



aerospace
climate control
electromechanical
filtration
fluid & gas handling
hydraulics
pneumatics
process control
sealing & shielding





Air Preparation Products

Filters, Regulators, Lubricators, & Airline Accessories

Catalog 0700P-E







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Introduction			A	Introduction
Global Air Preparation System	www.parker.com/globalfrl		В	Global Air Preparation Systems
Filters, Regulators, Lubricators	www.parker.com/pneu/frl	TANK .	С	Filters, Regulators, Lubricators
Stainless Steel FRLs	www.parker.com/pneu/ssfrls		D	Stainless Steel FRLs
Precision Regulators	www.parker.com/pneu/precreg		Ε	Precision Regulators
Proportional Regulators (P31P, P32P & PAR™-15)			F	Proportional Regulators
LV / EZ Lockout Valves (Lockout Valves)	www.parker.com/pneu/lockout		G	"LV" / "EZ" Lockout Valves
Integrated Fittings			Н	Integrated Fittings
Accessories	www.parker.com/pneu/accessories		J	Accessories
Ball Valves / Plug Valves	www.parker.com/pneu/ball	368	K	Ball Valves / Plug Valves
Quick Couplings			L	Quick Couplings
Hose & Fittings		1 - 20 3	M	Hose and Fittings
Tubing & Fittings		To an an	N	Tubing and Fittings
Safety Guide, Offer of Sale			P	Model to ige Number Index





Filters, Regulators, Lubricators

Global Air Preparation System

Section B www.parker.com/globalfrl



ntroduction	B2-B12	Dump Valve	B64-B65
		Soft Start Valve	
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В1

BOLD ITEMS ARE MOST POPULAR.



B

Introduction

Combos

Filters

Coalescers

Regulators

Filter/ Regulators

Lubricators

Accessories Lubricators



Parker Global Air Preparation System

Global. Modular.

Performance you need, wherever you need it.

Full featured particulate and coalescing filters, regulators, filter/regulators, and lubricators are available with a wide range of standard options to meet air preparation needs.

The comprehensive Global Air Preparation System is available in three body sizes with either BSPP, BSPT, or NPT to accommodate thread type requirements.

Individual units can easily be assembled into various combinations, utilizing patented modular lightweight body connectors.

www.parker.com/globalfrl

Comprehensive Offering



P31 Mini Series 1/4" ports 40mm body width



P32 Compact Series 1/4", 3/8" and 1/2" 60mm body width



P33 Standard Series 1/2" and 3/4" 73mm body width



Ψ

Filters

- 5µ particulate, 1.0µ and 0.01µ coalescing, and adsorber available as standard
- Transparent or metal bowl with manual or auto float drains standard



Regulators

- Available as stand alone, common port and electronic proportional
- Both relieving and nonrelieving versions available



- Compact design for space savings
- Available with all the same standard options as the filters and regulators



Lubricators

- Proportional oil delivery over a wide range of air flows
- Fill under pressure



Combinations

- Compact design for space savings
- Easily assembled
- Many configurations available



Accessories

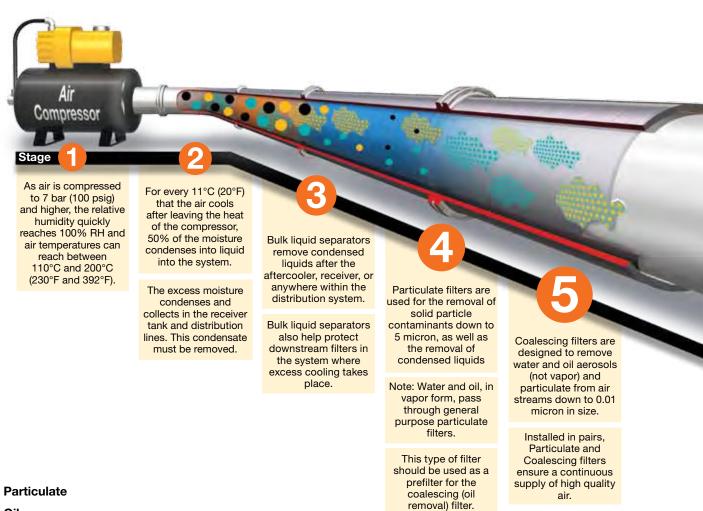
- Solenoid operated soft start, quick dump, and soft start/ quick dump valves
- Manifold blocks
- Shut-off valves (both slide and ball type)
- Repair kits, gauges, etc.



Together we can power your application with clean, dry air

Fast cycle times, high product quality, and low downtime all require a clean, dry pneumatic system to function properly. Parker has what it takes to make sure pneumatic systems perform at their best.

Clean, dry pneumatic systems with Parker Global Air Preparation

















PDRD Refrigeration

-40°C (-40°F) (desiccant).

Regenerative

Desiccant Dryer

Dryer

P3TJ

Stages

Function

Application

Description

Parker

Global Air

Solution

Preparation

it cools to 38°C (100°F)

Customer

supplied

-	-				
II temperary	Medisticx				
12	3	4	5	6	7
Air Compressor	Bulk Liquid Removal	Particulate Filtration	Coalescing Filtration	Air Dryers	Hydrocarbon Removal
All pneumatic systems	Basic pneumatic systems	Basic pneumatic systems	Systems requiring highest quality air.	Systems requiring air with reduced moisture content	Systems requiring highest quality air for critical applications
Air leaving the compressor room at 93°C (200°F) releases 95% of its moisture into the piping system when	Removes bulk liquid contamination and protects filters where excess cooling takes place in the distribution	Removes solid particulates down to 5 micron, and the separation of bulk contaminants.	Removes liquid aerosols and submicron particulates (not vapor) down to 0.01 micron.	Removes water vapor from air stream. Dew point reduced down to 4°C (40°F) (refrigeration) or	Removal of odors and trace vapors for critical applications.

P31, P32, P33

Coalescing Filter



В5

P31, P32, P33

Particulate Filter

piping

P3TF

Bulk Liquid

Separator

Airborne hydrocarbons are often left over from the compressor oils.



Introduction

Combos

Filters

Coalescers

P31, P32, P33

Activated Carbon

(Adsorber) Filter

Regulators

Lubricators

Accessories

A completely modular air preparation system

ntroductio

Combos

Filters

Coalescers

Regulators

Filter / Regulators

Lubricat

's Accessorie





Easy to adjust nonrising knob with





Air Preparation

P31 Mini Series

40mm body width

1/4" Ported

dm³/s (SCFM) Flows up to: Filter 12 (25)Coalescer 2 (4.2)30 Regulator (64)Filter/Regulator 14 (30)Lubricator 13 (28)

Features:

Coalescers

Regulators

Lubricators

Accessories

- Space saving integral gauge
- Manifold style regulators available
- OSHA compliant shut-off valves
- Soft-Start & Quick Dump valves
- Electronic Proportional Regulator



P32 Compact Series

60mm body width

1/4", 3/8", & 1/2" Ported

Flows up to: dm³/s (SCFM) Filter 38 (80)Coalescer (23)11 Regulator 67 (142)Filter/Regulator 64 (136)47 Lubricator (100)

Features:

- Manifold style regulators
- OSHA Compliant shut-off valves
- Soft-Start & Quick Dump valves
- Electronic Proportional Regulator



P33 Standard Series

73mm body width 1/2" & 3/4" Ported

Flows up to: dm³/s (SCFM) Filter 48 (102)Coalescer 20 (42)Regulator 100 (212)Filter/Regulator 98 (208)Lubricator (144)

Features:

- OSHA Compliant shut-off valves
- Soft-Start & Quick Dump valves (Utilizes P32 size only)
- Electronic proportional regulator (Utilizes P32 size only)





Valves and Actuators

Mini Series Complimentary Products

The P31 Mini Series FRL's and accessories are well matched for use with these Parker valves and actuators.





Moduflex Size 1



P₁D

P₁A

Compact Series Complimentary Products

The P32 Series FRL's & accessories are well matched for use with these Parker valves and actuators.





Isys HA / HB





Standard Series Complimentary Products

The P33 Series FRL's & accessories are well matched for use with these Parker valves and actuators.





