*** Parts included in seal kit**

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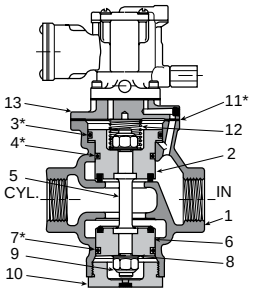
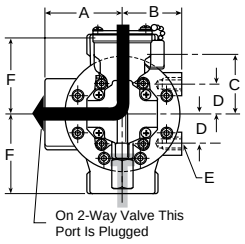
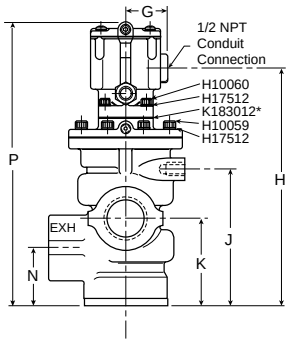
Normally Closed







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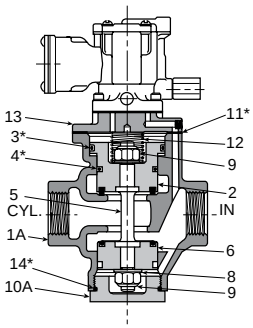

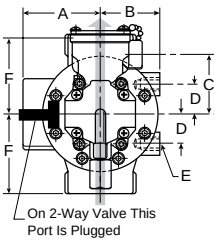

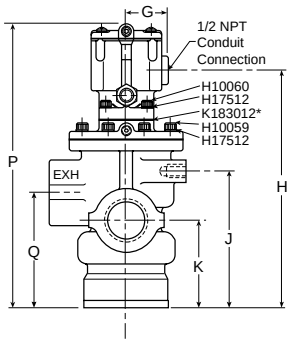

Exhaust
Pressure

Top view indicates flow through 3-Way valve with coil de-energized.

NOTE: For normal valve operation, override must be in "out" position.

Dimensions

Key	1-14" Body	
	Inch	mm
H	9.30	236
J	5.34	136
K	3.44	87
N	2.31	59
P	11.14	283
Q	4.56	116

Service Kits

Includ e all parts normally required for in-service maintenance:

1-1/4" Basic Valve with standard service P-Pilot **K352078**

Key	1-1/4" Valve	Description
1	1" Tap K053111	Body (N.C.)
	1-1/4" Tap K053112	
	1-1/2" Tap K053113	
1A	1" Tap K053114	Body (N.O.)
	1-1/4" Tap K053115	
	1-1/2" Tap K053116	
2	K313029	Upper Piston Assy
3*	H13752	O-Ring
4*	H13728	Seal

Key	1-1/4" Valve	Description
5	K493016	Stem
6	K313028	Lower Piston
7*	H13728	Seal
8	H17817	Washer
9	H06338	Stop Nut
10	K092046	Bottom Cap (N.C.)
10A	K103061	Bottom Cap (N.O.)
11*	K183058	Gasket
12	K473016	Spring
13	K012003	Adapter
14*	K41RB72143	O-Ring

*** Parts included in seal kit**

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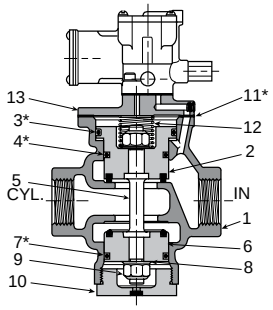
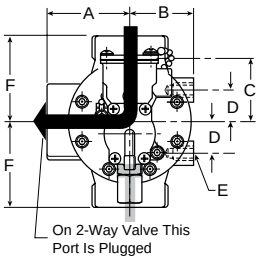
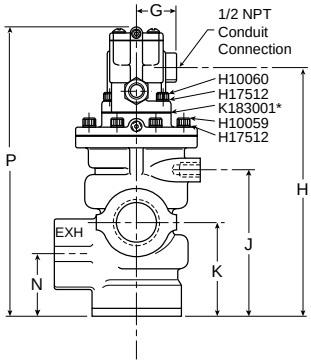
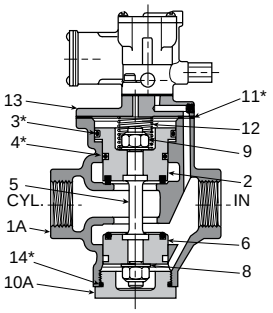
Normally Closed

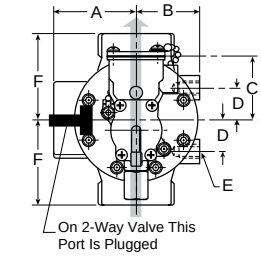


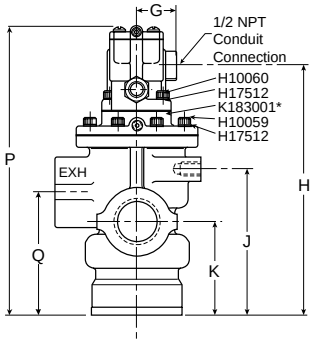




Normally Open







Exhaust
Pressure

Top view indicates flow through 3-Way valve with coil de-energized.

NOTE: For normal valve operation, override must be in "out" position.

Dimensions

Key	1-1/4" Body	
	Inch	mm
A	3.00	76
B	2.25	57
C	1.34	34
D	1.19	30
E	1/2-13 UNC 3/4 Deep	
F	3.13	80
G	1.50	38
H	9.02	229
J	5.34	136
K	3.44	87
N	2.31	59
P	10.45	265
Q	4.56	116

Service Kits

Include all parts normally required for in-service maintenance:

1-1/4" Basic Valve with continuous duty L-Pilot.....**K352080**

Key	1-1/4" Valve	Description
1	1" Tap K053111	Body (N.C.)
	1-1/4" Tap K053112	
	1-1/2" Tap K053113	
1A	1" Tap K053114	Body (N.O.)
	1-1/4" Tap K053115	
	1-1/2" Tap K053116	
2	K313029	Upper Piston Assy
3*	H13752	O-Ring
4*	H13728	Seal

Key	1-1/4" Valve	Description
5	K493016	Stem
6	K313028	Lower Piston
7*	H13728	Seal
8	H17817	Washer
9	H06338	Stop Nut
10	K092046	Bottom Cap (N.C.)
10A	K103061	Bottom Cap (N.O.)
11*	K183058	Gasket
12	K473016	Spring
13	K012003	Adapter
14*	K41RB72143	O-Ring

*** Parts included in seal kit**

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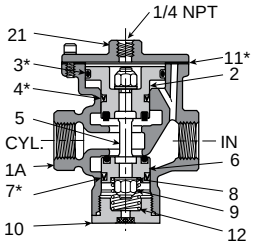
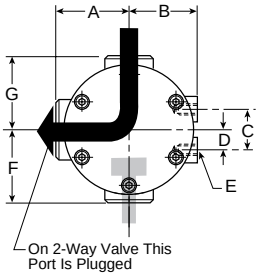
Exhaust
Pressure

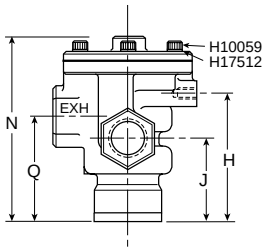
Top view indicates flow through 3-Way valve.

NOTE: For normal valve operation, override must be in "out" position.

Normally Closed







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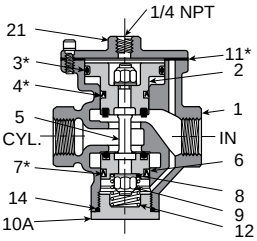

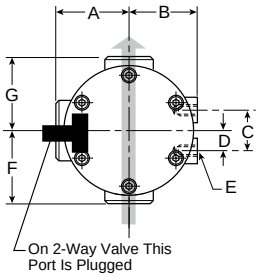

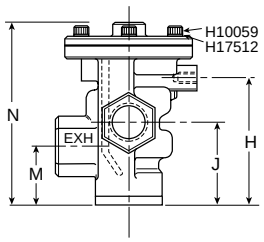

Dimensions

Key	3/8" Body		3/4" Body		1-1/4" Body	
	Inch	mm	Inch	mm	Inch	mm
H	3.19	81	3.75	95	5.34	136
J	1.88	48	2.44	62	3.44	87
M	1.44	37	1.78	45	2.66	67
N	4.22	107	5.31	135	7.19	183
Q	2.31	59	3.09	78	4.56	116

Service Kits

Include all parts normally required for in-service maintenance:

3/8" Basic Valve.....**K352073**
3/4" Basic Valve.....**K352074**
1-1/4" Basic Valve.....**K352075**

Key	3/8" Valve	3/4" Valve	1-1/4" Valve	Description
1	—	1/2" Tap K053075	1" Tap K053111	Body (N.O.)
	3/8" Tap K053022	3/4" Tap K053076	1-1/4" Tap K053112	
	1/2" Tap K053023	1" Tap K053220	1-1/2" Tap K053113	
1A	—	1/2" Tap K053077	1" Tap K053114	Body (N.C.)
	3/8" Tap K053025	3/4" Tap K053078	1-1/4" Tap K053115	
	1/2" Tap K053026	1" Tap K053218	1-1/2" Tap K053116	
2	K212001	K212002	K313029	Upper Piston Assy
3*	H13648	H13728	H13752	Seal
4*	H14510	H13676	H13728	Seal

Key	3/8" Valve	3/4" Valve	1-1/4" Valve	Description
5	K493002	K493009	K493016	Stem
6	K202001	K202002	K313028	Lower Piston Assy.
7*	H13499	H13676	H13728	Seal
8	H17811	H17813	H17817	Washer (2)
9	H06326	H06332	H06338	Stop Nut (2)
10	K092020	K092034	K092046	Bottom Cap (N.C.)
10A	K103035	K103053	K103061	Bottom Cap (N.O.)
11*	K183049	K183057	K183058	Gasket
12	K473014	K473015	K473016	Spring
14*	K41RB72121	K41RB72221	K41RB72143	O-Ring
21	K123018	K123021	K123024	Cover

*** Parts included in seal kit**

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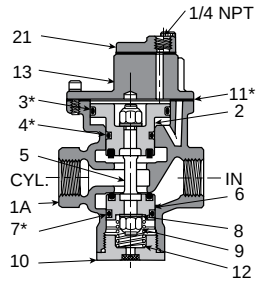
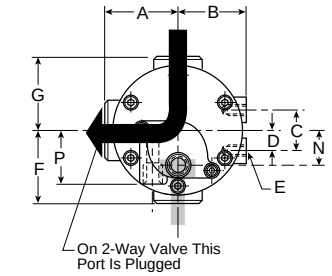
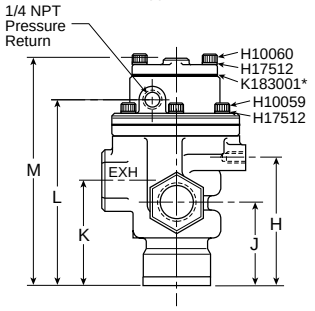
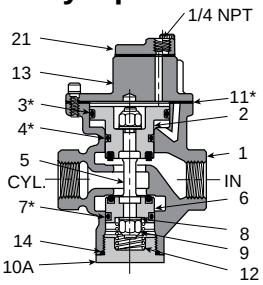
Normally Closed

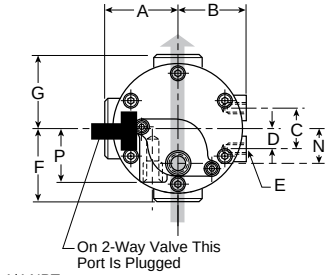


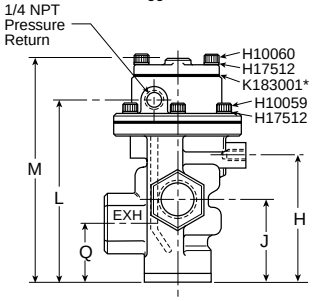




Normally Open







Exhaust
Pressure

Top view indicates flow through 3-Way valve.

NOTE: For normal valve operation, override must be in "out" position.

Dimensions

	3/8" Body		3/4" Body		1-1/4" Body	
Key	Inch	mm	Inch	mm	Inch	mm
A	1.56	40	2.13	54	3.00	76
B	1.50	38	1.94	49	2.25	57
C	1.13	29	1.13	29	2.38	60
D	.56	14	.56	14	1.19	30
E	3/8–16UNC 7/16" deep		3/8–16UNC 9/16" deep		1/2–13UNC 3/4" deep	
F	1.75	44	2.25	57	3.13	79
G	1.56	40	2.13	54	3.13	79
H	3.19	81	3.75	95	5.34	136
J	1.88	48	2.44	62	3.44	87
K	2.31	59	3.09	78	4.56	116
L	4.34	110	5.38	137	7.31	186
M	5.31	135	6.34	161	7.88	200
N	Left of center				On center	
	.53	13	1.00	25		
Q	1.44	37	1.78	45	2.31	59

Service Kits

Include all parts normally required for in-service maintenance:

3/8" Basic Valve.....**K352031**
3/4" Basic Valve.....**K352056**
1-1/4" Basic Valve.....**K352083**

Key	3/8" Valve	3/4" Valve	1-1/4" Valve	Description
1	1/4" Tap K053011	1/2" Tap K053067	1" Tap K053143	Body (N.O.)
	—	3/4" Tap K053069	1-1/4" Tap K053110	
	1/2" Tap K053157	1" Tap K053221	1-1/2" Tap K053146	
1A	1/4" Tap K053010	1/2" Tap K053065	1" Tap K053159	Body (N.C.)
	—	3/4" Tap K053070	1-1/4" Tap K053144	
	1/2" Tap K053064	1" Tap K053219	1-1/2" Tap K053145	
2	K212001	K212002	K313029	Upper Piston Assy
3*	H13648	H13728	H13752	Seal
4*	H13529	H13676	H13728	Seal

Key	3/8" Valve	3/4" Valve	1-1/4" Valve	Part
5	K493002	K493009	K493016	Stem
6	K202001	K202002	K313028	Lower Piston Assy.
7*	H13499	H13676	H13728	Seal
8	H17811	H17813	H17817	Washer (2)
9	H06326	H06332	H06338	Stop Nut (2)
10	K092020	K092034	K092046	Bottom Cap Assy. (N.C.)
10A	K103035	K103053	K103061	Bottom Cap (N.O.)
11*	K183049	K183057	K183058	Gasket
12	K473014	K473015	K473016	Spring
13	K563016	K563021	K563027	Adapter
14*	K41RB72121	K41RB72221	K41RB72143	O-Ring
21	K323027	K323027	Not used	Cover

*** Parts included in seal kit**

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Notes

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Isys Micro Series

Air Control Valves

Section E

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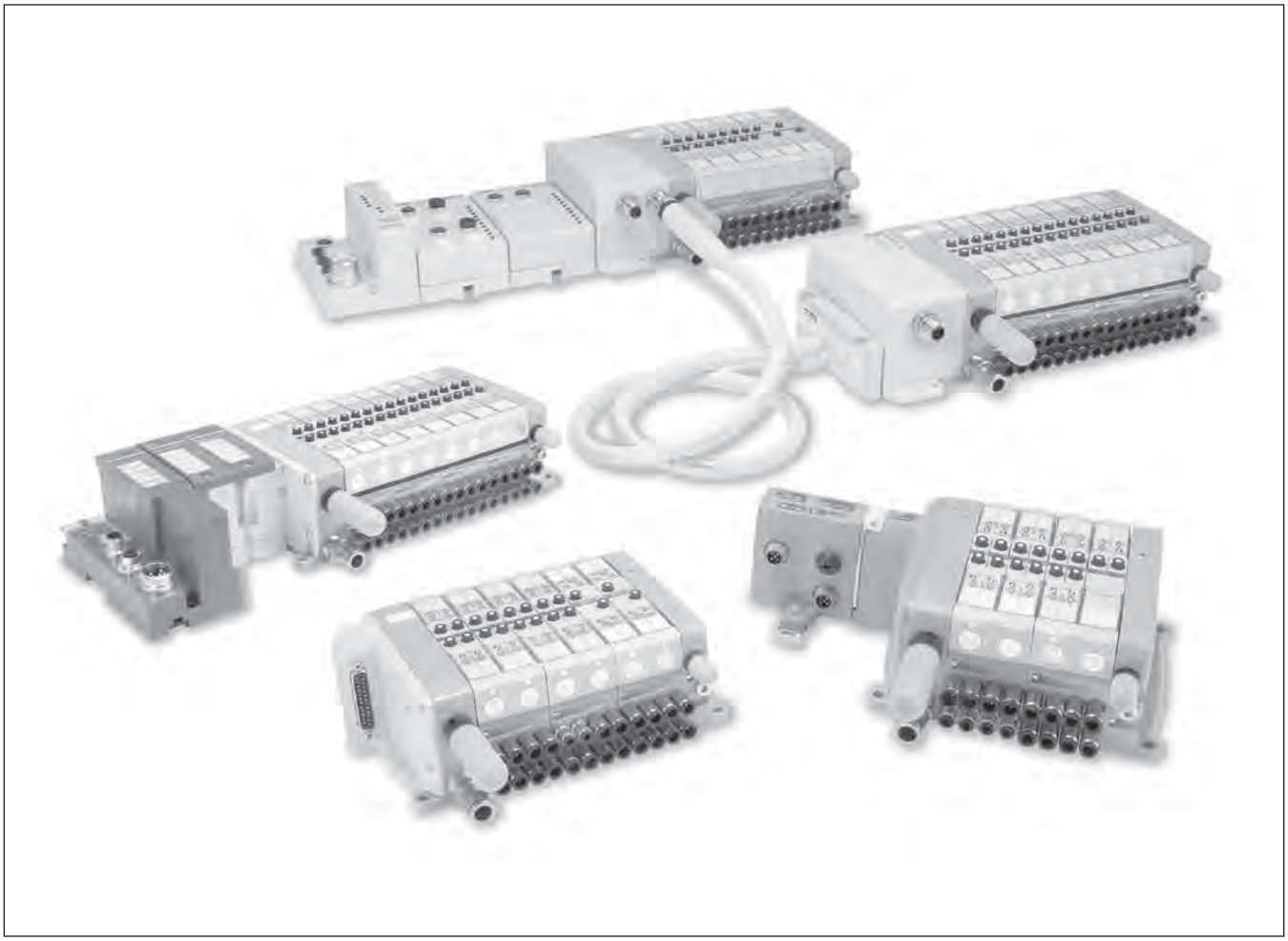

BOLD ITEMS ARE MOST POPULAR.

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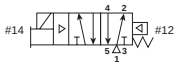
Basic Valve Functions

Single Solenoid

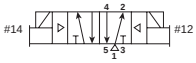


Single Pressure At Inlet Port 1:

De-energized position – Solenoid operator #14 de-energized. Pressure at inlet port 1 connected to outlet port 2. Outlet port 4 connected to exhaust port 5.

Energized position – Solenoid operator #14 energized. Pressure at inlet port 1 connected to outlet port 4. Outlet port 2 connected to exhaust port 3.

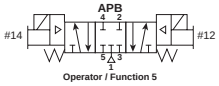
Double Solenoid



Single Pressure At Inlet Port 1:

Solenoid operator #14 energized last. Pressure at inlet port 1 connected to outlet port 4. Outlet port 2 connected to exhaust port 3.

Solenoid operator #12 energized last. Pressure at inlet port 1 connected to outlet port 2. Outlet port 4 connected to exhaust port 5.



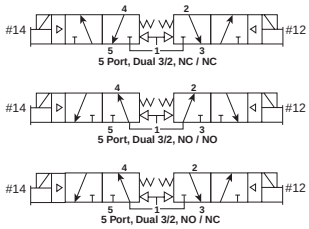
Double Solenoid 3-Position

Function 5: All Ports Blocked

With #12 operator energized – inlet port 1 connected to cylinder port 2, cylinder port 4 connected to exhaust port 5.

With #14 operator energized – inlet port 1 connected to cylinder port 4, cylinder port 2 connected to exhaust port 3.

All ports blocked in the center position.



Double Solenoid
Dual 3-Way, 2-Position NC / NC (NNP)

With #14 & #12 operators both de-energized – pressure at inlet port 1 blocked, outlet port 4 connected to exhaust port 5, outlet port 2 connected to exhaust port 3.

With #14 operator energized – pressure at inlet port 1 connected to outlet port 4, exhaust port 5 blocked, outlet port 2 connected to exhaust port 3.

With #12 operator energized – pressure at inlet port 1 connected to outlet port 2, exhaust port 3 blocked, outlet port 4 connected to exhaust port 5.

With #14 & #12 operators both energized – pressure at inlet port 1 connected to outlet ports 4 & 2, exhaust ports 3 & 5 blocked.

Dual 3-Way, 2-Position NO / NO (NP)

With #14 & #12 operators both de-energized – pressure at inlet port 1 connected to outlet ports 4 & 2, exhaust ports 3 & 5 blocked.

With #14 operator energized – pressure at inlet port 1 connected to outlet port 2, exhaust port 3 blocked, outlet port 4 connected to exhaust port 5.

With #12 operator energized – pressure at inlet port 1 connected to outlet port 4, exhaust port 5 blocked, outlet port 2 connected to exhaust port 3.

With #14 & #12 operators both energized – pressure at inlet port 1 blocked, outlet port 4 connected to exhaust port 5, outlet port 2 connected to exhaust port 3.

Dual 3-Way, 2-Position 14 End NO / 12 End NC (NP / NNP)

With #14 & #12 operators both de-energized – pressure at inlet port 1 connected to outlet port 4, exhaust port 5 blocked, outlet port 2 connected to exhaust port 3.

With #14 operator energized – pressure at inlet port 1 blocked, outlet port 4 connected to exhaust port 5, outlet port 2 connected to exhaust port 3.

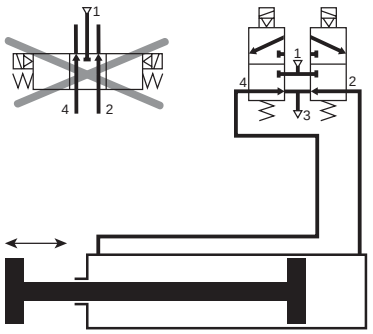
With #12 operator energized – pressure at inlet port 1 connected to outlet ports 4 & 2, exhaust ports 3 & 5 blocked.

With #14 & #12 operators both energized – pressure at inlet port 1 connected to outlet port 2, exhaust port 3 blocked, outlet port 4 connected to exhaust port 5.

Dual 3/2 Valves Replace 3-Position Valves for Better Performance

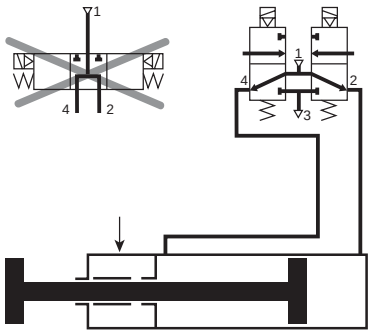
3-Position Center Exhaust

A traditional 5/3 center exhaust valve is now replaced by a double 3/2 NC+NC valve module. Both cylinder chambers are exhausted and rod and piston are free to move.



3-Position Pressure Center

A traditional 5/3 pressure center valve is now replaced by a double 3/2 NO+NO valve module. The function is identical.



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Features

Specifications

2-Position & Dual 3/2	3-Position
0.35 Cv	0.30 Cv
C = 1.2 Nl/s x bar, b = 0.13	C = 1 Nl/s x bar, b = 0.13
Qn = 282 Nl/min	Qn = 228 Nl/min
Qmax = 510 Nl/min	Qmax = 402 Nl/min

Materials of Construction

- Valve Spool: Brass
- Valve Spool Enclosure: Brass
- Dynamic Seals: Nitrile
- Valve Body: Polyamide Reinforced Fiberglass
- Seals: Nitrile
- Springs: Stainless Steel
- Screws: Zinc Plated Steel
- Top Cover: Polyester
- Manifold - End Plates: Aluminum

Operating Pressure

- Vacuum to 145 PSIG
- Minimum Operating Pressure
  - 2-Position, Double Solenoid: 25 PSI
  - 2-Position, Single Solenoid: 40 PSI
  - 3-Position: 45 PSI
  - Dual 3/2: 40 PSI

Ports

- M7 on Manifolds
- NPT and BSPP “G” on End Plates

Manifolds

- Collective Wiring
  - 25-Pin, D-Sub
  - Moduflex Fieldbus
  - Isysnet Fieldbus

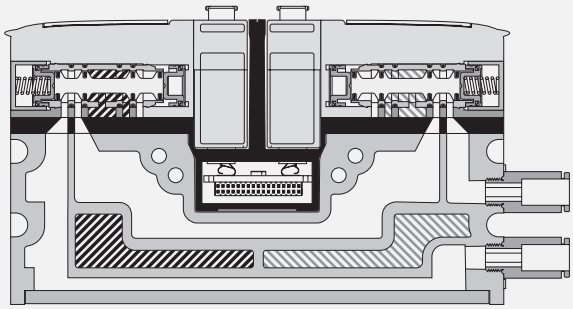
Certification / Approval

- EMC / CE Mark: According to EN 61 000-6-2
- Dust & Water Protection: IP65 According to EN 60529

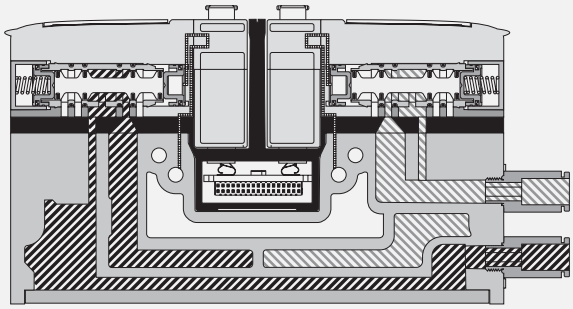
Solenoids

- Bi-Polar
- Surge Suppression (Standard)
- Low Watt – 1.0, 24VDC
- Indicator Lights

Single Solenoid Valves Shown
Solenoid is De-energized



Side Exhaust
4 Ports Connected to Exhaust Port
(5 & 3 Common)

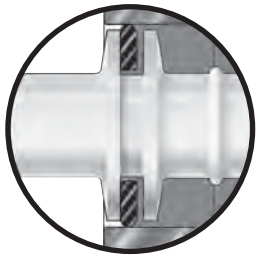


Side Pressure
2 Ports Connected to Inlet Port 1

Inlet Port #1 for Rear Valves | **Inlet Port #1 for Front Valves** | **3 & 5 Common Exhaust for Front & Rear Valves**

*W*ear Compensation *S*ystem

- **Maximum Performance**
  - Low Friction - Lower Operating Pressures
  - Fast Response - Less Wear
- **Long Cycle Life** - Under pressure, radial expansion of the seal occurs to maintain sealing contact with the valve bore.
- **Non-Lube Service** - No lubrication required for continuous valve shifting.
- **Bi-Directional Spool Seals** - Common spool used for any pressure, including vacuum.



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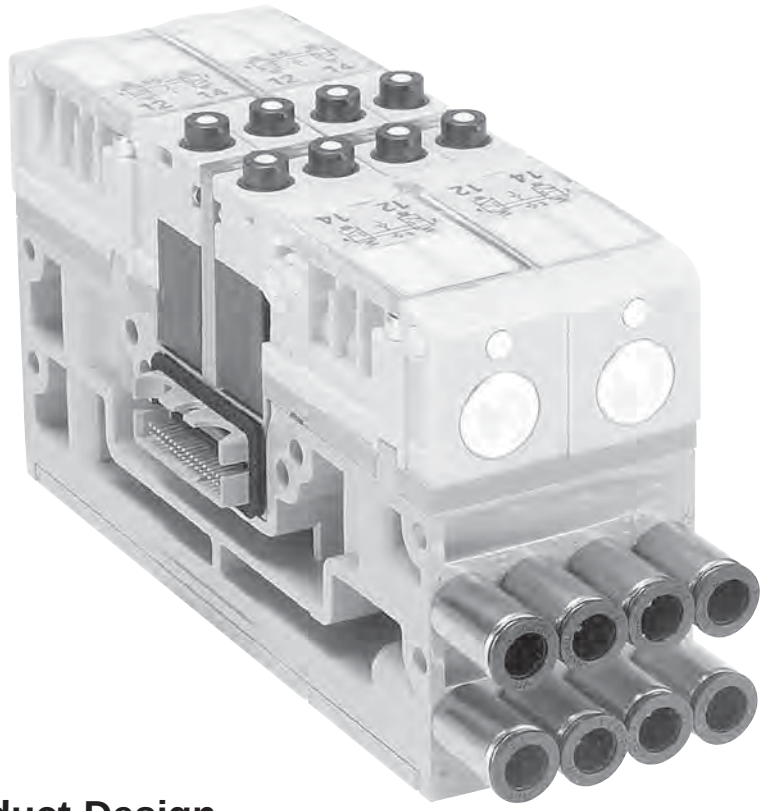

Innovative Product Design

- Back to Back Valve Mounting Design Centralizes Wiring in the Manifold
- 4 Valves on a 42mm Wide Manifold Provides a 10.5mm Wide Valve Solution with a Reduced Cost
- High flow of 0.35 Cv Allows for Broad Application Use
- Plug-in Valve Electronics Reduce and Eliminate Wiring System Costs
- Multiple Pressure Zones for Many Applications on the Same Manifold

Standard Features

- Integrated LED's Identify when Solenoids are Active
- Side and Bottom Porting Options on Manifolds and End Plates for Versatile Mounting
- All Valve Functions Available for Complete Product Offering
- Valves can be Arranged in Any Combination for Maximum Flexibility
- Internal and External Pilot Options Available for Vacuum to 145 PSI Applications
- IP65 Protection Enables Direct Machine Mounting
- Product Identification, Valve Function, and Port Description Tags are Standard on Every Manifold and are Clearly Visible thru a Protective Cover
- User Configurable Overrides for Non-Locking, Locking, or No Override Options

Manifold Platforms

- 25 Pin D-Sub Manifolds for Control Systems with Discrete Outputs
- Cost Effective Moduflex Fieldbus Manifolds for Control Systems with DeviceNet™, Profibus®, Interbus and CANopen Fieldbus and no Inputs or Outputs Near Valves
- Cost Effective Moduflex Fieldbus Manifolds with AS-i Communication offer both Inputs and Solenoid Control
- Fully Functional Isysnet Fieldbus Manifolds for Control Systems with Inputs and Outputs Attached to the Valve Manifold
- Enhanced Isysnet Bus Expansion Allows 4 Isysnet Valve Manifolds to be Connected to a Single Communication Module Significantly Reducing Costs on Large Machines
- Rockwell Automation RS Logix 5000™ Users can take Advantage of Preferred Connectivity, by Using the Preloaded Device Profiles

Complete Assemblies

- All Products Offered as Component Level Parts for Individual Assembly
- Simple Manifolds Offer Sub-Assembly Level Products with Valves and Fittings Attached to Manifold Bases in a Single Part Number
- Add-A-Fold Systems Offer Complete Assemblies; Including Valves, Manifolds, End Plates, Fittings, and Mufflers in as few as 2 Part Numbers

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Cv Values - Isys Micro

The charts below represent the minimum required Cv values for pneumatic systems operating at 80 PSI with a 5 PSI pressure drop.

To use the chart, locate the diameter of the cylinder across the horizontal axis, then the average required rod speed of the cycle. The intersection point is Cv value needed.

Grayed out values are not attainable with Isys Micro. Please select a larger Parker valve.

Average Rod Speed (mm/s)	Cylinder Diameter (mm)												
	6	8	10	12	16	20	25	32	40	50	63	80	100
25	0.000	0.001	0.001	0.002	0.003	0.005	0.008	0.013	0.021	0.032	0.051	0.083	0.129
50	0.001	0.002	0.003	0.004	0.007	0.010	0.016	0.026	0.041	0.065	0.103	0.166	0.259
75	0.001	0.002	0.004	0.006	0.010	0.016	0.024	0.040	0.062	0.097	0.154	0.248	0.388
100	0.002	0.003	0.005	0.007	0.013	0.021	0.032	0.053	0.083	0.129	0.205	0.331	0.517
125	0.002	0.004	0.006	0.009	0.017	0.026	0.040	0.066	0.103	0.162	0.257	0.414	0.647
150	0.003	0.005	0.008	0.011	0.020	0.031	0.049	0.079	0.124	0.194	0.308	0.497	0.776
175	0.003	0.006	0.009	0.013	0.023	0.036	0.057	0.093	0.145	0.226	0.359	0.580	0.906
200	0.004	0.007	0.010	0.015	0.026	0.041	0.065	0.106	0.166	0.259	0.411	0.662	1.035
225	0.004	0.007	0.012	0.017	0.030	0.047	0.073	0.119	0.186	0.291	0.462	0.745	1.164
250	0.005	0.008	0.013	0.019	0.033	0.052	0.081	0.132	0.207	0.323	0.513	0.828	1.294
275	0.005	0.009	0.014	0.020	0.036	0.057	0.089	0.146	0.228	0.356	0.565	0.911	1.423
300	0.006	0.010	0.016	0.022	0.040	0.062	0.097	0.159	0.248	0.388	0.616	0.994	1.552
350	0.007	0.012	0.018	0.026	0.046	0.072	0.113	0.185	0.290	0.453	0.719	1.159	1.811
400	0.007	0.013	0.021	0.030	0.053	0.083	0.129	0.212	0.331	0.517	0.822	1.325	2.070
450	0.008	0.015	0.023	0.034	0.060	0.093	0.146	0.238	0.373	0.582	0.924	1.490	2.329
500	0.009	0.017	0.026	0.037	0.066	0.103	0.162	0.265	0.414	0.647	1.027	1.656	2.587

Average Rod Speed (in/s)	Cylinder Diameter (in)																
	5/16"	7/16"	9/16"	3/4"	7/8"	1"	1-1/16"	1-1/8"	1-1/4"	1-1/2"	1-3/4"	2"	2-1/2"	3"	3-1/4"	3-5/8"	4"
1	0.001	0.002	0.003	0.005	0.006	0.008	0.010	0.011	0.013	0.019	0.026	0.034	0.053	0.076	0.090	0.111	0.136
2	0.002	0.003	0.005	0.010	0.013	0.017	0.019	0.021	0.026	0.038	0.052	0.068	0.106	0.153	0.179	0.223	0.271
3	0.002	0.005	0.008	0.014	0.019	0.025	0.029	0.032	0.040	0.057	0.078	0.102	0.159	0.229	0.269	0.334	0.407
4	0.003	0.006	0.011	0.019	0.026	0.034	0.038	0.043	0.053	0.076	0.104	0.136	0.212	0.305	0.358	0.446	0.543
5	0.004	0.008	0.013	0.024	0.032	0.042	0.048	0.054	0.066	0.095	0.130	0.170	0.265	0.382	0.448	0.557	0.678
6	0.005	0.010	0.016	0.029	0.039	0.051	0.057	0.064	0.079	0.114	0.156	0.204	0.318	0.458	0.537	0.669	0.814
7	0.006	0.011	0.019	0.033	0.045	0.059	0.067	0.075	0.093	0.134	0.182	0.237	0.371	0.534	0.627	0.780	0.950
8	0.007	0.013	0.021	0.038	0.052	0.068	0.077	0.086	0.106	0.153	0.208	0.271	0.424	0.611	0.717	0.891	1.085
9	0.007	0.015	0.024	0.043	0.058	0.076	0.086	0.097	0.119	0.172	0.234	0.305	0.477	0.687	0.806	1.003	1.221
10	0.008	0.016	0.027	0.048	0.065	0.085	0.096	0.107	0.132	0.191	0.260	0.339	0.530	0.763	0.896	1.114	1.357
11	0.009	0.018	0.030	0.052	0.071	0.093	0.105	0.118	0.146	0.210	0.286	0.373	0.583	0.839	0.985	1.226	1.492
12	0.010	0.019	0.032	0.057	0.078	0.102	0.115	0.129	0.159	0.229	0.312	0.407	0.636	0.916	1.075	1.337	1.628
14	0.012	0.023	0.038	0.067	0.091	0.119	0.134	0.150	0.185	0.267	0.364	0.475	0.742	1.068	1.254	1.560	1.899
16	0.013	0.026	0.043	0.076	0.104	0.136	0.153	0.172	0.212	0.305	0.415	0.543	0.848	1.221	1.433	1.783	2.171
18	0.015	0.029	0.048	0.086	0.117	0.153	0.172	0.193	0.238	0.343	0.467	0.611	0.954	1.374	1.612	2.006	2.442
20	0.017	0.032	0.054	0.095	0.130	0.170	0.191	0.215	0.265	0.382	0.519	0.678	1.060	1.526	1.791	2.229	2.713

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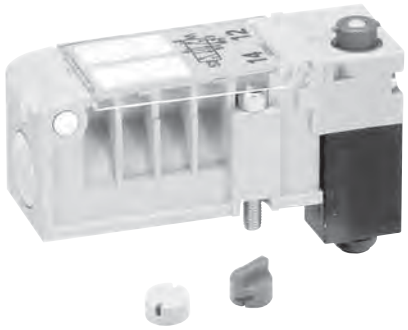
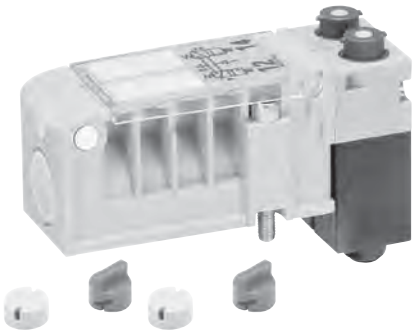
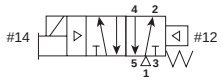
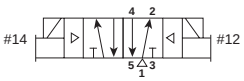
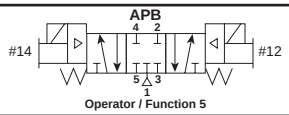
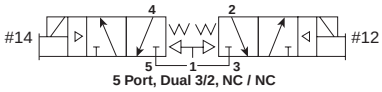
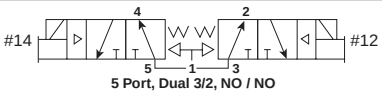
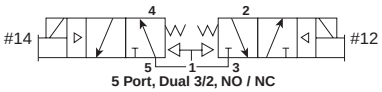
HM Series Single Solenoid



HM Series Double Solenoid



	**HMEVX2049A**	Single Solenoid, 2-Position, Air Return, Spring Assist
	**HM2VX2049A**	Double Solenoid, 2-Position
	**HM5VX2049A**	Double Solenoid, 3-Position, APB
	**HMNVX2049A**	Double Solenoid, Dual 3/2, NC/NC
	**HMPVX2049A**	Double Solenoid, Dual 3/2, NO/NO
	**HMQVX2049A**	Double Solenoid, Dual 3/2, 14 End NO, 12 End NC

- All valves, except double solenoid 2-position, ship with multi functional overrides. Standard valve configuration is non-locking manual override. Each solenoid can be configured for locking override or no override with the included manual override caps.
- All valve options include an LED, which is built into the manifold.
- All valve options pull pilot pressure from the manifold. The manifold assembly can be configured for internal or external pilot on the end plate.

Blanking Plate Kits

Kit Number
HMBVX00XXA

Kit includes: Blanking Plugs, Gasket, and Mounting Screws.
Blanking Plugs must be inserted into the 2 and 4 ports of the manifold corresponding to the Blanking Plate.

Intermediate Air Supply Base

Kit Number
HMCVX00XXA

Kit includes: Gasket and Mounting Screws.
Fittings (Not Included) must be inserted into the 2 and 4 ports of the manifold corresponding to the intermediate air supply. Auxiliary pressure should be supplied through these fittings, which will directly feed the #1 pressure galley.

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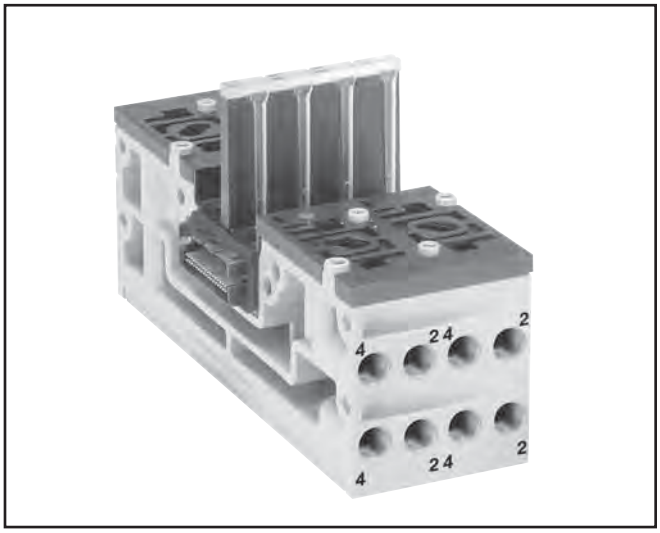
Each manifold holds 4 Isys Micro Valves. Double address circuit boards contain outputs for 8 solenoids, and can be used with any valve. When a single solenoid valve is used, one address is not used but is still present on the manifold. Single address circuit boards contain outputs for 4 solenoids. Only single solenoid valves can be used.

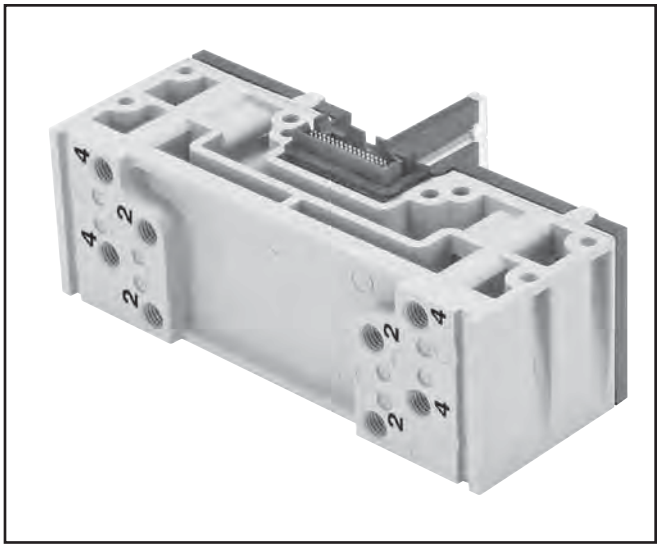
Side Ported, Plug-in Manifold Kits

Kit Number	Description
PSM21JAP	Circuit Board, Single Address
PSM21MAP	Circuit Board, Double Address



Bottom Ported, Plug-in Manifold Kits

Kit Number	Description
PSM22JAP	Circuit Board, Single Address
PSM22MAP	Circuit Board, Double Address

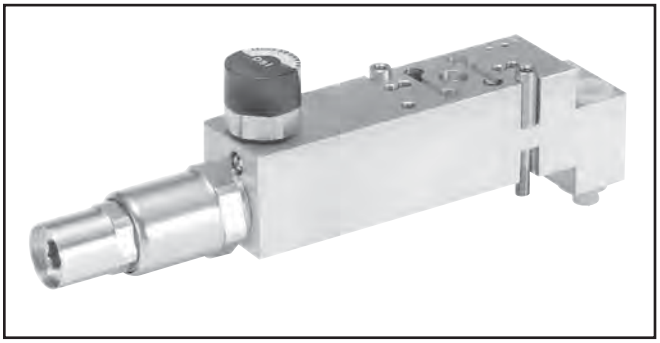


Sandwich Regulator

Kit Number	Description
PSMRAX6AP	Common Port Regulator, 5 to 125 PSI with Gauge

Note: Cv values are reduced when using a sandwich regulator to 0.20 for 2-Position and Dual 3/2 valves, and 0.17 for 3-Position APB valves.

Note: The sandwich regulator passes full pilot pressure from the manifold, allowing the regulated pressure to adjusted down to 5 PSI without affecting valve functionality.



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Plug-in End Plate Kits

BOLD OPTIONS ARE MOST POPULAR.

PSM L2 1 A P

Basic Series	
Isys Micro End Plate Kits	PSM

Engineering Level	
A	Current

End Plate Options	
25-Pin, D-Sub	L2
Isysnet with Valve Driver Module	L6
Isysnet with Valve Driver Module and Bus Extension Connector	M5
Isysnet with Valve Driver Module and 24VDC Connector	M6
Isysnet with Valve Driver Module, Bus Extension Connector and 24VDC Connector	M7
Moduflex 16 Outputs	M4
Turck Fieldbus with Valve Driver Module - 16 outputs	T1
Turck Fieldbus with Valve Driver Module - 32 outputs	T2

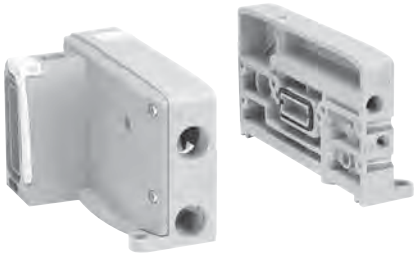
Turck, Isysnet, and Moduflex communication modules must be ordered separately. See Fieldbus Section for more information.

	Port Size / Thread Type, Base Style
1	BSPP, Side Port, Internal Pilot
2	BSPP, Bottom Port, Internal Pilot
5	NPT, Side Port, Internal Pilot
6	NPT, Bottom Port, Internal Pilot

All End Plate Options can be converted to external pilot. See Technical Section.

L2: **25-Pin, D-Sub End Plates**

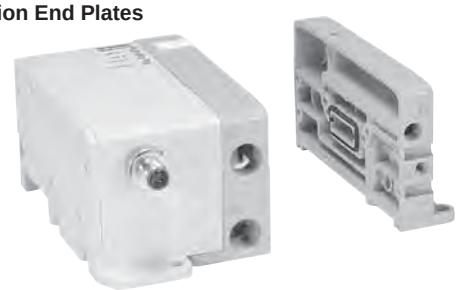
L6: **Isysnet Fieldbus End Plates**



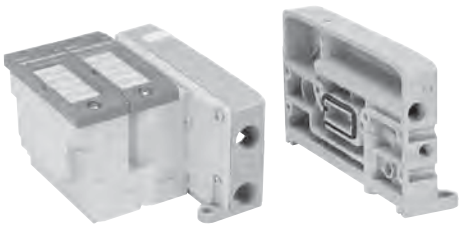
M4: **Moduflex Fieldbus End Plates**

M5: **Isysnet Fieldbus with Bus Extension End Plates**

M7: **Isysnet Fieldbus with Bus Extension & 24VDC Connector End Plates**



M6: **Isysnet Fieldbus with 24VDC Connector End Plates**



T1, T2: **Isys Micro Turck End Plates**

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Simple Manifold Assemblies

Includes a valve manifold with 4 valves and fittings installed. End Plates must be ordered separately.

BOLD OPTIONS ARE MOST POPULAR.

					A		B		C		D	
					9	10	11	12	13	14	15	16
PSM3	**1**	**M**	**A**	**P**	**N**	**7**	**N**	**7**	**N**	**7**	**N**	**7**

Base Style	
4-Station Manifold with Valve and / or Fitting	PSM3

Mounting Style	
Side Ported	1
Bottom Ported	2

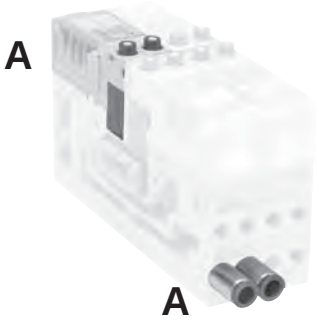
Enclosure / Lead Length	
Single Address Circuit Board	J
Double Address Circuit Board	M

Engineering Level	
Current	A

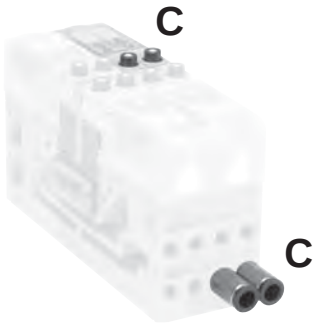
10, 12, 14, 16	Fitting
0	Without Fitting
4	Straight Fitting for 5/32 Inch or 4mm OD Tube
6	Straight Fitting for 6mm OD Tube
7	Straight Fitting for 1/4 Inch OD Tube
P	Plug for Blanking Module

9, 11, 13, 15	Valve Type
N*	Double Solenoid, Dual 3/2, NC/NC
P*	Double Solenoid, Dual 3/2, NO/NO
Q*	Double Solenoid, Dual 3/2, 14 End NO - 12 End NC
X	No Valve
E	Single Solenoid, 2-Position - Air Return, Spring Assist
2*	Double Solenoid, 2-Position
5*	Double Solenoid, 3-Position - APB
B**	Blanking Module
C	Intermediate Air Supply Module

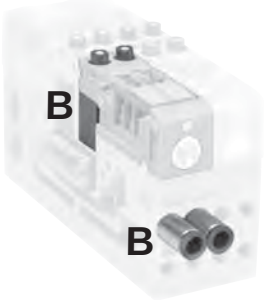
* Requires Double Address Circuit Board, Enclosure "M".
** Requires Fitting "P".



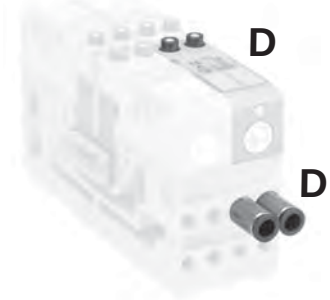
Valve Position A - Character 9
Fitting Position A - Character 10



Valve Position C - Character 13
Fitting Position C - Character 14



Valve Position B - Character 11
Fitting Position B - Character 12



Valve Position D - Character 15
Fitting Position D - Character 16

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How To Order Plug-in Add-A-Fold Assemblies

1. List Add-A-Fold Assembly call out. This automatically includes the end plate kit assembly.
2. List Simple Manifold Assemblies. List left to right, LOOKING AT THE CYLINDER PORTS on the manifold.

Maximum Number of Solenoids (Maximum Energized Simultaneously)

	25-Pin D-Sub	Moduflex	Isysnet*
24VDC	24 (24)	16 (16)	32 (32)

*Maximum of 32 solenoids per manifold. With Bus Extension functionality, 4 manifolds with up to 32 solenoids each can be connected on the same network.

Add-A-Fold Assembly Model Number

AAHM D 3 24 0 0 0 0

Valve Series	
Isys Micro Add-A-Fold	AAHM

End Plate Option	
Turck Fieldbus with Valve Driver Module - 16 Outputs	A
Turck Fieldbus with Valve Driver Module - 32 Outputs	B
25-Pin, D-Sub - 24 Outputs	D
Isysnet with Valve Drive Module - 32 Outputs	Y
Isysnet with Valve Drive Module and Bus Extension Connector - 32 Outputs	W
Isysnet with Valve Drive Module and 24VDC Connector - 32 Outputs	X
Isysnet with Valve Drive Module and Bus Extension and 24VDC Connector - 32 Outputs	Z
Moduflex - 16 Outputs	T

Isysnet and Moduflex communication modules must be ordered separately.

	End Plate Type	
BSPP Threads	BSPP Side Port, Internal Pilot	1
	BSPP Bottom Port, Internal Pilot	2
	BSPP Side Port, External Pilot	3
	BSPP Bottom Port, External Pilot	4
NPT Threads	NPT Side Port, Internal Pilot	5
	NPT Bottom Port, Internal Pilot	6
	NPT Side Port, External Pilot	7
	NPT Bottom Port, External Pilot	8

Number of Stations	
4 Valve Manifold	04
8 Valve Manifold	08
12 Valve Manifold	12
16 Valve Manifold	16
20 Valve Manifold	20
24 Valve Manifold	24
28 Valve Manifold	28
32 Valve Manifold	32

3/8" Inlet Port on End Plate		
0	Without Fitting	
8	Straight Fitting for 8mm OD Tube	*BSPP Threads*
A	Straight Fitting for 10mm OD Tube	
7	Straight Fitting for 1/4 Inch OD Tube	*NPT Threads*
9	Straight Fitting for 3/8 Inch OD Tube	

3/8" Exhaust on End Plate		
0	Without Fitting	
M	Muffler	
8	Straight Fitting for 8mm OD Tube	*BSPP Threads*
A	Straight Fitting for 10mm OD Tube	
7	Straight Fitting for 1/4 Inch OD Tube	*NPT Threads*
9	Straight Fitting for 3/8 Inch OD Tube	

M7 Pilot Port on End Plate		
	Internal Pilot End Plate	
0	With Standard Plug	
	External Pilot End Plate	
0	Without Fitting	
4	Straight Fitting for 4mm OD Tube	*BSPP Threads*
6	Straight Fitting for 6mm OD Tube	
4	Straight Fitting for 5/32 Inch OD Tube	*NPT Threads*
7	Straight Fitting for 1/4 Inch OD Tube	

Pilot Exhaust on End Plate		
0	Without Fitting	
M	Muffler	
4	Straight Fitting for 4mm OD Tube	*BSPP Threads*
6	Straight Fitting for 6mm OD Tube	
4	Straight Fitting for 5/32 Inch OD Tube	*NPT Threads*
7	Straight Fitting for 1/4 Inch OD Tube	

Note:
BSPP fittings can only be used with BSPP Manifolds.

NPT fittings can only be used with NPT Manifolds.

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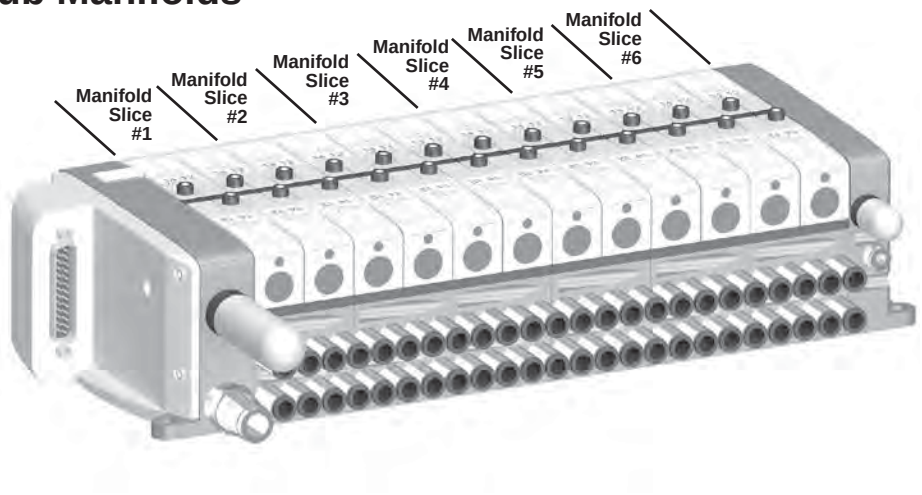
25-Pin, D-Sub Manifolds



24 Single Solenoid Valves

Add-A-Fold

Manifold is factory assembled and tested for pneumatic leaks and electrical continuity.

Item	Qty	Part Number	Description
01	1	AAHMD5249M0M	24 Valve Add-A-Fold with End Plates
02	6	PSM31JAPE7E7E7E7	4 Valve Simple Manifold Slices #1-6

Component Level

Item	Qty	Part Number	Description
01	1	PSML25AP	25-Pin, D-Sub, End Plate
02	24	HMEVX2049A	Single Solenoid Valve
03	6	PSM21JAP	Manifold, Side Ported, Single Address
04	50	PS567925	1/4" Tube Fittings (In box quantity)
05	10	PS568338	3/8" Tube Fittings (In box quantity)
06	1	P6M-PAB3	3/8" Exhaust Muffler
07	1	P6M-PAB1	1/8" Exhaust Muffler

Additional Components

25-Pin, D-Sub Cable (Female)

Part Number	Description	Length
P8LMH25M3A	25-Pin, D-Sub Cable, IP20	3 Meters
SCD259D	25-Pin, D-Sub Cable, IP20	9 Meters
SCD253W	25-Pin, D-Sub Cable, IP65	3 Meters
	25-Pin, D-Sub Cable, IP65	9 Meters

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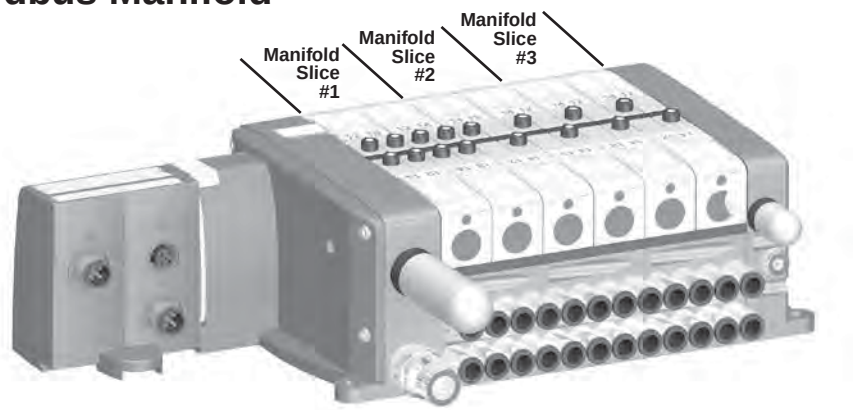
Moduflex Fieldbus Manifold



4 Double Solenoid Valves, 8 Single Solenoid Valves

Add-A-Fold

Manifold is factory assembled and tested for pneumatic leaks and electrical continuity.

Item	Qty	Part Number	Description
01	1	AAHMT5129M0M	12 Valve Add-A-Fold with End Plates
02	1	PSM31MAPN7N7N7N7	4 Valve Simple Manifold Slice #1
3	2	PSM31JAPE7E7E7E7	4 Valve Simple Manifold Slice #2-3

Component Level

Item	Qty	Part Number	Description
01	1	PSMM45AP	Moduflex Fieldbus, End Plate
02	4	HMNVX2049A	Double Solenoid, Dual 3/2, NC/NC
03	1	PSM21MAP	Manifold, Side Ported, Double Address
4	8	HMEVX2049A	Single Solenoid Valve
5	2	PSM21JAP	Manifold, Side Ported, Single Address
6	30	PS567925	1/4" Tube Fittings (In box quantity)
05	10	PS568338	3/8" Tube Fittings (In box quantity)
06	1	P6M-PAB3	3/8" Exhaust Muffler
07	1	P6M-PAB1	1/8" Exhaust Muffler

Additional Components

Moduflex Communication Modules

Bus Protocol	Order Code
Profibus DP	**P2M2HBVP21600**
DeviceNet	**P2M2HBVD21600**
CANopen	**P2M2HBVC21600**
InterBus-S	P2M2HBVS11600

Fieldbus Accessories

	Bus Protocol	Connector Type	Order Code
Power Supply Female Straight Connector	Profibus DP / InterBus-S	M12 type A	**P8CS1205AA**
	DeviceNet / CANopen	M12 type B	**P8CS1205AB**
Line Termination Resistor	Profibus DP	M12 type B	**P8BPA00MB**
	DeviceNet / CANopen	M12 type A	**P8BPA00MA**

Standard AS-i Protocol (up to 31 nodes)

Communication Module for 8 Solenoids Max. (2 nodes per module, 4 inputs, 4 solenoids per node)

Input / Output Capability	Order Code
0 inputs and 8 solenoid outputs	**P2M2HBVA10800**
8 (PNP) inputs on eight (M8) connectors and 8 solenoid outputs	**P2M2HBVA10808A**
8 (PNP) inputs on four (M12) connectors and 8 solenoid outputs	P2M2HBVA10808B

AS-i Version 2.1 Protocol (up to 62 nodes)

Communication Module for 6 Solenoids Max. (2 nodes per module, 4 inputs, 4 solenoids per node)

Input / Output Capability	Order Code
0 inputs and 6 solenoid outputs	**P2M2HBVA20600**
8 (PNP) inputs on eight (M8) connectors and 6 solenoid outputs	**P2M2HBVA20608A**
8 (PNP) inputs on four (M12) connectors and 6 solenoid outputs	P2M2HBVA20608B

AS-i Bus Accessories

M12 Cable with Jack for Addressing

Length	Order Code
1 m	**P8LS12JACK**

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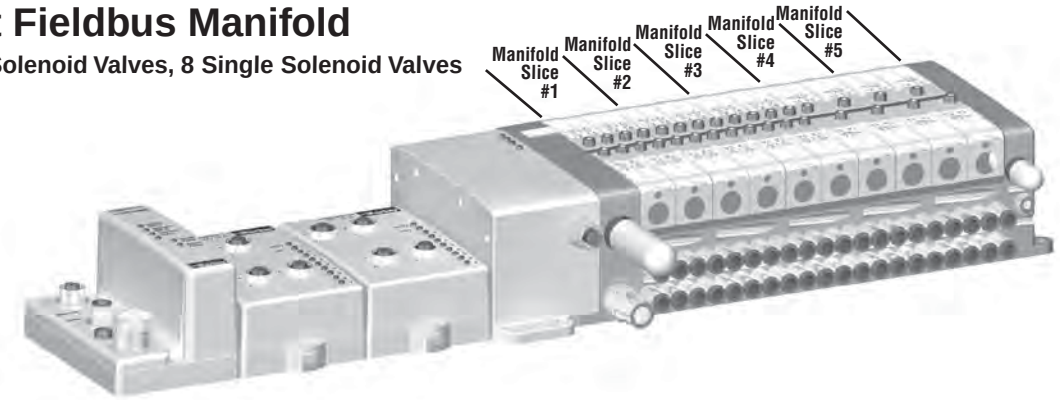
Isysnet Fieldbus Manifold

12 Double Solenoid Valves, 8 Single Solenoid Valves



Add-A-Fold

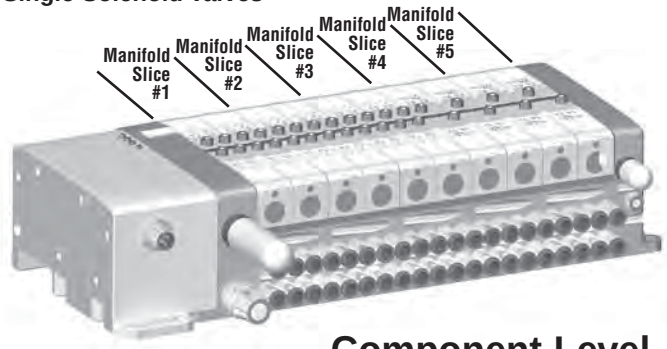
Manifold is factory assembled and tested for pneumatic leaks and electrical continuity.

Item	Qty	Part Number	Description
01	1	AAHMW5209M0M	20 Valve Add-A-Fold with End Plates
02	3	PSM31MAPN7N7N7N7	4 Valve Simple Manifold Slices #1-3
03	2	PSM31JAPE7E7E7E7	4 Valve Simple Manifold Slices #4-5

Component Level

Item	Qty	Part Number	Description
01	1	PSMM55AP	Isysnet, with Valve Driver Module and Bus Extension Connector
02	12	HMNVX2049A	Double Solenoid, Dual 3/2, NC/NC
03	3	PSM21MAP	Manifold, Side Ported, Double Address
04	8	HMEVX2049A	Single Solenoid, 2-Position, Air Return, Spring Assist
05	2	PSM21JAP	Manifold, Side Ported, Single Address
06	40	PS567925	1/4" Tube Fittings (In box quantity)
07	10	PS568338	3/8" Tube Fittings (In box quantity)
08	1	P6M-PAB3	3/8" Exhaust Muffler
09	1	P6M-PAB1	1/8" Exhaust Muffler

12 Double Solenoid Valves, 8 Single Solenoid Valves



Add-A-Fold

Manifold is factory assembled and tested for pneumatic leaks and electrical continuity.

Item	Qty	Part Number	Description
01	1	AAHMX5209M0M	20 Valve Add-A-Fold with End Plates
02	3	PSM31MAPN7N7N7N7	4 Valve Simple Manifold Slices #1-3
03	2	PSM31JAPE7E7E7E7	4 Valve Simple Manifold Slices #4-5

Component Level

Item	Qty	Part Number	Description
01	1	PSMM65AP	Isysnet, with Valve Driver Module and 24VDC Connector
02	12	HMNVX2049A	Double Solenoid, Dual 3/2, NC/NC
03	3	PSM21MAP	Manifold, Side Ported, Double Address
04	8	HMEVX2049A	Single Solenoid, 2-Position, Air Return, Spring Assist
05	2	PSM21JAP	Manifold, Side Ported, Single Address
06	40	PS567925	1/4" Tube Fittings (In box quantity)
07	10	PS568338	3/8" Tube Fittings (In box quantity)
08	1	P6M-PAB3	3/8" Exhaust Muffler
09	1	P6M-PAB1	1/8" Exhaust Muffler

Additional Components

Part Number	Description
PSSCDM12A	Isysnet Devicenet Communication
PSSN8M12A	8 Digital Input, 24VDC, M12 Connectors
PSSVEXT1	Isys Micro Bus Extender Cable

See Isysnet section of catalog for more information.

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Intermediate Air Supply and Manifold Isolation Gaskets

- Run Multiple Pressure Zones in the Same Manifold
- Block Supply Ports, Exhaust Ports or Both
- Intermediate Air Supplies can be placed anywhere within the pressure zone.

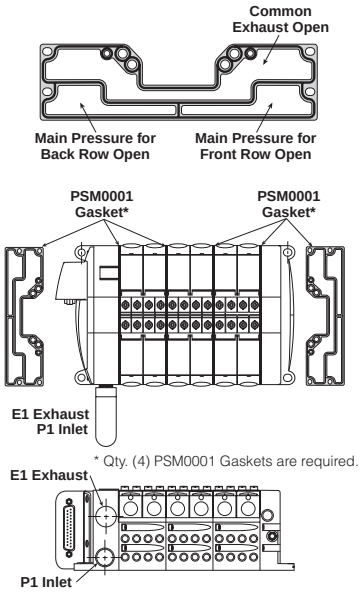
NOTE: Internal pilot pressure is supplied to the entire manifold from the right hand end plate, where the main pressure for the front row of valves is connected to the pilot pressure galley. See Technical Section for more information.

Multiple Pressure Zones

PSM0001 –

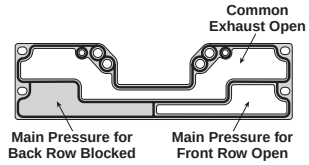
All Ports Open. Common Pressure for Front and Rear Manifold.
Common Exhausts.

Standard gasket included with each Manifold and End Plate

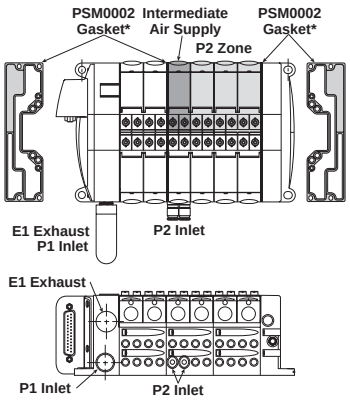


PSM0002 –

Rear Manifold Blocked for Separate Pressure Supply.
Common Exhausts.

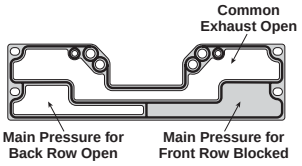


Internal Pilot Pressure from P1 Inlet

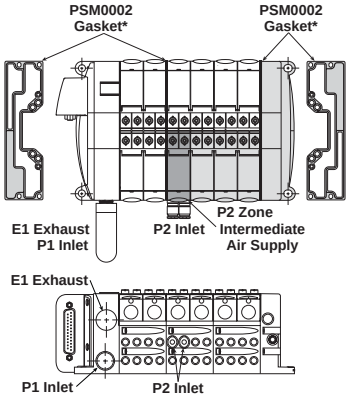


* Qty. (2) PSM0002 Gaskets are required.
Remainder are PSM0001 Gaskets (Not shown)

Front Manifold Blocked for Separate Pressure Supply.
Common Exhausts.



Internal Pilot Pressure from P2 Inlet



* Qty. (2) PSM0002 Gaskets are required.
Remainder are PSM0001 Gaskets (Not shown)

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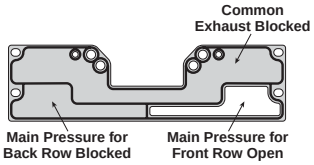
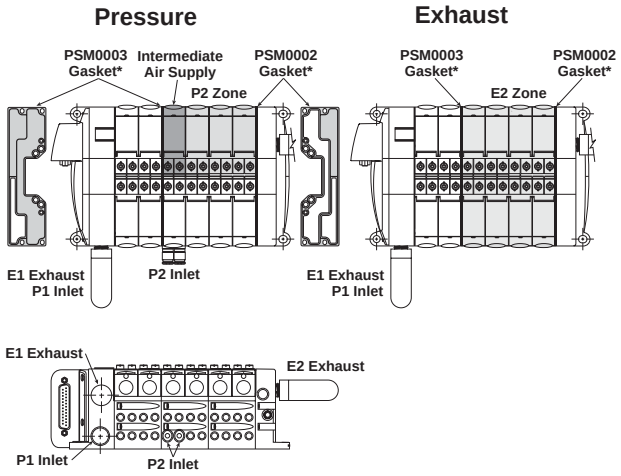
PSM0003 –

Rear Manifold Blocked for Separate Pressure Supply.
Exhaust Blocked Also.

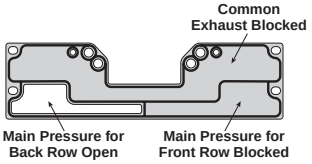


Internal Pilot Pressure from P1 Inlet

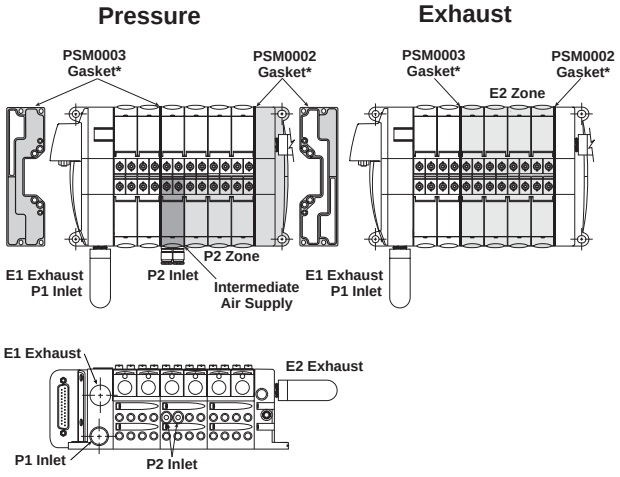


* Qty. (1) PSM0003 and Qty. (1) PSM0002 Gaskets are required.
Remainder are PSM0001 Gaskets (Not shown)

Front Manifold Blocked for Separate Pressure Supply.
Exhaust Blocked Also.



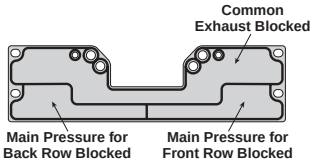
Internal Pilot Pressure from P2 Inlet



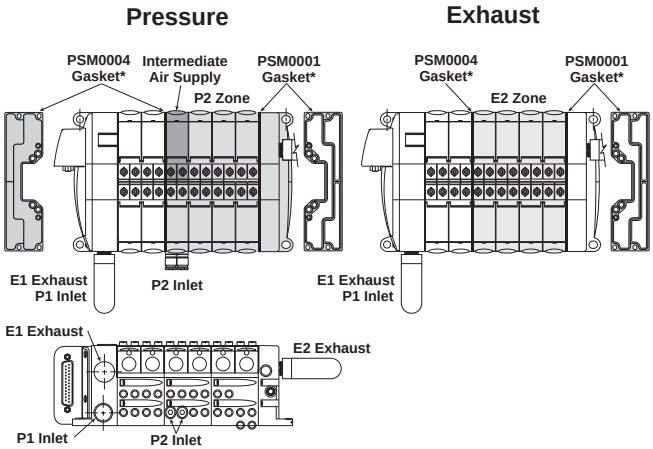
* Qty. (1) PSM0003 and Qty. (1) PSM0002 Gaskets are required.
Remainder are PSM0001 Gaskets (Not shown)

PSM0004 –

All Galleys Blocked.
Two Pressure Zones and Two Exhaust Zones.

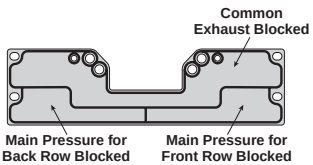


Internal Pilot Pressure from P2 Inlet

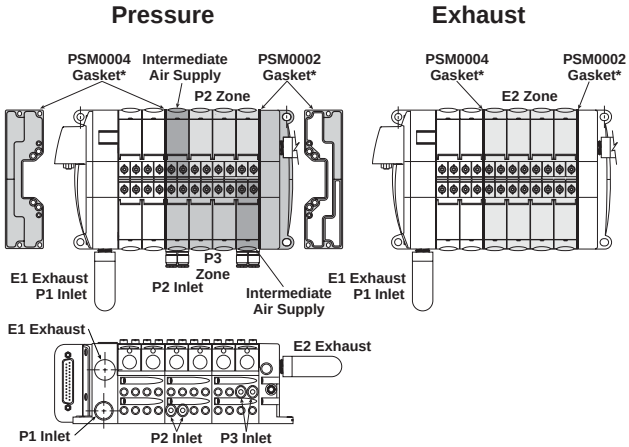


* Qty. (1) PSM0004 Gasket is required.
Remainder are PSM0001 Gaskets (Not shown)

All Galleys Blocked.
Three Pressure Zones and Two Exhaust Zones.



Internal Pilot Pressure from P3 Inlet



* Qty. (1) PSM0004 and Qty. (1) PSM0002 Gaskets are required.
Remainder are PSM0001 Gaskets (Not shown)

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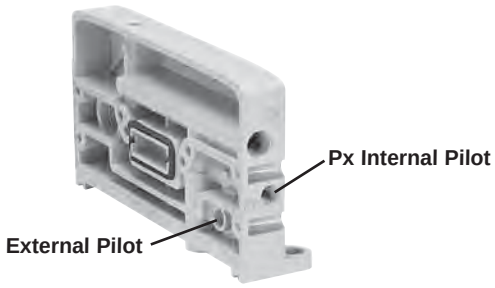
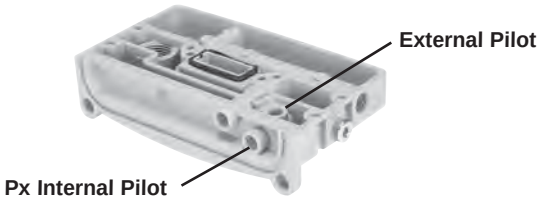
Pilot Configuration

Manifolds can be configured for either internal or external pilot in the field. Side ported manifolds are configured for internal pilot when the M7 plug is located in the Px port on the front of the right hand end plate. Moving this plug to the inside of the right hand end plate and replacing it with a fitting allows an external pilot to be used.



Bottom ported manifolds are configured for internal pilot when the M7 plug is located in the Px port on the bottom of the right hand end plate. Moving this plug to the inside of the right hand end plate and replacing it with a fitting allows an external pilot to be used.

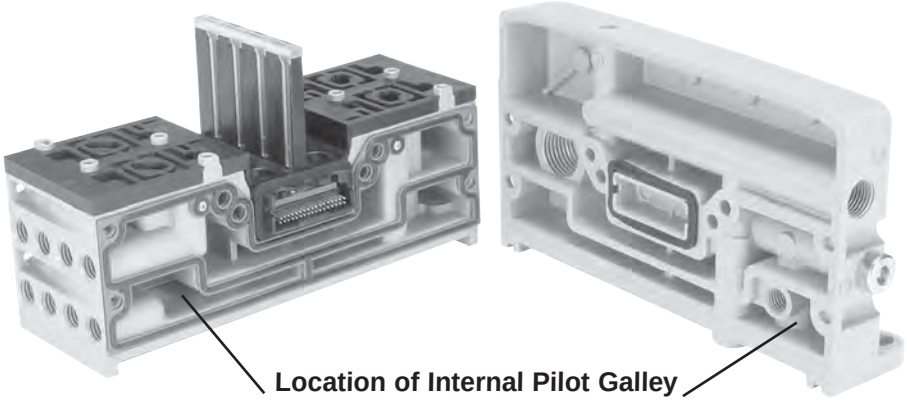


Pilot Pressure Requirements

Internal pilot pressure is supplied to the entire manifold from the right hand end plate, where the main pressure for the front row of valves is connected to the pilot pressure galley.

Maximum Pilot Pressure is 120 PSI. For applications requiring working pressures from 120 to 145 PSI, an External Pilot supply less than 120 PSI is required.

Valve Number	Minimum Pilot Pressure	Maximum Pilot Pressure
HMEVX2049A	40 PSI	120 PSI
HM2VX2049A	25 PSI	120 PSI
HM5VX2049A	45 PSI	120 PSI
HMNVX2049A	40 PSI	120 PSI
HMPVX2049A	40 PSI	120 PSI
HMQVX2049A	40 PSI	120 PSI



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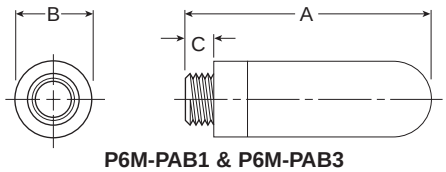
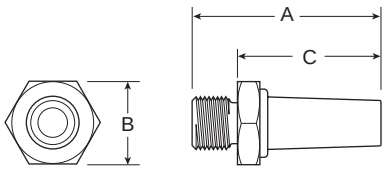
P6M-PAB3 **P6M-PAB1** **P0568800**

Mufflers

P6M-PAB1	1/8" Pilot Exhaust – BSPP or NPT
P6M-PAB3	3/8" Main Exhaust – BSPP or NPT
P0568800	M7 Bottom Port Pilot Exhaust
PS568800	M7 Bottom Port Pilot Exhaust (Must be ordered in multiples of 10)



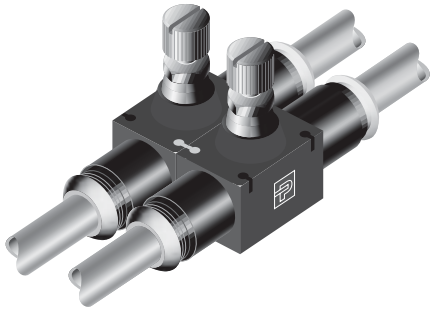
P6M-PAB1 & P6M-PAB3



P0568800

Port Thread	A	Diameter B	C	Weight (grams)	Part Number
1/8	1.14 (29)	0.55 (14)	0.24 (6)	0.02	**P6M-PAB1**
3/8	2.36 (60)	0.98 (25)	0.35 (9)	0.06	**P6M-PAB3**
M7 x 1	0.98 (25)	0.43 (11)	0.75 (19)	5	**P0568800**

Note: Recommended tube durometer of 95 or higher. A tube support may be required if tube durometer is less than 95.



Flow Controls

FC800-5/32	4mm to 4mm or 5/32" to 5/32" OD Tube
FC800-4	1/4" to 1/4" O.D. Tube

Fittings – Must be ordered in multiples of 10

	Kit Number	Thread	Tube O.D.
Manifold or Pilot Supply Ports – Straight			
	**PS567904**	M7	4mm or 5/32"
	PS567906	M7	6mm
	PS567925	M7	1/4"
Main Inlet or Exhaust Ports			
	**PS568325**	3/8" NPT	1/4"
	PS568338	3/8" NPT	3/8"
	PS568308	3/8" BSPP	8mm
	PS568310	3/8" BSPP	10mm
Pilot Exhaust Ports			
	**PS568215**	1/8" NPT	5/32"
	PS568225	1/8" NPT	1/4"
	PS568204	1/8" BSPP	4mm
	PS568206	1/8" BSPP	6mm

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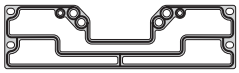
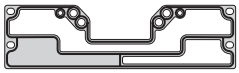
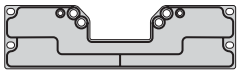
Manifold to Manifold Gaskets*

	**PSM0001**	All Galleys Passing
	**PSM0002**	Main Pressure to Rear or Front Valves Blocked, Exhaust Passing
	**PSM0003**	Main Pressure to Rear or Front Valves Blocked, Exhaust Blocked
	**PSM0004**	All Galleys Blocked

* Includes 1 Gasket

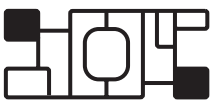
Replacement Solenoid Kit

	**PSM0010**	24VDC Solenoid Kit with Screws

Replacement Override Caps

	**PSM0011**	Set of 10 Manual Override Caps

Replacement Gaskets and Valve Screws

	**PSM0012**	Set of 5 Valve to Manifold Gaskets and 10 Screws

Replacement Plugs

	**PSM0013**	Set of 10 M7 Plugs (Part No. PS567900) for Auxiliary and Pilot Pressure Ports

Valve Labels*

PSM002E	Single Solenoid Diagram
PSM0022	Double Solenoid Diagram
PSM0025	Double Solenoid Diagram – APB
PSM002N	Double Solenoid Diagram – Dual 3/2 NC/NC
PSM002P	Double Solenoid Diagram – Dual 3/2 NO/NO
PSM002Q	Double Solenoid Diagram – Dual 3/2, 14 End NO, 12 End NC

*Includes 10 Labels.

Replacement Screws

	**PSM0014**	Set of 10 Manifold to Manifold M3 Screws

Replacement Regulator Gauge

	**P0566202**	5 to 125 PSI Gauge

Replacement Protective Cover

	PS5706	Protective Polyester Cover Set of 10

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Maximum Number of Solenoids
(Maximum Energized Simultaneously)

	25-Pin D-Sub	Moduflex	Isysnet*
24VDC	24 (24)	16 (16)	32 (32)

*Maximum of 32 solenoids per manifold. With Bus Extension functionality, 4 manifolds with up to 32 solenoids each can be connected on the same network.

Operating Pressure

Maximum: 145 PSIG (10 bar)

Minimum: Vacuum

Maximum and minimum values with external pilot pressure

Temperature Rating

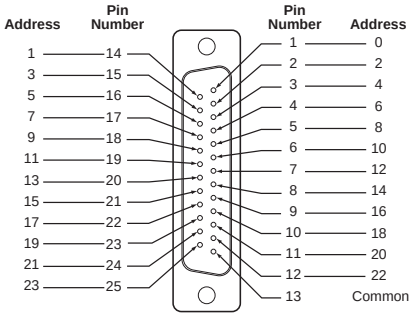
-15°C to 49°C (5°F to 120°F)

Pilot Pressure Requirements

Valve Number	Minimum Pilot Pressure	Maximum Pilot Pressure
HMEVX2049A	40 PSI	120 PSI
HM2VX2049A	25 PSI	120 PSI
HM5VX2049A	45 PSI	120 PSI
HMNVX2049A	40 PSI	120 PSI
HMPVX2049A	40 PSI	120 PSI
HMQVX2049A	40 PSI	120 PSI

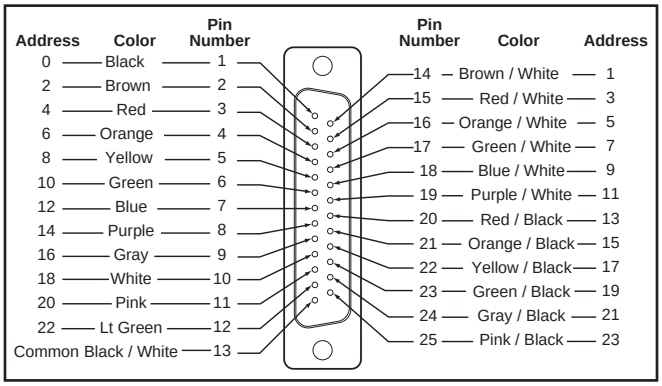
Vibration According to IEC 68-2-6	2G to 150Hz
Shock According to IEC-68-2-27	15G – 11ms
Rated Coil Voltage	24VDC / -15% / +10%
Power Consumption	1W (42mA) with LED
Duty Factor	100% at 20°C

25-Pin, D-Sub Connector (Male)



View into End Plate Connector - Male D-Sub, 25-Pin

25-Pin, D-Sub Cable (Female)



Part Number	Description	Length
P8LMH25M3A	25-Pin, D-Sub Cable, IP20	3 Meters
SCD259D	25-Pin, D-Sub Cable, IP20	9 Meters
SCD253W	25-Pin, D-Sub Cable, IP65	3 Meters
SCD259WE	25-Pin, D-Sub Cable, IP65	9 Meters

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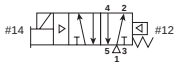
Single Solenoid



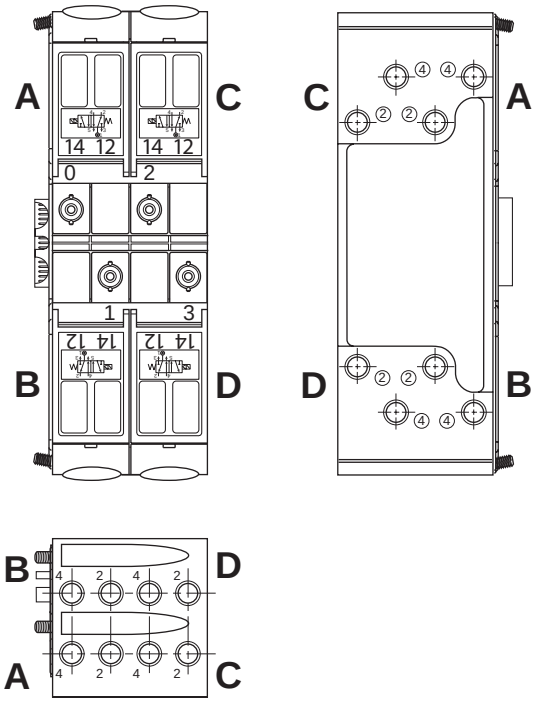
Single Pressure At Inlet Port 1:

De-energized position – Solenoid operator #14 de-energized. Pressure at inlet port 1 connected to outlet port 2. Outlet port 4 connected to exhaust port 5.

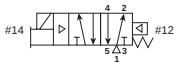
Energized position – Solenoid operator #14 energized. Pressure at inlet port 1 connected to outlet port 4. Outlet port 2 connected to exhaust port 3.

HMEVX2049A - Single Address Manifolds

Valve Position A		Valve Position C	
Output 0		Output 2	
On	Off	On	Off
1→4 3←2	1→2 5←4	1→4 3←2	1→2 5←4
Valve Position B		**Valve Position D**	
Output 1		Output 3	
On	Off	On	Off
1→4 3←2	1→2 5←4	1→4 3←2	1→2 5←4



Single Solenoid



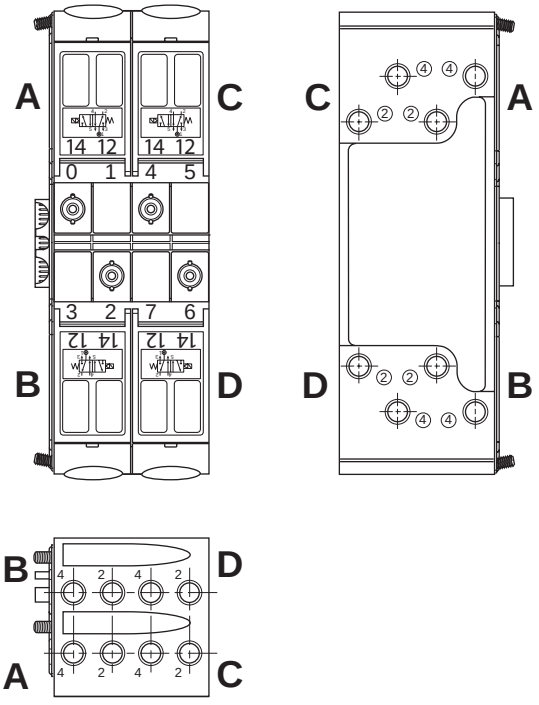
Single Pressure At Inlet Port 1:

De-energized position – Solenoid operator #14 de-energized. Pressure at inlet port 1 connected to outlet port 2. Outlet port 4 connected to exhaust port 5.

Energized position – Solenoid operator #14 energized. Pressure at inlet port 1 connected to outlet port 4. Outlet port 2 connected to exhaust port 3.

HMEVX2049A - Double Address Manifolds

Valve Position A				Valve Position C			
Output 0		Output 1		Output 4		Output 5	
On	Off	On	Off	On	Off	On	Off
1→4 3←2	1→2 5←4	Output Lost 1→2 5←4	 1→2 5←4	1→4 3←2	1→2 5←4	Output Lost 1→2 5←4	 1→2 5←4
Valve Position B				**Valve Position D**			
Output 3		Output 2		Output 7		Output 6	
On	Off	On	Off	On	Off	On	Off
Output Lost 1→2 5←4	 1→2 5←4	1→4 3←2	1→2 5←4	Output Lost 1→2 5←4	 1→2 5←4	1→4 3←2	1→2 5←4



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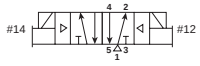
Double Solenoid



Single Pressure At Inlet Port 1:

Solenoid operator #14 energized last. Pressure at inlet port 1 connected to outlet port 4. Outlet port 2 connected to exhaust port 3.

Solenoid operator #12 energized last. Pressure at inlet port 1 connected to outlet port 2. Outlet port 4 connected to exhaust port 5.

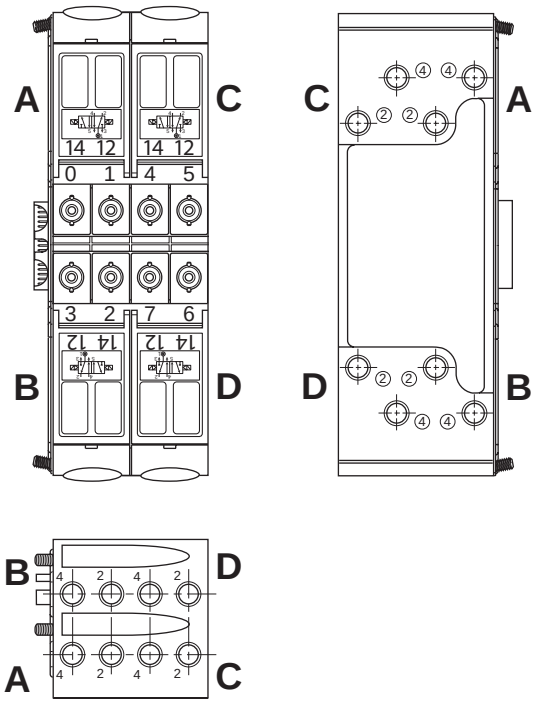
A 2-Position, Double Solenoid Valve is a detented valve. When the output is removed, the spool remains in its position.

HM2VX2049A - Double Address Manifolds - Last state #12 Energized

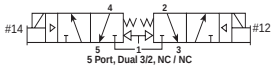
Valve Position A				Valve Position C			
Output 0		Output 1		Output 4		Output 5	
On	Off	On	Off	On	Off	On	Off
1→4 3←2	1→2 5←4	1→2 5←4	1→2 5←4	1→4 3←2	1→2 5←4	1→2 5←4	1→2 5←4
Valve Position B				Valve Position D			
Output 3		Output 2		Output 7		Output 6	
On	Off	On	Off	On	Off	On	Off
1→2 5←4	1→2 5←4	1→4 3←2	1→2 5←4	1→2 5←4	1→2 5←4	1→4 3←2	1→2 5←4

HM2VX2049A - Double Address Manifolds - Last state #14 Energized

Valve Position A				Valve Position C			
Output 0		Output 1		Output 4		Output 5	
On	Off	On	Off	On	Off	On	Off
1→4 3←2	1→4 3←2	1→2 5←4	1→4 3←2	1→4 3←2	1→4 3←2	1→2 5←4	1→4 3←2
Valve Position B				Valve Position D			
Output 3		Output 2		Output 7		Output 6	
On	Off	On	Off	On	Off	On	Off
1→2 5←4	1→4 3←2	1→4 3←2	1→4 3←2	1→2 5←4	1→4 3←2	1→4 3←2	1→4 3←2



Double Solenoid
Dual 3-Way, 2-Position
NC / NC (NNP)



With #14 & #12 operators both de-energized – pressure at inlet port 1 blocked, outlet port 4 connected to exhaust port 5, outlet port 2 connected to exhaust port 3.

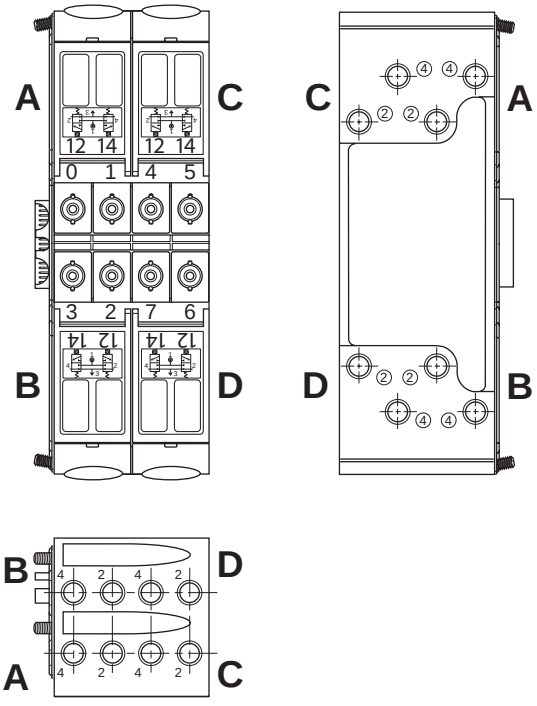
With #14 operator energized – pressure at inlet port 1 connected to outlet port 4, exhaust port 5 blocked, outlet port 2 connected to exhaust port 3.

With #12 operator energized – pressure at inlet port 1 connected to outlet port 2, exhaust port 3 blocked, outlet port 4 connected to exhaust port 5.

With #14 & #12 operators both energized – pressure at inlet port 1 connected to outlet ports 4 & 2, exhaust ports 3 & 5 blocked.

HMNVX2049A - Double Address Manifolds

Valve Position A				Valve Position C			
Output 0		Output 1		Output 4		Output 5	
On	Off	On	Off	On	Off	On	Off
1→2 3⊣	1⊣ 3←2	1→4 5⊣	1⊣ 5←4	1→2 3⊣	1⊣ 3←2	1→4 5⊣	1⊣ 5←4
Valve Position B				Valve Position D			
Output 3		Output 2		Output 7		Output 6	
On	Off	On	Off	On	Off	On	Off
1→4 5⊣	1⊣ 5←4	1→2 3⊣	1⊣ 3←2	1→4 5⊣	1⊣ 5←4	1→2 3⊣	1⊣ 3←2



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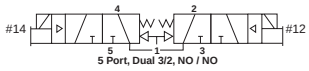
Dual 3-Way, 2-Position NO / NO (NP)



With #14 & #12 operators both de-energized – pressure at inlet port 1 connected to outlet ports 4 & 2, exhaust ports 3 & 5 blocked.

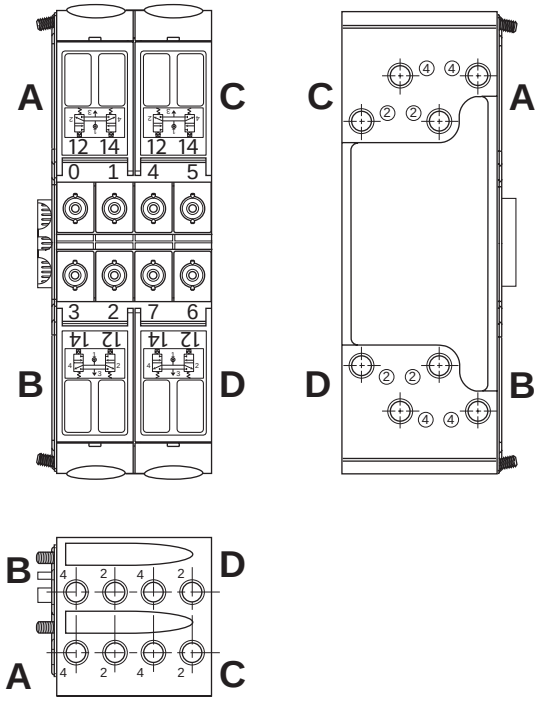
With #14 operator energized – pressure at inlet port 1 connected to outlet port 2, exhaust port 3 blocked, outlet port 4 connected to exhaust port 5.

With #12 operator energized – pressure at inlet port 1 connected to outlet port 4, exhaust port 5 blocked, outlet port 2 connected to exhaust port 3.

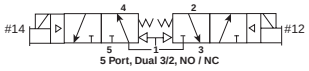
With #14 & #12 operators both energized – pressure at inlet port 1 blocked, outlet port 4 connected to exhaust port 5, outlet port 2 connected to exhaust port 3.

HMPVX2049A - Double Address Manifolds

Valve Position A				Valve Position C			
Output 0		Output 1		Output 4		Output 5	
On	Off	On	Off	On	Off	On	Off
1⊣ 3←2	1→2 3⊣	1⊣ 5←4	1→4 5⊣	1⊣ 3←2	1→2 3⊣	1⊣ 5←4	1→4 5⊣
Valve Position B				**Valve Position D**			
Output 3		**Output 2**		**Output 7**		**Output 6**	
On	**Off**	**On**	**Off**	**On**	**Off**	**On**	**Off**
1⊣ 5←4	1→4 5⊣	1⊣ 3←2	1→2 3⊣	1⊣ 5←4	1→4 5⊣	1⊣ 3←2	1→2 3⊣



Dual 3-Way, 2-Position 14 End NO / 12 End NC (NP / NNP)



With #14 & #12 operators both de-energized – pressure at inlet port 1 connected to outlet port 4, exhaust port 5 blocked, outlet port 2 connected to exhaust port 3.

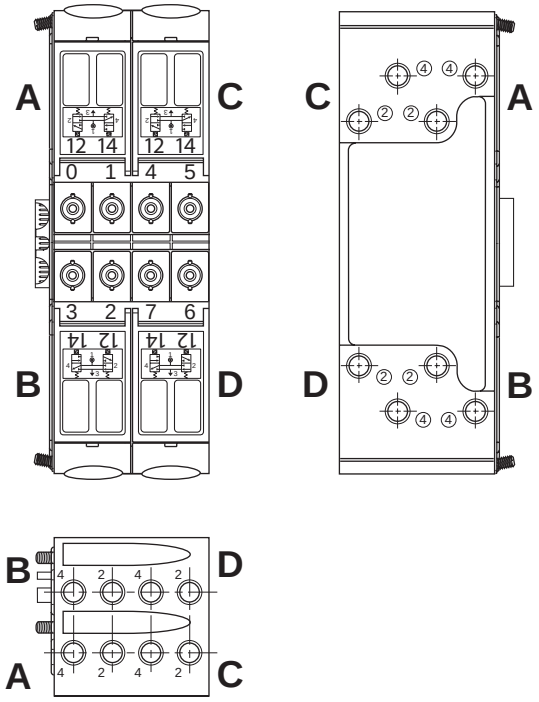
With #14 operator energized – pressure at inlet port 1 blocked, outlet port 4 connected to exhaust port 5, outlet port 2 connected to exhaust port 3.

With #12 operator energized – pressure at inlet port 1 connected to outlet ports 4 & 2, exhaust ports 3 & 5 blocked.

With #14 & #12 operators both energized – pressure at inlet port 1 connected to outlet port 2, exhaust port 3 blocked, outlet port 4 connected to exhaust port 5.

HMQVX2049A - Double Address Manifolds

Valve Position A				Valve Position C			
Output 0		Output 1		Output 4		Output 5	
On	Off	On	Off	On	Off	On	Off
1→2 3⊣	1⊣ 3←2	1⊣ 5←4	1→4 5⊣	1→2 3⊣	1⊣ 3←2	1⊣ 5←4	1→4 5⊣
Valve Position B				**Valve Position D**			
Output 3		**Output 2**		**Output 7**		**Output 6**	
On	**Off**	**On**	**Off**	**On**	**Off**	**On**	**Off**
1⊣ 5←4	1→4 5⊣	1→2 3⊣	1⊣ 3←2	1⊣ 5←4	1→4 5⊣	1→2 3⊣	1⊣ 3←2



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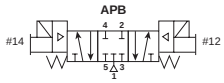
Double Solenoid 3-Position



Function 5: All Ports Blocked

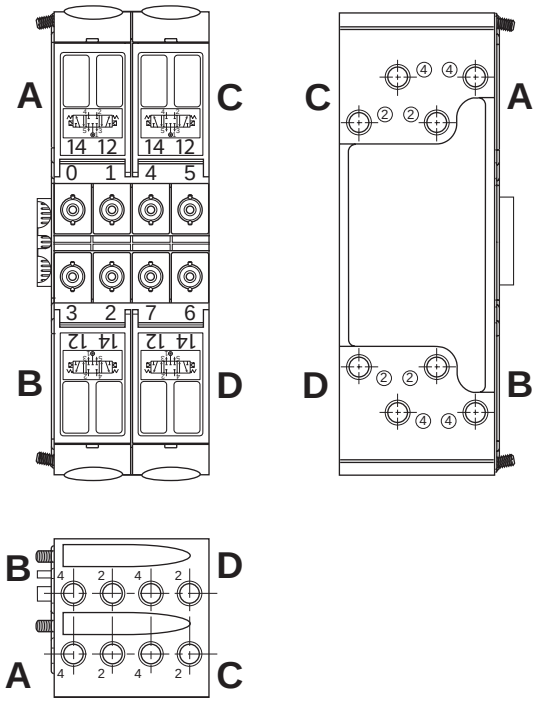
With #12 operator energized – inlet port 1 connected to cylinder port 2, cylinder port 4 connected to exhaust port 5.

With #14 operator energized – inlet port 1 connected to cylinder port 4, cylinder port 2 connected to exhaust port 3.

All ports blocked in the center position.

HM5VX2049A - Double Address Manifolds

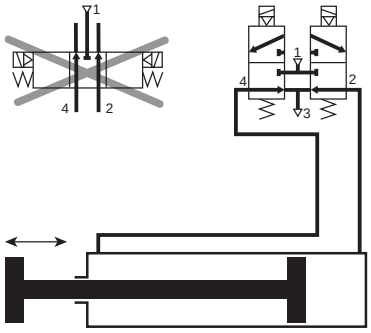
Valve Position A			Valve Position C		
Output 0 On Output 1 Off	**Output 0 Off Output 1 On**	**Output 0 Off Output 1 Off**	**Output 4 On Output 5 Off**	**Output 4 Off Output 5 On**	**Output 4 Off Output 5 Off**
5⊣ 1→4 3←2	5←4 1→2 3⊣	3⊣ ⊢4 1⊣ ⊢2 5⊣	5⊣ 1→4 3←2	5←4 1→2 3⊣	3⊣ ⊢4 1⊣ ⊢2 5⊣
Valve Position B			**Valve Position D**		
Output 2 On Output 3 Off	**Output 2 Off Output 3 On**	**Output 2 Off Output 3 Off**	**Output 6 On Output 7 Off**	**Output 6 Off Output 7 On**	**Output 6 Off Output 7 Off**
5⊣ 1→4 3←2	5←4 1→2 3⊣	3⊣ ⊢4 1⊣ ⊢2 5⊣	5⊣ 1→4 3←2	5←4 1→2 3⊣	3⊣ ⊢4 1⊣ ⊢2 5⊣



Dual 3/2 Valves Replace 3-Position Valves for Better Performance

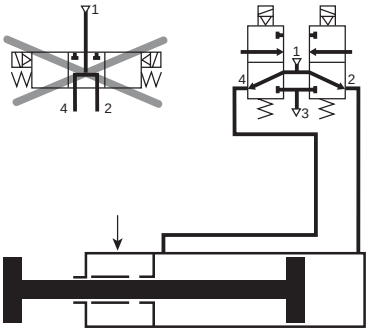
3-Position Center Exhaust

A traditional 5/3 center exhaust valve is now replaced by a double 3/2 NC+NC valve module. Both cylinder chambers are exhausted and rod and piston are free to move.



3-Position Pressure Center

A traditional 5/3 pressure center valve is now replaced by a double 3/2 NO+NO valve module. The function is identical.



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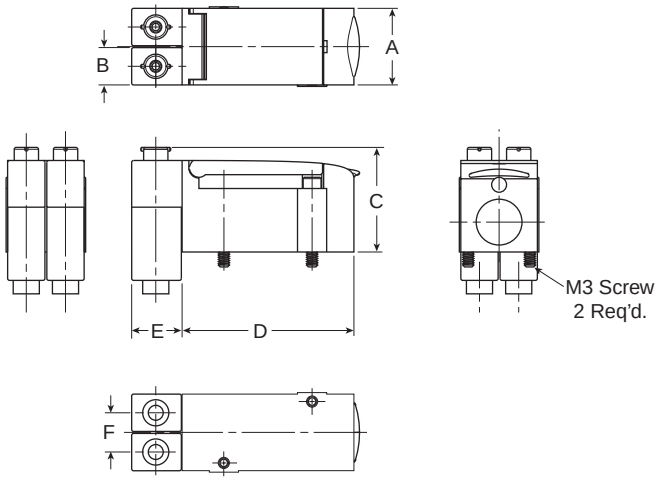
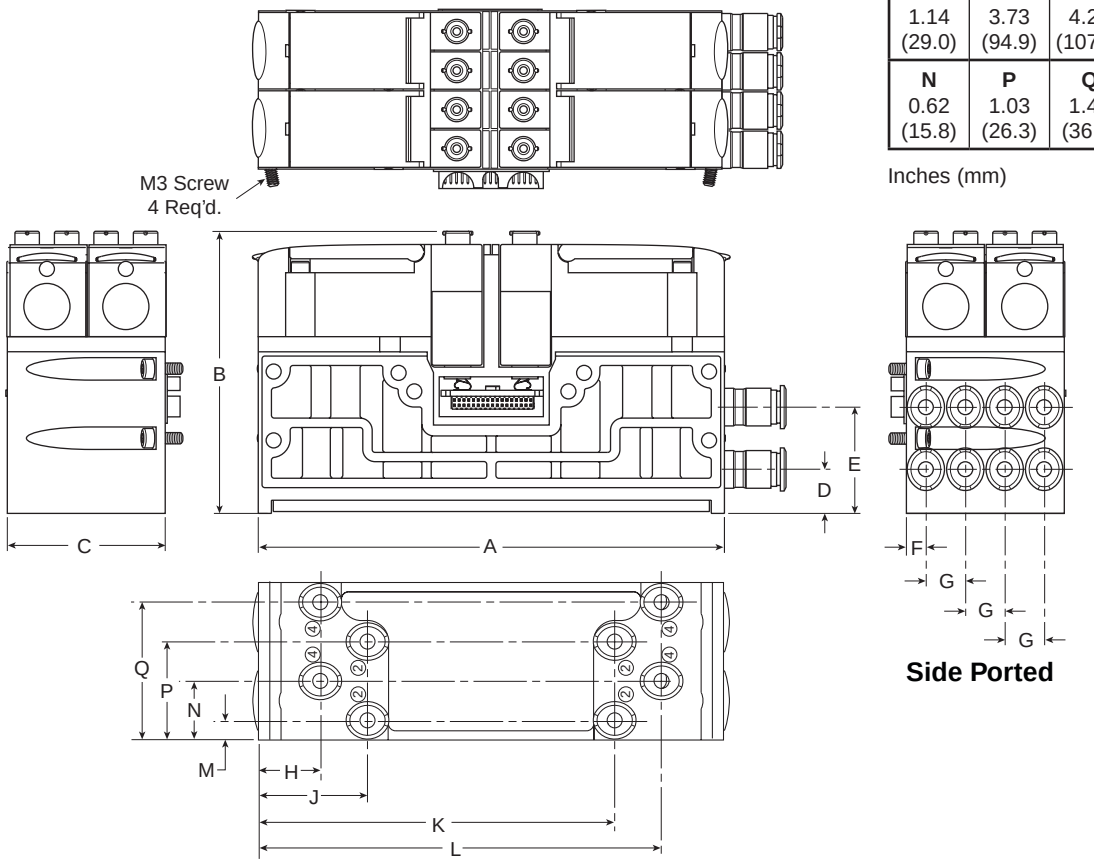


Dimensions

A	B	C	D
0.83 (21.0)	0.40 (10.0)	1.12 (28.4)	1.83 (46.5)
E	**F**		
0.52 (13.3)	0.43 (10.8)		

Inches (mm)



Side Ported

Bottom Ported

Dimensions

A	B	C	D
4.88 (123.8)	2.95 (75.0)	1.65 (42.0)	0.47 (11.9)
E	**F**	**G**	**H**
1.11 (28.3)	0.21 (5.2)	0.41 (10.5)	0.64 (16.4)
J	**K**	**L**	**M**
1.14 (29.0)	3.73 (94.9)	4.23 (107.4)	0.21 (5.3)
N	**P**	**Q**	
0.62 (15.8)	1.03 (26.3)	1.45 (36.8)	

Inches (mm)

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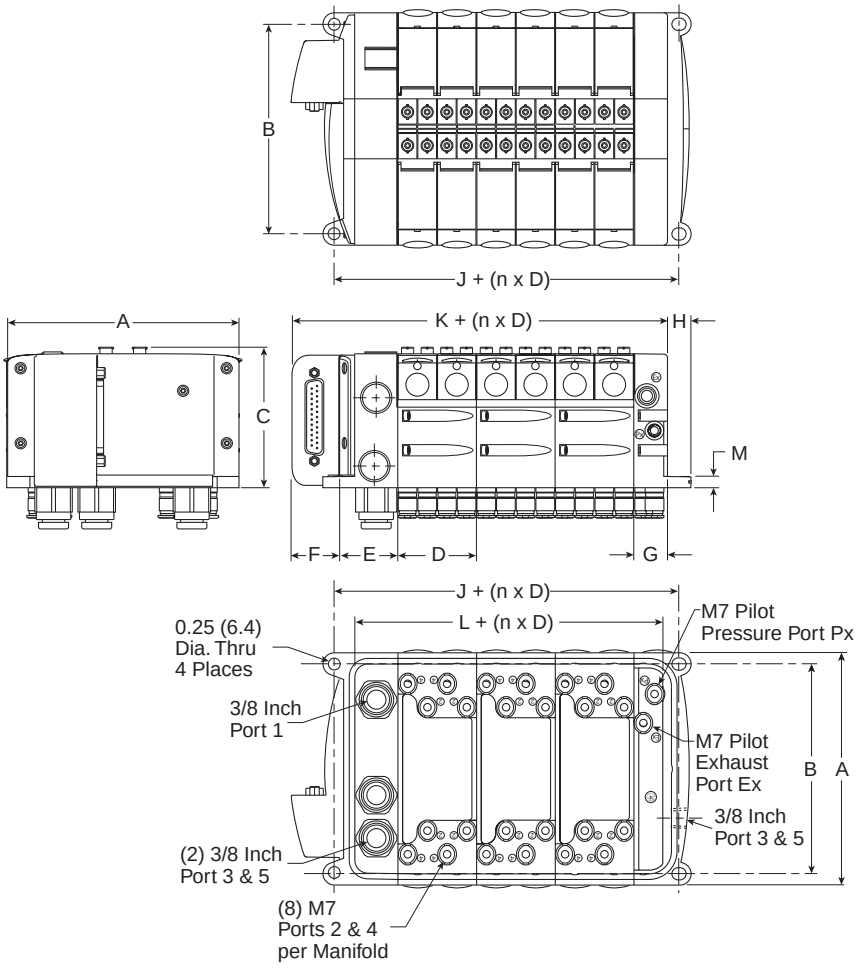
25-Pin, D-Sub, Bottom Ported

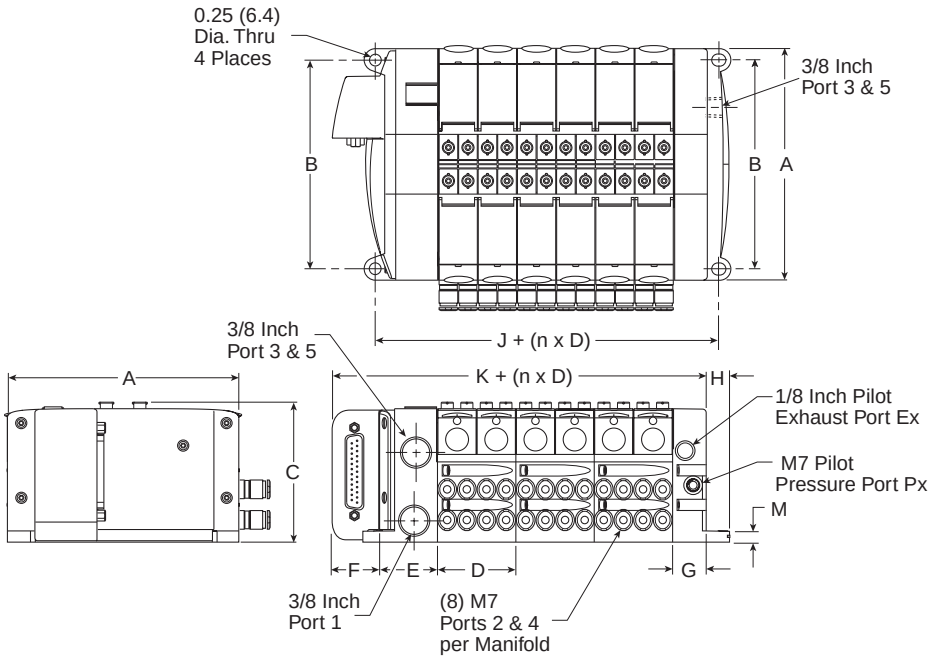


Dimensions

A	B	C	D
4.88 (124.0)	4.41 (112.0)	2.95 (75.0)	1.65 (42.0)
E	**F**	**G**	**H**
1.22 (31.0)	1.02 (26.0)	0.71 (18.0)	0.49 (12.5)
J	**K**	**L**	**M**
2.28 (58.0)	3.44 (87.5)	1.69 (43.0)	0.24 (6.1)

Inches (mm)
n = Number of Manifolds

25-Pin, D-Sub, Side Ported



Dimensions

A	B	C	D
4.88 (124.0)	4.41 (112.0)	2.95 (75.0)	1.65 (42.0)
E	**F**	**G**	**H**
1.22 (31.0)	1.02 (26.0)	0.71 (18.0)	0.49 (12.5)
J	**K**	**M**	
2.28 (58.0)	3.44 (87.5)	0.24 (6.1)	

Inches (mm)
n = Number of Manifolds

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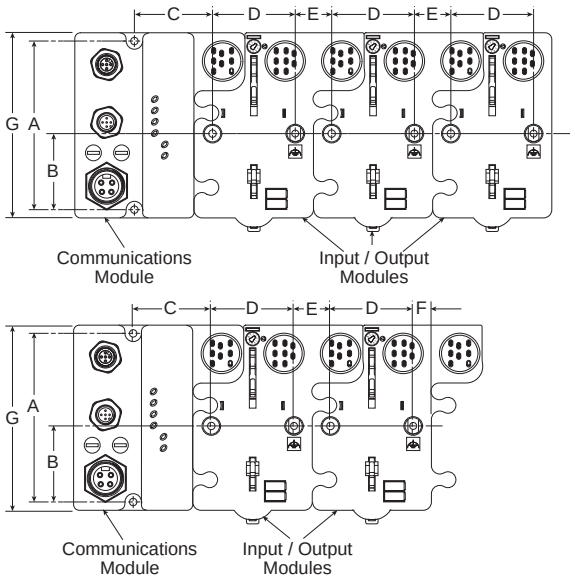
Isysnet Modules

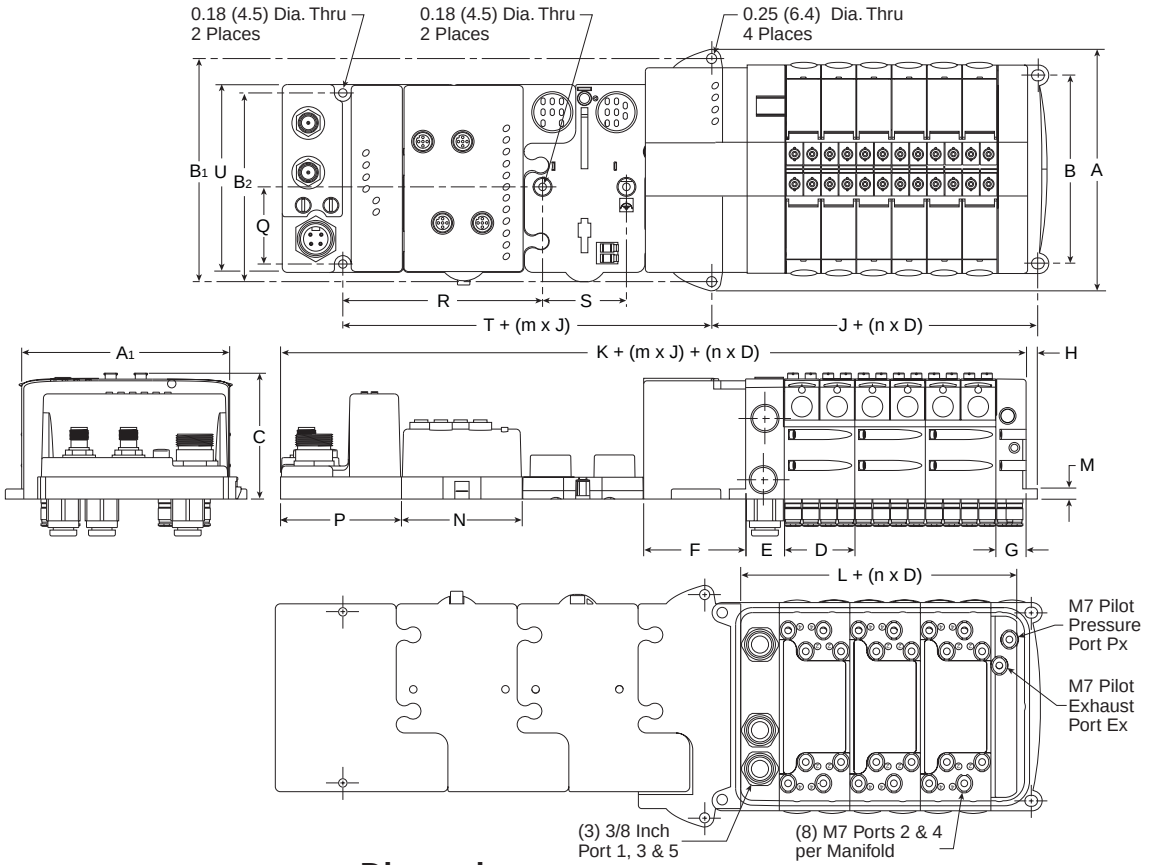


Dimensions

A	B	C	D
4.00 (102)	1.80 (46)	1.90 (48)	2.00 (50)
E	**F**	**G**	
.87 (22)	.43 (11)	4.41 (112)	

Inches (mm)

Isysnet, Bottom Ported



Dimensions

A	A_1	B	B_1	B_2	C	D	E	F	G	H
5.67 (144.0)	4.88 (124.0)	4.41 (112.0)	5.24 (133.0)	4.02 (102.0)	2.95 (75.0)	1.65 (42.0)	0.91 (23.0)	2.40 (61.0)	0.71 (18.0)	0.49 (12.5)
J	**K**	**L**	**M**	**N**	**P**	**Q**	**R**	**S**	**T**	**U**
2.72 (69.0)	7.32 (186.0)	1.69 (43.0)	0.24 (6.1)	2.83 (72.0)	2.83 (72.0)	1.81 (46.0)	4.72 (120.0)	2.01 (51.0)	2.01 (51.0)	4.41 (112)

Inches (mm)
n = Number of Manifolds
m = Number of Modules

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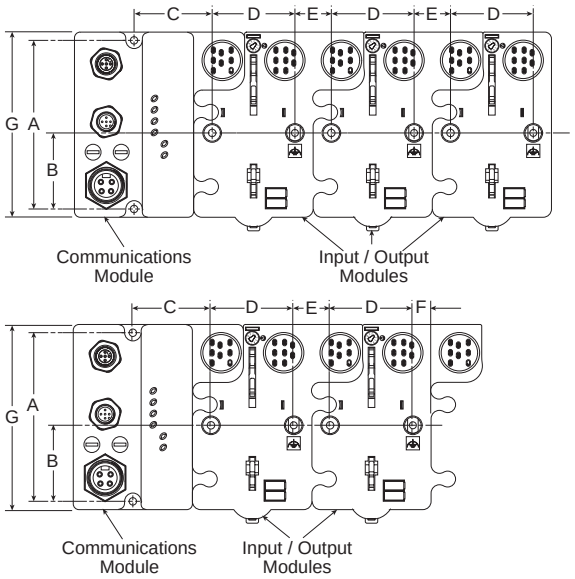
Isysnet Modules

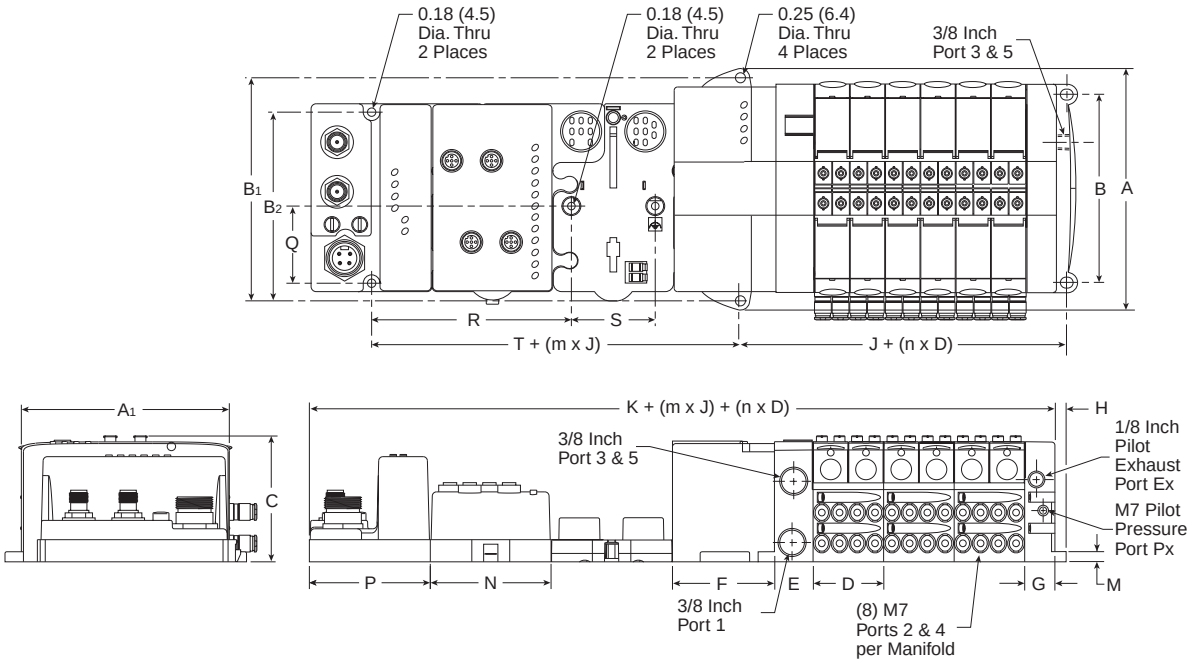


Dimensions

A	B	C	D
4.00 (102)	1.80 (46)	1.90 (48)	2.00 (50)
E	**F**	**G**	
.87 (22)	.43 (11)	4.41 (112)	

Inches (mm)

Isysnet, Side Ported



Dimensions

A	A1	B	B1	B2	C	D	E	F	G
5.67 (144.0)	4.88 (124.0)	4.41 (112.0)	5.24 (133.0)	4.02 (102.0)	2.95 (75.0)	1.65 (42.0)	0.91 (23.0)	2.40 (61.0)	0.71 (18.0)
H	**J**	**K**	**M**	**N**	**P**	**Q**	**R**	**S**	**T**
0.49 (12.5)	2.72 (69.0)	7.32 (186.0)	0.24 (6.1)	2.83 (72.0)	2.83 (72.0)	1.81 (46.0)	4.72 (120.0)	2.01 (51.0)	2.01 (51.0)

Inches (mm)
n = Number of Manifolds
m = Number of Modules

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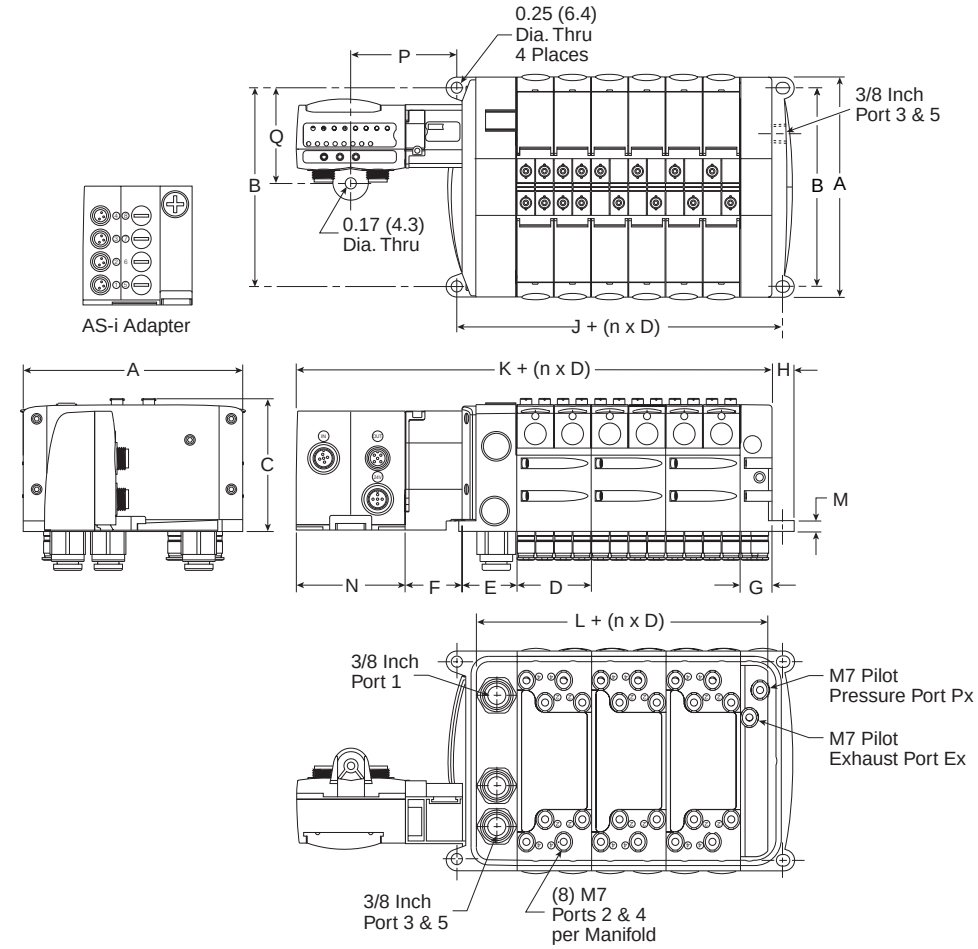
Moduflex Adapter, Bottom Ported

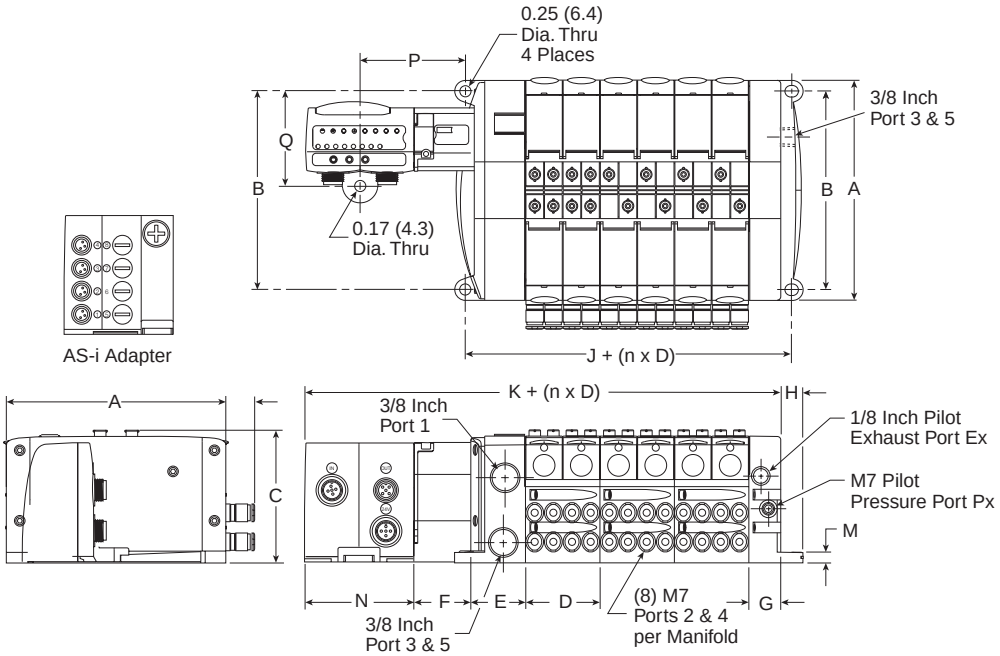


Dimensions

A	B	C	D
4.88 (124.0)	4.41 (112.0)	2.95 (75.0)	1.65 (42.0)
E	**F**	**G**	**H**
1.22 (31.0)	1.28 (32.5)	0.71 (18.0)	0.49 (12.5)
J	**K**	**L**	**M**
2.28 (58.0)	6.10 (155.0)	1.69 (43.0)	0.24 (6.1)
N	**P**	**Q**	
2.40 (61.0)	2.36 (60.0)	2.07 (52.5)	

Inches (mm)
n = Number of Manifolds

Moduflex Adapter, Side Ported



Dimensions

A	B	C	D
4.88 (124.0)	4.41 (112.0)	2.95 (75.0)	1.65 (42.0)
E	**F**	**G**	**H**
1.22 (31.0)	1.28 (32.5)	0.71 (18.0)	0.49 (12.5)
J	**K**	**M**	**N**
2.28 (58.0)	6.10 (155.0)	0.24 (6.1)	2.40 (61.0)
P	**Q**		
2.36 (60.0)	2.07 (52.5)		

Inches (mm)
n = Number of Manifolds

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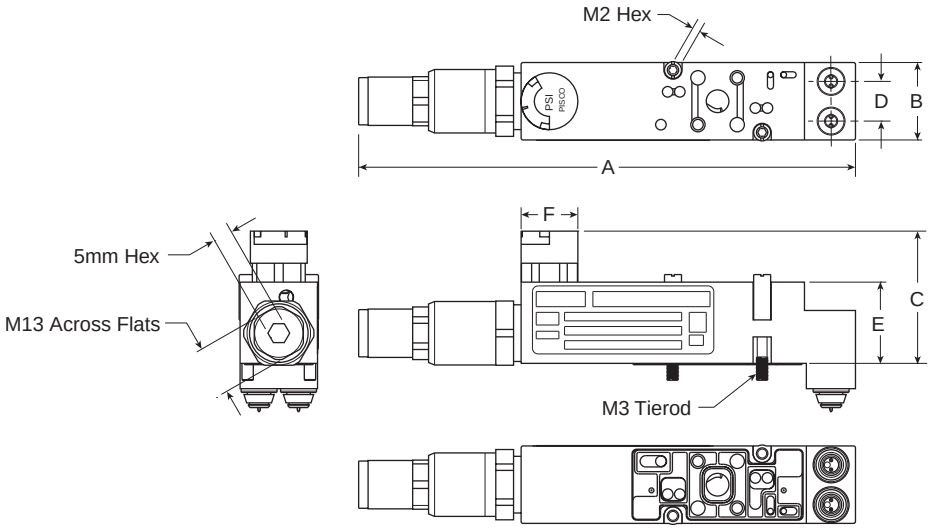
Sandwich Regulator

Dimensions

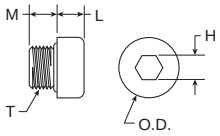
A	B	C	D
5.20 (132.0)	0.81 (20.5)	1.38 (35.0)	0.41 (10.5)
E	**F**		
0.85 (21.5)	0.59Ø (15Ø)		

Inches (mm)



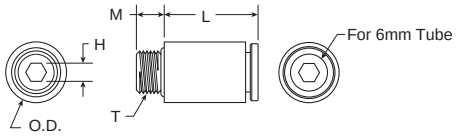
M7 Fittings

PS567900 – Kit PSM0013



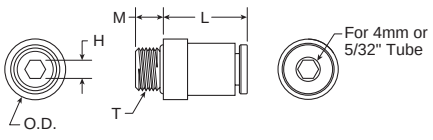
Part No.	L	M	H Hex	T Thread	O.D.
PS567900	0.18 (4.5)	0.20 (5)	0.16 (4)	M7 x 1	0.39 (10)

PS567906



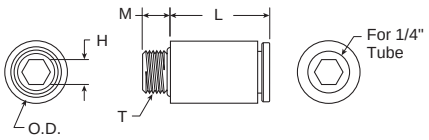
Part No.	Tube Size	L	M	H Hex	T Thread	O.D.
PS567906	6mm	0.63 (16)	0.20 (5)	0.12 (3)	M7 x 1	0.39 (10)

PS567904



Part No.	Tube Size	L	M	H Hex	T Thread	O.D.
PS567904	4mm or 5/32"	0.55 (14)	0.20 (5)	0.12 (3)	M7 x 1	0.39 (10)

PS567925



Part No.	Tube Size	L	M	H Hex	T Thread	O.D.
PS567925	1/4"	0.65 (16.5)	0.18 (4.6)	0.16 (4)	M7 x 1	0.41 (10.3)

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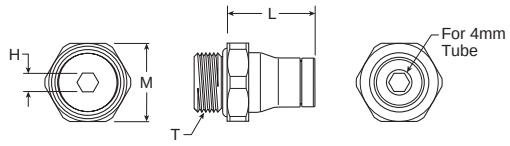
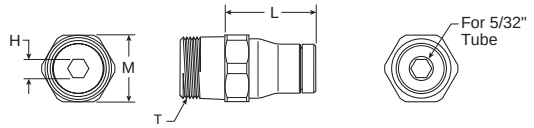
1/8 Inch Fittings

PS568204



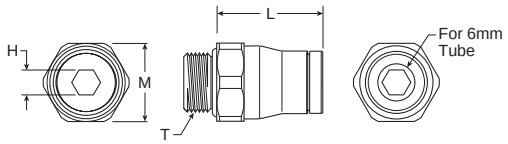
Part No.	Tube Size	L	M Hex	H Hex	T Thread
PS568204	4mm	0.57 (14.5)	0.51 (13)	0.12 (3)	G1 /8

PS568215



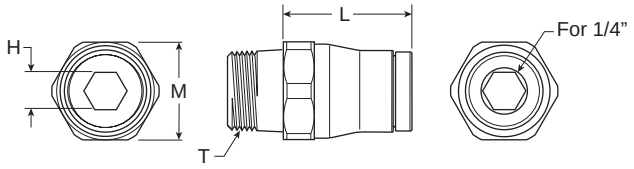
Part No.	Tube Size	L	M Hex	H Hex	T Thread
PS568215	5/32"	0.59 (15)	0.43 (11)	0.12 (3)	1/8 NPT

PS568206



Part No.	Tube Size	L	M Hex	H Hex	T Thread
PS568206	6mm	0.69 (17.5)	0.51 (13)	0.16 (4)	G1/8

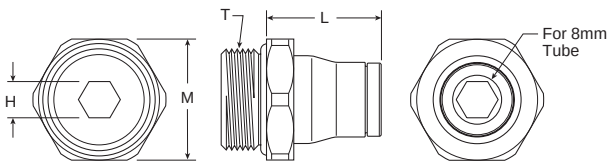
PS568225



Part No.	Tube Size	L	M Hex	H Hex	T Thread
PS568225	1/4"	0.67 (17)	0.51 (13)	0.20 (5)	1/8 NPT

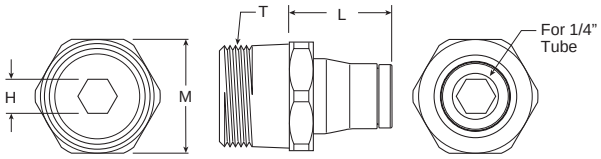
3/8 Inch Fittings

PS568308



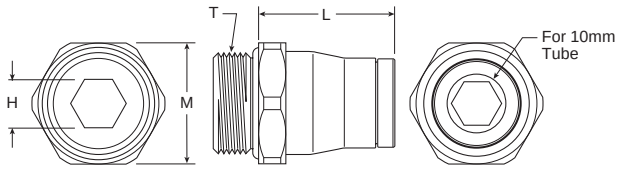
Part No.	Tube Size	L	M Hex	H Hex	T Thread
PS568308	8mm	0.75 (19)	0.79 (20)	0.24 (6)	G3/8

PS568325



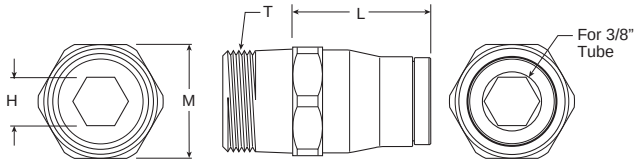
Part No.	Tube Size	L	M Hex	H Hex	T Thread
PS568325	1/4"	0.67 (17)	0.71 (18)	0.20 (5)	3/8 NPT

PS568310



Part No.	Tube Size	L	M Hex	H Hex	T Thread
PS568310	10mm	0.89 (22.5)	0.79 (20)	0.31 (8)	G3/8

PS568338



Part No.	Tube Size	L	M Hex	H Hex	T Thread
PS568338	3/8"	0.91 (23)	0.71 (18)	0.31 (8)	3/8 NPT

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Isys ISO Series

ISO Air Control Valves

15407-2 & 15407-1, 5599-2 & 5599-1
Sizes 18mm, 26mm, 1, 2, & 3

Section E

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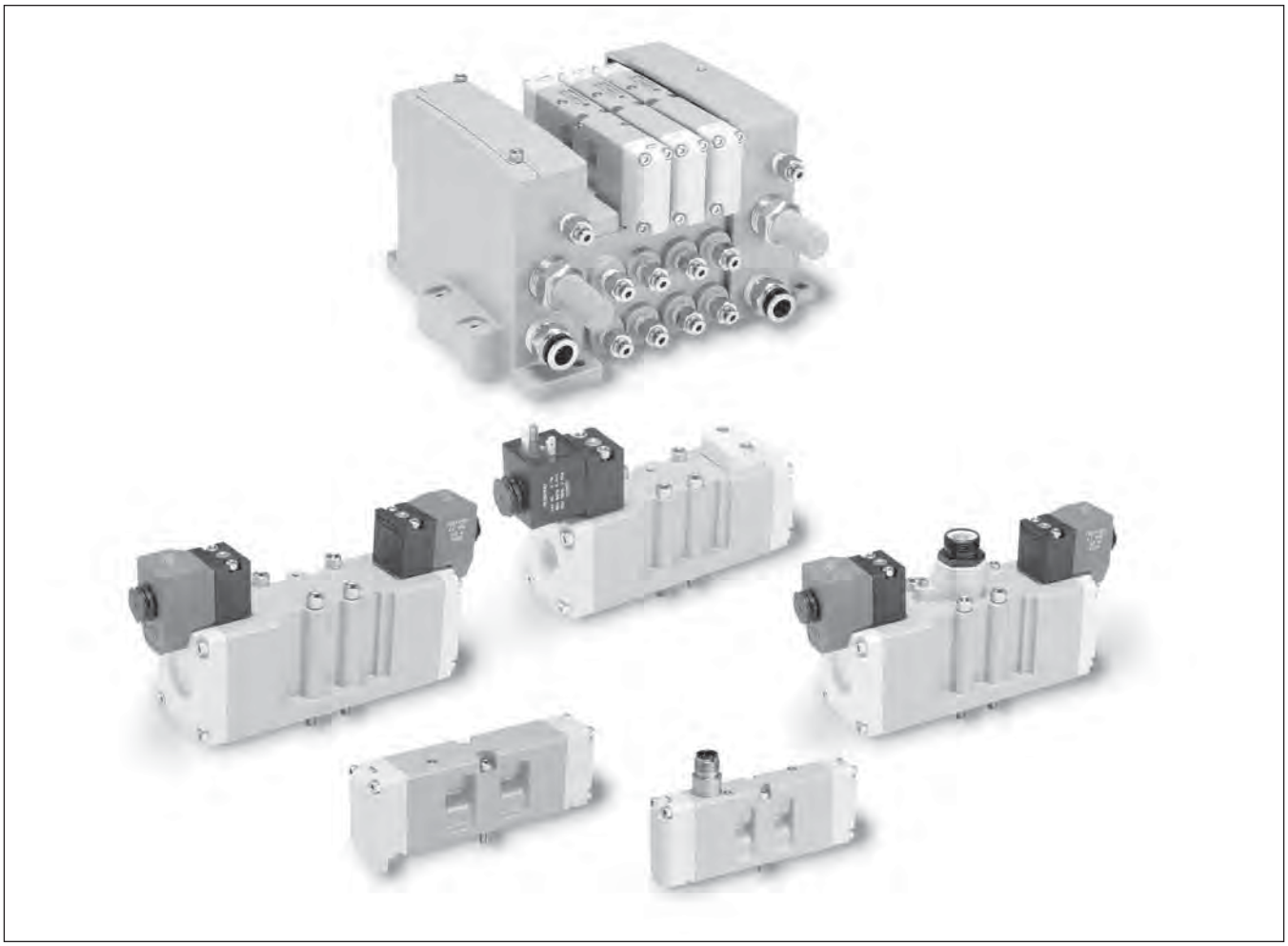

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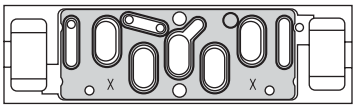
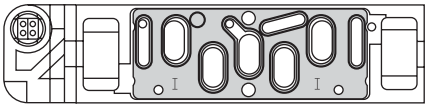
ISO Pneumatic Valve Standard Definitions

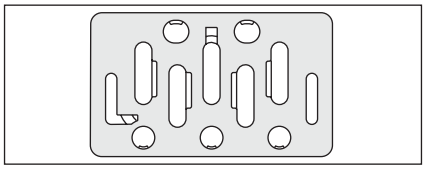
15407-1: Non-Plug-in Standards for Size 01 (26mm) & Size 02 (18mm) Wide Valves



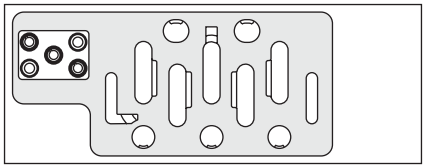
15407-2: Plug-in Standards for Size 01 (26mm) & Size 02 (18mm) Wide Valves



5599-1: Non-Plug-in Standards for Sizes 1, 2, 3

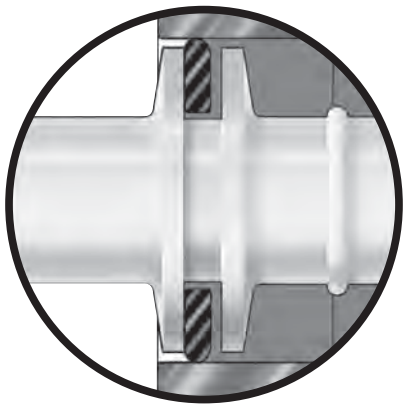


5599-2: Plug-in Standards for Size 1, 2, 3



*W*ear Compensation *S*ystem

- **Maximum Performance**
  - Low Friction - Lower Operating Pressures
  - Fast Response - Less Wear
- **Long Cycle Life** - Under pressure, radial expansion of the seal occurs to maintain sealing contact with the valve bore.
- **Non-Lube Service** - No lubrication required for continuous valve shifting.
- **Bi-Directional Spool Seals** - Common spool used for any pressure, including vacuum.



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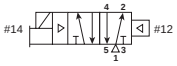
Basic Valve Functions

Single Solenoid

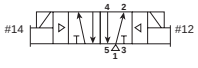


Single Pressure At Inlet Port 1:

De-energized position – Solenoid operator #14 de-energized. Pressure at inlet port 1 connected to outlet port 2. Outlet port 4 connected to exhaust port 5.

Energized position – Solenoid operator #14 energized. Pressure at inlet port 1 connected to outlet port 4. Outlet port 2 connected to exhaust port 3.

Double Solenoid

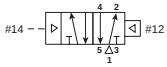


Single Pressure At Inlet Port 1:

Solenoid operator #14 energized last. Pressure at inlet port 1 connected to outlet port 4. Outlet port 2 connected to exhaust port 3.

Solenoid operator #12 energized last. Pressure at inlet port 1 connected to outlet port 2. Outlet port 4 connected to exhaust port 5.

Single Remote Pilot

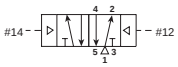


Single Pressure At Inlet Port 1:

Normal position – Pressure at inlet port 1 connected to outlet port 2. Outlet port 4 connected to exhaust port 5.

Operated position – Maintained air signal at port 14. Pressure at inlet port 1 connected to outlet port 4. Outlet port 2 connected to exhaust port 3.

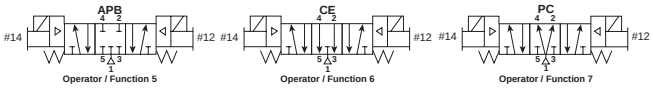
Double Remote Pilot



Single Pressure At Inlet Port 1:

Momentary air signal at port 14 last. Pressure at inlet port 1 connected to outlet port 4. Outlet port 2 connected to exhaust port 3.

Momentary air signal at port 12 last. Pressure at inlet port 1 connected to outlet port 2. Outlet port 4 connected to exhaust port 5.



Double Solenoid 3-Position

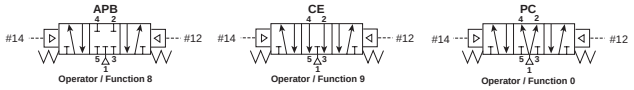
With #12 operator energized – inlet port 1 connected to cylinder port 2, cylinder port 4 connected to exhaust port 5.

With #14 operator energized – inlet port 1 connected to cylinder port 4, cylinder port 2 connected to exhaust port 3.

Function 5: All Ports Blocked
All ports blocked in the center position.

Function 6: Center Exhaust
Cylinder ports 2 and 4 connected to exhaust ports 3 and 5 in center position. Port 1 is blocked.

Function 7: Pressure Center
Pressure port 1 connected to cylinder ports 2 and 4, and exhaust ports 3 and 5 blocked in center position.



Double Remote Pilot 3-Position

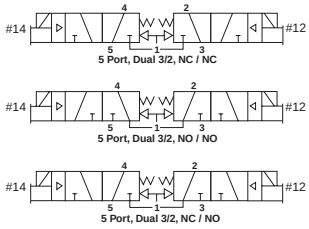
With #12 operator signaled – inlet port 1 connected to cylinder port 2, cylinder port 4 connected to exhaust port 5.

With #14 operator signaled – inlet port 1 connected to cylinder port 4, cylinder port 2 connected to exhaust port 3.

Function 8: All Ports Blocked
All ports blocked in the center position.

Function 9: Center Exhaust
Cylinder ports 2 and 4 connected to exhaust ports 3 and 5 in center position. Port 1 is blocked.

Function 0: Pressure Center
Pressure port 1 connected to cylinder ports 2 and 4, and exhaust ports 3 and 5 blocked in center position.



Double Solenoid / Remote Pilot Dual 3-Way, 2-Position NC / NC (NNP)

With #14 & #12 operators both de-energized – pressure at inlet port 1 blocked, outlet port 4 connected to exhaust port 5, outlet port 2 connected to exhaust port 3.

With #14 operator energized – pressure at inlet port 1 connected to outlet port 4, exhaust port 5 blocked, outlet port 2 connected to exhaust port 3.

With #12 operator energized – pressure at inlet port 1 connected to outlet port 2, exhaust port 3 blocked, outlet port 4 connected to exhaust port 5.

With #14 & #12 operators both energized – pressure at inlet port 1 connected to outlet ports 4 & 2, exhaust ports 3 & 5 blocked.

Dual Pressure:

May be used for dual pressure service with pressure at ports 3 & 5. (Use either external pilot source option “L” or “X” or internal pilot source option “B”.) If pilot source “B” is selected, the high pressure must be at port #3. If pilot source “L” or “X” is selected, the external pilot must be plumbed to either port #14 or #12 respectively. In the 3-Position valve, the effect of dual pressure is extremely important when the valve is in the center position, as the CE and PC functions are reversed. Therefore care should be used when selecting a 3-Position valve.

Dual 3-Way, 2-Position NO / NO (NP)

With #14 & #12 operators both de-energized – pressure at inlet port 1 connected to outlet ports 4 & 2, exhaust ports 3 & 5 blocked.

With #14 operator energized – pressure at inlet port 1 connected to outlet port 2, exhaust port 3 blocked, outlet port 4 connected to exhaust port 5.

With #12 operator energized – pressure at inlet port 1 connected to outlet port 4, exhaust port 5 blocked, outlet port 2 connected to exhaust port 3.

With #14 & #12 operators both energized – pressure at inlet port 1 blocked, outlet port 4 connected to exhaust port 5, outlet port 2 connected to exhaust port 3.

Dual 3-Way, 2-Position 14 End NC / 12 End NO (NNP / NP)

With #14 & #12 operators both de-energized – pressure at inlet port 1 connected to outlet port 2, exhaust port 3 blocked, outlet port 4 connected to exhaust port 5.

With #14 operator energized – pressure at inlet port 1 connected to outlet ports 4 & 2, exhaust ports 3 & 5 blocked.

With #12 operator energized – pressure at inlet port 1 blocked, outlet port 4 connected to exhaust port 5, outlet port 2 connected to exhaust port 3.

With #14 & #12 operators both energized – pressure at inlet port 1 connected to outlet port 4, exhaust port 5 blocked, outlet port 2 connected to exhaust port 3.

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15407-2 15407-1

Specifications

HB **HB (18mm)**: 0.55 Cv
C = 1.5 Nl/s x bar, b = 0.25
Qn = 390 l/min,
Qmax = 648 l/min

HA **HA (26mm)**: 1.1 Cv
C = 3.6 Nl/s x bar, b = 0.30
Qn = 918 l/min,
Qmax = 1518 l/min

Materials of Construction

- End Caps: PBT
- Fasteners: Zinc Plated Steel
- Valve Body: Aluminum
- Coils: Thermoset Plastic

Operating Pressure

- Vacuum to 145 PSIG
- Minimum Operating Pressure
  – 2-Position: 25 PSI
  – 3-Position: 35 PSI

Ports

- NPT and BSPP “G” Standard

Manifolds

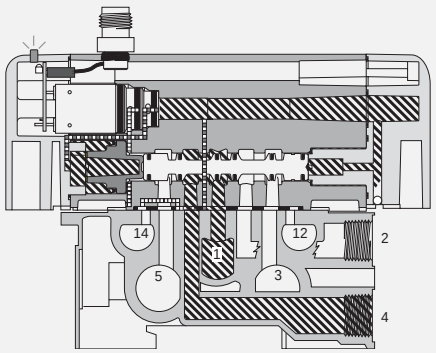
- Terminal Block Wiring (HA Only)
- Collective Wiring
  – 25-Pin, D-Sub
  – 19-Pin, Brad Harrison
  – 16 Point Terminal Strip
  – 12-Pin, M23
  – 19-Pin, M23
  – Moduflex Fieldbus
  – Isysnet Fieldbus

Certification / Approval

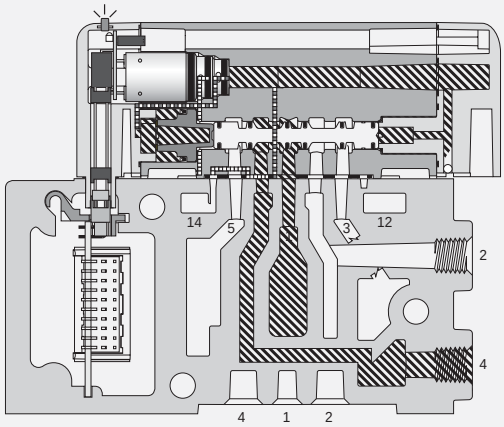
- CSA / C-US Approved
- NEMA 4
- IP65
- BSPP Manifold and Subbase Ports Meet ISO 1179 Specifications

Solenoids

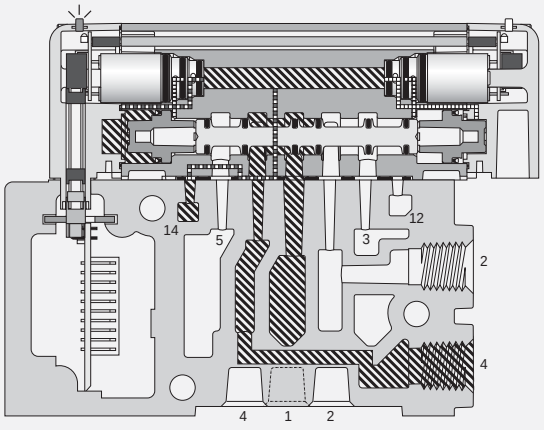
- Bi-Polar
- Surge Suppression (Standard)
- Low Watt – 1.0, 24VDC, 2.0VA, 120VAC
- Indicator Lights



15407-1 18mm Single Solenoid Internal Pilot Manifold Mounted



15407-2 18mm Single Solenoid Internal Pilot Manifold Mounted



15407-2 26mm Double Solenoid External Pilot Manifold Mounted

Pressure **Exhaust**

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5599-2 5599-1

Specifications

H1 **H1 (Size 1)**: 1.5 Cv
C = 5.0 Nl/s x bar, b = 0.25
Qn = 1248 l/min,
Qmax = 2070 l/min

H2 **H2 (Size 2)**: 3.0 Cv
C = 9.7 Nl/s x bar, b = 0.35
Qn = 2520 l/min,
Qmax = 4140 l/min

H3 **H3 (Size 3)**: 6.0 Cv
C = 18.7 Nl/s x bar, b = 0.35
Qn = 5022 l/min,
Qmax = 7848 l/min

Materials of Construction

- End Caps: PBT
- Fasteners: Zinc Plated Steel
- Valve Body: Die Cast Aluminum
- Coils: Thermoset Plastic

Operating Pressure

- Vacuum to 145 PSIG
- Minimum Operating Pressure
  - 2-Position: 25 PSI
  - 3-Position: 35 PSI

Ports

- NPT and BSPP “G”

Manifolds

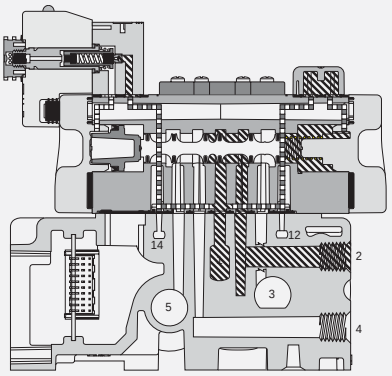
- Flying Leads
- Terminal Block Wiring
- Connector in the Base
- Collective Wiring
  - 25-Pin, D-Sub
  - 19-Pin, Brad Harrison
  - 12-Pin, M23
  - 19-Pin, M23
  - Moduflex Fieldbus
  - Isysnet Fieldbus

Certification / Approval

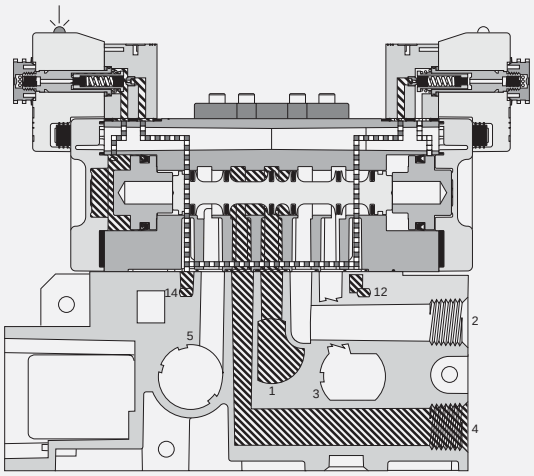
- CSA / C-US Approved
- NEMA 4
- IP65
- BSPP Manifold and Subbase Ports Meet ISO 1179 Specifications

Solenoids

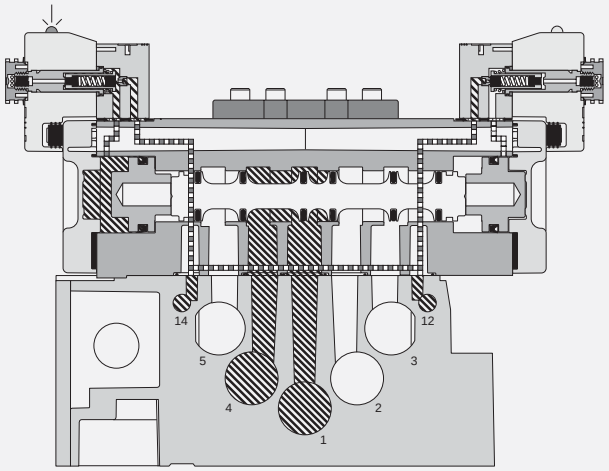
- Bi-Polar
- Surge Suppression (On Lighted Coils)
- Low Watt – 3.2, 24VDC, 4.5VA, 120VAC
- Indicator Lights, 24VDC & 120VAC



H1 5599-2 Single Solenoid Internal Pilot Manifold Mounted



H2 5599-2 Double Solenoid External Pilot Manifold Mounted



H3 5599-2 Double Solenoid External Pilot Subbase Mounted

Pressure **Exhaust**

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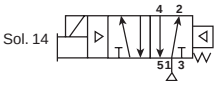
Richland, Michigan
www.parker.com/pneumatics

15407-2, Plug-in, Size 18mm (HB) & 26mm (HA)

Single Solenoid
2-Position

HB: 18mm

HA: 26mm

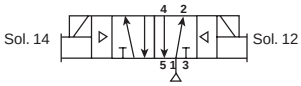


HB	**HBEVXBG023A**	120VAC	0.55 Cv C = 1.5 Nl/s x bar, b = 0.25 Qn = 390 l/min, Qmax = 648 l/min
	HBEVXBG0G9A	24VDC	
HA	**HAEVXBG023A**	120VAC	1.1 Cv C = 3.6 Nl/s x bar, b = 0.30 Qn = 918 l/min, Qmax = 1518 l/min
	HAEVXBG0G9A	24VDC	

Double Solenoid
2-Position

HB: 18mm

HA: 26mm

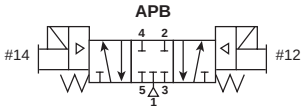


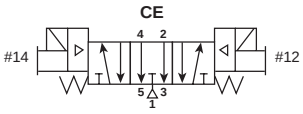
HB	**HB2VXBG023A**	120VAC	0.55 Cv C = 1.5 Nl/s x bar, b = 0.25 Qn = 390 l/min, Qmax = 648 l/min
	HB2VXBG0G9A	24VDC	
HA	**HA2VXBG023A**	120VAC	1.1 Cv C = 3.6 Nl/s x bar, b = 0.30 Qn = 918 l/min, Qmax = 1518 l/min
	HA2VXBG0G9A	24VDC	

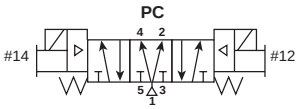
Double Solenoid
3-Position APB
3-Position CE
3-Position PC

HB: 18mm

HA: 26mm







APB			
HB	**HB5VXBG023A**	120VAC	0.50 Cv C = 1.4 Nl/s x bar, b = 0.25 Qn = 360 l/min, Qmax = 595 l/min
	HB5VXBG0G9A	24VDC	
HA	**HA5VXBG023A**	120VAC	1.0 Cv C = 3.3 Nl/s x bar, b = 0.30 Qn = 845 l/min, Qmax = 1395 l/min
	HA5VXBG0G9A	24VDC	
CE			
HB	**HB6VXBG023A**	120VAC	0.50 Cv C = 1.4 Nl/s x bar, b = 0.25 Qn = 360 l/min, Qmax = 595 l/min
	HB6VXBG0G9A	24VDC	
HA	**HA6VXBG023A**	120VAC	1.0 Cv C = 3.3 Nl/s x bar, b = 0.30 Qn = 845 l/min, Qmax = 1395 l/min
	HA6VXBG0G9A	24VDC	

PC			
HB	**HB7VXBG023A**	120VAC	0.50 Cv C = 1.4 Nl/s x bar, b = 0.25 Qn = 360 l/min, Qmax = 595 l/min
	HB7VXBG0G9A	24VDC	
HA	**HA7VXBG023A**	120VAC	1.0 Cv C = 3.3 Nl/s x bar, b = 0.30 Qn = 845 l/min, Qmax = 1395 l/min
	HA7VXBG0G9A	24VDC	

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15407-2, Plug-in, Size 18mm (HB) & 26mm (HA)

BOLD OPTIONS ARE MOST POPULAR.

HB 1 VX B G 0 G9 A

Basic Series 15407-2	
ISO 15407-2 18mm	HB
ISO 15407-2 26mm	HA

15407-2 Operator / Function	
Single Solenoid, 2-Position - Air Return	1
Double Solenoid, 2-Position	2
Double Solenoid, 3-Position - APB	5
Double Solenoid, 3-Position - CE	6
Double Solenoid, 3-Position - PC	7
Single Solenoid, 2-Position - Air Return, Spring Assist	E
Double Solenoid, Dual 3/2, NC/NC	N*
Double Solenoid, Dual 3/2, NO/NO	P*
Double Solenoid, Dual 3/2, 14 End NC – 12 End NO	Q*

*Available on HB Only, must use Internal Pilot Source Option "B".

Mounting	
15407-2 Valve Less Base	VX

15407-2 Pilot Source / Pilot Exhaust	
Internal Pilot, Port #1 / Vented	B
External Pilot #14 Port / Vented	L*

* Must be specified when using Sandwich Regulators.

15407-2 Overrides / Lights	
G	Non-Locking, Flush, Push - w/ Light
H	Locking, Flush, Push / Turn - w/ Light

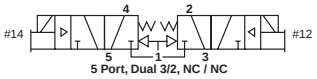
15407-2 Enclosure / Lead Length	
0	Valve Less Base

15407-2 Voltage & Frequency				
	AC		DC	Light & Surge Suppression
	60Hz	50Hz		
G9			24	LED & Suppression
23	120	115		LED & Suppression

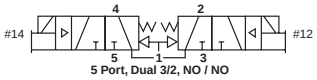
15407-2 Engineering Level	
A	Current

Double Solenoid
Dual 3/2 NC/NC
Dual 3/2 NO/NO
Dual 3/2 NC/NO

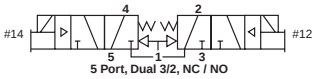
HB: 18mm



5 Port, Dual 3/2, NC / NC



5 Port, Dual 3/2, NO / NO



5 Port, Dual 3/2, NC / NO

NC / NC			
HB	HBNVXBG023A	120VAC	0.45 Cv C = 1.25 Nl/s x bar, b = 0.25 Qn = 320 l/min, Qmax = 535 l/min
	HBNVXBG0G9A	24VDC	
NO / NO			
HB	HBPVXBG023A	120VAC	0.45 Cv C = 1.25 Nl/s x bar, b = 0.25 Qn = 320 l/min, Qmax = 535 l/min
	HBPVXBG0G9A	24VDC	

NC / NO - 14 End NC			
HB	HBQVXBG023A	120VAC	0.45 Cv C = 1.25 Nl/s x bar, b = 0.25 Qn = 320 l/min, Qmax = 535 l/min
	HBQVXBG0G9A	24VDC	

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15407-2, Plug-in, Size 18mm (HB) & 26mm (HA) Manifold / Subbase Kits

PS551113 C P

Mounting Style / Port Size	
ISO 15407-2, 18mm HB	
Manifold with 1/8 NPT End Ports	**PS561151**
Manifold with 1/8 BSPP End Port	PS561152*
Manifold with 1/8 NPT Bottom / End Port	PS561161
Manifold with 1/8 BSPP Bottom / End Port	PS561162*
ISO 15407-2, 26mm HA	
Subbase with 1/4 NPT Side Ports	**PS551113**
Subbase with 1/4 BSPP Side Ports	PS551114*
Subbase with 1/4 NPT Bottom / Side Port	PS551123
Subbase with 1/4 BSPP Bottom / Side Port	PS551124*
Manifold with 1/4 NPT End Port	**PS551153**
Manifold with 1/4 BSPP End Port	PS551154*
Manifold with 1/4 NPT Bottom / End Port	PS551163
Manifold with 1/4 BSPP Bottom / End Port	PS551164*

* BSPP Conforms to ISO 1179-1 w 228-1 Theads.

Enclosures / Lead Length	
Individually Wired Base	
C†	**Terminal Strip**
Collective Wired Base	
J*	Circuit Board, Single Address
M*	**Circuit Board, Double Address**
N*§	Single Address Circuit Board with 32 Output Expansion
P*‡	Double Address Circuit Board with 32 Output Expansion

* Manifolds Only.

† Available with HA (26mm). Conduit port included on left hand end plate for wires to exit.

§ When using an HA or HB manifold base with the "N" Enclosure / Lead Length option:
- Outputs 1 – 24 can be single or double address bases. Use a base with "J" or "M" Enclosure / Lead Length option.
- Outputs 25 – 26 are a single address base. Use a base with "N" Enclosure / Lead Length option (this is a single address board with a ribbon connection from the valve driver module, PSSV32A).
- Outputs 27 – 32 can be single or double. Use a base with "J" or "M" Enclosure / Lead Length option.

‡ When using an HA or HB manifold base with the "P" Enclosure / Lead Length option:
- Outputs 1 – 24 can be single or double address bases. Use a base with "J" or "M" Enclosure / Lead Length option.
- Outputs 25 – 28 are a double address base. Use a base with "P" Enclosure / Lead Length option (this is a double address board with a ribbon connection from the valve driver module, PSSV32A).
- Outputs 29 – 32 can be single or double. Use a base with "J" or "M" Enclosure / Lead Length option.

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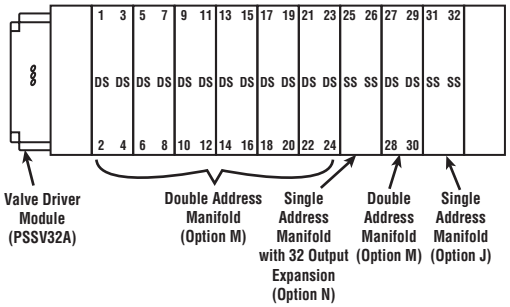
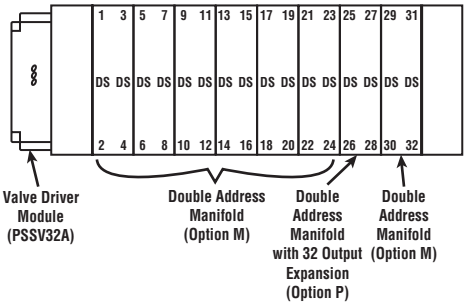


Option "N"



Option "P"

Subbase Kits

HA Series Subbase

Manifold Kits

HB Series 2-Station Manifold

HA Series 2-Station Manifold

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Plug-in, 15407-2, Size 18mm (HB) & 26mm (HA) End Plate Kits

HB HA

BOLD OPTIONS ARE MOST POPULAR.

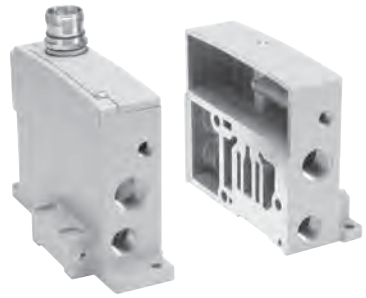
PS5620L6 | **0** | **P**

	Thread Type
0	**NPT**
1*	BSPP "G"

* BSPP Conforms to ISO 1179-1 w 228-1 Threads

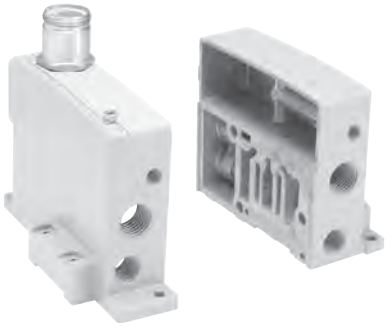
	End Plate Type
PS563101	**No Connector - Use with Individually Wired Base**
PS5620L2*	**25-Pin, D-Sub**
PS5620L3	**19-Pin, Round, Brad Harrison**
PS5620L4	12-Pin, M23
PS5620L5	16-Point Terminal Strip
PS5620M2	19-Pin, M23
PS5620M4	**Moduflex Fieldbus**
PS5620L6	**Isysnet, with Valve Driver Module**
PS5620T1	**Turck Fieldbus with Valve Driver Module - 16 outputs**
PS5620T2	**Turck Fieldbus with Valve Driver Module - 32outputs**

* 120VAC is not CSA rated.
Turck, Isysnet, and Moduflex communication modules must be ordered separately.
See Fieldbus Section for more information.

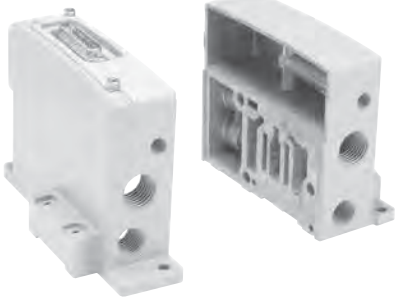


L4 or M2: **HB - HA M23 with 12-Pin or 19-Pin End Plates**

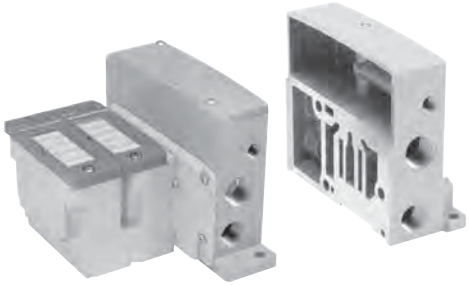
L5: **HB - HA 16-Point Terminal Strip End Plates**



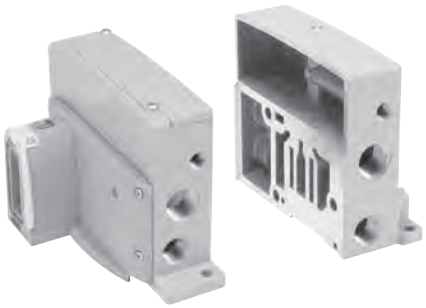
L3: **HB - HA 19-Pin Brad Harrison End Plates**



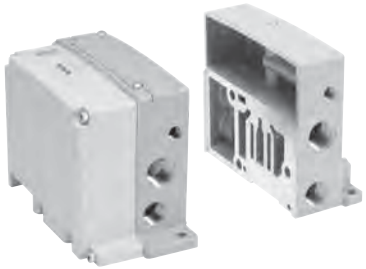
L2: **HB - HA 25-Pin End Plates**



T1, T2: **Isys HA Turck End Plates**



M4: **HB - HA Moduflex Fieldbus End Plates**



L6: **HB - HA Isysnet Fieldbus End Plates**

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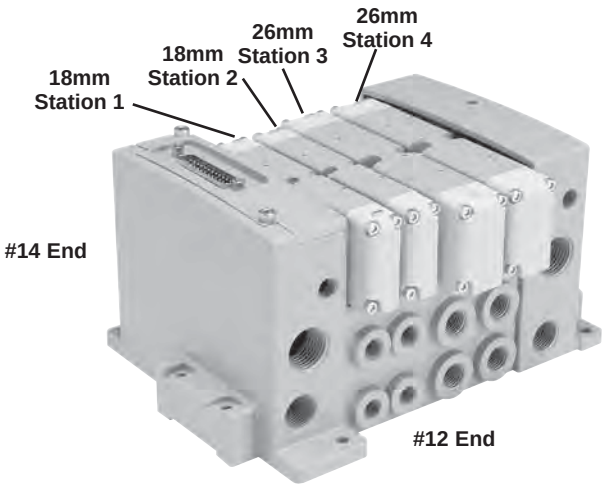
How To Order Plug-in Add-A-Fold Assemblies

1. List Add-A-Fold Assembly call out. This automatically includes the end plate kit assembly.
2. List complete Valve, Regulator, Flow Control and Base model number. List left to right, LOOKING AT THE CYLINDER PORTS on the #12 end of the manifold.
   The left most station is station 1. (If a blank station is needed, list the blanking plate part number and the individual manifold number in the station specified.)



Example:
4-Station Manifold with (2) 18mm and (2) 26mm Valves On Manifold Bases

Maximum Number of Solenoids
(Maximum Energized Simultaneously)

HA / HB	Voltage Code	25-Pin D-Sub	19-Pin Brad Harrison	12-Pin M23	19-Pin M23	Moduflex	Isysnet
24VDC	G9	24 (24)	16 (16)	8 (8)	16 (16)	16 (16)	32 (32)
120VAC*	23	24 (24)	16 (16)	8 (8)	16 (16)	N/A	N/A

* Not CSA certified for 25-Pin, D-Sub option.

Add-A-Fold Assembly Model Number

AA	HB	D	0	04	

Valve Series

Right & Left End Plate 15407-2 (Plug-in, HB 18mm & HA 26mm)	HB*

* Common End Plates for HA & HB.

End Plate Type

Turck Fieldbus with Valve Driver Module - 16 Outputs	A
Turck Fieldbus with Valve Driver Module - 32 Outputs	B
25-Pin, D-Sub	D
19-Pin, Brad Harrison	E
16 Point Terminal Strip	F
12-Pin, M23	G
19-Pin, M23	H
Moduflex Fieldbus	T*
Isysnet, with Valve Driver Module	Y*

* Must order communication modules separately.

Thread Type

0	NPT
1*	BSPP "G"

* BSPP Conforms to ISO 1179-1 w 228-1 Theads.

Number of Stations*

02
04
•
24
•
32

* Must be ordered in multiples of (2) unless using the HB/HA to H2 Transition Plate.

Transition Plate

Blank	No Transition Plate
B	HB / HA to H2

Example

Application requires a 4-Station manifold.
(Two 18mm + Two 26mm Stations)

Item	Qty.	Part No.	Location
01	1	AAHBD004	
02	1	HB1VXBG0G9A	Station 1
03	1	HB2VXLG0G9A	Station 2
04	1	PS561151MP	Station 1 & 2
05	2	HA1VXBG0G9A	Station 3 & 4
06	1	PS551151MP	Station 3 & 4

NOTE: Construct manifold assemblies from left to right while looking at the ports. Valves must be ordered as External Pilot when using Sandwich Regulator.

When using an HA or HB manifold base with the "N" Enclosure / Lead Length option:
- Outputs 1 – 24 can be single or double address bases. Use a base with "J" or "M" Enclosure / Lead Length option.
- Outputs 25 – 26 are a single address base. Use a base with "N" Enclosure / Lead Length option (this is a single address board with a ribbon connection from the valve driver module, PSSV32A).
- Outputs 27 – 32 can be single or double. Use a base with "J" or "M" Enclosure / Lead Length option.

When using an HA or HB manifold base with the "P" Enclosure / Lead Length option:
- Outputs 1 – 24 can be single or double address bases. Use a base with "J" or "M" Enclosure / Lead Length option.
- Outputs 25 – 28 are a double address base. Use a base with "P" Enclosure / Lead Length option (this is a double address board with a ribbon connection from the valve driver module, PSSV32A).
- Outputs 29 – 32 can be single or double. Use a base with "J" or "M" Enclosure / Lead Length option.

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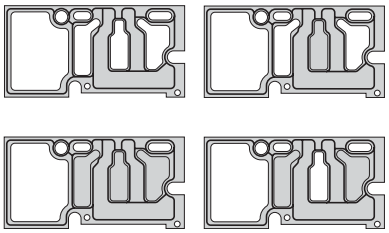
Blanking Plate Kits

Size	Kit Number
HB	PS5634P
HA	PS5534P

Kit includes: Blanking Plate, Gasket, and Mounting Bolts.

Manifold to Manifold Gasket Kits

15407 PS5511 & PS5611 Manifolds				
Size	Standard	Blocked #1 Port	Blocked #1, 3, 5 Ports	Blocked #3, 5 Ports
HB / HA	PS561AP	PS561BP	PS561CP	PS561DP



Sandwich Supply & Exhaust Modules

Valve Size		Port Size	NPT	BSPP "G"
HB / 15407-2	Supply	1/8"	PS561600P	PS561601P
	Exhaust		PS561700P	PS561701P
HA / 15407-2	Supply	1/4"	PS551600P	PS551601P
	Exhaust		PS551700P	PS551701P

Quantity 1
- Used on HB & HA valves to provide a pressure or exhaust path to individual valves.

Intermediate Air Supply Base 15407

Size	Port Size	Kit Number
		NPT
HB	1/8"	D02P-01-80
HA	1/4"	D01P-02-80

Kit includes: Gasket and Mounting Bolts.

D01P-02-80 Shown

Sandwich Flow Controls

- Both adjustment screws are located on the 12 end of the unit.
- Sandwich Flow Control mounts with its own studs, which means the valve uses standard bolts for mounting.
- Sandwich Flow Control is not to be used as a shut off device and is not bubble tight when needles are fully turned down.

Valve Size	Plug-In 15407-2
HB	PS5635P
HA	PS5535P

Plug-in
15407-2
18mm Shown

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BOLD OPTIONS ARE MOST POPULAR

PS5638 | 1 | 6 | 6 | P

Basic Series	
HB	
15407-2, 18mm, Plug-in	**PS5638**
HA	
15407-2, 26mm, Plug-in	**PS5538**

Regulator Function	
Common Pressure Regulator	**1**
Independent Pressure Regulator	**2**

#2 Port Regulator / Gauge*	
5	2-60 PSIG w/Gauge
6	**5-125 PSIG w/Gauge**

* For Common Pressure Regulator Option, Regulator Gauge callout must be the same number for both Port #4 and Port #2. (Example: 166)

#4 Port Regulator / Gauge*	
5	2-60 PSIG w/Gauge
6	**5-125 PSIG w/Gauge**

* For Common Pressure Regulator Option, Regulator Gauge callout must be the same number for both Port #4 and Port #2. (Example: 166)

Ordering Components
- *Sandwich Regulator Kit configured for Internal Pilot as standard.*
- *Order valve as External Pilot.*

HB - 18mm
(Independent Dual Port Regulator Shown)

HA - 26mm
(Common Port Regulator Shown)

How to Configure Sandwich Regulator / Valve Combinations

Internal Pilot Configuration of Sandwich Regulator HA, HB
Pressure in Base Port 1 feeds regulator configured for Internal Pilot which feeds valve configured for External Pilot.

Gauge Adapter Kit

Included with all HB Regulators. Both kits are required on all HA & HB Regulators when the Regulator is on the last Station on the Right (14) End.

Description	Part Number
Gauge Kit	PS5651160P
1/8" Female to 1/8" Female Coupling	207P-2*
1/8" Male to 1/8" Male Long Nipple	VS215PNL-2-15*

* Included in Gauge Kit PS5651160P

Sandwich Regulator Cv Flow Chart*

	Common Pressure Code 166				Dual Pressure Code 266			
	1-2	**1-4**	**2-3**	**4-5**	**1-2**	**1-4**	**2-3**	**4-5***
HB	0.20	0.20	0.41	0.34	0.23	0.19	0.28	0.27
HA	0.41	0.43	0.87	0.89	0.42	0.45	0.68	0.66

* Regulator Port exhaust through Base Port 3.
Note: All Cv's calculated with regulator adjusted full open.

HB Cartridge Regulator

HB Description	Part Number
0-60 PSI Cartridge	PS299922P
0-125 PSI Cartridge	PS299933P

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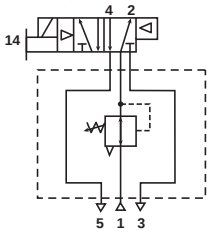
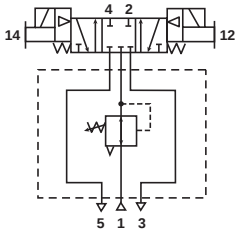
Plug-in, HB & HA Common Port Regulation

Provides adjustable regulated air pressure to the valve's #1 port which gives the same pressure to both the #2 and #4 port of the manifold or subbase. The regulator is always on the 14 end of the valve.

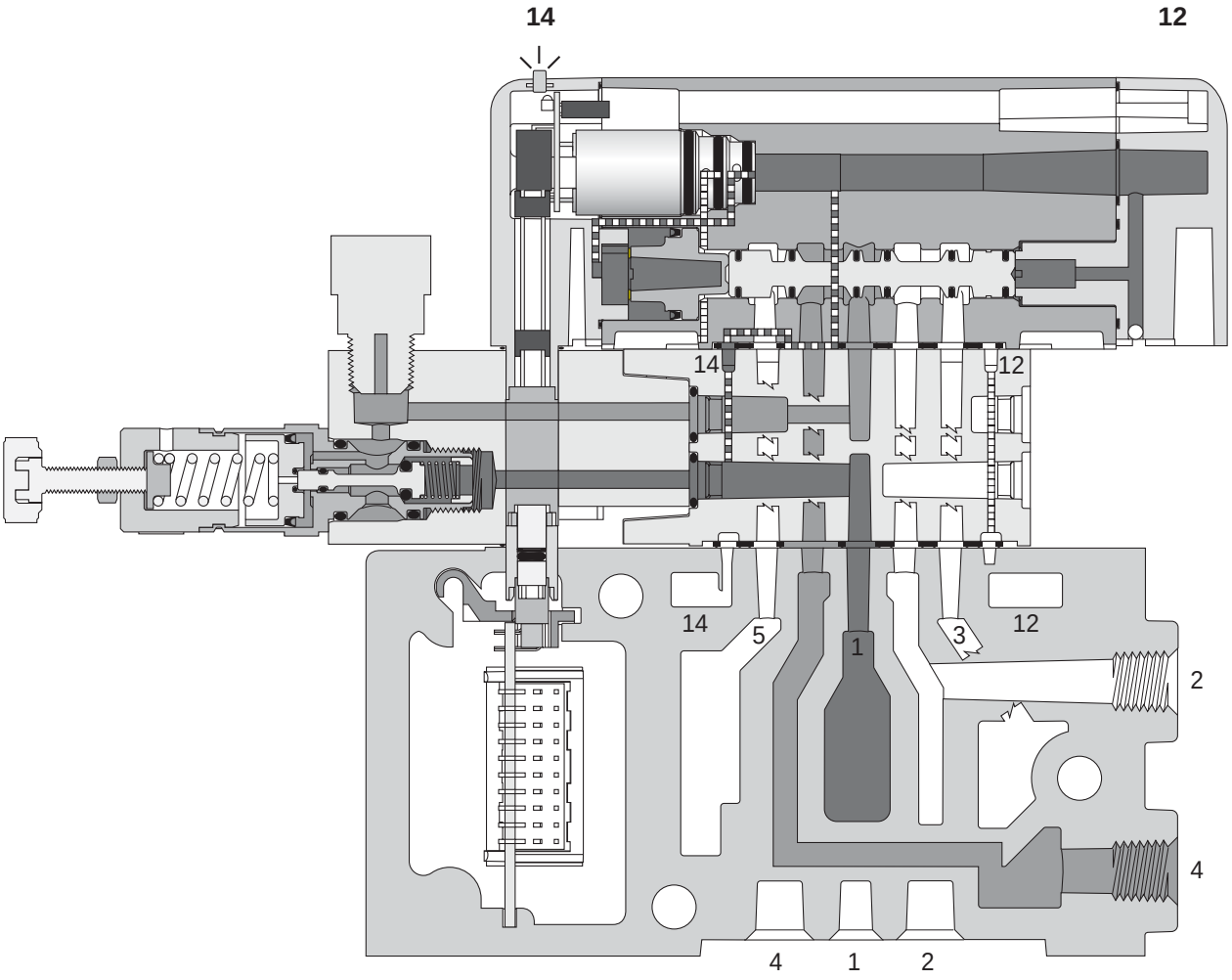
Common Port Regulator with 4-Way, 2-Position Single Solenoid Valve



Common Port Regulator with 4-Way, 3-Position APB Valve



HB Common Port Regulator Shown - Single Solenoid, 14 Energized



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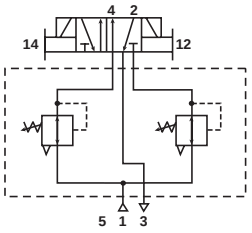
Plug-in, HB & HA Independent Dual Port Regulation

Dual Port Regulator

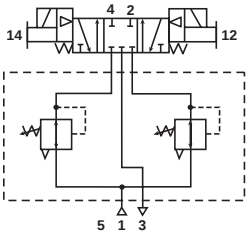
Provides regulated pressure to both ports. Pressure regulation can occur out of the #2 or #4 port of the valve.

When using an Independent Pressure Sandwich Regulator, the cylinder outlet ports are reversed. The 12 end energizes the #4 port and the 14 end energizes the #2 port. The 3-Position CE and PC functions are also reversed. (See schematics on right.)

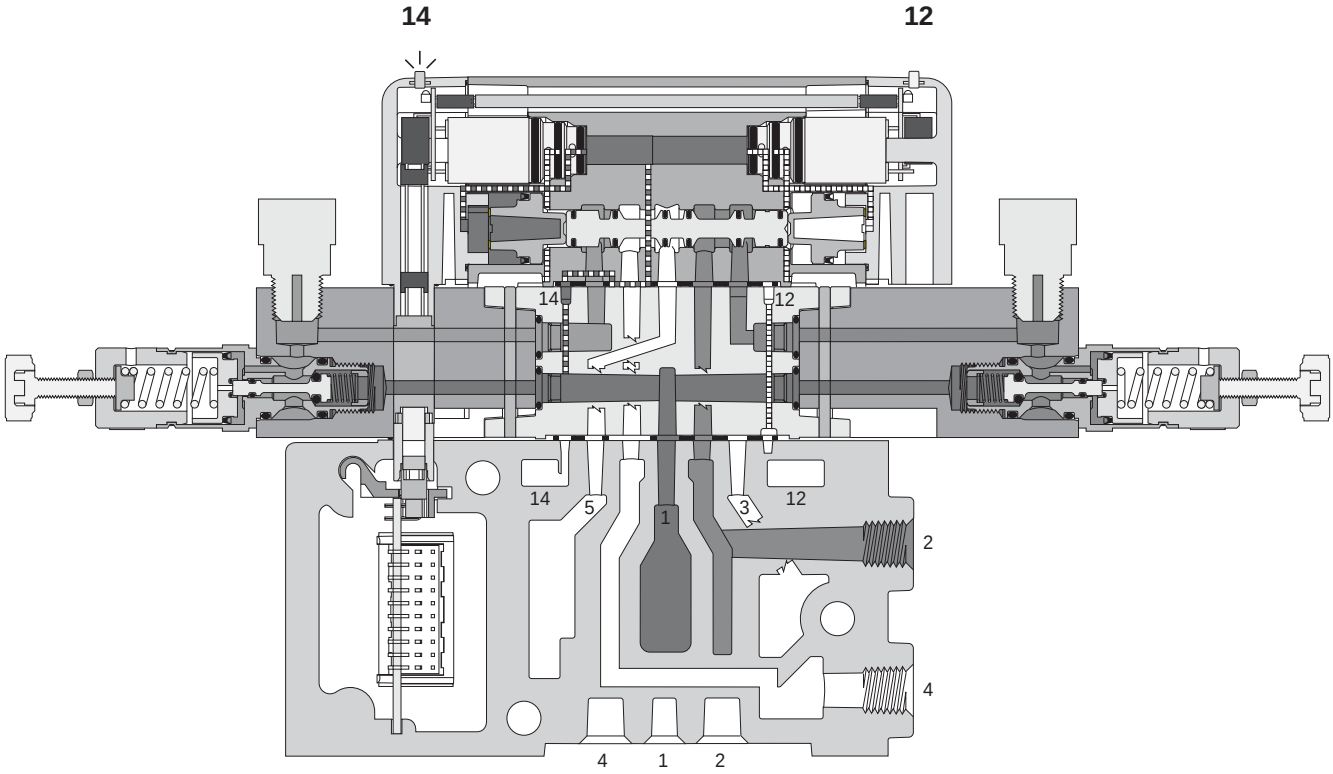
Independent Dual Port Regulator with 4-Way, 2-Position Double Solenoid Valve



Independent Dual Port Regulator with 4-Way, 3-Position Double Solenoid Valve



HB Independent Dual Port Regulator Shown - Double Solenoid, 14 Energized



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Plug-in, 15407-2 Transition Plate Kits

BOLD OPTIONS ARE MOST POPULAR.

HA HB

PS5624 L2 0 P

Transition Plate Type*	
HA / HB to H2	PS5624

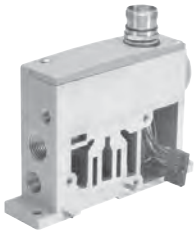
* Includes Left Hand and Right Hand End Plates

	Thread Type
0	**NPT**
1*	BSPP "G"

* BSPP Conforms to ISO 1179-1 w 228-1 Threads.

	Options
L2	**25-Pin, D-Sub**
L3	**19-Pin, Round, Brad Harrison**
L4	12-Pin, M23
L5	16-Pt. Terminal Strip
M2	19-Pin, M23
M4*	**Moduflex Fieldbus**
L6*	**Isysnet, with Valve Driver Module**
T1*	**Turck Fieldbus with Valve Driver Module - 16 Outputs**
T2*	**Turck Fieldbus with Valve Driver Module - 32 Outputs**

* Must Order Communication Module Separately.