Introduction

Combos

Coalescers

Regulators

Accessories Lubricators

Complete Pneumatic System

ชื่อยน่างงาร Manifold

• Multiple output pressures (P2, P3, P4, etc.) with common inlet (P1)

- Available in two sizes P31 and P32
- Balanced valve design for accurate pressure regulation
- Outlet pressure ports in front and rear of unit.
- Four spring ranges available

Combos

Filters

Coalescers

Regulators



Electronic Proportional Regulator

- Electro-Pneumatic regulator
- Integrated systems control
- Accurate output pressure
- Micro parameter settings
- Selectable I/O parameters
- · Quick, full flow exhaust
- LED display indicates output pressure
- No air consumption in steady state
- Multiple mounting options
- Protection to IP65



P31P Mini Series



P32P Compact Series

Introduction

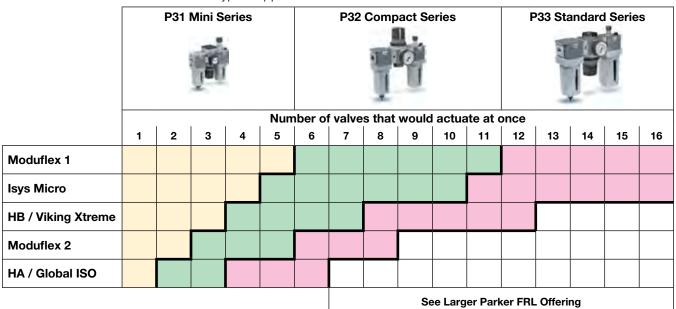
Combos

Coalescers

Regulators

Application Guide

FRL to Valve: The chart below contains recommendations for the correct selection of Global Air Preparation units to suit the number and size of valves in a typical application.



Actuator to FRL: The chart below contains recommendations for the correct selection of Global Air Preparation units suitable for each cylinder size. If you have a tube length over 2 m, choose one tube size larger than the chart. The table is based on a Maximum cylinder speed of 0.5m/s

Cyl G	mm						С	ylinder	bore siz	ze					
Cyl Ø Cyl Ø in		5 (5/16)	10 (7/16)	16 (9/16)	20 (3/4)	25 (1)	28 (1-1/8)	32 (1-1/4)	40 (1-1/2)	45 (1-3/4)	50 (2)	63 (2-1/2)	75 (3)	80 (3-1/4)	100 (4)
Tube Ø	Tube Ø mm														
Tube Ø i		4 (5/32)	4 (5/32)	4 (5/32)	6 (1/4)	6 (1/4)	6 (1/4)	6 (1/4)	8 (5/16)	8 (5/16)	8 (5/16)	10 (3/8)	10 (3/8)	12 (1/2)	12 (1/2)
	1														
	2														
ers Se	3														
ind onc	4														
क द	5														
r of ing	6														
umber of cylinder actuating at once	7														
Number of cylinders actuating at once	8														
_	9														
	10														
			P31	Mini Se	ries		P32 C	ompact	Series	P33 S	tandard	Series		•	
								0			0			ee Large r FRL Of	

B11

Note: Data listed above is simply a guideline for a typical application only. Proper sizing and correct flow requirements must be taken into account.



Product Selection Chart

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	,

ntroduction

Combos

Filters

Coalescers

Regulators

Filter/ gulators

ubricators

Accessorie

Basis			Port	Size			Bowls		Ele	ments (Micr	on)		B18 B20 B22
Basic Unit	Series	1/4	3/8	1/2	3/4	Poly with Bowl Guard	Metal without SG	Metal SG	0.01	1	5	Adsorber	Page
F I	P31	Х	-	_	1	Х	Х	_	1	1	Std.	1	B18
T E	P32	Х	Х	Х	_	Х	Х	Х	_	_	Std.	_	B20
E R S	P33		_	Х	Х	Х	Х	Х	-		Std.	_	B22
C O A F	P31	Х	_	_		Х	Х	_	Std.	Std.	_	Std.	B24
L L S E C B	P32	Х	Х	Х	_	Х	Х	Х	Std.	Std.		Std.	B26
I R N S G	P33		_	Х	Х	Х	Х	Х	Std.	Std.	_	Std.	B28

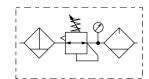
Ва	sic	O-vi		Port	Size			Adjustme	ent Range		Dana
	nit	Series	1/4	3/8	1/2	3/4	30 psig 2 bar	60 psig 4 bar	125 psig 8 bar	250 psig 17 bar	Page
	S	P31	Х	_		_	Std.	Std.	Std.	_	B30
	A N D	P32	Х	Х	Х	_	Std.	Std.	Std.	Std.	B34
R E G	A R D	P33	_	_	Х	Х	Std.	Std.	Std.	Std.	B38
U A T O R S	C O M M O N	P31	Х	_	_	_	Std.	Std.	Std.	_	B32
S	P I L O T	P32	Х	X	X	_	Std.	Std.	Std.	Std.	B36

Pasia			Port	Size			Bowls		Elements (Micron)		Adjustme	ent Range		
Basic Unit	Series	1/4	3/8	1/2	3/4	Poly with Bowl Guard	Metal without SG	Metal SG	5	15	25	30	60	Page
F E	P31	Х	_	_	_	Х	х	_	Std.	Opt.	_	Opt.	Opt.	B40
L U	P32	Х	х	Х	_	Х	х	х	Std.	_	_	Opt.	Std.	B42
R T	P33	_	_	Х	Х	Х	х	Х	Std.	_	_	Opt.	Opt.	B44
L U B R	P31	Х	Х	_	_	Х	_	Х		Can be t	filled under p	oressure		B46
C A T	P32	Х	Х	Х	_	Х	_	Х		Can be t	filled under p	oressure		B48
0 R S	P33		_	X	х	х	_	Х		Can be t	filled under p	oressure		B50



Popular Combinations

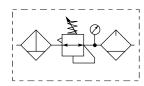




Filter + Regulator + Lubricator Combinations + Poly bowl 5 micron element, 8 bar (116 psig) Regulator + Gauge and Wall Mounting Brackets Inlet pressure 10 bar (145 psig), Secondary pressure 6.3 bar (91.3 psig), 1 bar (14.5 psig) pressure drop.

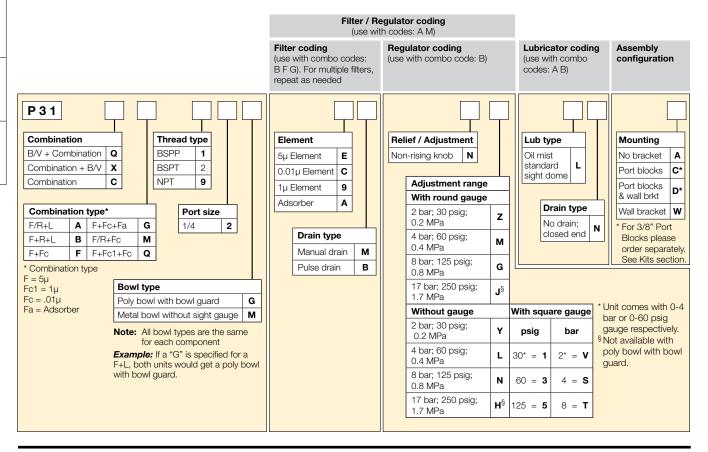
Port	Flo	ow				
size	dm³/s	(scfm)	Manual drain	Weight	Pulse drain	Weight
1/4"	13	27	P31CB92GEMN5LNW	0.46 kg (1.01 lbs)	P31CB92GEBN5LNW	0.46 kg (1.01 lbs)





Filter/Regulator + Lubricator Combinations + Poly bowl 5 micron element, 8 bar (116 psig) Regulator + Gauge and Wall Mounting Brackets Inlet pressure 10 bar (145 psig), Secondary pressure 6.3 bar (91.3 psig), 1 bar (14.5 psig) pressure drop.

Port	Flo	ow				
size	dm³/s	(scfm)	Manual drain	Weight	Pulse drain	Weight
1/4"	14	28	P31CA92GEMN5LNW	0.35 kg (0.77 lbs)	P31CA92GEBN5LNW	0.35kg (0.77 lbs)

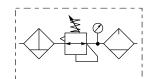


B14



Popular Combinations





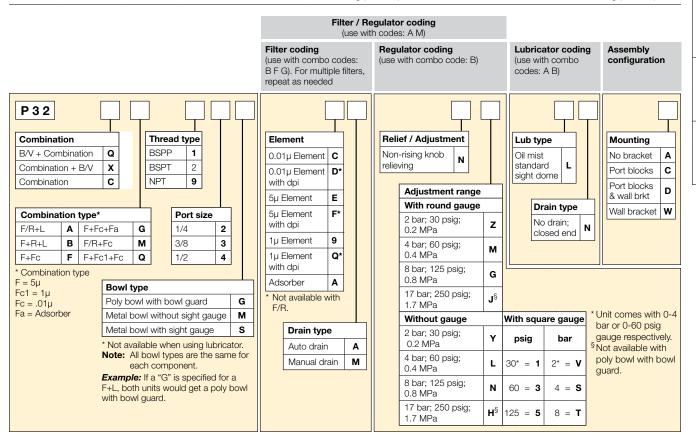
Filter + Regulator + Lubricator Combinations + Poly bowl 5 micron element, 8 bar (116 psig) Regulator + Gauge and Wall Mounting Brackets Inlet pressure 10 bar (145 psig), Secondary pressure 6.3 bar (91.3 psig), 1 bar (14.5 psig) pressure drop.

Port	Flo	ow				
size	dm ³ /s	(scfm)	Manual drain	Weight	Auto drain	Weight
1/4"	20	42	P32CB92GEMNGLNW	1.29 kg (2.84 lbs)	P32CB92GEANGLNW	1.29 kg (2.84 lbs)
3/8"	32	68	P32CB93GEMNGLNW	1.29 kg (2.84 lbs)	P32CB93GEANGLNW	1.29 kg (2.84 lbs)
1/2"	40	85	P32CB94GEMNGLNW	1.29 kg (2.84 lbs)	P32CB94GEANGLNW	1.29 kg (2.84 lbs)



Filter/Regulator + Lubricator Combinations + Poly bowl
5 micron element, 8 bar (116 psig) Regulator + Gauge and Wall Mounting Brackets
Inlet pressure 10 bar (145 psig), Secondary pressure 6.3 bar (91.3 psig),
1 bar (14.5 psig) pressure drop.

Port	Flo	ow				
size	dm ³ /s	(scfm)	Manual drain	Weight	Auto drain	Weight
1/4"	22	45	P32CA92GEMNGLNW	1.03 kg (2.27 lbs)	P32CA92GEANGLNW	1.03 kg (2.27 lbs)
3/8"	33	70	P32CA93GEMNGLNW	1.03 kg (2.27 lbs)	P32CA93GEANGLNW	1.03 kg (2.27 lbs)
1/2"	43	90	P32CA94GEMNGLNW	1.03 kg (2.27 lbs)	P32CA94GEANGLNW	1.03 kg (2.27 lbs)



B15



В

Introduction

Combos

Filters

Coalescers

Regulators

Filler / Regulators

Accessories Lubricators

Popular Combinations



Introduction

Filters

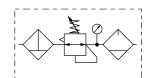
Coalescers

Regulators

Filter / Regulators

Lubricators

Accessories



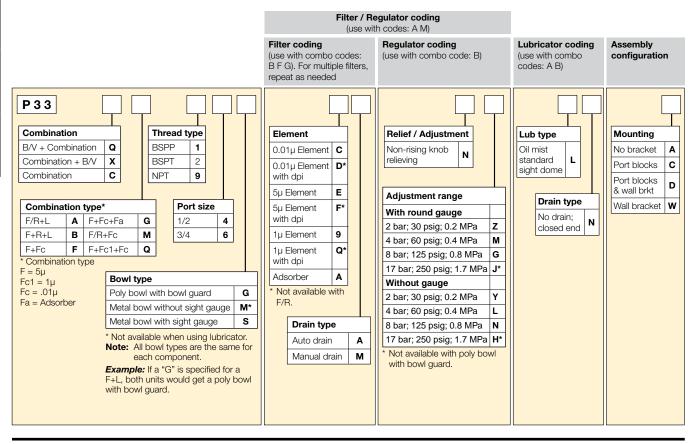
Filter + Regulator + Lubricator Combinations + Poly bowl 5 micron element, 8 bar (116 psig) Regulator + Gauge and Wall Mounting Brackets Inlet pressure 10 bar (145 psig), Secondary pressure 6.3 bar (91.3 psig), 1 bar (14.5 psig) pressure drop.

Port	Fle	ow				
size	dm³/s	(scfm)	Manual drain	Weight	Auto drain	Weight
1/2"	43	90	P33CB94GEMNGLNW	1.84 kg (4.06 lbs)	P33CB94GEANGLNW	1.84 kg (4.06 lbs)
3/4"	52	110	P33CB96GEMNGLNW	1.84 kg (4.06 lbs)	P33CB96GEANGLNW	1.84 kg (4.06 lbs)



Filter/Regulator + Lubricator Combinations + Poly bowl 5 micron element, 8 bar (116 psig) Regulator + Gauge and Wall Mounting Brackets Inlet pressure 10 bar (145 psig), Secondary pressure 6.3 bar (91.3 psig), 1 bar (14.5 psig) pressure drop.

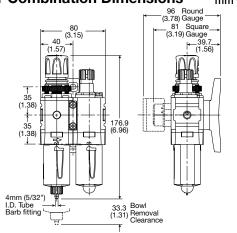
Port	Fle	ow				
size	dm³/s	(scfm)	Manual drain	Weight	Auto drain	Weight
1/2"	52	110	P33CA94GEMNGLNW	1.51 kg (3.33 lbs)	P33CA94GEANGLNW	1.51 kg (3.33 lbs)
3/4"	71	150	P33CA96GEMNGLNW	1.51 kg (3.33 lbs)	P33CA96GEANGLNW	1.51 kg (3.33 lbs)

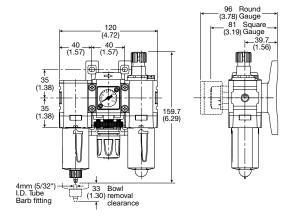


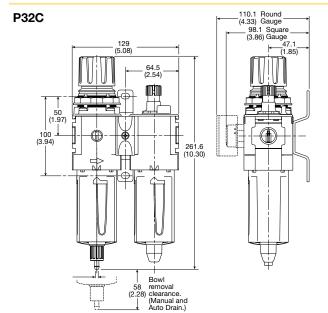
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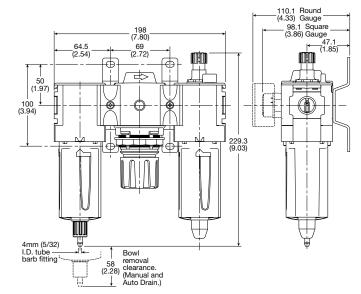




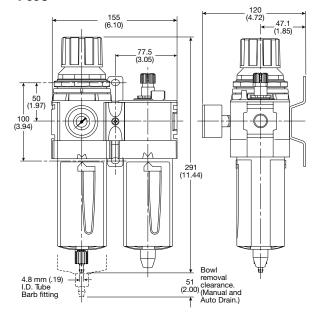


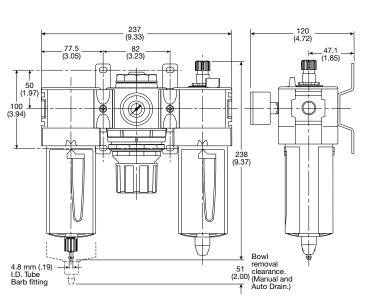






P33C





Filters

Symbols

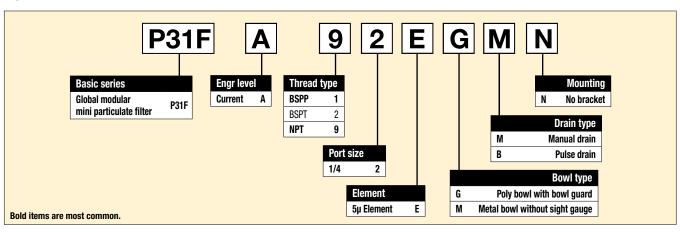




Manual drain

Auto drain

- Integral 1/4" ports (NPT, BSPP & BSPT)
- High efficiency 5 micron element as standard
- Excellent water removal efficiency
- Robust but lightweight aluminum construction
- One hand operation for easy element cartridge removal
- Positive bayonet latch to ensure correct & safe fitting



Port size	Description	Order code†	Flow [‡] dm³/s (scfm)	Max. bar (psig)	Height mm (inches)	Width mm (inches)	Depth mm (inches)
1/4"	Poly bowl - manual drain	P31FA92EGMN	12 (25)	10 (150)	116.3 (4.58)	40 (1.58)	42.7 (1.68)
1/4"	Poly bowl - pulse drain	P31FA92EGBN	12 (25)	10 (150)	116.3 (4.58)	40 (1.58)	42.7 (1.68)
1/4"	Metal bowl - manual drain	P31FA92EMMN	12 (25)	17 (250)	116.3 (4.58)	40 (1.58)	42.7 (1.68)
1/4"	Metal bowl - pulse drain	P31FA92EMBN	12 (25)	17 (250)	116.3 (4.58)	40 (1.58)	42.7 (1.68)

[†] Standard part numbers shown in bold. For other models refer to Options chart above.



[‡] Flow with 6.3 bar (91.3 psig) inlet pressure and 0.34 (4.9 psig) pressure drop.