Left Hand End Plate

Transition Plate

Right Hand End Plate

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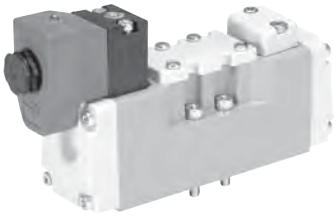
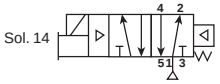
Plug-in, 5599-2, Size 1, 2, & 3

Single Solenoid

2-Position, Spring / Air Return

(H1 Series Shown)



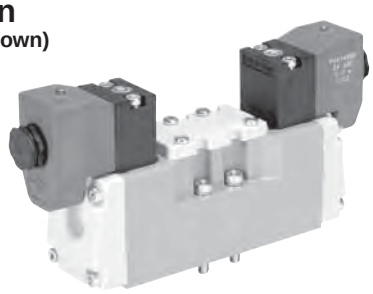


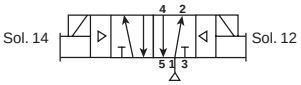
H1	**H1EVXBG023D**	120VAC	1.5 Cv C = 5.0 Nl/s x bar, b = 0.30 Qn = 1248 l/min, Qmax = 2070 l/min
	H1EVXBG0B9D	24VDC	
H2	**H2EVXBG023D**	120VAC	3.0 Cv C = 9.7 Nl/s x bar, b = 0.35 Qn = 2520 l/min, Qmax = 4140 l/min
	H2EVXBG0B9D	24VDC	
H3	**H3EVXBG023D**	120VAC	6.0 Cv C = 18.7 Nl/s x bar, b = 0.35 Qn = 5022 l/min, Qmax = 7848 l/min
	H3EVXBG0B9D	24VDC	

Double Solenoid

2-Position

(H1 Series Shown)





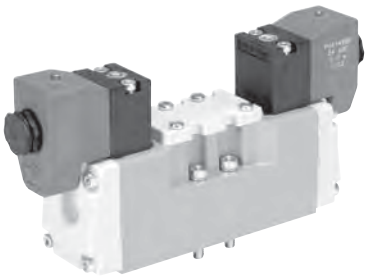
H1	**H12VXBG023D**	120VAC	1.5 Cv C = 5.0 Nl/s x bar, b = 0.30 Qn = 1248 l/min, Qmax = 2070 l/min
	H12VXBG0B9D	24VDC	
H2	**H22VXBG023D**	120VAC	3.0 Cv C = 9.7 Nl/s x bar, b = 0.35 Qn = 2520 l/min, Qmax = 4140 l/min
	H22VXBG0B9D	24VDC	
H3	**H32VXBG023D**	120VAC	6.0 Cv C = 18.7 Nl/s x bar, b = 0.35 Qn = 5022 l/min, Qmax = 7848 l/min
	H32VXBG0B9D	24VDC	

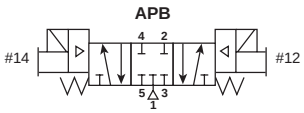
Double Solenoid

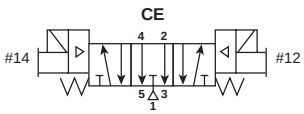
3-Position APB
3-Position CE

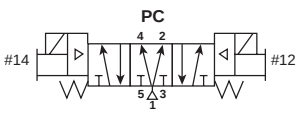
3-Position PC

(H1 Series Shown)









APB			
H1	**H15VXBG023D**	120VAC	1.2 Cv C = 4.1 Nl/s x bar, b = 0.30 Qn = 1000 l/min, Qmax = 1660 l/min
	H15VXBG0B9D	24VDC	
H2	**H25VXBG023D**	120VAC	2.8 Cv C = 9.0 Nl/s x bar, b = 0.35 Qn = 2340 l/min, Qmax = 3860 l/min
	H25VXBG0B9D	24VDC	
H3	**H35VXBG023D**	120VAC	5.0 Cv C = 15.4 Nl/s x bar, b = 0.35 Qn = 4185 l/min, Qmax = 6545 l/min
	H35VXBG0B9D	24VDC	
CE			
H1	**H16VXBG023D**	120VAC	1.2 Cv C = 4.1 Nl/s x bar, b = 0.30 Qn = 1000 l/min, Qmax = 1660 l/min
	H16VXBG0B9D	24VDC	
H2	**H26VXBG023D**	120VAC	2.8 Cv C = 9.0 Nl/s x bar, b = 0.35 Qn = 2340 l/min, Qmax = 3860 l/min
	H26VXBG0B9D	24VDC	
H3	**H36VXBG023D**	120VAC	5.0 Cv C = 15.4 Nl/s x bar, b = 0.35 Qn = 4185 l/min, Qmax = 6545 l/min
	H36VXBG0B9D	24VDC	

PC			
H1	**H17VXBG023D**	120VAC	1.2 Cv C = 4.1 Nl/s x bar, b = 0.30 Qn = 1000 l/min, Qmax = 1660 l/min
	H17VXBG0B9D	24VDC	
H2	**H27VXBG023D**	120VAC	2.8 Cv C = 9.0 Nl/s x bar, b = 0.35 Qn = 2340 l/min, Qmax = 3860 l/min
	H27VXBG0B9D	24VDC	
H3	**H37VXBG023D**	120VAC	5.0 Cv C = 15.4 Nl/s x bar, b = 0.35 Qn = 4185 l/min, Qmax = 6545 l/min
	H37VXBG0B9D	24VDC	

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Plug-in, 5599-2, Size 1, 2, & 3

BOLD OPTIONS ARE MOST POPULAR.

H1 E VX B G 0 B9 D

Basic Series 5599-2	
ISO 5599-2 Size 1	H1
ISO 5599-2 Size 2	H2
ISO 5599-2 Size 3	H3

5599-2 Operator / Function	
Single Solenoid, 2-Position - Air Return	**1**
Double Solenoid, 2-Position	**2**
Double Solenoid, 3-Position - APB	**5**
Double Solenoid, 3-Position - CE	**6**
Double Solenoid, 3-Position - PC	7
Single Solenoid, 2-Position - Air Return, Spring Assist	**E**

5599-2 Mounting	
5599-2 Valve Less Base	**VX**

5599-2 Pilot Source / Pilot Exhaust	
Internal Pilot, Port #1 / Vented	**B**
External Pilot #12 or #14 Port / Vented	X*

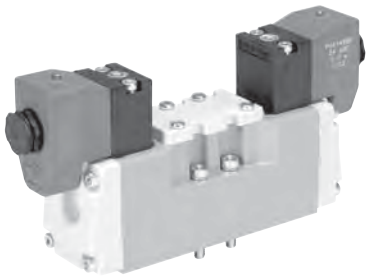
* Must be specified when using Sandwich Regulators.

5599-2 Overrides / Lights		
	Voltage Code	
B	**42, 45, 57**	**Non-Locking, Flush, Push - w/o Light**
C	42, 45, 57	Locking, Flush, Push / Turn - w/o Light
G	**B9, 23**	**Non-Locking, Flush, Push - w/ Light**
H	B9, 23	Locking, Flush, Push / Turn - w/ Light

5599-2 Voltage & Frequency				
	AC		**DC**	**Light & Surge Suppression**
	60Hz	**50Hz**		
42	24			
45			12	
B9			**24**	**LED & Suppression**
23	**120**	**115**		**LED & Suppression**
57	240			

5599-2 Enclosure / Lead Length	
0	**None, Valve Less Base**

5599-2 Engineering Level	
D	**Current**



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Plug-in, 5599-2, Size 1, 2 & 3 Manifold / Subbase Kits

BOLD OPTIONS ARE MOST POPULAR.

PS401155 M [ ] D P

Engineering Level	
C	**For H2 & H3**
D	**For H1**

Wiring Options	
Blank	**None**
C	Chrysler
F	**SAE / Ford**
G	General Motors

Enclosures / Lead Length	
Individually Wired Base**	
7†	3-Pin Mini Connector in Base
8†	4-Pin M12 Micro Connector in Base
9†	5-Pin Mini Connector in Base
A	**6" Leads**
C	Terminal Block
Collective Wired Base	
J*	Circuit Board, Single Address
M*	**Circuit Board, Double Address**

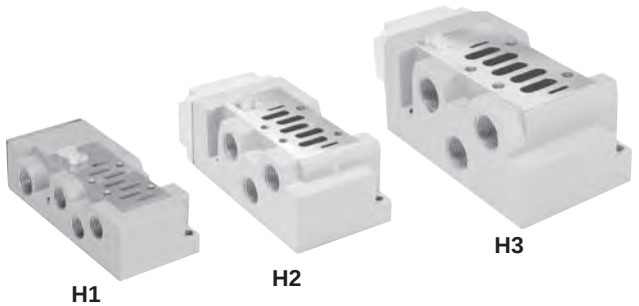
* Not Available with Subbase Kits.
** Use Plate with No Connection.
† Must Specify Valve Auto Wiring Option "C", "F", or "G".

Note:
When using the Enclosure / Lead Length "J" or "M" option:
12VDC - Maximum number of coils energized simultaneously is 13
24VDC - Maximum number of coils energized simultaneously is 21
120VAC - Coils limited by the number of pins available in the connector (25-Pin D-Sub = 24 coils, 19-Pin Brad Harrison = 16, 12-Pin M23 = 8)
240VAC - Must use "A" or "C" Option, Lead Wires or Terminal Blocks

Mounting Base Style / Port Size					
ISO 5599-2, Size 1 H1 Series		**ISO 5599-2, Size 2 H2 Series**		**ISO 5599-2, Size 3 H3 Series**	
Subbase: 3/8 NPT Side Ports	**PS401115**	**Subbase: 1/2 NPT Side Ports**	**PS411117**	**Subbase: 3/4 NPT Side Ports**	**PS421119**
Subbase: 3/8 BSPP Side Ports	PS401116	Subbase: 1/2 BSPP Side Ports	PS411118*	Subbase: 3/4 BSPP Side Port	PS421110*
Manifold: 3/8 NPT End Ports	**PS401155**	**Manifold: 1/2 NPT End Port**	**PS411157**	**Manifold: 3/4 NPT End Port**	**PS421159**
Manifold: 3/8 BSPP End Ports	PS401156*	Manifold: 1/2 BSPP End Ports	PS411158*	Manifold: 3/4 BSPP End Port	PS421150*
Manifold: 3/8 NPT Bottom / End Port	PS401165†	Manifold: 1/2 NPT Bottom / End Port	PS411167	Manifold: 3/4 NPT Bottom / End Port	PS421169
Manifold: 3/8 BSPP Bottom / End Port	PS401166*†	Manifold: 1/2 BSPP Bottom / End Port	PS411168*	Manifold: 3/4 BSPP Bottom / End Port	PS421160*

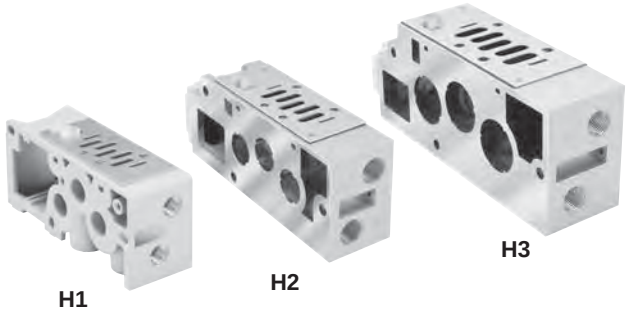
* BSPP Conforms to ISO 1179-1 w 228-1 Threads.
† #1 Bottom Port - 1/4".

Subbase Kits



Automotive Connectors
Mounted in 1/2" Conduit Port
- *3-Pin - Wired for Single Solenoid*
- *4-Pin / 5-Pin - Wired for Double Solenoid*

Manifold Kits



Automotive Connectors
Mounted in Individual Manifold Conduit Cover
- *3-Pin - Wired for Single Solenoid*
- *4-Pin / 5-Pin - Wired for Double Solenoid*

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Plug-in, 5599-2 End Plate Kits

BOLD OPTIONS ARE MOST POPULAR.

H1 H2 H3

PS40 | 20L2 | 0 | D | P

Basic Series	
ISO 5599, Size 1	**PS40**
ISO 5599, Size 2	**PS41**
ISO 5599, Size 3	**PS42**

Options	
No Connector - Use with Individually Wired Base	**3101**
25-Pin, D-Sub	**20L2***
19-Pin, Round, Brad Harrison	**20L3**
12-Pin, M23	20L4
19-Pin, M23	20M2
Moduflex Fieldbus	**20M4**
Isysnet, with Valve Driver Module	**20L6**
Turck Fieldbus with Valve Driver Module - 16 Outputs	**20T1**
Turck Fieldbus with Valve Driver Module - 24 Outputs	**20T2**

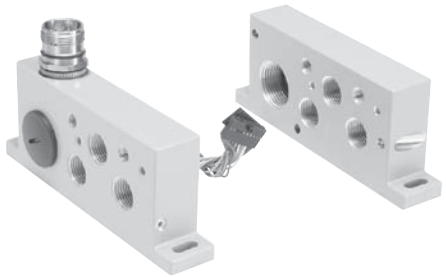
* 120VAC is Not CSA Rated.

Turck, Isysnet, and Moduflex communication modules must be ordered separately. See Fieldbus Section for more information.

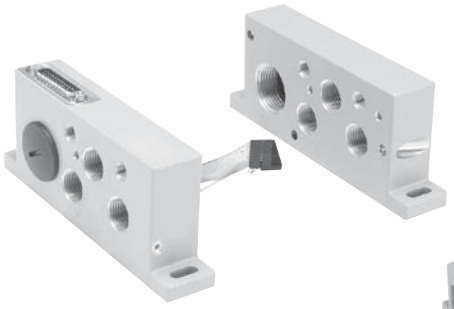
Engineering Level	
D	**Current**

Thread Type	
0	**NPT**
1*	BSPP "G"

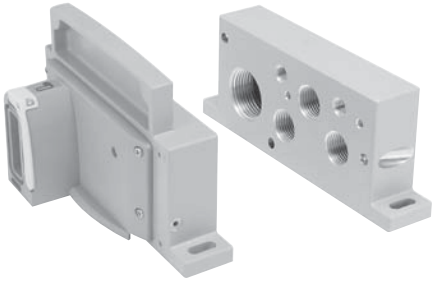
* BSPP Conforms to ISO 1179-1 w 228-1 Threads



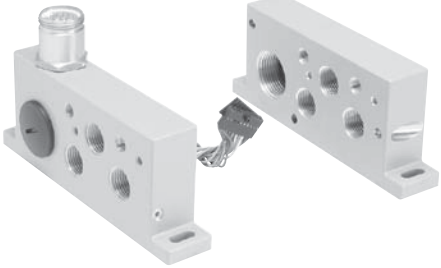
L4 or M2: **H1, M23, 12-Pin or 19-Pin End Plates**



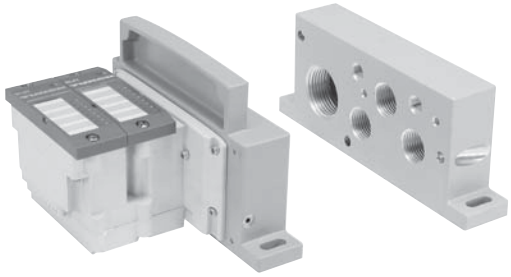
L2: **H1 25-Pin D-Sub End Plates**



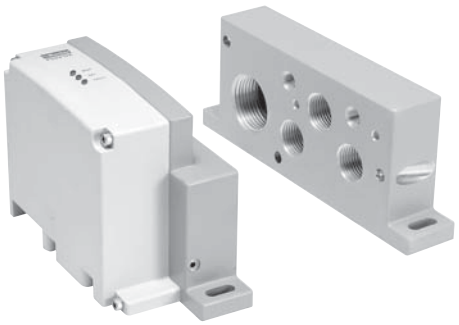
M4: **H1 Moduflex Fieldbus End Plates**



L3: **H1 19-Pin Brad Harrison End Plates**



T1, T2: **Turck Fieldbus with Valve Driver Module End Plates**



L6: **H1 Isysnet Fieldbus End Plates**

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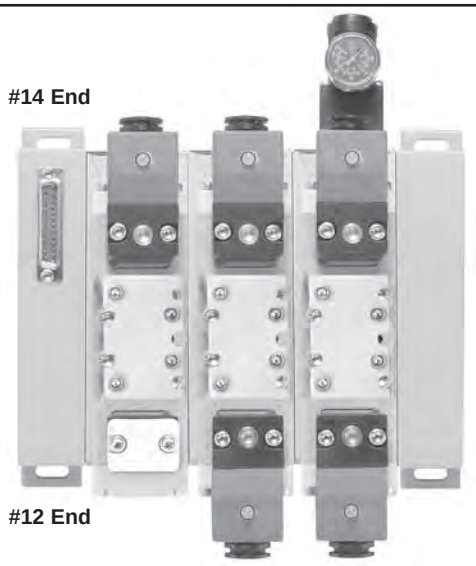
How To Order Plug-in Add-A-Fold Assemblies

1. List Add-A-Fold Assembly call out. This automatically includes the end plate kit assembly.
2. List complete Valve, Regulator, Flow Control and Base model number. List left to right, LOOKING AT THE CYLINDER PORTS on the #12 end of the manifold. The left most station is station 1. (If a blank station is needed, list the blanking plate part number and the individual manifold number in the station specified.)



Example:
3-Station Manifold with (3) H1 Valves on Manifold Bases and Regulator at Station 3

Maximum Number of Solenoids
(Maximum Energized Simultaneously)

H1	Voltage Code	25-Pin D-Sub	19-Pin Brad Harrison	12-Pin M23	19-Pin M23	Moduflex	Isysnet
12VDC	45	24 (13)	16 (13)	8 (8)	16 (13)	N/A	N/A
24VAC*	42	24 (24)	16 (16)	8 (8)	16 (16)	N/A	N/A
24VDC	B9	24 (20)	16 (16)	8 (8)	16 (16)	16 (16)	24 (21)
120VAC*	23	24 (24)	16 (16)	8 (8)	16 (16)	N/A	N/A

* Not CSA certified for 25-Pin, D-Sub option.

Add-A-Fold Assembly Model Number

AA	H1	D	0	03	

Valve Series

Right & Left End Plate	H1

End Plate Type

Turck Fieldbus with Valve Driver Module - 16 Outputs	A
Turck Fieldbus with Valve Driver Module - 32 Outputs	B
25-Pin, D-Sub	D
19-Pin, Brad Harrison	E
12-Pin, M23	G
19-Pin, M23	H
Moduflex Fieldbus	T*
Isysnet, with Valve Driver Module	X*

* Must order Communication Modules Separately.

Thread Type

0	NPT
1*	BSPP "G"

* BSPP Conforms to ISO 1179-1 w 228-1 Threads.

Number of Stations

01
02
03
04
•
•
24

Transition Plate

Blank	No Transition Plate
C	H1 to H2
D	H1 to H3

Example

Application requires a 3-Station manifold with a valve, regulator on Station 3.

Item	Qty.	Part No.	Location
01	1	AAH1D003	
02	1	H11VXBG0B9D	Station 1
03	1	PS401155MCP	Station 1
04	1	H12VXBG0B9D	Station 2
05	1	PS401155MCP	Station 2
06	1	H12VXXG0B9D	Station 3
07	1	PS4038166CP	Station 3
08	1	PS401155MCP	Station 3

NOTE:
Construct manifold assemblies from left to right while looking at the cylinder ports.

Valves must be ordered as External Pilot when using Sandwich Regulator.

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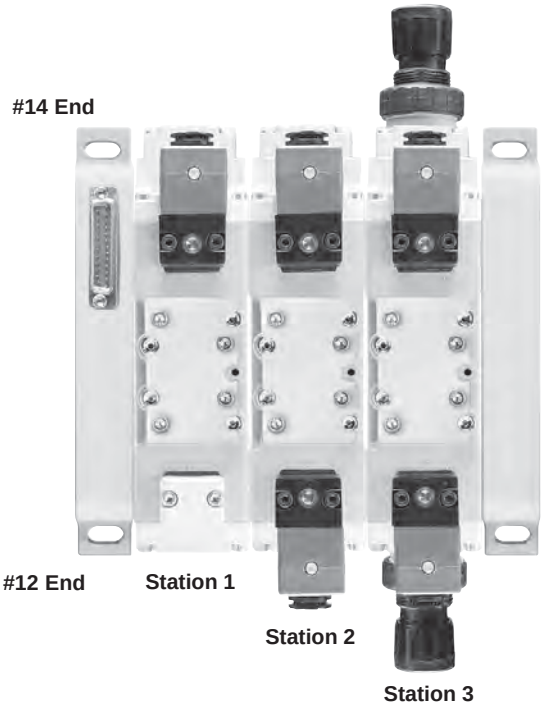
How To Order Plug-in Add-A-Fold Assemblies

1. List Add-A-Fold Assembly call out. This automatically includes the end plate kit assembly.
2. List complete Valve, Regulator, Flow Control and Base model number. List left to right, LOOKING AT THE CYLINDER PORTS on the #12 end of the manifold. The left most station is station 1. (If a blank station is needed, list the blanking plate part number and the individual manifold number in the station specified.)



Example:
3-Station Manifold with (3) H2 Valves on Manifold Bases and Regulator at Station 3

Maximum Number of Solenoids
(Maximum Energized Simultaneously)

H2 / H3	Voltage Code	25-Pin D-Sub	19-Pin Brad Harrison	12-Pin M23	19-Pin M23	Moduflex	Isysnet
12VDC	45	24 (13)	16 (13)	8 (8)	16 (13)	N/A	N/A
24VAC*	42	24 (24)	16 (16)	8 (8)	16 (16)	N/A	N/A
24VDC	B9	24 (20)	16 (16)	8 (8)	16 (16)	16 (16)	24 (21)
120VAC*	23	24 (24)	16 (16)	8 (8)	16 (16)	N/A	N/A

* Not CSA certified for 25-Pin, D-Sub option.

Add-A-Fold Assembly Model Number

AA	H2	D	0	03	

Valve Series

Right & Left End Plate	H2
Right & Left End Plate	H3

End Plate Type

Turck Fieldbus with Valve Driver Module - 16 Outputs	A
Turck Fieldbus with Valve Driver Module - 32 Outputs	B
25-Pin, D-Sub	D†
19-Pin, Brad Harrison	E†
12-Pin, M23	G†
19-Pin, M23	H†
Moduflex Fieldbus	T*
Isysnet, with Valve Driver Module	Y*

* Must order Communication Modules Separately.
† Collective Wiring Module Included.

Thread Type

0	NPT
1*	BSPP "G"

* BSPP Conforms to ISO 1179-1 w 228-1 Threads.

Number of Stations

01
02
03
04
•
•
24

Transition Plate

Blank	No Transition Plate
E*	H2 to H3

* Must Specify Valve Series H3.

Example

Application requires a 3-Station manifold with a valve and regulator on Station 3.

Item	Qty.	Part No.	Location
01	1	AAH2D003	
02	1	H21VXBG0B9D	Station 1
03	1	PS411157MCP	Station 1
04	1	H22VXBG0B9D	Station 2
05	1	PS411157MCP	Station 2
06	1	H22VXXG0B9D	Station 3
07	1	PS4138166CP	Station 3
08	1	PS411157MCP	Station 3

NOTE: Construct manifold assemblies from left to right while looking at the cylinder ports.
Valves must be ordered as External Pilot when using Sandwich Regulator.

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Blanking Plate Kits

Size	Kit Number
H1	PS4034CP
H2	PS4134CP
H3	PS4234CP

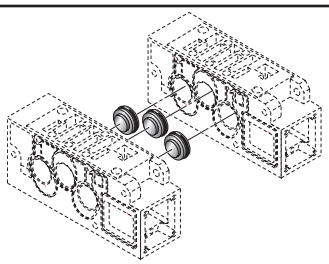
Kit includes: Blanking Plate, Gasket, and Mounting Bolts.

Manifold Port Isolation Kits

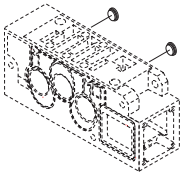
Main Galley (1, 3, 5)

Size	Kit Number
H1	PS4032CP
H2	PS4132CP
H3	PS4232CP

Kit includes: Plugs with O-rings.



H1, H2, H3 Main Galley



H1, H2, H3 Pilot Galley

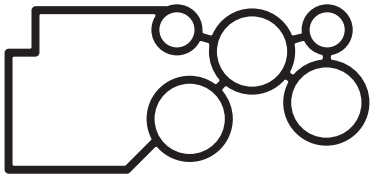
Pilot Galley

Size	Kit Number
H1 H2 H3	PS4033CP

Kit includes: Plugs with O-rings.

Manifold to Manifold Gasket Kits

5599 PS4011, PS4111 & PS4211 Manifolds	
H1	PS4013P
H2	PS4113P
H3	PS4213P



Sandwich Flow Controls

Size	Plug-in 5599-2
H1	PS4035CP
H2	PS4135CP
H3	PS4235CP

A Sandwich Flow Control and Common Port Sandwich Regulator may be sandwiched together on a manifold or subbase. The Sandwich Flow Control MUST be located between the manifold/subbase and the Common Port Sandwich Regulator.

Plug-in 5599-2 Size 2 Shown

H1 Auxiliary Access Plate Kits

Size	Port Size	Kit Number	
		NPT	BSPP "G"
H1	1/4" & 3/8"	PS403000CP	PS403001CP

Kit includes: Pilot Port Access Plate, Gasket and Mounting Screws.
- Used on H1 Manifolds to provide auxiliary access to Ports 1, 3 & 5.
- Port 1: 1/4", Ports 3 & 5: 3/8". Height: .72 Inch

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BOLD OPTIONS ARE MOST POPULAR

PS4038 | 1 | 6 | 6 | C | P

Basic Series	
H1	
5599-2, Plug-in	**PS4038**
H2	
5599-2, Plug-in	**PS4138**
H3	
5599-2, Plug-in	**PS4238**

Regulator Function	
Common Pressure Regulator	**1**
Independent Pressure Regulator	**2**

#2 Port Regulator / Gauge*	
0**	**Line By-Pass Plate**
4	1-30 PSIG w/Gauge
5	2-60 PSIG w/Gauge
6	**5-125 PSIG w/Gauge**

* For Common Pressure Regulator Option, Regulator Gauge callout must be the same number for both Port #4 and Port #2. (Example: 166)

** Pressure Line By-Pass Option can only be used with Independent Pressure Regulators.

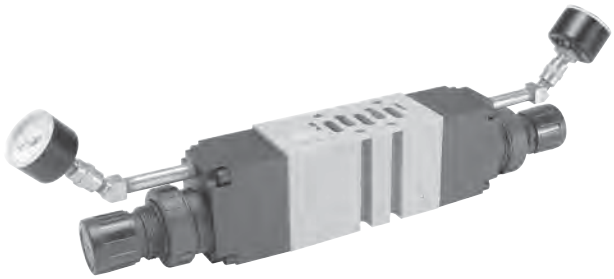
#4 Port Regulator / Gauge*	
0**	**Line By-Pass Plate**
4	1-30 PSIG w/Gauge
5	2-60 PSIG w/Gauge
6	**5-125 PSIG w/Gauge**

* For Common Pressure Regulator Option, Regulator Gauge callout must be the same number for both Port #4 and Port #2. (Example: 166)

** Pressure Line By-Pass Option can only be used with Independent Pressure Regulators.

Ordering Components
- *Sandwich Regulator Kit configured for Internal Pilot as standard.*
- *Order valve as External Pilot.*

H1 - Size 1
(Independent Dual Port Regulator Shown)



H2 - Size 2
(Independent Dual Port Regulator Shown)

How to Configure Sandwich Regulator / Valve Combinations

Internal Pilot Configuration of Sandwich Regulator H1, H2 & H3
Pressure in Base Port 1 feeds regulator configured for Internal Pilot which feeds valve configured for External Pilot.

External Pilot Configuration of Sandwich Regulator H1, H2, H3
An External Pilot pressure in Port 12 or 14 of the base feeds thru the Sandwich Regulator 12 or 14 galley directly to the 12/14 pilot of the valve. This configuration takes an External Pilot from the 12 port of the base and passes it thru the regulator to feed the 12 galley of the valve.

Sandwich Regulator Cv Flow Chart*

	Common Pressure Code 166				Single Pressure 2 Code 266				Single Pressure 4 Code 260				Dual Pressure Code 266			
	1-2	**1-4**	**2-3**	**4-5**	**1-2**	**1-4**	**2-3**	**4-5***	**1-2**	**1-4**	**2-3**	**4-5***	**1-2**	**1-4**	**2-3**	**4-5***
H1	0.62	0.61	1.28	1.18	0.73	0.96	0.96	0.93	0.34	0.70	0.94	0.98	0.52	0.48	0.86	0.88
H2	1.47	1.60	2.41	2.33	1.71	1.90	1.52	1.75	1.74	1.67	1.73	1.79	1.61	1.62	1.50	1.67
H3	2.37	2.39	4.30	4.47	2.37	2.81	2.75	3.01	2.65	2.59	2.68	2.74	2.43	2.41	3.16	3.04

* Regulator Port exhaust through Base Port 3.
Note: All Cv's calculated with regulator adjusted full open.

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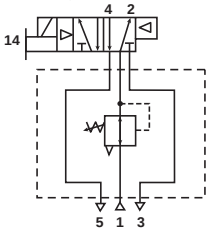
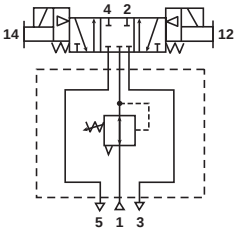
Plug-in, H1, H2, H3 Common Port Regulation

Provides adjustable regulated air pressure to the valve's #1 port which gives the same regulated pressure to both the #2 and #4 port of the manifold or subbase. The regulator is always on the 14 end of the valve.

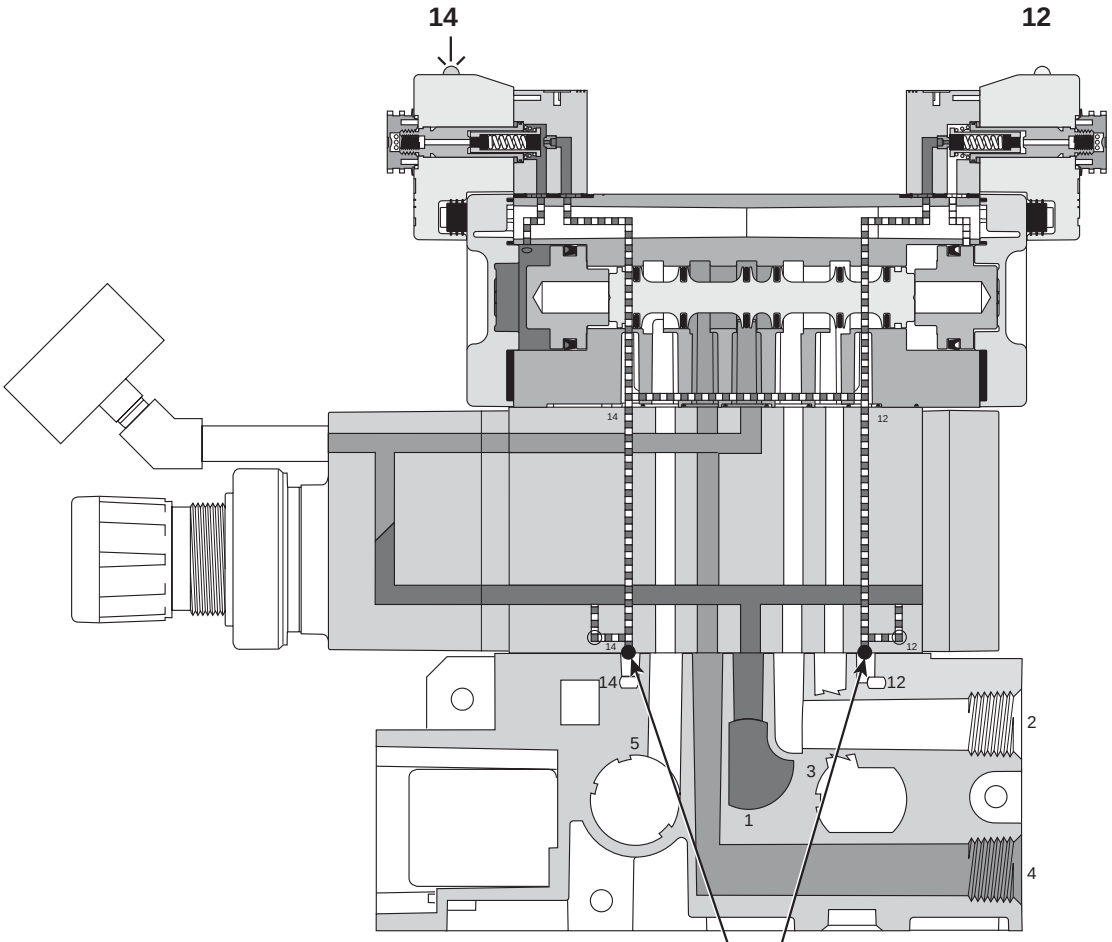
Common Port Regulator with 4-Way, 2-Position Single Solenoid Valve



Common Port Regulator with 4-Way, 3-Position APB Valve



H2 Common Port Regulator Shown - Double Solenoid, 14 Energized, Internal Pilot



Sandwich Regulator has standard configuration of Internal Pilot with the Pilot Plug in the bottom of the I & E Pilot Holes which prevents line pressure from escaping through the manifold.

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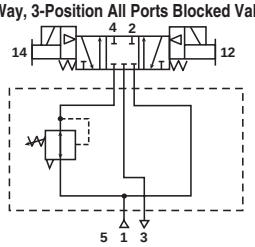
Plug-in, H1, H2, H3 Independent Port Regulation

Single Port Regulator

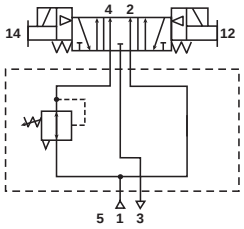
Provides regulated pressure to one of the ports and full line pressure to the other by use of the Line Pressure By-Pass Plate. Pressure regulation can occur out of the #4 port of the valve.

When using an Independent Pressure Sandwich Regulator, the cylinder outlet ports are reversed. The 12 end energizes the #4 port and the 14 end energizes the #2 port. The 3-Position CE and PC functions are also reversed. (See schematics on right.)

Independent Port Regulator with 4-Way, 3-Position All Ports Blocked Valve

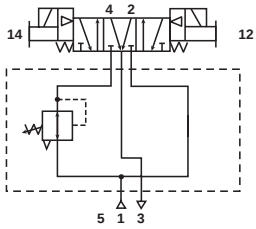


Independent Port Regulator with 4-Way, 3-Position, Inlet to Cylinder Function



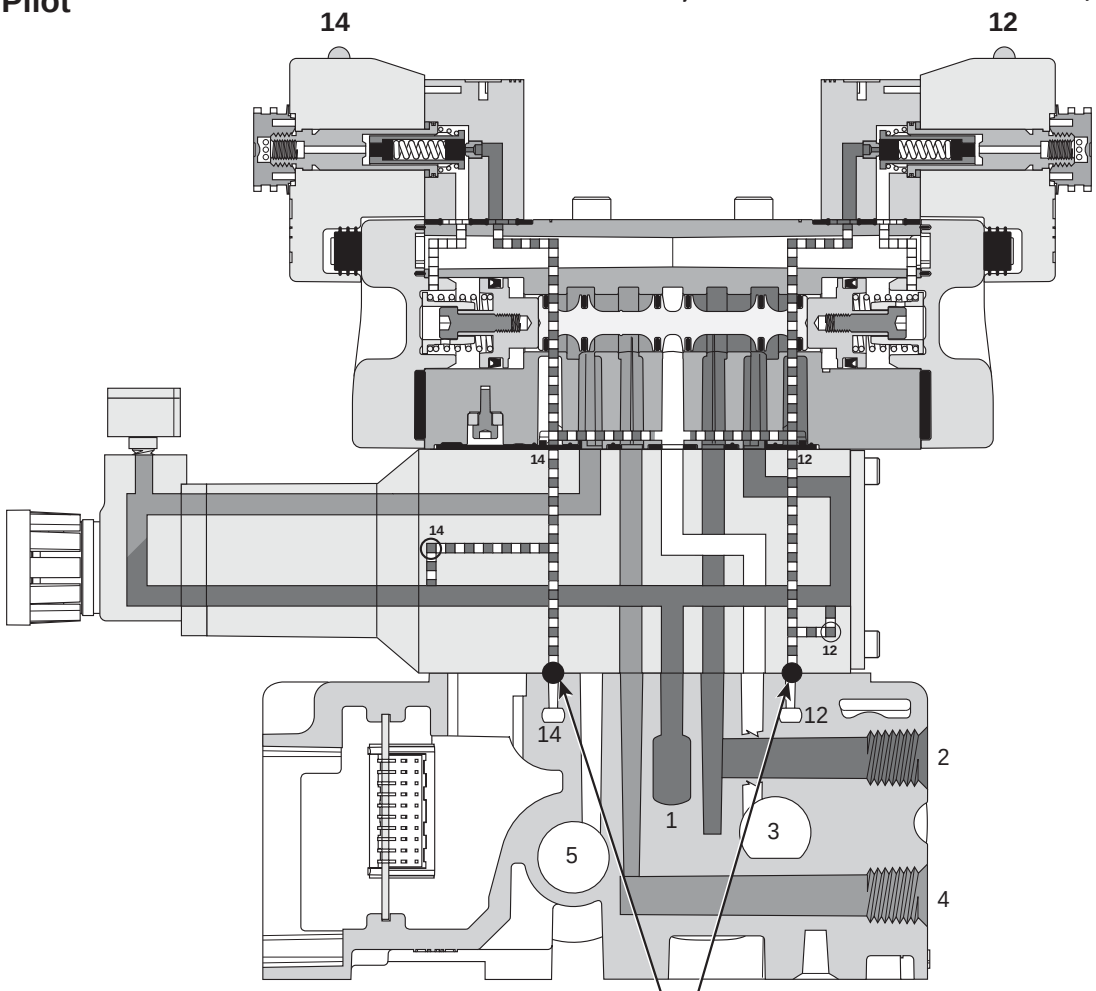
⚠ CAUTION: Requires 4-Way, 3-Position, Cylinder to Exhaust Valve

Independent Port Regulator with 4-Way, 3-Position, Cylinder to Exhaust Function



⚠ CAUTION: Requires 4-Way, 3-Position, Inlet to Cylinder Valve

H1 Independent Port Regulator Shown - Double Solenoid, De-energized, Internal Pilot



Sandwich Regulator has standard configuration of Internal Pilot with the Pilot Plug in the bottom #12 and #14 Pilot Hole which prevents line pressure from escaping through the manifold.

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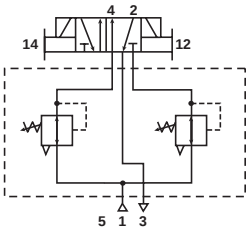
Plug-in, H1, H2, H3 Independent Dual Port Regulation

Dual Port Regulator

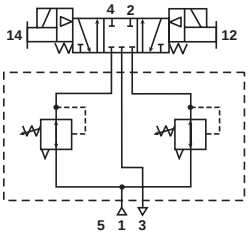
Provides regulated pressure to both ports. Pressure regulation can occur out of the #2 or #4 port of the valve.

When using an Independent Pressure Sandwich Regulator, the cylinder outlet ports are reversed. The 12 end energizes the #4 port and the 14 end energizes the #2 port. The 3-Position CE and PC functions are also reversed. (See schematics on right.)

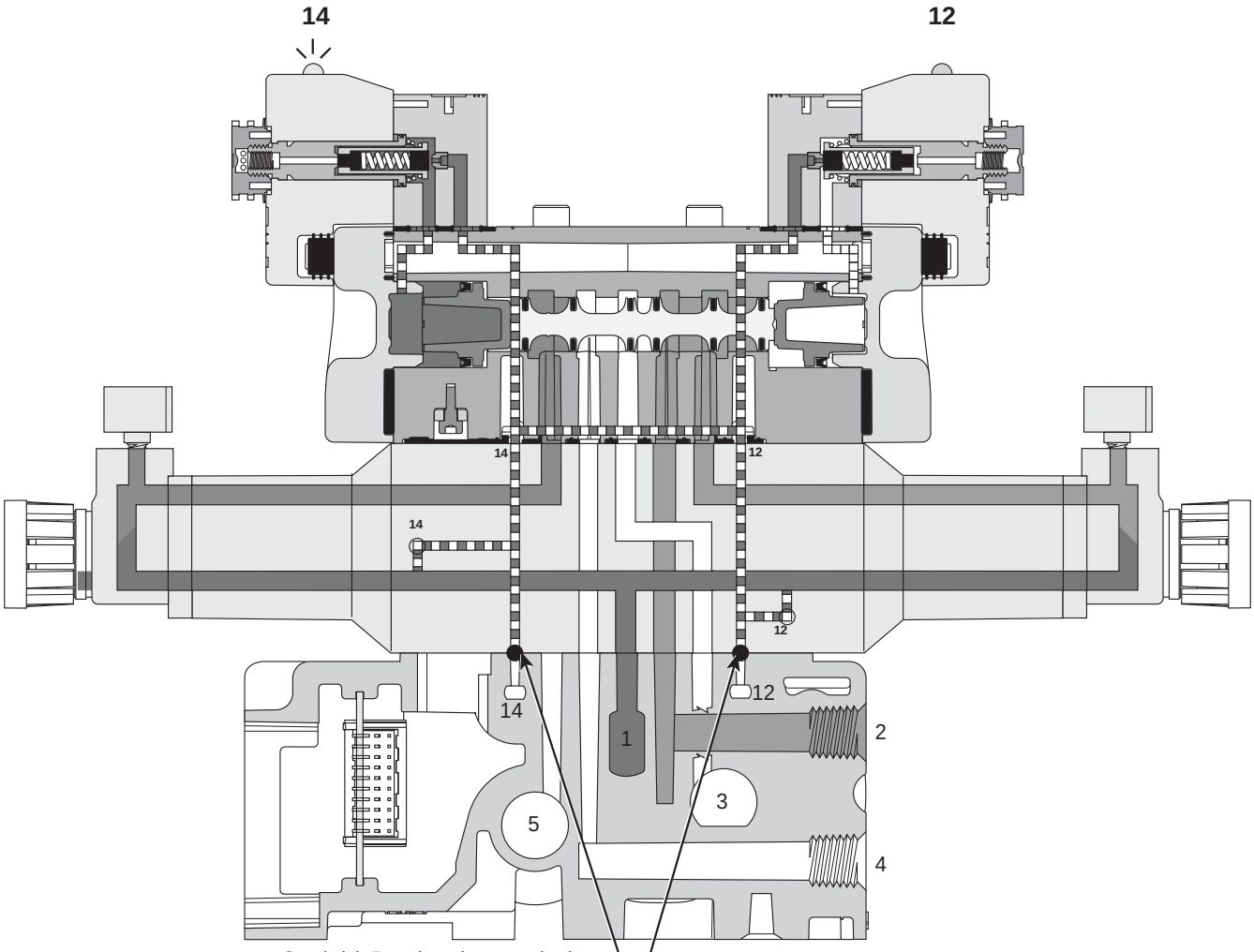
Independent Dual Port Regulator with 4-Way, 2-Position Double Solenoid Valve



Independent Dual Port Regulator with 4-Way, 3-Position Double Solenoid Valve



H1 Independent Dual Port Regulator Shown - Double Solenoid, 14 Energized, Internal Pilot



Sandwich Regulator has standard configuration of Internal Pilot with the Pilot Plug in the bottom #12 and #14 Pilot Hole which prevents line pressure from escaping through the manifold.

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Plug-in, 5599-2 Transition Plate Kits

BOLD OPTIONS ARE MOST POPULAR.

H1 H2 H3

PS4026 L2 0 C P

Transition Plate Type*	
H1 to H2 to H3	**PS4025**
H1 to H3	**PS4026**
H1 to H2	**PS4027**
H2 to H3	**PS4028**

* Includes Left Hand and Right Hand End Plates

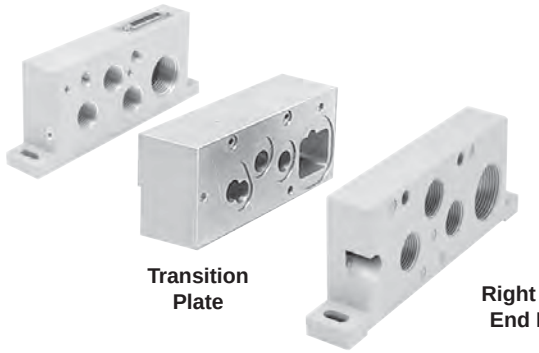
Engineering Level	
C	**Basic Series PS40**

Thread Type	
0	**NPT**
1*	BSPP "G"

* BSPP Conforms to ISO 1179-1 w 228-1 Threads.

Options	
25-Pin, D-Sub	**L2**
19-Pin, Round, Brad Harrison	**L3**
12-Pin, M23	L4
19-Pin, M23	M2
Moduflex Fieldbus	**M4***
Isysnet, with Valve Driver Module	**L6***
Turck Fieldbus with Valve Driver Module - 16 Outputs	**T1**
Turck Fieldbus with Valve Driver Module - 32 Outputs	**T2**

* Must Order Communication Module Separately
Turck, Isysnet, and Moduflex communication modules must be ordered separately. See Fieldbus Section for more information.



H1 to H2 Shown

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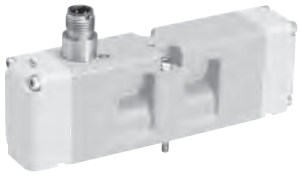
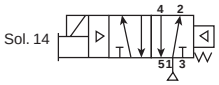
Non Plug-in, 15407-1, Size 18mm (HB) & 26mm (HA)

Single Solenoid
2-Position

HB: 18mm



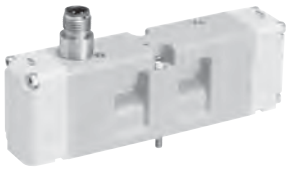
HA: 26mm



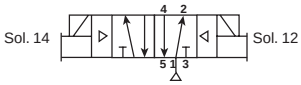
HB **HBEWXBG2G9000FA**	24VDC	0.55 Cv C = 1.5 Nl/s x bar, b = 0.25 Qn = 390 l/min, Qmax = 648 l/min
HA **HAEWXBG2G9000FA**	24VDC	1.1 Cv C = 3.6 Nl/s x bar, b = 0.30 Qn = 918 l/min, Qmax = 1518 l/min

Double Solenoid
2-Position

HB: 18mm



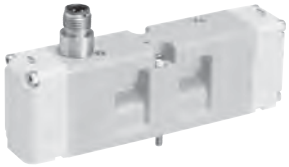
HA: 26mm



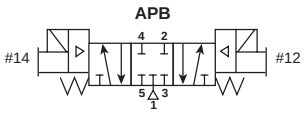
HB **HB2WXBG2G9000FA**	24VDC	0.55 Cv C = 1.5 Nl/s x bar, b = 0.25 Qn = 390 l/min, Qmax = 648 l/min
HA **HA2WXBG2G9000FA**	24VDC	1.1 Cv C = 3.6 Nl/s x bar, b = 0.30 Qn = 918 l/min, Qmax = 1518 l/min

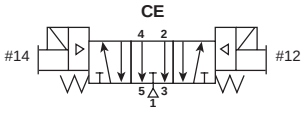
Double Solenoid
3-Position APB
3-Position CE
3-Position PC

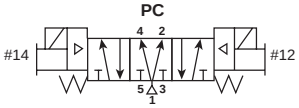
HB: 18mm



HA: 26mm







APB		
HB **HB5WXBG2G9000FA**	24VDC	0.50 Cv C = 1.4 Nl/s x bar, b = 0.25 Qn = 360 l/min, Qmax = 595 l/min
HA **HA5WXBG2G9000FA**	24VDC	1.0 Cv C = 3.3 Nl/s x bar, b = 0.30 Qn = 845 l/min, Qmax = 1395 l/min
CE		
HB **HB6WXBG2G9000FA**	24VDC	0.50 Cv C = 1.4 Nl/s x bar, b = 0.25 Qn = 360 l/min, Qmax = 595 l/min
HA **HA6WXBG2G9000FA**	24VDC	1.0 Cv C = 3.3 Nl/s x bar, b = 0.30 Qn = 845 l/min, Qmax = 1395 l/min

HB **HB7WXBG2G9000FA**	24VDC	0.50 Cv C = 1.4 Nl/s x bar, b = 0.25 Qn = 360 l/min, Qmax = 595 l/min
HA **HA7WXBG2G9000FA**	24VDC	1.0 Cv C = 3.3 Nl/s x bar, b = 0.30 Qn = 845 l/min, Qmax = 1395 l/min

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Non Plug-in, 15407-1, Size 18mm (HB) & 26mm (HA)

BOLD OPTIONS ARE MOST POPULAR.

HB E WX B G 2 G9 000F A

Basic Series 15407-1	
ISO 15407-1 18mm	HB
ISO 15407-1 26mm	HA

15407-1 Operator / Function	
Single Solenoid, 2-Position - Air Return	**1**
Double Solenoid, 2-Position	**2**
Double Solenoid, 3-Position - APB	**5**
Double Solenoid, 3-Position - CE	**6**
Double Solenoid, 3-Position - PC	7
Single Solenoid, 2-Position - Air Return, Spring Assist	**E**
Double Solenoid, Dual 3/2, NC/NC	**N†**
Double Solenoid, Dual 3/2, NO/NO	**P†**
Double Solenoid, Dual 3/2, 14 End NC – 12 End NO	**Q†**

† Available on HB Only, must use Internal Pilot Source Option "B".

15407-1 Mounting	
Valve Less Base	**WX**

15407-1 Pilot Source / Pilot Exhaust	
B	**Internal Pilot, Port #1 / Vented**
L*	External Pilot #14 Port / Vented

* Must be specified when using Sandwich Regulators.

15407-1 Overrides / Lights	
G	**Non-Locking, Flush, Push - w/ Light**
H	Locking, Flush, Push / Turn - w/ Light

15407-1 Enclosure / Lead Length	
2	**4-Pin, M12 Micro, Straight Connector**

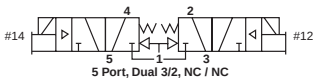
15407-1 Voltage & Frequency		
G9	**24VDC**	**LED & Suppression**

15407-1 Central Connector Wiring Options	
000F	**SAE / Ford, ISO 20401**

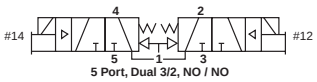
15407-1 Engineering Level	
A	**Current**

Double Solenoid
Dual 3/2 NC/NC
Dual 3/2 NO/NO
Dual 3/2 NC/NO

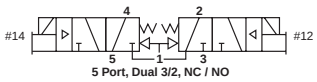
HB: 18mm



5 Port, Dual 3/2, NC / NC



5 Port, Dual 3/2, NO / NO



5 Port, Dual 3/2, NC / NO

NC / NC		
HB **HBNWXBG2G9000FA**	24VDC	0.45 Cv C = 1.25 Nl/s x bar, b = 0.25 Qn = 320 l/min, Qmax = 535 l/min
NO / NO		
HB **HBPWXBG2G9000FA**	24VDC	0.45 Cv C = 1.25 Nl/s x bar, b = 0.25 Qn = 320 l/min, Qmax = 535 l/min

NC / NO - 14 End NC		
HB **HBQWXBG2G9000FA**	24VDC	0.45 Cv C = 1.25 Nl/s x bar, b = 0.25 Qn = 320 l/min, Qmax = 535 l/min

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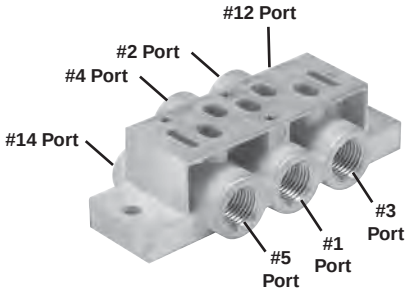
Non Plug-in, 15407-1, Size 18mm (HB) & 26mm (HA) Manifold / Subbase Kits

Individual Subbase Kit
with Side Ports

Size	Port Size	Kit Number	
		NPT	BSPP "G"
HB	1/8"	**PL02-01-80**	PL02-01-70
HA	1/4"	**PL01-02-80**	PL01-02-70

Note: Can be used for external, single, or double remote pilot.



Two Station Manifold Base
with End Ports

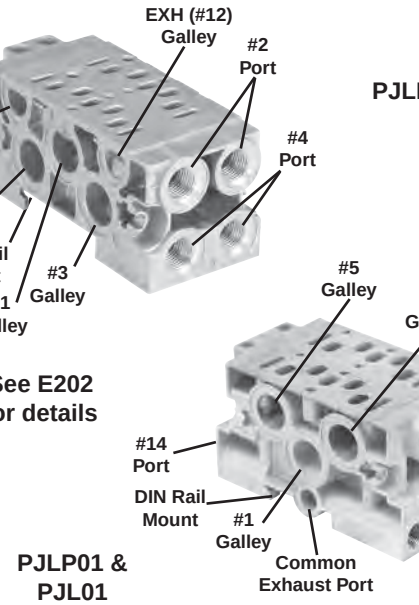
Size	Port Size	Kit Number	
		NPT	BSPP "G"
HB	1/8"	**PJLP02-201-80***	PJLP02-201-70*
HA	1/4"	**PJLP01-202-80***	PJLP01-202-70*

***** Can be used for external pilot, not remote pilot.
Note: Gaskets and assembly hardware included.

Two Station Manifold Base
with End Ports

Size	Port Size	Kit Number	
		NPT	BSPP "G"
HA	1/4"	**PJL01-202-80***	PJL01-202-70*

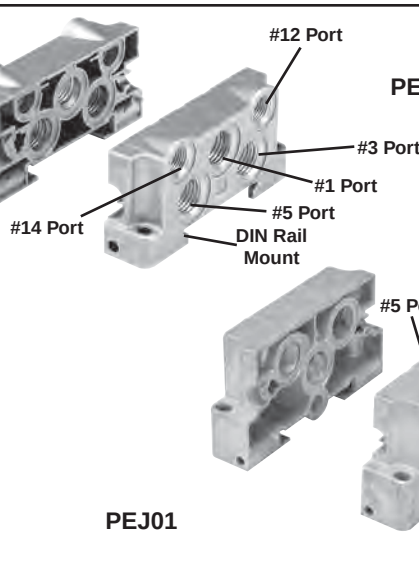
***** Can be used for single and double remote pilot and external pilot using the #14 Port.
Note: Gaskets and assembly hardware included.



End Plate Kit
for End Ported Two Station Manifold Base

Size	Port Size	Kit Number	
		NPT	BSPP "G"
HB	1/4"	**PEJ02-02-80***	PEJ02-02-70*
HA	3/8"	**PEJ01-03-80**†	PEJ01-03-70†

***** Use with PJLP02.....
† Use with PJLP01 or PJL01.....



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Non Plug-in, 15407-1, Size 18mm (HB) & 26mm (HA) Manifold / Subbase Kits

PS561151 | 0 | P

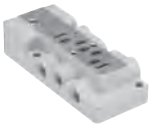
Enclosures / Lead Length	
0	None, No Electrical Plug - 15407-1

Mounting Style / Port Size			
ISO 15407-1, 18mm, HB		15407-1, 26mm, HA	
Manifold with 1/8 NPT End Ports	**PS561151**	**Subbase with 1/4 NPT Side Ports**	**PS551113**
Manifold with 1/8 BSPP End Port	PS561152*	Subbase with 1/4 BSPP Side Ports	PS551114*
Manifold with 1/8 NPT Bottom / End Port	PS561161	Subbase with 1/4 NPT Bottom / Side Port	PS551123
Manifold with 1/8 BSPP Bottom / End Port	PS561162*	Subbase with 1/4 BSPP Bottom / Side Port	PS551124*
		Manifold with 1/4 NPT End Port	**PS551153**
		Manifold with 1/4 BSPP End Port	PS551154*
		Manifold with 1/4 NPT Bottom / End Port	PS551163
		Manifold with 1/4 BSPP Bottom / End Port	PS551164*

BOLD OPTIONS ARE MOST POPULAR.

* BSPP Conforms to ISO 1179-1 w 228-1 Theads.

Subbase Kits



HA

Manifold Kits

HB

HA

Non-Plug-in, 15407-1, Size 18mm (HB) & 26mm (HA) End Plate Kits

HB HA

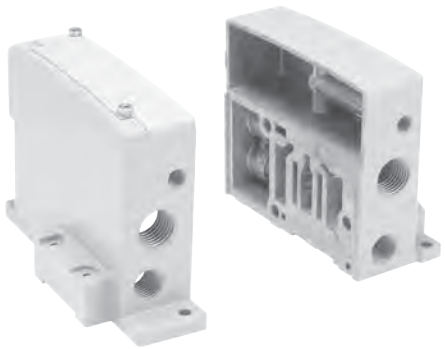
PS563101 | 0 | P

Basic Series	
ISO 15407, Size HB, 18mm & HA, 26mm End Plate, Non-Collective Wiring	PS563101

Thread Type	
0	NPT
1*	BSPP "G"

* BSPP Conforms to ISO 1179-1 w 228-1 Theads.

BOLD OPTIONS ARE MOST POPULAR.



HB - HA Non-Collective Wiring End Plates

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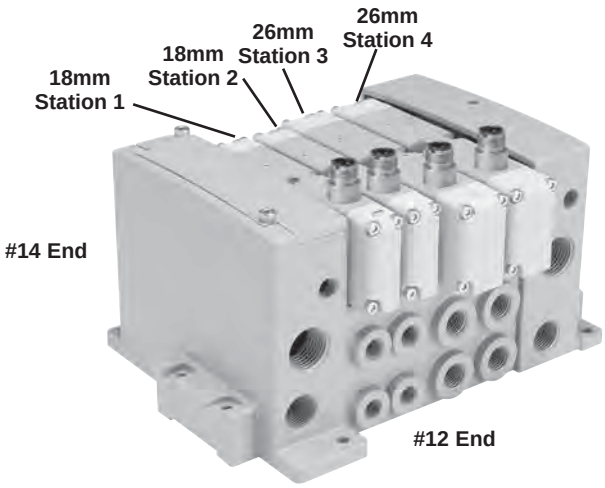
How To Order Non-Plug-in Add-A-Fold Assemblies

1. List Add-A-Fold Assembly call out. This automatically includes the end plate kit assembly.
2. List complete Valve, Regulator, Flow Control and Base model number. List left to right, LOOKING AT THE CYLINDER PORTS on the #12 end of the manifold.
   The left most station is station 1. (If a blank station is needed, list the blanking plate part number and the individual manifold number in the station specified.)



Example:
4-Station Manifold with (2) 18mm and (2) 26mm Valves On Manifold Bases

Add-A-Fold Assembly Model Number

AA HBS 0 04 ☐

Valve Series	
Right & Left End Plate 15407-1 (Non Plug-in, HA 26mm)	01U*
Right & Left End Plate 15407-1 (Non Plug-in, HB 18mm)	02U**
Right & Left End Plate 15407-1 (HB 18mm & HA 26mm)	HBS†

* For use with PJLP01 or PJL01 Manifolds.
** For use with PJLP02 Manifolds.
† For use with PS5511 and PS5611 Manifolds.

Transition Plate	
Blank	No Transition Plate
B*	HB / HA to H2

* Not Available with End Plate Type "01U or 02U".

Number of Stations*
02
04
•
24
•
32

* Must be ordered in multiples of (2) unless using the HB/HA to H2 Transition Plate.

Thread Type	
0	NPT
1*	BSPP "G"

* BSPP Conforms to ISO 1179-1 w 228-1 Theads for End Plate Type "S".

Example

Application requires a 4-Station manifold.
(Two 18mm + Two 26mm Stations)

Item	Qty.	Part No.	Location
01	1	AAHBS004	
02	1	HB1WXBG2G9000FA	Station 1
03	1	HB2WXBG2G9000FA	Station 2
04	1	PS5611510P	Station 1 & 2
05	2	HA1WXBG2G9000FA	Station 3 & 4
06	1	PS5511510P	Station 3 & 4

NOTE: Construct manifold assemblies from left to right while looking at the ports. Valves must be ordered as External Pilot when using Sandwich Regulator.

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Blanking Plate Kits

Size	Kit Number
HB	PS5634P
HA	PS5534P

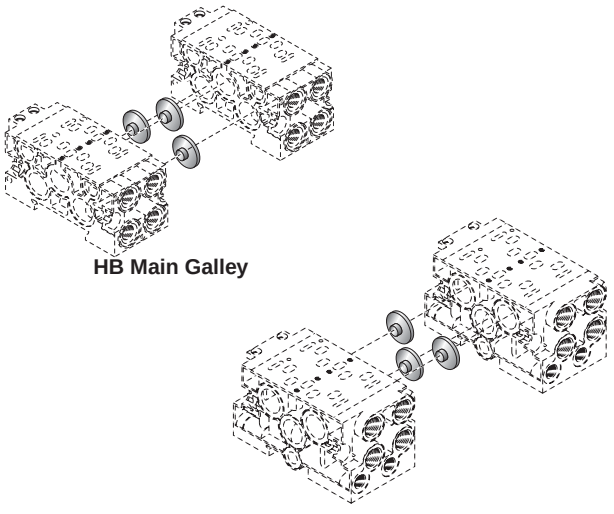
Kit includes: Blanking Plate, Gasket, and Mounting Bolts.

Manifold Port Isolation Kits

Main Galley (1, 3, 5)

Size	Kit Number
HB	D02BD0*
HA	D01BD0*

* For use on PJLP and PJL Series Manifolds.
Kit includes: Plugs with O-rings.

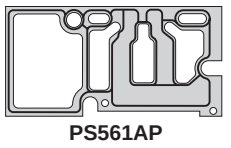


HB Main Galley

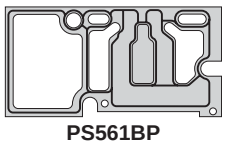
HA Main Galley

Manifold to Manifold Gasket Kits

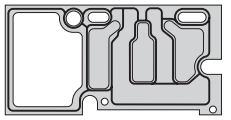
15407 PS5511 & PS5611 Manifolds				
Size	**Standard**	**Blocked #1 Port**	**Blocked #1, 3, 5 Ports**	**Blocked #3, 5 Ports**
HB / HA	PS561AP	PS561BP	PS561CP	PS561DP
15407 PJLP & PJL Manifolds				
HB	DX02M2MGSKT (PJLP02)			
HA	DX01M2MGSKT (PJLP01)			



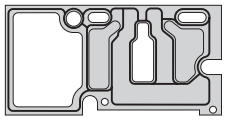
PS561AP



PS561BP

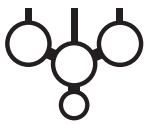


PS561CP



PS561DP

DX02M2MGSKT (PJLP02)



DX01M2MGSKT (PJLP01)

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Sandwich Supply & Exhaust Modules

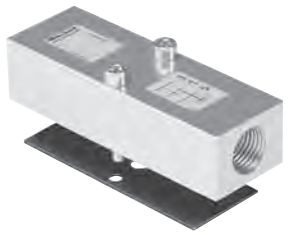
Valve Size		Port Size	NPT	BSPP "G"
HB	Supply	1/8"	PS562600P	PS562601P
15407-1	Exhaust		PS562700P	PS562701P
HA	Supply	1/4"	PS552600P	PS552601P
15407-1	Exhaust		PS552700P	PS552701P

Quantity 1
- Used on HB & HA valves to provide a pressure or exhaust path to individual valves.

Intermediate Air Supply Base 15407

Size	Port Size	Kit Number
		NPT
HB	1/8"	D02P-01-80
HA	1/4"	D01P-02-80

Kit includes: Gasket and Mounting Bolts.



D01P-02-80 Shown

Sandwich Flow Control

- Both adjustment screws are located on the 12 end of the unit.
- Sandwich Flow Control mounts with its own studs, which means the valve uses standard bolts for mounting.
- Sandwich Flow Control is not to be used as a shut off device and is not bubble tight when needles are fully turned down.

Valve Size	Non Plug-In 15407-1
HB	PS5642P
HA	PS5542P

A Sandwich Flow Control and Common Port Sandwich Regulator may be sandwiched together on a manifold or subbase. The Sandwich Flow Control MUST be located between the manifold/subbase and the Common Port Sandwich Regulator.

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BOLD OPTIONS ARE MOST POPULAR

PS5637 | 1 | 6 | 6 | P

Basic Series	
HB	
15407-1, 18mm, Non Plug-In	**PS5637**
HA	
15407-1, 26mm, Non Plug-In	**PS5537**

Regulator Function	
Common Pressure Regulator	**1**
Independent Pressure Regulator	**2**

#2 Port Regulator / Gauge*	
5	2-60 PSIG w/Gauge
6	**5-125 PSIG w/Gauge**

* For Common Pressure Regulator Option, Regulator Gauge callout must be the same number for both Port #4 and Port #2. (Example: 166)

#4 Port Regulator / Gauge*	
5	2-60 PSIG w/Gauge
6	**5-125 PSIG w/Gauge**

* For Common Pressure Regulator Option, Regulator Gauge callout must be the same number for both Port #4 and Port #2. (Example: 166)

HB - 18mm
(Independent Dual Port Regulator Shown)

HA - 26mm
(Common Port Regulator Shown)

Gauge Adapter Kit

Included with all HB Regulators. Both kits are required on all HA & HB Regulators when the Regulator is on the last Station on the Right (14) End.

Description	Part Number
Gauge Kit	PS5651160P
1/8" Female to 1/8" Female Coupling	207P-2*
1/8" Male to 1/8" Male Long Nipple	VS215PNL-2-15*

* Included in Gauge Kit PS5651160P

Ordering Components
- *Manifold or Subbase Kit required.*
- *Sandwich Regulator Kit configured for Internal Pilot as standard.*
- *Order valve as External Pilot.*

How to Configure Sandwich Regulator / Valve Combinations

Internal Pilot Configuration of Sandwich Regulator HA, HB
Pressure in Base Port 1 feeds regulator configured for Internal Pilot which feeds valve configured for External Pilot.

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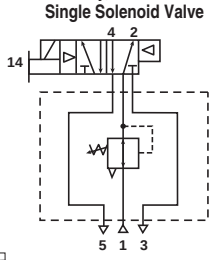
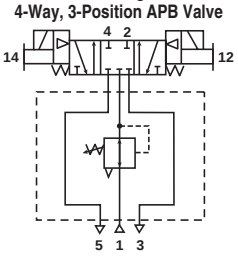
Non Plug-in, HB & HA Common Port Regulation

Provides adjustable regulated air pressure to the valve's #1 port which gives the same pressure to both the #2 and #4 port of the manifold or subbase. The regulator is always on the 14 end of the valve.

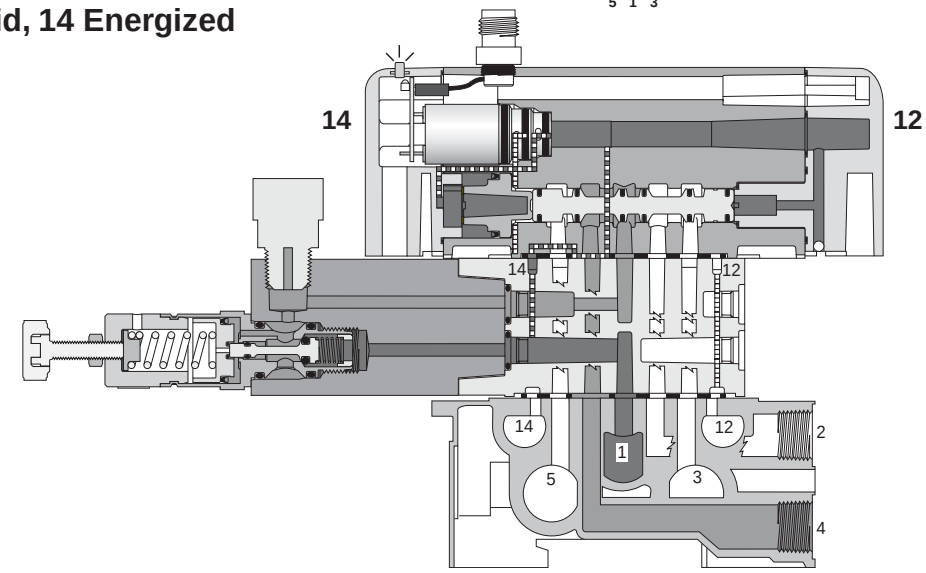
Common Port Regulator with 4-Way, 2-Position Single Solenoid Valve



Common Port Regulator with 4-Way, 3-Position APB Valve



HB Common Port Regulator Shown - Single Solenoid, 14 Energized

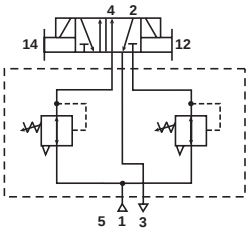


HB & HA Independent Dual Port Regulation

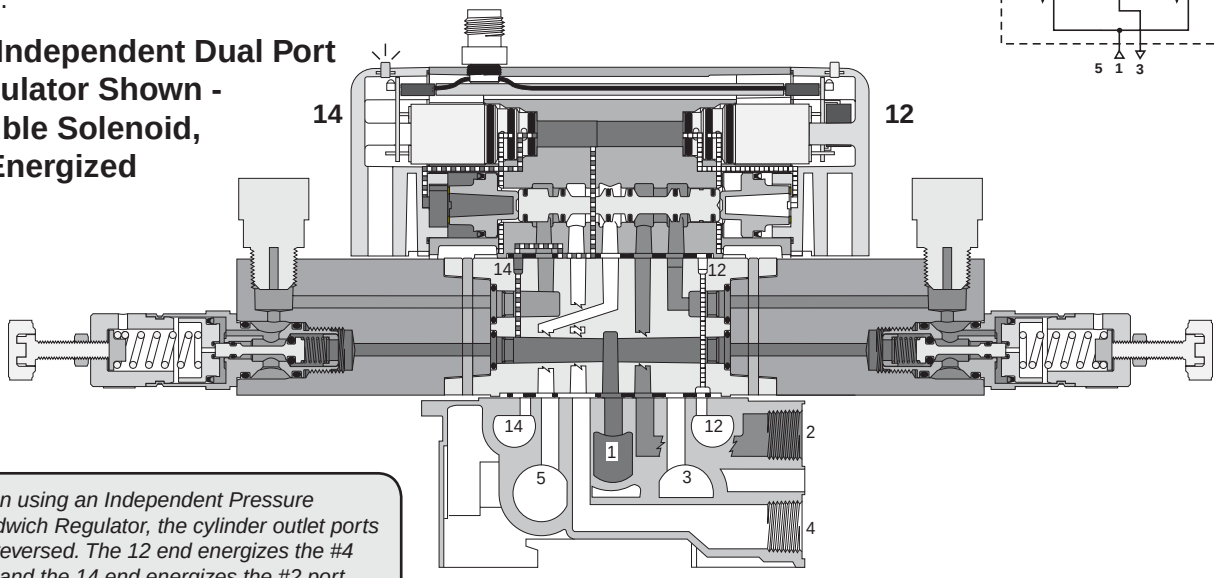
Dual Port Regulator

Provides regulated pressure to both ports. Pressure regulation can occur out of the #2 or #4 port of the valve.

Independent Dual Port Regulator with 4-Way, 2-Position Double Solenoid Valve



HB Independent Dual Port Regulator Shown - Double Solenoid, 14 Energized



When using an Independent Pressure Sandwich Regulator, the cylinder outlet ports are reversed. The 12 end energizes the #4 port and the 14 end energizes the #2 port. The 3-Position CE and PC functions are also reversed. (See schematics above.)

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Non Plug-in, 15407-1 Transition Plate Kits

BOLD OPTIONS ARE MOST POPULAR.

HB HA H1 H2 H3

PS562401 0 P

Transition Plate Type*	
HA / HB to H2	PS562401

* Includes Left Hand and Right Hand End Plates.
Use with PS5511 and PS5611 Manifolds Only.

	Thread Type
0	NPT
1*	BSPP "G"

* BSPP Conforms to ISO 1179-1 w 228-1 Threads.

Left Hand End Plate

Transition Plate

Right Hand End Plate

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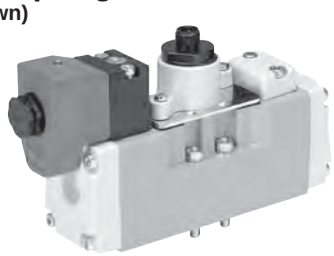
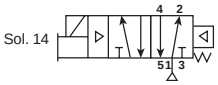
Non Plug-in, 5599-1, Central Connector - Size 1, 2, & 3

Single Solenoid

2-Position, Spring / Air Return

(H1 Series Shown)



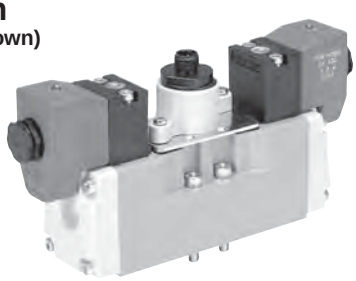


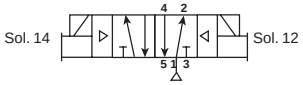
H1	**H1EWXBG323000*D**	120VAC	1.5 Cv, C = 5.0 Nl/s x bar, b = 0.30, Qn = 1248 l/min, Qmax = 2070 l/min
	H1EWXBG2B9000*D	24VDC	
H2	**H2EWXBG323000*D**	120VAC	3.0 Cv, C = 9.7 Nl/s x bar, b = 0.35, Qn = 2520 l/min, Qmax = 4140 l/min
	H2EWXBG2B9000*D	24VDC	
H3	**H3EWXBG323000*D**	120VAC	6.0 Cv, C = 18.7 Nl/s x bar, b = 0.35, Qn = 5022 l/min, Qmax = 7848 l/min
	H3EWXBG2B9000*D	24VDC	

Double Solenoid

2-Position

(H1 Series Shown)



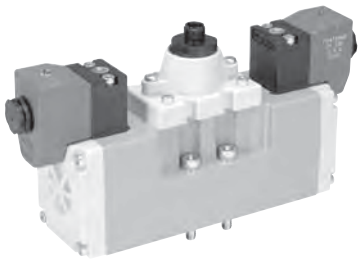


H1	**H12WXBG323000*D**	120VAC	1.5 Cv, C = 5.0 Nl/s x bar, b = 0.30, Qn = 1248 l/min, Qmax = 2070 l/min
	H12WXBG2B9000*D	24VDC	
H2	**H22WXBG323000*D**	120VAC	3.0 Cv, C = 9.7 Nl/s x bar, b = 0.35, Qn = 2520 l/min, Qmax = 4140 l/min
	H22WXBG2B9000*D	24VDC	
H3	**H32WXBG323000*D**	120VAC	6.0 Cv, C = 18.7 Nl/s x bar, b = 0.35, Qn = 5022 l/min, Qmax = 7848 l/min
	H32WXBG2B9000*D	24VDC	

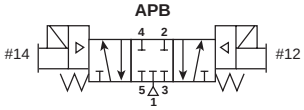
Double Solenoid

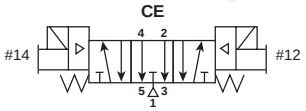
3-Position APB
3-Position CE
3-Position PC

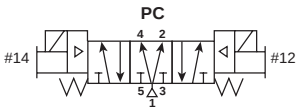
(H2 Series Shown)



*** Specify Automotive Wiring Code**
C - Chrysler
F - SAE / Ford
G - GM







APB			
H1	**H15WXBG323000*D**	120VAC	1.2 Cv, C = 4.1 Nl/s x bar, b = 0.30, Qn = 1000 l/min, Qmax = 1660 l/min
	H15WXBG2B9000*D	24VDC	
H2	**H25WXBG323000*D**	120VAC	2.8 Cv, C = 9.0 Nl/s x bar, b = 0.35, Qn = 2340 l/min, Qmax = 3860 l/min
	H25WXBG2B9000*D	24VDC	
H3	**H35WXBG323000*D**	120VAC	5.0 Cv, C = 15.4 Nl/s x bar, b = 0.35, Qn = 4185 l/min, Qmax = 6545 l/min
	H35WXBG2B9000*D	24VDC	
CE			
H1	**H16WXBG323000*D**	120VAC	1.2 Cv, C = 4.1 Nl/s x bar, b = 0.30, Qn = 1000 l/min, Qmax = 1660 l/min
	H16WXBG2B9000*D	24VDC	
H2	**H26WXBG323000*D**	120VAC	2.8 Cv, C = 9.0 Nl/s x bar, b = 0.35, Qn = 2340 l/min, Qmax = 3860 l/min
	H26WXBG2B9000*D	24VDC	
H3	**H36WXBG323000*D**	120VAC	5.0 Cv, C = 15.4 Nl/s x bar, b = 0.35, Qn = 4185 l/min, Qmax = 6545 l/min
	H36WXBG2B9000*D	24VDC	

PC			
H1	**H17WXBG323000*D**	120VAC	1.2 Cv, C = 4.1 Nl/s x bar, b = 0.30, Qn = 1000 l/min, Qmax = 1660 l/min
	H17WXBG2B9000*D	24VDC	
H2	**H27WXBG323000*D**	120VAC	2.8 Cv, C = 9.0 Nl/s x bar, b = 0.35, Qn = 2340 l/min, Qmax = 3860 l/min
	H27WXBG2B9000*D	24VDC	
H3	**H37WXBG323000*D**	120VAC	5.0 Cv, C = 15.4 Nl/s x bar, b = 0.35, Qn = 4185 l/min, Qmax = 6545 l/min
	H37WXBG2B9000*D	24VDC	

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Non Plug-in, 5599-1, Central Connector - Size 1, 2, & 3

BOLD OPTIONS ARE MOST POPULAR

H1 E WX B G 2B9 000F D

Basic Series 5599-1	
ISO 5599-1 Size 1	**H1**
ISO 5599-1 Size 2	**H2**
ISO 5599-1 Size 3	**H3**

5599 -1 Engineering Level	
D	**Current**

5599-1 Central Connector Wiring Options	
000C	**Chrysler**
000F*	**SAE / Ford, ISO 20401**
000G	General Motors

* Complies to ISO 20401 with Enclosure Lead Length "2".

5599-1 Operator / Function	
Single Solenoid, 2-Position - Air Return	**1**
Double Solenoid, 2-Position	**2**
Double Solenoid, 3-Position - APB	**5**
Double Solenoid, 3-Position - CE	**6**
Double Solenoid, 3-Position - PC	7
Single Solenoid, 2-Position - Air Return, Spring Assist	**E**

5599-1 Mounting	
Valve Less Base	**WX**

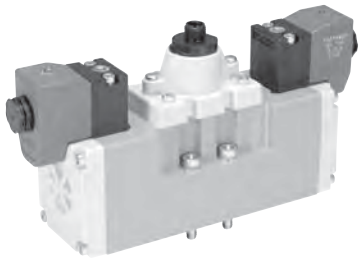
5599-1 Pilot Source / Pilot Exhaust	
Internal Pilot, Port #1 / Vented	**B**
External Pilot #12 or #14 Port / Vented	X*

* Must be specified when using Sandwich Regulators.

5599-1 Overrides / Lights	
Non-Locking, Flush, with Light	**G**
Locking, Flush, with Light	H

Enclosure / Lead Length / Voltage*		AC		DC
		60Hz	50Hz	
1B9†	3-Pin, Central Mini Connector			24
123†	3-Pin, Central Mini Connector	120	115	
2B9	**4-Pin, Central M12 Connector**			**24**
3B9	5-Pin, Central Mini Connector			24
323	5-Pin, Central Mini Connector	120	115	
619‡	2-Pin, M12 Connector On Coil			24

* All Coils Include LED & Suppression
† Operator Function "1" or "E"
‡ Only Available with Wiring Option "000F"



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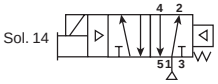
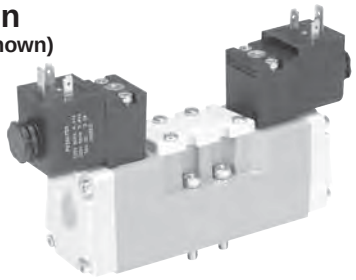
Non Plug-in, 5599-1, CNOMO - Size 1, 2, & 3

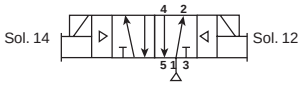
Single Solenoid
2-Position, Spring / Air Return
(H1 Series Shown)



H1	**H1EWXBBL53D**	120VAC	1.5 Cv, C = 5.0 Nl/s x bar, b = 0.30, Qn = 1248 l/min, Qmax = 2070 l/min
	H1EWXBBL49D	24VDC	
H2	**H2EWXBBL53D**	120VAC	3.0 Cv, C = 9.7 Nl/s x bar, b = 0.35, Qn = 2520 l/min, Qmax = 4140 l/min
	H2EWXBBL49D	24VDC	
H3	**H3EWXBBL53D**	120VAC	6.0 Cv, C = 18.7 Nl/s x bar, b = 0.35, Qn = 5022 l/min, Qmax = 7848 l/min
	H3EWXBBL49D	24VDC	

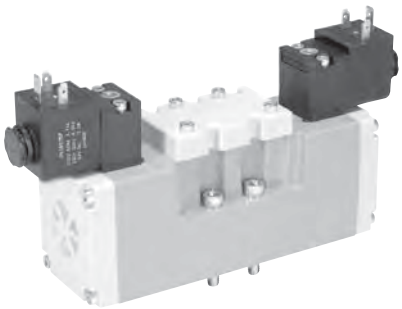
Double Solenoid
2-Position
(H1 Series Shown)

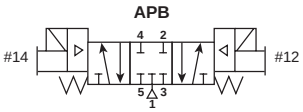


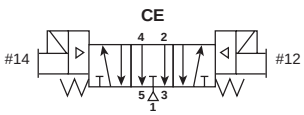


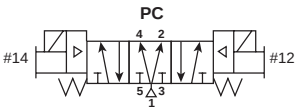
H1	**H12WXBBL53D**	120VAC	1.5 Cv, C = 5.0 Nl/s x bar, b = 0.30, Qn = 1248 l/min, Qmax = 2070 l/min
	H12WXBBL49D	24VDC	
H2	**H22WXBBL53D**	120VAC	3.0 Cv, C = 9.7 Nl/s x bar, b = 0.35, Qn = 2520 l/min, Qmax = 4140 l/min
	H22WXBBL49D	24VDC	
H3	**H32WXBBL53D**	120VAC	6.0 Cv, C = 18.7 Nl/s x bar, b = 0.35, Qn = 5022 l/min, Qmax = 7848 l/min
	H32WXBBL49D	24VDC	

Double Solenoid
3-Position APB
3-Position CE
3-Position PC
(H2 Series Shown)









APB			
H1	**H15WXBBL53D**	120VAC	1.2 Cv, C = 4.1 Nl/s x bar, b = 0.30, Qn = 1000 l/min, Qmax = 1660 l/min
	H15WXBBL49D	24VDC	
H2	**H25WXBBL53D**	120VAC	2.8 Cv, C = 9.0 Nl/s x bar, b = 0.35, Qn = 2340 l/min, Qmax = 3860 l/min
	H25WXBBL49D	24VDC	
H3	**H35WXBBL53D**	120VAC	5.0 Cv, C = 15.4 Nl/s x bar, b = 0.35, Qn = 4185 l/min, Qmax = 6545 l/min
	H35WXBBL49D	24VDC	
CE			
H1	**H16WXBBL53D**	120VAC	1.2 Cv, C = 4.1 Nl/s x bar, b = 0.30, Qn = 1000 l/min, Qmax = 1660 l/min
	H16WXBBL49D	24VDC	
H2	**H26WXBBL53D**	120VAC	2.8 Cv, C = 9.0 Nl/s x bar, b = 0.35, Qn = 2340 l/min, Qmax = 3860 l/min
	H26WXBBL49D	24VDC	
H3	**H36WXBBL53D**	120VAC	5.0 Cv, C = 15.4 Nl/s x bar, b = 0.35, Qn = 4185 l/min, Qmax = 6545 l/min
	H36WXBBL49D	24VDC	

PC			
H1	**H17WXBBL53D**	120VAC	1.2 Cv, C = 4.1 Nl/s x bar, b = 0.30, Qn = 1000 l/min, Qmax = 1660 l/min
	H17WXBBL49D	24VDC	
H2	**H27WXBBL53D**	120VAC	2.8 Cv, C = 9.0 Nl/s x bar, b = 0.35, Qn = 2340 l/min, Qmax = 3860 l/min
	H27WXBBL49D	24VDC	
H3	**H37WXBBL53D**	120VAC	5.0 Cv, C = 15.4 Nl/s x bar, b = 0.35, Qn = 4185 l/min, Qmax = 6545 l/min
	H37WXBBL49D	24VDC	

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Non Plug-in, 5599-1, CNOMO - Size 1, 2, & 3

BOLD OPTIONS ARE MOST POPULAR.

H1 E WX B B L53 D

Basic Series 5599-1	
ISO 5599-1 Size 1	**H1**
ISO 5599-1 Size 2	**H2**
ISO 5599-1 Size 3	**H3**

5599-1 Operator / Function	
Single Solenoid, 2-Position - Air Return	**1**
Double Solenoid, 2-Position	**2**
Double Solenoid, 3-Position - APB	**5**
Double Solenoid, 3-Position - CE	**6**
Double Solenoid, 3-Position - PC	7
Single Solenoid, 2-Position - Air Return, Spring Assist	**E**

5599-1 Mounting	
Valve Less Base	**WX**

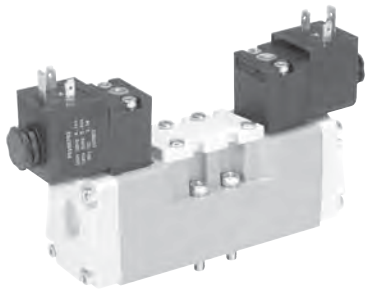
5599-1 Pilot Source / Pilot Exhaust	
Internal Pilot, Port #1 / Vented	**B**
External Pilot #12 or #14 Port / Vented	X*

* Must be specified when using Sandwich Regulators.

5599-1 Overrides / Lights	
B	**Non-Locking, Flush, Push - No Light**
C	Locking, Flush, Push / Turn - No Light

5599-1 Engineering Level	
D	**Current**

Enclosure / Lead Length / Voltage		AC 60Hz	AC 50Hz	DC
L42	3-Pin, 30mm DIN 43650A with CNOMO Connector	24		
L45	3-Pin, 30mm DIN 43650A with CNOMO Connector			12
L49	**3-Pin, 30mm DIN 43650A with CNOMO Connector**			**24**
L53	**3-Pin, 30mm DIN 43650A with CNOMO Connector**	**120**	**115**	
L57	3-Pin, 30mm DIN 43650A with CNOMO Connector	240		
NXX	Valve Less Coil			



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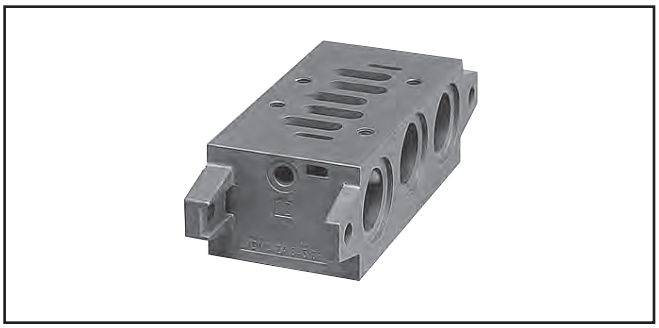
Non Plug-in, 5599-1, VDMA - Size 1, 2, & 3 Manifold / Subbase Kits

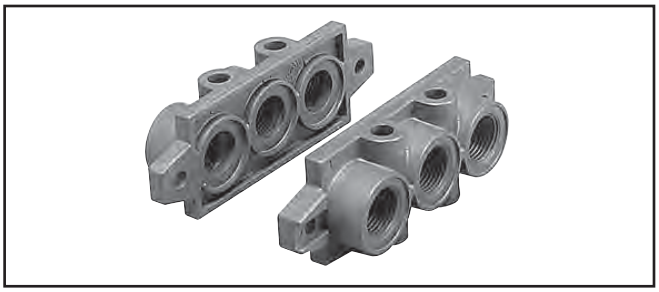
Manifold VDMA – Form C Bottom Port

Size	Port Size	Kit Number
		BSPP "G"
H1	1/4"	P2N-VM512MB
H2	3/8"	P2N-WM513MB
H3	1/2"	P2N-YM514MB



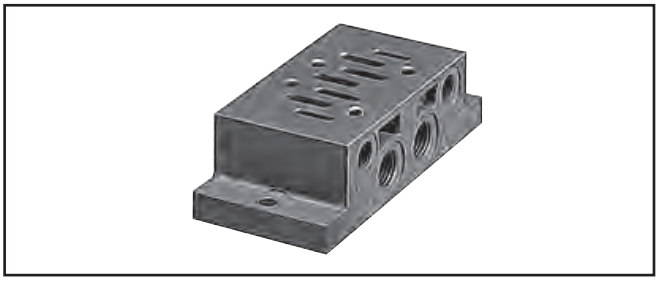
VDMA End Plates – Form D

Size	Port Size	Kit Number
		BSPP "G"
H1	3/8"	P2N-VM513ES
H2	1/2"	P2N-WM514ES
H3	1"	P2N-YM518ES



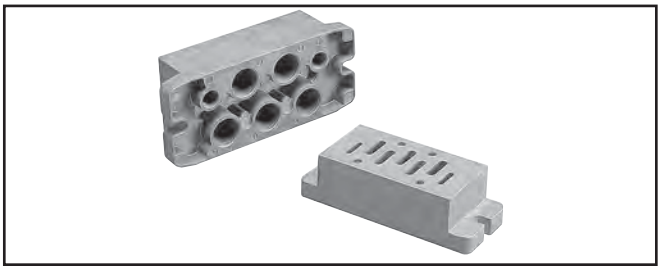
Subbase – Side Ports (5599-1 & VDMA)

Size	Port Size	5599-1 Kit Number		VDMA Kit
		NPT	BSPP "G"	BSPP "G"
H1	1/4"	**PL1-1/4-80**	PL1-1/4-70	P2N-VS512SD
H2	3/8"	**PL2-3/8-80**	PL2-3/8-70	P2N-WS513SD
H3	1/2"	PL3-1/2-80	PL3-1/2-70	P2N-YS514SD



Subbase – Bottom Ports

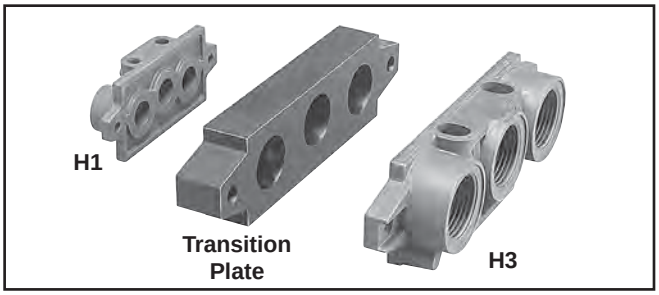
Size	Port Size	5599-1 Kit Number	
		NPT	BSPP "G"
H1	1/4"	PD1-1/4-80	PD1-1/4-70
H2	3/8"	PD2-3/8-80	PD2-3/8-70



VDMA Transition Plate

Kit Number
P2N-VM500AK

Kit includes: Transition Plate Only. Order P2N-VM513ES and P2N-YM518ES Separately to Assemble Add-A-Fold



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Non Plug-in, 5599-1, Size 1, 2, & 3 Manifold / Subbase Kits

BOLD OPTIONS ARE MOST POPULAR.

PS401155 0 D P

Engineering Level	
C	For H2 & H3
D	For H1

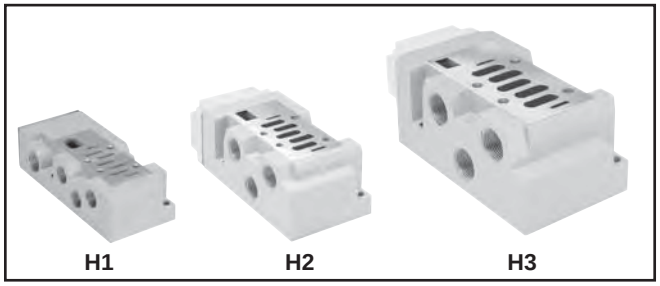
Enclosures / Lead Length	
0	None, No Electrical Plug - 5599-1

Mounting Base Style / Port Size					
H1 Series		H2 Series		H3 Series	
Subbase: 3/8 NPT Side Ports	**PS401115**	**Subbase: 1/2 NPT Side Ports**	**PS411117**	**Subbase: 3/4 NPT Side Ports**	**PS421119**
Subbase: 3/8 BSPP Side Ports	PS401116	Subbase: 1/2 BSPP Side Ports	PS411118*	Subbase: 3/4 BSPP Side Port	PS421110*
Manifold: 3/8 NPT End Ports	**PS401155**	**Manifold: 1/2 NPT End Port**	**PS411157**	**Manifold: 3/4 NPT End Port**	**PS421159**
Manifold: 3/8 BSPP End Ports	PS401156*	Manifold: 1/2 BSPP End Ports	PS411158*	Manifold: 3/4 BSPP End Port	PS421150*
Manifold: 3/8 NPT Bottom / End Port	PS401165†	Manifold: 1/2 NPT Bottom / End Port	PS411167	Manifold: 3/4 NPT Bottom / End Port	PS421169
Manifold: 3/8 BSPP Bottom / End Port	PS401166*†	Manifold: 1/2 BSPP Bottom / End Port	PS411168*	Manifold: 3/4 BSPP Bottom / End Port	PS421160*

* BSPP Conforms to ISO 1179-1 w 228-1 Threads.

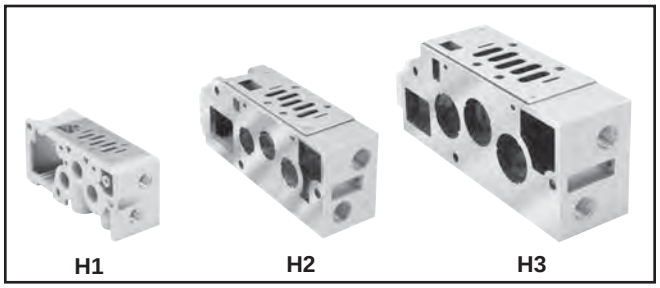
† #1 Bottom Port - 1/4".

Subbase Kits



H1 H2 H3

Manifold Kits



H1 H2 H3

Non-Plug-in, 5599-1, End Plate Kits

BOLD OPTIONS ARE MOST POPULAR.

H1 H2 H3

PS403101 0 C P

Basic Series	
ISO 5599, Size 1	PS403101
ISO 5599, Size 2	PS413101
ISO 5599, Size 3	PS423101

Thread Type	
0	NPT
1*	BSPP "G"

* BSPP Conforms to ISO 1179-1 w 228-1 Threads.

H1 Non-Collective Wiring End Plates

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How To Order Non Plug-in Add-A-Fold Assemblies

1. List Add-A-Fold Assembly call out. This automatically includes the end plate kit assembly.
2. List complete Valve, Regulator, Flow Control and Base model number. List left to right, LOOKING AT THE CYLINDER PORTS on the #12 end of the manifold. The left most station is station 1. (If a blank station is needed, list the blanking plate part number and the individual manifold number in the station specified.)

Example:
3-Station Manifold with (3) H1 Valves on Manifold Bases and Regulator at Station 3

Add-A-Fold Assembly Model Number

AA	H1	S	0	03	

Valve Series

Right & Left End Plate	H1

End Plate Type

Standard - Non-Collective Wiring	S†
VDMA 5599-1	V*

* Not Available in NPT. For use with P2N Style Manifolds.
† For use with PS4... Style Manifolds.

Transition Plate

Blank	No Transition Plate
C*	H1 to H2
D	H1 to H3

* Not Available with Type "V".

Number of Stations

01
02
03
04
•
•
24

Thread Type

0	NPT
1*	BSPP "G"

* BSPP Conforms to ISO 1179-1 w 228-1 Threads.

Example

Application requires a 3-Station manifold with a valve, regulator on Station 3.

Item	Qty.	Part No.	Location
01	1	AAH1S003	
02	1	H11WXBG2B9000FD	Station 1
03	1	PS4011550CP	Station 1
04	1	H12WXBG2B9000FD	Station 2
05	1	PS4011550CP	Station 2
06	1	H12WXXG2B9000FD	Station 3
07	1	PS4037166CP	Station 3
08	1	PS4011550CP	Station 3

NOTE:
Construct manifold assemblies from left to right while looking at the cylinder ports.

Valves must be ordered as External Pilot when using Sandwich Regulator.

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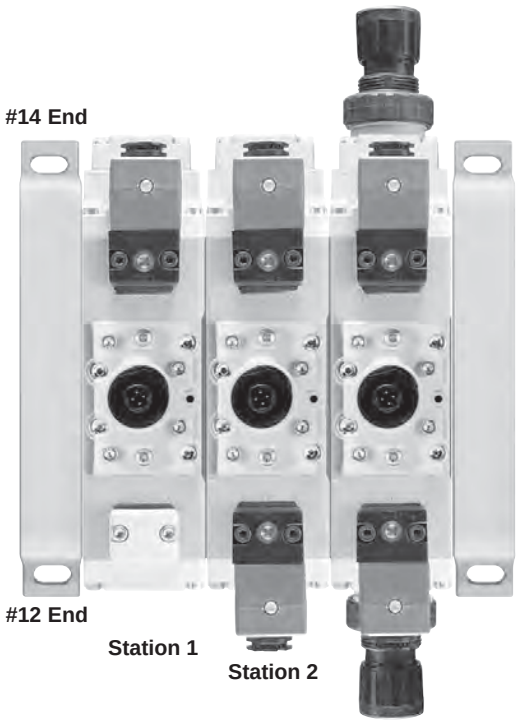
How To Order Non Plug-in Add-A-Fold Assemblies

1. List Add-A-Fold Assembly call out. This automatically includes the end plate kit assembly.
2. List complete Valve, Regulator, Flow Control and Base model number. List left to right, LOOKING AT THE CYLINDER PORTS on the #12 end of the manifold. The left most station is station 1. (If a blank station is needed, list the blanking plate part number and the individual manifold number in the station specified.)



Example:
3-Station Manifold with (3) H2 Valves on Manifold Bases and Regulator at Station 3

Add-A-Fold Assembly Model Number

AA	H2	S	0	03	

Valve Series

Right & Left End Plate	H2
Right & Left End Plate	H3

End Plate Type

Standard - Non-Collective Wiring	S†
VDMA 5599-1	V*

* Not Available in NPT. For use with P2N Style Manifolds.
† For use with PS4... Style Manifolds.

Transition Plate

Blank	No Transition Plate
E*	H2 to H3

* Use Largest Size (H3) Number. Not Available with Type "V".

Number of Stations

01
02
03
04
•
•
24

Thread Type

0	NPT
1*	BSPP "G"

* BSPP Conforms to ISO 1179-1 w 228-1 Threads.

Example

Application requires a 3-Station manifold with a valve and regulator on Station 3.

Item	Qty.	Part No.	Location
01	1	AAH2S003	
02	1	H21WXBG2B9000FD	Station 1
03	1	PS4111570CP	Station 1
04	1	H22WXBG2B9000FD	Station 2
05	1	PS4111570CP	Station 2
06	1	H22WXXG2B9000FD	Station 3
07	1	PS4137166CP	Station 3
08	1	PS4111570CP	Station 3

NOTE: Construct manifold assemblies from left to right while looking at the cylinder ports.
Valves must be ordered as External Pilot when using Sandwich Regulator.

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Blanking Plate Kits

Size	Kit Number
H1	PS4034CP
H2	PS4134CP
H3	PS4234CP

Kit includes: Blanking Plate, Gasket, and Mounting Bolts.

Manifold Port Isolation Kits

Main Galley (1, 3, 5)

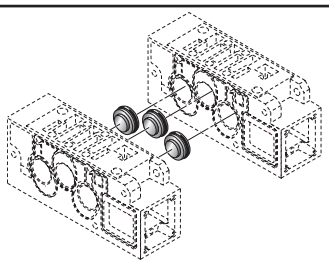
Size	Kit Number	
	PS4 Manifolds	P2N Manifolds
H1	PS4032CP	P2N-VK0P
H2	PS4132CP	P2N-WK0P
H3	PS4232CP	—

Kit includes: Plugs with O-rings.

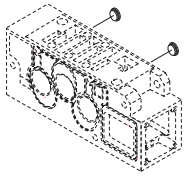
Pilot Galley

Size	Kit Number
H1 H2 H3	PS4033CP

Kit includes: Plugs with O-rings.
For use on PS4... Series Manifolds.



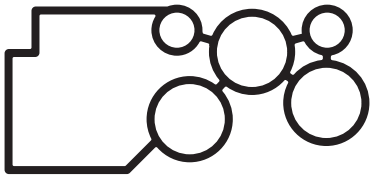
H1, H2, H3 Main Galley



H1, H2, H3 Pilot Galley

Manifold to Manifold Gasket Kits

5599 PS4011, PS4111 & PS4211 Manifolds
H1 PS4013P
H2 PS4113P
H3 PS4213P



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H1 Auxiliary Access Plate Kits

Size	Port Size	Kit Number	
		NPT	BSPP "G"
H1	1/4" & 3/8"	PS403000CP	PS403001CP

Kit includes: Pilot Port Access Plate, Gasket and Mounting Screws.
- Used on H1 Manifolds to provide auxiliary access to Ports 1, 3 & 5.
- Port 1: 1/4", Ports 3 & 5: 3/8". Height: .72 Inch

Sandwich Flow Controls

Size	Kit Number
H1	PS4042CP
H2	PS4142CP
H3	PS4242CP

A Sandwich Flow Control and Common Port Sandwich Regulator may be sandwiched together on a manifold or subbase. The Sandwich Flow Control MUST be located between the manifold/subbase and the Common Port Sandwich Regulator.

Non Plug-in
5599-1
Size 2 Shown

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Richland, Michigan
www.parker.com/pneumatics

BOLD OPTIONS ARE MOST POPULAR

PS4037 1 6 6 C P

Basic Series	
H1	
5599-1, Non Plug-in	PS4037
H2	
5599-1, Non Plug-in	PS4137
H3	
5599-1,Non Plug-in	PS4237

Regulator Function	
Common Pressure Regulator	1
Independent Pressure Regulator	2

#2 Port Regulator / Gauge*	
0**	Line By-Pass Plate
4	1-30 PSIG w/Gauge
5	2-60 PSIG w/Gauge
6	5-125 PSIG w/Gauge

* For Common Pressure Regulator Option, Regulator Gauge callout must be the same number for both Port #4 and Port #2. (Example: 166)

** Pressure Line By-Pass Option can only be used with Independent Pressure Regulators.

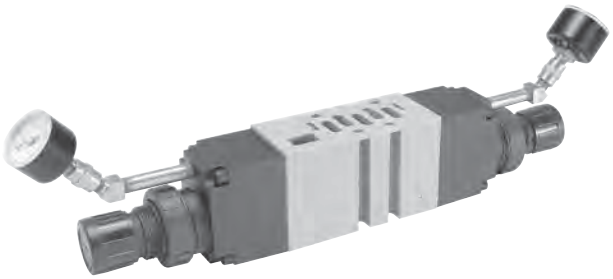
#4 Port Regulator / Gauge*	
0**	Line By-Pass Plate
4	1-30 PSIG w/Gauge
5	2-60 PSIG w/Gauge
6	5-125 PSIG w/Gauge

* For Common Pressure Regulator Option, Regulator Gauge callout must be the same number for both Port #4 and Port #2. (Example: 166)

** Pressure Line By-Pass Option can only be used with Independent Pressure Regulators.

Ordering Components
- *Sandwich Regulator Kit configured for Internal Pilot as standard.*
- *Order valve as External Pilot.*

H1 - Size 1
(Independent Dual Port Regulator Shown)



H2 - Size 2
(Independent Dual Port Regulator Shown)

How to Configure Sandwich Regulator / Valve Combinations

Internal Pilot Configuration of Sandwich Regulator H1, H2 & H3
Pressure in Base Port 1 feeds regulator configured for Internal Pilot which feeds valve configured for External Pilot.

External Pilot Configuration of Sandwich Regulator H1, H2, H3
An External Pilot pressure in Port 12 or 14 of the base feeds thru the Sandwich Regulator 12 or 14 galley directly to the 12/14 pilot of the valve. This configuration takes an External Pilot from the 12 port of the base and passes it thru the regulator to feed the 12 galley of the valve.

Sandwich Regulator Cv Flow Chart*

	Common Pressure Code 166				Single Pressure 2 Code 266				Single Pressure 4 Code 260				Dual Pressure Code 266			
	1-2	1-4	2-3	4-5	1-2	1-4	2-3	4-5*	1-2	1-4	2-3	4-5*	1-2	1-4	2-3	4-5*
H1	0.62	0.61	1.28	1.18	0.73	0.96	0.96	0.93	0.34	0.70	0.94	0.98	0.52	0.48	0.86	0.88
H2	1.47	1.60	2.41	2.33	1.71	1.90	1.52	1.75	1.74	1.67	1.73	1.79	1.61	1.62	1.50	1.67
H3	2.37	2.39	4.30	4.47	2.37	2.81	2.75	3.01	2.65	2.59	2.68	2.74	2.43	2.41	3.16	3.04

* Regulator Port exhaust through Base Port 3.
Note: All Cv's calculated with regulator adjusted full open.

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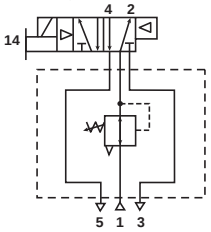
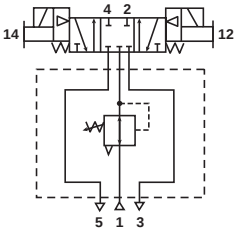
Non Plug-in, H1, H2, H3 Common Port Regulation

Provides adjustable regulated air pressure to the valve's #1 port which gives the same regulated pressure to both the #2 and #4 port of the manifold or subbase. The regulator is always on the 14 end of the valve.

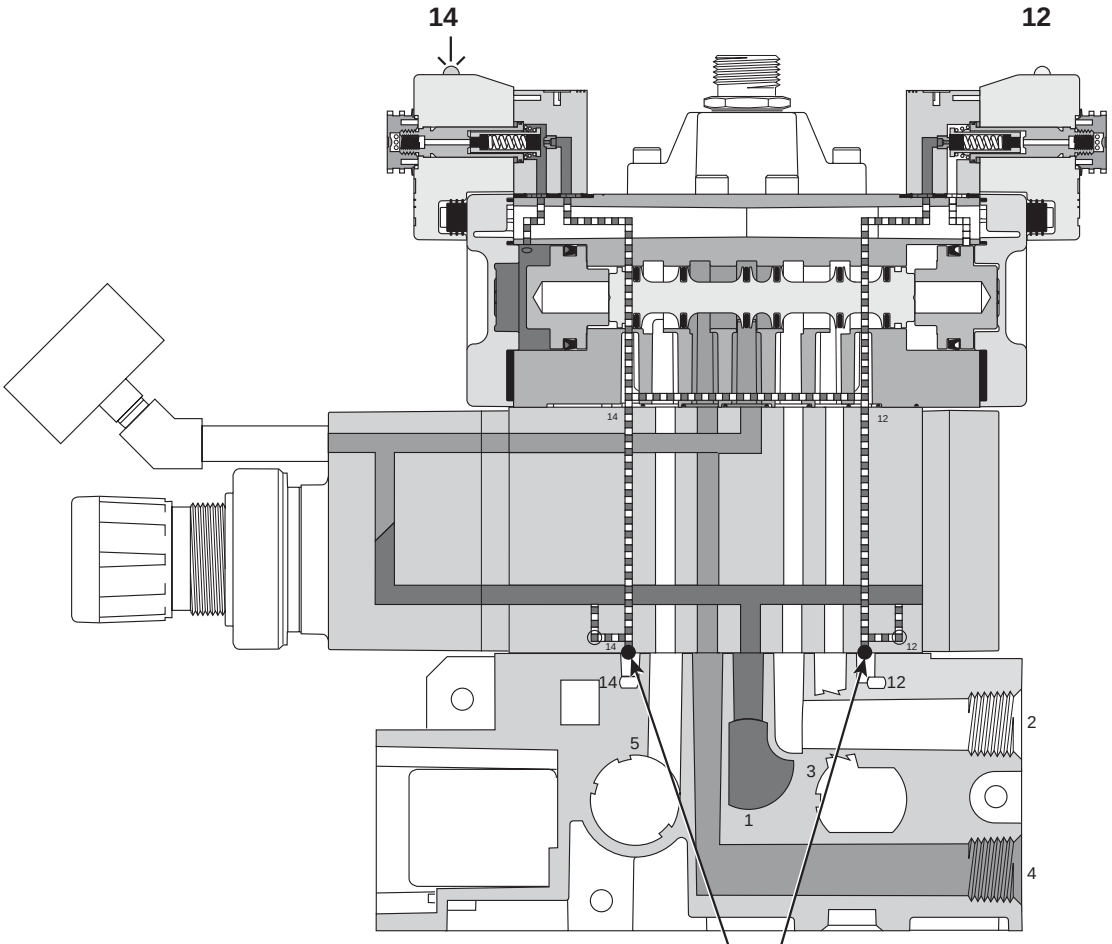
Common Port Regulator with 4-Way, 2-Position Single Solenoid Valve



Common Port Regulator with 4-Way, 3-Position APB Valve



H2 Common Port Regulator Shown - Double Solenoid, 14 Energized, Internal Pilot



Sandwich Regulator has standard configuration of Internal Pilot with the Pilot Plug in the bottom of the I & E Pilot Holes which prevents line pressure from escaping through the manifold.

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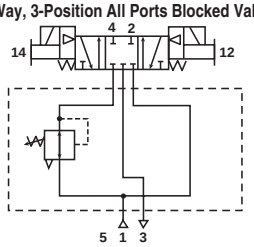
Non Plug-in, H1, H2, H3 Independent Port Regulation

Single Port Regulator

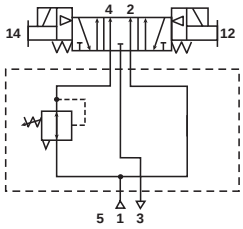
Provides regulated pressure to one of the ports and full line pressure to the other by use of the Line Pressure By-Pass Plate. Pressure regulation can occur out of the #4 port of the valve.

When using an Independent Pressure Sandwich Regulator, the cylinder outlet ports are reversed. The 12 end energizes the #4 port and the 14 end energizes the #2 port. The 3-Position CE and PC functions are also reversed. (See schematics on right.)

Independent Port Regulator with 4-Way, 3-Position All Ports Blocked Valve

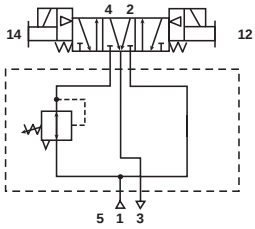


Independent Port Regulator with 4-Way, 3-Position, Inlet to Cylinder Function



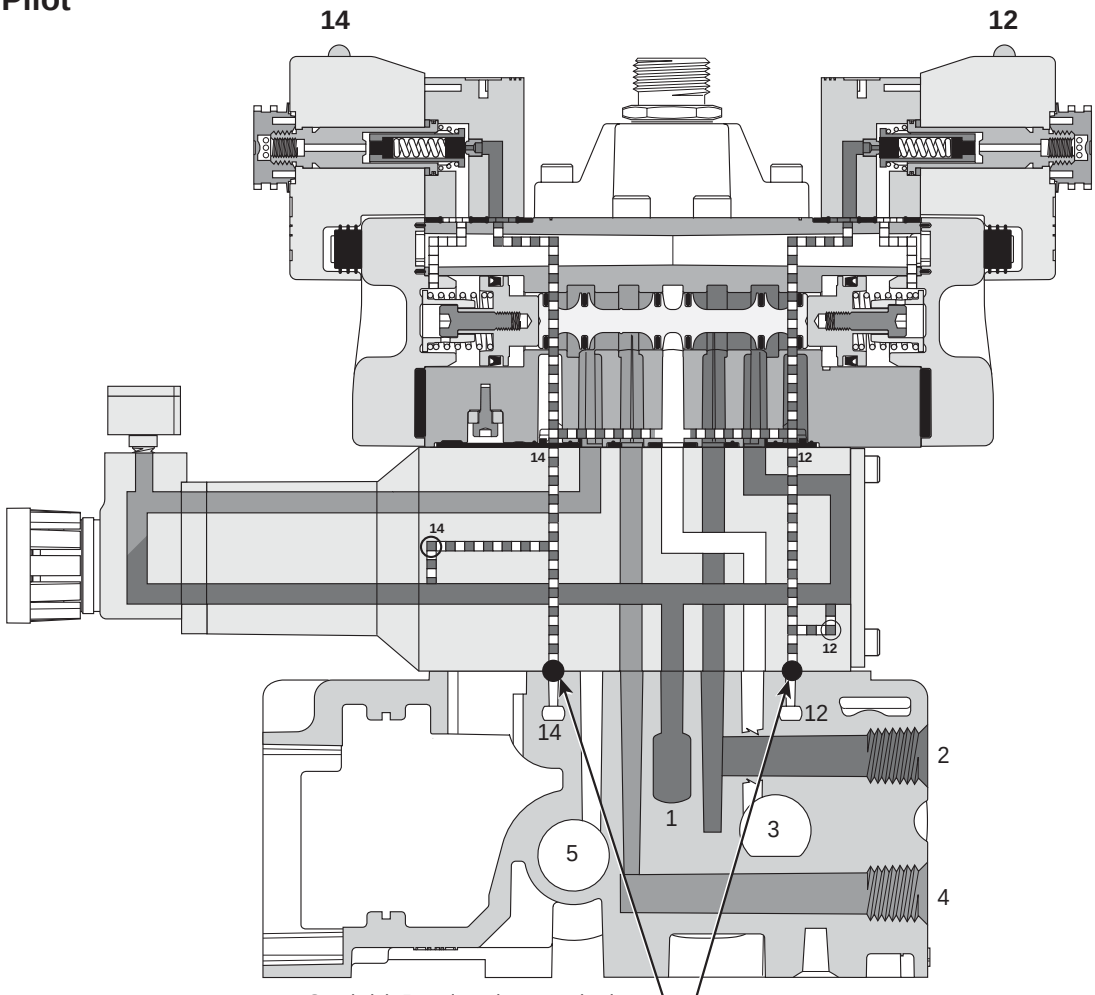
⚠ **CAUTION: Requires 4-Way, 3-Position, Cylinder to Exhaust Valve**

Independent Port Regulator with 4-Way, 3-Position, Cylinder to Exhaust Function



⚠ **CAUTION: Requires 4-Way, 3-Position, Inlet to Cylinder Valve**

H1 Independent Port Regulator Shown - Double Solenoid, De-energized, Internal Pilot



Sandwich Regulator has standard configuration of Internal Pilot with the Pilot Plug in the bottom #12 and #14 Pilot Hole which prevents line pressure from escaping through the manifold.

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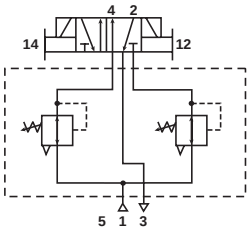
Non Plug-in, H1, H2, H3 Independent Dual Port Regulation

Dual Port Regulator

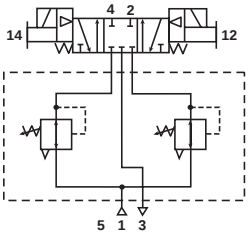
Provides regulated pressure to both ports. Pressure regulation can occur out of the #2 or #4 port of the valve.

When using an Independent Pressure Sandwich Regulator, the cylinder outlet ports are reversed. The 12 end energizes the #4 port and the 14 end energizes the #2 port. The 3-Position CE and PC functions are also reversed. (See schematics on right.)

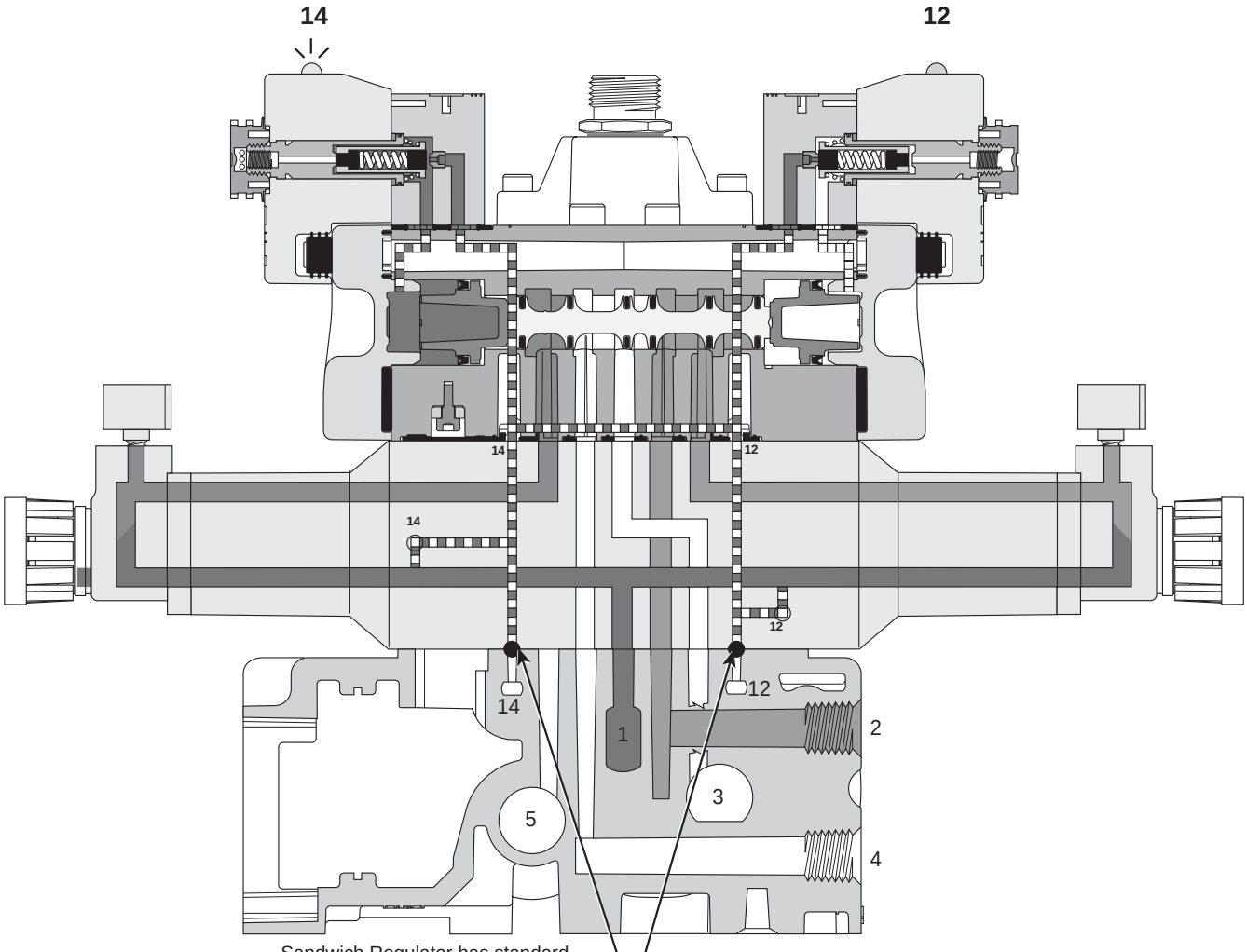
Independent Dual Port Regulator with 4-Way, 2-Position Double Solenoid Valve



Independent Dual Port Regulator with 4-Way, 3-Position Double Solenoid Valve



H1 Independent Dual Port Regulator Shown - Double Solenoid, 14 Energized, Internal Pilot



Sandwich Regulator has standard configuration of Internal Pilot with the Pilot Plug in the bottom #12 and #14 Pilot Hole which prevents line pressure from escaping through the manifold.

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5599-1 Non Plug-in Transition Plate Kits

BOLD OPTIONS ARE MOST POPULAR.

H1 H2 H3

PS402601 0 C P

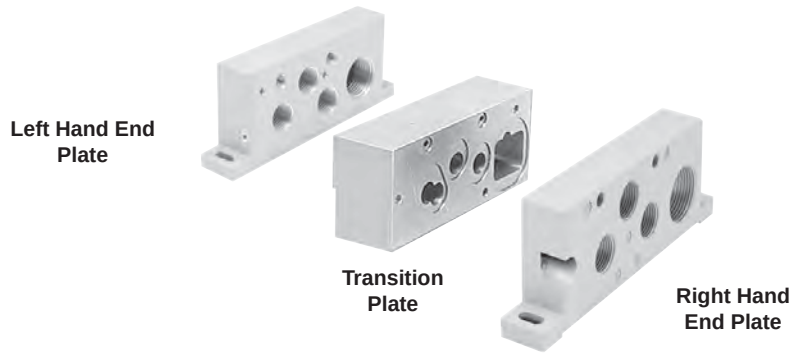
Transition Plate Type*	
H1 to H2 to H3	**PS402501**
H1 to H3	**PS402601**
H1 to H2	**PS402701**
H2 to H3	**PS402801**

* Includes Left Hand and Right Hand End Plates.
Use with PS4... Series Manifolds Only.

Engineering Level	
C	**Current**

Thread Type	
0	**NPT**
1*	BSPP "G"

* BSPP Conforms to ISO 1179-1 w 228-1 Threads.



H1 to H2 Shown

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Remote Pilot, Size 18mm (HB), 26mm (HA), H1, H2, & H3

BOLD OPTIONS ARE MOST POPULAR.

H1 **4** **WX000XX** **C**

Basic Series	
ISO 15407-1 18mm	HB
ISO 15407-1 26mm	HA*
ISO 5599-1 Size 1	H1*
ISO 5599-1 Size 2	H2*
ISO 5599-1 Size 3	H3*

* Must Order Remote Pilot Access Plates for Manifolds.

15407-1 Operator / Function	
Single Remote Pilot, 2-Position - Air Return	3
Double Remote Pilot, 2-Position	4
Double Remote Pilot, 3-Position - APB	8
Double Remote Pilot, 3-Position - CE	9
Double Remote Pilot, 3-Position - PC	0
Single Remote Pilot, 2-Position - Air Return, Spring Assist	F

Remote Pilot Valve	
WX000XX	Remote Pilot Valve

Engineering Level	
A	15407 Current
C	5599 Current

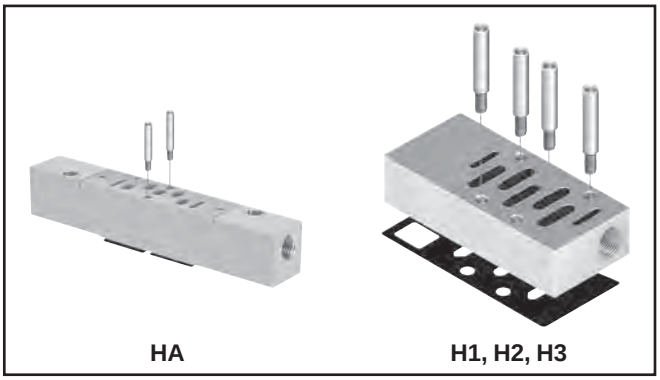
Note: For manifolds, end plates, and accessories, see 15407-1 & 5599-1 Non Plug-in valve section.

Note: HB 18mm Valve Remote Pilot Option only available with PL02 Individual Subbase Kits

Remote Pilot Access Plate Kits

Size	Port Size	Kit Number	
		NPT	BSPP "G"
HA	1/4"	PS551500P	PS551501P
H1	1/8"	PS401500CP	PS401501CP
H2	1/8"	PS411500CP	PS411501CP
H3	1/8"	PS421500CP	PS421501CP

Kit includes: Pilot Port Access Plate, Gasket and Mounting Studs.



HA H1, H2, H3

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Temperature Rating

HB	HA	H1	H2	H3
-15°C to 49°C (5°F to 120°F) Ambient.				

CSA / C-US

HB	HA	H1	H2	H3
Standard at - 1000kPa (145 PSIG)				

Flow Rating (Cv)

Valve Size	Port Size	2-Position	3-Position
HB	1/8"	0.55 Cv, C = 1.5 Nl/s x bar, b = 0.25, Qn = 390 l/min, Qmax = 648 l/min	0.50 Cv, C = 1.4 Nl/s x bar, b = 0.25, Qn = 360 l/min, Qmax = 595 l/min
HA	1/4"	1.1 Cv, C = 3.6 Nl/s x bar, b = 0.30, Qn = 918 l/min, Qmax = 1518 l/min	1.0 Cv, C = 3.3 Nl/s x bar, b = 0.30, Qn = 845 l/min, Qmax = 1395 l/min
H1	3/8"	1.5 Cv, C = 5.0 Nl/s x bar, b = 0.30, Qn = 1248 l/min, Qmax = 2070 l/min	1.2 Cv, C = 4.1 Nl/s x bar, b = 0.30, Qn = 1000 l/min, Qmax = 1660 l/min
H2	1/2"	3.0 Cv, C = 9.7 Nl/s x bar, b = 0.35, Qn = 2520 l/min, Qmax = 4140 l/min	2.8 Cv, C = 9.0 Nl/s x bar, b = 0.35, Qn = 2340 l/min, Qmax = 3860 l/min
H3	3/4"	6.0 Cv, C = 18.7 Nl/s x bar, b = 0.35, Qn = 5022 l/min, Qmax = 7848 l/min	5.0 Cv, C = 15.4 Nl/s x bar, b = 0.35, Qn = 4185 l/min, Qmax = 6545 l/min

Cv tested per ANSI / (NFPA) T3.21.3
Flow tested According to ISO 6358.

Response Time** (ms)

Valve Size	Port Size	0 Cu. In. Chamber		## Cu. In. Chamber	
		Fill	Exhaust	Fill	Exhaust
Single Solenoid 2-Position - Air Return / Spring Assist					
HB	1/8"	28	30	141	154
HA	1/4"	24	26	77	124
H1	3/8"	39	41	159	210
H2	1/2"	78	81	219	310
H3	3/4"	90	93	244	320

HB (12), HA (25), H1 (50), H2 (100), H3 (200)

** With 100 PSIG supply, time (ms) required to fill from 0 to 90 PSIG and Exhaust from 100 PSIG to 10 PSIG measured from the instant of energizing or de-energizing 24VDC solenoid.

Tested per ANSI / (NFPA) T3.21.8

Minimum Operating Voltage

	HB	HA	H1	H2	H3
MOV (24VDC)	20.4	20.4	20.4	20.4	20.4
MOV (120VAC)	102*	102*	102	102	102

* 120V AC coils have a dropout voltage of 10VAC when used with solid state relays. A pull-down resister may be necessary.

Operating Pressure

HB	HA	H1	H2	H3

Maximum: 145 PSIG (1000 kPa)
Minimum:

Operator / Function	Internal Pilot	PSIG (Min. kPa) HB	PSIG (Min. kPa) HA	PSIG (Min. kPa) H1	PSIG (Min. kPa) H2	PSIG (Min. kPa) H3
1	Single Solenoid - 2-Position	30 (207)	25 (173)	25 (173)	25 (173)	35 (241)
2	Double Solenoid- 2-Position					
3	Single Remote Pilot - 2-Position **	Vacuum	Vacuum	Vacuum	Vacuum	Vacuum
4	Double Remote Pilot - 2-Position**	Vacuum	Vacuum	Vacuum	Vacuum	Vacuum
5, 6, 7	Double Solenoid - 3-Position APB, CE, PC	35 (241)	35 (241)	35 (241)	50 (345)	50 (345)
8, 9, 0	Double Remote Pilot - 3-Position** APB, CE, PC	Vacuum	Vacuum	Vacuum	Vacuum	Vacuum
E	Single Solenoid Pilot - 2-Position	30 (207)	30 (207)	35 (241)	45 (310)	45 (310)
	Air Return / Spring Assist					
F	Single Remote Pilot - 2-Position**					
	Air Return / Spring Assist					
N, P, Q	Double Solenoid - Dual 3/2	30 (207)	N/A	N/A	N/A	N/A
	External Pilot*	*	*	*	*	*
All	Isys	Vacuum	Vacuum	Vacuum	Vacuum	Vacuum

* External Pilot Pressure / Remote Pilot Supply - Must meet or exceed minimum pilot pressure for internal pilot option. Not available on Operator / Function N, P, or Q.

** Must be equal to or greater than operating pressure.

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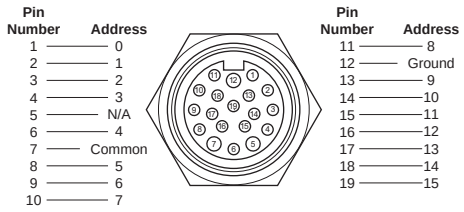
Maximum Number of Solenoids
(Maximum Energized Simultaneously)

HA / HB	Voltage Code	25-Pin D-Sub	19-Pin Brad Harrison	12-Pin M23	19-Pin M23	Moduflex	Isysnet
24VDC	G9	24 (24)	16 (16)	8 (8)	16 (16)	16 (16)	32 (32)
120VAC*	23	24 (24)	16 (16)	8 (8)	16 (16)	N/A	N/A
H1 / H2 / H3	**Voltage Code**	**25-Pin D-Sub**	**19-Pin Brad Harrison**	**12-Pin M23**	**19-Pin M23**	**Moduflex**	**Isysnet**
12VDC	45	24 (13)	16 (13)	8 (8)	16 (13)	N/A	N/A
24VAC*	42	24 (24)	16 (16)	8 (8)	16 (16)	N/A	N/A
24VDC	B9	24 (20)	16 (16)	8 (8)	16 (16)	16 (16)	24 (21)
120VAC*	23	24 (24)	16 (16)	8 (8)	16 (16)	N/A	N/A

* Not CSA certified for 25-Pin, D-Sub option.

19-Pin Round Brad Harrison



Face View - Male 19-Pin Connector

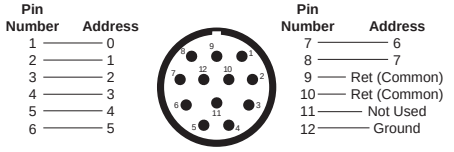
19-Pin Round Cable Specifications

Common Pin "7" is rated for 8 amps. Cable common wire must be greater than total amperage of solenoids on Add-A-Fold assembly.

Example: 8 station manifold, 16 solenoids,
120VAC - 16 x .039 amps = .63 total amp rating.

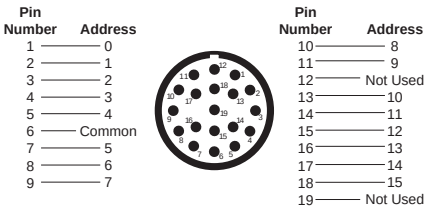
NEMA 4 rated with properly assembled NEMA 4 rated cable.

M23, 12-Pin Round Connector (Male)



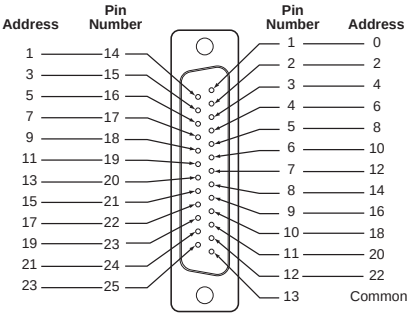
View into End Plate Connector - Male M23, 12-Pin

M23,19-Pin Round Connector (Male)



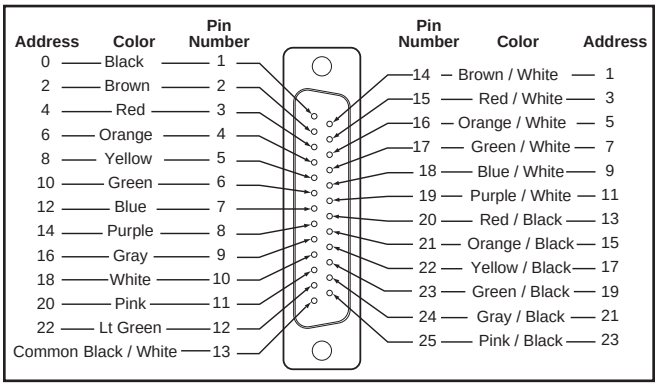
View into End Plate Connector - Male M23, 19-Pin

25-Pin, D-Sub Connector (Male)



View into End Plate Connector - Male D-Sub, 25-Pin

25-Pin, D-Sub Cable (Female)



Part Number	Description	Length
P8LMH25M3A	25-Pin, D-Sub Cable, IP20	3 Meters
SCD259D	25-Pin, D-Sub Cable, IP20	9 Meters
SCD253W	25-Pin, D-Sub Cable, IP65	3 Meters
SCD259WE	25-Pin, D-Sub Cable, IP65	9 Meters

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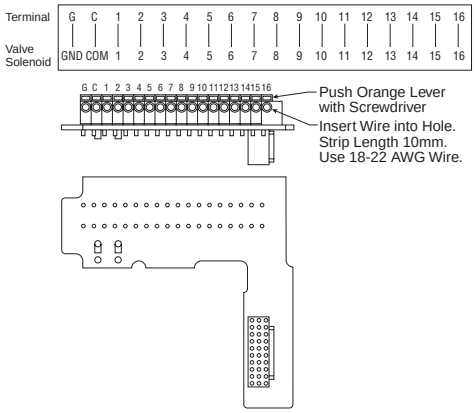
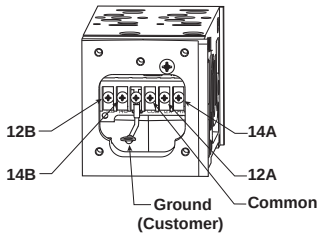
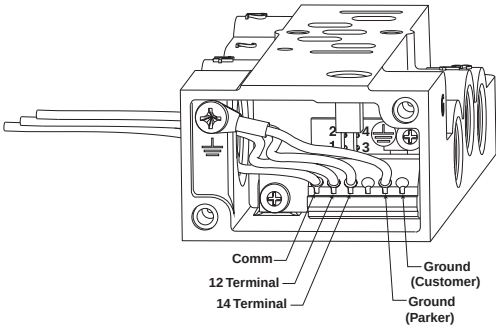
16-Point Terminal Strip



Manifold Wiring



Subbase Wiring

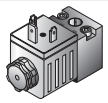


Connections

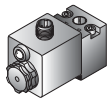
	14 Solenoid	12 Solenoid
Valves with Wires	Black Wires	Red Wires
Valves with Terminal Block (Will accept 18 to 24 Gauge Wires)	14 and Com Terminals	12 and Com Terminals

Electrical Connectors - Size 1, 2 & 3

5599-1 CNOMO



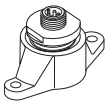
30mm 3-Pin ISO 4400 (DIN 43650A)



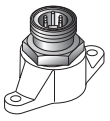
2-Pin M12 Euro

5599-1 AUTO

3-Pin Mini

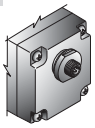


4-Pin Micro

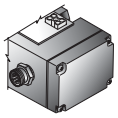


5-Pin Mini

5599-2



Manifold Auto Connector



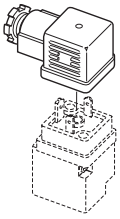
Subbase Auto Connector

Female Electrical Connectors (IP65 Rated)

30mm 3-Pin ISO 4400 (DIN 43650A)

Connector	Connector with 6' (2m) Cord	Description
PS2028BP	PS2028JCP	Unlighted
PS203279BP	PS2032J79CP*	Light – 6-48V, 50/60Hz; 6-48VDC
PS203283BP	PS2032J83CP*	Light – 120V/60Hz
PS203283BP	N/A	Light – 240V/60Hz

* With surge suppression.



Engineering Data:
Conductors: 2 Poles Plus Ground; Cable Range (Connector Only): 8 to 10mm (0.31 to 0.39 Inch);
Contact Spacing: 18mm

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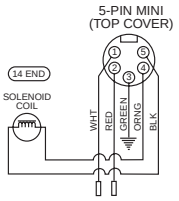
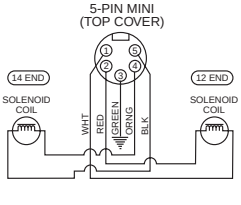
Automotive Connection – Wiring Options

'C' Chrysler Connection

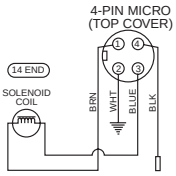
5-Pin Male / Single Solenoid
(Encl. Option 3, Auto Option C)



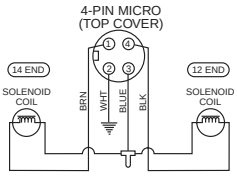
5-Pin Male / Double Solenoid
(Encl. Option 3, Auto Option C)



4-Pin Male / Single Solenoid
(Encl. Option 2, Auto Option C)

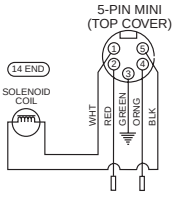


4-Pin Male / Double Solenoid
(Encl. Option 2, Auto Option C)

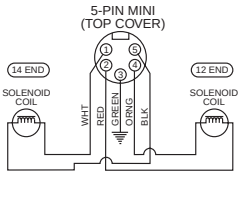


'F' SAE / Ford Wiring

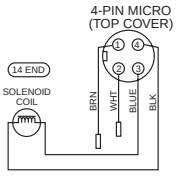
5-Pin Male / Single Solenoid
(Encl. Option 3, Auto Option F)



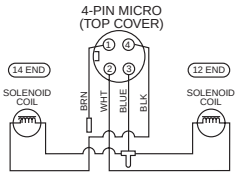
5-Pin Male / Double Solenoid
(Encl. Option 3, Auto Option F)



ISO 20401
4-Pin Male / Single Solenoid
(Encl. Option 2, Auto Option F)

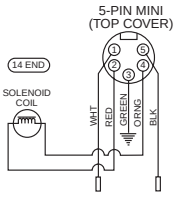


ISO 20401
4-Pin Male / Double Solenoid
(Encl. Option 2, Auto Option F)

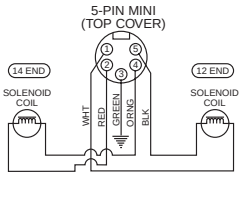


'G' GM Wiring

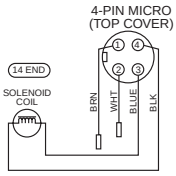
5-Pin Male / Single Solenoid
(Encl. Option 3, Auto Option G)



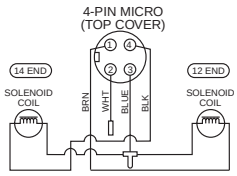
5-Pin Male / Double Solenoid
(Encl. Option 3, Auto Option G)



4-Pin Male / Single Solenoid
(Encl. Option 2, Auto Option G)

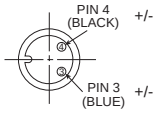


4-Pin Male / Double Solenoid
(Encl. Option 2, Auto Option G)

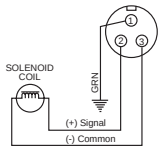


CNOMO Connection - Wiring Options

2-Pin Male / Single Solenoid
(Encl. Option 6, Auto Option F)

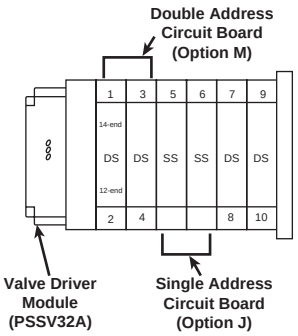


3-Pin Male / Single Solenoid
(Encl. Option 1, Auto Options C, F & G)

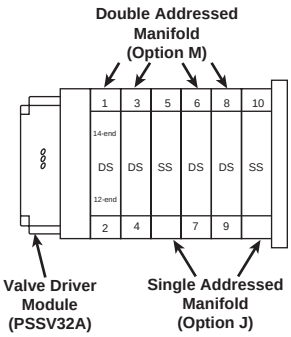


I/O Addressing Examples

HB & HA Example
Two Station Manifold Bases



H1, H2 & H3 Example:
Single Station Manifold Bases



Notes: SS = Single Solenoid Valve
DS = Double Solenoid Valve
First output address the #14 end of the valve closest to the valve driver module.

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5599-2 & 5599-1 AUTO Solenoid Kits

H1 H2 H3	
Voltage Code	**Coil Kit Number**
42 (24VAC)	PS404142P
45 (12VDC)	PS404145P
B9 (24VDC)	PS4041B9P
23 (120VAC)	PS404123P
57 (240VAC)	PS404157P

Quantity 1

5599-1 CNOMO Solenoid Kits

Voltage Code	3-Pin 30mm 'L' Coil Kit	2-Pin M12 Euro '6' Coil Kit
19	—	PS2828619P
42	P2FCA442	—
45	P2FCA445	—
49	P2FCA449	—
53	P2FCA453	—
57	P2FCA457	—

Quantity 1

Pilot Operator - CNOMO

Valve Size		Kit Number
H1 H2 H3	Locking	PS4052CP
	Non-Locking	PS4053CP

Manifold Hardware Kits – PS Series

Valve Size	Kit Number
HB	PS5612P
HA	PS5512P
H1	PS4012P
H2	PS4112P
H3	PS4212P

Quantity 12

Valve Bolt Kits

Valve Size	Kit Number
HB	PS5687P
HA	PS5587P
H1	PS4087DP
H2	PS4187DP
H3	PS4287DP

Quantity 12

Regulator Kits

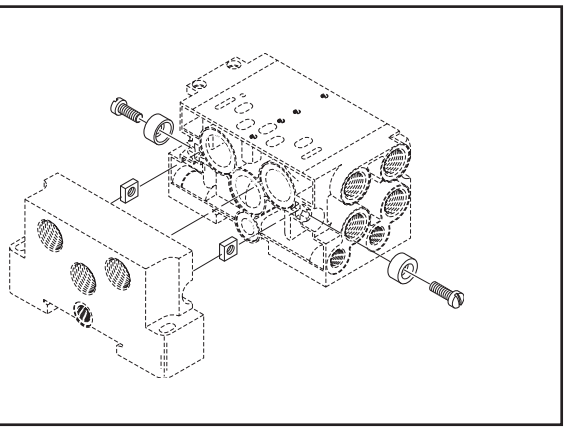
Valve Size	Kit Number
H1	PS4039P
H2 H3	PS4139P

Manifold Hardware Kit – PJL Series

Part Number	Items
DX02M2MB*	Bolt, Washer & Nut*

* Includes 10 Bolts, 10 Washers, 10 Nuts

** Use this number for both sizes, PJLP02 & PJLP01.



Valve to Base Gasket Kits

Valve Size	Standard	Remote Pilot	Dual Pressure #3	Dual Pressure #5
HB	PS5605P*	—	—	—
HA	PS5505P*	—	—	—
H1	PS4005DP	PS4006DP	PS40D3DP	—
H2	PS4105DP	PS4106DP	PS41D3DP	PS41D5DP
H3	PS4205DP	PS4206DP	PS42D3DP	PS42D5DP

Quantity 1
* Quantity 10

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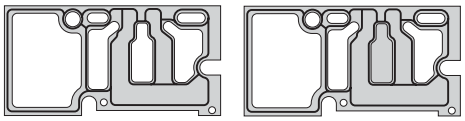
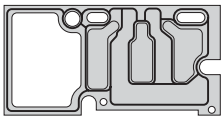
Manifold to Manifold Gasket Kits

15407 PS5511 & PS5611 Manifolds				
Size	**Standard**	**Blocked #1 Port**	**Blocked #1, 3, 5 Ports**	**Blocked #3, 5 Ports**
HB / HA	PS561AP	PS561BP	PS561CP	PS561DP
15407 PJLP & PJLManifolds				
HB	DX02M2MGSKT (PJLP02)			
HA	DX01M2MGSKT (PJLP01)			
5599 PS4011, PS4111 & PS4211 Manifolds				
H1	PS4013P	—	—	—
H2	PS4113P	—	—	—
H3	PS4213P	—	—	—

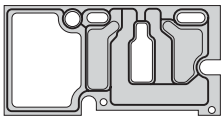


PS561AP

PS561BP

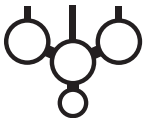


PS561CP

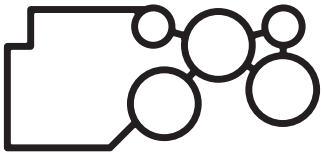


PS561DP

DX02M2MGSKT (PJLP02)



DX01M2MGSKT (PJLP01)



PS4013P

Regulator & Flow Control Mounting Studs

Type	HB	HA
Flow Control	PS5636P	PS5536P
Regulator	PS5636P	PS5536P

Type	H1	H2	H3
Flow Control	PS4036P	PS4136P	PS4236P
Regulator	PS4040P	PS4140P	PS4240P

Quantity 12

Regulator Gauge Kits – Size 1, 2 & 3

Gauge Type	Kit Number
1" Face Air - Standard	
0-60 PSIG	PS4051060BP
0-160 PSIG	**PS4051160BP**
1-1/2" Face Air - Large*	
0-60 PSIG	PS4053060BP
0-160 PSIG	PS4053160BP
1-1/2" Face Liquid*	
0-160 PSIG	PS4052160BP

* Includes brass pipe fitting extensions
Quantity 1

Regulator Spring Range Kits

Spring Range	H1	H2 / H3
0 to 30 PSIG	PS4050030P	PS4150030BP
2 to 60 PSIG	PS4050060P	PS4150060BP
5 to125 PSIG	PS4050125P	PS4150125BP

Quantity 1

Regulator Conversion Kits

Valve Size	Manual Bonnet Assembly (w/o Spring)	Air Pilot Bonnet Assembly	Independent By-Pass Plate
H1	PS4045BP	PS4047BP	PS4048BP
H2 / H3	PS4145BP	PS4147BP	PS4148BP

Quantity 1

Body Service Kits

Valve Size	2-Position	3-Position		
		APB	CE	PC
HB	PS5601P	PS5602P	PS5603P	PS5604P
HA	PS5501P	PS5502P	PS5503P	PS5504P
H1	PS4001CP	PS4002CP	PS4003CP	PS4004CP
H2	PS4101CP	PS4102CP	PS4103CP	PS4104CP
H3	PS4201CP	PS4202CP	PS4203CP	PS4204CP

HB / HA Kit Includes: Spool assembly with seals.

H1, H2, H3 Kit Includes: Spool assembly with seals, all piston seals, return spring, pilot selector gasket, coil to end cap gasket.

Quantity 1

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Pilot By-Pass Plate

Valve Size	Kit Number
H1 H2 H3	PS4051P

Quantity 10

Valve Driver Module

Driver Module	Part Number
32 Point Module – HB, HA, H1, H2, H3	**PSSV32A*†**
24 Output Cable – HB, HA	**PS5624P †**
25 - 32 Output Cable – HB, HA	**PS5632P †**
24 Output Cable – H1, H2, H3	**PS4024P †**

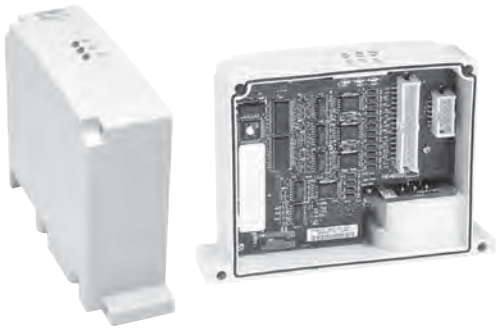
* Reference Document E100P for Installation Instructions. See www.parker.com/pneu/Isysnet

† Isysnet Add-A-Fold assemblies and end plate kits include a valve driver module (PSSV32A) and cable.

HB / HA 24 output manifolds require a PS5624P.

HB / HA 32 output manifolds require a PS5624P + PS5632P.

H1, H2, H3 manifolds require a PS4024P, allowing 21 outputs.

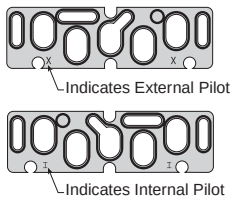


PSSV32A

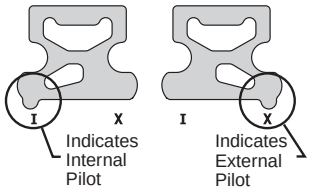
Pilot Select Gasket Kits

Valve Size	Kit Number
HB	PS5605P
HA	PS5505P
H1 H2 H3	PS4007P

Quantity 10



HB Shown



H1, H2, H3

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Subbases

Size	Port Numbers	Port Size	Acceptable Fittings	Notes
H1	#1 to #3 or #5	1/4" BSPP	EO Fittings; Prestolok; P6M Mufflers; EO Plugs	1, 2, 3, 4, 5
		3/8" BSPP	Prestolok; EO Plugs	1, 2, 3, 4, 5
	#2 to #4	1/4" BSPP	EO Fittings; Prestolok; EO Plugs	1, 2, 3, 4, 5
		3/8" BSPP	Prestolok; EO Plugs; EO Fittings	1, 3, 4, 5, 6
	#12 to #2 and #14 to #4	1/8" & 1/4" BSPP	EO Fittings; EO Plugs; Prestolok	1, 2, 3, 4, 5
		1/8" & 3/8" BSPP	Prestolok; EO Plugs	1, 2, 3, 4, 5
	#1 to #2 to #3 to #4 to #5 All Inclusive Bottom Ports	1/4" BSPP	EO Fittings; EO Plugs; Prestolok; P6M Mufflers	1, 2, 3, 4, 5
H2	#1 to #3 or #5	3/8" BSPP	EO Fittings; Prestolok; ES, ASN, P6M Mufflers	1, 2, 3, 4, 5
		1/2" BSPP	EO Fittings; Prestolok; EO Plugs; ASN, P6M Mufflers	1, 2, 3, 4, 5
	#2 to #4	3/8" BSPP	EO Fittings; Prestolok; EO Plugs	1, 2, 3, 4, 5
		1/2" BSPP	EO Fittings; Prestolok; EO Plugs	1, 2, 3, 4, 5
	#12 to #2 and #14 to #4	1/8" & 3/8" BSPP	EO Fittings; EO Plugs; Prestolok	1, 2, 3, 4, 5
		1/8" & 1/2" BSPP	EO Fittings; EO Plugs; Prestolok	1, 2, 3, 4, 5
	#1 to #2 to #3 to #4 to #5 All Inclusive Bottom Ports Also Includes #12 & #14	3/8" & 1/2" BSPP	EO Fittings; Prestolok; EO Plugs	1, 2, 3, 4, 5
H3	#1 to #3 or #5	1/2" BSPP	EO Fittings; EO Plugs; Prestolok; ES, ASN, P6M Mufflers	1, 2, 3, 4, 5
		3/4" BSPP	EO Fittings; EO Plugs; ES & P6M Mufflers	1, 3, 4, 5
	#2 to #4	1/2" BSPP	EO Fittings; EO Plugs; Prestolok	1, 2, 3, 4, 5
		3/4" BSPP	EO Fittings; EO Plugs	1, 3, 4, 5
	#12 to #2 and #14 to #4	1/8" & 1/2" BSPP	EO Fittings; EO Plugs; Prestolok	1, 2, 3, 4, 5
		1/8" & 3/4" BSPP	EO Fittings; EO Plugs	1,3, 4, 5
	#1 to #2 to #3 to #4 to #5 All Inclusive Bottom Ports Also Includes #12 & #14	1/2" & 3/4" BSPP	EO Fittings; EO Plugs; P6M Mufflers; Prestolok	1, 3, 4, 5, 7

Manifold Bases

Size	Port Numbers	Port Size	Acceptable Fittings	Notes
H1	End Ports #2 & #4	1/4" BSPP	EO Fittings; Prestolok	1, 2, 3, 4, 5
	Bottom Ports #2 & #4	1/4" BSPP	EO Fittings; Prestolok	1, 2, 3, 4, 5
	End Ports #2 & #4	3/8" BSPP	EO Fittings; Prestolok	1, 2, 3, 4, 5
	Bottom Ports #2 & #4	3/8" BSPP	EO Fittings; Prestolok	1, 2, 3, 4, 5
H2	End Ports #2 & #4	3/8" BSPP	EO Fittings; Prestolok	1, 2, 3, 4, 5
	Bottom Ports #1, #2, & #4	3/8" BSPP	EO Fittings; Prestolok	1, 2, 3, 4, 5
	End Ports #2 & #4	1/2" BSPP	EO Fittings; Prestolok	1, 2, 3, 4, 5
	Bottom Ports #1, #2, & #4	1/2" BSPP	EO Fittings; Prestolok	1, 2, 3, 4, 5
H3	End Ports #2 & #4	1/2" BSPP	EO Fittings; Prestolok	1, 2, 3, 4, 5
	Bottom Ports #2 & #4	1/2" BSPP	EO Fittings; Prestolok	1, 2, 3, 4, 5
	End Ports #2 & #4	3/4" BSPP	EO Fittings	1, 3, 4, 5
	Bottom Ports #2 & #4	3/4" BSPP	EO Fittings	1, 3, 4, 5

End Plates

Size	Port Numbers	Port Size	Acceptable Fittings	Notes
H1	#1 to #3 & #5	1/2" BSPP	EO Fittings; Prestolok	1, 2, 3, 4, 5
	#12 to #3	1/8" to 1/2" BSPP	EO Fittings; Prestolok; P6M Muffler	1, 2, 3, 4, 5
	#14 to #5	1/8" to 1/2" BSPP	EO Fittings; Prestolok; P6M Muffler	1, 2, 3, 4, 5
H2	#1 to #3 & #5	3/4" BSPP	EO Fittings	1, 3, 4, 5
	#12 to #3	1/8" to 3/4" BSPP	EO Fittings; EO Plugs; P6M Muffler	1, 3, 4, 5
	#14 to #5	1/8" to 3/4" BSPP	EO Fittings; EO Plugs; P6M Muffler	1, 3, 4, 5
H3	#1 to #3 & #5	1" BSPP	EO Fittings	1, 3, 4, 5
	#12 to #3	1/8" to 1" BSPP	EO Fittings; EO Plugs; P6M & ES Muffler	1, 3, 4, 5
	#14 to #5	1/8" to 1" BSPP	EO Fittings; EO Plugs; P6M & ES Muffler	1, 3, 4, 5

General Notes Applicable to Applications

1) **EO and EO2 Fittings** are metric tube ends and male BSPP threads to valve components – Light Duty Series – spot faces for B & E and G & H types of flat face sealing. Straights are the **BE-R-ED** Series and elbows are **WEE-R** Adjustable Lock Nut Series.
2) **Prestolok Fittings** are metric push-in fittings with tube ends and BSPP threads to valve components. Straights are the **F4PB** Series and elbows are **C64PB** Adjustable Series.
3) In most applications, there is not enough swing clearance to install elbows in adjacent ports.
4) In a few applications ay be necessary to remove the tube nut during installation.
5) In specifically identified installations, assembly with specific fittings is made provided that the hex points are not aligned along the port center to center line.
6) 3/8" EO fittings with 12 mm tubing only.
7) Prestolok available in 1/2" size only.

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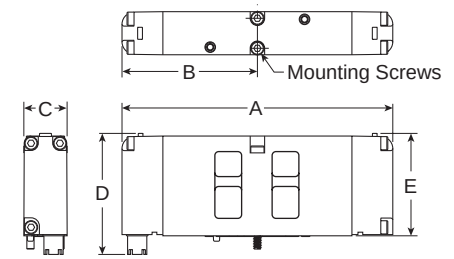
HB

15407-2

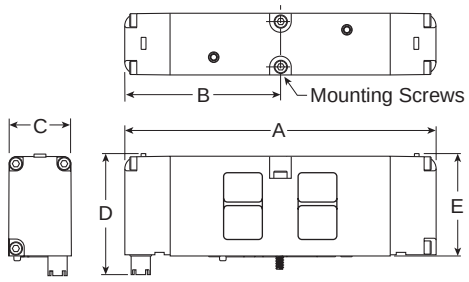


18mm Dimensions

A	B	C	D
4.43 (113)	2.22 (56)	.72 (18)	1.98 (50)
E			
1.68 (43)			

Inches (mm)

HA



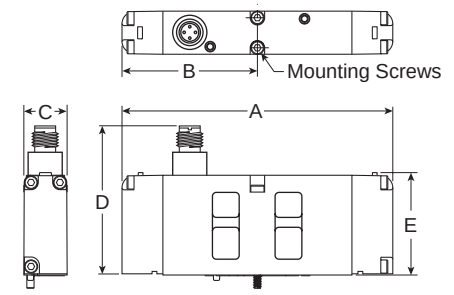
26mm Dimensions

A	B	C	D
5.10 (130)	2.55 (65)	1.02 (26)	1.98 (50)
E			
1.66 (42)			

Inches (mm)

HB

15407-1

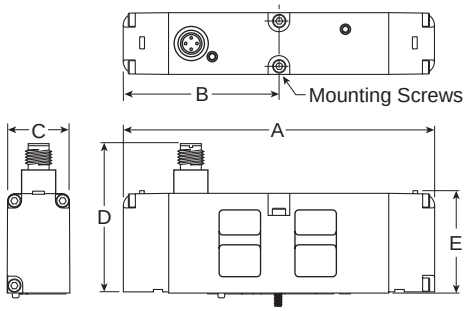


18mm Dimensions

A	B	C	D
4.43 (113)	2.22 (56)	.72 (18)	2.40 (61)
E			
1.68 (43)			

Inches (mm)

HA



26mm Dimensions

A	B	C	D
5.10 (130)	2.55 (65)	1.02 (26)	2.40 (61)
E			
1.66 (42)			

Inches (mm)

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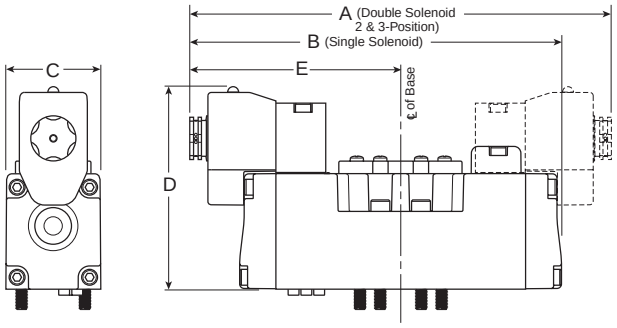
H1
H2
H3

H1 Valve Dimensions Shown

5599-2

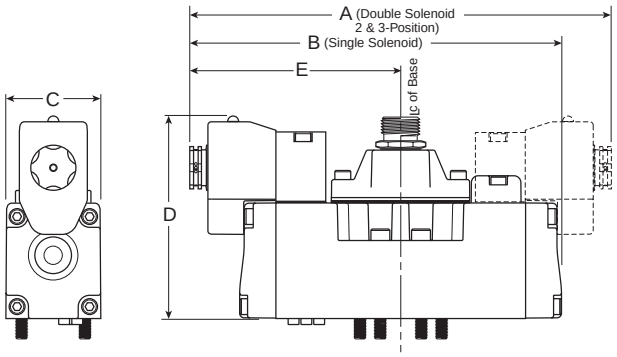


H1 Dimensions

A	A1	B	C
7.32 (186)	5.59 (142)	6.46 (164)	1.65 (42)
D	**D1**	**D2**	**D3**
3.54 (90)	4.29 (109)	4.29 (109)	2.50 (63.5)
D4	**E**	**E1**	
2.48 (63)	3.66 (93)	2.80 (71)	

Inches (mm)

5599-1 Auto

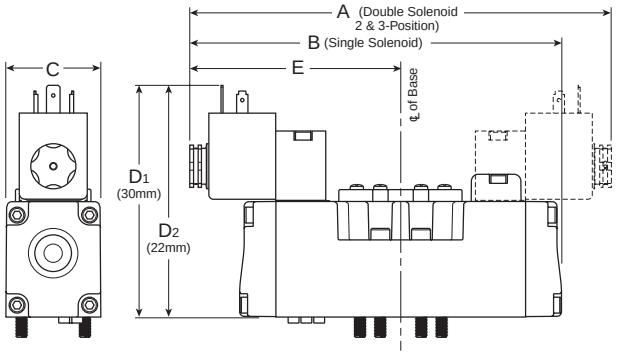


H2 Dimensions

A	A1	B	C
8.35 (212)	6.62 (168)	7.48 (190)	2.17 (55)
D	**D1**	**D2**	**D3**
4.05 (103)	4.80 (122)	4.57 (116)	2.99 (76)
E	**E1**		
4.17 (106)	3.31 (84)		

Inches (mm)

5599-1 CNOMO

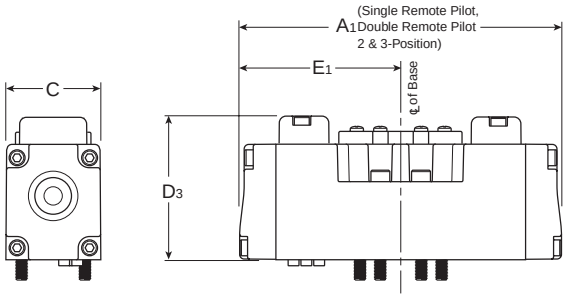


H3 Dimensions

A	A1	B	C
9.49 (241)	6.98 (177)	8.23 (209)	2.17 (55)
D	**D1**	**D2**	**D3**
4.05 (103)	4.80 (122)	4.57 (116)	2.99 (76)
E	**E1**		
4.74 (121)	3.49 (89)		

Inches (mm)

5599-2 / 5599-1 Remote Pilot



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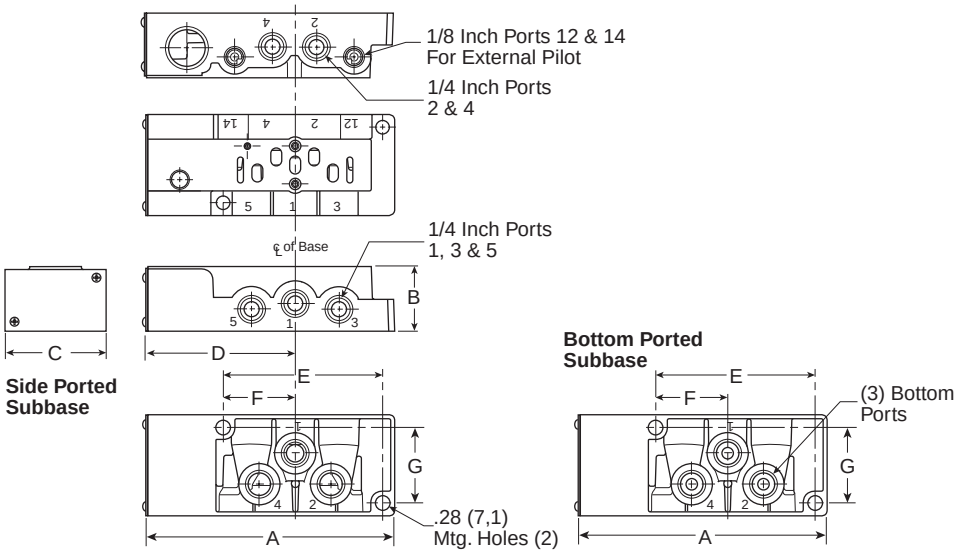
HA

HA 15407-2 & 15407-1, PS5511 Subbases



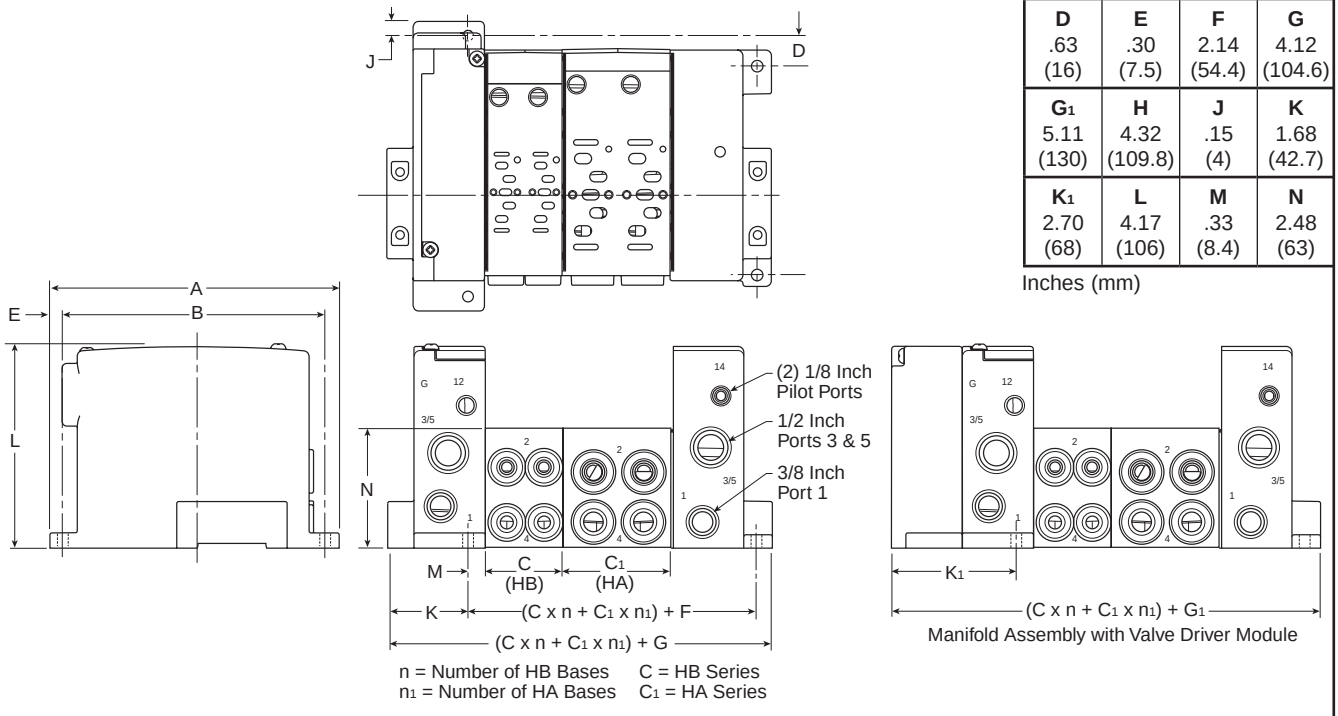
HA Dimensions

A	B	C	D
4.88 (124)	1.28 (32.5)	2.00 (50.8)	2.91 (74)
E	**F**	**G**	
1.43 (36.2)	3.16 (80.2)	1.49 (37.9)	

Inches (mm)

HB HA

HB & HA 15407-2 & 15407-1, PS5611 & PS5511 Manifolds



HB & HA Dimensions

A	B	C	C_1
5.98 (152)	5.39 (137)	1.61 (40.8)	2.24 (56.8)
D	**E**	**F**	**G**
.63 (16)	.30 (7.5)	2.14 (54.4)	4.12 (104.6)
G_1	**H**	**J**	**K**
5.11 (130)	4.32 (109.8)	.15 (4)	1.68 (42.7)
K_1	**L**	**M**	**N**
2.70 (68)	4.17 (106)	.33 (8.4)	2.48 (63)

Inches (mm)

n = Number of HB Bases
n_1 = Number of HA Bases
C = HB Series
C_1 = HA Series

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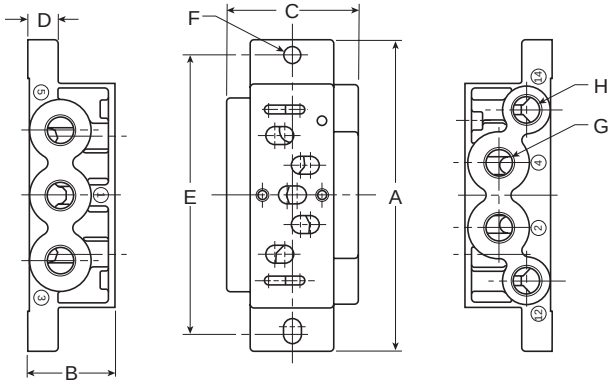
HB HA

Individual Subbase



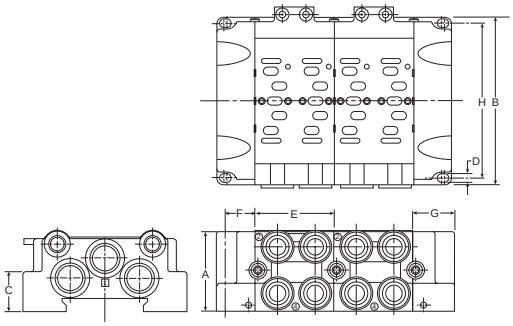
Series	Part Number	A	B	C	D	E	F	G	H
HB	PL02	3.15 (80)	.87 (22)	1.06 (27)	.31 (8)	2.76 (70)	.216 Dia. (Ø 5.5)	1/8	M5
HA	PL01	3.94 (100)	1.10 (28)	1.65 (42)	.39 (10)	3.54 (90)	.216 Dia. (Ø 5.5)	1/4	1/8

Inches (mm)

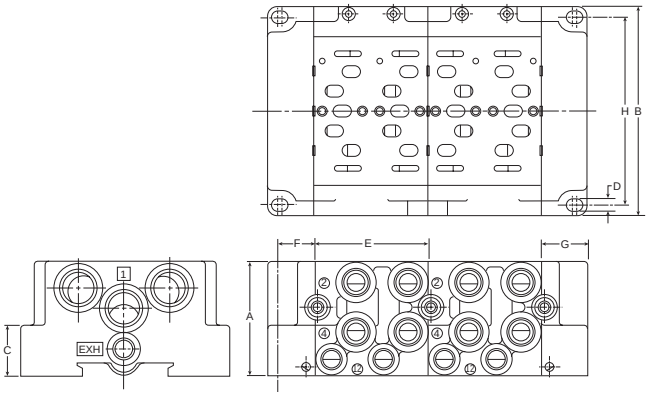
HB HA

2-Station Manifold Bases

HB Manifolds



HA Manifolds



Series	Part Number	A	B	C	D	E	F	G	H
HB	PJLP02 / PEJ02	1.52 (38.5)	3.15 (80)	.47 (12)	.165 Dia. (Ø 4.2)	1.50 (38)	.55 (14)	.71 (18)	2.83 (72)
HA	PJL01 / PJLP01 / PEJ01	2.17 (55)	3.94 (100)	.94 (24)	.216 Dia. (Ø 5.5)	2.13 (54)	.67 (17)	.87 (22)	3.54 (90)

Inches (mm)

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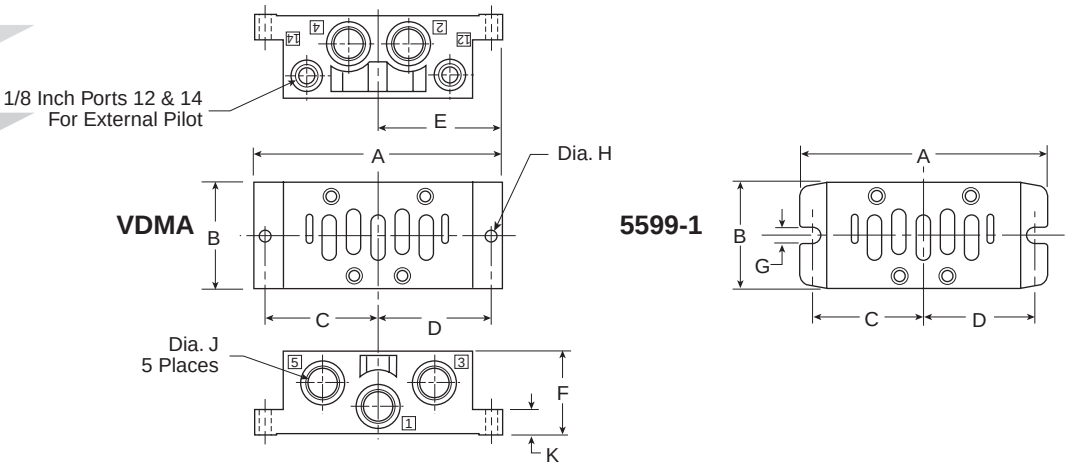
VDMA & 5599-1 Side Ported Subbase

H1
H2
H3

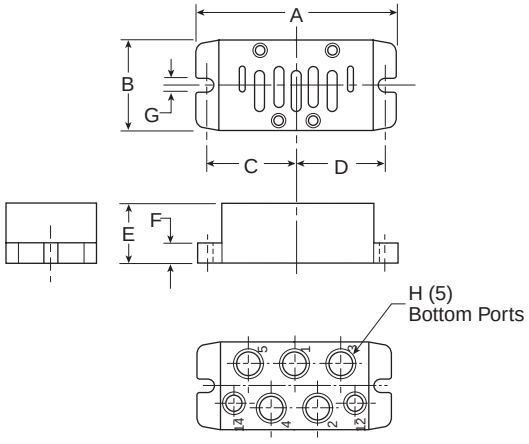


	Series	Part Number	J	A	B	C	D	E	F	G	H	K
VDMA	H1	P2N-VS512SD	BSPP G1/4	4.33 (110)	1.89 (48)	1.93 (49)	1.93 (49)	2.17 (55)	1.26 (32)	—	.22 (5.6)	.39 (9.9)
	H2	P2N-WS513SD	BSPP G3/8	4.88 (124)	2.20 (56)	2.21 (56)	2.21 (56)	2.44 (62)	1.57 (40)	—	.22 (5.5)	.51 (13)
	H3	P2N-YS514SD	BSPP G1/2	5.87 (149)	2.80 (71)	2.68 (68)	2.68 (68)	2.93 (74.5)	2.05 (52)	—	0.26 (6.6)	0.71 (18)
5599-1	H1	PL1-1/4-70	BSPP G1/4	4.33 (110)	1.81 (46)	1.93 (49)	1.93 (49)	2.17 (55)	1.14 (29)	0.22 (5.5)	—	0.24 (6)
		PL1-1/4-80	NPT 1/4									
	H2	PL2-3/8-70	BSPP G3/8	4.88 (124)	2.21 (56)	2.17 (55)	2.17 (55)	2.44 (62)	1.46 (37)	0.22 (5.5)	—	0.24 (6)
		PL2-3/8-80	NPT 3/8									
	H3	PL3-1/2-70	BSPP G1/2	5.87 (149)	2.80 (71)	2.68 (68)	2.68 (68)	2.93 (74.5)	2.36 (60)	0.26 (6.6)	—	0.71 (18)
		PL3-1/2-80	NPT 1/2									

Inches (mm)

5599-1 Bottom Ported Subbase

H1
H2



Bottom Ported Subbase

Series	Part Number	H	A	B	C	D	E	F	G
H1	PD1-1/4-70	BSPP G1/4	4.33 (110)	1.81 (46)	1.93 (49)	1.93 (49)	1.14 (29)	.24 (6)	0.22 (5.5)
	PD1-1/4-80	NPT1/4							
H2	PD2-3/8-70	BSPP G3/8	4.88 (124)	2.20 (56)	2.17 (55)	2.17 (55)	1.46 (37)	.24 (6)	.0.22 (5.5)
	PD2-3/8-80	NPT3/8							

Inches (mm)

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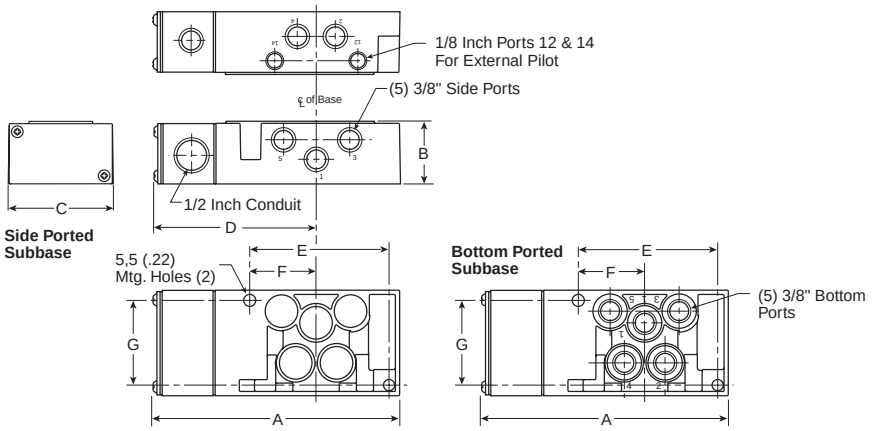
H1

PS4011 Subbase

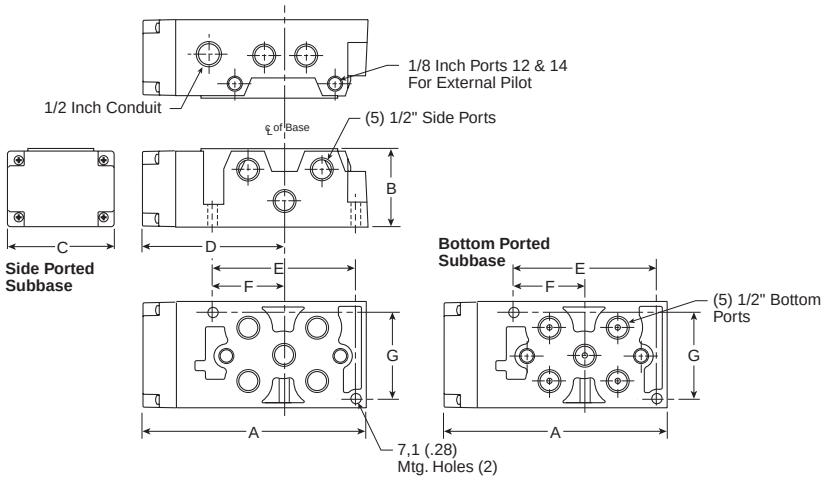


A	B	C	D
5.83 (148)	1.48 (38)	2.50 (64)	3.86 (98)
E	**F**	**G**	
3.29 (84)	1.57 (40)	2.00 (51)	

Inches (mm)

H2

PS4111 Subbase

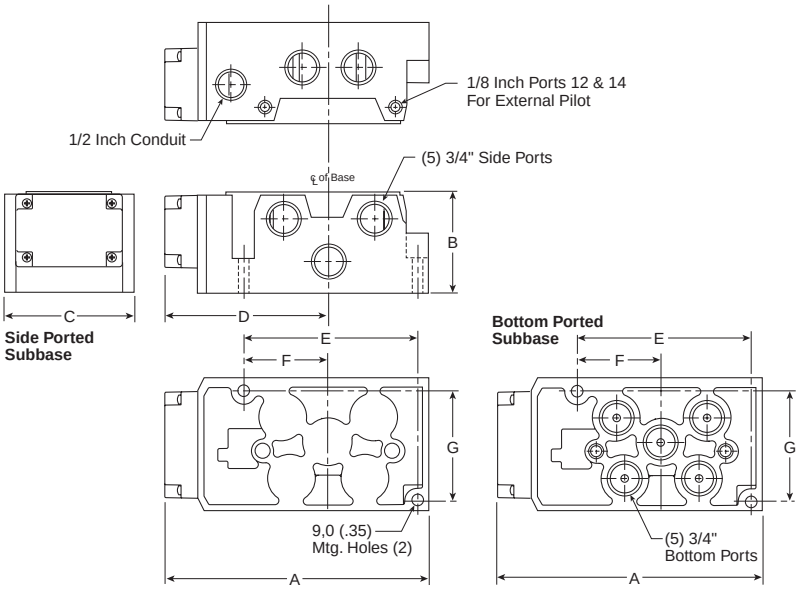


A	B	C	D
6.69 (170)	2.33 (59)	3.15 (80)	4.25 (108)
E	**F**	**G**	
4.21 (107)	2.07 (52)	2.56 (65)	

Inches (mm)

H3

PS4211 Subbase



A	B	C	D
7.90 (201)	2.96 (75)	3.90 (99)	4.92 (125)
E	**F**	**G**	
5.14 (131)	2.50 (64)	3.24 (82)	

Inches (mm)

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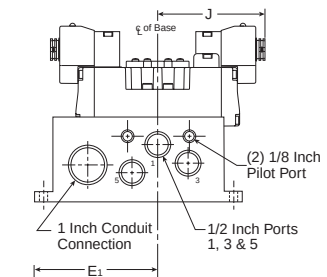
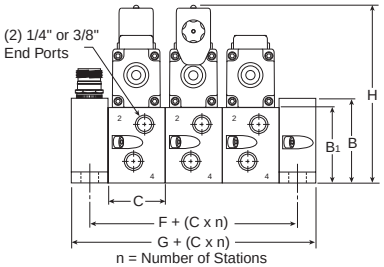
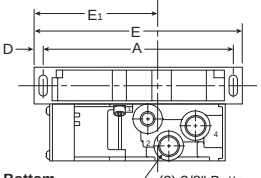
H1

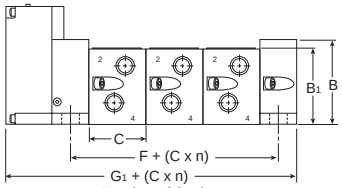
PS4011 Manifold



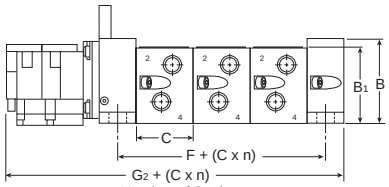


Manifold with Optional Collective Wiring System





Manifold with Optional Isysnet Valve Driver



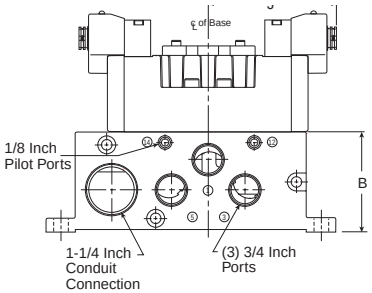
Manifold with Optional Isysnet Valve Driver

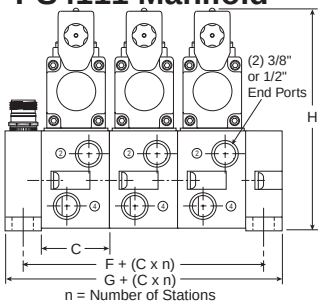
A	B	B1	C	D
6.50 (165)	2.87 (73)	2.64 (67)	1.96 (50)	.33 (8)
E	**E1**	**F**	**G**	~~**G1**~~
7.15 (182)	4.25 (108)	1.25 (32)	2.50 (63.5)	~~4.06 (86)~~
~~**G2**~~	**H**	**J**		
~~4.06 (86)~~	6.18 (157)	3.66 (93)		

Inches (mm)

H2

PS4111 Manifold

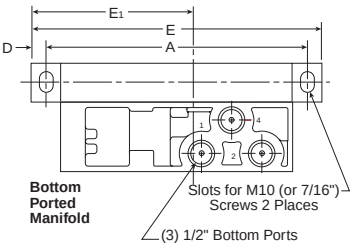


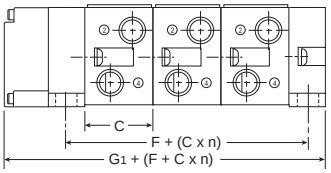


Manifold with Optional Collective Wiring System

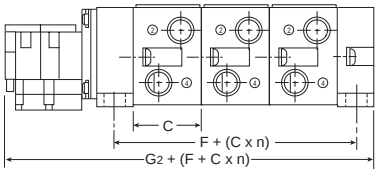
A	B	C	D	E
8.46 (215)	3.35 (85)	2.20 (56)	.47 (12)	9.41 (239)
E1	**F**	**G**	~~**G1**~~	~~**G2**~~
5.28 (134)	1.18 (30)	2.36 (60)	~~3.78 (96)~~	~~3.78 (96)~~
H	**J**			
7.40 (188)	4.74 (121)			

Inches (mm)





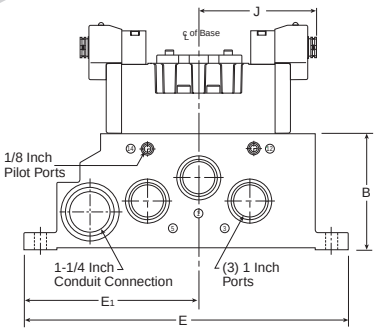
Manifold with Optional Isysnet Valve Driver Module

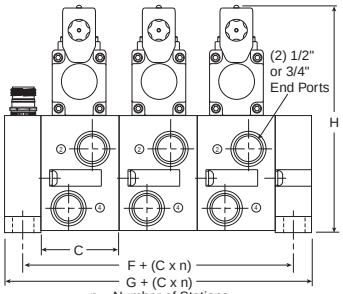


Manifold with Optional Turck Valve Driver Module

H3

PS4211 Manifold

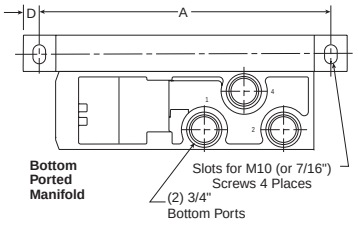


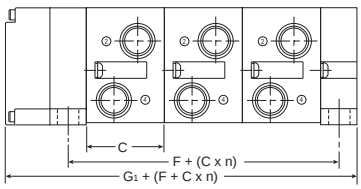


Manifold with Optional Collective Wiring System

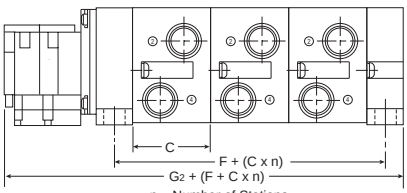
A	B	C	D	E
10.41 (265)	4.13 (105)	2.80 (71)	.59 (15)	11.61 (295)
E1	**F**	**G**	~~**G1**~~	~~**G2**~~
6.26 (159)	1.30 (33)	2.60 (63)	~~4.37 (111)~~	~~4.37 (111)~~
H				
8.19 (208)				

Inches (mm)





Manifold with Optional Isysnet Valve Driver Module



Manifold with Optional Turck Valve Driver Module

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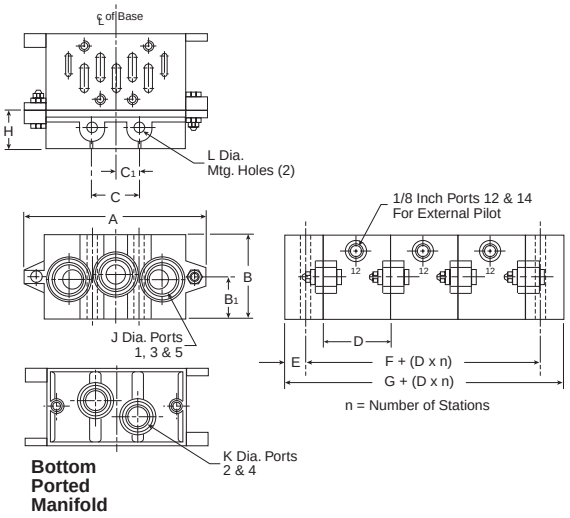
H1

H2

H3

5599-1 VDMA – Form C Manifold & 5599-1 VDMA - Form D End Plates



VDMA Form C Manifold

Series	Part Number	A	B	B_1	D	E	F	G	Ø J	Ø K
H1	P2N-VM512MB	4.33 (110)	1.81 (46)	0.94 (24)	1.69 (55)	0.43 (22)	0.87 (22)	1.73 (44)	BSPP G3/8	BSPP G1/4
H2	P2N-WM513MB	5.31 (135)	1.85 (47)	0.94 (24)	2.20 (56)	0.51 (13)	1.02 (26)	2.05 (52)	BSPP G1/2	BSPP G3/8
H3	P2N-YM514MB	7.48 (190)	2.20 (56)	1.34 (34)	2.80 (71)	0.59 (15)	1.18 (30)	2.36 (60)	BSPP G1	BSPP G1/2

VDMA Form D End Plate

Series	Part Number	A	B	B_1	C	C_1	H	Ø L
H1	P2N-VM513ES	4.33 (110)	1.81 (46)	0.94 (24)	1.10 (28)	0.55 (14)	0.87 (22)	0.28 (7)
H2	P2N-WM514ES	5.31 (135)	1.85 (47)	0.94 (24)	1.38 (35)	0.69 (18)	1.02 (26)	0.34 (9)
H3	P2N-YM518ES	7.48 (190)	2.20 (56)	1.34 (34)	2.05 (52)	1.03 (26)	1.18 (30)	0.47 (12)

Inches (mm)

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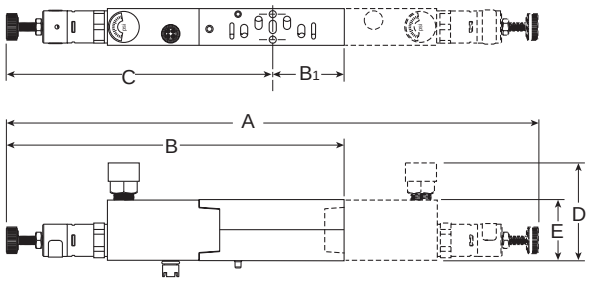
HB

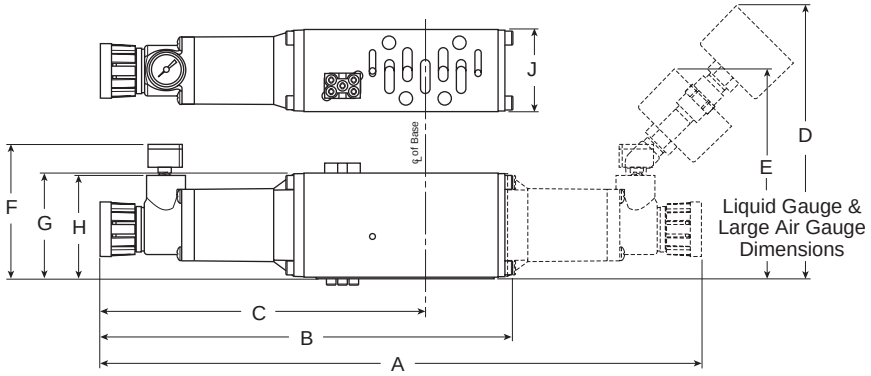
HA



Series	Part Number	A	B	B1	C	D	E
HB	PS5637	10.28 (261)	6.14 (156)	1.02 (26)	5.13 (130)	2.60 (66)	1.18 (30)
HA	PS5537	10.00 (254)	6.42 (163)	1.42 (36)	5.00 (127)	2.72 (69)	1.18 (30)

Inches
(mm)

H1



Series	Part Number	A	B	C	D	E	F	G	H	J
H1	PS4037	11.84 (301)	8.13 (207)	6.40 (163)	5.45 (138	4.25 (108)	2.85 (72)	2.09 (53)	2.05 (52)	1.63 (41)
	PS4038									

Inches
(mm)

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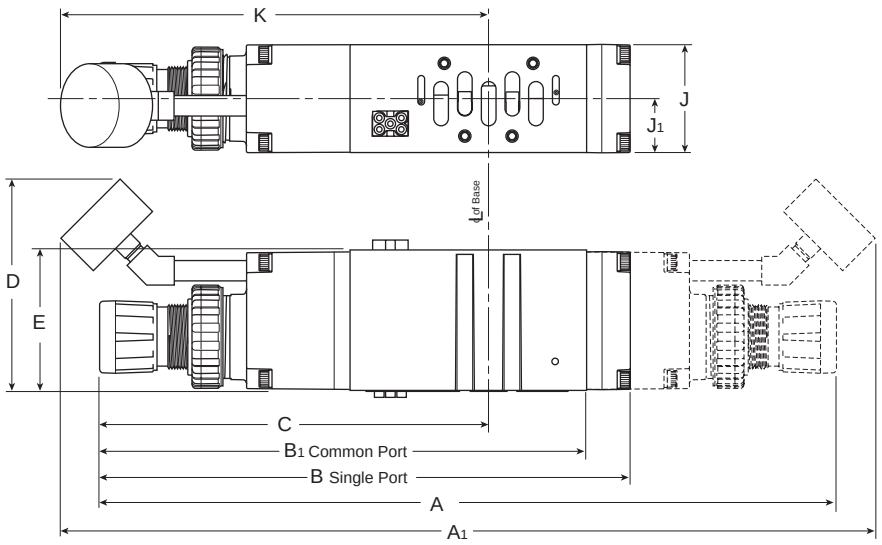
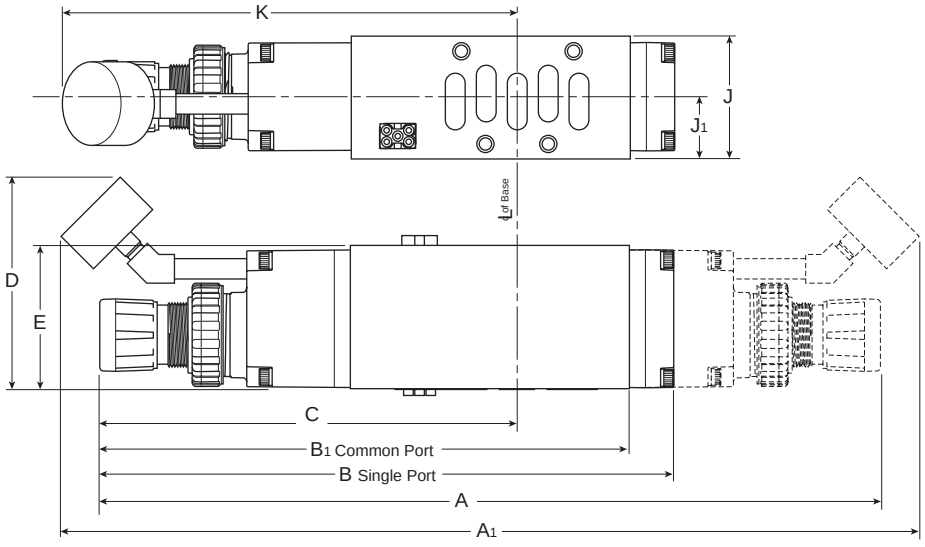
H2



Series	Part Number	A	A1	B	B1	C	D	E	J	J1	K
H2	PS4137	14.65 (372	16.18 (411)	10.56 (268)	9.84 (250	7.71 (196)	4.20 (107)	2.80 (71)	2.15 (55)	1.07 (27)	8.50 (216)
	PS4138										

Inches
(mm)

H3



Series	Part Number	A	A1	B	B1	C	D	E	J	J1	K
H3	PS4237	15.67 (398)	17.15 (436)	11.53 (293)	10.67 (271)	8.37 (213)	4.20 (107)	2.93 (75)	2.50 (64)	1.25 (32)	9.10 (231)
	PS4238										

Inches
(mm)

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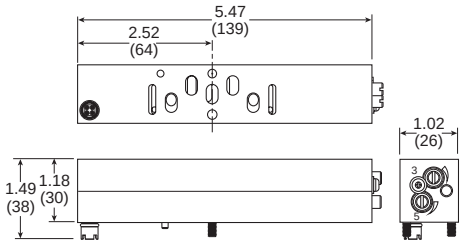
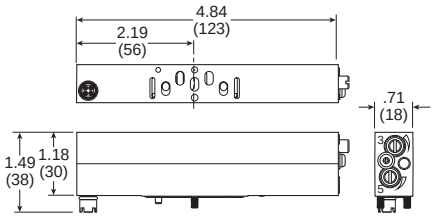
HA

HA Flow Control



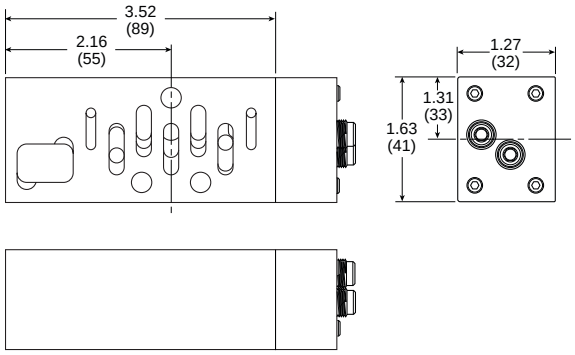
HB

HB Flow Control



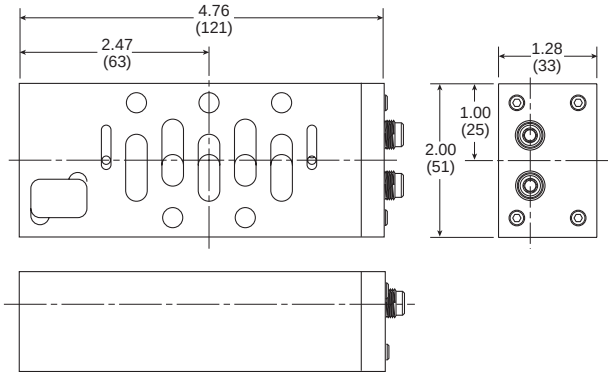
H1

H1 Flow Control



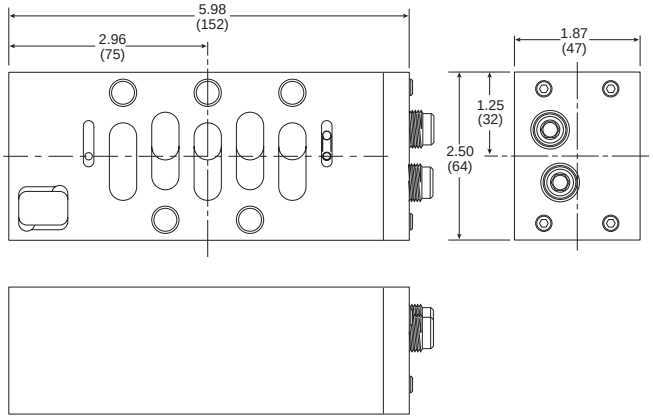
H2

H2 Flow Control



H3

H3 Flow Control



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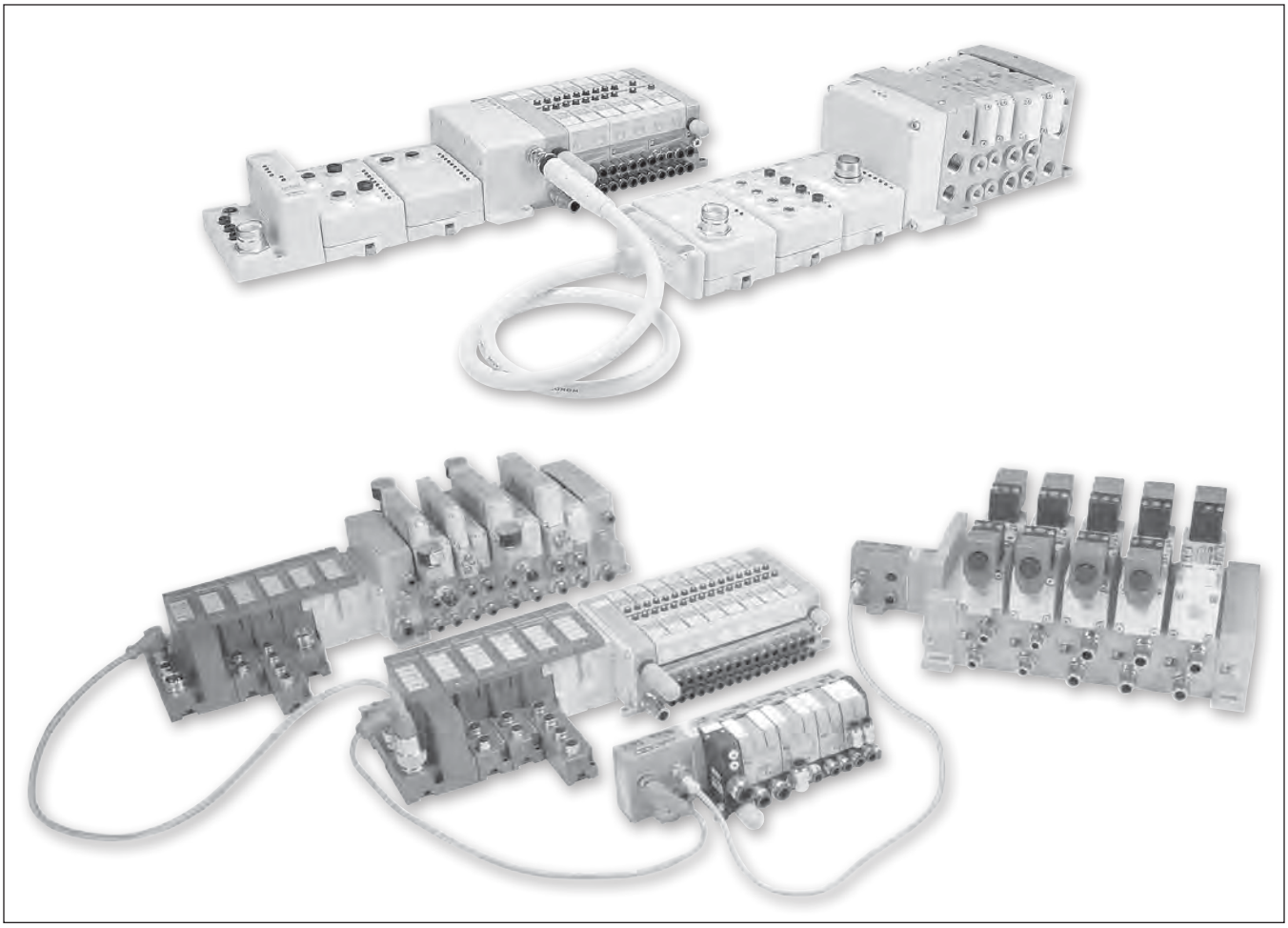
Fieldbus Systems

Section E

www.parker.com/pneu/Isysnet



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	Fieldbus Offering		
Valve Series	**Moduflex**	**Isysnet**	**Turck**
Moduflex	X		
Isys Micro	X	X	X
Isys ISO	X	X	X

	Fieldbus Offering		
Protocol	**Moduflex**	**Isysnet**	**Turck**
DeviceNet	X	X	X
Ethernet/IP		X	X
Profibus-DP	X	X	X
Profinet			X
Modbus/TCP			X
AS-i	X		
CANopen	X		X
Interbus-S	X		
ControlNet		X	

	Fieldbus Offering		
Options	**Moduflex**	**Isysnet**	**Turck**
Digital inputs / outputs*		X	X
Analog inputs / outputs		X	X
16 Solenoid control*	X		X
32 Solenoid control		X	X
Short circuit protection on inputs			X
Current sensing outputs			X
Bus expansion		X	
DeviceNet subnet			X
Programmable comm modules			X
Power over DeviceNet / CANopen			X
Preferred Connectivity		X	
CANopen Expansion			X

* Modulfex AS-i modules are available with 6 or 8 inputs and 6 or 8 solenoid outputs

	Turck Fieldbus	**Isysnet**	**Moduflex**
Solenoid Control	Up to 32 solenoids on main valve manifold Devicenet Subnet Allows an additional 32 solenoids per node 63 nodes maximum CANopen expansion Allows an additional 64 solenoids per expansion 5 expansions maximum	Up to 32 solenoids on main valve manifold Isys Micro Bus Expansion Allows an additional 32 solenoids per expansion 3 expansions maximum 1 meter fixed cable length per expansion	Up to 16 solenoids on main valve manifold
I/O Capabilities	256 maximum inputs and outputs directly connected to communication module Devicenet Subnet Allows an additional 256 I/O per node 63 nodes maximum Third party DeviceNet modules can be used CANopen expansion Allows an additional 64 I/O per expansion 5 expansions maximum Third party CANopen modules can be used	Maximum of 256 inputs and 256 outputs directly connected to the communication module, including Isys Micro Bus Expansion	8 Inputs available on AS-i communication only.
Short Circuit Protection	SXG and diagnostic electronic modules have each point isolated All other electronic modules are isolated from the backplane	Devices must be fused between input / output and electronic module.	