Global Air Preparation System

Specifications

Flow capacity*	1/4	12 dm ³ /s (25 scfm)
Operating temperature		10°C to 52°C (14°F to 125°F) 0°C to 65.5°C (14°F to 150°F)
Max. supply pressure	Plastic bowl Metal bowl	10 bar (150 psig) 17 bar (250 psig)
Standard filtration	1	5 micron
Useful retention [†]		12 cm ³ (0.4 US oz.)
Port size	BSPP / BSPT /	NPT 1/4
Weight		0.11 kg (0.24 lbs)

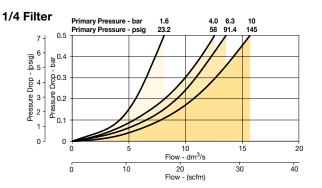
 $^{^{\}star}$ Inlet pressure 6.3 bar (91.3 psig). Pressure drop 0.34 bar (4.9 psig). † Useful retention refers to volume below the quiet zone baffle.

Within ISO 8573-1: 1991 Class 3 (Particulates) Within ISO 8573-1: 2001 Class 6 (Particulates)

Material Specifications

Body	Aluminum
Body cap	ABS
Bowl	Polycarbonate
Bowl guard	Nylon
Element retainer	Acetal
Baffle	Acetal
Filter element	Sintered polyethylene
Seals	Nitrile

Flow Charts

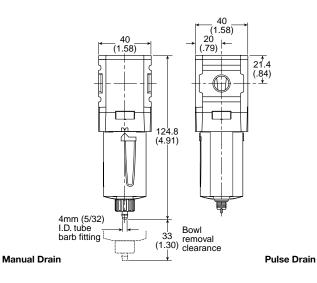


Repair and Service Kits

B19

Plastic bowl / Bowl guard manual drain	P31KA00BGM
Metal bowl / w/o sight gauge manual drain	P31KA00BMM
Plastic bowl / Bowl guard pulse drain	P31KA00BGB
Metal bowl / w/o sight gauge pulse drain	P31KA00BMB
5µ particle filter element	P31KA00ESE
C-bracket (fits to body)	P31KA00MW
T-bracket with body connector	P31KA00MT
Body connector	P31KA00CB

Dimensions mm (inches)







Introduction

Combos

Filters

Coalescers Regulators



Symbols

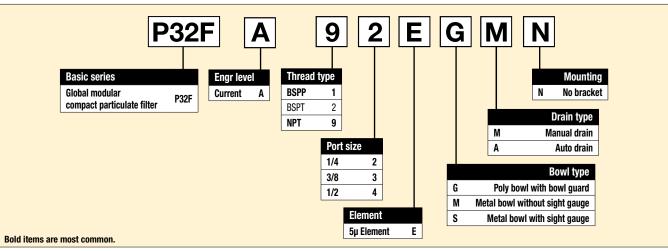




Manual drain

Auto drain

- Integral 1/4", 3/8" or 1/2" ports (NPT, BSPP & BSPT)
- High efficiency 5 micron element as standard
- Excellent water removal efficiency
- Robust but lightweight aluminum construction
- Positive bayonet latch to ensure correct & safe fitting



Port size	Description	Order code†	Flow [‡] dm³/s (scfm)	Max. bar (psig)	Height mm (inches)	Width mm (inches)	Depth mm (inches)
1/4"	Poly bowl - manual drain	P32FA92EGMN	18 (38)	10 (150)	188 (7.4)	60 (2.36)	60 (2.36)
1/4"	Poly bowl - auto drain	P32FA92EGAN	18 (38)	10 (150)	182 (7.2)	60 (2.36)	60 (2.36)
1/4"	Metal bowl - manual drain	P32FA92ESMN	18 (38)	17 (250)	188 (7.4)	60 (2.36)	60 (2.36)
1/4"	Metal bowl - auto drain	P32FA92ESAN	18 (38)	17 (250)	182 (7.2)	60 (2.36)	60 (2.36)
3/8"	Poly bowl - manual drain	P32FA93EGMN	30 (64)	10 (150)	188 (7.4)	60 (2.36)	60 (2.36)
3/8"	Poly bowl - auto drain	P32FA93EGAN	30 (64)	10 (150)	182 (7.2)	60 (2.36)	60 (2.36)
3/8"	Metal bowl - manual drain	P32FA93ESMN	30 (64)	17 (250)	188 (7.4)	60 (2.36)	60 (2.36)
3/8"	Metal bowl - auto drain	P32FA93ESAN	30 (64)	17 (250)	182 (7.2)	60 (2.36)	60 (2.36)
1/2"	Poly bowl - manual drain	P32FA94EGMN	38 (80)	10 (150)	188 (7.4)	60 (2.36)	60 (2.36)
1/2"	Poly bowl - auto drain	P32FA94EGAN	38 (80)	10 (150)	182 (7.2)	60 (2.36)	60 (2.36)
1/2"	Metal bowl - manual drain	P32FA94ESMN	38 (80)	17 (250)	188 (7.4)	60 (2.36)	60 (2.36)
1/2"	Metal bowl - auto drain	P32FA94ESAN	38 (80)	17 (250)	182 (7.2)	60 (2.36)	60 (2.36)

[†] Standard part numbers shown in bold. For other models refer to Options chart above.

 $[\]ddagger$ Flow with 6.3 bar (91.3 psig) inlet pressure and 0.34 (4.9 psig) pressure drop.



Specifications

Flow capacity*	1/4 3/8 1/2	18 dm ³ /s (38 scfm) 30 dm ³ /s (64 scfm) 38 dm ³ /s (80 scfm)
Operating temperature	Plastic bowl Metal bowl	-25°C to 52°C (-13°F to 125°F) -25°C to 65.5°C (-13°F to 150°F)
Max. supply pressure	Plastic bowl Metal bowl	10 bar (150 psig) 17 bar (250 psig)
Standard filtration	on	5 micron
Useful retention	Ť	51 cm ³ (1.7 US oz.)
Port size	BSPP / BSP	T / NPT 1/4, 3/8, 1/2
Weight		0.28 kg (0.62 lbs)

^{*} Inlet pressure 6.3 bar (91.3 psig). Pressure drop 0.34 bar (4.9 psig).

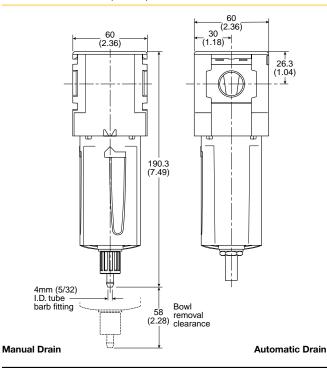
Air quality

Within ISO 8573-1: 1991 Class 3 (Particulates) Within ISO 8573-1: 2001 Class 6 (Particulates)

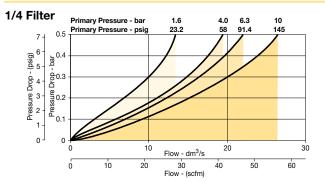
Material Specifications

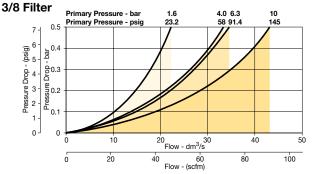
Body		Aluminum
Body cap		ABS
Bowls	Plastic bowl Metal bowl	Polycarbonate Aluminum
Bowl guard		Nylon
Deflector		Polypropylene
Element retainer / Baff	fle	Acetal
Filter element		Sintered polyethylene
Seals		Nitrile
Sight gauge	Metal bowl	Polycarbonate

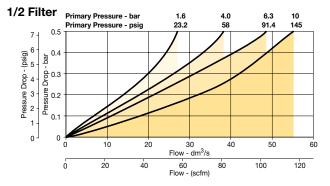
Dimensions mm (inches)



Flow Charts







Repair and Service Kits

Plastic bowl / Bowl guard manual drain	P32KA00BGM
Metal bowl / Sight gauge manual drain	P32KA00BSM
Auto drain	P32KA00DA
5µ particle filter element	P32KA00ESE
L-bracket (fits to body)	P32KA00ML
T-bracket (fits to body connector)	P32KA00MB
T-bracket with body connector	P32KA00MT
Body connector	P32KA00CB
Differential pressure indicator (replacement)	P32KA00RQ



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[†] Useful retention refers to volume below the quiet zone baffle.