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		Moduflex					Isysnet				Turck Fieldbus					
		AS-i	CANopen	DeviceNet	Interbus	Profibus	ControlNet	DeviceNet	EtherNet	Profibus	CANopen	DeviceNet	Ethernet/IP	Modbus/TCP	Profibus	Profinet
Rockwell Automation	PLC-5™			X								X				
	SLC 500™			X								X	X			
	1756 Logix™			X								X	X			
	1769-L32C, -35CR			X			X	X	X			X	X			
	1769 CompactLogix™			X			X	X	X			X	X			
	SoftLogix5800™			X			X	X	X			X	X			
	FlexLogic™			X			X	X	X			X	X			
	1789 ControlLogix™			X			X	X	X			X	X			
Siemens	SIMATIC S7-200	X				X				X					X	
	SIMATIC S7-300	X				X				X					X	
	SIMATIC S7-400					X				X					X	X
	SIMATIC S7-1200					X				X					X	X
Omron	SYSMAC One			X								X				
	SYSMAC CJ1			X								X				
	SYSMAC CJ2			X								X				
	SYSMAC CP1			X								X				
	SYSMAC CS1			X								X				
	SYSMAC CQM1H			X								X				
	SYSMAC Alpha			X								X				
	SYSMAC CVM1/CV			X								X				
	SYSMAC CPM			X								X				
Schneider	Modicon Premium		X		X	X				X	X		X	X	X	
	Quantum	X			X								X	X		
	M340™	X	X								X		X	X		
	Momentum™												X	X		
Automation Direct	Productivity 3000			X								X				
	DirectLogic 05			X								X				
	DirectLogic 06			X								X				
	DirectLogic 105			X								X				
	DirectLogic 205			X								X	X	X		
	DirectLogic 305			X								X	X	X		
	DirectLogic 405			X								X	X	X		

Note: Above information believed correct at the time of printing. Confirm manufacturers specifications to ensure product compatibility.

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Basic Systems

- Up to 24 solenoids per manifold
- Discretely wired solenoids - Optimized for PLCs with onboard Inputs and Outputs
- 25-Pin D-Sub, 19-Pin Brad Harrison or M23, or 12-Pin M23 connectors available.

Centralized Application

Valves Inside Control Cabinet

- Valves located near machine control
- Applications with caustic wash down, hazardous areas, or extreme temperatures

Advantages

- Highest degree of environmental protection
- One location for all control devices
- Small size requires minimal cabinet space
- Eliminates junction boxes required for valves
- Eliminates conduit runs for valves

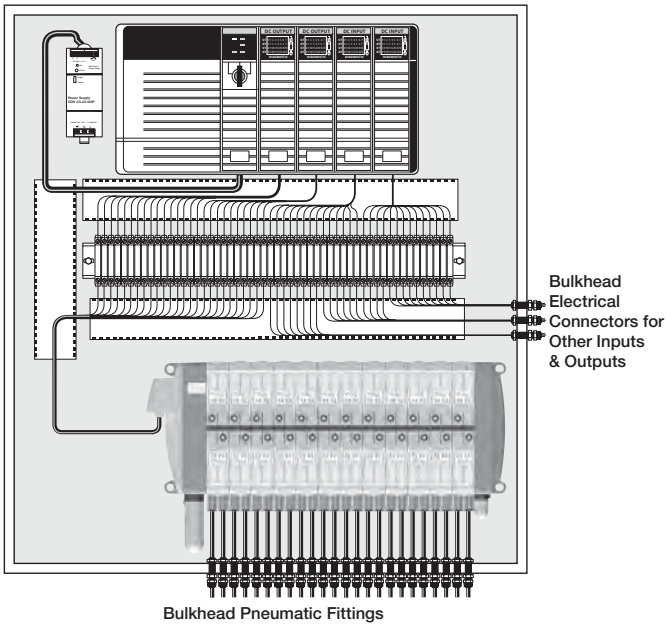
Decentralized Application

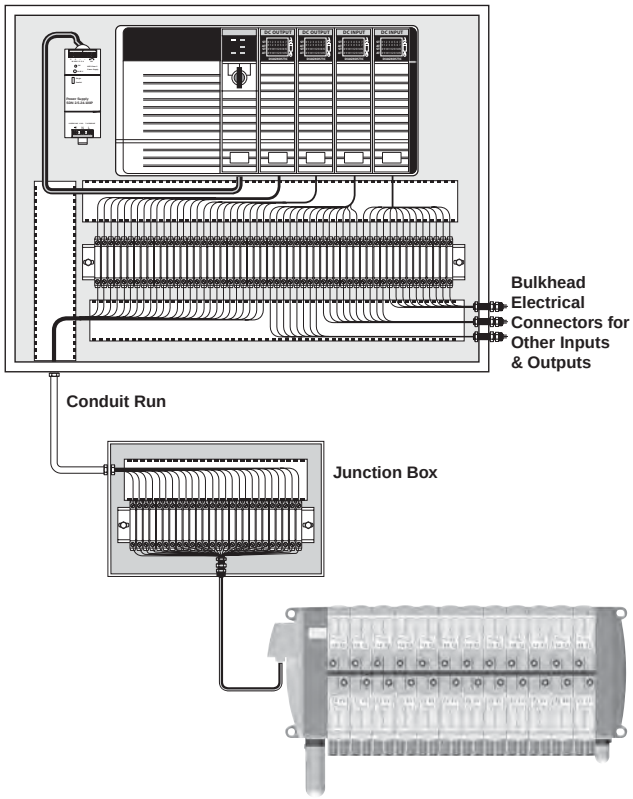
valves Outside Control Cabinet

- Valves located near application - Ready for machine mounting
- IP65 rating suitable for dusty and wet environments

Advantages

- Reduces control cabinet size
- Reduces tubing length and improves pneumatic response time
- Eliminates pneumatic bulk fittings on control cabinet





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Basic Systems: Moduflex Fieldbus

- Up to 16 solenoids per manifold
- Fieldbus equipped manifolds – optimized for PLCs with fieldbus capability
- Routinely used on medium sized machines
- Connectivity to Moduflex, Isys Micro and Isys ISO valves.

Centralized Application

Valves Inside Control Cabinet

- Valves located near machine control
- Applications with caustic wash down, hazardous areas, or extreme temperatures
- Additional inputs and outputs are not directly attached to valve manifold

Advantages

- Highest degree of environmental protection
- One location for all control devices
- Small size requires minimal cabinet space
- Eliminates terminal strips and wire ways for valves
- Greatly reduces wiring time
- Eliminates junction boxes for valves
- Eliminates conduit runs for valves

Decentralized Application

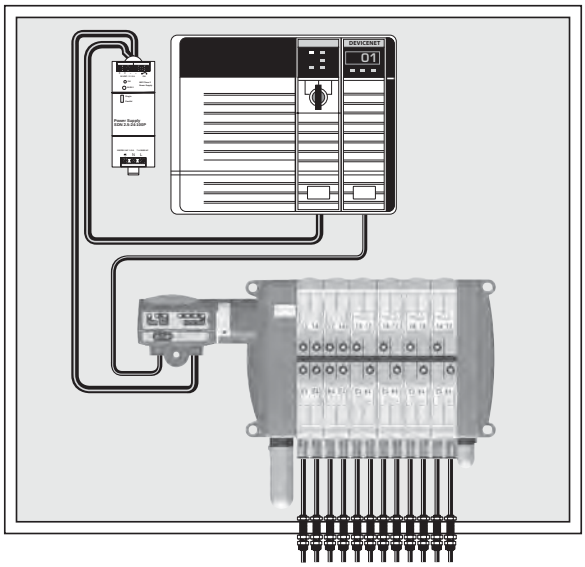
Isys Micro Outside Control Cabinet

- Valves located near application - Ready for machine mounting
- IP65 rating suitable for dusty and wet environments
- Additional inputs and outputs are not directly attached to valve manifold

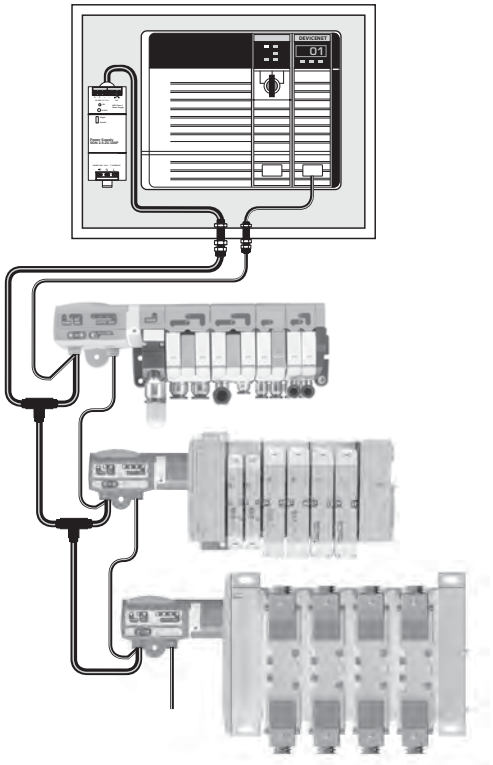
Advantages

- Smallest control cabinet
- Reduces tubing length and improves pneumatic response time
- Eliminates pneumatic bulk fittings on control cabinet
- Many fieldbus nodes can be attached to the network with little incremental cost – valve manifolds, inputs, outputs and other devices.
- Eliminates terminal strips and wire ways for valves
- Greatly reduces wiring time
- Eliminates junction boxes for valves
- Eliminates conduit runs for valves

DeviceNet™ PROFIBUS PROCESS FIELD BUS CANopen INTERBUS-S AS-INTERFACE



Bulkhead Pneumatic Fittings



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Complete Fieldbus Systems: Isysnet Fieldbus System

- Up to 32 Solenoids per Manifold
- With Isys Micro Bus Extension Functionality, 4 Manifolds with up to 32 Solenoids each can be connected on the same Node
- Add Inputs and Outputs to the Isysnet Network
- Fieldbus equipped Manifolds – optimized for PLC's with Fieldbus capability
- Connectivity to Isys Micro and Isys ISO valves

Centralized Application

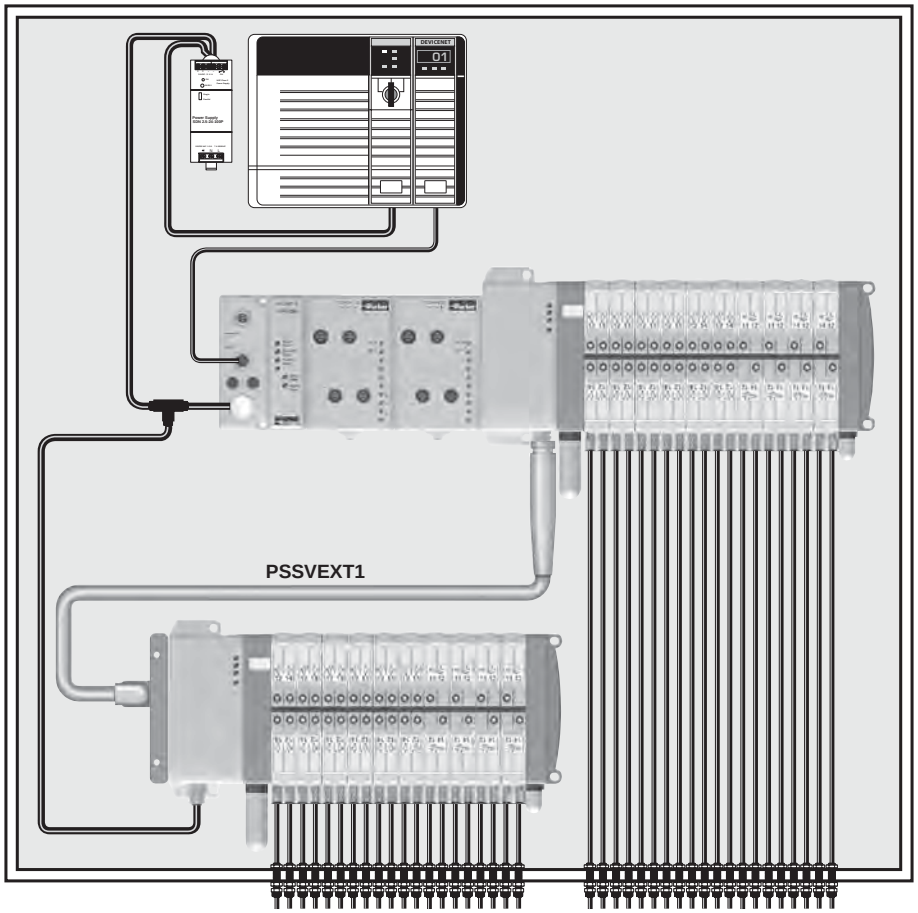
Valves Inside Control Cabinet

- Isysnet Fieldbus System with Inputs and Outputs
- Valves located near machine control
- Applications with caustic wash down, hazardous areas, or extreme temperatures
- Additional inputs and outputs are directly attached to valve manifold

Advantages

- Handle All I/O from One Node
- Eliminate PLC Input / Output Cards
- Up to 128 Solenoids per Node with Bus Extension Cables
- Up to 256 Inputs and 256 Outputs per Isysnet Node
- Analog Inputs / Outputs available
- Highest degree of environmental protection
- One location for all control devices
- Eliminates terminal strips and wire ways
- Greatly reduces wiring time

DeviceNet™ EtherNet/IP™ ControlNet™ PROFIBUS PROCESS FIELD BUS



Bulkhead Pneumatic Fittings

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Complete Fieldbus Systems: Isysnet Fieldbus System

- Up to 32 Solenoids per Manifold
- With Isys Micro Bus Extension Functionality, 4 Manifolds with up to 32 Solenoids each can be connected on the same Node
- Add Inputs and Outputs to the Isysnet Network
- Fieldbus equipped Manifolds – optimized for PLC's with Fieldbus capability
- Connectivity to Isys Micro and Isys ISO valves

Decentralized Application

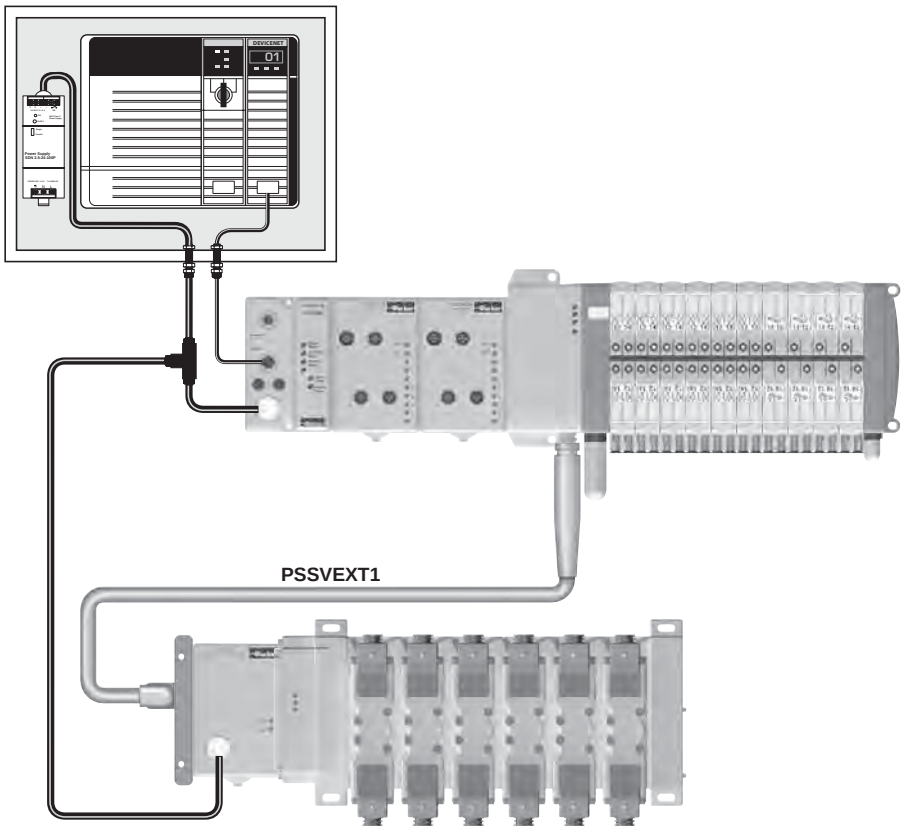
Valves Outside Control Cabinet

- Isysnet Fieldbus System with Inputs and Outputs
- Valves located near application - Ready for machine mounting
- IP65 rating suitable for dusty and wet environments
- Additional inputs and outputs are directly attached to valve manifold

DeviceNet™ EtherNet/IP™ ControlNet™ PROFIBUS PROCESS FIELD BUS

Advantages

- Handle All I/O from One Node
- Eliminate PLC Input / Output Cards
- Up to 128 Solenoids per Node with Bus Extension Cables
- Up to 256 Inputs and 256 Outputs per Isysnet Nodes
- Analog Inputs / Outputs available
- Smallest control cabinet
- Reduces tubing length and improves pneumatic response time
- Eliminates pneumatic bulk fittings on control cabinet
- Many fieldbus nodes can be attached to the network with little incremental cost – valve manifolds, inputs, outputs and other devices.
- Eliminates terminal strips and wire ways
- Greatly reduces wiring time
- Eliminates junction boxes for all inputs and outputs
- Eliminates conduit runs for all inputs and outputs



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Complete Fieldbus Systems: Turck Fieldbus System

General Product Features

- Turck Fieldbus System with up to 256 inputs / outputs and 32 Solenoids per manifold
- Digital inputs / outputs, analog inputs / outputs, serial interface, counter modules, and RFID modules available
- Connectivity to Isys Micro and Isys ISO valves system

Advantages

- Handle all I/O from one node; eliminate PLC input / output cards
- Fieldbus equipped manifolds – optimized for PLC's with fieldbus capability
- Eliminates junction boxes, terminal strips, and conduit runs for all inputs and outputs, greatly reducing wiring time

Centralized Application

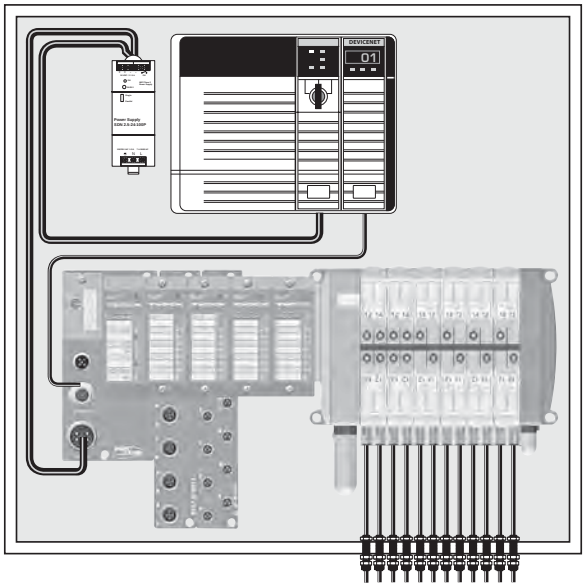
Valves Inside Control Cabinet

- Valves located near machine control
- Applications with caustic wash down, hazardous areas, or extreme temperatures

Advantages

- Highest degree of environmental protection
- One location for all control devices
- Small size requires minimal cabinet space

DeviceNet™ EtherNet/IP™ PROFIBUS PROFINET Modbus/TCP™ CANopen



Bulkhead Pneumatic Fittings

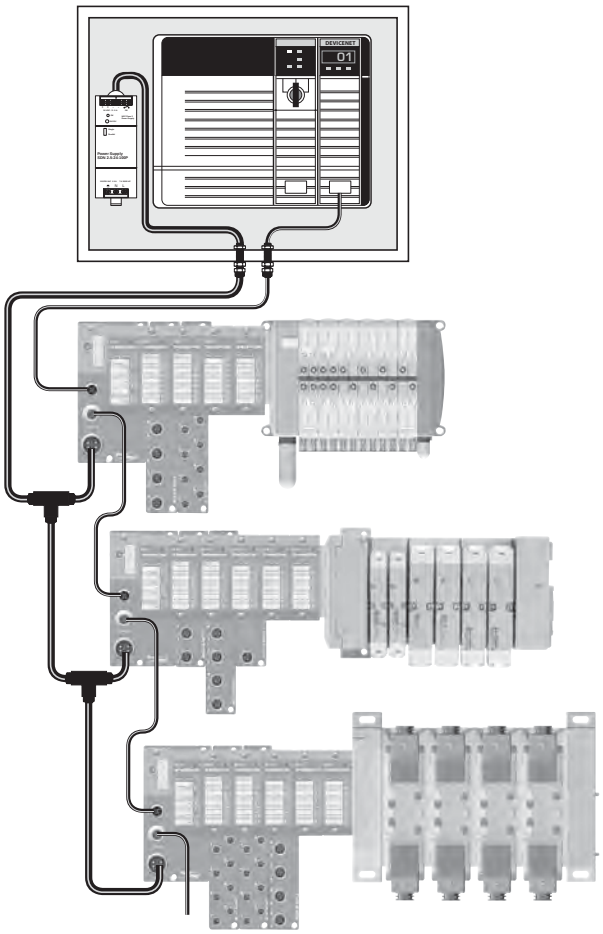
Decentralized Application

Valves Outside Control Cabinet

- Valves located near application - ready for machine mounting
- IP65 rating suitable for dusty and wet environments

Advantages

- Smallest control cabinet
- Reduces tubing length and improves response time
- Eliminates pneumatic bulk fittings on control cabinet



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Complete Fieldbus Systems: Turck Fieldbus System with CANopen Expansion

General Product Features

- Turck Fieldbus System with up to 256 inputs / outputs and 32 Solenoids per manifold
- Digital inputs / outputs, analog inputs / outputs, serial interface, counter modules, and RFID modules available
- Connectivity to Isys Micro and Isys ISO valves

CANopen Expansion Features

- Using a CANopen Interface module, a CANopen subnet is created within the BL67 network, controlling an additional 64 inputs, outputs, or solenoids.
- The CANopen subnet is independent of the main fieldbus network, and is not visible to the master PLC.
- Additional Moduflex CANopen modules can be attached to the CANopen subnet to provide a connection for 16 solenoids each.
- Other 3rd party CANopen devices can also be used on this network, within the 64 bit CANopen Expansion limit.

System Advantages

- Handle all I/O from one node; eliminate PLC input / output cards
- Fieldbus equipped manifolds – optimized for PLC's with fieldbus capability
- Several CANopen fieldbus nodes can be attached to the network – valve manifolds, inputs, outputs or other devices
- CANopen expansion allows additional devices to be attached to the system without a CANopen scanner card
- Eliminates junction boxes, terminal strips, and conduit runs for all inputs and outputs, greatly reducing wiring time

Centralized Application

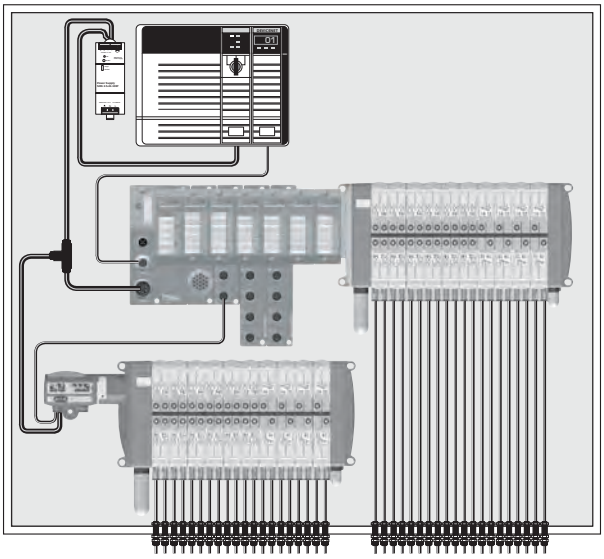
Valves Inside Control Cabinet

- Valves located near machine control
- Applications with caustic wash down, hazardous areas, or extreme temperatures

Advantages

- Highest degree of environmental protection
- One location for all control devices
- Small size requires minimal cabinet space

DeviceNet™ EtherNet/IP™ PROFIBUS PROFINET Modbus/TCP™ CANopen



Bulkhead Pneumatic Fittings

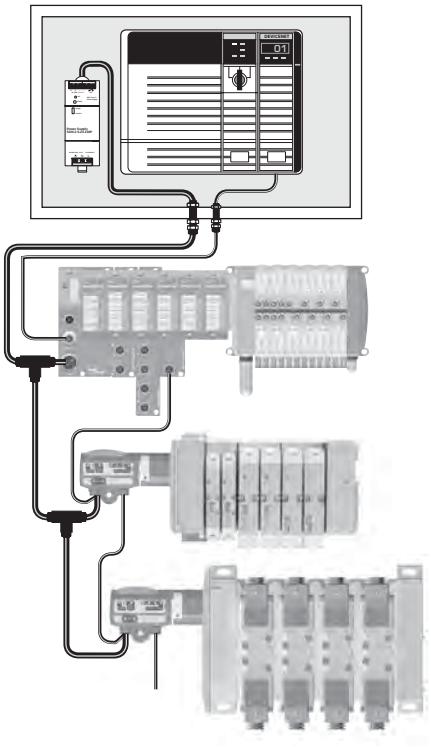
Decentralized Application

Valves Outside Control Cabinet

- Valves located near application - ready for machine mounting
- IP65 rating suitable for dusty and wet environments

Advantages

- Smallest control cabinet
- Reduces tubing length and improves response time
- Eliminates pneumatic bulk fittings on control cabinet



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Complete Fieldbus Systems: Turck Fieldbus System with BL Remote DeviceNet Subnet

General Product Features

- Turck Fieldbus System with up to 256 inputs / outputs and 32 Solenoids per manifold
- Digital inputs / outputs, analog inputs / outputs, serial interface, counter modules, and RFID modules available
- Connectivity to Isys Micro and Isys ISO valves

BL Remote DeviceNet Subnet Features

- With BL Remote DeviceNet Subnet functionality, each communication module has its own DeviceNet master which provides a connection for 63 DeviceNet nodes with additional inputs, outputs, and solenoid control
- BL Remote DeviceNet Subnet is independent of the main fieldbus network, and is not visible to the master PLC
- Moduflex DeviceNet modules can be attached to the subnet to provide a connection for 16 solenoids each
- Turck DeviceNet modules can be attached to the subnet to provide a connection for 16 or 32 solenoids each and inputs and outputs up to the 256 input and output limitation

System Advantages

- Handle all I/O from one node; eliminate PLC input / output cards
- Fieldbus equipped manifolds – optimized for PLC's with fieldbus capability
- Many DeviceNet nodes can be attached to the network – valve manifolds, inputs, outputs or other devices
- Eliminates junction boxes, terminal strips, and conduit runs for all inputs and outputs, greatly reducing wiring time

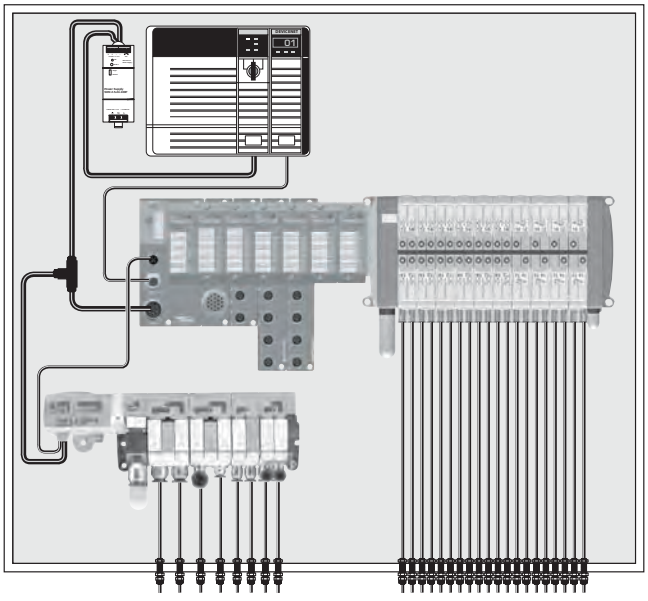
Centralized Application

Valves Inside Control Cabinet

- Valves located near machine control
- Applications with caustic wash down, hazardous areas, or extreme temperatures

Advantages

- Highest degree of environmental protection
- One location for all control devices
- Small size requires minimal cabinet space



Bulkhead Pneumatic Fittings

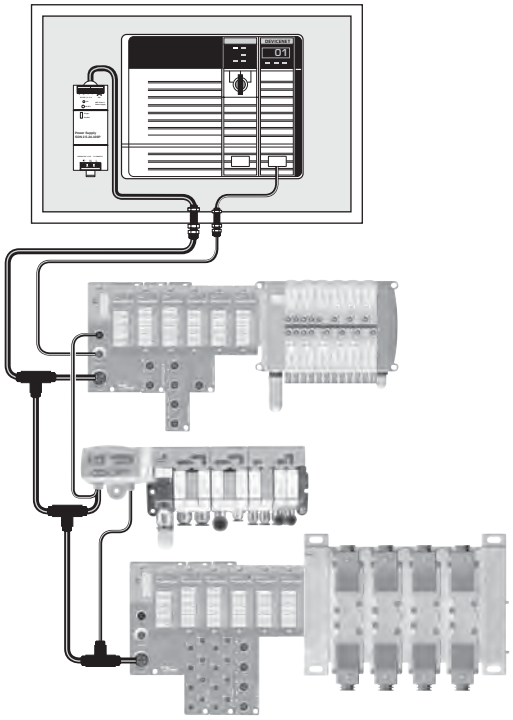
Decentralized Application

Valves Outside Control Cabinet

- Valves located near application, ready for machine mounting
- IP65 rating suitable for dusty and wet environments

Advantages

- Smallest control cabinet
- Reduces tubing length and improves response time
- Eliminates pneumatic bulk fittings on control cabinet



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Complete Fieldbus Systems: Turck Fieldbus System with Stand alone Control

General Product Features

- Turck Fieldbus System with up to 256 inputs / outputs and 32 Solenoids per manifold
- Digital inputs / outputs, analog inputs / outputs, serial interface, counter modules, and RFID modules available
- Connectivity to Isys Micro and Isys ISO valves

Stand Alone Control Features

- Communication modules equipped with standalone control – programmed according to IEC61131-3 with CoDeSys
- 512KB Program memory with 32 bit RISC processor
- Run 1000 instructions in less than 1 ms
- Fieldbus equipped manifolds – optimized for PLC's with fieldbus capability or standalone controllers that need to interface with other devices

System Advantages

- Handle all I/O and control with one system; eliminate the PLC when used as the main controller for smaller machines
- Reduces programming and bandwith requirements on large machines with a master PLC controller by handling local I/O and interfacing with the PLC over the fieldbus network
- Fieldbus equipped manifolds provide connectivity to other fieldbus devices
- Eliminates junction boxes, terminal strips, and conduit runs for all inputs and outputs, greatly reducing wiring time

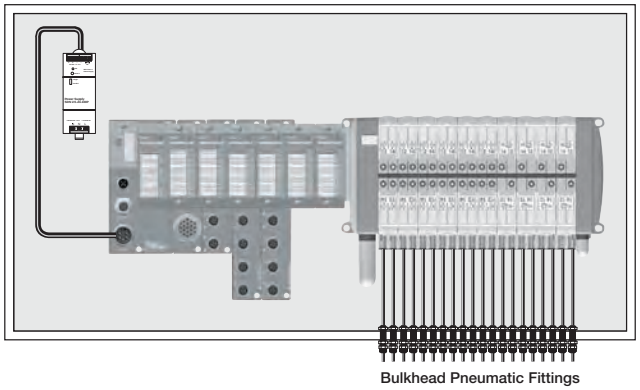
Centralized Application Valves

Inside Control Cabinet

- Valves attached to the machine control
- Applications with caustic wash down, hazardous areas, or extreme temperatures

Advantages

- Highest degree of environmental protection
- One location for all control devices



Bulkhead Pneumatic Fittings

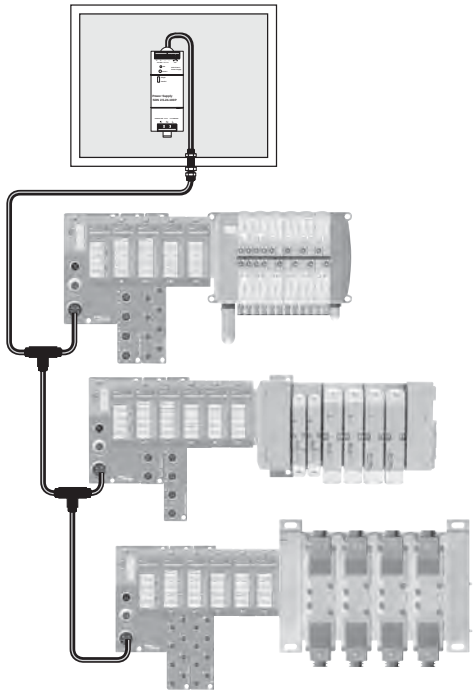
Decentralized Application

Valves Outside Control Cabinet

- Valves and machine control located near application, ready for machine mounting
- IP65 rating suitable for dusty and wet environments

Advantages

- No control cabinet needed when used as the main controller
- Reduces tubing length and improves response time
- Eliminates pneumatic bulk fittings on control cabinet



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Pneumatic Division
Richland, Michigan
www.parker.com/pneumatics

Complete Fieldbus Systems: Turck Fieldbus System with Stand Alone Control and BL Remote DeviceNet Subnet

General Product Features

- Turck Fieldbus System with up to 256 inputs / outputs and 32 Solenoids per manifold
- Digital inputs / outputs, analog inputs / outputs, serial interface, counter modules, and RFID modules available
- Connectivity to Isys Micro and Isys ISO valves

Stand Alone Control Features

- Communication modules equipped with standalone control – programmed according to IEC61131-3 with CoDeSys
- 512KB Program memory with 32 bit RISC processor
- Run 1000 instructions in less than 1 ms

BL Remote DeviceNet Subnet Features

- With BL Remote DeviceNet Subnet functionality, each communication module has its own DeviceNet master which provides a connection for 63 DeviceNet nodes with additional inputs, outputs, and solenoid control
- BL Remote DeviceNet Subnet is independent of the main fieldbus network, and is not visible to the master PLC
- Moduflex DeviceNet modules can be attached to the subnet to provide a connection for 16 solenoids each
- Turck DeviceNet modules can be attached to the subnet to provide a connection for 16 or 32 solenoids each and inputs and outputs up to the 256 input and output limitation

System Advantages

- Handle all I/O and control with one system; eliminate the PLC when used as the main controller for smaller machines
- Reduces programming and bandwith requirements on large machines with a master PLC controller by handling local I/O and interfacing with the PLC over the fieldbus network
- Fieldbus equipped manifolds provide connectivity to other fieldbus devices
- Many DeviceNet nodes can be attached to the network – valve manifolds, inputs, outputs or other devices
- Eliminates junction boxes, terminal strips, and conduit runs for all inputs and outputs, greatly reducing wiring time

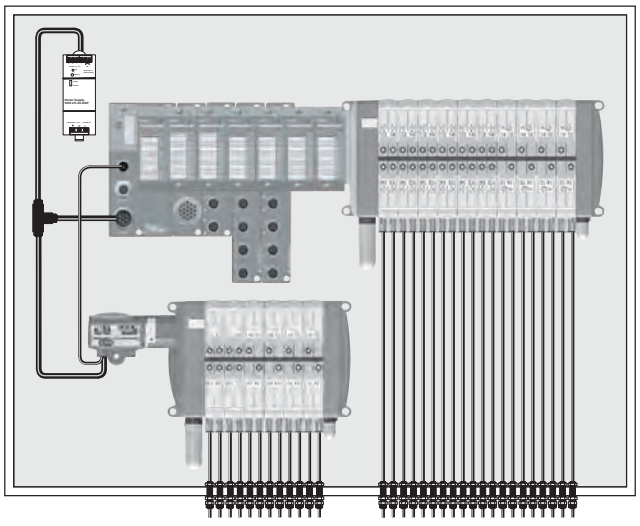
Centralized Application

Valves Inside Control Cabinet

- Valves attached to the machine control
- Applications with caustic wash down, hazardous areas, or extreme temperatures

Advantages

- Highest degree of environmental protection
- One location for all control devices
- Small size requires minimal cabinet space



Bulkhead Pneumatic Fittings

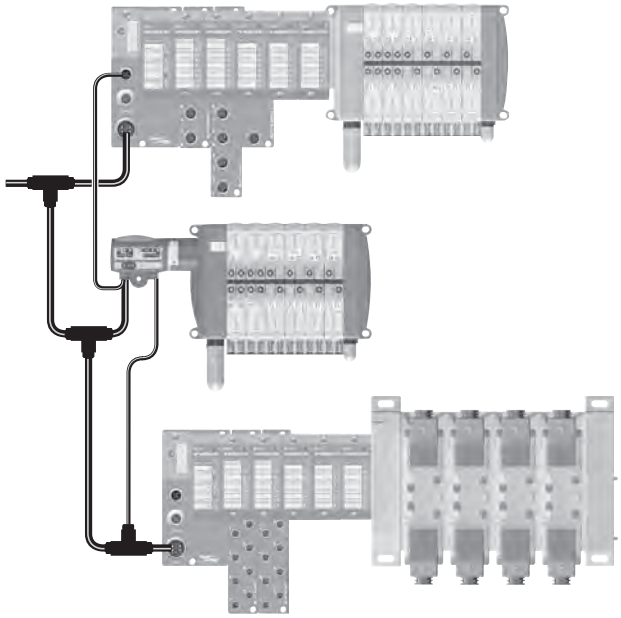
Decentralized Application

Valves Outside Control Cabinet

- Valves and machine control located near application - ready for machine mounting
- IP65 rating suitable for dusty and wet environments

Advantages

- No control cabinet needed when used as the main controller
- Reduces tubing length and improves pneumatic response time
- Eliminates pneumatic bulk fittings on control cabinet



Parker Hannifin Corporation
Pneumatic Division
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Complete Fieldbus Systems: Turck Fieldbus System with Stand Alone Control, BL Remote DeviceNet Subnet, and CANopen Expansion

General Product Features

- Turck Fieldbus System with up to 256 inputs / outputs and 32 Solenoids per manifold
- Digital inputs / outputs, analog inputs / outputs, serial interface, counter modules, and RFID modules available
- Connectivity to Isys Micro and Isys ISO valves

Stand Alone Control Features

- Communication modules equipped with standalone control – programmed according to IEC61131-3 with CoDeSys
- 512KB Program memory with 32 bit RISC processor
- Run 1000 instructions in less than 1 ms

BL Remote DeviceNet Subnet Features

- Each communication module has its own DeviceNet master which provides a connection for 63 DeviceNet nodes with additional inputs, outputs, and solenoid control
- BL Remote DeviceNet Subnet is independent of the main fieldbus network, and is not visible to the master PLC
- Moduflex DeviceNet modules can be attached to the subnet to provide a connection for 16 solenoids each
- Turck DeviceNet modules can be attached to the subnet to provide a connection for 16 or 32 solenoids each and inputs and outputs up to the 256 input and output limitation

CANopen Expansion Features

- Using a CANopen Interface module, a CANopen subnet is created within the BL67 network, controlling an additional 64 inputs, outputs, or solenoids
- The CANopen subnet is independent of the main fieldbus network, and is not visible to the master PLC
- Additional Moduflex CANopen modules can be attached to the CANopen subnet to provide a connection for 16 solenoids each
- Other 3rd party CANopen devices can also be used on this network, within the 64 bit CANopen Expansion limit

System Advantages

- Handle all I/O and control with one system; eliminate the PLC when used as the main controller for smaller machines
- Reduces programming and bandwith requirements on large machines with a master PLC controller by handling local I/O and interfacing with the PLC over the fieldbus network
- Fieldbus equipped manifolds provide connectivity to other fieldbus devices
- Many DeviceNet nodes can be attached to the network – valve manifolds, inputs, outputs or other devices
- Several CANopen nodes can be attached to the network – valve manifolds, inputs, outputs or other devices
- CANopen expansion allows additional devices to be attached to the system without a CANopen scanner card
- Eliminates junction boxes, terminal strips, and conduit runs for all inputs and outputs, greatly reducing wiring time

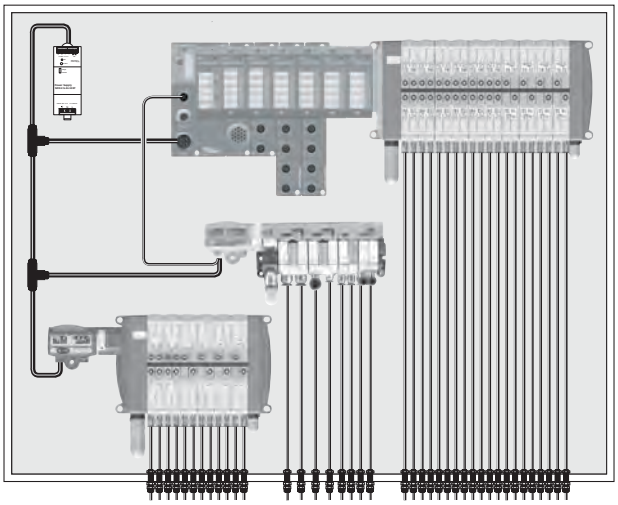
Centralized Application

Valves Inside Control Cabinet

- Valves attached to the machine control
- Applications with caustic wash down, hazardous areas, or extreme temperatures

Advantages

- Highest degree of environmental protection
- One location for all control devices
- Small size requires minimal cabinet space



Bulkhead Pneumatic Fittings

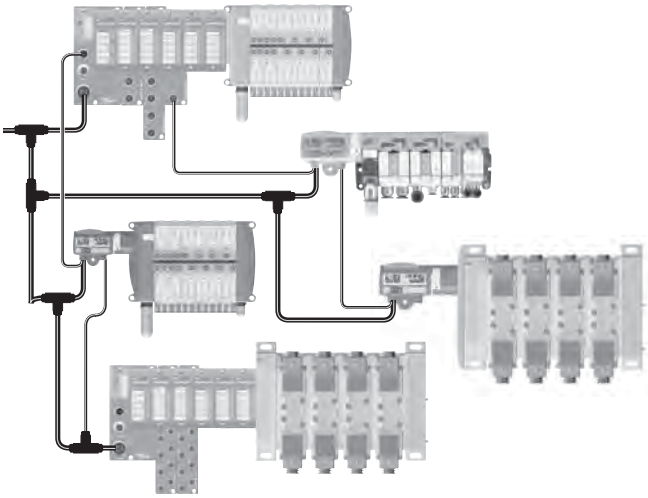
Decentralized Application

Valves Outside Control Cabinet

- Valves and machine control located near application - ready for machine mounting
- IP65 rating suitable for dusty and wet environments

Advantages

- No control cabinet needed when used as the main controller
- Reduces tubing length and improves pneumatic response time
- Eliminates pneumatic bulk fittings on control cabinet



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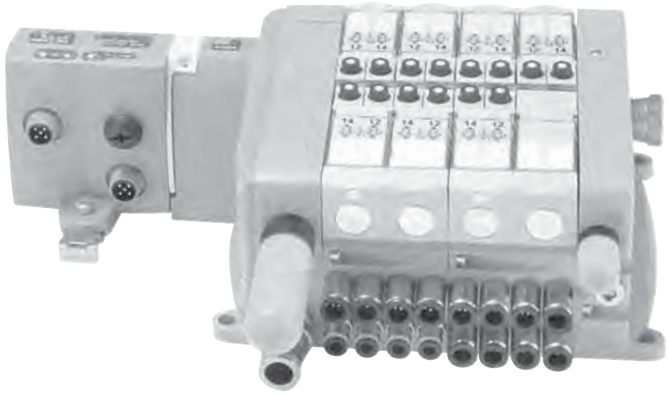
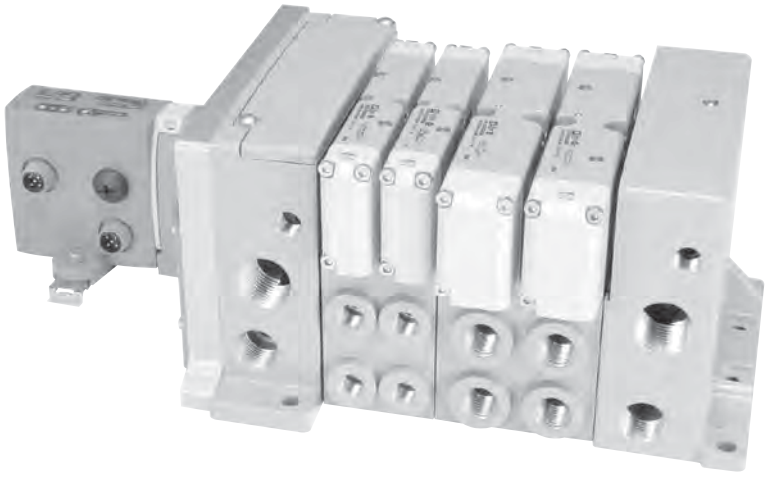
The Moduflex Fieldbus System

Moduflex communication modules directly attach to the end plate. It offers a compact and low cost fieldbus solution.

Moduflex Features

- Small, compact product design
- Broad protocol offering, including DeviceNet, Profibus, AS-i, CANopen, and Interbus
- Channel-level diagnostics (LED and Electronic)
- Inputs available with AS-i modules
- Horizontal and vertical mounting without derating
- 5g vibration
- Quick-disconnects for I/O and network connectivity
- Built-in panel grounding
- CE certification





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Communication Modules

DeviceNet™ CANopen PROFIBUS PROCESS FIELD BUS INTERBUS-S

Control for up to 16 solenoids

P2M2HBVP11600

Protocol	Part Number
Profibus DP	**P2M2HBVP21600**
DeviceNet	**P2M2HBVD21600**
CANopen	**P2M2HBVC21600**
InterBus-S	P2M2HBVS11600

Fieldbus Accessories

	Protocol	Connector Type	Part Number
Power Supply Field Wireable Connector	Profibus DP / InterBus-S / DeviceNet / CANopen	M12 type A Female	**P8CS1205AA**
Line Termination Resistor	Profibus DP	M12 type B	**P8BPA00MB**
	DeviceNet / CANopen	M12 type A	**P8BPA00MA**

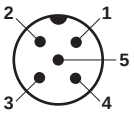
Note: Use standard cables and connectors for bus communications from your electrical supplier.

M12 (Male) Power Supply Connector

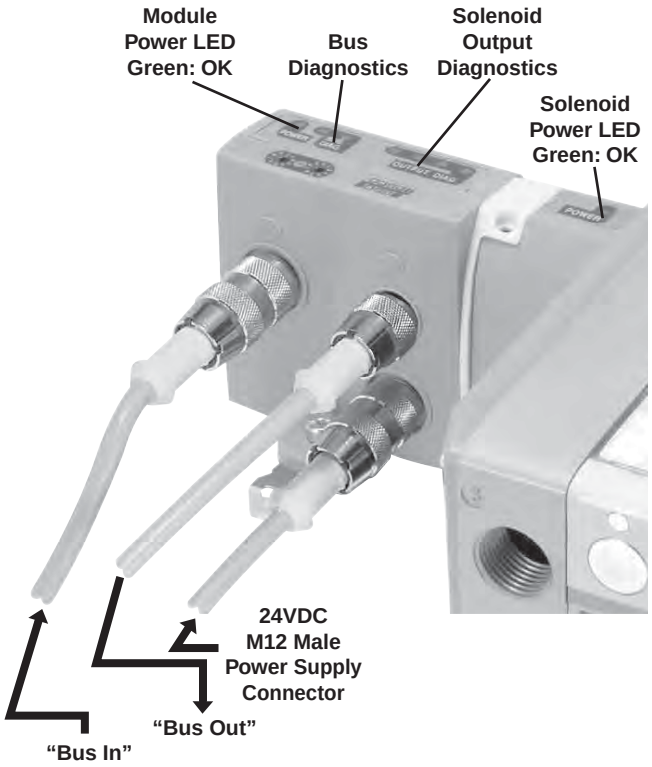
1 - 24VDC Module (Not Connected for DeviceNet and CANopen)
2 - Not Connected
3 - 0VDC Module and Solenoid
4 - 24VDC Solenoid
5 - Protected Earth (PE)

Profibus DP / DeviceNet / CANopen / InterBus-S

24VDC
(As Seen On Module)



M12 Male
Type A



Connection

All communication modules have an M12 male connector for power supply.

Connector on Moduflex Modules are labeled. Bus Connectors are labeled "Bus In" and "Bus Out" while, Power Supply Connections are labeled "24VDC". Connect Fieldbus to "Bus In" and "Bus Out" and Power Supply to "24VDC".

Diagnostic

The two "power" indicators shown on the illustrations provide visual indication of the module and solenoid supply status.

Note: Output power to the solenoids can be wired to allow the user to turn the outputs off while allowing communications to remain on. This can be done by placing the user's Emergency Stop switch or other hard-wired control contact between Pin 1 and Pin 4. If this feature is not required, Pin 1 and Pin 4 should be wired together.

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Communication Module: Connections, Addressing, Diagnostic

Bus Cable Connections

Profibus DP standard male and female type B M12 connectors.

Line termination P8BPA00MB, is necessary on the “bus out” connector of the last station.

This module incorporates an Autobaud detect feature, eliminating the need to set switches.

Addressing

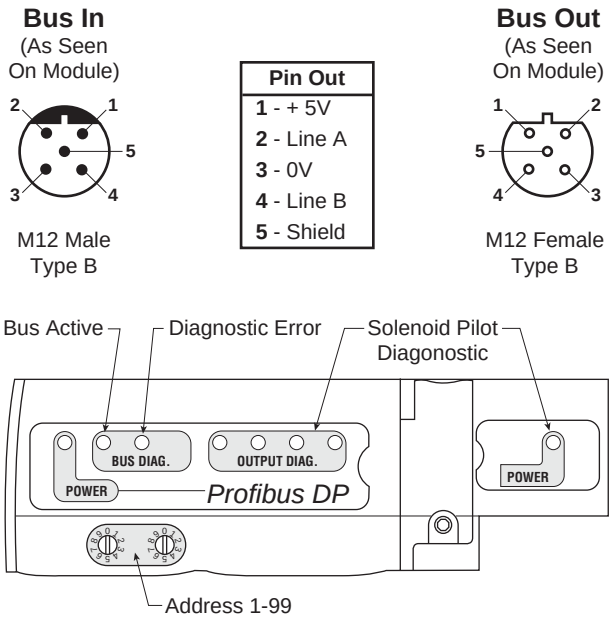
Use the GSD file on web site.

The rotary switches enable configuration of the decimal address.

• www.parker.com/pneu/moduflex

Diagnostic

Diagnostic according to the module dialog shown on the illustration.



Bus Cable Connections

DeviceNet standard male and female type A M12 connectors.

Line termination P8BPA00MA, is necessary on the “bus out” connector of the last station.

Addressing

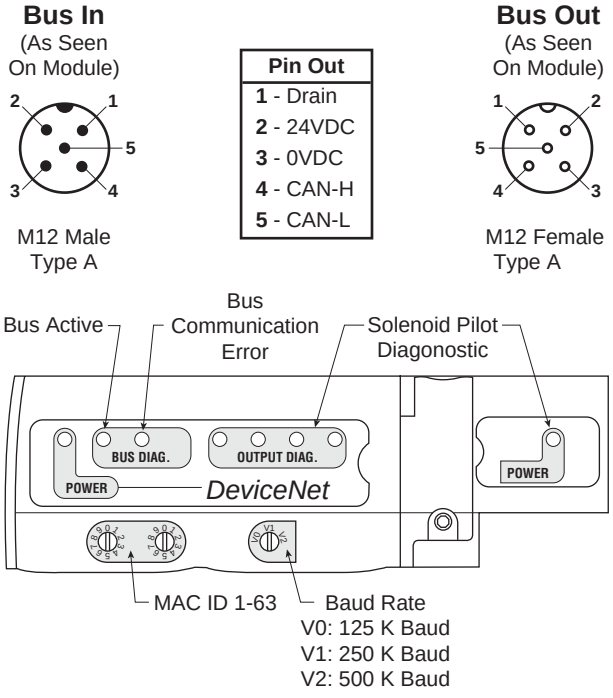
Use the EDS file on web site.

The rotary switches enable configuration of the node address (MAC ID) and the baud rate.

• www.parker.com/pneu/moduflex

Diagnostic

Diagnostic according to the module dialog shown on the illustration.



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CANopen

Bus Cable Connections

CANopen standard male and female type A M12 connectors.

Line termination P8BPA00MA, is necessary on the “bus out” connector of the last station.

Addressing

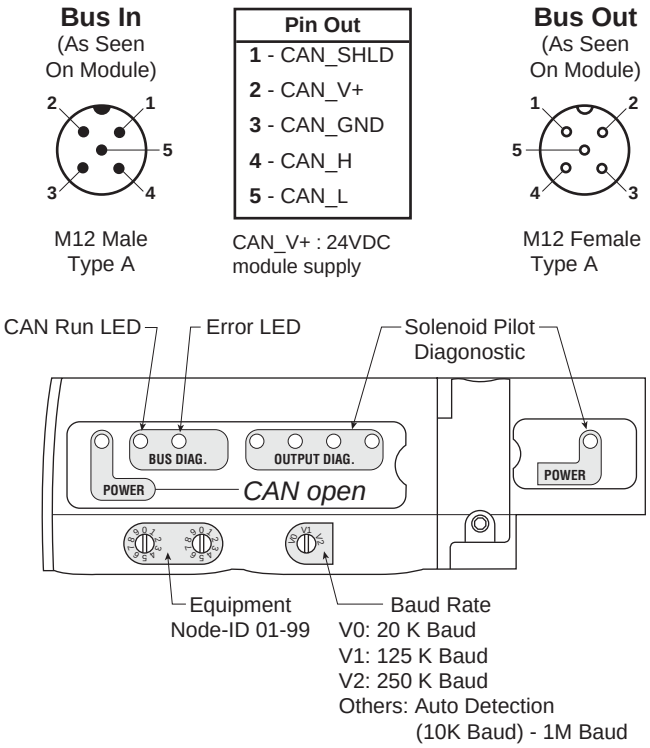
Use the EDS file on web site.

The rotary switches enable configuration of the decimal address.

- www.parker.com/pneu/moduflex

Diagnostic

Diagnostic according to the module dialog shown on the illustration.



INTERBUS-S

Bus Cable Connections

The M23 connectors conform to “Interbus remote bus”.

This module operates at 500 kbps.

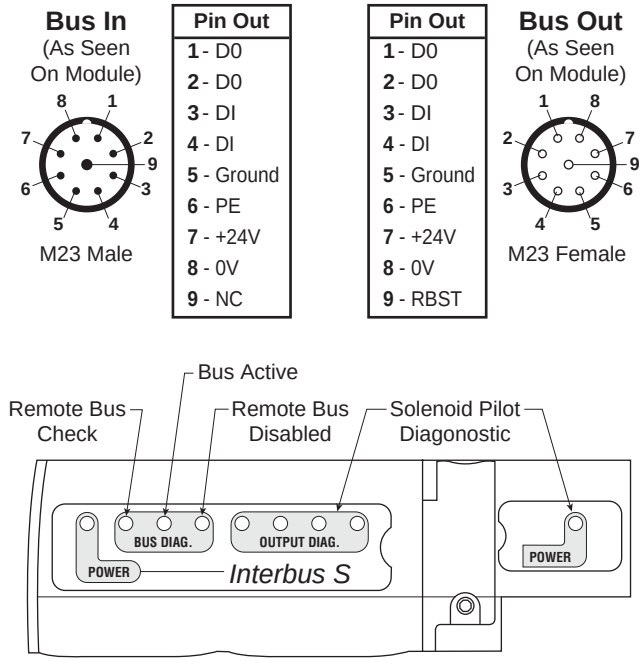
Addressing

InterBus-S is self addressing; therefore, it does not need any software or hardware configuration.

Diagnostic

Diagnostic according to the module dialog shown on the illustration.

This diagnostic conforms to the InterBus-S standard.



Note: For more details, please consult “Interbus remote bus” documentation.

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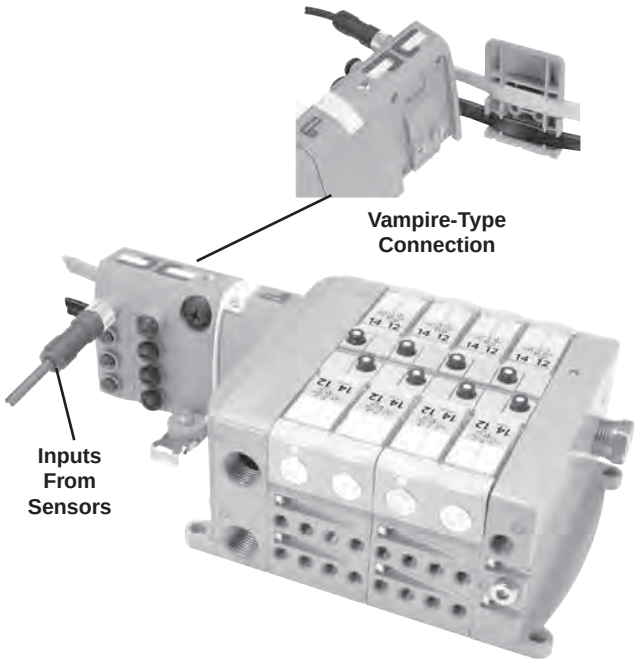
AS-i Bus Communication Modules

P2M2HBVA10808A **P2M2HBVA10808B**

P2M2HBVA10800



Standard AS-i Protocol (up to 31 nodes)

Communication Module for 8 Solenoids Max. (2 nodes per module, 4 inputs, 4 solenoids per node)

Input / Output Capability	Weight (oz)	Part Number
0 inputs and 8 solenoid outputs	5.29	**P2M2HBVA10800**
8 (PNP) inputs on eight (M8) connectors and 8 solenoid outputs	7.05	**P2M2HBVA10808A**
8 (PNP) inputs on four (M12) connectors and 8 solenoid outputs	7.05	P2M2HBVA10808B

AS-i Version 2.1 Protocol (up to 62 nodes)

Communication Module for 6 Solenoids Max. (2 nodes per module, 4 inputs, 3 solenoids per node)

Input / Output Capability	Weight (oz)	Part Number
0 inputs and 6 solenoid outputs	5.29	**P2M2HBVA20600**
8 (PNP) inputs on eight (M8) connectors and 6 solenoid outputs	7.05	**P2M2HBVA20608A**
8 (PNP) inputs on four (M12) connectors and 6 solenoid outputs	7.05	P2M2HBVA20608B

AS-i Bus Accessories

M12 Cable with Jack for Addressing

Length	Weight (oz)	Part Number
1 m	3.53	**P8LS12JACK**

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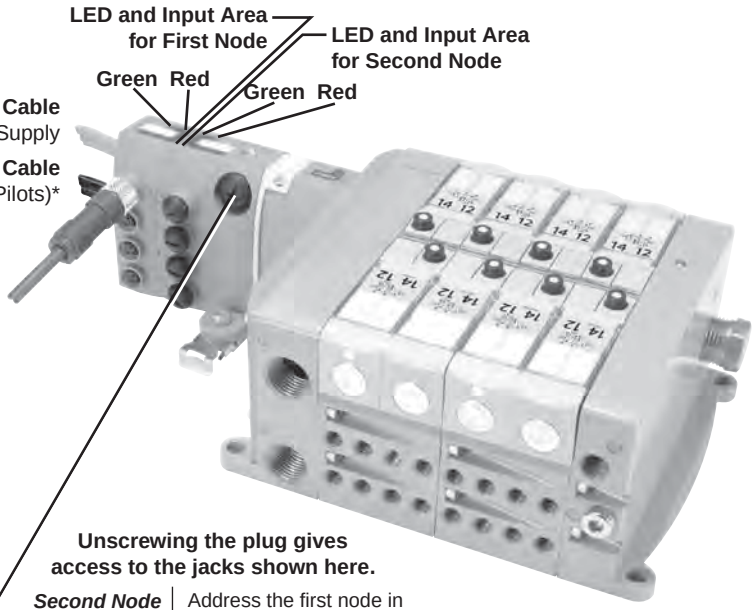
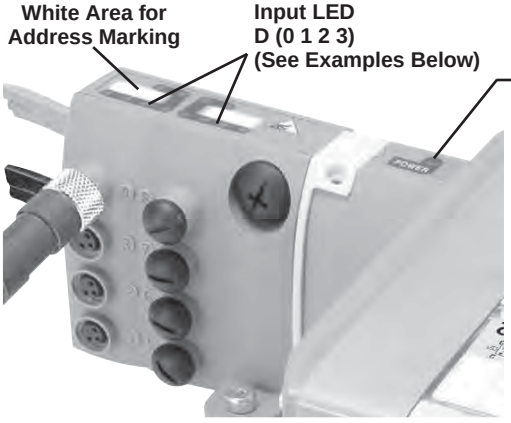
AS-i Bus Communication Module: Addressing, Diagnostic, Input Wiring

Bus Addressing, First and Second Node





Bus Diagnostic

"Power" LED State	Off	Green	Red
Power Supply	Sol. Pilot Supply	Normal Operation	Solenoid Overload

First Node LEDs State		Second Node LEDs State		System Condition
Green LED	Red LED	Green LED	Red LED	
✷	❍	✷	❍	Normal Operation
❍	❍	❍	❍	No Module + Sensor Supply
❍	✳	❍	✳	Input Overload
❍	✷	❍	✳	No AS-i Communication
✳	✷	❍	✳	Address First Node = 0
✷	❍	✳	✷	Address Second Node = 0

✷ ON ❍ OFF ✳ BLINK

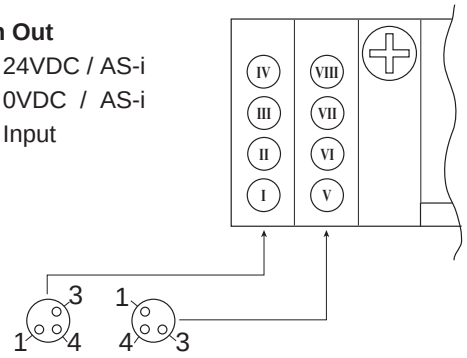
Input Wiring

Physical Input (I, II, III, IV) = D (0 1 2 3) First Node,
Physical Input (V, VI, VII, VIII) = D (0 1 2 3) Second Node.

Examples: Physical Input III = Logical Input 6.2,
Physical Input V = Logical Input 7.0.

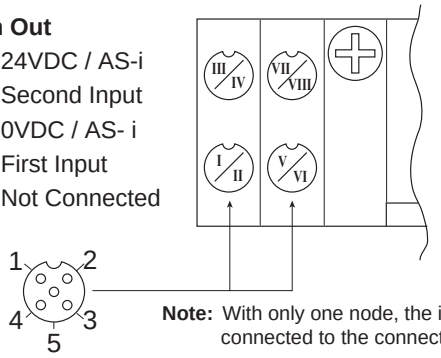
M8 Female Connectors

Pin Out
1 - 24VDC / AS-i
3 - 0VDC / AS-i
4 - Input



M12 Female Connectors

Pin Out
1 - 24VDC / AS-i
2 - Second Input
3 - 0VDC / AS- i
4 - First Input
5 - Not Connected



Note: With only one node, the inputs II and IV are connected to the connections on the right.

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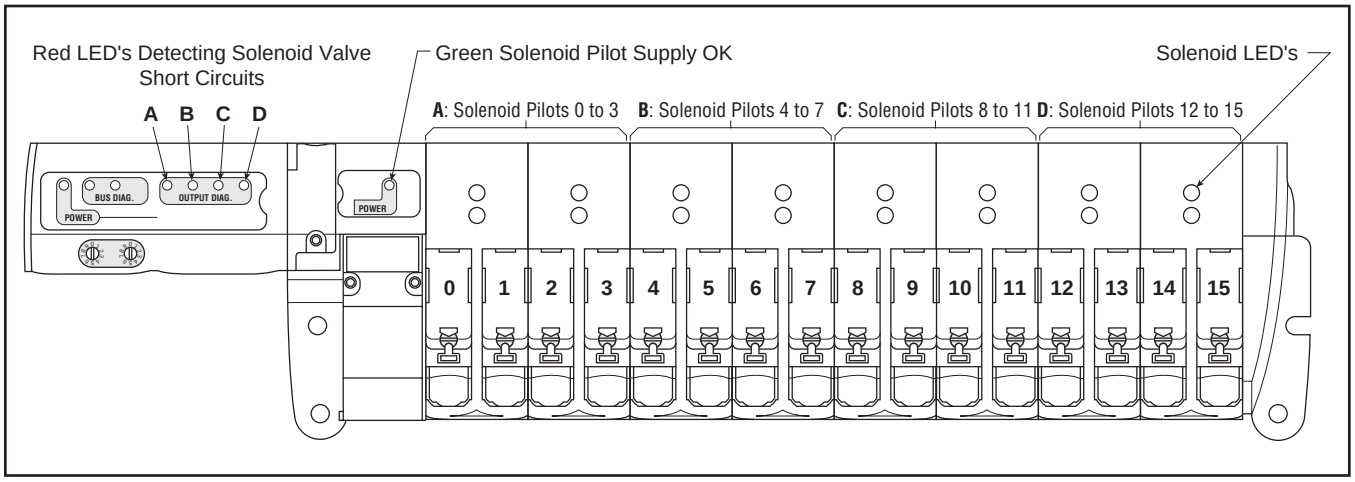
Solenoid Pilot Diagnostic Common to All Device Bus Modules



Inside the communication module, solenoid valve control is protected against short-circuits with the following visual indication provided:

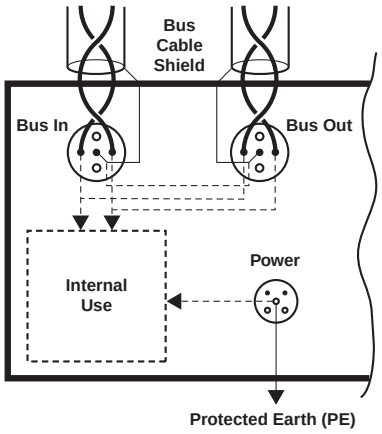
- The red LEDs with code, shown above, detect solenoid valve short-circuits.
- Supply is OK when the solenoid pilot power supply indicator is green.

Bus Cable Protection

Shield Connections for Profibus DP, DeviceNet and CANopen

To provide protection against electro-magnetic interferences, the bus cables are shielded. The “bus in” and “bus out” connectors each include a pin for connecting the cable shield. It is safer to connect the shield to the protected earth (PE) at both ends of the bus. Within the communication module, provision is made to enable shield continuity by connecting the two shield pins.

The protected earth must be connected locally on each module for CE accordance.



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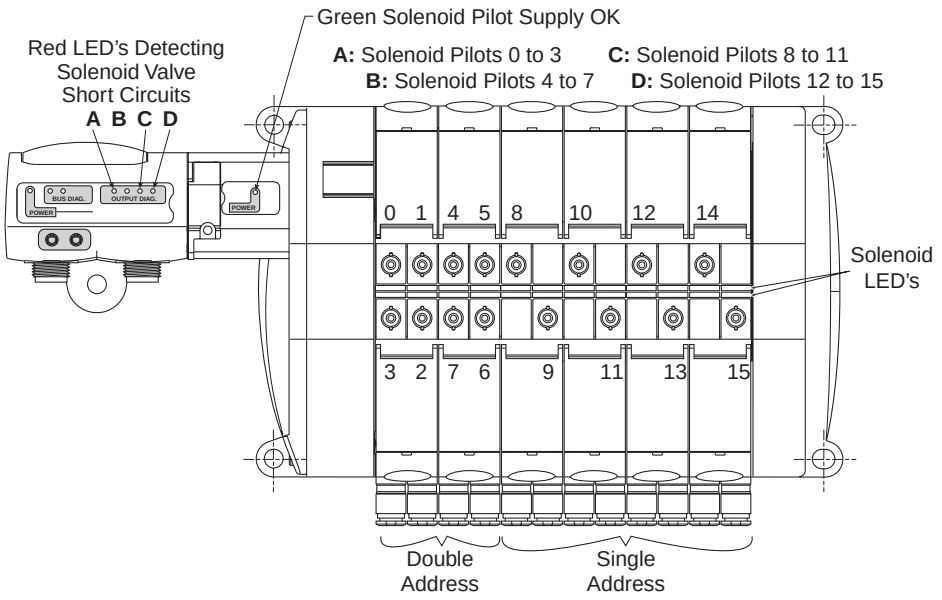
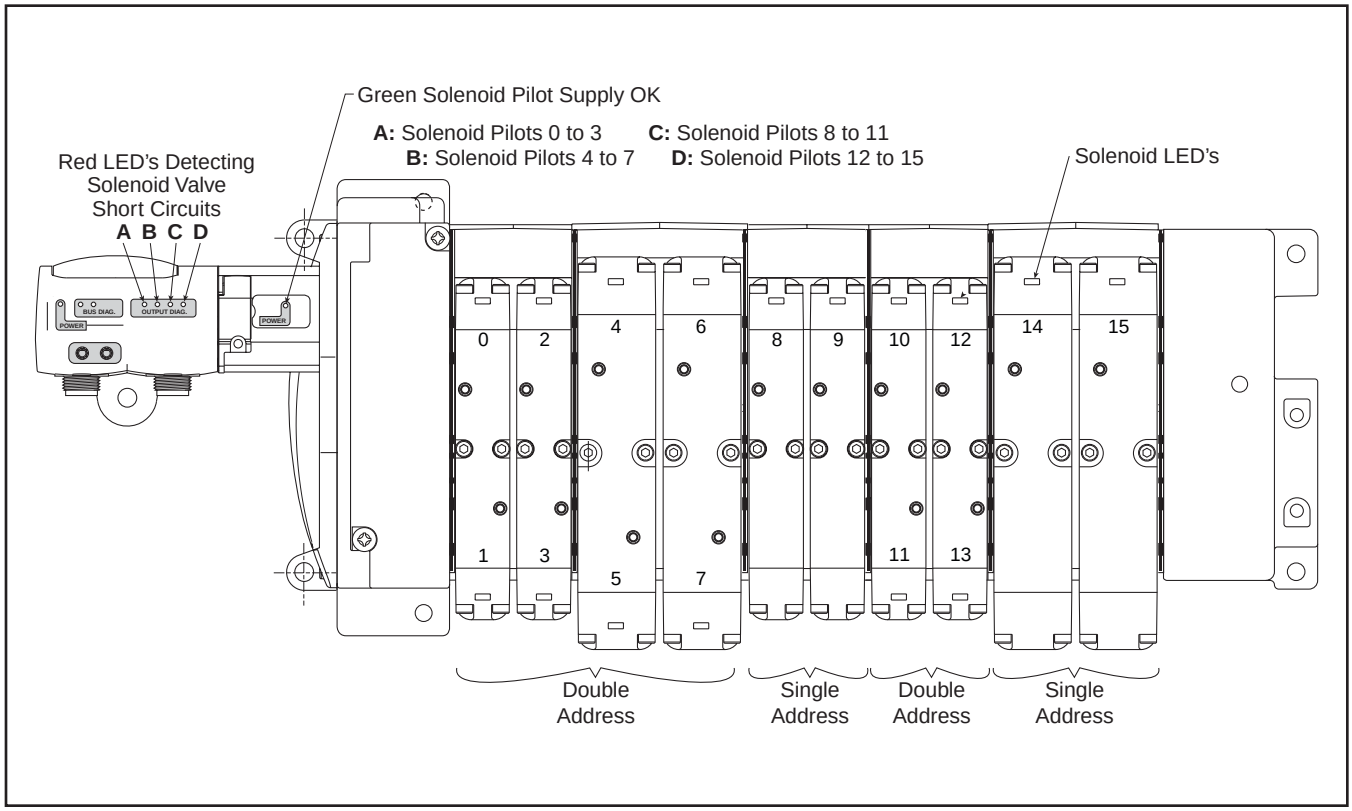
Solenoid Pilot Diagnostic Common to All Moduflex Fieldbus Modules





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- Supply is OK when the solenoid pilot power supply indicator is green.

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Serial Bus Specifications

All Buses	EMC / CE Mark	According to EN 61 000-6-2	EN 50081-2

AS-i Bus	AS-i Line	According to EN 50295
	Solenoid Pilot Voltage	24VDC
	Module Consumption	max. 70 mA (2 nodes)
	Max. Supply for All Inputs	240 mA (including internal input consumption)
	Internal Input Consump.	9 mA for each active input
	Inputs	According to IEC 1131-2 class 2
	Certification	These products have been developed according to the association complete specification (v.2.11) and to the slave profiles S-7.F.E or S-B.F.E

Device Bus	Bus Line	According to each bus specification		
	Module Voltage	20 to 30VDC		
	Solenoid Pilot Voltage	24VDC		
	Module Consumption	Profibus DP max. 1.5W	DeviceNet / CANopen max. 1.5W	InterBus-S max. 2W
	Outputs	Overload protection		
	Certification	DeviceNet: Compliant to Composite Test Revision 17, Test Suite: M002		
		Profibus-DP: Compliant to Test Specifications for Profibus DP Slaves, Version 2.0, February 2000, based on EN 50170-2 at Siemens AG in Furth.		
		InterBus-S: This product has passed the relevant tests in accordance with the Interbus conformance requirements Certified No. 385.		

I/O Tables Common to All Device Bus Modules

Input Data Table								
Byte	**Bit 0**	**Bit 1**	**Bit 2**	**Bit 3**	**Bit 4**	**Bit 5**	**Bit 6**	**Bit 7**
0	Discrete Input 0 (Diagnostic LED 0-3)	Discrete Input 1 (Diagnostic LED 4-7)	Discrete Input 2 (Diagnostic LED 8-11)	Discrete Input 3 (Diagnostic LED 12-15)	—	—	—	—
Output Data Table								
Byte	**Bit 0**	**Bit 1**	**Bit 2**	**Bit 3**	**Bit 4**	**Bit 5**	**Bit 6**	**Bit 7**
0	Discrete Output 0	Discrete Output 1	Discrete Output 2	Discrete Output 3	Discrete Output 4	Discrete Output 5	Discrete Output 6	Discrete Output 7
1	Discrete Output 8	Discrete Output 9	Discrete Output 10	Discrete Output 11	Discrete Output 12	Discrete Output 13	Discrete Output 14	Discrete Output 15

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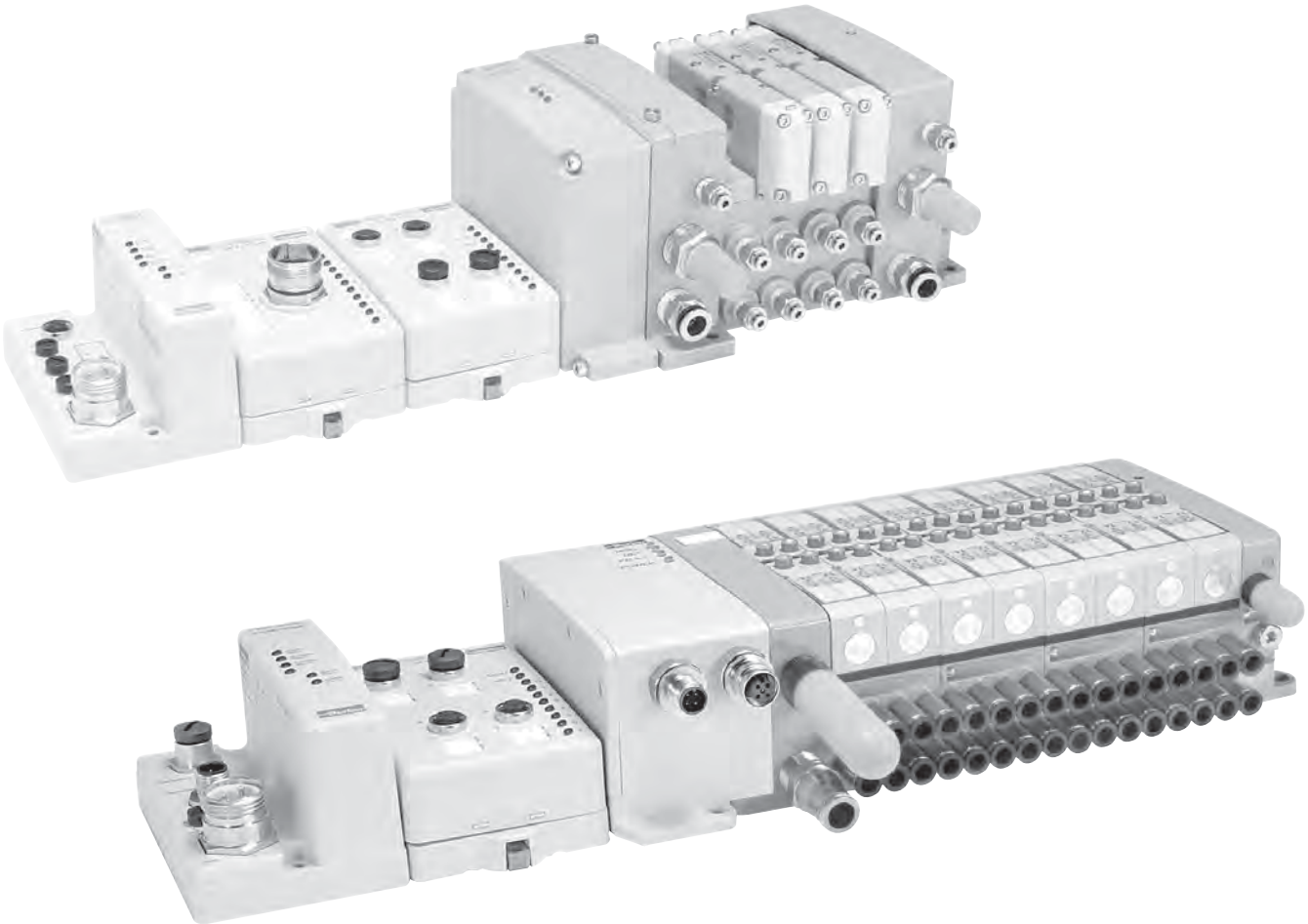
The Isysnet System

Isysnet has four major components:

- **Valve driver module** provide control for 32 solenoids on a manifold, with bus extension providing connectivity to 3 more manifolds
- **I/O modules** provide the field interface, system-interface circuitry, and bases for mounting
- **Communication modules** provide the network-interface circuitry
- **Power distribution module** provide 5 additional power inputs to the Isysnet system

Isysnet Features

- Highly modular design (4pt – 16pt modularity)
- Broad application coverage
- Channel-level diagnostics (LED)
- Channel-level alarm and annunciation (electronic)
- Channel-level open-wire detection with electronic feedback
- Parameter-level explicit messaging
- Horizontal and vertical mounting without derating
- 5g vibration
- Electronic and mechanical keying
- Robust backplane design
- Quick-disconnects for I/O and network connectivity
- Built-in panel grounding
- Color-coded module labels
- UL, C-UL, and CE certifications (as marked)
- Highly reliable structural integrity
- Optical isolation between field and system circuits



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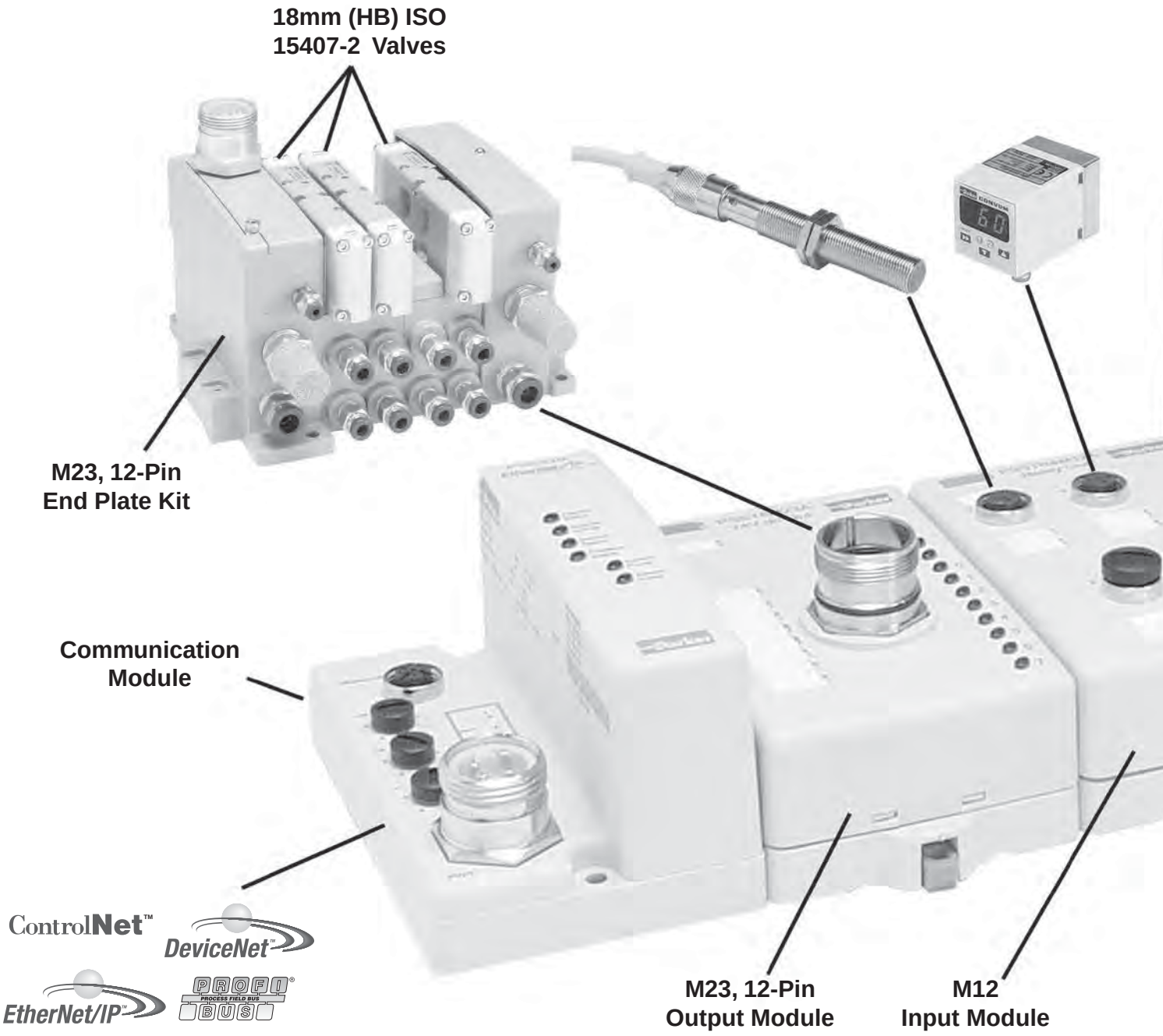
Isys & Isysnet Fieldbus System

- A complete fieldbus communication offering for all Isys ISO and Isys Micro valves.
- CSA, C-US and CE certifications (as marked).



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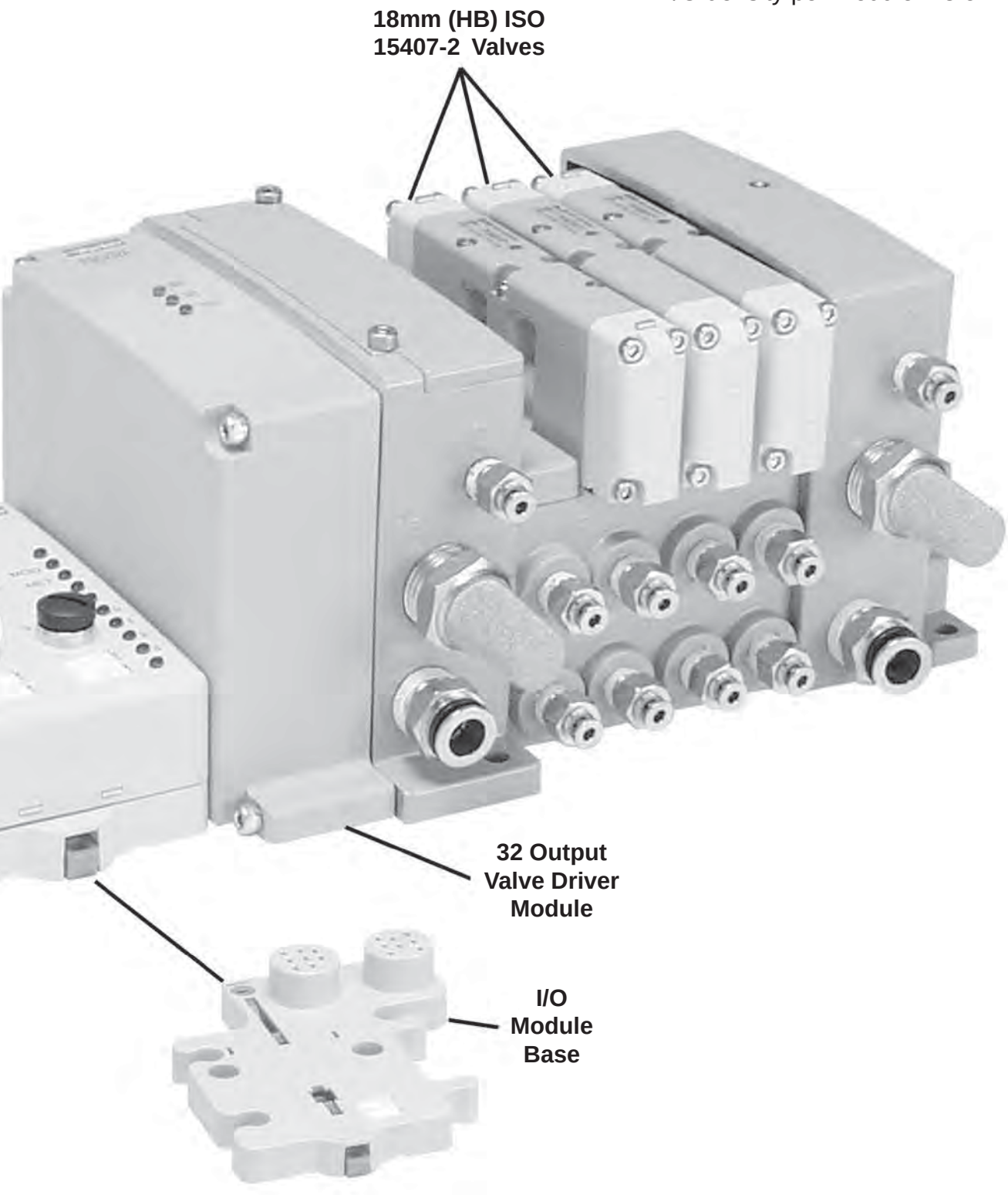
I/O Configuration

- Centralized Isysnet system.
- Pneumatics and I/O are in close proximity to one another.
- I/O density per module = 8 or 16.



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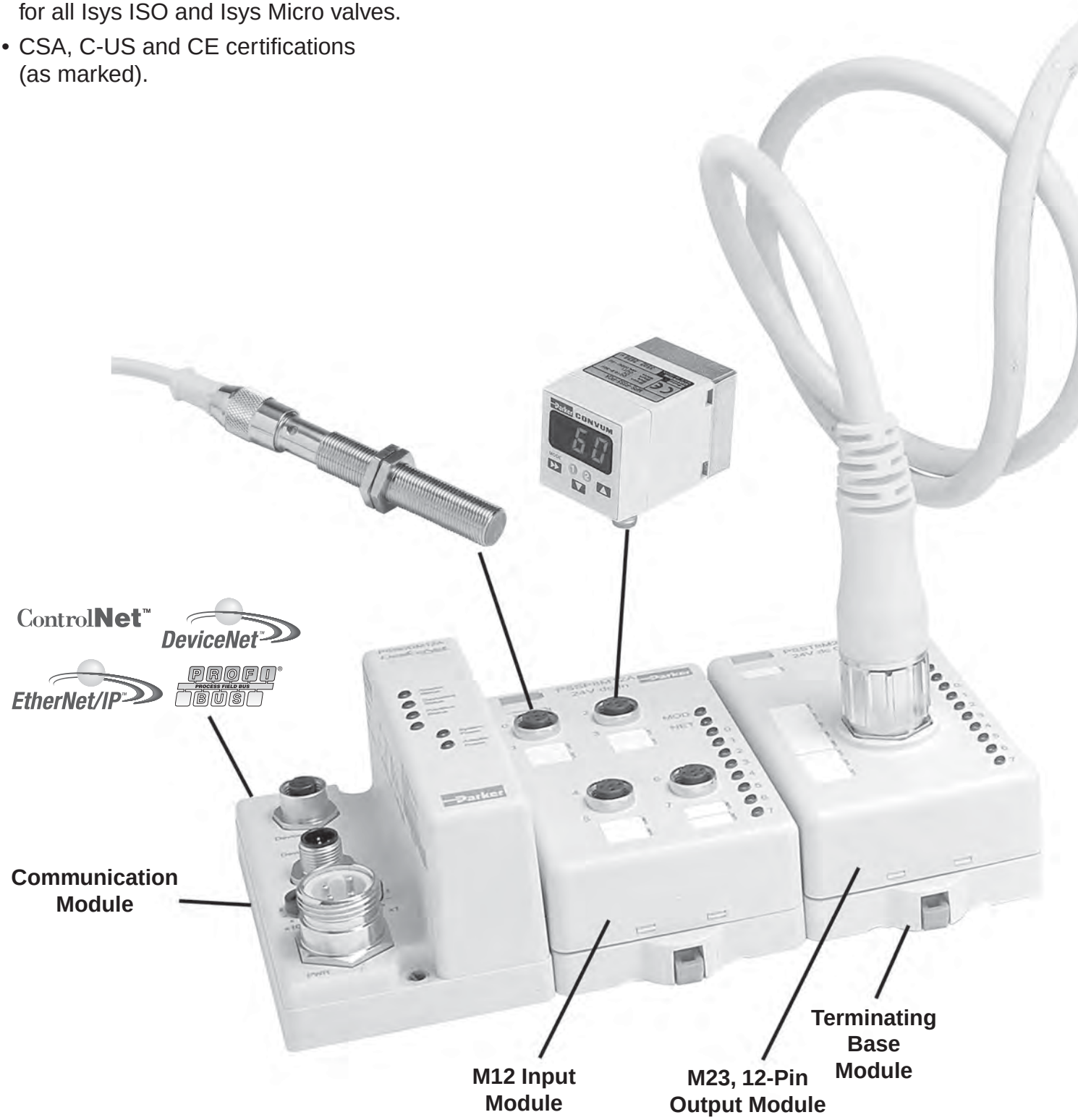

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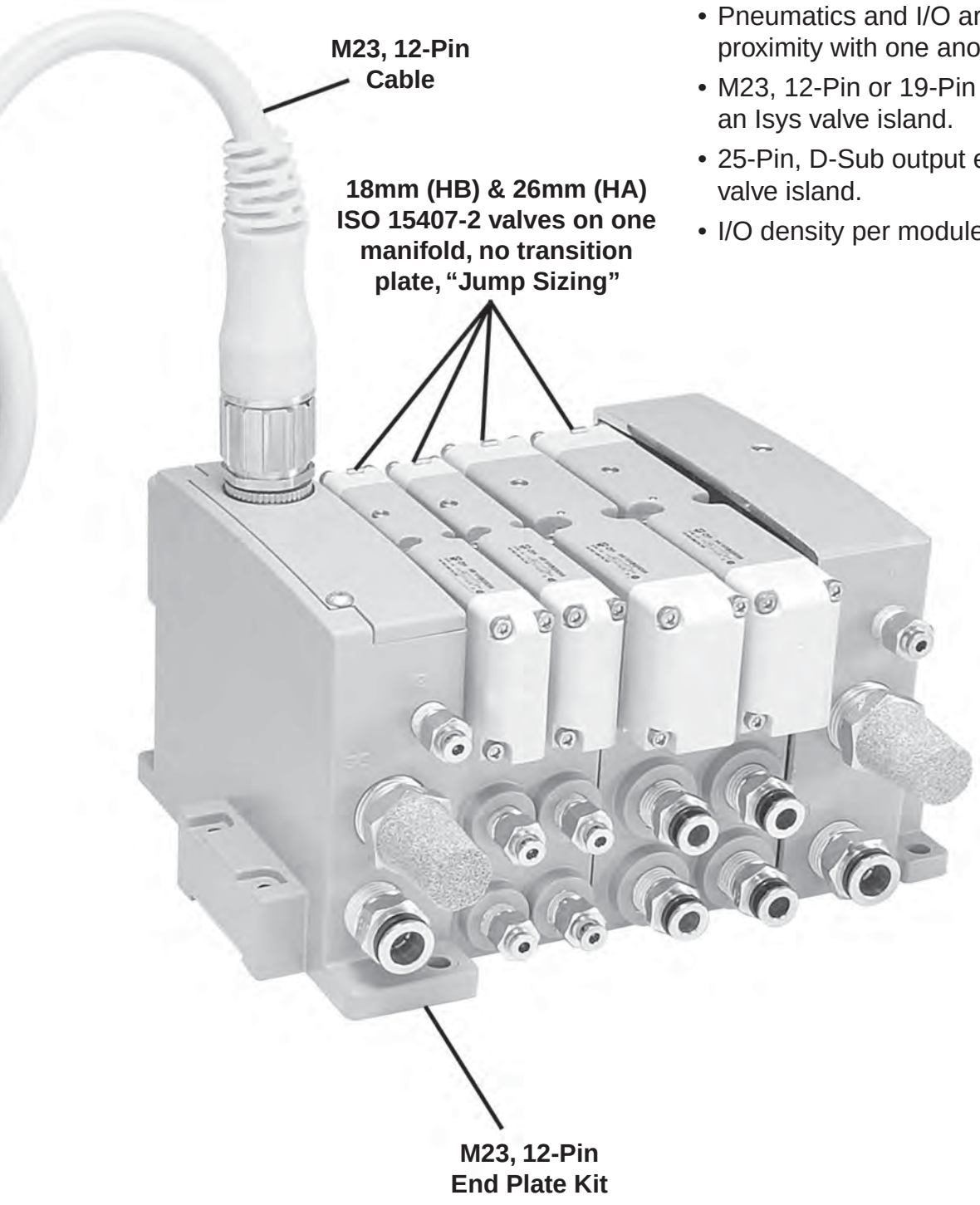
I/O Configuration

- Decentralized Isysnet system.
- Pneumatics and I/O are not in close proximity with one another.
- M23, 12-Pin or 19-Pin output extension to an Isys valve island.
- 25-Pin, D-Sub output extension to an Isys valve island.
- I/O density per module = 8 or 16.



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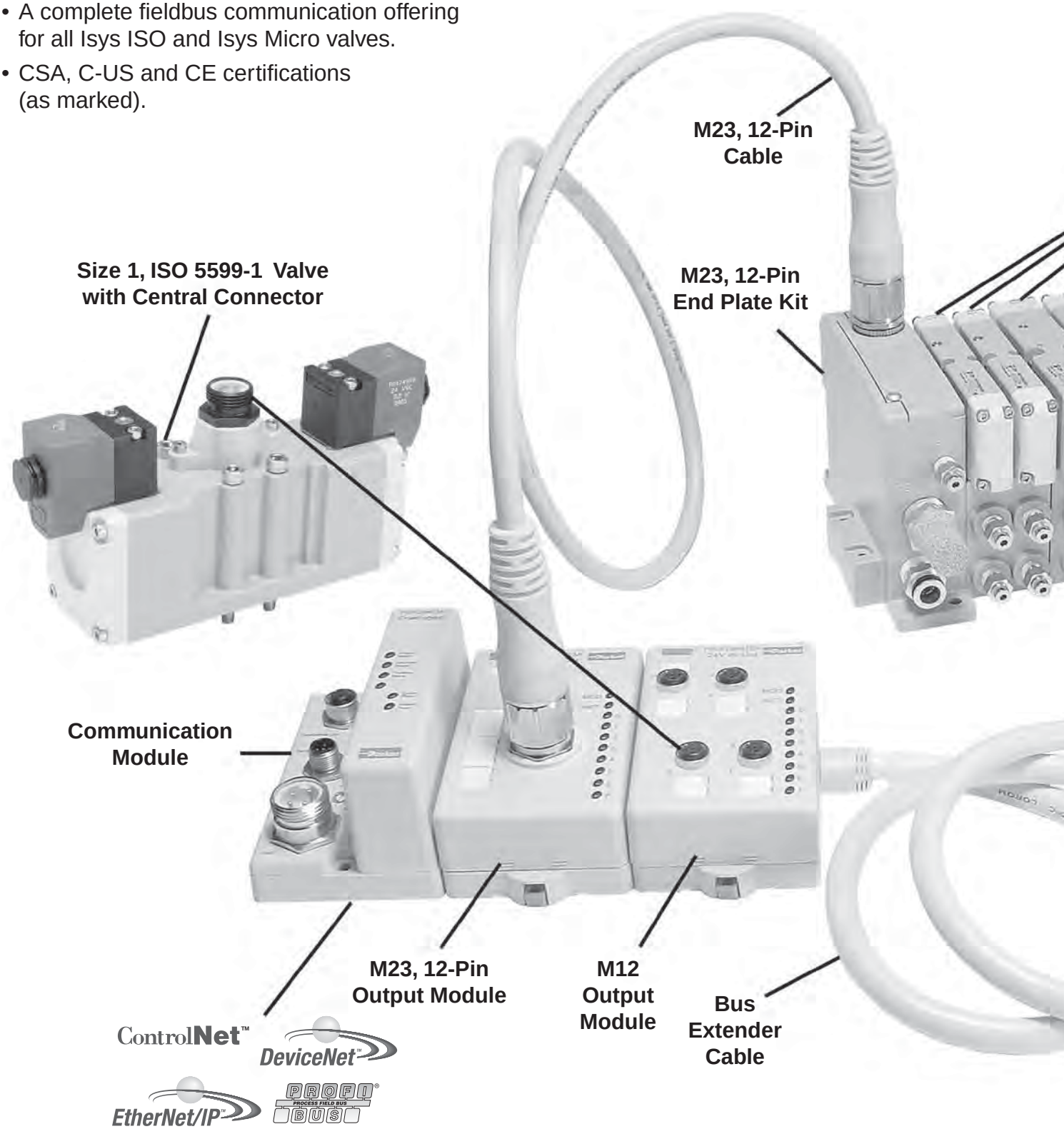

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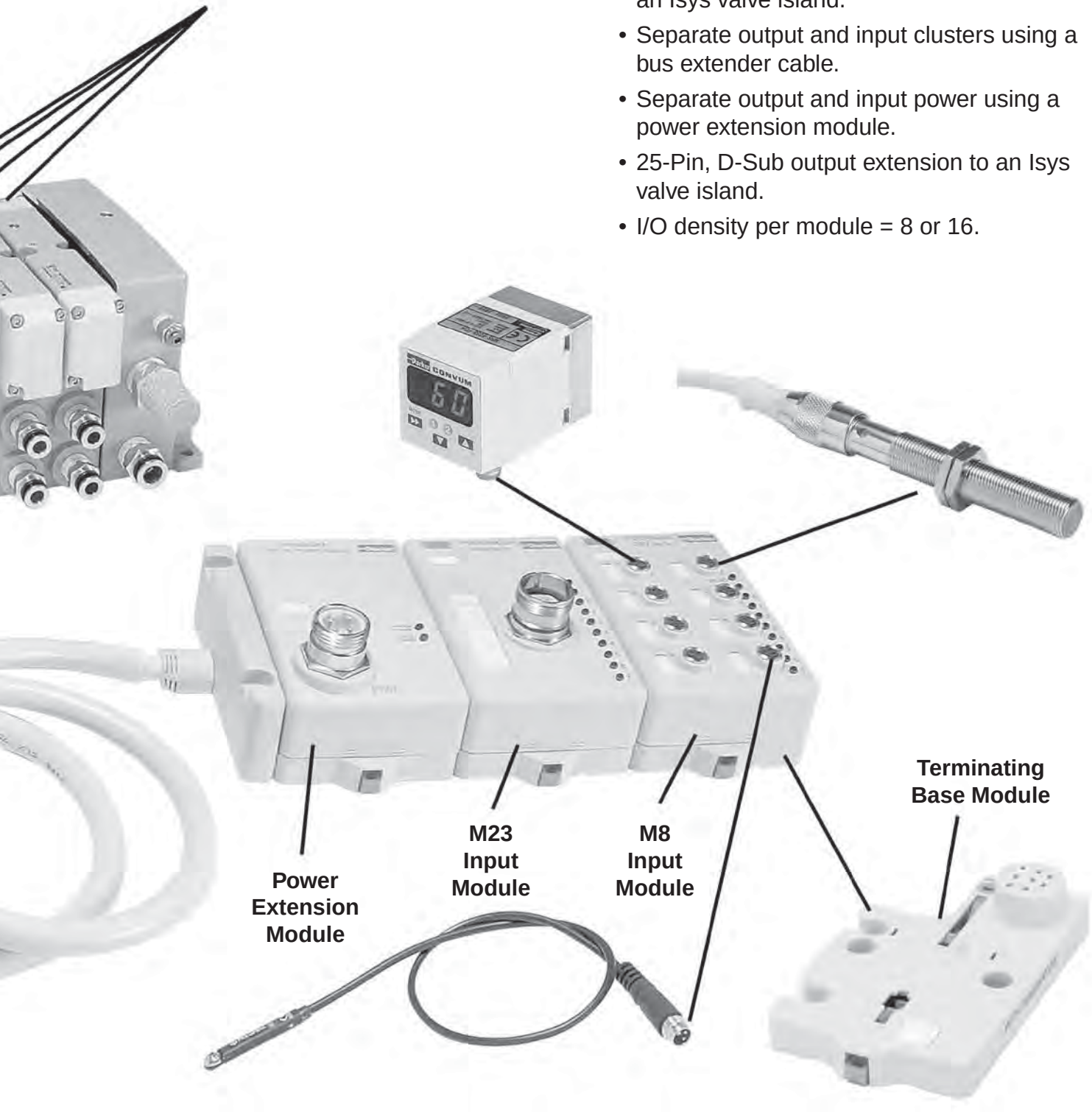
I/O Configuration

- Decentralized Isysnet system.
- Pneumatics and I/O are not in close proximity with one another.
- M23, 12-Pin or 19-Pin output extension to an Isys valve island.
- Separate output and input clusters using a bus extender cable.
- Separate output and input power using a power extension module.
- 25-Pin, D-Sub output extension to an Isys valve island.
- I/O density per module = 8 or 16.

18mm (HB) & 26mm (HA) ISO 15407-2 valves on one manifold, no transition plate, "Jump Sizing"



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Communications Module

Protocol	Part Number
Device**Net™**	**PSSCDM18PA** (7/8" Mini) **or PSSCDM12A** (M12)
Control**Net**™	**PSSCCNA**
EtherNet I/P™	**PSSCENA**
Profibus-DP®	**PSSCPBA**

All Modules IP67 Certified
Reference the following Documents for Installation Instructions.
DeviceNet - E101P, PSS-UM001A; Control Net - E103P
Ethernet I/P - E104P; Profibus-DP - E102P
EDS and GSD files located at www.parker.com/pneu/Isysnet

PSSCENA **PSSCCNA**

Devicebus Terminating Resistor

DeviceNet M12 Type A	P8BPA00MA
Profibus-DP M12 Type B	P8BPA00MB

P8BPA00MA

Digital Inputs

I/O Modules	Part Number	Voltage
16 Digital Inputs M12, 5-Pin used with PNP Sourcing Input Device	**PSSN16M12A**	10 to 28.8VDC
8 Digital Inputs M12, 5-Pin used with PNP Sourcing Input Device	**PSSN8M12A**	10 to 28.8VDC
8 Digital Inputs M12, 5-Pin used with NPN Sinking Input Device	**PSSP8M12A**	10 to 28.8VDC
8 Digital Inputs M8, 3-Pin used with PNP Sourcing Input Device	**PSSN8M8A**	10 to 28.8VDC
8 Digital Inputs M8, 3-Pin used with NPN Sinking Input Device	**PSSP8M8A**	10 to 28.8VDC
8 Digital Inputs M23, 12-Pin used with NPN Sinking Input Device	**PSSP8M23A**	10 to 28.8VDC
8 Digital Inputs M23, 12-Pin used with PNP Sourcing Input Device	**PSSN8M23A**	10 to 28.8VDC

All Modules IP67 Certified
Reference E106P Documents for Installation Instructions.
See www.parker.com/pneu/Isysnet

PSSN16M12A

PSSN8M8A

PSSP8M23A

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Digital Outputs

I/O Modules	Part Number	Voltage
[+] 16 Digital Outputs M23, 19-Pin used with PNP Sourcing Outputs	**PSST16M23A**	10 to 28.8VDC
[+] 16 Digital Outputs D-Sub, 25-Pin used with PNP Sourcing Outputs	**PSST16D25A**	10 to 28.8VDC
[+] 16 Digital Outputs M12, 5-Pin used with PNP Sourcing Outputs	**PSST16M12A**	10 to 28.8VDC
[+] 8 Digital Outputs M12, 5-Pin used with PNP Sourcing Outputs	**PSST8M12A**	10 to 28.8VDC
[+] 8 Digital Outputs M8, 3-Pin used with PNP Sourcing Outputs	**PSST8M8A**	10 to 28.8VDC
[§] 4 Digital Output, High Watt Relay M12, 5-Pin used with PNP Sourcing Outputs (2 Amp)	**PSSTR4M12A**	24VDC
[+] 8 Digital Outputs M23, 12-Pin used with PNP Sourcing Outputs	**PSST8M23A**	10 to 28.8VDC

All Modules IP67 Certified
Reference the following Documents for Installation Instructions.
[+] E107P
[§] E109P
See www.parker.com/pneu/Isysnet

PSST16D25A

PSST16M12A

PSST8M12A

Analog Inputs

I/O Modules	Part Number	Voltage
[‡] 2 Analog Inputs Voltage M12, 5-Pin	**PSSNAVM12A**	-10 to 10VDC or 0 to 10VDC
[‡] 2 Analog Inputs Current M12, 5-Pin	**PSSNACM12A**	4 to 20mA or 0 to 20mA

All Modules IP67 Certified
Reference the following Documents for Installation Instructions.
[‡] E110P
See www.parker.com/pneu/Isysnet

PSSNACM12A

Analog Outputs

I/O Modules	Part Number	Voltage
[**] 2 Analog Outputs Voltage M12, 5-Pin	**PSSTAVM12A**	0 to 10V ± 10V
[**] 2 Analog Outputs Current M12, 5-Pin	**PSSTACM12A**	4 to 20mA or 0 to 20mA

All Modules IP67 Certified
Reference the following Documents for Installation Instructions.
**E111P
See www.parker.com/pneu/Isysnet

PSSTACM12A

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Terminating Base Module

Base Module	Part Number
Termination Base for Stand Alone Units	**PSSTERM**

Used as the last Terminating Module for a Stand Alone Isysnet Assembly.

PSSTERM

Power Extender Module

Extender Module	Part Number
24VDC Field Power Module	**PSSSE24A**

A Power Extender Module must be used on every 14th Module in an Isysnet assembly. See www.parker.com/pneu/Isysnet

Reference Document E105P and PSS-SG001 for configuration instructions. See www.parker.com/pneu/Isysnet

PSSSE24A

Replacement Base Module

Base Module	PSSBASE

PSSBASE

Bus Extender Cable

1 Meter Cable*	PSSEXT1	24VDC
3 Meter Cable*	PSSEXT3	24VDC

* Requires a PSSSE24 Power Extender Module

IP67 Certified

Reference the following Documents for Installation Instructions. E117P

See www.parker.com/pneu/Isysnet

PSSEXT1

Isys Micro Bus Extender Cable

1 Meter Cable*	PSSVEXT1	24VDC

* IP67 Certified.

PSSVEXT1

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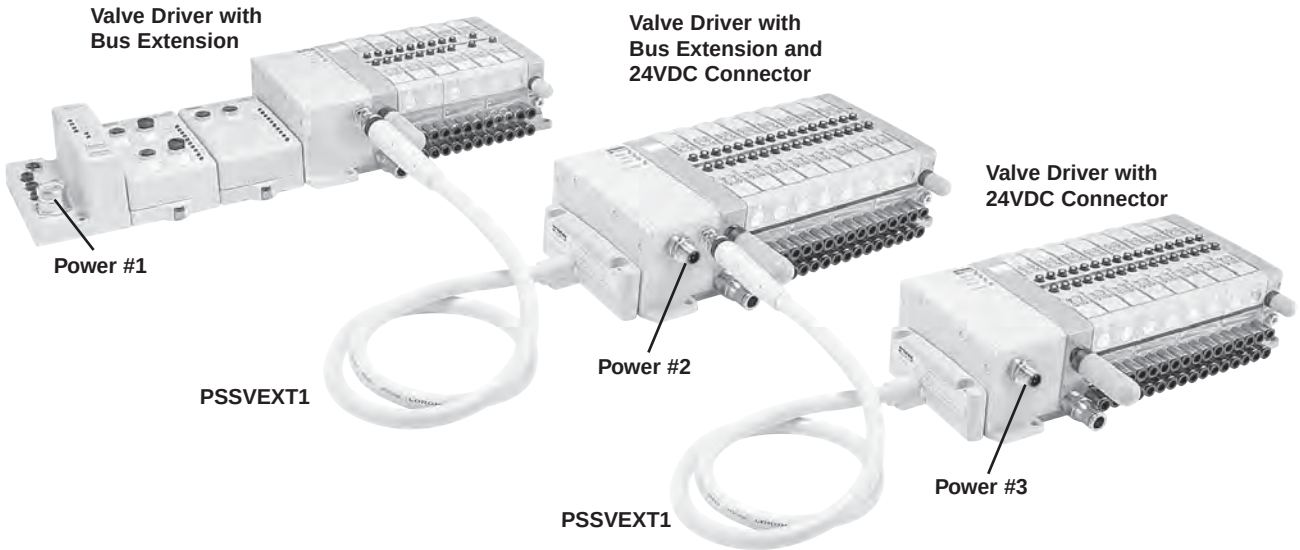
Using Bus Extender Cables

Example #1:
Isys with Standard Bus Extender Cable

- Separate the communication module and a portion of the I/O from other I/O and the valve manifold.
- Commonly used when overall length is restricted.
- PSSSE24A is needed on the extension. No 24VDC connector needed on the Isysnet end plate.
- Can be used with Isys ISO and Isys Micro valves.

Example #2:
Isys Micro with Bus Extension on Valve Driver Module – No additional I/O at the Extension

- Add up to three additional valve manifolds without adding another communication module.
- No PSSSE24A is needed on the Extension when the Valve Driver Module with 24VDC Connector is used.
- Commonly used when many valves are required.
- Bus expansion only available with Isys Micro valves.



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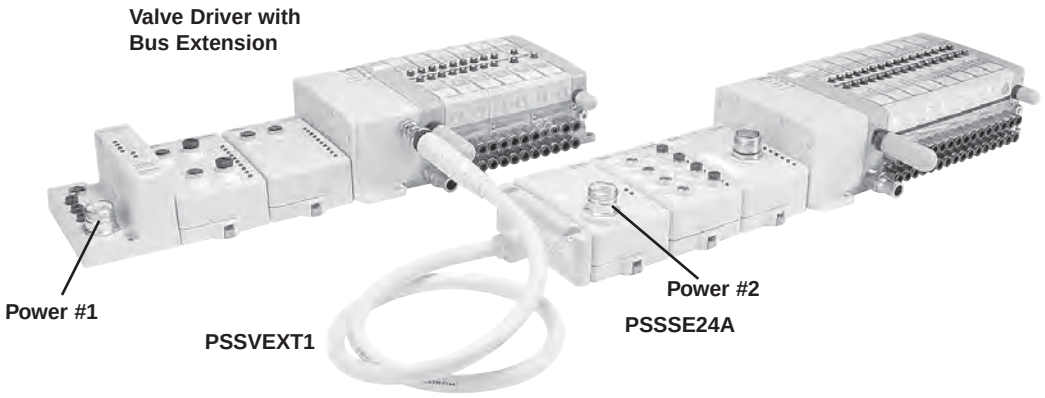
Using Bus Extender Cables

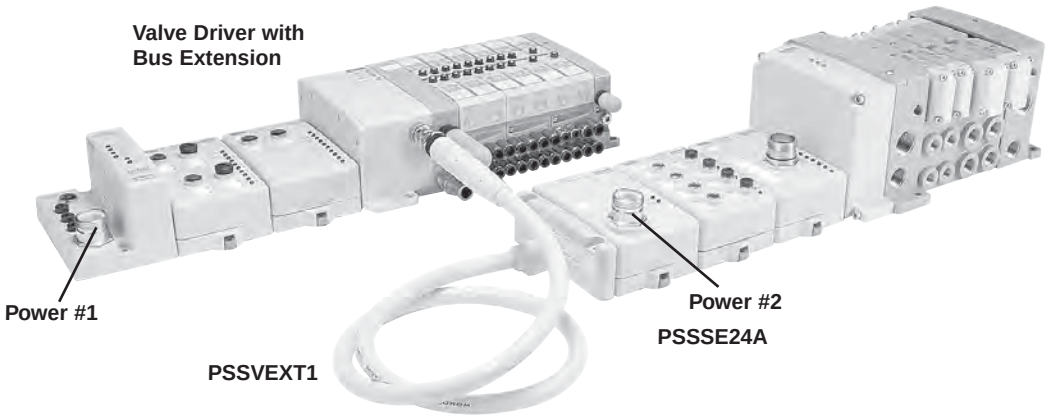
Example #3:
Isys Micro with Bus Extension on Valve Driver – With I/O at Extension

- Add up to three additional valve manifolds without adding another communication module.
- PSSSE24A is needed on the Extension. No 24VDC Connector needed on the Isysnet end plate.
- Commonly used when many valves are required, and each location requires additional I/O.
- Bus expansion only available with Isys Micro.



Example #4:
Isys Micro with Bus Extension on Valve Driver Module – With I/O at the Extension and larger Isys ISO Valve Manifold

- Add up to two additional Isys Micro valve manifolds and one Isys ISO valve manifold without adding another communication module.
- PSSSE24A is needed on the Extension.
- Isys ISO valve manifold must be the last manifold on the Extension
- Commonly used when many valves are required, and each location requires additional I/O.
- Bus expansion only available with Isys Micro. Isys ISO manifold must be the last manifold in the system.



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Digital I/O Modules

Choose digital I/O modules when you need:

- **Input Modules.** An input module responds to an input signal in the following manner:
  - Input filtering limits the effect of voltage transients caused by contact bounce and/or electrical noise. If not filtered, voltage transients could produce false data. All input modules use input filtering.
  - Optical isolation shields logic circuits from possible damage due to electrical transients.
  - Logic circuits process the signal.
  - An input LED turns on or off indicating the status of the corresponding input device.
- **Output Modules.** An output module controls the output signal in the following manner:
  - Logic circuits determine the output status.
  - An output LED indicates the status of the output signal.
  - Optical isolation separates module logic and bus circuits from field power.
  - The output driver turns the corresponding output on or off.
- **Surge Suppression.** Most output modules have built-in surge suppression to reduce the effects of high-voltage transients. However, we recommend that you use an additional suppression device if an output is being used to control inductive devices, such as:
  - Relays
  - Motor starters
  - Solenoids
  - Motors

  Additional suppression is especially important if your inductive device is in series with, or parallel to, hard contacts such as:
  - Push buttons
  - Selector switches

The digital I/O modules support:

- A wide variety of voltage interface capabilities
- Isolated and non-isolated module types
- Point-level output fault states
- Choice of direct-connect or rack-optimized communications
- Field-side diagnostics on select modules

Connector types are indicated by the catalog number. For example, the PSSN8M12A has an M12 connector.

Digital DC Input Modules

	PSSN8M8A PSSN8M12A PSSN8M23A	**PSSN16M12A**	**PSSP8M8A PSSP8M12A PSSP8M23A**
Number of Inputs	8 PNP Sourcing	16 PNP Sourcing	8 NPN Sinking
Keyswitch Position	1		
Voltage, On-State Input, Nom.	24VDC		
Voltage, On-State Input, Min.	10VDC		
Voltage, On-State Input, Max.	28.8VDC		
Input Delay Time, ON to OFF	0.5 ms hardware + (0…65 ms selectable)*		
Current, On-State Input, Min.	2 mA		
Current, On-State Input, Max.	5 mA		
Current, Off-State Input, Max.	1.5 mA		
Bus Power Current (mA)	75		
Power Dissipation, Max.	1.0 W @ 28.8VDC		

* Input ON-to-OFF delay time is the time from a valid input signal to recognition by the module.

Digital DC Output Modules

	PSST8M8A PSST8M12A PSST8M23A	**PSST16M223A PSST16D25A PSST16M12A**
Number of Outputs	8 PNP sourcing	16 PNP Sourcing
Keyswitch Position	1	
Voltage, On-State Output, Nom.	24VDC	
Voltage, On-State Output, Min.	10VDC	
Voltage, On-State Output, Max.	28.8VDC	
Output Current Rating, Max.	3.0 A per module, 1.0 A per channel	
Bus Power Current (mA)	75	
Power Dissipation, Max.	1.2 W @ 28.8VDC	

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Relay Output Module

	PSSTR4M12A
Number of Outputs	4 Form A (N.O.) relays, isolated
Key switch Position	7
Output Delay Time, ON to OFF, Max.	26 ms*
Contact Resistance, Initial	30 mΩ
Current Leakage, Off-State Output, Max.	1.2 mA and bleed resistor thru snubber circuit @ 240V ac
Output Current Rating, Max	8.0 A per module, 2.0 A per channel
Bus Power Current (mA)	90
Power Dissipation, Max.	0.5 W

*Time from valid output off signal to relay de-energization by module.

Analog I/O Modules

The Isysnet analog modules support: on-board, channel-level data alarming (four set-points per channel); scaling to engineering units; channel-level diagnostics (electronic bits and LEDs); and integer format.

Choose analog I/O modules when you need:

- **Individually configurable channels** to use the module(s) with a variety of sensors.
- **On-board scaling** to eliminate the need to scale the data in the controller. Controller processing time and power are preserved for more important tasks, such as I/O control, communications, or other user-driven functions.
- **On-line configuration.** Modules can be configured in the RUN mode using the programming software or the control program. This allows you to change configuration while the system is operating. For example, the input filter for a particular channel could be changed, or a channel could be disabled based on a batch condition. To use this feature, the controller and network interface must also support this feature.
- **Over- and under-range detections and indications.** This eliminates the need to test values in the control program, saving valuable processing power of the controller. In addition, since alarms are handled by the module, the response is faster and only a single bit per channel is monitored to determine if an error condition has occurred.
- **Ability to direct output device operation during an abnormal condition.** Each channel of the output module can be individually configured to hold its last value or assume a user-defined value on a fault condition. This feature allows you to set the condition of your analog devices, and therefore your control process, which may help to ensure a reliable shutdown.
- **Ability to individually enable and disable channels.** Disabling unused channels improves module performance.
- **Selectable input filters** This lets you select the filter frequencies for each channel that best meets the performance needs of your application based on environmental limitations. Lower filter settings provide greater noise rejection and resolution. Higher filter settings provide faster performance. Note: The analog modules provide four input filter selections.
- **Selectable response to broken input sensor.** This feature provides feedback to the controller that a field device is not connected or operating properly. This lets you specify corrective action based on the bit or channel condition.
- **High accuracy.** The modules share a high accuracy rating of ±0.1% of full-scale accuracy at 25 °C.

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Analog Input Modules

	PSSNACM12A	PSSNAVM12A
Number of Inputs	2	2
Key switch Position	3	3
Input Signal Range	4…20 mA 0…20 mA	-10 to 10VDC 0 to 10VDC
Input Resolution, Bits	16 bits - over 21 mA 0.32 µA/cnt	15 bits plus sign 320 µV/cnt in unipolar or bipolar mode
Absolute Accuracy, Current Input	0.1% Full Scale @ 25°C*†	—
Absolute Accuracy, Voltage Input	—	0.1% Full Scale @ 25°C*†
Input Step Response, per Channel	70 ms @ Notch = 60 Hz (default) 80 ms @ Notch = 50 Hz 16 ms @ Notch = 250 Hz 8 ms @ Notch = 500 Hz	70 ms @ Notch = 60 Hz (default) 80 ms @ Notch = 50 Hz 16 ms @ Notch = 250 Hz 8 ms @ Notch = 500 Hz
Input Conversion Type	Delta Sigma	Delta Sigma
Bus Power Current (mA)	75	75
Power Dissipation, Max.	0.6 W @ 28.8VDC	0.6 W @ 28.8VDC

* Includes offset, gain, non-linearity and repeatability error terms.

† Analog input modules support these configurable parameters and diagnostics: open-wire with LED and electronic reporting; four-alarm and annunciation set-points; calibration mode and electronic reporting; under- and over-range and electronic reporting; channel signal range and update rate and on-board scaling; filter-type; channel update rate.

Analog Output Modules

	PSSTACM12A	PSSTAVM12A
Number of Outputs	2	2
Key switch Position	4	4
Output Signal Range	4…20 mA 0…20 mA	-10 to 10VDC 0 to 10VDC
Output Resolution, Bits	13 bits - over 21 mA 2.5 µA/cnt	14 bits (13 plus sign) 1.28 mV/cnt in unipolar or bipolar mode
Absolute Accuracy, Current Output	0.1% Full Scale @ 25°C*†	—
Absolute Accuracy, Voltage Output	—	0.1% Full Scale @ 25°C*†
Step Response to 63% of FS,	24 µs	— Current Output
Step Response to 63% of FS,	—	20 µs Voltage Output
Output Conversion Rate	16 µs	20 µs
Bus Power Current (mA)	75	75
Power Dissipation, Max.	1.0 W @ 28.8VDC	1.0 W @ 28.8VDC

* Includes offset, gain, non-linearity and repeatability error terms.

† Analog output modules support these configurable parameters and diagnostics: open-wire with LED and electronic reporting (PSSTACM12A only); fault mode; idle mode; alarms; channel signal range and on-board scaling.

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Valve Driver Modules

The PSSV32A and PSSVM32A valve driver modules provide an interface between the Isysnet serial bus system and the valve assembly. These modules will always be the last on the Isysnet serial bus, and control 32 digital outputs at 24VDC. Depending on the valve selection, a valve driver module can control up to 32 single solenoid valves or 16 double solenoid valves.

PSSV32A is used with Isys ISO valves and PSSVM32A is used with Isys Micro valves.

Valve Driver Module Specifications

	PSSV32A and PSSVM32A
Outputs per Module	32, PNP sourcing
Voltage Drop, On-State Output, Maximum	0.2VDC
Voltage, Off-State Output, Maximum	28.8VDC
Voltage, On-State Output, Maximum Minimum Nominal	 28.8VDC 10VDC 24VDC
Output Current Rating	200 mA per channel, not to exceed 6.0 A per module
Output Surge Current, Maximum	0.5 A for 10 ms, repeatable every 3 seconds
Current Leakage, Off-State Output, Maximum	0.1 mA
Current, On-State Output Minimum	200 mA per channel
Output Delay Time OFF to ON, Maximum[1]	0.1 ms
Output Delay Time, ON to OFF, Maximum[1]	0.1 ms
External DC Power Supply Voltage Range	10 to 28.8VDC
External DC Power Supply Voltage Nominal	24VDC

1. OFF to ON or ON to OFF delay is time from a valid output “on” or “off” signal to output energization or de-energization.

Select the Appropriate Power Supply

Power Specifications

Part Number	Power Supply Input Voltage, Nom.	Operating Voltage Range	Maximum Continuous Current Draw	Power Supply Inrush Current, Max.	Input Overvoltage Protection	Power Supply Interruption Protection
PSSCDM12A	24VDC	10...28.8VDC	10 A	6 A for 10 ms	Reverse polarity protected	Output voltage will stay within specifications when input drops out for max. load.
PSSCDM18PA						
PSSCCNA						
PSSCENA						
PSSCPBA						
PSSSE24A						

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Power Extender Module

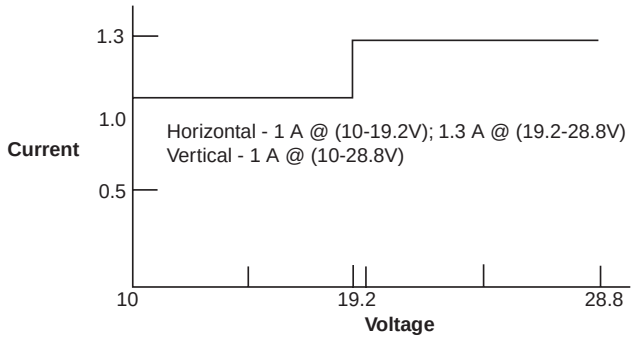
The PSSSE24A expansion power unit passes 24VDC field power to the I/O modules to the right of it. This unit extends the backplane bus power and creates a new field voltage partition segment for driving field devices for up to 13 I/O modules. The expansion power unit separates field power from I/O modules to the left of the unit, effectively providing functional and logical partitioning for:

- Separating field power between input and output modules
- Separating field power to the analog and digital modules
- Grouping modules to perform a specific task or function

You can use multiple expansion power units with any of the communication adapters to assemble a full system. If you are using the PSSCDM12A adapter, you may use a PSSSE24A expansion power unit to add additional modules. For example, if you had a 36 module system with a PSSCDM12A adapter, you would have at least two or more PSSSE24A expansion power units to provide more bus power current for modules to the right of the supply.

- 1.3A of additional bus power
- Starts new voltage distribution
- Partitioning for E-Stop wiring

PSSSE24A Current Derating for Mounting



Power Distribution General Specifications

	PSSSE24A
Power Supply Requirements	Note: In order to comply with CE Low Voltage Directives (LVD), you must use a Safety Extra Low Voltage (SELV) or a Protected Extra Low Voltage (PELV) power supply to power this adapter
Field Side Power Requirements	24VDC (+20% = 28.8VDC max.) @ 400 mA
Inrush Current, Max.	6 A for 10 ms
Input Overvoltage Protection	Reverse polarity protected
Power Supply Interruption Protection	Output voltage will stay within specifications when input drops out for 10 ms at 10V with max. load
Power Supply Input Voltage, Nom.	24VDC
Operating Voltage Range	10…28.8VDC
Power Consumption, Max.	9.8 W @ 28.8VDC
Power Dissipation, Max.	3.0 W @ 28.8VDC
Thermal Dissipation, Max.	10.0 BTU/hr @ 28.8VDC
Isolation Voltage	1250V rms
Bus Power Supply Current, Max.	1.5 A
Field Power Supply Current, Max.	10 A

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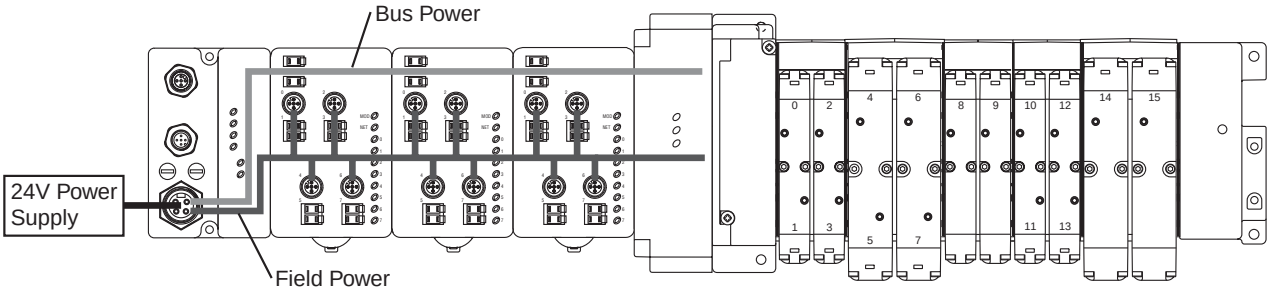
Power Distribution Options for Isys ISO

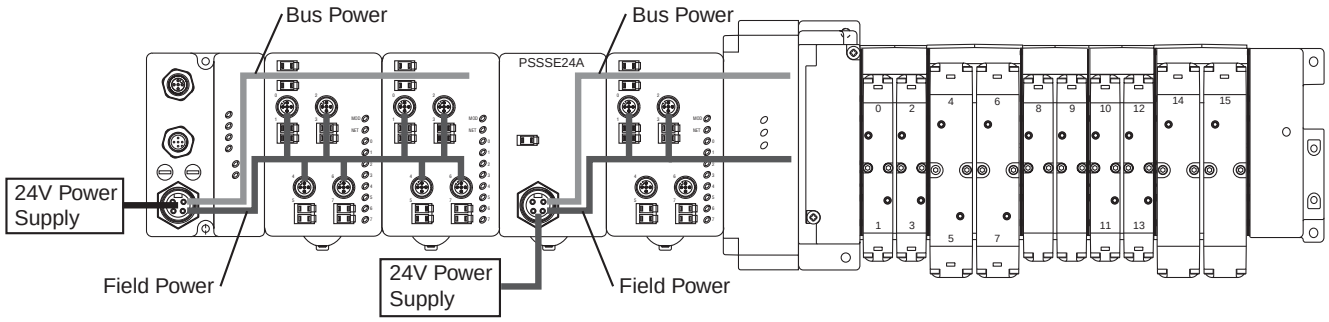
Isysnet Communication and I/O Modules

An auxiliary 24VDC power supply from the communication module provides power to the backplane bus power and I/O module field power. You can connect up to 13 I/O modules with a maximum of 10 A field power, using the auxiliary power.



Isysnet System with 24VDC Expansion Power Unit (PSSSE24A)

The auxiliary power from the communication module supports up to 13 I/O modules with a maximum of 10 A field power. The 24VDC Power Extender Module (PSSSE24A) extends the backplane bus power and I/O Module field power to support up to 13 more I/O modules. Connect additional Power Extender Modules to expand the I/O assembly up to the maximum of 63 I/O modules. This secondary 24VDC connector on the PSSSE24A can be wired into an Emergency Stop circuit.



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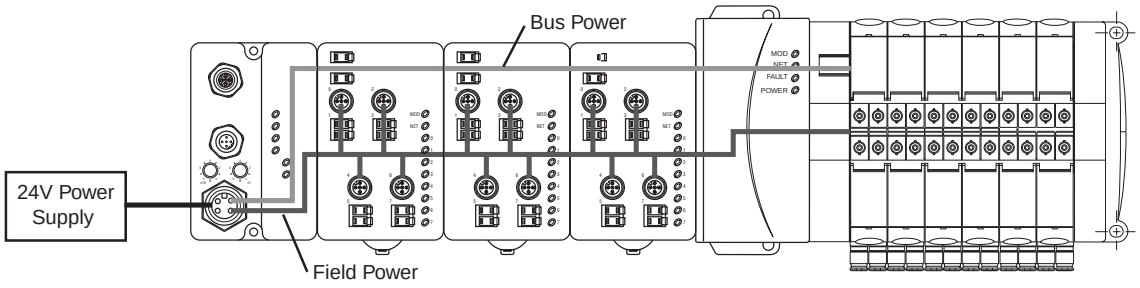
Power Distribution Options for Isys Micro

Isysnet Communication and I/O Modules

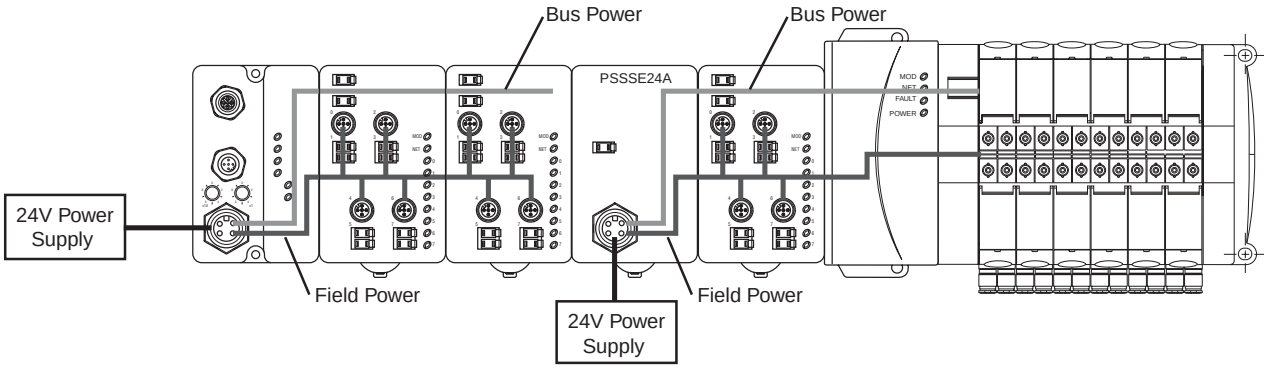
The 24VDC power supply from the communication module provides power to the backplane bus power and I/O module field power. You can connect up to 13 modules and an adapter with a maximum of 10 A field power, using this power source.



Isysnet Communication and I/O Modules

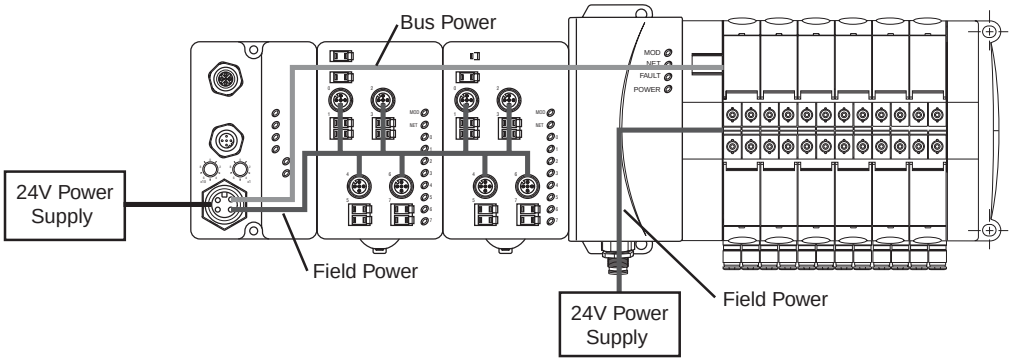
The 24VDC power supply from the communication module provides power to the backplane bus power and I/O module field power. You can connect up to 13 modules and an adapter with a maximum of 10 A field power, using this power source.

The 24VDC Power Extender Module (PSSSE24A) extends the backplane bus power and I/O module field power to support up to 13 more modules. Connect additional Power Extender Modules to expand the assembly up to the maximum of 63 I/O modules. The Valve Driver Module is the last module on the system, and will draw bus power and field power from the PSSSE24A to the left of it. This secondary 24VDC connector on the PSSSE24A can be wired into an Emergency Stop circuit.



Isysnet Communication Module and Valve Driver Module with 24VDC Connector

The 24VDC power supply from the Communication Adaptor provides power to the backplane bus power and I/O module field power for up to 13 modules and an adapter with a maximum of 10 A Field Power. In this configuration, backplane bus power and I/O module field power are supplied to the input and output modules. The communication module only supplies backplane bus power to the Valve Driver Module, as the Isys Micro with 24VDC Connector separates the field power from the rest of the network. This secondary 24VDC Connector on the Valve Driver Module supplies Field Power to the valves, and can be wired into an Emergency Stop Circuit.



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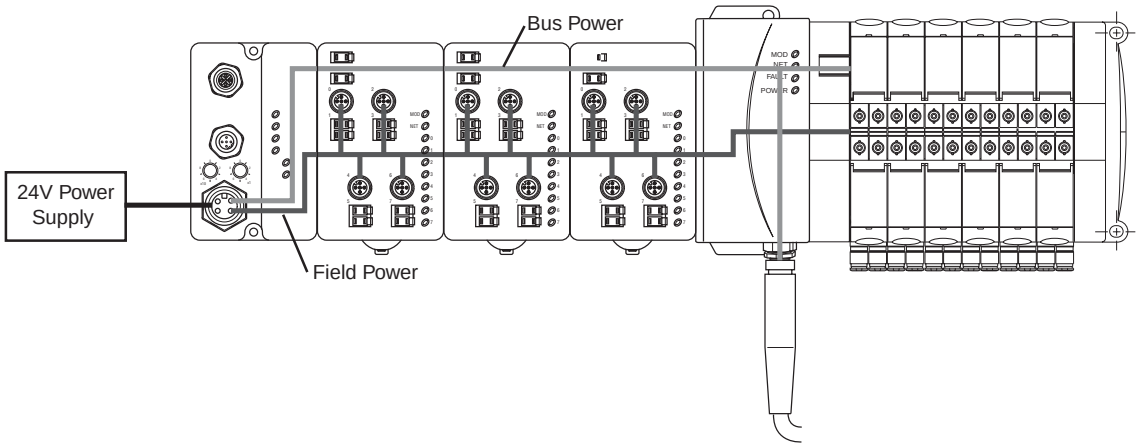
Power Distribution Options for Isys Micro (Continued)

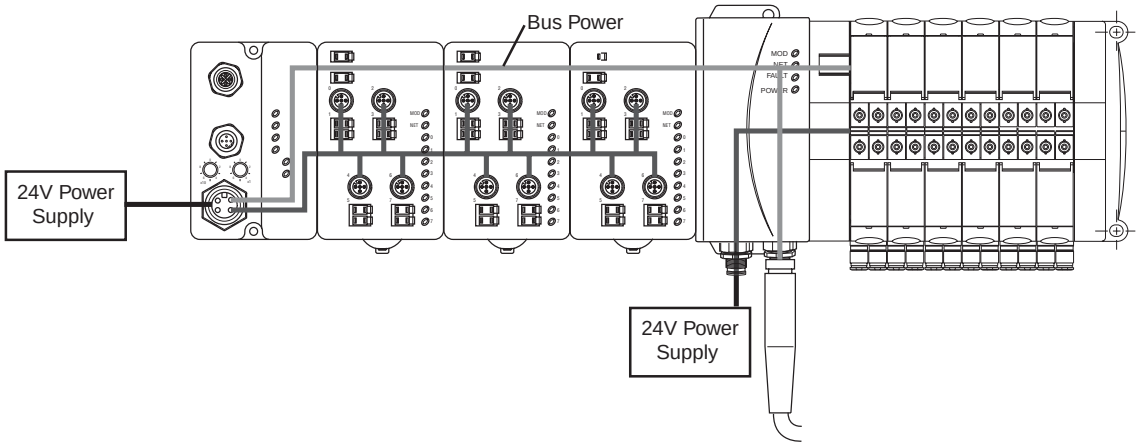
Isysnet Communication Module with Bus Extension Connector and I/O Modules

The 24VDC power supply from the communication module provides power to the backplane bus power and I/O module field power. You can connect up to 13 modules and an adapter with a maximum of 10 A field power, using this power source. The Isys Micro with Bus Extension Connector carries backplane bus power and communication down to another Isysnet Assembly through the PSSVEXT1 cable. If additional Isysnet Input and Output Modules or Isys ISO valve manifold is used on this extension, a PSSSE24A Power Extender Module is required to provide Field Power. If the extension is attached directly to an Isys Micro Manifold, Field Power can be supplied directly by using the 24VDC Connector option.



Isysnet Communication Module with 24VDC and Bus Extension Connectors and I/O Modules

The 24VDC power supply from the communication module provides power to the backplane bus power and I/O module field power. In this configuration, bus power and field power are supplied to the input and output modules. The communication module only supplies bus power to the Valve Driver Module, as the 24VDC Connector separates the Field Power from the rest of the network. This secondary 24VDC connector on the Valve Driver Module supplies field power to the valves, and can be wired into an Emergency Stop Circuit. The Bus Extension Connector carries bus power and communication down to another Isysnet Assembly through the PSSVEXT1 cable. If additional Isysnet input and output modules or Isys ISO valve manifold is used on this extension, a PSSSE24A Power Extender Module is required to provide field power. If the extension is attached directly to an Isys Micro Manifold with 24VDC Connector, field power can be supplied directly by using the 24VDC Connector option.



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Placing Isysnet Modules

Maximum Size Layout

Part Number	Bus Power Supply	Maximum I/O Modules with 24VDC Backplane Current at 75 mA each	Maximum I/O Modules with Expansion Power Supplies
PSSCDM12A on DeviceNet	1000	Up to 13	63
PSSCDM18PA on DeviceNet			
PSSCCNA on ControlNet			
PSSCENA on EtherNet/IP			
PSSCPBA on PROFIBUS			
PSSSE24A Expansion Power	Horizontal mounting: 1A@ 10...19.2V input; 1.3A @ 19.2...28.8V input Vertical mounting: 1A @ 10...28.8V input		

Power Supply Distance Rating

Modules are placed to the right of the power supply. Each Isysnet module can be placed in any of the slots to the right of the power supply until the usable backplane current of that supply has been exhausted. A Communication Module provides 1 A current to the PointBus. The Power Extend Module, PSSSE24A, provides up to 1.3 A and I/O modules require from 75 mA (typical for the digital and analog I/O modules) up to 90 mA or more.

Current Requirements

Part Number	PointBus Current Requirements
PSSN8xxx	75 mA
PSSP8xxx	
PSST8xxx	
PSSN16xxx	
PSST16xxx	
PSSTR4MRA	90 mA
PSSNACM12A	75 mA
PSSTACM12A	
PSSNAVM12A	
PSSTAVM12A	
PSSV32A	
PSSVM32A	

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Related Documentation

Additional user documentation presents information according to the tasks you perform and the programming environment you use. Refer to the table below for information on Isysnet products.

Isysnet Related Publications*

	Part Number	Description	Instruction Sheet*
General Information	—	Industrial Automation Wiring and Grounding Guidelines	E115P
		Safety Guidelines for the Application, Installation and Maintenance of Solid State Control	E116P
Communication Interfaces	PSSCDM12A	Isysnet DeviceNet Adapter Module, Drop or Pass-through, with male and female M12 connectors	E101P, Installation Instructions PSS-UM001, User Manual
	PSSCDM18PA	Isysnet DeviceNet Adapter Module, Drop or Pass-through, with male and female M18 connectors	
	PSSCCNA	Isysnet Redundant ControlNet Adapter Module	E103P, Installation Instructions
	PSSCENA	Isysnet Ethernet/IP 10/100 Mbps Adapter Module	E104P, Installation Instructions
	PSSCPBA	Isysnet PROFIBUS Adapter Module	E102P, Installation Instructions
Valve Driver Module	PSSV32A, PSSVM32A	32 Point Valve Driver Module	E100P
DC I/O	PSSN16M12A	24VDC 16 Sink Input w/8 M12 connectors, 2 points per connector	E106P
	PSSN8M8A	24VDC 8 Sink Input w/8 M8 connectors	
	PSSN8M12A	24VDC 8 Sink Input w/4 M12 connectors, 2 points per connector	
	PSSN8M23A	24VDC 8 Sink Input w/1 M23 connector	
	PSSP8M8A	24VDC 8 Source Input w/8 M8 connectors	
	PSSP8M12A	24VDC 8 Source Input w/4 M12 connectors, 2 points per connector	
	PSSP8M23A	24VDC 8 Source Input w/1 M23 connectors	
	PSST16M23A	24VDC 16 Source Output w/1 M23	E107P
	PSST16D25A	24VDC 16 Source Output w/1 25-Pin, D-Sub	
	PSST16M12A	24VDC 16 Source Output w/8 M12	
	PSST8M8A	24VDC 8 Source Output w/1 M23	
	PSST8M12A	24VDC 8 Source Output w/4 M12	
	PSST8M23A	24VDC 8 Source Output w/8 M8	
Analog	PSSNACM12A	24VDC Analog Current Input w/ 2 M12 connectors	E110P
	PSSNAVM12A	24VDC 2 Analog Voltage Input w/ 2 M12 connectors	
	PSSTACM12A	24VDC Analog Current Output w/ 2 M12 connectors	E111P
	PSSTAVM12A	24VDC Analog Voltage Output w/ 2 M12 connectors	
Power Unit	PSSSE24A	24VDC Expansion Power Supply	E105P
Relay Output	PSSTR4M12A	4 From A isolated (normally open) electromechanical relays	E109P

* Publications are electronic versions only. To make copies of these publications, go to: **http://www.parker.com/pneu/Isysnet**

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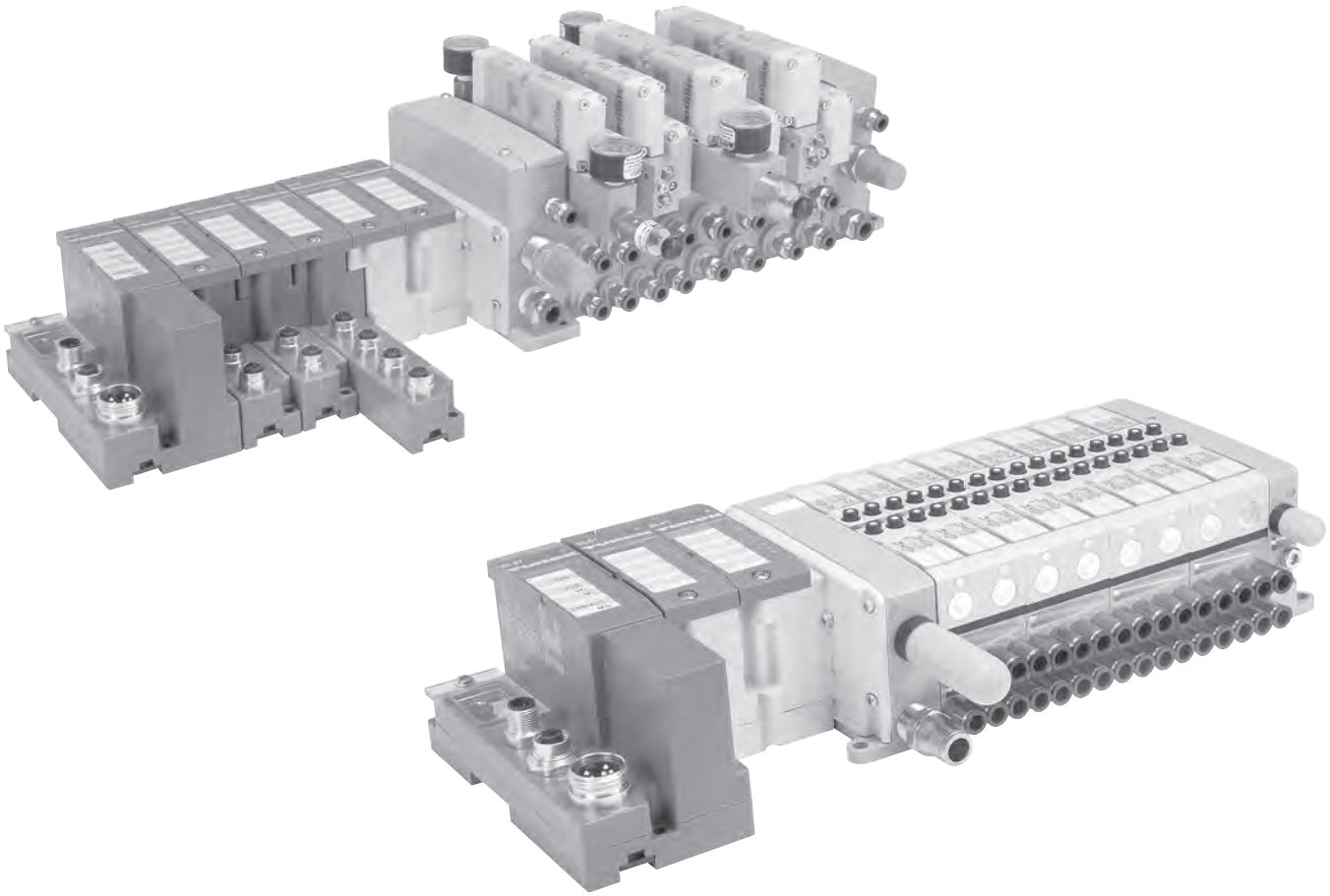
The Turck Fieldbus System

Isysnet has four major components:

- **Valve driver module** provide control for either 16 or 32 solenoids on a manifold
- **I/O modules** provide the field interface and system-interface circuitry
- **Communication modules** provide the network-interface circuitry
- **Power distribution module** provide 5 additional power inputs to the Turck system

Turck Features

- Highly modular design (4pt – 16pt modularity)
- Broad application coverage
- Channel-level diagnostics (LED and electronic)
- Channel-level alarm and annunciation (electronic)
- Channel-level open-wire detection with electronic feedback
- Channel-level short-circuit detection with electronic feedback
- Horizontal and vertical mounting without derating
- 5g vibration
- Electronic and mechanical keying
- Robust backplane design
- Quick-disconnects for I/O and network connectivity
- Built-in panel grounding
- Color-coded module labels
- UL, C-UL, and CE certifications (as marked)
- Highly reliable structural integrity
- Optical isolation between field and system circuits



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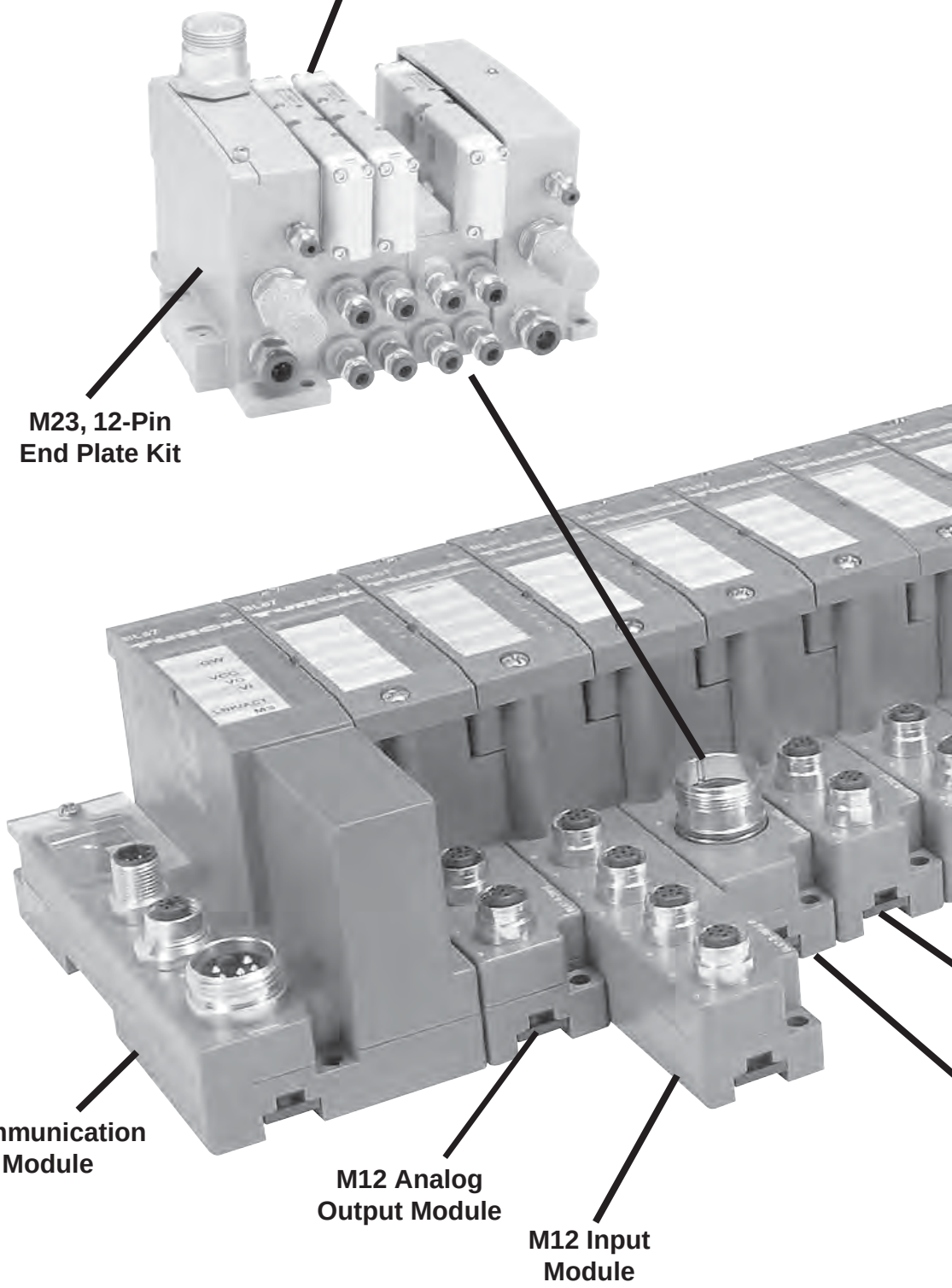
Turck Fieldbus System

- A complete fieldbus communication offering for all Isys ISO and Isys Micro valves.
- CSA, C-US and CE certifications (as marked).

DeviceNet™
EtherNet/IP™
PROFIBUS PROCESS FIELD BUS
PROFINET INDUSTRIAL ETHERNET
Modbus/TCP™
CANopen



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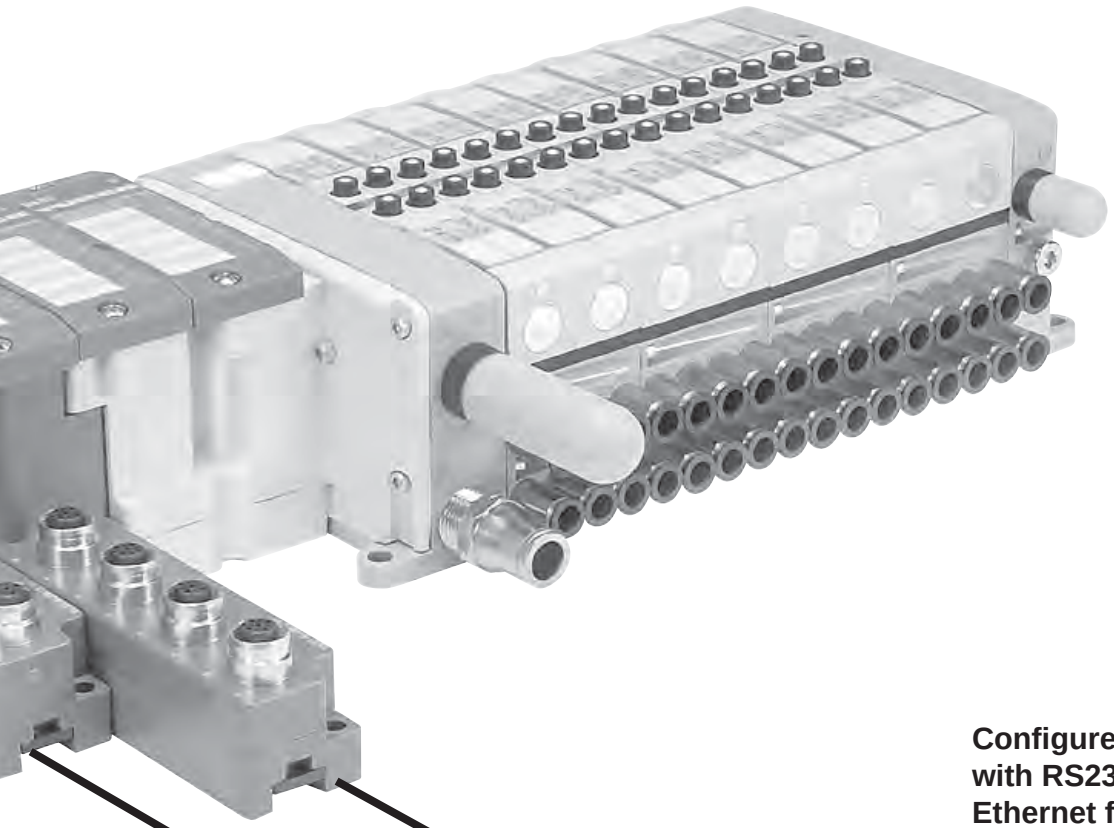
I/O Configuration

- Centralized Turck Fieldbus system.
- Pneumatics and I/O are in close proximity with one another.
- M23, 12-Pin or 19-Pin output extension to an additional Isys valve island.
- I/O density per module = 4, 8 or 16.



M12 Output Module

M12 Analog Input Module

M23, 12-Pin Output Module

M12 Configurable Input or Output Module

Configure / Program any module with RS232, or directly through Ethernet for any module with an Ethernet physical layer.

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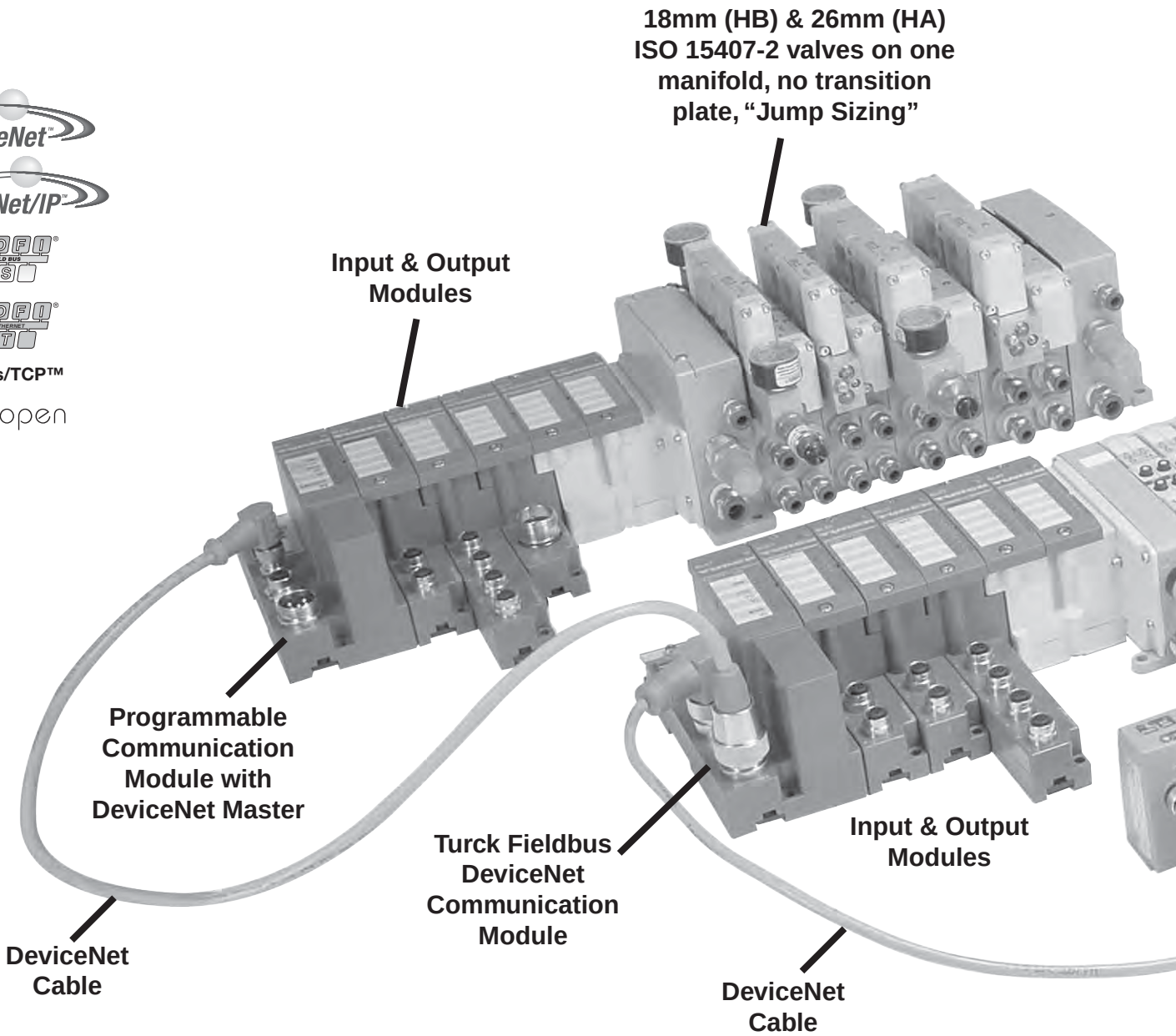
Turck Fieldbus System

- A complete fieldbus communication offering for all Isys ISO and Isys Micro valves.
- CSA, C-US and CE certifications (as marked).

DeviceNet™
EtherNet/IP™
PROFIBUS PROCESS FIELD BUS
PROFINET INDUSTRIAL ETHERNET
Modbus/TCP™
CANopen



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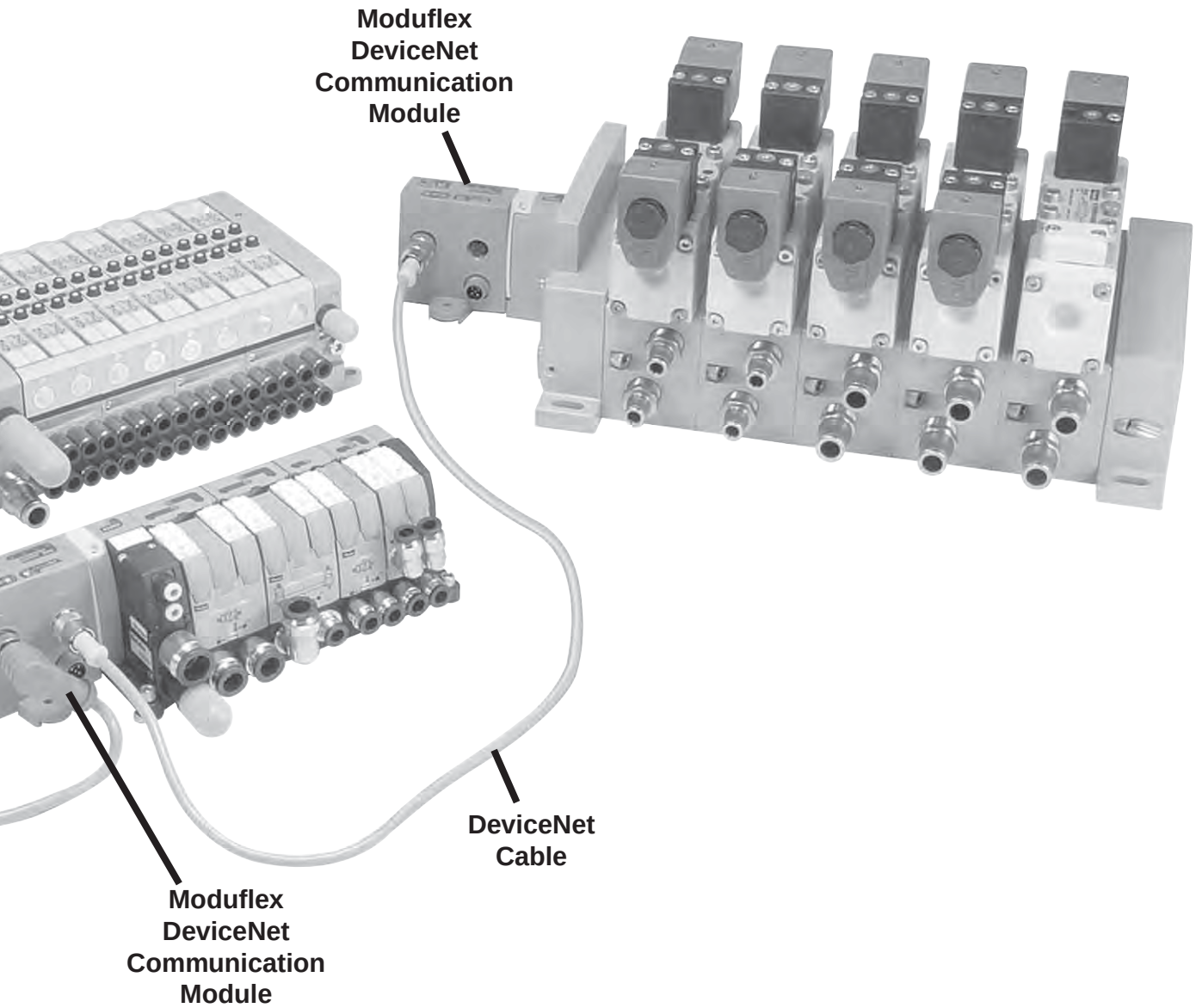
I/O Configuration

- Complete control of all I/O and valves with stand alone control.
- Additional I/O and valves connected over DeviceNet with BL Remote Subnet.
- BL Remote connection to Moduflex and Turck fieldbus DeviceNet equipped communication modules.
- I/O density per module = 4, 8 or 16.



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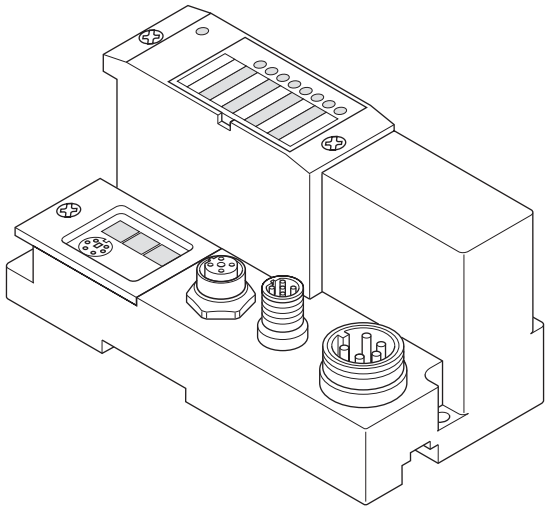
Communications Module

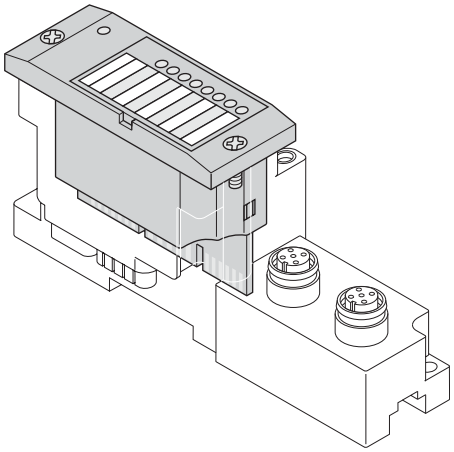


BL67 communication modules are the heart of a BL67 station. They are designed to connect the modular fieldbus nodes to the higher level fieldbus (PROFIBUS-DP, DeviceNet™, CANopen, Ethernet).

All BL67 electronic modules communicate over the internal module bus with the communication modules. The communication module structures the data and sends them clustered via fieldbus nodes to the higher control system.

This way all I/O modules can be configured independently of the fieldbus system.

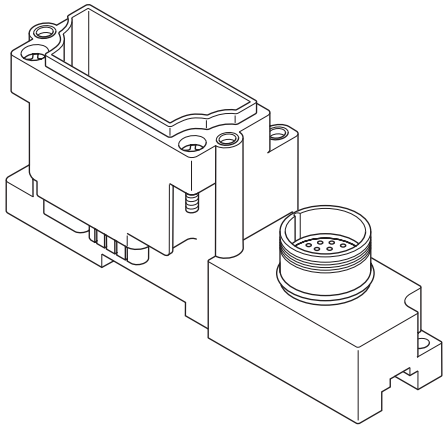
Electronic Module



BL67 electronic modules are inserted into the passive base modules from above and then simply affixed with two screws. Maintenance is extremely simplified due to the separation of connection level and module electronics.

Moreover, flexibility is enhanced because the base modules provide different types of connectors. Voltage supply for the electronic modules is either provided via the communication modules or a Power Extender module. Power Extender modules can be used to create galvanically isolated potential groups.

Base Module



BL67 base modules are aligned one by one to the right of the communication module and are tightened each with two screws, either with the communication modules or with the previous module. A DIN rail is not required. This way a compact and stable unit is created which can be mounted directly on the machine.

The base modules serve for connection of the field devices an are available with different connection types (M8, M12, M23 and 7/8).

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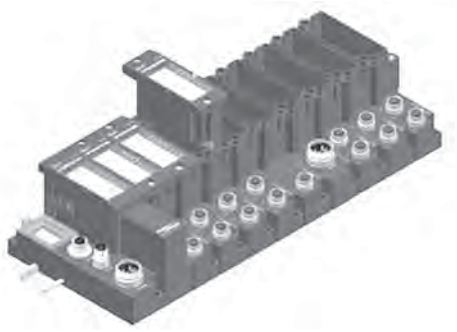

A BL67 system can be extended to a total length of 1 m, comprising of a communication module for PROFIBUS-DP, DeviceNet™/ CANopen or Ethernet and a maximum of 32 modules.

Maximum System Extension PROFIBUS-DP, DeviceNet™ , CANopen

	PROFIBUS		DeviceNet		CANopen	
Module type	**Number of chan.**	**Number of mod.**	**Number of chan.**	**Number of mod.**	**Number of chan.**	**Number of mod.**
Digital inputs, 4 DI	128	32	128	32	128	32
Digital inputs, 8 DI	256	32	256	32	256	32
Digital outputs, 4 DO	128	32	128	32	128	32
Digital outputs, 8 DO	256	32	256	32	256	32
Digital outputs, 16 DO	512	32	512	32	512	32
Analog inputs, 2AI	64	32	64	32	64	32
Analog inputs, 4AI	112	28	124	31	124	31
Analog inputs, 2 AI-PT	56	28	64	32	64	32
Analog inputs, 2 AI-TC	64	32	64	32	64	32
Analog outputs, 2 AO-I	38	19	64	32	64	32
Analog outputs, 2 AO-V	38	19	50	25	50	25

System supply: The power supply for the BL67 system is either derived separately for PROFIBUSDP and Ethernet communication modules or directly from the DeviceNet™ / CANopen cable for the DeviceNet™ / CANopen communication module.

Power Extender modules can be inserted anywhere in the BL67 station. They provide isolated field voltage for the I/O modules mounted to their right.

Thus Power Extender modules can also be used to create different potential groups.

Maximum System Extension EtherNet Based Protocols

	ModbusTCP		EtherNet/IP		PROFIBUS	
Module type	**Number of chan.**	**Number of mod.**	**Number of chan.**	**Number of mod.**	**Number of chan.**	**Number of mod.**
Digital inputs, 4 DI	128	32	128	32	128	32
Digital inputs, 8 DI	256	32	256	32	256	32
Digital outputs, 4 DO	128	32	128	32	128	32
Digital outputs, 8 DO	256	32	256	32	256	32
Digital outputs, 16 DO	512	32	512	32	512	32
Analog inputs, 2AI	64	32	64	32	64	32
Analog inputs, 4AI	128	32	128	32	128	32
Analog inputs, 2 AI-PT	64	32	64	32	64	32
Analog inputs, 2 AI-TC	64	32	64	32	64	32
Analog outputs, 2 AO-I	64	32	64	32	64	32
Analog outputs, 2 AO-V	50	25	50	25	50	25

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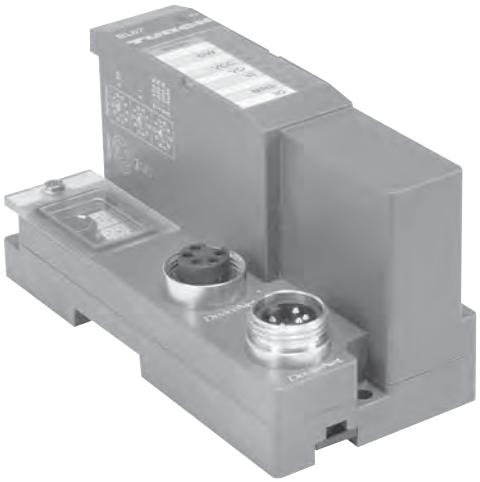
BL67-GW-DN

DeviceNet Communication Module with Power over the Network

BL67-GW-CO-T

CANopen Communication Module with Power over the Network



7/8 Mini bus In wiring,
view into male connector

1 = Shield
2 = RD (V +)
3 = BK (V -)
4 = WH (CAN H)
5 = BU (CAN L)

7/8 Mini bus out wiring,
view into female connector

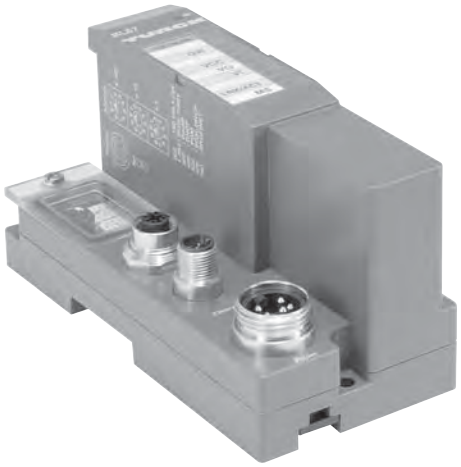
1 = Shield
2 = RD (V +)
3 = BK (V -)
4 = WH (CAN H)
5 = BU (CAN L)

Turck Fieldbus System with up to 256 inputs, outputs, and 32 solenoids per Isys Micro or Isys ISO manifold. Digital inputs / outputs, analog inputs / outputs, serial interface, and counter modules are available. DeviceNet communication speeds selectable between 120, 250, 500 kbps, and CANopen communication speeds are selectable between 10 kbps up to 1 Mbps. Addressing for either module can be selected via rotary switches or set through software.

With the Power over the Network feature, it is only necessary to connect one cable to the communication module. For networks requiring additional power, a Bus Power Tee can be installed to combine separate network and power feeds into the communication module. See the Cables and Cordsets section for additional information.

BL67-GW-CO

CANopen Communication Module



M12 A-code bus out Wiring,
view into female connector

1 = Shield
2 = RD (V +)
3 = BK (V -)
4 = WH (CAN H)
5 = BU (CAN L)

M12 A-code bus In Wiring,
view into male connector

1 = Shield
2 = RD (V +)
3 = BK (V -)
4 = WH (CAN H)
5 = BU (CAN L)

7/8 Mini Power in wiring,
view into male connector

1 = GND
2 = GND
3 = PE
4 = V_i
5 = V_o

Turck Fieldbus System with up to 256 inputs, outputs, and 32 solenoids per Isys Micro or Isys ISO manifold. Digital inputs / outputs, analog inputs / outputs, serial interface, and counter modules are available. CANopen communication speeds are selectable between 10 kbps up to 1 Mbps, and addressing can be selected via rotary switches or set through software.

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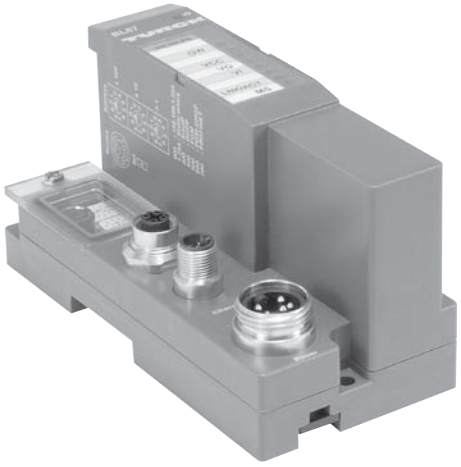
BL67-GW-DPV1

Profibus Communication Module



M12 B-code bus out Wiring,
view into female connector

1 = 5 VDC
2 = GN (Bus A)
3 = GND
4 = RD (Bus B)
5 = Shield

M12 B-code bus In Wiring,
view into male connector

1 = n.c.
2 = GN (Bus A)
3 = n.c.
4 = RD (Bus B)
5 = Shield

7/8 Mini Power in wiring,
view into male connector

1 = GND
2 = GND
3 = PE
4 = V_i
5 = V_o

Turck Fieldbus System with up to 256 inputs, outputs, and 32 solenoids per Isys Micro or Isys ISO manifold. Digital inputs / outputs, analog inputs / outputs, serial interface, and counter modules are available. Profibus communication speeds are selectable between 9.6 kbps up to 12 Mbps, and addressing can be selected via rotary switches or set through software.