Filters

- Darker

Symbols

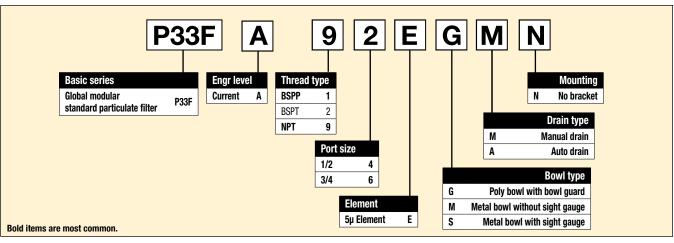




Manual drain

Auto drain

- Integral 1/2" or 3/4" ports (NPT, BSPP & BSPT)
- High efficiency 5 micron element as standard
- Excellent water removal efficiency
- Robust but lightweight aluminum construction
- Positive bayonet latch to ensure correct & safe fitting



Port size	Description	Order code [†]	Flow [‡] dm³/s (scfm)	Max. bar (psig)	Height mm (inches)	Width mm (inches)	Depth mm (inches)
1/2"	Poly bowl - manual drain	P33FA94EGMN	40 (85)	10 (150)	213 (8.4)	73 (2.9)	73 (2.9)
1/2"	Poly bowl - auto drain	P33FA94EGAN	40 (85)	10 (150)	207 (8.2)	73 (2.9)	73 (2.9)
1/2"	Metal bowl - manual drain	P33FA94ESMN	40 (85)	17 (250)	213 (8.4)	73 (2.9)	73 (2.9)
1/2"	Metal bowl - auto drain	P33FA94ESAN	40 (85)	17 (250)	207 (8.2)	73 (2.9)	73 (2.9)
3/4"	Poly bowl - manual drain	P33FA96EGMN	48 (102)	10 (150)	213 (8.4)	73 (2.9)	73 (2.9)
3/4"	Poly bowl - auto drain	P33FA96EGAN	48 (102)	10 (150)	207 (8.2)	73 (2.9)	73 (2.9)
3/4"	Metal bowl - manual drain	P33FA96ESMN	48 (102)	17 (250)	213 (8.4)	73 (2.9)	73 (2.9)
3/4"	Metal bowl - auto drain	P33FA96ESAN	48 (102)	17 (250)	207 (8.2)	73 (2.9)	73 (2.9)

[†] Standard part numbers shown in bold. For other models refer to Options chart above.



[‡] Flow with 6.3 bar (91.3 psig) inlet pressure and 0.34 (4.9 psig) pressure drop.

Global Air Preparation System

Specifications

Flow capacity*	1/2 3/4	40 dm ³ /s (85 scfm) 48 dm ³ /s (102 scfm)
Operating temperature	Plastic bowl Metal bowl	-25°C to 52°C (-13°F to 125°F) -25°C to 65.5°C (-13°F to 150°F)
Max. supply pressure	Plastic bowl Metal bowl	10 bar (150 psig) 17 bar (250 psig)
Standard filtration	on	5 micron
Useful retention	†	85 cm ³ (2.8 US oz.)
Port size	BSPP / BSP	T / NPT 1/2, 3/4
Weight		0.46 kg (1.01 lbs)

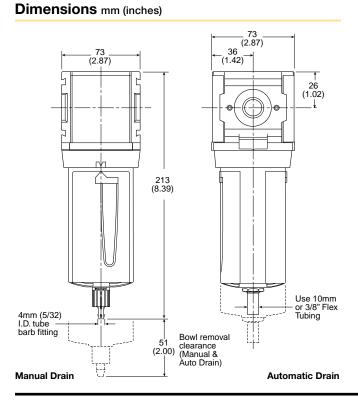
^{*} Inlet pressure 6.3 bar (91.3 psig). Pressure drop 0.34 bar (4.9 psig).

Air quality

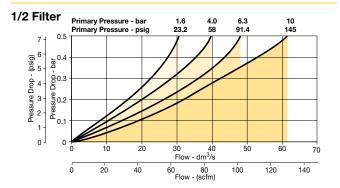
Within ISO 8573-1: 1991 Class 3 (Particulates) Within ISO 8573-1: 2001 Class 6 (Particulates)

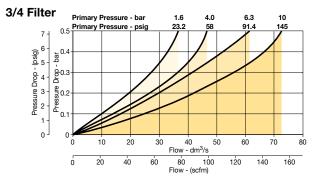
Material Specifications

Body				
	ABS			
Plastic bowl Metal bowl	Polycarbonate Aluminum			
	Nylon			
	Polypropylene			
ffle	Acetal			
	Sintered polyethylene			
	Nitrile			
Metal bowl	Polycarbonate			
	Metal bowl			



Flow Charts





Repair and Service Kits

Plastic bowl / Bowl guard manual drain	P33KA00BGM
Metal bowl / Sight gauge manual drain	P33KA00BSM
Auto drain	P32KA00DA
5µ particle filter element	P33KA00ESE
L-bracket (fits to body)	P33KA00ML
T-bracket (fits to body connector)	P32KA00MB
T-bracket with body connector	P33KA00MT
Body connector	P32KA00CB
Differential pressure indicator (replacement)	P32KA00RQ



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[†] Useful retention refers to volume below the quiet zone baffle.

Symbol

Mini Coalescing and Adsorber Filters - P31





- Integral 1/4" ports (NPT, BSPP & BSPT)
- Removes liquid aerosols and sub micron particles
- Oil free air for critical applications, such as air gauging, pneumatic instrumentation and control
- Positive bayonet latch to ensure correct & safe fitting
- Adsorbing activated carbon element removes oil vapors and most hydrocarbons

Note: To optimize the life of coalescing element, it is advisable to install a P31F pre-filter with a 5 micron element upstream of the coalescing filter.

> To optimize the life of an Adsorber it is advisable to install a P31 Coalescing Filter upstream of the Adsorber. Adsorber element should be replaced approximately every 1000 hours of service.

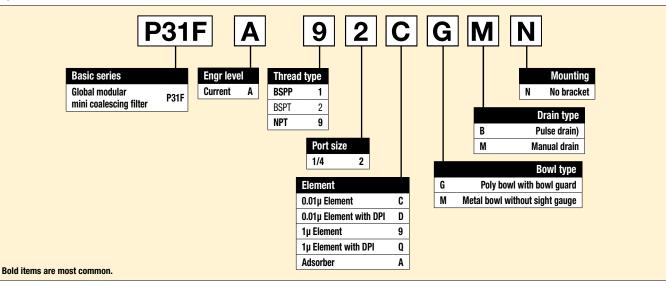
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Port size	Description	Order code [†]	Flow [‡] dm³/s (scfm)	Max. bar (psig)	Height mm (inches)	Width mm (inches)	Depth mm (inches)
1/4"	Poly bowl - 0.01 micron - manual drain	P31FA92DGMN	2 (4.2)	10 (150)	116.3 (4.58)	40 (1.58)	42.7 (1.68)
1/4'	Poly bowl - 0.01 micron - pulse drain	P31FA92DGBN	2 (4.2)	10 (150)	116.3 (4.58)	40 (1.58)	42.7 (1.68)
1/4"	Metal bowl - 0.01 micron - manual drain	P31FA92DMMN	2 (4.2)	17 (250)	116.3 (4.58)	40 (1.58)	42.7 (1.68)
1/4'	Metal bowl - 0.01 micron - pulse drain	P31FA92DMBN	2 (4.2)	17 (250)	116.3 (4.58)	40 (1.58)	42.7 (1.68)

[†] Standard part numbers shown in bold. For other models refer to Options chart above.



[‡] Flow with 6.3 bar (91.3 psig) inlet pressure and 0.2 (3 psig) pressure drop.

P31 Series Mini Coalescing & Adsorber Filters

Global Air Preparation System

Specifications

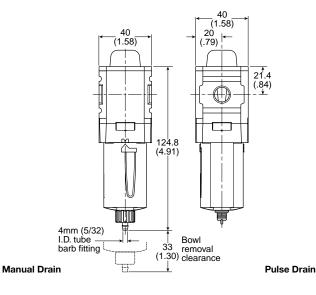
Flow capacit 1.0 micron c		Energy efficient flo Maximum flow**	dm ³ /s ow* 3.8 6	scfm (8) (13)
0.01 micron	coalescing	Energy efficient flo Maximum flow**	ow* 2 3.8	(4.2) (8)
Activated car	bon adsorber	Rated flow*	6	(13)
Operating temperature	Plastic bo Metal bow			
Max. supply pressure	Plastic bo Metal bow		10 bar (15 17 bar (25	
Standard filtr	ation	1.	0 and 0.01	micron
Adsorber	Max. oil carry	over (ppm w/w) 0.0	003 @ 21°C	C (70°F)
Useful retent	ion [†]	12	2 cm ³ (0.4 l	US oz.)
Port size		BSPP/BSPT/N	PT	1/4
Weight			0.11 kg (0.	.24 lbs)

^{*} Inlet pressure 6.3 bar (91.3 psig), Pressure drop 0.2 bar (3 psig), Saturated Element.

Material Specifications

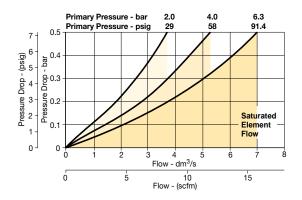
Body		Aluminum
Body cap		ABS
Bowl	Plastic bowl Metal bowl	Polycarbonate Aluminum
Filter element	1.0 and .01 micron	Borosilicate cloth
Adsorber		Activated carbon
Seals		Nitrile

Dimensions mm (inches)

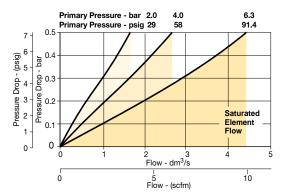


Flow Charts

P31 - 1.0 micron flow



P31 - 0.01 micron flow



Repair and Service Kits

Plastic bowl / Bowl guard manual drain	P31KA00BGM
Metal bowl / w/o sight gauge manual drain	P31KA00BMM
Plastic bowl / Bowl guard pulse drain	P31KA00BGB
Metal bowl / w/o sight gauge pulse drain	P31KA00BMB
1μ coalescing filter element	P31KA00ES9
0.01µ coalescing filter element	P31KA00ESC
Activated carbon adsorber filter element	P31KA00ESA
C-bracket (fits to body)	P31KA00MW
T-bracket with body connector	P31KA00MT
Body connector	P31KA00CB



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^{**} Inlet pressure 6.3 bar (91.3 psig), Pressure drop 0.4 bar (6 psig), Saturated Element.

[†] Useful retention refers to volume below the quiet zone baffle.

Compact Coalescing and Adsorber Filter - P32

Symbol



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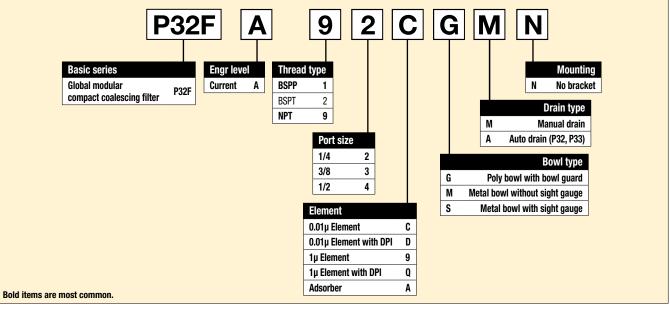




- Integral 1/4", 3/8" or 1/2" ports (NPT, BSPP & BSPT)
- Removes liquid aerosols and sub micron particles
- Oil free air for critical applications, such as air gauging, pneumatic instrumentation and control
- Differential Pressure Indicator (DPI) standard on Coalescing Filters
- Positive bayonet latch to ensure correct & safe fitting
- Adsorbing activated carbon element removes oil vapors and most hydrocarbons

Note: To optimize the life of coalescing element, it is advisable to install a P32F pre-filter with a 5 micron element upstream of the coalescing filter.

To optimize the life of an Adsorber it is advisable to install a P32 Coalescing Filter upstream of the Adsorber. Adsorber element should be replaced approximately every 1000 hours of service.



Port size	Description	Order code†	Flow [‡] dm³/s (scfm)	Max. bar (psig)	Height mm (inches)	Width mm (inches)	Depth mm (inches)
1/4"	Poly bowl - 0.01 micron, manual drain	P32FA92DGMN	11 (23)	10 (150)	209 (8.2)	60 (2.36)	60 (2.36)
1/4"	Poly bowl - 0.01 micron, auto drain	P32FA92DGAN	11 (23)	10 (150)	203 (8.0)	60 (2.36)	60 (2.36)
1/4"	Metal bowl - 0.01 micron, manual drain	P32FA92DSMN	11 (23)	17 (250)	209 (8.2)	60 (2.36)	60 (2.36)
1/4"	Metal bowl - 0.01 micron, auto drain	P32FA92DSAN	11 (23)	17 (250)	203 (8.0)	60 (2.36)	60 (2.36)
3/8"	Poly bowl - 0.01 micron, manual drain	P32FA93DGMN	11 (23)	10 (150)	209 (8.2)	60 (2.36)	60 (2.36)
3/8"	Poly bowl - 0.01 micron, auto drain	P32FA93DGAN	11 (23)	10 (150)	203 (8.0)	60 (2.36)	60 (2.36)
3/8"	Metal bowl - 0.01 micron, manual drain	P32FA93DSMN	11 (23)	17 (250)	209 (8.2)	60 (2.36)	60 (2.36)
3/8'	Metal bowl - 0.01 micron, auto drain	P32FA93DSAN	11 (23)	17 (250)	203 (8.0)	60 (2.36)	60 (2.36)
1/2"	Poly bowl - 0.01 micron, manual drain	P32FA94DGMN	11 (23)	10 (150)	209 (8.2)	60 (2.36)	60 (2.36)
1/2"	Poly bowl - 0.01 micron, auto drain	P32FA94DGAN	11 (23)	10 (150)	203 (8.0)	60 (2.36)	60 (2.36)
1/2"	Metal bowl - 0.01 micron, manual drain	P32FA94DSMN	11 (23)	17 (250)	209 (8.2)	60 (2.36)	60 (2.36)
1/2"	Metal bowl - 0.01 micron, auto drain	P32FA94DSAN	11 (23)	17 (250)	203 (8.0)	60 (2.36)	60 (2.36)

[†] Standard part numbers shown in bold. For other models refer to Options chart above.

[‡] Flow with 6.3 bar (91.3 psig) inlet pressure and 0.2 (3 psig) pressure drop.



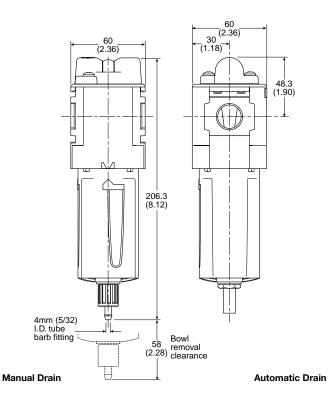
Global Air Preparation System

Specifications

Flow capacity			dm ³ /s	scfm
1.0 micron co	alescing	Energy efficient flow		(36)
		Maximum flow**	27	(57)
0.01 micron o	coalescing	Energy efficient flow	11	(23)
		Maximum flow**	28	(38)
Activated carb	on adsorber	Rated flow*	27	(57)
Operating temperature	Plastic boy Metal bow	(,
Max. supply pressure	Plastic boy Metal bow		bar (150 bar (150	
Standard filtra	ation	1.0 a	ınd 0.01	micron
Adsorber	Max. oil carry	over (ppm w/w) 0.000	3 @ 21°C	(70°F)
Useful retention	on [†]	51 c	m³ (1.7 l	JS oz.)
Port size		BSPP / BSPT / NPT	1/4, 3	/8, 1/2
Weight		0.	32 kg (0.	71 lbs)

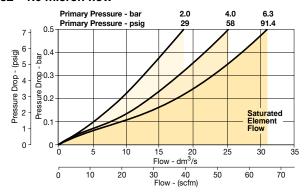
- * Inlet pressure 6.3 bar (91.3 psig), Pressure drop 0.2 bar (3 psig), Saturated Element.
- ** Inlet pressure 6.3 bar (91.3 psig), Pressure drop 0.4 bar (6 psig), Saturated Element.
- † Useful retention refers to volume below the quiet zone baffle.
- § Without pressure indicator (DPI) max. supply pressure for metal bowl version is 17 bar (250 psig).

Dimensions mm (inches)

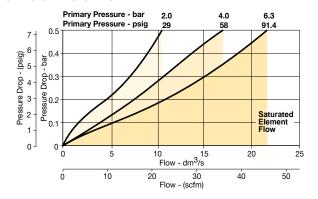


Flow Charts

P32 - 1.0 micron flow



P32 - 0.01 micron flow



Material Specifications

	Aluminum
	ABS
Plastic bowl Metal bowl	Polycarbonate Aluminum
1.0 and .01 micron	Borosilicate cloth
	Activated carbon
	Nitrile
Metal bowl	Polycarbonate
	Metal bowl 1.0 and .01 micron

Repair and Service Kits

Plastic bowl / Bowl guard manual drain	P32KA00BGM
Metal bowl / Sight gauge manual drain	P32KA00BSM
Auto drain	P32KA00DA
1μ coalescing filter element	P32KA00ES9
0.01µ coalescing filter element	P32KA00ESC
Activated carbon adsorber filter element	P32KA00ESA
L-bracket (fits to body)	P32KA00ML
T-bracket (fits to body connector)	P32KA00MB
T-bracket with body connector	P32KA00MT
Body connector	P32KA00CB
Differential pressure indicator (replacement)	P32KA00RQ



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Global Air Preparation System

Standard Coalescing and Adsorber Filter - P33



P33 Series

Symbol

- Integral 1/2" or 3/4" ports (NPT, BSPP & BSPT)
- Removes liquid aerosols and sub micron particles
- Oil free air for critical applications, such as air gauging, pneumatic instrumentation and control
- Differential Pressure Indicator (DPI) standard on Coalescing Filters
- Positive bayonet latch to ensure correct & safe fitting
- · Adsorbing activated carbon element removes oil vapors and most hydrocarbons

Note: To optimize the life of coalescing element, it is advisable to install a P33F pre-filter with a 5 micron element upstream of the coalescing filter.