BL67-GW-EN

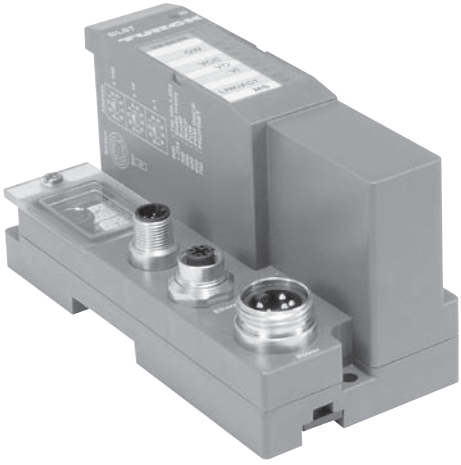
Modbus / TCP Communication Module

BL67-GW-EN-IP

Ethernet / IP Communication Module

BL67-GW-EN-PN

Profinet Communication Module



M12 D-code
Ethernet in Wiring,
view into female connector

1 = YE (TX+)
2 = WH (RX+)
3 = OG (TX-)
4 = BU (RX-)

7/8 Mini Power in wiring,
view into male connector

1 = GND
2 = GND
3 = PE
4 = V_i
5 = V_o

Turck Fieldbus System with up to 256 inputs, outputs, and 32 solenoids per Isys Micro or Isys ISO manifold. Digital inputs / outputs, analog inputs / outputs, serial interface, and counter modules are available. Communication speeds of 10/100 Mbps, and addressing can be selected via rotary switches, BOOTP, DHCP, or through software.

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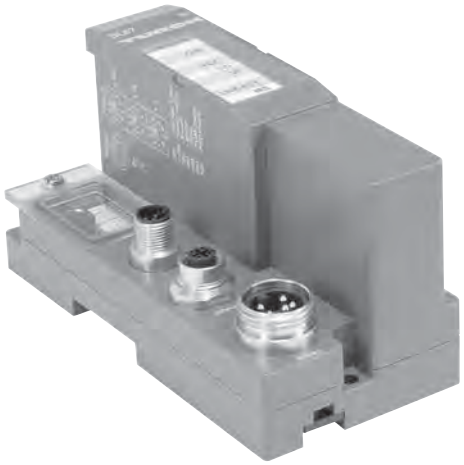
BL67-GW-EN-DN

Modbus / TCP Communication Module with DeviceNet Subnet

BL67-GW-EN-IP-DN

Ethernet / IP Communication Module with DeviceNet Subnet



DeviceNet OUT

1 = Shield
2 = RD (V +)
3 = BK (V -)
4 = WH (CAN H)
5 = BU (CAN L)

M12 D-code
Ethernet in Wiring,
view into female connector

1 = YE (TX+)
2 = WH (RX+)
3 = OG (TX-)
4 = BU (RX-)

7/8 Mini Power in wiring,
view into male connector

1 = GND
2 = GND
3 = PE
4 = V_i
5 = V_o

With BL Remote DeviceNet Subnet functionality, each communication module has its own DeviceNet master which provides a connection for 63 DeviceNet nodes with additional inputs, outputs, and solenoid control. BL Remote DeviceNet Subnet is independent of the main fieldbus network, and is not visible to the master PLC.

BL67-PG-DP

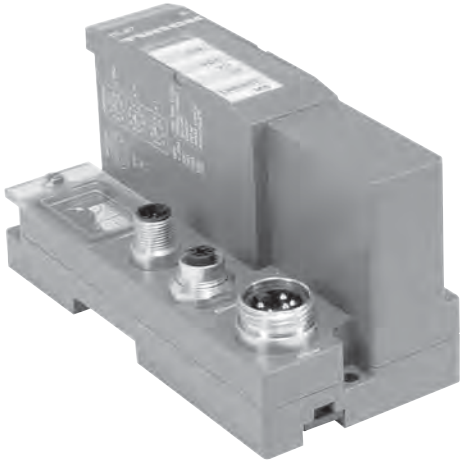
Profibus Programmable Communication Module

BL67-PG-EN

Modbus / TCP Programmable Communication Module

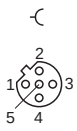
BL67-PG-EN-IP

Ethernet / IP Programmable Communication Module



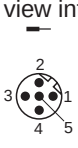
Profibus Wiring

M12 B-code bus out Wiring,
view into female connector



1 = 5 VDC
2 = GN (Bus A)
3 = GND
4 = RD (Bus B)
5 = Shield

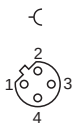
M12 B-code bus in Wiring,
view into female connector



1 = n.c.
2 = GN (Bus A)
3 = n.c.
4 = RD (Bus B)
5 = Shield

Ethernet Wiring

M12 D-code
Ethernet in Wiring,
view into female connector



1 = YE (TX+)
2 = WH (RX+)
3 = OG (TX-)
4 = BU (RX-)

7/8 Mini Power in wiring,
view into male connector
Common to modules

1 = GND
2 = GND
3 = PE
4 = V_i
5 = V_o

Communication modules are equipped with a built in standalone controller which is programmed according to IEC61131-3 with CoDeSys. Each module has 512KB Program memory with 32 bit RISC processor, and can run 1000 instructions in less than 1 ms. These fieldbus equipped modules are optimized to interface with PLC's with fieldbus capability or act as standalone controllers that need to interface with other fieldbus equipped devices.

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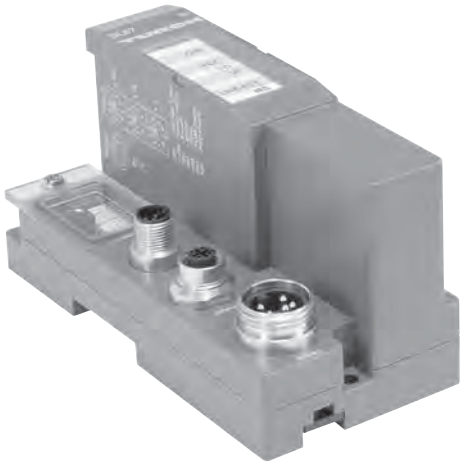
BL67-PG-EN-DN

Modbus / TCP Programmable Communication Module with DeviceNet Subnet

BL67-PG-EN-IP-DN

Ethernet / IP Programmable Communication Module with DeviceNet Subnet



DeviceNet OUT

1 = Shield
2 = RD (V +)
3 = BK (V -)
4 = WH (CAN H)
5 = BU (CAN L)

M12 D-code
Ethernet in Wiring,
view into female connector

1 = YE (TX+)
2 = WH (RX+)
3 = OG (TX-)
4 = BU (RX-)

7/8 Mini Power in wiring,
view into male connector

1 = GND
2 = GND
3 = PE
4 = V_i
5 = V_o

Communication modules are equipped with a built in standalone controller which is programmed according to IEC61131-3 with CoDeSys. Each module has 512KB Program memory with 32 bit RISC processor, and can run 1000 instructions in less than 1 ms. These fieldbus equipped modules are optimized to interface with PLC's with fieldbus capability or act as standalone controllers that need to interface with other fieldbus equipped devices.

With BL Remote DeviceNet Subnet functionality, each communication module has its own DeviceNet master which provides a connection for 63 DeviceNet nodes with additional inputs, outputs, and solenoid control. BL Remote DeviceNet Subnet is independent of the main fieldbus network, and is not visible to the master PLC.

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	Base Modules												
	BL67-B-4M8	BL67-B-8M8	BL67-B-1M12	BL67-B-1M12-8	BL67-B-2M12	BL67-B-2M12-P	BL67-B-4M12	BL67-B-4M12-P	BL67-B-1M23	BL67-B-1M23-19	BL67-B-1RSM	BL67-B-1RSM-4	BL67-1RSM-VO
Power Extender Modules													
BL67-PF-24VDC											✔	✔	✔
Digital Input Modules													
BL67-4DI-P	✔				✔	✔	✔		✔				
BL67-8DI-P		✔					✔	✔	✔				
BL67-4DI-PD	✔				✔	✔	✔		✔				
BL67-8DI-PD		✔					✔	✔	✔				
BL67-4DI-N	✔				✔	✔	✔		✔				
BL67-8DI-N		✔					✔	✔	✔				
Digital Output Modules													
BL67-4DO-0.5A-P	✔				✔	✔	✔		✔				
BL67-4DO-2A-P	✔				✔	✔	✔		✔				
BL67-8DO-0.5A-P		✔					✔	✔	✔				
BL67-16DO-0.1A-P										✔			
BL67-4DO-2A-N	✔				✔	✔	✔		✔				
BL67-8DO-0.5A-N		✔					✔	✔	✔				
Relay Output Modules													
BL67-8DO-R-NO								✔					
Digital Input / Output Modules													
BL67-4DI4DO-PD		✔					✔	✔	✔				
Configurable Digital Input / Output Modules													
BL67-8XSG-PD		✔					✔	✔	✔				
Analog Input Modules													
BL67-2AI-I					✔								
BL67-2AI-V					✔								
BL67-4AI-V/I							✔						
BL67-2AI-PT					✔								
BL67-2AI-TC					✔								
Analog Output Modules													
BL67-2AO-I					✔								
BL67-2AO-V					✔								
Technology Modules													
BL67-1RS232			✔	✔					✔				
BL67-1RS485/422			✔	✔					✔				
BL67-1SSI				✔					✔				
BL67-1CNT/ENC				✔					✔				
BL67-1CVI			✔										
***BL Ident*® RFID Modules**													
BL67-2RFID-A					✔								
BL67-2RFID-S					✔								

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System Supply via the Module Bus

The number of BL67 modules that can be powered by the communication module, depends on the nominal current draw of all the modules in the system. The total bus power current consumption of the installed BL67 modules may not exceed 1.5 A. The total field power current for inputs may not exceed 4 A, and the total field power for outputs may not exceed 8 A for DeviceNet and CANopen with power over the network, or 10A for all other communication modules.

When using the software PACTware, the menu item <Station - Verify> will automatically generate an error message if the system supply via the module bus is not reliably ensured.

Nominal Current Consumption

The following table shows the nominal current consumption of the various BL67 modules:

Modules	Bus Power Current (mA)	Field Power for Inputs[1] (mA)	Field Power for Outputs (mA)
PROFIBUS-DP Communication Module	0		150
DeviceNet™ Communication Module	0		150
CANopen Communication Module	0		150
Ethernet Communication Module	0		150
Valve Driver with 16 Outputs	30		< 109 mA (Plus Load Current)
Valve Driver with 32 Outputs	60		< 218 mA (Plus Load Current)
BL67-PF-24VDC	30		9
BL67-4DI-P	30	< 49 mA	
BL67-4DI-N	30	< 10 mA	
BL67-4DI-PD	30	< 109 mA	
BL67-8DI-P	30	< 49 mA	
BL67-8DI-N	30	< 10 mA	
BL67-8-DI-PD	30	< 109 mA	
BL67-4DO-0.5A-P	30		< 109 mA (Plus Load Current)
BL67-4DO-2A-P	30		< 109 mA (Plus Load Current)
BL67-4DO-2A-N	30		< 109 mA (Plus Load Current)
BL67-8DO-0.5A-P	30		< 109 mA (Plus Load Current)
BL67-8DO-0.5A-N	30		< 109 mA (Plus Load Current)
BL67-16DO-0.1A-P	30		< 109 mA (Plus Load Current)
BL67-4DI4DO-PD	30		< 109 mA (Plus Load Current)
BL67-8XSG-PD	30		< 109 mA (Plus Load Current)
BL67-8DO-R-NO	30		< 109 mA (Plus Load Current)
BL67-2AI-V	35	< 22 mA	
BL67-2AI-I	35	< 22 mA	
BL67-4AI-I/V	35	< 22 mA	
BL67-2AI-TC	35	< 40 mA	
BL67-2AI-PT	45	< 58 mA	
BL67-2AO-I	40		< 62 mA
BL67-2AO-V	60		< 67 mA
BL67-1RS232	140	< 90 mA	
BL67-1RS485/422	60	< 42 mA	
BL67-1SSI	50	< 39 mA	
BL67-1CNT/ENC	30	< 109 mA	
BL67-1CVI	30	< 109 mA	

1) Is limited to 4 A by means of the integrated short-circuit protection.

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Digital Input Modules

I/O Modules	Voltage	Part Number
8 PNP Input Module	7 to 30 VDC	**BL67-8DI-P**
8 PNP Input Module, with Diagnostics	7 to 30 VDC	**BL67-8DI-PD**
8 NPN Input Module	24 VDC	**BL67-8DI-N**

Base Module	Part Number	
8 x M8, 3 Pole, Female	**BL67-B-8M8**	
4 x M12, 5 Pole, Female, A-code	**BL67-B-4M12**	
4 x M12, 5 Pole, Female, A-code	**BL67-B-4M12-P**	
1 x M23, 12 Pole, Female	**BL67-B-1M23**	

I/O Modules	Voltage	Part Number
4 PNP Input Module	7 to 30 VDC	**BL67-4DI-P**
4 PNP Input Module, with Diagnostics	7 to 30 VDC	**BL67-4DI-PD**
4 NPN Input Module	24 VDC	**BL67-4DI-N**

Base Module	Part Number	
4 x M8, 3 Pole, Female	**BL67-B-4M8**	
2 x M12, 5 Pole, Female, A-code	**BL67-B-2M12**	
2 x M12, 5 Pole, Female, A-code	**BL67-B-2M12-P**	
4 x M12, 5 Pole, Female, A-code	**BL67-B-4M12**	
1 x M23, 12 Pole, Female	**BL67-B-1M23**	

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Digital Output Modules

I/O Modules	Output Current	Part Number
8 PNP Output Module	0.5 Amps per Channel	**BL67-8DO-0.5A-P**
8 NPN Output Module	0.5 Amps per Channel	**BL67-8DO-0.5A-N**

Base Module	Part Number	
8 x M8, 3 Pole, Female	**BL67-B-8M8**	
4 x M12, 5 Pole, Female, A-code	**BL67-B-4M12**	
4 x M12, 5 Pole, Female, A-code	**BL67-B-4M12-P**	
1 x M23, 12 Pole, Female	**BL67-B-1M23**	

I/O Modules	Output Current	Part Number
4 PNP Output Module	0.5 Amps per Channel	**BL67-4DO-0.5A-P**
4 PNP Output Module	2 Amps per Channel	**BL67-4DO-2A-P**
4 PNP Output Module	4 Amps per Channel	**BL67-4DO-4A-P**
4 NPN Output Module	2 Amps per Channel	**BL67-4DO-2A-N**

Base Module	Part Number	
4 x M8, 3 Pole, Female	**BL67-B-4M8**	
2 x M12, 5 Pole, Female, A-code	**BL67-B-2M12**	
2 x M12, 5 Pole, Female, A-code	**BL67-B-2M12-P**	
4 x M12, 5 Pole, Female, A-code	**BL67-B-4M12**	
1 x M23, 12 Pole, Female	**BL67-B-1M23**	

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Digital Output Modules

I/O Modules	Output Current	Part Number
16 PNP Output Module	0.14 Amps per Channel	**BL67-16DO-0.1A-P**

Base Module	Part Number	
1 x M23, 19 Pole, Female	**BL67-B-1M23-19**	

Relay Output Modules

I/O Modules	Output Current	Part Number
8 Normally Open Relays	0.1 Amps per Channel	**BL67-8DO-R-NO**

Base Module	Part Number	
4 x M12, 5 Pole, Female, A-code	**BL67-B-4M12-P**	

Combination Input / Output Modules

I/O Modules	Input Voltage & Output Current	Part Number
4 PNP Output 4 PNP Input Module, with Diagnostics	7 to 30 VDC 0.5 Amps	**BL67-4DI4DO-PD**
8 PNP Configurable Input or Output Module, with Diagnostics	7 to 30 VDC 0.5 Amps	**BL67-8XSG-PD**

Base Module	Part Number	
8 x M8, 3 Pole, Female	**BL67-B-8M8**	
4 x M12, 5 Pole, Female, A-code	**BL67-B-4M12**	
4 x M12, 5 Pole, Female, A-code	**BL67-B-4M12-P**	

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Analog Input Modules

I/O Modules	Input Type	Part Number
4 Configurable Current or Voltage Analog Input Module	4 to 20 mA or 0 to 20 mA -10 to +10 VDC or 0 to +10 VDC	**BL67-4AI-V/I**

Base Module	Part Number	
4 x M12, 5 Pole, Female, A-code	**BL67-B-4M12**	

I/O Modules	Input Type	Part Number
2 Current Analog Input Module	4 to 20 mA or 0 to 20 mA	**BL67-2AI-I**
2 Voltage Analog Input Module	-10 to +10 VDC or 0 to +10 VDC	**BL67-2AI-V**
2 Temperature Analog Input Module	PT100, PT200, PT500, PT1000, Ni100, Ni1000	**BL67-2AI-PT**
2 Temperature Analog Input Module	Type B, E, J, K, N R, S, T	**BL67-2AI-TC**

Base Module	Part Number	
2 x M12, 5 Pole, Female, A-code	**BL67-B-2M12**	

Analog Output Modules

I/O Modules	Input Type	Part Number
4 Voltage Analog Output Module	-10 to +10 VDC or 0 to +10 VDC	**BL67-4AO-V**

Base Module	Part Number	
4 x M12, 5 Pole, Female, A-code	**BL67-B-4M12**	

I/O Modules	Input Type	Part Number
2 Current Analog Output Module	4 to 20 mA or 0 to 20 mA	**BL67-2AO-I**
2 Voltage Analog Output Module	-10 to +10 VDC or 0 to +10 VDC	**BL67-2AO-V**

Base Module	Part Number	
2 x M12, 5 Pole, Female, A-code	**BL67-B-2M12**	

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Combination Analog Input / Output Modules

I/O Modules	Output Current	Part Number
4 Configurable Input and 4 Configurable Output Current or Voltage Analog Module	4 to 20 mA or 0 to 20 mA -10 to +10 VDC or 0 to +10 VDC	**BL67-4AI4AO-V/I**

Base Module	Part Number	
8 x M8, 3 Pole, Female	**BL67-B-8M8**	
4 x M12, 5 Pole, Female, A-code	**BL67-B-4M12**	

I/O Modules	Output Current	Part Number
2 Configurable Input and 2 Configurable Output Current or Voltage Analog Module	4 to 20 mA or 0 to 20 mA -10 to +10 VDC or 0 to +10 VDC	**BL67-2AI2AO-V/I**

Base Module	Part Number	
8 x M8, 3 Pole, Female	**BL67-B-8M8**	

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Power Extender Module

Extender Module	Current Capacity	Part Number
24 VDC Field Power Module	10 Amps Input	**BL67-PF-24VDC**

Base Module	Part Number	
5 Pole Mini Connector to Supply Bus Power and Field Power	**BL67-B-1RSM**	
5 Pole Mini Connector to Field Power Only	**BL67-B-1RSM-VO**	
4 Pole Mini Connector to Supply Bus Power and Field Power	**BL67-B-1RSM-4**	

CANopen Subnet Module

Extender Module	Capacity	Part Number
1 CANopen Connection	64 Bits of Inputs or Outputs	**BL67-1CVI**

Base Module	Part Number	
1 x M12, 5 Pole, Female, A-code	**BL67-B-1M12**	

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Serial Interface Module

Extender Module	Capacity	Part Number
1 RS232 Serial Interface	300 to 115200 bps	**BL67-1RS232**
1 RS485 or 422 Serial Interface	300 to 115200 bps	**BL67-1RS485/422**

Base Module	Part Number	
1 x M12, 5 Pole, Female, A-code	**BL67-B-1M12**	
1 x M12, 8 Pole, Female, A-code	**BL67-B-1M12-8**	
1 x M23, 12 Pole, Female	**BL67-B-1M23**	

SSI and Counting Modules

Extender Module	Capacity	Part Number
1 SSI Sensor Interface	65 kbps up to 1 Mbps	**BL67-1SSI**
1 Counter Interface	Up to 250 kHz	**BL67-1CNT/ENC**

Base Module	Part Number	
1 x M12, 8 Pole, Female, A-code	**BL67-B-1M12-8**	
1 x M23, 12 Pole, Female	**BL67-B-1M23**	

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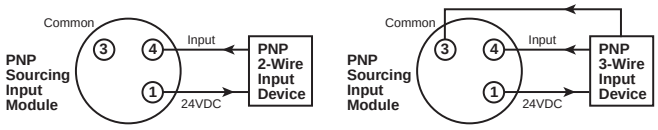
Digital PNP Input Modules

Digital DC Input Module	BL67-4DI-P	BL67-8DI-P	BL67-4DI-PD	BL67-8DI-PD
Number of Inputs	4	8	4	8
Sensor Requirement	PNP Sourcing		PNP Sourcing	
Voltage, On-State Input, Nom.	24 VDC		24 VDC	
Field Power for Inputs Current Consumption	49 mA		109 mA	
Bus Power Current Consumption	30 mA		30 mA	
Low Level Signal Voltage	<4.5 V		<4.5 V	
High Level Signal Voltage	7…30V		7…30V	
Low Level Signal Current	<1.5 mA		<1.5 mA	
High Level Signal Current	2.1…3.7 mA		2.1…3.7 mA	
Type of Diagnositcs	Group Diagnostics		Channel Diagnostics	
Short Circuit Protection	Group Protection		Channel Protection	
Input Delay	0.25 ms		0.25; 2.5 ms	

PNP (Sourcing)

PNP input modules provide sourcing capabilities. When the input field device is passing, current flows from the input device into the Turck input module.

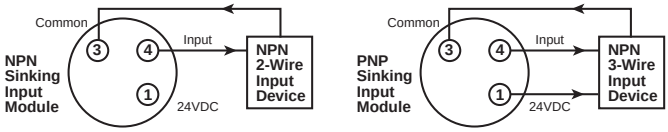


Digital NPN Input Modules

Digital DC Input Module	BL67-4DI-N	BL67-8DI-N
Number of Inputs	4	8
Sensor Requirement	NPN Sinking	
Voltage, On-State Input, Nom.	24 VDC	
Field Power for Inputs Current Consumption	10 mA	
Bus Power Current Consumption	30 mA	
Low Level Signal Voltage	>7 V	
High Level Signal Voltage	<5 V	
Low Level Signal Current	<2.5 mA	<1.2 mA
High Level Signal Current	>3 mA	>1.5 mA
Type of Diagnositcs	Group Diagnostics	
Short Circuit Protection	Group Protection	
Input Delay	0.25 ms	

NPN (Sinking)

NPN input modules provide sinking capabilities. When the input field device is passing, current out of the Turck input module into the field input device.



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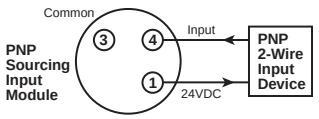
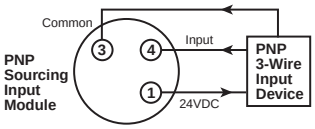
Digital PNP Output Modules

Digital DC Output Module	BL67-4DO-0.5A-P	BL67-8DO-0.5A-P	BL67-4DO-2A-P	BL67-16DO-0.1A-P
Number of Outputs	4	8	4	16
Sensor Requirement	PNP Sourcing			
Output Voltage	24 VDC			
Field Power for Outputs Current Consumption	109 mA (Plus load current)			
Bus Power Current Consumption	30 mA			
Output Current per Channel	0.5 A		2.0A	0.1 A
Output Delay	3 ms			
Load Type	Resistive, Inductive, Lamp Load			Resistive, Inductive
Load Resistance, Resistive	>48 Ohm		>12 Ohm	>250 Ohm
Load Resistance, Inductive	<1.2 H			
Lamp Load	< 3W		< 10W	
Switching Frequency, Resistive	<200 Hz			
Switching Frequency, Inductive	< 2 Hz			
Switching Frequency, Lamp Load	< 20 Hz			
Short-Circuit Protection	Group Protection			
Diagnostic Bits	4	8	4	16

PNP (Sourcing)

PNP input modules provide sourcing capabilities. When the input field device is passing, current flows from the input device into the Turck input module.



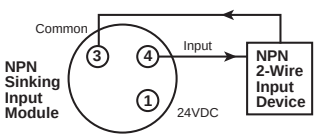


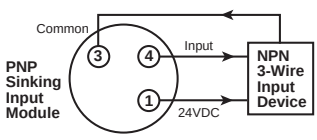
Digital NPN Output Modules

Digital DC Output Module	BL67-8DO-0.5A-N	BL67-4DO-2A-N
Number of Outputs	8	4
Sensor Requirement	NPN Sinking	
Output Voltage	24 VDC	
Field Power for Outputs Current Consumption	109 mA (Plus load current)	
Bus Power Current Consumption	30 mA	
Output Current per Channel	0.5 A	2.0 A
Output Delay	3 ms	
Load Type	Resistive, Inductive, Lamp Load	
Load Resistance, Resistive	>48 Ohm	
Load Resistance, Inductive	<1.2 H	
Lamp Load	< 3W	
Switching Frequency, Resistive	<200 Hz	
Switching Frequency, Inductive	< 2 Hz	
Switching Frequency, Lamp Load	< 20 Hz	
Short-Circuit Protection	Group Protection	
Diagnostic Bits	4	8

NPN (Sinking)

NPN input modules provide sinking capabilities. When the input field device is passing, current out of the Turck input module into the field input device.





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Relay Output Modules

Relay Output Module	BL67-8DO-R-NO
Number of Outputs	8
Output Type	Relay
Output Voltage	24 VDC
Field Power for Outputs Current Consumption	109 mA (Plus load current)
Bus Power Current Consumption	30 mA
Output Current per Channel	100 mA
Output Delay	3 ms
Load Type	Resistive, TTL logic
Switching Resistor	<31 Ohm
Switching Frequency, Resistive	<200 Hz
Short-Circuit Protection	None

Combination Digital Modules

Combination Input and Output Modules	BL67-4DI4DO-PD	BL-67-8XSG-PD
Number of Outputs	4	Configurable 0 to 8
Number of Inputs	4	Configurable 0 to 8
Total Channels	8	8
Sensor Requirement	PNP Sourcing	
Voltage, On-State Input, Nom.	24 VDC	
Output Voltage	24 VDC	
Field Power for Outputs Current Consumption	109 mA	
Bus Power Current Consumption	30 mA	
Input Low Level Signal Voltage	<4.5 V	
Input High Level Signal Voltage	7…30V	
Input Low Level Signal Current	<1.5 mA	
Input High Level Signal Current	2.1…3.7 mA	
Input Delay	0.25; 2.5 ms	
Output Current per Channel	0.5 A	
Output Delay	3 ms	
Load Type	Resistive, Inductive, Lamp Load	
Load Resistance, Resistive	>48 Ohm	
Load Resistance, Inductive	<1.2 H	
Lamp Load	< 3W	
Switching Frequency, Resistive	<200 Hz	
Switching Frequency, Inductive	< 2 Hz	
Switching Frequency, Lamp Load	< 20 Hz	
Short-Circuit Protection	Channel Protection	
Diagnostic Bits	8	12

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Analog Input Modules

Analog Input Module	BL67-2AI-I	BL67-2AI-V	BL67-4AI-V/I
Number of Inputs	2	2	4
Nominal Voltage	24 VDC		
Field Power for Inputs Current Consumption	22 mA		
Bus Power Current Consumption	35 mA		
Analog Input Type	0/4…20mA	-10/0…+10 VDC	0/4…20mA or -10/0…+10 VDC
Input Resistance	<0.125 kOhm	<98.5 kOhm	<0.125 kOhm or <98.5 kOhm
Maximum Limiting Frequency	50 Hz		20 Hz
Fault Limit @ 23 degree C	<0.2%		<0.3%
Repeatability	0.05%		
Temperature Coefficient (ppm/degree C of full scale)	<300	<150	<300
Resolution	16 Bit		
Measuring Principle	Sigma Delta		
Measured Value Display	16 Bit Signed Integer, 12 Bit Full Range Left Justified		
Diagnostic Bits	16		32

Temperature Inputs

Analog Input Module	BL67-2AI-PT	BL67-2AI-TC
Number of Inputs	2	2
Nominal Voltage	24 VDC	
Field Power for Inputs Current Consumption	58 mA	40 mA
Bus Power Current Consumption	45 mA	35 mA
Temperature Input Type	PT100, PT200, PT500, PT1000, Ni100, Ni1000	B, E, J, K, N, R, S, T
Voltage Resolution	n/a	+/- 50mV; <2uV
Fault Limit @ 23 degree C	<0.2%	
Repeatability	0.05%	
Temperature Coefficient (ppm/degree C of full scale)	<300	
Resolution	16 Bit	
Measured Value Display	16 Bit Signed Integer, 12 Bit Full Range Left Justified	
Diagnostic Bits	16	

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Analog Input Modules

Analog Input Module	BL67-2AO-I	BL67-2AO-V
Number of Inputs	2	2
Nominal Voltage	24 VDC	
Field Power for Outputs Current Consumption	62 mA	67 mA
Bus Power Current Consumption	40 mA	60 mA
Analog Output Type	0/4…20mA	-10/0…+10 VDC
Output Current per Channel	n/a	250 mA
Load Resistance, Resistive	<0.45 kOhm	> 1kOhm
Load Resistance, Inductive	<1 mH	n/a
Load Resistance, Capacitive	n/a	> 1 uF
Transmission Frequency	<200 Hz	<100 Hz
Fault Limit @ 23 degree C	<0.2%	
Repeatability	0.05%	
Temperature Coefficient (ppm/degree C of full scale)	<150	<300
Resolution	16 Bit	
Measured Value Display	16 Bit Signed Integer, 12 Bit Full Range Left Justified	

Combination Analog Modules

Analog Combination Module	BL67-4AI4AO-V/I	BL67-2AI2AO-V/I
Number of Analog Inputs	4	2
Number of Analog Outputs	4	2
Nominal Voltage	24 VDC	
Field Power for Outputs Current Consumption	67 mA	
Bus Power Current Consumption	60 mA	
Analog Input Type	0/4…20mA or -10/0…+10 VDC	
Input Resistance	0.065 or 225 kOhm	
Maximum Limiting Frequency	20 Hz	
Fault Limit @ 23 degree C	<0.3%	
Repeatability	0.05%	
Temperature Coefficient (ppm/degree C of full scale)	<300	
Resolution	16 Bit	
Measuring Principle	Sigma Delta	
Measured Value Display	16 Bit Signed Integer 12 Bit Full Range Left Justified	
Analog Output Type	-10/0…+10 VDC	
Output Current per Channel	250 mA	
Load Resistance, Resistive	>1 kOhm	
Load Resistance, Capacitive	<1 uF	
Transmission Frequency	<100 Hz	
Fault Limit @ 23 degree C	<0.3%	
Repeatability	0.05%	
Temperature Coefficient (ppm/degree C of full scale)	<300	
Resolution	16 Bit	
Measured Value Display	16 Bit Signed Integer, 12 Bit Full Range Left Justified	
Diagnostic Bits	8	4

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Power Extender Module

Power Extender Module	BL67-PF-24VDC
Nominal Voltage	24 VDC
Field Power for Outputs Current Consumption	9 mA
Bus Power Current Consumption	30 mA
Supply for Field Power for Inputs Current	4.0 A
Supply for Field Power for Outputs Current	10 A
Diagnostic Bits	3

RS232 Interface

RS232 Interface	BL67-1RS232
Number of Channels	1
Field Power for Inputs Current Consumption	90 mA
Bus Power Current Consumption	140 mA
Transmission Level Active (U RS1)	-15 to -3 VDC
Transmission Level Inactive (URSO)	3 to 15 VDC
Common-mode Range (UGL)	-7 to 12 VDC
Transmission Signals	RxD, TxD, RTS, CTS
Data Buffer Received	128 Byte
Send Data Buffer	64 Byte
Connection Type	Full Duplex
Transmission Rate	300 to 115200 bps
Parameter	Transmission Rate, Diagnostics, Data Bits, Stop Bits, XON - Character, XOFF - Character, Parity, Flow Control
Cable Length	15 m
Diagnostic Bits	8

RS485 / 422 Interface

RS485/422 Interface	BL67-1RS485/422
Number of Channels	1
Field Power for Inputs Current Consumption	42 mA
Bus Power Current Consumption	60 mA
Transmission Signals	RxD, TxD
Connection Type	2 Wire Half Duplex or 4 Wire Full Duplex
Transmission Rate	300 to 115200 bps
Parameter	RS485/422, Transmission Rate, Diagnostics, Data Bits, Stop Bits, XON - Character, XOFF - Character, Parity, Flow Control
Cable Length	1000 m
Line Impedance	120 Ohm
Bus Termination	External
Diagnostic Bits	8

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SSI Sensor Interface

SSI Sensor Interface	BL67-1SSI
Number of Channels	1
Field Power for Inputs Current Consumption	39 mA
Bus Power Current Consumption	50 mA
Transmission Signals	CL, D
Connection Type	4 Wire Full Duplex (Clock Output/Signal Input)
Transmission Rate	62.5 kbps up to 1 Mbps
Parameter	Transmission Rate, Diagnostics, Data Format (Binary / GRAY coded), Data Fram Bits (1-32), Number of Invalid Bits (LSB: 0-15, MSB 0-7)
Cable Length	30 m
Diagnostic Bits	8

Counting Module

Counting Module	BL67-1CNT/ENC
Number of Channels	1
Field Power for Inputs Current Consumption	109 mA
Bus Power Current Consumption	30 mA
Input Type	PNP
Output Type	PNP
Output Current per Channel	0.5 A
Output Delay	2 ms
Load Type	Resistive
Frequency Measurement	Up to 250 kHz
Speed Measurement	Factor Configurable
Period Duration Measurement	2 usec
Upper Count Limit	0x80000000 up to 0xFFFFFFFF
Lower Count Limit	0x80000000 up to 0xFFFFFFFF
Short Circuit Protection	Channel Protection

CANopen Expansion Module

CANopen Expansion Module	BL67-1CVI
Number of Channels	1
Field Power for Inputs Current Consumption	109 mA
Bus Power Current Consumption	30 mA
Transmission Signals	CAN High, CAN Low
Connection Type	CANopen
Transmission Speed	10 kbps up to 1 Mbps
Parameter	Transmission Rate, Diagnostics, Bus Termination, Range of I/O Data
Bus Termination	Internal
Diagnostic Bits	48
Max Number of CANopen Nodes	8
Max Processing Data per Module	8 Byte
Max Data Per Node	4 Byte

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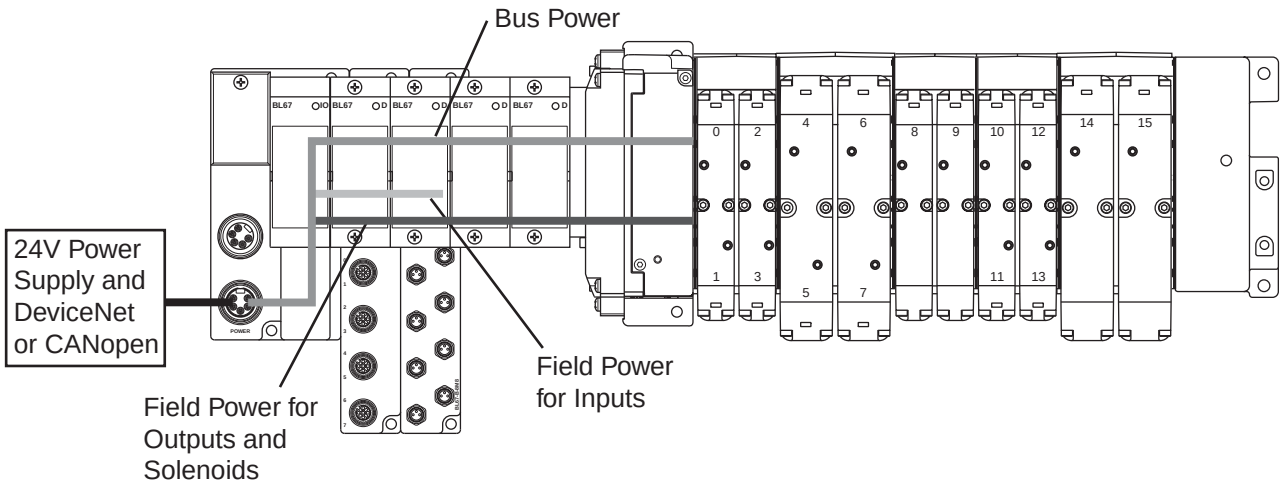
Power Distribution Options for Turck Fieldbus

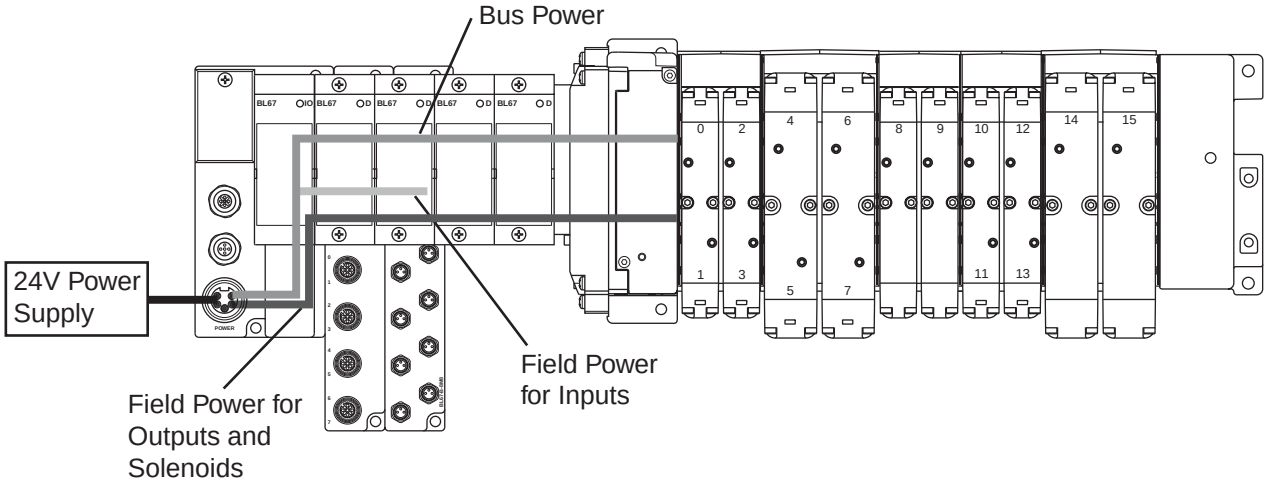
Turck Communication and I/O Modules - DeviceNet and CANopen, Power over Network

The 24VDC power supply pins from the DeviceNet or CANopen network connection on the communication module provides a single power circuit. This circuit provides 1.5 A bus power, 4 A field power for inputs and 8A field power for outputs.



Turck Communication and I/O Modules - Ethernet/IP, Modbus/TCP, Profinet, Profibus, and CANopen

An auxiliary 24VDC power supply from the communication module provides power across two separate circuits. The first circuit provides 1.5 A bus power and 4 A field power for inputs. The second circuit provides 10A field power for outputs which can be wired to an e-stop circuit to kill all outputs.



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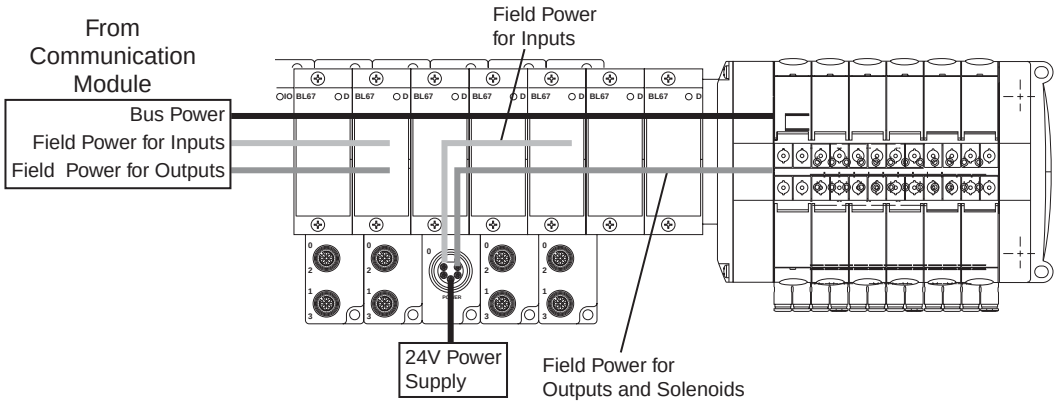
Power Distribution Options for Turck Fieldbus

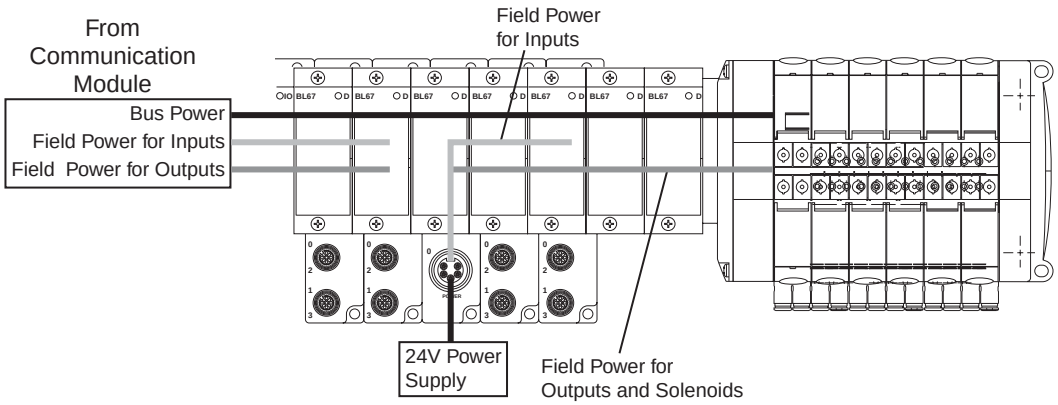
24VDC Power Extender Module (BL67-PF-24VDC) with base module BL67-B-1RSM

This configuration creates an auxiliary 24VDC power supply and provides power across two separate circuits, regardless of the communication module used. The first circuit provides 4 A field power for inputs. The second circuit provides 10A field power for outputs which can be wired to an e-stop circuit to kill all outputs and solenoids to the right of the module. The 1.5 A bus power is uninterrupted, and is still supplied from the communication module.



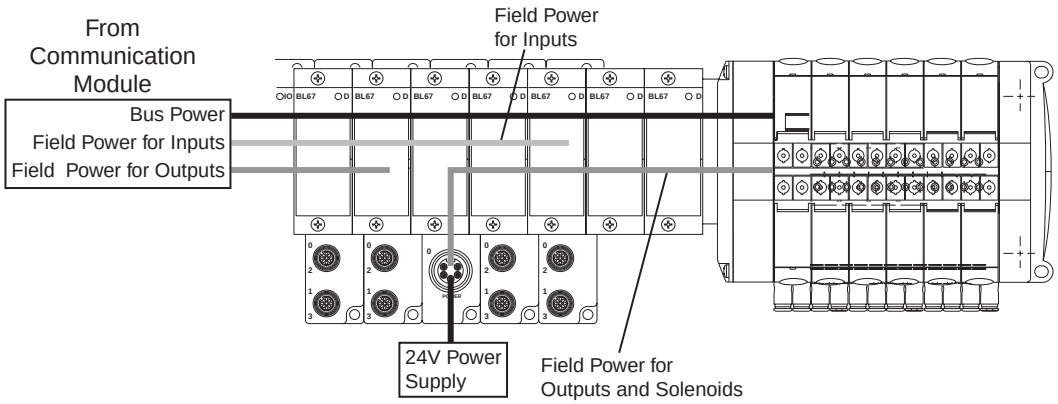
24VDC Power Extender Module (BL67-PF-24VDC) with base module BL67-B-1RSM-4

This configuration creates an auxiliary 24VDC power supply and provides power across one circuit, regardless of the communication module used. This circuit provides 4 A field power for inputs and 10A field power for outputs. The 1.5 A bus power is uninterrupted, and is still supplied from the communication module.



24VDC Power Extender Module (BL67-PF-24VDC) with base module BL67-B-1RSM-VO

This configuration creates an auxiliary 24VDC power supply and provides power across one circuit, regardless of the communication module used. This circuit provides 10A field power for outputs which can be wired to an e-stop circuit to kill all outputs and solenoids to the right of the module. The 1.5 A bus power and 4 A field power for inputs are uninterrupted, and are still supplied from the communication module.



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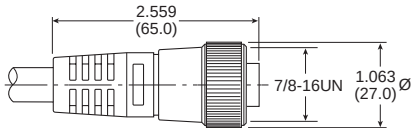
7/8" Mini Power Cables

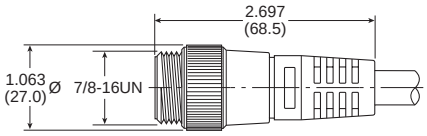
Part Number	Description
RKM 46-xM/S1587	4 Pin Female to Flying Lead Cable, TPE
RKM 56-xM/S1587	5 Pin Female to Flying Lead Cable, TPE
RSM RKM 46-x/S1587	4 Pin Male to Female Cable, TPE
RSM RKM 56-x/S1587	5 Pin Male to Female Cable, TPE
WKM 46-xM/S1587	4 Pin Right Angle Female to Flying Lead Cable, TPE
WKM 56-xM/S1587	5 Pin Right Angle Female to Flying Lead Cable, TPE

Where x = 2, 4, 5, 6, 8, 10 meter standard lengths

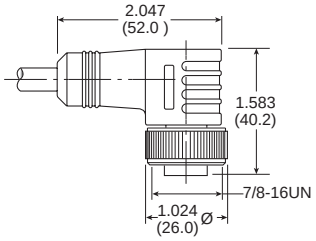
RKM Female Socket

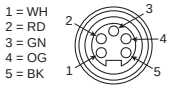


RSM Male Pins

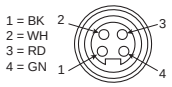


WKM Female Socket





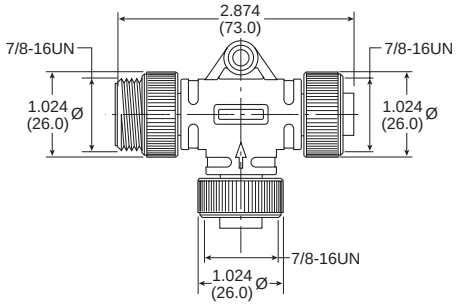
5-Pin Female
Wiring Diagram

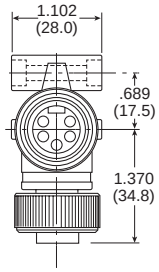


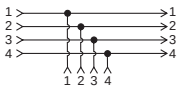
4-Pin Female
Wiring Diagram

Power Tee

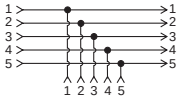
Part Number	Description
RSM-2RKM 40	4 Pin Male to 2 Female Sockets
RSM-2RKM 50	5 Pin Male to 2 Female Sockets







RSM-2RKM 40



RSM-2RKM 50

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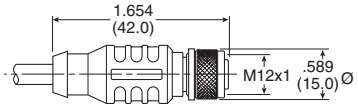
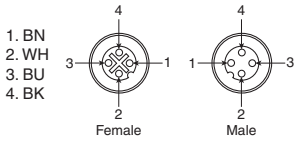
M12 A-code Cables

Part Number	Description
RKC 4.4T-*	4 Pin Female to Flying Lead Cable, PVC
RSC 4.4T-*	4 Pin Male to Flying Lead Cable, PVC
RKC 4.4T-*-RSC 4.4T	4 Pin Male to Female Cable, PVC
RKC 4.5T-*/S1587	5 Pin Female to Flying Lead Cable, TPE
RSC 4.5T-*/S1587	5 Pin Male to Flying Lead Cable, TPE
RKC 4.5T-*-RSC 4.5T/S1587	5 Pin Male to Female Cable, TPE

Where * = 1, 2, 3, 4 meter standard lengths

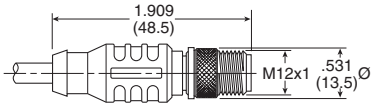
RKC Female Sockets

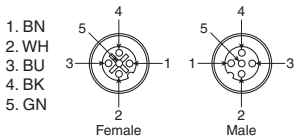




4-Pin Female Wiring Diagram

RSC Male Pins



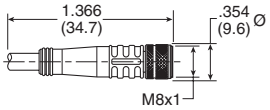


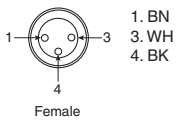
5 -Pin Female Wiring Diagram

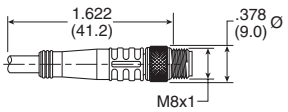
M8 Cables

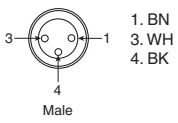
Part Number	Description
PKG 3M-*/S90	3 Pin Female to Flying Lead Cable, PUR
PSG 3M-*/S90	3 Pin Male to Flying Lead Cable, PUR
PKG 3M-*-PSG 3M/S90	3 Pin Male to Female Cable, PUR

Where * = 1, 2, 3, 4 meter standard lengths









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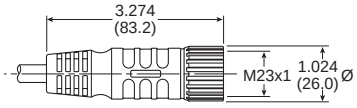
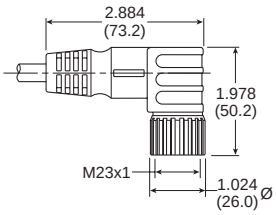
M23 Cables

Part Number	Description
CSCM CKCM 12-11-x/S90	12 Pin, Double Ended Female Thread with Male Pins and Female Socket, PUR. Pinout optimized for Isysnet Fieldbus.
CSM CKM 19-19-x/S90	19 Pin, Double Ended Female Thread with Male Pins and Female Socket, PUR. Pinout optimized for Isysnet Fieldbus.
CSWM CKWM 19-19-x/CS12852	19 Pin, 90° Double Ended Female Thread with Male Pins and Female Socket, PUR. Pinout optimized for Turck Fieldbus.

Where x = 1, 2, 3, 4 meter standard lengths

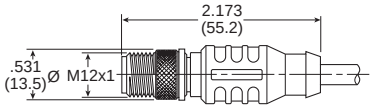




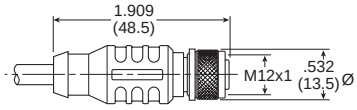
Profibus Cables

Part Number	Description
RSSW RKSW 455-xM	M12 Male to M12 Female, PUR

Where x = 2, 4, 5, 6, 8, 10 meter standard lengths



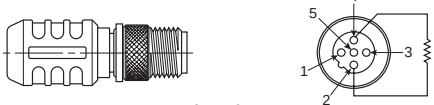
RSSW Side, Male Pins



RKSW Side, Female Sockets

Profibus Terminating Resistor

Part Number	Description
P8BPA00MB	M12 Male Pin Terminating Resistor

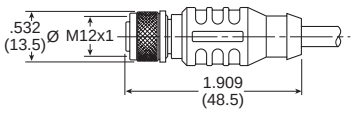


Male Pins

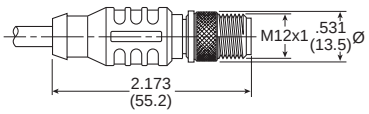
Ethernet Cables

Part Number	Description
RSSD RKSD 443-xM	M12 Female to M12 Male, PUR
RSSD RJ45S 443-xM	RJ45 to M12 Male, PUR

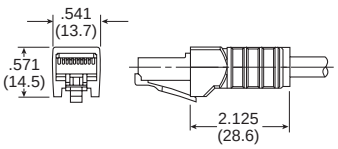
Where x = 2, 5, 10, 15, 20, 30 meter standard lengths



RKSD Side, Female Sockets



RSSD Side, Male Pins



RJ45S Side

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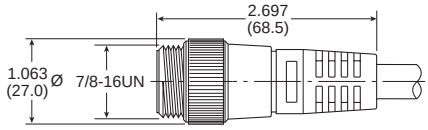
DeviceNet and CANopen Cables

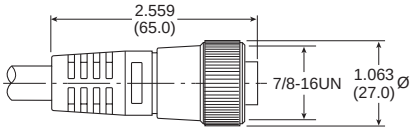
Part Number	Description
RSM RKM 5711-xM	7/8" Mini Male to 7/8" Mini Female, PUR
RSM RKC 5711-xM	7/8" Mini Male to M12 Female, PUR
RSC RKC 5711-xM	M12 Male to M12 Female, PUR
RSC RKM 5711-xM	M12 Male to 7/8" Mini Female, PUR

Where x = 2, 4, 5, 6, 8, 10 meter standard lengths

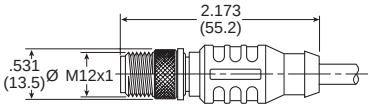
RSM Side, 7/8 Mini with male Pins



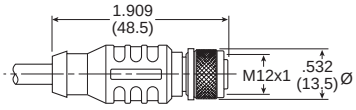
RKM Side, 7/8 Mini with male Pins



RSC Side, Male Pins



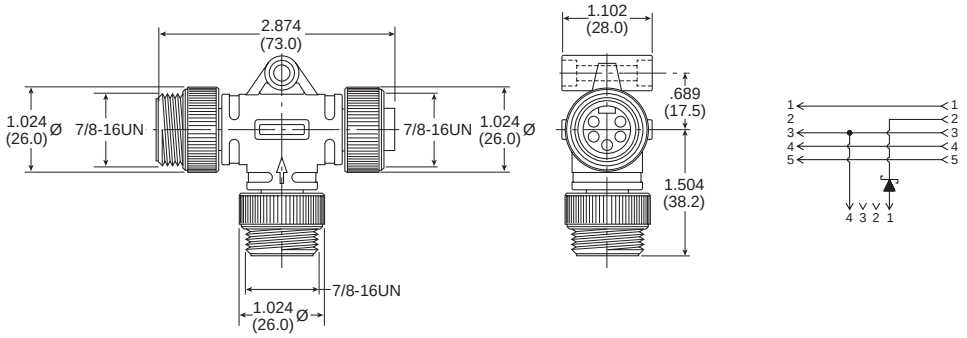
RKC Side, Female Sockets



Bus Power Tee

Part Number	Description
RSM RKM 57 WSM 40 PST	Bus Power Tee

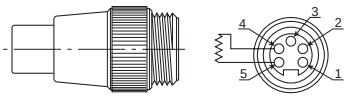
For systems not equipped with Power over network, combines separate network and power feeds into the communication module. Includes reverse current protection



DeviceNet and CANopen Terminating Resistor

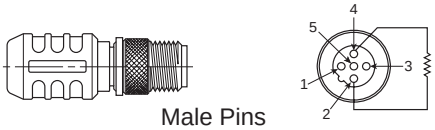
Part Number	Description
RSM 57-TR2	7/8" Mini Male Pin Terminating Resistor
P8BPA00MA	M12 Male Pin Terminating Resistor

RSM 57-TR2



Male Pins

P8BPA00MB



Male Pins

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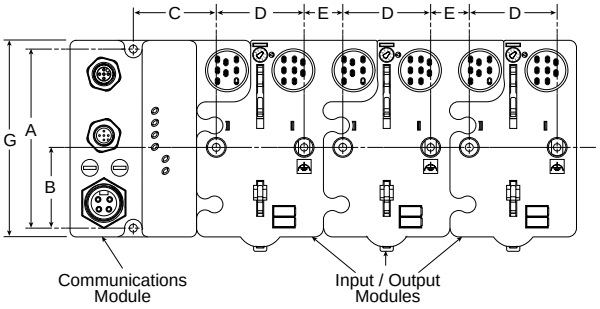
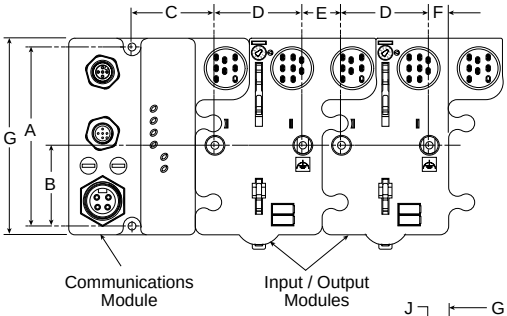
Isysnet with Isys ISO Valves





Dimensions

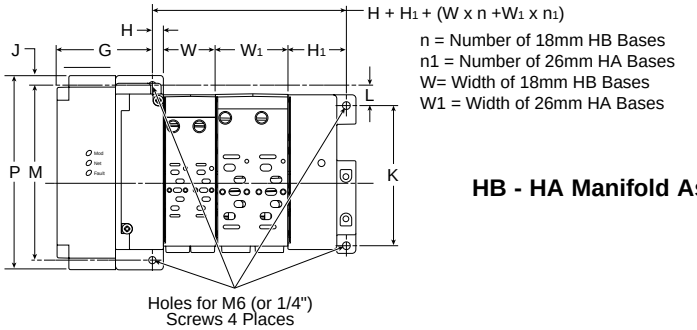
A	B	C	D
4.00 (102)	1.80 (46)	1.90 (48)	2.00 (50)
E	**F**	**G**	
.87 (22)	.43 (11)	4.41 (112)	

Inches (mm)

HB - HA Dimensions

G	H	H_1	J	K
2.68 (68)	.33 (8.4)	1.80 (45.8)	.15 (4)	4.32 (110)
L	**M**	**P**	**W**	**W_1**
.63 (16)	5.39 (137)	5.98 (152)	1.61 (40.8)	2.24 (56.8)

Inches (mm)



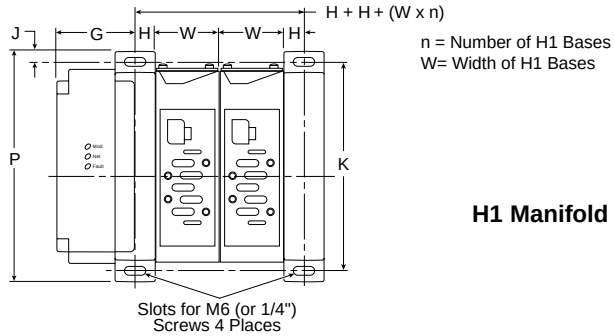
n = Number of 18mm HB Bases
n1 = Number of 26mm HA Bases
W= Width of 18mm HB Bases
W1 = Width of 26mm HA Bases

HB - HA Manifold Assembly

H1 Dimensions

G	H	J	K	P
2.20 (56)	.63 (15.9)	.33 (8.5)	6.50 (165)	7.17 (182)
W				
1.93 (49)				

Inches (mm)



n = Number of H1 Bases
W= Width of H1 Bases

H1 Manifold Assembly

H2 Dimensions

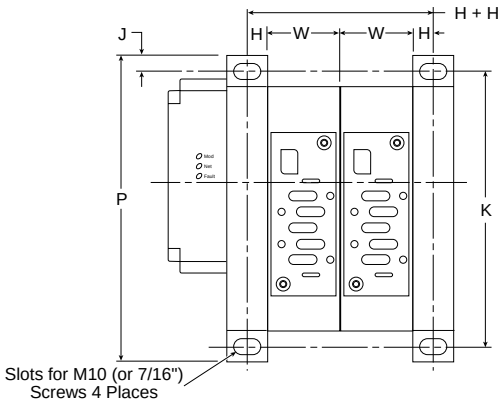
G	H	J	K	P
2.28 (58)	.63 (16)	.47 (12)	8.46 (215)	9.41 (239)
W				
2.20 (56)				

Inches (mm)

H3 Dimensions

G	H	J	K	P
2.52 (64)	.65 (16.5)	.59 (15)	10.43 (265)	11.61 (295)
W				
2.80 (71)				

Inches (mm)



n = Number of H2 / H3 Bases
W= Width of H2 / H3 Bases

H2 - H3 Manifold Assembly

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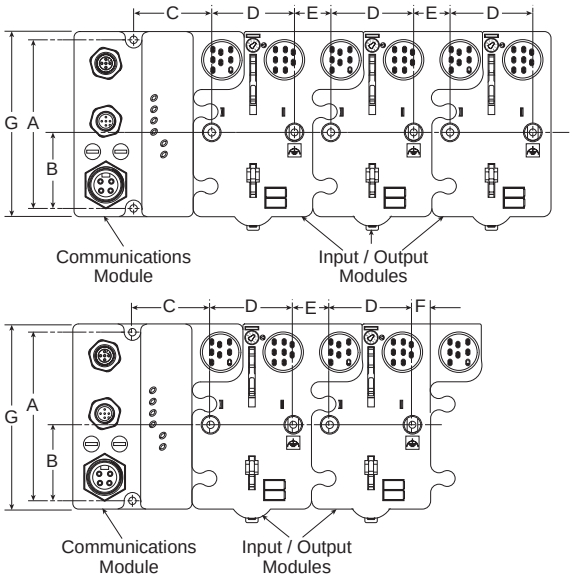
Isysnet with Isys Micro Valves

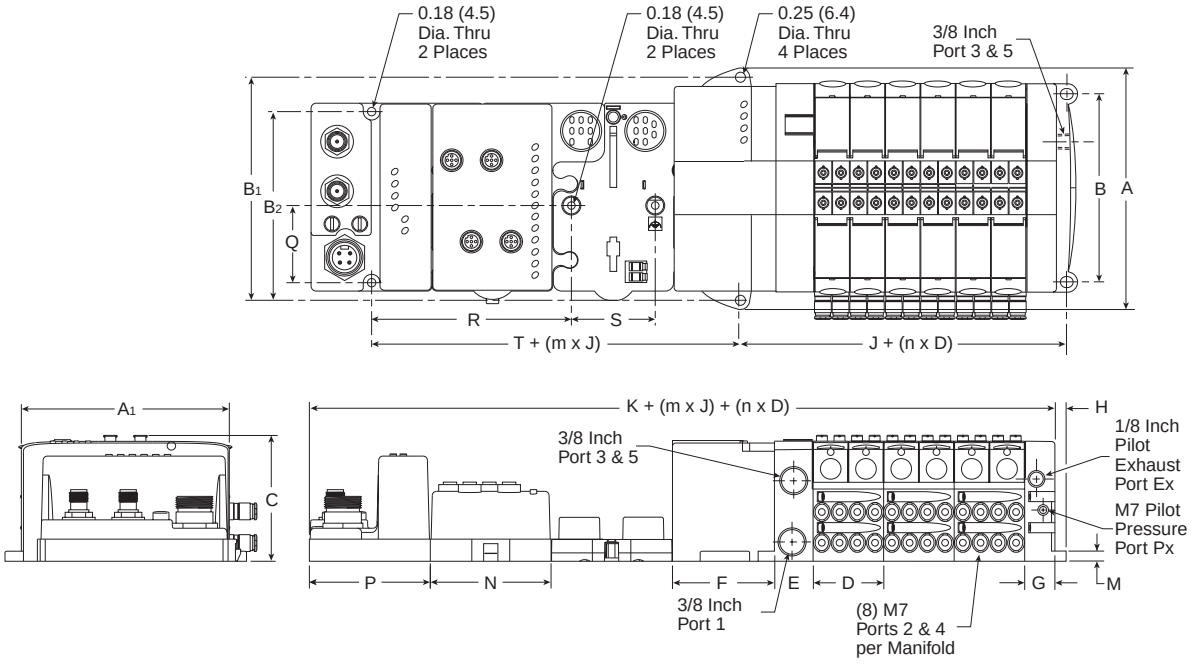


Dimensions

A	B	C	D
4.0 (102)	1.8 (46)	1.9 (48)	2.0 (50)
E	**F**	**G**	
.87 (22)	.43 (11)	4.41 (112)	

Inches (mm)

Isys Micro Manifold Assembly



Dimensions

A	A1	B	B1	B2	C	D	E	F	G
5.67 (144.0)	4.88 (124.0)	4.41 (112.0)	5.24 (133.0)	4.02 (102.0)	2.95 (75.0)	1.65 (42.0)	0.91 (23.0)	2.40 (61.0)	0.71 (18.0)
H	**J**	**K**	**M**	**N**	**P**	**Q**	**R**	**S**	**T**
0.49 (12.5)	2.72 (69.0)	7.32 (186.0)	0.24 (6.1)	2.83 (72.0)	2.83 (72.0)	1.81 (46.0)	4.72 (120.0)	2.01 (51.0)	2.01 (51.0)

Inches (mm)
n = Number of Manifolds
m = Number of Modules

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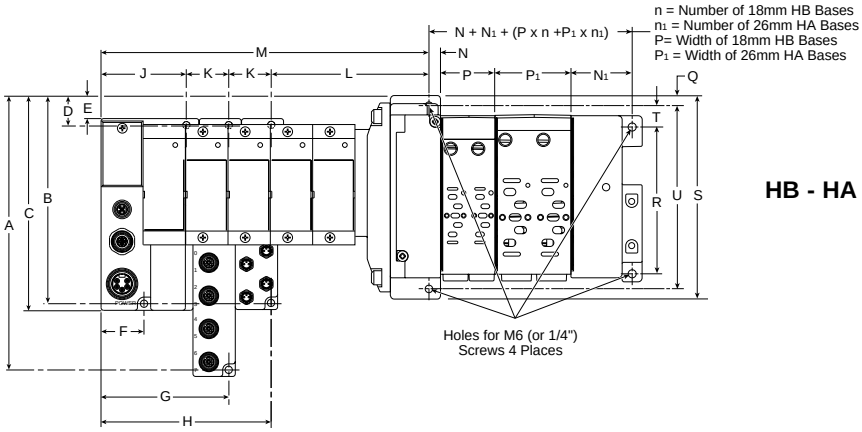
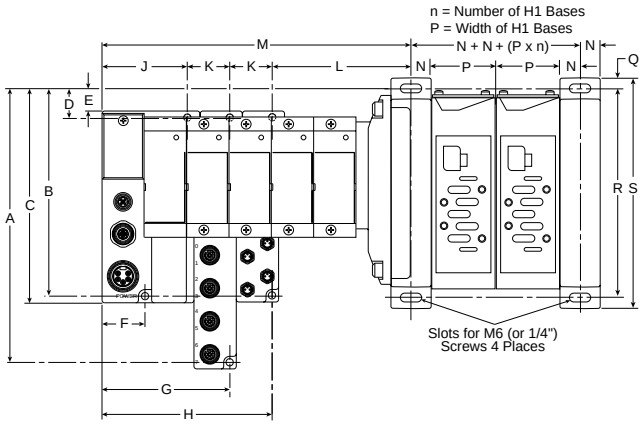
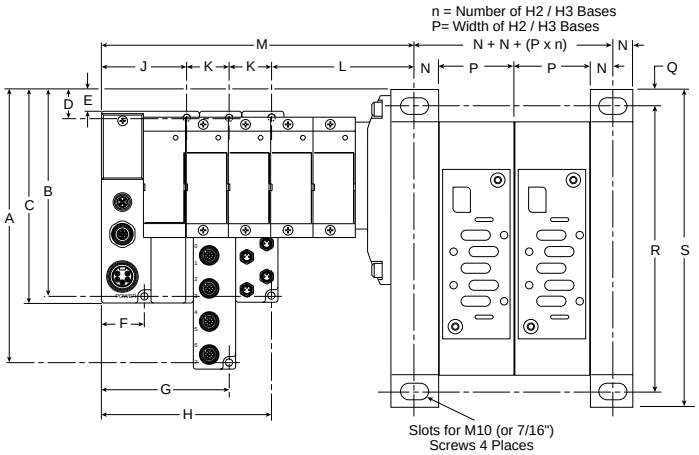
Turck with Isys ISO Valves



HB - HA Manifold Assembly



H1 Manifold Assembly



H2 - H3 Manifold Assembly

Dimensions

	A	B	C	D	E	F	G	H	J	K	L	M	N	N1	P	P1	Q	R	S	T	U
HA / HB	8.05 (204.5)	6.08 (154.5)	6.28 (159.5)	0.75 (19.5)	0.57 (14.5)	1.28 (32.5)	3.79 (96.5)	5.06 (128.5)	2.53 (64.5)	1.26 (32)	4.75 (120.8)	See note 1	.33 (8.4)	1.80 (45.8)	1.61 (40.8)	2.24 (56.8)	.15 (4)	4.32 (110)	5.98 (152)	.63 (16)	5.39 (137)
H1	8.53 (216.7)	6.56 (166.7)	6.76 (171.7)	1.25 (31.7)	1.05 (26.7)	1.28 (32.5)	3.79 (96.5)	5.06 (128.5)	2.53 (64.5)	1.26 (32)	4.27 (108.5)	See note 1	.63 (15.9)	—	1.93 (49)	—	.33 (8.5)	6.50 (165)	7.17 (182)	—	—
H2	8.38 (212.9)	6.41 (162.9)	6.61 (167.9)	1.10 (27.9)	.90 (22.9)	1.28 (32.5)	3.79 (96.5)	5.06 (128.5)	2.53 (64.5)	1.26 (32)	4.26 (108.6)	See note 1	.63 (16)	—	2.20 (56)	—	.47 (12)	8.46 (215)	9.41 (239)	—	—
H3	8.62 (218.9)	6.65 (168.9)	6.85 (173.9)	1.33 (33.9)	1.14 (28.9)	1.28 (32.5)	3.79 (96.5)	5.06 (128.5)	2.53 (64.5)	1.26 (32)	4.59 (116.6)	See note 1	.65 (16.5)	—	2.80 (71)	—	.59 (15)	10.43 (265)	11.61 (295)	—	—

Note 1: M =J+L+n2xK, where n2 = Number of Turck input / output modules
Inches (mm)

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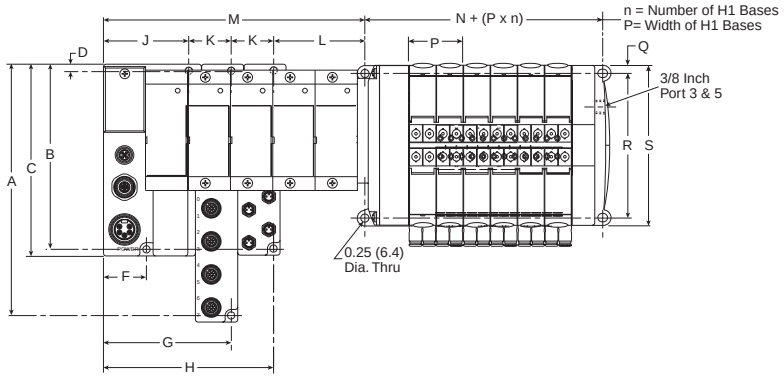
Turck with Isys Micro Valves

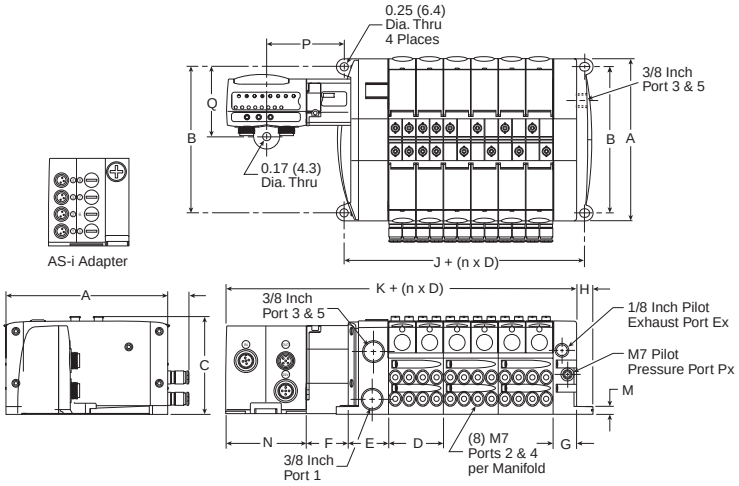


Dimensions

A	B	C	D	F	G	H	J	K	L	M	N	P	Q	R	S
7.48 (190)	5.51 (140)	5.71 (145)	0.20 (5)	1.28 (32.5)	3.79 (96.5)	5.06 (128.5)	2.53 (64.5)	1.26 (32)	2.54 (64)	See note 1	2.28 (58)	1.65 (42)	.19 (4.9)	4.41 (112)	4.88 (124)

Note 1: M =J+L+n2xK, where n2 = Number of Turck input / output modules
Inches (mm)

Moduflex Adapter, Side Ported



Dimensions

A	B	C	D	E	F	G	H	J	K	M	N	P	Q
4.88 (124.0)	4.41 (112.0)	2.95 (75.0)	1.65 (42.0)	1.22 (31.0)	1.28 (32.5)	0.71 (18.0)	0.49 (12.5)	2.28 (58.0)	6.10 (155.0)	0.24 (6.1)	2.40 (61.0)	2.36 (60.0)	2.07 (52.5)

Inches (mm)
n = Number of Manifolds

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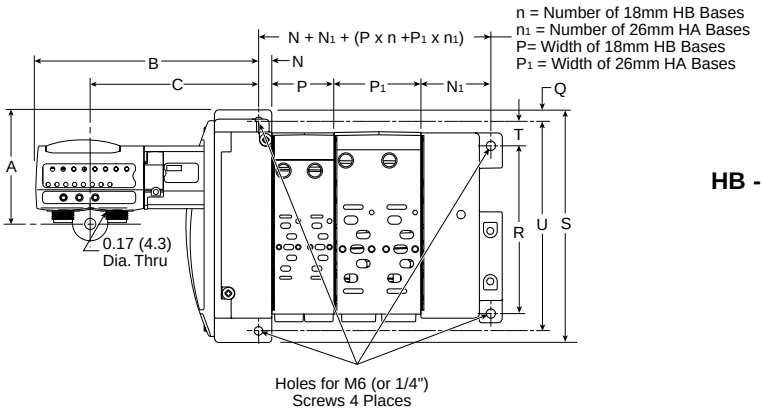
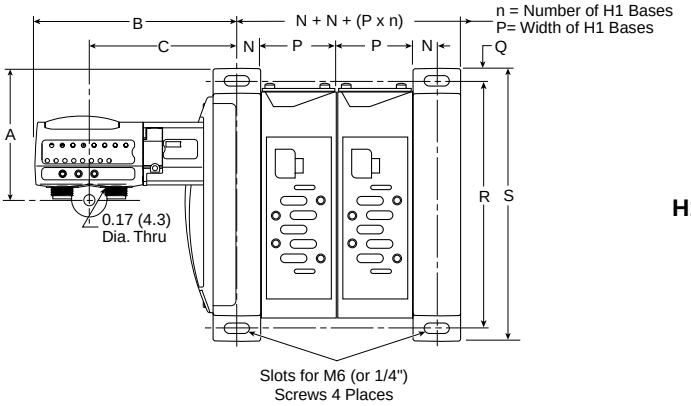
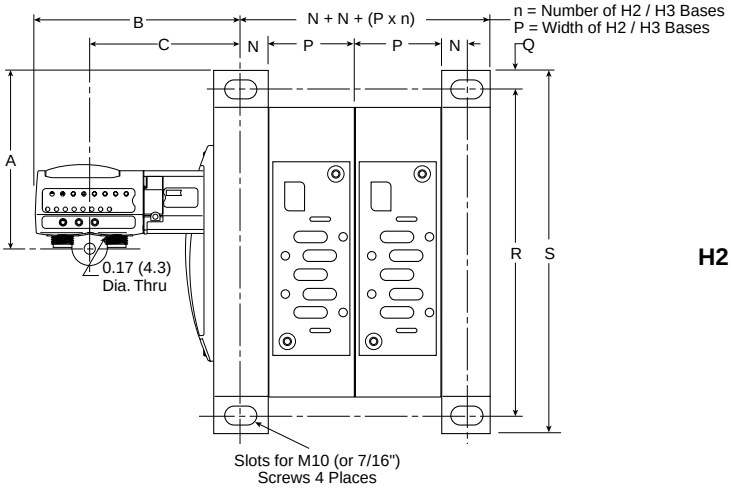
Moduflex with Isys ISO Valves



HB - HA Manifold Assembly



H1 Manifold Assembly



H2 - H3 Manifold Assembly

Dimensions

	A	B	C	N	N1	P	P1	Q	R	S	T	U
HA / HB	2.75 (69.8)	5.61 (142.5)	4.40 (111.8)	.33 (8.4)	1.80 (45.8)	1.61 (40.8)	2.24 (56.8)	.15 (4)	4.32 (110)	5.98 (152)	.63 (16)	5.39 (137)
H1	3.23 (82)	5.13 (130.2)	6.33 (160.9)	.63 (15.9)	—	1.93 (49)	—	.33 (8.5)	6.50 (165)	7.17 (182)	—	—
H2	3.08 (78.2)	5.13 (130.3)	6.34 (161)	.63 (16)	—	2.20 (56)	—	.47 (12)	8.46 (215)	9.41 (239)	—	—
H3	3.31 (84.2)	5.44 (138.2)	6.65 (168.9)	.65 (16.5)	—	2.80 (71)	—	.59 (15)	10.43 (265)	11.61 (295)	—	—

Inches (mm)

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"DX" ISOMAX Series

Directional Control Valves

15407-1 & 5599-1

DX02 – 0.55 Cv
DX01 – 0.75 Cv
DX1 – 1.15 Cv
DX2 – 2.50 Cv
DX3 – 4.15 Cv

Section E

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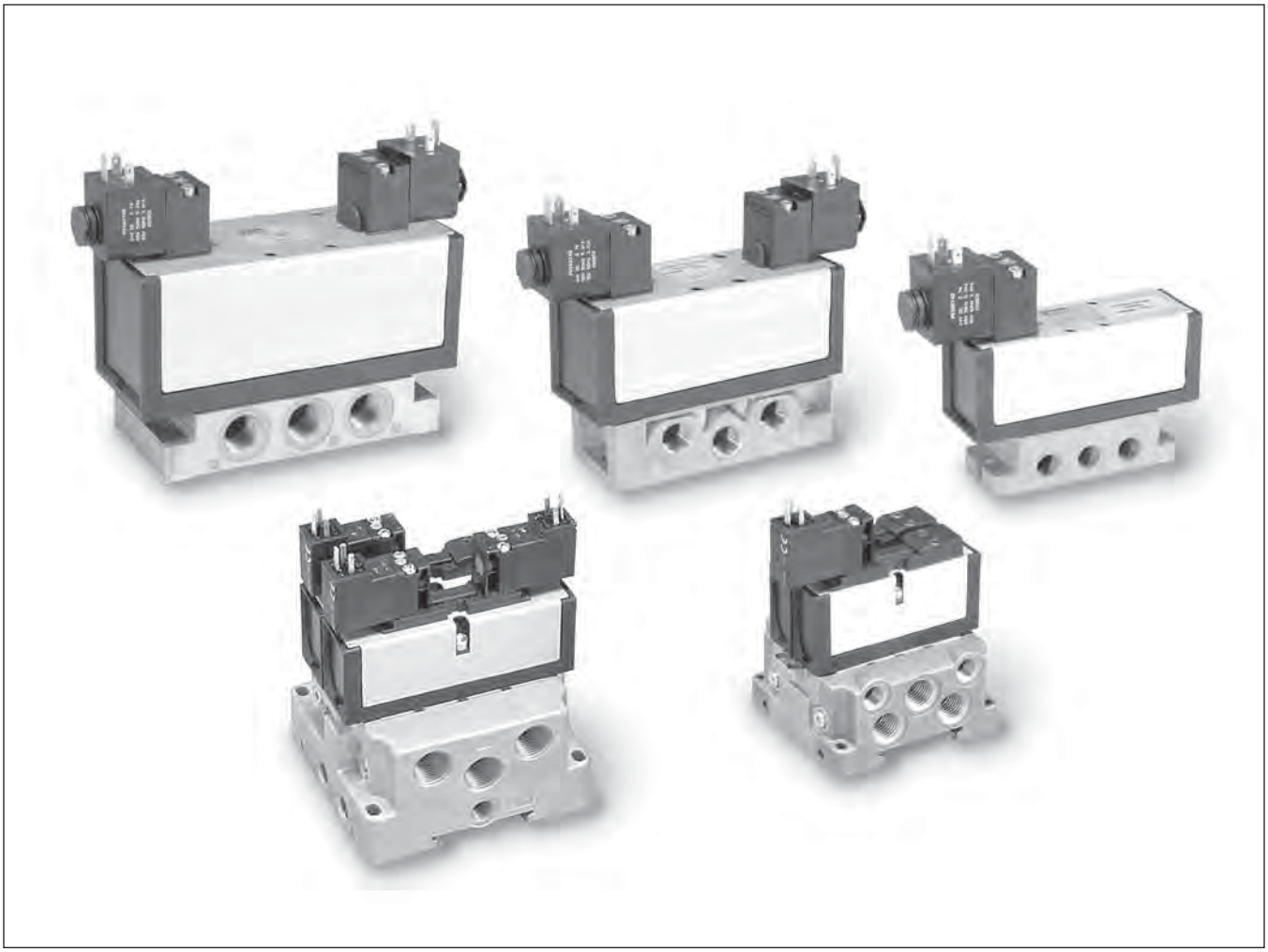

BOLD ITEMS ARE MOST POPULAR.

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Valve Range

DX02 1/8", ISO 15407-1, Size 02
DX01 1/4", ISO 15407-1, Size 01

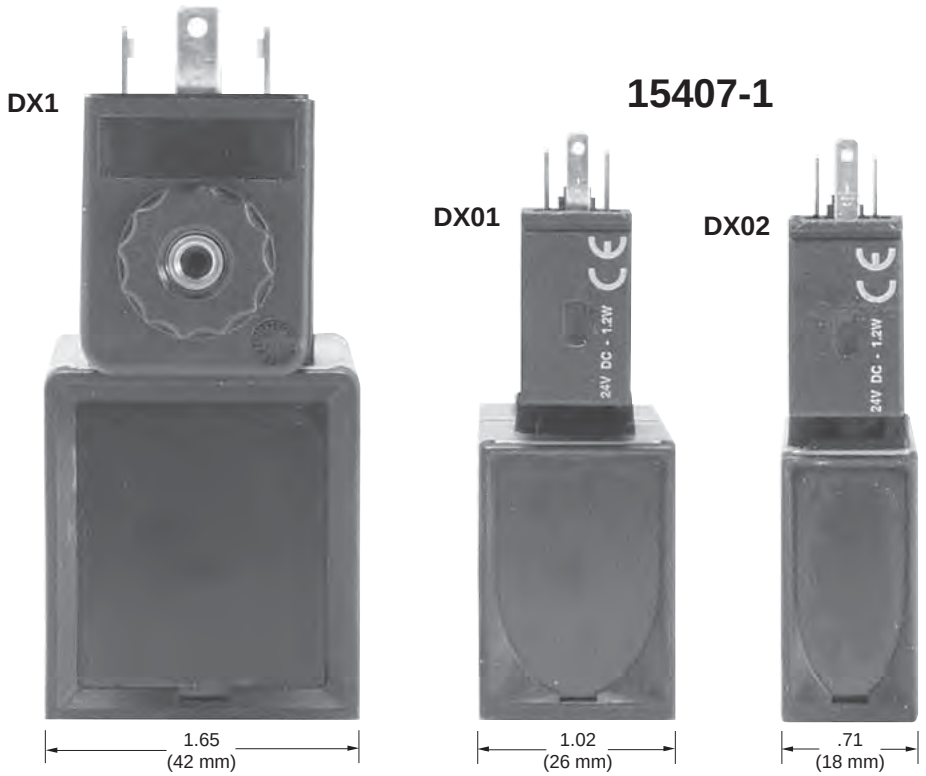
DX1 1/4", ISO 5599-1, Size 1
DX2 3/8", ISO 5599-1, Size 2
DX3 1/2", ISO 5599-1, Size 3

ISO 15407-1

ISO 5599-1

The ISOMAX range of directional control valves complies with ISO 15407-1 and VDMA 24563 for sizes 02 and 01 and ISO 5599-1 for sizes 1, 2 and 3. ISOMAX provides flows from 0.55 Cv to 4.15 Cv.

The ISOMAX range includes valves for pneumatic and electrical actuation with a wide choice of subbases and manifolds to suit different application needs.



Corrosion Free and Modern Design

With the valve body in Polyamide reinforced fiberglass and the casing in anodized aluminium, the complete ISOMAX range presents a coherent modern design to suit most industrial environments.

Vacuum Operation

All ISOMAX valves may be used for either vacuum or pressure applications.

Dual Pressure

In order to supply 2 different pressures to the same actuator, it is possible to connect 2 main pressure supplies to the exhaust ports and use the pressure port 1 as exhaust port.

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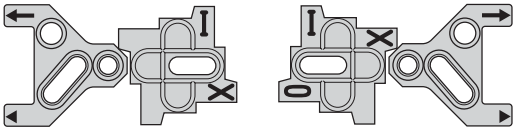
Features

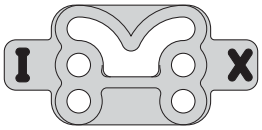
Ceramic Technology

All ISOMAX products use high-tech ceramic switching technology providing:

- **Excellent Reliability**
  Long life in excess of 100 million operations*.
  Operates with lubricated or non-lubricated air.
  Low sensitivity to air quality changes.
- **High Performance**
  Slide valve concept allows high flow / size ratio and short response time due to short slide stroke and low friction.
- **Stable Long Lasting Performances**
  Low friction switching: minimum wear of the valve member / seal assembly.
- **Valves Fitted with Switchable Selector to Give Internal or External Pilot Supply**



DX02 & DX01 Selector Gaskets



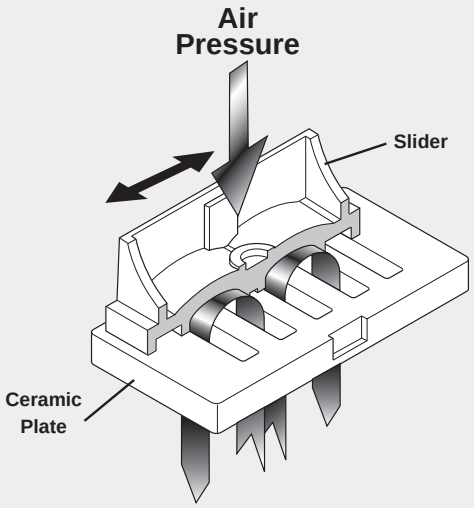
DX1, DX2 & DX3 Selector Gasket

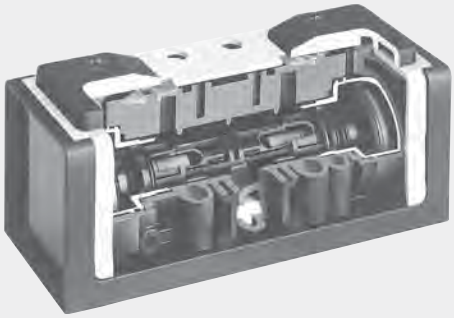
Applicable Markets

Industries where ISO standardization is accepted.

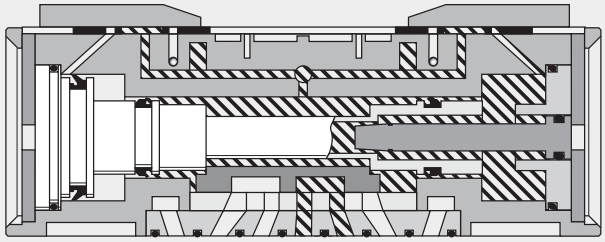
- Automotive
- Food Processing
- Medical
- Chemical
- Tire Manufacturing
- Steel Processing
- Glass Processing
- Where OEM'S Export Globally

* Refer to our warranty conditions.





Remote Pilot



Pressure **Exhaust**

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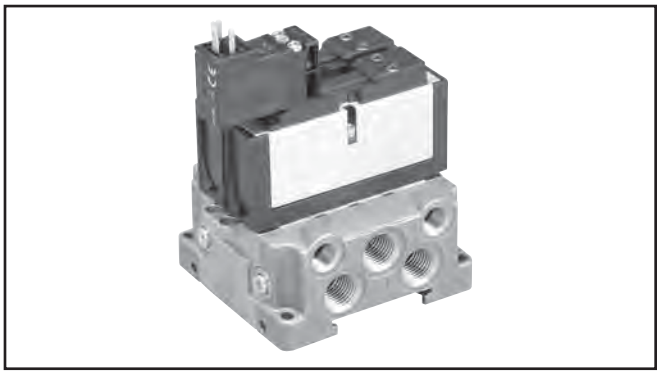
ISOMAX 15407-1



Specifications

Standard Subbase:
ISO 15407-1 and VDMA 24563

Permissible Fluid
Air or Inert Gas, filtered 40µ (Class 5 per ISO 8573-1), Lubricated or Non-lubricated

Pressure Supply:
Possible to supply Exhaust Ports 3 or 5 or Cylinder Ports 2 or 4, with Internal Pilot Supply. (Not possible with APB).

Flow:
DX01 = .75Cv, DX02 = .55Cv

Working Temperatures:
-10°C to 60°C (14°F to 140°F)

Storage Temperatures:
-20°C to 70°C (-4°F to 158°F)

Mechanical Life:
> 100 million operations (Dry air filtered 40µ, 2Hz, 6 bar, 20°C)

Actuation Type:
Electric / Pneumatic with 15mm Solenoid Valve Interface CNOMO E06.36120N

Flow Rating (Cv)

Size	Port Size	Mounting Style	2-Position	3-Position
DX02	1/8"	Manifold	0.45	0.35
		Subbase	0.55	0.40
DX01	1/4"	Manifold	0.70	0.45
		Subbase	0.75	0.50

Cv tested per ANSI / (NFPA) T3.21.3

Solenoid Information

Code	Voltage			Power (W / VA)
	AC		DC	
	60Hz	50Hz		
M	—	—	24	1.2W
J	120	110	—	1.6VA

Data tested with LED and Surge Suppression.

Response Time**
Single Solenoid 2-Position - Air Return / Spring Assist

Valve Size	Port Size	0 Cu. In. Chamber		## Cu. In. Chamber	
		Fill	Exhaust	Fill	Exhaust
DX02	1/8"	0.025	0.030	0.125	0.220
DX01	1/4"	0.015	0.020	0.122	0.200

DX01 (25), DX02 (12.5)

** With 100 PSIG supply, time required to fill from 0 to 90 PSIG and Exhaust from 100 PSIG to 10 PSIG measured from the instant of energizing or de-energizing 24VDC solenoid.

Tested per ANSI / (NFPA) T3.21.8

Operating Pressure

Vacuum to 145 PSIG (10 bar)

Function		M.O.P (PSIG)
20, 21, 22, 23	2-Position, Spring Return	36
50, 51, 53, 54	2-Position, Air Return	30
04, 05, 06, 08	2-Position	15
09, 11, 12, 27	3-Position, CE	45
16, 18, 19, 25	3-Position, APB	45

Material Specifications

Valve Member ..... Self Lubricating Acetal
Seat ..... Ceramic
Body ..... Polyamide Reinforced Fiberglass
Casing ..... Anodized Aluminum
End Plates ..... Painted Zinc Plated Steel
Valve Plate ..... Zinc
Seals ..... Nitrile
Springs ..... Stainless Steel
Screws ..... Zinc Plated Steel
Function Selector ..... Polyamide Reinforced Fiberglass
Top Cover Seal ..... Polyester

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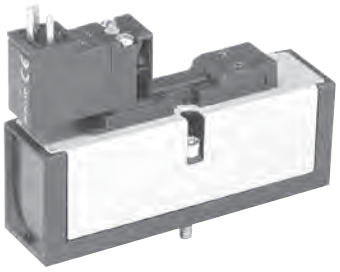
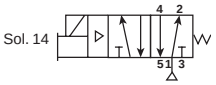
Single Solenoid

2-Position

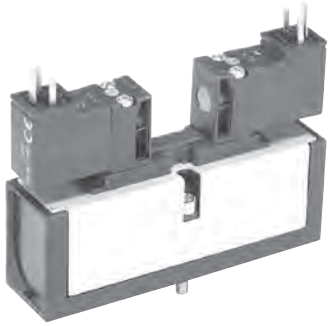


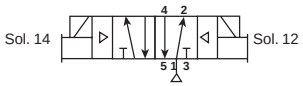


DX02	**DX02-621-951J**	120VAC	0.55 Cv C = 1.5 Nl/s x bar, b = 0.25 Qn = 378 l/min, Qmax = 636 l/min
	DX02-621-951M	24VDC	
DX01	**DX01-621-951J**	120VAC	.75 Cv C = 2.5 Nl/s x bar, b = 0.25 Qn = 588 l/min, Qmax = 1026 l/min
	DX01-621-951M	24VDC	

Double Solenoid

2-Position

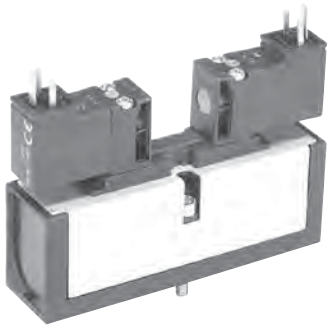


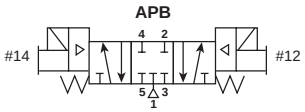


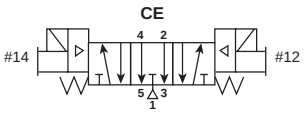
DX02	**DX02-606-951J**	120VAC	0.55 Cv C = 1.5 Nl/s x bar, b = 0.25 Qn = 378 l/min, Qmax = 636 l/min
	DX02-606-951M	24VDC	
DX01	**DX01-606-951J**	120VAC	.75 Cv C = 2.5 Nl/s x bar, b = 0.25 Qn = 588 l/min, Qmax = 1026 l/min
	DX01-606-951M	24VDC	

Double Solenoid

3-Position APB
3-Position CE







APB				CE		
DX02	**DX02-616-951J**	120VAC	0.40 Cv C = 1.1 Nl/s x bar, b = 0.25 Qn = 275 l/min, Qmax = 464 l/min	**DX02-611-951J**	120VAC	0.40 Cv C = 1.1 Nl/s x bar, b = 0.25 Qn = 275 l/min, Qmax = 464 l/min
	DX02-616-951M	24VDC		**DX02-611-951M**	24VDC	
DX01	**DX01-616-951J**	120VAC	.50 Cv C = 1.7 Nl/s x bar, b = 0.25 Qn = 392 l/min, Qmax = 684 l/min	**DX01-611-951J**	120VAC	.50 Cv C = 1.7 Nl/s x bar, b = 0.25 Qn = 392 l/min, Qmax = 684 l/min
	DX01-616-951M	24VDC		**DX01-611-951M**	24VDC	

Torque Specifications
DX02: 15 to 25 in-lbs (1.69 to 2.82 Nm)
DX01: 20 to 30 in-lbs (2.26 to 3.39 Nm)

For Subbases and Manifolds, see page E178 thru E179.

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DX02 – 6 06 – 95 1 M

Basic Series	
ISO 15407-1 (18mm)	DX02
ISO 15407-1 (26mm)	DX01

Pilot	
Air Operated Remote Pilot	4
Solenoid Operated	6

Function	
Internal Pilot Supply / Captured Exhaust 12	
2-Position, Spring Return	21
2-Position, Air Return	51
2-Position	06
3-Position, CE	11
3-Position, APB	16
External Pilot 14 Supply / Captured Exhaust 12*	
2-Position, Spring Return	23
2-Position, Air Return	54
2-Position	05
3-Position, CE	09
3-Position, APB	19
Internal Pilot Supply / Vented Exhaust	
2-Position, Spring Return	20
2-Position, Air Return	50
2-Position	04
3-Position, CE	27
3-Position, APB	25
External Pilot Supply / Vented Exhaust*	
2-Position, Spring Return	22
2-Position, Air Return	53
2-Position	08
3-Position, CE	12
3-Position, APB	18

* Must be specified when using Sandwich Regulators.

Operator	
60	None, Remote Pilot Valve
95	15mm, 3-Pin, DIN 43650C

Override	
Blank	Remote Pilot
1	Non-Locking, Flush
3	Locking, Flush

Voltage & Frequency			
	AC		DC
	60Hz	50Hz	
J	120	110	
M			24
Blank	Remote Pilot		

Note: DX02 18mm Valve Remote Pilot Option only available with PL02 Individual Subbase Kits

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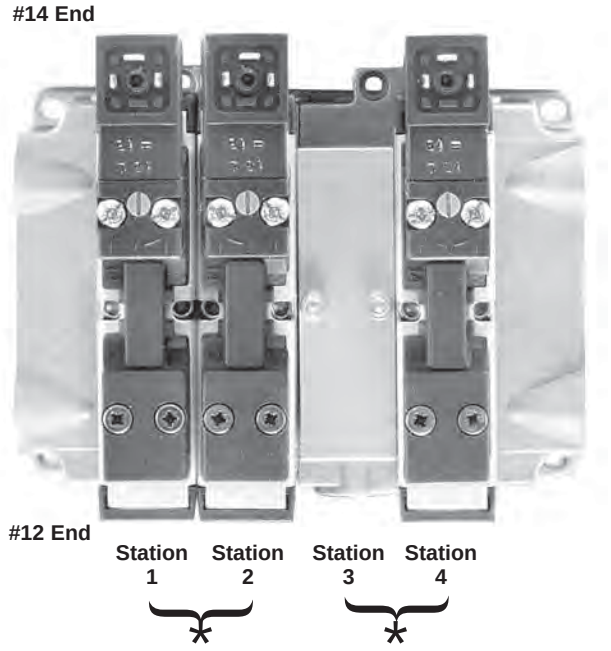

* Each Manifold has two (2) Stations
(Even number of Stations Required)

How To Order Add-A-Fold Assemblies

1. List Add-A-Fold Assembly call out. This automatically includes the end plate kit assembly.
2. List complete valve/base model number. List left to right, looking at the cylinder ports on the #12 end of the manifold. The left most station is station 1.

   (If a blank station is needed, list the blanking plate part number and the individual manifold number in the station specified.)

Model Number

AA 02U 0 04

Valve Series	
Right & Left End Plate 15407-1, DX01	01U†
Right & Left End Plate 15407-1, DX02	02U**
Right & Left End Plate 15407, DX01 & DX02	HBS*

* Common End Plates for DX01 & DX02. For use with PS5 Manifolds.
**For use with PJLP02 Manifolds.
† For use with PJLP01 or PJL01 Manifolds.

	Number of Stations*
02	2 Stations
04	4 Stations
•	
24	24 Stations
•	
32†	32 Stations

* Must be ordered in multiples of 2.
† Maximum Number.

	Port Type
0	NPT
1	BSPP "G"

Example: Application requires a 3-Valve manifold.

Qty.	Part No.	
1	AA02U004	
1	DX02-651-951M	Valve Station 1
1	DX02-651-951M	Valve Station 2
1	PJLP02-201-80	Base Station 1 & 2
1	DX02BLK	Valve Station 3
1	DX02-651-951M	Valve Station 4
1	PJLP02-201-80	Base Station 3 & 4

Note: DX02 Manifolds cannot be used for remote pilot.

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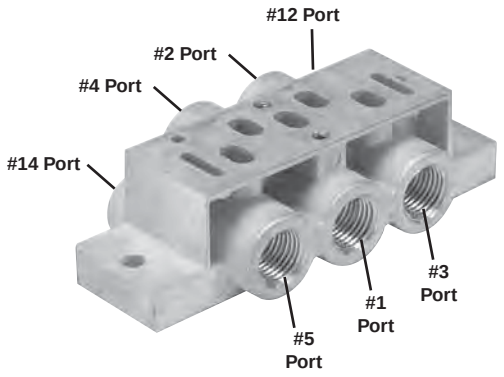
Individual Subbase Kit

with Side Ports

Size	Port Size	Kit Number	
		NPT	BSPP "G"
18mm DX02	1/8"	**PL02-01-80**	PL02-01-70

Note: Can be used for external, single, or double remote pilot.

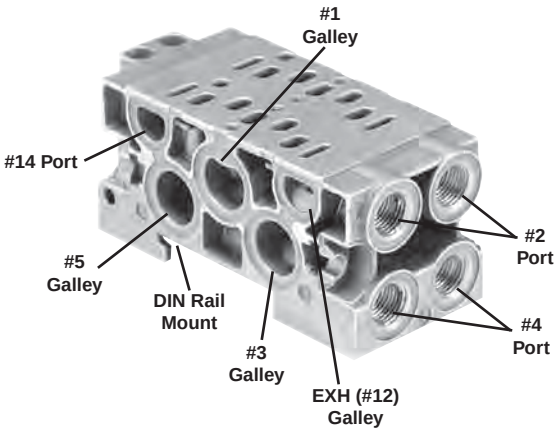


Two Station Manifold Base

with Side Ports

Size	Port Size	Kit Number	
		NPT	BSPP "G"
18mm DX02	1/8"	**PJLP02-201-80**	PJLP02-201-70

Note: Can be used for external pilot, not remote pilot.
Gaskets and assembly hardware included.



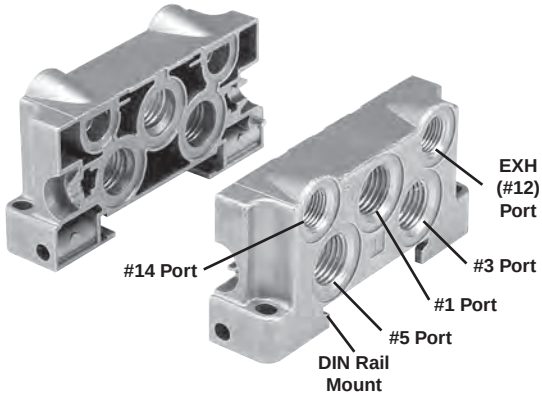
PJLP02

End Plate Kit

for Side Ported Two Station Manifold Base

Size	Port Size	Kit Number	
		NPT	BSPP "G"
18mm DX02	1/8"	**PEJ02-02-80***	PEJ02-02-70

Notes: Put a vent or muffler in "EXH" port when capturing pilot exhaust pressure with a solenoid valve. (See page E182 for gasket selector details.
Gaskets and assembly hardware included.
Torque Specifications: 25 to 35 in-lbs (2.82 to 3.95 Nm)



PEJ02
(Type "P")

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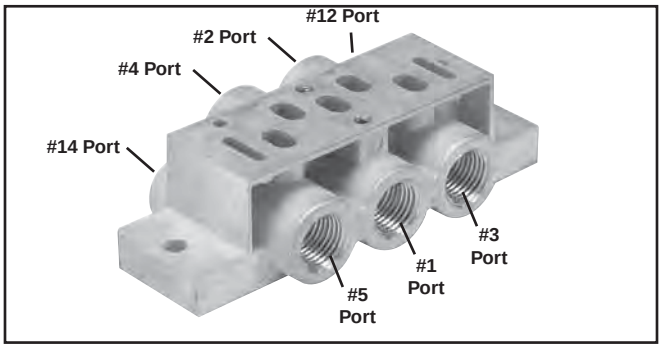
Individual Subbase Kit
with Side Ports

Size	Port Size	Kit Number	
		NPT	BSPP "G"
26mm DX01	1/4"	**PL01-02-80**	PL01-02-70

Note: Can be used for external, single, or double remote pilot.

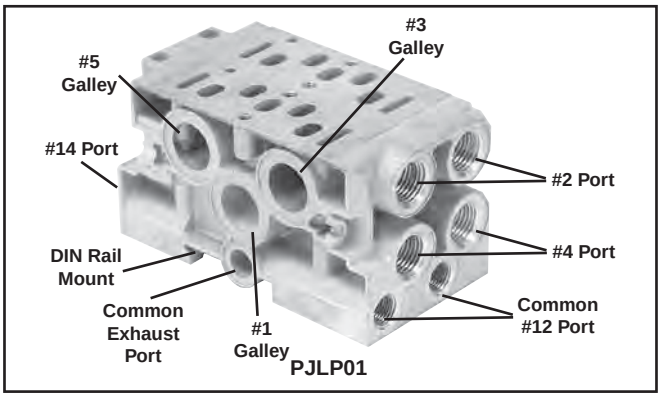


Two Station Manifold Base
with Side Ports

Size	Port Size	Kit Number	
		NPT	BSPP "G"
26mm DX01	1/4"	**PJLP01-202-80**	PJLP01-202-70

Notes: Can be used for single remote pilot using the #14 Port and external pilot.

Gaskets and assembly hardware included.



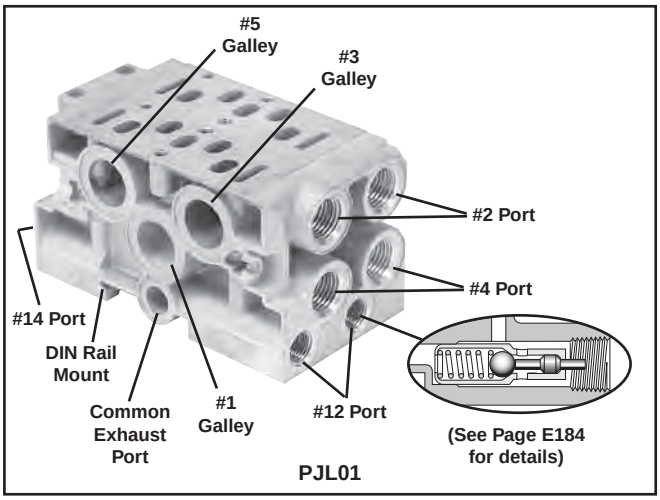
PJLP01

Size	Port Size	Kit Number	
		NPT	BSPP "G"
26mm DX01	1/4"	**PJL01-202-80**	PJL01-202-70

Notes: #12 ports work independently when plunger is not depressed by a plug. When a plug is inserted in #12 Port along with the captured pilot exhaust gasket selector option, pilot exhaust is sent to ther Common Exhaust Port. Do Not plug exhaust, insert a vent of muffler.

Gaskets and assembly hardware included.

Can be used for external, single or double remote pilot.



PJL01

End Plate Kit
for Side Ported Two Station Manifold Base

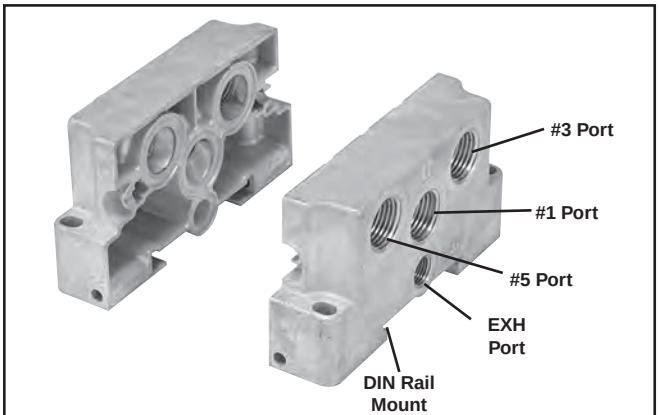
Size	Port Size	Kit Number	
		NPT	BSPP "G"
26mm DX01	1/4"	**PEJ01-03-80***	PEJ01-03-70

* Use with PJLP01 or PJL01

Notes: Put a vent or muffler in "EXH" port when capturing pilot exhaust pressure with a solenoid valve. See page J18 for gasket selector details.

Gaskets and assembly hardware included.

Torque Specifications: 25 to 35 in-lbs (2.82 to 3.95 Nm)



PEJ01

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15407-1, DX02 & DX01 Manifold / Subbase Kits

PS5511 13 0 P

Basic Series	
ISO 15407-1 DX02	PS5611
ISO 15407-1 DX01	PS5511

Enclosures / Lead Length	
0	None, No Electrical Plug - 15407-1

Mounting Style / Port Size	
DX02	
Manifold with 1/8 NPT End Ports	**51**
Manifold with 1/8 BSPP End Port	52
Manifold with 1/8 NPT Bottom / End Port	61
Manifold with 1/8 BSPP Bottom / End Port	62
DX01	
Subbase with 1/4 NPT Side Ports	**13**
Subbase with 1/4 BSPP Side Ports	14
Subbase with 1/4 NPT Bottom / Side Port	23
Subbase with 1/4 BSPP Bottom / Side Port	24
Manifold with 1/4 NPT End Port	**53**
Manifold with 1/4 BSPP End Port	54
Manifold with 1/4 NPT Bottom / End Port	63
Manifold with 1/4 BSPP Bottom / End Port	64

Subbase Kits

DX01 Series Subbase

Manifold Kits

DX02 Series 2-Station Manifold

DX01 Series 2-Station Manifold

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15407-1, DX02 & DX01 End Plate Kits

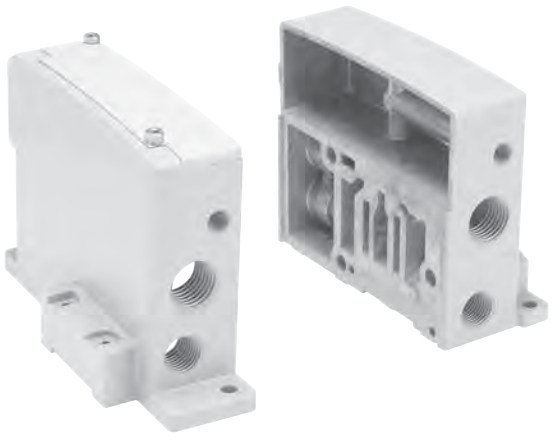
PS56 31 01 0 P

Basic Series	
ISO 15407, Size DX02, DX01	PS56

End Plate Kit Type	
End Plate, Non-Collective Wiring	31

Options	
01	Non-Collective Wiring

Thread Type	
0	NPT
1	BSPP "G"



DX02 - DX01 Non-Collective Wiring End Plates

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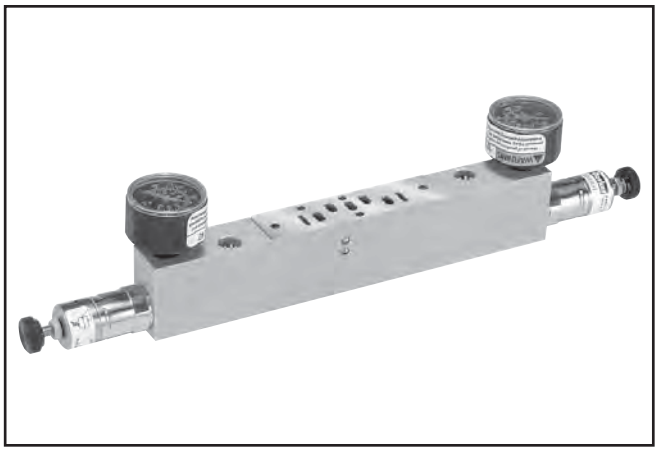
Sandwich Regulators Features

- Remote Air Pilot Operated for hard-to-reach pressure control.
- Unregulated Pilot Pressure to valve for consistent valve shifting regardless of pressure adjustment.

Remote Pilot Access Plate Kit

Size	Port Size	Kit Number	
		NPT	BSPP
26mm DX01	1/8"	**PS551500P**	**PS551501P**

DX02
(Independent Dual Port Regulator Shown)



DX01
(Common Port Regulator Shown)

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PS5637 1 6 6 DX P

Basic Series	
DX02	
15407-1, 18mm	PS5637
DX01	
15407-1, 26mm	PS5537

Regulator Function	
Common Pressure Regulator	1
Independent Pressure Regulator	2

#2 Port Regulator / Gauge*	
5	2-60 PSIG w/Gauge
6	**5-125 PSIG w/Gauge**

* For Common Pressure Regulator Option, Regulator Gauge callout must be the same number for both Port #4 and Port #2. (Example: 166)

#4 Port Regulator / Gauge*	
5	2-60 PSIG w/Gauge
6	**5-125 PSIG w/Gauge**

* For Common Pressure Regulator Option, Regulator Gauge callout must be the same number for both Port #4 and Port #2. (Example: 166)

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Intermediate Air Supply Base

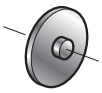
Size	Port Size	Kit Number
		NPT
18mm DX02	1/8" NPT	**D02P-01-80**
26mm DX01	1/4" NPT	**D01P-02-80**

Notes: Gasket & Mounting Bolts included.
Torque Specifications
Size 02: 15 to 25 in-lbs (1.69 to 2.82 Nm)
Size 01: 20 to 30 in-lbs (2.26 to 3.39 Nm)

Manifold Port Isolation Disc

Size	Common Pressure
18mm DX02	**D02BD0**
26mm DX01	**D01BD0**

Notes: 3 Discs per Kit.
Used on PJL Manifolds.



Blanking Plate

Size	Common Pressure
18mm DX02	**PS5634P**
26mm DX01	**PS5534P**

Notes: Gasket & Mounting Bolts included.
Torque Specifications
Size 02: 15 to 25 in-lbs (1.69 to 2.82 Nm)
Size 01: 20 to 30 in-lbs (2.26 to 3.39 Nm)

Sandwich Flow Control Features

- Both adjustment screws are located on the 12 end of the unit.
- Sandwich Flow Control mounts with its own studs, which means the valve uses standard bolts for mounting.
- Sandwich Flow Control is not to be used as a shut off device and is not bubble tight when needles are fully turned down.

Size	Kit Number
18mm DX02	**PS5642P**
26mm DX01	**PS5542P**

DX02
18mm Shown

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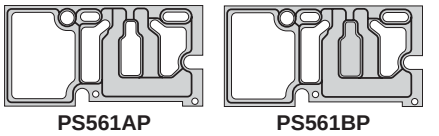
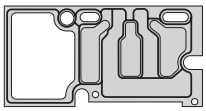
Manifold to Manifold Gasket Kits

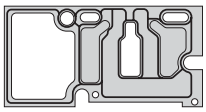
Size	Standard	Blocked #1 Port	Blocked #1, 3, 5 Ports	Blocked #3, 5 Ports
DX02 * / DX01 *	PS561AP	PS561BP	PS561CP	PS561DP
DX02	DX02M2MGSKT (PJLP02)			
DX01	DX01M2MGSKT (PJLP01)			

* Gaskets used with PS5611 & PS5511 Manifolds.


PS561AP

PS561BP


PS561CP


PS561DP


DX02M2MGSKT (PJLP02)


DX01M2MGSKT (PJLP01)

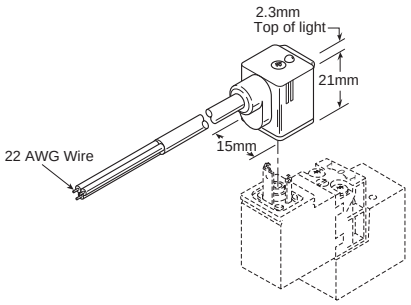
15mm 3-Pin DIN 43650C Connectors

Connector	Connector with 6' (2m) Cord	Description
PS2932BP	PS2932JBP	No Circuit Board
PS294679BP	PS2946J79BP*	Light – 24DC
PS294683BP	PS2946J83BP*	Light – 110/120VAC

* LED with surge suppression.

Note: Max. ø6.5mm cable size required for connector without 6' (2m) cord.
IP65 rated when properly installed.

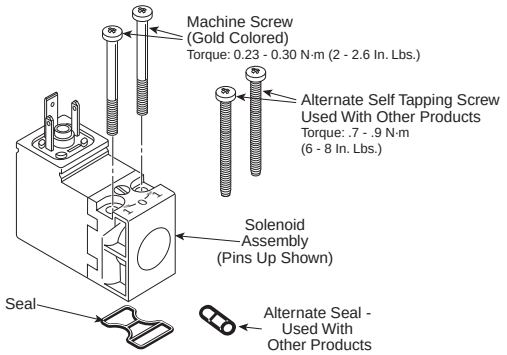
Engineering Data:
Conductors: 2 Poles Plus Ground
Cable Range (Connector Only): 4 to 6mm (0.16 to 0.24 Inch)
Contact Spacing: 8mm



Molded 6' Cord Shown

15mm 3-Pin DIN 43650C Replacement Solenoid Kits

Voltage	Non-Locking	Locking
24VDC	PS2982B49P	PS2982C49P
110/50, 120/60	PS2982B53P	PS2982C53P



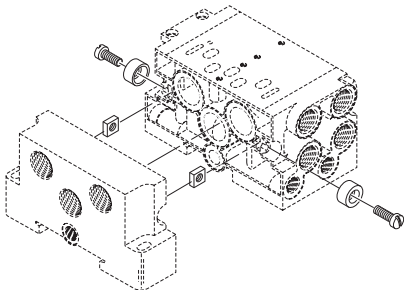
Manifold Hardware Kits

Part Number	Items
DX02M2MB**	Bolt, Washer & Nut*
PS5612P	Tie Rods for PS5611 Manifold (Qty. 12)
PS5512P	Tie Rods for PS5511 Manifold (Qty. 12)

* Includes 10 Bolts, 10 Washers, 10 Nuts

** Use this number for both sizes, PJLP02 & PJLP01.

Torque Specifications: 25 to 35 in-lbs (2.82 to 3.95 Nm)



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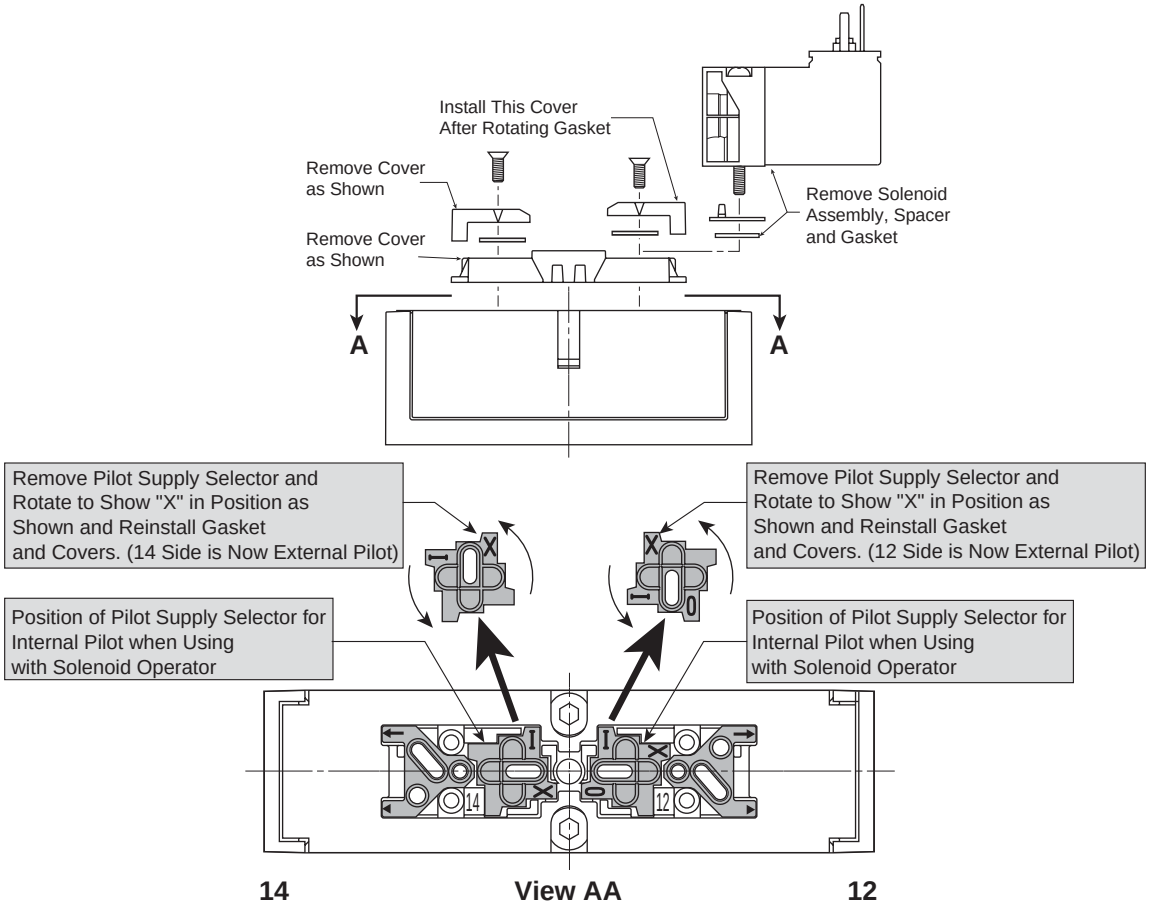
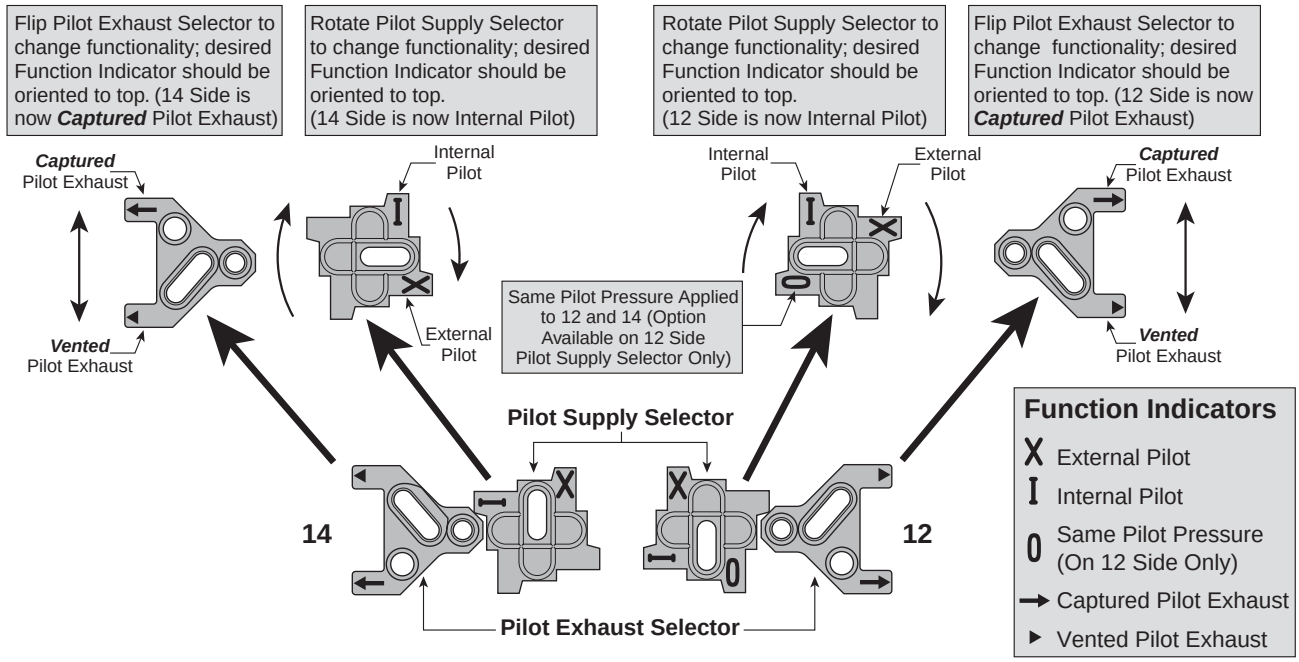
Changing from **Internal** to **External** Pilot Supply



14 **View AA** **12**

Changing from **External** Pilot Supply, Vented Pilot Exhaust to **Internal** Pilot Supply, Captured Pilot Exhaust



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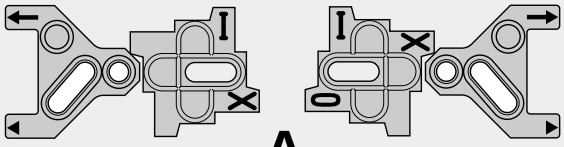
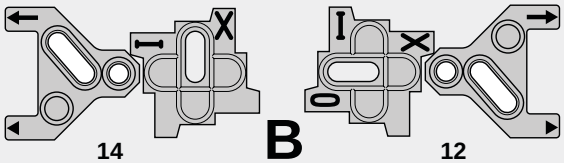
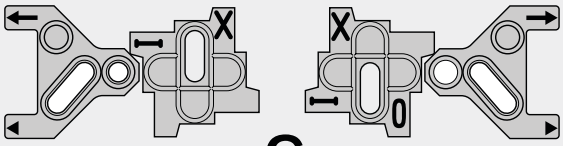
Internal Pilot Supply;
Captured Pilot Exhaust through 12



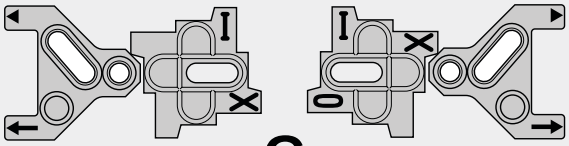
External or Single Remote Pilot Supply on 14;
Internal Pilot Supply on 12;
Captured Pilot Exhaust through 12



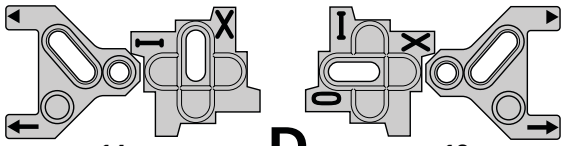
External, Double Remote Pilot Supply on 14 & 12;
Captured Pilot Exhaust



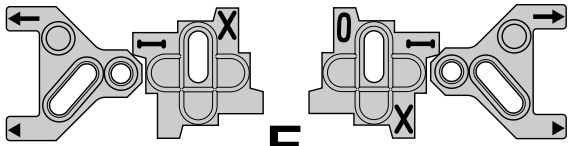
Internal Pilot Supply;
Vented Pilot Exhaust



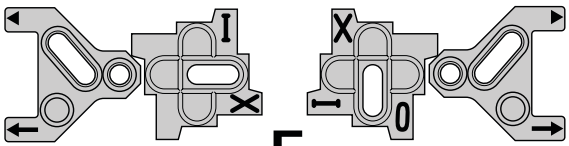
External Pilot Supply on 14;
Internal Pilot Supply on 12;
Vented Pilot Exhaust



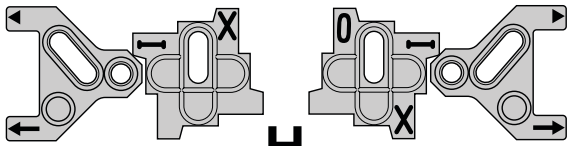
External Pilot Supply 14 Common to 12;
Captured Pilot Exhaust through 12



Internal Pilot Supply on 14;
External Pilot Supply on 12;
Vented Pilot Exhaust



External Pilot Supply 14 Common to 12;
Vented Pilot Exhaust



Base Pilot Port Used	None	14	14 and 12	None	14	14	12
Pilot Air Supply	**Internal Pilot Supply**	**14 External Pilot 12 Internal Pilot**	**External, Double Remote Pilot for 14 and 12**	**Internal Pilot Supply**	**14 External Pilot 12 Internal Pilot**	**One Common External Pilot Pressure for 14 and 12**	**14 Internal Pilot 12 External Pilot**
Pilot Exhaust	**Captured**	**Captured**	**Captured**	**Vented**	**Vented**	**Captured**	**Vented**
5/2 Double Solenoid	606 A	—	406 C	604 G	D	E	F
5/2 Single Solenoid	621	421	C	620	D	E	F
5/2 Double Solenoid, on Sandwich Regulator	—	—	—	—	External Pilot Supply 14 Common to 12 Vented Pilot Exhaust – See Diagram '**H**'		
Spring Return	A	B	—	G	—	—	—
5/2 Single Solenoid, Differential Return	651 A	451 B	C	65 G	D	E	F
5/3 Pressure Center Exhaust	611 A	—	411 C	627 G	D	E	F
5/3 Pressure All Ports Blocked	616 A	—	416 C	625 G	D	E	F
	Part Numbers Available From Factory				**See Gasket Configurations Above for These Special Adaptations**		

Insert a muffler or vent in the EXH Port of the PEJ02 & PEJ01 Manifold End Plates or #12 of PL02 & PL01 Subbases when using solenoids with a ***Captured*** Exhaust.

A plug may be inserted in the EXH Port of the PEJ02 & PEJ01 Manifold End Plates #14 or #12 of PL02 & PL01 Subbases when using a ***Vented*** Exhaust.

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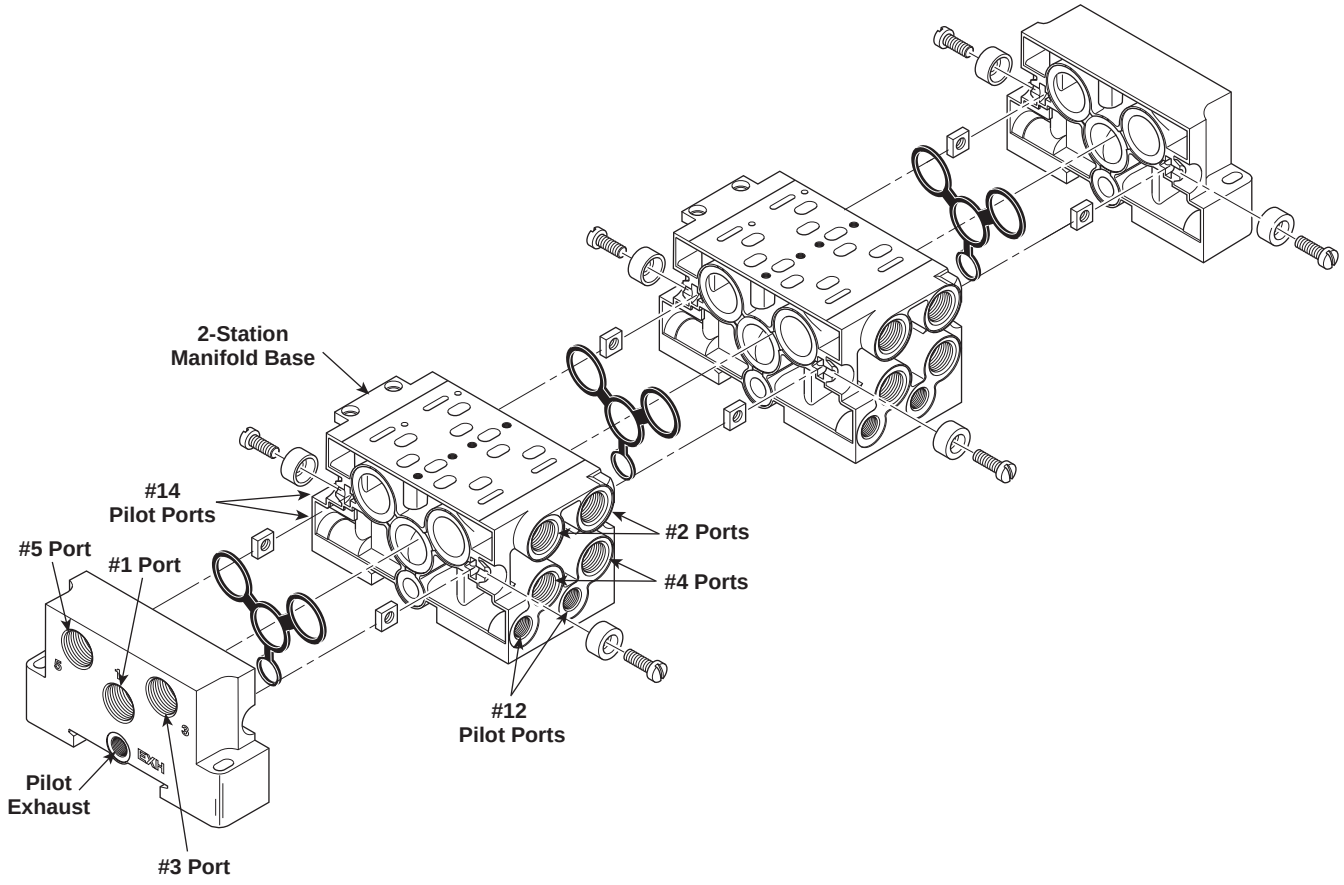
Manifold Assembly

Ports

1 .....Pressure
2 .....#2 Cylinder Port, 1 to 2 Flow Path
3 .....Cylinder Exhaust Port, 2 to 3 Flow Path
4 .....#4 Cylinder Port, 1 to 4 Flow Path
5 .....Cylinder Exhaust Port, 4 to 5 Flow Path
14 .....#14 Pilot Port
12 ..... #12 Pilot Port

Torque Specifications: 25 to 35 in-lbs (2.82 to 3.95 Nm)



DX01 Shown

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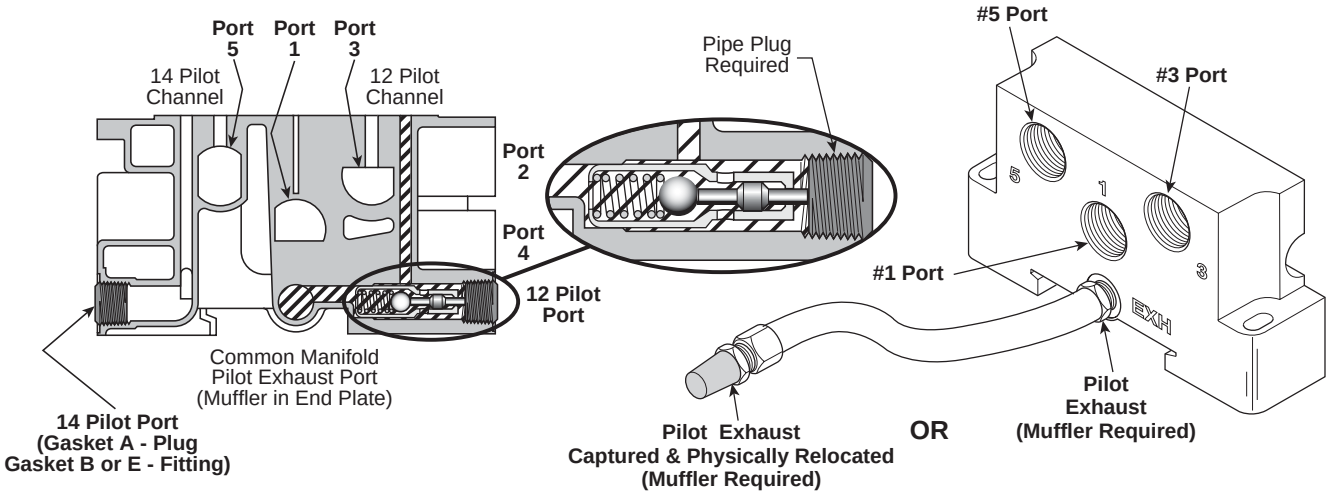
Captured Pilot Exhaust

PJL01, Size 01

A Built-in 2-Position Selector converts the External Pilot Channel (12) into a Common Solenoid Pilot Exhaust Channel.



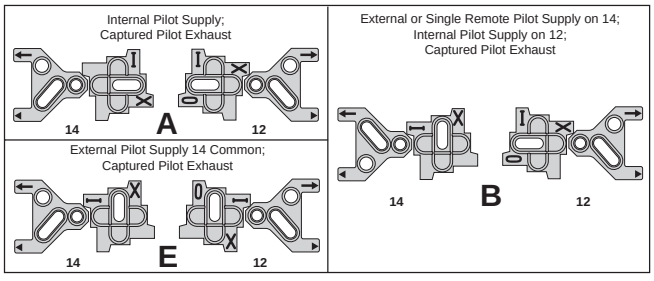
Built-in Selector

When using A, B or E ***Captured*** Selector Gasket Positions, the 12 Pilot Port is plugged. The 14 Pilot Port has a plug when using Gasket A or a fitting when using Gasket B or E. When in place, the Plug in the 12 Pilot Port depresses the Selector to connect the Valve Solenoid Pilot Exhaust to a Common Manifold Exhaust Port. The Plug **must** make contact with the Pin of the Internal Check Valve.

Insert a Muffler in the EXH Port of the End Plate.

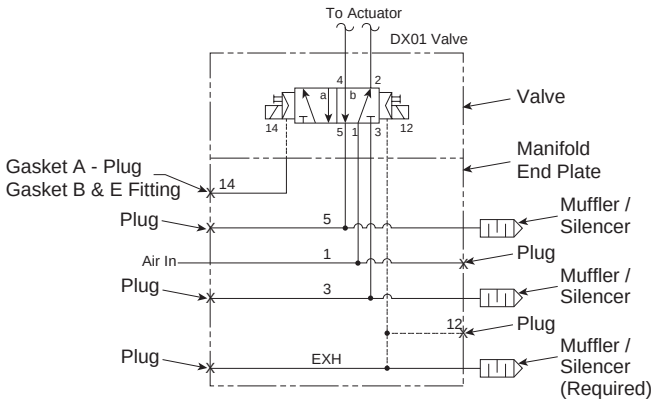
Captured Selector Gasket Positions

When using A, B or E Selector Gasket Positions as shown in the schematic at right.



Insert a muffler or vent in the EXH Port of the PEJ02 & PEJ01 Manifold End Plates or #12 of PL02 & PL01 Subbases when using solenoids with ***Captured*** Pilot Exhaust.

DX01 Manifold Assembly Schematic for *Captured* Selector Gasket Positions A, B and E



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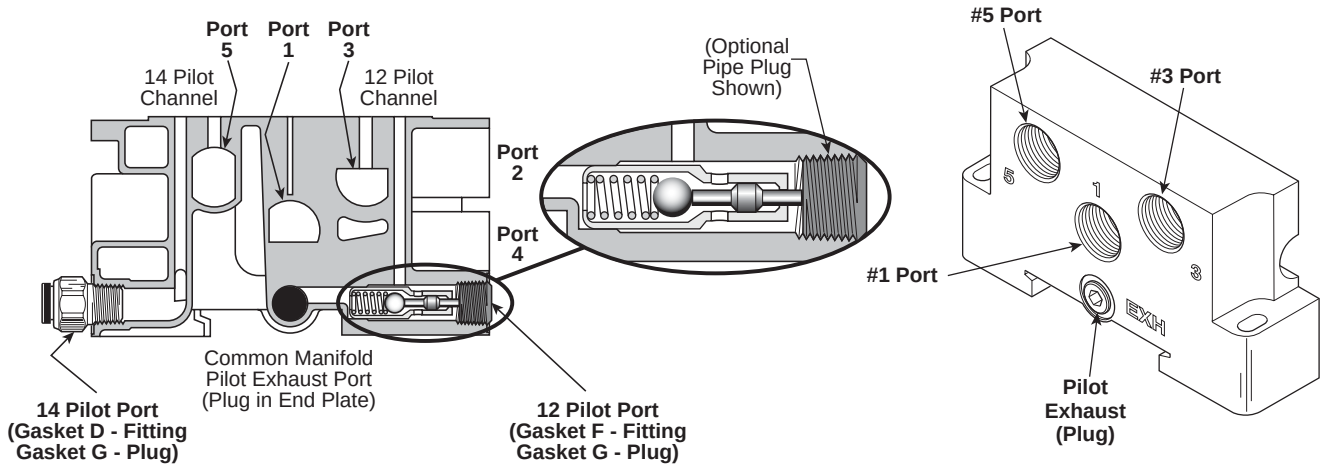
Vented
Pilot Exhaust



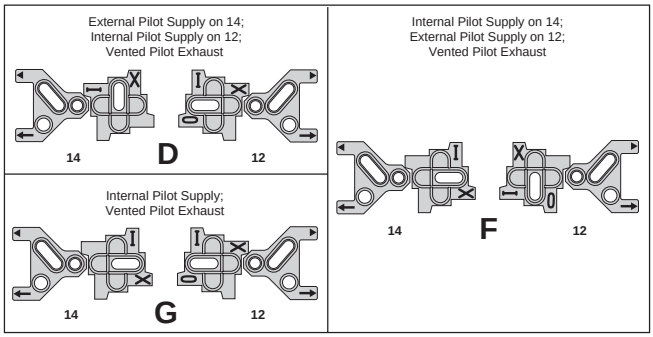
Manifold **End Plate**

Built-in Selector

When using D or G ***Vented*** Selector Gasket Positions, the 12 Pilot Port may be plugged (Optional). The 14 Pilot Port has a plug when using Gasket G or a fitting when using Gasket D or F. The valve solenoid pilot exhaust vents out the pilot adapter on the G Gasket Selection.

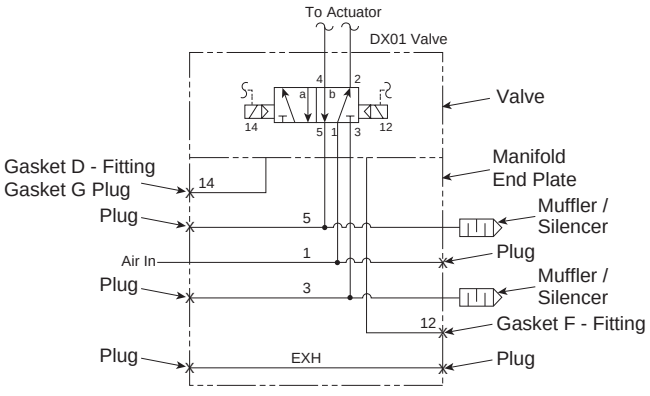
Vented Selector Gasket Positions

When using D, F or G Selector Gasket Positions, pilot exhaust air is vented out the valve.



A plug may be inserted in the EXH Port of the PEJ02 & PEJ01 Manifold End Plates, #12 of PL02 & PL01 Subbases.

DX01 Manifold Assembly Schematic for *Vented* Selector Gasket Positions D or G



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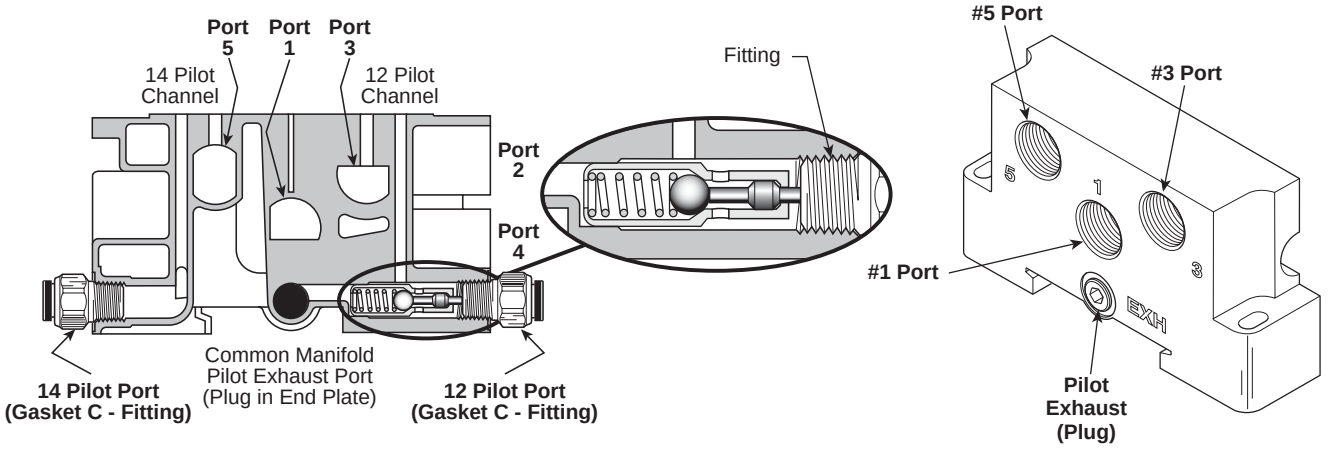
External Double Remote Pilot

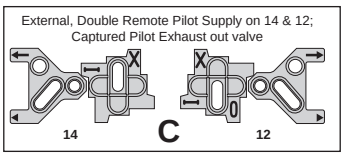


Built-in Selector

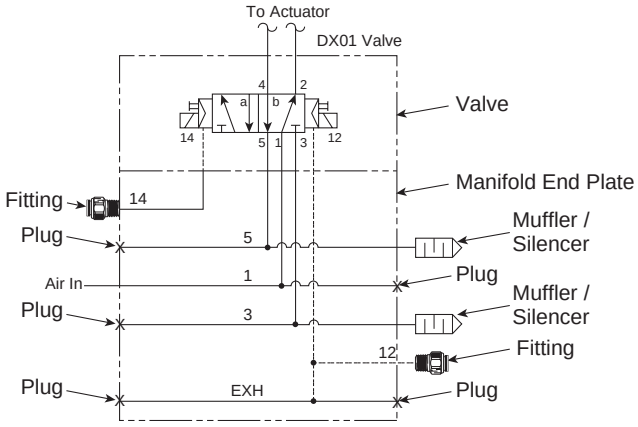
When using C ***External Double Remote Pilot*** Selector Gasket Position, a fitting is used in Pilot Port 14 & 12. Free flow between Port 14 & 12 and the valve allows Remote Pilot Pressure and an exhaust path for the captured pilot exhaust.

External Double Remote Pilot Selector Gasket Position

When using C Selector Gasket Position.



DX01 Manifold Assembly Schematic for *External Double Remote Pilot* Selector Gasket Position C



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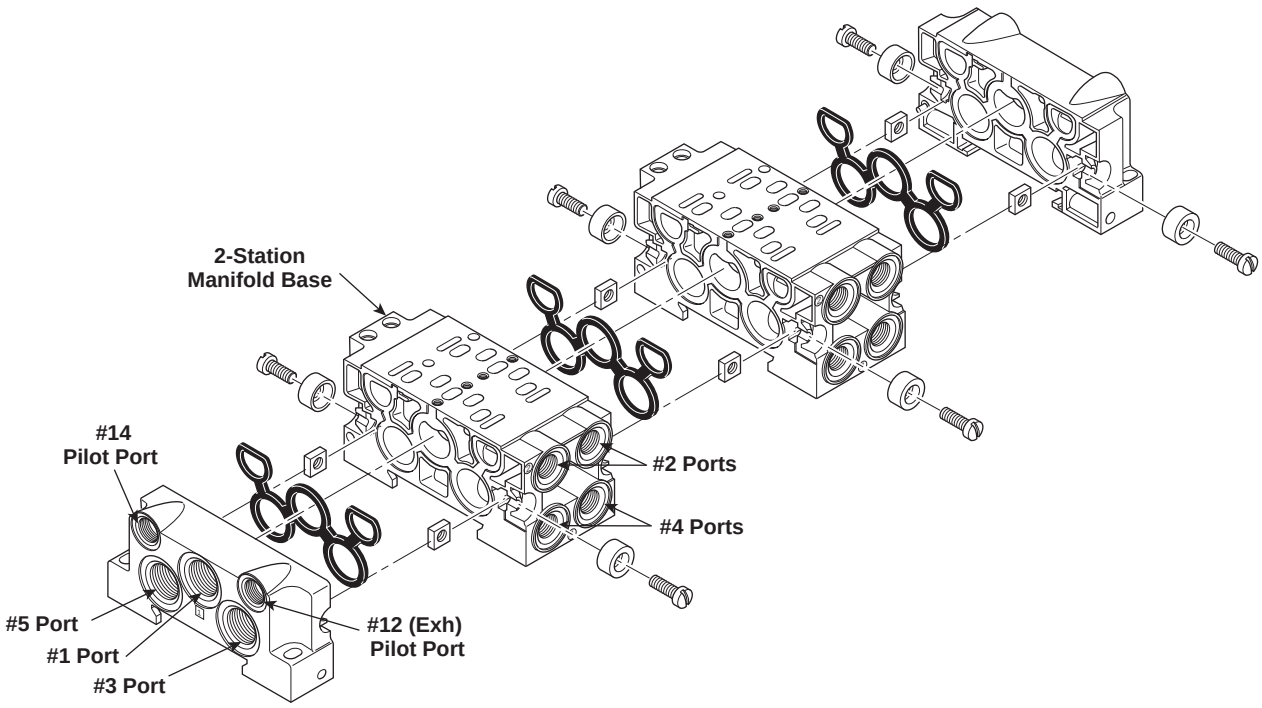
Manifold Assembly

Ports

1.....Pressure
2.....#2 Cylinder Port, 1 to 2 Flow Path
3.....Cylinder Exhaust Port, 2 to 3 Flow Path
4.....#4 Cylinder Port, 1 to 4 Flow Path
5.....Cylinder Exhaust Port, 4 to 5 Flow Path
14.....#14 Pilot Port
12.....#12 Pilot Port

Torque Specifications: 25 to 35 in-lbs (2.82 to 3.95 Nm)



DX02 Shown

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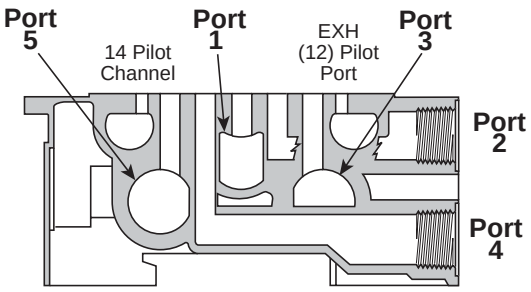
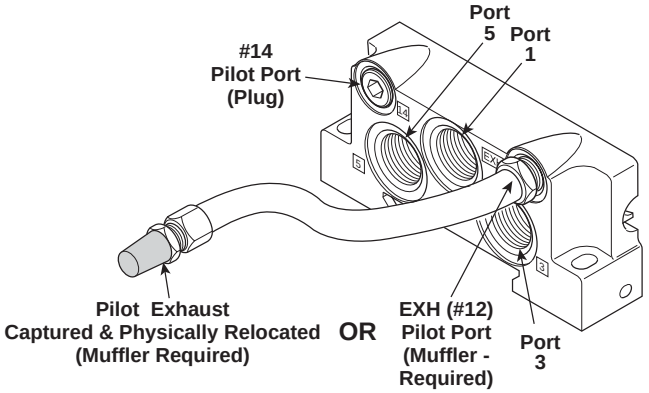
Captured Pilot Exhaust

PJLP02, Size 02*

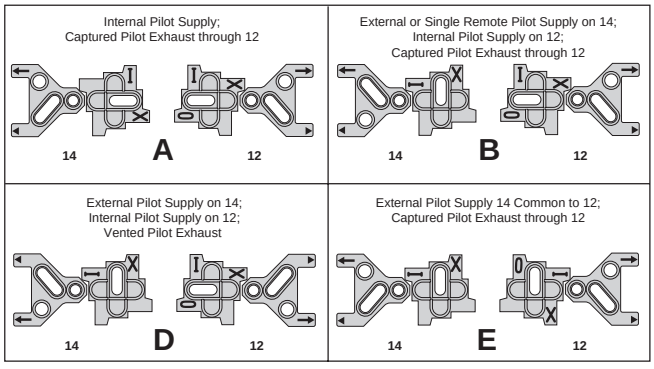
As shown in the illustrations below, the EXH (12) & 14 Pilot Ports are exhausted internally in the valve body into a single chamber labeled EXH on the end plate. When using A, B, D or E Selector Gasket Positions, the EXH (12) Pilot Port is vented with a muffler or micron screen. The 14 Pilot Port is plugged.





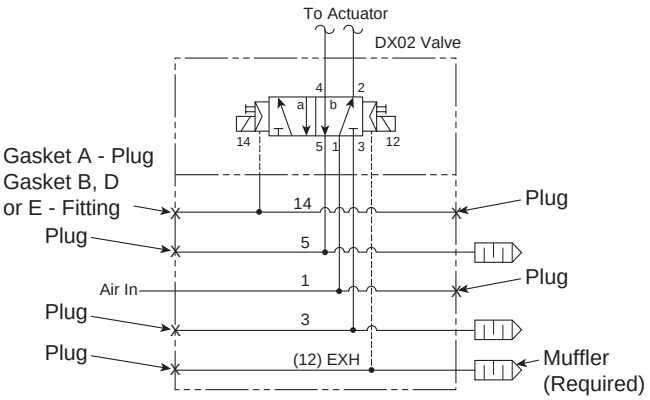
Captured Selector Gasket Positions

When using A, B, D or E, Selector Gasket Positions, the ports must be either plugged or vented with a muffler or micron screen as shown in the schematic at right.



* PJLP02 Manifolds can be used for External Pilot, **NOT** Remote Pilot

DX02 Manifold Assembly Schematic for *Captured* Selector Gasket Positions A, B, D and E



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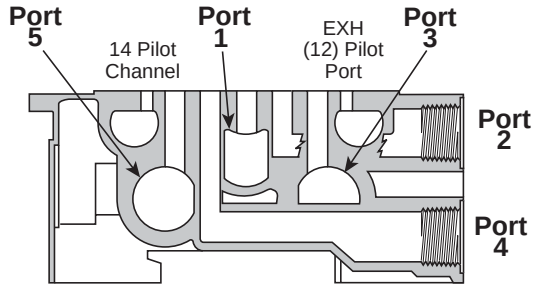
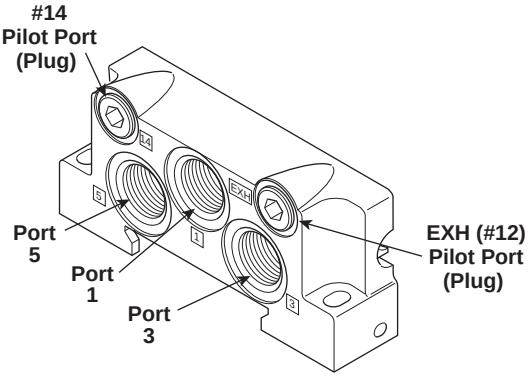
Vented
Pilot Exhaust

PJLP02, Size 02

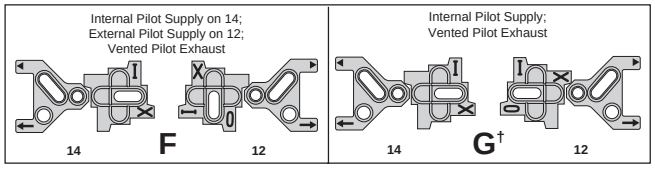
When using F or G Selector Gasket Positions, the EXH (12) Pilot Port and the 14 Pilot Port are plugged and the Pilot Exhaust is vented through the Pilot Adapter.





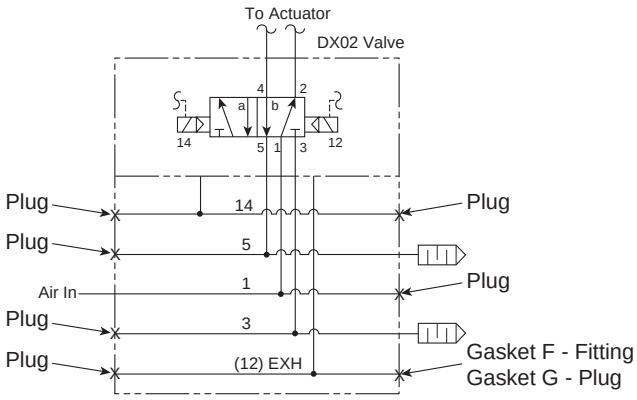
Vented Selector Gasket Positions

When using F or G, Selector Gasket Positions, the ports must be either plugged or vented with a muffler or micron screen as shown in the schematic at right.



† A plug may be inserted in the EXH Port of the PEJ02 & PEJ01 Manifold End Plates or #12 of PL02 & PL01 Subbases.

DX02 Manifold Assembly Schematic for *Vented* Selector Gasket Positions F and G



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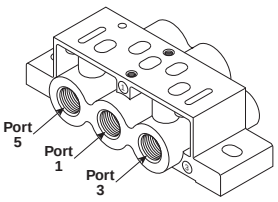
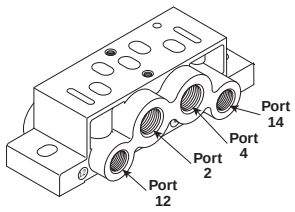
Subbase Assembly

Ports

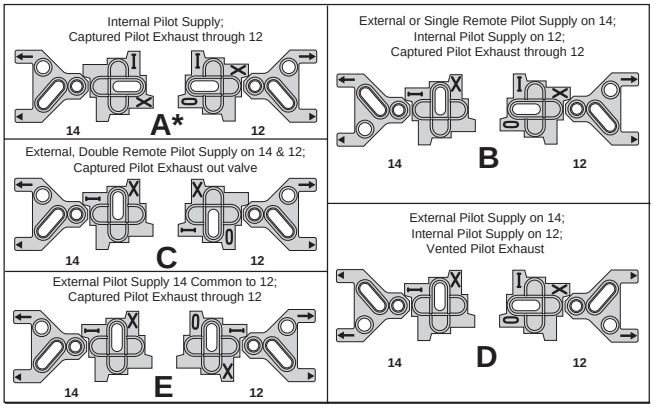
1.....Pressure
2.....#2 Cylinder Port. 1 to 2 Flow Path.
3.....Cylinder Exhaust Port. 2 to 3 Flow Path.
4.....#4 Cylinder Port. 1 to 4 Flow Path.
5.....Cylinder Exhaust Port. 4 to 5 Flow Path.
14..... #14 Pilot Port
12..... #12 Pilot Port



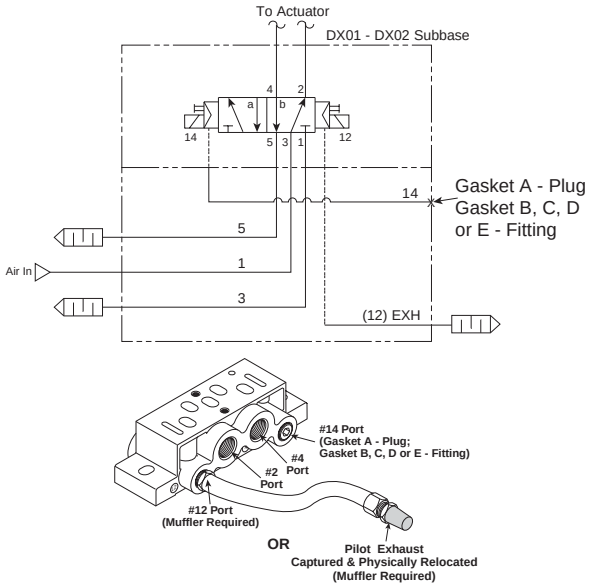


Captured Selector Gasket Positions

When using A, B, C, D or E, Selector Gasket Positions, the ports must be either plugged or vented with a muffler or micron screen as shown in the schematic at right.

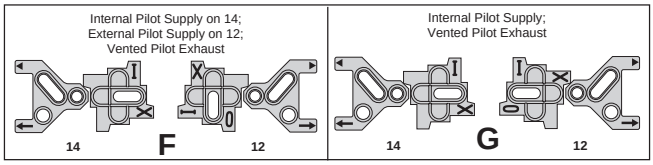


DX02 & DX01 Subbase Assembly Schematic for *Captured* Selector Gasket Positions A, B, C, D and E

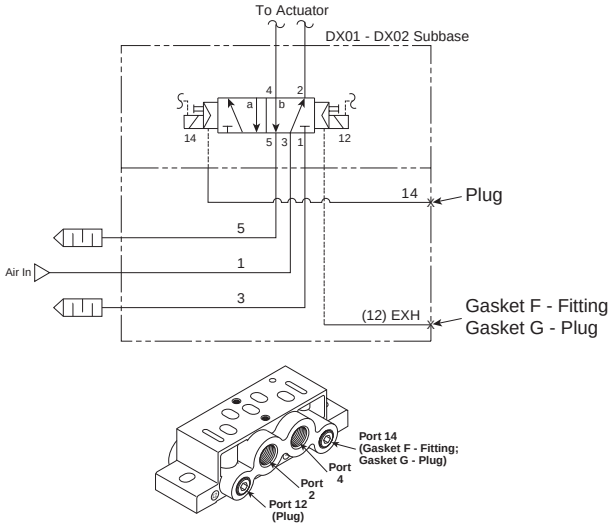


Vented Selector Gasket Positions

When using F or G, Selector Gasket Positions, the ports must be either plugged or vented with a muffler or micron screen as shown in the schematic at right.



DX02 & DX01 Subbase Assembly Schematic for *Vented* Selector Gasket Positions F and G



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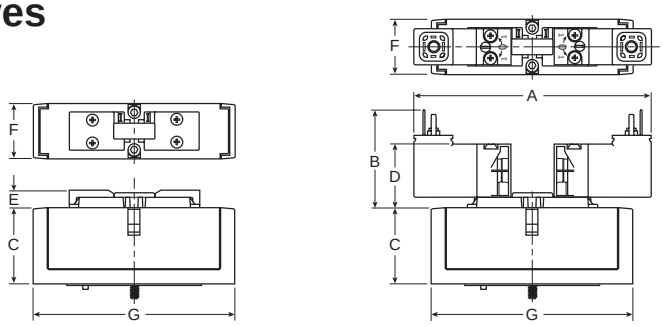
DX02

DX01

Valves



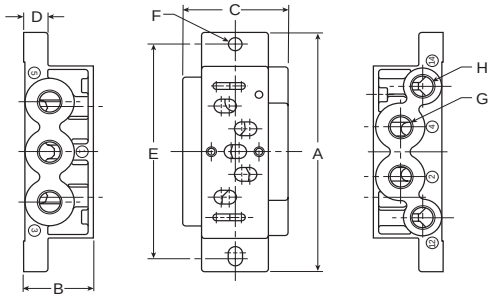
Series	A	B	C	D	E	F	G
DX02	4.06 (103)	1.61 (41)	1.41 (36)	1.06 (27)	.31 (8)	.71 (18)	3.15 (80)
DX01	4.06 (103)	1.61 (41)	1.41 (36)	1.06 (27)	.31 (8)	1.02 (26)	3.94 (100)

Inches (mm)

DX02

DX01

Individual Subbase



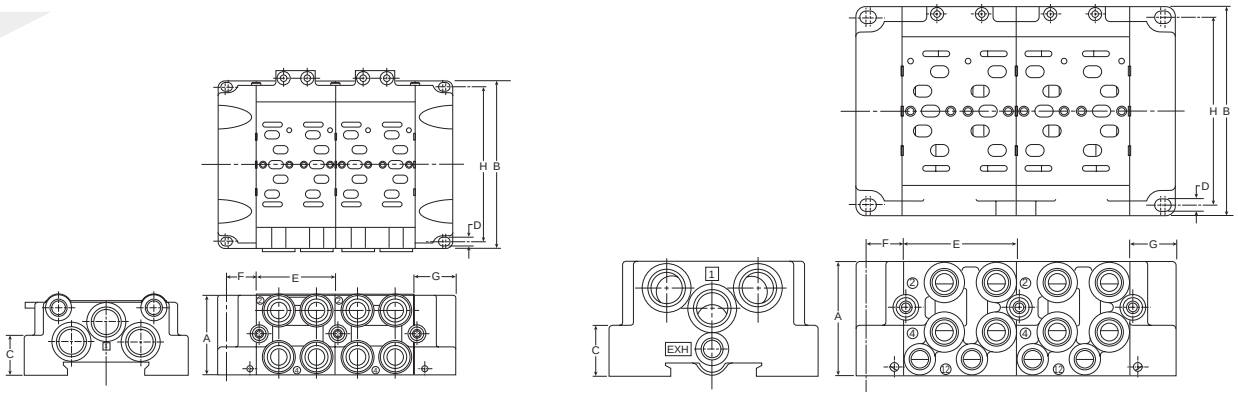
Series	Part Number	A	B	C	D	E	F	G	H
DX02	PL02	3.15 (80)	.87 (22)	1.06 (27)	.31 (8)	2.76 (70)	.216 Dia. (Ø 5.5)	1/8	M5
DX01	PL01	3.94 (100)	1.10 (28)	1.65 (42)	.39 (10)	3.54 (90)	.216 Dia. (Ø 5.5)	1/4	1/8

Inches (mm)

DX02

DX01

2-Station Manifold Bases



Series	Part Number	A	B	C	D	E	F	G	H
DX02	PJLP02 / PEJ02	1.52 (38.5)	3.15 (80)	.47 (12)	.165 Dia. (Ø 4.2)	1.50 (38)	.55 (14)	.71 (18)	2.83 (72)
DX01	PJL01 / PJLP01 / PEJ01	2.17 (55)	3.94 (100)	.94 (24)	.216 Dia. (Ø 5.5)	2.13 (54)	.67 (17)	.87 (22)	3.54 (90)

Inches (mm)

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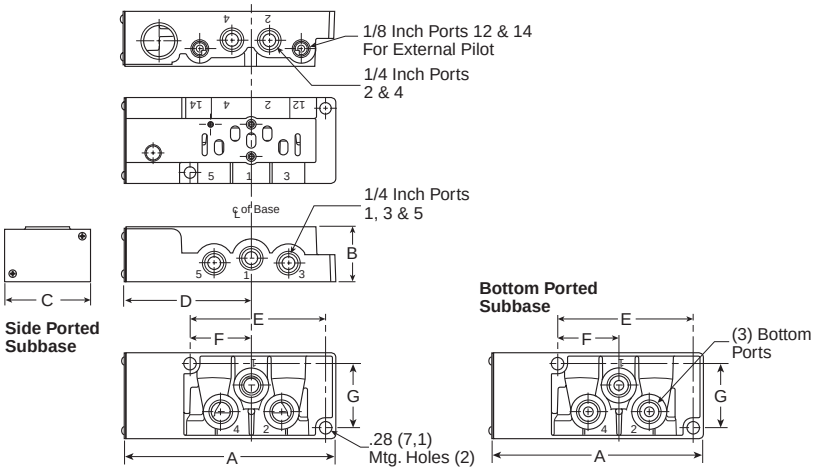
DX01

DX01 15407-1, PS5511 Subbases



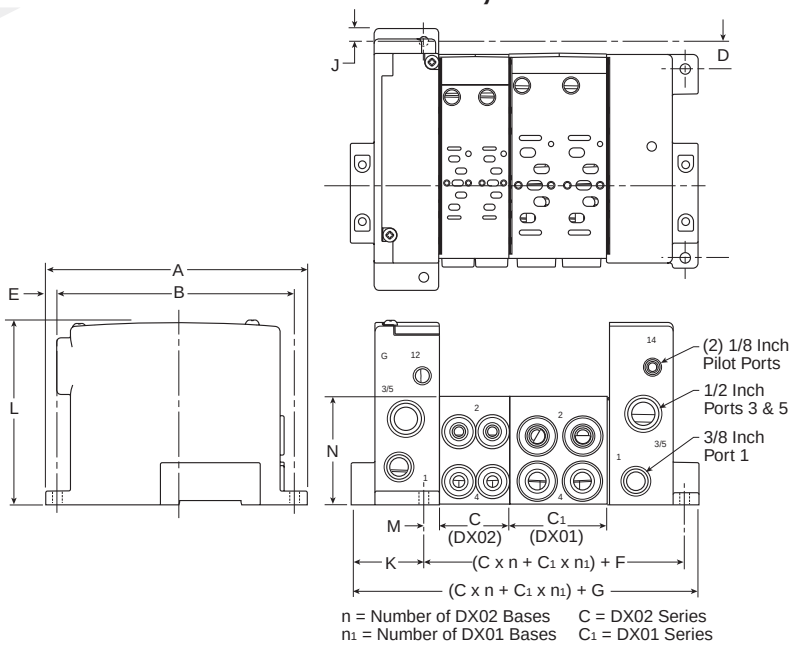
A	B	C	D
4.88 (124)	1.28 (32.5)	2.00 (50.8)	2.91 (74)
E	**F**	**G**	
1.43 (36.2)	3.16 (80.2)	1.49 (37.9)	

Inches (mm)

DX02

DX02 & DX01 15407-1, PS5611 & PS5511 Manifolds

DX01

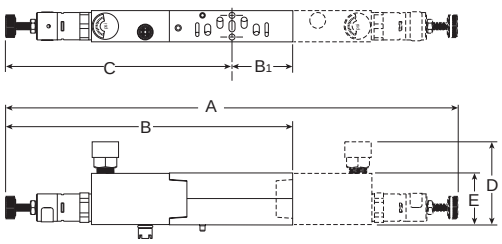


A	B	C	C_1
5.98 (152)	5.39 (137)	1.61 (40.8)	2.24 (56.8)
D	**E**	**F**	**G**
.63 (16)	.30 (7.5)	2.14 (54.4)	4.12 (104.6)
H	**J**	**K**	**L**
4.32 (109.8)	.15 (4)	1.68 (42.7)	4.17 (106)
M	**N**		
.33 (8.4)	2.48 |(63)		

Inches (mm)

DX01

DX02



Series	Part Number	A	B	B_1	C	D	E
DX02	PS5637	10.28 (261)	6.14 (156)	1.02 (26)	5.13 (130)	2.60 (66)	1.18 (30)
DX01	PS5537	10.00 (254)	6.42 (163)	1.42 (36)	5.00 (127)	2.72 (69)	1.18 (30)

Inches (mm)

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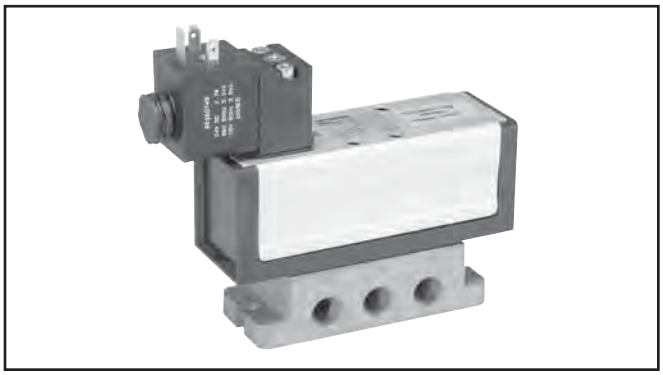
ISOMAX 5599-1



Ceramic Technology / Valve Specifications

- Subbase Mounted Valves Conforming to ISO Standard 5599/1
- High Flow: DX1 (1.15 Cv), DX2 (2.50 Cv), DX3 (4.15 Cv)
- Air or Solenoid Operation Using CNOMO Solenoids
- Can Be Vacuum Operated

Air Condition:
Filtered to 40µ

Dual Pressure Supply from Exhaust Ports:
Yes - Without additional pressure at 12 and 14

Dust and Water Protection:
IP 65 (According to EN 60529)

Mechanical Life:
> 100 million operations (Dry air filtered 40 µ, 2 Hz, 6 bar, 20°C)

Media:
Air or inert gas, filtered 40 µ (Class 5 according to ISO 8573-1), lubricated or non-lubricated

Operating Temperature Range:
-10°C to 60°C (14°F to 140°F)

Flow Rating (Cv)

Size	Port Size	Mounting Style	2-Position	3-Position
DX1	1/4" Ports	Subbase	1.15	0.75
	1/4" Ports	Manifold	0.80	0.60
DX2	3/8" Ports	Subbase	2.50	2.40
	3/8" Ports	Manifold	2.05	1.95
DX3	1/2" Ports	Subbase	4.15	4.00
	1/2" Ports	Manifold	4.10	3.65

Cv tested per ANSI / (NFPA) T3.21.3

Flow Rating (Cv) with Sandwich Regulator

	Common Pressure				Dual Pressure			
	1-2	1-4	2-3	4-5	1-2	1-4	2-3	4-5
DX1	0.55	0.49	1.06	1.02	0.32	0.42	0.25	0.38
DX2	1.06	1.05	2.33	2.17	0.93	0.66	0.77	1.15

Note: All Cv's calculated with regulator adjusted full open.

Response Time**

Single Solenoid 2-Position - Air Return / Spring Assist

Valve Size	Port Size	0 Cu. In. Chamber		## Cu. In. Chamber	
		Fill	Exhaust	Fill	Exhaust
DX1	1/4"	.025	.030	.160	.235
DX2	3/8"	.040	.045	.170	.235
DX3	1/2"	.060	.065	.245	.330

DX1 (50), DX2 (100), DX3 (200)

** With 100 PSIG supply, time required to fill from 0 to 90 PSIG and Exhaust from 100 PSIG to 10 PSIG measured from the instant of energizing or de-energizing 24VDC solenoid.

Tested per ANSI / (NFPA) T3.21.8

Solenoid Information

Code	Voltage			Power (W / VA)
	AC		DC	
	60Hz	50Hz		
19	—	—	24	2.8W
49	—	—	24	2.7W
53	120	115	—	3.7VA

Data tested with LED and Surge Suppression.

Operating Pressure

Vacuum to 145 PSIG (10 bar)

Function		M.O.P. (PSIG)		
Internal Pilot		DX1	DX2	DX3
21	2-Position, Spring Return	36	30	30
51	2-Poswition, Air Return	30	30	30
06	2-Position	15	15	15
11	3-Position, CE	45	36	36
16	3-Position, APB	45	36	36
13	3-Position, PC	45	36	—
External Pilot		DX1	DX2	DX3
22	2-Position, Spring Return	36	30	30
53	2-Position, Air Return	30	30	30
08	2-Position	15	15	15
12	3-Position, CE	45	36	36
18	3-Position, APB	45	36	36
24	3-Position, PC	45	36	—

Material Specification

Body ..... Polyamide Reinforced Fiberglass
Casing - End Plates ..... Anodized Aluminium
Seals ..... Nitrile
Screws ..... Zinc Plated Steel
Valve Member / Seat ..... Self Lubricating / Ceramic
Valve Plate ..... Zinc

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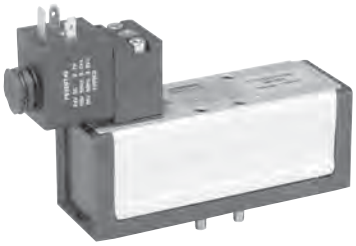
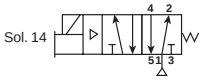
Single Solenoid

2-Position



DX1 Shown

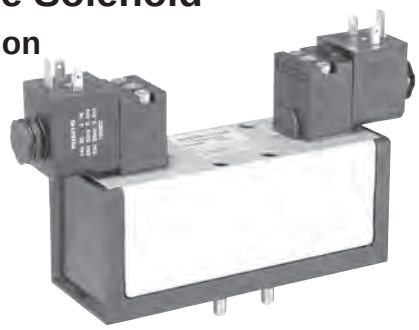


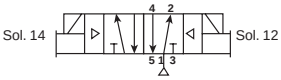
DX1	**DX1-621-BL53**	120VAC	1.15 Cv C = 3.8 Nl/s x bar, b = 0.35 Qn = 1032 l/min, Qmax = 1530 l/min
	DX1-621-BL49	24VDC	
DX2	**DX2-621-BL53**	120VAC	2.50 Cv C = 8.2 Nl/s x bar, b = 0.35 Qn = 2298 l/min, Qmax = 3522 l/min
	DX2-621-BL49	24VDC	
DX3	**DX3-621-BL53**	120VAC	4.15 Cv C = 14.5 Nl/s x bar, b = 0.35 Qn = 3840 l/min, Qmax = 6060 l/min
	DX3-621-BL49	24VDC	

30mm 3-Pin Solenoid, NLMOR, Unlighted, Internal Pilot, Valve Less Base

Double Solenoid

2-Position



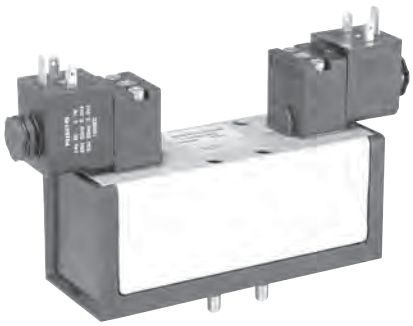


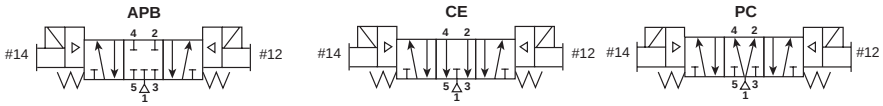
DX1	**DX1-606-BL53**	120VAC	1.15 Cv C = 3.8 Nl/s x bar, b = 0.35 Qn = 1032 l/min, Qmax = 1530 l/min
	DX1-606-BL49	24VDC	
DX2	**DX2-606-BL53**	120VAC	2.50 Cv C = 8.2 Nl/s x bar, b = 0.35 Qn = 2298 l/min, Qmax = 3522 l/min
	DX2-606-BL49	24VDC	
DX3	**DX3-606-BL53**	120VAC	4.15 Cv C = 14.5 Nl/s x bar, b = 0.35 Qn = 3840 l/min, Qmax = 6060 l/min
	DX3-606-BL49	24VDC	

30mm 3-Pin Solenoid, NLMOR, Unlighted, Internal Pilot, Valve Less Base

Double Solenoid

3-Position APB
3-Position CE





	APB	CE	PC		
DX1	**DX1-616-BL53**	**DX1-611-BL53**	**DX1-613-BL53**	120VAC	0.75 Cv C =2.5 Nl/s x bar, b = 0.35 Qn = 672 l/min, Qmax = 995 l/min
	DX1-616-BL49	**DX1-611-BL49**	**DX1-613-BL49**	24VDC	
DX2	**DX2-616-BL53**	**DX2-611-BL53**	**DX2-613-BL53**	120VAC	2.4 Cv C = 7.9 Nl/s x bar, b = 0.35 Qn = 2206 l/min, Qmax = 3381 l/min
	DX2-616-BL49	**DX2-611-BL49**	**DX2-613-BL49**	24VDC	
DX3	**DX3-616-BL53**	**DX3-611-BL53**	—	120VAC	4.0 Cv C = 13.9 Nl/s x bar, b = 0.35 Qn = 3686 l/min, Qmax = 5815 l/min
	DX3-616-BL49	**DX3-611-BL49**	—	24VDC	

30mm 3-Pin Solenoid, NLMOR, Unlighted, Internal Pilot, Valve Less Base.

Torque Specifications
DX1: 25 to 35 in-lbs (2.82 to 3.95 Nm)
DX2: 115 to 130 in-lbs (12.99 to 14.69 Nm)
DX3: 120 to 1430 in-lbs (13.56 to 15.82 Nm)

For Compact and VDMA Subbase and Manifold, see page E201.
For Hi-Flow Subbases and Manifolds, see page E202.

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BOLD OPTIONS ARE MOST POPULAR

Basic Series	
ISO 5599-1	**DX1 - Size 1**
ISO 5599-1	**DX2 - Size 2**
ISO 5599-1	**DX3 - Size 3**

Pilot	
Air Operated Remote Pilot	**4**
Solenoid Operated	**6**

Function	
Internal Pilot Supply	
2-Position, Spring Return, Air Assist	**21**
2-Position, Diff Return	**51**
2-Position	**06**
3-Position, CE	**11**
3-Position, APB	**16**
3-Position, PC	**13***
External Pilot Supply†	
2-Position, Spring Return, Air Assist	22
2-Position, Diff Return	53
2-Position	08
3-Position, CE	12
3-Position, APB	18
3-Position, PC	24*

* Not offered with DX3 Valves.
† Must be specified when using Sandwich Regulators.

Voltage & Frequency			
	AC		DC
	60Hz	50Hz	
19*			24
49			**24**
53	**120**	**110**	
Blank	Remote Pilot or Valve Less Coil		

* LED & Surge Suppression.
Only Available with Enclosure "6".

5599-1 Enclosure / Lead Length / Light	
0**	**None, Remote Pilot Valve**
6*	2-Pin, M12 EURO Connector with CNOMO Operator, Light
L	**3-Pin, 30mm DIN 43650A with CNOMO Connector, No Light**
P	3-Pin, 22mm Industrial with CNOMO Connector, No Light
N†	None, Valve Less Coil, No Light

* Only available with Voltage & Frequency "19".
**Must use Overrides Option "6".
† Must use Overrides Option "B" or "C".

5599-1 Overrides	
6	**Remote Pilot / Without Solenoid**
B	**Non-Locking, Flush, Push**
C	Locking, Flush, Push / Turn

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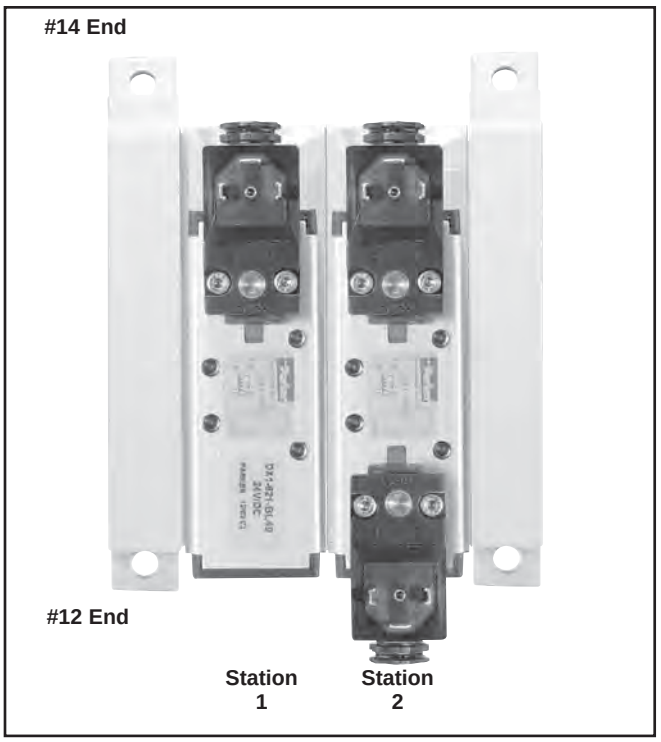

How To Order Add-A-Fold Assemblies

1. List Add-A-Fold Assembly call out. This automatically includes the end plate kit assembly.

2. List complete valve/base model number. List left to right, LOOKING AT THE CYLINDER PORTS on the #12 end of the manifold. The left most station is station 1.

(If a blank station is needed, list the blanking plate part number and the individual manifold number in the station specified.)

Model Number

AA H1 S 0 03 —

Valve Series	
DX1, ISO Size 1	H1
DX2, ISO Size 2	H2
DX3, ISO Size 3	H3

End Plate Type	
Standard Non-Collective Wiring	S
VDMA, 5599-1	V

Port Type	
NPT	0
BSPP "G"	1

Number of Stations	
01	1 Station
•	•
•	•
•	•
21	21 Stations

Transition Plate	
Blank	No Transition Plate
C*	DX1 to DX2
D*	DX1 to DX3
E**	DX2 to DX3

* Use DX1 Valve Series.
** Use DX3 Valve Series.

Example: Application requires a 2-Station manifold.

Qty.	Part No.
1	AAH2S002
1	DX2-621-BL49..... Valve Station 1
1	PS4111570CP.....Base Station 1
1	DX2-606-BL49 ..... Valve Station 2
1	PS4111570CP.....Base Station 2

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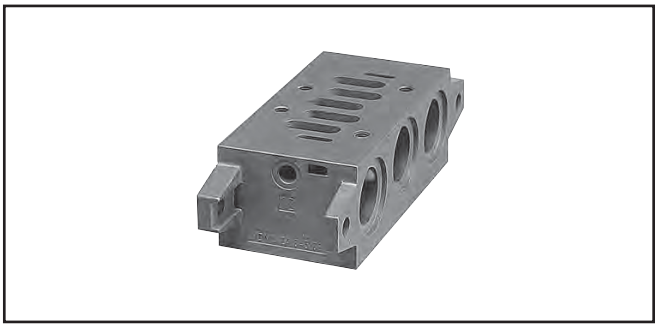
5599-1 Compact Manifolds, Subbases & Accessories

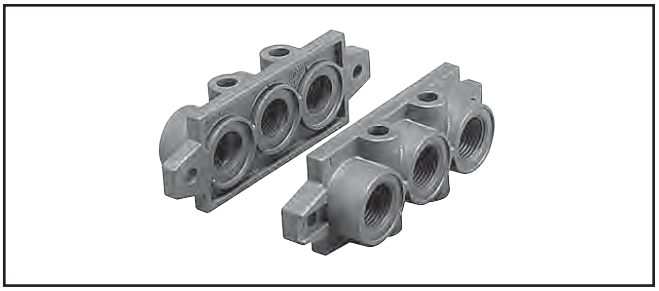
Manifold VDMA – Form C Bottom Port

Size	Port Size	Kit Number
		BSPP "G"
DX1	1/4"	P2N-VM512MB
DX2	3/8"	P2N-WM513MB
DX3	1/2"	P2N-YM514MB



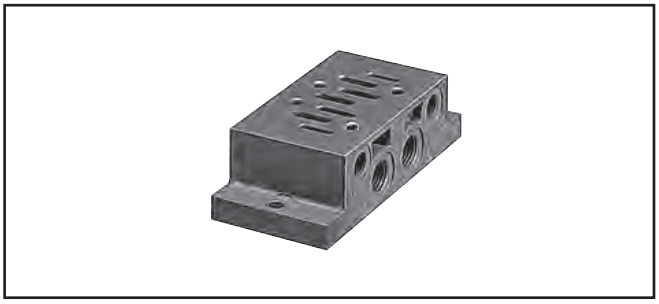
VDMA End Plates – Form D

Size	Port Size	Kit Number
		BSPP "G"
DX1	3/8"	P2N-VM513ES
DX2	1/2"	P2N-WM514ES
DX3	1"	P2N-YM518ES



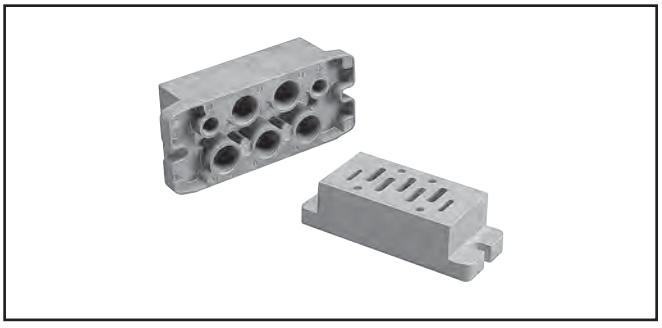
Subbase – Side Ports (5599-1 & VDMA)

Size	Port Size	5599-1 Kit Number		VDMA Kit
		NPT	BSPP "G"	BSPP "G"
DX1	1/4"	**PL1-1/4-80**	PL1-1/4-70	P2N-VS512SD
DX2	3/8"	**PL2-3/8-80**	PL2-3/8-70	P2N-WS513SD
DX3	1/2"	PL3-1/2-80	PL3-1/2-70	P2N-YS514SD



Subbase – Bottom Ports

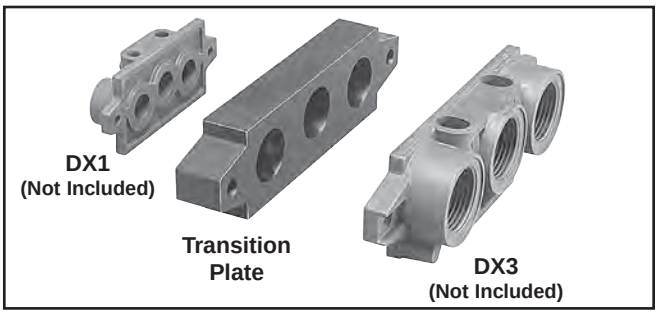
Size	Port Size	5599-1 Kit Number	
		NPT	BSPP "G"
DX1	1/4"	PD1-1/4-80	PD1-1/4-70
DX2	3/8"	PD2-3/8-80	PD2-3/8-70



VDMA Transition Plate

Kit Number
P2N-VM500AK

Kit includes: Transition Plate Only. Order P2N-VM513ES and P2N-YM518ES Separately to Assemble Add-A-Fold



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5599-1, DX1, DX2 & DX3
Hi-Flow Manifold / Subbase Kits

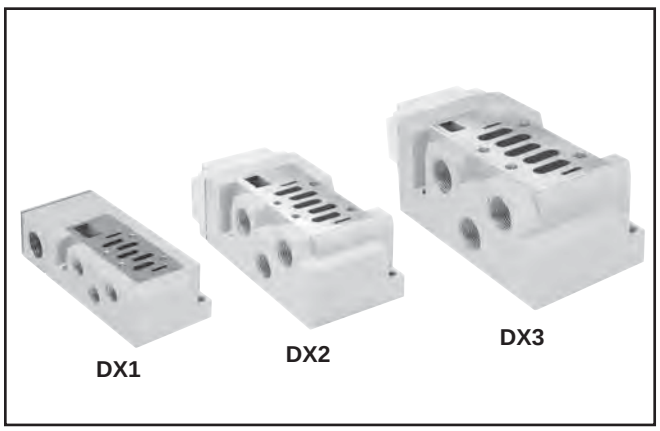
PS401155 0 C P

Enclosures / Lead Length	
0	None, No Electrical Plug - 5599-1

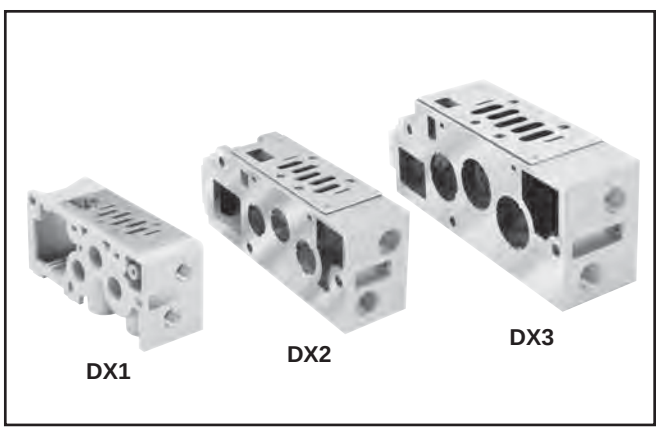
Mounting Base Style / Port Size					
DX1 Series		DX2 Series		DX3 Series	
Subbase: 3/8 NPT Side Ports	**PS401115**	**Subbase: 1/2 NPT Side Ports**	**PS411117**	**Subbase: 3/4 NPT Side Ports**	**PS421119**
Subbase: 3/8 BSPP Side Ports	PS401116	Subbase: 1/2 BSPP Side Ports	PS411118*	Subbase: 3/4 BSPP Side Port	PS421110*
Manifold: 3/8 NPT End Ports	**PS401155**	Subbase: 1/2 NPT Bottom / End Port	PS411127	Subbase: 3/4 NPT Bottom / End Port	PS421129
Manifold: 3/8 BSPP End Ports	PS401156*	Subbase: 1/2 BSPP Bottom / End Port	PS411128*	Subbase: 3/4 BSPP Bottom / End Port	PS421120*
Manifold: 3/8 NPT Bottom / End Port	PS401165†	**Manifold: 1/2 NPT End Port**	**PS411157**	**Manifold: 3/4 NPT End Port**	**PS421159**
Manifold: 3/8 BSPP Bottom / End Port	PS401166*†	Manifold: 1/2 BSPP End Ports	PS411158*	Manifold: 3/4 BSPP End Port	PS421150*
		Manifold: 1/2 NPT Bottom / End Port	PS411167	Manifold: 3/4 NPT Bottom / End Port	PS421169
		Manifold: 1/2 BSPP Bottom / End Port	PS411168*	Manifold: 3/4 BSPP Bottom / End Port	PS421160*

* BSPP Conforms to ISO 1179-1 w 228-1 Theads.
† #1 Bottom Port - 1/4".

Subbase Kits



Manifold Kits



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5599-1, DX1, DX2 & DX3
End Plate Kits for PS4 Manifolds

PS403101 0 C P

Basic Series	
DX1	PS403101
DX2	PS413101
DX3	PS423101

Thread Type	
0	NPT
1	BSPP "G"

Engineering Level	
C	Current

DX1 Non-Collective Wiring End Plates

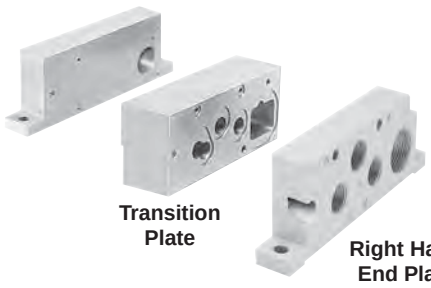
5599-1, DX1, DX2 & DX3
Transition Plate Kits for PS4 Manifolds

PS402701 0 C P

Transition Plate Type	
DX1 to DX2 to DX3	PS402501
DX1 to DX3	PS402601
DX1 to DX2	PS402701
DX2 to DX3	PS402801

Thread Type	
0	NPT
1	BSPP "G"

Engineering Level	
C	Current



DX1 to DX2 Shown

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Blanking Plate Kits

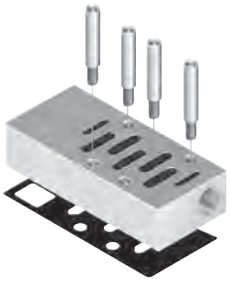
Size	Kit Number
DX1	**PS4034CP**
DX2	**PS4134CP**
DX3	**PS4234CP**

Kit includes: Blanking Plate, Gasket, and Mounting Bolts.

Remote Pilot Access Plate Kits

Size	Port Size	Kit Number	
		NPT	BSPP "G"
H1	1/8"	PS401500CP	PS401501CP
H2	1/8"	PS411500CP	PS411501CP
H3	1/8"	PS421500CP	PS421501CP

Kit includes: Pilot Port Access Plate, Gasket and Mounting Studs.



Manifold Port Isolation Kits

Main Galley (1, 3, 5)

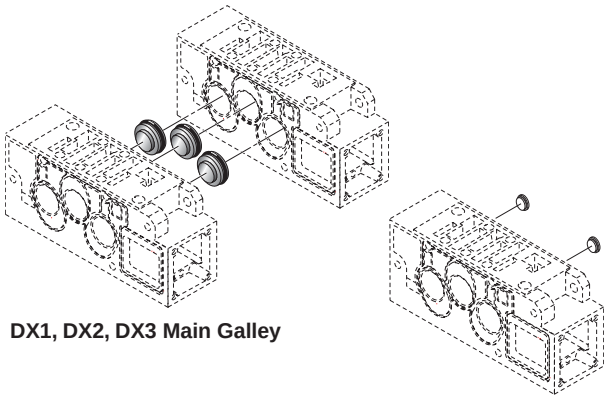
Size	Kit Number	
	PS4 Manifolds	P2N Manifolds
DX1	**PS4032CP**	P2N-VK0P
DX2	**PS4132CP**	P2N-WK0P
DX3	**PS4232CP**	P2N-YK0P

Kit includes: Plugs with O-rings.

Pilot Galley

Size			Kit Number
DX1	DX2	DX3	**PS4033CP**

Kit includes: Plugs with O-rings.
For use with PS4 Series Manifolds.



DX1, DX2, DX3 Main Galley

DX1, DX2, DX3 Pilot Galley

Sandwich Flow Controls Features

- Both adjustment screws are located on the 12 end of the unit.
- Sandwich Flow Control mounts with its own studs, which means the valve uses standard bolts for mounting.
- Sandwich Flow Control is not to be used as a shut off device and is not bubble tight when needles are fully turned down.

Size	Kit Number
DX1	PS4042CP
DX2	PS4142CP
DX3	PS4242CP

DX2 Shown

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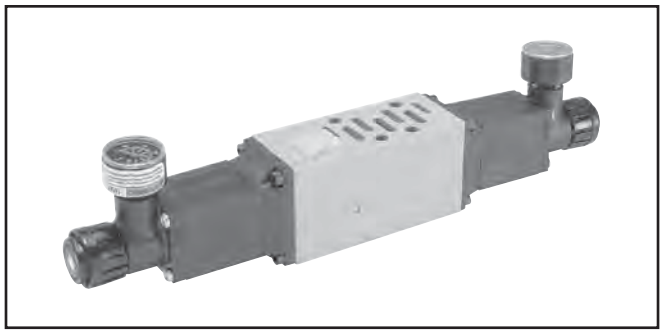
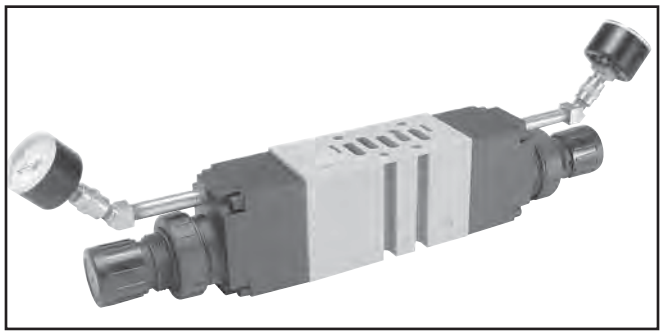
Sandwich Regulators Features

- Remote Air Pilot Operated for hard-to-reach pressure control.
- Unregulated Pilot Pressure to valve for consistent valve shifting regardless of pressure adjustment.

DX1 - Size 1
(Independent Dual Port Regulator Shown)



DX2 - Size 2
(Independent Dual Port Regulator Shown)



BOLD OPTIONS ARE MOST POPULAR

PS4037 | 1 | 6 | 6 | C | P

Basic Series	
DX1	
5599-1	PS4037
DX2	
5599-1	PS4137
DX3	
5599-1	PS4237

Regulator Function	
Common Pressure Regulator	1
Independent Pressure Regulator	2

#2 Port Regulator / Gauge*	
0**	Line By-Pass Plate
4	1-30 PSIG w/Gauge
5	2-60 PSIG w/Gauge
6	5-125 PSIG w/Gauge

* For Common Pressure Regulator Option, Regulator Gauge callout must be the same number for both Port #4 and Port #2. (Example: 166)

** Pressure Line By-Pass Option can only be used with Independent and Selector Regulators (Option 2 & 3 in Sandwich Block Function).

#4 Port Regulator / Gauge*	
0**	Line By-Pass Plate
4	1-30 PSIG w/Gauge
5	2-60 PSIG w/Gauge
6	5-125 PSIG w/Gauge

* For Common Pressure Regulator Option, Regulator Gauge callout must be the same number for both Port #4 and Port #2. (Example: 166)

** Pressure Line By-Pass Option can only be used with Independent and Selector Regulators (Option 2 & 3 in Sandwich Block Function).

Ordering Components
- *Manifold or Subbase Kit required.*
- *Sandwich Regulator Kit configured for Internal Pilot as standard.*
- *Order valve as External Pilot.*

How to Configure Sandwich Regulator / Valve Combinations

Internal Pilot Configuration -
Pressure in Base Port 1 feeds regulator configured for Internal Pilot which feeds valve configured for External Pilot.

External Pilot Configuration - DX1, DX2, DX3
An External Pilot pressure in Port 12 or 14 of the base feeds thru the Sandwich Regulator 12 or 14 galley directly to the 12/14 pilot of the valve. This configuration takes an External Pilot from the 12 port of the base and passes it thru the regulator to feed the 12 galley of the valve.

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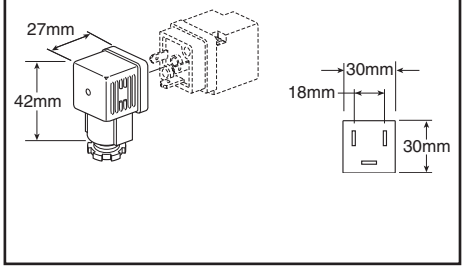
Female Electrical Connectors / Accessories

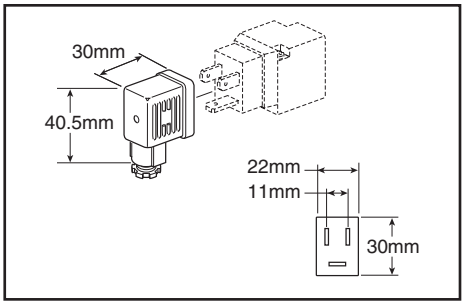
30mm Square 3-Pin – ISO 4400, DIN 43650A (Use with Enclosure "A")



Connector	Connector with 6' (2m) Cord	Description
PS2028BP	PS2028JCP	Unlighted
PS203279BP	PS2032J79CP*	Light – 6-48V, 50/60Hz, 6-48VDC
PS203283BP	PS2032J83CP*	Light – 120V/60Hz
PS203283BP	N/A	Light – 240V/60Hz

* LED with surge suppression.
Note: Max ø6.5mm cable size required for connector w/o 6' (2m) cord. IP65 rated when properly installed.
Engineering Data: Conductors: 2 Poles Plus Ground; Cable Range (Connector Only): 8 to 10mm (0.31 to 0.39 Inch); Contact Spacing: 18mm

22mm Rectangular 3-Pin – Type B Industrial (Use with Enclosure "B")



Connector	Connector with 6' (2m) Cord	Description
PS2429BP	PS2429JBP	Unlighted
PS243079BP	PS2430J79BP*	Light – 24V60Hz, 24VDC
PS243083BP	PS2430J83BP*	Light – 120V/60Hz
PS243087BP	N/A	Light – 240V/60Hz

* LED with surge suppression.
Note: Max ø6.5mm cable size required for connector w/o 6' (2m) cord. IP65 rated when properly installed.
Engineering Data: Conductors: 2 Poles Plus Ground; Cable Range (Connector Only): 6 to 8mm (0.24 to 0.31 Inch); Contact Spacing: 11mm

CNOMO Operator Adapter

Description	Kit Number
Operator Adapter	**PS2855P**

PS2855P

5599-1 CNOMO Solenoid Kits

Voltage Code	3-Pin 30mm 'L' Coil Kit	2-Pin M12 Euro '6' Coil Kit
19 (24VDC)	—	PS2828619P
42 (24VAC)	P2FCA442	—
45 (12VDC)	P2FCA445	—
49 (24VDC)	P2FCA449	—
53 (120VAC)	P2FCA453	—
57 (240VAC)	P2FCA457	—

Quantity 1

CNOMO Operator Kit

Description	Kit Number
Locking 30mm CNOMO Pilot Operator with Diffuser Nut	**PS4052CP**
Non-Locking 30mm CNOMO Pilot Operator with Diffuser Nut	**PS4053CP**

Seal Kits

Size	Kit Number	Description
1	**JJDX10**	1 base seal, 2 pilot selector seals
2	**JJDX20**	1 base seal, 2 pilot selector seals
3	**JJDX30**	1 base seal, 2 pilot selector seals

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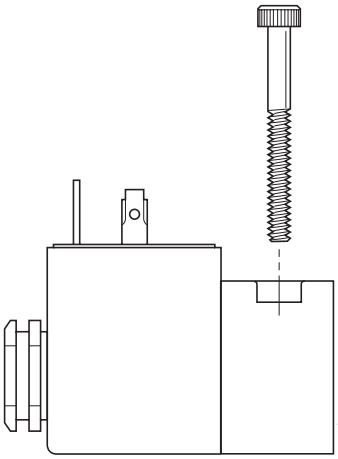
DX1
DX2
DX3

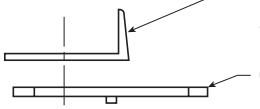
DX1 / DX2 / DX3

Internal / External Pilot Conversion Instructions



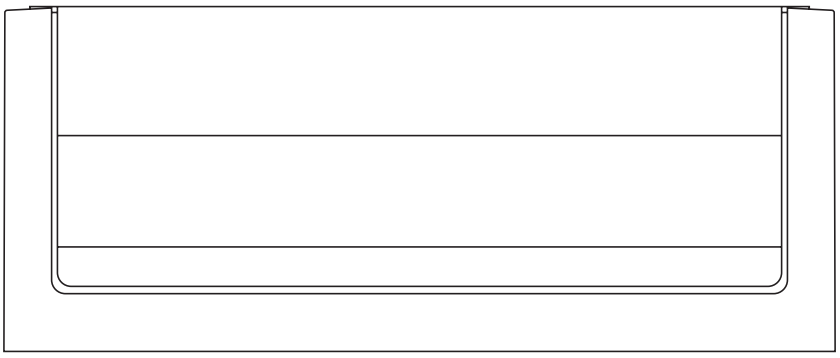
NOTE:

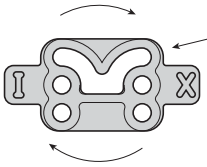
For Single Solenoid & Double Solenoid – Both 14 & 12 end Gaskets must be converted and both 12 & 14 ports in the Manifold & Subbase must have external pilot supplied.



Remove
Solenoid Assembly, CNOMO Operator Adapter

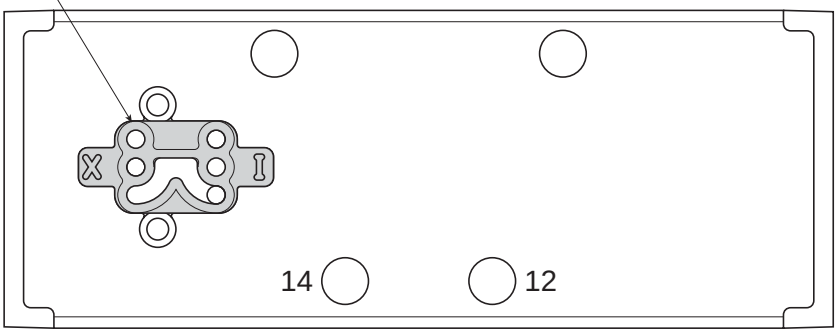
Gasket





Remove Gasket and Rotate to Show "I" in Position as Shown and Reinstall Gasket and Covers. (Valve is Now External Pilot)

Position of Gasket for Internal Pilot when Using with Solenoid Operator



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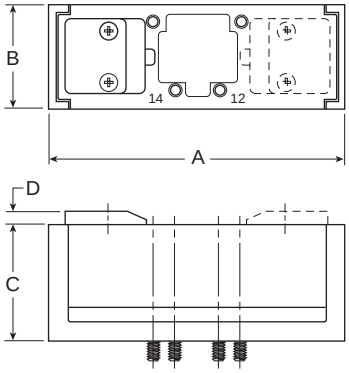
DX1
DX2
DX3

Air Operated Valves

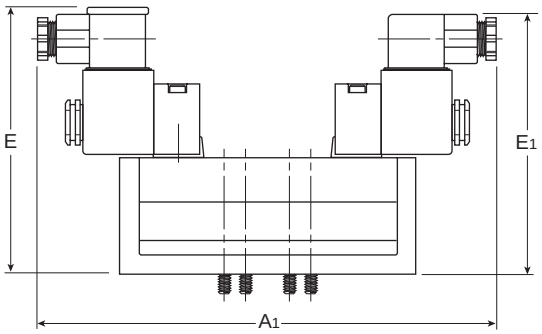
Series	A	B	C	D
DX1	4.72 (120)	1.65 (42)	1.85 (47)	.20 (5)
DX2	5.51 (140)	2.13 (54)	2.30 (58.5)	.20 (5)
DX3	6.69 (170)	2.68 (68)	2.80 (71)	.20 (5)

Inches (mm)



DX1
DX2
DX3

Solenoid Operated Valves



Series	A_1	E	E_1	E_2
DX1	7.97 (202.5)	4.43 (112.5)	4.69 (119)	4.53 (115)
DX2	8.58 (218)	4.86 (123.5)	5.12 (130)	4.98 (126.5)
DX3	9.27 (235.5)	5.35 (136)	5.61 (142.5)	5.47 (139)

Inches (mm)

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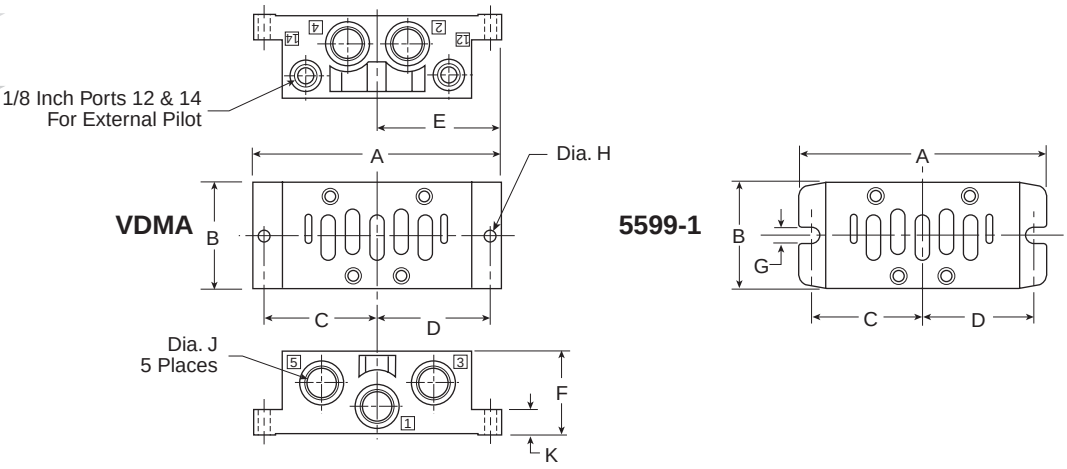
DX1
DX2
DX3

VDMA & 5599-1 Side Ported Subbase

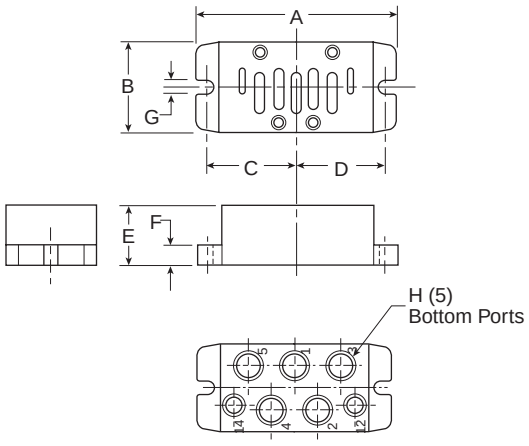


	Series	Part Number	J	A	B	C	D	E	F	G	H	K
VDMA	DX1	P2N-VS512SD	BSPP G1/4	4.33 (110)	1.89 (48)	1.93 (49)	1.93 (49)	2.17 (55)	1.26 (32)	—	.22 (5.6)	.39 (9.9)
	DX2	P2N-WS513SD	BSPP G3/8	4.88 (124)	2.21 (56)	2.21 (56)	2.21 (56)	2.44 (62)	1.57 (40)	—	0.26 (6.6)	.51 (13)
	DX3	P2N-YS514SD	BSPP G1/2	5.87 (149)	2.80 (71)	2.68 (68)	2.68 (68)	2.93 (74.5)	2.05 (52)	—	0.26 (6.6)	0.71 (18)
5599-1	DX1	PL1-1/4-70	BSPP G1/4	4.33 (110)	1.81 (46)	1.93 (49)	1.93 (49)	2.17 (55)	1.14 (29)	0.22 (5.5)	—	0.24 (6)
		PL1-1/4-80	NPT 1/4									
	DX2	PL2-3/8-70	BSPP G3/8	4.88 (124)	2.21 (56)	2.17 (55)	2.17 (55)	2.44 (62)	1.46 (37)	0.22 (5.5)	—	0.24 (6)
		PL2-3/8-80	NPT 3/8									
	DX3	PL3-1/2-70	BSPP G1/2	5.87 (149)	2.80 (71)	2.68 (68)	2.68 (68)	2.93 (74.5)	2.36 (60)	0.26 (6.6)	—	0.71 (18)
		PL3-1/2-80	NPT 1/2									

Inches (mm)

DX1
DX2

5599-1 Bottom Ported Subbase



Bottom Ported Subbase

Series	Part Number	H	A	B	C	D	E	F	G
DX1	PD1-1/4-70	BSPP G1/4	4.33 (110)	1.81 (46)	1.93 (49)	1.93 (49)	1.14 (29)	.24 (6)	0.22 (5.5)
	PD1-1/4-80	NPT1/4							
DX2	PD2-3/8-70	BSPP G3/8	4.88 (124)	2.20 (56)	2.17 (55)	2.17 (55)	1.46 (37)	.24 (6)	.0.22 (5.5)
	PD2-3/8-80	NPT3/8							

Inches (mm)

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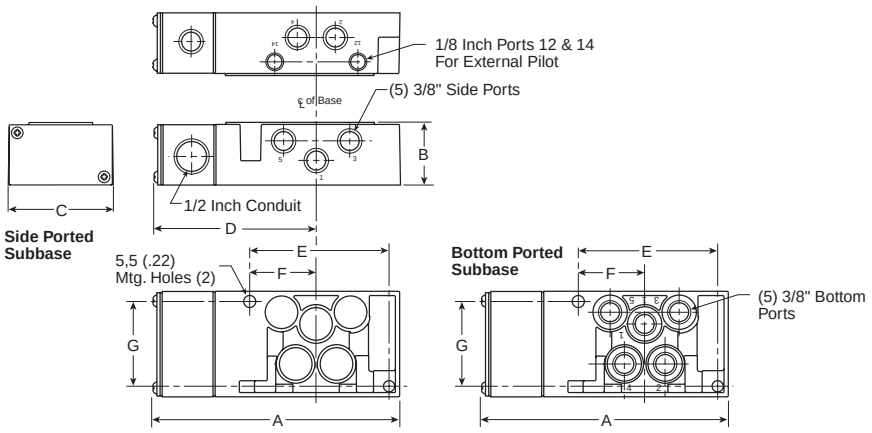
DX1

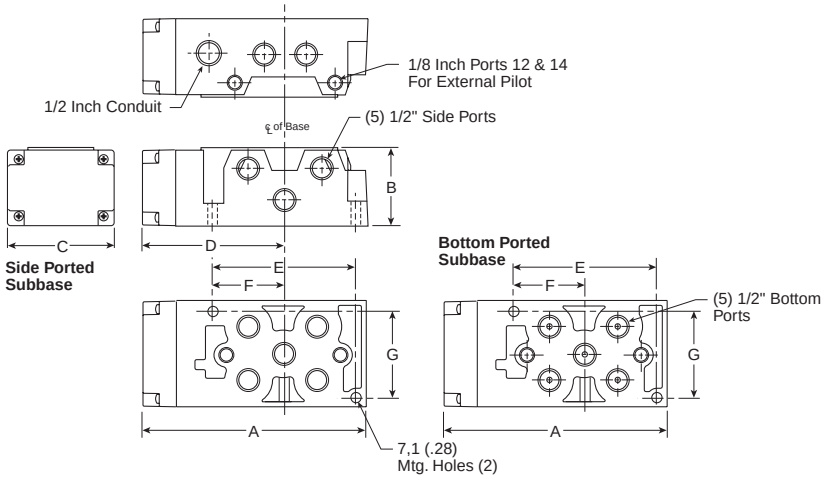


PS4011 Subbase

A	B	C	D
5.83 (148)	1.48 (38)	2.50 (64)	3.86 (98)
E	**F**	**G**	
3.29 (84)	1.57 (40)	2.00 (51)	

Inches (mm)

DX2

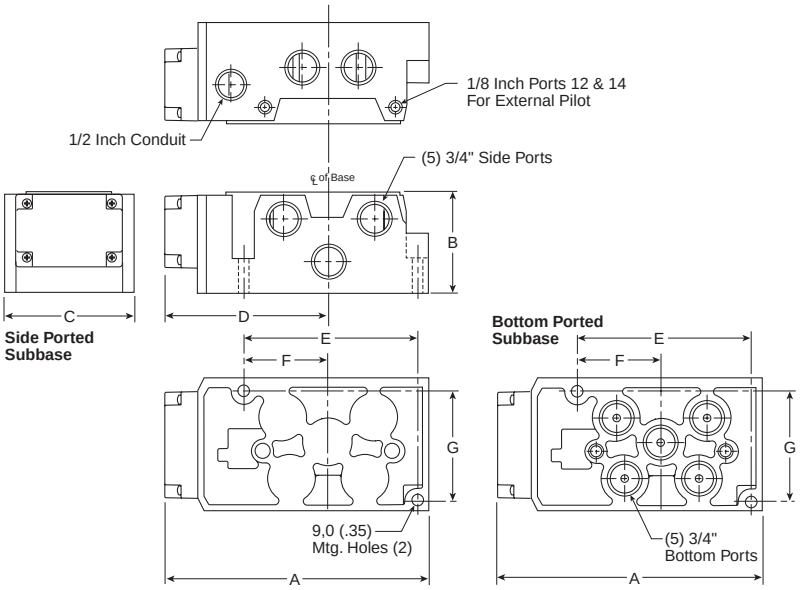


PS4111 Subbase

A	B	C	D
6.69 (170)	2.33 (59)	3.15 (80)	4.25 (108)
E	**F**	**G**	
4.21 (107)	2.07 (52)	2.56 (65)	

Inches (mm)

DX3



PS4211 Subbase

A	B	C	D
7.90 (201)	2.96 (75)	3.90 (990)	4.92 (125)
E	**F**	**G**	
5.14 (131)	2.50 (64)	3.24 (82)	

Inches (mm)

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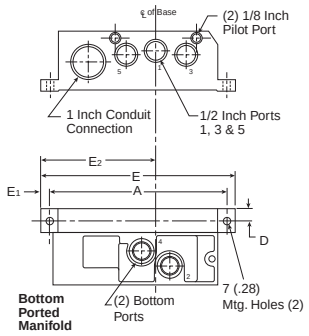
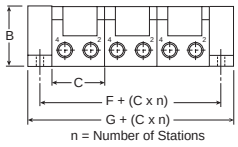
DX1



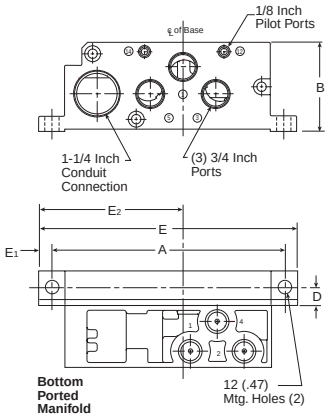


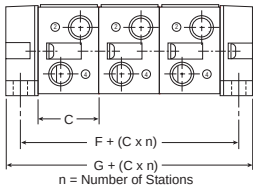
PS4011 Manifold

A	B	C	D	E
6.50 (165)	2.20 (56)	1.93 (49)	.44 (11)	7.15 (182)
E₁	**E₂**	**F**	**G**	
.33 (8)	4.25 (108)	.87 (22)	1.80 (46)	

Inches (mm)

DX2



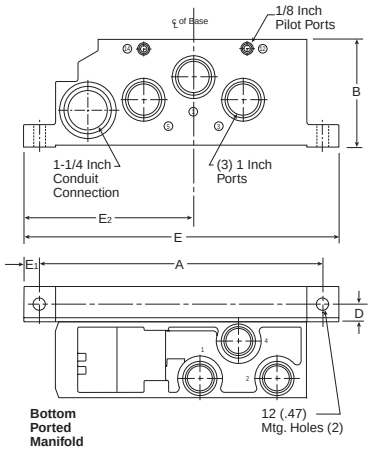


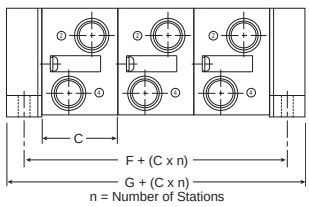
PS4111 Manifold

A	B	C	D	E
8.46 (215)	3.35 (85)	2.20 (56)	.59 (15)	9.41 (239)
E₁	**E₂**	**F**	**G**	
.47 (12)	5.28 (134)	1.18 (30)	2.36 (60)	

Inches (mm)

DX3





PS4211 Manifold

A	B	C	D	E
10.41 (265)	4.13 (105)	2.80 (71)	.65 (175)	11.61 (295)
E₁	**E₂**	**F**	**G**	
.59 (15)	6.26 (159)	1.30 (33)	2.60 (63)	

Inches (mm)

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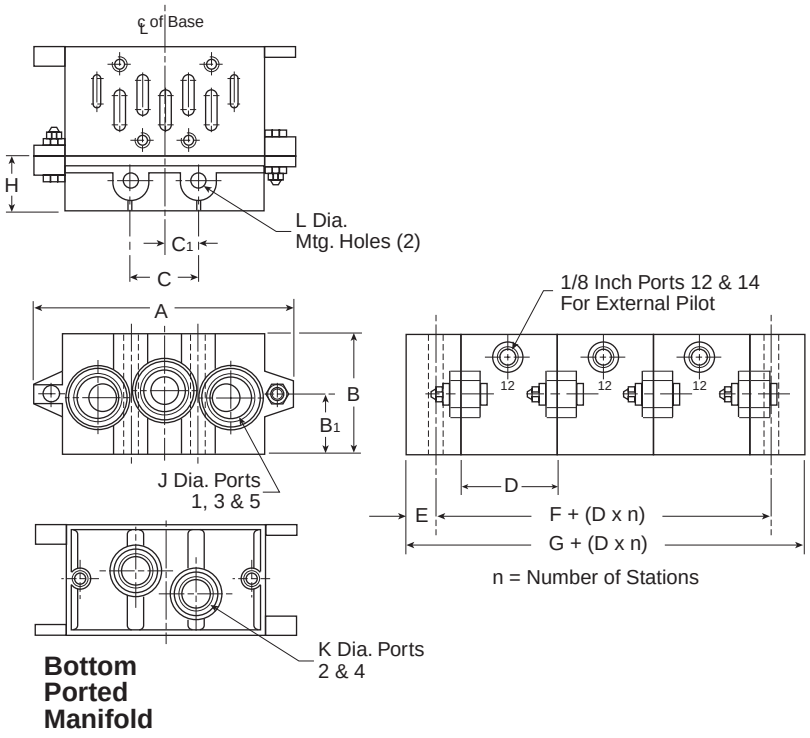
DX1
DX2
DX3

5599-1 VDMA – Form C Manifold
&
5599-1 VDMA - Form D End Plates



Bottom Ported Manifold

VDMA Form C Manifold

Series	Part Number	A	B	B_1	D	E	F	G	J	K
DX1	P2N-VM512MB	4.33 (110)	1.81 (46)	0.94 (24)	1.69 (55)	0.43 (22)	0.87 (22)	1.73 (44)	BSPP G3/8	BSPP G1/4
DX2	P2N-WM513MB	5.31 (135)	1.85 (47)	0.94 (24)	2.20 (56)	0.51 (13)	1.02 (26)	2.05 (52)	BSPP G1/2	BSPP G3/8
DX3	P2N-YM514MB	7.48 (190)	2.20 (56)	1.34 (34)	2.80 (71)	0.59 (15)	1.18 (30)	2.36 (60)	BSPP G1/2	BSPP G1/2

VDMA Form D End Plate

Series	Part Number	A	B	B_1	C	C_1	H	L
DX1	P2N-VM513ES	4.33 (110)	1.81 (46)	0.94 (24)	1.10 (28)	0.55 (14)	0.87 (22)	0.28 (7)
DX2	P2N-WM514ES	5.31 (135)	1.85 (47)	0.94 (24)	1.38 (35)	0.69 (18)	1.02 (26)	0.34 (9)
DX3	P2N-YM518ES	7.48 (190)	2.20 (56)	1.34 (34)	2.05 (52)	1.03 (26)	1.18 (30)	0.47 (12)

Inches (mm)

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Valvair II

Solenoid Operated Directional Spool Valves

Section E

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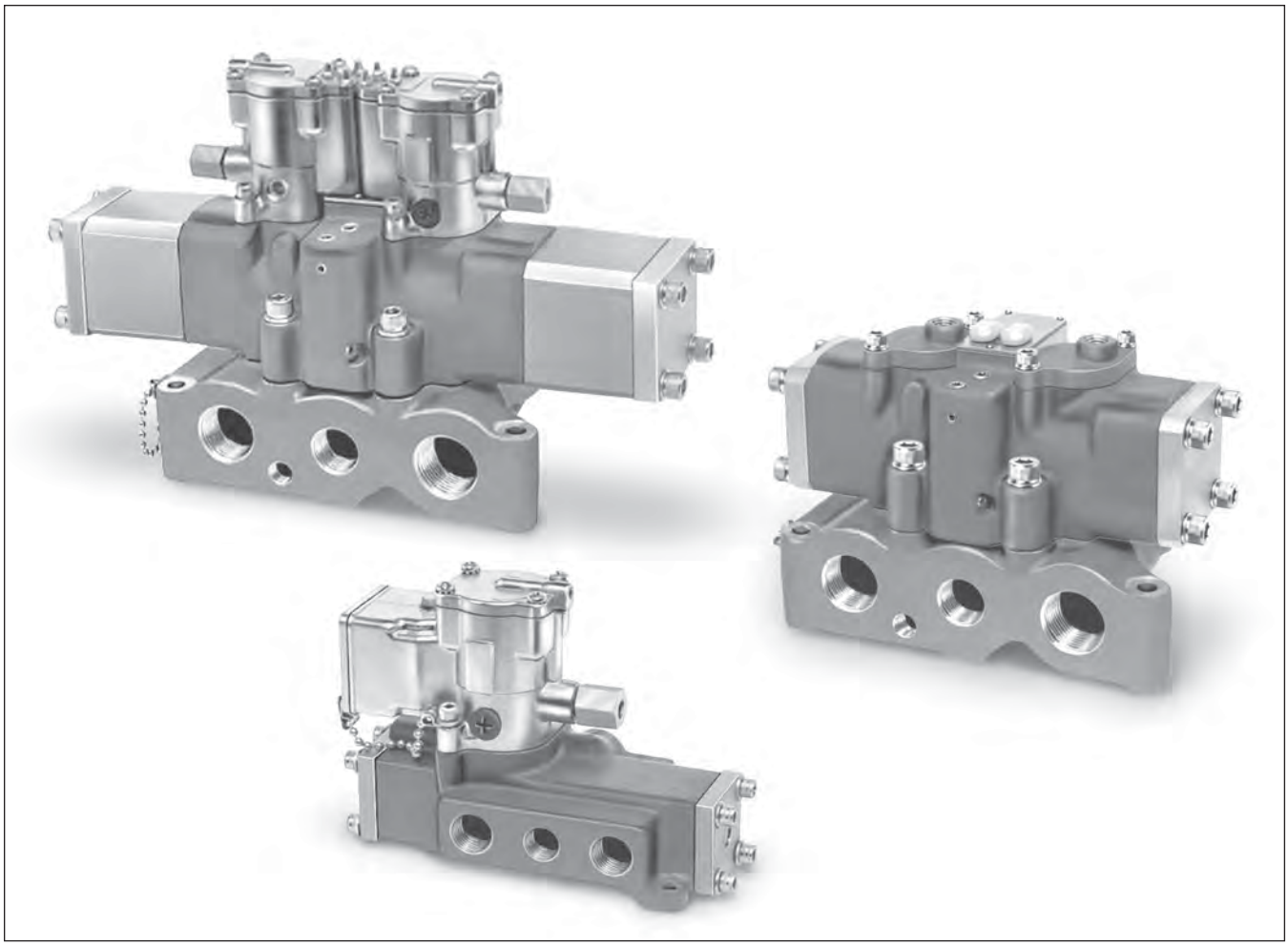

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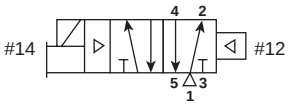
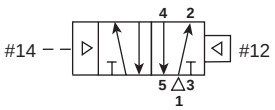
Single Solenoid
4-Way, 2-Position



De-energized position – Solenoid operator #14 de-energized. Pressure at inlet port 1 connected to outlet port 2. Outlet port 4 connected to exhaust port 5.

Energized position – Solenoid operator #14 energized. Pressure at inlet port 1 connected to outlet port 4. Outlet port 2 connected to exhaust port 3.

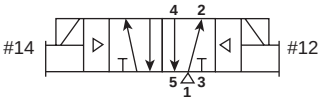
Single Remote Pilot
4-Way, 2-Position



Normal position – Pressure at inlet port 1 connected to outlet port 2. Outlet port 4 connected to exhaust port 5.

Operated position – Maintained air signal at port 14. Pressure at inlet port 1 connected to outlet port 4. Outlet port 2 connected to exhaust port 3.

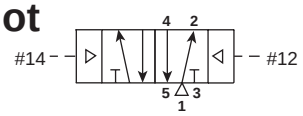
Double Solenoid
4-Way, 2-Position



Solenoid operator #14 energized last. Pressure at inlet port 1 connected to outlet port 4. Outlet port 2 connected to exhaust port 3.

Solenoid operator #12 energized last. Pressure at inlet port 1 connected to outlet port 2. Outlet port 4 connected to exhaust port 5.

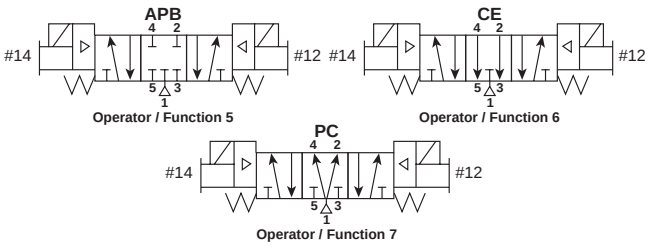
Double Remote Pilot
4-Way, 2-Position



Momentary air signal at port 14 last. Pressure at inlet port 1 connected to outlet port 4. Outlet port 2 connected to exhaust port 3.

Momentary air signal at port 12 last. Pressure at inlet port 1 connected to outlet port 2. Outlet port 4 connected to exhaust port 5.

Double Solenoid
4-Way, 3-Position



With #12 operator energized – inlet port 1 connected to cylinder port 2, cylinder port 4 connected to exhaust port 5.

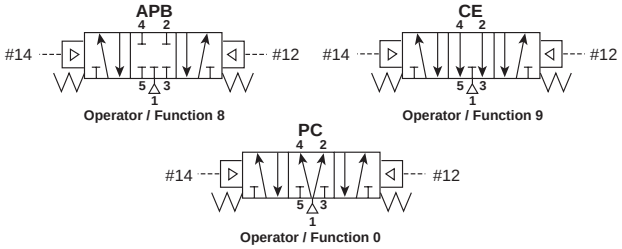
With #14 operator energized – inlet port 1 connected to cylinder port 4, cylinder port 2 connected to exhaust port 3.

Function 5: All Ports Blocked
All ports blocked in the center position.

Function 6: Center Exhaust
Cylinder ports 2 and 4 connected to exhaust ports 3 and 5 in center position. Port 1 is blocked.

Function 7: Pressure Center
Pressure port 1 connected to cylinder ports 2 and 4, and exhaust ports 3 and 5 blocked in center position.

Double Remote Pilot
4-Way, 3-Position



With #12 operator signaled – inlet port 1 connected to cylinder port 2, cylinder port 4 connected to exhaust port 5.

With #14 operator signaled – inlet port 1 connected to cylinder port 4, cylinder port 2 connected to exhaust port 3.

Function 8: All Ports Blocked
All ports blocked in the center position.

Function 9: Center Exhaust
Cylinder ports 2 and 4 connected to exhaust ports 3 and 5 in center position. Port 1 is blocked.

Function 0: Pressure Center
Pressure port 1 connected to cylinder ports 2 and 4, and exhaust ports 3 and 5 blocked in center position.

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- Full Air Operation for fastest response.
- “Plug-In” Design simplifies maintenance and installation. Reduces downtime. No wiring or plumbing to disturb.
- “Direct Pipe” Design for economy and performance.
- Solenoids Interchange between all styles of plug-in valves.
- Variety of Operators Available; Direct Conduit, (JIC) Junction Box, NEMA 4, Hazardous Duty, (UL, CSA), and remote air pilot.
- Locking Manual Overrides Standard. Non-locking overrides optional.
- Indicator Lights Standard on 120VAC and 24VDC models.
- Encapsulated Coil designed for low-power consumption and maximum life.
- Field Convertible to External Pilot Supply for vacuum or other services.
- “Oversized” Flow Areas.
- Synthetic Rubber O-Ring Seals are specially compounded for minimum compression and friction for superior wear and abrasion resistance.
- Precision Ground Spool “floats” on O-ring seals. Closed center cross-over design saves air.
- Plug-In “Sandwich” Regulators (Available for specific models) fit between valve and base, increase systems design capabilities.
- CSA - Selected Valves are Canadian Standards Association approved for general purpose use.

General Purpose Approvals

CSA - Canadian Standards Association
File Number 42024

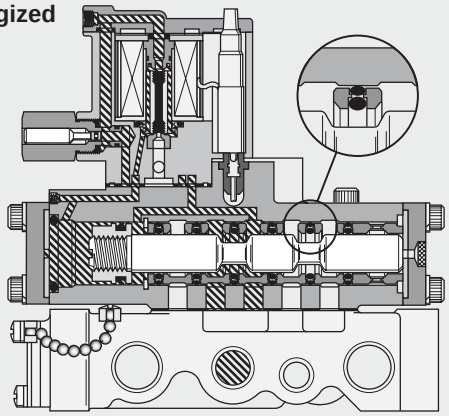
Hazardous Duty Approvals

UL - Underwriters Laboratories, Inc.
File Number E42542
Category Y107

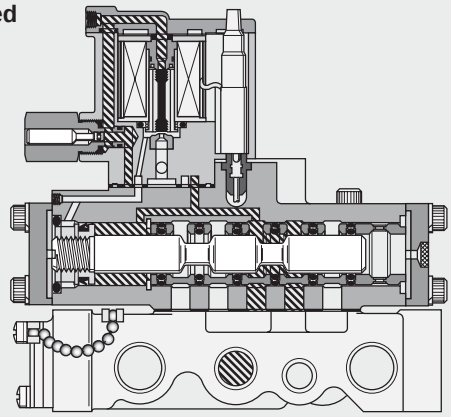
CSA - Canadian Standards Association
File Number 24349

Plug-In

De-Energized

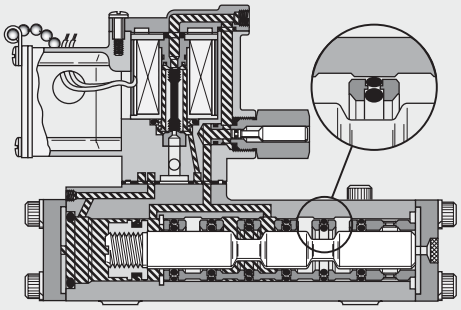


Energized

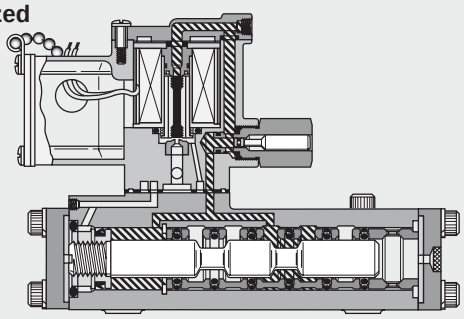


Direct Pipe Ported

De-Energized



Energized



Pressure **Exhaust**

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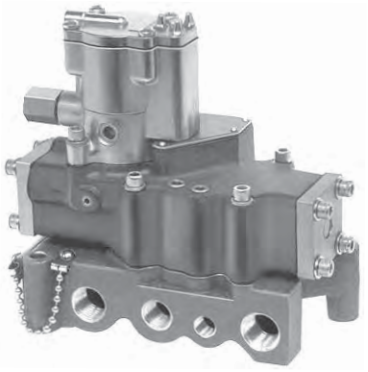
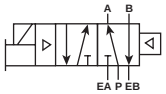
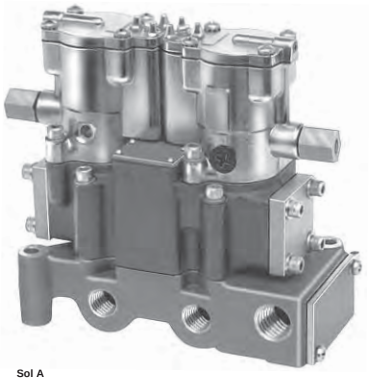
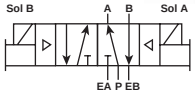
L675 (3/8" Basic Valve)
Single Solenoid
4-Way, 5-Port, 2-Position





L655 (3/8" Basic Valve)
Double Solenoid
4-Way, 5-Port, 2-Position



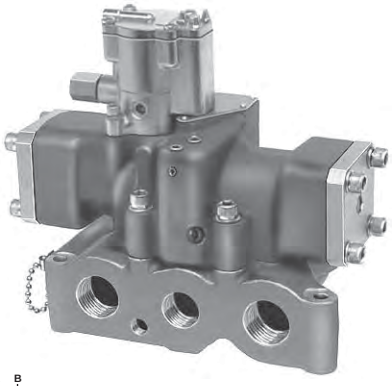


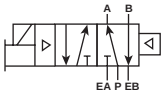
Valve Only		Voltage	Subbase (Side Ports)	Manifold † (End & Bottom Ports)	Port Size (NPT)	Nominal Cv
Single Solenoid	Double Solenoid					
L6753910253	L6553910253	120V 60Hz	K022090	K142230	3/8"	4.8
		110V 50Hz	K022091	K142231	1/2"	4.8
L67533102**	L65533102**	Other	K022101	K142270	3/4"	4.8

See page E236 for variations and (**) voltage codes.

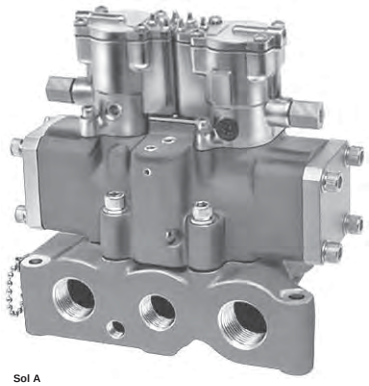
† Manifolds include mounting hardware.

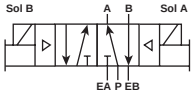
L675 (1" Basic Valve)
Single Solenoid
4-Way, 5-Port, 2-Position





L655 (1" Basic Valve)
Double Solenoid
4-Way, 5-Port, 2-Position





Valve Only		Voltage	Subbase (Side Ports)	Manifold † (End & Bottom Ports)	Port Size (NPT)	Port Adapter (Manifolds)	Nominal Cv
Single Solenoid	Double Solenoid						
L6758910253	L6558910253	120V 60Hz	—	—	3/4"	K122016 Kit Includes Both Ends	11.3
		110V 50Hz	K022095	—	1"		
L67583102**	L65583102**	Other	—	—	1-1/4"		

See page E236 for variations and (**) voltage codes.

† Manifolds include mounting hardware, except for port adapters. See chart, order separately.

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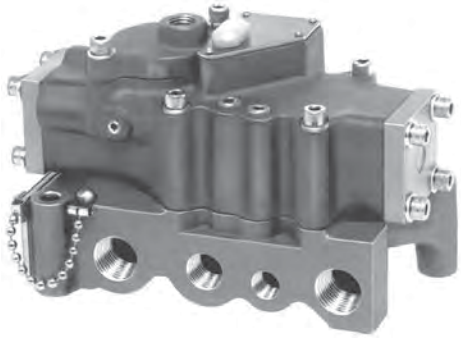
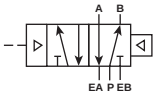
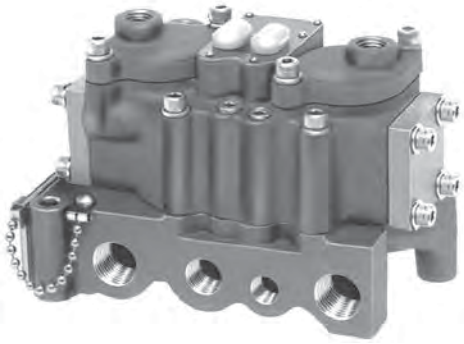
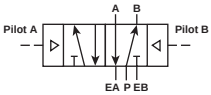
L674 (3/8" Basic Valve)
Single Remote Pilot
4-Way, 5-Port, 2-Position





L654 (3/8" Basic Valve)
Double Remote Pilot
4-Way, 5-Port, 2-Position

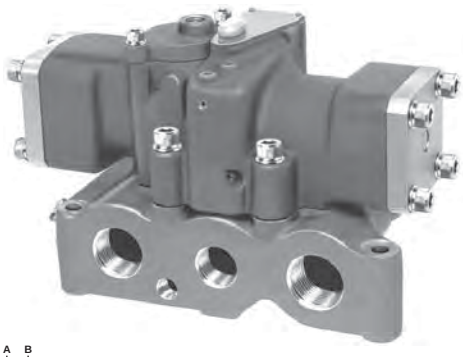


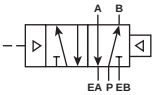


Valve Only		Subbase (Side Ports)	Manifold † (End & Bottom Ports)	Port Size (NPT)	Nominal Cv
Single Remote	Double Remote				
L67431102	L65431102	K022090	K142230	3/8"	4.8
		K022091	K142231	1/2"	4.8
		K022101	K142270	3/4"	4.8

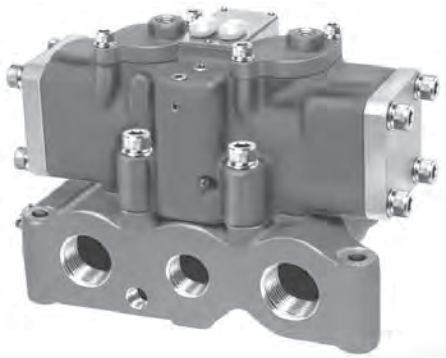
† Manifolds include mounting hardware.

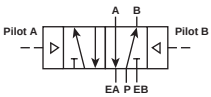
L674 (1" Basic Valve)
Single Remote Pilot
4-Way, 5-Port, 2-Position





L654 (1" Basic Valve)
Double Remote Pilot
4-Way, 5-Port, 2-Position





Valve Only		Subbase (Side Ports)	Manifold † (End & Bottom Ports)	Port Size (NPT)	Port Adapter (Manifolds)	Nominal Cv
Single Remote	Double Remote					
L67481102	L65481102	—	—	3/4"	K122016 Kit Includes Both Ends	11.3
		K022095	—	1"		
		—	—	1-1/4"		

† Manifolds include mounting hardware, except for port adapters.
See chart, order separately.

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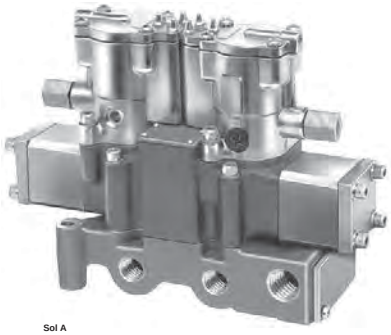
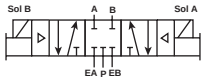
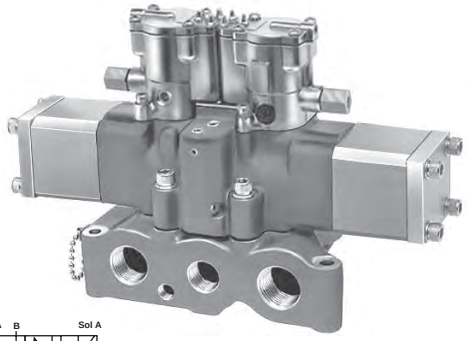
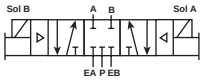
L665 (3/8" Basic Valve)
Double Solenoid
4-Way, 5-Port, 3-Position





L665 (1" Basic Valve)
Double Solenoid
4-Way, 5-Port, 3-Position



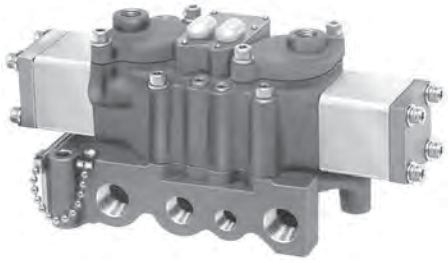


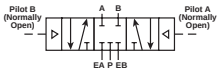
Valve Only	Voltage	Subbase (Side Ports)	Manifold † (End & Bottom Ports)	Port Size (NPT)	Port Adapter	Nominal Cv
L6653921153	120V 60Hz	K022090	K142230	3/8"	Not Req'd	4.8
	110V 50Hz	K022091	K142231	1/2"		
L66533211**	Other	K022101	K142270	3/4"		
L6658921153	120V 60Hz	—	—	3/4"	K122016 Kit Includes Both Ends	11.3
	110V 50Hz	K022095	—	1"		
L66583211**	Other	—	—	1-1/4"		

See page E236 for variations in class of neutral configuration and (**) voltage codes.

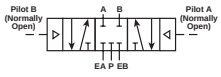
† Manifolds include mounting hardware, except for port adapters. See chart, order separately.

L664 (3/8" Basic Valve)
Double Remote Pilot
4-Way, 5-Port, 3-Position





L664 (1" Basic Valve)
Double Remote Pilot
4-Way, 5-Port, 3-Position



Valve Only	Subbase (Side Ports)	Manifold † (End & Bottom Ports)	Port Size (NPT)	Port Adapter	Nominal Cv
L66431211	K022090	K142230	3/8"	Not Req'd	4.8
	K022091	K142231	1/2"		
	K022101	K142270	3/4"		
L66481211	—	—	3/4"	K122016 Kit Includes Both Ends	11.3
	K022095	—	1"		
	—	—	1-1/4"		

See page E236 for variations in class of neutral configurations.

†Manifolds include mounting hardware.

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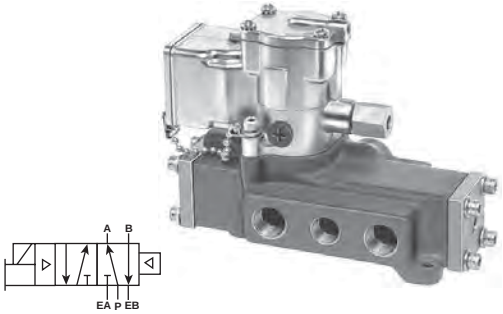
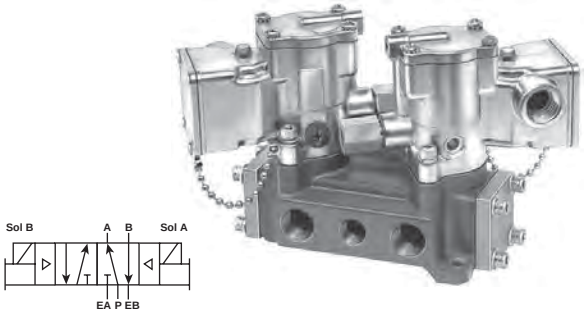
L705 (3/8" Basic Valve)
Single Solenoid
4-Way, 5-Port, 2-Position



L685 (3/8" Basic Valve)
Double Solenoid
4-Way, 5-Port, 2-Position

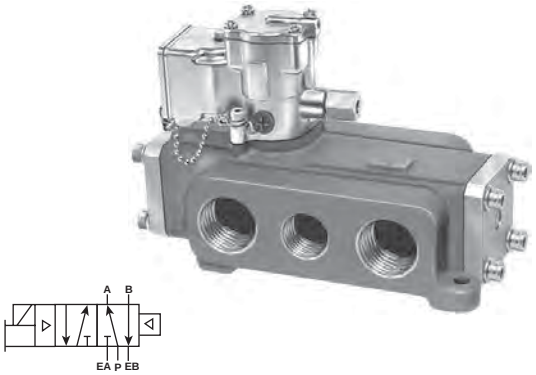


Valve		Voltage	Port Size (NPT)		Operator Type	Nominal Cv
Single Solenoid	Double Solenoid		P, A & B	EA & EB		
L7053910253	**L6853910253**	120V 60Hz 110V 50Hz	3/8"	1/2"	Junction Box	4.8
L7054910253	**L6854910253**		1/2"	1/2"		
L70536102**	**L68536102****	Other	3/8"	1/2"	Junction Box	4.8
L70546102**	**L68546102****		1/2"	1/2"		
L70533102**	**L68533102****	Any	3/8"	1/2"	Basic	4.8
L70543102**	**L68543102****		1/2"	1/2"		
L70533802**	**L68533802****	Any	3/8"	1/2"	NEMA 4	4.8
L70543802**	**L68543802****		1/2"	1/2"		
L70533602**	**L68533602****	See Voltage Chart	3/8"	1/2"	† Hazardous Duty	4.8
L70543602**	**L68543602****		1/2"	1/2"		

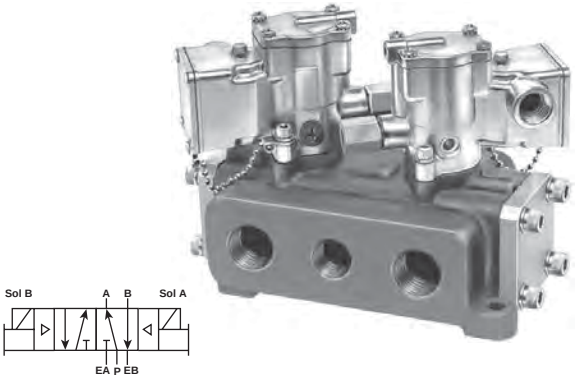
See page E237 for variations and (**) voltage codes.

†UL & CSA Approved.

L705 (1" Basic Valve)
Single Solenoid
4-Way, 5-Port, 2-Position



L685 (1" Basic Valve)
Double Solenoid
4-Way, 5-Port, 2-Position



Valve		Voltage	Port Size (NPT)		Type	Nominal Cv
Single Solenoid	Double Solenoid		P, A & B	EA & EB		
L7058910253	**L6858910253**	110V 50Hz	1"	1-1/4"	Junction Box	12.0
L7059910253	**L6859910253**		1-1/4"	1-1/4"		
L70586102**	**L68586102****	Other	1"	1-1/4"	Junction Box	12.0
L70596102**	**L68596102****		1-1/4"	1-1/4"		
L70583602**	**L68583602****	See Voltage Chart	1"	1-1/4"	†Hazardous Duty	12.0
L70593602**	**L68593602****		1-1/4"	1-1/4"		

See page E237 for variations and (**) voltage codes.

†UL & CSA Approved.

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Pneumatic Division
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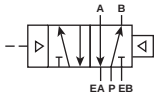
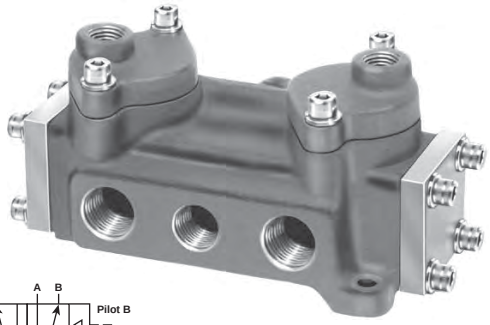
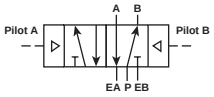
L704 (3/8" Basic Valve)
Single Remote Pilot
4-Way, 5-Port, 2-Position



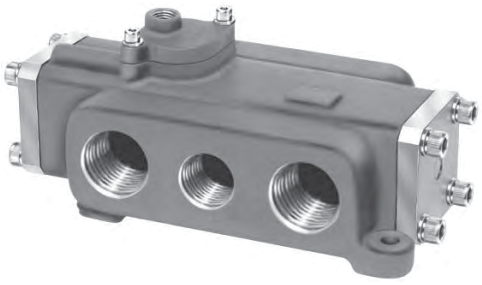
L684 (3/8" Basic Valve)
Double Remote Pilot
4-Way, 5-Port, 2-Position

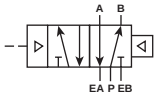




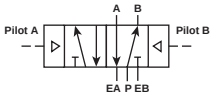
Valve		Port Size (NPT)		Nominal Cv
Single Remote	Double Remote	P, A & B	EA & EB	
L70431102	L68431102	3/8"	1/2"	4.8
L70441102	L68441102	1/2"	1/2"	

L704 (1" Basic Valve)
Single Remote Pilot
4-Way, 5-Port, 2-Position





L684 (1" Basic Valve)
Double Remote Pilot
4-Way, 5-Port, 2-Position



Valve		Port Size (NPT)		Nominal Cv
Single Remote	Double Remote	P, A & B	EA & EB	
L70481102	L68481102	1"	1-1/4"	12.0
L70491102	L68491102	1-1/4"	1-1/4"	

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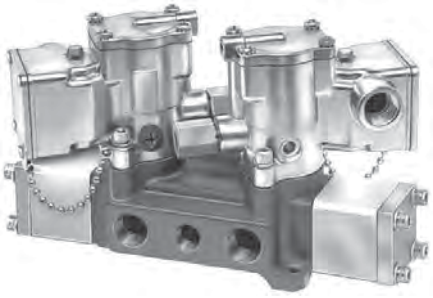
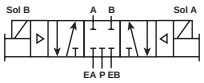
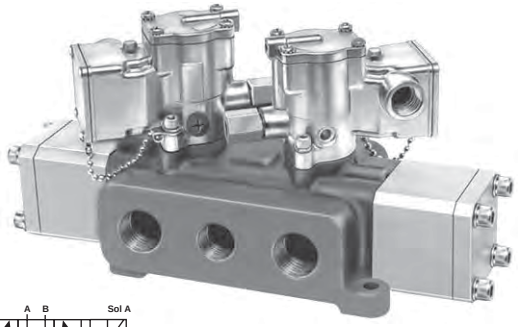
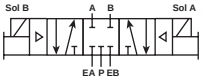
L695 (3/8" Basic Valve)
Double Solenoid
4-Way, 5-Port, 3-Position





L695 (1" Basic Valve)
Double Solenoid
4-Way, 5-Port, 3-Position

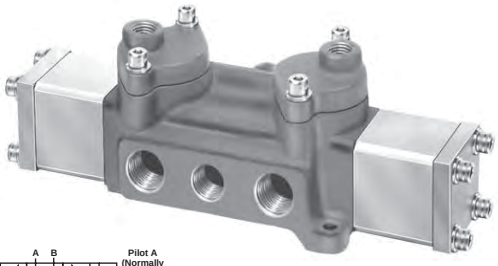


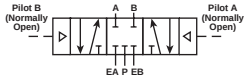


Valve		Voltage	Port Size (NPT)		Type	Nominal Cv
3/8" Basic Size	1" Basic Size		P, A & B	EA & EB		
L6953921153	—	120V 60Hz 110V 50Hz	3/8"	1/2"	Junction Box	4.5
L6954921153	—		1/2"	1/2"		
—	**L6958921153**		1"	1-1/4"		12.0
—	**L6959921153**		1-1/4"	1-1/4"		
L69536211**	—	Other	3/8"	1/2"	Basic	4.5
L69546211**	—		1/2"	1/2"		
—	**L69586211****		1"	1-1/4"		12.0
—	**L69596211****		1-1/4"	1-1/4"		

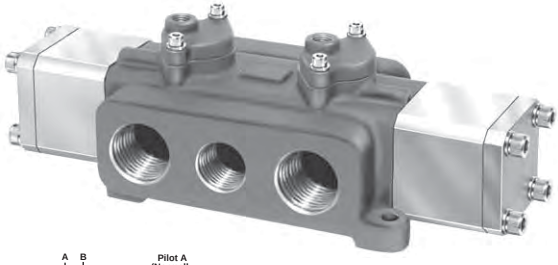
See page E237 for variations in class of neutral configuration and (**) voltage codes.

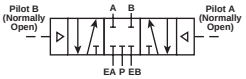
L695 (3/8" Basic Valve)
Double Remote Pilot
4-Way, 5-Port, 3-Position





L695 (1" Basic Valve)
Double Remote Pilot
4-Way, 5-Port, 3-Position





Valve	Port Size (NPT)		Nominal Cv
	P, A & B	EA & EB	
L69431211	3/8"	1/2"	4.5
L69441211	1/2"	1/2"	
L69481211	1"	1-1/4"	12.0
L69491211	1-1/4"	1-1/4"	

See page E237 for ordering other neutral configurations.

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Lubricated Non-Lubricated Service
2-Position, Plug-In
3/8" & 1" Basic Size

BOLD ITEMS ARE MOST POPULAR.

L	67	5	3	9	10	2	53

Type	
Double	**65**
Single	**67**

Operator	
Remote	4
Solenoid	**5**

Size	
3/8" Basic	**3**
1" Basic	**8**

Operator Options	
Solenoid (Basic) or Remote	**1**
Solenoid with Locking Override	3
Solenoid w/Light (120VAC, 24VDC) & Non-Locking Override	8
Solenoid w/Light (120VAC, 24VDC) & Locking Override	**9**

Enclosure "Class"	
10	**Standard (NEMA 1 & 12) or Remote**

Duty Cycle	
2	**Standard Service, Solenoid or Remote**
4	Continuous Service Solenoid

Voltage & Frequency			
	60Hz	**50Hz**	**DC**
45	—	—	12
49	**—**	**—**	**24**
53	**120**	**110**	**—**
57	240	220	—

Lubricated or Non-Lubricated Service
3-Position, Plug-In
3/8" & 1" Basic Size

L	66	5	3	9	21	1	53

Type	
Double	**66**

Operator	
Remote	4
Solenoid	**5**

Size	
3/8" Basic	**3**
1" Basic	**8**

Operator Options	
Solenoid (Basic) or Remote	**1**
Solenoid with Locking Override	3
Solenoid w/Light (120VAC, 24VDC) & Non-Locking Override	8
Solenoid w/Light (120VAC, 24VDC) & Locking Override	**9**

Enclosure "Class"	
21	**All Ports Blocked in Neutral (NEMA 1 & 12 Enclosure) or Remote**
22	Cyl. Ports Open to Exh. in Neutral (NEMA 1 & 12 Enclosure) or Remote
23	Cyl. Ports Open to Inlet in Neutral (NEMA 1 & 12 Enclosure) or Remote

Duty Cycle	
1	**Standard Service, Solenoid or Remote**
5	Continuous Service Solenoid

Voltage & Frequency			
	60Hz	**50Hz**	**DC**
45	—	—	12
49	**—**	**—**	**24**
53	**120**	**110**	**—**
57	240	220	—

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Lubricated or Non-Lubricated Service 2-Position, Direct Pipe Ported, 3/8" & 1" Basic Size

BOLD ITEMS ARE MOST POPULAR.

L	70	5	3	9	10	2	53	—

Type	
Double	**68**
Single	**70**

Operator	
Remote	4
Solenoid	**5**

Size	
3/8" NPT Inlet & Cylinder 1/2" NPT Exhaust	**3**
1/2" NPT Inlet, Cylinder & Exhaust	**4**
1" NPT Inlet & Cylinder 1-1/4" NPT Exhaust	**8**
1-1/4" NPT Inlet Cylinder & Exhaust	9*

* Not available operator option 4 - Remote Pilot.

Operator Options	
Solenoid (Basic) or Remote	1
Solenoid with Locking Override	**3**
Solenoid w/ Junction Box & Locking Override	6
Solenoid w/ Junction Box & Light (120VAC, 24VDC) & Non-Locking Override	8
Solenoid w/ Junction Box & Light (120VAC, 24VDC) & Locking Override	**9**

Enclosure "Class"	
10	**Standard (NEMA 1 & 12) or Remote**
60*†	Hazardous Duty (NEMA 7 & 9)
80†	NEMA 4

* Voltage 49 / 53 only.
† Use with operator options 1, 2 & 3 only, voltage 53 only.

Duty Cycle	
2	**Standard Service, Solenoid or Remote**
4	Continuous Service Solenoid

Voltage & Frequency			
	60Hz	**50Hz**	**DC**
45	—	—	12
49	**—**	**—**	**24**
53	**120**	**110**	**—**
57	240	220	—

Lead Length	
Blank	**19" (Standard)**

Lubricated or Non-Lubricated Service 3-Position, Direct Pipe Ported, 3/8" & 1" Basic Size

L	69	5	3	9	21	1	53	—

Type	
Double	**69**

Operator	
Remote	4
Solenoid	**5**

Size	
3/8" NPT Inlet & Cylinder 1/2" NPT Exhaust	**3**
1/2" NPT Inlet, Cylinder & Exhaust	**4**
1" NPT Inlet & Cylinder 1-1/4" NPT Exhaust	8
1-1/4" NPT Inlet Cylinder & Exhaust	9*

* Not available operator option 4 - Remote Pilot.

Operator Options	
Solenoid (Basic) or Remote	1
Solenoid with Locking Override	**3**
Solenoid w/ Junction Box & Locking Override	6
Solenoid w/ Junction Box & Light (120VAC, 24VDC) & Non-Locking Override	8
Solenoid w/ Junction Box & Light (120VAC, 24VDC) & Locking Override	**9**

Enclosure "Class"	
All Ports Blocked in Neutral	
21	**Standard (NEMA 1 & 12) or Remote**
71*†	Hazardous Duty (NEMA 7 & 9)
91†	NEMA 4
Cyl. Ports Open to Exh. in Neutral	
22	Standard (NEMA 1 & 12) or Remote
72*†	Hazardous Duty (NEMA 7 & 9)
92†	NEMA 4
Cyl. Ports Open to Inlet in Neutral	
23	Standard (NEMA 1 & 12) or Remote
73*†	Hazardous Duty (NEMA 7 & 9)
93†	NEMA 4

* Voltage 49 / 53 only.
† Use with operator options 1, 2 & 3 only, voltage 53 only.

Duty Cycle	
1	**Standard Service, Solenoid or Remote**
5	Continuous Service Solenoid

Voltage & Frequency			
	60Hz	**50Hz**	**DC**
45	—	—	12
49	**—**	**—**	**24**
53	**120**	**110**	**—**
57	240	220	—

Lead Length	
Blank	**19" (Standard)**

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Modular Pneumatic Controls Plug-In Sandwich Block Design for Modular Port Regulation

These modular regulators assemble to any 3/8" basic valve interface pattern.

Port Regulation Made Easy

Place the sandwich on the manifold or subbase, tighten the four securing screws, then plug the valve into the sandwich and tighten its securing screws to complete the assembly.

Within minutes, these modular components can be installed in new, or used to improve existing manifold systems, without disturbing wiring or air connections.

3-Configurations

1. **Common Port Regulation** - A common regulated pressure is selected to both cylinder ports.
2. **Single Port Regulation** - Line pressure is available to one cylinder port, while a single regulated pressure is selected to the other cylinder port.
3. **Independent Port Regulation** - Two independently regulated pressures selected to the cylinder ports.

NOTE: When using single or independent port sandwich regulators, be aware that:

1. Cylinder port outlets are reversed.
2. 3-Position, cylinder ports open to exhaust and cylinder ports open to inlet functions are reversed. To produce a cylinder ports open to exhaust function, order valve with cylinder ports open to inlet. To produce a cylinder ports open to inlet function, order valve with cylinder ports open to exhaust.

Manual or Remote secondary pressure adjustment.

Three Pressure Ranges are standard for manual units:

1-30 PSIG

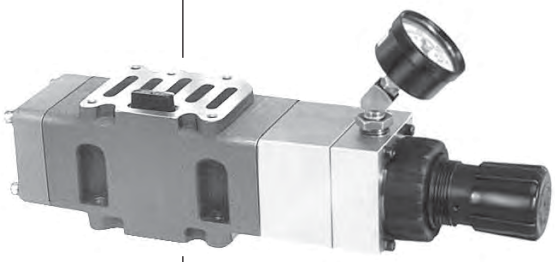
1-60 PSIG

2-125 PSIG

Range for Remote: 0-140 PSIG

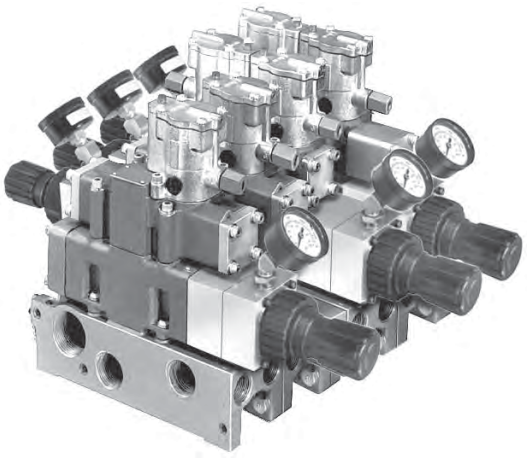
Gauges are furnished standard; liquid filled gauges are optional.

Solenoid Valve Assembly



Regulator Assembly

Manifold



Typical Assembly

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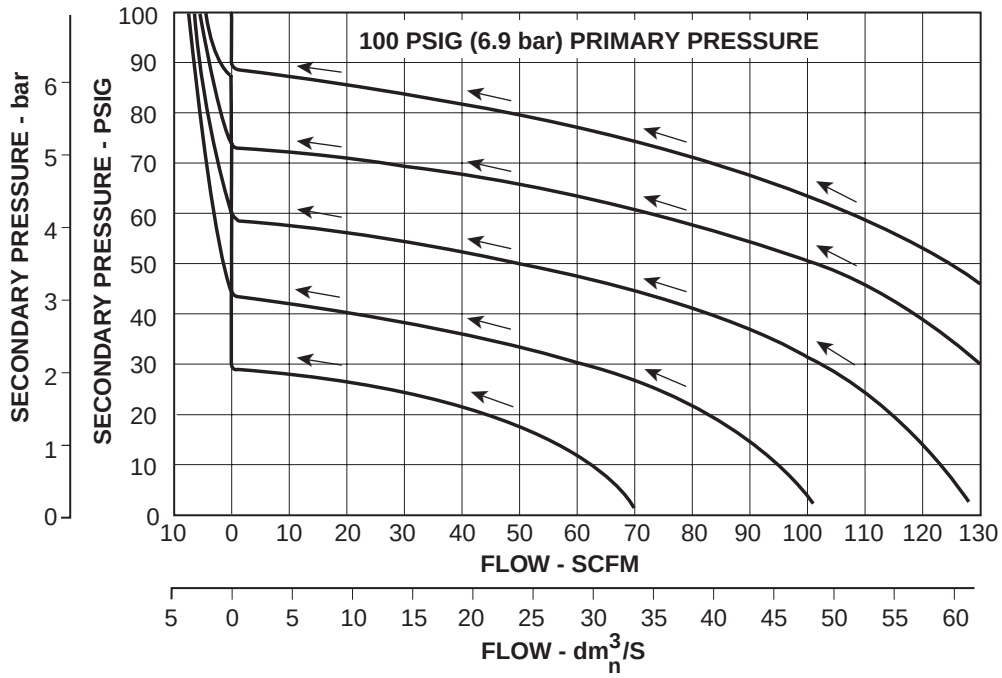
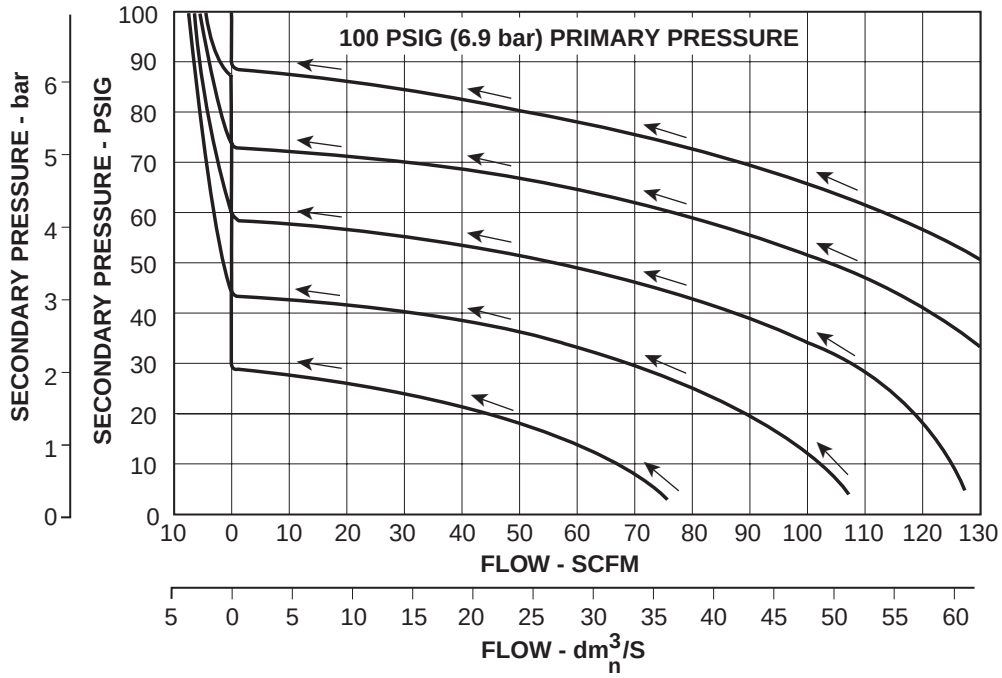
RELIEF AND FLOW CHARACTERISTICS
COMMON PORT REGULATION



RELIEF AND FLOW CHARACTERISTICS
INDEPENDENT OR SINGLE PORT REGULATION



The above curves illustrate flow characteristics through an assembled valve, air regulator, and base (or modular manifold) unit.

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Function

This modular air pressure regulator assembly, installed between a 3/8" basic, 4-Way valve and subbase, supplies regulated pressures to both cylinder ports.

Valve must be converted to external pilot supply.

Features

Regulated pressure output from the valve is adjusted by knob on the manually set model or by air pressure signal applied to the regulator pilot port on the remotely set model.

Furnished with pressure gauge as standard.

Assembly “A” (Shown at right) or Assembly “B” may be specified as a matter of convenience, or to satisfy space limitations.*

Pressure Range Options

Maximum Supply Pressure.....140 PSIG

Output Pressure Range.....1 - 60 PSIG
2 - 125 PSIG

Operating Temperature Range

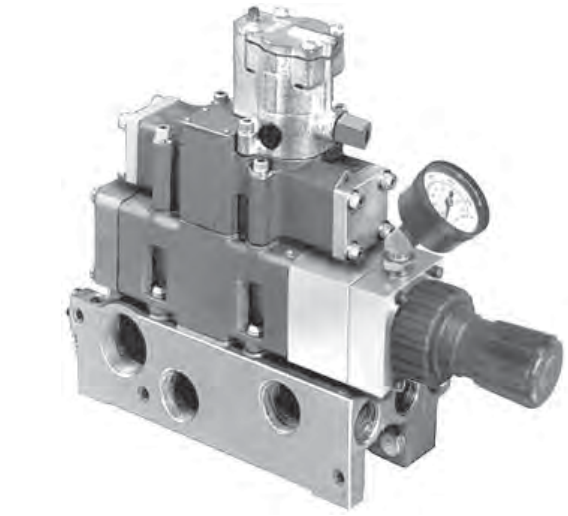
32°F (0°C) to 175°F (79°C)

How To Order

1. Select type of adjustment.
2. Select pressure range.
3. Select assembly style.

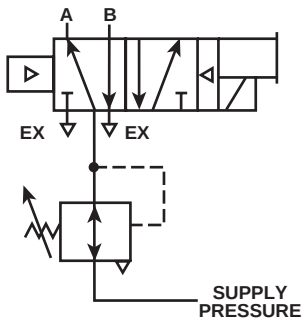
Example: Manual adjusted.
1-60 PSIG with regulator positioned over the junction box.

Model No. L55408302C

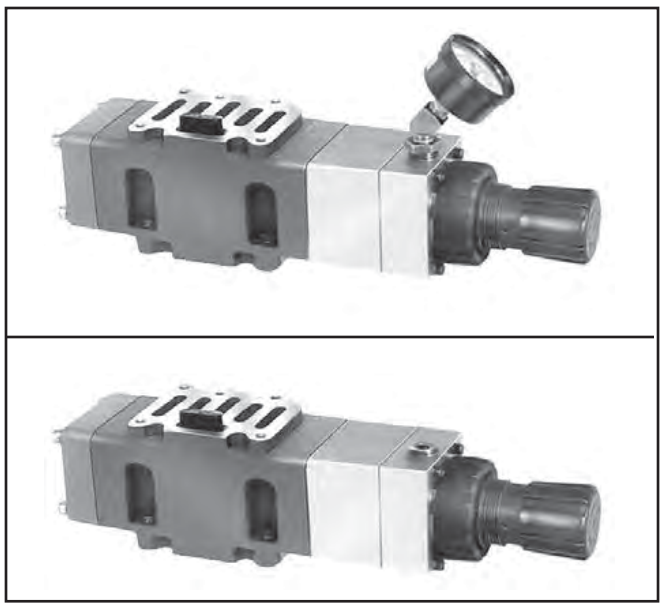


Assembly “A”

Graphic Symbol



Regulated Pressure at Both “A” & “B”



Pressure Adjustment	Pressure Range	Model Number	
	PSIG	Assembly “A”	Assembly “B”
Manual	1 - 60	L55402308C	L55408302C
	2 - 125	L55403308C	L55408303C
Remote	0 - 140	L55411308C	L55408311C

* Assembly “A” places the regulator on the end opposite the electrical junction box. Assembly “B” places the regulator over the electrical junction box.

See page E245 for gauges.

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Function

This modular air pressure regulator assembly, when installed between a 3/8" basic, 4-Way valve and subbase or modular manifold, supplies one or more regulated pressures to one of the valve cylinder ports and supply pressure to the other cylinder port.

On Single Port Cylinder Port Regulation Units controlled by a single solenoid valve, cylinder port “B” is the normally open cylinder port. The solenoid is energized to open cylinder Port “A”. On double solenoid operated valves, energizing solenoid “B” opens cylinder port “A” and energizing solenoid “A” opens cylinder port “B”.

Valve must be converted to external pilot supply.

Features

Regulated pressure output from the valve is adjusted by knob on the manually set model or by air pressure signal applied to the regulator pilot port on the remotely set model.

For reduced pressure at “A” cylinder port, the regulator is mounted per assembly “A” on end opposite the electrical junction box. For reduced pressure at “B” cylinder port the regulator is mounted per Assembly “B” which places the regulator over the electrical junction box.

Furnished with pressure gauge as standard.

Pressure Range Options

Maximum Supply Pressure.....140 PSIG

Output Pressure Range.....1 - 30 PSIG
1 - 60 PSIG
2 - 125 PSIG

Operating Temperature Range

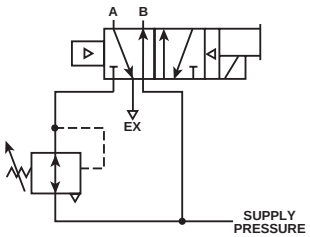
32°F (0°C) to 175°F (79°C)

How To Order

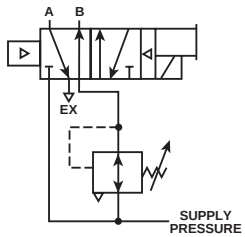
1. Select type of adjustment desired.
2. Select pressure range.
3. Select working port for reduced pressure.

Example: Manual adjustment, 5-60 PSIG, Port A reduced.
Model No. L55405307C

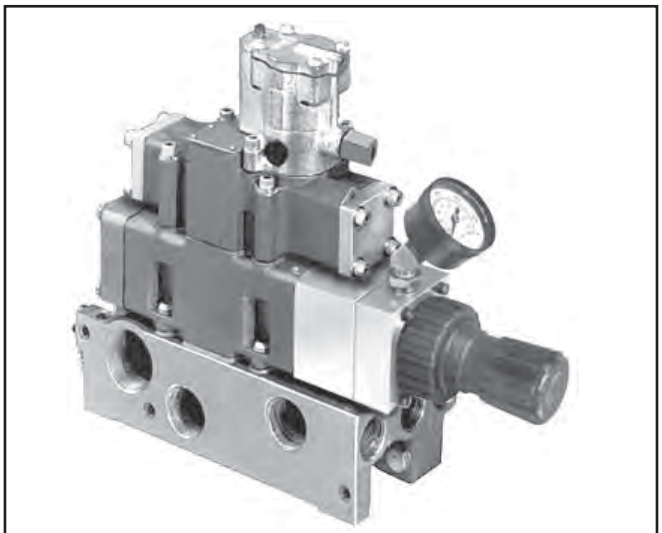
Graphic Symbol



Supply Pressure at “B” & Regulated at “A”



Supply Pressure at “A” & Regulated at “B”

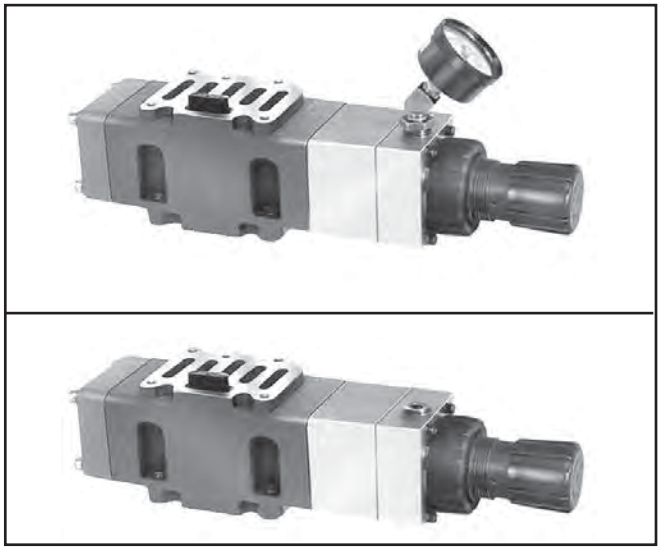


Assembly “A”

Pressure Adjustment	Pressure Range	Model Number	
		Reduced Pressure	
	PSIG	Cyl. Port “A”	Cyl. Port “B”
Manual	1 - 60	L55405307C	L55407305C
	2 - 125	L55406307C	L55407306C
Remote	0 - 140	L55414307C	L55407314C

Note: When using single or independent port sandwich regulators, be aware that:
1. Cylinder port outlets are reversed.
2. 3-Position, cylinder ports open to exhaust and cylinder ports open to inlet functions are reversed. To produce a cylinder ports open to exhaust function, order valve with cylinder ports open to inlet. To produce a cylinder ports open to inlet function, order valve with cylinder ports open to exhaust.

See page E245 for gauges.



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Function

This modular air pressure regulation assembly, when installed between a 3/8" basic, 4-Way valve and subbase or modular manifold, supplies one or more regulated pressures to each of the valve cylinder ports.

Regulated pressure to cylinder port “A”, and a second regulated pressure to cylinder port “B”; independently adjustable.

On Independent Cylinder Port Regulation Units controlled by a single solenoid valve, cylinder port “B” is the normally open cylinder port. The solenoid is energized to open cylinder port “A”. On double solenoid operated valves, energizing solenoid “B” opens cylinder port “A” and energizing solenoid “A” opens cylinder port “B”

Valve must be converted to external pilot supply.

Features

Regulated pressure output from the valve is adjusted by knob on the manually set model or by air pressure signal applied to the regulator pilot port on the remotely set model.

Furnished with pressure gauge as standard.

The regulator controlling pressure to port “A” is mounted on the end opposite the electrical junction box (Assembly “A”). Regulated pressure from cylinder port “B” is controlled by the regulator installed over the electrical junction box (Assembly “B”).

Pressure Range Options

Maximum Supply Pressure.....140 PSIG

Output Pressure Range.....1 - 60 PSIG
2 - 125 PSIG

Operating Temperature Range

32°F (0°C) to 175°F (79°C)

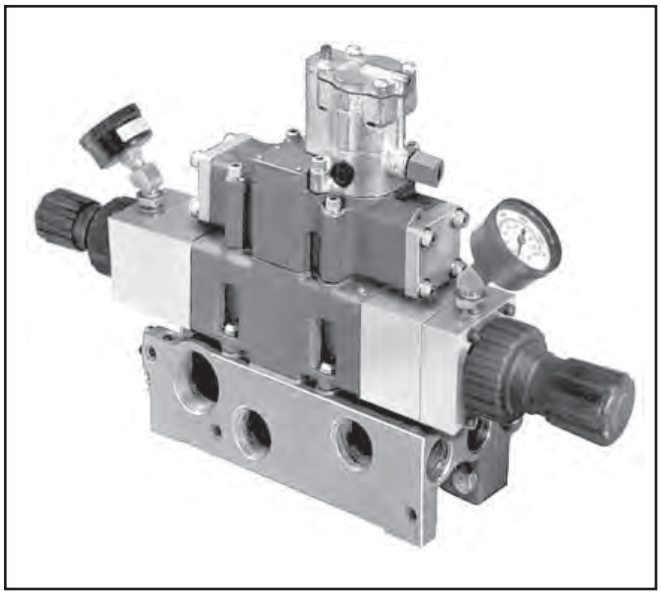
How To Order

1. Select type of adjustment.
2. Select pressure range for each cylinder port.

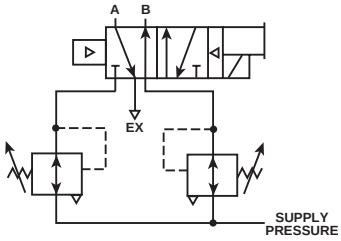
Example: Manual adjusted.
5-60 PSIG range for cylinder port “A”
and 10-125 PSIG for cylinder port “B”
Model No. L55406305C

NOTE: When using single or independent port sandwich regulators, be aware that:

1. Cylinder port outlets are reversed.
2. 3-Position, cylinder ports open to exhaust and cylinder ports open to inlet functions are reversed. To produce a cylinder ports open to exhaust function, order valve with cylinder ports open to inlet. To produce a cylinder ports open to inlet function, order valve with cylinder ports open to exhaust.



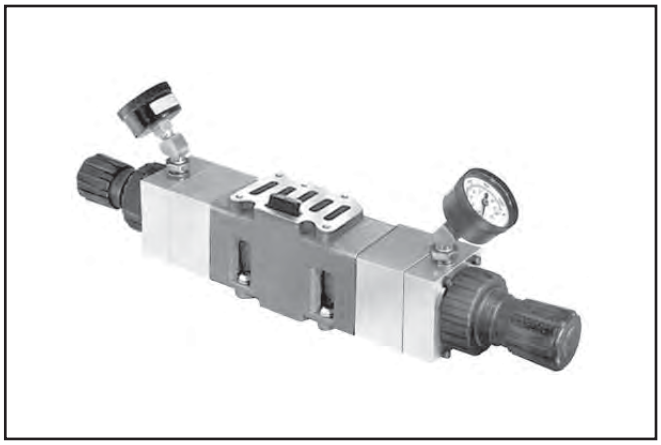
Graphic Symbol



Independently Regulated Pressure at Both “A” & “B”

Pressure Adjustment	Cylinder Port “A”	Model Number	
		Cylinder Port “B”	
	PSIG	5 - 60	10 - 125†
Manual	1 - 60	L55405305C	—
Remote	0 - 140	—	L55414314C†

† Remote operator units 0-140 PSIG



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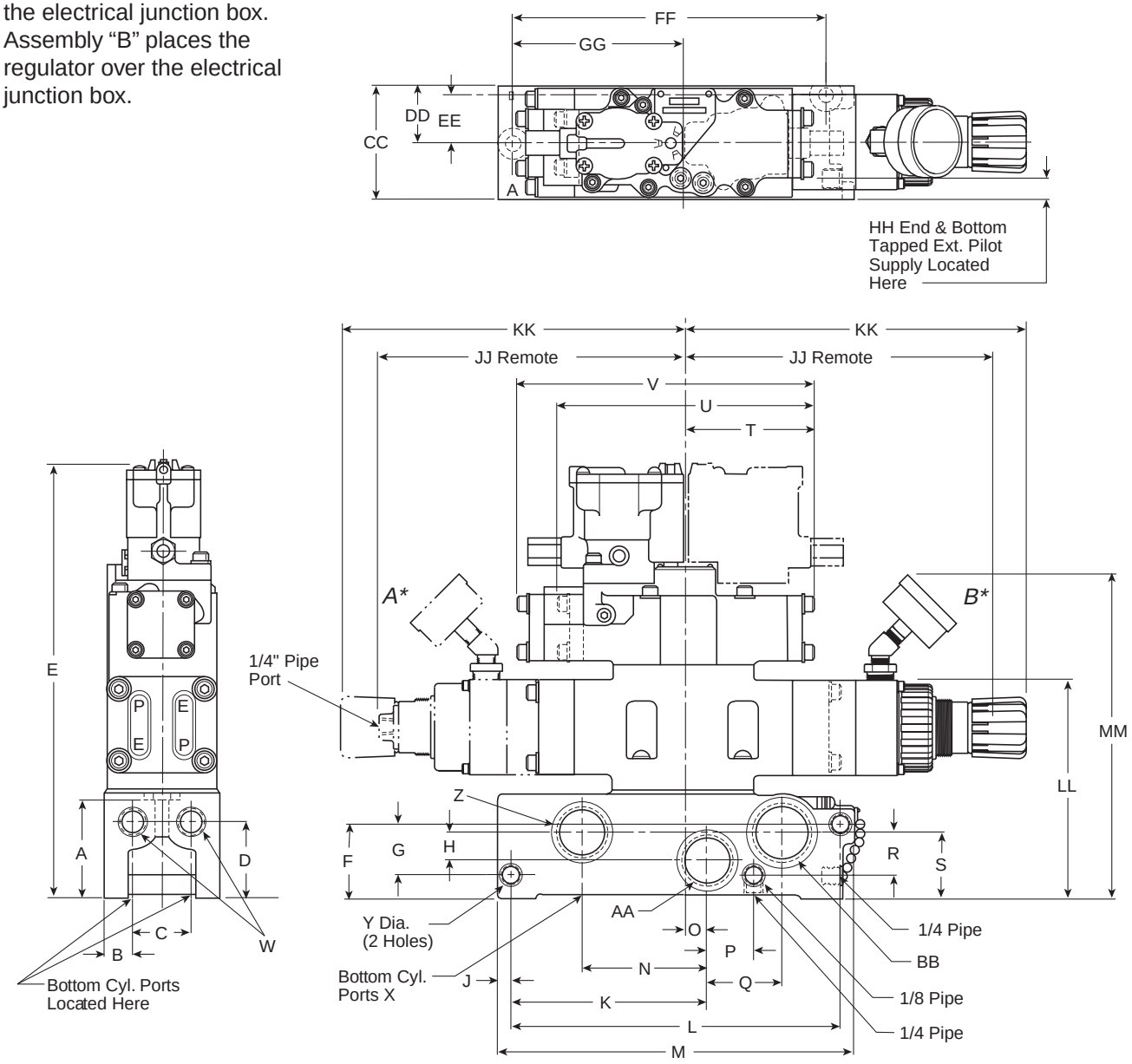
* Assembly “A” places the regulator on the end opposite the electrical junction box. Assembly “B” places the regulator over the electrical junction box.



A	B	C	D	E	F	G	H	J	K	L	M	N
2.56 (65.0)	.75 (19.1)	1.50 (38.1)	2.09 (53.1)	11.28 (286.5)	2.06 (52.3)	1.41 (35.8)	.75 (19.1)	.34 (8.64)	5.00 (127.0)	8.44 (214.4)	9.09 (230.9)	3.19 (81.0)

O	P	Q	R	S	T	U	V	W	X	Y	Z	AA
.61 (15.5)	1.19 (30.2)	1.91 (48.5)	1.09 (27.7)	1.81 (46.0)	3.32 (84.3)	6.64 (168.7)	7.56 (192.0)	3/8", 1/2" or 3/4" NPTF		.39 (9.9)	1" NPTF	1" NPTF

BB	CC	DD	EE	FF	GG	HH	JJ	KK	LL	MM
1-1/4" NPTF	3.00 (76.2)	1.50 (38.1)	1.24 (31.5)	7.97 (202.4)	4.34 (110.2)	.40 (10.2)	8.53 (216.6)	10.15 (257.8)	5.46 (138.6)	8.80 (223.5)

Inches (mm)

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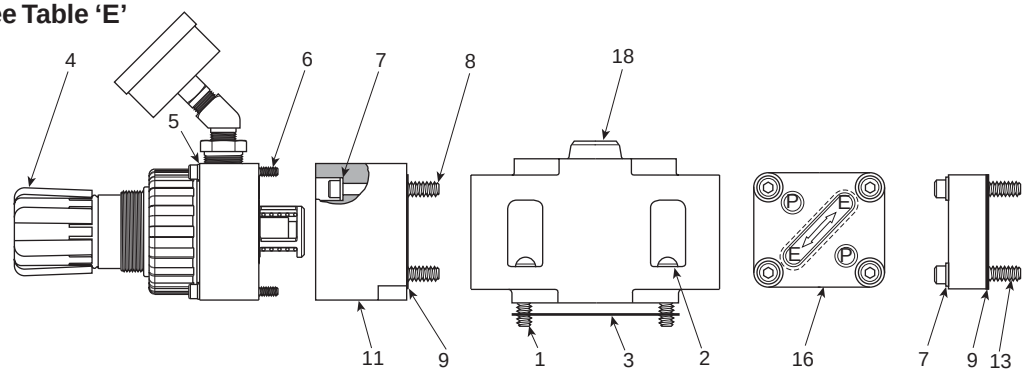
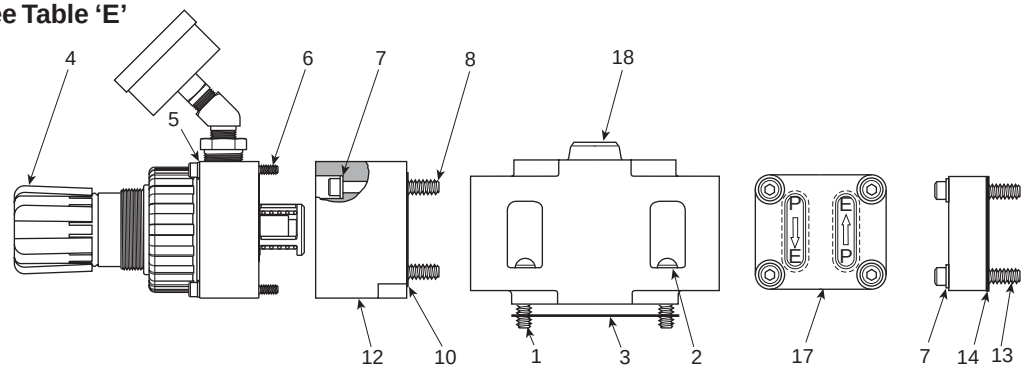
Common Port Regulation

Parts: See Table 'E'



Single Port Regulation

Parts: See Table 'E'



Independent Port Regulation

Parts: See Table 'E'

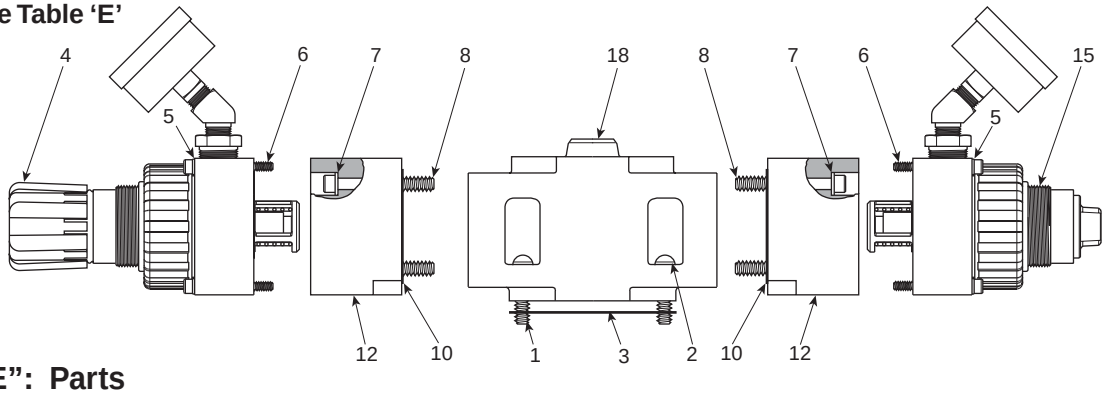


Table "E": Parts

Item No.	Part Number	Description
1	H09815	Screw (4)
2	H17512	Lockwasher (4)
3	K183077	Gasket
4	Standard	Manual Reg. Assy. (w/Gauge)
	K472001C	1-30 PSIG
	K472002C	1-60 PSIG
	K472003C	2-125 PSIG
5	H17509	#10 Lockwasher
6	H10032	#10-32 x 1.75" Lg. SHCS
7	H17511	1/4" Lockwasher
8	H10069	1/4-20 x 2.25" Lg. SHCS

Item No.	Part Number	Description
9	K183082	Gasket
10	K183084	Gasket
11	K043012	Function Block (P to P)
12	K043011	Function Block (P to E)
13	H100107	1/4-20 x 1-1/2" Lg. SHCS
14	K183083	Gasket
15	Standard	Remote Reg. Assy. (w/Gauge)
	K472009C	0-140 PSIG
16	K362308	Function Plate Assy. (Incl. 7, 9, 13)
17	K362307	Function Plate Assy. (Incl. 7, 13, 14)
18	K032270	Body Assy. (Incl. 1, 2, 3)

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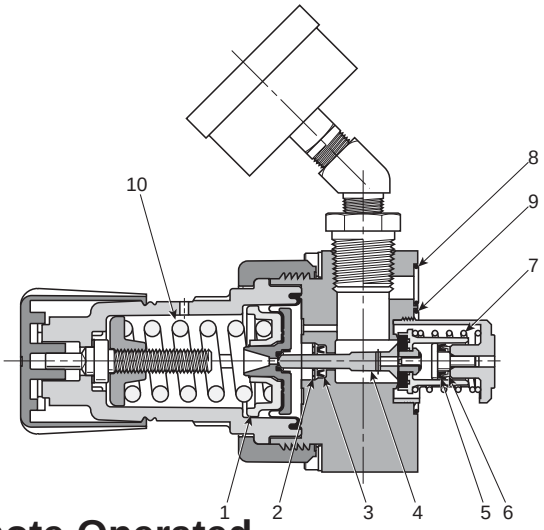
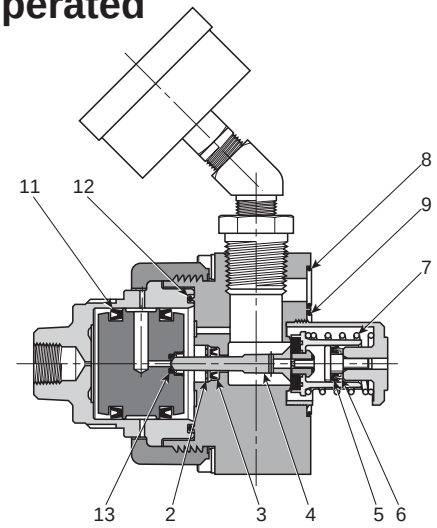
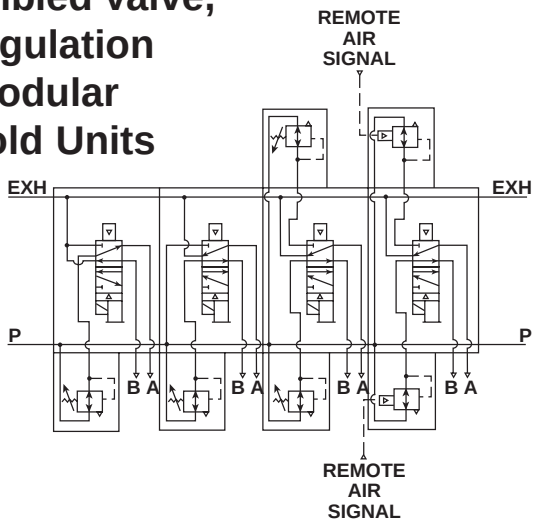
Manual Adjusting



Remote Operated



Suggested Schematic of Assembled Valve, Air Regulation and Modular Manifold Units



Replacement Parts

Item No.	Part Number		Description
1	○		Diaphragm Assembly
2	○	●	Retaining Ring
3	○	●	Vee Packing
4	○	●	Poppet Assembly
5	○	●	Vee Packing
6	○	●	Backflow Retainer
7	○	●	Poppet Spring
8	○	●	.989 ID x .070 W O-Ring
9	○	●	1.301 ID x .070 W O-Ring
10	P01698		1-30 PSI Spring
	P04062		1-60 PSI Spring (Blue)
	P04063		2-125 PSI Spring
11	●		Vee Packing
12	●		1.674 ID x .103 W O-Ring
13	●		Vent Seal

○ Parts included in K352409 Service Kit for Manual Operated Modular Regulators.

● Parts included in K352411 Service Kit for Remote Operated Modular Regulators.

Replacement Gauges

PSIG	Standard
0-60	K4520N14060
0-160	K4520N14160
0-300	K4520N14300

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Blank Station Covers

Manifold Assembly	Blank Cover Kit
—	K06020007
K142230	K06020003
K142231	
K142270	
K142233	K06020009
K142236	K06020004

Flush Type" Hex Drive Pipe Plugs for Port Isolation

Part No.	Size (NPTF)
K21R02012L	1/8"
K21R02025L	1/4"
K21R02037L	3/8"
K21R02050L	1/2"
K21R02075L	3/4"

Conversion Kits: Lubricated to Non-Lubricated Operation

Basic Size	Operators (Solenoid or Remote Pilot)	
	Single	Double (2-Position)
3/8"	K322012	K322013

Interchangeable Manual Override Assemblies for Solenoid Operators

Non-Locking Type	Locking Type
K162001	K152003

To override valve, use a flat head screwdriver to press in and rotate plunger 90° until plunger locks in place. For proper valve operation, override should be in the out position.

Service Kits

To use this chart you must know the Basic Valve Series, Quantity, and Type of Operators, or the first three characters of the Valve Model Number.

Basic Valve		Solenoid Operated *				Remote Pilot Operated	
		Standard Service (Intermittent Duty)		Special Service ** (Continuous Duty)			
Size	Series (Prefix)	Single	Double 2 & 3-Position	Single	Double 2 & 3-Position	Single	Double 2 & 3-Position
3/8"	L65	–	K352126	–	K352127	–	K352355
	L66	–	K352126	–	K352127	–	K352355
	L67	K352124	–	K352125	–	K352362	–
	L68	–	K352126	–	K352127	–	K352355
	L69	–	K352126	–	K352127	–	K352355
	L70	K352124	–	K352125	–	K352362	–
1"	L65	–	K352130	–	K352131	–	K352360
	L66	–	K352130	–	K352131	–	K352360
	L67	K352128	–	K352129	–	K352359	–
	L68	–	K352130	–	K352131	–	K352360
	L69	–	K352130	–	K352131	–	K352360
	L70	K352128	–	K352129	–	K352359	–

Notes:
* Kits for solenoid operated valves include solenoid service kits.
****** Special service (continuous duty) solenoids may be identified as having gold colored solenoid tops.

Voltage Suffix Codes

L□□□ □□ □□□ **

↳ Voltage Code

Code	Voltage			Coil Number	
**	60 Hz	50 Hz	DC	Plug-In	Flying Lead (19") *
49	–	–	24†	K593060 K593274‡	K593014
53	120†	110	–	K593071 K593125‡	K593025
57	240†	220	–	K593081	K593035

Notes: Bold Face type indicated primary coil rating.
† Indicates voltages approved for solenoid operators designed for use in hazardous locations. (See page E251.)
* 19" Coil lead length is standard. Other lead lengths may be available, consult supplier.
‡ Assembly includes indicator light socket, less light.

Electrical Connectors Single or Double Solenoid Valves

Basic Size	Valve Body		Subbase / Manifold	
	Single Solenoid	Double Solenoid	10" Leads	72" Leads
3/8"	H02723	H02722	H02713	H02789
1"				

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Plug-In Pilot

With Indicator Light

Description	Standard Service		Special Service	
Override Type	**Locking**	**Non-Locking**	**Locking**	**Non-Locking**
With Override (120VAC)	K175903553	K175803553	K185902553	K185802553
With Override (Other than 120VAC)	K1753035**	—	K1853025**	—

** See voltages on page E246.

NEMA 1 & 12

Basic Pilot

JIC Pilot

Description	Standard Service		Special Service	
Override Type	**Locking**	**Non-Locking**	**Locking**	**Non-Locking**
Basic with Override	K0653035**	—	K0853025**	—
JIC with Junction Box & Override	K0656035**	K0655035**	K0856025**	K0855025**
JIC Pilot with Junction Box & Override & Indicator Lights (120VAC Only)	K0659035**	K0658035**	K0859025**	K0858025**

** See voltages on page E246.

NEMA 4, 7 & 9

Hazardous Duty

NEMA 4 Pilot

Description	Standard Service		Special Service	
Hazardous Duty Pilot - UL & CSA	K0251035**†		K0451025**†	
NEMA 4 Pilot	K2351035**†		—	
Override Type	**Locking**	**Non-Locking**	**Locking**	**Non-Locking**
Hazardous Duty with Override	K0253035**†	K0252035**†	K0453025**†	K0452025**†
NEMA 4 with Override	—	K2353035**†	K2352035**†	—

† 49 / 53 only ** See voltages on page E246.

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Installation

Valves should be installed with reasonable accessibility for service. Exercise care in keeping piping lengths to a minimum. Piping should be free of dirt, chips & scale. Pipe joint compound should be used sparingly applied only to the thread, never to the valve body. Avoid undue strain at piping joints. Protect the valve from exposure to extreme temperatures, dirt and moisture to maximize life.

Note: Valves equipped with locking manual overrides. Override(s) must be in the fully extended position for proper valve operation.

Double Solenoid / Remote Caution

Note: It is recommended that double solenoid and double remote 2-Position valves be mounted with the main spool in the horizontal plane.

Wiring Instructions for Base Mounted Valves

Single Solenoid:
Use wires marked “2” & “3” for connection. Units with DC Solenoids and indicator lights are polarity sensitive. Wire marked “3” is positive (+).

Double Solenoid:
Use wires marked “1” & “2” for Solenoid “A”. Use wires marked “3” & “4” for Solenoid “B”. Units with DC Solenoids and indicator lights are polarity sensitive. Wires marked “1” and “3” are positive.

⚠ ***Caution:***
DC Solenoids are polarity sensitive. Observe polarities indicated above.

Units with Flying Leads

Wires are not polarity sensitive.

⚠ ***Caution:***
DC solenoids with indicator lights and / or arc suppression coils are polarity sensitive. Use red wire as positive.

Listing Agencies

General Purpose Approvals

CSA - Canadian Standards Association
File Number 42024

Hazardous Duty Approvals

UL - Underwriters Laboratories, Inc.
File Number E42542
Category Y107

CSA - Canadian Standards Association
File Number 24349

See page E251 for Approved Hazardous Location Class, Group & Division.

“Special Service” Solenoid (Continuous Duty)

Special Service Solenoids are designed for use when the solenoid duty cycle is greater that 70% or when energization times are for 10 minutes or longer.

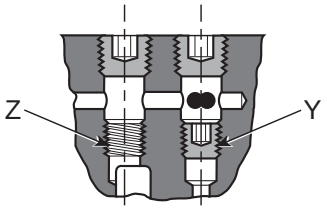
These solenoids should be used when valves are to be held energized for hours, days or weeks… or when extended ambient temperature operation is required. Apply the duty cycle formula to determine if this type of solenoid is required.

Duty Cycle Formula

$$\frac{\text{Time Energized}}{\text{Time Energized + Time Off}} \times 100 = \%\ \text{Duty Cycle}$$

If Duty Cycle is 70% or greater, then Special Service (Continuous Duty) Solenoid should be used.

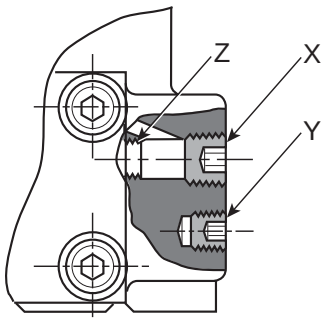
Pilot Supply Conversion



Base Mounted

For field conversion to external pilot supply, remove two 1/8" NPTF plugs from top of valve body and move bottom plug from “Y” to “Z”.

Replace 1/8" NPTF plugs and connect pilot pressure to the 1/4" NPTF external pilot supply port “X” in subbase.



Direct Pipe Ported

For field conversion to external pilot supply, remove and discard 1/4" NPTF plug in external pilot supply port “X”. Move stored plug “Y” to location “Z” in bottom of pilot supply port “X”. Then connect pilot pressure to port “X” in valve body.

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Flow Capacities

Valve Type	Cylinder Port Size (NPTF)	Mounting Style	Cv Flow Rating Inlet to Cylinder "A"
3/8" Double	3/4"	Subbase	5.0
	3/4"	Manifold	4.9
3/8" Double 3-Position	3/4"	Subbase	4.5
	3/4"	Manifold	4.1
1" Single & Double	1"	Subbase	11.3

Valve Type	Cylinder Port Size (NPTF)	Mounting Style	Cv Flow Rating Inlet to Cylinder "A"
3/8" Single	3/8"	Direct Pipe	4.7
	1/2"	Direct Pipe	5.3
3/8" Double	3/8"	Direct Pipe	4.5
	1/2"	Direct Pipe	5.5
3/8" Double 3-Position	3/8"	Direct Pipe	4.1
	1/2"	Direct Pipe	4.5
1" Single & Double	1"	Direct Pipe	12.0

Materials of Construction

Valve Bodies ..... Aluminum alloy

Valve Spool –
* Aluminum alloy with special coating on 3/8" basic valves

Hard chrome plated AISI type 416 stainless steel on 1/4" & 1/2" basic valves.

Resilient Seals: In Valve Body -
Dynamic ..... Polyurethane base on 3/8" basic valves*
Static / Dynamic ..... Nitrile base w / 12% Molybdenum Disulphide on 1/4" & 1/2" basic valves

Other Seals ..... Nitrile

Shock Pads ..... Polyurethane

Valve Spacers ..... Brass

Manifolds & Subbases ..... Aluminum alloy

Solenoid Bodies ..... Plated zinc alloy
Internal Components ..... Corrosion resistant steel
Resilient Seals –
Standard Service ..... Nitrile
Special Service (continuous duty) ..... Fluorocarbon & Silicone

Other Seals ..... Nitrile

Coil ..... Class "B" epoxy encapsulated (Class "H" also available on some models, consult supplier)

* These materials are specially designed for valves used on non-lubricated service

Recommended Filtration

Maintained 40 Micron Filtration

Life Expectancy

Valves designed for non-lubricated service as well as those designed for lubricated service will provide millions of maintenance free cycles. Under laboratory conditions service life exceeds 25,000,000 cycles.

Factory Pre-Lubrication

Valves are lubricated at assembly with Sunaplex 781 or equivalent. Valves specified for vacuum service are lubricated with Dow Corning Valve Seal A.

Valves for Non-Lubricated Service

3/8" basic valve sizes are designed to operate in applications where in-service lubrication is not desirable. Valves are factory pre-lubed as noted above. These valves may be used for lubricated service as well.

Lubrication

Air Line Lubricant (compatible with Nitrile & Polyurethane seals) must readily atomize and be of the medium analine type. Analine point range must be between 180° and 220°F.
Viscosity @ 100°F: 140-170 SUS.

Recommended Lubricant

If in-service lubrication is required, use F442 oil, or equivalent. F442 is specially formulated to provide peak performance and maximum service life for air operated equipment.

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Pressure Range for Solenoid Operated Valves

Media	Internal Pilot Supply Basic Valve Size			External Pilot Supply Basic Valve Size				
	1/4"	3/8"	1/2"	1/4"		3/8"	1/2"	1"
Air	35-140* PSIG			N.A.	Main	0-250 PSIG		
					Pilot	35-140* PSIG		
Vacuum	Do Not Use			N.A.	Main	Within 1 Hg of Perfect		
					Pilot	35-140* PSIG		
Other	Consult Supplier							

* 200 PSIG Solenoid Is Optional (consult supplier).

Pressure Range for Remote Pilot Operated Valves

Media		Valve Type	
		Single	Double & 3-Position
Air	Main	35-250 PSIG	0-250 PSIG
	Pilot	35-200 PSIG	35-200 PSIG
Vacuum	Main	Do Not Use	Within 1" Hg of Perfect
	Pilot	Do Not Use	35-200 PSIG
Other	Consult Supplier		

Ambient Temperature Range Standard Service Solenoid Operator

Minimum	Maximum	
	Intermittent Duty	Continuous Duty
0°F	125°F	100°F

Special Service (Continuous Duty) Solenoid Operator

Minimum	Maximum	
	Intermittent Duty	Continuous Duty
0°F	125°F	125°F

As the above chart indicates, Standard Duty Solenoids may be used on continuous duty but ambient temperature is de-rated.

In some cases, Special Service Solenoids may be rated for higher ambient temperatures (consult supplier).

Ambient Temperature Range Remote Pilot Operated Valves

Minimum	Maximum
0°F	200°F

Caution:
If it is possible that the ambient temperature may fall below freezing, the medium must be moisture free to prevent internal damage and unpredictable behavior.

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Solenoid Enclosure Ratings

Type	Listing Agency	NEMA Rating	Description
Plug-In	CSA	1 & 12	General Purpose Indoor Only Dust Tight
Conduit / Flying Lead	CSA	1 & 12	General Purpose Indoor Only Dust Tight
* Conduit (As Specified)	UL & CSA	7 & 9	Hazardous Location See Chart Below)
* Conduit (As Specified)	CSA	4	General Purpose Indoor / Outdoor

* See ordering information on specific valve type. (Direct Pipe Ported Valves Only.)

Solenoid Characteristics Chart

Voltage Range +10/-15% of Nominal

3/8" & 3/4" Basic – L-Pilot					
Voltage/ Cycles	**Amps Inrush**	**Amps Holding**	**Resistance Ohms**	**Watts**	**Insulation Class**
120/60VAC	.29	.18	122	12	B
110/50VAC	.21	.14	122	12	B
240/60VAC	.18	.12	610	12	B
24/60VAC	1.6	1.0	4.5	9.5	B
24/50VAC	1.2	.75	6.4	9.5	B
6VDC	–	1.4	4.5	7.6	B
12VDC	–	.66	17.7	9	B
24VDC	–	.32	71	9	B
48VDC	–	.22	216	11	B

Hazardous Duty Solenoid Listing

Valves with solenoid operators designated for hazardous locations are UL & CSA Approved as follows:

National Electric Code	Ambient Conditions	NEMA Classification
Class I Div. 1 Group C	Ethyl, Ether, Etc., Gases & Vapors	VII (7)
Class I Div. 1 Group D	Gasoline, Etc., Gases & Vapors	VII (7)
Class I Div. 2 Group B	Butadiene, Etc., Liquid, Fluid or Vapor Normally Contained, or Atmosphere Ventilated	VII (7)
Class II Div. 1 Group E	Metal Dust	IX (9)
Class II Div. 1 Group F	Coal, Coke, Carbon Black Dust	IX (9)
Class II Div. 1 Group G	Flour, Starch, Grain Dust	IX (9)

See Article 500 - Hazardous (Classified) Locations, National Electric Code.

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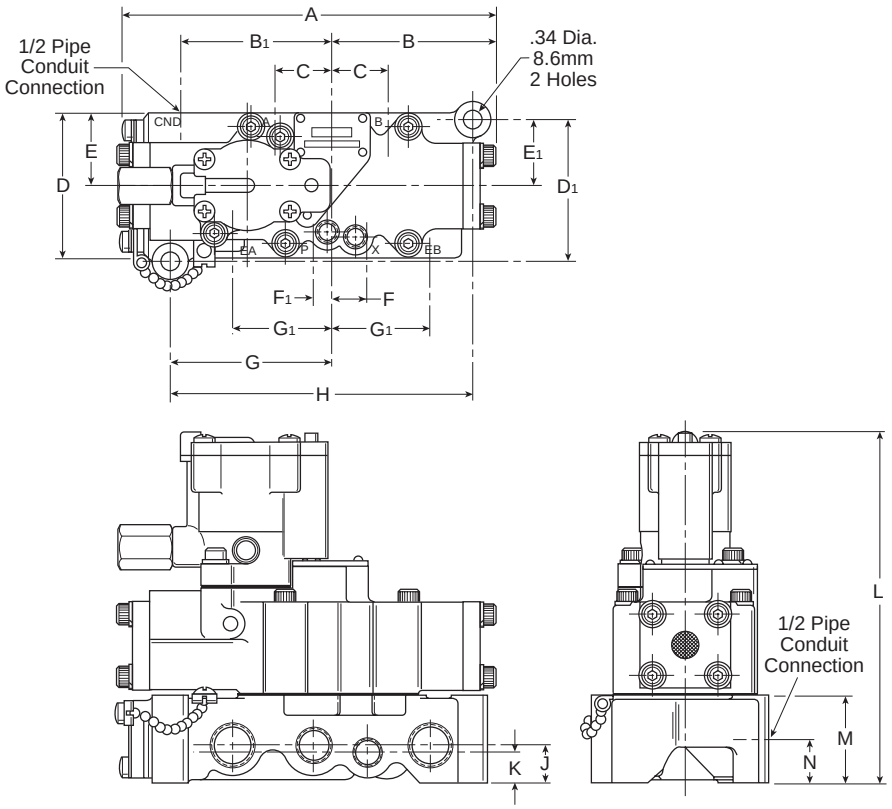
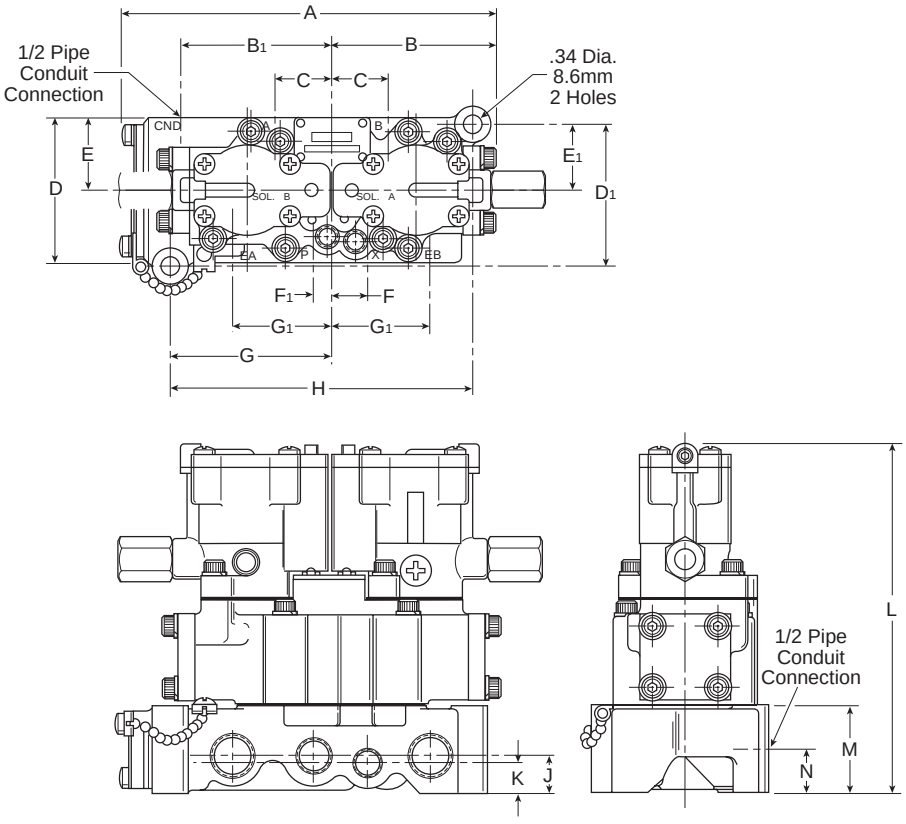


Dimensions

A	B	B1	C
7.56 (192)	3.32 (84.3)	2.94 (74.7)	1.12 (28.4)
D	**D1**	**E**	**E1**
2.88 (73.2)	2.84 (72.1)	1.44 (36.6)	1.34 (34)
F	**F1**	**G**	**G1**
75 (19.1)	.38 (9.7)	3.16 (80.3)	2.00 (50.8)
H	**J**	**K**	**L**
6.03 (153.2)	.75 (19.1)	.62 (15.7)	6.93 176)
M	**N**		
1.75 (44.5)	1.00 (25.4)		

Inches (mm)



Dimensions

A	B	B1	C
7.38 (187.5)	3.32 (84.3)	2.94 (74.7)	1.12 (28.4)
D	**D1**	**E**	**E1**
2.88 (73.2)	2.84 (72.1)	1.44 (36.6)	1.34 (34)
F	**F1**	**G**	**G1**
.75 (19.1)	.38 (9.7)	3.16 (80.3)	2.00 (50.8)
H	**J**	**K**	**L**
6.03 (153.2)	.75 (19.1)	.62 (15.7)	6.93 (176)
M	**N**		
1.75 (44.5)	1.00 (25.4)		

Inches (mm)

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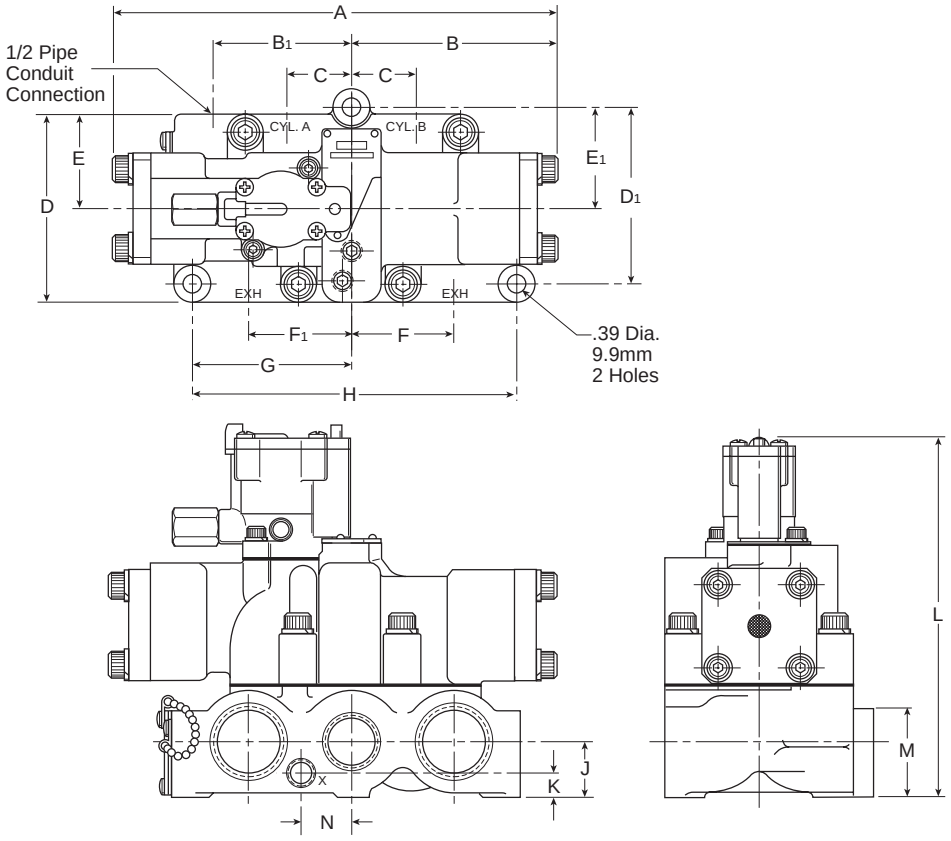
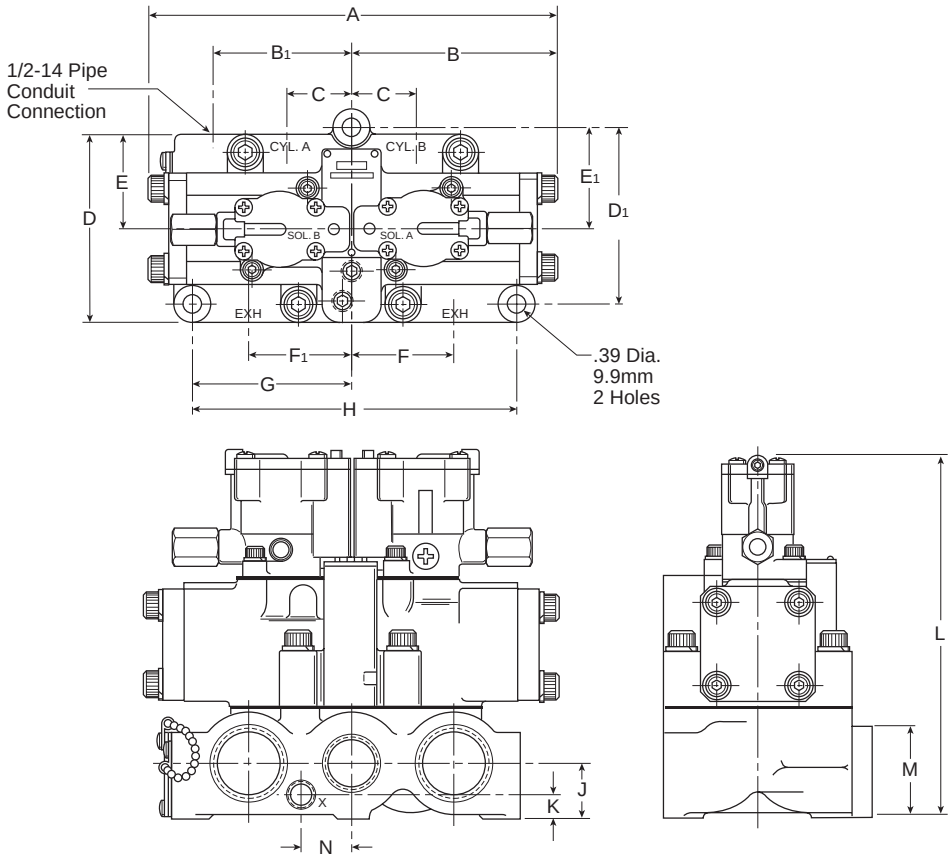


Dimensions

A	B	B1	C
10.46 (265.7)	4.75 (120.6)	3.38 (85.8)	1.53 (38.9)
D	**D1**	**E**	**E1**
4.56 (115.8)	4.28 (108.7)	2.28 (57.9)	2.44 (62)
F	**F1**	**G**	**H**
2.45 (62.2)	2.46 (62.5)	3.81 (96.8)	7.62 (193.5)
J	**K**	**L**	**M**
1.31 (33.3)	.59 (15)	8.74 (222)	2.09 (53.1)
N			
1.22 (31)			

Inches (mm)



Dimensions

A	B	B1	C
9.50 (241.3)	4.75 (120.6)	3.38 (85.8)	1.53 (38.9)
D	**D1**	**E**	**E1**
4.56 (115.8)	4.28 (108.7)	2.28 (57.9)	2.44 (62)
F	**F1**	**G**	**H**
2.45 (62.2)	2.46 (62.5)	3.81 (96.8)	7.62 (193.5)
J	**K**	**L**	**M**
1.31 (33.3)	.59 (15)	8.74 (222)	2.09 (53.1)
N			
1.22 (31)			

Inches (mm)

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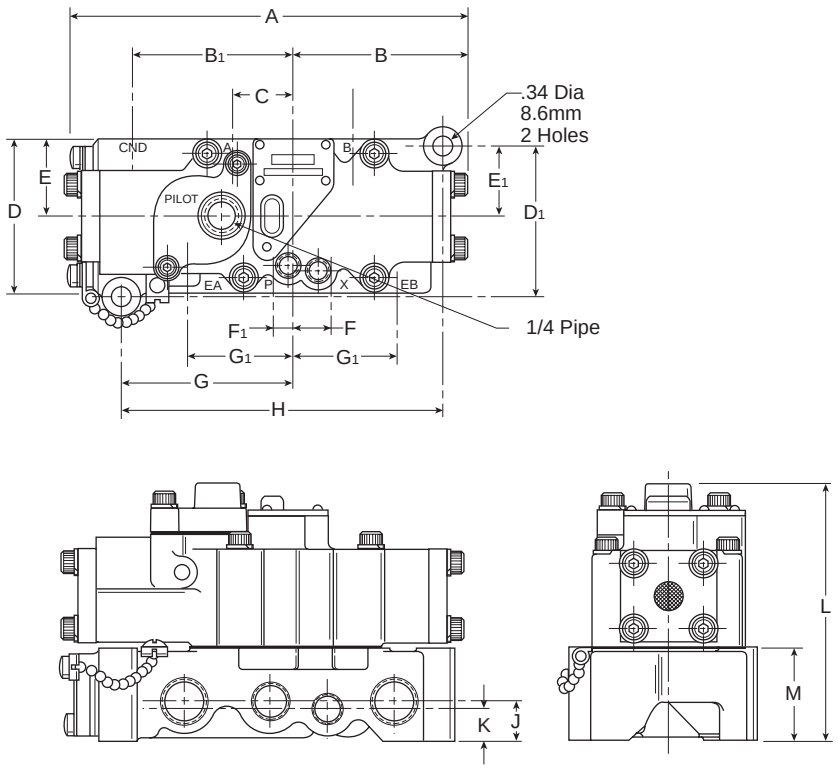
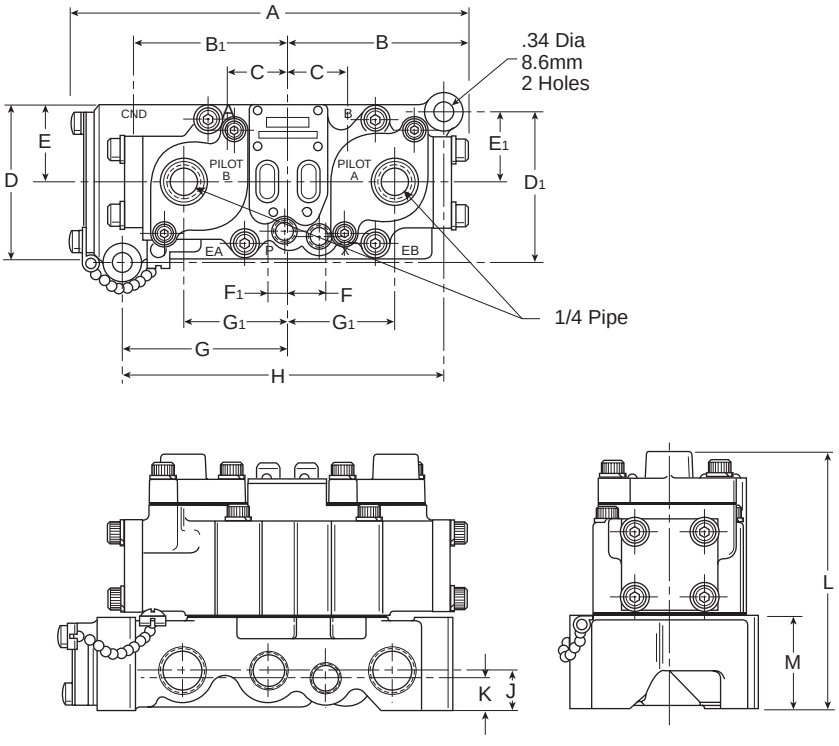


Dimensions

A	B	B1	C
7.56 (192)	3.32 (84.3)	2.94 (74.7)	1.12 (28.4)
D	**D1**	**E**	**E1**
2.88 (73.2)	2.84 (72.1)	1.44 (36.6)	1.34 (34)
F	**F1**	**G**	**G1**
.75 (19.1)	.38 (9.7)	3.16 (80.3)	2.00 (50.8)
H	**J**	**K**	**L**
6.03 (153.2)	.75 (19.1)	.62 (15.7)	4.76 (120.9)
M			
1.75 (44.5)			

Inches (mm)



Dimensions

A	B	B1	C
7.56 (192)	3.32 (84.3)	2.94 (74.7)	1.12 (28.4)
D	**D1**	**E**	**E1**
2.88 (73.2)	2.84 (72.1)	1.44 (36.6)	1.34 (34)
F	**F1**	**G**	**G1**
.75 (19.1)	.38 (9.7)	3.16 (80.3)	2.00 (50.8)
H	**J**	**K**	**L**
6.03 (153.2)	.75 (19.1)	.62 (15.7)	4.76 (120.9)
M			
1.75 (44.5)			

Inches (mm)

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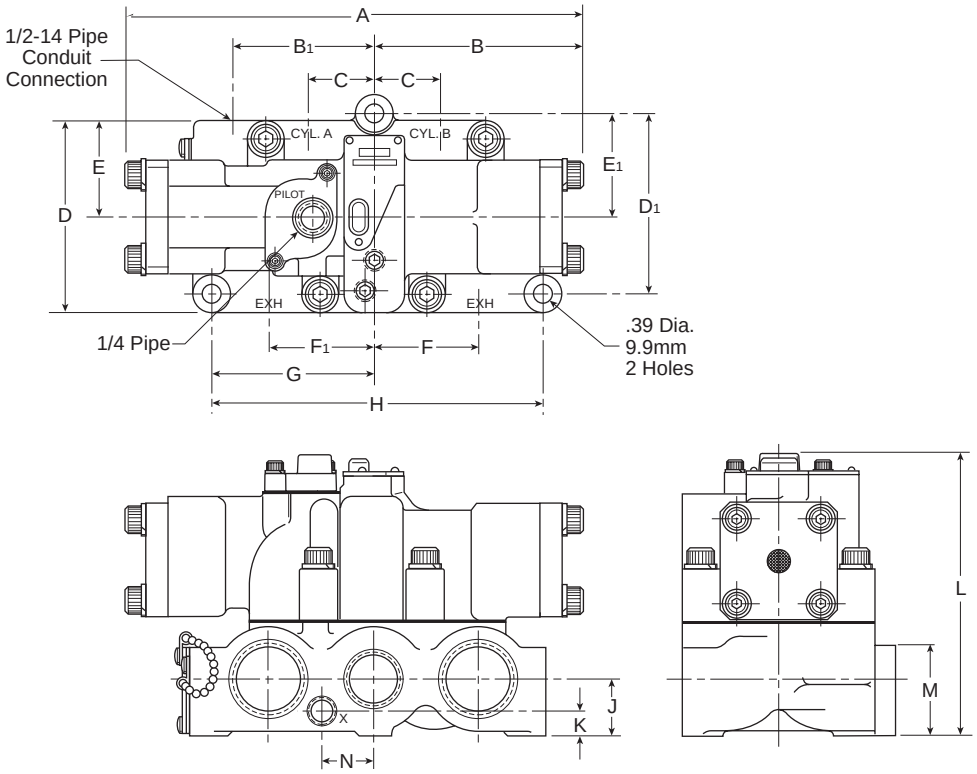
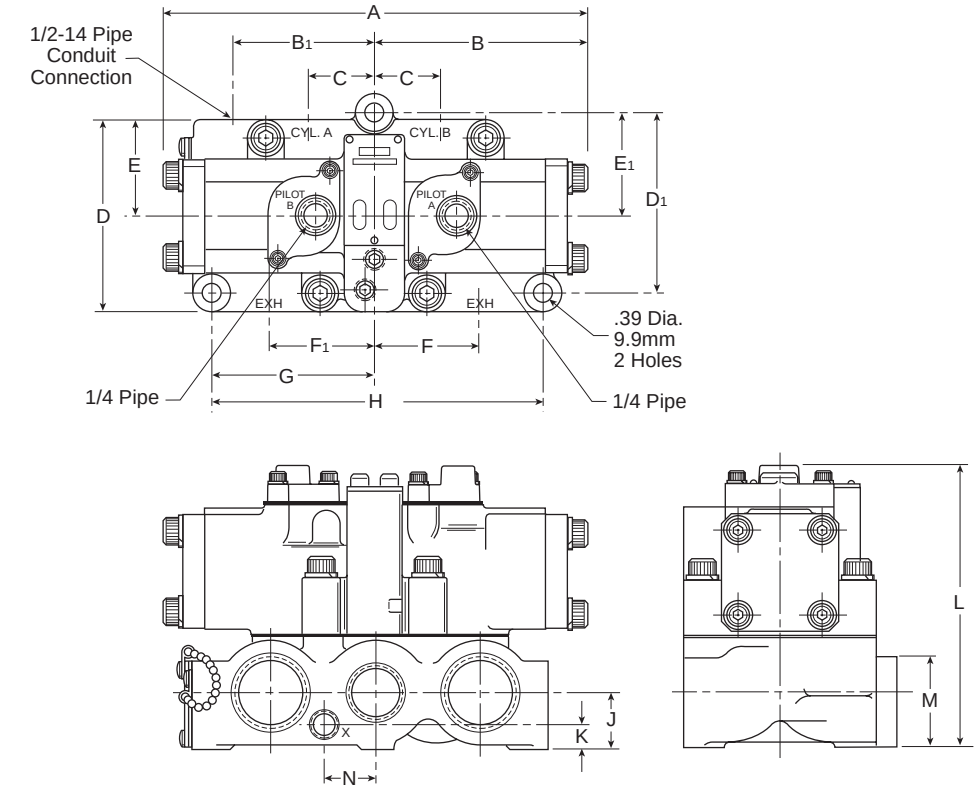


Dimensions

A	B	B1	C
10.46 (265.7)	4.75 (120.6)	3.38 (85.8)	1.53 (38.9)
D	**D1**	**E**	**E1**
4.56 (115.8)	4.28 (108.7)	2.28 (57.9)	2.44 (62)
F	**F1**	**G**	**H**
2.45 (62.2)	2.46 (62.5)	3.81 (96.8)	7.62 (193.5)
J	**K**	**L**	**M**
1.31 (33.3)	.59 (15)	6.57 (166.9)	2.09 (53.1)
N			
1.22 (31)			

Inches (mm)



Dimensions

A	B	B1	C
9.50 (241.3)	4.75 (120.6)	3.38 (85.8)	1.53 (38.9)
D	**D1**	**E**	**E1**
4.56 (115.8)	4.28 (108.7)	2.28 (57.9)	2.44 (62)
F	**F1**	**G**	**H**
2.45 (62.2)	2.46 (62.5)	3.81 (96.8)	7.62 (193.5)
J	**K**	**L**	**M**
1.31 (33.3)	.59 (15)	6.57 (166.9)	2.09 (53.1)
N			
1.22 (31)			

Inches (mm)

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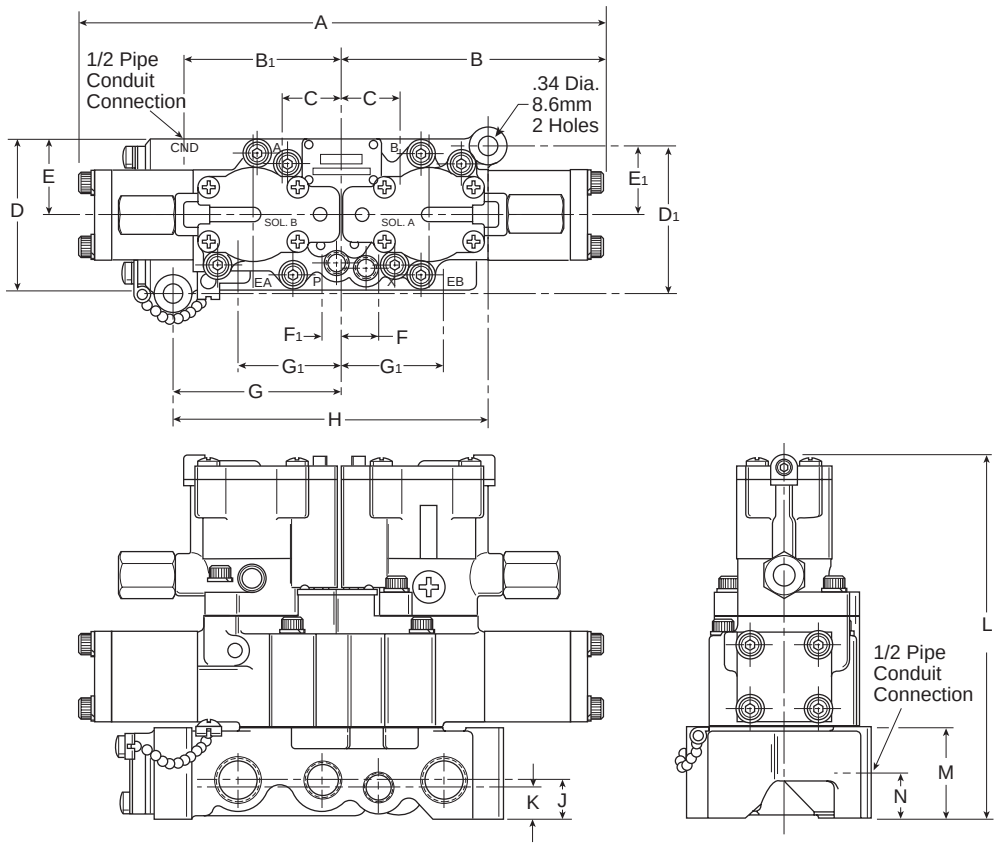
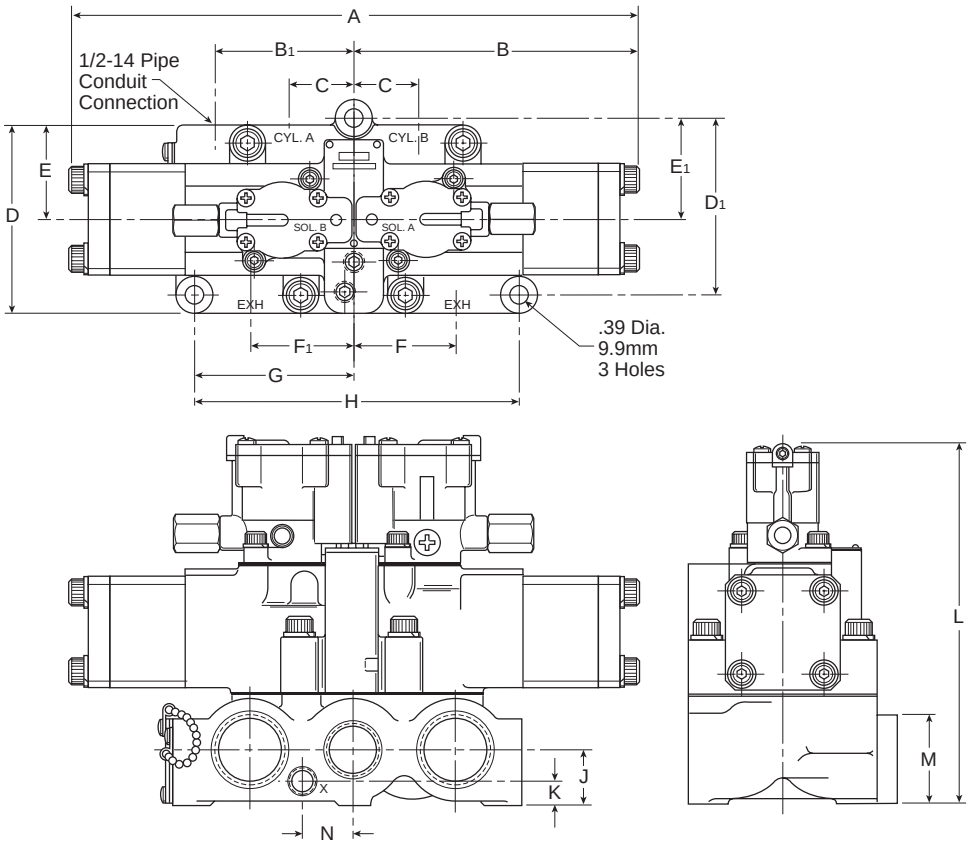


Dimensions

A	B	B1	C
9.64 (244.8)	4.82 (122.4)	2.94 (74.7)	1.12 (28.4)
D	**D1**	**E**	**E1**
2.88 (73.2)	2.84 (72.1)	1.44 (36.6)	1.34 (34)
F	**F1**	**G**	**G1**
.75 (19.1)	.38 (9.7)	3.16 (80.3)	2.00 (50.8)
H	**J**	**K**	**L**
6.03 (153.2)	.75 (19.1)	.62 (15.7)	6.93 (176)
M			
1.00 (25.4)			

Inches (mm)



Dimensions

A	B	B1	C
13.62 (345.9)	6.81 (173)	3.38 (85.8)	1.53 (38.9)
D	**D1**	**E**	**E1**
4.56 (115.8)	4.28 (108.7)	2.28 (57.9)	2.44 (62)
F	**F1**	**G**	**H**
2.45 (62.2)	2.46 (62.5)	3.81 (96.8)	7.62 (193.5)
J	**K**	**L**	**M**
1.31 (33.3)	.59 (15)	8.74 (222)	2.09 (53.1)
N			
1.22 (31)			

Inches (mm)

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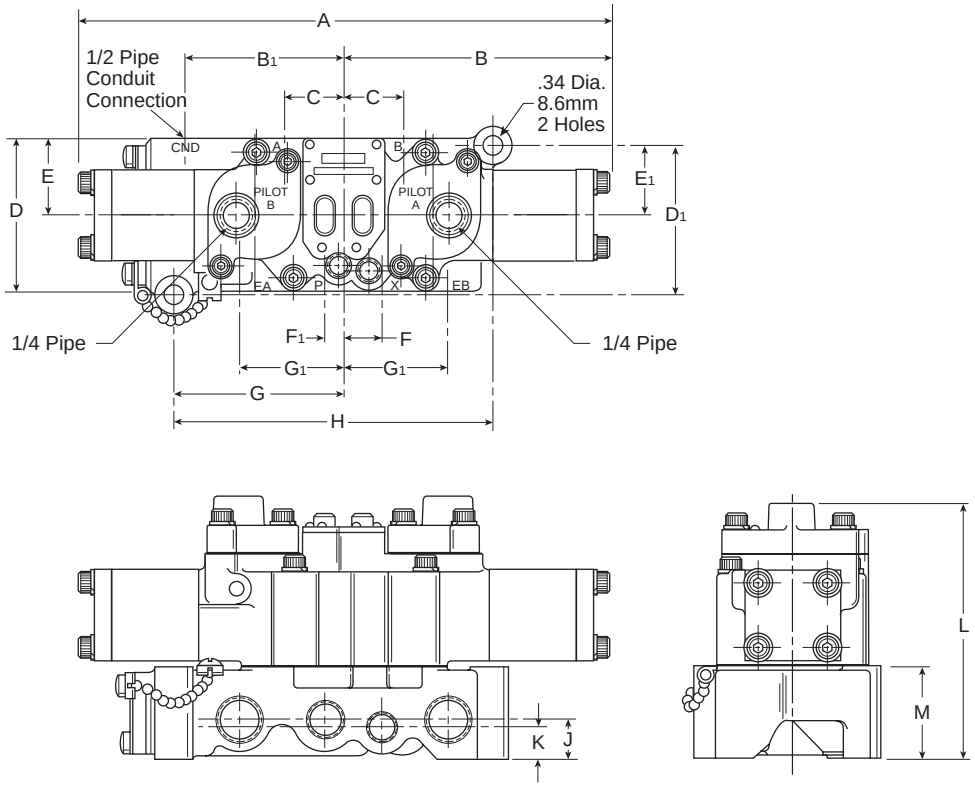
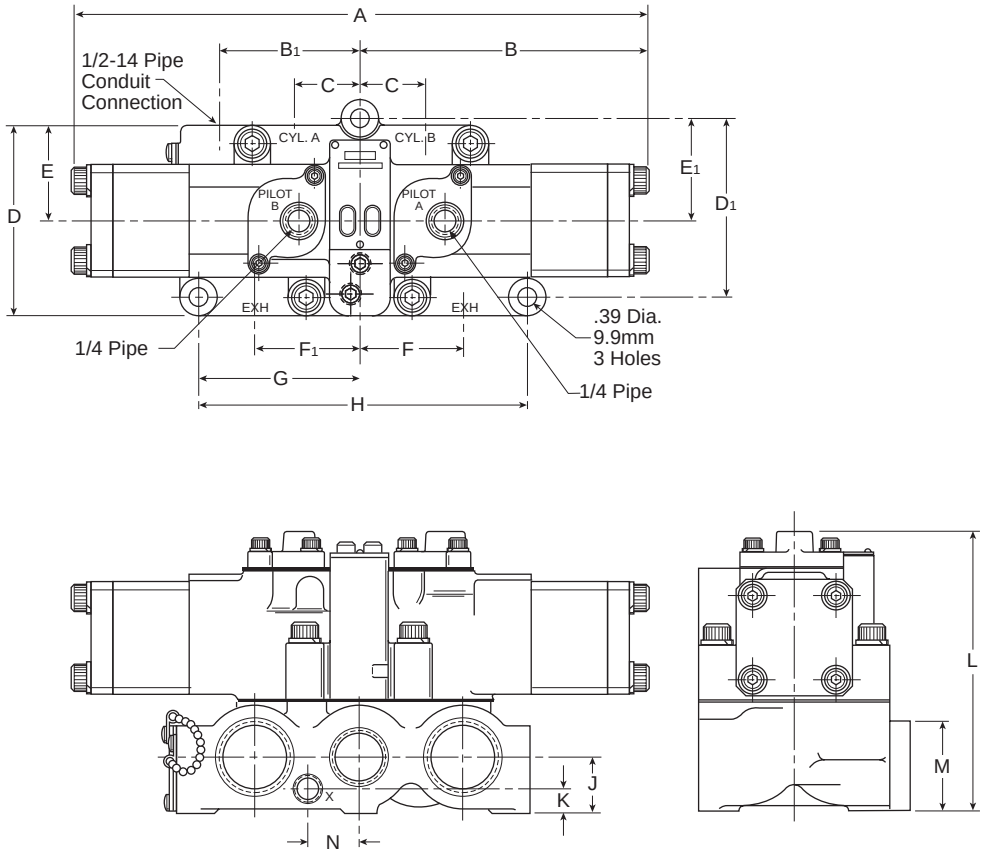


Dimensions

A	B	B1	C
9.64 (244.8)	4.82 (122.4)	2.94 (74.7)	1.12 (28.4)
D	**D1**	**E**	**E1**
2.88 (73.2)	2.84 (72.1)	1.44 (36.6)	1.34 (34)
F	**F1**	**G**	**G1**
.75 (19.1)	.38 (9.7)	3.16 (80.3)	2.00 (50.8)
H	**J**	**K**	**L**
6.03 (153.2)	.75 (19.1)	.62 (15.7)	4.76 (120.9)
M			
1.75 (44.5)			

Inches (mm)



Dimensions

A	B	B1	C
13.62 (345.9)	6.81 (173)	3.38 (85.8)	1.53 (38.9)
D	**D1**	**E**	**E1**
4.56 (115.8)	4.28 (108.7)	2.28 (57.9)	2.44 (62)
F	**F1**	**G**	**H**
2.45 (62.2)	2.46 (62.5)	3.81 (96.8)	7.62 (193.5)
J	**K**	**L**	**M**
1.31 (33.3)	.59 (15)	6.57 (166.8)	2.09 (53.1)
N			
1.22 (31)			

Inches (mm)

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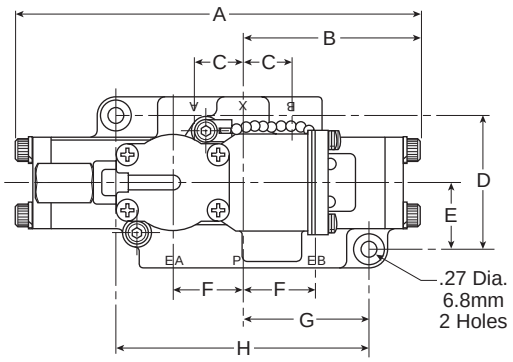
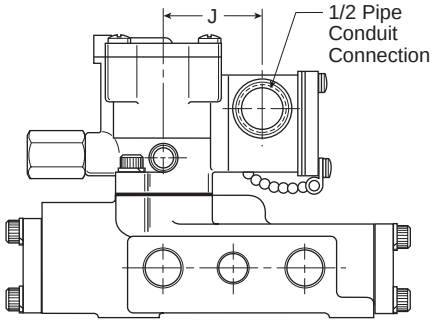
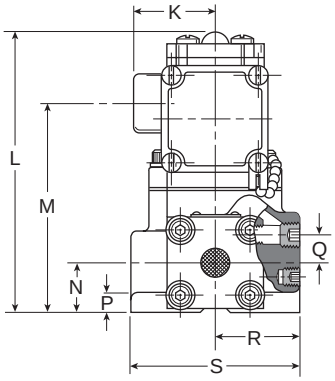


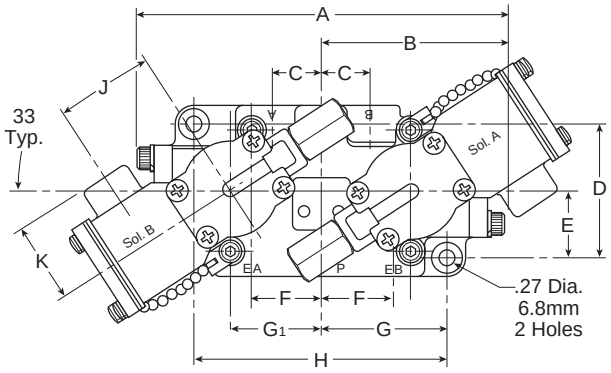


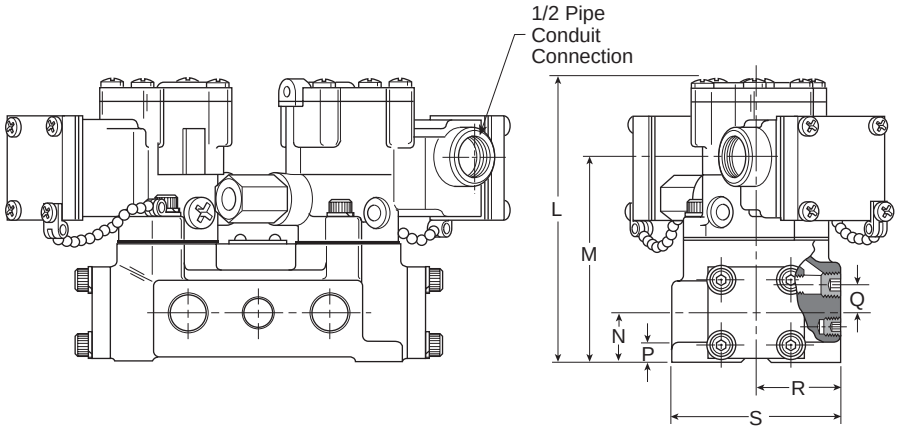


Dimensions

A 7.56 (192)	**B** 3.32 (84.3)	**C** .90 (22.9)	**D** 2.56 (65)
E 1.28 (32.5)	**F** 1.33 (33.8)	**G** 2.34 (59.4)	**H** 4.69 (119.1)
J 1.82 (46.2)	**K** 1.50 (38.1)	**L** 5.35 (135.9)	**M** 3.91 (99.3)
N .94 (23.9)	**P** .38 (9.7)	**Q** .53 (13.5)	**R** 1.62 (41.1)
S 3.25 (82.6)			

Inches (mm)





Dimensions

A 7.56 (192)	**B** 3.32 (84.3)	**C** .90 (22.9)	**D** 2.56 (65)
E 1.28 (32.5)	**F** 1.33 (33.8)	**G** 2.34 (59.4)	**G1** 1.66 (42.4)
H 4.69 (119.1)	**J** 1.82 (46.2)	**K** 1.50 (38.1)	**L** 5.35 (135.9)
M 3.91 (99.3)	**N** .94 (23.9)	**P** .38 (9.7)	**Q** .53 (13.5)
R 1.62 (41.1)	**S** 3.25 (82.6)		

Inches (mm)

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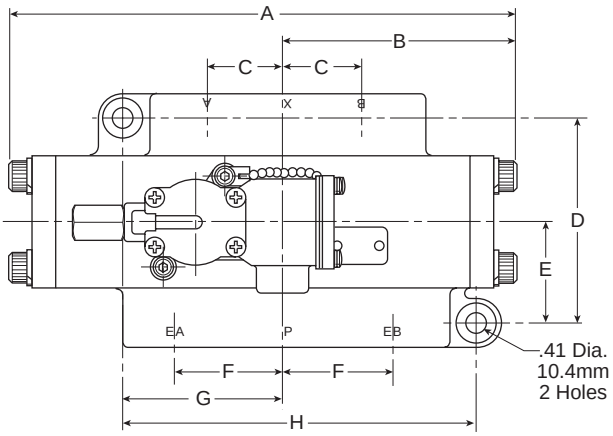
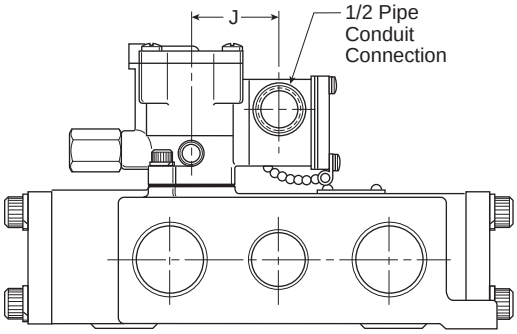
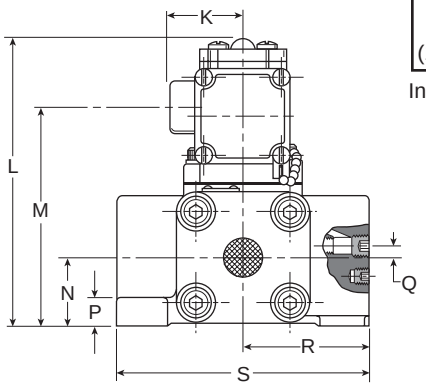


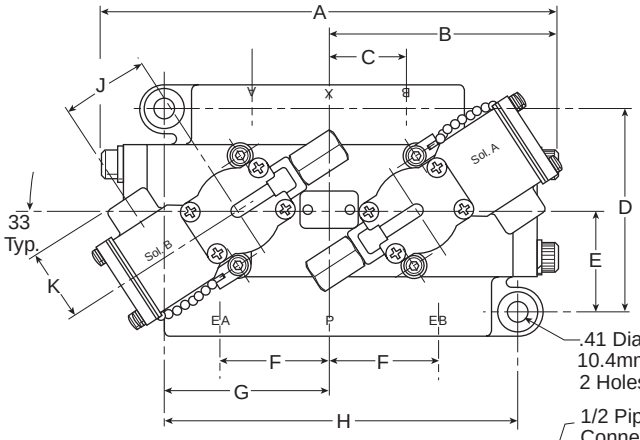


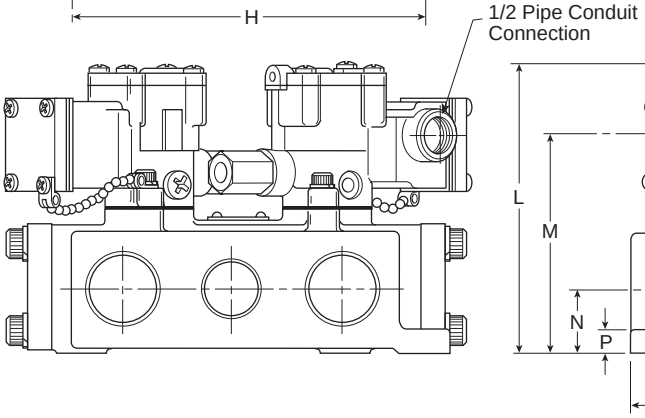


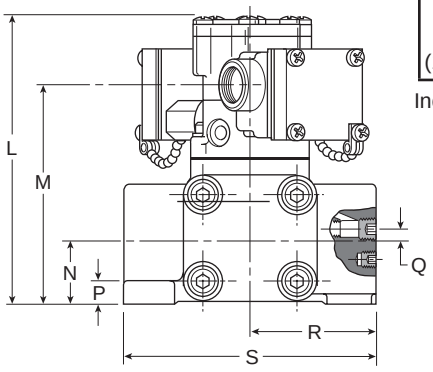
Dimensions

A	B	C	D
10.46 (265.7)	4.75 (120.6)	1.62 (41.1)	4.25 (108)
E	**F**	**G**	**H**
2.12 (53.8)	2.19 (55.6)	3.44 (87.4)	7.44 (189)
J	**K**	**L**	**M**
1.82 (46.2)	1.50 (38.1)	6.44 (163.6)	4.95 (125.7)
N	**P**	**Q**	**R**
1.50 (38.1)	.69 (17.5)	.20 (5.1)	2.62 (66.5)
S			
5.25 (133.4)			

Inches (mm)







Dimensions

A	B	C	D
9.50 (241.3)	4.75 (120.6)	1.62 (41.1)	4.25 (108)
E	**F**	**G**	**H**
2.12 (53.8)	2.19 (55.6)	3.44 (87.4)	7.44 (189)
J	**K**	**L**	**M**
1.82 (46.2)	1.50 (38.1)	6.44 (163.6)	4.95 (125.7)
N	**P**	**Q**	**R**
1.50 (38.1)	.69 (17.5)	.20 (5.1)	2.62 (66.5)
S			
5.25 (133.4)			

Inches (mm)

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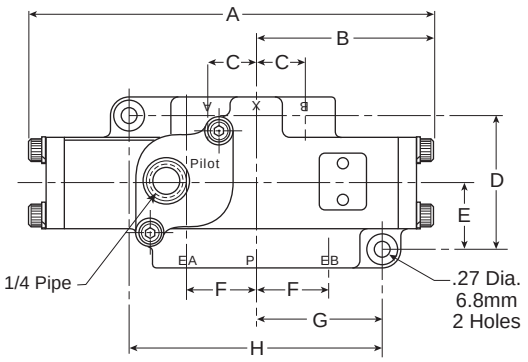
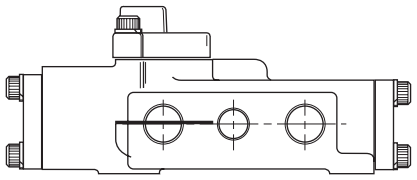
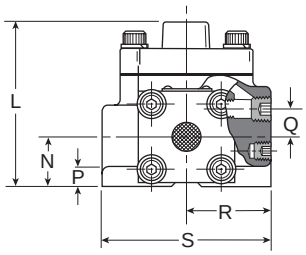


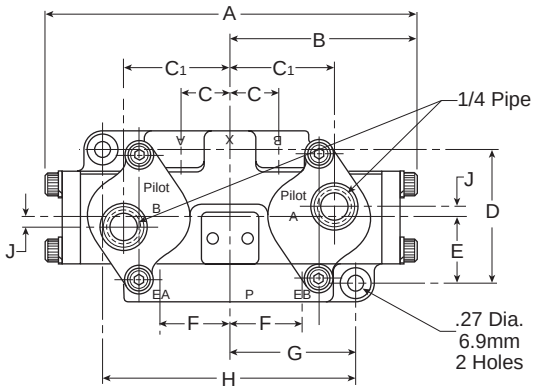


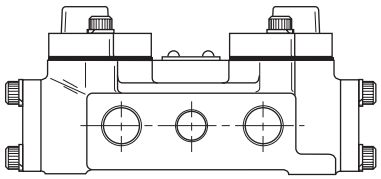


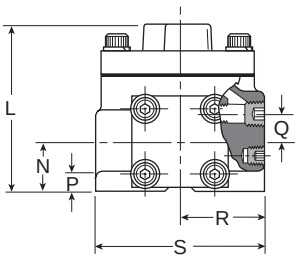
Dimensions

A	B	C	D
7.56 (192)	3.32 (84.3)	.90 (22.9)	2.56 (65)
E	**F**	**G**	**H**
1.28 (32.5)	1.33 (33.8)	2.34 (59.4)	4.69 (119.1)
L	**N**	**P**	**Q**
3.18 (80.8)	.94 (23.9)	.38 (9.7)	.53 (13.5)
R	**S**		
1.62 (41.1)	3.25 (82.6)		

Inches (mm)







Dimensions

A	B	C	C_1
6.64 (168.7)	3.32 (84.3)	.90 (22.9)	1.98 (50.3)
D	**E**	**F**	**G**
2.56 (65)	1.28 (32.5)	1.33 (33.8)	2.34 (59.4)
H	**J**	**L**	**N**
4.69 (119.1)	.22 (5.6)	3.05 (77.5)	.94 (23.9)
P	**Q**	**R**	**S**
.38 (9.7)	.53 (13.5)	1.62 (41.1)	3.25 (82.6)

Inches (mm)

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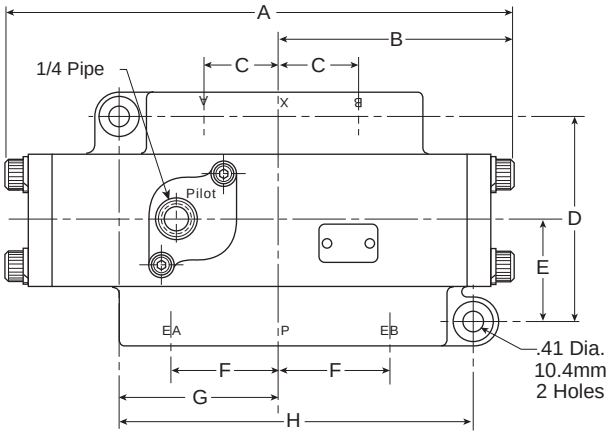
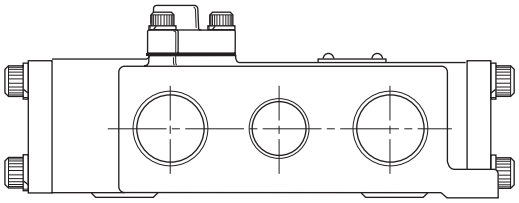
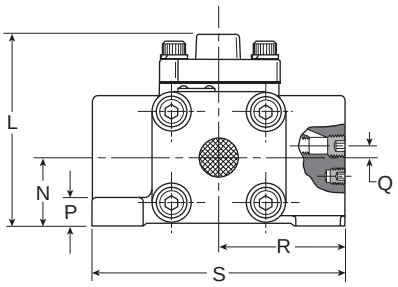


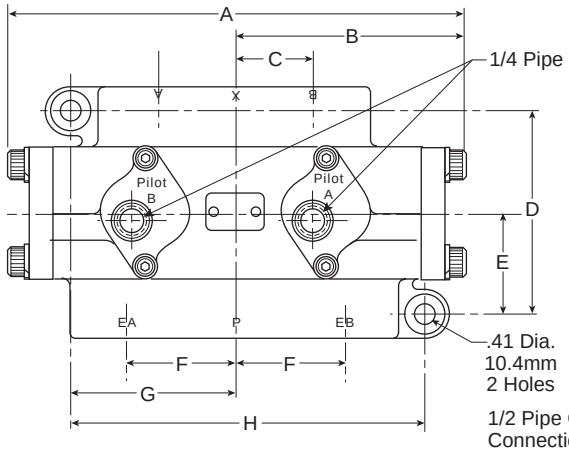


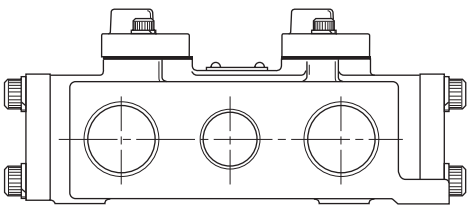


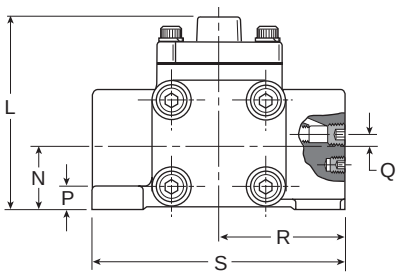
Dimensions

A	B	C	D
10.46 (265.7)	4.75 (120.6)	1.62 (41.1)	4.25 (108)
E	**F**	**G**	**H**
2.12 (53.8)	2.19 (55.6)	3.44 (87.4)	7.44 (189)
L	**N**	**P**	**Q**
4.09 (103.9)	1.50 (38.1)	.69 (17.5)	.20 (5.1)
R	**S**		
2.62 (66.5)	5.25 (133.4)		

Inches (mm)







Dimensions

A	B	C	D
9.50 (241.3)	4.75 (120.6)	1.62 (41.1)	4.25 (108)
E	**F**	**G**	**H**
2.12 (53.8)	2.19 (55.6)	3.44 (87.4)	7.44 (189)
L	**N**	**P**	**Q**
4.09 (103.9)	1.50 (38.1)	.69 (17.5)	.20 (5.1)
R	**S**		
2.62 (66.5)	5.25 (133.4)		

Inches (mm)

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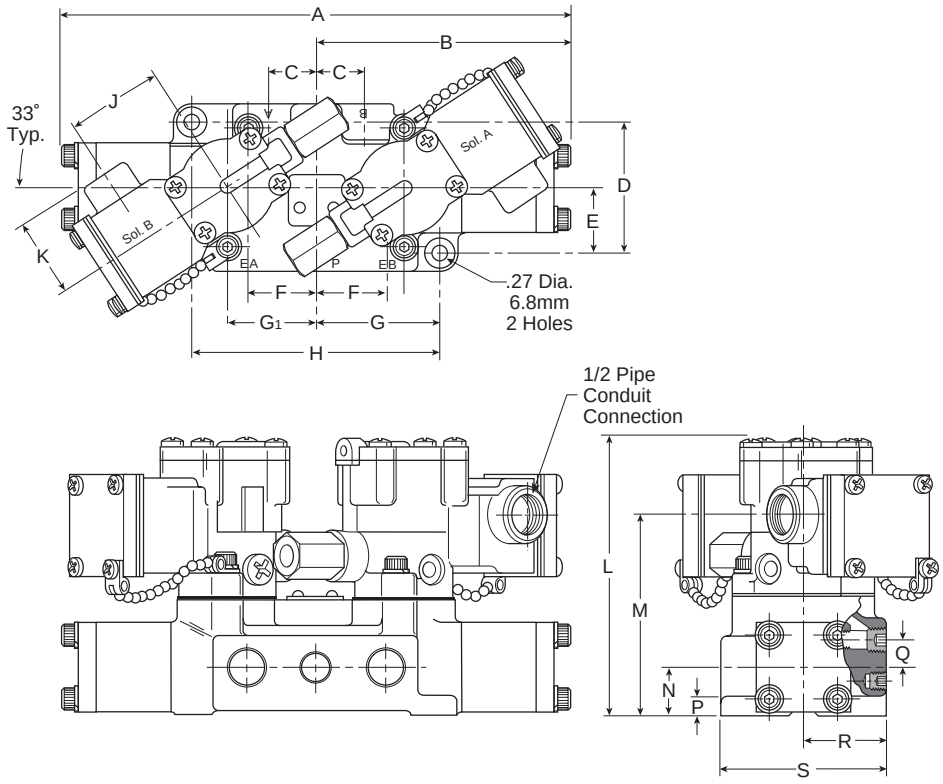
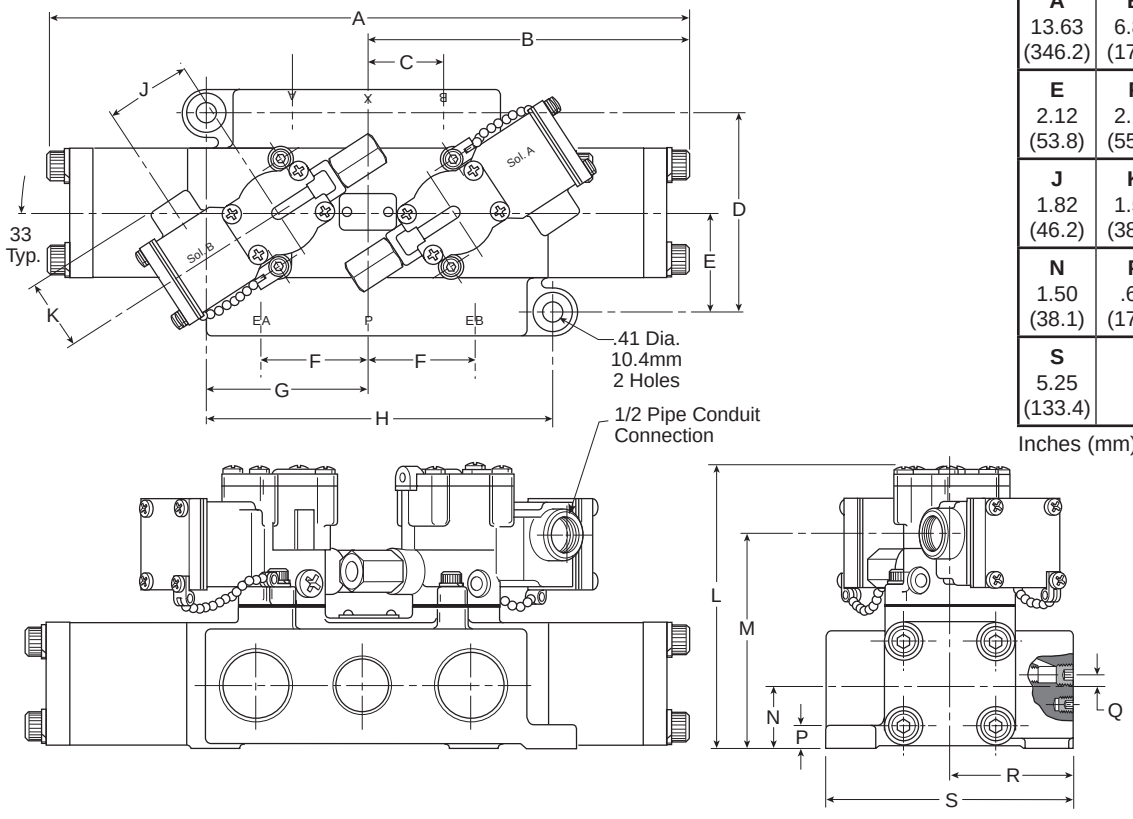


Dimensions

A	B	C	D
9.64 (244.8)	4.82 (122.4)	.90 (22.9)	2.56 (65)
E	**F**	**G**	**G1**
1.28 (32.5)	1.33 (33.8)	2.34 (59.4)	1.66 (42.4)
H	**J**	**K**	**L**
4.69 (119.1)	1.82 (46.2)	1.50 (38.1)	5.35 (135.9)
M	**N**	**P**	**Q**
3.91 (99.3)	.94 (23.9)	.38 (9.7)	.53 (13.5)
R	**S**		
1.62 (41.1)	3.25 (82.6)		

Inches (mm)



Dimensions

A	B	C	D
13.63 (346.2)	6.81 (173)	1.62 (41.1)	4.25 (108)
E	**F**	**G**	**H**
2.12 (53.8)	2.19 (55.6)	3.44 (87.4)	7.44 (189)
J	**K**	**L**	**M**
1.82 (46.2)	1.50 (38.1)	6.44 (163.6)	4.95 (125.7)
N	**P**	**Q**	**R**
1.50 (38.1)	.69 (17.5)	.20 (5.1)	2.62 (66.5)
S			
5.25 (133.4)			

Inches (mm)

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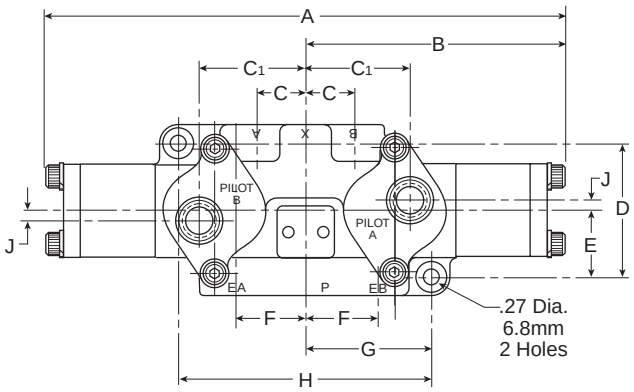
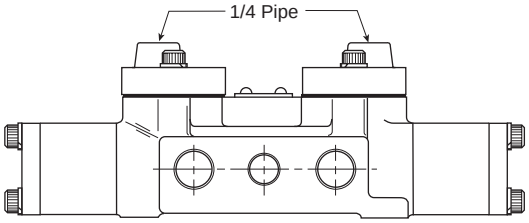
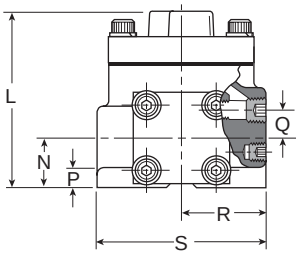


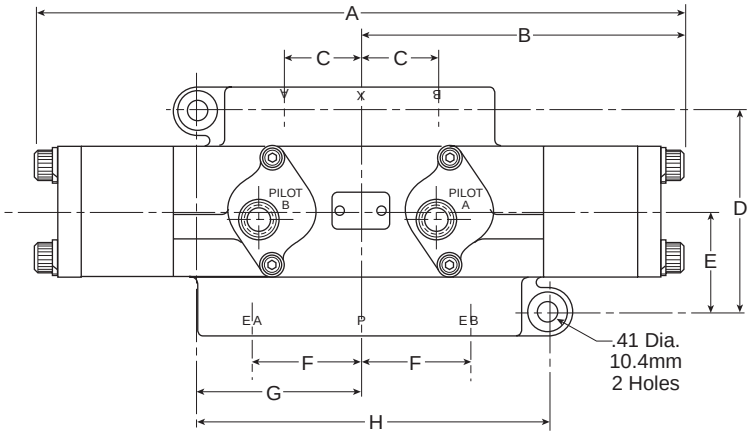


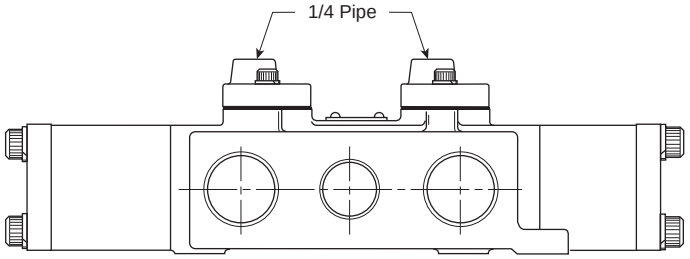


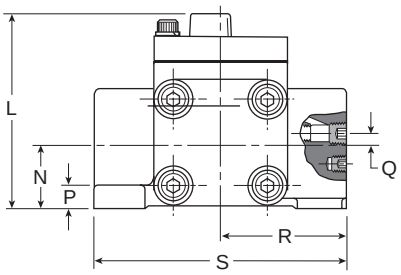
Dimensions

A	B	C	C1
9.64 (244.8)	4.82 (122.4)	.90 (22.9)	1.98 (50.3)
D	**E**	**F**	**G**
2.56 (65)	1.28 (32.5)	1.33 (33.8)	2.34 (59.4)
H	**J**	**L**	**N**
4.69 (119.1)	.22 (5.6)	3.05 (77.5)	.94 (23.9)
P	**Q**	**R**	**S**
.38 (9.7)	.53 (13.5)	1.62 (41.1)	3.25 (82.6)

Inches (mm)







Dimensions

A	B	C	D
13.63 (346.2)	6.81 (173)	1.62 (41.1)	4.25 (108)
E	**F**	**G**	**H**
2.12 (53.8)	2.19 (55.6)	3.44 (87.4)	7.44 (189)
L	**N**	**P**	**Q**
6.44 (163.6)	1.50 (38.1)	.69 (17.5)	.20 (5.1)
R	**S**		
2.62 (66.5)	5.25 (133.4)		

Inches (mm)

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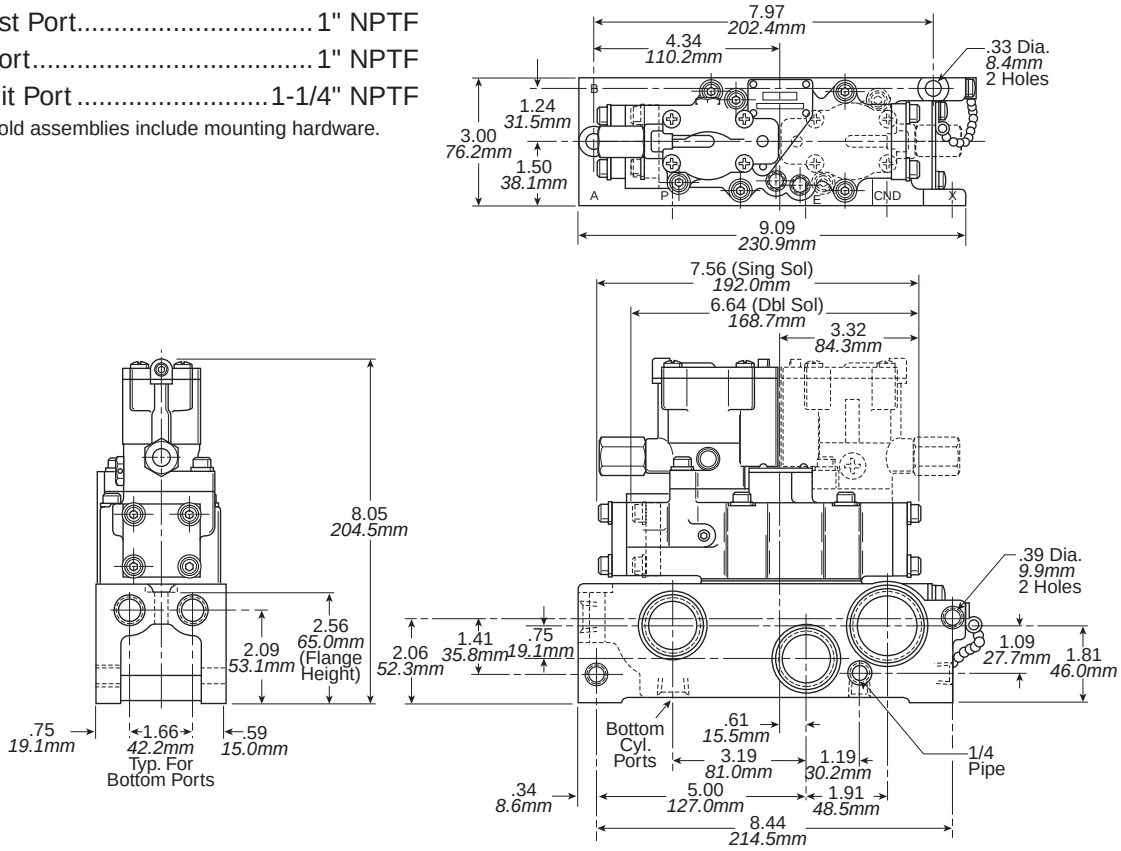
3/8" Basic

K142230 ..... Cyl. Ports 3/8" NPTF
K142231 ..... Cyl. Ports 1/2" NPTF
K142270 ..... Cyl. Ports 3/4" NPTF
Exhaust Port..... 1" NPTF
Inlet Port..... 1" NPTF
Conduit Port ..... 1-1/4" NPTF

Note: Manifold assemblies include mounting hardware.



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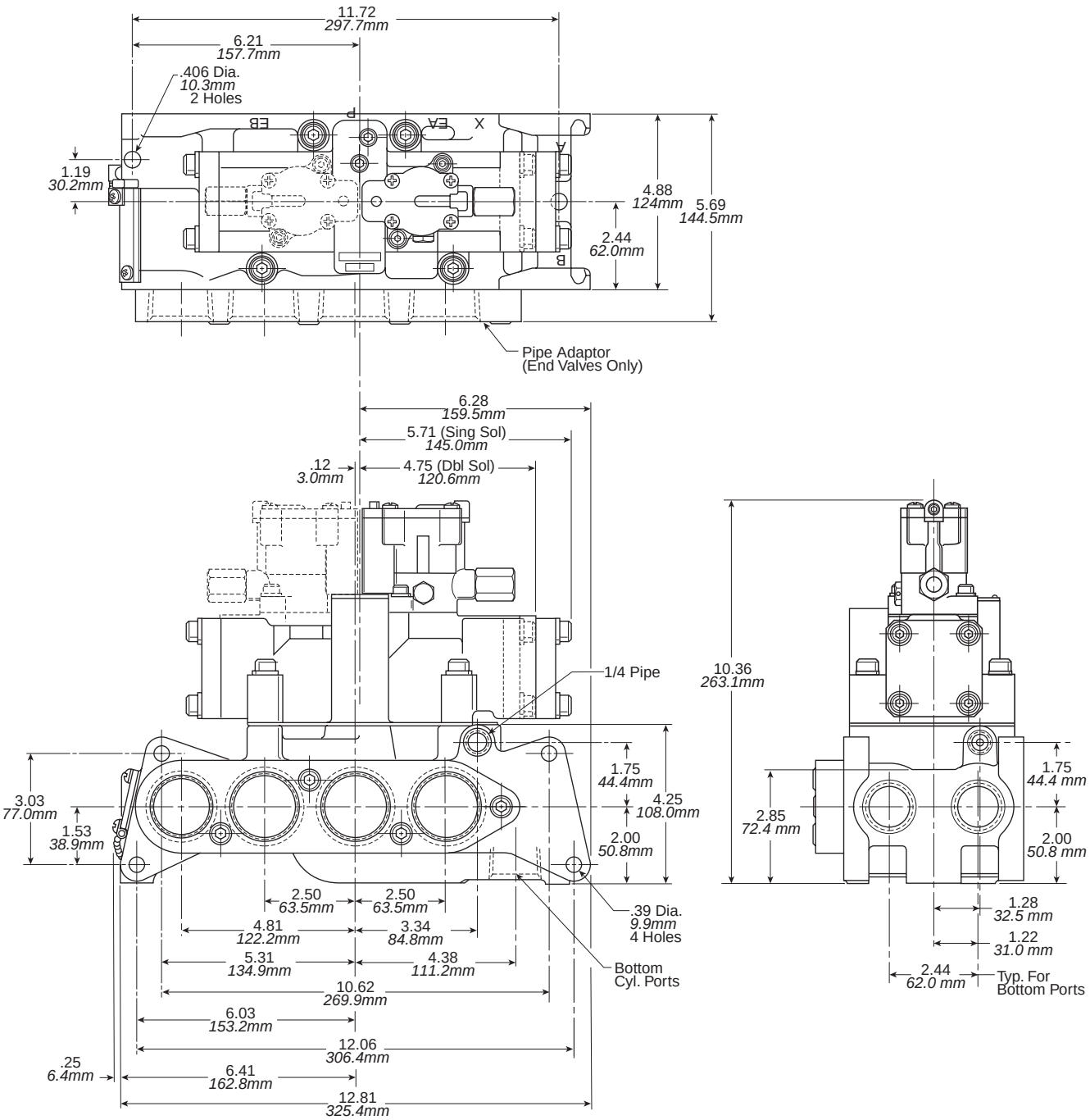
1" Basic

K142236 ..... Cyl. Ports 1" NPTF
K122016 ..... End Plate Kit (Both Plates)
Exhaust Port..... 1-1/2" NPTF (Port Plate)
Inlet Port..... 1-1/2" NPTF (Port Plate)
Conduit Port ..... 1-1/4" NPTF (Port Plate)

Note:

K142236 dimension is for reference only. The manifold is discontinued as of August 15, 2008.