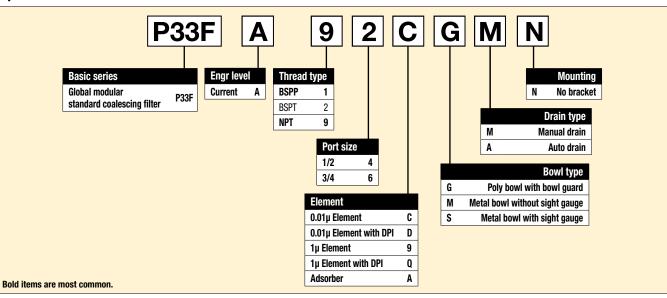
> To optimize the life of an Adsorber it is advisable to install a P33 Coalescing Filter upstream of the Adsorber. Adsorber element should be replaced approximately every 1000 hours of service.

Filters

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Port size	Description	Order code [†]	Flow [‡] dm³/s (scfm)	Max. bar (psig)	Height mm (inches)	Width mm (inches)	Depth mm (inches)
1/2"	Poly bowl - 0.01 micron, manual drain	P33FA94DGMN	20 (42)	10 (150)	235 (9.3)	73 (2.9)	73 (2.9)
1/2"	Poly bowl - 0.01 micron, auto drain	P33FA94DGAN	20 (42)	10 (150)	229 (9.0)	73 (2.9)	73 (2.9)
1/2"	Metal bowl - 0.01 micron, manual drain	P33FA94DSMN	20 (42)	17 (250)	235 (9.3)	73 (2.9)	73 (2.9)
1/2"	Metal bowl - 0.01 micron, auto drain	P33FA94DSAN	20 (42)	17 (250)	229 (9.0)	73 (2.9)	73 (2.9)
3/4"	Poly bowl - 0.01 micron, manual drain	P33FA96DGMN	20 (42)	10 (150)	235 (9.3)	73 (2.9)	73 (2.9)
3/4"	Poly bowl - 0.01 micron, auto drain	P33FA96DGAN	20 (42)	10 (150)	229 (9.0)	73 (2.9)	73 (2.9)
3/4"	Metal bowl - 0.01 micron, manual drain	P33FA96DSMN	20 (42)	17 (250)	235 (9.3)	73 (2.9)	73 (2.9)
3/4"	Metal bowl - 0.01 micron, auto drain	P33FA96DSAN	20 (42)	17 (250)	229 (9.0)	73 (2.9)	73 (2.9)

[†] Standard part numbers shown in bold. For other models refer to Options chart above.



[‡] Flow with 6.3 bar (91.3 psig) inlet pressure and 0.2 (3 psig) pressure drop.

1/2, 3/4

0.50 kg (1.10 lbs)

Port size

Weight

Global Air Preparation System

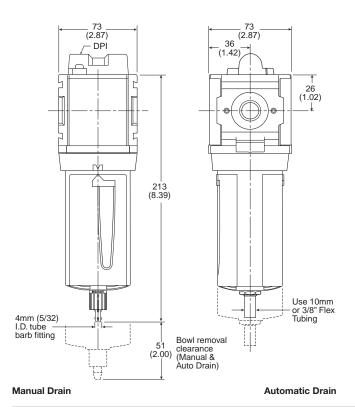
Specifications							
Flow capacity dm ³ /s scfm							
1.0 micron coalescing		Energy efficient elow [*] Maximum flow ^{**}	32 44	(68) (93)			
0.01 micron c	oalescing	Energy efficient fow*	20	(42)			
		Maximum flow**	34	(72)			
Activated carbo	on adsorber	Rated flow*	44	(93)			
Operating temperature	Plastic bow	(,			
Max. supply Plastic bowl 10 bar (150 ps pressure Metal bowl 10 bar (150 ps							
Standard filtration 1.0 and 0.01 micron							
Adsorber Max. oil carryover (ppm w/w) 0.003 @ 21°C (70°F)							
Useful retention [†] 85 cm ³ (2.8 US oz.)							

* Inlet pressure 6.3 bar (91.3 psig), Pressure drop 0.2 bar (3 psig), Saturated Element.

BSPP / BSPT / NPT

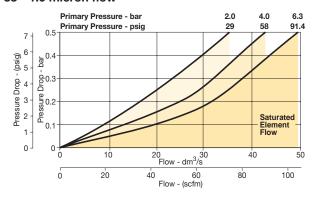
- ** Inlet pressure 6.3 bar (91.3 psig), Pressure drop 0.4 bar (6 psig), Saturated Element.
- [†] Useful retention refers to volume below the quiet zone baffle.
- § Without pressure indicator (DPI) max. supply pressure for metal bowl version is 17 bar (250 psig).

Dimensions mm (inches)

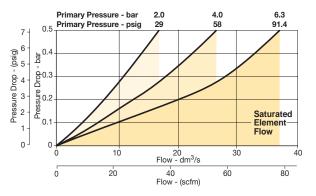


Flow Charts

P33 - 1.0 micron flow



P33 - 0.01 micron flow



Material Specifications

Body		Aluminum
Body cap		ABS
Bowls	Plastic bowl Metal bowl	Polycarbonate Aluminum
Filter element	1.0 and .01 micron	Borosilicate cloth
Adsorber		Activated carbon
Seals		Nitrile
Sight gauge	Metal bowl	Polycarbonate

Repair and Service Kits

B29

Plastic bowl / Bowl guard manual drain	P33KA00BGM
Metal bowl / Sight gauge manual drain	P33KA00BSM
Auto drain	P32KA00DA
1μ coalescing filter element	P33KA00ES9
0.01µ coalescing filter element	P33KA00ESC
Activated carbon adsorber filter element	P33KA00ESA
L-bracket (fits to body)	P33KA00ML
T-bracket (fits to body connector)	P32KA00MB
T-bracket with body connector	P32KA00MT
Body connector	P32KA00CB
Differential pressure indicator (replacement)	P32KA00RQ



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Filter / Remilators

Accessories Lubricators



Symbols

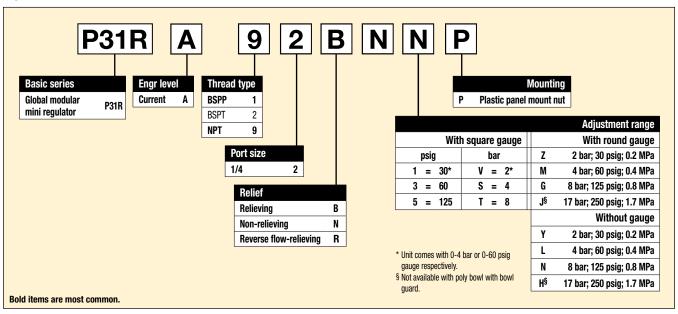




Self relieving regulator with gauge

Non relieving regulator

- Integral 1/4" ports (NPT, BSPP & BSPT)
- Robust but lightweight aluminum construction
- Secondary pressure ranges 0-2 bar (0-30 psig), 0-4 bar, (0-60 psig), 0-8 bar (0-125 psig), 0-17 bar (0-250 psig)
- Secondary aspiration plus balanced poppet provides quick response and accurate pressure regulation.
- Relieving & Non-relieving types
- Non-rising knob



Port size	Description	Order code [†]	Flow [‡] dm³/s (scfm)	Max. bar (psig)	Height mm (inches)	Width mm (inches)	Depth mm (inches)
1/4"	8 bar (125 psig) relieving	P31RA92BNNP	30 (64)	20 (300)	100.1 (3.94)	40 (1.58)	40 (1.58)
1/4"	8 bar (125 psig) + gauge	P31RA92BN5P	30 (64)	20 (300)	100.1 (3.94)	40 (1.58)	64.3 (2.53)

 $[\]dagger$ Standard part numbers shown in bold. For other models refer to Options chart above.



[‡] Flow with 10 bar (145 psig) inlet pressure, 6.3 bar (91.3) psig) set pressure and 1 bar (14.5 psig) pressure drop.

P31 Series

Mini Regulator

Specifications

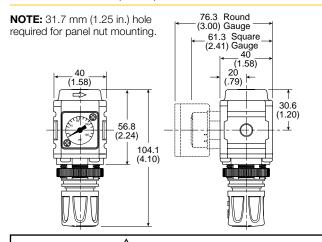
Flow capacity*	1/4	30 dm ³ /s	(64 scfm)
Operating temperature [†]	-20°C	C to 65.5°C (-4°F	to 150°F)
Max. supply pressure		20 bar	(300 psig)
Adjusting range pressure		0-4 ba 0-8 bar	r (30 psig) r (60 psig) (125 psig) (250 psig)
Port size	BSPP	/ BSPT / NPT	1/4
Gauge port (2 ea.)**	BSPP	/ BSPT / NPT	1/8
Weight		0.17 kg	(0.37 lbs)

^{*} Inlet pressure 10 bar (145 psig). Secondary pressure 6.3 bar (91.3 psig).