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Notes

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(Revised 04-25-2012)

Directair 2 Series

Inline Valves
Manual / Mechanical
3 & 4-Way, 3 & 5-Port, 2-Position

Section F

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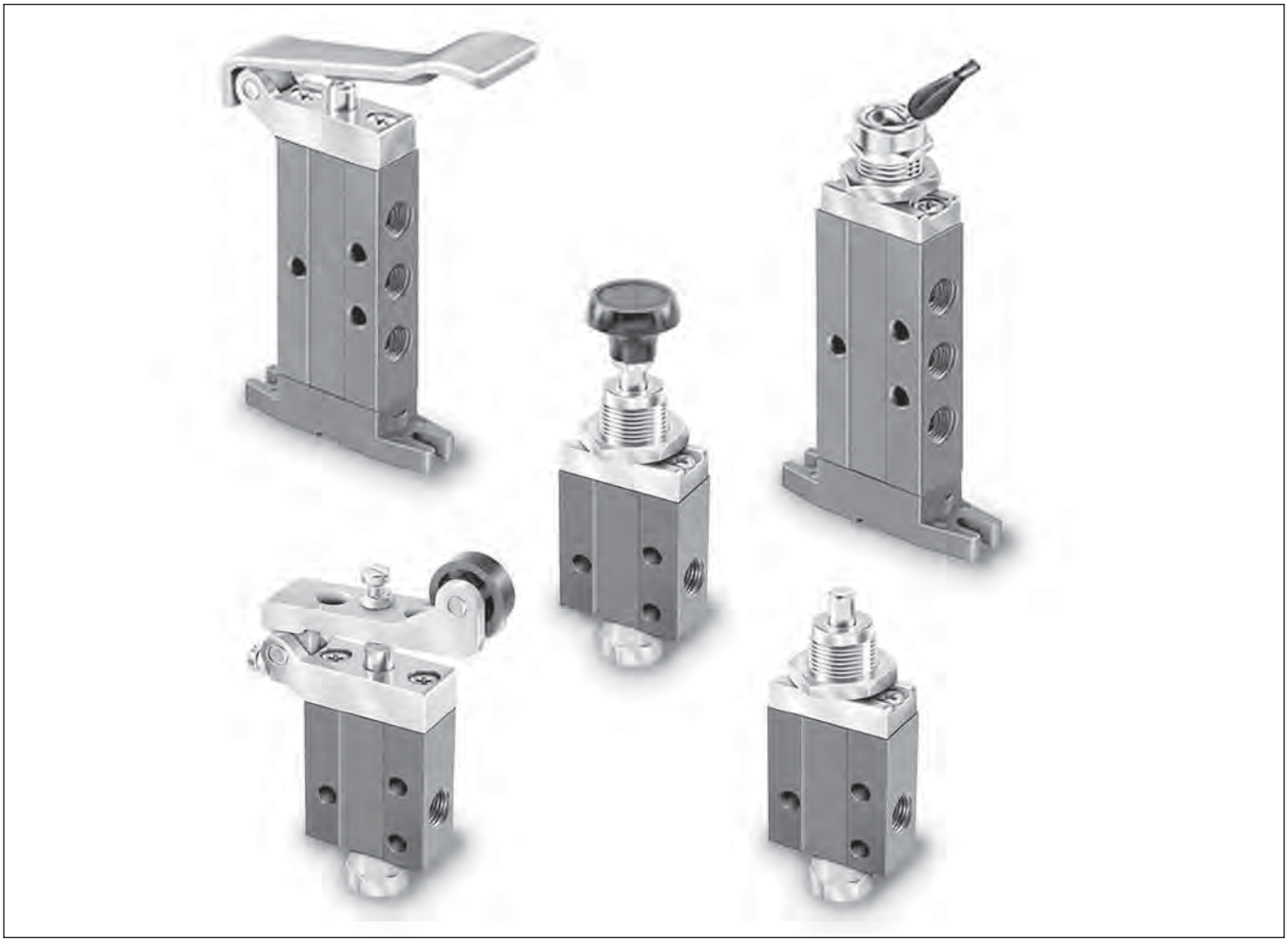

BOLD ITEMS ARE MOST POPULAR.

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Directair 2 Series

Specifications

Inline Valve
- 1/8" Port
- 4-Way, 2-Position
- 3-Way, 2-Position

Manual Operators
- Lever
- Toggle
- Button

Mechanical Operators
- Plunger
- Roller
- One-Way Tripper

Spool Style

Packed Bore Style – .20 Cv
- Stainless Steel Spool
- Fluorocarbon O-Rings
- 3-Way & 4-Way

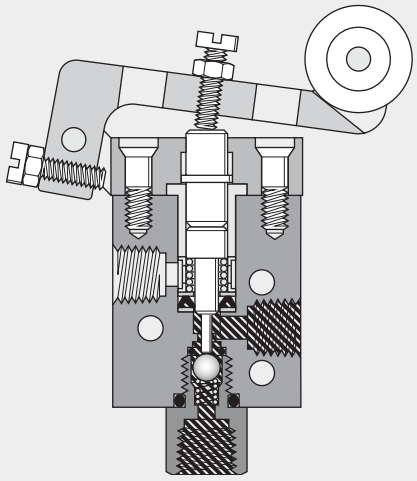
Poppet Style – .17 Cv
- Economical
- 3-Way Normally Closed Function

Operating Pressure

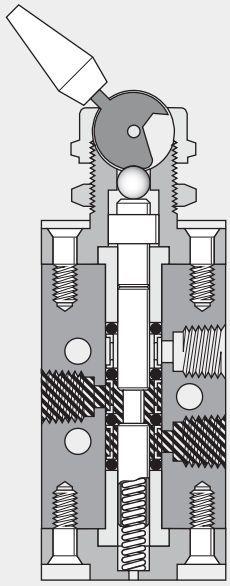
- Vacuum to 150 PSI (28" Hg to 1035 kPa) for spool style
- 0 to 150 PSI (0 to 1035 kPa) for poppet style

Operating Temperature

- 32°F to 175°F (0°C to 80°C)



Roller Operated



Toggle Operated

Pressure **Exhaust**

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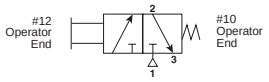
Plunger Operated

404111000 Plunger Operated, Spring Return



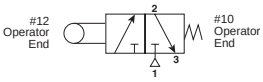
Spring Return

Normal Position – Pressure at Inlet Port 1 is blocked. Outlet Port 2 is connected to Exhaust Port 3.

Actuated Position – Pressure at Inlet Port 1 is connected to Outlet Port 2. Exhaust Port 3 is blocked.

Roller Operated

404211000 Roller Operated, Spring Return



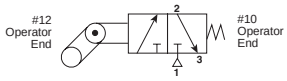
Spring Return

Normal Position – Pressure at Inlet Port 1 is blocked. Outlet Port 2 is connected to Exhaust Port 3.

Actuated Position – Pressure at Inlet Port 1 is connected to Outlet Port 2. Exhaust Port 3 is blocked.

Tripper Operated

404311000 One-Way Tripper Operated, Spring Return



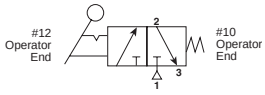
Spring Return

Normal Position – Pressure at Inlet Port 1 is blocked. Outlet Port 2 is connected to Exhaust Port 3.

Actuated Position – Pressure at Inlet Port 1 is connected to Outlet Port 2. Exhaust Port 3 is blocked.

Toggle Operated

404811000 Detented Toggle, Spring Return



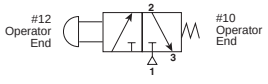
Spring Return

Normal Position – Pressure at Inlet Port 1 is blocked. Outlet Port 2 is connected to Exhaust Port 3.

Actuated (Detented) Position – Pressure at Inlet Port 1 is connected to Outlet Port 2. Exhaust Port 3 is blocked.

Button Operated

404411000 Button Operated, Spring Return



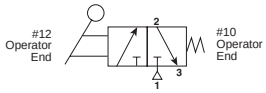
Spring Return

Normal Position – Pressure at Inlet Port 1 is blocked. Outlet Port 2 is connected to Exhaust Port 3.

Actuated Position – Pressure at Inlet Port 1 is connected to Outlet Port 2 Exhaust Port 3 is blocked.

Hand Lever Operated

404711000 Hand Lever Operated, Spring Return



Spring Return

Normal Position – Pressure at Inlet Port 1 is blocked. Outlet Port 2 is connected to Exhaust Port 3.

Actuated Position – Pressure at Inlet Port 1 is connected to Outlet Port 2. Exhaust Port 3 is blocked.

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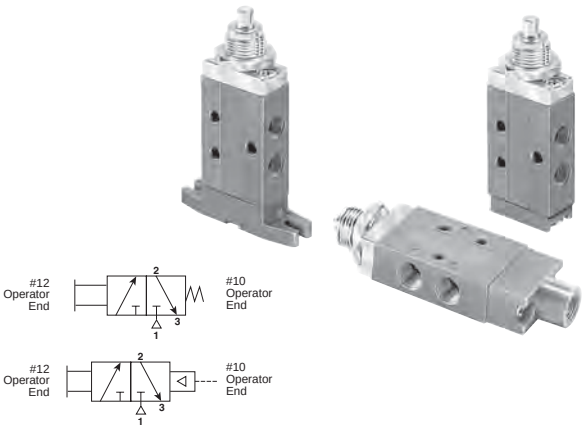
Plunger Operated

414111000 Plunger Operated, Spring Return

414121000 Plunger Operated, Spring Return, Foot Mounted

414151000 Plunger Operated, Pilot Return



Spring Return

Normal Position – Pressure at Inlet Port 1 is blocked. Outlet Port 2 is connected to Exhaust Port 3.

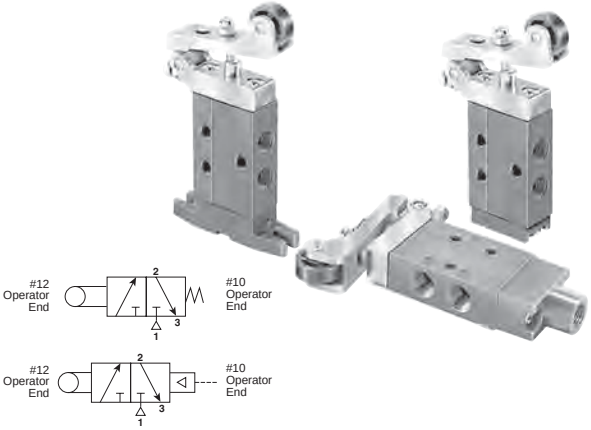
Actuated Position – Pressure at Inlet Port 1 is connected to Outlet Port 2 Exhaust Port 3 is blocked.

Roller Operated

414211000 Roller Operated, Spring Return

414221000 Roller Operated, Spring Return, Foot Mounted

414251000 Roller Operated, Pilot Return



Spring Return

Normal Position – Pressure at Inlet Port 1 is blocked. Outlet Port 2 is connected to Exhaust Port 3.

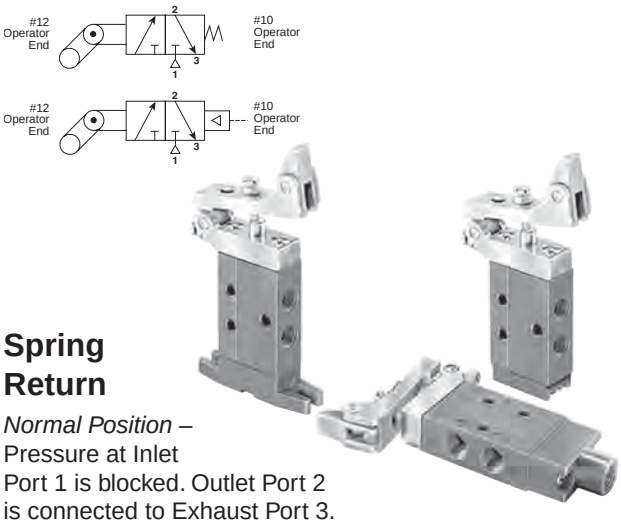
Actuated Position – Pressure at Inlet Port 1 is connected to Outlet Port 2. Exhaust Port 3 is blocked.

One-Way Tripper Operated

414311000 One-Way Tripper, Spring Return

414321000 One-Way Tripper, Spring Return, Foot Mounted

414351000 One-Way Tripper, Pilot Return



Spring Return

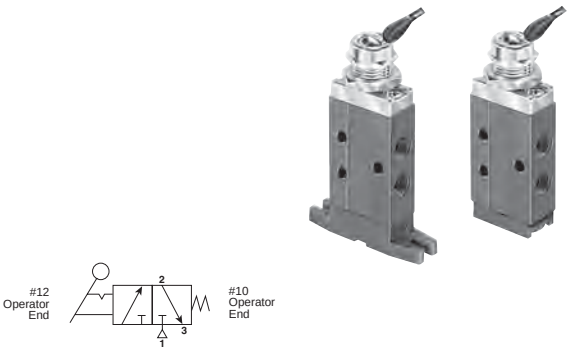
Normal Position – Pressure at Inlet Port 1 is blocked. Outlet Port 2 is connected to Exhaust Port 3.

Actuated Position – Pressure at Inlet Port 1 is connected to Outlet Port 2. Exhaust Port 3 is blocked.

Toggle Operated

414811000 Detented Toggle, Spring Return

414821000 Detented Toggle, Spring Return, Foot Mounted



Spring Return

Normal Position – Pressure at Inlet Port 1 is blocked.

Outlet Port 2 is connected to Exhaust Port 3.

Actuated (Detented) Position – Pressure at Inlet Port 1 is connected to Outlet Port 2. Exhaust Port 3 is blocked.

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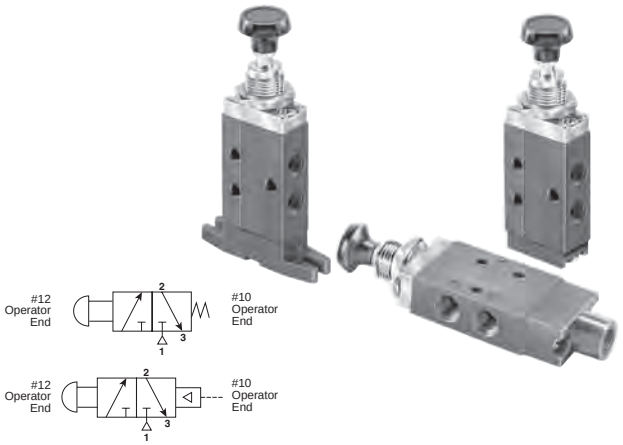
Button Operated

414411000 Button Operated, Spring Return

414421000 Button Operated, Spring Return, Foot Mounted

414451000 Button Operated, Pilot Return



Spring Return

Normal Position – Pressure at Inlet Port 1 is blocked. Outlet Port 2 is connected to Exhaust Port 3.

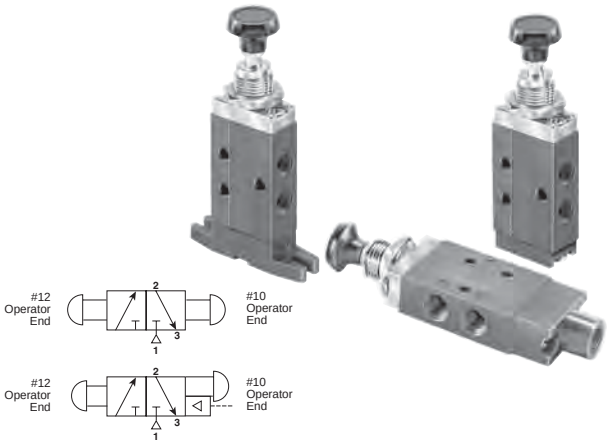
Actuated Position – Pressure at Inlet Port 1 is connected to Outlet Port 2. Exhaust Port 3 is blocked.

Button Operated

414931000 Button Operated, Manual Return

414941000 Button Operated, Manual Return, Foot Mounted

414951000 Button Operated, Manual Return or Pilot Return



Manual Return

Operator pulled last – Pressure at Inlet Port 1 is blocked. Outlet Port 2 is connected to Exhaust Port 3.

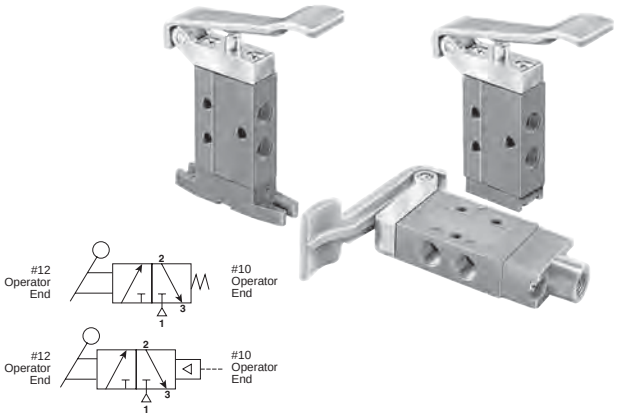
Operator pushed last – Pressure at Inlet Port 1 is connected to Outlet Port 2. Exhaust Port 3 is blocked.

Hand Lever Operated

414711000 Hand Lever Operated, Spring Return

414721000 Hand Lever Operated, Spring Return, Foot Mounted

414751000 Hand Lever Operated, Pilot Return



Spring Return

Normal Position – Pressure at Inlet Port 1 is blocked. Outlet Port 2 is connected to Exhaust Port 3.

Actuated Position – Pressure at Inlet Port 1 is connected to Outlet Port 2. Exhaust Port 3 is blocked.

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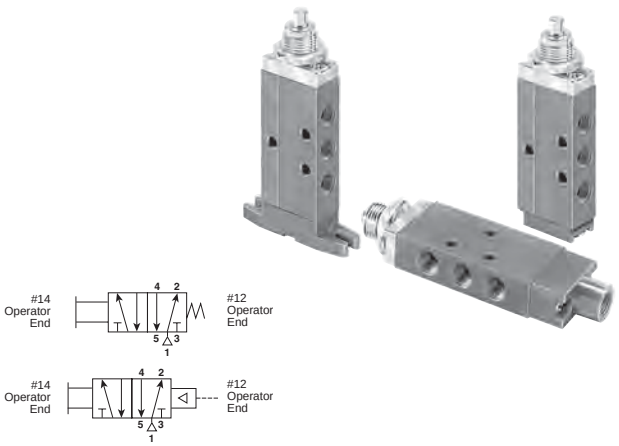
Plunger Operated

410111000 Plunger Operated, Spring Return

410121000 Plunger Operated, Spring Return, Foot Mounted

410151000 Plunger Operated, Pilot Return



Spring Return

Normal Position – Pressure at Inlet Port 1 is connected to Outlet Port 2. Outlet Port 4 is connected to Exhaust Port 5.

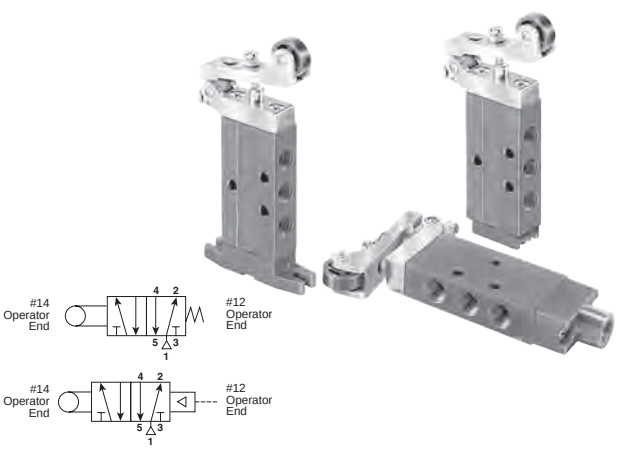
Actuated Position – Pressure at Inlet Port 1 is connected to Outlet Port 4. Outlet Port 2 is connected to Exhaust Port 3.

Roller Operated

410211000 Roller Operated, Spring Return

410221000 Roller Operated, Spring Return, Foot Mounted

410251000 Roller Operated, Pilot Return



Spring Return

Normal Position – Pressure at Inlet Port 1 is connected to Outlet Port 2. Outlet Port 4 is connected to Exhaust Port 5.

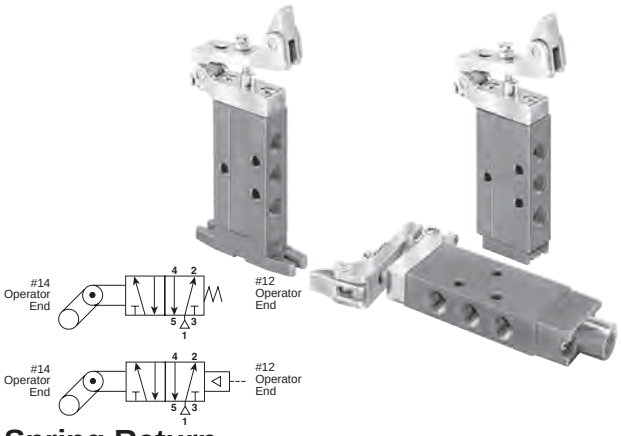
Actuated Position – Pressure at Inlet Port 1 is connected to Outlet Port 4. Outlet Port 2 is connected to Exhaust Port 3.

One-Way Tripper Operated

410311000 One-Way Tripper, Spring Return

410321000 One-Way Tripper, Spring Return, Foot Mounted

410351000 One-Way Tripper, Pilot Return



Spring Return

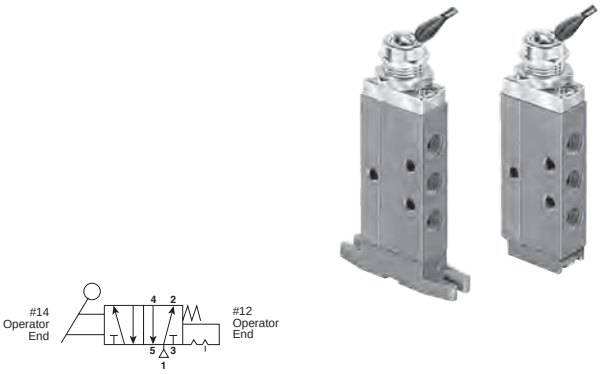
Normal Position – Pressure at Inlet Port 1 is connected to Outlet Port 2. Outlet Port 4 is connected to Exhaust Port 5.

Actuated Position – Pressure at Inlet Port 1 is connected to Outlet Port 4. Outlet Port 2 is connected to Exhaust Port 3.

Toggle Operated

410811000 Detented Toggle, Spring Return

410821000 Detented Toggle, Spring Return, Foot Mounted



Spring Return

Normal Position – Pressure at Inlet Port 1 is connected to Outlet Port 2. Outlet Port 4 is connected to Exhaust Port 5.

Actuated (Detented) Position – Pressure at Inlet Port 1 is connected to Outlet Port 4. Outlet Port 2 is connected to Exhaust Port 3.

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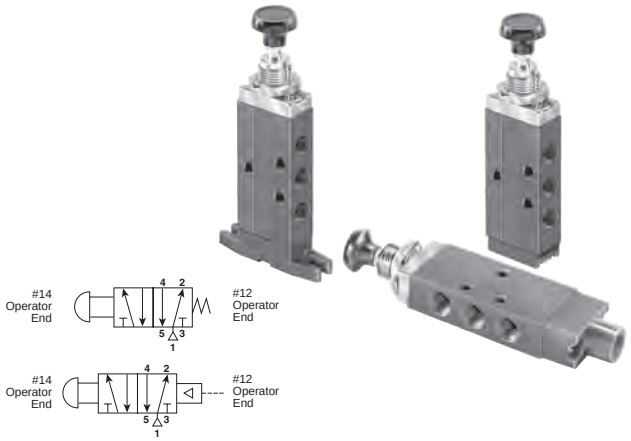
Button Operated

410411000 Button Operated, Spring Return

410421000 Button Operated, Spring Return, Foot Mounted

410451000 Button Operated, Pilot Return



Spring Return

Normal Position – Pressure at Inlet Port 1 is connected to Outlet Port 2. Outlet Port 4 is connected to Exhaust Port 5.

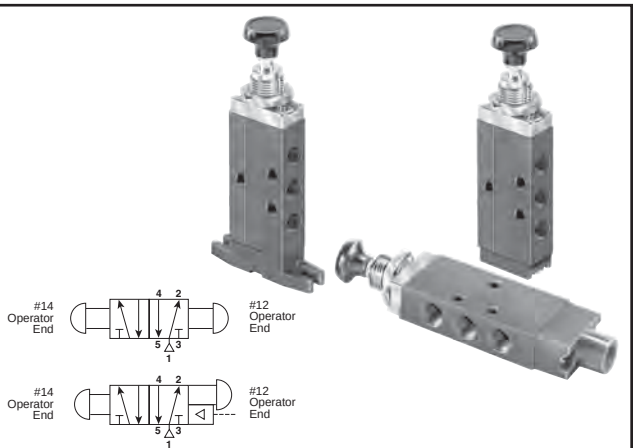
Actuated Position – Pressure at Inlet Port 1 is connected to Outlet Port 4. Outlet Port 2 is connected to Exhaust Port 3.

Button Operated

410931000 Button Operated, Manual Return

410941000 Button Operated, Manual Return, Foot Mounted

410951000 Button Operated, Manual Return or Pilot Return



Manual Return

Operator pulled last – Pressure at Inlet Port 1 is connected to Outlet Port 2. Outlet Port 4 is connected to Exhaust Port 5.

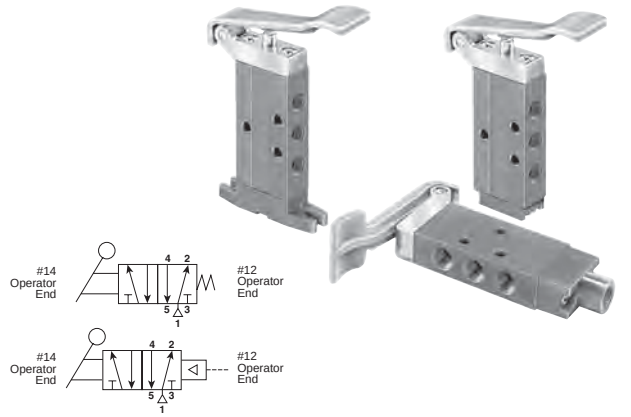
Operator pushed last – Pressure at Inlet Port 1 is connected to Outlet Port 4. Outlet Port 2 is connected to Exhaust Port 3.

Hand Lever Operated

410711000 Hand Lever Operated, Spring Return

410721000 Hand Lever Operated, Spring Return, Foot Mounted

410751000 Hand Lever Operated, Pilot Return



Spring Return

Normal Position – Pressure at Inlet Port 1 is connected to Outlet Port 2. Outlet Port 4 is connected to Exhaust Port 5.

Actuated Position – Pressure at Inlet Port 1 is connected to Outlet Port 4. Outlet Port 2 is connected to Exhaust Port 3.

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Directair 2 Series

BOLD OPTIONS ARE MOST POPULAR.

41	0	1	1	1	000

Basic Series	
1/8" Port Poppet Valve	**40***
1/8" Port Spool Valve	**41**

* Only available in Spring Return.

Type	
4-Way, 2-Position Valve	**0***
3-Way, 2-Position	**4**

* N/A with Basic Series 40.

Actuation	
Plunger	**1**
Roller - Delrin	**2**
One-Way Tripper	**3**
Button - Spring Return	**4**
Hand Lever	**7**
Toggle	**8**
Button - Push-Pull	**9***

* N/A with Basic Series 40.

	Return
1†	**Spring**
2†	**Spring w/ Foot Mount**
3*	**None (Manual Return)**
4*	**None (Manual Return w/ Foot Mount)**
5†	Remote Pilot Return

* Available only with Actuation 9.

† N/A with Actuation 8.

Mounting	
1	**Direct Pipe Ported, NPT**
K	Direct Pipe Ported, BSPP

Manual / Mechanical	
000	**Standard**

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Operating Pressure

150 PSI (28" Hg to 1035 kPa)*

* Poppet valves cannot be used for vacuum.
Minimum operating pressure = 0 PSIG.

Temperature Range

32°F to 175°F (0°C to 80°C)

⚠ **CAUTION:**
If it is possible that the ambient temperature may fall below freezing, the medium must be moisture free to prevent internal damage or unpredictable behavior.

Materials

Body and Operator Housings.....Aluminum Extrusion
Spool .....Stainless Steel
Bushings.....Brass
Spacers ..... Zinc Die Cast
Dynamic O-Rings.....Fluorocarbon
Operator O-Rings.....Buna (Nitrile)
Operator U-Cups.....Buna (Nitrile)
Poppet Ball.....Nylon

Lubrication

For maximum service life use clean, lubricated air. Valves are shipped pre-lubricated and can be operated without additional lubrication with reduced service life.

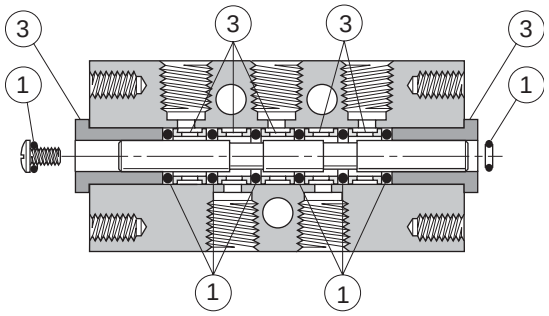
Suggested Lubricant

F442 Oil

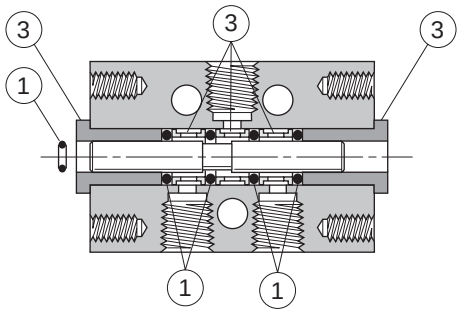
Flow Rating (Cv)

Flow Path	Direct Pipe Spool, 1/8" Ports	Direct Pipe Poppet, 1/8" Ports
1 → 2	.199	.125
1 → 4	.191	—
2 → 3	.192	.215
4 → 5	.212	—
Avg.	.199	N/A

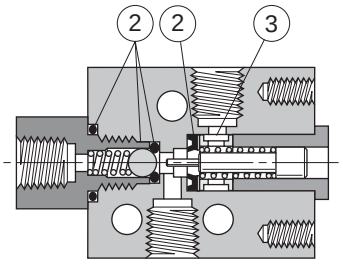
Service Kits



4-Way Spool



3-Way Spool



3-Way Poppet

(1) Spool Valve Seal Kit
(3 & 4-Way, Direct Pipe Ported) **41000 8000**
(2) Poppet Valve Seal Kit **40411 8000**
(3) Body Service Kit..... **41000 8005**

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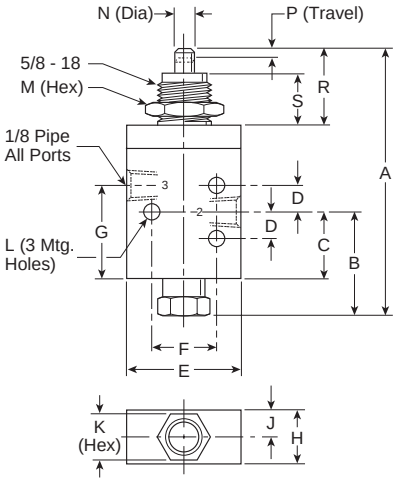
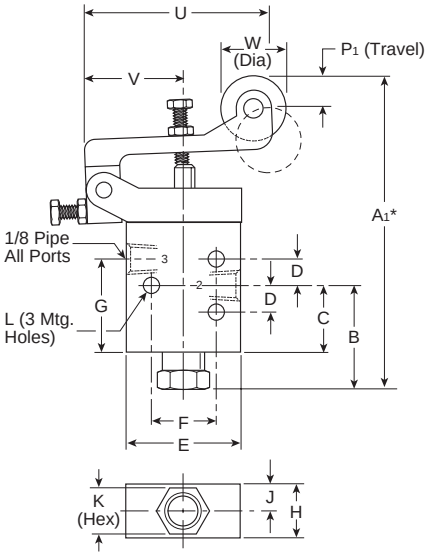
Plunger, Roller, One-Way Tripper & Toggle Operated

3-Way, 3-Port, 2-Position – 1/8" Ports

Plunger Operated



Roller Operated



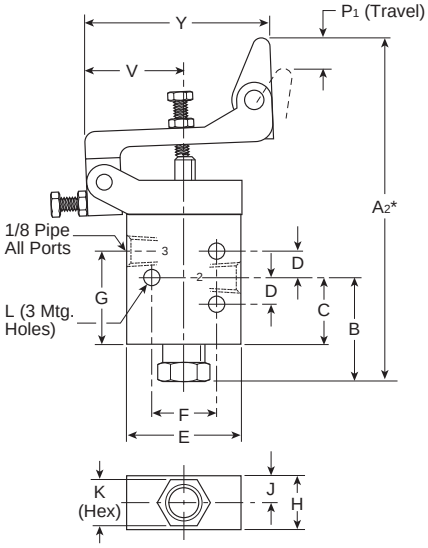
3-Way, 3-Port, 2-Position

A	A1*	A2*	A3	B
3.37 (86)	4.21 (107)	4.46 (113)	3.99 (101)	1.03 (26)
C	**D**	**E**	**F**	**G**
.55 (14)	.31 (8)	1.31 (33)	.75 (19)	.90 (23)
H	**J**	**K**	**L**	**M**
.62 (16)	.31 (8)	.56 (14)	.19 (5)	.88 (22)
N	**P**	**P1**	**R**	**R1**
.25 (6)	.17 (4)	.38 (10)	.91 (23)	1.53 (39)
S	**S1**	**U**	**V**	**W**
.62 (16)	.78 (20)	2.28 (58)	1.19 (30)	.75 (19)
X	**Y**			
.19 (5)	2.19 (56)			

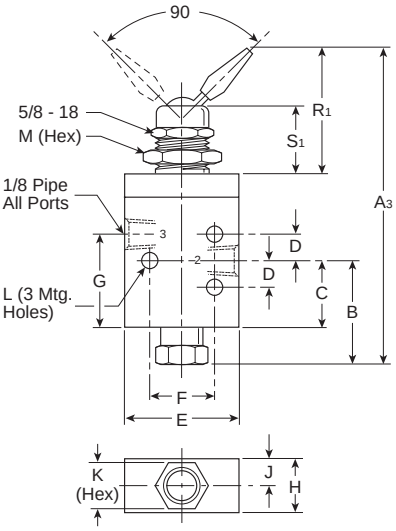
* Dimensions may be reduced .44" using adjusting screw.

Inches (mm)

One-Way Tripper Operated



Toggle Operated



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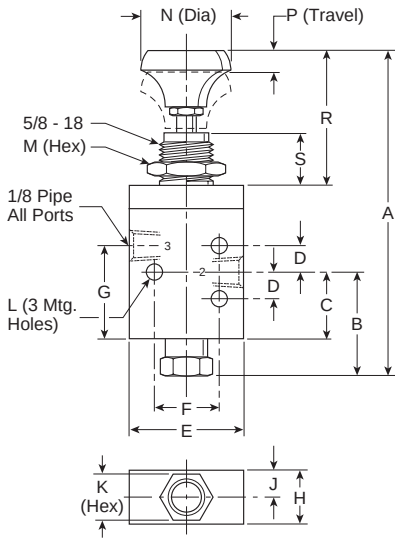
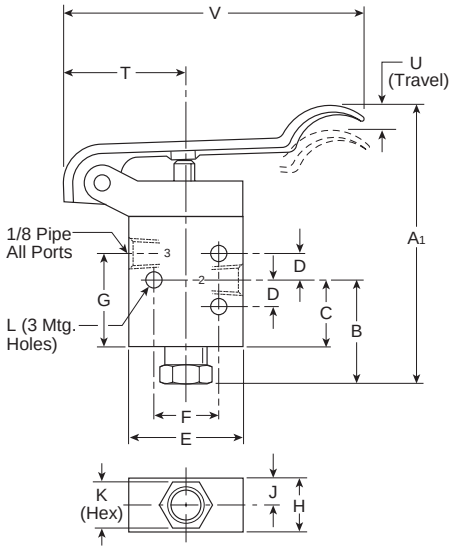
Button & Hand Lever Operated

3-Way, 3-Port, 2-Position – 1/8" Ports

Button Operated



Hand Lever Operated



3-Way, 3-Port, 2-Position

A	A1	B	C	D
4.13 (105)	3.34 (85)	1.03 (26)	.55 (14)	.31 (8)
E	**F**	**G**	**H**	**J**
1.31 (33)	.75 (19)	.90 (23)	.62 (16)	.31 (8)
K	**L**	**M**	**N**	**P**
.56 (14)	.19 (5)	.88 (22)	1.06 (27)	.17 (4)
R	**S**	**T**	**U**	**V**
1.67 (42)	.63 (16)	1.19 (30)	.53 (13)	3.38 (86)

Inches (mm)

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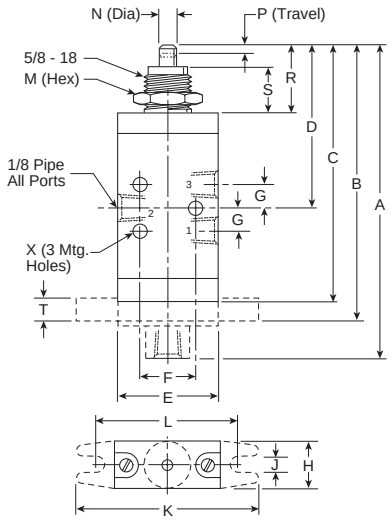
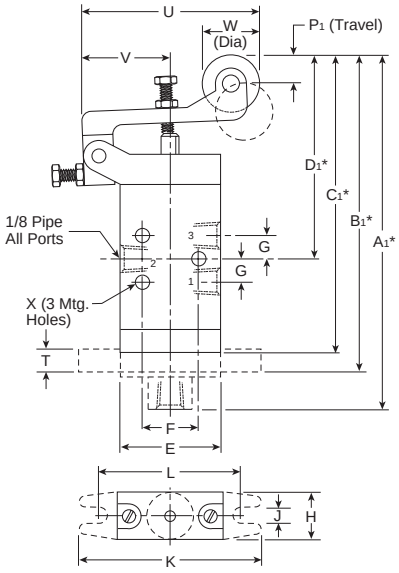
Plunger, Roller, One-Way Tripper & Toggle Operated

3-Way, 3-Port, 2-Position – 1/8" Ports

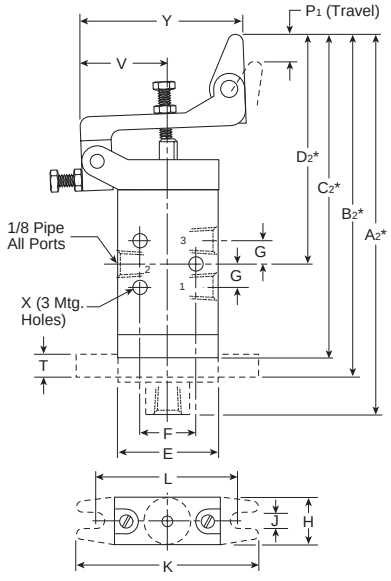
Plunger Operated



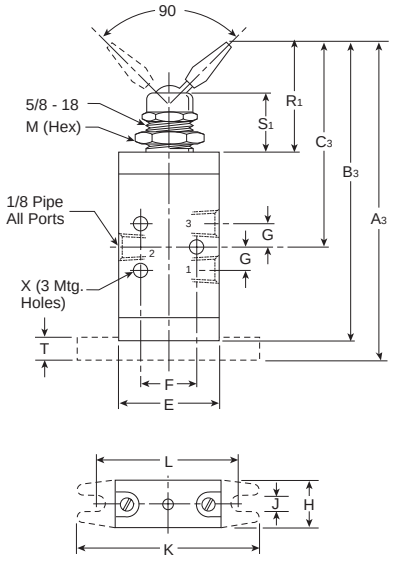
Roller Operated



One-Way Tripper Operated



Toggle Operated



3-Way, 3-Port, 2-Position

A	**A₁***	**A₂***	**A₃**	**B**
4.14 (105)	4.98 (126)	5.23 (133)	4.23 (107)	3.61 (92)
B₁	**B₂**	**B₃**	**C**	**C₁**
4.45 (113)	4.70 (119)	4.00 (102)	3.38 (86)	4.22 (107)
C₂	**C₃**	**D**	**D₁**	**D₂**
4.47 (113)	2.75 (70)	2.05 (52)	2.98 (76)	3.22 (82)
E	**F**	**G**	**H**	**J**
1.31 (33)	.75 (19)	.31 (8)	.62 (16)	.20 (5)
K	**L**	**M**	**N**	**P**
2.38 (60)	1.88 (48)	.88 (22)	.25 (6)	.17 (4)
P₁	**R**	**R₁**	**S**	**S₁**
.38 (10)	.91 (23)	1.53 (39)	.62 (16)	.78 (20)
T	**U**	**V**	**W**	**X**
.25 (6)	2.28 (58)	1.19 (30)	.75 (19)	.19 (5)
Y				
2.19 (56)				

* Dimensions may be reduced .44" using adjusting screw.

Inches (mm)

Parker Hannifin Corporation
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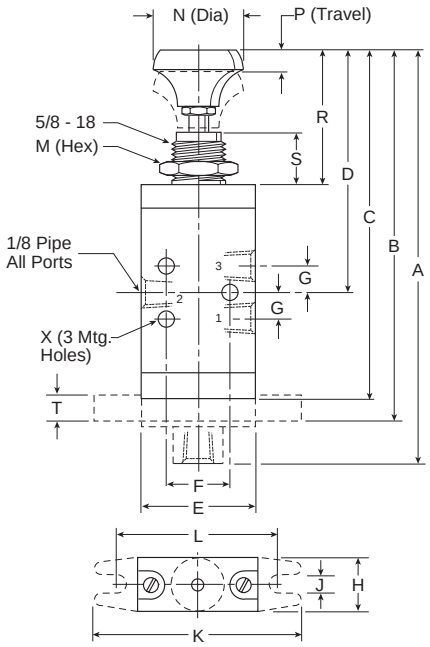
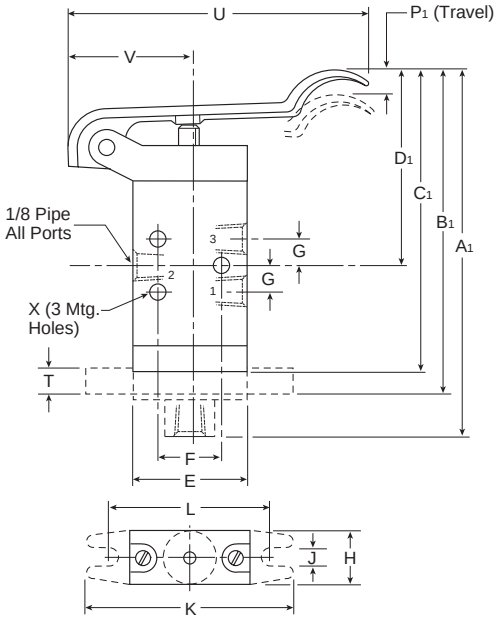
Button, Hand Lever Operated

3-Way, 3-Port, 2-Position – 1/8" Ports

Button Operated



Hand Lever Operated



3-Way, 3-Port, 2-Position

A	**A_1**	**B**	**B_1**	**C**
5.08 (129)	4.29 (109)	4.55 (115)	3.77 (96)	4.31 (109)
C_1	**D**	**D_1**	**E**	**F**
3.53 (90)	3.08 (78)	2.29 (58)	1.31 (33)	.75 (19)
G	**H**	**J**	**K**	**L**
.31 (8)	.62 (16)	.20 (5)	2.38 (60)	1.88 (48)
M	**N**	**P**	**P_1**	**R**
.88 (22)	1.06 (27)	.17 (4)	.53 (13)	1.67 (42)
S	**T**	**U**	**V**	**X**
.63 (16)	.25 (6)	3.38 (86)	1.19 (30)	.19 (5)
Y				
.59 (15)				

Inches (mm)

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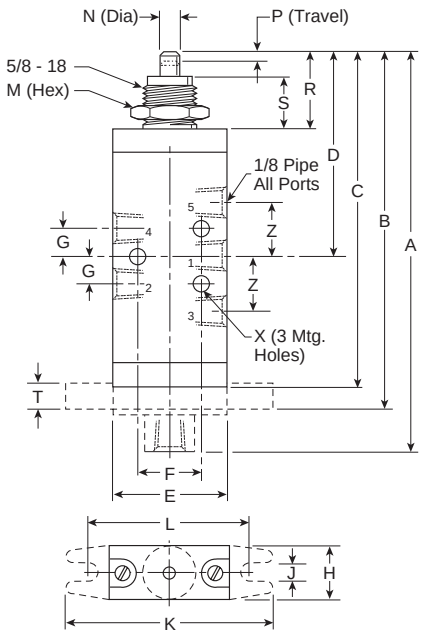
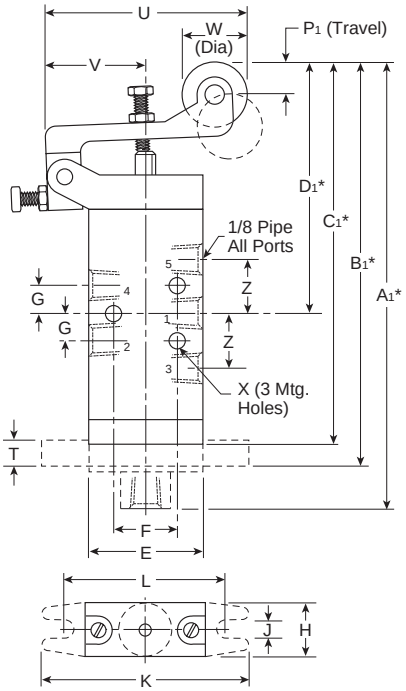
Plunger, Roller, One-Way Tripper & Toggle Operated

4-Way, 5-Port, 2-Position – 1/8" Ports

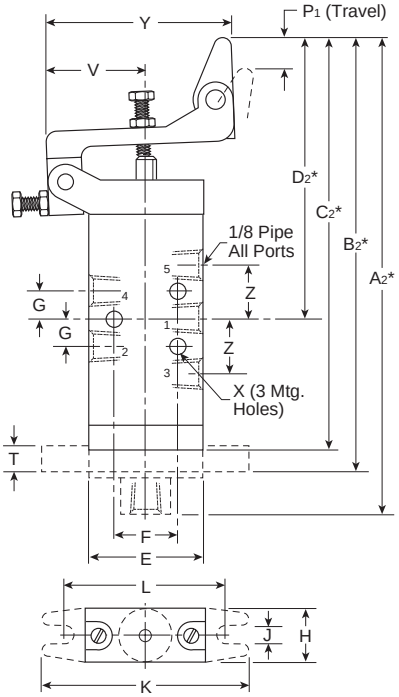
Plunger Operated



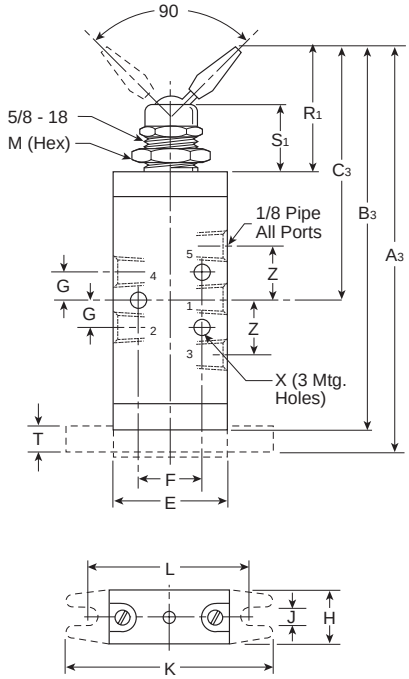
Roller Operated



One-Way Tripper Operated



Toggle Operated



4-Way, 5-Port, 2-Position

A	**A₁***	**A₂***	**A₃**	**B**
4.75 (121)	5.59 (142)	5.84 (148)	4.84 (123)	4.22 (107)
B₁*	**B₂***	**B₃**	**C**	**C₁***
5.06 (128)	5.31 (135)	4.61 (117)	3.99 (102)	4.83 (123)
C₂*	**C₃**	**D**	**D₁***	**D₂***
5.08 (129)	3.06 (78)	2.44 (62)	3.28 (83)	3.53 (90)
E	**F**	**G**	**H**	**J**
1.31 (33)	.75 (19)	.31 (8)	.62 (16)	.20 (5)
K	**L**	**M**	**N**	**P**
2.38 (60)	1.88 (48)	.88 (22)	.25 (6)	.17 (4)
P₁	**R**	**R₁**	**S**	**S₁**
.38 (10)	.91 (23)	1.53 (39)	.62 (16)	.78 (20)
T	**U**	**V**	**W**	**X**
.25 (6)	2.28 (58)	1.19 (30)	.75 (19)	.19 (5)
Y	**Z**			
2.19 (56)	.62 (16)			

* Dimensions may be reduced .44" using adjusting screw.

Inches (mm)

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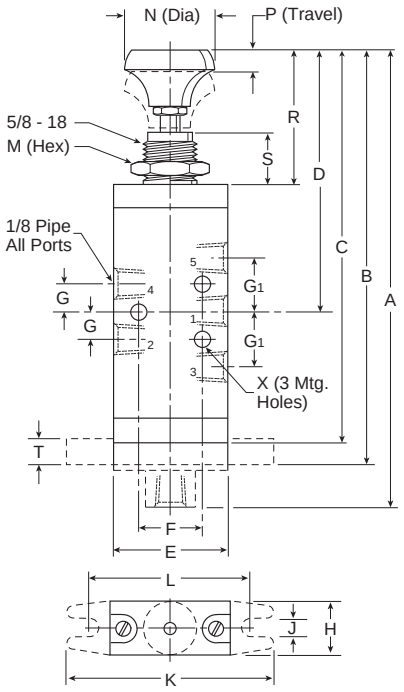
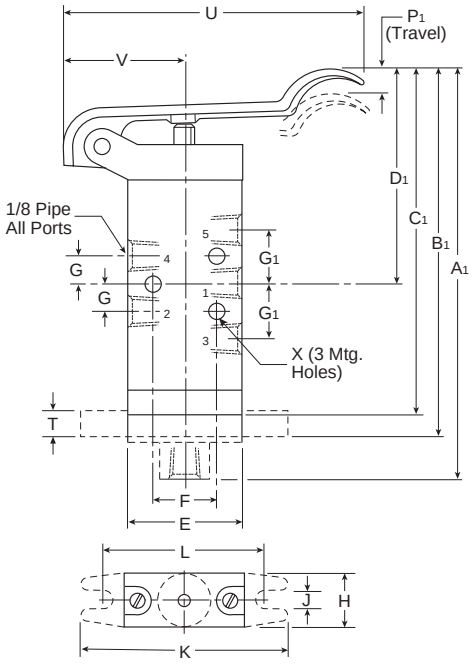
Button & Hand Lever Operated

4-Way, 5-Port, 2-Position – 1/8" Ports

Button Operated



Hand Lever Operated



4-Way, 5-Port, 2-Position

A	A1	B	B1	C
5.69 (144)	4.90 (124)	5.16 (131)	4.38 (111)	4.92 (125)
C1	**D**	**D1**	**E**	**F**
4.14 (105)	3.67 (93)	2.90 (74)	1.31 (33)	.75 (19)
G	**G1**	**H**	**J**	**K**
.31 (8)	.63 (16)	.62 (16)	.20 (5)	2.38 (60)
L	**M**	**N**	**P**	**P1**
1.88 (48)	.88 (22)	1.06 (27)	.17 (4)	.53 (13)
R	**S**	**T**	**U**	**V**
1.67 (42)	.63 (16)	.25 (6)	3.38 (86)	1.19 (30)
X	**Y**			
.19 (5)	.59 (15)			

Inches (mm)

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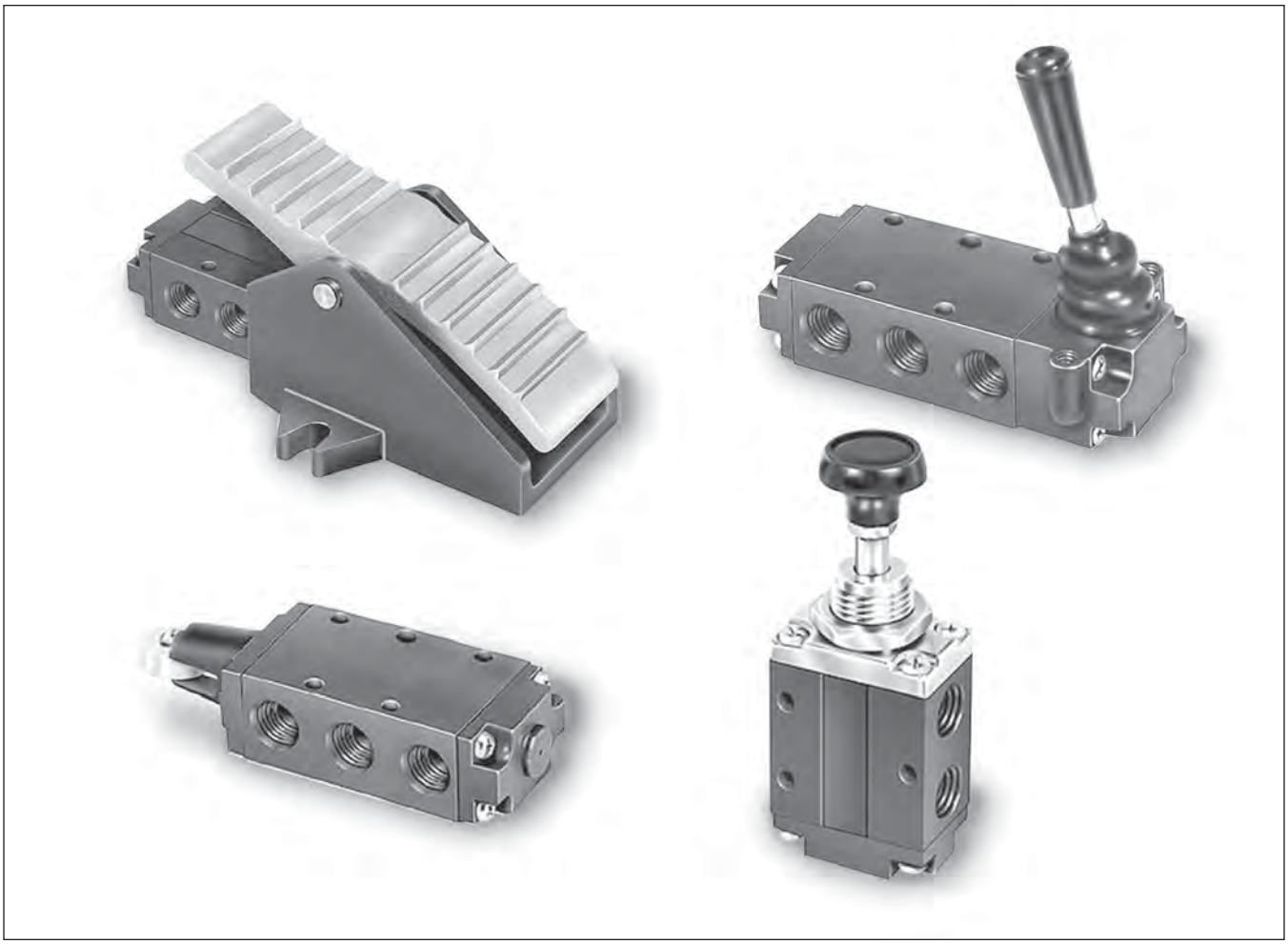
Directair 4 Series

Inline Valves
Manual / Mechanical
3 & 4-Way, 3 & 5-Port, 2 & 3-Position

Section F

www.parker.com/pneu/directair



BOLD ITEMS ARE MOST POPULAR.

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Directair 4 Series

Specifications

Inline Valve
- 1/4" Port
- 4-Way, 2 & 3-Position
- 3-Way, 2 & 3-Position

Manual Operators
- Lever
- Pedal
- Treadle
- Button

Mechanical Operators
- Roller

Packed Bore Style - .83 Cv
- Stainless Steel Spool
- Fluorocarbon O-rings

Operating Pressure

- Vacuum to 150 PSI (28" Hg to 1035 kPa)

Operating Temperature

- 32 to 175°F (0 to 80°C)

Button Operated

Lever Operated

Treadle Operated

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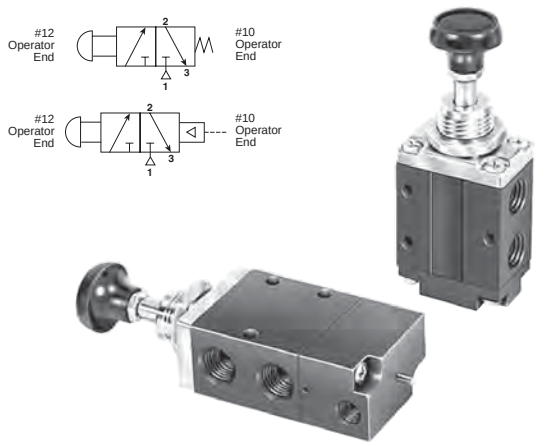
Button Operated

524411000 Button Operated, Spring Return
524451000 Button Operated, Pilot Return



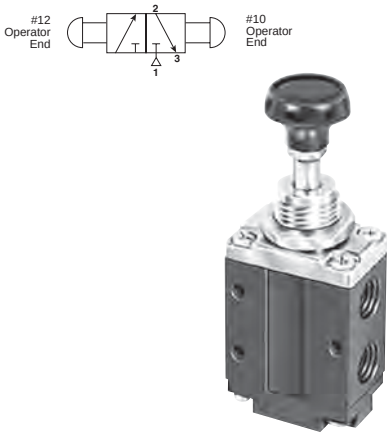
Spring Return

Normal Position – Pressure at Inlet Port 1 is blocked. Outlet Port 2 is connected to Exhaust Port 3.

Actuated Position – Pressure at Inlet Port 1 is connected to Outlet Port 2. Exhaust Port 3 is blocked.

Button Operated

524431000 Button Operated, Manual Return



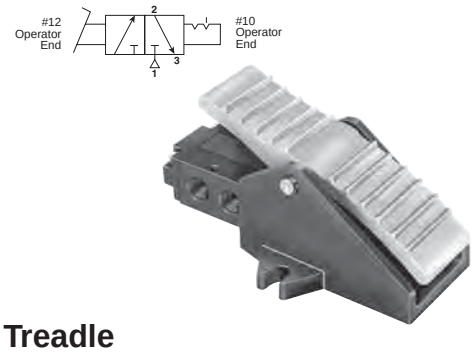
Manual Return

Operator pulled last – Pressure at Inlet Port 1 is blocked. Outlet Port 2 is connected to Exhaust Port 3.

Operator pushed last – Pressure at Inlet Port 1 is connected to Outlet Port 2. Exhaust Port 3 is blocked.

Treadle Operated

524931000 Treadle Operated



Treadle

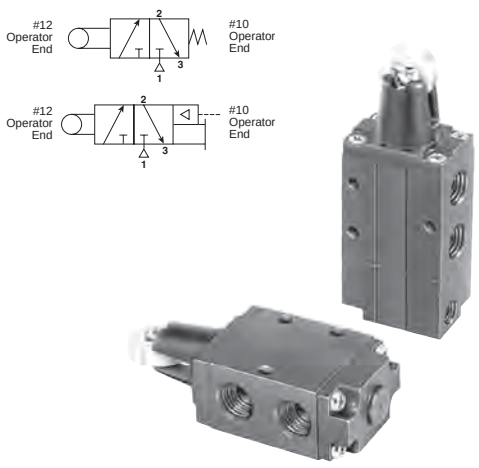
Toe pressed last – Pressure at Inlet Port 1 is blocked. Outlet Port 2 is connected to Exhaust Port 3.

Heel pressed last – Pressure at Inlet Port 1 is connected to Outlet Port 2. Exhaust Port 3 is blocked.

⚠ ***CAUTION:***
This valve shall not be used to actuate a punch press. Do not use this valve on punch presses or press brakes. See OSHA 1910.217.
See Accessories page for Pedal Guard Kit.

Roller Operated

524211000 Delrin Roller Operated, Spring Return
524251000 Delrin Roller Operated, Pilot Return
524A11000 Steel Roller Operated, Spring Return
524A51000 Steel Roller Operated, Pilot Return



Roller

Normal Position – Pressure at Inlet Port 1 is blocked. Outlet Port 2 is connected to Exhaust Port 3.

Actuated Position – Pressure at Inlet Port 1 is connected to Outlet Port 2. Exhaust Port 3 is blocked.

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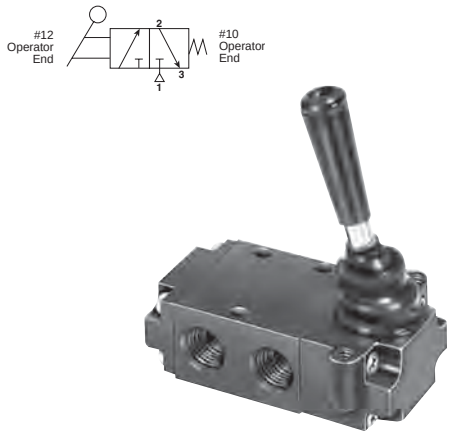
Lever Operated

524811000 Lever Operated, Spring Return



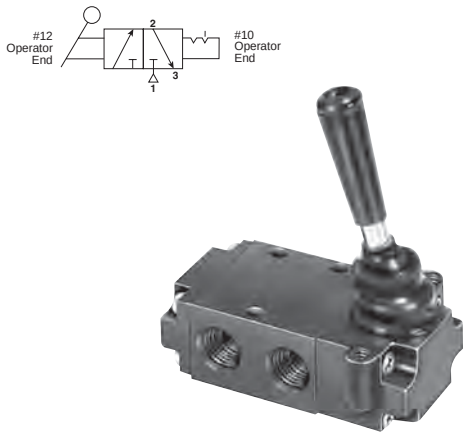
Spring Return

Normal Position – Pressure at Inlet Port 1 is blocked. Outlet Port 2 is connected to Exhaust Port 3.

Actuated Position – Pressure at Inlet Port 1 is connected to Outlet Port 2. Exhaust Port 3 is blocked.

Lever Operated

524831000 Lever Operated, Manual Return



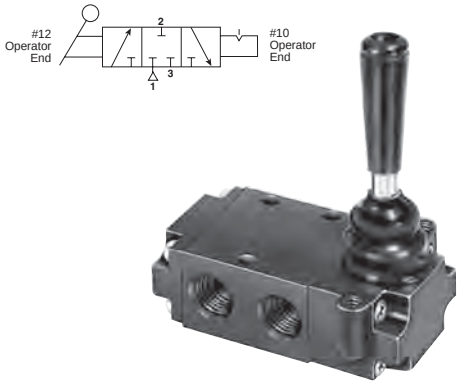
Manual Return

Operator pushed last (toward body) – Pressure at Inlet Port 1 is blocked. Outlet Port 2 is connected to Exhaust Port 3.

Operator pulled last (away from body) – Pressure at Inlet Port 1 is connected to Outlet Port 2. Exhaust Port 3 is blocked.

Lever Operated – 3-Position

523831000 Lever Operated, 3-Position Detented, All Ports Blocked



Lever

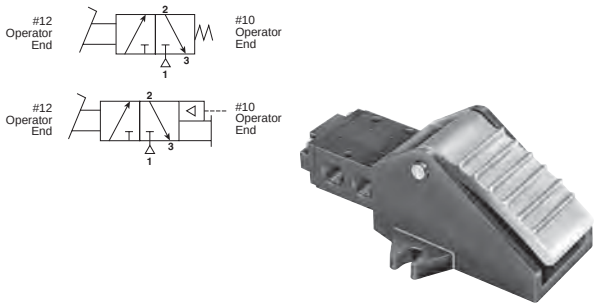
Operator pushed last (*toward body)* – Pressure at Inlet Port 1 is blocked. Outlet Port 2 is connected to Exhaust Port 3.

Operator pulled last (away from body) – Pressure at Inlet Port 1 is connected to Outlet Port 2. Exhaust Port 3 is blocked.

Center Position – All Ports blocked.

Pedal Operated

524711000 Pedal Operated, Spring Return
524751000 Pedal Operated, Pilot Return



Pedal

Normal Position – Pressure at Inlet Port 1 is blocked. Outlet Port 2 is connected to Exhaust Port 3.

Actuated Position – Pressure at Inlet Port 1 is connected to Outlet Port 2. Exhaust Port 3 is blocked.

⚠ ***CAUTION:***
This valve shall not be used to actuate a punch press. Do not use this valve on punch presses or press brakes. See OSHA 1910.217.
See Accessories page for Pedal Guard Kit.

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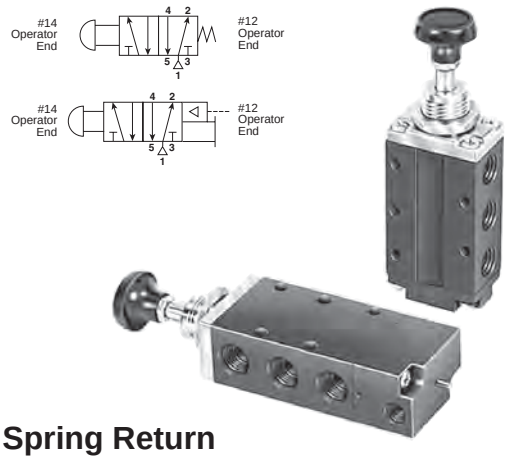
Button Operated

520411000 Button Operated, Spring Return
520451000 Button Operated, Pilot Return



Spring Return

Normal Position – Pressure at Inlet Port 1 is connected to Outlet Port 2. Outlet Port 4 is connected to Exhaust Port 5.

Actuated Position – Pressure at Inlet Port 1 is connected to Outlet Port 4. Outlet Port 2 is connected to Exhaust Port 3.

Button Operated

520431000 Button Operated, Manual Return

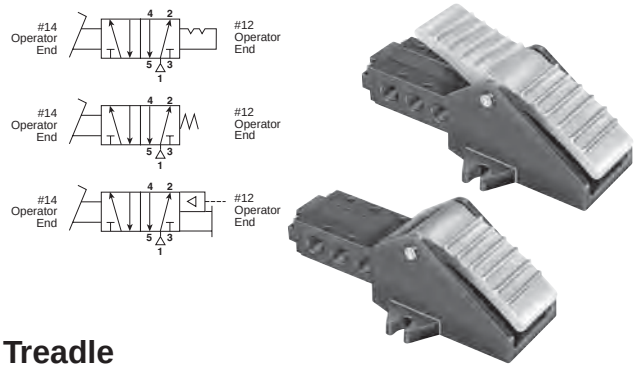
Manual Return

Operator pulled last – Pressure at Inlet Port 1 is connected to Outlet Port 2. Outlet Port 4 is connected to Exhaust Port 5.

Operator pushed last – Pressure at Inlet Port 1 is connected to Outlet Port 4. Outlet Port 2 is connected to Exhaust Port 3.

Pedal & Treadle Operated

520711000 Pedal Operated, Spring Return
520751000 Pedal Operated, Pilot Return
520931000 Treadle Operated



Treadle

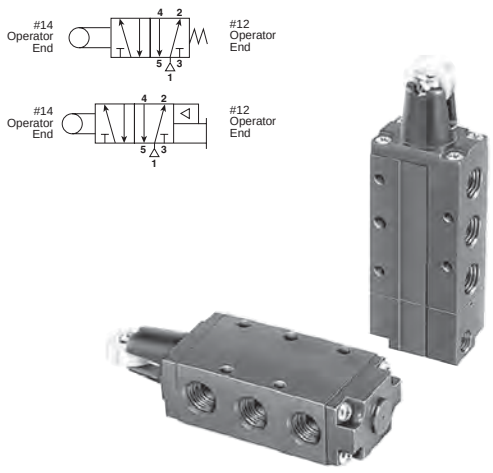
Toe pressed last – Pressure at Inlet Port 1 is connected to Outlet Port 2. Outlet Port 4 is connected to Exhaust Port 5.

Heel pressed last – Pressure at Inlet Port 1 is connected to Outlet Port 4. Outlet Port 2 is connected to Exhaust Port 3.

⚠ ***CAUTION:***
This valve shall not be used to actuate a punch press. Do not use this valve on punch presses or press brakes. See OSHA 1910.217.
See Accessories page for Pedal Guard Kit.

Roller Operated

520211000 Delrin Roller Operated, Spring Return
520251000 Delrin Roller Operated, Pilot Return
520A11000 Steel Roller Operated, Spring Return
520A51000 Steel Roller Operated, Pilot Return



Roller

Normal Position – Pressure at Inlet Port 1 is connected to Outlet Port 2. Outlet Port 4 is connected to Exhaust Port 5.

Actuated Position – Pressure at Inlet Port 1 is connected to Outlet Port 4. Outlet Port 2 is connected to Exhaust Port 3.

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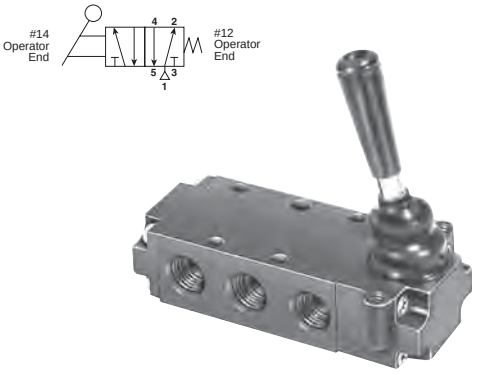
Lever Operated

520811000 Lever Operated, Spring Return



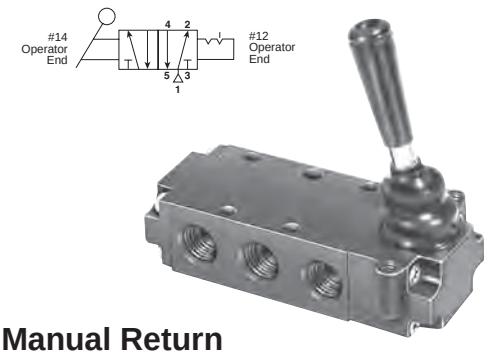
Spring Return

Normal Position – Pressure at Inlet Port 1 is connected to Outlet Port 2. Outlet Port 4 is connected to Exhaust Port 5.

Actuated Position – Pressure at Inlet Port 1 is connected to Outlet Port 4. Outlet Port 2 is connected to Exhaust Port 3.

Lever Operated

520831000 Lever Operated, Manual Return



Manual Return

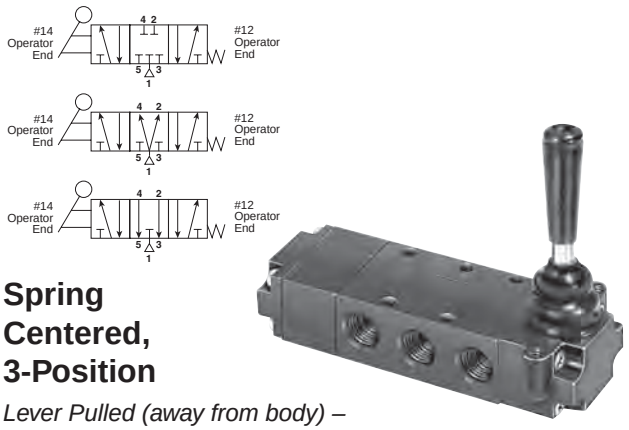
Operator pushed last (toward body) – Pressure at Inlet Port 1 is connected to Outlet Port 2. Outlet Port 4 is connected to Exhaust Port 5.

Operator pulled last (away from body) – Pressure at Inlet Port 1 is connected to Outlet Port 4. Outlet Port 2 is connected to Exhaust Port 3.

Lever Operated, 3-Position

Lever, Spring Centered

521811000 Type 1, Closed Center
522811000 Type 2, Pressure Center
529811000 Type 9, Exhaust Center



Spring Centered, 3-Position

Lever Pulled (away from body) –
Pressure at Inlet Port 1 is connected to Outlet Port 4. Outlet Port 2 is connected to Exhaust Port 3.

Lever Pushed (toward body) –
Pressure at Inlet Port 1 is connected to Outlet Port 2. Outlet Port 4 is connected to Exhaust Port 5.

Centered Position –
Type 1: All Ports blocked.

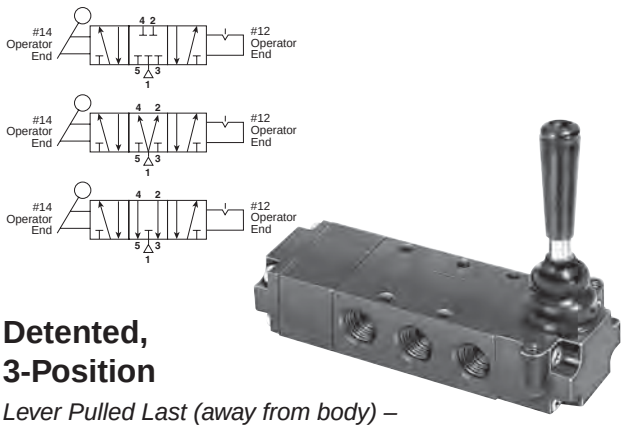
Type 2: Pressure at Inlet Port 1 is connected to Outlet Ports 2 & 4.

Type 9: Pressure at Inlet Port 1 is blocked. Outlet Ports 2 & 4 are connected to Exhaust Ports 3 & 5.

Lever Operated, 3-Position

Lever, Detented

521831000 Type 1, Closed Center
522831000 Type 2, Pressure Center
529831000 Type 9, Exhaust Center



Detented, 3-Position

Lever Pulled Last (away from body) –
Pressure at Inlet Port 1 is connected to Outlet Port 4. Outlet Port 2 is connected to Exhaust Port 3.

Lever Pushed Last (toward body) –
Pressure at Inlet Port 1 is connected to Outlet Port 2. Outlet Port 4 is connected to Exhaust Port 5.

Centered Position –
Type 1: All Ports blocked.

Type 2: Pressure at Inlet Port 1 is connected to Outlet Ports 2 & 4.

Type 9: Pressure at Inlet Port 1 is blocked. Outlet Ports 2 & 4 are connected to Exhaust Ports 3 & 5.

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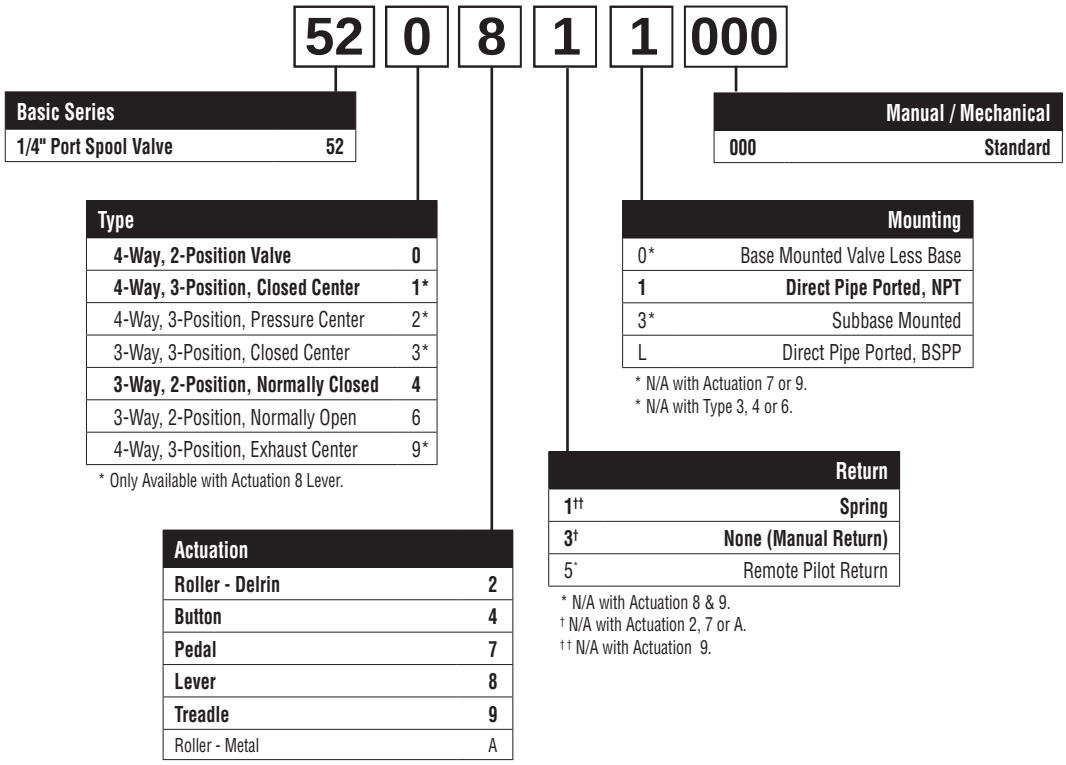
Directair 4 Series

BOLD OPTIONS ARE MOST POPULAR.



Basic Series	
1/4" Port Spool Valve	**52**

Type	
4-Way, 2-Position Valve	**0**
4-Way, 3-Position, Closed Center	**1***
4-Way, 3-Position, Pressure Center	2*
3-Way, 3-Position, Closed Center	3*
3-Way, 2-Position, Normally Closed	**4**
3-Way, 2-Position, Normally Open	6
4-Way, 3-Position, Exhaust Center	9*

* Only Available with Actuation 8 Lever.

Actuation	
Roller - Delrin	**2**
Button	**4**
Pedal	**7**
Lever	**8**
Treadle	**9**
Roller - Metal	A

	Mounting
0*	Base Mounted Valve Less Base
1	**Direct Pipe Ported, NPT**
3*	Subbase Mounted
L	Direct Pipe Ported, BSPP

* N/A with Actuation 7 or 9.
* N/A with Type 3, 4 or 6.

	Return
1††	**Spring**
3†	**None (Manual Return)**
5*	Remote Pilot Return

* N/A with Actuation 8 & 9.
† N/A with Actuation 2, 7 or A.
†† N/A with Actuation 9.

Manual / Mechanical	
000	**Standard**

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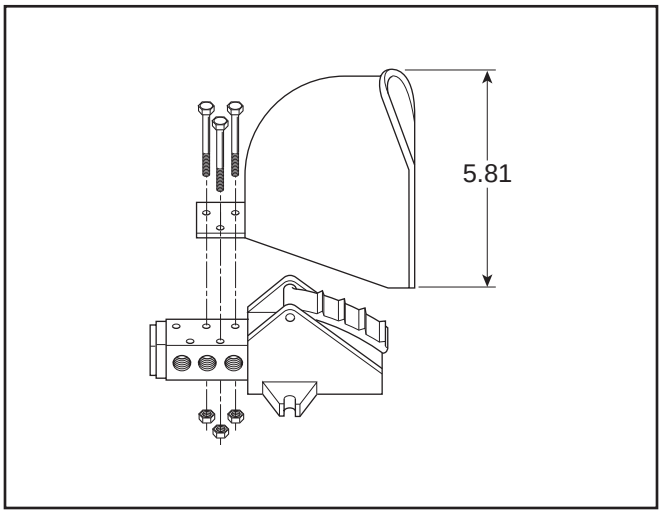
Pedal Guard Kit
No. 52071 8001

Pedal guard meets safety requirements for foot operated valves by protecting pedal from accidental tripping from all angles. Guard is constructed of lightweight aluminum casting for strength and durability. Bolts quickly into place with only three screws without special valve mounting. One modeL fits any pedal (not treadle) operated “Directair 4” Series valve.

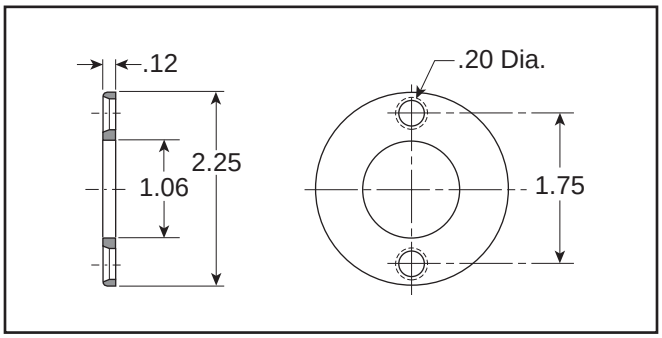
⚠ ***CAUTION:***

This valve shall not be used to actuate a punch press. Do not use this valve on punch presses or press brakes. See OSHA 1910.217.



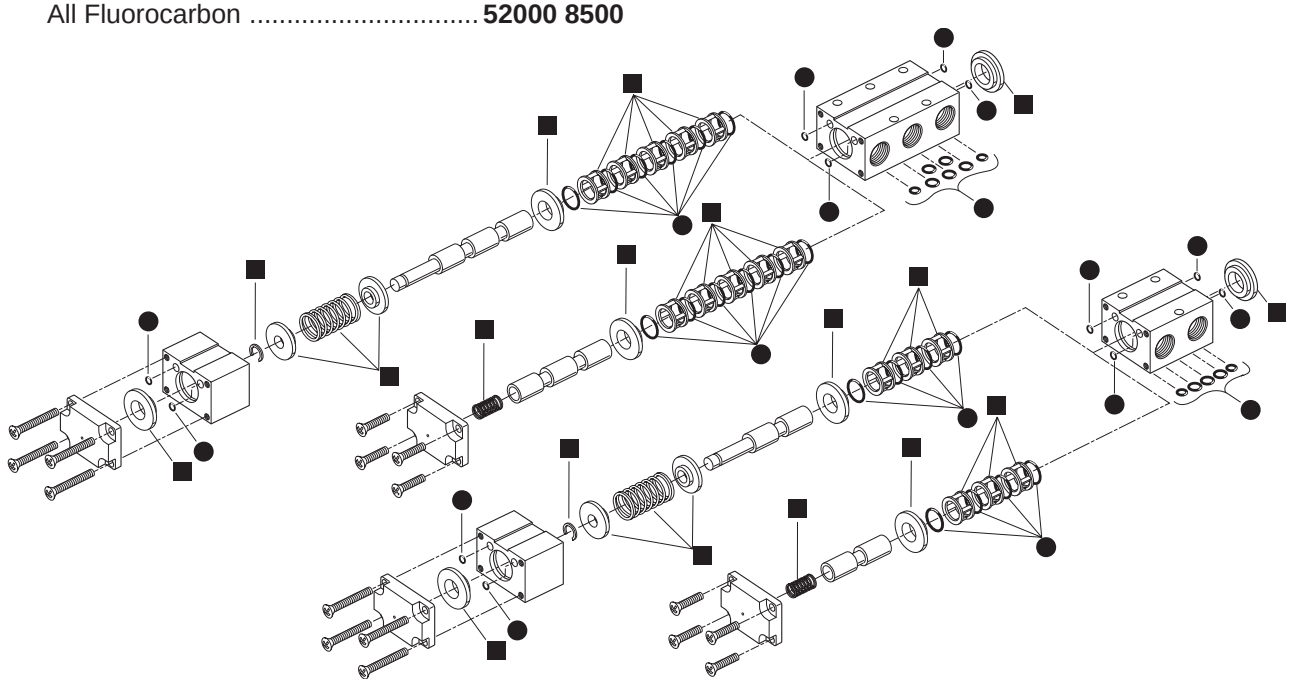
Panel Mounting Kit
No. 52083 8004

Available for panel mounting direct pipe ported, lever operated “Directair 4” Series valves only. Kit includes a flange and two screws.



Service Kits

- Valve Seal Kit **52000 8050**
  (Contains all soft seals found in 3 & 4-Way bodies and all actuator styles.)
  All Fluorocarbon **52000 8500**
- Body Service Kit **52001 8005**
  (Contains bushing, springs, retainers and shell from 2 & 3-Position, 3 & 4-Way bodies.)



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Operating Pressure

Vacuum to 150 PSI (28" Hg to 1035 kPa)

Temperature Range

32°F to 175°F (0°C to 80°C)

⚠ ***CAUTION:***
If it is possible that the ambient temperature may fall below freezing, the medium must be moisture free to prevent internal damage or unpredictable behavior.

Materials

Body and Operator Housings.....Aluminum Extrusion
Spool ..... Stainless Steel
Bushings and Pilot Piston .....Brass
Dynamic Seals .....Fluorocarbon
U-Cups .....Buna (Nitrile)
Spacers ..... Aluminum

Lubrication

For maximum service life use clean, lubricated air. Valves are shipped pre-lubricated and can be operated without additional lubrication with reduced service life.

Suggested Lubricant

F442 Oil

Flow Rating (Cv)

Flow Path	Direct Pipe Ported 1/4" Ports	Subbase Mounted 1/4" Side Ports
1 → 2	.82	.64
1 → 4	.84	.66
2 → 3	.84	.63
4 → 5	.83	.63
Avg.	.83	.64

Mechanically Operated Actuating Forces in Lbs.

	2-Position Spring Return	2-Position Manual Return	3-Position Spring Return	3-Position Manual Return
Button Actuator	13.0	2.0	13.0	N/A
Roller Actuator	13.0	N/A	N/A	N/A
Lever Actuator	4.0	2.0	4.0	2.5

Notes: N/A = Not Applicable
All valves are at 100 PSIG inlet pressure to the valve.

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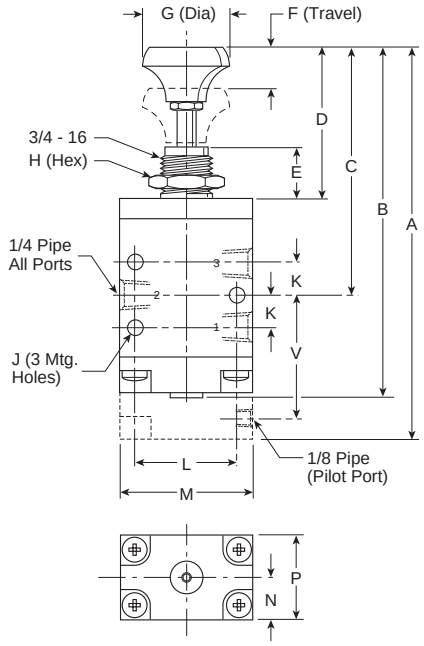
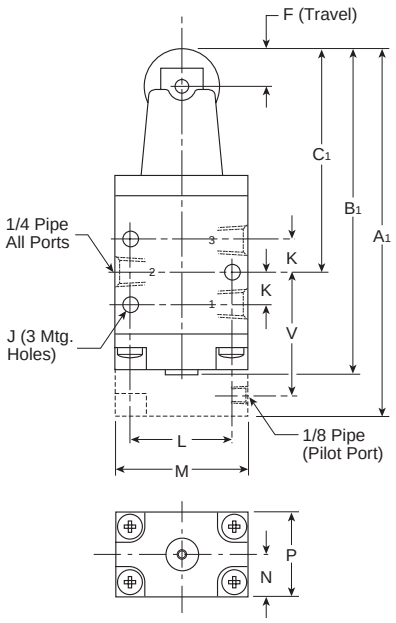
Button, Roller & Treadle Operated

3-Way, 3-Port, 2-Position

Button Operated



Roller Operated

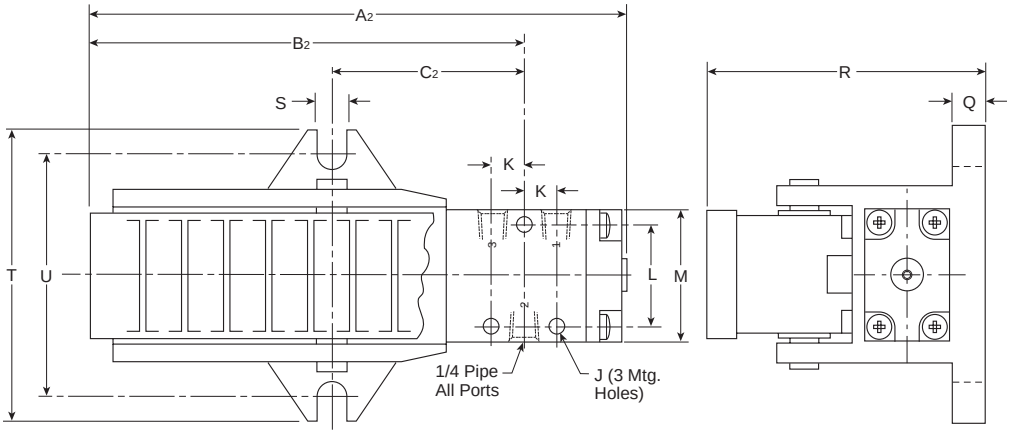


3-Way, 3-Port, 2-Position

A 4.91 (125)	**A1** 4.25 (108)	**A2** 6.55 (166)	**B** 4.44 (113)	**B1** 3.78 (96)
B2 5.20 (132)	**C** 3.10 (79)	**C1** 2.44 (62)	**C2** 2.19 (56)	**D** 2.00 (51)
E .63 (16)	**F** .32 (8)	**G** 1.05 (27)	**H** 1.00 (25)	**J** .19 (5)
K .41 (10)	**L** 1.25 (32)	**M** 1.63 (42)	**N** .53 (14)	**P** 1.06 (27)
Q .37 (10)	**R** 2.40 (61)	**S** .34 (9)	**T** 3.50 (89)	**U** 3.00 (76)
V 1.52 (39)				

Inches (mm)

Treadle Operated



⚠ ***CAUTION:***
This valve shall not be used to actuate a punch press. Do not use this valve on punch presses or press brakes. See OSHA 1910.217.
See Accessories page for Pedal Guard Kit.

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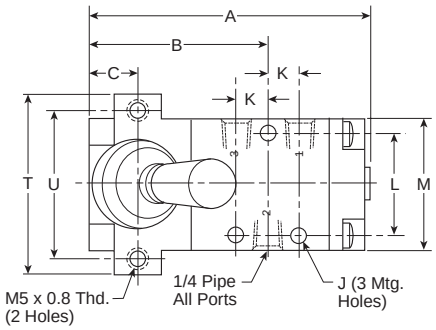
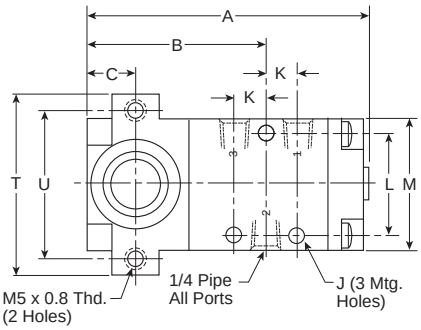
Lever & Pedal Operated

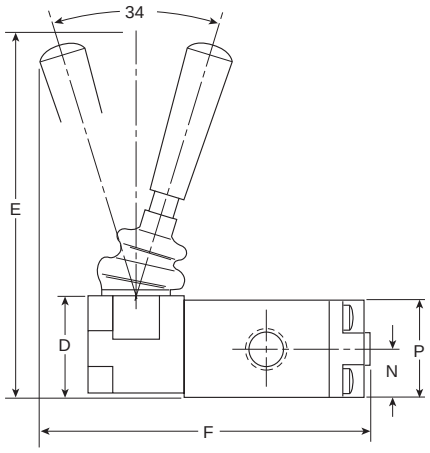
3-Way, 3-Port, 2 & 3-Position

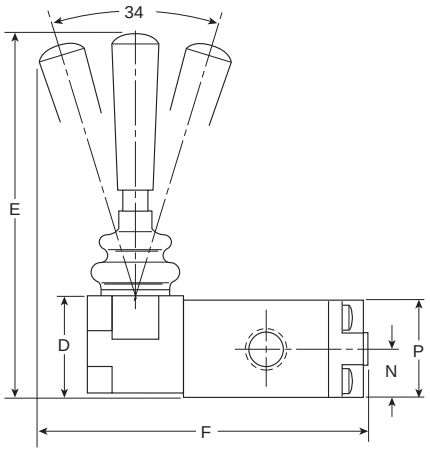
Lever Operated 2-Position



Lever Operated 3-Position





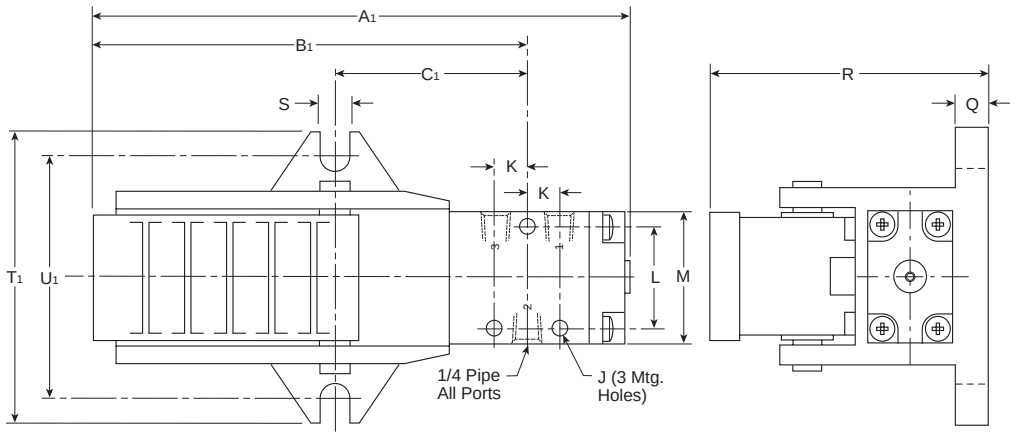


3-Way, 3-Port, 2 & 3-Position

A	**A_1**	**B**	**B_1**	**C**
3.31 (84)	6.55 (166)	1.97 (50)	5.20 (132)	.53 (14)
C_1	**D**	**E**	**F**	**J**
2.19 (56)	1.12 (28)	4.06 (103)	3.90 (99)	.19 (5)
K	**L**	**M**	**N**	**P**
.41 (10)	1.25 (32)	1.63 (42)	.53 (14)	1.06 (27)
Q	**R**	**S**	**T**	**T_1**
.37 (10)	2.40 (61)	.34 (9)	2.13 (54)	3.50 (89)
U	**U_1**			
1.75 (44)	44 (76)			

Inches (mm)

Pedal Operated



⚠ ***CAUTION:***
This valve shall not be used to actuate a punch press. Do not use this valve on punch presses or press brakes. See OSHA 1910.217.
See Accessories page for Pedal Guard Kit.

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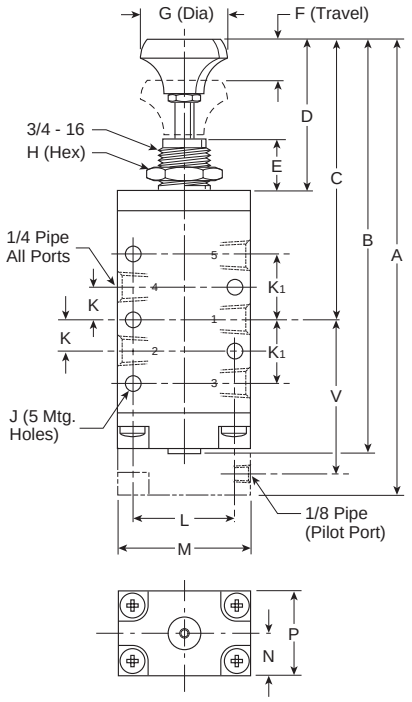
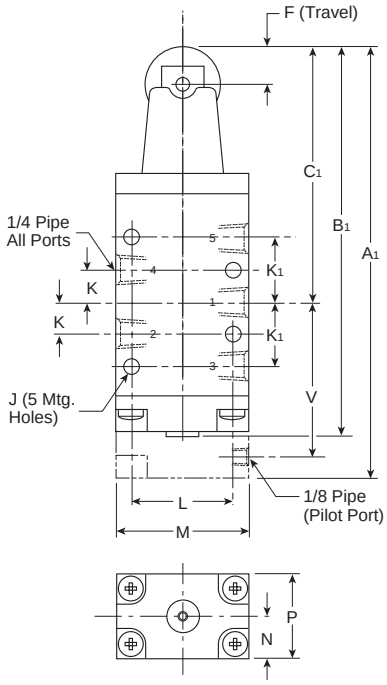
Button, Roller, Pedal & Treadle Operated

4-Way, 5-Port, 2-Position

Button Operated



Roller Operated

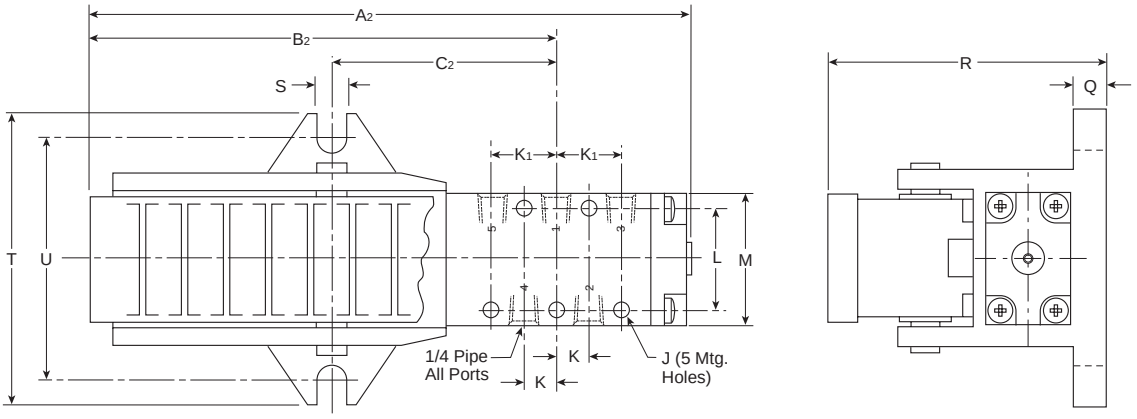


4-Way, 5-Port, 2-Position

A	A1	A2	B	B1
5.75 (146)	5.13 (130)	7.41 (189)	5.28 (134)	4.66 (118)
B2	**C**	**C1**	**C2**	**D**
5.63 (143)	3.50 (89)	2.88 (73)	2.64 (67)	2.00 (51)
E	**F**	**G**	**H**	**J**
.63 (16)	.32 (8)	1.05 (27)	1.00 (25)	.19 (5)
K	**K1**	**L**	**M**	**N**
.44 (11)	.84 (21)	1.25 (32)	1.63 (41)	.53 (14)
P	**Q**	**R**	**S**	**T**
1.06 (27)	.37 (10)	2.40 (61)	.34 (9)	3.50 (89)
U	**V**			
3.00 (76)	1.96 (50)			

Inches (mm)

Pedal and Treadle Operated



⚠ ***CAUTION:***
This valve shall not be used to actuate a punch press. Do not use this valve on punch presses or press brakes. See OSHA 1910.217.
See Accessories page for Pedal Guard Kit.

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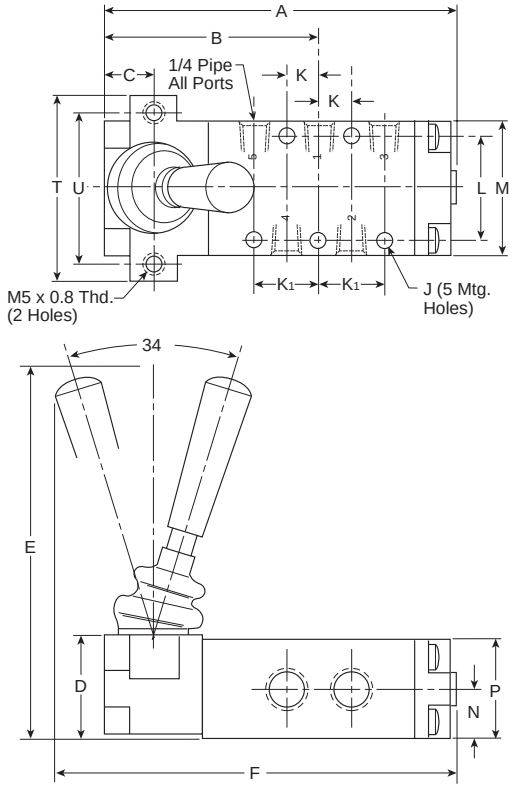
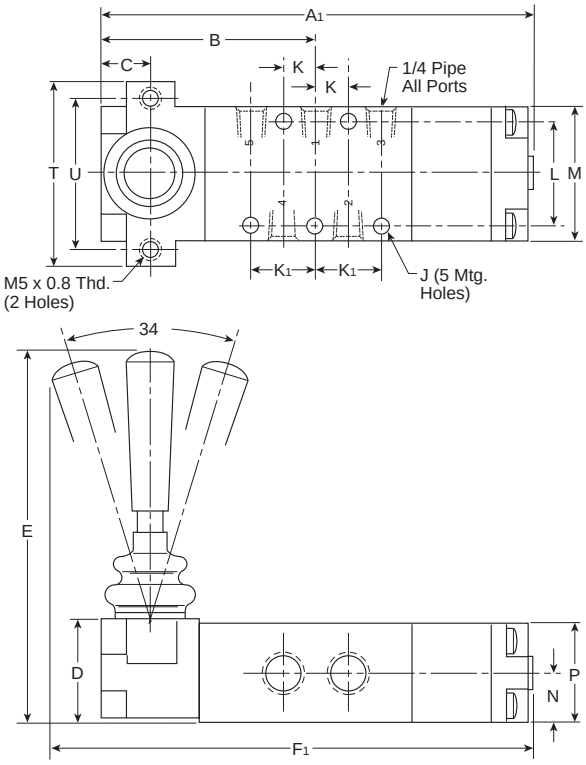
Lever Operated

4-Way, 5-Port, 2 & 3-Position

Lever Operated 2-Position



Lever Operated 3-Position



4-Way, 5-Port, 2 & 3-Position

A	**A1**	**B**	**C**	**D**
4.19 (106)	5.09 (129)	2.41 (61)	.53 (14)	1.12 (28)
E	**F**	**F1**	**J**	**K**
4.06 (103)	4.78 (121)	5.78 (147)	.19 (5)	.44 (11)
K1	**L**	**M**	**N**	**P**
.84 (21)	1.25 (32)	1.63 (42)	.53 (14)	1.06 (27)
T	**U**			
2.13 (54)	1.75 (44)			

Inches (mm)

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“42” Series

Lever / Pedal Valves

4-Way, 5-Port, 2 & 3-Position

Section F

www.parker.com/pneu/42ser

BOLD ITEMS ARE MOST POPULAR.

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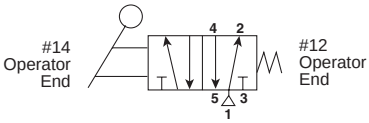
Lever Valves – Parallel & Perpendicular Operated

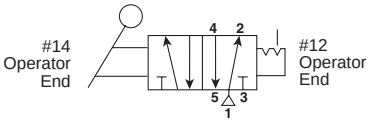
2-Position, Spring Return



Single Pressure at Port #1 – The Hand Lever alternately pressurizes port 2 or 4 while exhausting at port 3 or 5. When actuating Hand Lever, port 4 is pressurized; when releasing Hand Lever, spring returns the spool, pressurizing port 2.

Dual Pressure – Pressure at port 3 & 5 alternately pressurizes port 2 or 4 while exhausting at port 1. When actuating Hand Lever, port 2 is pressurized; when releasing Hand Lever, spring returns the spool, pressurizing port 4. (Must be ordered as dual pressure)

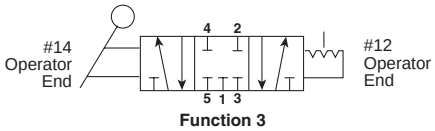
2-Position, Detent



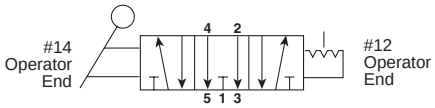
Single Pressure at Port #1 – The Hand Lever alternately pressurizes port 2 or 4 while exhausting at port 3 or 5. When pulling Hand Lever, port 4 is pressurized; when pushing Hand Lever, port 2 is pressurized. Spool stays in last actuated position.

Dual Pressure – Pressure at port 3 & 5 alternately pressurizes port 2 or 4 while exhausting at port 1. When pulling Hand Lever, port 2 is pressurized; when pushing Hand Lever, port 4 is pressurized. Spool stays in last actuated position. (Must be ordered as dual pressure.)

3-Position, Detent



Function 3



Function 4

Single Pressure at Port #1 – The Hand Lever alternately pressurizes port 2 or 4 while exhausting at port 3 or 5. When pulling Hand Lever, port 4 is pressurized; when pushing Hand Lever, port 2 is pressurized. When Hand Lever is vertical, it is in the center position - either APB or CE. Spool stays in last actuated position.

Center Functions

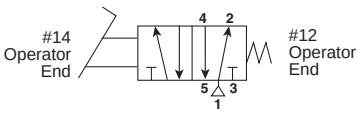
All Ports Blocked – Function 3

Center Exhaust – Function 4

⚠ ***CAUTION:***
For 3-Position lever function, do not restrict exhaust ports with speed controls.

Foot Pedal Operated

2-Position, Spring Return



⚠ ***CAUTION:***
This valve shall not be used to actuate a punch press. Do not use this valve on punch presses or press brakes. See OSHA 1910.217.

See Dimension page for Pedal Guard Kit.

Single Pressure at Port #1 – The Foot Pedal alternately pressurizes port 2 or 4 while exhausting at port 3 or 5. When pressing Foot Pedal down, port 4 is pressurized; when releasing Foot Pedal, spring returns the spool, pressurizing port 2.

Dual Pressure – Pressure at port 3 & 5 alternately pressurizes port 2 or 4 while exhausting at port 1. When pressing Foot Pedal down, port 2 is pressurized; when releasing Foot Pedal, spring returns the spool, pressurizing port 4. (Must be ordered as dual pressure)

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"42" Series

Specifications

Heavy Duty Lever
- Parallel Mount
- Perpendicular Mount

Heavy Duty Foot Pedal

Inline Valve
- 1/4" Port – 1.3 to 2.2 Cv
- 3/8" Port – 1.3 to 2.9 Cv

2-Position

3-Position
- All Ports Blocked
- Center Exhaust

Operating Pressure

- Vacuum to 150 PSI (710mm HG to 1035 kPa)

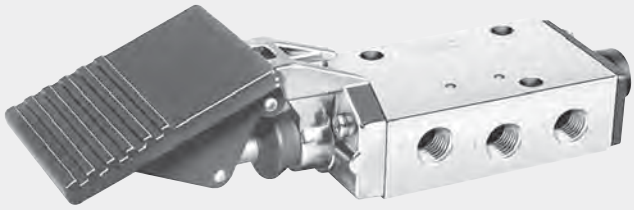
Operating Temperature

- 0°F to 140°F (-18°C to 60°C)

Flow Rating (Cv)

Port Size	Mounting Style	2-Position	3-Position
1/4" Ports	Inline	2.2	1.3
3/8" Ports	Inline	2.9	1.3

Lever Valve – Parallel



Foot Pedal Valve

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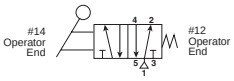
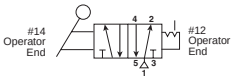
Lever Valve – 2-Position

(Parallel Shown)



Spring Return



Detented

Inline – Parallel

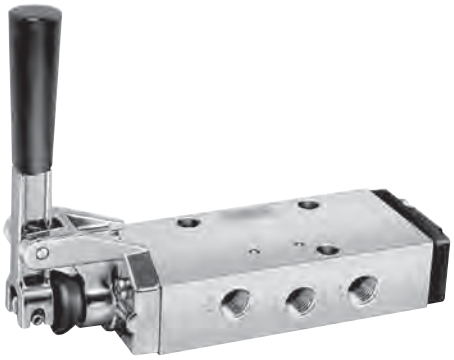
Single Pressure	Return	Port
422CS011K	Spring	1/4" NPT
422CS021K		3/8" NPT
422CS011W	Detent	1/4" NPT
422CS021W		3/8" NPT

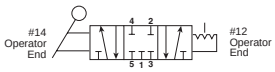
Inline – Perpendicular

Single Pressure	Return	Port
422CR011K	Spring	1/4" NPT
422CR021K		3/8" NPT
422CR011W	Detent	1/4" NPT
422CR021W		3/8" NPT

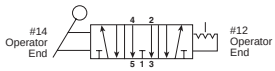
Lever Valve – 3-Position

(Perpendicular Shown)





APB



CE

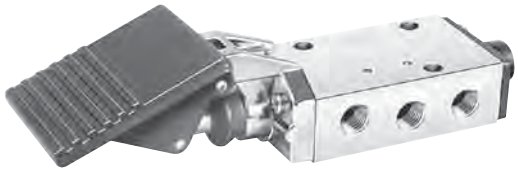
Inline – Parallel

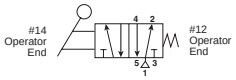
Single Pressure	Type	Port
422CS013W	3-Pos APB	1/4" NPT
422CS023W		3/8" NPT
422CS014W	3-Pos CE	1/4" NPT
422CS024W		3/8" NPT

Inline – Perpendicular

Single Pressure	Type	Port
422CR013W	3-Pos APB	1/4" NPT
422CR023W		3/8" NPT
422CR014W	3-Pos CE	1/4" NPT
422CR024W		3/8" NPT

Foot Pedal Valve – 2-Position





Spring Return

Inline

Single Pressure	Type	Return	Port
422CT011K	2-Pos	Spring	1/4" NPT
422CT021K			3/8" NPT

⚠ ***CAUTION:***
This valve shall not be used to actuate a punch press. Do not use this valve on punch presses or press brakes. See OSHA 1910.217.

See Dimensions page for Pedal Guard Kit.

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"42" Series

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422	C	R	0	1	1	K

Operator #14 End	
Lever Perpendicular (Inline Only)	R
Lever Parallel	S
Foot Pedal (2-Position, Spring Return, Inline Only)	T

Style	
NPT	0

Function (4-Way)	
2-Position	
1	Single Pressure
3-Position*	
3	Single Pressure - All Ports Blocked
4	Single Pressure - Cyl. Ports to Exhaust

* Available Detented Only.

Port Size	
1	1/4"
2	3/8"

Operator #12 End	
K	Spring Return (2-Position Only)
W	Detented

Valve Body Service Kits

Function / Operator	Single Pressure	Dual Pressure
2-Position / Manual	PS2038P	PS2039P
3-Position / Manual, Detented	PS2041P	

Kit includes: all soft seals and spool.

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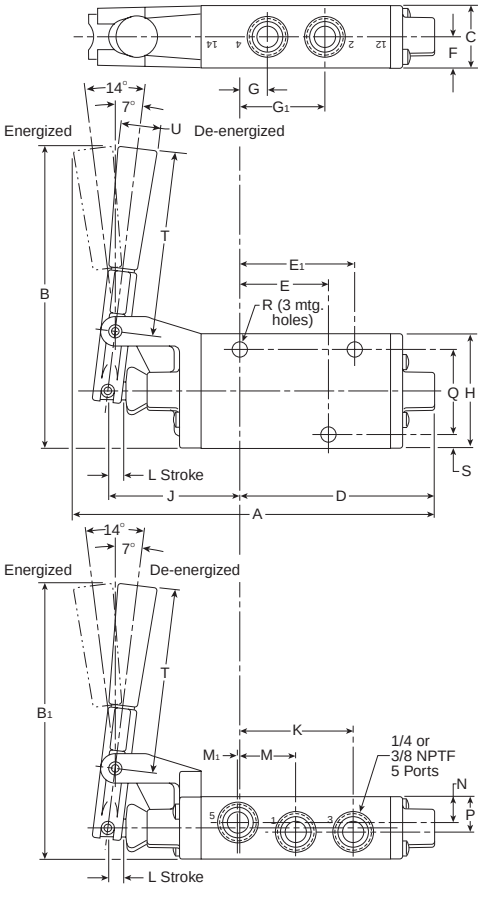
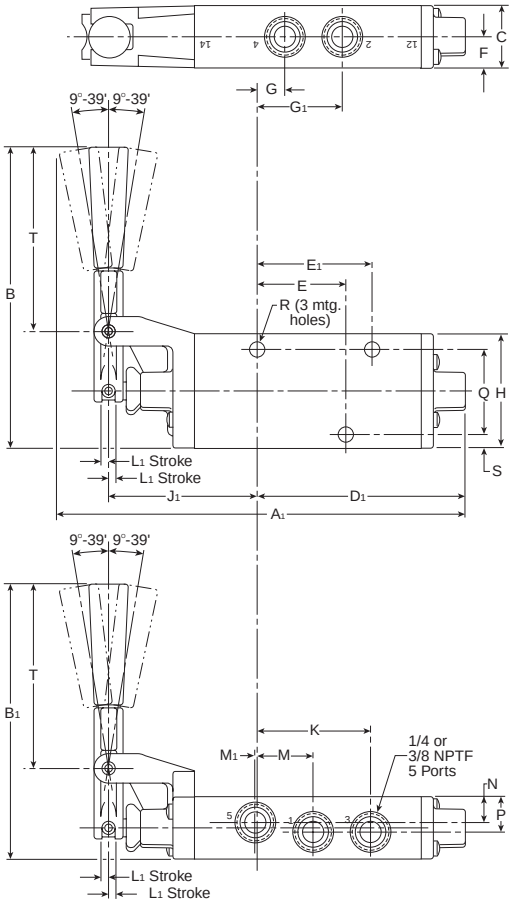
Lever Valve

2-Position



3-Position



Lever Valve

A	A1	B	B1	C
6.70 (170)	7.58 (193)	5.55 (141)	5.05 (128)	1.15 (29)

D	D1	E	E1	F
3.59 (91)	3.83 (97)	1.58 (40)	2.06 (52)	.57 (14)

G NPT	G1 NPT	H
1/4" .51 (13) 3/8" .55 (14)	1/4" 1.56 (40) 3/8" 1.51 (38)	2.13 (54)

J	J1	K NPT	L
2.44 (62)	2.80 (71)	1/4" 2.08 (53) 3/8" 2.13 (54)	.25 (6)

L1	M	M1 NPT	N
.18 (5)	1.03 (36)	1/4" .02 (.5) 3/8" .06 (2)	.50 (13)

P	Q	R	S	T
.65 (17)	1.58 (40)	.33 (8)	.27 (7)	3.42 (87)

U Dia
.75 (19)

Inches (mm)

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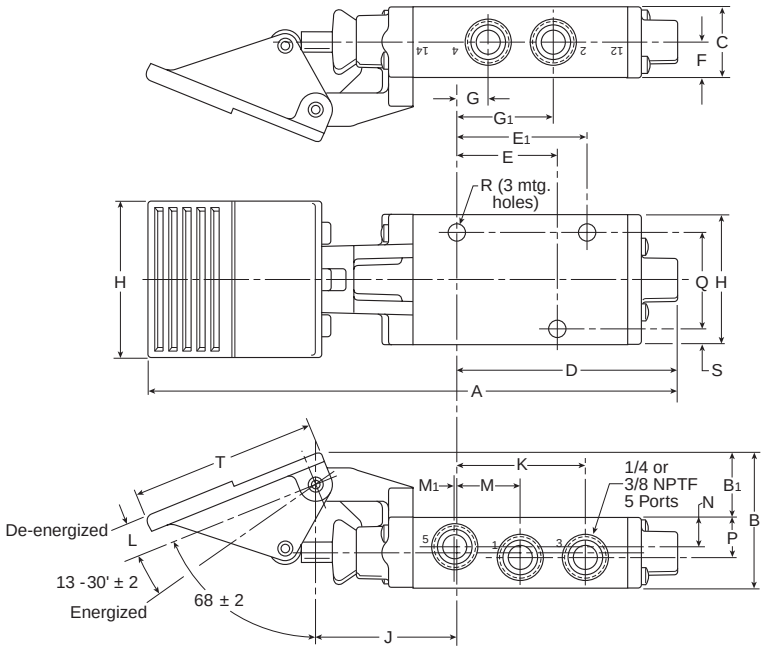
Foot Pedal Valve



Foot Pedal Valve

A	B	B1	C	D
8.64 (220)	2.18 (55)	1.03 (26)	1.15 (29)	3.59 (91)

E	E1	F	G NPT
1.58 (40)	2.06 (52)	.57 (14)	1/4" .51 (13) 3/8" .55 (14)

G1 NPT	H	H1	J
1/4" 1.56 (40) 3/8" 1.51 (38)	2.13 (54)	2.50 (64)	2.32 (59)

K NPT	L	M	
1/4" 2.08 (53) 3/8" 2.13 (54)	.60 (15)	1.03 (26)	

M1 NPT	N	P	Q
1/4" .02 (.5) 3/8" .06 (2)	.50 (13)	.65 (17)	1.58 (40)

R	S	T	U	
.33 (8)	.27 (7)	3.00 (76)	.48 (11)	

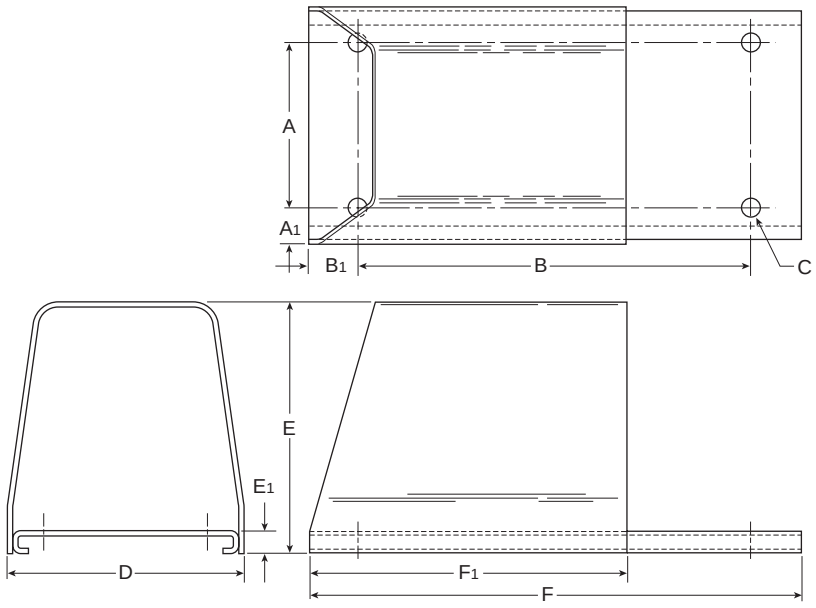
Inches (mm)

CAUTION:
This valve shall not be used to actuate a punch press.
Do not use this valve on punch presses or press brakes.
See OSHA 1910.217.

Foot Pedal Valve Guard

To order Foot Pedal Valve Guard, specify part number PS2043P.

This kit contains the valve mounting hardware.



Foot Valve Guard

A	A1	B	B1	C
4.50 (114)	.75 (19)	10.50 (267)	1.25 (32)	.48 (11)

D	E	E1	F	F1
6.00 (152)	7.13 (181)	.50 (13)	13.00 (330)	8.38 (213)

Inches (mm)

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VIKING XTREME

Manual Air Control Valves

P2LAX – 1/8"
P2LBX – 1/4"
P2LCX – 3/8"
P2LDX – 1/2"

Section F

www.parker.com/pneu/vikingx

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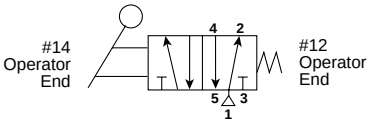
Lever Valves

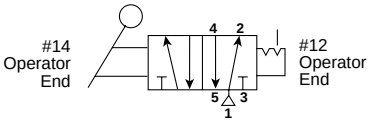
2-Position, Spring Return



Single Pressure at Port #1 – The Hand Lever alternately pressurizes port 2 or 4 while exhausting at port 3 or 5. When actuating Hand Lever, port 4 is pressurized; when releasing Hand Lever, spring returns the spool, pressurizing port 2.

Dual Pressure – Pressure at port 3 & 5 alternately pressurizes port 2 or 4 while exhausting at port 1. When actuating Hand Lever, port 2 is pressurized; when releasing Hand Lever, spring returns the spool, pressurizing port 4. (Must be ordered as dual pressure)

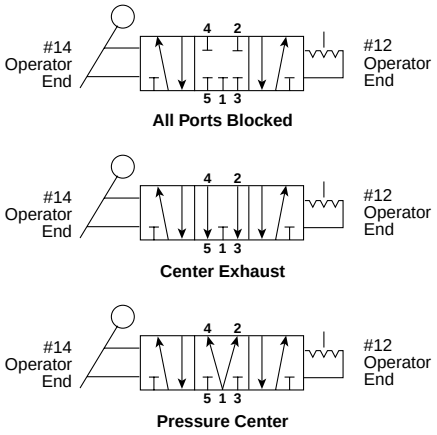
2-Position, Detent



Single Pressure at Port #1 – The Hand Lever alternately pressurizes port 2 or 4 while exhausting at port 3 or 5. When pulling Hand Lever, port 4 is pressurized; when pushing Hand Lever, port 2 is pressurized. Spool stays in last actuated position.

Dual Pressure – Pressure at port 3 & 5 alternately pressurizes port 2 or 4 while exhausting at port 1. When pulling Hand Lever, port 2 is pressurized; when pushing Hand Lever, port 4 is pressurized. Spool stays in last actuated position. (Must be ordered as dual pressure.)

3-Position, Detent



Single Pressure at Port #1 – The Hand Lever alternately pressurizes port 2 or 4 while exhausting at port 3 or 5. When pulling Hand Lever, port 4 is pressurized; when pushing Hand Lever, port 2 is pressurized. When Hand Lever is vertical, it is in the center position - either APB or CE. Spool stays in last actuated position.

Center Functions

All Ports Blocked

Center Exhaust

Pressure Center

⚠ ***CAUTION:***
For 3-Position lever function, do not restrict exhaust ports with speed controls.

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Specifications

- Heavy Duty Lever
- Inline Valve
  – 1/8", 1/4", 3/8", 1/2" NPT & BSPP
- 2-Position Models
  – 4-way & 3-way
- 3-Position Models
  – All Ports Blocked
  – Pressure Center
  – Center Exhaust

Operating Temperature

- Extreme: -40°F to 140°F
  (-40°C to 60°C)

Operating Pressure

- Type A & B: Vacuum to 232 PSIG
  (Vacuum to 16 bar Max.)
- Type C & D: Vacuum to 174 PSIG
  (Vacuum to 12 bar Max.)

Material Specifications

- Valve Body: Anodized Aluminum
- End Covers: Anodized Aluminum
- Lever Housing: Acetal Plastic
- Spool: Aluminum & Nitrile Rubber
- Piston: Acetal Plastic / Anodized Aluminum
- Seals: Nitrile Rubber
- Screws: Stainless Steel
- Springs: Stainless Steel
- Lever: Reinforced Polyamide Plastic

Size A

P2LAX
2-Position, Detent

Size B

P2LBX
2-Position, Spring

Size C

P2LCX
2-Position, Lever

Size D

P2LDX
3-Position APB

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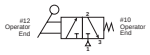
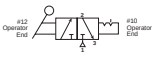
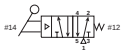
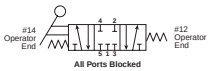
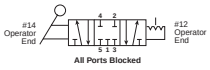
3/2 - 2-position	Symbol	Valve type	Port size	Cv	Weight lb (kg)	Part number NPT	Part number BSPP
		Lever spring return	1/8	0.6	0.73 (0.33)	P2LAX391VS	P2LAX311VS
			1/4	1.5	0.73 (0.33)	**P2LBX392VS**	**P2LBX312VS**
			3/8	2.5	0.88 (0.40)	**P2LCX393VS**	**P2LCX313VS**
			1/2	2.7	1.32 (0.60)	P2LDX394VS	P2LDX314VS
		Lever detent	1/8	0.7	0.73 (0.33)	P2LAX391VV	P2LAX311VV
			1/4	1.3	0.73 (0.33)	**P2LBX392VV**	**P2LBX312VV**
			3/8	2.5	0.88 (0.40)	**P2LCX393VV**	**P2LCX313VV**
			1/2	2.7	1.32 (0.60)	P2LDX394VV	P2LDX314VV

5/2 - 2-position	Symbol	Valve type	Port size	Cv	Weight lb (kg)	Part number NPT	Part number BSPP
		Lever spring return	1/8	0.6	0.40 (0.18)	P2LAX591VS	P2LAX511VS
			1/4	1.5	0.73 (0.33)	**P2LBX592VS**	**P2LBX512VS**
			3/8	2.5	0.88 (0.40)	**P2LCX593VS**	**P2LCX513VS**
			1/2	2.7	1.32 (0.60)	P2LDX594VS	P2LDX514VS
		Lever detent	1/8	0.7	0.40 (0.18)	**P2LAX591VV**	**P2LAX511VV**
			1/4	1.3	0.73 (0.33)	**P2LBX592VV**	**P2LBX512VV**
			3/8	2.5	0.88 (0.40)	**P2LCX593VV**	**P2LCX513VV**
			1/2	2.7	1.32 (0.60)	P2LDX594VV	P2LDX514VV

5/3 - 3-position, all ports blocked	Symbol	Valve type	Port size	Cv	Weight lb (kg)	Part number NPT	Part number BSPP
		Lever spring center	1/8	0.6	0.40 (0.18)	**P2LAX69111**	**P2LAX61111**
			1/4	1.5	0.73 (0.33)	**P2LBX69211**	**P2LBX61211**
			3/8	2.5	1.56 (0.71)	**P2LCX69311**	**P2LCX61311**
			1/2	2.7	1.61 (0.73)	P2LDX69411	P2LDX61411
		Lever detent	1/8	0.7	0.40 (0.18)	**P2LAX69122**	**P2LAX61122**
			1/4	1.3	0.73 (0.33)	**P2LBX69222**	**P2LBX61222**
			3/8	2.5	1.56 (0.71)	**P2LCX69322**	**P2LCX61322**
			1/2	2.7	1.61 (0.73)	P2LDX69422	P2LDX61422

5/3 - 3-position, pressure center	Symbol	Valve type	Port size	Cv	Weight lb (kg)	Part number NPT	Part number BSPP
		Lever spring center	1/8	0.6	0.40 (0.18)	P2LAX79111	P2LAX71111
			1/4	1.5	0.73 (0.33)	**P2LBX79211**	**P2LBX71211**
			3/8	2.5	1.56 (0.71)	**P2LCX79311**	**P2LCX71311**
			1/2	2.7	1.61 (0.73)	P2LDX79411	P2LDX71411
		Lever detent	1/8	0.7	0.40 (0.18)	P2LAX79122	P2LAX71122
			1/4	1.3	0.73 (0.33)	**P2LBX79222**	**P2LBX71222**
			3/8	2.5	1.56 (0.71)	**P2LCX79322**	**P2LCX71322**
			1/2	2.7	1.61 (0.73)	P2LDX79422	P2LDX71422

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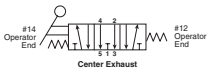
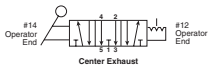
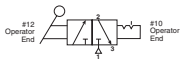
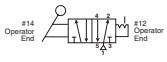
5/3 - 3-position, center exhaust	Symbol	Valve type	Port size	Cv	Weight lb (kg)	Part number NPT	Part number BSPP
		Lever spring center	1/8	0.6	0.40 (0.18)	P2LAX89111	P2LAX81111
			1/4	1.5	0.73 (0.33)	**P2LBX89211**	P2LBX81211
			3/8	2.5	1.56 (0.71)	**P2LCX89311**	P2LCX81311
			1/2	2.7	1.61 (0.73)	P2LDX89411	P2LDX81411
		Lever detent	1/8	0.7	0.40 (0.18)	P2LAX89122	P2LAX81122
			1/4	1.3	0.73 (0.33)	**P2LBX89222**	P2LBX81222
			3/8	2.5	1.56 (0.71)	**P2LCX89322**	P2LCX81322
			1/2	2.7	1.61 (0.73)	P2LDX89422	P2LDX81422

3/2 - 2-position	Symbol	Valve type	Port size	Cv		Part number NPT	Part number BSPP
		Twist handle detent	1/4	1.3	0.73 (0.33)	**P2LBX392JJ**	P2LBX312JJ

5/2 - 2-position	Symbol	Valve type	Port size	Cv		Part number NPT	Part number BSPP
		Twist handle detent	1/4	1.3	0.73 (0.33)	**P2LBX592JJ**	P2LBX512JJ

Manual Operated Valves

Vacuum to 232 PSIG (Vacuum to 16 bar) -40°F to 158°F (-40°C to 70°C)

P2L A X 5 91 VS

Valve size	
1/8"	A
1/4"	**B**
3/8"	**C**
1/2"	D

Valve type / function	
3/2 NC - 2-position	**3**
5/2 2-position	**5**
5/3 3-position, APB	**6**
5/3 3-position, PC	7
5/3 3-position, CE	**8**

Main port thread	
11	G1/8 (P2LA)
12	G1/4 (P2LB)
13	G3/8 (P2LC)
14	G1/2 (P2LD)
91	**1/8" NPT (P2LA)**
92	**1/4" NPT (P2LB)**
93	**3/8" NPT (P2LC)**
94	**1/2" NPT (P2LD)**

Actuator / return	
JJ*	**Twist handle detent, 2-position**
VS	**Spring return lever, 2-position, 90° to ports**
VV	**Lever, detent, 2-position, 90° to ports**
11	Spring centered lever, 3-position, 90° to ports
22	Lever, detent, 3-position, 90° to ports

* Not available with 3-position valves. Available Size B only.

NOTE: For ATEX certified remote air pilot valves, build the valve part number from the model number index for remote pilot and add "-EX" following the number.
Example: P2LAX591PS-EX

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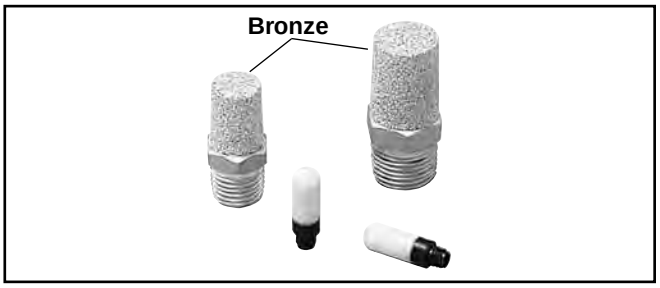
Exhaust Mufflers

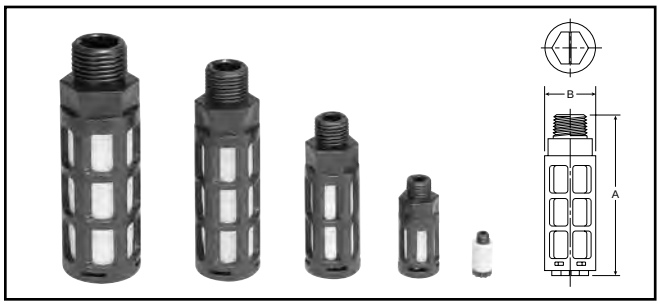
Pipe Thread	Part Number
M5	**P6M-PAC5**
1/8" NPT	**EM12**
1/4" NPT	**EM25**
3/8" NPT	**EM37**
1/2" NPT	**EM50**

P6M - Plastic; EM - Sintered Bronze

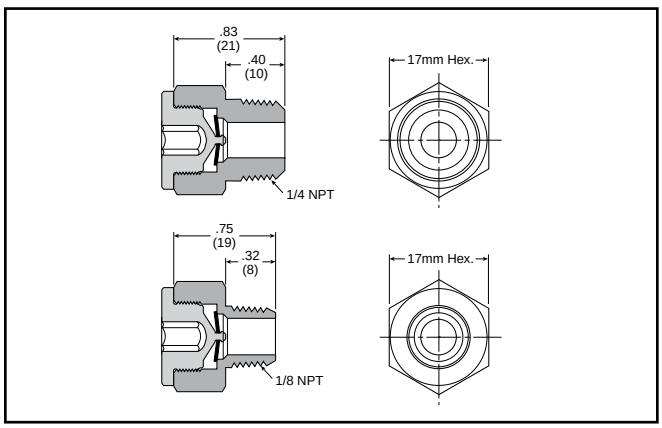


Plastic Silencers

Thread Size	Part Number		A (mm)	B (mm)
	NPT	BSPT		
M5	**AS-5**		.43 (11)	.32 (8)
1/8"	**ASN-6**	**AS-6**	1.57 (40)	.63 (16)
1/4"	**ASN-8**	**AS-8**	2.56 (65)	.83 (21)
3/8"	**ASN-10**	**AS-10**	3.35 (85)	.98 (25)
1/2"	**ASN-15**	**AS-15**	3.74 (95)	1.18 (30)



Exhaust Protector



Specifications

Operating Pressure ..... 0 – 150 PSIG
(0 to 10 bar, 0 to 1034 kPa)

Operating Temperature .....-40°F to 158°F (-40°C to 70°C)

Material:

Body and Pipe Adapter ..... Brass
Membrane .....Fluorocarbon

Flow Data (SCFM)

Part Number	Size	60 PSIG Inlet	90 PSIG Inlet	125 PSIG Inlet
E90016	1/8"	40.1	56.5	75.5
E90017	1/4"	44.6	62.7	83.5

Features

- 1/8 and 1/4 NPT male sizes
- Fitted with a Brass Pipe Adapter and a Fluorocarbon Membrane
- Resistant to Rust, Clog, Wash Down and Contamination

Applications

These protectors are intended for mobile applications, quick venting applications and alternative exhaust port breathers that require protection against clogging.

Ideal for valves exposed to harsh environmental conditions (which can cause a “caking up” in the exhaust pipe ports where the bronze mufflers or breather vents are installed).

Particularly suitable for time-sensitive applications such as axle-lift suspensions or pushers or tag axles.

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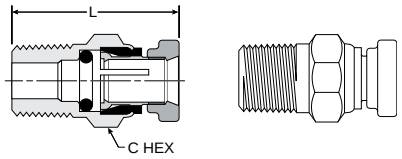
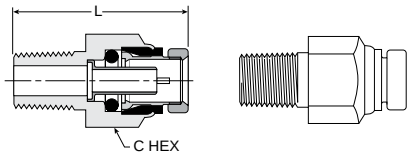
68PM Male Connector



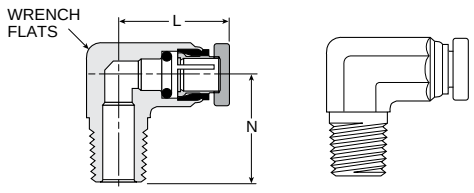
Part No.	Tube Size	Pipe Thread (NPTF)	C Hex	L
68PM-2-1	1/8	1/16	3/82	0.93
68PM-2-2	1/8	1/8	7/16	0.88
68PM-5/32-1	5/32	1/16	3/8	0.95
68PM-5/32-2	5/32	1/8	7/16	0.74
68PM-5/32-4	5/32	1/4	9/16	0.99
68PM-3-1	3/16	1/16	7/16	0.95
68PM-3-2	3/16	1/8	7/16	0.92
68PM-3-4	3/16	1/4	9/16	1.10

68PMT Male Connector



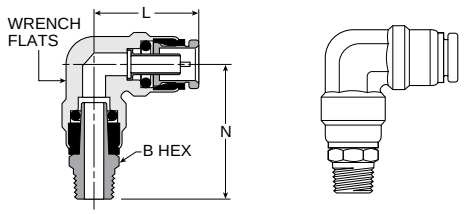
Part No.	Tube Size	Pipe Thread (NPTF)	C Hex	L
68PMT-4-2	1/4	1/8	1/2	1.06
68PMT-4-4	1/4	1/4	9/16	1.19
68PMT-4-6	1/4	3/8	3/4	1.27
68PMT-6-2	3/8	1/8	3/4	1.37
68PMT-6-4	3/8	1/4	3/4	1.43
68PMT-6-6	3/8	3/8	3/4	1.33
68PMT-6-8	3/8	1/2	7/8	1.38
68PMT-8-4	1/2	1/4	7/8	1.72
68PMT-8-6	1/2	3/8	7/8	1.52
68PMT-8-8	1/2	1/2	7/8	1.44
68PMT-10-6	5/8	3/8	1	1.88
68PMT-10-8	5/8	1/2	1	1.88
68PMT-12-8	3/4	1/2	1-3/16	2.03

169PMNS Male Elbow Non-Swivel 90°



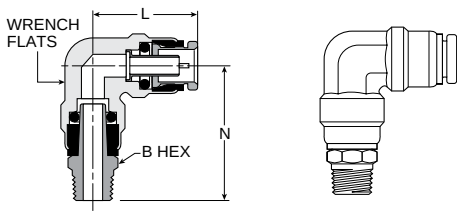
Part No.	Tube Size	Pipe Thread (NPTF)	Wrench Flats	L	N
169PMNS-2-2	1/8	1/8	3/8	0.86	0.68
169PMNS-5/32-2	5/32	1/8	3/8	0.88	0.68
169PMNS-3-2	3/16	1/8	3/8	0.75	0.67
169PMNS-3-4	3/16	1/4	1/2	0.74	0.93

169PMT Male Elbow Swivel 90°



Part No.	Tube Size	Pipe Thread (NPTF)	Wrench Flats	B Hex	L	N
169PMT-4-2	1/4	1/8	13/32	7/16	0.84	1.21
169PMT-4-4	1/4	1/4	13/32	9/16	0.84	1.43
169PMT-4-6	1/4	3/8	13/32	11/16	0.84	1.43
169PMT-6-2	3/8	1/8	9/16	9/16	1.11	1.41
169PMT-6-4	3/8	1/4	9/16	9/16	1.11	1.58
169PMT-6-6	3/8	3/8	9/16	11/16	1.11	1.58
169PMT-6-8	3/8	1/2	9/16	7/8	1.11	1.79
169PMT-8-4	1/2	1/4	11/16	5/8	1.27	1.73
169PMT-8-6	1/2	3/8	11/16	3/4	1.27	1.81
169PMT-8-8	1/2	1/2	11/16	7/8	1.27	1.96
169PMT-10-6	5/8	3/8	7/8	3/4	1.53	2.03
169PMT-10-8	5/8	1/2	7/8	7/8	1.53	2.18

169PMTL Male Elbow Long Non-Swivel 90°



Part No.	Tube Size	Pipe Thread (NPTF)	Wrench Flats	B Hex	L	N
169PMTL-6-4	3/8	1/4	9/16	9/16	1.06	1.63
169PMTL-6-6	3/8	3/8	9/16	7/8	1.19	2.50
169PMTL-6-8	3/8	1/2	9/16	7/8	1.19	2.50
169PMTL-8-8	1/2	1/2	11/16	7/8	1.22	2.50
169PMTL-10-8	5/8	1/2	7/8	7/8	1.46	2.50

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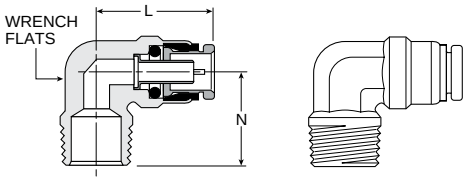
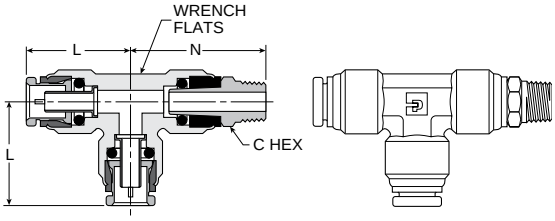
169PMTNS Male Elbow Non-Swivel 90°



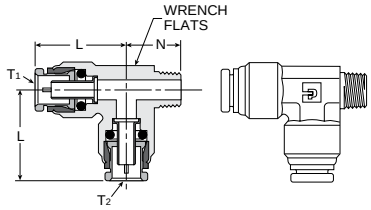
Part No.	Tube Size	Pipe Thread (NPTF)	Wrench Flats	L	N
169PMTNS-4-2	1/4	1/8	1/2	0.84	0.72
169PMTNS-4-4	1/4	1/4	1/2	0.84	0.90
169PMTNS-4-6	1/4	3/8	1/2	0.84	1.06
169PMTNS-6-2	3/8	1/8	9/16	1.05	0.75
169PMTNS-6-4	3/8	1/4	9/16	1.05	0.94
169PMTNS-6-6	3/8	3/8	3/4	1.05	0.94
169PMTNS-6-8	3/8	1/2	11/16	1.12	1.26
169PMTNS-8-4	1/2	1/4	11/16	1.17	1.06
169PMTNS-8-6	1/2	3/8	11/16	1.22	1.06
169PMTNS-8-8	1/2	1/2	11/16	1.22	1.26
169PMTNS-10-6	5/8	3/8	7/8	1.46	1.11
169PMTNS-10-8	5/8	1/2	7/8	1.46	1.32
169PMTNS-12-8	3/4	1/2	1	1.81	1.44

171PMT Male Run Tee Swivel



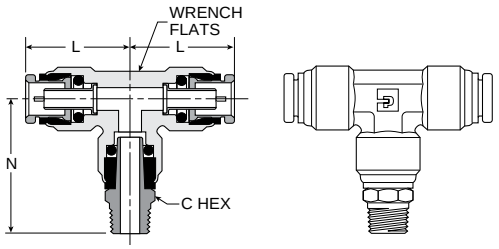
Part No.	Tube Size	Pipe Thread (NPTF)	Wrench Flats	C Hex	L	N
171PMT-4-2	1/4	1/8	1/2	7/16	.85	1.25
171PMT-4-4	1/4	1/4	1/2	9/16	.85	1.48
171PMT-4-6	1/4	3/8	1/2	11/16	.85	1.43
171PMT-6-4	3/8	1/4	5/8	9/16	1.21	1.83
171PMT-6-6	3/8	3/8	5/8	11/16	1.21	1.83
171PMT-8-4	1/2	1/4	7/8	5/8	1.27	1.74
171PMT-8-6	1/2	3/8	7/8	3/4	1.27	1.83
171PMT-8-8	1/2	1/2	7/8	7/8	1.27	1.99

171PMTNS Male Run Tee Non-Swivel



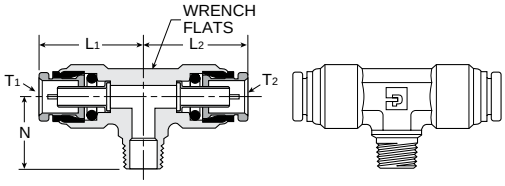
Part No.	Tube 1 Size	Tube 2 Size	Pipe Thread (NPTF)	Wrench Flats	L1	L2	N
171PMTNS-4-4	1/4	1/4	1/4	15-32	0.91	0.91	0.94
171PMTNS-4-6-4	1/4	3/8	1/4	5/8	0.93	1.21	0.97
171PMTNS-6-4	3/8	3/8	1/4	5/8	1.21	1.21	0.97
171PMTNS-6-4-4	3/8	1/4	1/4	5/8	1.21	0.93	0.97
171PMTNS-6-4-6	3/8	1/4	3/8	5/8	1.22	0.97	0.93
171PMTNS-6-6	1/2	3/8	3/8	5/8	1.21	1.27	0.97
171PMTNS-6-8	1/2	3/8	1/2	5/8	1.17	1.27	1.26
171PMTNS-8-4	1/2	1/2	1/4	7/8	1.28	1.27	1.06

172PMT Male Branch Tee Swivel



Part No.	Tube Size	Pipe Thread (NPTF)	Wrench Flats	C Hex	L	N
172PMT-4-2	1/4	1/8	1/2	7/16	0.85	1.25
172PMT-4-4	1/4	1/4	1/2	9/16	0.85	1.43
172PMT-6-2	3/8	1/8	5/8	9/16	1.22	1.66
172PMT-6-4	3/8	1/4	5/8	5/8	1.22	1.83
172PMT-6-6	3/8	3/8	5/8	3/4	1.22	1.83
172PMT-8-4	1/2	1/4	7/8	5/8	1.27	1.73
172PMT-8-6	1/2	3/8	7/8	3/4	1.27	1.79
172PMT-8-8	1/2	1/2	7/8	7/8	1.27	1.97

172PMTNS Male Branch Tee Non-Swivel



Part No.	Tube 1 Size	Tube 2 Size	Pipe Thread (NPTF)	Wrench Flats	L1	L2	N
172PMTNS-4-2	1/4	1/4	1/8	1/2	0.91	0.91	0.78
172PMTNS-6-4	3/8	3/8	1/4	5/8	1.21	1.21	0.97
172PMTNS-6-4-4	3/8	1/4	1/4	5/8	1.21	.93	0.97
172PMTNS-6-6	3/8	3/8	3/8	5/8	1.21	1.21	0.97
172PMTNS-6-8	3/8	3/8	1/2	7/8	1.17	1.17	1.26
172PMTNS-8-6	1/2	1/2	3/8	7/8	1.28	1.28	1.06
172PMTNS-8-6-8	1/2	3/8	1/2	7/8	1.25	1.25	1.25
172PMTNS-8-8	1/2	1/2	1/2	7/8	1.34	1.25	1.25

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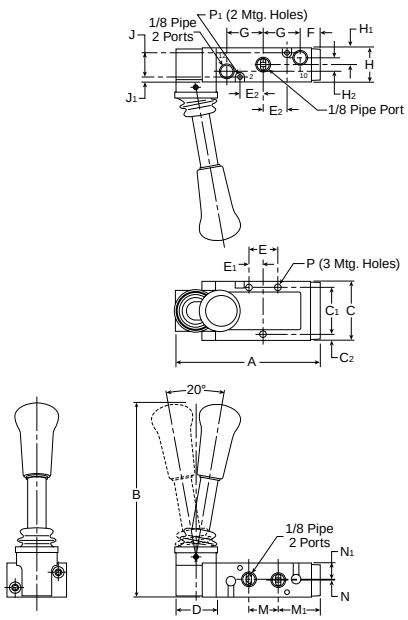
P2LAX 3/2 Hand Lever Operated

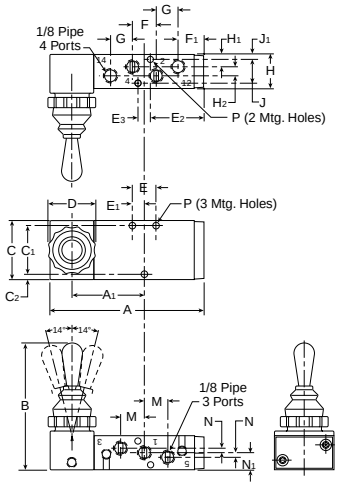


P2LAX 3/2 (hand lever)

A	B	C
3.88 (99)	5.23 (133)	1.57 (40)
C₁	**C₂**	**D**
1.26 (32)	.16 (4)	1.06 (27)
E	**E₁**	**E₂**
.79 (20)	.39 (10)	.63 (16)
F	**G**	**H**
.55 (14)	.98 (25)	.87 (22)
H₁	**H₂**	**J**
.42 (10.6)	.02 (0.5)	.65 (16.5)
J₁	**M**	**M₁**
.11 (2.9)	.79 (20)	1.14 (29)
N	**N₁**	**P**
.18 (4.5)	.26 (6.6)	Ø .17 Ø (4.3)
P₁		
Ø .12 Ø (3.1)		

Inches (mm)

P2LAX 5/2 & 5/3 Hand Lever Operated

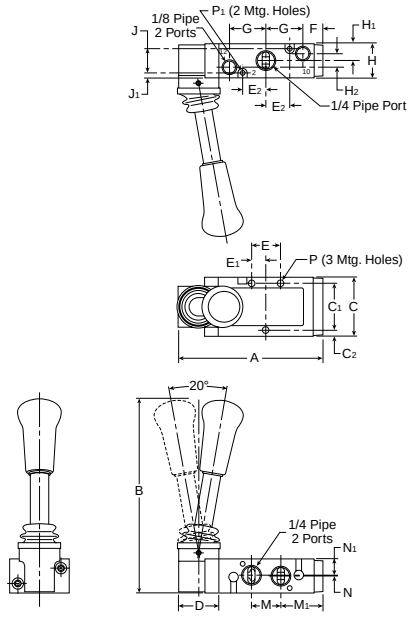


P2LAX 5/2 & 5/3 (hand lever)

A	A₁	B
4.02 (102)	1.89 (48)	3.23 (82)
C	**C₁**	**C₂**
1.57 (40)	1.30 (33)	.14 (3.5)
D	**E₂**	**E₃**
1.18 (30)	1.42 (36)	.33 (8.5)
F	**F₁**	**G**
.63 (16)	.67 (17)	.59 (15)
H	**H₁**	**H₂**
.87 (22)	.31 (8)	.24 (6)
J	**J₁**	**M**
.63 (16)	.12 (3)	.63 (16)
N	**N₁**	**P**
.12 (3)	.43 (11)	Ø .16 Ø (4.1)

Inches (mm)

P2LBX 3/2 Hand Lever Operated

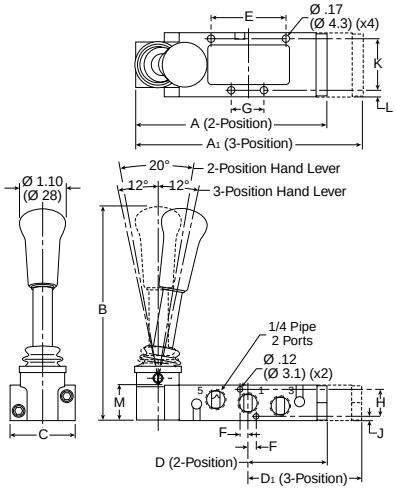


P2LBX 3/2 (hand lever)

A	B	C
3.88 (99)	5.23 (133)	1.57 (40)
C₁	**C₂**	**D**
1.26 (32)	.16 (4)	1.06 (27)
E	**E₁**	**E₂**
.79 (20)	.39 (10)	.63 (16)
F	**G**	**H**
.55 (14)	.98 (25)	.87 (22)
H₁	**H₂**	**J**
.42 (10.6)	.02 (0.5)	.65 (16.5)
J₁	**M**	**M₁**
.11 (2.9)	.79 (20)	1.14 (29)
N	**N₁**	**P**
.18 (4.5)	.26 (6.6)	Ø .17 Ø (4.3)
P₁		
Ø .12 Ø (3.1)		

Inches (mm)

P2LBX 5/2 & 5/3 Hand Lever Operated



P2LBX 5/2 & 53 (hand lever)

A	A₁	B
4.67 (118.5)	5.51 (140)	5.19 (131.8)
C	**D**	**D₁**
1.57 (40)	1.93 (49)	2.35 (59.8)
E	**F**	**G**
1.81 (46)	.20 (5)	.79 (20)
H	**J**	**K**
.65 (16.5)	.11 (2.85)	1.26 (32)
L	**M**	
.16 (4)	.87 (22.2)	

Inches (mm)

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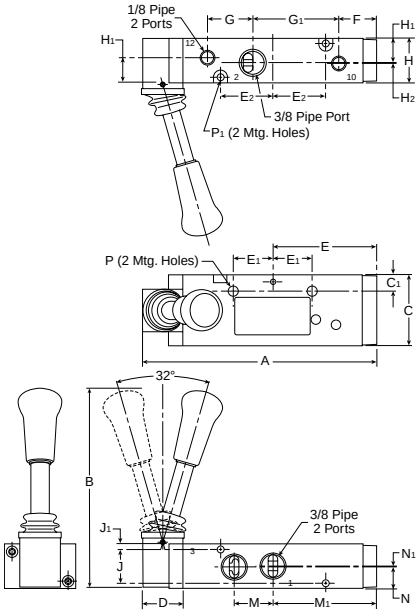
P2LCX 3/2 Hand Lever Operated

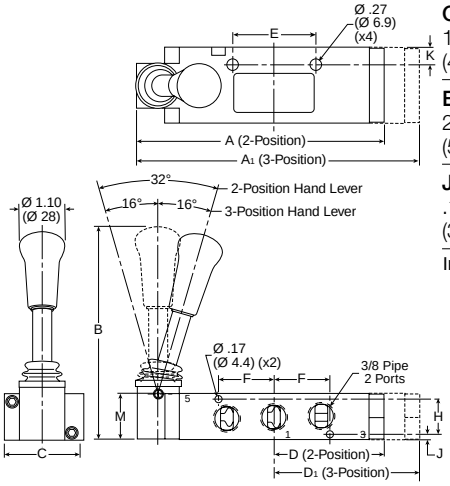


P2LCX 3/2 (hand lever)

A	B	C
6.20 (158)	5.36 (136)	1.89 (48)
C1	**D**	**E**
.43 (11)	1.06 (27)	2.76 (70)
E1	**E2**	**F**
1.04 (27)	1.40 (36)	1.02 (26)
G	**G1**	**H**
1.22 (31)	2.24 (57)	1.18 (30)
H1	**H2**	**J**
.67 (17)	.02 (0.5)	.91 (23)
J1	**M**	**M1**
.14 (3.5)	1.18 (30)	2.76 (70)
N	**N1**	**P**
.59 (15)	.04 (1)	Ø .27 Ø (6.9)
P1		
Ø .17 Ø (4.4)		

Inches (mm)

P2LCX 5/2 & 5/3 Hand Lever Operated

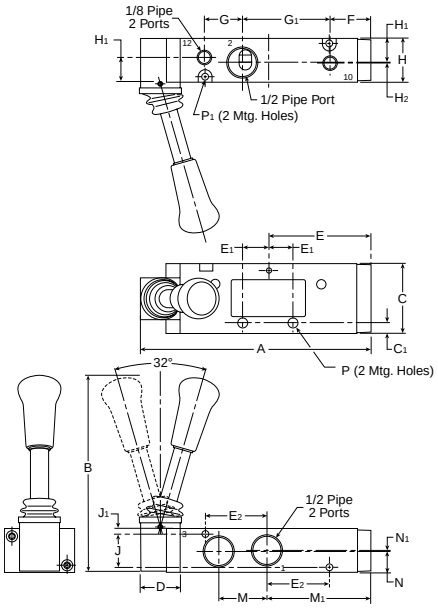


P2LCX 5/2 & 5/3 (hand lever)

A	A1	B
6.20 (157.5)	7.07 (179.5)	5.36 (136.3)
C	**D**	**D1**
1.89 (48)	2.76 (70)	3.19 (81)
E	**F**	**H**
2.09 (53)	1.40 (35.5)	.91 (23)
J	**K**	**M**
.14 (3.5)	.43 (11)	1.18 (30)

Inches (mm)

P2LDX 3/2 Hand Lever Operated

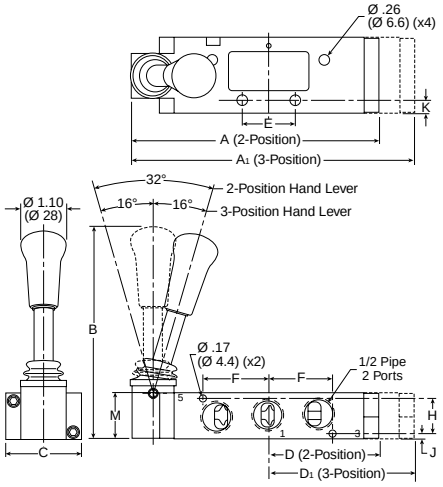


P2LDX 3/2 (hand lever)

A	B	C
6.20 (158)	5.36 (136)	1.89 (48)
C1	**D**	**E**
.30 (7.5)	1.06 (27)	2.76 (70)
E1	**E2**	**F**
.67 (17)	1.65 (42)	1.08 (28)
G	**G1**	**H**
.98 (25)	2.36 (60)	1.18 (30)
H1	**H2**	**J**
.67 (17)	.02 (0.5)	.91 (23)
J1	**M**	**M1**
.14 (3.5)	1.30 (33)	2.76 (70)
N	**N1**	**P**
.59 (15)	.04 (1)	Ø .26 Ø (6.6)
P1		
Ø .17 Ø (4.4)		

Inches (mm)

P2LDX 5/2 & 5/3 Hand Lever Operated



P2LDX 5/2 & 5/3 (hand lever)

A	A1	B
6.20 (157.5)	7.07 (179.5)	5.36 (136.3)
C	**D**	**D1**
1.89 (48)	3.19 (81)	2.76 (70)
E	**F**	**H**
1.34 (34)	1.65 (42)	.91 (23)
J	**K**	**M**
.14 (3.5)	.30 (7.5	1.18 (30)

Inches (mm)

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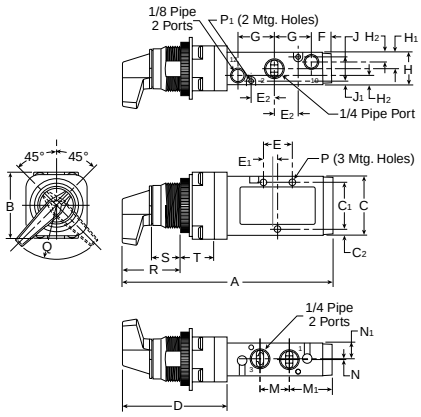
P2LBX 3/2 Twist Lever Operated

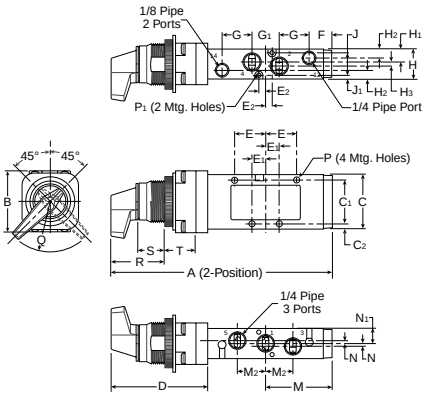


P2LBX 3/2 (hand lever)

A	B	C
5.67 (144)	1.79 (45.5)	1.57 (40)
C_1	**C_2**	**D**
1.26 (32)	.16 (4)	2.87 (73)
E	**E_1**	**E_2**
.79 (20)	.39 (10)	.63 (16)
F	**G**	**H**
.55 (14)	.98 (25)	.87 (22.2)
H_1	**H_2**	**J**
.44 (11.1)	.26 (6.6)	.65 (16.5)
J_1	**M**	**M_1**
.11 (2.9)	.79 (20)	1.14 (29)
N	**N_1**	**P**
.02 (0.5)	.42 (10.6)	Ø .17 Ø (4.3)
P_1	**Q**	**R**
Ø .12 Ø (3.1)	1.5R (38.1)R	1.85 (47)
S	**T**	
1.10 (28)	.67 (17)	

Inches (mm)

P2LBX 5/2 Twist Lever Operated

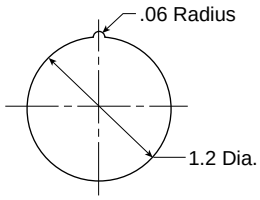


P2LBX 5/2 (hand lever)

A	B	C
6.46 (164)	1.79 (45.5)	1.57 (40)
C_1	**C_2**	**D**
1.26 (32)	.15 (4)	2.87 (73)
E	**E_1**	**E_2**
.91 (23)	.39 (10)	.20 (5)
F	**G**	**G_1**
.67 (17)	.87 (22)	.79 (20)
H	**H_1**	**H_2**
.87 (22.2)	.44 (11.1)	.26 (6.6)
H_3	**J**	**J_1**
.12 (3)	.65 (16.5)	.11 (2.9)
M	**N**	**N_1**
1.93 (49)	.08 (0.2)	.44 (11.1)
P	**P_1**	**Q**
Ø .17 Ø (4.3)	Ø .12 Ø (3.1)	1.5R (38.1)R
R	**S**	**T**
1.85 (47)	1.10 (28)	.67 (17)

Inches (mm)

Panel Cutout Detail (All Port Sizes)



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Notes

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Valvair Manual Spool Valves

Air Pilot, Manual & Mechanically Actuated

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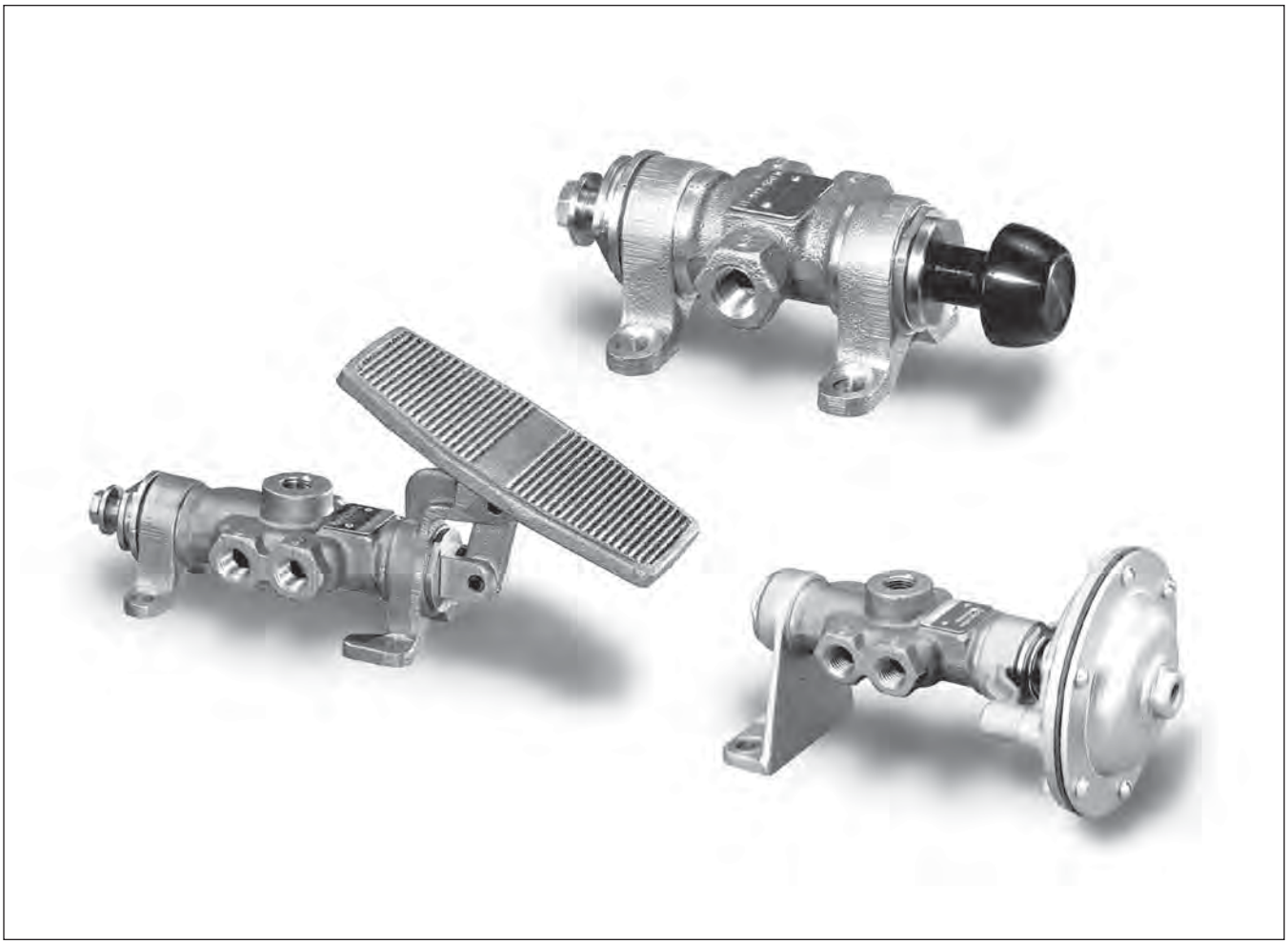

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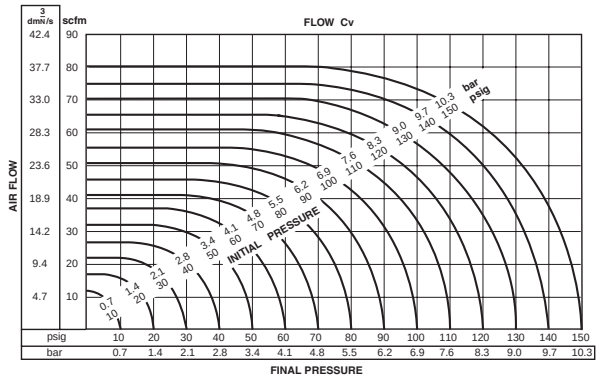
Features

- 1/4" to 3/4" NPTF ports
- Standard operators listed. Consult factor for variations in orientation
- Standard 2 position 3-way and 4-way valves listed. Consult factory for 2-way and 3 position valves
- Corrosion resistant bronze body
- High flow brass spacers position o-ring, permit reverse piping and vacuum service
- Specially compounded o-rings suitable for non-lube air service and low pressure oil service
- Floating stem of hard chrome plated stainless steel; no metal to metal contact
- Closed at crossover design for air savings
- Piped exhaust convenient for muffling
- Interchangeable operators
- Interchangeable end sections
- Service without disturbing plumbing
- Dual mounting brackets on most models

Flow Cv Ratings

Valve Type	Port size	Port 1 to 2	Port 1 to 3	Port 2 to 3	Port 2 to 4	Port 3 to 4
3-Way 2-Position	1/4	2.4	—	2.4	—	—
	3/8	3.2	—	3.4	—	—
	1/2	5.0	—	5.1	—	—
	3/4	9.5	—	9.8	—	—
4-Way 2-Position	1/4	2.4	2.4	—	2.0	2.2
	3/8	3.4	3.2	—	3.0	3.1
	1/2	5.2	5.3	—	4.7	4.7
	3/4	8.7	9.2	—	7.9	8.0

Flow Cv



Flow Capacities

The capacity curves shown in the chart are for a theoretical valve having a Cv = 1.0 for air at standard conditions.

Flow rating determined in accordance with NFPA recommended standard NFPA/T3.21.3 - 1974.

Operating Information

Pressure limitations
knob (manual and spring return) and palm operators (manual and spring return)

Media	Port Size	PSI (kPa) 3-Way	4-Way
Air and Hydraulic ‡	1/4	200 (1380)	180 (1240)
	3/8	175 (1210)	170 (1170)
	1/2	160 (1100)	150 (1030)
	3/4	150 (1030)	150 (1030)
Vacuum	All	Within 1" Hg of perfect	
Other	Consult factory		

Pressure limitations
knob (detent), lever, pedal, treadle, clevis, cam air operated diaphragm and cylinder

Media	Port Size	PSI (kPa) 3-Way	4-Way
Air and Hydraulic ‡	1/4	225 (1550)	225 (1550)
	3/8	225 (1550)	225 (1550)
	1/2	215 (1480)	215 (1480)
	3/4	200 (1380)	200 (1380)
Vacuum	All	Within 1" Hg of perfect	
Other	Consult factory		

Temperature range: -15°F to 200°F (-26° to 93°C)

Lubrication: For best results and service life use clean, moisture free lubricated air.

‡ For technical information see CD

Materials

Body	High pressure valve bronze
Knobs And Palm Buttons	Anodized aluminum
Operators	Iron castings; steel rod, bar and tube, and plated for corrosion resistance
O-Rings	Buna-N and impregnated with Molybdenum Disulfide
Spacers And End Bearings	Brass bar stock
Springs	high quality steel and plated for corrosion resistance
Stem	Stainless steel and hard chrome plated

Warnings

⚠ Install guards on all hand operated valves if accidental operation can cause personal injury.

⚠ Foot operated valves must be protected against inadvertent operation that can cause serious bodily injury. Use of a guard is strongly recommended as it will reduce the likelihood of inadvertent operation.

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M0 Series Air Pilot, Manual & Mechanically Actuated Valves

3-Way and 4-Way Knob Operated	Description	Part Number 1/4 NPT	Part Number 3/8 NPT	Part Number 1/2 NPT	Part Number 3/4 NPT
	3-way, detent ball, foot bracket	**M05422448**	**M05432448**	**M05442448**	**M05462448**
	3-way, detent ball, panel mount with nut	**M05822451**	**M05832451**	**M05842451**	M05862451
	3-way, N.C., manual, foot bracket	**M08521848**	**M08531848**	**M08541848**	M08561848
	3-way, N.C., manual, panel nut	**M08521851**	**M08531851**	**M08541851**	**M08561851**
	3-way, N.C., pull to operate, spring return, foot bracket	**M09721848**	**M09731848**	**M09741848**	M09761848
	3-way, N.C., pull to operate, spring return, panel mount with nut	**M06421851**	**M06431851**	**M06441851**	M06461851
	3-way, N.C., push to operate, spring return, foot bracket	**M09821848**	**M09831848**	**M09841848**	M09861848
	3-way, N.C., push to operate, spring return, panel mount with nut	**M06521851**	**M06531851**	**M06541851**	M06561851
	4-way, detent ball, foot bracket	**M05425448**	**M05435448**	**M05445448**	M05465448
	4-way, detent ball, panel mount with nut	**M05825451**	**M05835451**	**M05845451**	M05865451
	4-way, manual, foot bracket	**M08524648**	**M08534648**	**M08544648**	M08564648
	4-way, manual, panel nut	**M08524651**	**M08534651**	**M08544651**	M08564651
	4-way, pull to operate, spring return, foot bracket	**M09724648**	**M09734648**	**M09744648**	**M09764648**
	4-way, pull to operate, spring return, |panel mount with nut	**M06424651**	**M06434651**	**M06444651**	M06464651
	4-way, push to operate, spring return, foot bracket	**M09824648**	**M09834648**	**M09844648**	M09864648
	4-way, push to operate, spring return, panel mount with nut	**M06524651**	**M06534651**	**M06544651**	M06564651
3-Way and 4-Way Palm Button Operated					
	3-way, N.C., pull palm button to operate, spring return, panel mount with nut	**M06421859**	**M06431859**	**M06441859**	M06461859
	3-way, N.C., push palm button to operate, spring return, panel mount with nut	**M06521859**	**M06531859**	**M06541859**	M06561859
	4-way, pull palm button to operate, spring return panel mount with nut	**M06424659**	**M06434659**	**M06444659**	M06464659
	4-way, push palm button to operate, spring return, panel mount with nut	**M06524659**	**M06534659**	**M06544659**	M06564659
3-Way and 4-Way Lever Operated					
	3-way, detent ball, foot bracket	**M05422443**	**M05432443**	**M05442443**	**M05462443**
	3-way, manual, foot bracket	**M08521843**	**M08531843**	**M08541843**	**M08561843**
	3-way, N.C., pull lever to operate, spring return, foot bracket	**M09621843**	**M09631843**	**M09641843**	**M09661843**
	3-way, N.C., push lever to operate, spring return, foot bracket	**M09521843**	**M09531843**	**M09541843**	**M09561843**
	4-way, detent ball, foot bracket	**M05425443**	**M05435443**	**M05445443**	**M05465443**
	4-way, manual, foot bracket	**M08524643**	**M08534643**	**M08544643**	**M08564643**
	4-way, pull lever to operate, spring return, foot bracket	**M09624643**	**M09634643**	**M09644643**	**M09664643**
	4-way, push lever to operate, spring return, foot bracket	**M09524643**	**M09534643**	**M09544643**	**M09564643**

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M0 Series Air Pilot, Manual & Mechanically Actuated Valves

3-Way and 4-Way, Foot Operated: Treadle / Pedel Type	Description	Part Number 1/4 NPT	Part Number 3/8 NPT	Part Number 1/2 NPT	Part Number 3/4 NPT
	3-way, treadle operated, detent ball, foot bracket	**M05422488**	**M05432488**	**M05442488**	-
	3-way, treadle operated, manual return, foot bracket	**M08521888**	**M08531888**	**M08541888**	-
	3-way, N.C., spring return, pedel operated, foot bracket	**M06221840**	**M06231840**	**M06241840**	-
	4-way, treadle operated, denent ball, foot bracket	**M05425488**	**M05435488**	**M05445488**	-
	4-way, treadle operated, manual return, foot bracket	**M08524688**	**M08534688**	**M08544688**	-
	4-way, spring return, pedel operated, foot bracket	**M06224640**	**M06234640**	**M06244640**	-

CAUTION:
This valve shall not be used to actuate a punch press. Do not use this valve on punch presses or press brakes. See OSHA 1910.217.

3-Way and 4-Way Air Operated: Diaphram or Cylinder					
	3-way, N.C., single air diaphram, air signal to actuate, spring return foot bracket	**M08421830**	**M08431830**	**M08441830**	-
	3-way, single air cylinder signal to actuate, spring return foot bracket	M08521826	M08531826	**M08541826**	**M08561826**
	3-way, double air diaphram	**M03321833**	**M03331833**	**M03341833**	-
	3-way, double air cylinder foot bracket	M01921819	M01931819	M01941819	M01961819
	4-way, single air diaphram, air signal to actuate, spring return foot bracket	**M08424630**	**M08434630**	**M08444630**	-
	4-way, single air cylinder signal to actuate, spring return foot bracket	**M08524626**	M08534626	M08544626	**M08564626**
	4-way, double air diaphram	**M03324633**	**M03334633**	**M03344633**	-
	4-way, double air cylinder foot bracket	M01924619	M01934619	**M01944619**	**M01964619**

Note: Diaphragm operators: pilot signal pressures from 20 to 60 psi. Cylinder operators: pilot signal pressures from 20 to 250 psi.

3-Way and 4-Way Clevis Operated					
	3-way, m anual, foot bracket	**M08521805**	**M08531805**	**M08541805**	M08561805
	3-way, N.C., pull to operate, spring return foot bracket	**M09621805**	**M09631805**	**M09641805**	M09661805
	3-way, N.C., push to operate, spring return, foot bracket	**M09521805**	**M09531805**	**M09541805**	M09561805
	4-way, manual, foot bracket	**M08524605**	**M08534605**	**M08544605**	M08564605
	4-way, pull clevis to operate, spring return, foot bracket	**M09624605**	**M09634605**	**M09644605**	M09664605
	4-way, push clevis to operate, spring return, foot bracket	**M09524605**	**M09534605**	**M09544605**	M09564605
3-Way and 4-Way Cam Operated					
	3-way, N.C., spring return, cam operated, foot bracket	**M09521803**	**M09531803**	**M09541803**	**M09561803**
	4-way, spring return, cam operatred, foot bracket	**M09524603**	**M09534603**	M09544603	M09564603

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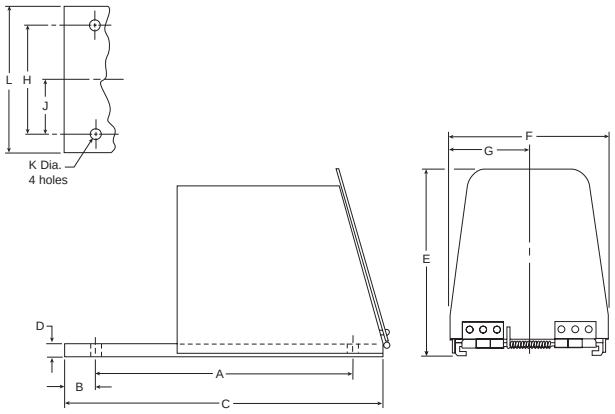
Pedal Guard
(Fits all pedal operated valves)

Description	Model number
Guard with door	**M232 001**
Guard without door	**M232 002**
Guard with door for 1/4 and 3/8 valve	**M232 003***
Guard without door for 1/4 and 3/8 valve	**M232 004***
Guard with door for 1/2 and 3/4	**M232 005***
Guard without door for 1/2 and 3/4	**M232 006***

* Includes mounting hardware.

⚠ ***CAUTION:***

Foot valves utilizing this guard shall not be used to actuate a punch presse. Do not use this valve on punch presses or press brakes. See OSHA 1910.217.



Dimensions

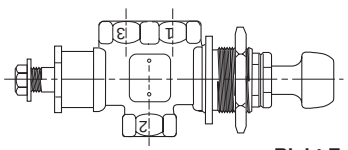
A 10.50 266.7	**B** 1.25 31.8	**C** 13.00 330.2	**D** .50 12.7	**E** 7.38 187.4	**F** 6.36 161.5	**G** 3.18 80.8
H 4.50 114.3	**J** 2.25 57.2	**K** .44 11.2	**L** 6.00 152.4			

M0 Valve 9 Digit Part Number Dissection

The M0 Valve Series has with wide variety of operating and return ends which can be ordered either on the left or right hand side of the valve body. Common part numbers on the previous pages can be ordered with the left and right hand ends swapped. Swapping operator and return end sections does not change the spool function, but can reverse the expected function of the valve. For example, a 3-way, normally closed, “NC”, spring return valve will become a 3-way normally open, “NO”, valve when the operator and return secton is swapped. There are other non-cataloged options available and this part number dissection will enable you to discuss your valve part number with the factory for options.

3-Way

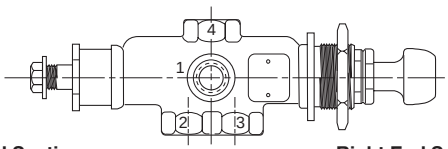
Series name	Left end	Port size	Body function	Right end
M0	XX	X	XX	XX



Left End Section in relation to port #2 ← → **Right End Section in relation to port #2**

4-Way

Series name	Left end	Port size	Body function	Right end
M0	XX	X	XX	XX



Left End Section in relation to port #2 ← → **Right End Section in relation to port #3**

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M0 Valve: 1/4", 3/8", 1/2" Port Size

M0 | 85 | 3 | 18 | 48

Valve Series	
Basic Series	M0

Left End Section	
Double Cylinder	19
Double Air Diaphragm	33
Ball Detent, Small Bracket	54
Ball Detent, Panel Mounted	58
Direct Acting Spring Return, Less Bracket (Push Lever)	62
Reverse Acting Spring Return, Less Bracket (Pull Lever)	63
Light Spring Return Direct Acting, Less Bracket (Pull Knob)	64
Light Spring Return Reverse Acting, Less Bracket (Push Knob)	65
Stem Stop, Large Bracket	84
Stem Stop, Small Bracket	85
Direct Acting Spring Return, Small Bracket (Push Lever)	95
Reverse Acting Spring Return, Small Bracket (Pull Lever)	96
Light Spring Return Direct Acting, Small Bracket (Pull Knob)	97
Light Spring Return Reverse Acting, Small Bracket (Push Knob)	98

Pipe Size	
NPT	Port Size
1/4	2
3/8	3
1/2	4

Body / Function	
18	3-Way
24*	3-Way, 2-Position Detent
46	4-Way
54*	4-Way, 2-Position Detent

* At least one end section must be coded 54.

Operating End Section: Right End	
03	Cam Follower
05	Clevis, Small Bracket
19	Double Cylinder
26	Single Cylinder
30	Single Diaphragm, Std. Spring
32	Single Diaphragm, Light Spring
33	Double Diaphragm
40	Pedal
43	Lever, Mounting Feet
48	Knob, Small Bracket
51	Knob, Panel Mounted
59	Palm Button, Panel Mounted
88	Treadle
99	Palm Button

M0 Valve: 3/4" Port Size

M0 | 85 | 6 | 18 | 48

Valve Series	
Basic Series	M0

Left End Section	
Double Cylinder	19
Ball Detent, Small Bracket	54
Ball Detent, Panel Mounted	58
Direct Acting Spring Return, Less Bracket (Push Lever)	62
Reverse Acting Spring Return, Less Bracket (Pull Lever)	63
Light Spring Return Direct Acting, Less Bracket (Pull Knob)	64
Light Spring Return Reverse Acting, Less Bracket (Push Knob)	65
Stem Stop, Small Bracket	85
Direct Acting Spring Return, Small Bracket (Push Lever)	95
Reverse Acting Spring Return, Small Bracket (Pull Lever)	96
Light Spring Return Direct Acting, Small Bracket (Pull Knob)	97
Light Spring Return Reverse Acting, Small Bracket (Push Knob)	98

Pipe Size	
NPT	Port Size
3/4	6

Body / Function	
18	3-Way
24*	3-Way, 2-Position Detent
46	4-Way
54*	4-Way, 2-Position Detent

* At least one end section must be coded 54.

Operating End Section: Right End	
03	Cam Follower
05	Clevis, Small Bracket
19	Double Cylinder
26	Single Cylinder
43	Lever, Mounting Feet
48	Knob, Small Bracket
51	Knob, Panel Mounted
59	Palm Button, Panel Mounted
99	Palm Button

⚠ ***CAUTION:***
Be sure to order end sections that are functionally effective with each other and with the body section selected. Model number combinations are possible which may not operate.

NOTE: Bold items are standard body and end sections.

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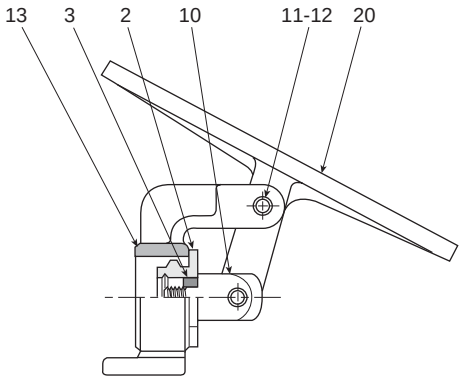
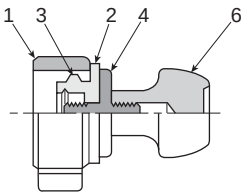
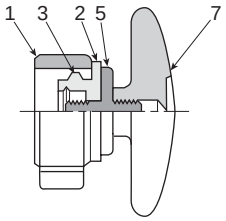


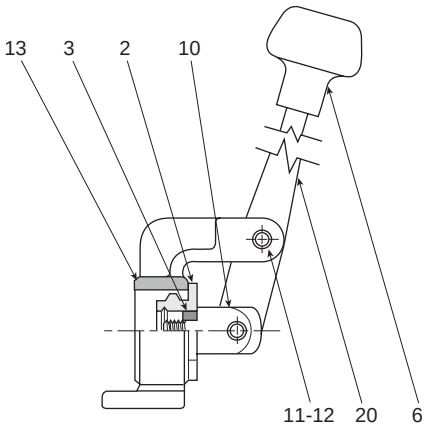
Treadle
M062 *88



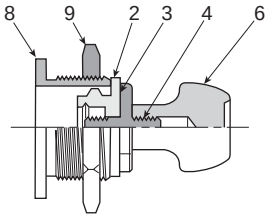
Knob
M062 *48



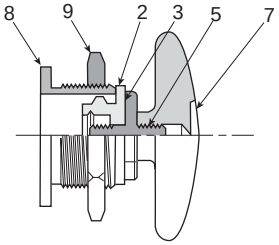
Palm Button
M062 *99



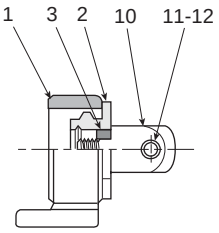
Lever
M062 *43



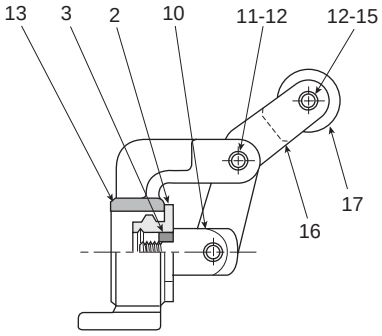
Panel Mounted Knob
M062 *51



Panel Mounted Palm Button
M062 *59

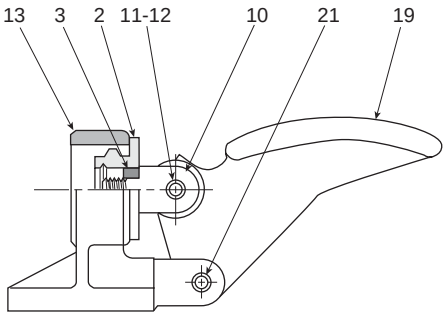


Clevis
M062 *05



Cam
M062 *03

Port Size	Use No. *
1/4	2
3/8	3
1/2	4
3/4	6



Pedal
M062 *40

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Item No.	Part Number				Description
	1/4"	3/8"	1/2"	3/4"	
1	M073 016	M073 026	M073 037	M073 046	Bracket
2	M103 012	M103 047	M103 066	M103 108	End Bearing
3	H177 05	H177 05	H177 06	H174 08	Lockwasher
4	M013 011	M013 011	M013 012	M013 013	Knob Adapter
5	M013 011	M013 011	M013 012	M013 013	Palm Knob Adapter
6	H050 28	H050 28	H050 28	H050 28	Knob
7	H050 29	H050 29	H050 29	H050 29	Palm Button
8	M013 014	M013 015	M013 016	M013 017	Panel Adapter
9	M303 005	M303 006	M303 007	M303 008	Jam Nut
10	M133 003	M133 003	M133 012	M133 018	Clevis
11	H072 29	H072 29	M333 013	M333 013	Pivot Pin (2)
12	—	—	H089 03	H089 03	Retaining Ring (4)
13	M073 009	M073 022	M073 033	M073 042	Bracket
14	M273 022	M273 022	M273 023	M273 024	Lever
15	H072 30	H072 30	M333 016	M333 016	Roller Trunnion
16	M273 002	M273 002	M273 006	M273 007	Cam Arm
17	M443 003	M443 003	M443 002	M443 002	Roller
18	M073 003	M073 019	M073 030	—	Bracket
19	M323 005	M323 005	M323 006	M323 007	Pedal
20	M553 004	M553 004	M553 005	—	Treadle
21	H072 29	H072 29	M333 013	M333 014	Pivot Pin

NOTE: ( ) denotes quantity required when more than one.

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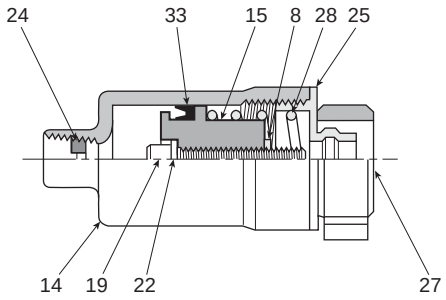
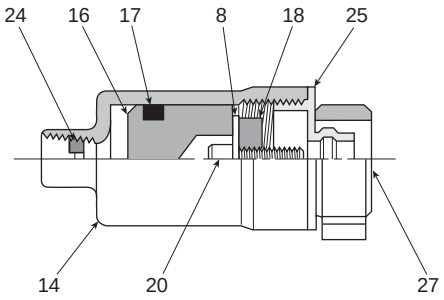
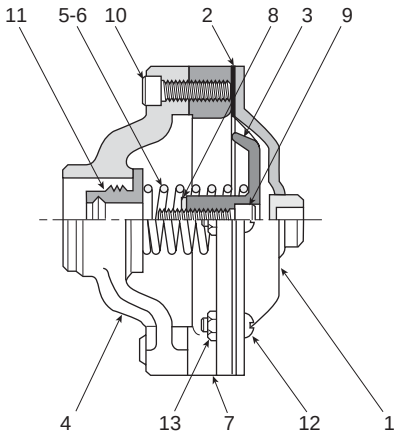


Single Cylinder
M062 *26

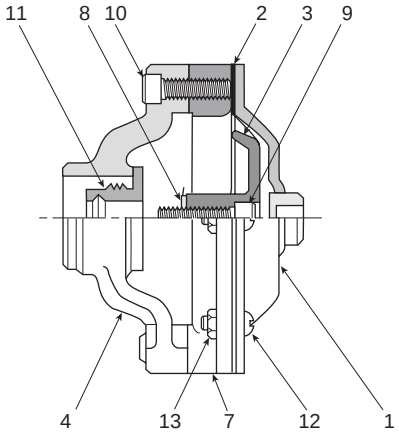


Double Cylinder
M062 *19



Single Diaphragm
M062 *30

Inst. Air Single Diaphragm
M062 *32



Double Diaphragm
M062 *33

Port Size	Use No. *
1/4	2
3/8	3
1/2	4
3/4	6

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Item No.	Part Number				Description
	1/4"	3/8"	1/2"	3/4"	
1	M163 005	M163 005	M163 005	M163 012	Cover
2	M193 002	M193 002	M193 002	M193 005	Diaphragm
3	M343 038	M343 038	M343 032	M343 039	Piston
4	M573 004	M573 003	M573 001	M573 011	Yoke
5	M493 024	M493 024	M493 010	M493 023	Spring
6	M493 022	M493 022	M493 009	M493 028	Spring (Inst. Air)
7	M423 002	M423 002	M423 002	M423 004	Ring
8	H177 05	H177 05	H177 06	H174 08	Lockwasher
9	H101 19	H101 19	H101 45	H102 17	Screw
10	H101 15	H101 15	H101 15	H101 15	Screw (2)
11	M103 012	M103 047	M103 066	M103 108	End Bearing
12	H113 33	H113 33	H113 33	H113 33	Screw (6)
13	H064 16	H064 16	H064 16	H064 16	Nut (6)
14	M243 028	M243 028	M243 028	M243 036	Housing
15	M343 019	M343 019	M343 018	M343 027	Piston – Single Act.
16	M343 022	M343 022	M343 022	M343 028	Piston – Double Cyl.
17	H145 15	H145 15	H145 15	H145 20	Packer
18	M013 005	M013 005	M013 007	M013 009	Adapter
19	H101 21	H101 21	H101 47	H102 19	Screw – Single Act.
20	H101 17	H101 17	H101 45	H102 15	Screw – Double Act.
22	H175 14	H175 14	H175 19	H175 24	Lockwasher
24	M363 002	M363 002	M363 002	M363 002	Restrictor
25	M383 007	M383 011	M383 018	M383 029	Retainer
27	M073 016	M073 026	M073 037	M073 046	Bracket
28	M493 015	M493 015	M493 015	M493 020	Spring
33	H222 32	H222 32	H222 32	H145 20	Packer

NOTE: ( ) denotes quantity required when more than one.

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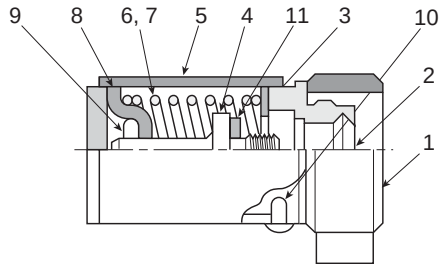
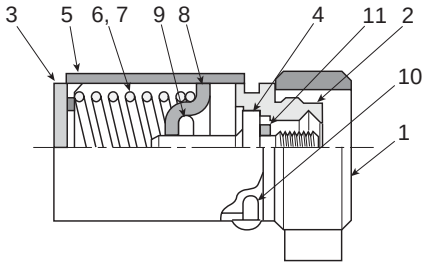
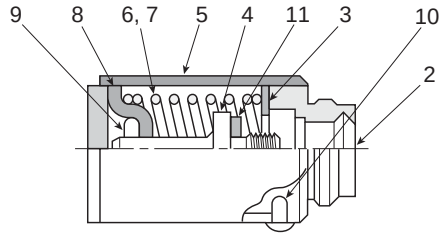


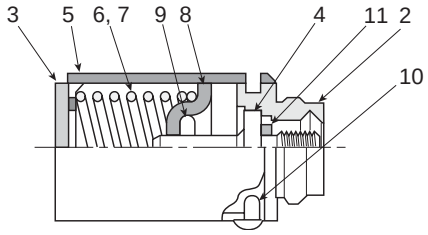
Direct Acting Spring Return with Bracket
M062 *95 Push Lever
M062 *97 Pull Knob



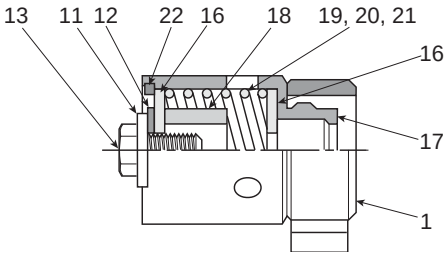
Reverse Acting Spring Return with Bracket
M062 *96 Pull Lever
M062 *98 Push Knob



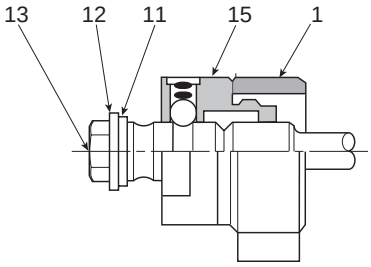
Direct Acting Spring Return less Bracket
M062 *62 Push Lever
M062 *64 Pull Knob



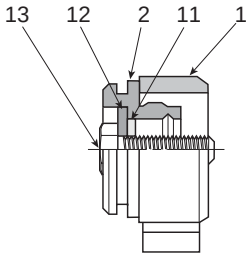
Reverse Acting Spring Return less Bracket
M062 *63 Pull Lever
M062 *65 Push Knob



Spring Centered Neutral
M062 *74 Standard Spring
M062 *76 Light Spring
M062 *78 Heavy Spring

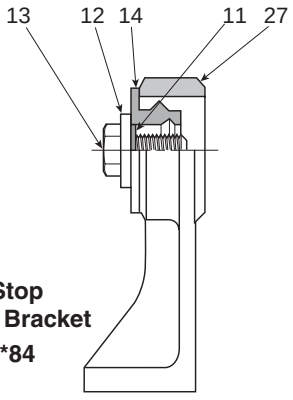


Ball Detent, 3-Position
M062 *54



Stem Stop
with Small Bracket
M062 *85

Port Size	Use No. *
1/4	2
3/8	3
1/2	4
3/4	6



Stem Stop
with Large Bracket
M062 *84

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Item No.	Part Number				Description
	1/4"	3/8"	1/2"	3/4"	
1	M073 016	M073 026	M073 037	M073 046	Bracket
2	M103 111	M103 112	M103 113	M103 114	End Bearing
3	M413 015	M413 015	M413 016	M413 017	Spring Retainer Washer
4	M523 009	M523 009	M523 010	M523 011	Stem Stop – Guide
5	M243 043	M243 043	M243 044	M243 045	Spring Housing
6	M493 037	M493 037	M493 027	M493 026	Spring – Knob Oper.
7	M493 038	M493 038	M493 011	M493 012	Spring – Other Oper.
8	M383 032	M383 032	M383 033	M383 034	Spring Retainer
9	H072 54	H072 54	H072 70	H072 71	Roll Pin
10	H11215	H11215	H11216	H11217	Screw
11	H177 05	H177 05	H177 06	H174 08	Lockwasher
12	M563 002	M563 002	M563 006	M563 014	Stem Stop
13	H096 26	H096 26	H096 45	H097 06	Stem Stop Screw
14	M103 012	M103 047	M103 066	M103 108	End Bearing – Plain
15	M012 001	M012 002	M012 003	M012 005	Ball Detent Assembly
16	M563 007	M563 009	M563 008	M563 016	Washer
17	M243 008	M243 019	M243 027	M243 032	Spring Housing
18	M083 003	M083 004	M083 005	M083 008	Spacer
19	M493 008	M493 008	M493 008	M493 014	Spring
20	M493 019	M493 019	M493 019	—	Spring – Knob Oper.
21	M493 006	M493 006	M493 006	M493 007	Spring – Dbl. Act. Cyl.
22	H090 25	H090 25	H090 25	H090 12	Retainer Ring
24	—	—	—	M353 036	Lock Plate
27	M073 006	M073 017	M073 028	—	Large Bracket

NOTE: ( ) denotes quantity required when more than one.

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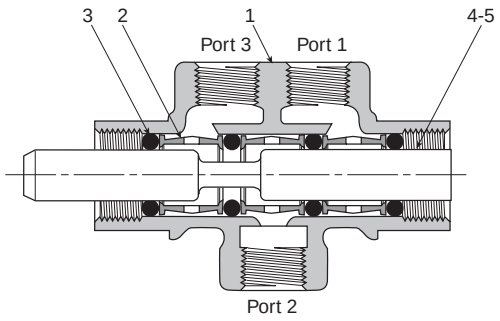
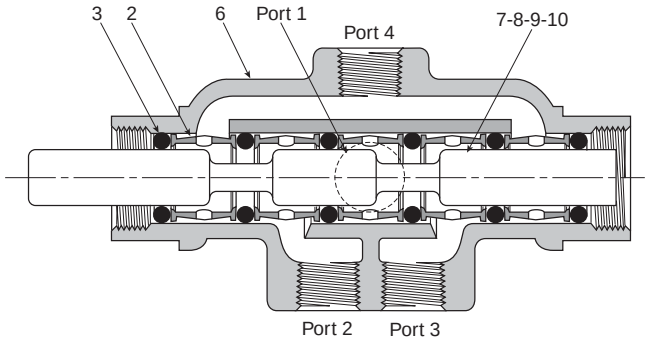


M032 *18
Standard 3-Way
M032 *24
2-Position Detent 3-Way



M032 *46
Standard 4-Way
M032 *54
2-Position Detent 4-Way

Port Size	Use No. *
1/4	2
3/8	3
1/2	4
3/4	6

Item No.	Part Number				Description
	1/4"	3/8"	1/2"	3/4"	
1	M053 007	M053 019	M053 030	M053 038	Body – 3-Way
2	M313 004	M313 011	M313 013	M313 017	Spacer (2-3-5)
3	H134 66	H135 88	H135 80	H135 84	O-Ring (3-4-6)
4	M373 014	M373 060	M373 102	M373 142	Stem – 3-Way
5	M373 020	M373 064	M373 103	M373 146	Stem – 3-Way 2-Pos. Detent
6	M053 003	M053 020	M053 033	M053 039	Body – 4-Way
7	M373 033	M373 074	M373 116	M373 156	Stem – 4-Way
8	M373 039	M373 076	M373 118	—	Stem – 4-Way 2-Pos. Detent

NOTE: ( ) denotes quantity required when more than one.

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Replacement Knobs & Palm Buttons

Description	1/4" & 3/8"	1/2"	3/4"
Knob & Adapter Kit	M122001	M122002	M122003
Palm Button & Adapter Kit	M122004	M122005	M122006

Knob & Adapter Kit

Palm Button & Adapter Kit

Hex Drive Pipe Plugs

Port Size	1/4"	3/8"	1/2"	3/4"
Part Number	K21R02025L	K21R02037L	K21R02050L	K21R02075L

Service Kits

(Field Service Instructions)

Description (For all 3 & 4-Way Valves)	1/4	3/8	1/2	3/4
Manual & Mechanical Operators	M242 001	M242 002	M242 003	M242 004
Cylinder (Single, Double & Double-Acting)	M242 006	M242 007	M242 008	M242 009
Diaphragm (Single & Double)	M242 011	M242 012	M242 013	M242 014

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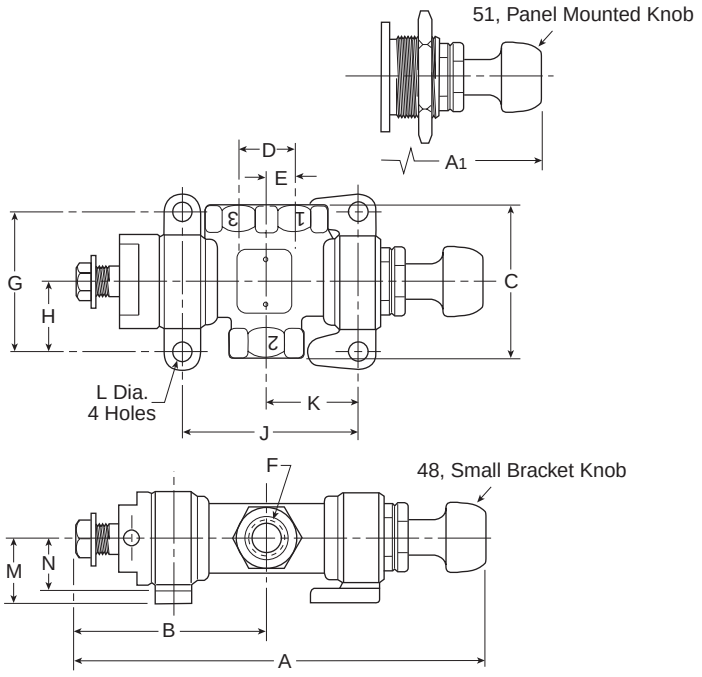
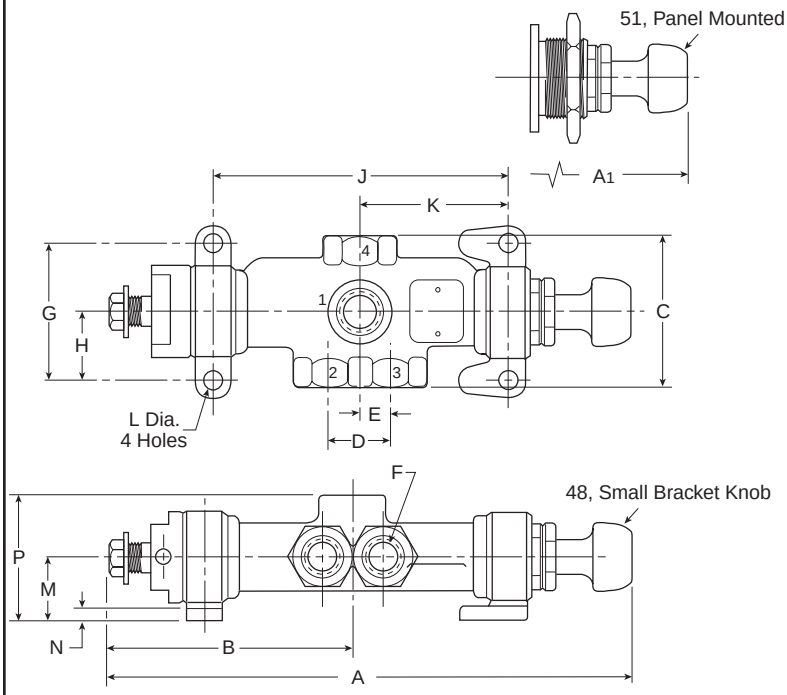
M054 Ball Detent, Small Bracket & M058 Ball Detent, Panel Mounted 3-Way



	1/4	3/8	1/2	3/4
A	6.57 (166.9)	7.30 (185.4)	8.56 (217.4)	10.40 (264.2)
A1	6.57 (166.9)	7.30 (185.4)	8.56 (217.4)	10.40 (264.2)
B	3.25 (82.6)	3.66 (93.0)	4.39 (111.5)	5.41 (137.4)
C	2.38 (60.4)	2.62 (66.6)	3.00 (76.2)	3.62 (92.0)
D	.94 (23.9)	1.06 (26.9)	1.25 (31.8)	1.62 (41.2)
E	.47 (11.9)	.53 (13.5)	.62 (15.8)	.81 (20.6)
F	1/4" Pipe	3/8" Pipe	1/2" Pipe	3/4" Pipe
G	2.25 (57.2)	2.38 (60.4)	2.62 (66.6)	3.25 (82.6)
H	1.12 (28.4)	1.19 (30.2)	1.31 (33.3)	1.62 (41.2)
J	2.63 (66.8)	3.13 (79.5)	3.72 (94.5)	4.56 (115.8)
K	1.31 (33.3)	1.56 (39.6)	1.86 (47.2)	2.28 (57.9)
L	.34 (8.6)	.34 (8.6)	.41 (10.4)	.41 (10.4)
M	1.12 (28.4)	1.12 (28.4)	1.25 (31.8)	1.56 (39.6)
N	.25 (6.4)	.25 (6.4)	.31 (7.9)	.31 (7.9)

Inches (mm)

M054 Ball Detent, Small Bracket & M058 Ball Detent, Panel Mounted 4-Way

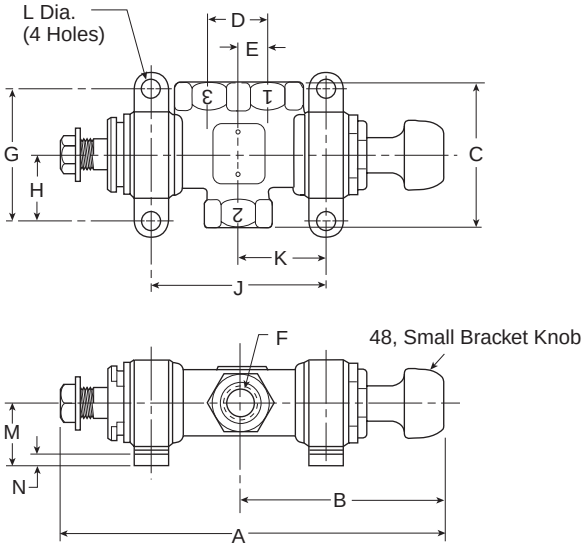


	1/4	3/8	1/2	3/4
A	8.02 (203.7)	9.13 (231.9)	11.17 (283.7)	13.10 (332.7)
A1	8.02 (203.7)	9.13 (231.9)	11.17 (283.7)	13.10 (332.7)
B	4.00 (101.6)	4.57 (116.1)	5.44 (138.2)	6.76 (171.7)
C	2.38 (60.4)	2.62 (66.6)	3.00 (76.2)	3.62 (92.0)
D	.94 (23.9)	1.06 (26.9)	1.25 (31.8)	1.62 (41.2)
E	.47 (11.9)	.53 (13.5)	.62 (15.8)	.81 (20.6)
F	1/4" Pipe	3/8" Pipe	1/2" Pipe	3/4" Pipe
G	2.25 (57.2)	2.38 (60.4)	2.62 (66.6)	3.25 (82.6)
H	1.12 (28.4)	1.19 (30.2)	1.31 (33.3)	1.62 (41.2)
J	4.14 (105.2)	4.98 (126.5)	5.85 (148.6)	7.39 (187.7)
K	2.07 (52.6)	2.49 (63.2)	2.92 (74.2)	3.69 (93.7)
L	.34 (8.6)	.34 (8.6)	.41 (10.4)	.41 (10.4)
M	1.12 (28.4)	1.12 (28.4)	1.25 (31.8)	1.56 (39.6)
N	.25 (6.4)	.25 (6.4)	.31 (7.9)	.31 (7.9)
P	2.12 (53.8)	2.18 (55.4)	2.63 (66.8)	3.06 (77.7)

Inches (mm)

Parker Hannifin Corporation
Pneumatic Division
Richland, Michigan
www.parker.com/pneumatics

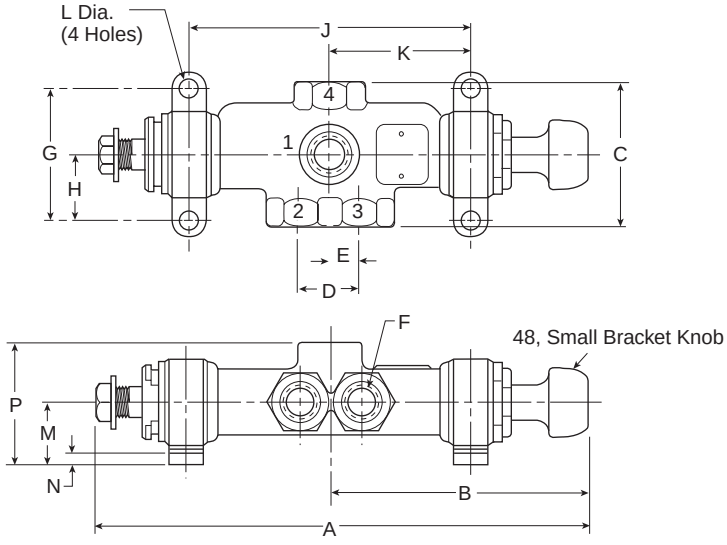
M085 Stem Stop, Small Bracket 3-Way



	1/4	3/8	1/2	3/4
A	5.99 (152.2)	6.69 (169.9)	7.90 (200.7)	9.60 (243.8)
B	3.32 (84.3)	3.64 (92.5)	4.17 (105.9)	4.99 (126.8)
C	2.38 (60.4)	2.62 (66.6)	3.00 (76.2)	3.62 (92.0)
D	0.94 (23.9)	1.06 (26.9)	1.25 (31.8)	1.62 (41.2)
E	0.47 (11.9)	0.53 (13.5)	0.62 (15.8)	0.81 (20.6)
F	1/4" Pipe	3/8" Pipe	1/2" Pipe	3/4" Pipe
G	2.25 (57.2)	2.38 (60.4)	2.62 (66.6)	3.25 (82.6)
H	1.12 (28.4)	1.19 (30.2)	1.31 (33.3)	1.62 (41.2)
J	2.64 (67.1)	3.14 (79.8)	3.73 (94.7)	4.67 (118.6)
K	1.32 (33.5)	1.57 (39.9)	1.87 (47.5)	2.33 (59.2)
L	0.34 (8.6)	0.34 (8.6)	0.41 (10.4)	0.41 (10.4)
M	1.12 (28.4)	1.12 (28.4)	1.25 (31.8)	1.56 (39.6)
N	0.25 (6.4)	0.25 (6.4)	0.31 (7.9)	0.31 (7.9)
Travel	0.62 (15.7)	0.69 (17.5)	0.88 (22.4)	1.12 (28.4)

Inches (mm)

M085 Stem Stop, Small Bracket 4-Way

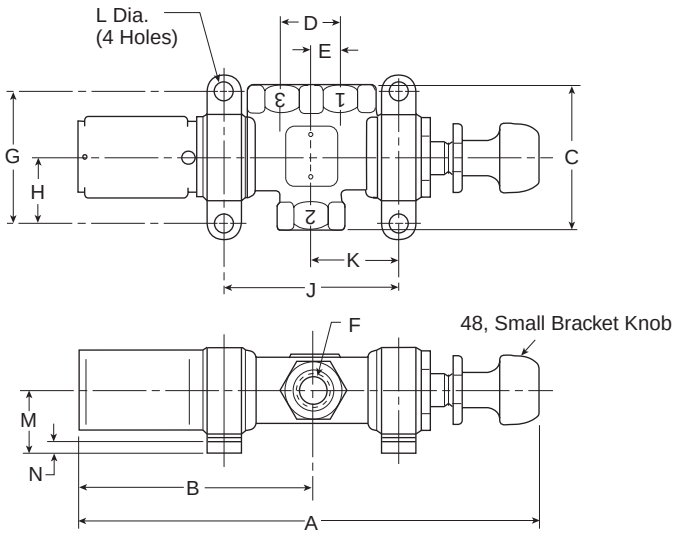


	1/4	3/8	1/2	3/4
A	7.49 (190.2)	8.53 (216.7)	10.01 (254.2)	12.31 (312.7)
B	4.02 (102.1)	4.56 (115.8)	5.73 (145.5)	6.34 (161.0)
C	2.38 (60.4)	2.62 (66.6)	3.12 (79.2)	3.62 (92.0)
D	0.94 (23.9)	1.06 (26.9)	1.25 (31.8)	1.62 (41.2)
E	0.47 (11.9)	0.53 (13.5)	0.62 (15.8)	0.81 (20.6)
F	1/4" Pipe	3/8" Pipe	1/2" Pipe	3/4" Pipe
G	2.25 (57.2)	2.38 (60.4)	2.62 (66.6)	3.25 (82.6)
H	1.12 (28.4)	1.19 (30.2)	1.31 (33.3)	1.62 (41.2)
J	4.14 (105.2)	4.98 (126.5)	5.85 (148.6)	7.39 (187.7)
K	2.07 (52.6)	2.49 (63.2)	2.93 (74.4)	3.69 (93.7)
L	0.34 (8.6)	0.34 (8.6)	0.41 (10.4)	0.41 (10.4)
M	1.12 (28.4)	1.12 (28.4)	1.25 (31.8)	1.56 (39.6)
N	0.25 (6.4)	0.25 (6.4)	0.31 (7.9)	0.31 (7.9)
P	2.12 (53.8)	2.18 (55.4)	2.63 (66.8)	3.06 (77.7)
Travel	0.62 (15.7)	0.69 (17.5)	0.88 (22.4)	1.12 (28.4)

Inches (mm)

Parker Hannifin Corporation
Pneumatic Division
Richland, Michigan
www.parker.com/pneumatics

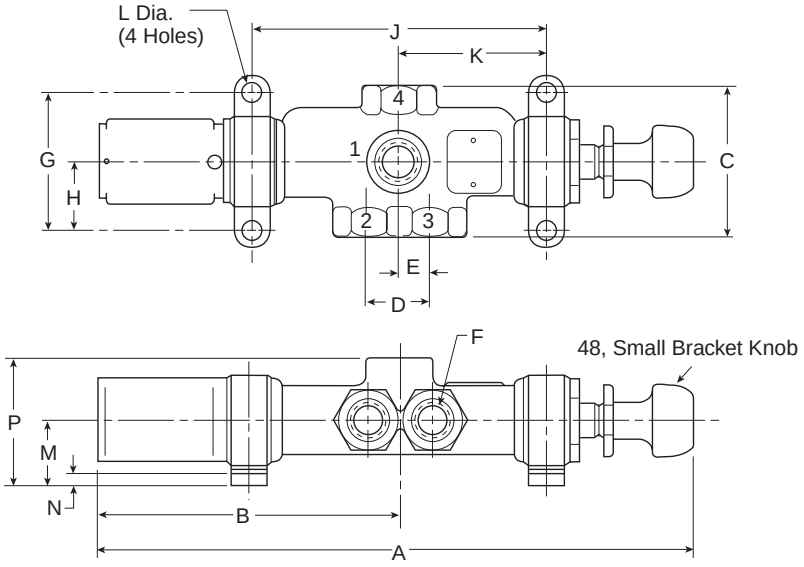
M097 Light Spring Return Direct Acting, Small Bracket (Pull Knob) 3-Way



	1/4	3/8	1/2	3/4
A	7.86 (199.8)	8.55 (217.2)	10.36 (263.1)	13.01 (330.4)
B	3.92 (99.6)	4.24 (107.7)	5.32 (135.2)	6.92 (175.8)
C	2.38 (60.4)	2.62 (66.6)	3.00 (76.2)	3.62 (92.0)
D	0.94 (23.9)	1.06 (26.9)	1.25 (31.8)	1.62 (41.2)
E	0.47 (11.9)	0.53 (13.5)	0.62 (15.8)	0.81 (20.6)
F	1/4" Pipe	3/8" Pipe	1/2" Pipe	3/4" Pipe
G	2.25 (57.2)	2.38 (60.4)	2.62 (66.6)	3.25 (82.6)
H	1.12 (28.4)	1.19 (30.2)	1.31 (33.3)	1.62 (41.2)
J	2.64 (67.1)	3.14 (79.8)	3.73 (94.7)	4.67 (118.6)
K	1.32 (33.5)	1.57 (39.9)	1.87 (47.5)	2.33 (59.2)
L	0.34 (8.6)	0.34 (8.6)	0.41 (10.4)	0.41 (10.4)
M	1.12 (28.4)	1.12 (28.4)	1.25 (31.8)	1.56 (39.6)
N	0.25 (6.4)	0.25 (6.4)	0.31 (7.9)	0.31 (7.9)
Travel	0.62 (15.7)	0.69 (17.5)	0.88 (22.4)	1.12 (28.4)

Inches (mm)

M097 Light Spring Return Direct Acting, Small Bracket (Pull Knob) 4-Way

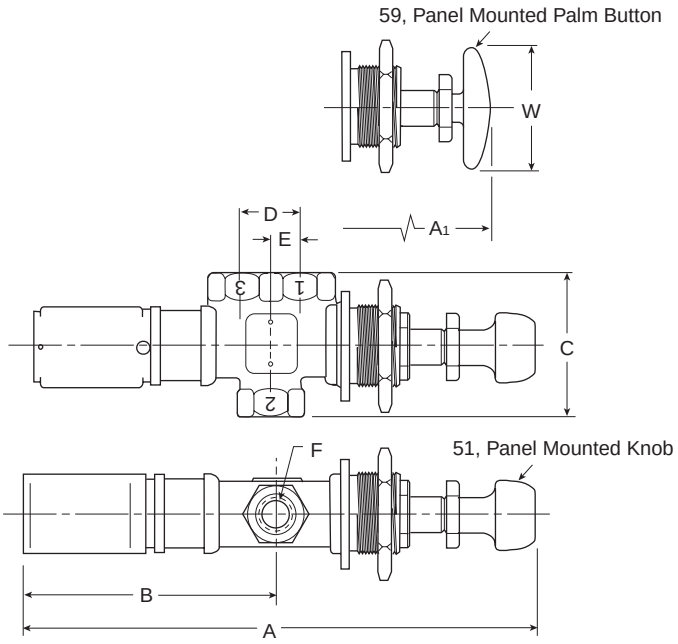


	1/4	3/8	1/2	3/4
A	9.36 (237.9)	10.39 (263.9)	12.48 (317.0)	15.73 (399.5)
B	4.67 (118.5)	5.15 (130.8)	6.37 (161.8)	8.27 (210.1)
C	2.38 (60.4)	2.62 (66.6)	3.12 (79.2)	3.62 (92.0)
D	0.94 (23.9)	1.06 (26.9)	1.25 (31.8)	1.62 (41.2)
E	0.47 (11.9)	0.53 (13.5)	0.62 (15.8)	0.81 (20.6)
F	1/4" Pipe	3/8" Pipe	1/2" Pipe	3/4" Pipe
G	2.25 (57.2)	2.38 (60.4)	2.62 (66.6)	3.25 (82.6)
H	1.12 (28.4)	1.19 (30.2)	1.31 (33.3)	1.62 (41.2)
J	4.14 (105.2)	4.98 (126.5)	5.85 (148.6)	7.39 (187.7)
K	2.07 (52.6)	2.49 (63.2)	2.93 (74.4)	3.69 (93.7)
L	0.34 (8.6)	0.34 (8.6)	0.41 (10.4)	0.41 (10.4)
M	1.12 (28.4)	1.12 (28.4)	1.25 (31.8)	1.56 (39.6)
N	0.25 (6.4)	0.25 (6.4)	0.31 (7.9)	0.31 (7.9)
P	2.12 (53.8)	2.18 (55.4)	2.63 (66.8)	3.06 (77.7)
Travel	0.62 (15.7)	0.69 (17.5)	0.88 (22.4)	1.12 (28.4)

Inches (mm)

Parker Hannifin Corporation
Pneumatic Division
Richland, Michigan
www.parker.com/pneumatics

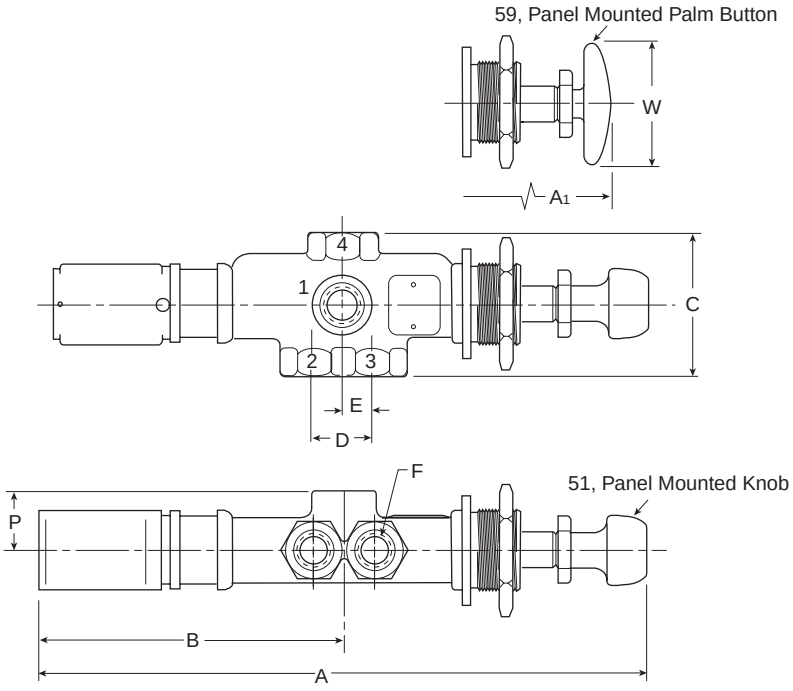
M064 Light Spring Return Direct Acting, Less Bracket (Pull Knob) & M065 Light Spring Return Reverse Acting, Less Bracket (Push Knob) 3-Way



	1/4	3/8	1/2	3/4
A	7.86 (199.6)	8.55 (217.1)	10.36 (263.1)	13.01 (330.4)
A1	7.55 (191.8)	8.24 (209.3)	10.05 (255.3)	12.70 (322.6)
B	3.96 (99.5)	4.23 (107.4)	5.31 (134.9)	6.91 (175.5)
C	2.38 (60.4)	2.62 (66.6)	3.00 (76.2)	3.62 (92.0)
D	0.94 (23.9)	1.06 (26.9)	1.25 (31.8)	1.62 (41.2)
E	0.47 (11.9)	0.53 (13.5)	0.62 (15.8)	0.81 (20.6)
F	1/4" Pipe	3/8" Pipe	1/2" Pipe	3/4" Pipe
W	2.25 (57.2)	2.25 (57.2)	2.25 (57.2)	2.25 (57.2)
Travel	0.62 (15.7)	0.69 (17.5)	0.88 (22.4)	1.12 (28.4)

Inches (mm)

M064 Light Spring Return Direct Acting, Less Bracket (Pull Knob) & M065 Light Spring Return Reverse Acting, Less Bracket (Push Knob) 4-Way

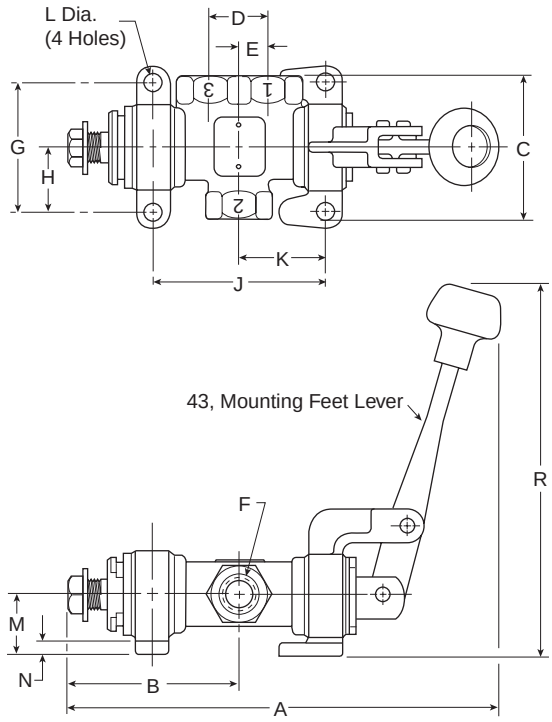


	1/4	3/8	1/2	3/4
A	9.36 (237.7)	10.39 (263.9)	12.48 (317.0)	15.73 (399.5)
A1	9.05 (229.9)	10.08 (256.0)	12.17 (309.1)	15.42 (391.7)
B	4.67 (118.5)	5.15 (130.8)	6.37 (161.8)	8.27 (210.1)
C	2.38 (60.4)	2.62 (66.6)	3.12 (79.2)	3.62 (92.0)
D	0.94 (23.9)	1.06 (26.9)	1.25 (31.8)	1.62 (41.2)
E	0.47 (11.9)	0.53 (13.5)	0.62 (15.8)	0.81 (20.6)
F	1/4" Pipe	3/8" Pipe	1/2" Pipe	3/4" Pipe
P	2.12 (53.8)	2.18 (55.4)	2.63 (66.8)	3.06 (77.7)
W	2.25 (57.2)	2.25 (57.2)	2.25 (57.2)	2.25 (57.2)
Travel	0.62 (15.7)	0.69 (17.5)	0.88 (22.4)	1.12 (28.4)

Inches (mm)

Parker Hannifin Corporation
Pneumatic Division
Richland, Michigan
www.parker.com/pneumatics

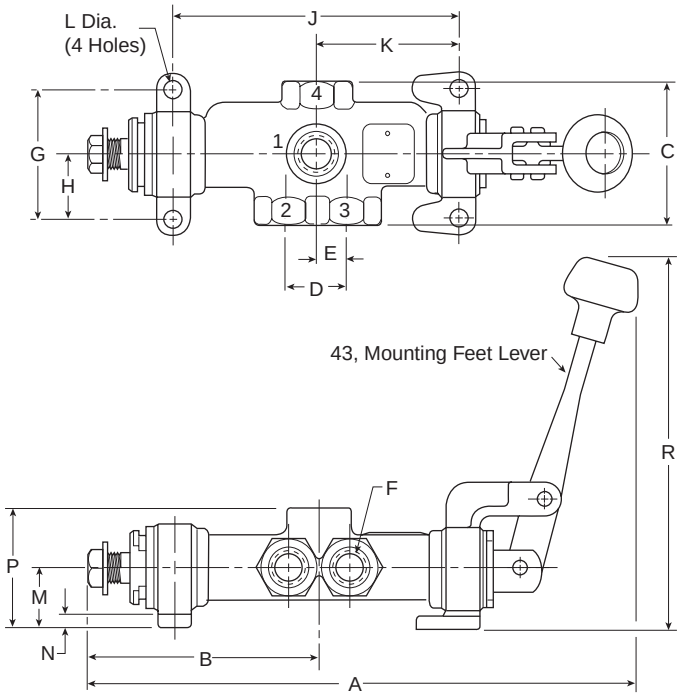
M085 Stem Stop, Small Bracket
3-Way



	1/4	3/8	1/2	3/4
A	6.77 (172.0)	7.76 (197.1)	9.29 (236.0)	11.46 (291.1)
B	2.67 (67.8)	3.05 (77.5)	3.72 (94.5)	4.61 (117.1)
C	2.38 (60.4)	2.62 (66.6)	3.00 (76.2)	3.62 (92.0)
D	0.94 (23.9)	1.06 (26.9)	1.25 (31.8)	1.62 (41.2)
E	0.47 (11.9)	0.53 (13.5)	0.62 (15.8)	0.81 (20.6)
F	1/4" Pipe	3/8" Pipe	1/2" Pipe	3/4" Pipe
G	2.25 (57.2)	2.38 (60.4)	2.62 (66.6)	3.25 (82.6)
H	1.12 (28.4)	1.19 (30.2)	1.31 (33.3)	1.62 (41.2)
J	2.63 (66.8)	3.13 (79.5)	3.72 (94.5)	4.56 (115.8)
K	1.31 (33.3)	1.56 (39.6)	1.86 (47.2)	2.28 (57.9)
L	0.34 (8.6)	0.34 (8.6)	0.41 (10.4)	0.41 (10.4)
M	1.12 (28.4)	1.12 (28.4)	1.25 (31.8)	1.56 (39.6)
N	0.25 (6.4)	0.25 (6.4)	0.31 (7.9)	0.31 (7.9)
R	6.78 (172.2)	6.78 (172.2)	8.10 (205.7)	10.73 (272.5)
Travel	0.62 (15.7)	0.69 (17.5)	0.88 (22.4)	1.12 (28.4)

Inches (mm)

M085 Stem Stop, Small Bracket
4-Way

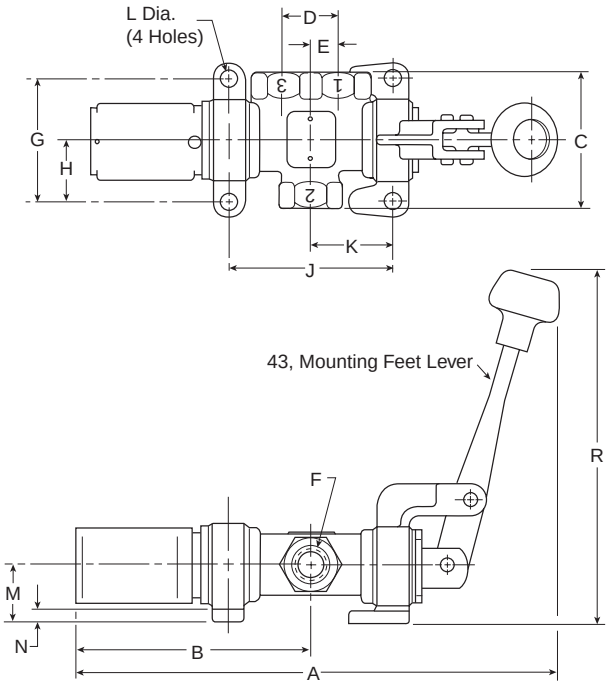


	1/4	3/8	1/2	3/4
A	8.28 (210.3)	9.60 (243.8)	11.08 (281.4)	14.17 (359.9)
B	3.42 (86.9)	3.97 (100.8)	4.78 (121.4)	5.97 (151.6)
C	2.38 (60.4)	2.62 (66.6)	3.12 (79.2)	3.62 (92.0)
D	0.94 (23.9)	1.06 (26.9)	1.25 (31.8)	1.62 (41.2)
E	0.47 (11.9)	0.53 (13.5)	0.62 (15.8)	0.81 (20.6)
F	1/4" Pipe	3/8" Pipe	1/2" Pipe	3/4" Pipe
G	2.25 (57.2)	2.38 (60.4)	2.62 (66.6)	3.25 (82.6)
H	1.12 (28.4)	1.19 (30.2)	1.31 (33.3)	1.62 (41.2)
J	4.14 (105.2)	4.98 (126.5)	5.85 (148.6)	7.39 (187.7)
K	2.07 (52.6)	2.49 (63.2)	2.92 (74.2)	3.69 (93.7)
L	0.34 (8.6)	0.34 (8.6)	0.41 (10.4)	0.41 (10.4)
M	1.12 (28.4)	1.12 (28.4)	1.25 (31.8)	1.56 (39.6)
N	0.25 (6.4)	0.25 (6.4)	0.31 (7.9)	0.31 (7.9)
P	2.12 (53.8)	2.18 (55.4)	2.63 (66.8)	3.06 (77.7)
R	6.78 (172.2)	6.78 (172.2)	8.10 (205.7)	10.73 (272.5)
Travel	0.62 (15.7)	0.69 (17.5)	0.88 (22.4)	1.12 (28.4)

Inches (mm)

Parker Hannifin Corporation
Pneumatic Division
Richland, Michigan
www.parker.com/pneumatics

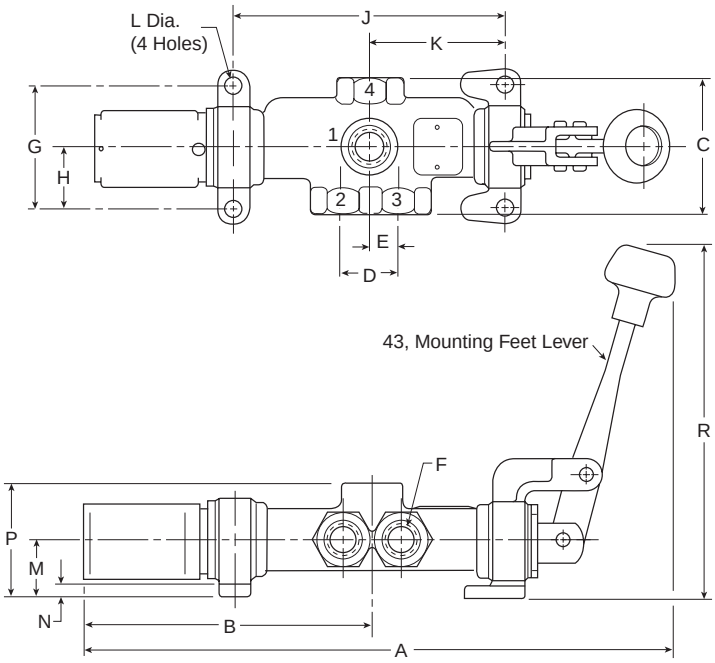
M095 Direct Acting Spring Return, Small Bracket (Push Lever) & M096 Reverse Acting Spring Return, Small Bracket (Pull Lever) 3-Way



	1/4	3/8	1/2	3/4
A	7.99 (202.8)	8.94 (227.0)	10.88 (276.4)	13.76 (349.5)
B	3.92 (99.5)	4.24 (107.6)	5.31 (134.9)	6.92 (175.8)
C	2.38 (60.4)	2.62 (66.6)	3.00 (76.2)	3.62 (92.0)
D	0.94 (23.9)	1.06 (26.9)	1.25 (31.8)	1.62 (41.2)
E	0.47 (11.9)	0.53 (13.5)	0.62 (15.8)	0.81 (20.6)
F	1/4" Pipe	3/8" Pipe	1/2" Pipe	3/4" Pipe
G	2.25 (57.2)	2.38 (60.4)	2.62 (66.6)	3.25 (82.6)
H	1.12 (28.4)	1.19 (30.2)	1.31 (33.3)	1.62 (41.2)
J	2.63 (66.8)	3.13 (79.5)	3.72 (94.5)	4.56 (115.8)
K	1.31 (33.3)	1.56 (39.6)	1.86 (47.2)	2.28 (57.9)
L	0.34 (8.6)	0.34 (8.6)	0.41 (10.4)	0.41 (10.4)
M	1.12 (28.4)	1.12 (28.4)	1.25 (31.8)	1.56 (39.6)
N	0.25 (6.4)	0.25 (6.4)	0.31 (7.9)	0.31 (7.9)
R	6.78 (172.2)	6.78 (172.2)	8.10 (205.7)	10.73 (272.5)
Travel	0.62 (15.7)	0.69 (17.5)	0.88 (22.4)	1.12 (28.4)

Inches (mm)

M095 Direct Acting Spring Return, Small Bracket (Push Lever) & M096 Reverse Acting Spring Return, Small Bracket (Pull Lever) 3-Way

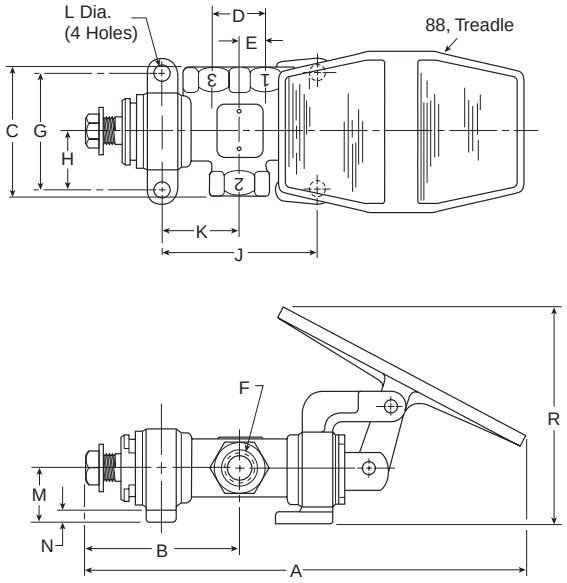


	1/4	3/8	1/2	3/4
A	9.53 (242.1)	10.78 (273.8)	12.67 (321.8)	16.47 (418.3)
B	4.67 (118.6)	5.15 (130.8)	5.68 (144.3)	8.27 (210.1)
C	2.38 (60.4)	2.62 (66.6)	3.12 (79.2)	3.62 (92.0)
D	0.94 (23.9)	1.06 (26.9)	1.25 (31.8)	1.62 (41.2)
E	0.47 (11.9)	0.53 (13.5)	0.62 (15.8)	0.81 (20.6)
F	1/4" PIpe	3/8" PIpe	1/2" PIpe	3/4" PIpe
G	2.25 (57.2)	2.38 (60.4)	2.62 (66.6)	3.25 (82.6)
H	1.12 (28.4)	1.19 (30.2)	1.31 (33.3)	1.62 (41.2)
J	4.14 (105.2)	4.98 (126.5)	5.85 (148.6)	7.39 (187.7)
K	2.07 (52.6)	2.49 (63.2)	2.92 (74.2)	3.69 (93.7)
L	0.34 (8.6)	0.34 (8.6)	0.41 (10.4)	0.41 (10.4)
M	1.12 (28.4)	1.12 (28.4)	1.25 (31.8)	1.56 (39.6)
N	0.25 (6.4)	0.25 (6.4)	0.31 (7.9)	0.31 (7.9)
P	2.12 (53.8)	2.18 (55.4)	2.63 (66.8)	3.06 (77.7)
R	6.78 (172.2)	6.78 (172.2)	8.10 (205.7)	10.73 (272.5)
Travel	0.62 (15.7)	0.69 (17.5)	0.88 (22.4)	1.12 (28.4)

Inches (mm)

Parker Hannifin Corporation
Pneumatic Division
Richland, Michigan
www.parker.com/pneumatics

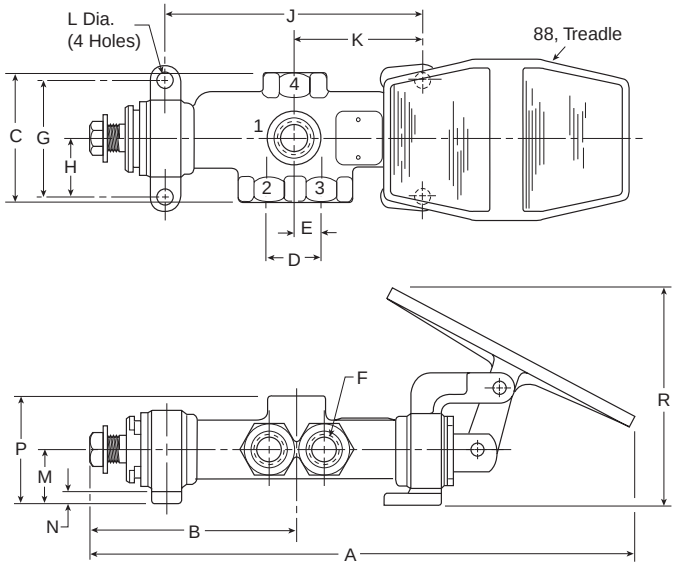
M085 Stem Stop, Small Bracket 3-Way



	1/4	3/8	1/2
A	8.01 (203.4)	8.73 (221.7)	10.32 (262.1)
B	2.67 (68.8)	3.06 (77.7)	4.06 (103.1)
C	2.38 (60.4)	2.62 (66.6)	3.00 (76.2)
D	0.94 (23.9)	1.06 (26.9)	1.25 (31.8)
E	0.47 (11.9)	0.53 (13.5)	0.62 (15.8)
F	1/4" Pipe	3/8" Pipe	1/2" Pipe
G	2.25 (57.2)	2.38 (60.4)	2.62 (66.6)
H	1.12 (28.4)	1.19 (30.2)	1.31 (33.3)
J	2.63 (66.8)	3.13 (79.5)	3.72 (94.5)
K	1.31 (33.3)	1.56 (39.6)	1.86 (47.2)
L	0.34 (8.6)	0.34 (8.6)	0.41 (10.4)
M	1.12 (28.4)	1.12 (28.4)	1.25 (31.8)
N	0.25 (6.4)	0.25 (6.4)	0.31 (7.9)
R	4.51 (114.6)	4.65 (118.1)	4.85 (123.2)
Travel	0.62 (15.8)	0.69 (17.5)	0.88 (22.4)

Inches (mm)

M085 Stem Stop, Small Bracket 4-Way

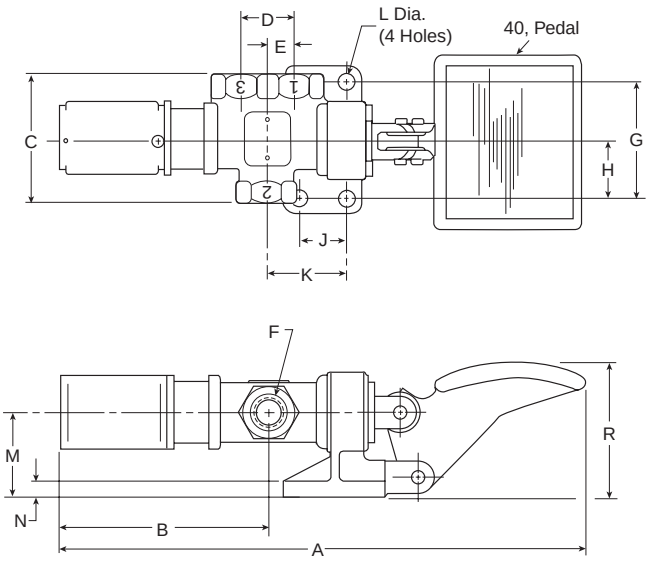


	1/4	3/8	1/2
A	9.52 (241.8)	10.57 (268.5)	12.11 (307.6)
B	3.42 (86.9)	3.97 (100.8)	4.78 (121.4)
C	2.38 (60.4)	2.62 (66.6)	3.12 (79.2)
D	0.94 (23.9)	1.06 (26.9)	1.25 (31.8)
E	0.47 (11.9)	0.53 (13.5)	0.62 (15.8)
F	1/4" Pipe	3/8" Pipe	1/2" Pipe
G	2.25 (57.2)	2.38 (60.4)	2.62 (66.6)
H	1.12 (28.4)	1.19 (30.2)	1.31 (33.3)
J	4.14 (105.2)	4.98 (126.5)	5.85 (148.6)
K	2.07 (52.6)	2.49 (63.2)	2.92 (74.2)
L	0.34 (8.6)	0.34 (8.6)	0.41 (10.4)
M	1.12 (28.4)	1.12 (28.4)	1.25 (31.8)
N	0.25 (6.4)	0.25 (6.4)	0.31 (7.9)
P	2.12 (53.8)	2.18 (55.4)	2.63 (66.8)
R	4.51 (114.6)	4.65 (118.1)	4.85 (123.2)
Travel	0.62 (15.8)	0.69 (17.5)	0.88 (22.4)

Inches (mm)

Parker Hannifin Corporation
Pneumatic Division
Richland, Michigan
www.parker.com/pneumatics

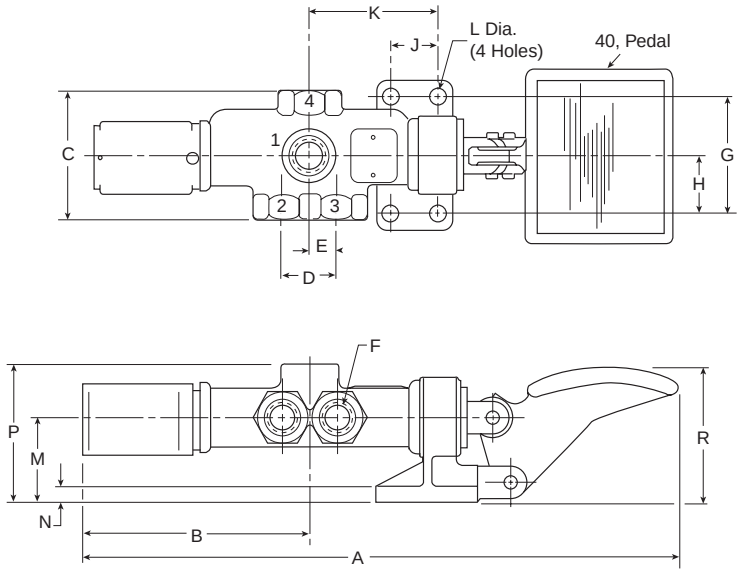
M062 Direct Acting Spring Return, Less Bracket (Push Lever) 3-Way



	1/4	3/8	1/2
A	9.99 (253.8)	10.50 (269.2)	12.66 (321.6)
B	3.92 (99.5)	4.23 (107.4)	5.31 (134.9)
C	2.38 (60.4)	2.62 (66.6)	3.00 (76.2)
D	0.94 (23.9)	1.06 (26.9)	1.25 (31.8)
E	0.47 (11.9)	0.53 (13.5)	0.62 (15.8)
F	1/4" Pipe	3/8" Pipe	1/2" Pipe
G	2.25 (57.2)	2.38 (60.4)	2.62 (66.6)
H	1.12 (28.4)	1.19 (30.2)	1.31 (33.3)
J	0.97 (24.6)	0.97 (24.6)	1.12 (28.4)
K	1.44 (36.6)	1.56 (39.6)	1.83 (46.5)
L	0.34 (8.6)	0.34 (8.6)	0.41 (10.4)
M	1.72 (43.7)	1.72 (43.7)	2.00 (50.8)
N	0.31 (7.9)	0.31 (7.9)	0.38 (9.6)
R	2.66 (67.6)	2.71 (68.8)	2.74 (69.6)
Travel	0.62 (15.8)	0.69 (17.5)	0.88 (22.4)

Inches (mm)

M062 Direct Acting Spring Return, Less Bracket (Push Lever) 4-Way

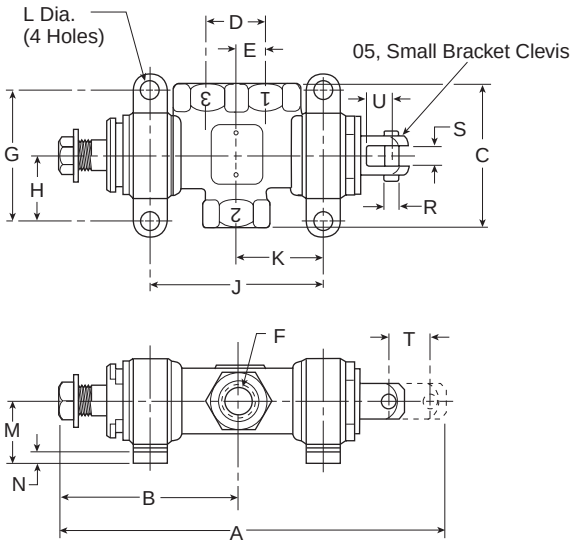


	1/4	3/8	1/2
A	11.50 (292.1)	12.44 (315.9)	14.45 (367.0)
B	4.67 (118.5)	5.15 (130.8)	5.68 (144.3)
C	2.38 (60.4)	2.62 (66.6)	3.00 (76.2)
D	0.94 (23.9)	1.06 (26.9)	1.25 (31.8)
E	0.47 (11.9)	0.53 (13.5)	0.62 (15.8)
F	1/4" Pipe	3/8" Pipe	1/2" Pipe
G	2.25 (57.2)	2.38 (60.4)	2.62 (66.6)
H	1.12 (28.4)	1.19 (30.2)	1.31 (33.3)
J	0 .97 (24.6)	0.97 (24.6)	1.12 (28.4)
K	2.19 (55.6)	2.48 (63.0)	2.89 (73.4)
L	0.34 (8.6)	0.34 (8.6)	0.41 (10.4)
M	1.72 (43.7)	1.72 (43.7)	2.00 (50.8)
N	0.31 (7.9)	0.31 (7.9)	0.38 (9.6)
P	2.72 (69.1)	2.78 (70.6)	3.38 (85.8)
R	2.66 (67.6)	2.71 (68.8)	2.74 (69.6)
Travel	0.62 (15.8)	0.69 (17.5)	0.88 (22.4)

Inches (mm)

Parker Hannifin Corporation
Pneumatic Division
Richland, Michigan
www.parker.com/pneumatics

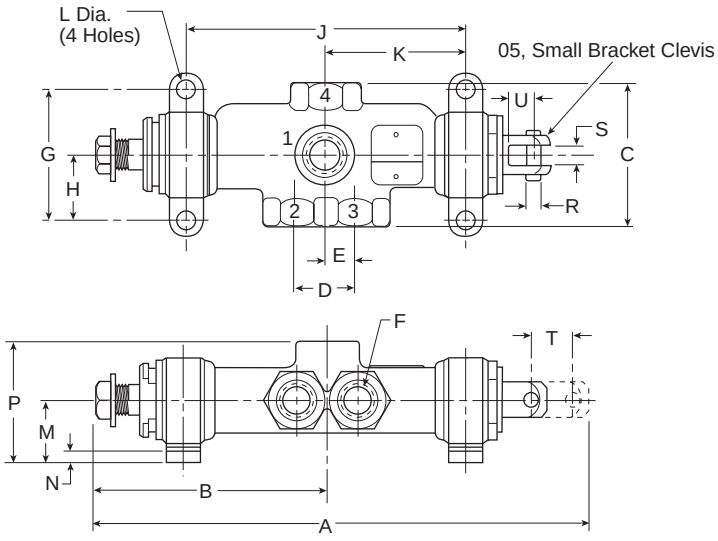
M085 Stem Stop, Small Bracket 3-Way



	1/4	3/8	1/2	3/4
A	5.31 (134.9)	6.01 (152.6)	7.36 (186.9)	8.92 (226.6)
B	2.68 (68.1)	3.06 (77.7)	4.85 (123.2)	4.62 (117.3)
C	2.38 (60.4)	2.62 (66.6)	3.00 (76.2)	3.62 (92.0)
D	0.94 (23.9)	1.06 (26.9)	1.25 (31.8)	1.62 (41.2)
E	0.47 (11.9)	0.53 (13.5)	0.62 (15.8)	0.81 (20.6)
F	1/4" Pipe	3/8" Pipe	1/2" Pipe	3/4" Pipe
G	2.25 (57.2)	2.38 (60.4)	2.62 (66.6)	3.25 (82.6)
H	1.12 (28.4)	1.19 (30.2)	1.31 (33.3)	1.62 (41.2)
J	2.64 (67.1)	3.14 (79.8)	3.73 (94.7)	4.67 (118.6)
K	1.32 (33.5)	1.57 (39.9)	1.87 (47.5)	2.33 (59.2)
L	0.34 (8.6)	0.34 (8.6)	0.41 (10.4)	0.41 (10.4)
M	1.12 (28.4)	1.12 (28.4)	1.25 (31.8)	1.56 (39.6)
N	0.25 (6.4)	0.25 (6.4)	0.31 (7.9)	0.31 (7.9)
R	0.25 (6.4)	0.25 (6.4)	0.31 (7.9)	0.31 (7.9)
S	0.38 (9.6)	0.38 (9.6)	0.44 (11.2)	0.44 (11.2)
U	0.47 (11.9)	0.47 (11.9)	0.56 (14.2)	0.62 (15.8)
Travel	0.62 (15.8)	0.69 (17.5)	0.88 (22.4)	1.12 (28.4)

Inches (mm)

M085 Stem Stop, Small Bracket 4-Way

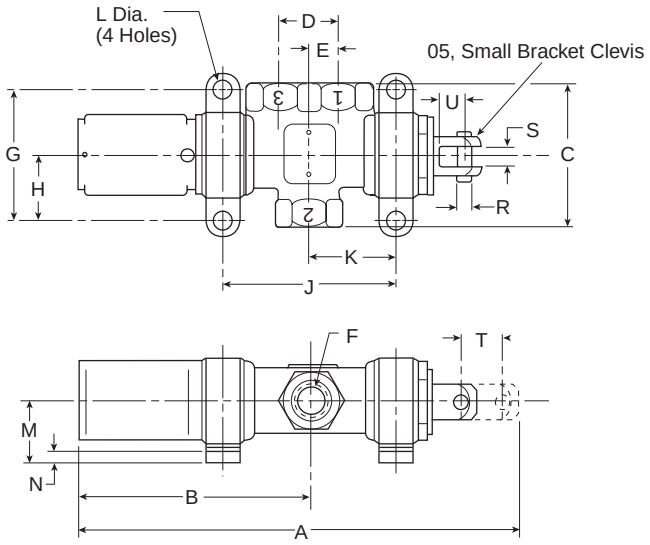


	1/4	3/8	1/2	3/4
A	6.81 (173.0)	7.85 (199.4)	9.48 (240.8)	11.64 (295.7)
B	3.42 (86.9)	3.97 (100.8)	5.91 (150.1)	5.97 (151.6)
C	2.38 (60.4)	2.62 (66.6)	3.12 (79.2)	3.62 (92.0)
D	0.94 (23.9)	1.06 (26.9)	1.25 (31.8)	1.62 (41.2)
E	0.47 (11.9)	0.53 (13.5)	0.62 (15.8)	0.81 (20.6)
F	1/4" Pipe	3/8" Pipe	1/2" Pipe	3/4" Pipe
G	2.25 (57.2)	2.38 (60.4)	2.62 (66.6)	3.25 (82.6)
H	1.12 (28.4)	1.19 (30.2)	1.31 (33.3)	1.62 (41.2)
J	4.14 (105.2)	4.98 (126.5)	5.85 (148.6)	7.39 (187.7)
K	2.07 (52.6)	2.49 (63.2)	2.92 (74.2)	3.69 (93.7)
L	0.34 (8.6)	0.34 (8.6)	0.41 (10.4)	0.41 (10.4)
M	1.12 (28.4)	1.12 (28.4)	1.25 (31.8)	1.56 (39.6)
N	0.25 (6.4)	0.25 (6.4)	0.31 (7.9)	0.31 (7.9)
P	2.12 (53.8)	2.18 (55.4)	2.63 (66.8)	3.06 (77.7)
R	0.25 (6.4)	0.25 (6.4)	0.31 (7.9)	0.31 (7.9)
S	0.38 (9.6)	0.38 (9.6)	0.44 (11.2)	0.44 (11.2)
U	0.47 (11.9)	0.47 (11.9)	0.56 (14.2)	0.62 (15.8)
Travel	0.62 (15.8)	0.69 (17.5)	0.88 (22.4)	1.12 (28.4)

Inches (mm)

Parker Hannifin Corporation
Pneumatic Division
Richland, Michigan
www.parker.com/pneumatics

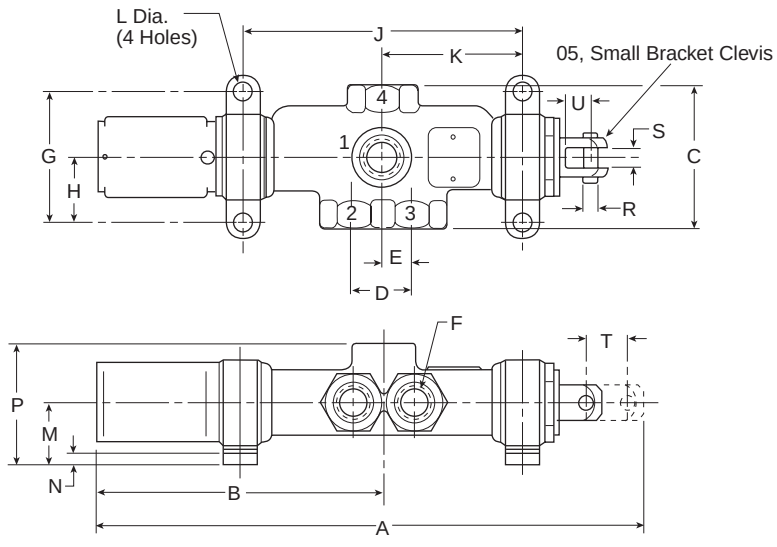
M095 Direct Acting Spring Return, Small Bracket (Push Lever) & M096 Reverse Acting Spring Return, Small Bracket (Pull Lever) 3-Way



	1/4	3/8	1/2	3/4
A	6.56 (166.5)	7.19 (182.6)	8.95 (227.3)	11.22 (285.0)
B	3.92 (99.5)	4.24 (107.6)	5.31 (134.9)	6.92 (175.8)
C	2.38 (60.4)	2.62 (66.6)	3.00 (76.2)	3.62 (92.0)
D	0.94 (23.9)	1.06 (26.9)	1.25 (31.8)	1.62 (41.2)
E	0.47 (11.9)	0.53 (13.5)	0.62 (15.8)	0.81 (20.6)
F	1/4" Pipe	3/8" Pipe	1/2" Pipe	3/4" Pipe
G	2.25 (57.2)	2.38 (60.4)	2.62 (66.6)	3.25 (82.6)
H	1.12 (28.4)	1.19 (30.2)	1.31 (33.3)	1.62 (41.2)
J	2.63 (66.8)	3.13 (79.5)	3.72 (94.5)	4.56 (115.8)
K	1.31 (33.3)	1.56 (39.6)	1.86 (47.2)	2.28 (57.9)
L	0.34 (8.6)	0.34 (8.6)	0.41 (10.4)	0.41 (10.4)
M	1.12 (28.4)	1.12 (28.4)	1.25 (31.8)	1.56 (39.6)
N	0.25 (6.4)	0.25 (6.4)	0.31 (7.9)	0.31 (7.9)
R	0.25 (6.4)	0.25 (6.4)	0.31 (7.9)	0.31 (7.9)
S	0.38 (9.6)	0.38 (9.6)	0.44 (11.2)	0.44 (11.2)
U	0.47 (11.9)	0.47 (11.9)	0.56 (14.2)	0.62 (15.8)
Travel	0.62 (15.8)	0.69 (17.5)	0.88 (22.4)	1.12 (28.4)

Inches (mm)

M095 Direct Acting Spring Return, Small Bracket (Push Lever) & M096 Reverse Acting Spring Return, Small Bracket (Pull Lever) 4-Way

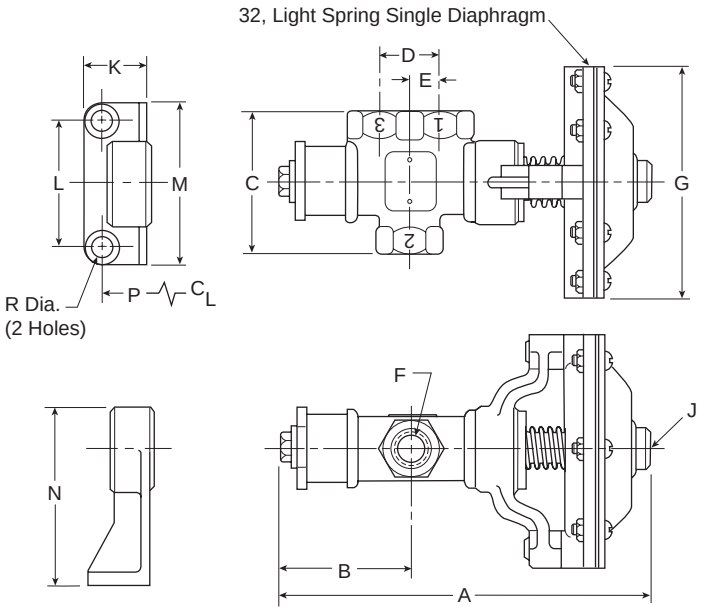


	1/4	3/8	1/2	3/4
A	8.06 (204.6)	9.03 (229.3)	11.07 (281.2)	13.94 (354.1)
B	4.67 (118.6)	5.15 (130.8)	5.68 (144.3)	8.27 (210.1)
C	2.38 (60.4)	2.62 (66.6)	3.00 (76.2)	3.62 (92.0)
D	0.94 (23.9)	1.06 (26.9)	1.25 (31.8)	1.62 (41.2)
E	0.47 (11.9)	0.53 (13.5)	0.62 (15.8)	0.81 (20.6)
F	1/4" Pipe	3/8" Pipe	1/2" Pipe	3/4" Pipe
G	2.25 (57.2)	2.38 (60.4)	2.62 (66.6)	3.25 (82.6)
H	1.12 (28.4)	1.19 (30.2)	1.31 (33.3)	1.62 (41.2)
J	4.14 (105.2)	4.98 (126.5)	5.85 (148.6)	7.39 (187.7)
K	2.07 (52.6)	2.49 (63.2)	2.9 (74.2)	3.69 (93.7)
L	0.34 (8.6)	0.34 (8.6)	0.41 (10.4)	0.41 (10.4)
M	1.12 (28.4)	1.12 (28.4)	1.25 (31.8)	1.56 (39.6)
N	0.25 (6.4)	0.25 (6.4)	0.31 (7.9)	0.31 (7.9)
P	2.12 (53.8)	2.18 (55.4)	2.63 (66.8)	3.06 (77.7)
R	0.25 (6.4)	0.25 (6.4)	0.31 (7.9)	0.31 (7.9)
S	0.38 (9.6)	0.38 (9.6)	0.44 (11.2)	0.44 (11.2)
U	0.47 (11.9)	0.47 (11.9)	0.56 (14.2)	0.62 (15.8)
Travel	0.62 (15.8)	0.69 (17.5)	0.88 (22.4)	1.12 (28.4)

Inches (mm)

Parker Hannifin Corporation
Pneumatic Division
Richland, Michigan
www.parker.com/pneumatics

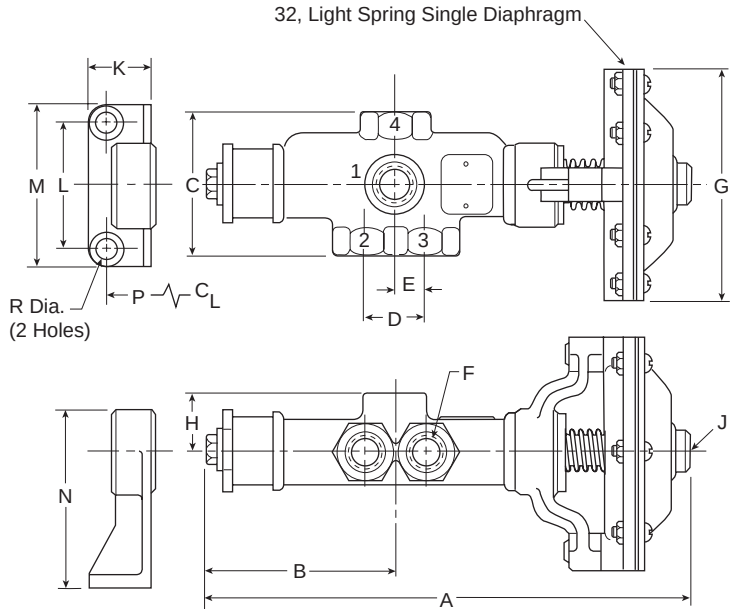
M084 Stem Stop, Large Bracket 3-Way



	1/4	3/8	1/2	3/4
A	6.14 (156.0)	6.85 (174.0)	8.03 (204.0)	9.89 (251.2)
B	2.03 (51.6)	2.36 (59.9)	2.83 (71.9)	3.48 (88.4)
C	2.38 (60.4)	2.62 (66.6)	3.00 (76.2)	3.62 (92.0)
D	0.94 (23.9)	1.06 (26.9)	1.25 (31.8)	1.62 (41.2)
E	0.47 (11.9)	0.53 (13.5)	0.62 (15.8)	0.81 (20.6)
F	1/4" Pipe	3/8" Pipe	1/2" Pipe	3/4" Pipe
G	4.34 (110.2)	4.34 (110.2)	4.34 (110.2)	5.27 (133.9)
J	1/8" Pipe	1/8" Pipe	1/8" Pipe	1/8" Pipe
K	1.12 (28.4)	1.12 (28.4)	1.75 (44.4)	2.00 (50.8)
L	2.00 (50.8)	2.38 (60.4)	2.00 (50.8)	3.25 (82.6)
M	2.75 (69.8)	3.00 (76.2)	3.00 (76.2)	4.19 (106.4)
N	3.22 (81.8)	3.28 (83.3)	3.40 (86.4)	4.00 (101.6)
P	1.81 (46.0)	2.03 (51.6)	2.74 (69.6)	3.18 (80.8)
R	0.34 (8.6)	0.34 (8.6)	0.41 (10.4)	0.41 (10.4)
Travel	0.62 (15.8)	0.69 (17.5)	0.88 (22.4)	1.12 (28.4)

Inches (mm)

M084 Stem Stop, Large Bracket 4-Way

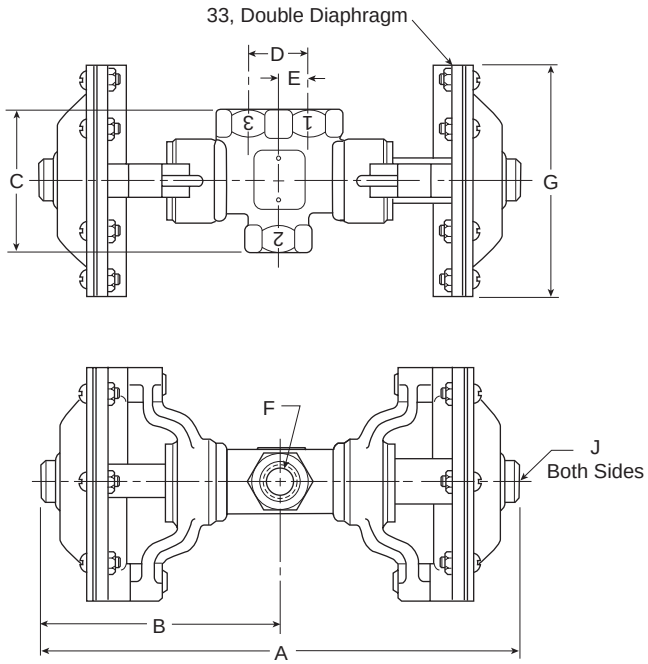


	1/4	3/8	1/2	3/4
A	7.65 (194.3)	8.69 (220.7)	9.82 (249.4)	12.60 (320.0)
B	2.79 (70.9)	3.28 (83.3)	3.89 (98.8)	4.84 (122.9)
C	2.38 (60.4)	2.62 (66.6)	3.12 (79.2)	3.62 (92.0)
D	0.94 (23.9)	1.06 (26.9)	1.25 (31.8)	1.62 (41.2)
E	0.47 (11.9)	0.53 (13.5)	0.62 (15.8)	0.81 (20.6)
F	1/4" Pipe	3/8" Pipe	1/2" Pipe	3/4" Pipe
G	4.34 (110.2)	4.34 (110.2)	4.34 (110.2)	5.27 (133.9)
H	1.00 (25.4)	1.06 (26.9)	1.38 (30.0)	1.50 (38.1)
J	1/8 Pipe	1/8 Pipe	1/8 Pipe	1/8 Pipe
K	1.12 (28.4)	1.12 (28.4)	1.75 (44.4)	2.00 (50.8)
L	2.00 (50.8)	2.38 (60.4)	2.00 (50.8)	3.25 (82.6)
M	2.75 (69.8)	3.00 (76.2)	3.00 (76.2)	4.19 (106.4)
N	3.22 (81.8)	3.28 (83.3)	3.40 (86.4)	4.00 (101.6)
P	2.57 (65.3)	2.95 (74.9)	3.80 (96.5)	4.54 (115.3)
R	0.34 (8.6)	0.34 (8.6)	0.41 (10.4)	0.41 (10.4)
Travel	0.62 (15.8)	0.69 (17.5)	0.88 (22.4)	1.12 (28.4)

Inches (mm)

Parker Hannifin Corporation
Pneumatic Division
Richland, Michigan
www.parker.com/pneumatics

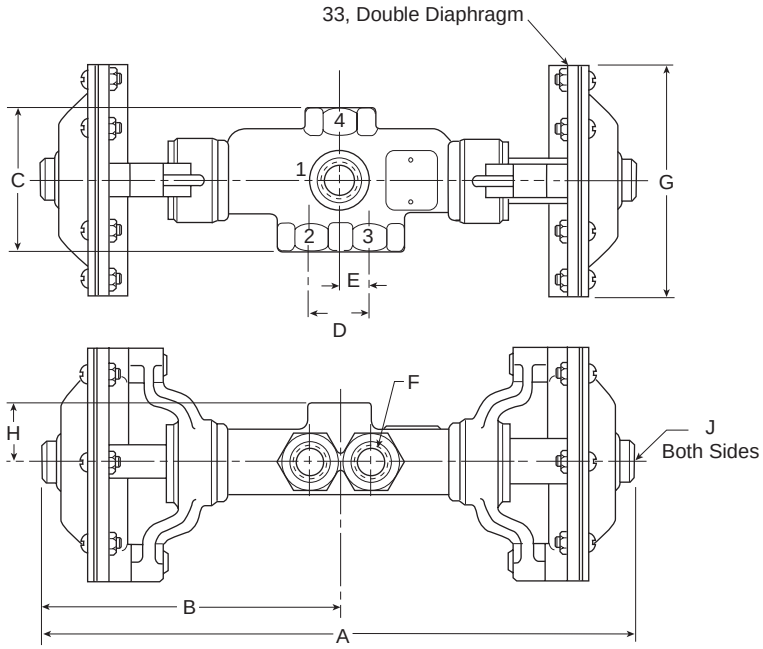
M033 Double Diaphragm 3-Way



	1/4	3/8	1/2	3/4
A	8.22 (208.8)	8.98 (228.1)	10.40 (264.2)	12.82 (325.6)
B	4.11 (104.4)	4.49 (114.0)	5.20 (132.1)	6.41 (162.8)
C	2.38 (60.4)	2.62 (66.6)	3.00 (76.2)	3.62 (92.0)
D	.94 (23.9)	1.06 (26.9)	1.25 (31.8)	1.62 (41.2)
E	.47 (11.9)	.53 (13.5)	.62 (15.8)	.81 (20.6)
F	1/4" Pipe	3/8" Pipe	1/2" Pipe	3/4" Pipe
G	4.34 (110.2)	4.34 (110.2)	4.34 (110.2)	5.27 (133.9)
J	1/8" Pipe	1/8" Pipe	1/8" Pipe	1/8" Pipe

Inches (mm)

M033 Double Diaphragm 4-Way

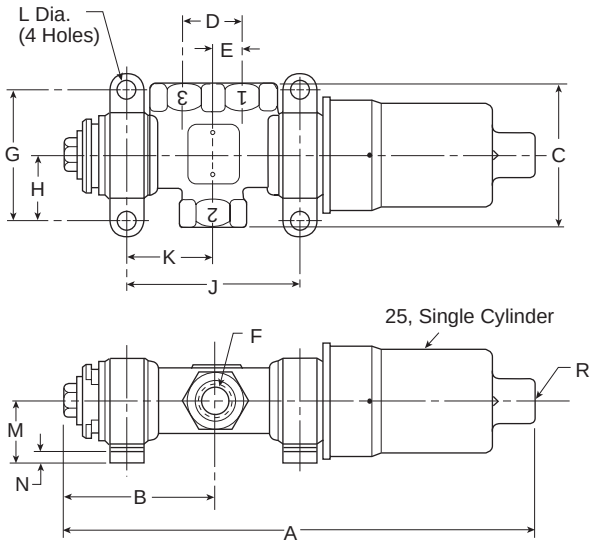


	1/4	3/8	1/2	3/4
A	9.72 (246.9)	10.82 (274.8)	11.86 (301.2)	15.52 (394.2)
B	4.86 (123.4)	5.41 (137.4)	5.93 (150.6)	7.76 (197.1)
C	2.38 (60.4)	2.62 (66.6)	3.12 (79.2)	3.62 (92.0)
D	.94 (23.9)	1.06 (26.9)	1.25 (31.8)	1.62 (41.2)
E	.47 (11.9)	.53 (13.5)	.62 (15.8)	.81 (20.6)
F	1/4" Pipe	3/8" Pipe	1/2" Pipe	3/4" Pipe
G	4.34 (110.2)	4.34 (110.2)	4.34 (110.2)	5.27 (133.9)
H	1.00 (25.4)	1.06 (26.9)	1.38 (30.0)	1.50 (38.1)
J	1/8" Pipe	1/8" Pipe	1/8" Pipe	1/8" Pipe

Inches (mm)

Parker Hannifin Corporation
Pneumatic Division
Richland, Michigan
www.parker.com/pneumatics

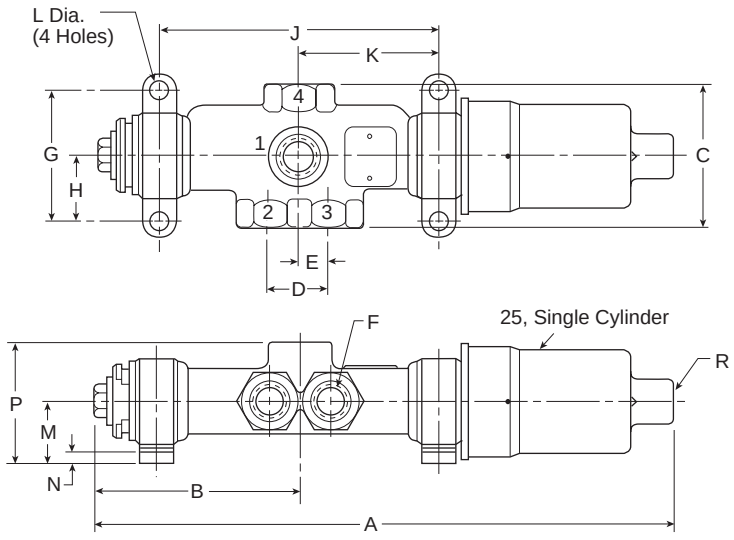
M085 Stem Stop, Small Bracket
3-Way



	1/4	3/8	1/2	3/4
A	7.50 (190.5)	8.14 (206.8)	9.03 (229.4)	11.18 (284.0)
B	2.03 (51.6)	2.36 (59.9)	2.83 (71.9)	3.48 (88.4)
C	2.38 (60.4)	2.62 (66.6)	3.00 (76.2)	3.62 (92.0)
D	.94 (23.9)	1.06 (26.9)	1.25 (31.8)	1.62 (41.2)
E	.47 (11.9)	.53 (13.5)	.62 (15.8)	.81 (20.6)
F	1/4" Pipe	3/8" Pipe	1/2" Pipe	3/4" Pipe
G	2.25 (57.2)	2.38 (60.4)	2.62 (66.6)	3.25 (82.6)
H	1.12 (28.4)	1.19 (30.2)	1.31 (33.3)	1.62 (41.2)
J	2.64 (67.1)	3.14 (79.8)	3.73 (94.7)	4.67 (118.6)
K	1.32 (33.5)	1.57 (39.9)	1.87 (47.5)	2.33 (59.2)
L	.34 (8.6)	.34 (8.6)	.41 (10.4)	.41 (10.4)
M	1.12 (28.4)	1.12 (28.4)	1.25 (31.8)	1.56 (39.6)
N	.25 (6.4)	.25 (6.4)	.31 (7.9)	.31 (7.9)
R	1/4" Pipe	1/4" Pipe	1/4" Pipe	1/4" Pipe
Travel	.62 (15.7)	.69 (17.5)	.88 (22.4)	1.12 (28.4)

Inches (mm)

M085 Stem Stop, Small Bracket
4-Way

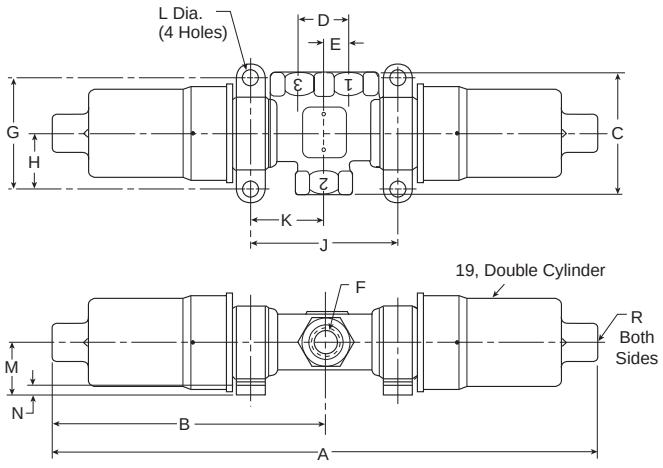


	1/4	3/8	1/2	3/4
A	9.00 (228.6)	9.98 (253.5)	11.15 (283.2)	13.90 (353.1)
B	2.79 (70.9)	3.28 (83.3)	3.89 (98.8)	4.84 (122.9)
C	2.38 (60.4)	2.62 (66.6)	3.12 (79.2)	3.62 (92.0)
D	.94 (23.9)	1.06 (26.9)	1.25 (31.8)	1.62 (41.2)
E	.47 (11.9)	.53 (13.5)	.62 (15.8)	.81 (20.6)
F	1/4" Pipe	3/8" Pipe	1/2" Pipe	3/4" Pipe
G	2.25 (57.2)	2.38 (60.4)	2.62 (66.6)	3.25 (82.6)
H	1.12 (28.4)	1.19 (30.2)	1.31 (33.3)	1.62 (41.2)
J	4.14 (105.2)	4.98 (126.5)	5.85 (148.6)	7.39 (187.7)
K	2.07 (52.6)	2.49 (63.2)	2.92 (74.2)	3.69 (93.7)
L	.34 (8.6)	.34 (8.6)	.41 (10.4)	.41 (10.4)
M	1.12 (28.4)	1.12 (28.4)	1.25 (31.8)	1.56 (39.6)
N	.25 (6.4)	.25 (6.4)	.31 (7.9)	.31 (7.9)
P	2.12 (53.8)	2.18 (55.4)	2.63 (66.8)	3.06 (77.7)
R	1/4" Pipe	1/4" PIpe	1/4" Pipe	1/4" Pipe
Travel	.62 (15.8)	.69 (17.5)	.88 (22.4)	1.12 (28.4)

Inches (mm)

Parker Hannifin Corporation
Pneumatic Division
Richland, Michigan
www.parker.com/pneumatics

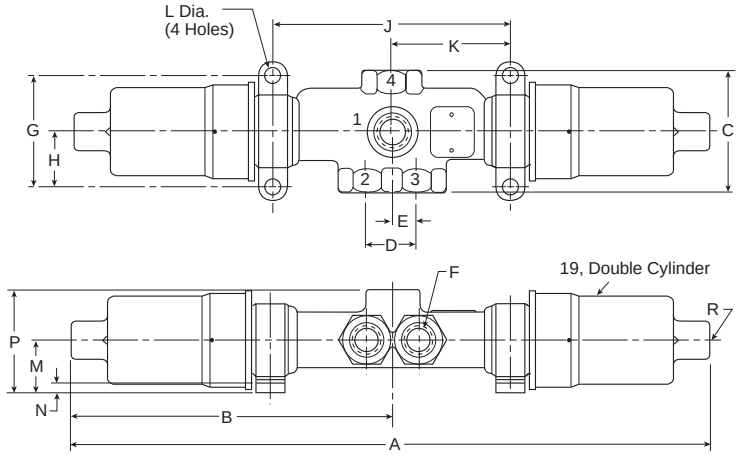
M019 Double Cylinder 3-Way



	1/4	3/8	1/2	3/4
A	10.94 (277.9)	11.56 (293.6)	12.40 (315.0)	15.40 (391.2)
B	5.47 (138.9)	5.78 (146.8)	6.20 (157.5)	7.70 (195.6)
C	2.38 (60.4)	2.62 (66.6)	3.00 (76.2)	3.62 (92.0)
D	.94 (23.9)	1.06 (26.9)	1.25 (31.8)	1.62 (41.2)
E	.47 (11.9)	.53 (13.5)	.62 (15.8)	.81 (20.6)
F	1/4" Pipe	3/8" Pipe	1/2" Pipe	3/4" Pipe
G	2.25 (57.2)	2.38 (60.4)	2.62 (66.6)	3.25 (82.6)
H	1.12 (28.4)	1.19 (30.2)	1.31 (33.3)	1.62 (41.2)
J	2.64 (67.1)	3.14 (79.8)	3.73 (94.7)	4.67 (118.6)
K	1.32 (33.5)	1.57 (39.9)	1.87 (47.5)	2.33 (59.2)
L	.34 (8.6)	.34 (8.6)	.41 (10.4)	.41 (10.4)
M	1.12 (28.4)	1.12 (28.4)	1.25 (31.8)	1.56 (39.6)
N	.25 (6.4)	.25 (6.4)	.31 (7.9)	.31 (7.9)
R	1/4" Pipe	1/4" Pipe	1/4" Pipe	1/4" Pipe

Inches (mm)

M019 Double Cylinder 4-Way

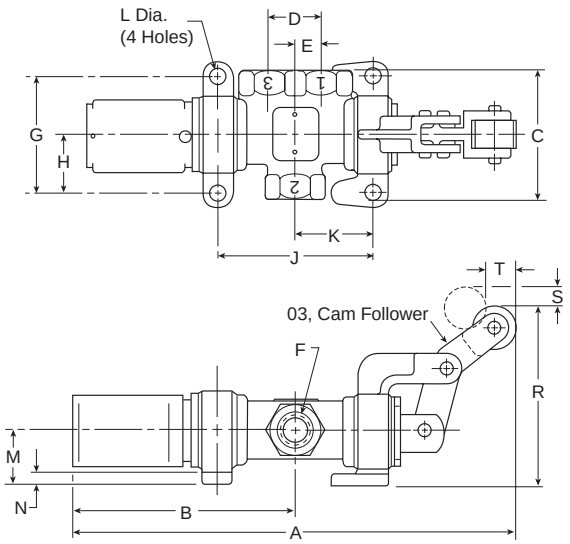


	1/4	3/8	1/2	3/4
A	12.42 (315.5)	13.40 (340.4)	14.52 (368.8)	18.12 (460.2)
B	6.21 (157.7)	6.70 (170.2)	7.26 (184.4)	9.06 (230.1)
C	2.38 (60.4)	2.62 (66.6)	3.12 (79.2)	3.62 (92.0)
D	.94 (23.9)	1.06 (26.9)	1.25 (31.8)	1.62 (41.2)
E	.47 (11.9)	.53 (13.5)	.62 (15.8)	.81 (20.6)
F	1/4" Pipe	3/8" Pipe	1/2" Pipe	3/4" Pipe
G	2.25 (57.2)	2.38 (60.4)	2.62 (66.6)	3.25 (82.6)
H	1.12 (28.4)	1.19 (30.2)	1.31 (33.3)	1.62 (41.2)
J	4.14 (105.2)	4.98 (126.5)	5.85 (148.6)	7.39 (187.7)
K	2.07 (52.6)	2.49 (63.2)	2.92 (74.2)	3.69 (93.7)
L	.34 (8.6)	.34 (8.6)	.41 (10.4)	.41 (10.4)
M	1.12 (28.4)	1.12 (28.4)	1.25 (31.8)	1.56 (39.6)
N	.25 (6.4)	.25 (6.4)	.31 (7.9)	.31 (7.9)
P	2.12 (53.8)	2.18 (55.4)	2.63 (66.8)	3.06 (77.7)
R	1/4" Pipe	1/4" Pipe	1/4" Pipe	1/4" Pipe

Inches (mm)

Parker Hannifin Corporation
Pneumatic Division
Richland, Michigan
www.parker.com/pneumatics

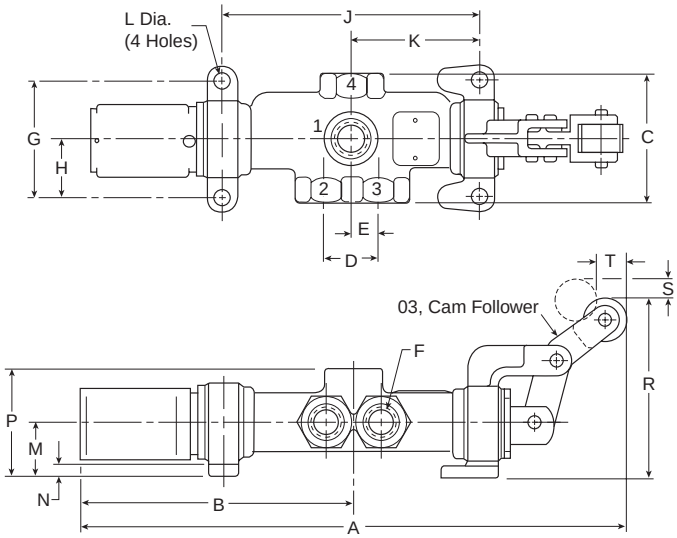
M095 Direct Acting Spring Return, Small Bracket (Push Lever) 3-Way



	1/4	3/8	1/2	3/4
A	7.98 (202.6)	8.72 (221.5)	10.77 (273.6)	13.54 (343.9)
B	3.92 (99.6)	4.24 (107.7)	5.31 (134.9)	6.92 (175.8)
C	2.38 (60.4)	2.62 (66.6)	3.00 (76.2)	3.62 (92.0)
D	.94 (23.9)	1.06 (26.9)	1.25 (31.8)	1.62 (41.2)
E	.47 (11.9)	.53 (13.5)	.62 (15.8)	.81 (20.6)
F	1/4" Pipe	3/8" Pipe	1/2" Pipe	3/4" Pipe
G	2.25 (57.2)	2.38 (60.4)	2.62 (66.6)	3.25 (82.6)
H	1.12 (28.4)	1.19 (30.2)	1.31 (33.3)	1.62 (41.2)
J	2.63 (66.8)	3.13 (79.5)	3.72 (94.5)	4.56 (115.8)
K	1.31 (33.3)	1.56 (39.6)	1.86 (47.2)	2.28 (57.9)
L	.34 (8.6)	.34 (8.6)	.41 (10.4)	.41 (10.4)
M	1.12 (38.4)	1.12 (28.4)	1.25 (31.8)	1.56 (39.6)
N	.25 (6.4)	.25 (6.4)	.31 (7.9)	.31 (7.9)
R	3.88 (98.6)	3.88 (98.6)	4.23 (107.4)	4.88 (124.0)
S	.43 (10.9)	.47 (11.9)	.70 (17.8)	.67 (17.0)
Travel	.53 (13.5)	.59 (15.0)	.75 (19.0)	.81 (20.6)

Inches (mm)

M095 Direct Acting Spring Return, Small Bracket (Push Lever) 4-Way

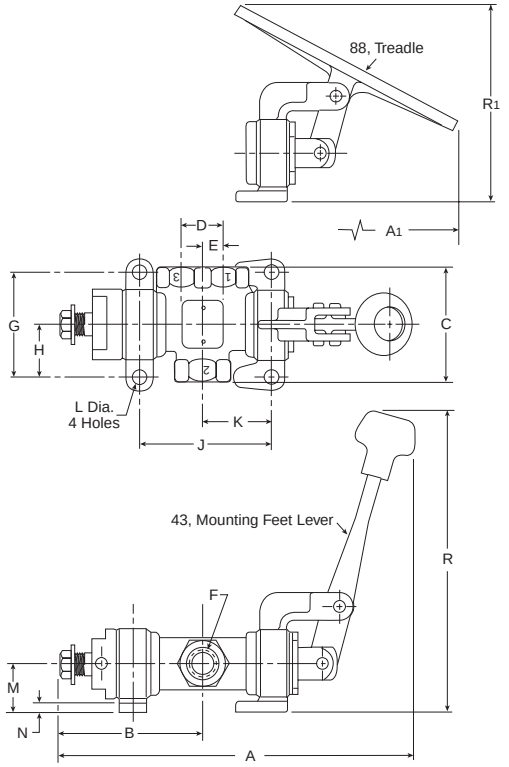


	1/4	3/8	1/2	3/4
A	9.48 (204.7)	10.56 (268.2)	12.89 (327.4)	16.26 (413.0)
B	4.67 (118.6)	5.15 (130.8)	5.68 (144.3)	8.27 (210.1)
C	2.38 (60.4)	2.62 (66.6)	3.12 (79.2)	3.62 (92.0)
D	.94 (23.9)	1.06 (26.9)	1.25 (31.8)	1.62 (41.2)
E	.47 (11.9)	.53 (13.5)	.62 (15.8)	.81 (20.6)
F	1/4" Pipe	3/8" Pipe	1/2" Pipe	3/4" Pipe
G	2.25 (57.2)	2.38 (60.4)	2.62 (66.6)	3.25 (82.6)
H	1.12 (28.4)	1.19 (30.2)	1.31 (33.3)	1.62 (41.2)
J	4.14 (105.2)	4.98 (126.5)	5.85 (148.6)	7.39 (187.7)
K	2.07 (52.6)	2.49 (63.2)	2.92 (74.2)	3.69 (93.7)
L	.34 (8.6)	.34 (8.6)	.41 (10.4)	.41 (10.4)
M	1.12 (28.4)	1.12 (28.4)	1.25 (31.8)	1.56 (39.6)
N	.25 (6.4)	.25 (6.4)	.31 (7.9)	.31 (7.9)
P	2.12 (53.8)	2.18 (55.4)	2.63 (66.8)	3.06 (77.7)
R	3.88 (98.6)	3.88 (98.6)	4.23 (107.4)	4.88 (124.0)
S	.43 (10.9)	.47 (11.9)	.70 (17.8)	.67 (17.0)
Travel	.53 (13.5)	.59 (15.0)	.75 (19.0)	.81 (20.6)

Inches (mm)

Parker Hannifin Corporation
Pneumatic Division
Richland, Michigan
www.parker.com/pneumatics

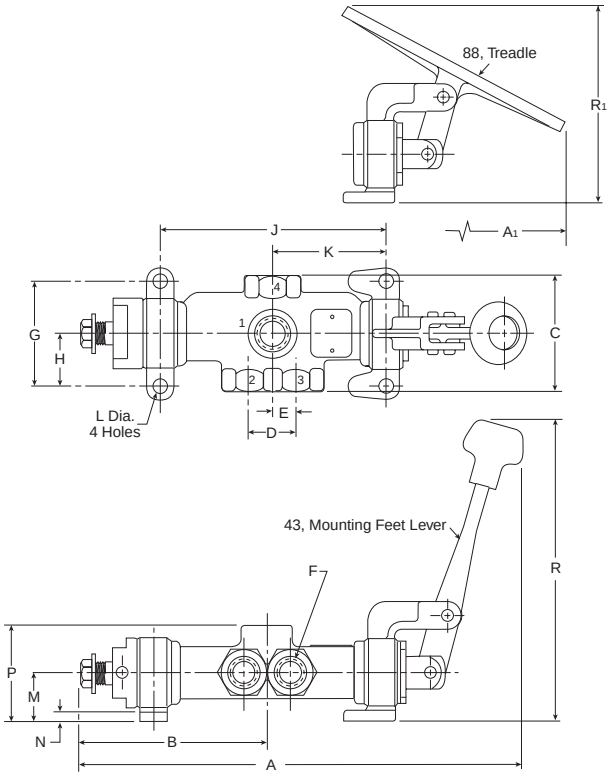
M054 Ball Detent, Small Bracket
3-Way



	1/4	3/8	1/2	3/4
A	7.35 (186.7)	8.36 (212.3)	9.95 (252.7)	12.25 (311.2)
A1	8.59 (218.2)	9.33 (237.0)	10.65 (270.5)	12.90 (327.7)
B	3.25 (82.6)	3.66 (93.0)	4.39 (11.5)	5.41 (137.4)
C	2.38 (60.4)	2.62 (66.6)	3.00 (76.2)	3.62 (92.0)
D	.94 (23.9)	1.06 (26.9)	1.25 (31.8)	1.62 (41.2)
E	.47 (11.9)	.53 (13.5)	.62 (15.8)	.81 (20.6)
F	1/4" Pipe	3/8" Pipe	1/2" Pipe	3/4" Pipe
G	2.25 (57.2)	2.38 (60.4)	2.62 (66.6)	3.25 (82.6)
H	1.12 (28.4)	1.19 (30.2)	1.31 (33.3)	1.62 (41.2)
J	2.63 (66.8)	3.13 (79.5)	3.72 (94.5)	4.56 (115.8)
K	1.31 (33.3)	1.56 (39.6)	1.86 (47.2)	2.28 (57.9)
L	.34 (8.6)	.34 (8.6)	.41 (10.4)	.41 (10.4)
M	1.12 (28.4)	1.12 (28.4)	1.25 (31.8)	1.56 (39.6)
N	.25 (6.4)	.25 (6.4)	.31 (7.9)	.31 (7.9)
R1	6.78 (172.2)	6.78 (172.2)	8.10 (205.7)	10.73 (272.5)
R2	4.51 (114.6)	4.65 (18.1)	4.85 (123.2)	6.03 (153.2)

Inches (mm)

M054 Ball Detent, Small Bracket
4-Way



	1/4	3/8	1/2	3/4
A	8.86 (225.0)	10.20 (259.1)	11/74 (298.2)	14/96 (380.0)
A1	10.01 (254.2)	11.17 (283.7)	12.77 (324.4)	15.62 (396.8)
B	4.00 (101.6)	4.57 (116.1)	5.44 (138.2)	6.76 (171.7)
C	2.38 (60.4)	2.62 (66.6)	3.00 (76.2)	3.62 (92.0)
D	.94 (23.9)	1.06 (26.9)	1.25 (31.8)	1.62 (41.2)
E	.47 (11.9)	.53 (13.5)	.62 (15.8)	.81 (20.6)
F	1/4" Pipe	3/8" Pipe	1/2" Pipe	3/4" Pipe
G	2.25 (57.2)	2.38 (60.4)	2.62 (66.6)	3.25 (82.6)
H	1.12 (28.4)	1.19 (30.2)	1.31 (33.3)	1.62 (41.2)
J	4.14 (105.2)	4.98 (126.5)	5.85 (148.6)	7.39 (187.7)
K	2.07 (52.6)	2.49 (63.2)	2.92 (74.2)	3.69 (93.7)
L	.34 (8.6)	.34 (8.6)	.41 (10.4)	.41 (10.4)
M	1.12 (28.4)	1.12 (28.4)	1.25 (31.8)	1.56 (39.6)
N	.25 (6.4)	.25 (6.4)	.31 (7.9)	.31 (7.9)
P	2.12 (53.8)	2.18 (55.4)	2.63 (66.8)	3.06 (77.7)
R1	6.78 (172.2)	6.78 (172.2)	8.10 (205.7)	10.73 (272.5)
R2	4.51 (114.6)	4.65 (18.1)	4.85 (123.2)	6.03 (153.2)

Inches (mm)

Parker Hannifin Corporation
Pneumatic Division
Richland, Michigan
www.parker.com/pneumatics

"LV" & "EZ" Series

Lockout Valves, 3-Way, 3-Port, 2-Position

Section F

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BOLD ITEMS ARE MOST POPULAR.

Parker Hannifin Corporation
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Parker is protecting your most valuable assets…

OSHA® www.osha.gov Standard 190.147	• This applies to the servicing and maintenance of a machine or equipment. • Any new, replacement, repair, or renovation to a machine must include an energy isolation device that can accept a lock out device. • Lock out devices should not be used for any other purposes • Verification of energy isolation is required
ANSI Standard Z244	• This applies to all machines • Lockout / tagout is the primary method of hazardous energy control • Machines shall be designed, manufactured, supplied, and installed with energy isolating devices
ANSI B11.0 B11.TR6 PMMI B155.1	• B11.0 applies to a broad range of machines, B11.TR6 is specific to machine tools, and B155.1 is specific to packaging and converting machines • Energy isolating device shall: – Be capable of being locked in the OFF position only – Be easy to operate – Have an exhaust port equal or greater than its supply port – Have a pressure indicator that is visible to an operator to verify line is relieved of pressure

…By offering the best in pneumatic safety for machine maintenance:

Traditional Ball Valve

Not a dedicated energy isolation device	✖
Not a full exhaust port	✖
No verification of line exhaust	✖
Can be locked ON	✖
Not easily identifiable	✖

Parker Solution

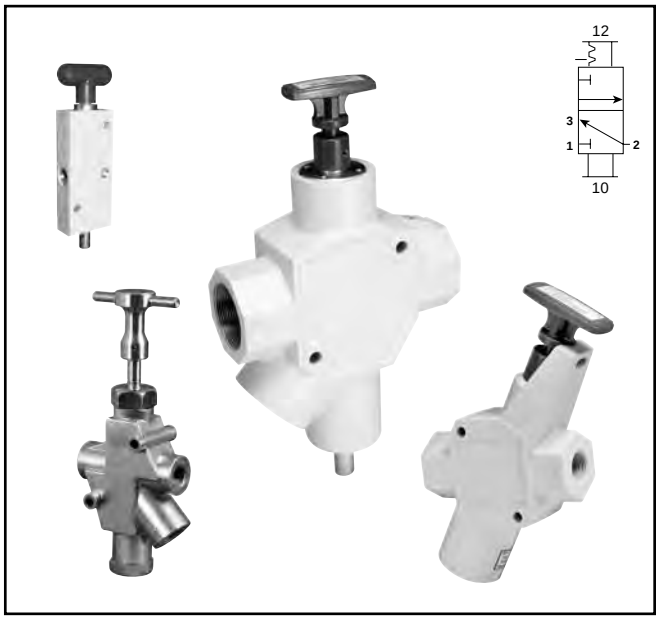
✔	**Dedicated energy isolation device**
✔	Full exhaust port
✔	Verification of line exhaust
✔	Only lockable in OFF position
✔	Easily identifiable

Parker Hannifin Corporation
Pneumatic Division
Richland, Michigan
www.parker.com/pneumatics

Features

Lockout valves are installed in pneumatic drop legs, or individual pneumatic control lines. In accordance with OSHA procedures, lockout valves are used during maintenance and service procedures of pneumatically (air) operated equipment.

- Used for compliance with OSHA 29 CFR part 1910
- 1/4" to 2" pipe sizes. NPT or BSPP
- Yellow cast aluminum body with red handle or stainless steel (NACE MR0175 / ISO 15156)
- Inline or surface mountable
- Built in port for pressure verification to meet ANSI B11 and PMMI B155 requirements



Material specifications

Description	LV	LVSS
Body:	Cast aluminum alloy	Stainless steel
Handle:	Plastic	Stainless steel
Spool:	Aluminum	Stainless steel
Seals:	Carboxylated nitrile	Carboxylated nitrile
Detent spring:	Stainless steel	Stainless steel
Grease:	Magnalube G †	Magnalube G †

† Trademark Magnalube

Operating information

Operating pressure:	LV	LVSS
Compact	15 to 145 PSIG	–
Standard	15 to 300 PSIG	15 to 300 PSIG
High flow	15 to 300 PSIG	–
Operating temperature:	40°F to 175°F	30°F to 175°F

Operating media: Clean, dry, compressed air (5 micron)

Applications

Lockout valves are installed in pneumatic drop legs, or individual pneumatic control lines (see Figure 1). In accordance with OSHA procedures, lockout valves are used during maintenance and service procedures of pneumatically (air) operated equipment. Prior to servicing, the red handle is pressed inward, blocking pressure and relieving all downstream air pressure. A padlock is installed through the locking hasp, Preventing accidental actuation during the maintenance procedure. Following maintenance, the padlock is removed and the red handle is pulled outward, returning air pressure to the system. (For complete Lockout / Tagout procedures, consult OSHA Standard 29 CFR Part 1910 in U.S. Federal Register/Vol. 54 No. 169, Friday, September 1, 1989 / Page 36644.)

Mounting

Valves can be inline mounted or surface mounted using the two mounting holes provided in the valve body. Mount valves in plain view with the handle oriented for accessibility.

Placement of Lockout Device

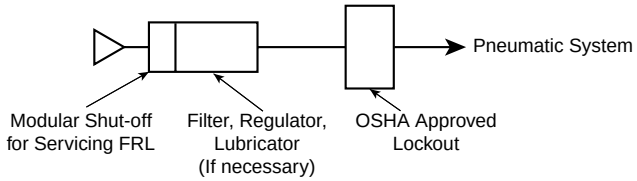


Figure 1.

Parker Hannifin Corporation
Pneumatic Division
Richland, Michigan
www.parker.com/pneumatics

Compact

Port in / out	Port exhaust	Wt (lb)	Part number *
1/4	3/8	0.9	**LV2N3B**
3/8	3/8	0.9	**LV3N3B**

Standard

Port in / out	Port exhaust	Wt (lb)	Part number *
3/8	3/4	2.0	**LV3N6B**
1/2	3/4	2.0	**LV4N6B**
3/4	3/4	2.0	**LV6N6B**
3/4	1-1/4	3.2	**LV6NAB**
1	1-1/4	3.2	**LV8NAB**
1-1/4	1-1/4	3.2	**LVANAB**

High Flow

Port in / out	Port exhaust	Wt (lb)	Part number *
1-1/2	2	8.2	**LVBNCB**
2	2	8.2	**LVCNCB**

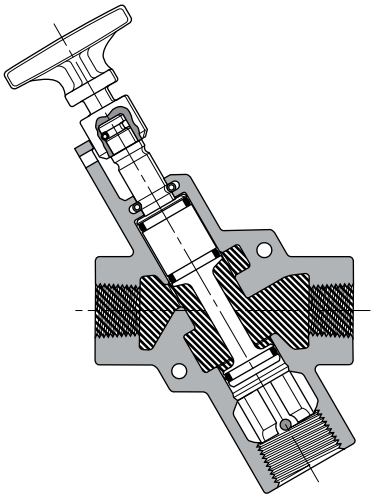
* For BSPP ports, change 4th digit from "N" to "B"

Stainless Steel

Port in / out	Port exhaust	Wt (lb)	Part number *
1/4	1/4	3.8	**LV2N2BSS**
3/8	1/2	6.0	**LV3N4BSS**
1/2	1/2	6.0	**LV4N4BSS**
3/4	1	13	**LV6N8BSS**
1	1	13	**LV8N8BSS**
1-1/2	2	35	**LVBNCBSS**
2	2	35	**LVCNCBSS**

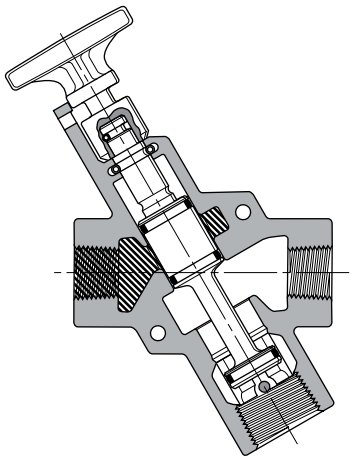
Operation

Normal Machine Operation – Valve Open
With the handle pulled outward. Inlet Port 1 is open to outlet Port 2. Exhaust Port 3 is blocked.



LV Series Shown Open

Lockout Operation – Valve Closed
With the handle pushed inward. Inlet Port 1 is blocked. Outlet Port 2 is open to Exhaust Port 3.



LV Series Shown Closed

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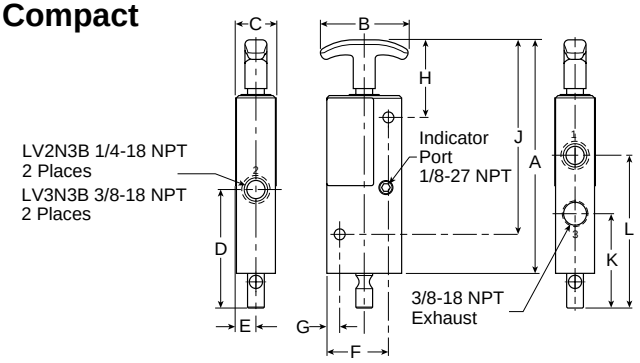
Dimensions

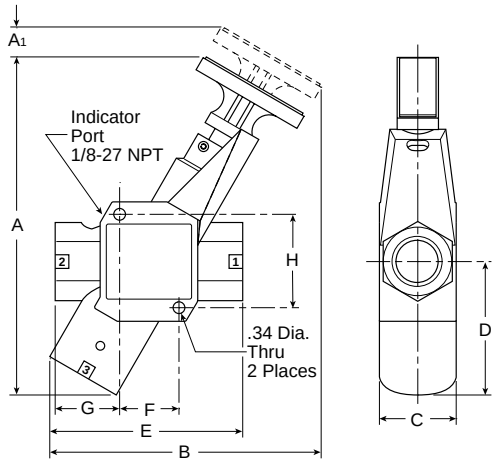
Compact



Compact LV Series, 3/8" Exhaust Ports Inches (mm)

A	B	C	D	E	F
6.50 (165)	2.25 (57)	1.05 (27)	3.04 (77)	.51 (13)	1.58 (40)
G	**H**	**J**	**K**	**L**	
.33 (8)	1.99 (51)	4.99 (127)	2.42 (62)	3.92 (100)	

Standard



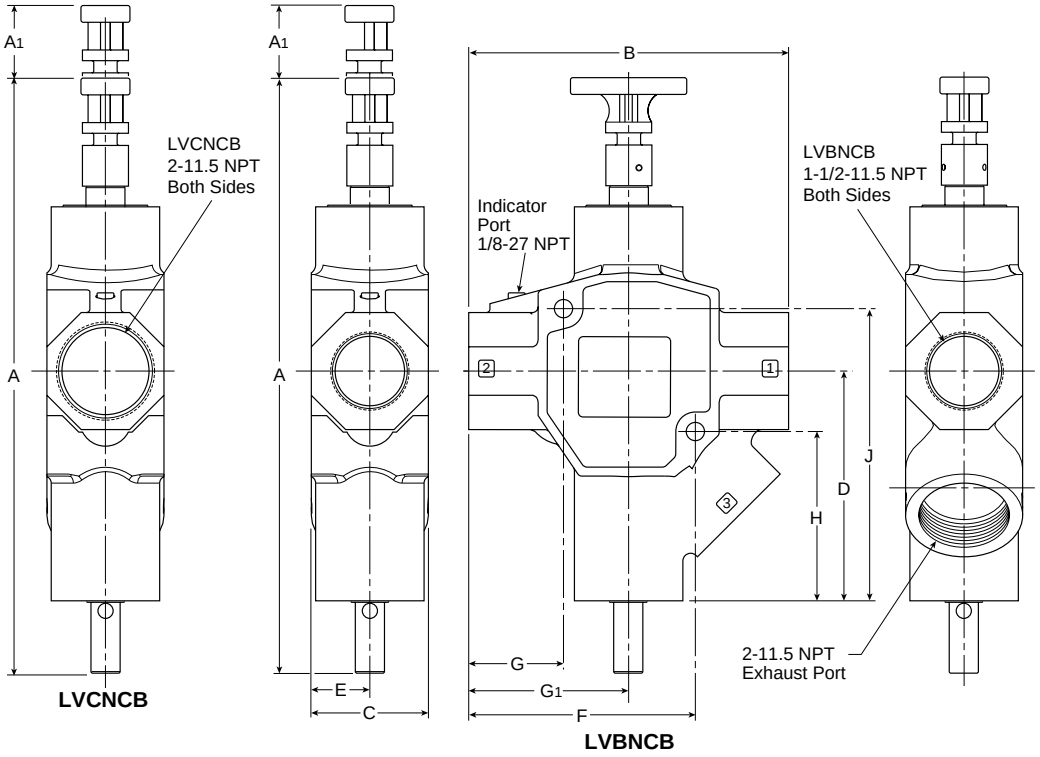
Standard LV Series, 3/4" Exhaust Port Inches (mm)

A	A1	B	C	D	E
8.32 (211)	0.64 (16)	6.60 (168)	2.00 (51)	3.06 (78)	4.24 (108)
F	**G**	**H**			
1.32 (111)	1.56 (40)	2.21 (56)			

Standard LV Series, 1-1/4" Exhaust Port Inches (mm)

A	A1	B	C	D	E
9.91 (252)	0.85 (22)	7.95 (202)	2.25 (57)	3.91 (99)	5.65 (144)
F	**G**	**H**			
1.74 (44)	1.89 (48)	2.74 (70)			

High Flow



High Flow LV Series, 2" Exhaust Ports
Inches (mm)

A	A1
14.82 (376)	1.87 (47)
B	**C**
8.20 (208)	3.00 (76)
D	**E**
5.89 (150)	1.50 (38)
F	**G**
5.81 (148)	2.43 (62)
G1	**H**
4.10 (104)	4.34 (110)
J	
7.49 (190)	

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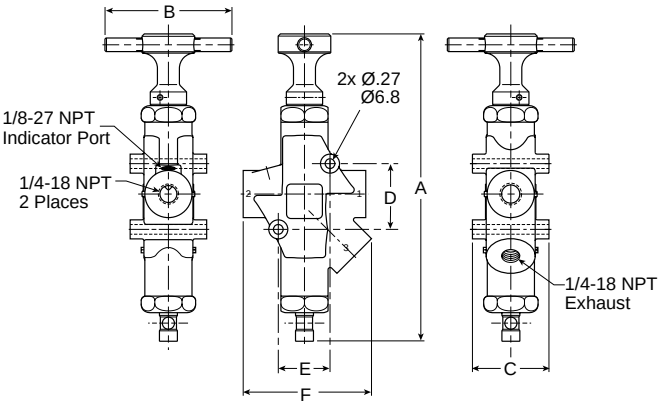
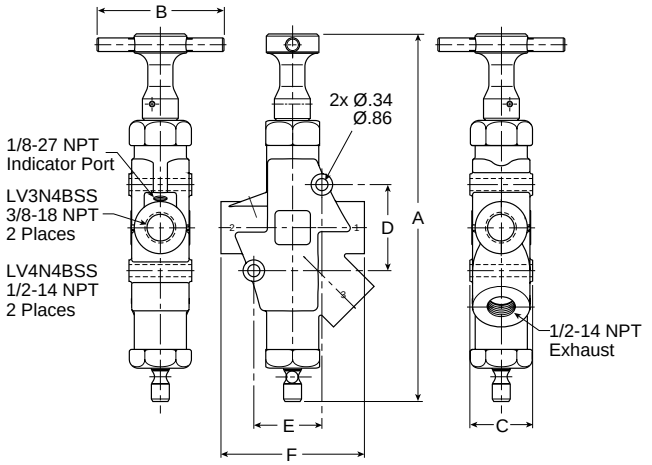
Stainless Steel



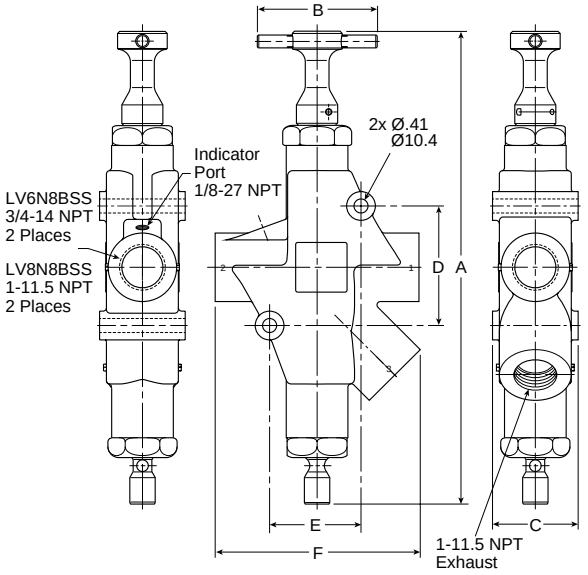
Stainless Steel LV Series, 1/4" Exhaust Port
inches (mm)

A	B	C	D	E	F
8.47 (215)	3.50 (89)	2.11 (54)	1.81 (46)	1.43 (36)	3.54 (90)



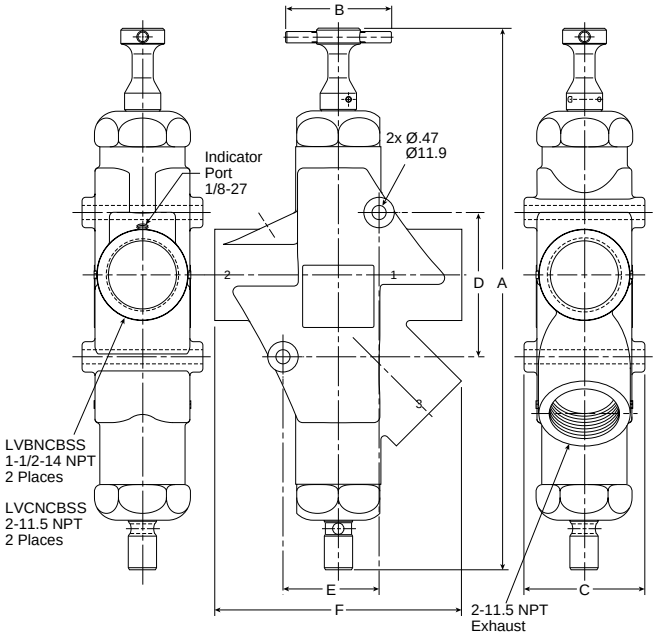
Stainless Steel LV Series, 1/2" Exhaust Port
inches (mm)

A	B	C	D	E	F
10.24 (260)	3.50 (89)	1.75 (45)	2.40 (61)	190 (48)	4.00 (102)



Stainless Steel LV Series, 1" Exhaust Port
inches (mm)

A	B	C	D	E	F
13.80 (351)	3.50 (89)	2.50 (64)	3.49 (89)	2.67 (68)	5.99 (152)



Stainless Steel LV Series, 2" Exhaust Port
inches (mm)

A	B	C	D	E	F
17.92 (455)	3.50 (89)	4.00 (102)	4.77 (121)	3.18 (81)	8.16 (207)

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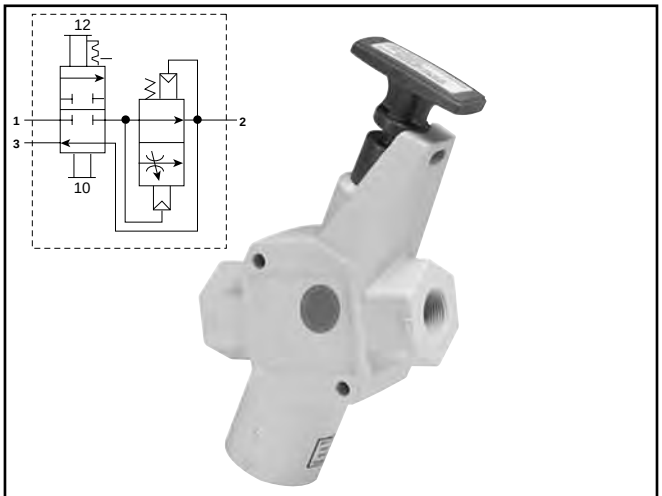
Features

- Combines lockout and soft-start functions in a single unit
- Used in systems for compliance with OSHA standard 29 CFR part 1910
- 3/8 Inch to 1-1/4 inch pipe sizes
- Cv's from 3.7 To 13.7
- 3/4 and 1-1/4 inch: exhaust ports available
- Exhaust port threaded for installation of silencer or line for remote exhausting
- Inline or surface mountable
- Yellow cast aluminum body with red handle. Blue dot on body indicates EZ Series valve



3/4" Exhaust Shown

Material specifications

Description	EZ
Body:	Cast aluminum alloy
Handle:	Plastic
Spool:	Aluminum
Seals:	Carboxylated nitrile
Detent spring:	Stainless steel
Grease:	Magnalube G †

† Trademark Magnalube

Operating information

Operating pressure: 15 to 300 PSIG
Operating temperature: 40°F to 175°F
Operating media: Clean, dry, compressed air (5 micron)

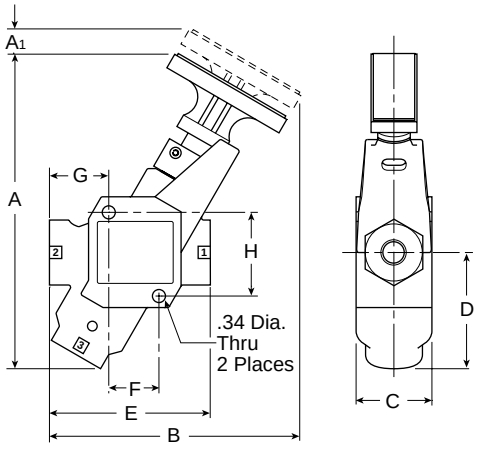
Applications

EZ valves are installed in pneumatic drop legs, or individual pneumatic control lines (see Figure 1). In accordance with OSHA procedures, EZ valves are used during maintenance and service procedures of pneumatically (air) operated equipment. Prior to servicing, the red handle is pressed inward, blocking pressure and relieving all downstream air pressure. A padlock is installed through the locking hasp, preventing accidental actuation during the maintenance procedure. Following maintenance, the padlock is removed and the red handle is pulled outward, gradually returning air pressure to the system. (For complete Lockout / Tagout procedures, consult OSHA Standard 29 CFR Part 1910 in U.S. Federal Register/Vol. 54 No. 169, Friday, September 1, 1989 / Page 36644.)

Mounting

Valves can be inline mounted or surface mounted using the two 11/32" mounting holes provided in the valve body. Mount valves in plain view with the handle oriented for accessibility.

Dimensions



EZ Series, 3/4" Exhaust Port Inches (mm)

A	A1	B	C	D	E
8.32 (211)	0.64 (16)	6.60 (168)	2.00 (51)	3.06 (78)	4.24 (108)
F	**G**	**H**			
1.32 (111)	1.56 (40)	2.21 (56)			

EZ Series, 1-1/4" Exhaust Port Inches (mm)

A	A1	B	C	D	E
9.91 (252)	0.85 (22)	7.95 (202)	2.25 (57)	3.91 (99)	5.65 (144)
F	**G**	**H**			
1.74 (44)	1.89 (48)	2.74 (70)			

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EZ Series

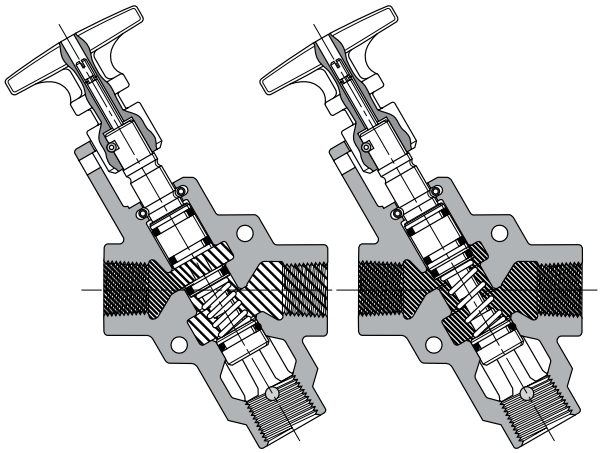
Port in / out	Port exhaust	Wt (lb)	Part Number *
3/8	3/4	2.1	**EZ03NB6**
1/2	3/4	2.1	**EZ04NB6**
3/4	3/4	2.1	**EZ06NB6**
3/4	1-1/4	3.2	**EZ06NBA**
1	1-1/4	3.2	**EZ08NBA**
1-1/4	1-1/4	3.2	**EZ0ANBA**

* For BSPP ports, change 5th digit from "N" to "B"

Operation

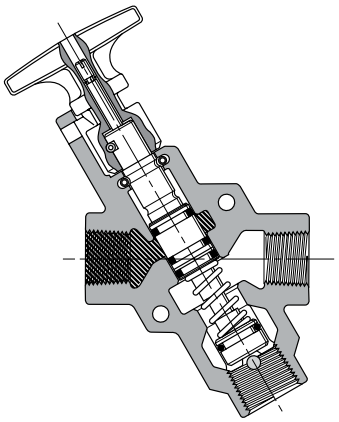
Normal Machine Operation – Valve Open
When the red handle is pulled outward, the adjustable needle valve (accessed through the top of the handle) setting determines the rate of pressure buildup. When downstream pressure reaches the full flow described in the specifications below, Inlet Port 1 is open to outlet Port 2. Exhaust Port 3 is blocked.

Lockout Operation – Valve Closed
When the red handle is pushed inward, the Inlet Port 1 is blocked. Downstream air is exhausted through Exhaust Port 3.



Open
Pressure Building Up

Open
Full Flow



Closed

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Flow

Compact LV Series Part Number	Port In / Out	scfm In / Out	Port Exh	scfm Exh
LV2N3B	1/4	41.8	3/8	40.7
LV3N3B	3/8	60.7	3/8	60.7

Standard LV Series Part Number	Port In / Out	scfm In / Out	Port Exh	scfm Exh
LV3N6B	3/8	107.7	3/4	81.1
LV4N6B	1/2	161.4	3/4	90.9
LV6N6B	3/4	187.7	3/4	93.2
LV6NAB	3/4	297.7	1-1/4	204
LV8NAB	1	375	1-1/4	216
LVANAB	1-1/4	436.4	1-1/4	221

High FLow LV Series Part Number	Port In / Out	scfm In / Out	Port Exh	scfm Exh
LVBNCB	1-1/2	761.4	2	1156
LVCNCB	2	918.2	2	1186

EZ Series Part Number	Port In / Out	scfm In / Out	Port Exh	scfm Exh
EZ03NB6	3/8	136.4	3/4	181
EZ04NB6	1/2	161.4	3/4	189
EZ06NB6	3/4	181.9	3/4	216
EZ06NBA	3/4	272.7	1-1/4	248
EZ08NBA	1	311.4	1-1/4	273
EZ0ANBA	1-1/4	368.2	1-1/4	291

Stainless LV Series Part Number	Port In / Out	scfm In / Out	Port Exh	scfm Exh
LV2N2BSS	1/4	48.6	1/4	47.2
LV3N4BSS	3/8	131.6	1/2	142
LV4N4BSS	1/2	124.8	1/2	142
LV6N8BSS	3/4	325	1	386
LV8N8BSS	1	325	1	386
LVBNCBSS	1-1/2	889	2	1023
LVCNCBSS	2	889	2	1023

LV / EZ Accessories

Corrosion resistant mufflers for harsh environments

Port Size	Construction	Threads*	Dimensions In. (mm) Width	Length	Part Number
1/4	Stainless steel	Male	0.56 (14.2)	1.75 (44.5)	**5500A2004**
1/2	Stainless steel	Male	0.87 (22.1)	2.75 (69.7)	**5500A4004**
1	Stainless steel	Male	1.31 (33.3)	3.87 (98.3)	**5500A6004**
2	Nickel plated	Male	2.37 (60.2)	5.50 (139.7)	**5500A9004**

* NPT threads only

High Flow Silencers

Part Number *	ES25MC	ES37MC	ES50MC	ES75MC	ES100MC	ES125MC	ES150MC	ES200MC
Pipe size	1/4	3/8	1/2	3/4	1	1-1/4	1-1/2	2
Flow (scfm)	129	219	549	893	1013	1486	1580	1580
Hex In. (mm)	0.63 (16)	1.00 (25)	1.00 (25)	1.62 (41)	1.62 (41)	—	—	2.99 (76)
Length In. (mm)	1.85 (47)	3.31 (84)	3.31 (84)	4.56 (116)	4.56 (116)	5.69 (145)	5.69 (145)	7.68 (195)

* NPT ports standard, for BSPT ports, add a "B" after the "S"

Pop-up Pressure Indicator

Brass – Part # 988A30 – Can be used on all LV or EZ series to provide visual verification of line exhaust

Stainless – Part# 1155H30 – Can be used on SS LV series to provide visual verification of line exhaust

Pressure Switch

- Part # PPS1-2C3-RHM (DIN 9.4mm connector)
- Part # PPS1-2C3-RWL (18" leads)
- Signal verification of line exhaust
- Field adjustable set point

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Sliding Seal & Brass Poppet Valves

Manually Operated

Section F

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Application

These are 4-Way, 3-Position, rotary disc, direct-operated air valves. Two different types of control are offered. The forged bronze disc and the cast iron surface upon which the disc works are ground and lapped to provide a leak-proof seal. Air pressure from the inlet port is confined beneath the disc, making the seal tighter as the pressure increases, yet friction between the lapped surfaces is so low that only 15 pounds of force is required to move the lever at 100 PSI line pressure. The need for packing to seal around the stem is eliminated.

Valve can be furnished for gasketing to a manifold on customer's machine or with an adaptor for tapped bottom porting.

Valves are detented.

Operating handles may be installed in any of four positions.

Flow Ratings (Cv)

Standard Side Port	Optional Bottom Port Adapter	Optional Bottom Manifold	Cv	Port Size
PL 25 **VL 25**	PLD 25 VLD 25	PLA 25 VLA 25	2.5	1/4" NPT
PL 37 **VL 37**	PLD 37 VLD 37	PLA 37 VLA 37	3.0	3/8" NPT
PL 50 **VL 50**	PLD 50 VLD 50	PLA 50 VLA 50	6.2	1/2" NPT

Optional Items and Accessories

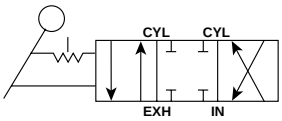
Bottom Porting for gasket mounting to customer's manifold. Four holes are drilled (see following page for dimensions) through the base into the four port chambers. Side ports are plugged. Customer provides suitable means of gasketing. Specify Series PLA or VLA.

Bottom Ported Adaptor Plate, o-ring gasketed to base (four o-rings furnished). Adaptor plate has four drilled and tapped ports. Side ports are plugged. Specify Series PLD or VLD.

Operation

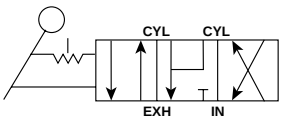
Series PL

This type has a 90° lever movement. In neutral position, inlet is closed to pressure – outlets closed to exhaust. With clockwise (CW), inlet is connected to cylinder port directly opposite. Other cylinder port is connected to exhaust. With counterclockwise (CCW), inlet is connected to cylinder port diagonally opposite. Other cylinder port is connected to exhaust. Recommended for stationary air cylinders, arbor presses, and as a throttling valve for positioning air cylinders.



Series VL

This type has a 90° lever movement. In neutral position, inlet is closed to pressure – outlets open to exhaust. With clockwise (CW), inlet is connected to cylinder port directly opposite. Other cylinder port is connected to exhaust. With counterclockwise (CCW), inlet is connected to cylinder port diagonally opposite. Other cylinder port is connected to exhaust. This valve is particularly suited for pneumatic chuck operation.



Operating Pressure

0 to 150 PSI (0 to 1035 kPa)

Operating Temperature

18°F to 200°F (-8°C to 93°C)

Lubrication

Filtered and lubricated air recommended for maximum valve life and minimum maintenance.

Service Kit and Parts Available

Lever Assembly Service Kits:

PL25, PL25HP, PL37, PL37HP, VL25, & VL37 ..... PL2425BP

PL50, PL50HP & VL50 ..... PL2424BP

Body Gasket:

PL25, PL25HP, PL37, PL37HP, VL25, & VL37 ..... P66837

PL50, PL50HP & VL50 ..... P66829

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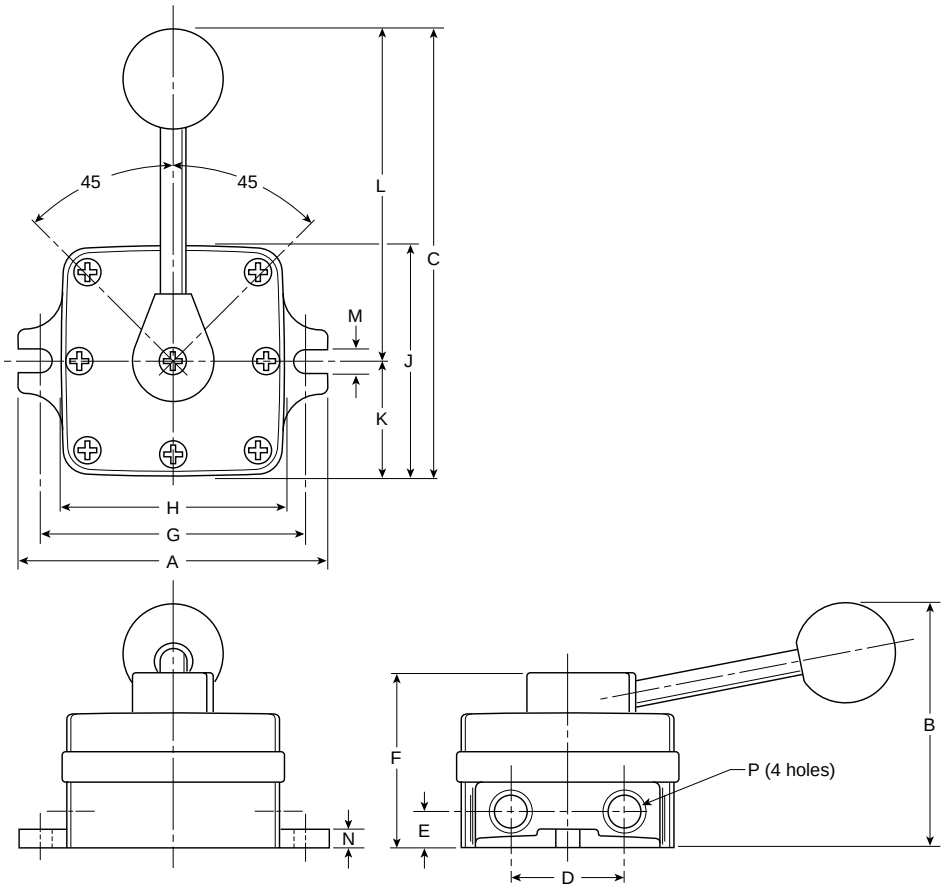
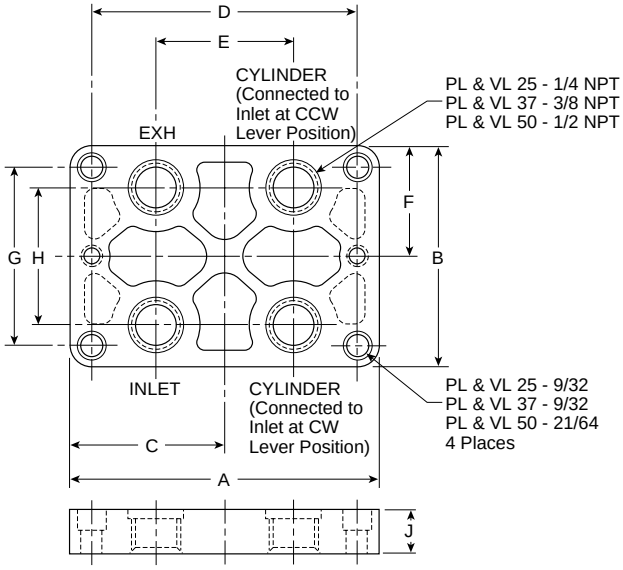


Dimensions

	PL-25 VL-25	PL-37 VL-37	PL-50 VL-50
A	4.75 (121)	4.75 (121)	5.62 (143)
B	3.81 (97)	3.81 (97)	4.44 (113)
C	6.81 (173)	6.81 (173)	8.94 (227)
D	1.69 (43)	1.69 (43)	2.12 (54)
E	.56 (14)	.56 (14)	.66 (17)
F	2.75 (70)	2.56 (65)	3.25 (83)
G	4.12 (105)	4.12 (105)	5.00 (127)
H	3.50 (89)	3.50 (89)	4.38 (111)
J	3.50 (89)	3.50 (89)	4.38 (111)
K	1.69 (43)	1.69 (43)	2.12 (54)
L	5.06 (129)	5.06 (129)	6.75 (171)
M	.34 (9)	.34 (9)	.34 (9)
N	.28 (7)	.28 (7)	.34 (9)
P	1/4 NPT	3/8 NPT	1/2 NPT



Adapter Plate for Series PLD and VLD

Dimensions

	PLD-25, PLD-37 VLD-25, VLD-37	PLD-50 VLD-50
A	4.75 (121)	5.62 (143)
B	3.38 (86)	4.25 (108)
C	2.38 (60)	2.81 (71)
D	4.12 (105)	5.00 (127)
E	2.19 (56)	2.59 (66)
F	1.69 (43)	2.12 (54)
G	2.75 (70)	3.62 (92)
H	2.06 (52)	2.81 (71)
J	.58 (15)	.70 (18)

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Features

- Compact and Simple Design
- 4-Way, 3-Position
- Rotary Disc, Direct Operated Valves
- Side Porting
- Detent Action
  Smooth Lever Actuation
- General Pneumatic Applications

Flow Rating

Port Size	Cv (ANSI)	Cv (JIS)
1/4"	0.5	0.4
3/8"	1.4	2.72
1/2"	1.5	3.26

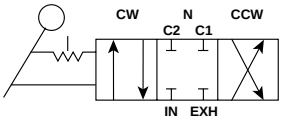
Service Kit & Parts Available

Disk and Seal Service Kit:

HV4200	**HVRK420001**
HV4400	**HVRK440001**

Operation

These closed center valves have a 90° lever movement. In neutral position, the inlet is closed to pressure and outlets are closed to exhaust. With clockwise (CW) rotation, inlet (IN) is connected to C2, C1 is connected to exhaust (EXH). With counter-clockwise (CCW) rotation, inlet (IN) is connected to C1, C2 is connected to exhaust (EXH). These valves are recommended for stationary air cylinders, and as throttling valves for positioning air cylinders. They are not to be used on punch presses or press brakes.



Operating Pressure

0 - 150 PSIG (0 - 10 bar)

Operating Temperature

32° - 166°F (0° - 60°C)

Lubrication

Filtered and lubricated air recommended for maximum valve life and minimum maintenance.

Materials

Cover ..... Zinc
Body ..... Aluminum
Seals ..... Polyurethane

ANSI Cv vs. JIS Cv

*For Pneumatic Valve flow, the measurement **Cv** – Coefficient of Flow – is used to convey to the user how much air can flow through a given valve. Most valve manufacturers publish this information in their catalogs to assist the user in choosing the proper valve for their application. In publishing this data however, there are discrepancies in how the **Cv** is calculated, resulting in some **Cv**'s being OVERSTATED by **20 to 40**%. This can adversely affect the user's application because the valve flows LESS than the published **Cv**.*

*The reason for the large discrepancy is in the method of calculation - the ANSI (NFPA) or the JIS standard. Parker's **Cv** valve is calculated using the ANSI (NFPA)*

T3.21.3-1990 standard. The ANSI (NFPA) method is a structured test using very specific tube sizes and lengths, inlet pressures and pressure drops, and volume chambers.

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HV Model Number Index

H	V	N	42	0	0	–	8

Port Type	
BSPT "Rc"	Blank
NPT	**N**
BSPP "G"	G

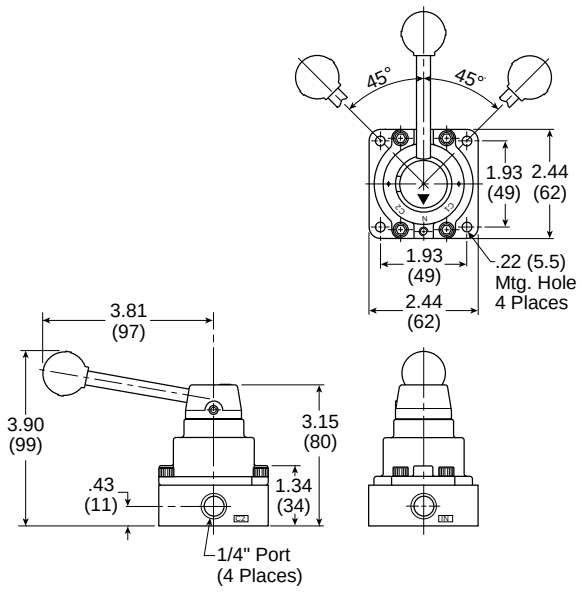
Body Type	
4-Port, 3-Position Mini	42
4-Port, 3-Position Medium	44

Valve Type	
0	Closed Center

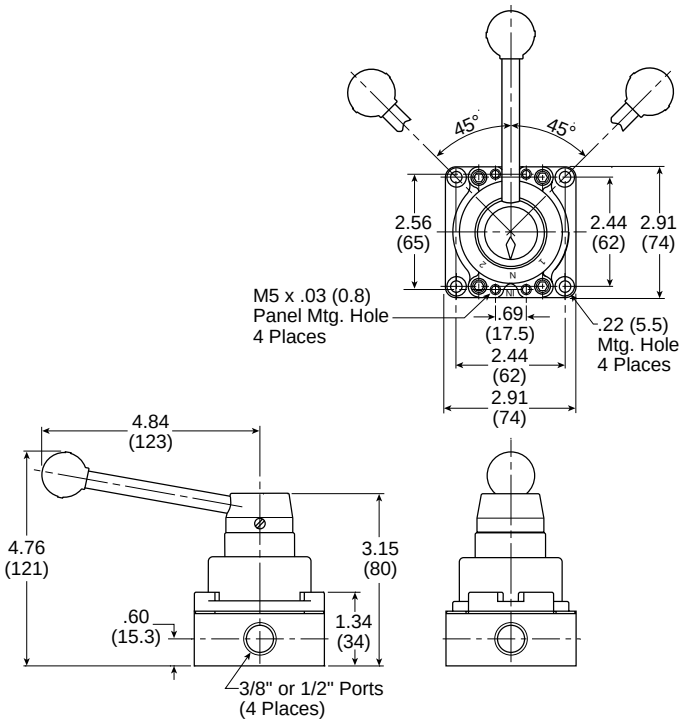
Port Option	
0	Side Port

Port Size	
8	1/4" (42 Type Only)
10	3/8" (44 Type Only)
15	1/2" (44 Type Only)

Dimensions



HVN4200-8



HVN4400-10, 15

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Pneumatic Division
Richland, Michigan
www.parker.com/pneumatics

1/8" 3-Way

1/4" 4-Way

Application

Sliding seal valves provide 3 or 4-Way directional control in a compact body size. Comfortable hand lever is easy to operate and maintains set position. Disc type valve has minimum number of moving parts. Valves should be used with filtered and lubricated air.

⚠ ***CAUTION:***
Install guards on all hand operated valves.
Accidental operation can cause personal injury.

Operating Temperature

-40°F to 212°F (-40°C to 100°C)

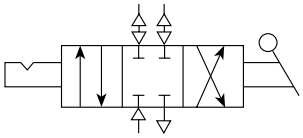
If it is possible that the ambient temperature may fall below freezing, the medium must be moisture free to prevent internal damage or unpredictable behavior.

Operating Pressure

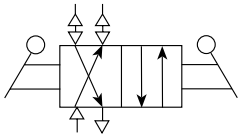
Maximum.....200 PSIG air only
Minimum.....26" Hg vacuum

Materials

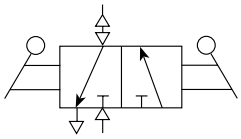
Seals ..... Buna N
Internal Components.....Brass, Stainless Steel
Body ..... Die Cast Zinc



4-Way 3-Position



4-Way 2-Position



3-Way 2-Position

Note: 3-Way exhaust passage is through an untapped hole in bottom side of valve.

Model Selection and Performance Data

Port Size	Function	Model Number	Old Number	Cv (Avg)	Service Kit*
1/8"	3-Way, 2-Position	032130599	3213H	0.54	032130899
1/8"	4-Way, 2-Position	032140299	3214H	0.54	032130899
1/4"	3-Way, 2-Position	008230109	823H	1.25	008230299
1/4"	4-Way, 3-Position	008240109	824H	1.25	008230299

* Service kits contain asterisk items from next page.

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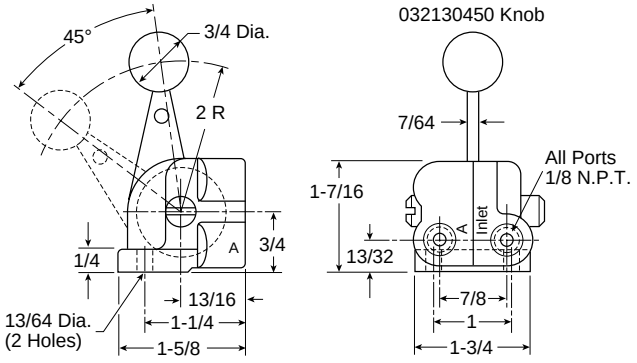
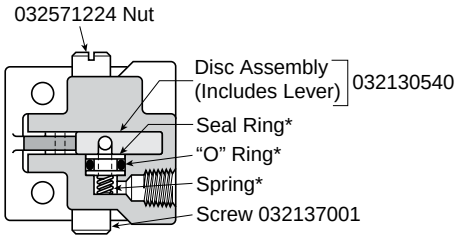
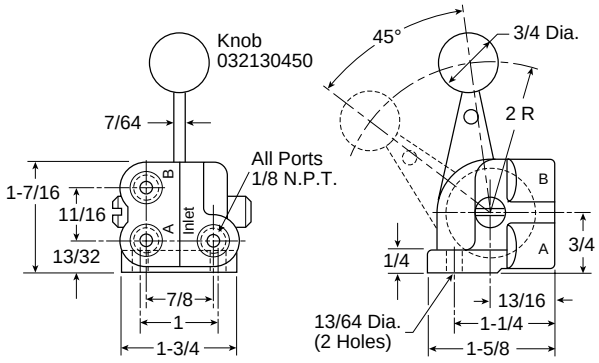
1/8" 3-Way
(Model No. 032130599)



Service Kit 032130899*

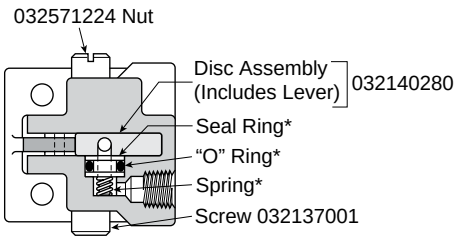


1/8" 4-Way
(Model No. 032140299)

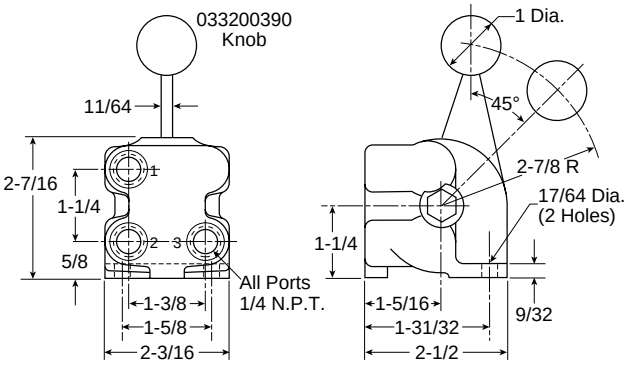


NOTE: With lever in position shown, inlet pressure is connected to port A.

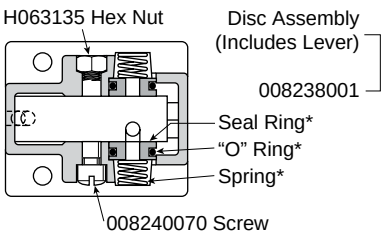
Service Kit 032130899*



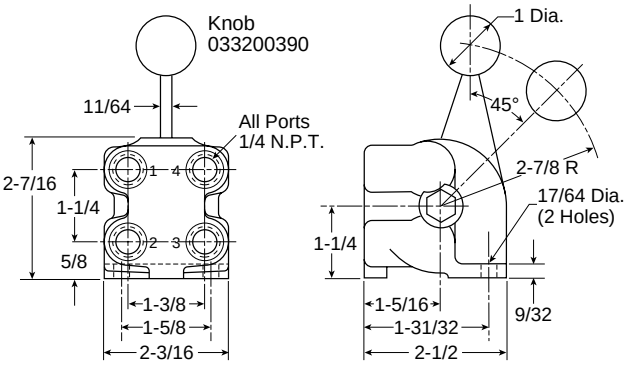
1/4" 3-Way
(Model No. 008230109)



Service Kit 032130899

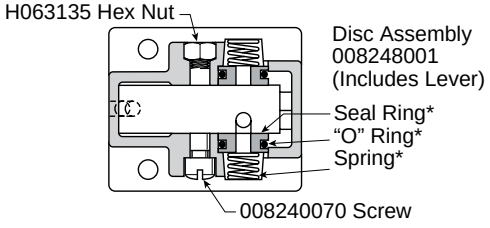


1/4" 4-Way
(Model No. 008240109)



NOTE: With lever in position shown, inlet port 3 is connected to port 4 and exhaust is through port 1.

Service Kit 032130899



K01R011025 Ball
008240080 Spring
Supplied on #008240109 Four-Way Valves Only

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Application

Normally-closed poppet valve operates at the press of a button and may be installed in a pipe line or used as a portable blow gun attached to a length of hose.

⚠ ***CAUTION:***
Install guards on all hand operated valves.
Accidental operation can cause personal injury.

Operating Temperatures:

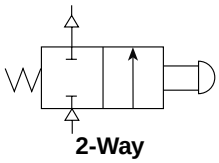
-20°F to 180°F (-28°C to 82°C)

Operating Pressures:

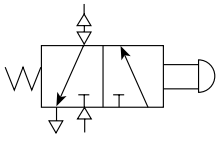
Maximum..... 150 PSIG air only
Minimum..... 0 PSIG

Materials:

Seals ..... Buna N
Internal Components..... Brass, Stainless and Plated Steel
Body ..... Brass

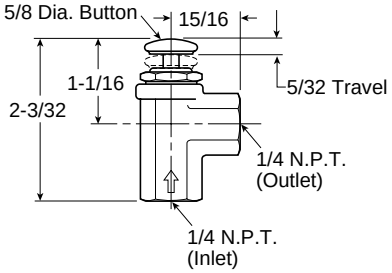


2-Way

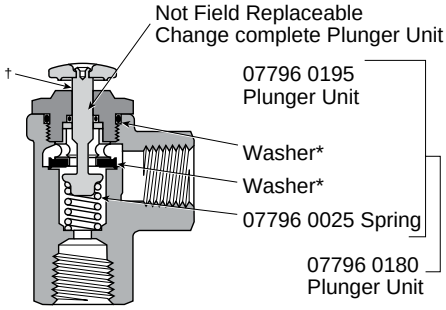


3-Way

Dimensions



Replacement Parts



† 07796 0199 2-Way valve shown.
Plunger unit for 08187 0199 3-Way valve shown on page V9.

* Included in service kits listed below.

Model Selection and Performance Data

Port Size	Function	Model Number	Old Number	Cv (Avg)	Service Kit
1/4"	2-Way	07796 0199	7796SP1	0.94	07796 0105
1/4"	3-Way	08187 0129	8187	0.94	07796 0105

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Application

Inline, button-operated, normally closed poppet valve has mounting holes for single or gang mounting. Actuation by hand, cam or mechanical fingers.
Valves should be used with filtered and lubricated air.

⚠ ***CAUTION:***
Install guards on all hand operated valves.
Accidental operation can cause personal injury.

Operating Temperatures:

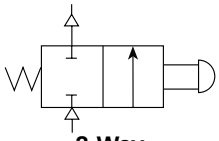
-20°F to 180°F (-28°C to 82°C)

Operating Pressures:

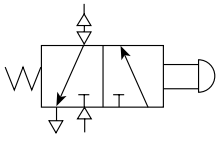
Maximum.....150 PSIG air only
Minimum.....0 PSIG

Materials:

Seals ..... Buna N
Internal Components..... Brass, Stainless and Plated Steel
Body ..... Aluminum bar stock

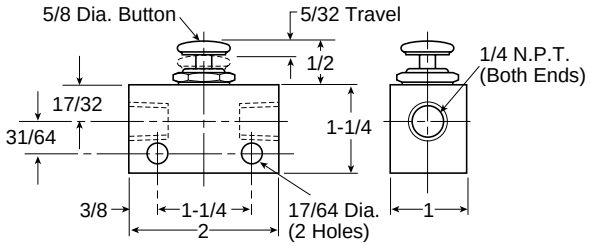


2-Way

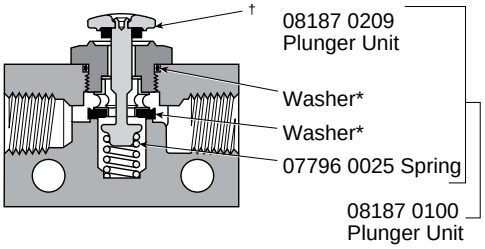


3-Way

Dimensions



Replacement Parts



† 08187 0139 3-Way valve shown.
Plunger unit for 07796 0319 2-Way valve shown on page V8.
* Included in service kits listed below.

Model Selection and Performance Data

Port Size	Function	Model Number	Old Number	Cv (Avg)	Service Kit
1/4"	2-Way	07796 0319	7796SP5	0.94	07796 0105
1/4"	3-Way	08187 0139	8187SP1	0.94	07796 0105

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Application

This 2-Way normally closed bleeder valve is an accessory that may be used with any double pilot-operated valve (bleed type). It provides manual or cam-operated control. A 1/4" pipe thread fits either the pilot valve port or the feeder airline. Opposite end has standard 1/2-20 thread for easy mounting on machine or panel. Valves should be used with filtered and lubricated air.

Operating Temperatures:

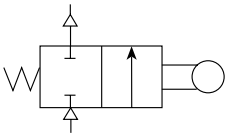
-40°F to 450°F (-40°C to 232°C)

Operating Pressures:

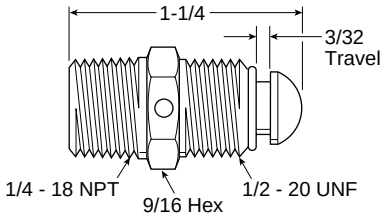
Maximum..... 150 PSIG air only
Minimum..... 0 PSIG

Materials:

Seals ..... Fluorocarbon
Internal Components..... Brass, Stainless Steel
Body ..... Brass



Dimensions



Model Selection

Pipe Size	Function	Model Number
1/4"	2-Way	31513 9000

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Control Panel Products

Human / Machine Dialog

Section G

www.parker.com/pneu/cpp

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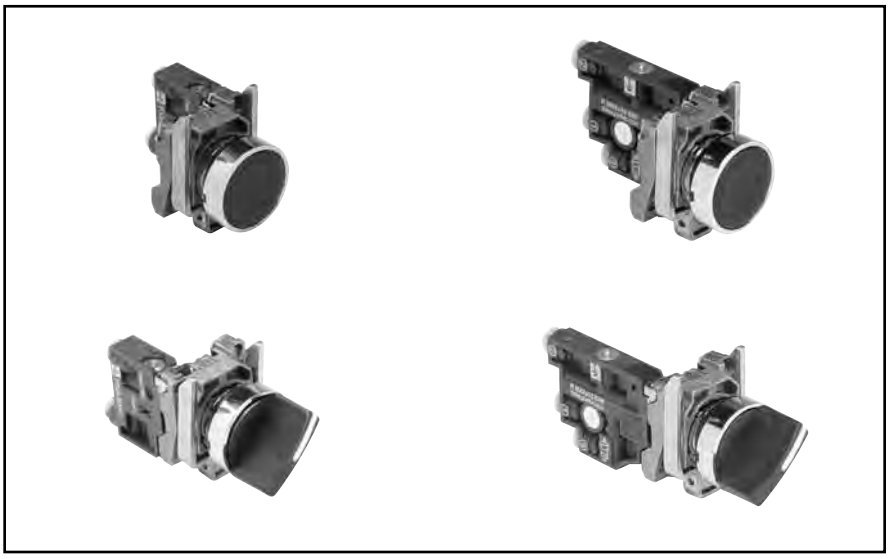
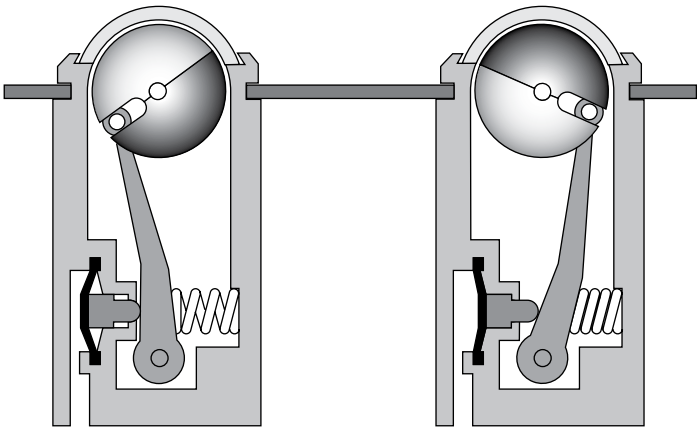
HUMAN-MACHINE DIALOG requires devices such as push buttons and selector switches to provide command inputs. A wide variety of these devices is available to meet most application needs. Both pneumatic and electrical switch bodies are available to match system technology. All of these devices use the 22 mm (7/8") mounting standard.



PNEUMATIC VISUAL INDICATORS

An indicator ball is rotated by a pneumatic input, changing the visible color. The ball sits behind a clear plastic window, providing a wide field of view. The visual indicators are available in five brightly colored Day-Glow paints for increased visibility. Like push buttons and selector switches, visual indicators use the 22mm (7/8") mounting standard.



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MODULAR PNEUMATIC / ELECTRIC PUSH BUTTONS

As with electrical contact switches, pneumatic valve modules can be mounted on a number of different operating heads.

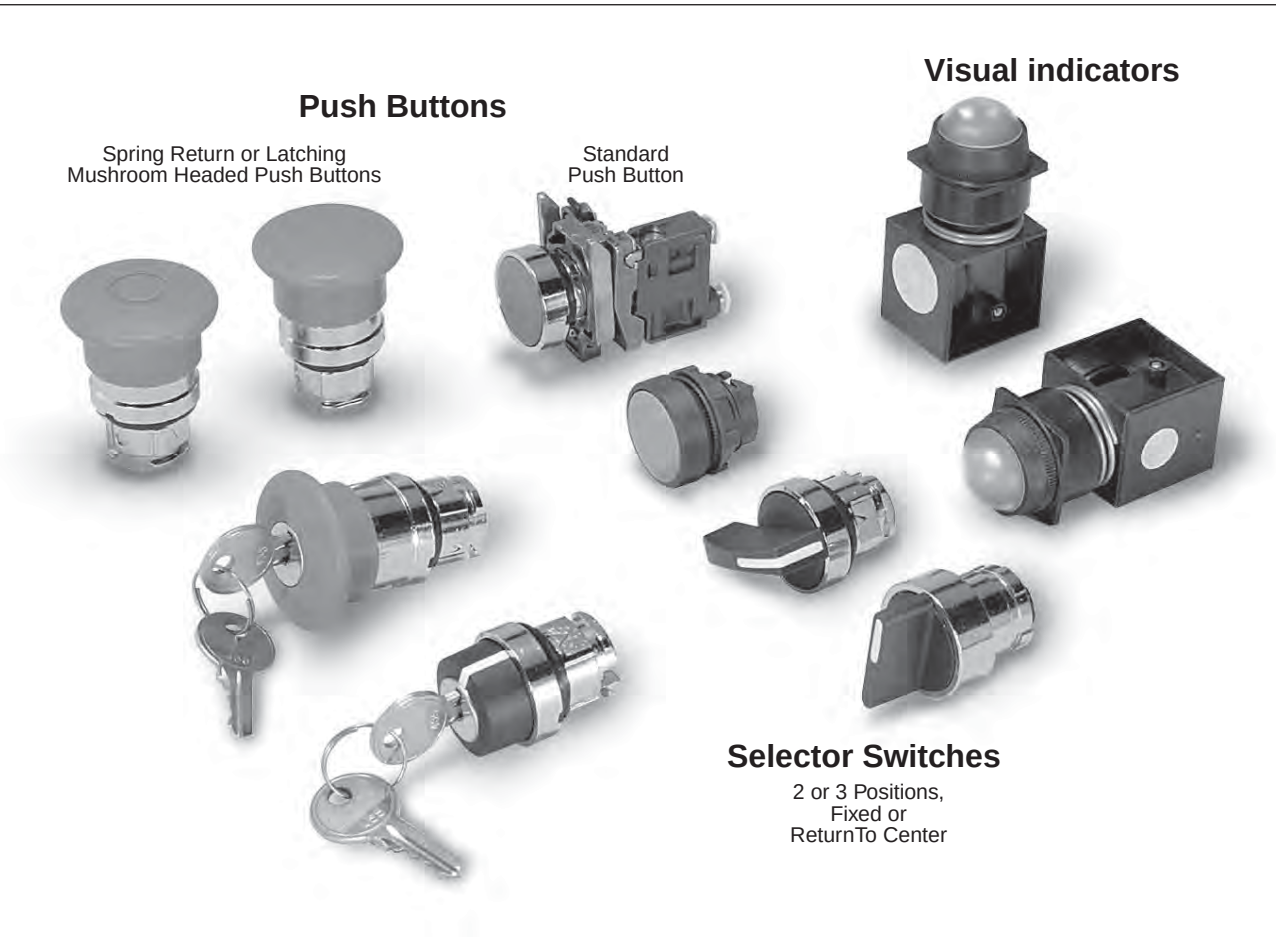
- Pneumatic normally non passing (NNP) is equivalent to electrical normally open (N.O.).
- Pneumatic normally passing (NP) is equivalent to electrical normally closed (N.C.).

Note: Electrical switches can be stacked, but the rear connection on pneumatic switches prevents stacking. Therefore, when mixing electrical and pneumatic switch bodies on the same operator, the pneumatic switch must be mounted last.

PXBB3911

PXBB4932

PXBB4931



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With 3/2 Valve Bodies 5/32" Instant Straight Connections

Flush Push Buttons

PXBB3111BA2

PXBB4131BA2

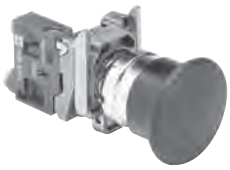
Part Number	Color	Function	Type of Switching*
PXBB3111BA2	Black	Spring Return	NNP
PXBB3111BA3	Green		
PXBB3111BA4	Red		
PXBB3251BA2	Black	Spring Return	NNP+NP
PXBB4131BA2	Black	Spring Return	Single Universal 3-Way
PXBB4131BA3	Green		
PXBB4131BA4	Red		
PXBB4231BA2	Black	Spring Return	Dual Universal 3-Way

* Type of switching: Universal 3-way: valve can be connected either as NP or NNP as required by connecting the primary air supply to port 1 or port 3.

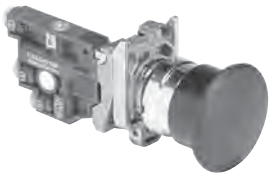
Note: Mount up to three valves on mounting ring.

Mushroom Head Push Buttons

(40mm Diameter)



PXBB3111BC2



PXBB4131BC2

Part Number	Color	Function	Type of Switching*
PXBB3111BC2	Black	Spring Return	NNP
PXBB3111BT4	Red	Push-Pul	
PXBB3121BT4	Red	Push-Pull	NP
PXBB4131BC2	Black	Spring Return	Single Universal 3-Way
PXBB4131BT4	Red	Push-Pull	

* Type of switching: Universal 3-way: valve can be connected either as NP or NNP as required by connecting the primary air supply to port 1 or port 3.

Note: Mount up to three valves on mounting ring.

Selector Switches

PXBB3111BD2

PXBB4131BD2

Part Number	Color	Function	Type of Switching*
PXBB3111BD2	Black	2 Maintained	NNP
PXBB3211BD2	Black	Positions with	NNP+NNP
PXBB3251BD2	Black	Std. Handle	NNP+NP
PXBB3211BD3	Black	3 Maintained Positions with Std. Handle	NNP+NNP
PXBB3251BD3	Black		NNP+NP
PXBB3211BJ5	Black	3 Positions, Spring Return to Center with Long Handle	NNP+NNP
PXBB4131BD2	Black	2 Maintained Positions with Std. Handle	Single Universal 3-Way
PXBB4231BD2	Black	2 Maintained Positions with Std. Handle	Dual Universal 3-Way
PXBB4231BD3	Black	3 Maintained Positions with Std. Handle	Dual Universal 3-Way
PXBB4231BJ5	Black	3 Maintained Positions with Long Handle	Dual Universal 3-Way

* Type of switching: Universal 3-way: valve can be connected either as NP or NNP as required by connecting the primary air supply to port 1 or port 3.

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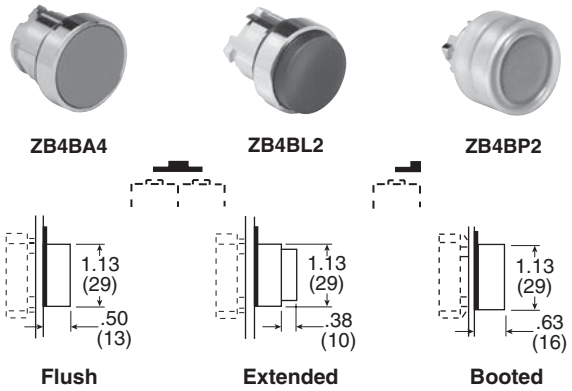
For Use With PXBB Valve Bodies and ZBE Electrical Switch Bodies

Push Buttons



Plastic Head ZB5**	Metal Head ZB4*			
Part Number	**Part Number**	**Color**	**Function**	**Description**
ZB5AA2	**ZB4BA2**	Black	Spring Return	Flush
ZB5AA3	**ZB4BA3**	Green		
ZB5AA4	**ZB4BA4**	Red		
—	ZB4BA5	Yellow		
—	ZB4BA6	Blue		
ZB5AL2	**ZB4BL2**	Black	Spring Return	Extended
ZB5AL3	**ZB4BL3**	Green		
ZB5AL4	**ZB4BL4**	Red		
—	ZB4BL5	Yellow		
—	ZB4BP2	Black	Spring Return	Booted
—	ZB4BP3	Green		
—	ZB4BP4	Red		

* ZB4*** Model Numbers are Metal Head Operators

** ZB5*** Model Numbers are Plasticl Head Operators

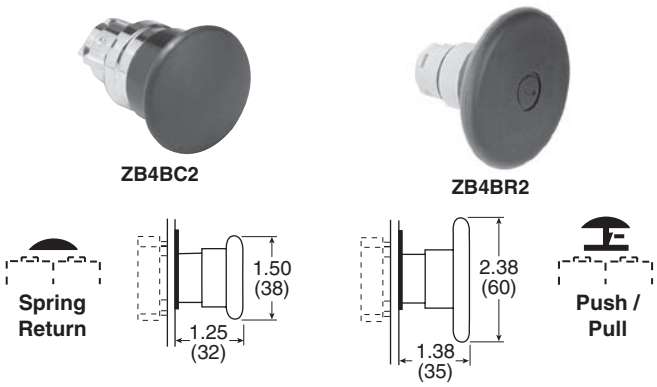
Push / Push Buttons

ZB4BH02

Part Number*	Color	Function	Description
ZB4BH02	Black	Detent 2-Position	Flush
ZB4BH03	Green		
ZB4BH04	Red		

* ZB4**** Model Numbers are Metal Head Operators

Mushroom Head Push Buttons



Part Number*	Color	Function	Description
ZB4BC2	Black	Spring Return	Ø 40mm Head
ZB4BC3	Green		
ZB4BC4	Red		
ZB4BT2	Black	Latching Push-Pull	
ZB4BT3	Green		
ZB4BT84	Red		
ZB4BR2	Black	Spring Return	Ø 60mm Head
ZB4BR3	Green		
ZB4BR4	Red		

* ZB4*** Model Numbers are Metal Head Operators

Mounting Accessories

ZB2BZ19

ZB5AZ905

Part Number	Color	Description
ZB5AZ905	—	Plastic Head (ZB5) Mounting Nut Tightening Tool
ZB2BZ19	Black Plastic	Guard for 60mm Mushroom Heads OBSOLETE

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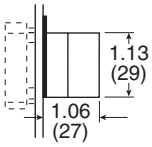
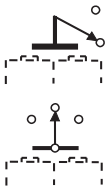
For Use With PXBB Variable Composition Switch Bodies

Selector Switches

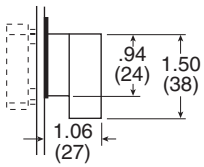
ZB4BD3

ZB4BJ3





Standard Selector

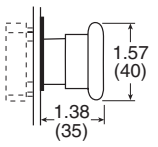


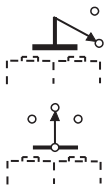
Knob Lever

Standard Black Handle		
Part Number*	**Description**	**Function**
ZB4BD2	Maintained	2-Positions
ZB4BD4	Spring Return from Right to Left	
ZB4BD3	Maintained	3-Positions
ZB4BD5	Spring Return to Center from Left and Right	
ZB4BD7	Maintained Right Spring Return from Left to Center	3-Positions
ZB4BD8	Maintained Left Spring Return from Right to Center	3-Positions
Long Black Handle		
ZB4BJ2	Maintained	2-Positions
ZB4BJ4	Spring Return from Right to Left	
ZB4BJ3	Maintained	3-Positions
ZB4BJ5	Spring Return to Center from Left and Right	

* ZB4*** Model Numbers are Metal Head Operators

Mushroom Head Push Buttons with Key Select



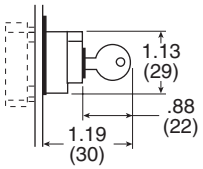


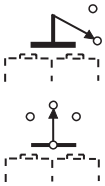
ZB4BS944

Part Number*	Color	Function	Description
ZB4BS844	Red	Latching Turn to Release	Ø 40mm Head
ZB4BS944	Red	Key Latching	

* ZB4**** Model Numbers are Metal Head Operators

Key Operated Selectors





ZB4BG2

Key Operated		
Part Number*	**Key Withdrawal**	**Function**
ZB4BG2	Left	2 Maintained Positions
ZB4BG4	Left and Right	
ZB4BG3	Center	3 Maintained Positions
ZB4BG5	Left and Right	
ZB4BG7	Center	3-Positions 2 Spring Return to Center

* ZB4*** Model Numbers are Metal Head Operators

Mushroom Head Push Buttons with Key Select

OBSOLETE

ZB4BS24

Part Number*	Color	Function	Description
ZB4BS54	Red	Latching Turn to Release	Ø 40mm Head
ZB4BS14	Red	Key Latching	
ZB4BS64	Red	Latching Turn to Release	Ø 60mm Head
ZB4BS24	Red	Key Latching	

* ZB4**** Model Numbers are Metal Head Operators

BOLD ITEMS ARE MOST POPULAR.

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For Use With 22mm (7/8") Metal Operating Heads 5/32" Instant Connections

3/2 Valve Bodies with Mounting Ring

PXBB3111B

PXBB4131B

Part Number	Connections	Function	Type of Switching*
PXBB3111B	5/32" Instant	3/2	NNP
PXBB3121B	5/32" Instant	3/2	NP
PXBB4131B	5/32" Instant	3/2	Universal 3-Way

Note: • Mount up to 3 valves on mounting ring for push buttons.
• Mount up to 2 valves on mounting ring for selector switches, Valves **cannot** be mounted in center position.

Specifications

Air Quality –
Standard Shop Air, Lubricated or Dry ..... 40 µm Filtration

Flow –
PXBB3• ..... Cv=.08
PXBB4• ..... Cv=.18

Materials –
Body ..... Polyamide
Operating Head ..... Zinc Alloy & Plastic

Operating Positions ..... All Positions

Operating Pressure –
PXBB3• ..... 15 to 115 PSIG (1 to 9 bar)
PXBB4• ..... 15 to 145 PSIG (1 to 10 bar)

Ports ..... 5/32" Instant for Semi-Rigid Nylon or Polyurethane Tube

Temperature –
Operating ..... 5°F to 140°F (-15°C to + 60°C)

Additional Valve Bodies

PXBB3911

PXBB4932

PXBB4931

Part Number	Connections	Function	Type of Switching*
PXBB3911	5/32" Instant Straight	3/2	NNP
PXBB3912	5/32" Instant Swivel		
PXBB3921	5/32" Instant Straigh	3/2	NP
PXBB3922	5/32" Instant Swivel		
PXBB4931	5/32" Instant Straight	3/2	Universal 3-Way
PXBB4932	5/32" Instant Swivel		

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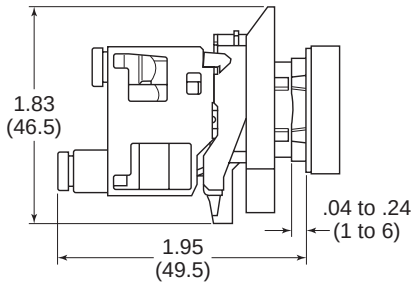
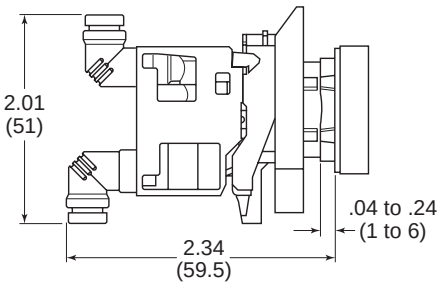
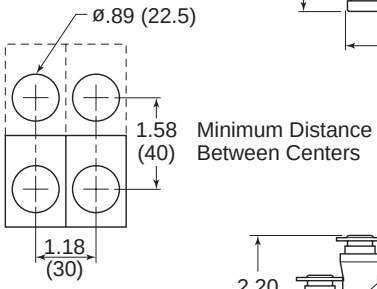
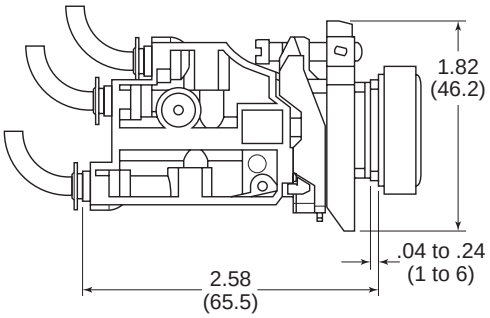
PXB-B3 Dimensions





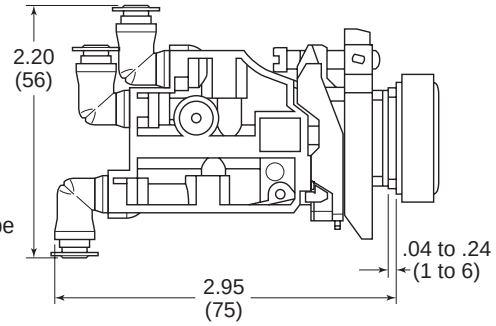


PXB-B4 Dimensions



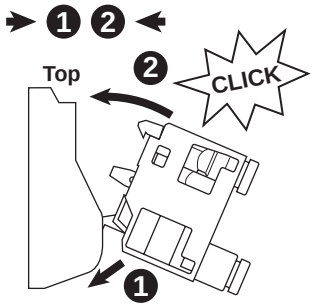
Tube Bending Radius
For PXBB3 and PXBB4

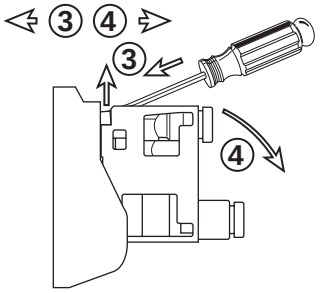
- 4 mm O.D. x 2 mm I.D. Tube = Minimum 0.39 (10) Radius
- 4 mm O.D. x 2.7 mm I.D. Tube = Minimum 0.59 (15) Radius



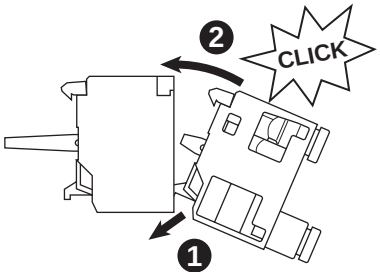
Assembly

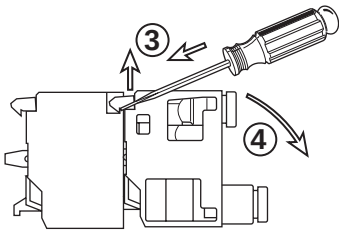
Assembling PXB Valves On Mounting Block





Assembling PXB Valves On the Back of the Electrical Contact





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For Push Buttons and Visual Indicators

Legend Plates for PXBB Devices (22mm)

ZBY••••

Part Number	Description		
Without Text For Customer Engraving			
ZBY2101	Black / Red Background (White Letters)		
ZBY4101	Yellow / White Background (Black Letters)		
With Text For Push Buttons			
ZBY2303	Start		
ZBY2304	Stop		
ZBY2305	Forward		
ZBY2306	Reverse		
ZBY2307	Up		
ZBY2308	Down		
ZBY2309	Right		
ZBY2310	Left		
ZBY2311	On		
ZBY2312	Off		
ZBY2313	Open		
ZBY2314	Close		
ZBY2321	Inch		
ZBY2323	Reset		
ZBY2326	Power On		
ZBY2327	Slow		
ZBY2328	Fast		
ZBY2330	Emergency Stop		
ZBY2334	Run		
With Text For 2-Position Selectors			
ZBY2367	Off	On	
With Text For 3-Position Selectors			
ZBY2387	Hand	Off	Auto

Blank Legend Plates for Inscription

For PXBB Devices *(2 lines of 11 characters maximum)*

Please indicate the required text when ordering.
(Allow 3 weeks for delivery)

Part Number	Description
ZBY2002	Black Background / White Letters

For 22mm Visual Indicators Only

2 lines of 11 characters maximum

Please indicate the required text when ordering.
(Allow 3 weeks for delivery)

Part Number	Description
ZB2BY2002	Black Background / White Letters

Accessories

ZBE101

Electrical Switch Bodies

When combined with pneumatic valves ,these contact blocks allow different forms of power to be provided from a single push button. Can be mounted with both types of valves PXBB3 / PXBB4.

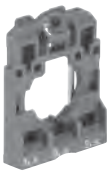
Electrical Specification: 240V, 10Amp

Part Number	Type of Contact
ZBE101	Normally Open (NO)
ZBE102	Normally Closed (NC)

Note: Plastic Mounting Ring ZB5AZ009 to be used with ZB5 Plastic Operating Heads.

Metal Mounting Ring ZB4BZ009 to be used with ZB4 Metal Operating Heads.

Metal: ZB4BZ009



Plastic: ZB5AZ009

Mounting Ring for Valve Bodies, Switch Bodies and Operating Heads

To make up a complete push button with one to three switching elements with 5/32" instant connections, use this mounting block and select the operating heads and bodies in this Section.

Part Number	Description
ZB4BZ009	Metal Mounting Ring
ZB5AZ009	Plastic Mounting Ring

To make up a complete selector switch with one or two switching elements with 5/32" instant connections, use this mounting block and select the operating heads and bodies in this Section.

Part Number	Description
ZB4BZ009	Metal Mounting Ring
ZB5AZ009	Plastic Mounting Ring

Note: To release push button from mounting ring, pull lever on top of mounting ring up and remove push button operator. To assemble push button operator to mounting ring, align arrows and snap into place.

BOLD ITEMS ARE MOST POPULAR.

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Functionality Explanation

Fluid Power			Universal Description	Electrical	
Function	Symbol			Function	Symbol
Normally Closed (N.C.)	2-Way	3-Way	Normally Non-Passing (NNP)	Normally Open (N.O.)	
Normally Open (N.O.)	2-Way	3-Way	Normally Passing (NP)	Normally Closed (N.C.)	

Type of Switching: Universal 3-Way: Valve can be connected either as NP or NNP as required by connecting the primary air supply to port 1 or port 3.

NP 3 2 NNP 1 2

NNP: Normally Non-Passing.

NP: Normally Passing.

NNP + NNP: Double Switch Body, Both Normally Non-Passing.

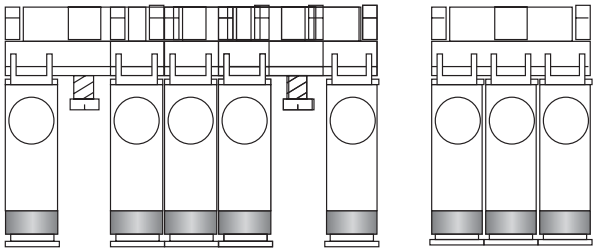
NNP + NP: Normally Non passing and Normally-Passing.

NP + NP: Both Normally Passing.

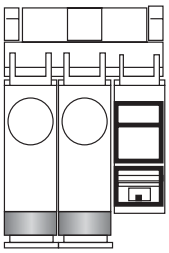
Combination of Output Devices On a Single Mounting Block

Up to 3 output devices (valves or electrical contacts) can be mounted side by side on 1 mounting block.

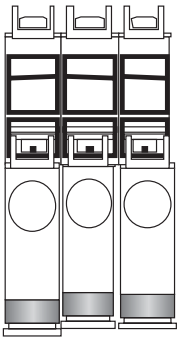
Note: The central position can only be activated by push button heads.



Electrical Contacts and Valves can be Combined Either Side by Side, or by Mounting the Valve on the Back of the Electrical Contact.

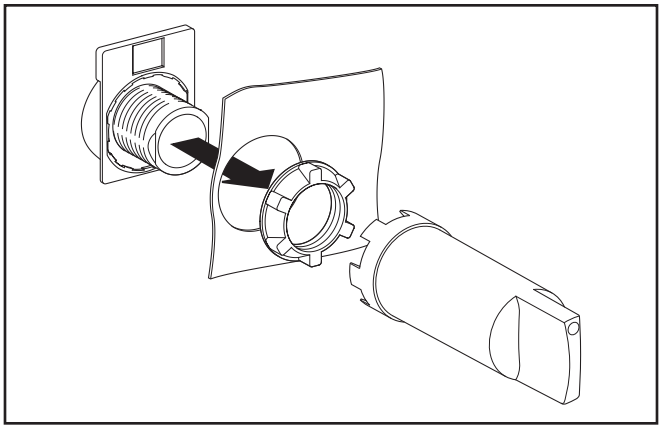


Side by Side Combination

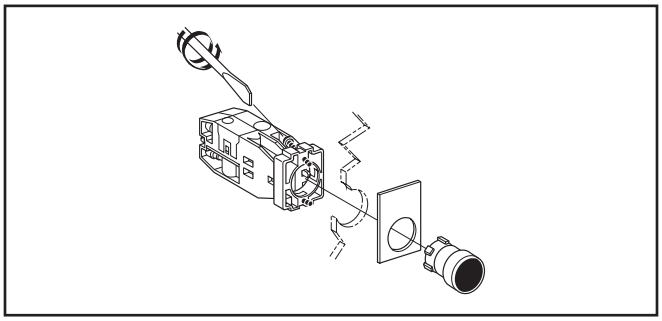


Combination by Mounting Valves On the Back of the Electrical Contact

Assembling Output Devices and Heads On ZB5 Series Mounting Block



Replacement Old Style Mounting



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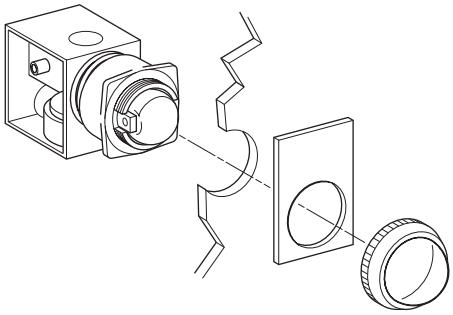
With 5/32" Instant Connections

22mm Visual Indicators

PXVF131



Mounting

Black Plastic Bezel		
Part Number "ON" Indicator	**Part Number "OFF" Indicator**	**Color**
PXVF131	**PXVF1213**	Green
PXVF141	**PXVF1214**	Red
PXVF151	**PXVF1215**	Yellow
PXVF161	**PXVF1216**	Blue
PXVF111	**PXVF1211**	White

Notes:

- The Pneumatic Indicators are black in one position and colored in the other. The colored position corresponds either to the presence of a pressure ("ON" Indicator) or the absence of pressure ("OFF" Indicator).
- For Legend Plates, see page G9.

Specifications

Air Quality –
Standard Shop Air, Lubricated or Dry, 40µm Filtration

Materials –
Body..... Polyamide
Operating Head..... Zinc Alloy & Plastic

Number of Operations with Dry Air at 90 PSI (6 bar) and 68°F (20°C) - Frequency 1 Hz..... 1 million Operations
Mushroom Head ..... 300,000 Operations

Operating Positions..... All Positions

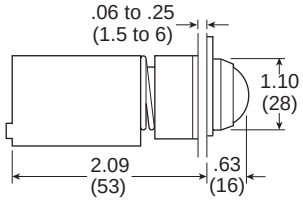
Operating Pressure ..... 15 to 115 PSIG (1 to 8 bar)

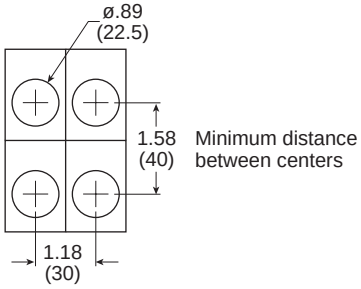
Ports –
Standard .....5/32" Instant for Semi- Rigid Nylon or Polyurethane Tube
10-32 UNF Available

Temperature –
Operating .....32°F to 122°F (0°C to + 50°C)
Storage ..... -22°F to 140°F (-30°C to +60°C)

Dimensions

PXVF1• •





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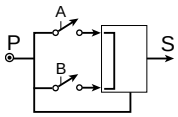
Features

- The pre-assembled two-hand control enclosure occupies both hands of an operator by requiring nearly simultaneous operation of two pushbuttons
- Poppet – snap-acting (no spools)
- Same air as in cylinders – Filtration: 40 micron
- No lubrication required

PXPC111

Part Number	Connections
PXPC111	5/32" Instant

Operation



- Output "S" will appear only if "A" and "B" are simultaneously operated (within .5 seconds or less of each other).
- If the operator actuates only one pushbutton, either "A" or "B", or if both "A" and "B" are actuated but at an interval greater than .5 seconds, output "S" will not appear.
- Output "S" is regenerated by supply "P". Output "S" will therefore disappear if supply "P" is cut off.
- Output "S" will disappear if either "A" or "B" is released.
- If output "S" disappears for any reason, "A" and "B" must be nearly simultaneously actuated to again provide output "S".
- Since output "S" is regenerated it appears sharply, at full force (snap-acting), and is quickly exhausted upon deactivation. In addition the module is not affected by the length or diameter of tubing used for output "S".

General Characteristics

Operating Pressure .....40 to 120 PSI (3 to 8 bar)

Permissible Fluids –
Air or neutral gas 40 micron filtration, lubricated or dry

Flow at 90 PSI (6 bar) ..... 7 SCFM (200 l/mn ANR)

Operating Temperature .....-5°F to 140°F (-15°C to 60°C)
Below 40°F (5°C), an air dryer is required

Storage Temperature.....-40°F to 160°F (-40°C to 70°C)

Number of operations with dry air at 90 PSI (6 bar), 68°F (20°C), frequency 1 Hz..... 1 Million Operations

Vibration resistance –
Conforms to section 19-2 of bureau Véritas regulations (November 1987)

Materials –
Body.....Glass Filled Nylon
Operating Head ..... Zinc Alloy and Plastic

Connections:..... 5/32" instant

Mounting

Approvals:

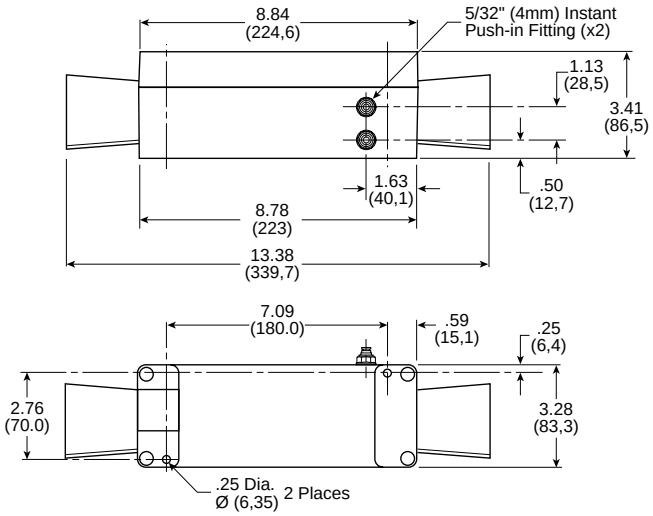
- In accordance with European Standard EN 574 - September 1996
- Conforms to the model that has obtained CE Type Test Certificate No. 02526 520 4631 0397

⚠ WARNING

These devices should NOT be used in any application involving rotary clutch presses. Two hand control modules do not of themselves insure the safety of any machine. Users and original equipment manufacturers are responsible for making sure that installations meet all relevant safety regulations.

Dimensions

Inches (mm)



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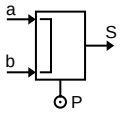
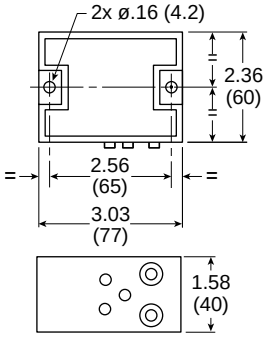
Two-Hand Control Module



PXPA11

Part Number	Connections
PXPA11	5/32" Instant

Dimensions



PXPA11

Specifications

Air Quality –
Standard Shop Air, Lubricated or Dry, 40µm Filtration
Flow at 90 PSI (6 bar) in SCFM (l/mn ANR) 7 (200)
Materials –
Body..... Polyamide
Operating Head..... Zinc Alloy & Plastic
Nominal Bore Ø in Inches (mm)..... 7/64" (2.5)
Number of Operations with Dry Air at 90 PSI (6 bar) and 68°F (20°C) - Frequency 1 Hz ..... 1 million Operations
Operating Positions..... All Positions
Operating Pressure ..... 40 to 115 PSIG (3 to 8 bar)
Ports –
5/32" Instant for Semi-Rigid Nylon or Polyurethane Tube
Temperature –
Operating ..... 32°F to 122°F (0°C to + 50°C)
Storage ..... -22°F to 140°F (-30°C to + 60°C)
Vibration resistance:
Conforms to section 19-2 of bureau Véritas regulations (November 1987)

⚠ WARNING

These devices should NOT be used in any application involving rotary clutch presses. Two hand control modules do not of themselves insure the safety of any machine. Users and original equipment manufacturers are responsible for making sure that installations meet all relevant safety regulations.

Notes: These two-hand control modules provide an output signal upon nearly concurrent operation of two pushbuttons.

Two-Hand Control Module Guard

PPRL15

Part Number	Base Component
PPRL15	PXPC111

Two Hand Repair Parts

Part Number	Quantity Required	Description
PXPA11	1	Control Module
PXBB3111B	2	Valve Body & Mounting Ring
ZB4BR*	2	Push Button
PPRL15	2	Control Module Guard

* 2 = Black, 3 = Green, 4 = Red

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Notes

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Sensing

Pneumatic Control Components

Section G

www.parker.com/pneu/limsen

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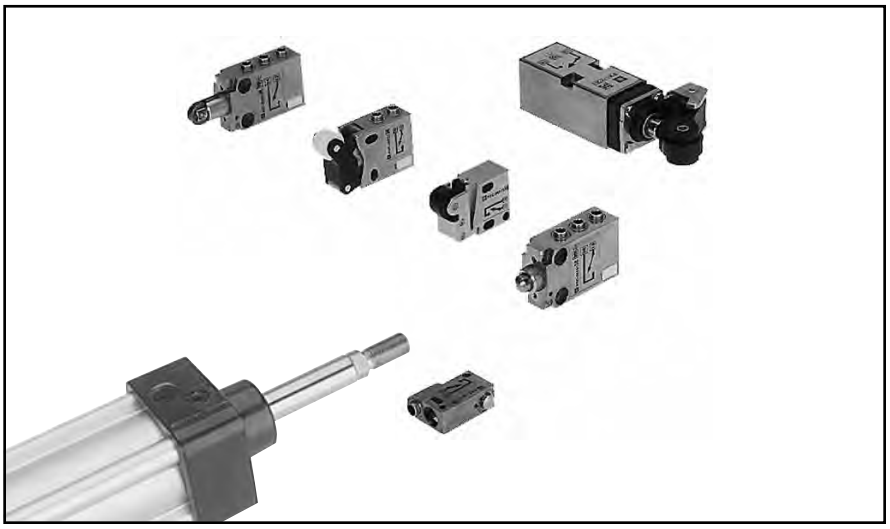
To achieve the sensing or feedback function, pneumatic sensors can be:

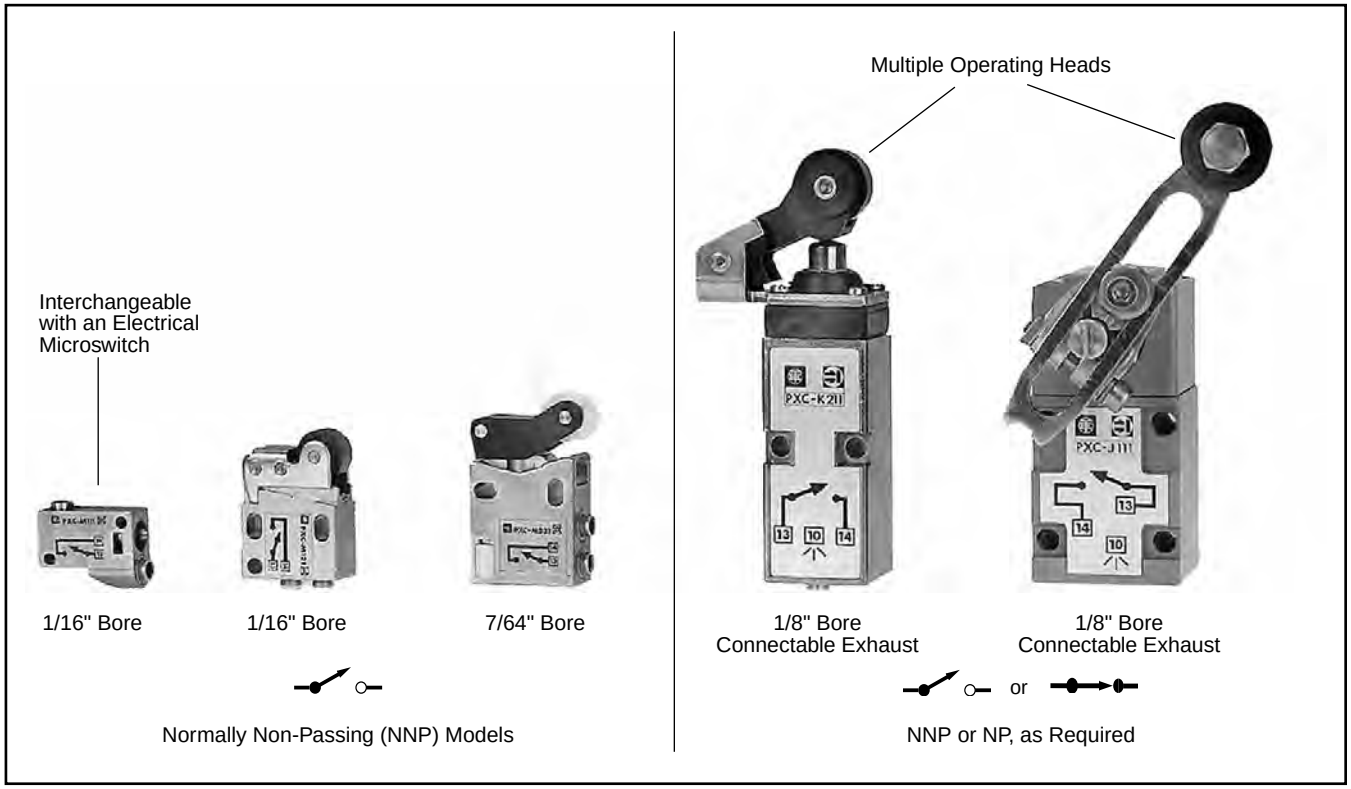
- Limit Switches in a Variety of Sizes and Configurations
- Pressure Switches with Many Adjustable Ranges
- Components Designed Specifically for Pneumatic Technology using Pressure Variation, Air Bleed or Blocking for Detection.

A wide variety of pneumatic sensors are available to suit any application requirement.



PNEUMATIC LIMIT SWITCHES

Pneumatic limit switches are non-passing (NNP) or passing (NP) when actuated by a moving part. The various operating levers, bore dimensions and functions are given below.



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Direct Acting Limit Switches

1/16" I.D. Internal Orifice

PXCM111

PXCM121

Part Number	Connection	Actuator	Type of Switching*
PXCM111	5/32" Instant	Steel Plunger Operating Levers Available (See Below)	NNP
PXCM115	10-32 UNF		
PXCM121	5/32" Instant	Plastic Roller	NNP
PXCM125	10-32 UNF		

7/64" I.D. Internal Orifice

PXCM521

Part Number	Connection	Actuator	Type of Switching*
PXCM521	5/32" Instant	Plastic Roller	NNP

Actuators For Steel Plunger

PXCZ11

Use with PXCM11*

Part Number	Actuator
PXCZ11	Plastic Roller Lever
PXCZ12	Plastic Roller Lever, One Way Trip

* NNP: Normally Non-Passing.

Specifications

Air Quality –
Standard Shop Air, Lubricated or Dry, 40µm Filtration

Flow SCFM (Nl/min) –
PXCM111 ..... 2.2 (60)
PXCM121 ..... 3.0 (85)
PXCM521 ..... 8.8 (250)

Materials –
Body ..... Zinc Alloy
Poppets ..... Polyurethane
Seals ..... Nitrile (Buna N)

Maximum Operating Frequency ..... 5 Hz

Nominal Bore Ø –
PXCM111, PXCM121 ..... 1/16" (1.5 mm)
PXCM521 ..... 7/64" (2.5 mm)

Number of Operations with Dry Air at 90 PSI (6 bar) and 68°F (20°C) – Frequency 1 Hz ..... 10 Million

Operating Positions ..... All Positions

Operating Pressure ..... 40 to 115 PSIG (3 to 8 bar)

Ports –
5/32" Instant for Semi-Rigid Nylon or Polyurethane Tube
10-32 UNF Available

Temperature –
Operating ..... 32°F to 122°F (0°C to + 50°C)
Storage ..... -22°F to 140°F (-30°C to + 60°C)

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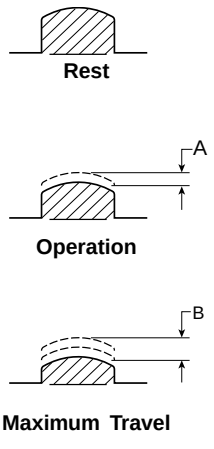
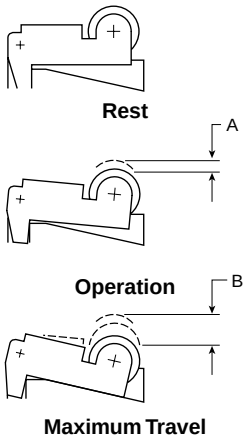
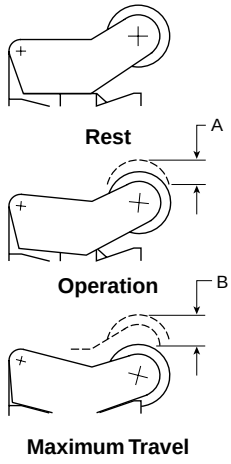
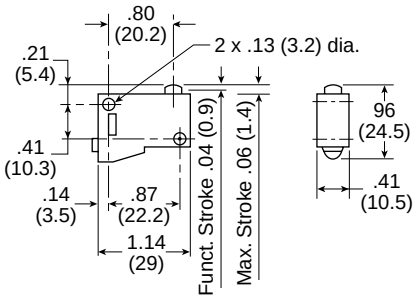
Operator Specifications

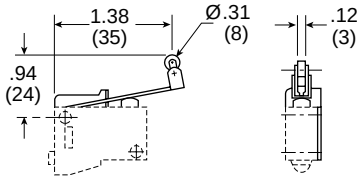
	PXCM111	PXCM121	PXCM521
Differential Travel at 90 PSI (6 bar)	.006" (0.15 mm)	.012" (0.3 mm)	.020" (0.5 mm)
Maximum Travel (B) at 90 PSIG (6 bar)	.055" (1.4 mm)	.126" (3.2 mm)	.228" (5.8 mm)
Minimum Pre-Travel (A) at 90 PSIG (6 bar)	.035" (0.9 mm)	.079" (2 mm)	.087" (2.2 mm)
Minimum Operating Force at 90 PSI (6 bar)	2.5 lb (11 N)	1.0 lb (4.5 N)	1.6 lb (7 N)
Operating Diagram			

Dimensions

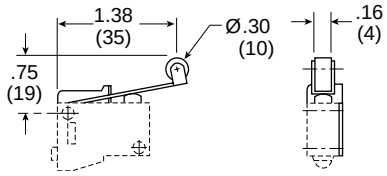
PXCM111



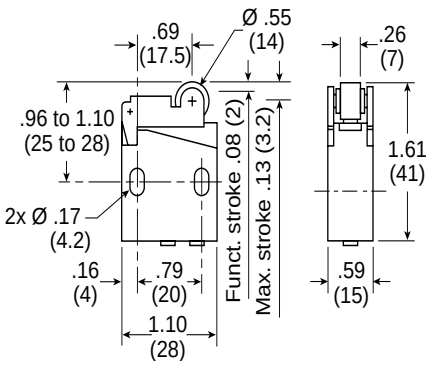
PXCZ12



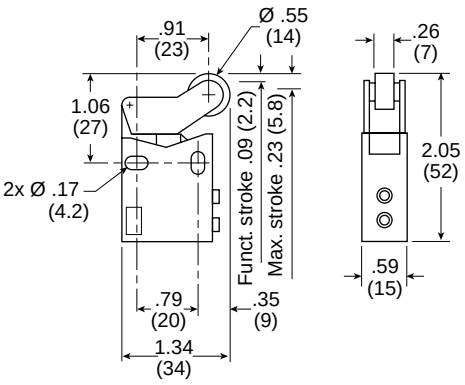
PXCZ11



PXCM121, PXCM131



PXCM521



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Pilot Operated Compact Limit Switches

5/32" Instant Connections
Pipeable Exhaust Port
7/64" I.D. Internal Orifice

PXCM601A110

PXCM601A102

PXCM601A103

Part Number	Actuator	Type of Switching*
PXCM601A110	Steel Plunger Operating Levers Available (See Below)	NNP
PXCM601A102	Steel Roller Plunger	
PXCM601A103	90° Steel Roller Plunger	

Specifications

Air Quality –
Standard Shop Air, Lubricated or Dry, 40µm Filtration

Flow SCFM (Nl/min) 8.8 (250)

Materials –
Body ..... Zinc Alloy
Poppets ..... Polyurethane
Seals ..... Nitrile (Buna N)

Maximal Operating Frequency ..... 5 Hz

Nominal Bore Ø ..... 7/64" (2.5 mm)

Number of Operations with Dry Air at 90 PSI (6 bar) and 68°F (20°C) – Frequency 1 Hz ..... 10 Million

Operating Positions ..... All Positions

Operating Pressure ..... 40 to 115 PSIG (3 to 8 bar)

Ports –
5/32" Instant for Semi-Rigid Nylon or Polyurethane Tube

Temperature –
Operating ..... 32°F to 122°F (0°C to + 50°C)
Storage ..... -22°F to 140°F (-30°C to + 60°C)

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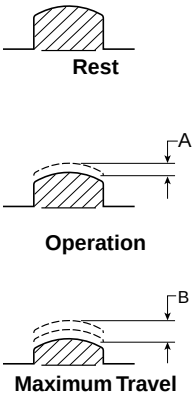
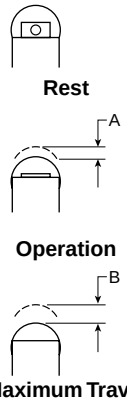
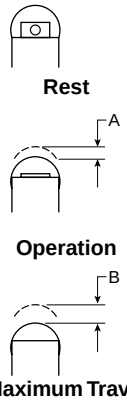
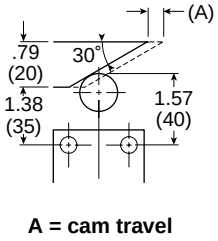
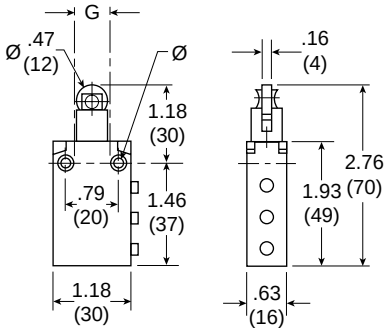
Operator Specifications

	PXCM601A110	PXCM601A102	PXCM601A103	PXCM601A110 + XCMZ24
Differential Travel at 90 PSI (6 bar)	.012" (0.3 mm)	.008" (0.2 mm)	.020" (0.5 mm)	.047" (1.2 mm) (A)
Maximum Travel (B) at 90 PSIG (6 bar)	.197" (5 mm)	.197" (5 mm)	.197" (5 mm)	—
Minimum Pre-Travel (A) at 90 PSIG (6 bar)	.066" (1.7 mm)	.066" (1.7 mm)	.066" (1.7 mm)	.370" (9.4 mm) (A)
Minimum Operating Force at 90 PSI (6 bar)	5.4 lbf (24 N)	5.2 lbf (23 N)	5.2 lbf (23)	4.3 lbf (19)
Operating Diagram				

Dimensions

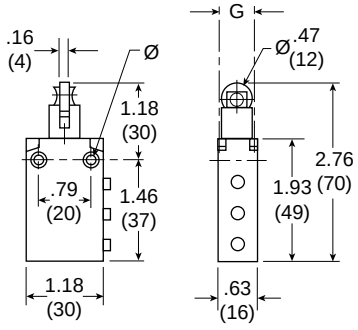
PXCM601A102



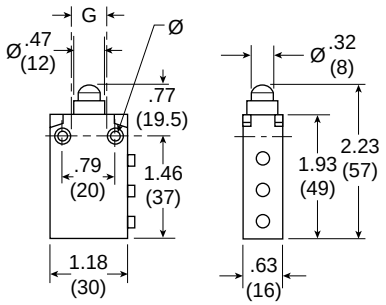
Ø:
2 mounting holes Ø .17" (4.3)
2 countersunk Ø .32" (8.2)
depth 4 mm

G:
top mounting holes, 2 x M5
.71" (18 mm) centers

PXCM601A103



PXCM601A110



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Limit Switches

Plunger Operated

5/32" Instant Connections
Pipeable Exhaust Port
1/8" I.D. Internal Orifice


PXCK21101


PXCK21102


PXCK21121


PXCK21106

Complete Assemblies		
Part Number	**Actuator**	**Type of Switching***
PXCK21101	Steel Plunger	NNP
PXCK22101		NP
PXCK21102	Steel Roller Plunger	NNP
PXCK22102		NP
PXCK21121	Plastic Roller Plunger	NNP
PXCK22121		NP
PXCK21106	Cats Whisker	NNP
PXCK22106		NP

Roller Operated

5/32" Instant Connections
Pipeable Exhaust Port
1/8" I.D. Internal Orifice


PXCK2110031

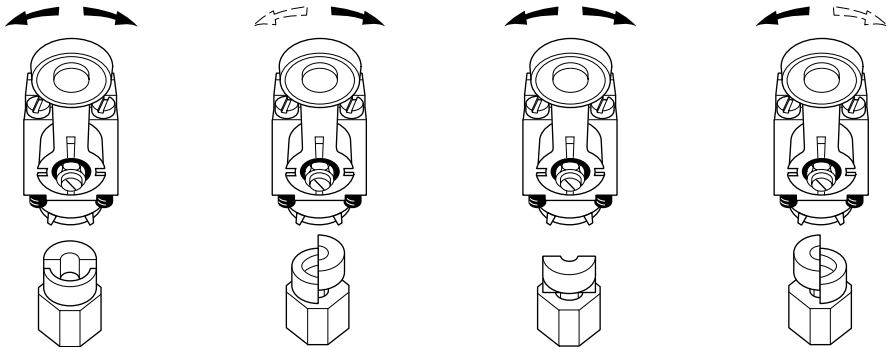

PXCK2110041

With Die Cast Rotary Operating Head and Operating Lever - Complete Assemblies		
Part Number	**Actuator**	**Type of Switching***
PXCK2110031	Fixed Delrin Roller Lever Multi-Function Head Actuates: - From Right and Left - From Right - From Left	NNP
PXCK2210031		NP
PXCK2110041	Adjustable Delrin Roller Lever Multi-Function Head Actuates: - From Right and Left - From Right - From Left	NNP
PXCK2210041		NP

NNP: Normally Non-Passing 

NP: Normally Passing

Field Conversion of Rotary Operating Head



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Separate Pneumatic Switch Bodies

PXCK211

Part Number	Actuator	Type of Switching*
PXCK211	For Use with ZCK Series Operating Heads	NNP
PXCK221		NP

Pneumatic Switch Bodies with Rotary Heads

PXCK21100

Part Number	Actuator	Type of Switching*
PXCK21100	Multi-Function Head Actuates: - From Right and Left - From Right - From Left	NNP
PXCK22100		NP

Operating Heads
For Use With PXCK Switch Bodies

ZCKG00

Part Number	Actuator	Description
Rotary Operated		
ZCKG00	—	Die Cast Zinc
Plunger Operated		
ZCKD02	Roller Plunger	Plunger Operated
ZCKD06	Whisker	
ZCKD10	Rod Plunger	
ZCKD21	Delrin Roller Lever On Plunger	
ZCKD23	Steel Roller Lever On Plunger	

Operating Levers for Rotary Heads

ZCKY81

ZCKY91

For Use With Rotary Head ZCKG00		
Part Number	**Actuator**	**Description**
ZCKY51	Steel 1/8" Square	Rod Levers
ZCKY52	Fiberglas 1/8" Dia. Round	
ZCKY81	Plastic Spring Rod Lever	
ZCKY91	Metal Spring Rod Lever	
ZCKY11	Delrin Roller Lever	Roller Levers
ZCKY13	Steel Roller Lever	
ZCKY41	Adjust. Delrin Roller Lever	
ZCKY43	Adjust. Steel Roller Lever	

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Specifications

Air Quality –
Standard Shop Air, Lubricated or Dry, 40µm Filtration

Flow SCFM (Nl/min) 7.4 (210)

Materials –
Body ..... Zinc Alloy
Poppets ..... Polyurethane
Seals ..... Nitrile (Buna N)

Maximal Operating Frequency ..... 5 Hz

Nominal Bore Ø ..... 1/8" (3 mm)

Number of Operations with Dry Air at 90 PSI (6 bar) and 68°F (20°C) – Frequency 1 Hz ..... 10 Million

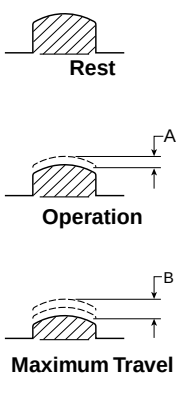
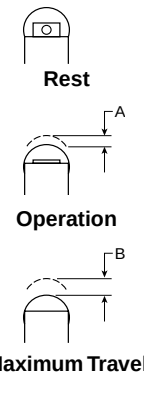
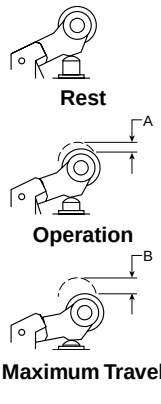
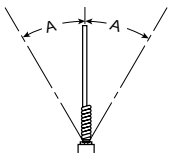
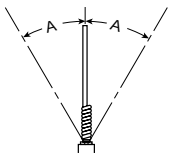
Operating Positions ..... All Positions

Operating Pressure ..... 40 to 115 PSIG (3 to 8 bar)

Ports –
5/32" Instant for Semi-Rigid Nylon or Polyurethane Tube

Temperature
Operating ..... 32°F to 122°F (0°C to + 50°C)
Storage ..... -22°F to 140°F (-30°C to +60°C)

Operator Specifications

	PXCK2••01	PXCK2••02	PXCK2••03	PXCK2••06	PXCK2••00 + Actuator
Differential Angle	—	—	—	12°	3°
Differential Travel	.008" (0.2 mm)	.008" (0.2 mm)	.008" (0.2 mm)		
Maximum Angle of Travel	—	—	—	—	80°
Maximum Travel (B) at 90 PSIG (6 bar)	.228" (5.8 mm)	.228" (5.8 mm)	.228" (5.8 mm)	—	—
Minimum Pre-Travel (A) at 90 PSIG (6 bar)	.087" (2.2 mm)	.087" (2.2 mm)	.102" (2.6 mm)	—	—
Minimum Operating Force at 90 PSI (6 bar)	3.6 lbf (16N)	4.5 lbf (20N)	3.4 lbf (15N)	—	—
Minimum Operating Torque at 90 PSI (6 bar)	—	—	—	17.0 oz in (120mNm	29.8 oz in (210mNm)
Operating Angle	—	—	—	35°	31° (Minimum Lever Travel Including Pre-Travel Required For Operation)
Operating Diagram					

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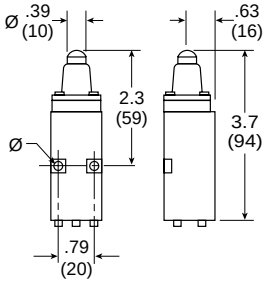
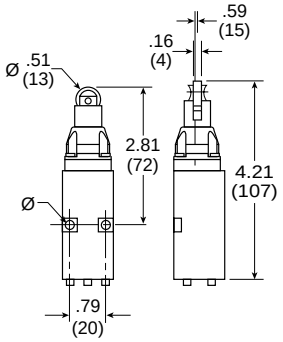
Dimensions

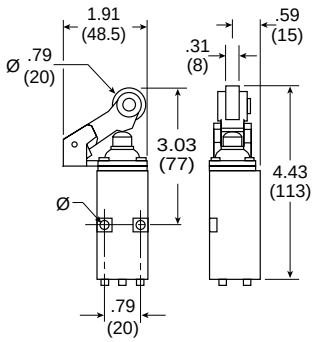
PXCK21101, PXCK22101



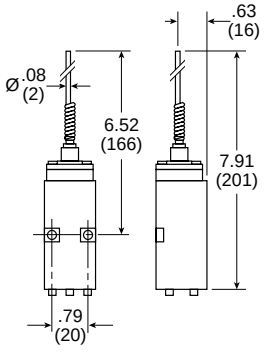
PXCK21102, PXCK22102



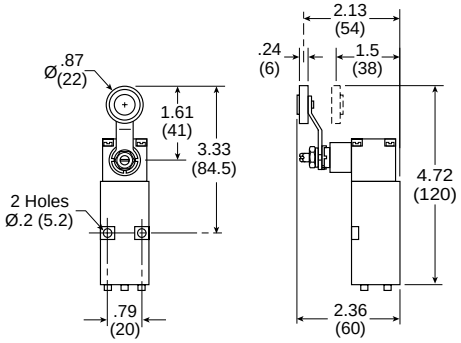
PXCK21121, PXCK22121



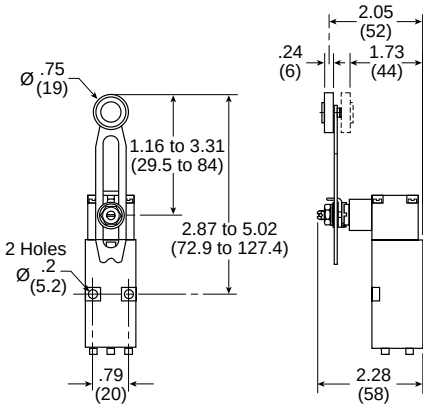
PXCK21106, PXCK22106



PXCK2110031, PXCK2210031

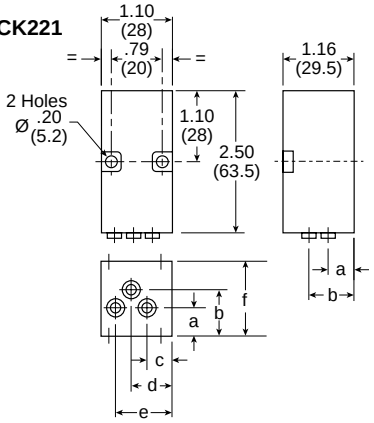


PXCK2110041, PXCK2210041



Pneumatic Switch Bodies

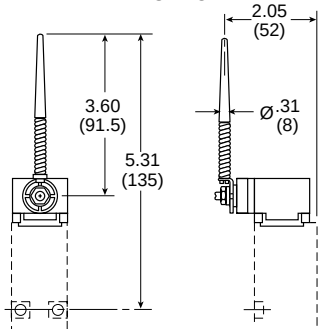
PXCK211, PXCK221



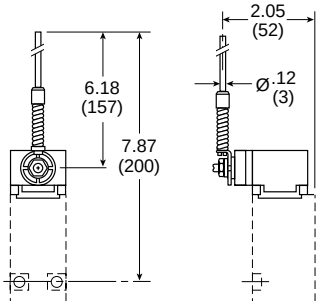
	inch	mm
a	.39	10
b	.77	19.5
c	.35	9
d	.61	15.5
e	.87	22
r	1.66	29.5

Rotary Heads with Operating Levers

ZCKY81



ZCKY91



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Switch Bodies Only

PXCJ117

Part Number	Type of Switching*
PXCJ117	NNP
PXCJ127	NP

Switch Bodies with Rotary Head

PXCJ11701

Part Number	Direction of Actuation	Type of Switching*
PXCJ11701	Right & Left, Spring Return	NNP
PXCJ11705	Right or Left, Spring Return	
PXCJ12701	Right & Left, Spring Return	NP
PXCJ12705	Right or Left, Spring Return	

Operating Levers for Rotary Heads

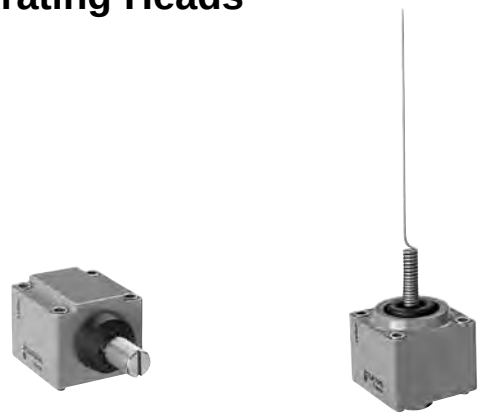
ZC2JY11 **ZC2JY31** **ZC2JY81** **ZC2JY91**

Die Cast Zinc. For Use With PXCJ Switch Bodies		
Part Number	**Operator**	**Description**
ZC2JY11	Delrin Roller	Spring Return
ZC2JY13	Steel Roller	
ZC2JY21	Offset Delrin Roller	
ZC2JY81	Plastic Spring Rod	
ZC2JY91	Metal Spring Rod	
ZC2JY31	Delrin Roller	Adjustable Roller
ZC2JY41	Offset Delrin Roller	
ZC2JY51		Rod Lever
ZC2JY71	Single Track, Delrin Roller	Fork Lever
ZC2JY61	Double Track, Delrin Rollers	

NNP: Normally Non-Passing

NP: Normally Passing

Top Plunger & Rotary Operating Heads



ZC2JE70 **ZC2JE01**

Die Cast Zinc. For Use With PXCJ Switch Bodies		
Top Plunger Type		
Part Number	**Operation**	**Description**
ZC2JE61	Top Push	Spring Return
ZC2JE62	Top Roller Push	
ZC2JE63	Side Push	
ZC2JE70	Cat's Whisker	
Rotary Type		
ZC2JE01	From Left & Right	Spring Return
ZC2JE02	Counterclockwise From Right	
ZC2JE03	Clockwise From Left	
ZC2JE05	From Left or Right	
ZC2JE09	Maintained Positions	

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Specifications

Air Quality –
Standard Shop Air, Lubricated or Dry, 40µm Filtration

Flow SCFM (Nl/min)..... 7.4 (210)

Materials –
Body..... Zinc Alloy
Poppets.....Polyurethane
Seals..... Nitrile (Buna N)

Maximal Operating Frequency ..... 5 Hz

Nominal Bore Ø .....1/8" (3 mm)

Number of Operations with Dry Air at 90 PSI (6 bar) and 68°F (20°C) – Frequency 1 Hz..... 10 Million

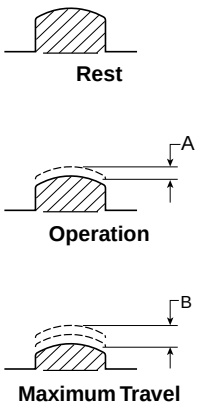
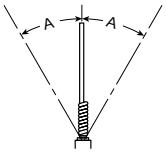
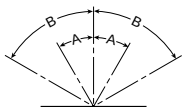
Operating Positions..... All Positions

Operating Pressure ..... 40 to 115 PSIG (3 to 8 bar)

Ports ..... 1/8" NPT

Temperature –
Operating .....32°F to 122°F (0°C to + 50°C)
Storage ..... -22°F to 140°F (-30°C to +60°C)

Operator Specifications

	ZC2JE61	ZC2JE62	ZC2JE70	ZC2JE01	ZC2JE05
Differential Angle	—	5°	5°	2°	2°
Differential Travel at 90 PSI (6 bar)	.008" (0.2 mm)	—	—	—	—
Maximum Angle of Travel	—	—	—	75°	75°
Maximum Travel (B) at 90 PSIG (6 bar)	228" (5.8 mm)	—	—	—	—
Minimum Pre-Travel (A) at 90 PSIG (6 bar)	.059" (1.5 mm)	—	—	—	—
Minimum Operating Force at 90 PSI (6 bar)	3.6 lbf (16N)	—	—	—	—
Minimum Operating Torque at 90 PSI (6 bar)	7.1 oz in (50Nm)	35.4 oz in (250Nm)	35.4 oz in (250Nm)	35.4 oz in (250Nm)	—
Operating Angle (Minimum Lever Travel Including Pre-Travel Required For Operation)	—	23°	23°	12°	12°
Operating Diagram					

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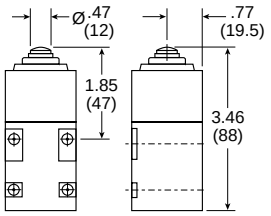
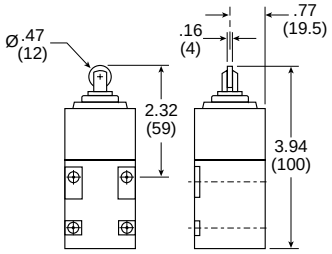
Switch Body With Plunger Heads

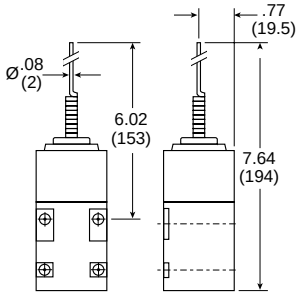
With ZC2JE61



With ZC2JE62

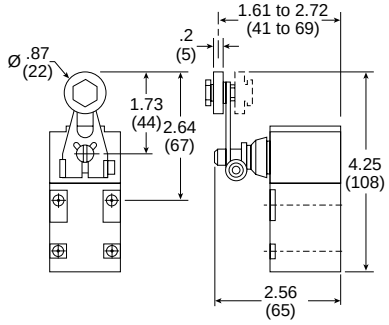


With ZC2JE70

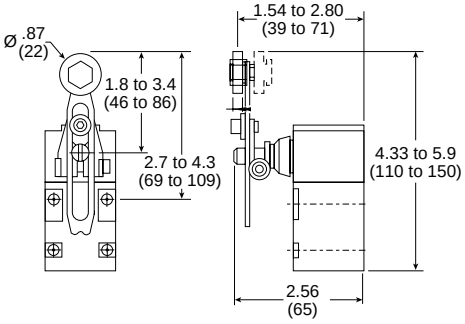


Switch Body With Rotary Heads and Operating Levers

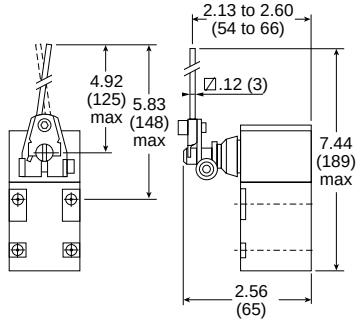
With ZC2JY11



With ZC2JY31

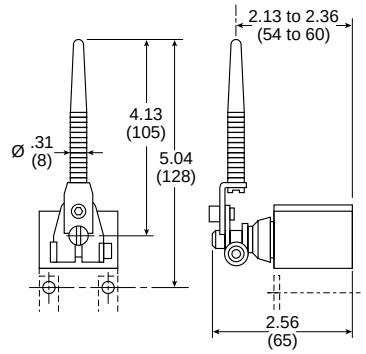


With ZC2JY51

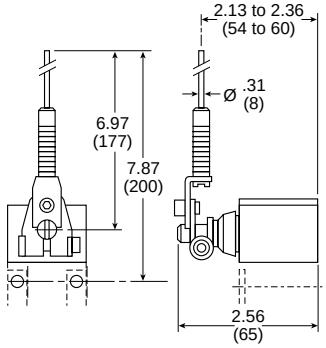


Rotary Heads With Operating Levers

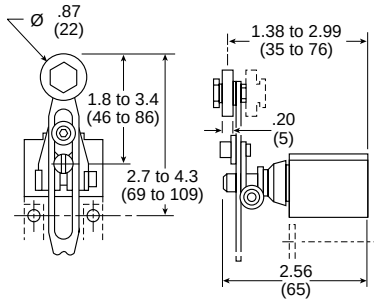
ZC2JY81



ZC2JY91

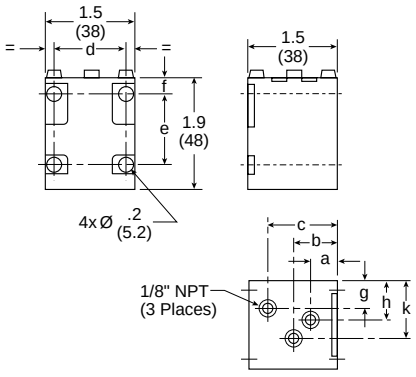


ZC2JY41



Pneumatic Switch Bodies

PXCJ117, PXCJ127



	inch	mm
a	.47	12
b	.75	19
c	1.16	29.5
d	1.14 to 1.18	29 to 30
e	1.18	30
f	.28	7
g	.43	11
h	.51	13
k	.94	24

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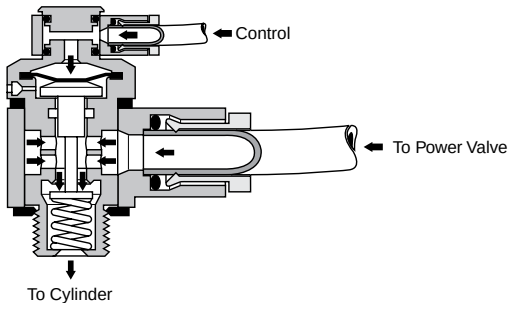
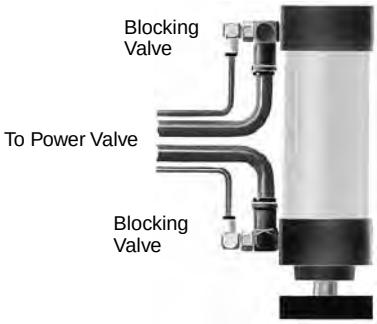
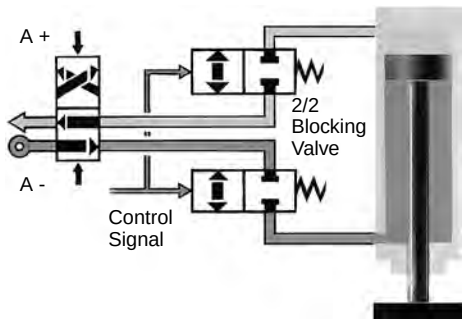
Blocking Valves

The blocking valve is a single acting spring return 2/2 valve in a fitting format. The device requires a pneumatic pilot signal to open, which allows free flow of air or neutral gas. As long as a pilot signal is present, the device will remain open. When the pilot signal is removed, the internal spring will close the blocking valve, bubble tight.

These devices have two primary design uses: (1) to prevent unwanted gravity induced motion in cylinders during shut down procedures or during periods of lost supply pressure and (2) freezing the cylinder position by using a blocking valve at each end of the cylinder. Application needs such as tool or work piece protection, horizontal indexing or inspection stops are often satisfied by these devices.







PWBA General Characteristics

Operating Pressure	0 to 150 PSI
Permissible Fluids	Air or neutral gas, 50 µm filtration, lubricated or not
Operating Temperature	5° to 140°F (-15° to 60°C)
Storage Temperature	-40° to 160°F (-40° to 70°C)
Flow	See page w15
Mechanical Life	10 Million
Maximum Operating Frequency	10Hz
Material: Body	Zinc alloy
Mounting Screw	Brass
Maximum Mounting Torque: 10-32 UNF and M5	88 inch pounds
1/8"	70 inch pounds
1/4"	105 inch pounds
3/8"	265 inch pounds
1/2"	310 inch pounds
Adjustment	N/A
Adjustment Locking	N/A

Piloting and De-Piloting Pressure

Blocking Valve Sizes	**Pilot with Operating Pressure of:**			
	30 PSI	**60 PSI**	**90 PSI**	**120 PSI**
1/8" BSP or NPT	33 PSI	40 PSI	45 PSI	50 PSI
1/4" BSP or NPT	33 PSI	40 PSI	45 PSI	50 PSI
3/8" BSP or NPT	35 PSI	40 PSI	45 PSI	50 PSI
1/2" BSP or NPT	45 PSI	50 PSI	55 PSI	60 PSI
Blocking Valve Sizes	**Depilot with Operating Pressure of:**			
	30 PSI	**60 PSI**	**90 PSI**	**120 PSI**
1/8" BSP or NPT	20 PSI	25 PSI	30 PSI	34 PSI
1/4" BSP or NPT	20 PSI	25 PSI	30 PSI	34 PSI
3/8" BSP or NPT	20 PSI	25 PSI	30 PSI	34 PSI
1/2" BSP or NPT	25 PSI	30 PSI	34 PSI	40 PSI

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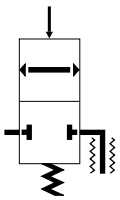
For Cylinder Mounting
(Can also be mounted in Threshold Sensor Banjo)

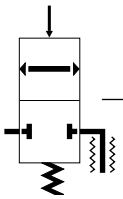
With Instant Tube Fittings

PWBA3469

BSP					NPT			
Symbol	Connection for Pilot	Cylinder Port Thread (Male)	Connection for Tube	Catalog Number	Connection for Pilot	Cylinder Port Thread (Male)	Connection for Tube	Catalog Number
	4mm Tube	1/8"	6mm	PWBA1468	5/32" Tube	1/8"	1/4"	PWBA3468
		1/4"	6mm	PWBA1469		1/4"	1/4"	PWBA3469
		1/4"	8mm	PWBA1489				
		3/8"	8mm	PWBA1483		3/8"	3/8"	PWBA3493
		3/8"	10mm	PWBA1493				
		1/2"	12mm	PWBA1412		1/2"	1/2"	PWBA3412

With Threaded Connections and Tube Pilot Port

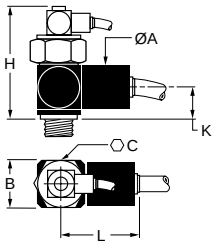
PWBA3833

BSP					NPT			
Symbol	Connection for Pilot	Cylinder Port Thread (Male)	Connection from Valve (Female)	Catalog Number	Connection for Pilot	Cylinder Port Thread (Male)	Connection from Valve (Female)	Catalog Number
	4mm Tube	1/8"	1/4"	PWBA1898	5/32" * Tube	1/8"	1/8"	PWBA3888
		1/4"	1/4"	PWBA1899		1/4"	1/4"	PWBA3899
	M5 Female	3/8"	3/8"	PWBA1833	5/32" * Tube	3/8"	3/8"	PWBA3833
		1/2"	1/2"	PWBA1822		1/2"	1/2"	PWBA3822

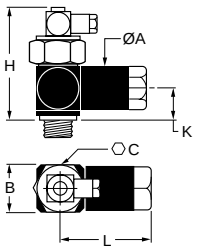
* Instant fitting

With Threaded Connections and Threaded Pilot Port

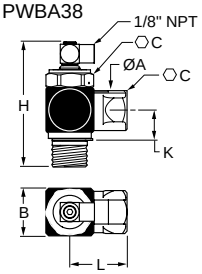
PWBA14/34



PWBA18/38



PWBA38



NPT			
Connection for Pilot	Cylinder Port Thread (Male)	Connection from Valve	Catalog Number
1/8" pipe	1/8"	1/8"	PWBA38887
	1/4"	1/4"	PWBA38997
	3/8"	3/8"	PWBA38337
	1/2"	1/2"	PWBA38227

Dimensions: Inches (mm)

	Flow*	ØA	B	C	K	H	L
PWBA1468/3468	14.8	0.86" (22)	0.82" (21)	0.94" (24)	0.53" (13.5)	2.32" (59)	1.54" (39)
PWBA1469/3469 PWBA1489	19.4	0.86" (22)	0.82" (21)	0.94" (24)	0.53" (13.5)	2.09" (53)	1.54" (39)
PWBA1483 PWBA1493/3493	45.9	1.06""(27)	1.10" (28)	0.94" (24)	0.55" (14)	2.09" (53)	1.98" (50)
PWBA1412/3412	81.2	1.22" (31)	1.30" (33)	1.30" (33)	0.94" (24)	2.59" (66)	2.59" (66)
PWBA1898/3888	14.8	0.86" (22)	0.82" (21)	0.94" (24)	0.53" (13.5)	2.32" (59)	1.71" (43.5)
PWBA1899/3899	19.4	0.86" (22)	0.82" (21)	0.94" (24)	0.53" (13.5)	2.09" (53)	1.71" (43.5)
PWBA1833/3833	45.9	1.06" (27)	1.10" (28)	0.94" (24)	0.55" (14)	2.09" (53)	2.18" (55)
PWBA1822/3822	81.2	1.22" (31)	1.30" (33)	1.30" (33)	0.94" (24)	2.59" (66)	2.47" (63)
PWBA38887	14.8	0.75" (19)	0.87" (22)	0.83" (21)	0.67" (17)	2.20" (56)	1.73" (44)
PWBA38997	19.4	0.75" (19)	0.87" (22)	0.83" (21)	0.67" (17)	2.20" (56)	1.73" (44)
PWBA38337	45.9	1.06" (27)	1.18" (30)	1.06" (27)	0.91" (23)	2.64" (67)	1.42" (36)
PWBA38227	81.2	1.06" (27)	1.18" (30)	1.06" (27)	0.91" (23)	2.64" (67)	1.42" (36)

*SCFM at 90 PSI

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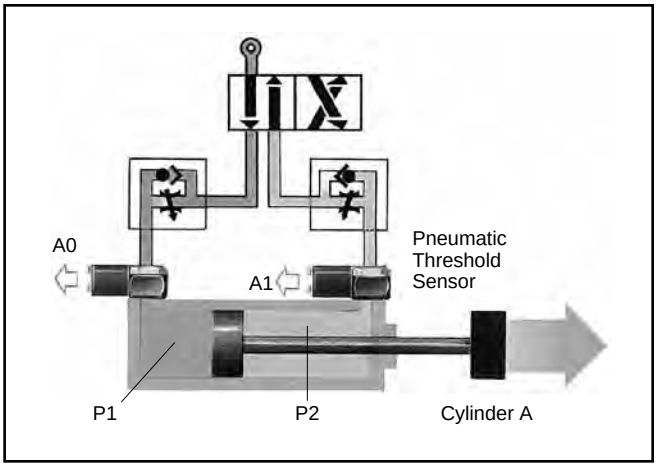
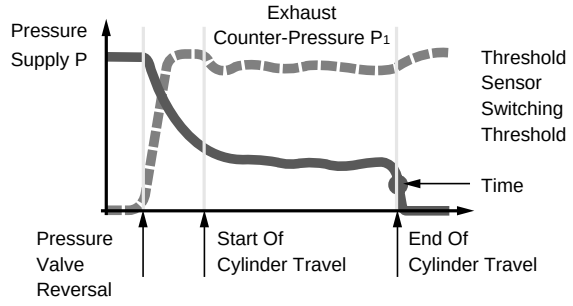
General Description

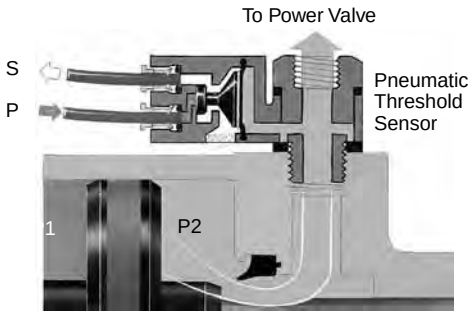
Threshold Sensors – PWS

The plug-in threshold sensors provide feedback information on pneumatic cylinder status in one of three possible outputs . . . pneumatic, electric, or electronic. Mounted into the cylinder port, these devices monitor the back pressure of the cylinder's exhaust. When the cylinder's piston stops, the back pressure rapidly drops and the threshold sensor provides the desired output. Ideal for variable stroke applications such as robotics where other sensor type devices such as limit switches are impractical, these devices provide a signal whenever the cylinder stops motion.

The threshold sensor consists of two complementary sub assemblies (1) the banjo fitting and (2) the plug-in sensor element. In all cases, the sensor is easily plugged into the banjo fitting and locked in place with a spring clip. The banjo fitting is designed to accept (piggy backed) other functional fittings such as flow controls or blocking valves. Simply select the sensor based on the type feedback signal that best fits the application.







PWS General Characteristics

Operating Pressure	0 to 150 PSI
Permissible Fluids	Air or neutral gas, 50 µm filtration, lubricated or not
Operating Temperature	5° to 140°F (-15° to 60°C)
Storage Temperature	-40° to 160°F (-40° to 70°C)
Flow	N/A
Mechanical Life	10 Million
Maximum Operating Frequency	10Hz
Material: Body	Thermoplastic
Mounting Screw	Brass
Maximum Mounting Torque: 10-32 UNF and M5	88 inch pounds
1/8"	70 inch pounds
1/4"	105 inch pounds
3/8"	265 inch pounds
1/2"	310 inch pounds
Adjustment	N/A
Adjustment Locking	N/A

Piloting and De-Piloting Pressure

Threshold Sensors	Pilot with Operating Pressure of 90 PSI	Depilot with Operating Pressure of 90 PSI
PWSP111	64 PSI	6 PSI
PWSM1012	15 PSI	9 PSI
PWSE101 and PWSE111	10 PSI	7 PSI

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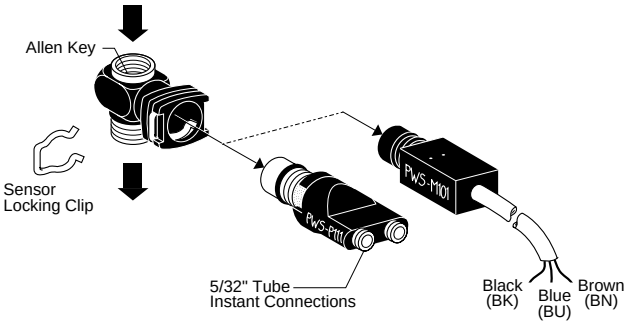
Model Selection

Banjo Sockets (with Sensor Clip)		
Port Size	**Model Number**	**Wrench**
10-32	**PWSB1557**	5/16" Hex
1/8"	**PWSB1887**	3/16" Allen
1/4"	**PWSB1997**	5/16" Allen
3/8"	**PWSB1337**	3/8" Allen
1/2"	**PWSB1227**	1/2" Allen

Plug-in Sensors		
Output	**Model Number**	**Connection**
Pneumatic	**PWSP111**	5/32" push-in
Electrical	**PWSM1012**	3-wire cable (6 ft)

Application

The threshold sensor provides electrical or pneumatic feedback information on pneumatic (air) cylinder status. These devices monitor the back pressure of the cylinder's exhausting chamber. When the cylinder stops, the back pressure drops and the threshold sensor provides the desired output. Ideal for variable stroke applications. The banjo fitting and the feedback element are two separate subassemblies, giving the user flexibility between electrical and pneumatic outputs as feedback.

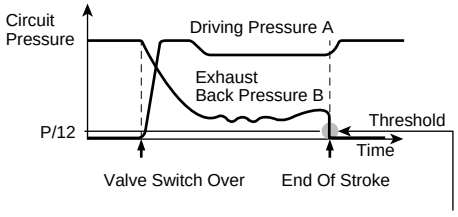


Mounting

Banjo fittings in 10-32 to 1/2" pipe sizes are designed to be installed directly into actuator ports (up to 5" bore cylinders). The banjo fitting can accommodate other functional fittings and components such as right angle flow control valves or blocking valves. Banjo fittings screw into actuators using an Allen wrench or 5/16" hex head wrench for 10-32 size. Electrical or pneumatic feedback element snaps into place using a locking clip.

Operation

Pneumatic sensors have a continuous pressure signal applied to the sensor device. Electrical sensors have a continuous electrical signal applied to the sensor device. The threshold sensor assembly mounted directly into the cylinder Port provides an output signal S, which can be pneumatic or electrical, when the falling back pressure in the exhausting chamber of the cylinder reaches the operating threshold (approximately 6-9 PSIG). (The device is a normally passing device. The output is only on when there is nearly zero pressure at the cylinder.)



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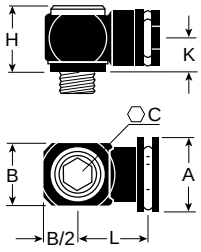
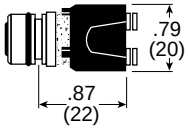
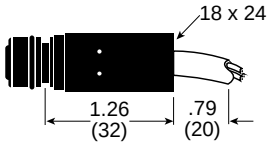
Dimensions



Banjo Socket



PWSP111



PWSM1012

Model	A	B	C	H	K	L
PWSB1557	.98 (25)	.43 (11)	5/16" Hex	.79 (20)	.40 (10)	.67 (17)
PWSB1887	.98" (25)	.63 (16)	3/16" Allen	.71 (18)	.40 (10)	.79 (20)
PWSB1997	.98 (25)	.83 (21)	5/16" Allen	.71 (18)	.40 (10)	.87 (22)
PWSB1337	.98 (25)	1.10 (28)	3/8" Allen	.79 (20)	.47 (12)	.98 (25)
PWSB1227	.98 (25)	1.30 (33)	1/2" Allen	.93 (24)	.55 (14)	1.02 (26)

inches
(mm)

Specifications

Operating Pressure ..... 0 to 150 PSIG (0 to 10 bar)

Temperature Range .....5°F to 140°F (-15°C to 60°C)

⚠ ***CAUTION:*** **If it is possible that the ambient temperature may fall below freezing, the medium must be moisture free to prevent internal damage or unpredictable behavior.**

Maximum Operating Frequency ..... 10 Hz

Pilot Pressure (PWSP111) ..... >64 PSIG (4.4 bar)

Threshold Pressure ..... 6 to 9 PSIG (.4 to .6 bar)

Output Flow Rate (PWSP111) .....3 SCFM at 90 PSIG

Current Rating (PWSM1012) –
5 VA, 250 VAC
5W, 48 VAC

Materials –
Body ..... Thermoplastic
Mounting Screw & Threads ..... Brass

Life Expectancy –
10 million cycles with dry air at 90 PSIG, 68°F, and 1 Hz operating frequency

Voltage Range (PWSM1012) –
12 - 240 VAC
12 - 48 VDC

Fluid Power			Universal Description	Electrical	
Function	Symbol			Function	Symbol
Normally Closed (N.C.)	2-Way	3-Way	Normally Non-Passing (NNP)	Normally Open (N.O.)	
Normally Open (N.O.)	2-Way	3-Way	Normally Passing (NP)	Normally Closed (N.C.)	

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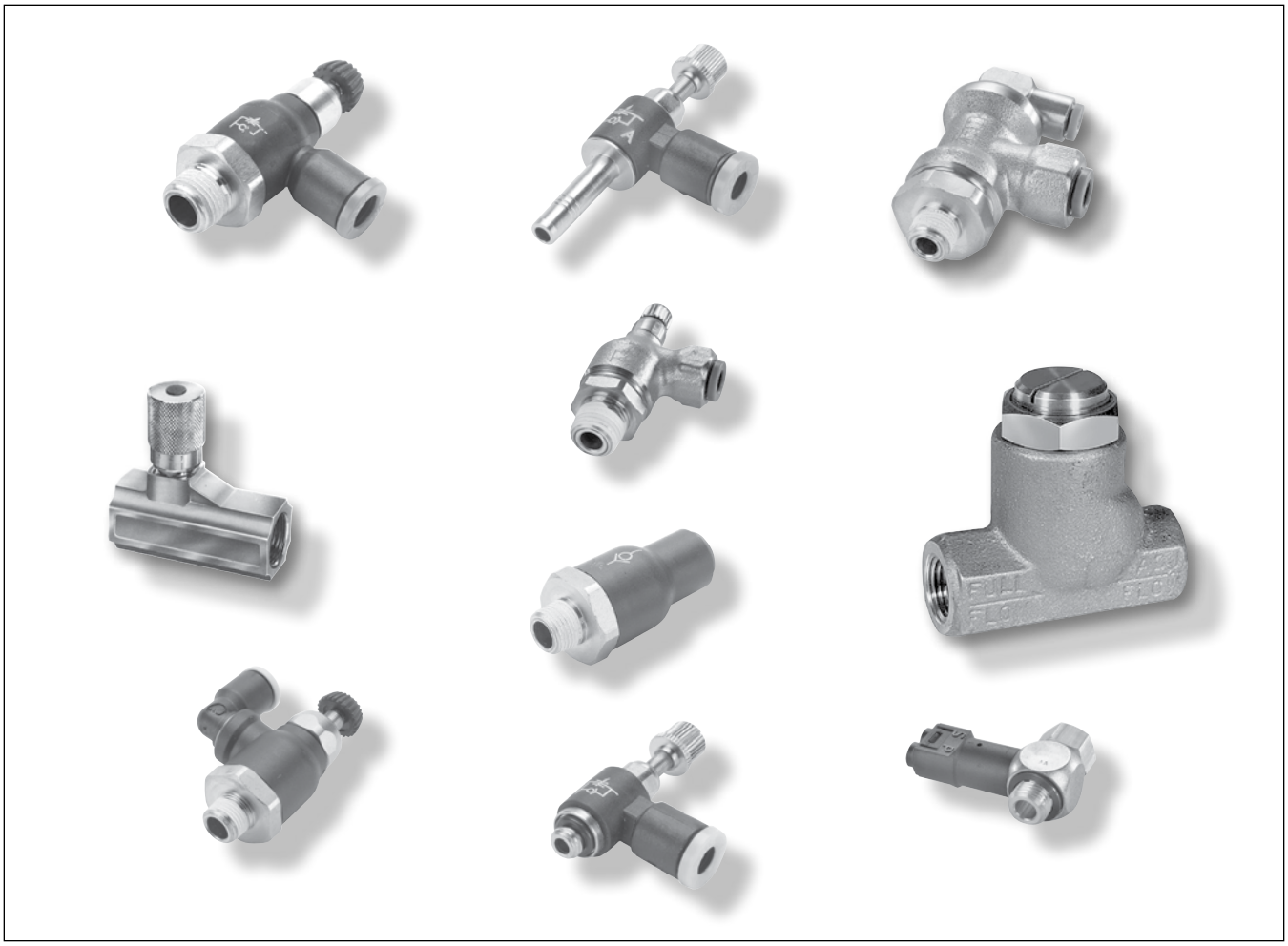
Integrated Fittings

Section G



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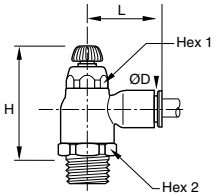
Materials Of Construction	
Body (Depending upon the Model):	• Glass reinforced nylon 6.6 • Brass
Gripping Ring:	Stainless Steel
Adjustment Screws	Nickel-plated brass
Locking Nut:	Nickel-plated brass
Base:	Nickel-plated brass

Nomenclature	
Example:FCC731-4-2	**Attribute:**
FC	Flow control
C	Compact
7	Right angle
3	Nylon body
1	Tube x Pipe
4	1/4 Tube O.D.
2	1/8 Pipe thread

Applicable Tube	
Tube O.D.	1/8, 5/32, 1/4, 3/8
Tube O.D. (mm)	4, 6, 8, 10, 12

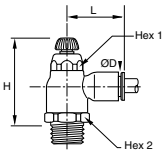
Specifications	
Pressure Range:	15 to 145 PSI
Temperature Ranges:	30° to 160°F
Working Fluid:	Compressed air

Compact flow control regulators ensure excellent performance of flow and are perfectly suited for reduced spaces due to their small size. The sensitivity of the adjustment screw provides very precise air flow control and regulation. A locking nut guarantees stability of adjustment against vibration tampering of the flow setting.



FCC731 Compact Meter Out

Part No.	Tube Size (In)	NPT	Hex 1 (In)	Hex 2 (In)	H Open	H Closed	L
FCC731-5/32-2	5/32	1/8	0.63	0.39	1.67	1.44	0.85
FCC731-5/32-4	5/32	1/4	0.63	0.39	1.67	1.44	0.85
FCC731-4-2	1/4	1/8	0.63	0.39	1.67	1.44	0.85
FCC731-4-4	1/4	1/4	0.63	0.39	1.67	1.44	0.85
FCC731-6-4	3/8	1/4	0.91	0.67	2.03	1.71	1.22
FCC731-6-6	3/8	3/8	0.91	0.67	2.03	1.71	1.22



FC731 Compact Meter Out - BSPP

Part No.	Tube Size (mm)	BSPT	Hex 1 (mm)	Hex 2 (mm)	H Closed	H Open	L
FC731-4M-2G	4	1/8	10	16	38.0	44.0	22.0
FC731-6M-2G	6	1/8	10	16	38.0	44.0	22.0
FC731-6M-4G	6	1/4	10	16	36.5	42.5	22.0
FC731-8M-2G	8	1/8	14	19	41.5	48.0	28.0
FC731-8M-4G	8	1/4	14	19	41.5	48.0	28.0
FC731-8M-6G	8	3/8	14	19	41.5	48.0	28.0
FC731-10M-4G	10	1/4	17	23	45.5	53.5	31.5
FC731-10M-6G	10	3/8	17	23	45.5	54.0	31.5
FC731-12M-6G	12	3/8	17	23	45.5	54.0	35.0
FC731-12M-8G	12	1/2	17	24	45.5	54.0	35.0

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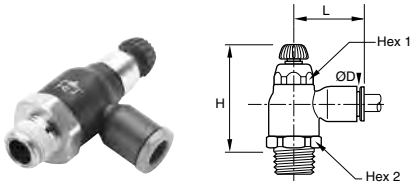
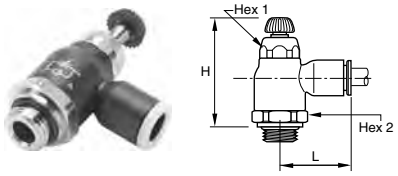


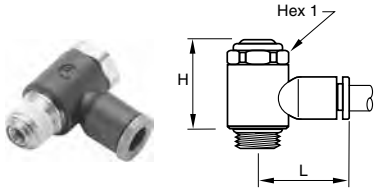
FCCB731 Compact Bi-Directional Flow Control

Part No.	Tube Size (In)	NPT	Hex 1 (In)	Hex 2 (In)	H Open	H Closed	L
FCCB731-5/32-2	5/32	1/8	0.63	0.39	1.67	1.44	0.85
FCCB731-4-2	1/4	1/8	0.63	0.39	1.67	1.44	0.85
FCCB731-4-4	1/4	1/4	0.63	0.39	1.67	1.44	0.85



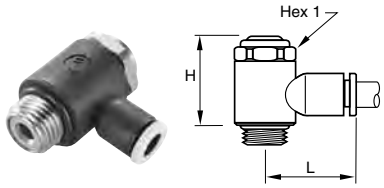
FCCB731 Compact Bi-directional Flow Control - BSPP

Part No.	Tube Size (mm)	BSPP	Hex 1 (mm)	Hex 2 (mm)	H Closed	H Open	L
FCCB731-4M-2G	4	1/8	10	16	38.0	44.0	22.0
FCCB731-6M-2G	6	1/8	10	16	38.0	44.0	22.0
FCCB731-6M-4G	6	1/4	10	16	36.5	42.5	22.0
FCCB731-8M-2G	8	1/8	14	19	41.5	48.0	28.0
FCCB731-8M-4G	8	1/4	14	19	41.5	48.0	28.0
FCCB731-8M-6G	8	3/8	14	19	41.5	48.0	28.0



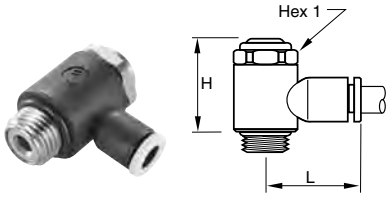
FCKC731 Knobless Meter Out Flow Control

Part No.	Tube Size (In)	NPT / UNF	Hex 1 (mm)	H	L
FCKC731-2-0	1/8	10-32		0.69	0.65
FCKC731-2-2	1/8	1/8	13	0.79	0.75
FCKC731-5/32-0	5/32	10-32		0.69	0.65
FCKC731-5/32-2	5/32	1/8	13	0.79	0.75
FCKC731-4-0	1/4	10-32		0.69	0.77
FCKC731-4-2	1/4	1/8	13	0.79	0.85
FCKC731-4-4	1/4	1/4	17	1.04	0.89
FCKC731-5-2	5/16	1/8	13	0.79	1.02
FCKC731-5-4	5/16	1/4	17	1.04	1.06
FCKC731-6-4	3/8	1/4	17	1.04	1.14
FCKC731-6-6	3/8	3/8	20	1.14	1.36



FCKC731 Knobless Compact Flow Control - BSPP

Part No.	Tube Size (mm)	BSPP / M5	Hex 1 (mm)	H	L
FCKC731-4M-M5	4	M5X0.8	8.0	17.5	17.0
FCKC731-4M-2G	4	1/8	13.0	25.0	19.0
FCKC731-6M-M5	6	M5X0.8	8.0	17.5	19.0
FCKC731-6M-2G	6	1/8	13.0	25.0	21.0
FCKC731-6M-4G	6	1/4	17.0	26.5	22.0
FCKC731-8M-2G	8	1/8	13.0	25.0	26.0
FCKC731-8M-4G	8	1/4	17.0	26.5	27.0
FCKC731-8M-6G	8	3/8	20.0	37.5	29.0
FCKC731-10M-4G	10	1/4	17.0	26.5	29.0
FCKC731-10M-6G	10	3/8	20.0	37.5	31.0
FCKC731-10M-8G	10	1/2	23.0	43.0	37.0
FCKC731-12M-6G	12	3/8	20.0	37.5	6.8
FCKC731-12M-8G	12	1/2	23.0	43.0	37.0



FCKCB731 Knobless Bi-directional Flow Control - BSPP

Part No.	Tube Size (mm)	BSPP / M5	Hex 1 (mm)	H	L
FCKCB731-4M-M5	4	M5X0.8	8	17.5	17.0
FCKCB731-4M-2G	4	1/8	13	25.0	19.0
FCKCB731-6M-M5	6	M5X0.8	8	17.5	19.0
FCKCB731-6M-2G	6	1/8	13	25.0	21.0
FCKCB731-6M-4G	6	1/4	17	26.5	22.0
FCKCB731-8M-2G	8	1/8	13	25.0	26.0
FCKCB731-8M-4G	8	1/4	17	26.5	27.0
FCKCB731-8M-6G	8	3/8	20	37.5	29.0

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Materials of Construction	
Body (Depending upon the Model):	• Glass reinforced nylon 6.6 • Brass
Gripping Ring:	Stainless Steel
Adjustment Screws	Nickel-plated brass
Locking Nut:	Nickel-plated brass
Base:	Nickel-plated brass

Nomenclature	
Example: FCM731-4-2	**Attribute:**
FC	Flow control
M	Miniature
7	Right angle
3	Nylon body
1	Tube x pipe
4	1/4 Tube O.D.
2	1/8 Pipe thread

Applicable Tube	
Tube O.D.	1/8, 5/32, 1/4
Tube O.D. (mm)	3, 4, 6, 8

Specifications	
Pressure Range:	15 to 145 PSI
Temperature Ranges:	30° to 160°F
Working Fluid:	Compressed air

The miniature flow control regulator is especially adapted for all very small sized pneumatic applications (micro-pneumatic in particular). They are specifically designed for use with small bore cylinders (pancake / flat cylinders). Miniature flow control regulators are available in meter out, meter in and bi-directional versions.

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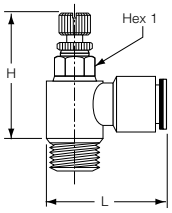
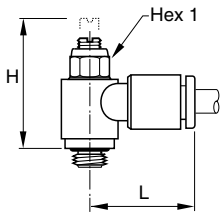


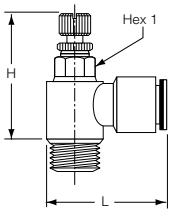
FCM731 Miniature Meter Out Flow Control

Part No.	Tube Size (In)	NPT	Hex 1 mm	H Open	H Closed	L
FCM731-2-0	1/8	10-32	6	1.14	0.91	0.67
FCM731-2-2	1/8	1/8	7	1.41	1.26	0.69
FCM731-5/32-0	5/32	10-32	6	1.02	0.93	0.67
FCM731-5/32-2	5/32	1/8	7	1.16	1.06	0.71
FCM731-4-0	1/4	10-32	6	1.02	0.93	0.73
FCM731-4-2	1/4	1/8	7	1.16	1.06	0.75
FCM731-4-4	1/4	1/4	8	1.28	1.18	0.77

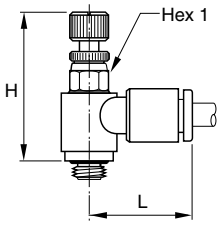
FCMK731 Knobless Mini Meter Out Flow Control

Part No.	Tube Size (In)	NPT	Hex 1 mm	H Open	H Closed	L
FCMK731-2-0	1/8	10-32	6	0.79	0.65	0.65
FCMK731-2-2	1/8	1/8	6	0.85	0.71	0.71
FCMK731-5/32-0	5/32	10-32	6	0.79	0.65	0.65
FCMK731-5/32-2	5/32	1/8	6	0.85	0.71	0.71
FCMK731-4-0	1/4	10-32	6	0.79	0.65	0.65
FCMK731-4-2	1/4	1/8	6	0.85	0.71	0.73
FCMK731-4-4	1/4	1/4	6	0.97	0.83	0.73

FCM731 Miniature Flow Control - BSPP

Part No.	Tube Size (mm)	BSPP	Hex 1	H Closed	H Open	L
FCM731-3M-M3	3	M3X0.5	6	23.5	26.0	17.0
FCM731-3M-M5	3	M5X0.8	6	23.5	26.0	17.0
FCM731-4M-M3	4	M3X0.5	6	23.5	26.0	16.5
FCM731-4M-M5	4	M5X0.8	6	23.5	26.0	17.0
FCM731-4M-2G	4	1/8	7	27.0	29.5	18.0
FCM731-6M-M5	6	M5X0.8	6	23.5	26.0	18.0
FCM731-6M-2G	6	1/8	7	27.0	29.5	18.5
FCM731-6M-4G	6	1/4	8	30.0	32.5	19.0
FCM731-8M-2G	8	1/8	13	26.5	31.0	26.0
FCM731-8M-4G	8	1/4	16	29.0	34.0	27.5
FCM731-8M-6G	8	3/8	20	36.0	42.0	29.0

FCMB731 Miniature Bi-directional Flow Control - BSPP

Part No.	Tube Size (mm)	BSPP	Hex 1	H Closed	H Open	L
FCMB731-4M-M5	4	M5X0.8	6	23.5	26.0	16.5
FCMB731-4M-2G	4	1/8	7	27.0	29.5	17.0
FCMB731-6M-M5	6	M5X0.8	6	23.5	26.0	18.0
FCMB731-6M-2G	6	1/8	7	27.0	29.5	18.0
FCMB731-6M-4G	6	1/4	8	30.0	32.5	18.5

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Materials of Construction	
Body:	Glass reinforced nylon 6.6
Gripping Ring:	Stainless Steel
Adjustment Screws	Nickel-plated brass
Locking Nut:	Nickel-plated brass
Base:	Nickel-plated brass

Nomenclature	
Example: FCMS731-5/32-2	**Attribute:**
FC	Flow control
M	Miniature
S	Swivel outlet
7	Right angle
3	Nylon body
1	Tube x pipe
5/32	5/32 Tube O.D.
2	1/8 Pipe thread

Applicable Tube	
Tube O.D.	5/32, 1/4, 3/8
Tube O.D. (mm)	4, 6, 8, 10, 12

Specifications	
Pressure Range:	15 to 145 PSI
Temperature Ranges:	30° to 160°F
Working Fluid:	Compressed air

Flow control regulators with “swivel outlet” are especially designed to allow a vertical or angled tube exit where access is restricted. The swivel outlet comes with instant push-in connection to ease installation. Flow control regulators with swivel outlet are available in meter out and meter in versions.

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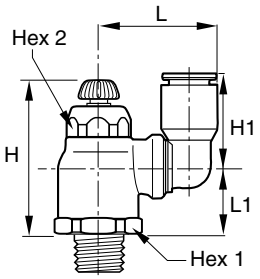
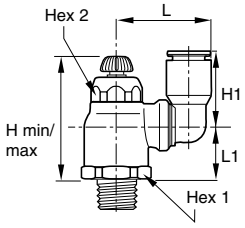


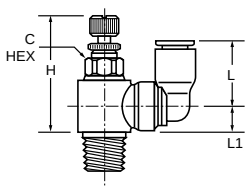
FCCS731 Compact Swivel Outlet Flow Control

Part No.	Tube Size (In)	NPT	Hex 1 mm	Hex 2 mm	H Closed	H Open	H1	L	L1
FCCS731-4-2	1/4	1/8	19	10	1.87	2.09	0.63	0.93	0.65
FCCS731-4-4	1/4	1/4	19	14	1.79	1.99	0.73	1.00	0.89
FCCS731-6-4	3/8	1/4	23	17	1.93	2.20	1.04	1.34	0.97
FCCS731-6-6	3/8	3/8	23	17	1.93	2.20	1.04	1.34	0.97



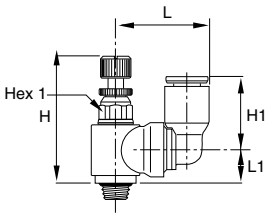
FCCS731 Compact Swivel Outlet - BSPP

Part No.	Tube Size (mm)	BSPP	Hex 1 mm	Hex 2 mm	H Closed	H Open	H1	L	L1
FCCS731-6M-2G	6	1/8	16	10	38.0	44.0	16.0	23.5	18.0
FCCS731-6M-4G	6	1/4	16	10	36.5	42.5	16.0	23.5	16.5
FCCS731-8M-2G	8	1/8	19	14	41.5	48.0	23.0	28.0	19.0
FCCS731-8M-4G	8	1/4	19	14	41.5	48.0	23.0	28.0	19.5
FCCS731-8M-6G	10	3/8	19	14	41.5	48.0	23.0	28.0	17.5
FCCS731-10M-4G	10	1/4	23	17	45.5	53.5	26.5	35.0	21.0
FCCS731-10M-6G	10	3/8	23	17	45.5	54.0	26.5	35.0	21.5
FCCS731-12M-6G	12	3/8	23	17	45.5	54.0	31.0	38.0	21.5
FCCS731-12M-8G	12	1/2	23	17	45.5	54.0	31.0	38.0	21.0



FCMS731 Mini Swivel Outlet Flow Control

Part No.	Tube Size (In)	NPT	Hex 1 mm	H Closed	H Open	H1	L	L1
FCMS731-5/32-0	5/32	10-32	6	0.96	1.08	0.55	0.73	0.26
FCMS731-5/32-2	5/32	1/8	8	1.08	1.20	0.55	0.73	0.33



FCMS731 Miniature Swivel Outlet - BSPP

Part No.	Tube Size (mm)	BSPP	Hex 1 mm	H Closed	H Open	H1	L	L1
FCMS731-4M-M5	4	M5X0.8	6	24.5	27.5	14.5	19.5	6.5
FCMS731-4M-2G	4	1/8	7	27.5	31.0	14.5	20.0	8.5
FCMS731-6M-M5	6	M5X0.8	6	24.5	27.5	16.0	21.5	6.5
FCMS731-6M-2G	6	1/8	7	27.5	31.0	16.0	22.0	8.5

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Materials of Construction	
Body:	Glass reinforced nylon 6.6
Gripping Ring:	Stainless Steel
Adjustment Screws	Nickel-plated brass
Locking Nut:	Nickel-plated brass
Tailpiece:	Nickel-plated brass

Nomenclature	
Example: FCMS731-5/32-2	**Attribute:**
FC	Flow control
M	Miniature
7	Right angle
3	Nylon body
1	Tube x pipe
4	1/4 Tube O.D.
2	1/8 Pipe thread

Applicable Tube	
Tube O.D.	1/8, 5/32, 1/4
Tube O.D. (mm)	4, 6, 8, 10, 12

Specifications	
Pressure Range:	15 to 145 PSI
Temperature Ranges:	30° to 160°F
Working Fluid:	Compressed air

Plug-in flow control regulators can be directly mounted into existing fittings and allow very compact installations. They are particularly suited for mounting in manifolds using cartridges. Their design and function give equal performance to that of flow control regulators with threaded connections.

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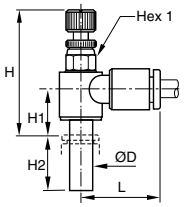
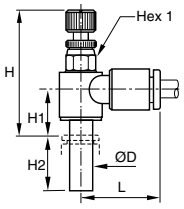


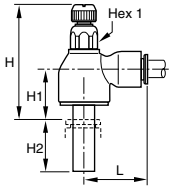
FCMSP731 Plug-In Mini Flow Control

Part No.	Tube Size (In)	Hex 1 mm	H Open	H Closed	H1	H2	L
FCMSP731-2	1/8	6	1.04	0.94	0.12	0.59	0.67
FCMSP731-5/32	5/32	6	1.10	1.00	0.37	0.61	0.67
FCMSP731-4	1/4	7	1.18	1.08	0.12	0.73	0.73



FCMSP701 - Plug-In Miniature Flow Control

Part No.	Tube Size (mm)	Hex 1 mm	H Closed	H Open	H1	H2	L
FCMSP701-4M	4	6	25.5	28.0	9.5	15.5	17.0
FCMSP701-6M	6	7	27.5	29.0	10.5	17.0	18.5



FCCSP731 Plug-In Compact Flow Control

Part No.	Tube Size (mm)	Hex 1 mm	H Closed	H Open	H1	H2	L
FCCSP731-6M	6	10	35.0	41.0	14.0	17.0	22.0
FCCSP731-8M	8	14	39.5	46.5	16.0	21.5	28.0
FCCSP731-10M	10	17	43.5	51.5	17.5	24.5	31.5
FCCSP731-12M	12	17	43.0	51.0	17.0	27.0	31.5

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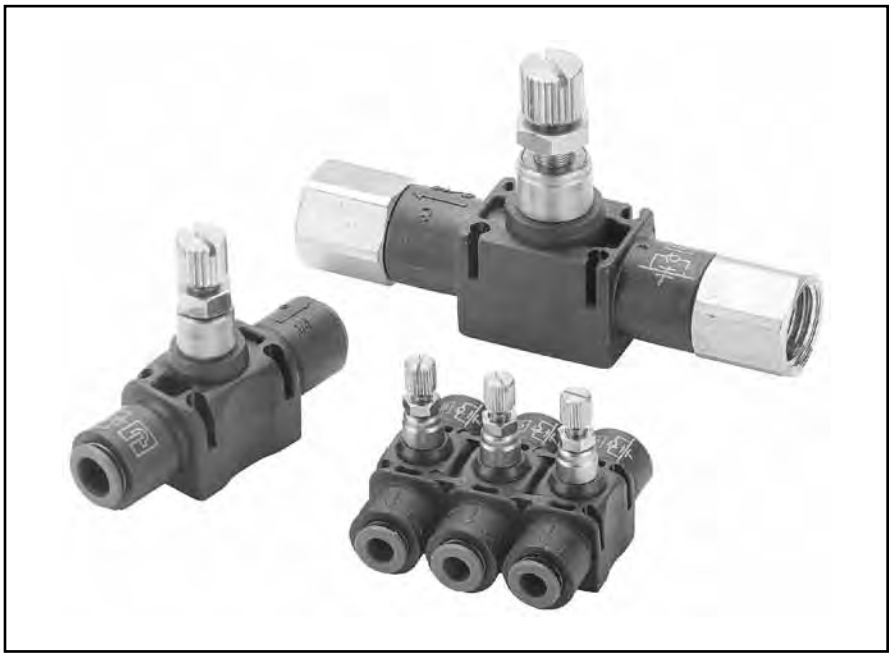
Materials of Construction	
Body:	Glass reinforced nylon 6.6
Gripping Ring:	Stainless Steel
Adjustment Screws	Nickel-plated brass
Locking Nut:	Nickel-plated brass
Tailpiece:	Nickel-plated brass

Nomenclature	
Example: FCMS731-5/32-2	**Attribute:**
FC	Flow control
M	Miniature
8	In-line
3	Nylon body
2	Tube x pipe
4	1/4 Tube O.D.

Applicable Tube	
Tube O.D.	5/32, 1/4, 5/16, 3/8, 1/2
Tube O.D. (mm)	4, 6, 8, 10, 12

Specifications	
Pressure Range:	15 to 145 PSI
Temperature Ranges:	30° to 160°F
Working Fluid:	Compressed air



In-line flow controls are unidirectional flow control valves. Intake air flows freely through the flow control; exhaust air is metered out through a specially designed adjustment screw. An arrow on the body of the valve indicates the direction of controlled flow. They can be easily added to existing circuitry. Simply splice it into the cylinder port line.

They can be used individually or they may be stacked together using two joining clips.

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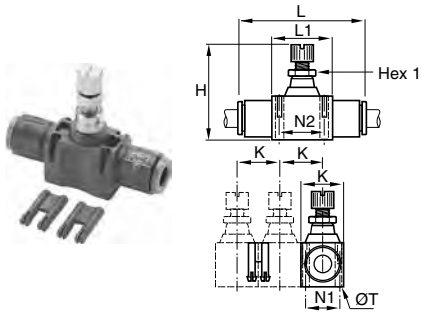
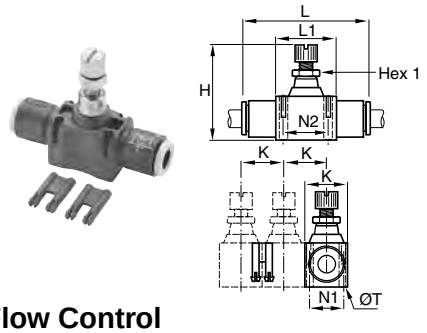


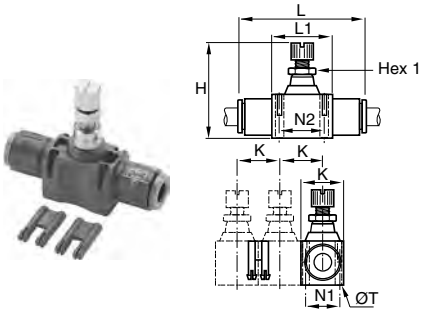
FC832 In-Line Flow Control

Part No.	Tube Size (In)	Hex 1 mm	H Closed	H Open	K	L	L1	N1	N2	T
FC832-5/32	5/32	5	1.15	1.31	0.47	1.52	0.59	0.31	0.43	0.09
FC832-4	1/4	8	1.54	1.74	0.66	2.00	0.90	0.43	0.66	0.12
FC832-5	5/16	11	1.73	1.97	0.73	2.38	1.02	0.49	0.79	0.13
FC832-6	3/8	14	2.03	2.38	0.94	2.87	1.29	0.62	1.01	1.60
FC832-8	1/2	14	2.24	2.63	1.09	3.35	1.37	0.78	1.07	0.16



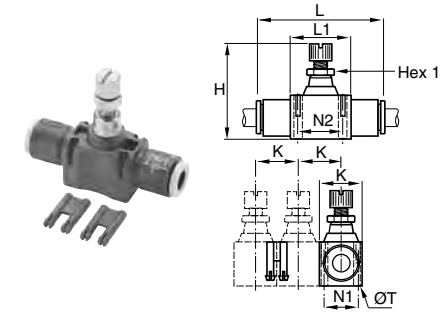
FC832 In-Line Flow Control

Part No.	Tube Size (mm)	Hex 1 mm	H Closed	H Open	K	L	L1	N1	N2	T
FC832-4M	4	5	29.5	33.5	12.0	39.0	15.0	8.0	11.0	2.2
FC832-6M	6	8	39.5	44.5	17.0	54.0	23.0	11.0	17.0	3.2
FC832-8M	8	11	44.0	50.0	18.5	60.5	26.0	12.5	20.0	3.2
FC832-10M	10	14	52.0	61.0	24.0	76.0	33.0	16.0	26.0	4.2
FC832-12M	12	14	57.5	67.5	28.0	86.0	35.0	20.0	27.5	4.2



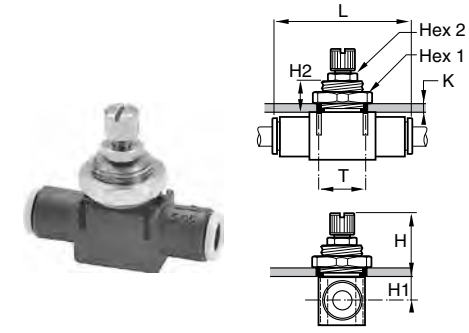
FCB832 In-Line Bi-directional Flow Control

Part No.	Tube Size (In)	Hex 1 mm	H Closed	H Open	K	L	L1	N1	N2	T
FCB832-5/32	5/32	5	1.15	1.31	0.47	1.52	0.59	0.31	0.43	0.09
FCB832-4	1/4	8	1.54	1.74	0.66	2.00	0.90	0.43	0.66	0.12
FCB832-5	5/16	11	1.73	1.97	0.73	2.38	1.02	0.49	0.79	0.13



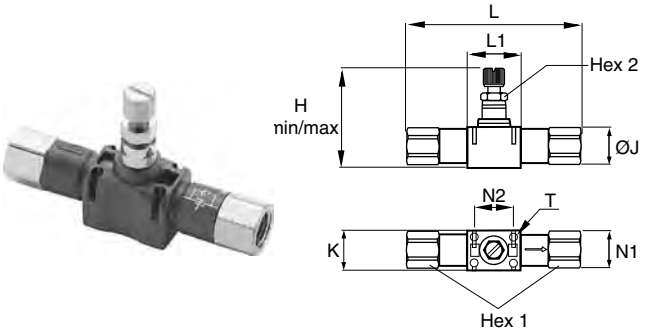
FCB832 In-Line Bi-directional Flow Control

Part No.	Tube Size (mm)	Hex 1 mm	H Closed	H Open	K	L	L1	N1	N2	T
FCB832-4M	4	5	29.5	33.5	12.0	39.0	15.0	8.0	11.0	2.2
FCB832-6M	6	8	39.5	44.5	17.0	54.0	23.0	11.0	17.0	3.2
FCB832-8M	8	11	44.0	50.0	18.5	60.5	26.0	12.5	20.0	3.2



FCPM832 In-Line Panel Mountable Flow Control

Part No.	Tube Size (mm)	Hex 1 (mm)	Hex 2 (mm)	H Closed	H Open	K	L	H1	H2	T
FCPM832-4M	4	14		21.5	25.5	6.0	39.0	6.5	11.0	10.5
FCPM832-6M	6	19		27.5	32.5	7.0	54.0	7.5	13.5	16.5
FCPM832-8M	8	24	11	28.5	34.5	7.0	60.5	9.0	13.5	18.5
FCPM832-10M	10	30	14	29.5	38.5	7.0	76.0	11.5	13.5	24.5
FCPM832-12M	12	32	14	32.0	42.0	8.0	86.0	12.5	15.5	27.5



FC836 Threaded In-Line Flow Control

Part No.	NPT	Hex 1 (mm)	Hex 2 (mm)	H Closed	H Open	K	L	L1	N1	N2	T
FC836-2	1/8	13	8.00	1.56	1.75	0.67	2.70	0.91	0.43	0.67	0.12
FC836-4	1/4	16	11.00	1.73	1.97	0.73	3.27	1.02	0.49	0.79	0.12
FC836-6	3/8	22	14.00	2.05	2.40	0.94	3.82	1.30	0.63	1.02	0.16
FC836-8	1/2	24	14.00	2.26	2.66	1.10	4.76	1.38	0.79	1.08	0.16

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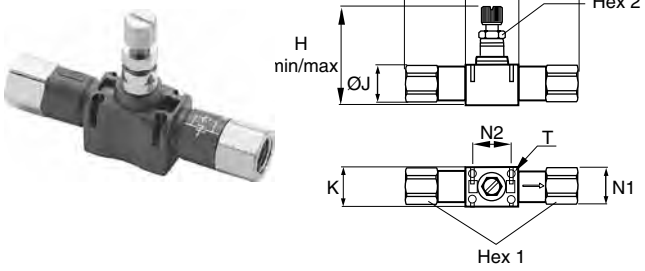
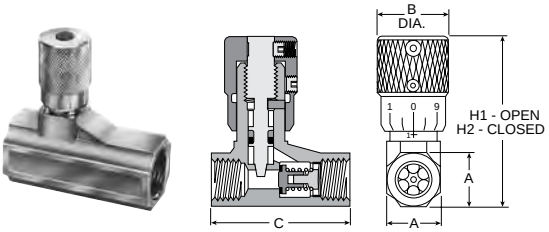


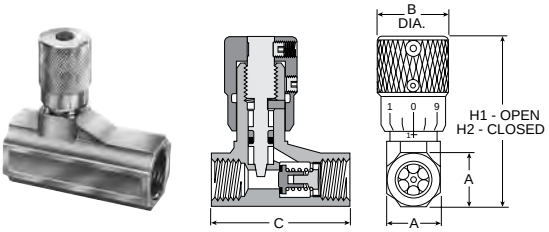
FC836 Threaded In-Line Flow Control - BSPP

Part No.	BSPP	Hex 1 (mm)	Hex 2 (mm)	H Closed	H Open	K	L	N1	N2	T
FC836-2G	1/8	13	8	39.5	44.5	17.0	68.5	11.0	17.0	3.2
FC836-4G	1/4	16	11	44.0	50.0	18.5	83.0	12.5	20.0	3.2
FC836-6G	3/8	19	14	52.0	61.0	24.0	97.0	16.0	26.0	4.2
FC836-8G	1/2	24	14	57.5	67.5	28.0	121.0	20.0	27.5	4.2



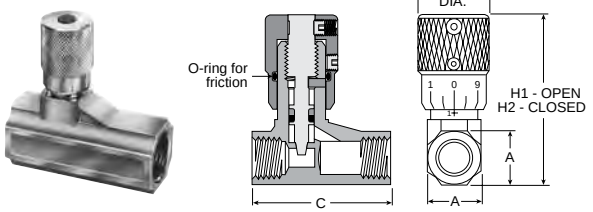
337 Micrometer Flow Control Valves

Part No.	Port Size	A	B	C	H1	H2
00337 1000	1/8"	9/16"	0.75	1.47	2.03	1.81
00337 1001	1/4"	11/16"	0.75	1.47	2.28	2.03
00337 1002	3/8"	7/8"	0.88	2.31	2.84	2.53
00337 1003	1/2"	1-3/16"	1.06	3.25	3.62	3.22
00337 1004	3/4"	1-3/8"	1.06	3.25	3.72	3.31



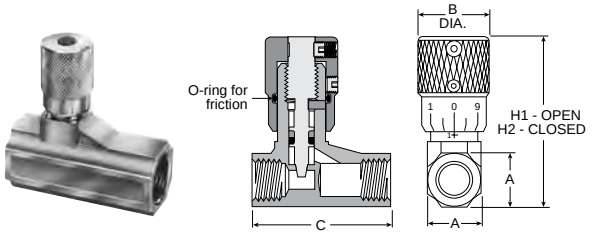
337 Micrometer Flow Control Valves - BSPP

Part No.	Port Size	A	B	C	H1	H2
00337G1000	1/8"	9/16"	0.75	1.47	2.03	1.81
00337G1001	1/4"	11/16"	0.75	1.47	2.28	2.03
00337G1002	3/8"	7/8"	0.88	2.31	2.84	2.53
00337G1003	1/2"	1-3/16"	1.06	3.25	3.62	3.22
00337G1004	3/4"	1-3/8"	1.06	3.25	3.72	3.31



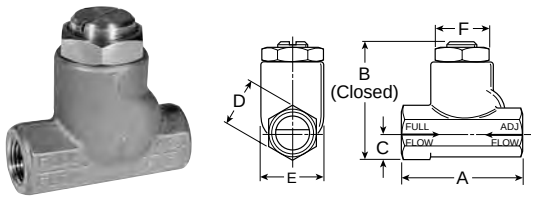
338 Bi-directional Flow Control Valves

Part No.	Port Size	A	B	C	H1	H2
00338 1100	1/8"	9/16"	0.75	1.47	2.03	1.81
00338 1101	1/4"	11/16"	0.75	1.47	2.28	2.03
00338 1102	3/8"	7/8"	0.88	2.31	2.84	2.53
00338 1103	1/2"	1-3/16"	1.06	3.25	3.62	3.22
00338 1104	3/4"	1-3/8"	1.06	3.25	3.72	3.31



338 Bi-directional Flow Control Valves - BSPP

Part No.	Port Size	A	B	C	H1	H2
00338G1100	1/8"	9/16"	0.75	1.47	2.03	1.81
00338G1101	1/4"	11/16"	0.75	1.47	2.28	2.03
00338G1102	3/8"	7/8"	0.88	2.31	2.84	2.53
00338G1103	1/2"	1-3/16"	1.06	3.25	3.62	3.22
00338G1104	3/4"	1-3/8"	1.06	3.25	3.72	3.31



3250 Flow Control Valves

Part No.	Port Size	A	B	C	D	E	F
03250 0119	1/8"	1.75	1.56	0.37	0.62	0.81	0.68
03250 0219	1/4"	2.33	1.97	0.44	0.75	1.09	0.94
03250 0319	3/8"	2.66	2.44	0.56	1.00	1.38	1.19
03250 0419	1/2"	3.11	3.06	0.75	1.25	1.63	1.38
03250 0519	3/4"	3.56	3.69	0.88	1.50	2.00	1.75

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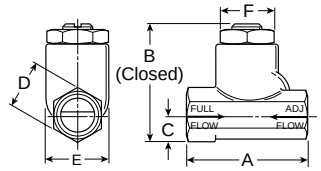
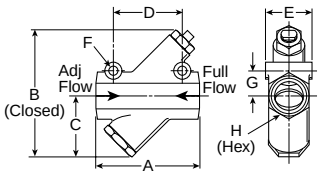


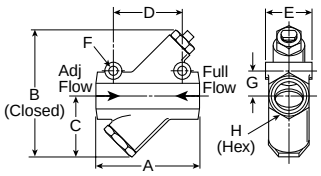
3250 Flow Control Valves - BSPP

Part No.	Port Size	A	B	C	D	E	F
3250G0119	1/8"	1.75	1.56	0.37	0.62	0.81	0.68
3250G0219	1/4"	2.33	1.97	0.44	0.75	1.09	0.94
3250G0319	3/8"	2.66	2.44	0.56	1.00	1.38	1.19
3250G0419	1/2"	3.11	3.06	0.75	1.25	1.63	1.38
3250G0519	3/4"	3.56	3.69	0.88	1.50	2.00	1.75



3250 Flow Control Valves

Part No.	Port Size	A	B	C	D	E	F	G	H
3250G1000	1"	5.00	6.50	3.00	3.25	2.25	.39	1.31	2.13
3250G1250	1-1/4"	5.00	6.50	3.00	3.25	2.25	.39	1.31	2.13
3250G1500	1-1/2"	5.88	8.00	3.75	3.50	2.50	.39	1.50	2.38



3250 Flow Control Valves - BSPP

Part No.	Port Size	A	B	C	D	E	F	G	H
03250 1000	1"	5.00	6.50	3.00	3.25	2.25	.39	1.31	2.13
03250 1250	1-1/4"	5.00	6.50	3.00	3.25	2.25	.39	1.31	2.13
03250 1500	1-1/2"	5.88	8.00	3.75	3.50	2.50	.39	1.50	2.38

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Materials of Construction	
Body:	Treated Brass
Gripping Ring:	Stainless Steel
Adjustment Screws	Nickel-plated brass
Locking Nut:	Nickel-plated brass
Tailpiece:	Nickel-plated brass

Nomenclature	
Example: FCMS731-5/32-2	**Attribute:**
FC	Flow control
7	Right angle
0	Brass body
1	Tube x pipe
4	1/4 Tube O.D.
2	1/8 Pipe thread

Applicable Tube	
Tube O.D.	1/8, 5/32, 1/4, 3/8
Tube O.D. (mm)	4, 6, 8, 10, 12, 14

Specifications	
Pressure Range:	15 to 145 PSI
Temperature Ranges:	30° to 160°F
Working Fluid:	Compressed air

Metal flow control regulators are suited for use in severe conditions (temperatures, sparks, abrasion, etc). The screw and locking nut have been designed for easy manipulation, by hand. Adjustment can be made with a screwdriver and locking by use of a wrench.

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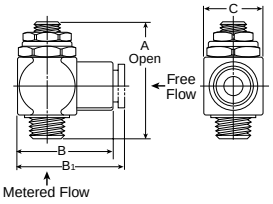
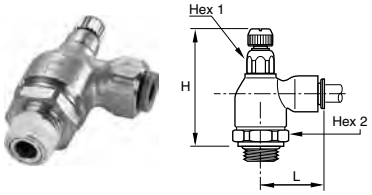
Shown with Threaded Inlet

Shown with Prestolok Inlet Fitting



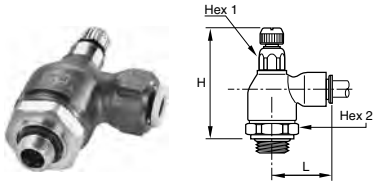
Model Number	Thread (NPT) Male	Thread (NPT) Female	A mm	B mm	C mm	Weight kg.	Cv Adjusted Flow	Cv Free Flow
03251 0125	1/8	1/8	44	30	17	0.9	0.26	0.20
03251 0250	1/4	1/4	51	36	23	2.0	0.75	0.68
03251 0375	3/8	3/8	58	43	27	3.2	0.84	0.72
03251 0500	1/2	1/2	68	53	32	5.0	1.64	1.41
With Prestolok Fittings								
03251 1215	1/8	5/32	44	30	17	0.9	0.19	0.16
03251 1225	1/8	1/4	44	30	17	0.9	0.28	0.22
03251 2525	1/4	1/4	51	36	23	2.0	0.51	0.44
03251 2538	1/4	3/8	51	36	23	2.0	0.62	0.53
03251 3838	3/8	3/8	58	43	27	3.2	0.78	0.65

CAUTION: If it is possible that the ambient temperature may fall below freezing, the medium must be moisture-free to prevent internal damage or unpredictable behavior.



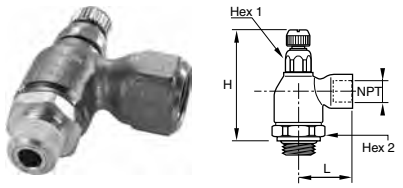
FC705 Push-to-Connect Metal Flow Control

Part No.	Tube Size (In)	NPT	Hex 1 mm	Hex 2 mm	H Closed	H Open	L
FC705-5/32-2	5/32	1/8	19	10	1.79	2.01	0.85
FC705-4-2	1/4	1/8	19	10	1.79	2.01	0.97
FC705-4-4	1/4	1/4	19	10	1.79	2.01	0.97
FC705-6-4	3/8	1/4	19	14	1.91	2.11	1.14
FC705-6-6	3/8	3/8	25	17	2.15	2.40	1.40



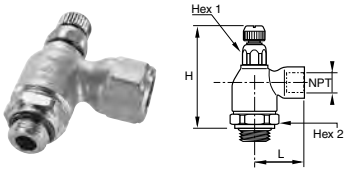
FC701 Push-to-Connect Metal Flow Control - BSPP

Part No.	Tube Size (mm)	BSPP	Hex 1	Hex 2	H Closed	H Open	L
FC701-4M-2G	4	1/8	10	19	47.0	53.0	21.0
FC701-6M-2G	6	1/8	10	19	47.0	53.0	24.5
FC701-6M-4G	6	1/4	10	19	47.5	53.0	24.5
FC701-8M-2G	8	1/8	14	19	50.0	55.0	29.0
FC701-8M-4G	8	1/4	14	19	50.0	56.0	29.0
FC701-8M-6G	8	3/8	17	25	56.0	62.0	30.5
FC701-10M-4G	10	1/4	14	19	50.0	56.0	35.0
FC701-10M-6G	10	3/8	17	25	56.0	62.0	35.0
FC701-12M-6G	12	3/8	17	25	56.0	62.0	38.0
FC701-12M-8G	12	1/2	17	25	55.0	62.0	38.0
FC701-14M-8G	14	1/2	17	25	55.0	62.0	41.0



FC708 Threaded Port Meter Out Flow Control

Part No.	NPT	Hex 1 mm	Hex 2 mm	H Closed	H Open	L	L1	L2
FC708-2	1/8	19	10	1.79	2.01	0.89	0.87	1.14
FC708-4	1/4	19	14	1.91	2.11	1.28	0.87	1.28
FC708-6	3/8	25	17	2.15	2.40	1.36	0.91	1.44
FC708-8	1/2	25	17	2.15	2.40	1.50	0.91	1.50



FC702 Threaded Port Metal Flow Control - BSPP

Part No.	BSPP	Hex 1 mm	Hex 2 mm	H Closed	H Open	L
FC702-2G	1/8	10	19	47.0	52.5	22.5
FC702-4G	1/4	14	19	50.5	55.5	32.0
FC702-6G	3/8	17	25	56.0	62.0	34.5
FC702-8G	1/2	17	25	55.0	62.0	37.5

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Materials of Construction	
Body:	• 32PLCK: Nylon/nickel plated brass • 68PLCK: Nylon body with nickel-plated brass base • VC: Acetal
Gripping Ring:	Stainless Steel
O-Ring:	• Nitrile (32PLCK & 68PLCK) • EPDM (VC)

Nomenclature	
Example: W68PLCK-4-2	**Attribute:**
W	White thread sealant
68	Tube x Pipe
PL	Prestolok
CK	Check Valve
4	1/4 Tube O.D.
2	1/8 Pipe thread

Nomenclature	
Example: A4VC4-MG	**Attribute:**
A	Acetal
4	1/4 Tube O.D.
VC	Valve, Check
4	1/4 Tube O.D.
MG	Metal gripping ring

Applicable Tube	
Tube O.D.	• PLCK: 5/32, 1/4, 5/16, 3/8 • VC: 1/4, 5/16, 3/8
Tube O.D. (mm)	PLCK: 4, 6, 8, 10, 12

Specifications	
Pressure Range:	15 TO 145 PSI
Temperature Ranges:	34°F to 150°F
Cracking Pressure:	• PLCK: 7 PSI • VC: 1/3 PSI
Working Fluid:	Compressed air

These in-line check valves allows air to pass in one direction while blocking flow in the other direction. Their extreme compactness and light weight make them suitable as a safety item in compressed air circuits. The body of the fitting contains an arrow to indicate the direction of flow.

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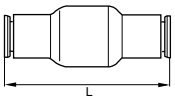
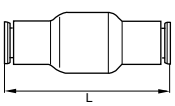


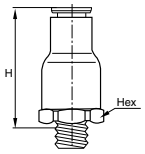
32PLCK In-Line Check Valve

Part No.	Tube Size (In)	L
32PLCK-5/32	5/32	1.52
32PLCK-4	1/4	1.61
32PLCK-5	5/16	2.03
32PLCK-6	3/8	2.50

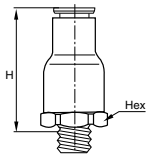
32PLCK In-Line Check Valve

Part No.	Tube Size (mm)	L
32PLCK-4M	4	38.5
32PLCK-6M	6	41.0
32PLCK-8M	8	51.5
32PLCK-10M	10	63.5
32PLCK-12M	12	66.5

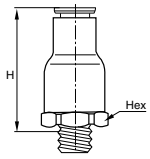
W68PLCK Male Check Valve

Part No.	Tube Size (in)	NPT / UNF	Hex (mm)	H
68PLCK-5/32-0	5/32	10-32	9	1.26
W68PLCK-5/32-2	5/32	1/8	16	1.12
W68PLCK-4-2	1/4	1/8	19	1.42
W68PLCK-4-4	1/4	1/4	19	1.42
W68PLCK-6-4	3/8	1/4	23	1.65
W68PLCK-6-6	3/8	3/8	23	1.65

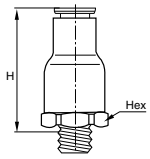
W68PLCKI Male Check Valve Meter In

Part No.	Tube Size (In)	NPT / UNF	Hex (mm)	H
68PLCKI-5/32-0	5/32	10-32	9	1.26
W68PLCKI-5/32-2	5/32	1/8	16	1.12
W68PLCKI-4-2	1/4	1/8	19	1.42
W68PLCKI-4-4	1/4	1/4	19	1.42
W68PLCKI-6-4	3/8	1/4	23	1.65
W68PLCKI-6-6	3/8	3/8	23	1.65

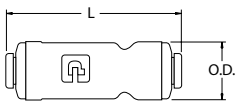
68PLCK Male Check Valve Meter Out - BSPP

Part No.	Tube Size (mm)	BSPP	Hex 1 (mm)	H
68PLCK-4M-M5	4	M5X0.8	9	32.0
68PLCK-4M-2G	4	1/8	16	28.5
68PLCK-6M-2G	6	1/8	16	30.5
68PLCK-6M-4G	6	1/4	16	30.5
68PLCK-8M-2G	8	1/8	19	36.0
68PLCK-8M-4G	8	1/4	19	36.0

68PLCKI Male Check Valve Meter In - BSPP

Part No.	Tube Size (mm)	BSPP	Hex 1 (mm)	H
68PLCKI-4M-M5	4	M5X0.8	9	32.0
68PLCKI-6M-2G	6	1/8	16	30.5
68PLCKI-8M-2G	8	1/8	19	36.0
68PLCKI-8M-4G	8	1/4	19	36.0
68PLCKI-10M-6G	10	3/8	23	42.0
68PLCKI-12M-6G	12	3/8	23	42.0
68PLCKI-12M-8G	12	1/2	23	44.0

VC – Check Valve

Part No.	Tube Size (In)	L	O.D.
A4VC4-MG	1/4	2.00	.66
A5VC5-MG	5/16	2.10	.70
A6VC6-MG	3/8	2.15	.80

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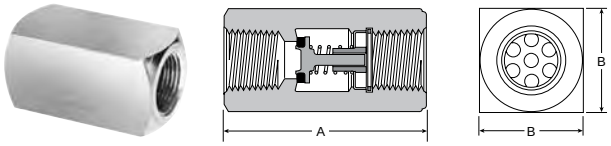
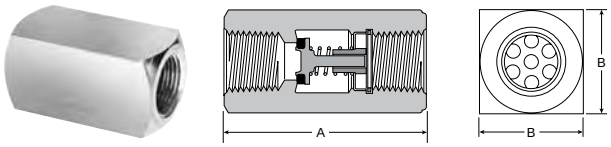


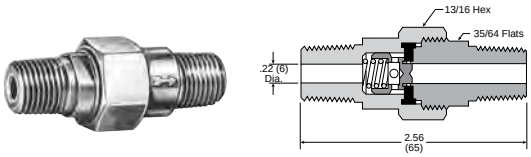
339 Check Valve

Part No.	Port Size	A	B
00339 3000	1/8"	1.22	0.56
00339 3001	1/4"	1.34	0.69
00339 3002	3/8"	2.00	0.88
00339 3003	1/2"	2.56	1.19
00339 3004	3/4"	2.66	1.38



339 Check Valve - BSPP

Part No.	Port Size	A	B
00339G3000	1/8"	1.22	0.56
00339G3001	1/4"	1.34	0.69
00339G3002	3/8"	2.00	0.88
00339G3003	1/2"	2.56	1.19
00339G3004	3/4"	2.66	1.38



3047 Check Valve

Model Number	Pipe Thread
03047 0099	1/4"

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Notes

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Materials of Construction	
Body:	Treated Brass
Gripping Ring:	Stainless Steel
Seals, Diaphragm:	Nitrile

Nomenclature	
Example: FC601-4-2	**Attribute:**
FC	Flow control
6	Blocking
0	Brass body
1	Tube x pipe
4	1/4 Tube O.D.
2	1/8 Pipe thread

Applicable Tube	
Tube O.D.	1/8, 5/32, 1/4, 3/8
Tube O.D. (mm)	4, 6, 8, 10, 12, 14

Specifications	
Pressure Range:	15 to 145 PSI
Temperature Ranges:	-4° to 160°F
Number of Cycles	> 10 million at 68°F and 1 Hz
Leak Rate:	< 3.2 CCM
Working Fluid:	Compressed air

Blocking valves prevents damage to work and equipment in the event of a loss of pressure. Blocking valves which are mounted in pairs on a cylinder lock the piston by simultaneously cutting off the supply and exhaust. Functional locks are more precise and rapid when blocking valves are located on the cylinder: the volume of air in the pipework no longer needs to be taken into consideration.

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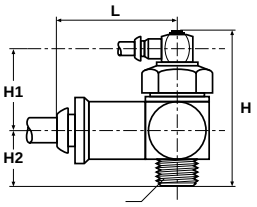
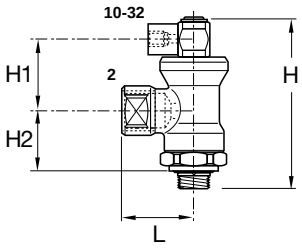


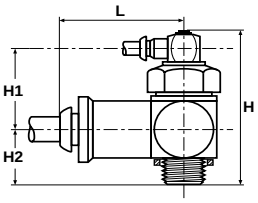
FC601 Push-to-Connect Lockout Valves

Part No.	Tube Size (in)	NPT	Hex (mm)	H	H1	H2	L
FC601-4-2	1/4	1/8	21	2.03	1.24	0.79	1.10
FC601-4-4	1/4	1/4	21	2.03	1.24	0.79	1.10
FC601-6-6	3/8	3/8	24	2.19	1.14	1.04	1.38
FC601-8-8	1/2	1/2	24	2.19	1.14	1.04	1.69



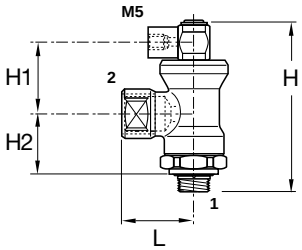
FC602 Threaded Port Lockout Valves

Part No.	1 NPT	2 NPT	Hex (mm)	H	H1	H2	L
FC602-2	1/4	1/8	21	2.03	1.24	0.79	1.04
FC602-4	1/4	1/4	21	2.03	1.24	0.79	1.04
FC602-6	3/8	3/8	24	2.19	1.14	1.04	1.34
FC602-8	1/2	1/2	24	2.19	1.14	1.04	1.57



FC601 Push-to-Connect Lockout Valve - BSPP

Part No.	Tube Size (mm)	BSPP	Hex 1 (mm)	H	H1	H2	L
FC601-6M-2G	6	1/8	21	53	24.5	21.0	28.0
FC601-6M-4G	6	1/4	21	53	24.5	21.0	28.0
FC601-8M-4G	8	1/4	21	53	24.5	21.0	28.0
FC601-8M-6G	8	3/8	24	56	25.0	23.0	34.5
FC601-10M-6G	10	3/8	24	56	25.0	23.0	35.0
FC601-12M-8G	12	1/2	24	56	25.0	23.0	37.5



FC608 Threaded Port Lockout Valve - BSPP

Part No.	BSPP 1	BSPP 2	Hex 1 (mm)	H	H1	H2	L
FC608-4G-2G	1/8	1/4	21	53	24.5	21.0	28.0
FC608-4G-4G	1/4	1/4	21	53	24.5	21.0	28.0
FC608-6G-6G	3/8	3/8	24	56	25.0	23.0	34.0
FC608-8G-8G	1/2	1/2	24	56	25.0	23.0	41.0

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Specifications: Models PSBJ, PSPJ	
Working Temperature:	5° to 140°F
Working Pressure:	45 to 115 PSI
Breaking Pressure:	8.5 PSI
Response Time:	3 Ms

Specifications: Model PSPE	
Working Pressure:	45 to 115 PSI
Breaking Pressure:	7 PSI
Current Rating:	5A / 250VAC - 5W / 48VDC

UL Listed Component	
Reset Pressure:	10 PSI

The sensor fitting detects the absence of pressure and translates it to a high pressure pneumatic output. When used to monitor the decaying or exhausting side of a pneumatic cylinder's piston, it emits a positive output. When the cylinder comes to the end of its stroke, wherever that may be, the signal emitted from the sensor can then be used to pilot the next step.

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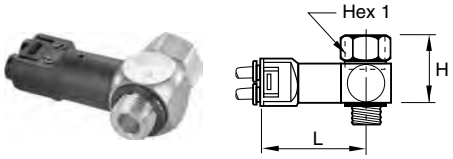
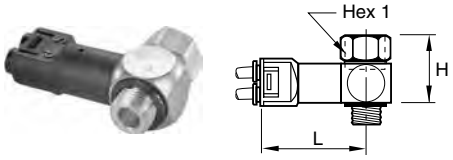


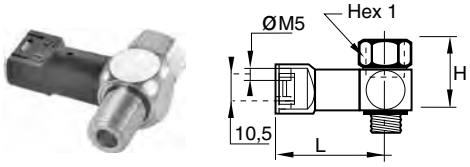
PSBJ731 Pneumatic Threshold Sensor - 5/32 Pilot

Part No.	NPT / UNF	Hex (mm)	H	L
PSBJ731-0	10-32	5/16	0.62	1.70
PSBJ731-2	1/8	9/16	0.90	1.74
PSBJ731-4	1/4	5/8	1.09	1.81
PSBJ731-6	3/8	7/8	1.13	1.91
PSBJ731-8	1/2	1	1.17	2.05



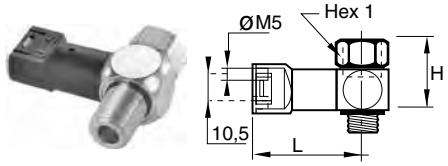
PSBJ731 Pneumatic Threshold Sensor - 4mm Pilot

Part No.	BSPP	Hex 1 (mm)	H	L
PSBJ731-M5	M5X0.8	8	16	43.5
PSBJ731-2G	1/8	14	23	44.5
PSBJ731-4G	1/4	17	28	46.5
PSBJ731-6G	3/8	22	29	49.0
PSBJ731-8G	1/2	27	30	52.5



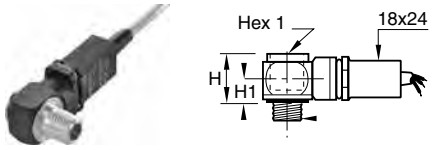
PSPJ731 Pneumatic Threshold Sensor - 10-32 Pilot

Part No.	NPT	Hex 1 (mm)	H	L
PSPJ731-2	1/8	9/16	0.90	1.58
PSPJ731-4	1/4	5/8	1.09	1.66
PSPJ731-6	3/8	7/8	1.13	1.76



PSBJ708 Pneumatic Threshold Sensor - M5 Pilot

Part No.	BSPP	Hex 1 (mm)	H	L
PSBJ708-2G	1/8	14	23	40.5
PSBJ708-4G	1/4	17	28	42.5



PSPE701 Pneumatic / Electric Threshold Sensor - BSPP

Part No.	BSPP	Hex 1 (mm)	H	H1	L
PSPE701-M5	M5X0.8	8	20	10	49
PSPE701-2G	1/8	6	20	10	52
PSPE701-4G	1/4	8	20	10	54
PSPE701-6G	3/8	10	22	12	57
PSPE701-8G	1/2	12	26	14	58

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Notes

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Accessories

Section G

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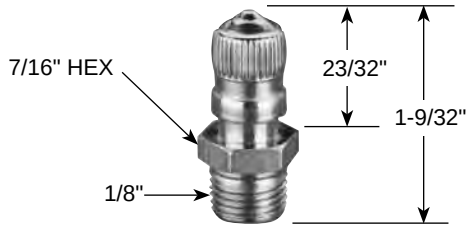
Tank Valves

For tanks, steel barrels, compressors and other pneumatic containers where a dependable automatic air valve is needed. Equipped with standard valve core and sealing cap. Maximum operating pressure is 185 PSIG. Temperature range is -40°F to 220°F.

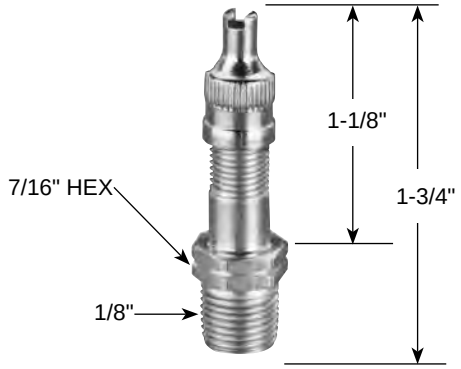
Model No. 09166 0060

Has a 1/8" pipe thread at bottom for minimum protrusion. N/P finish, dome shaped cap.
Packed 25 to a box.



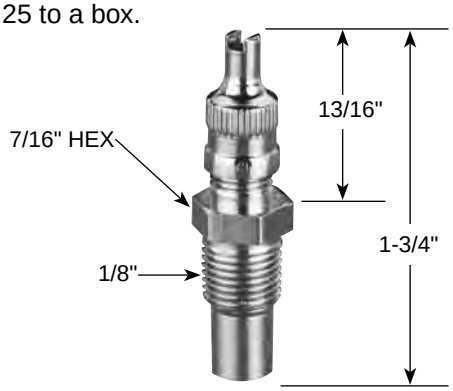
Model No. 00645 0060

A 1/8" pipe thread at bottom permits maximum protrusion. N/P finish, screwdriver type cap.
Packed 25 to a box.



Model No. 01468 0006

Has a 1/8" pipe thread part way up the stem which allows for minimum protrusion. N/P finish, has screwdriver type cap.
Packed 25 to a box.



Air Chucks

For regular airlines.

Model No. 05499 0000

Ball-foot air chuck, 1/4" female port.
Packed 10 to a box.

Model No. 06739 0000

Ball-foot air chuck with clip. Fits standard valve mouth. Saves holding on by hand. Has 1/4" port for connecting to hose.
Packed 10 to a box.

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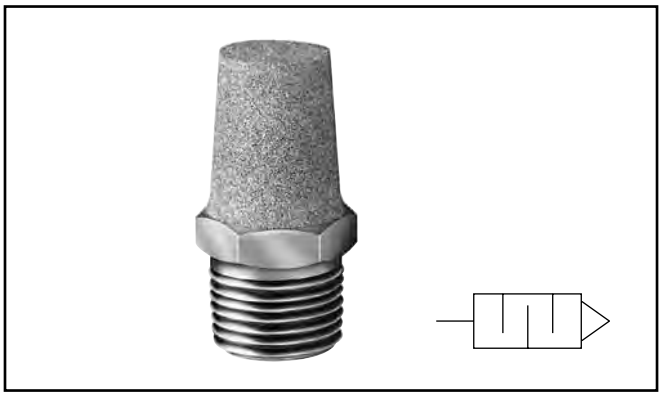
EM Series – Sintered Bronze Muffler / Filters



General Description

Muffler / filters effectively reduce air exhaust noises to an industry accepted level with minimum flow restriction. They protect valves, impact wrenches, screw drivers and other air tools by preventing dirt and other foreign matter from entering the system. Non-corrosive. Can be cleaned with many common solvents.

Specifications

Maximum Operating Pressure.....250 PSIG (Air)

Operating Temperature ..... 0° to 300°F*

* Ambient temperatures below freezing require moisture-free air. Ambient temperatures below freezing and above 180° require lubricants especially selected for suitability at these temperatures. Pneumatic valves should be used with filtered and lubricated air.

Model Number	Pipe Thread	Overall Length	Hex Size
EMM5	M5	.75	5/16"
EM12	1/8"	1.00	7/16"
EM25	1/4"	1.32	9/16"
EM37	3/8"	1.54	11/16"
EM50	1/2"	1.85	7/8"
EM75	3/4"	2.29	1-1/6"
EM100	1"	2.91	1-5/16"
EM125	1-1/4"	3.25	1-11/16"
EM150	1-1/2"	3.69	2"

Muffler / Flow Controls

General Description

Muffler / flow controls provide an acceptable exhaust noise level and effectively meter exhaust. Installed in valve exhaust ports, they control cylinder piston speeds throughout a wide range. The adjusting screw cannot be accidently blown out, can be locked to maintain setting. Brass and bronze construction. Clean with commonly used solvents.

Specifications

Maximum Operating Pressure.....250 PSIG (Air)

Operating Temperature ..... 0° to 300°F*

* Ambient temperatures below freezing require moisture-free air. Ambient temperatures below freezing and above 180° require lubricants especially selected for suitability at these temperatures. Pneumatic valves should be used with filtered and lubricated air.

Model Number	Pipe Thread	Overall Length	Hex Size
04502 0002	1/8"	1.15	9/16"
04504 0004	1/4"	1.42	1/2"
04506 0060	3/8"	1.49	11/16"
04508 0080	1/2"	1.77	7/8"
04512 0012	3/4"	1.98	1-1/16"
04516 0016	1"	2.15	1-5/16"

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Breather Vents

NOTE: Breather vents should not be used as exhaust mufflers.

General Description

These low silhouette versions of the muffler / filter are useful where space is a problem and / or to prevent contamination. Use for vacuum relief or pressure equalization in gear boxes, oil tanks, reservoirs, etc. Non-corrosive.

Specifications

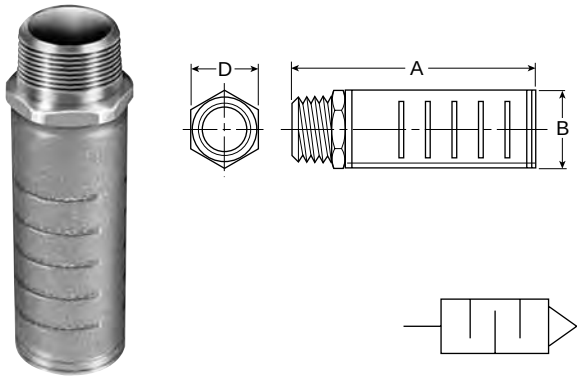
Maximum Operating Pressure.....150 PSIG (Air)

Operating Temperature ..... 0° to 300°F*

* Ambient temperatures below freezing require moisture-free air. Ambient temperatures below freezing and above 180° require lubricants especially selected for suitability at these temperatures. Pneumatic valves should be used with filtered and lubricated air.

Model Number	Pipe Thread	Overall Length	Hex Size
04702 0002	1/8"	0.44	7/16"
04704 0004	1/4"	0.63	9/16"
04706 0006	3/8"	0.75	11/16"
04708 0008	1/2"	0.88	7/8"
04712 0012	3/4"	1.00	1-1/6"
04716 0016	1"	1.31	1-5/16"
04720 0020	1-1/4"	1.41	1-11/16"
04724 0024	1-1/2"	1.50	2"

ES Series – Silencer



General Description

These low silhouette versions of the muffler / filter are useful where space is a problem and / or to prevent contamination. Use for vacuum relief or pressure equalization in gear boxes, oil tanks, reservoirs, etc. Non-corrosive.

The silencer is designed to give superior performance in noise control with a minimum effect on air efficiency. “Trimline” design allows location in the tightest places without extra plumbing and fittings. Fits directly into the exhaust port of more than 90% of present commercial valves. Slotted body permits rapid discharge of air without undesirable back pressure. Unique nylon screen element resists dirt buildup or clogging.

Specifications

Maximum Operating Pressure.....250 PSIG (Air)

Operating Temperature ..... 0° to 300°F*

* Ambient temperatures below freezing require moisture-free air. Ambient temperatures below freezing and above 180° require lubricants especially selected for suitability at these temperatures. Pneumatic valves should be used with filtered and lubricated air.

Model Numbers		Pipe Thread	Flow SCFM @ 100 PSIG Inlet	Dimensions		
NPTF	BSPT (R)			A	B	D
ES12MC	**ESB12MC**	1/8"	115	1.85	0.81	0.63
ES25MC	**ESB25MC**	1/4"	129	1.85	0.81	0.63
ES37MC	**ESB37MC**	3/8"	219	3.31	1.26	1.00
ES50MC	**ESB50MC**	1/2"	549	3.31	1.26	1.00
ES75MC	**ESB75MC**	3/4"	893	4.56	2.01	1.62
ES100MC	**ESB100MC**	1"	1,013	4.56	2.01	1.62
ES125MC	**ESB125MC**	1-1/4"	1,486	5.69	2.88	—
ES150MC	**ESB150MC**	1-1/2"	1,580	5.69	2.88	—

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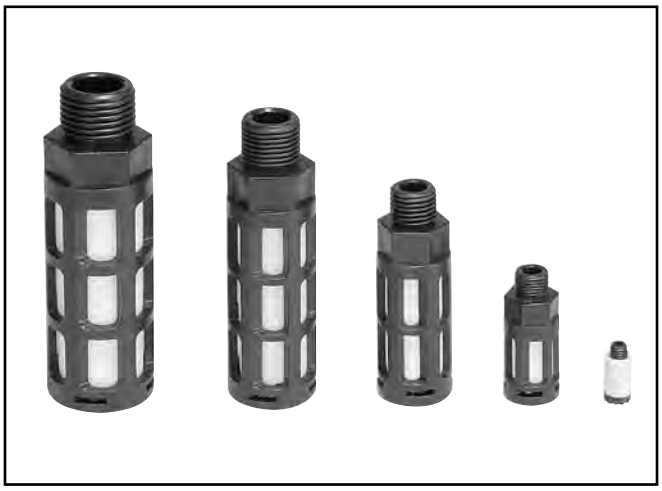

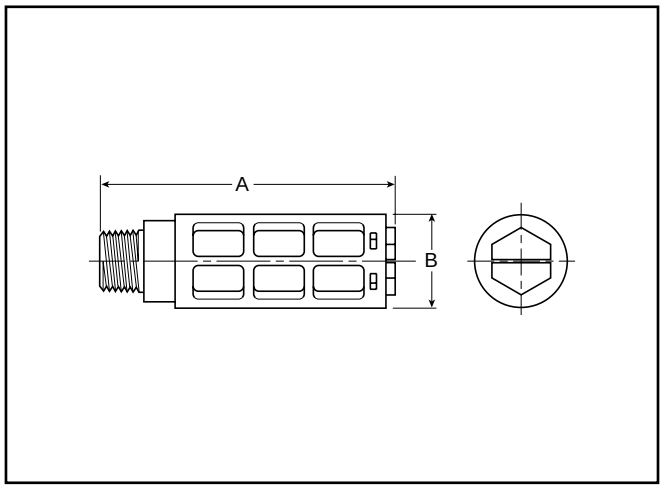

Features

- Compact
- Lightweight
- Easy to Install
- Excellent Noise Reduction
- Protects Components from Contamination
- NPT and BSPT Threads Available

Part Number		Thread Size	A (mm)	B (mm)	Maximum Flow (SCFM) 100 PSIG Inlet	Sound Pressure Level (dBA)	
NPT	BSPT					20 PSIG Inlet	100 PSIG Inlet
AS-5		M5	0.43 (11)	0.32 (8)	15	69	79
ASN-6	**AS-6**	1/8"	1.57 (40)	0.63 (16)	51	69	81
ASN-8	**AS-8**	1/4"	2.56 (65)	0.83 (21)	124	67	84
ASN-10	**AS-10**	3/8"	3.35 (85)	0.98 (25)	247	83	98
ASN-15	**AS-15**	1/2"	3.74 (95)	1.18 (30)	370	69	96

Application

The plastic silencer is designed to give excellent noise reduction with a minimum effect on air efficiency. The "Trimline" design allows for locating the silencer in the tightest places without extra plumbing or fittings. Fits directly into the exhaust port of most commercial valves. Open surface area of element allows for rapid discharge of air without undesirable back pressure.

Specifications

Pressure Rating.....0 to 150 PSIG (0 to 10 bar, 0 to 1034 kPa)

Temperature Rating .....14°F to 140°F (-10°C to 60°C)

Body .....Acetal (Plastic)

Element ..... Polyethylene

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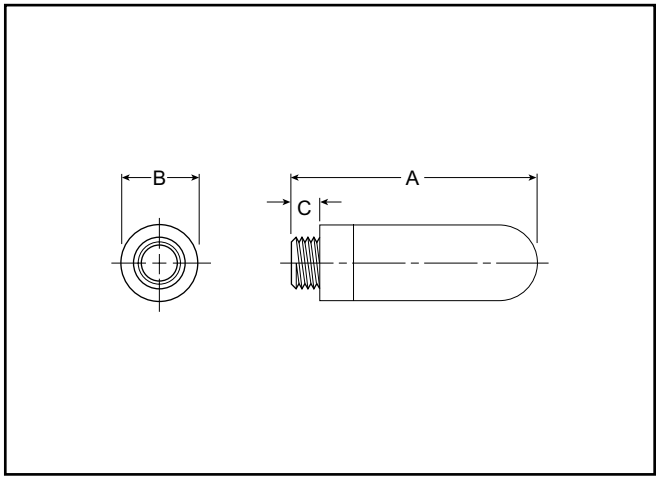

Features

- All Plastic Ultra Light Weight Versions
- High Noise Level Reduction
- Low Back Pressure Generation

Application

The plastic silencer is designed to give excellent noise reduction with a minimum effect on air efficiency. The "Trimline" design allows for locating the silencer in the tightest places without extra plumbing or fittings. Fits directly into the exhaust port of most commercial valves. Open surface area of element allows for rapid discharge of air without undesirable back pressure.

Part Number	Port Thread	A	Diameter B	C	Weight (grams)
P6M-PAC5	M5	0.91 (23)	0.26 (6,5)	0.16 (4)	0.01
P6M-PAB1	G1/8	1.14 (29)	0.55 (14)	0.24 (6)	0.02
P6M-PAB2	G1/4	1.34 (34)	0.67 (17)	0.24 (6)	0.04
P6M-PAB3	G3/8	2.36 (60)	0.98 (25)	0.35 (9)	0.06
P6M-PAB4	G1/2	2.52 (64)	0.98 (25)	0.43 (11)	0.10
P6M-PAB6	G3/4	5.51 (140)	1.50 (38)	0.55 (14)	0.50
P6M-PAB8	G1	6.30 (160)	1.89 (48)	0.79 (20)	0.62

Specifications

Pressure Rating..... 0 to 246 PSIG
(0 to 17 bar, 0 to 1700 kPa)

Temperature Rating

Plastic .....14°F to 176 °F (-10°C to 80°C)
Metal.....14°F to 165 °F (-10°C to 74°C)

Efficiency 92%

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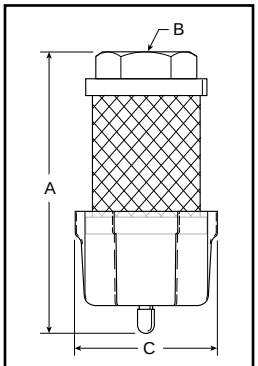
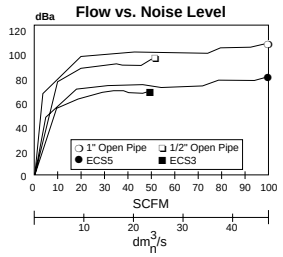
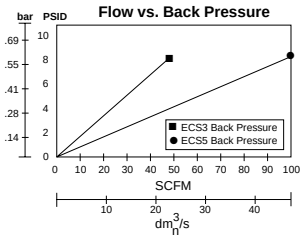


Dimensions:

Model	A	B	C
ECS3	5.30 (135 mm)	1/2" NPT	2.57 (65 mm)
ECS5	7.30 (185mm)	1" NPT	2.57 (65mm)

Performance Characteristics





Features

The ECS (Muffler-Reclassifier) eliminates unwanted oil mist and reduces exhaust noise from pneumatic valves, cylinders and air motors.

- 99.97% Oil Removal Efficiencies
- 25 dBA Noise Attenuation
- 1/2" NPT and 1" NPT
- Disposable Units
- Continuous or Plugged Drain Option
- Metal Retained Construction
- Fast Exhaust Time

Improve Overall Plant Environment

Exhaust oil mist and noise pollution have a direct impact on worker productivity.

Oil aerosol mist from lubricators and compressors is pervasive and enters the industrial plant environment through the exhaust ports of valves, cylinders and air motors. This rapidly expanding exhaust also produces sudden and excessive noise.

The ECS (Muffler-Reclassifier) is 99.97% efficient at removing the oil aerosols. The ECS also acts as a silencer to lower the dBA levels below O.S.H.A. requirements.

The result is a cleaner, quieter environment which equates to greater work productivity and safety.

Operation

Compressor oils and lubricating oils are exhausted from valves, cylinders and air motors into the ECS. Oil aerosols are “coalesced” into larger droplets and gravity pulls them into the attached drain sump. The sump can then be drained manually or by using a 1/4" ID plastic tube drain. The air flowing into the ECS is also muffled or silenced as it enters the inside of the ECS and passes through the filter media into the atmosphere.

Proven Technology

The ECS units are constructed from the same materials that go into our oil removal coalescing filter elements.

The seamless design insures media uniformity and strength. This proven technology provides high coalescing efficiency with low pressure drop.

The filter media is supported by cylindrical perforated steel retainers both inside and out. These retainers, fully plated for excellent corrosion resistance, give the ECS units high rupture strength in either flow direction. These filters can also be used as high efficiency inlet or bypass filters for vacuum pumps, or breather elements to protect the air above critical process liquids.

ECS3 / ECS5

The ECS solves two problems inherent in compressed air exhaust from valves, cylinders and air motors - oil mist removal and noise abatement.

The ECS will improve your industrial plant environment, thereby improving worker productivity.

Specifications

Maximum Operating Temperature .....125°F (52°C)

Maximum Line Pressure.....100 PSIG (6.8 bar)

Ordering Information

ECS	3	*

Size	Engineering Level
3 1/2 inch 5 1 Inch	* Will be entered at factory.

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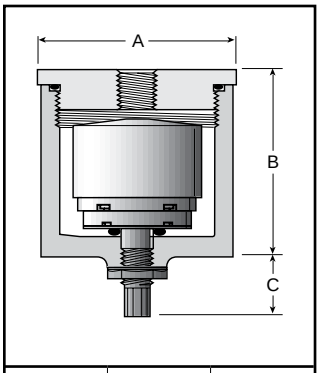
Automatic Drip Leg Drain



A	B	C
2.50	2.37	0.87
64 mm	60 mm	22 mm

Features

- Auto Drain Ported 1/8" to Pipe Away Liquid.
- Drain has Manual Override
- Easily Serviced without Tool
- 20-250 PSIG Range
- Compact Size

Specifications

Housing & Cap.....Aluminum

Port Threads..... 1/4" - 1/2" Top
1/8" Drain

Pressure and Temperature Ratings:
Metal Bowl..... 20 to 250 PSIG (0 to 17.2 bar)
32°F to 175°F (0°C to 80°C)

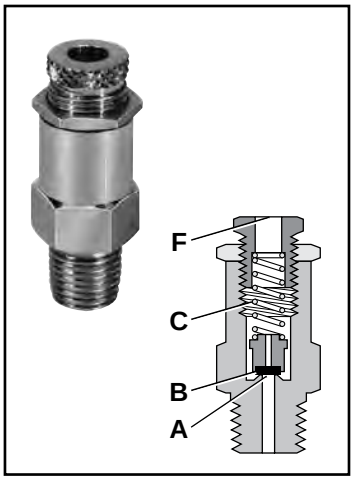
Seals.....Buna N

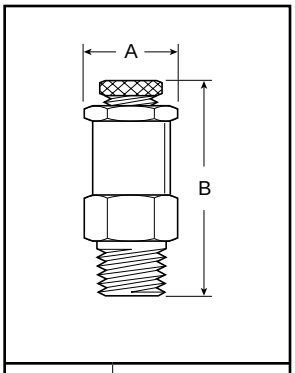
Ordering Information

Consists of Drip Leg Drain Housing WITH Auto Drain.

Model No.	Size
06D1NA	1/4"
06D3NA	1/2"

Relief Valve





A	B
0.75 Hex	1.88 - 2.25
19 mm	47.8 - 57.2 mm

Features

- Large Relief Capacity (70.39 SCFM @ 150 PSI when fully opened) in a Compact Size
- Lightweight Aluminum Construction with Resilient Seat

Application

The RV01A1N Pop Off Relief Valve is designed to protect against excessive pressure buildup in a pneumatic circuit or system.

Operation*

With the relief valve mounted in a reservoir or system, the force of system pressure at **(A)** is offset by the force of spring **(C)** acting on poppet seat **(B)**. At pressures lower than the setting, the poppet seat **(B)** is held against the body at **(A)** effecting a seal. As pressure approaches set point, the poppet begins to vent until set point is reached, at which time the poppet seat **(B)** lifts off the body at **(A)** allowing the excess pressure to vent to atmosphere at **(F)**. When the excess pressure has been vented, the spring **(C)** acts on the poppet seat **(B)** forcing it to seat on the body at **(A)**, sealing off the flow of air.

Specification

Body & Adjusting Screw.....Aluminum

Locking Nut.....Steel

Seat.....Nitrile

Spring.....Steel

Poppet..... Plastic

Operating Temperature†..... 0°F to 200°F (-17°C to 93°C)

Port Threads..... 1/4 Inch Male

Relief Range..... 10 to 200 PSIG (.7 to 14 bar)
with standard spring.

* Ref: 1RV100B Installation & Service Instructions

† Only if using dry air for temperatures below 32°F (0°C)

Ordering Information

Seals

RV01A1N	**XXX**	
	10 -200 PSI	**Blank** **BUNA** V Flurocarbon

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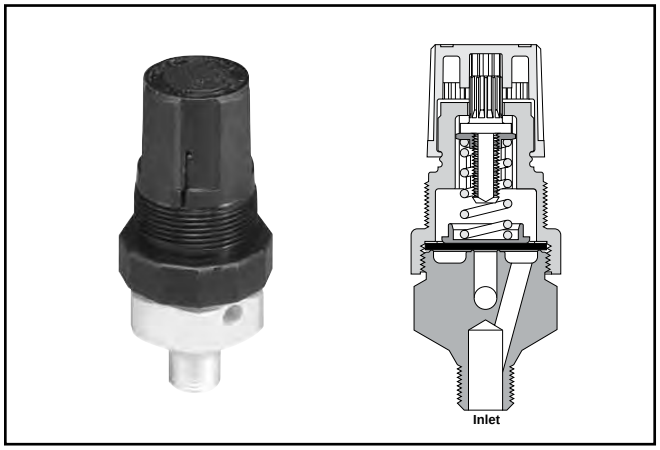
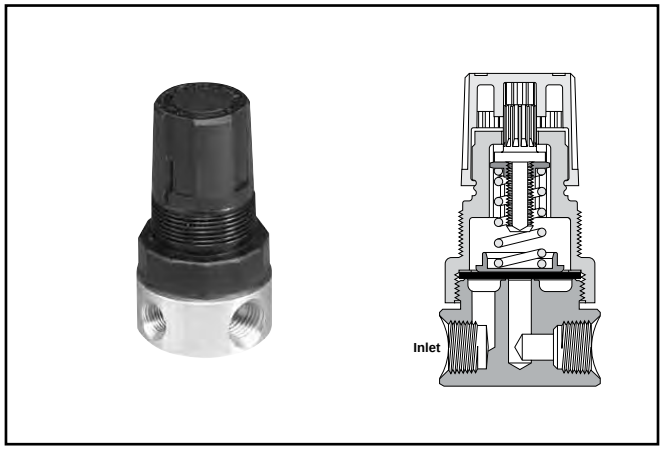
130 Relief Valve



134 Relief Valve



Features

- Compact, Sensitive Diaphragm-type Relief Valve
- Push-pull, Locking Knob
- Knob and Top Work the Same as a Miniature Regulator
- 130 has Lightweight Aluminum Construction
- 134 has a brass body, captured exhaust and is an Inline Type with 3 Inlet Ports and 1 Outlet Port

Applications

- Designed to Protect Against Excessive Pressure Buildup in a Pneumatic Circuit or System
- For Use where Gradual Proportional Relief is Required

Operation

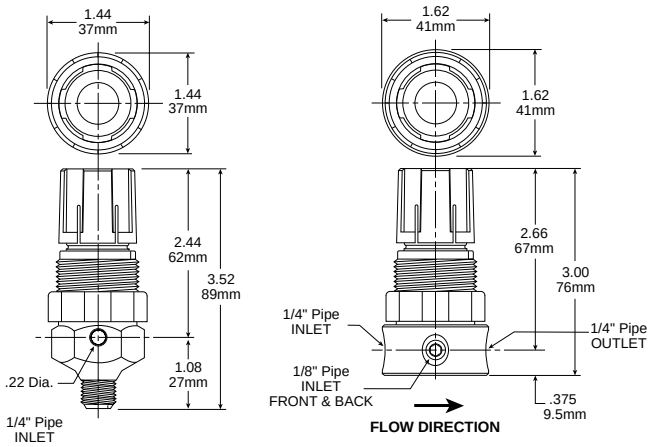
- Turn relief valve knob clockwise for maximum pressure.
- Set pressure going into relief valve at desired pressure.
- Turn relief valve knob counter-clockwise until exhaust starts to bleed.
- Turn relief valve knob clockwise until exhaust stops bleeding. Push to lock knob.

Ordering Information

Relief Valve	Spring Range			
	0-15 PSIG	0-25 PSIG	0-50 PSIG	0-100 PSIG
130	130-02AA 130-02AAP*	130-02A 130-02AP*	130-02B 130-02BP*	130-02C 130-02CP*
134	134-02AA 134-02AAP*	134-02A 134-02AP*	134-02B 134-02BP*	134-02C 134-02CP*

* Panel mount nut included.

Dimensions



130 **134**

Relief Valve Kits

Bonnet Assembly Kit PCKR364Y
Panel Mount Nut PR05X51

Specifications

Relief Range ..... 0 to 100 PSIG (0 to 6.9 bar)
Maximum Inlet Pressure ..... 300 PSIG (20.7 bar)
Operating Temperature ..... 40°F to 120°F (4°C to 49°C)
Port Threads:
130 ..... 1/4" Pipe Male Only
134 ..... Inlet Port – Two 1/8" & One 1/4" Pipe
Outlet Port – 1/4" Pipe

Materials of Construction

Adjusting Knob ..... Polypropylene
Adjusting Screw ..... Zinc-plated Steel
Body ..... Aluminum (130); Brass (134)
Diaphragm / Disc ..... Buna-N
Nut ..... Chromated Steel
Spring Cage ..... Acetal
Spring ..... Zinc-plated Steel

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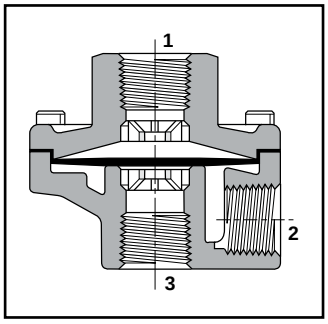
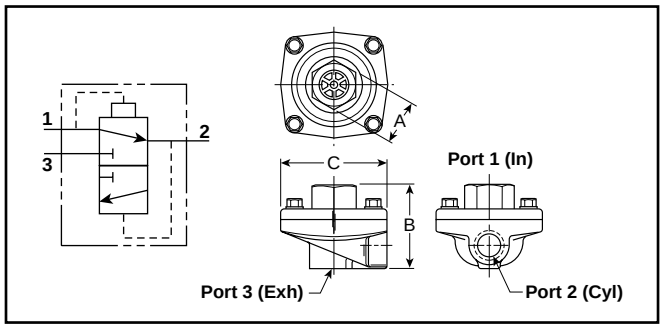




General Information

Quick exhaust valves provide rapid exhaust of control air when placed between control valve and actuator. They can also be used as shuttle valves. Diaphragm materials are available in urethane, Nitrile, Fluorocarbon, and PTFE to meet a wide variety of operating conditions.

Valve Specifications

Operating Pressure (Air)

Maximum:

150 PSIG

200 PSIG for Model No. 0R37TB (PTFE diaphragm)

Minimum:

3 PSIG

50 PSIG for Model No. 0R37TB (PTFE diaphragm)

Operating Temperature:

Urethane: 0°F to 180°F* (-18°C to 80°C)

Nitrile: 0°F to 180°F* (-18°C to 80°C)

Fluorocarbon: 0°F to 400°F* (-18°C to 205°C)

PTFE: 0°F to 500°F* (-18°C to 260°C)

* Ambient temperatures below freezing require moisture-free air. Ambient temperatures below freezing and above 180° require lubricants especially selected for suitability at these temperatures. Pneumatic valves should be used with filtered and lubricated air.

Component Materials

Body Material..... Die cast aluminum

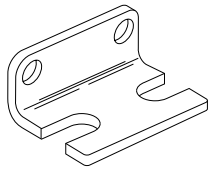
Static Seals.....Nitrile standard with urethane (Others see below)

Diaphragm ..... Standard – Urethane
Optional – Fluorocarbon, PTFE, or Nitrile (Depending on size)

Mounting Bracket Kit – No. 03640 8100

(Including body screws)

For “0R12” and “0R25” sizes with 7/8" “A” Dimension.



Model Selection, Performance Data and Dimensions

Port			Flow	Model Number		A	B	C	Service
1	2	3	(SCFM†)	NPTF	BSPP “G”				Kit No.
STANDARD URETHANE DIAPHRAGMS (Nitrile static seals)									
1/4"	1/4"	3/8"	150	**0R25NB**	0RB25NB	1" Hex	2.06	2.44	03340 0105
	3/8"	3/8"	240	**0R25PB**	—	1" Hex	2.06	2.44	03340 0105
3/8"	3/8"	3/8"	240	**0R37B**	0RB37B	1" Hex	2.06	2.44	03340 0105
1/2"	1/2"	1/2"	450	**0R50B**	0RB50B	1-1/2" Hex	2.88	3.38	03475 0109
3/4"	3/4"	3/4"	550	**0R75B**	0RB75B	1-1/2" Hex	2.88	3.38	03475 0109
NITRILE DIAPHRAGMS (Nitrile static seals)									
1/8"	1/8"	1/8"	70	**0R12B**	0RB12B	7/8" Sq.	1.75	1.88	03640 8000
	1/8"	1/4"	70	**0R12NB**	0RB12NB	7/8" Sq.	1.75	1.88	03640 8000
1/4"	1/4"	1/4"	90	**0R25B**	0RB25B	7/8" Sq.	1.75	1.88	03640 8000
	1/4"	3/8"	90	0R25NFB	0RB25NFB	7/8" Sq.	1.75	1.88	03340 8000
3/8"	3/8"	3/8"	240	0R37FB	0RB37FB	1" Hex	2.06	2.44	03340 8000
3/4"	3/4"	3/4"	550	0R75FB	0RB75FB	1-1/2" Hex	2.88	3.38	03475 9000
FLUOROCARBON DIAPHRAGMS for extended temperature operation (Fluorocarbon static seals)									
1/8"	1/8"	1/8"	70	0R12VB	0RB12VB	7/8" Sq.	1.75	1.88	03650 8000
	1/8"	1/4"	70	0R12NVB	0RB12NVB	7/8" Sq.	1.75	1.88	03650 8000
1/4"	1/4"	1/4"	90	0R25VB	0RB25VB	7/8" Sq.	1.75	1.88	03650 8000
3/8"	3/8"	3/8"	240	0R37VB	0RB37VB	1" Hex	2.06	2.44	03340 0319
1/2"	1/2"	1/2"	450	0R50VB	0RB50VB	1-1/2" Hex	2.88	3.38	03475 0120
3/4"	3/4"	3/4"	550	0R75VB	0RB75VB	1-1/2" Hex	2.88	3.38	03475 0120
PTFE DIAPHRAGMS for higher pressure and temperature (Fibre static seals)									
3/8"	3/8"	3/8"	240	0R37TB	0RB37TB	1" Hex	2.06	2.44	03340 0504

† At 100 PSIG inlet pressure with full pressure drop.

BOLD ITEMS ARE MOST POPULAR.

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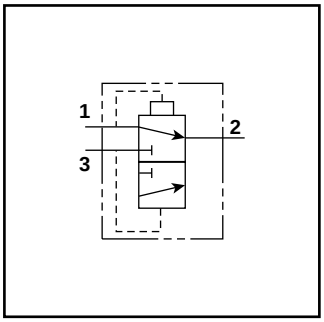

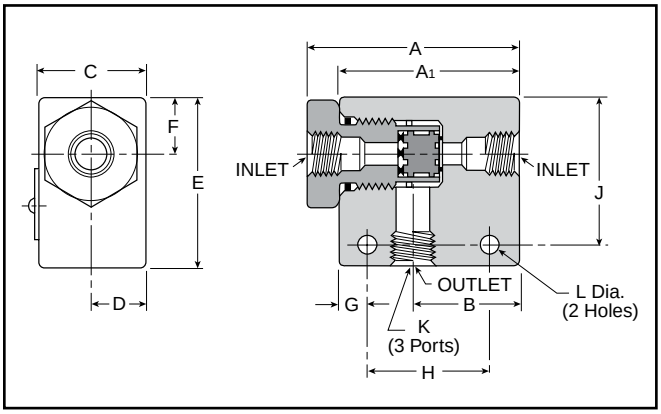

General Information

Shuttle valves determine a single pneumatic output from two separate inputs. If pressure is applied to both ports simultaneously, the valve will select the port with the higher pressure.

Valve Specifications

Maximum Operating Pressure.....200 PSIG Maximum
3 PSIG Minimum: Differential Pressure

Operating Temperature .....0° to 160°F*

* Ambient temperatures below freezing require moisture-free air. Ambient temperatures below freezing and above 180° require lubricants especially selected for suitability at these temperatures. Pneumatic valves should be used with filtered and lubricated air.

Component Materials

Body Material.....Aluminum
Internal Components..... Aluminum
Seals.....Nitrile

Model Selection and Dimensions

Model Number	Port Size	Dimensions											
		A	A1	B	C	D	E	F	G	H	J	K	L
N164 1001	1/8"	N/A	1.62	0.81	0.62	0.31	1.00	0.281	0.312	1.00	0.75	1/8 - 27	0.219
N164 2003	1/4"	2.50	2.12	1.25	1.25	0.62	2.00	0.67	0.265	1.25	1.35	1/4 - 18	0.219
N164 3003	3/8"	2.50	2.12	1.25	1.25	0.62	2.00	0.67	0.265	1.25	1.35	3/8 - 16	0.219

Performance Data – Flow

Model Number	Port Size	Flow (Cv)
N164 1001	1/8"	0.32
N164 2003	1/4"	1.65
N164 3003	3/8"	2.02

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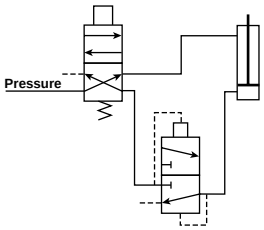
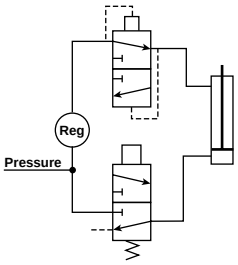
Typical "Quick Exhaust Valve" Applications



Rapid Retraction – Double Acting Cylinder

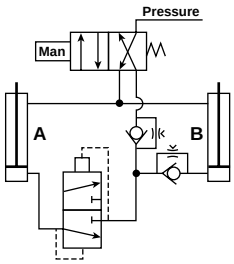
In this circuit, air is exhausted through a Quick Exhaust Valve that is **close coupled** to the cap end of the cylinder. Because the Quick Exhaust Valve has a greater exhaust capacity than the four-way Control Valve, increased cylinder speed can be accomplished with a smaller and less expensive control valve.



Dual Pressure Actuation of Double Acting Cylinder

This circuit utilizes a Quick Exhaust Valve and a three-way Control Valve to permit rapid extension of the cylinder at a high pressure. nder life.

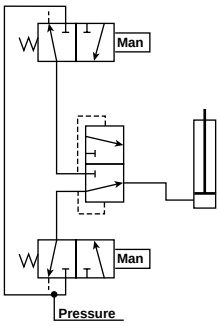
NOTE: Line pressure must be 3 or 4 times greater than rod end pressure. Effective working pressure is the differential between the cap and rod end.



Bi-Directional Control of Two Double Acting Cylinders

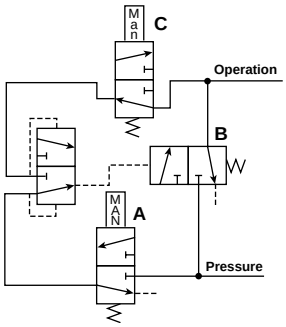
This circuit provides maximum control with a minimum of valving. A large four-way Control Valve is not needed to permit the rapid retraction of Cylinder A, as the Quick Exhaust Valve performs this function. The extension of Cylinders A and B and retraction of Cylinder B are controlled by Speed Control Valves.

Typical "Shuttle Valve" Applications



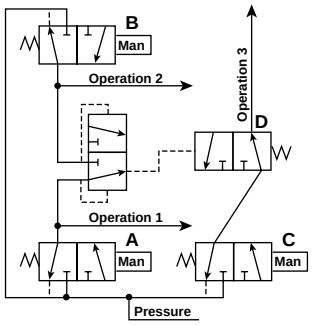
"OR" Circuit

The most common application of the Shuttle Valve is the "OR" Circuit. Here a cylinder or other work device can be actuated by either control valve. The valves can be manually or electrically actuated and located in any position.



Memory Circuit

This circuit enables continuous operation once initiated. Pressure is delivered to the circuit when Valve A is actuated. This allows pressure to pass through the shuttle valve actuating Valve B. Pressure then flows through Valve B and also the other side of the shuttle valve which holds Valve B open for continuous operation. To unlock the circuit, Valve C must be opened to exhaust the circuit and allow Valve B to return to its normally closed position.



Interlock

This circuit prevents the occurrence of a specific operation while one or another operation takes place. When either Valve A or B is actuated to perform operation 1 or 2, Valve D is shifted to the closed position and prevents operation 3 from occurring.

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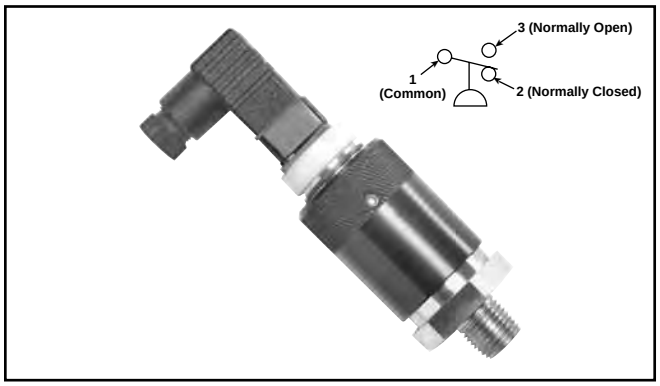
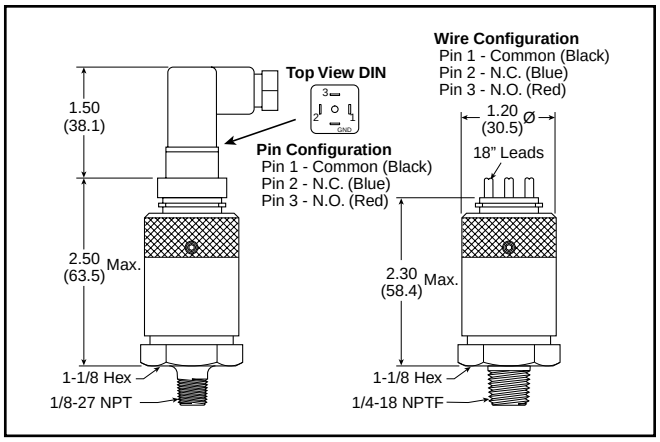
Pressure Switch – PPS1



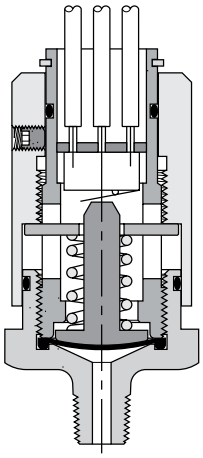


Features:

- Long life elastomer diaphragm
- High quality snap action switch
- Field adjustable
- Compact design
- Easily customized
- Quick delivery
- NEMA 4, 13

Operation

The pressure switch monitors the air pressure in your pneumatic system. When the pressure in your system either drops below or exceeds the set point pressure, an electrical output is given.



Ordering Information

	Thread	Circuit	Range		Set Point Direction	Electrical Connection
PPS1 -	1	C	3	-	R	HM

Thread	
1	1/4" NPT Male
2	1/8" NPT Male
17	1/4" BSPP Male
28	1/8" BSPP Male

Set Point Direction	
R	Rising

Electrical Connection	
HM	DIN 9.4mm
WL	Wire Leads 18"

Circuit	
C	SPDT

Range*	
1	3-10 PSI
2	6-30 PSI
3	20-120 PSI
4	100-400 PSI†

† Only available in 1/4" NPT

* Factory setting for calibration purposes
Range 1 = 6 PSI
Range 2 = 18 PSI
Range 3 = 70 PSI
Range 4 = 250 PSI

Note: Switch is field adjustable.

Definitions and Terminology

Repeatability — Accuracy is the maximum allowable set point deviation of a single pressure or temperature switch under one given set of environmental and operational conditions.

Single Pole Double Throw (SPDT) Switching element — A SPDT switching element has one normally open, one normally closed and one common terminal. Three terminals mean that the switch can be wired with the circuit either normally open (NO), or normally closed (NC), or both.

Dead Band — The dead band, sometimes referred to as “differential” or “hysterisis”, is the change in pressure between actuation and deactuation set points.

Specifications

Set Point Tolerance ..... ±1 PSI or 5% (.07 bar)
Temperature Range ..... -40F° to 220F° (-40C° to 105C°)
Max. Operating Pressure (Ranges 1, 2, 3) ..... 250 PSI (17.2 bar)
Max. Operating Pressure (Range 4) ..... 2000 PSI (137.9 bar)
Deadband ..... 10 - 20% of set pressure
Current Rating ..... 3A @ 125 VAC
2A @ 30 VDC (Resistive)
Circuit Form ..... SPDT Standard
Cycle Life ..... 1 Million

Materials of Construction

Adjustment Knob ..... Anodized Aluminum
Body ..... Brass
Diaphragm ..... Nitrile

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WDV3-G

Specifications

Operating Pressure..... 230 PSIG (15,9 bar)

Ambient Operating Range Temperature:
34° to 130°F (1.1° to 54°C)

Coil Insulation
Class H .....340°F (171.1°C)

Voltages
AC 115, 230/50-60

Timer:
Open Time..... .5 to 10 sec., Adjustable
Cycle Time..... .5 sec. to 45 min., Adjustable

Maximum Current Rating .....4mA Max.

Port Size..... 1/4, 3/8, 1/2 NPT

Weight ..... 1.8 lb. (0.8 kg)

Materials of Construction

aling Material ..... FPM (Fluorocarbon)

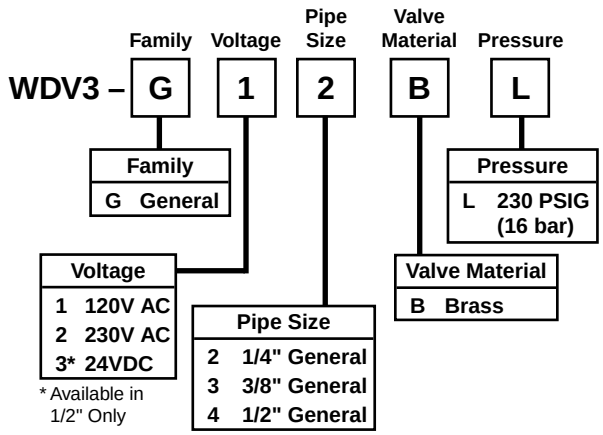
The WDV3 Electrical Drain is designed to remove condensate from compressors, compressed air dryers and receivers up to any size, type or manufacturer.

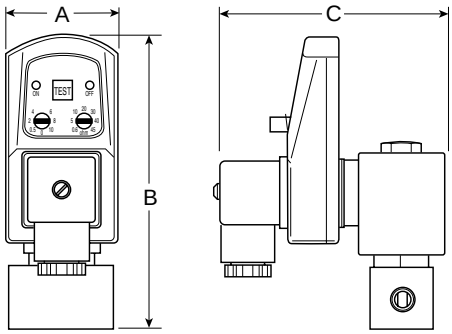
The WDV3 offers true installation simplicity and it is recognized as the most reliable and best performing condensate drain worldwide. The large orifice in the direct acting valve, combined with its sophisticated timer module ensure many years of trouble-free draining of condensate.

Benefits

- Does Not Air-Lock During Operation
- Compressed Air Systems Up to Any Size
- Also Available In Stainless Steel
- The Direct Acting Valve Is Serviceable
- Suitable for All Types of Compressors
- TEST (Micro-Switch) Feature
- High Time Cycle Accuracy
- Large (4.5mm) Valve Orifice

Ordering Information





Model Selection and Dimensions

Model Number	A	B	C
WDV3-G**BL	1.73 (44)	4.53 (115)	3.46 (88)

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Zero air loss condensate drains are designed for economical removal of unwanted water, oil emulsions, and other liquids. These drains will only open when liquid is present and will not allow any compressed air to escape from the system.

Operating Information

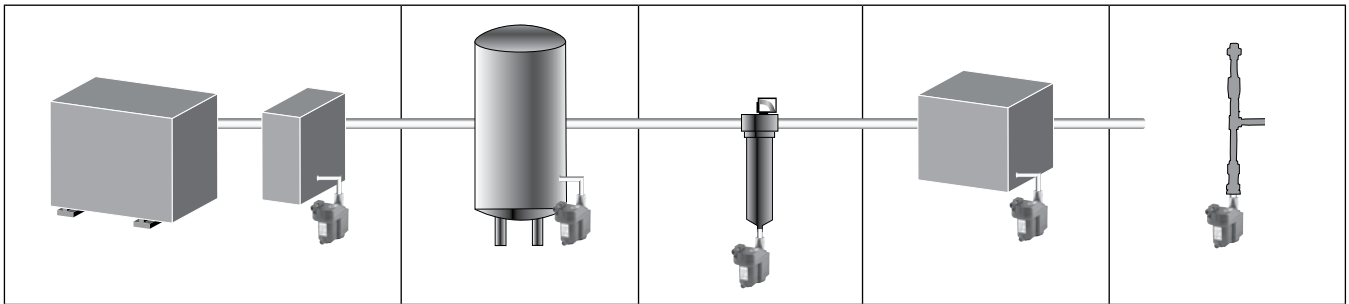
Maximum pressure		232 PSIG (16 bar)
Ambient operating temperature		35°F to 140°F (1.6°C to 60°C)
Voltages	NPT	115/50-60Hz, standard
Optional:	BSPP ports	230/50-60Hz & 24VDC

Zero Air Loss Condensate Drains

Port size (NPT)	Compressor aftercooler (SCFM)*	Capacity refrigeration dryer (SCFM)**	Filter (SCFM)	Drain capacity per day (gal/liter)	Model number	Service kit †
3/8	—	—	424	6 (22.7)	**ED3002N115-K**	**SKED3000N115**
1 x 1/2, 3/8	141	282	1,413	13 (49.2)	**ED3004N115-K**	**SKED3000N115**
2 x 1/2, 3/8	247	494	2,472	23 (87.1)	**ED3007N115-K**	**SKED3000N115**
2 x 1/2, 3/8	1,059	2,119	10,594	100 (378.5)	**ED3030N115-K**	**SKED3000N115**
2 x 1/2, 3/8	3,532	7,063	35,315	330 (1,249.2)	**ED3100N115-K**	**SKED3000N115**

* Based on 100 PSI working pressure, air compressor inlet at 77°F (25°C) at 60% RH, air discharge temperature od 95°F (35°C) following the aftercooler, pressure dewpoint of 37°F (2.8°C) after the refrigerated dryer.
** Condensate from aftercooler or refrigerated dryer to be drained upstream – only for residual oil content or small quantities of condensate.
† ——
Note: A 6 ft. line cord will be included with each drain.

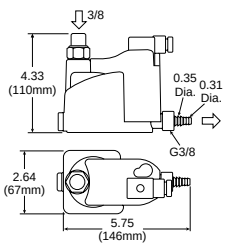
Where are condensate drains used?



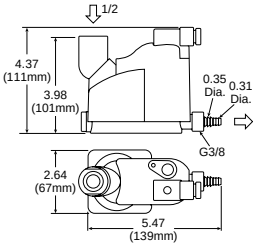
Compressor with aftercooler	Receiver tank	Filter	Air dryer	Drip leg
Removes the condensate that is collected after the air cools in the aftercooler	Removes the condensate that is collected when the air cools inside of the receiver tank	Removes the condensate that is collected in the filter bowl	Removes the condensate that is collected in the air dryer	Point-of-use applications: removes the condensate from compressed air pipes in a plant

Dimensions

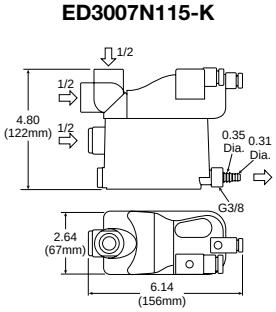
ED3002N115-K



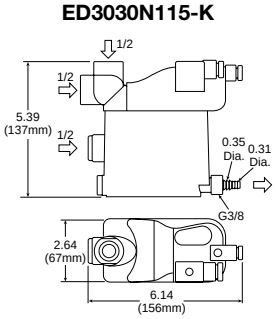
ED3004N115-K



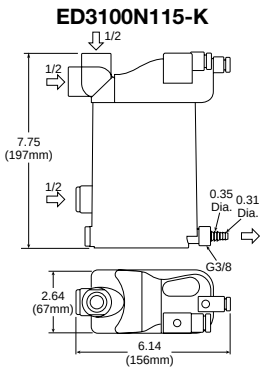
ED3007N115-K



ED3030N115-K



ED3100N115-K



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Safety Guide For Selecting And Using Pneumatic Division Products And Related Accessories

⚠ WARNING:

FAILURE OR IMPROPER SELECTION OR IMPROPER USE OF PNEUMATIC DIVISION PRODUCTS, ASSEMBLIES OR RELATED ITEMS ("PRODUCTS") CAN CAUSE DEATH, PERSONAL INJURY, AND PROPERTY DAMAGE. POSSIBLE CONSEQUENCES OF FAILURE OR IMPROPER SELECTION OR IMPROPER USE OF THESE PRODUCTS INCLUDE BUT ARE NOT LIMITED TO:

- Unintended or mistimed cycling or motion of machine members or failure to cycle
- Work pieces or component parts being thrown off at high speeds.
- Failure of a device to function properly for example, failure to clamp or unclamp an associated item or device.
- Explosion
- Suddenly moving or falling objects.
- Release of toxic or otherwise injurious liquids or gasses.

Before selecting or using any of these Products, it is important that you read and follow the instructions below.

1. GENERAL INSTRUCTIONS

1.1. Scope: This safety guide is designed to cover general guidelines on the installation, use, and maintenance of Pneumatic Division Valves, FRLs (Filters, Pressure Regulators, and Lubricators), Vacuum products and related accessory components.

1.2. Fail-Safe: Valves, FRLs, Vacuum products and their related components can and do fail without warning for many reasons. Design all systems and equipment in a fail-safe mode, so that failure of associated valves, FRLs or Vacuum products will not endanger persons or property.

1.3 Relevant International Standards: For a good guide to the application of a broad spectrum of pneumatic fluid power devices see: ISO 4414:1998, Pneumatic Fluid Power – General Rules Relating to Systems. See www.iso.org for ordering information.

1.4. Distribution: Provide a copy of this safety guide to each person that is responsible for selection, installation, or use of Valves, FRLs or Vacuum products. Do not select, or use Parker valves, FRLs or vacuum products without thoroughly reading and understanding this safety guide as well as the specific Parker publications for the products considered or selected.

1.5. User Responsibility: Due to the wide variety of operating conditions and applications for valves, FRLs, and vacuum products Parker and its distributors do not represent or warrant that any particular valve, FRL or vacuum product is suitable for any specific end use system. This safety guide does not analyze all technical parameters that must be considered in selecting a product. The user, through its own analysis and testing, is solely responsible for:

- Making the final selection of the appropriate valve, FRL, Vacuum component, or accessory.
- Assuring that all user's performance, endurance, maintenance, safety, and warning requirements are met and that the application presents no health or safety hazards.
- Complying with all existing warning labels and / or providing all appropriate health and safety warnings on the equipment on which the valves, FRLs or Vacuum products are used; and,
- Assuring compliance with all applicable government and industry standards.

1.6. Safety Devices: Safety devices should not be removed, or defeated.

1.7. Warning Labels: Warning labels should not be removed, painted over or otherwise obscured.

1.8. Additional Questions: Call the appropriate Parker technical service department if you have any questions or require any additional information. See the Parker publication for the product being considered or used, or call 1-800-CPARKER, or go to www.parker.com, for telephone numbers of the appropriate technical service department.

2. PRODUCT SELECTION INSTRUCTIONS

2.1. Flow Rate: The flow rate requirements of a system are frequently the primary consideration when designing any pneumatic system. System components need to be able to provide adequate flow and pressure for the desired application.

2.2. Pressure Rating: Never exceed the rated pressure of a product. Consult product labeling, Pneumatic Division catalogs or the instruction sheets supplied for maximum pressure ratings.

2.3. Temperature Rating: Never exceed the temperature rating of a product. Excessive heat can shorten the life expectancy of a product and result in complete product failure.

2.4. Environment: Many environmental conditions can affect the integrity and suitability of a product for a given application. Pneumatic Division products are designed for use in general purpose industrial applications. If these products are to be used in unusual circumstances such as direct sunlight and/or corrosive or caustic environments, such use can shorten the useful life and lead to premature failure of a product.

2.5. Lubrication and Compressor Carryover: Some modern synthetic oils can and will attack nitrile seals. If there is any possibility of synthetic oils or greases migrating into the pneumatic components check for compatibility with the seal materials used. Consult the factory or product literature for materials of construction.

2.6. Polycarbonate Bowls and Sight Glasses: To avoid potential polycarbonate bowl failures:

- Do not locate polycarbonate bowls or sight glasses in areas where they could be subject to direct sunlight, impact blow, or temperatures outside of the rated range.
- Do not expose or clean polycarbonate bowls with detergents, chlorinated hydro-carbons, keytones, esters or certain alcohols.
- Do not use polycarbonate bowls or sight glasses in air systems where compressors are lubricated with fire resistant fluids such as phosphate ester and di-ester lubricants.

2.7. Chemical Compatibility: For more information on plastic component chemical compatibility see Pneumatic Division technical bulletins Tec-3, Tec-4, and Tec-5

2.8. Product Rupture: Product rupture can cause death, serious personal injury, and property damage.
- Do not connect pressure regulators or other Pneumatic Division products to bottled gas cylinders.
- Do not exceed the maximum primary pressure rating of any pressure regulator or any system component.
- Consult product labeling or product literature for pressure rating limitations.

3. PRODUCT ASSEMBLY AND INSTALLATION INSTRUCTIONS

3.1. Component Inspection: Prior to assembly or installation a careful examination of the valves, FRLs or vacuum products must be performed. All components must be checked for correct style, size, and catalog number. DO NOT use any component that displays any signs of nonconformance.

3.2. Installation Instructions: Parker published Installation Instructions must be followed for installation of Parker valves, FRLs and vacuum components. These instructions are provided with every Parker valve or FRL sold, or by calling 1-800-CPARKER, or at www.parker.com.

3.3. Air Supply: The air supply or control medium supplied to Valves, FRLs and Vacuum components must be moisture-free if ambient temperature can drop below freezing

4. VALVE AND FRL MAINTENANCE AND REPLACEMENT INSTRUCTIONS

4.1. Maintenance: Even with proper selection and installation, valve, FRL and vacuum products service life may be significantly reduced without a continuing maintenance program. The severity of the application, risk potential from a component failure, and experience with any known failures in the application or in similar applications should determine the frequency of inspections and the servicing or replacement of Pneumatic Division products so that products are replaced before any failure occurs. A maintenance program must be established and followed by the user and, at minimum, must include instructions 4.2 through 4.10.

4.2. Installation and Service Instructions: Before attempting to service or replace any worn or damaged parts consult the appropriate Service Bulletin for the valve or FRL in question for the appropriate practices to service the unit in question. These Service and Installation Instructions are provided with every Parker valve and FRL sold, or are available by calling 1-800-CPARKER, or by accessing the Parker web site at www.parker.com.

4.3. Lockout / Tagout Procedures: Be sure to follow all required lockout and tagout procedures when servicing equipment. For more information see: OSHA Standard – 29 CFR, Part 1910.147, Appendix A, The Control of Hazardous Energy – (Lockout / Tagout)

4.4. Visual Inspection: Any of the following conditions requires immediate system shut down and replacement of worn or damaged components:
- Air leakage: Look and listen to see if there are any signs of visual damage to any of the components in the system. Leakage is an indication of worn or damaged components.
- Damaged or degraded components: Look to see if there are any visible signs of wear or component degradation.
- Kinked, crushed, or damaged hoses. Kinked hoses can result in restricted air flow and lead to unpredictable system behavior.
- Any observed improper system or component function: Immediately shut down the system and correct malfunction.
- Excessive dirt build-up: Dirt and clutter can mask potentially hazardous situations.

Caution: Leak detection solutions should be rinsed off after use.

4.5. Routine Maintenance Issues:
- Remove excessive dirt, grime and clutter from work areas.
- Make sure all required guards and shields are in place.

4.6. Functional Test: Before initiating automatic operation, operate the system manually to make sure all required functions operate properly and safely.

4.7. Service or Replacement Intervals: It is the user's responsibility to establish appropriate service intervals. Valves, FRLs and vacuum products contain components that age, harden, wear, and otherwise deteriorate over time. Environmental conditions can significantly accelerate this process. Valves, FRLs and vacuum components need to be serviced or replaced on routine intervals. Service intervals need to be established based on:
- Previous performance experiences.
- Government and / or industrial standards.
- When failures could result in unacceptable down time, equipment damage or personal injury risk.

4.8. Servicing or Replacing of any Worn or Damaged Parts: To avoid unpredictable system behavior that can cause death, personal injury and property damage:
- Follow all government, state and local safety and servicing practices prior to service including but not limited to all OSHA Lockout Tagout procedures (OSHA Standard – 29 CFR, Part 1910.147, Appendix A, The Control of Hazardous Energy – Lockout / Tagout).
- Disconnect electrical supply (when necessary) before installation, servicing, or conversion.
- Disconnect air supply and depressurize all air lines connected to system and Pneumatic Division products before installation, service, or conversion.
- Installation, servicing, and / or conversion of these products must be performed by knowledgeable personnel who understand how pneumatic products are to be applied.
- After installation, servicing, or conversions air and electrical supplies (when necessary) should be connected and the product tested for proper function and leakage. If audible leakage is present, or if the product does not operate properly, do not put product or system into use.
- Warnings and specifications on the product should not be covered or painted over. If masking is not possible, contact your local representative for replacement labels.

4.9. Putting Serviced System Back into Operation: Follow the guidelines above and all relevant Installation and Maintenance Instructions supplied with the valve FRL or vacuum component to insure proper function of the system.

Parker Hannifin Corporation
Pneumatic Division
Richland, Michigan
www.parker.com/pneumatics

Offer of Sale

The goods, services or work (referred to as the "Products") offered by **Parker-Hannifin Corporation**, its subsidiaries, groups, divisions, and authorized distributors ("Seller") are offered for sale at prices indicated in the offer, or as may be established by Seller. The offer to sell the Products and acceptance of Seller's offer by any customer ("Buyer") is contingent upon, and will be governed by all of the terms and conditions contained in this Offer of Sale. Buyer's order for any Products specified in Buyer's purchase document or Seller's offer, proposal or quote ("Quote") attached to the purchase order, when communicated to Seller verbally, or in writing, shall constitute acceptance of this offer.

1. Terms and Conditions. Seller's willingness to offer Products for sale or accept an order for Products is subject to the terms and conditions contained in this Offer of Sale or any newer version of the same, published by Seller electronically at www.parker.com/saleterms/. Seller objects to any contrary or additional terms or conditions of Buyer's order or any other document or other communication issued by Buyer.

2. Price; Payment. Prices stated on Seller's Quote are valid for thirty (30) days, except as explicitly otherwise stated therein, and do not include any sales, use, or other taxes or duties unless specifically stated. Seller reserves the right to modify prices to adjust for any raw material price fluctuations. Unless otherwise specified by Seller, all prices are F.C.A. Seller's facility (INCOTERMS 2010). Payment is subject to credit approval and payment for all purchases is due thirty (30) days from the date of invoice (or such date as may be specified by Seller's Credit Department). Unpaid invoices beyond the specified payment date incur interest at the rate of 1.5% per month or the maximum allowable rate under applicable law.

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5. Claims; Commencement of Actions. Buyer shall promptly inspect all Products upon receipt. No claims for shortages will be allowed unless reported to the Seller within ten (10) days of delivery. No other claims against Seller will be allowed unless asserted in writing within thirty (30) days after delivery. Buyer shall notify Seller of any alleged breach of warranty within thirty (30) days after the date the defect is or should have been discovered by Buyer. Any claim or action against Seller based upon breach of contract or any other theory, including tort, negligence, or otherwise must be commenced within twelve (12) months from the date of the alleged breach or other alleged event, without regard to the date of discovery.

6. LIMITATION OF LIABILITY. IN THE EVENT OF A BREACH OF WARRANTY, SELLER WILL, AT ITS OPTION, REPAIR OR REPLACE A DEFECTIVE PRODUCT, OR REFUND THE PURCHASE PRICE WITHIN A REASONABLE PERIOD OF TIME. **IN NO EVENT IS SELLER LIABLE FOR ANY SPECIAL, INDIRECT, INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF, OR AS THE RESULT OF, THE SALE, DELIVERY, NON-DELIVERY, SERVICING, USE OR LOSS OF USE OF THE PRODUCTS OR ANY PART THEREOF, OR FOR ANY CHARGES OR EXPENSES OF ANY NATURE INCURRED WITHOUT SELLER'S WRITTEN CONSENT, WHETHER BASED IN CONTRACT, TORT OR OTHER LEGAL THEORY. IN NO EVENT SHALL SELLER'S LIABILITY UNDER ANY CLAIM MADE BY BUYER EXCEED THE PURCHASE PRICE OF THE PRODUCTS.**

7. User Responsibility. The user, through its own analysis and testing, is solely responsible for making the final selection of the system and Product and assuring that all performance, endurance, maintenance, safety and warning requirements of the application are met. The user must analyze all aspects of the application and follow applicable industry standards and Product information. If Seller provides Product or system options based upon data or specifications provided by the user, the user is responsible for determining that such data and specifications are suitable and sufficient for all applications and reasonably foreseeable uses of the Products or systems.

8. Loss to Buyer's Property. Any designs, tools, patterns, materials, drawings, confidential information or equipment furnished by Buyer or any other items which become Buyer's property, will be considered obsolete and may be destroyed by Seller after two (2) consecutive years have elapsed without Buyer ordering the items manufactured using such property. Seller shall not be responsible for any loss or damage to such property while it is in Seller's possession or control.

9. Special Tooling. A tooling charge may be imposed for any special tooling, including without limitation, dies, fixtures, molds and patterns, acquired to manufacture Products. Such special tooling shall be and remain Seller's property notwithstanding payment of any charges by Buyer. In no event will Buyer acquire any interest in apparatus belonging to Seller which is utilized in the manufacture of the Products, even if such apparatus has been specially converted or adapted for such manufacture and notwithstanding any charges paid by Buyer. Unless otherwise agreed, Seller has the right to alter, discard or otherwise dispose of any special tooling or other property in its sole discretion at any time.

10. Buyer's Obligation; Rights of Seller. To secure payment of all sums due or otherwise, Seller retains a security interest in all Products delivered to Buyer and this agreement is deemed to be a Security Agreement under the Uniform Commercial Code. Buyer authorizes Seller as its attorney to execute and file on Buyer's behalf all documents Seller deems necessary to perfect its security interest.

11. Improper Use and Indemnity. Buyer shall indemnify, defend, and hold Seller harmless from any losses, claims, liabilities, damages, lawsuits, judgments and costs (including attorney fees and defense costs), whether for personal injury, property damage, patent, trademark or copyright infringement or any other claim, brought by or incurred by Buyer, Buyer's employees, or any other person, arising out of: (a) improper selection, application, design, specification or other misuse of Products purchased by Buyer from Seller; (b) any act or omission, negligent or otherwise, of Buyer; (c) Seller's use of patterns, plans, drawings, or specifications furnished by Buyer to manufacture Products; or (d) Buyer's failure to comply with these terms and conditions. Seller shall not indemnify Buyer under any circumstance except as otherwise provided.

12. Cancellations and Changes. Buyer may not cancel or modify or cancel any order for any reason, except with Seller's written consent and upon terms that will indemnify, defend and hold Seller harmless against all direct, incidental and consequential loss or damage. Seller may change Product features, specifications, designs and availability.

13. Limitation on Assignment. Buyer may not assign its rights or obligations under this agreement without the prior written consent of Seller.

14. Force Majeure. Seller does not assume the risk and is not liable for delay or failure to perform any of Seller's obligations by reason of events or circumstances beyond its reasonable control (hereinafter "Events of Force Majeure"). Events of Force Majeure shall include without limitation: accidents, strikes or labor disputes, acts of any government or government agency, acts of nature, delays or failures in delivery from carriers or suppliers, shortages of materials, or any other cause beyond Seller's reasonable control.

15. Waiver and Severability. Failure to enforce any provision of this agreement will not invalidate that provision; nor will any such failure prejudice Seller's right to enforce that provision in the future. Invalidation of any provision of this agreement by legislation or other rule of law shall not invalidate any other provision herein. The remaining provisions of this agreement will remain in full force and effect.

16. Termination. Seller may terminate this agreement for any reason and at any time by giving Buyer thirty (30) days prior written notice. Seller may immediately terminate this agreement, in writing, if Buyer: (a) breaches any provision of this agreement (b) appoints a trustee, receiver or custodian for all or any part of Buyer's property (c) files a petition for relief in bankruptcy on its own behalf, or one if filed by a third party (d) makes an assignment for the benefit of creditors; or (e) dissolves its business or liquidates all or a majority of its assets.

17. Governing Law. This agreement and the sale and delivery of all Products are deemed to have taken place in, and shall be governed and construed in accordance with, the laws of the State of Ohio, as applicable to contracts executed and wholly performed therein and without regard to conflicts of laws principles. Buyer irrevocably agrees and consents to the exclusive jurisdiction and venue of the courts of Cuyahoga County, Ohio with respect to any dispute, controversy or claim arising out of or relating to this agreement.

18. Indemnity for Infringement of Intellectual Property Rights. Seller is not liable for infringement of any patents, trademarks, copyrights, trade dress, trade secrets or similar rights except as provided in this Section. Seller will defend and indemnify Buyer against allegations of infringement of U.S. patents, U.S. trademarks, copyrights, trade dress and trade secrets ("Intellectual Property Rights"). Seller will defend at its expense and will pay the cost of any settlement or damages awarded in an action brought against Buyer based on an allegation that a Product sold pursuant to this agreement infringes the Intellectual Property Rights of a third party. Seller's obligation to defend and indemnify Buyer is contingent on Buyer notifying Seller within ten (10) days after Buyer becomes aware of such allegations of infringement, and Seller having sole control over the defense of any allegations or actions including all negotiations for settlement or compromise. If a Product is subject to a claim that it infringes the Intellectual Property Rights of a third party, Seller may, at its sole expense and option, procure for Buyer the right to continue using the Product, replace or modify the Product so as to make it noninfringing, or offer to accept return of the Product and refund the purchase price less a reasonable allowance for depreciation. Notwithstanding the foregoing, Seller is not liable for claims of infringement based on information provided by Buyer, or directed to Products delivered hereunder for which the designs are specified in whole or part by Buyer, or infringements resulting from the modification, combination or use in a system of any Product sold hereunder. The foregoing provisions of this Section constitute Seller's sole and exclusive liability and Buyer's sole and exclusive remedy for infringement of Intellectual Property Rights.

19. Entire Agreement. This agreement contains the entire agreement between the Buyer and Seller and constitutes the final, complete and exclusive expression of the terms of sale. All prior or contemporaneous written or oral agreements or negotiations with respect to the subject matter are herein merged. The terms contained herein may not be modified unless in writing and signed by an authorized representative of Seller.

20. Compliance with Laws. Buyer agrees to comply with all applicable laws, regulations, and industry and professional standards of care, including those of the United Kingdom, the United States of America, and the country or countries in which Buyer may operate, including without limitation the U. K. Bribery Act, the U.S. Foreign Corrupt Practices Act ("FCPA"), the U.S. Anti-Kickback Act ("Anti-Kickback Act") and the U.S. Food Drug and Cosmetic Act ("FDCA"),each as currently amended, and the rules and regulations promulgated by the U.S. Food and Drug Administration ("FDA"), and agrees to indemnify and hold harmless Seller from the consequences of any violation of such provisions by Buyer, its employees or agents. Buyer acknowledges that it is familiar with the provisions of the U. K. Bribery Act, the FCPA, the FDA, and the Anti-Kickback Act, and certifies that Buyer will adhere to the requirements thereof. In particular, Buyer represents and agrees that Buyer will not make any payment or give anything of value, directly or indirectly to any governmental official, any foreign political party or official thereof, any candidate for foreign political office, or any commercial entity or person, for the purpose of influencing such person to purchase Products or otherwise benefit the business of Seller.

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