Material Specifications

Body	Aluminum
Adjustment knob	Acetal
Body cap	ABS
Bonnet	PBT
Diaphragm assembly	Brass / Nitrile
Bottom plug	33% glass-filled nylon
Valve assembly	Brass / Nitrile
Springs	Steel
Seals	Nitrile
Panel nut	Acetal

Dimensions mm (inches)



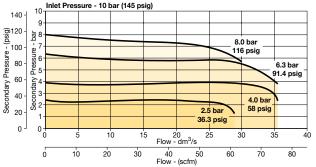
Product rupture can cause serious injury. Do not connect regulator to bottled gas. Do not exceed Maximum primary pressure rating.

CAUTION:

REGULATOR PRESSURE ADJUSTMENT – The working range of knob adjustment is designed to permit outlet pressures within their full range. Pressure adjustment beyond this range is also possible because the knob is not a limiting device. This is a common characteristic of most industrial regulators, and limiting devices may be obtained only by special design. For best performance, regulated pressure should always be set by increasing the pressure up to the desired setting.

Flow Charts

1/4 Regulator



Repair and Service Kits

P31KA00RC P31KA00MM
P31KA00MM
P31KA00MP
P31KA00MR
P31KA00MW
P31KA00MT
P31KA00CB

Gauges

B31

Square flush mount gauge

0-4 bar	K4511SCR04B
0-10 bar	K4511SCR11B
0-60 psig	K4511SCR060
0-150 psig	K4511SCR150

Square with adapter kit

0-4 bar	P6G-PR11040
0-10 bar	P6G-PR11100
0-60 psig	P6G-PR11P06
0-150 psig	P6G-PR11P15

1.00" Round 1/8" center back mount

0-60 psig / 0-4 bar	K4510N18060
0-160 psig / 0-11 bar	K4510N18160

40mm Round 1/8" center back mount

(Not for use with Common Port Regulators)

0-30 psig / 0-2 bar	K4515N18030
0-60 psig / 0-4 bar	K4515N18060
0-160 psig / 0-11 bar	K4515N18160

For best performance, regulated pressure should always be set by increasing the pressure up to the desired setting.



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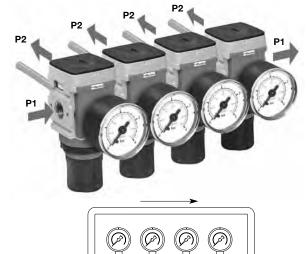
Lubricators

Accessories

^{**} Non-gauge option only.

[†] Units with square gauges: -15°C to 65.5°C (5°F to 150°F)

Mini Common - P1 Regulator - P31



P2

P2

Symbols





Self relieving regulator with gauge

Non relieving regulator

- Manifold style regulator with line pressure on both sides.
- Pressure output is at front or rear.
- Integral 1/4" ports (NPT, BSPP & BSPT)
- Robust construction
- Secondary pressure ranges 0-2 bar (0-30 psig), 0-4 bar, (0-60 psig), 0-8 bar (0-125 psig), 0-17 bar (0-250 psig)
- Secondary aspiration plus balanced poppet provides quick response and accurate pressure regulation
- Relieving & Non-relieving types
- Non-rising knob

Introduction

Filters

Coalescers

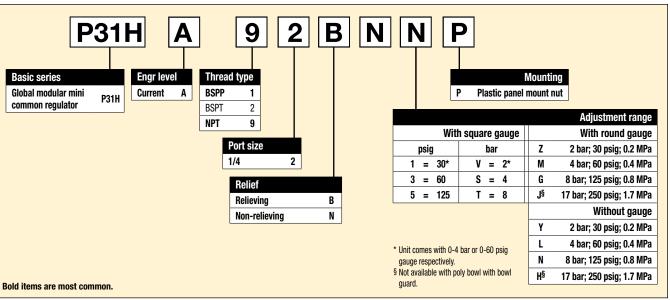
Regulators

Filter / Regulators

Lubricators

Accessories

Options:



Port size	Description	Order code [†]	Flow [‡] dm³/s (scfm)	Max. bar (psig)	Height mm (inches)	Width mm (inches)	Depth mm (inches)
1/4"	8 bar (125 psig) relieving	P31HA92BNNP	18 (38)	20 (300)	100.1 (3.94)	40 (1.58)	40 (1.58)

[†] Standard part numbers shown in bold. For other models refer to Options chart above.

‡ Flow with 10 bar (145 psig) inlet pressure, 6.3 bar (91.3) psig) set pressure and 1 bar (14.5 psig) pressure drop.



Global Air Preparation System

P31 Series Mini Common Regulator

Specifications

Flow capacity*	1/4	18 dm ³ /	/s (38 scfm)
Operating temperature	-20°(C to 65.5°C (-4°	°F to 150°F)
Max. supply pressure		20 ba	ır (300 psig)
Adjusting range pressure		0-4 b 0-8 ba	par (30 psig) par (60 psig) par (125 psig) par (250 psig)
P1 Port size (Inlet / Outlet)	BSPP	/ BSPT / NPT	1/4
P2 Regulated ports (2 ea.)	BSPP	/BSPT/NPT	1/8
Weight		0.30 k	(g (0.66 lbs)

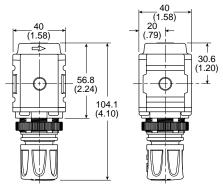
^{*} Inlet pressure 10 bar (145 psig). Secondary pressure 6.3 bar (91.3 psig).

Materials of Construction

Body	Zinc
Adjustment knob	Acetal
Body cap	ABS
Bonnet	33% Glass-filled PBT
Diaphragm assembly	Brass / Nitrile
Bottom plug	33% Glass-filled nylon
Valve assembly	Brass / Nitrile

Dimensions mm (inches)

NOTE: 31.7 mm (1.25 in.) hole required for panel nut mounting.



! WARNING

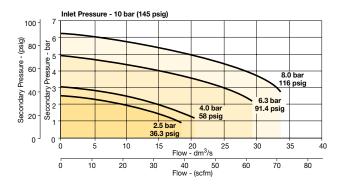
Product rupture can cause serious injury.
Do not connect regulator to bottled gas.
Do not exceed Maximum primary pressure rating.

CAUTION:

REGULATOR PRESSURE ADJUSTMENT – The working range of knob adjustment is designed to permit outlet pressures within their full range. Pressure adjustment beyond this range is also possible because the knob is not a limiting device. This is a common characteristic of most industrial regulators, and limiting devices may be obtained only by special design. For best performance, regulated pressure should always be set by increasing the pressure up to the desired setting.

Flow Charts

1/4 Common Regulator



Repair and Service Kits

Regulator repair kit - relieving	P31KA00RB
Regulator repair kit - non-relieving	P31KA00RC
Panel mount nut - aluminum	P31KA00MM
Panel mount nut - plastic	P31KA00MP
Angle bracket (uses panel mount threads)	P31KA00MR
T-bracket with body connector	P31KA00MT
Body connector	P31KA00CB

Gauges

B33

0-60 psig / 0-4 bar

1.00" Round 1/8" center back mount

0-160 psig / 0-11 bar	K4510N18160
Square with adapter kit	
0-4 bar	P6G-PR11040
0-10 har	P6G-PR11100

0-4 bar	P6G-PR11040
0-10 bar	P6G-PR11100
0-60 psig	P6G-PR11P06
0-150 psig	P6G-PR11P15

For best performance, regulated pressure should always be set by increasing the pressure up to the desired setting.





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K4510N18060

Filters

Symbols



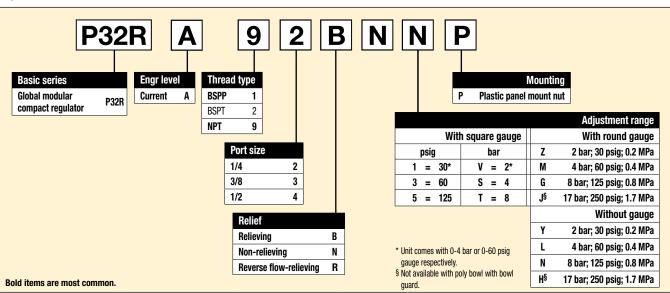


Self relieving regulator with gauge

Non relieving regulator

- Integral 1/4", 3/8" or 1/2" ports (NPT, BSPP & BSPT)
- Robust but lightweight aluminum construction
- Secondary pressure ranges 0-2 bar (0-30 psig), 0-4 bar, (0-60 psig), 0-8 bar (0-125 psig), 0-17 bar (0-250 psig)
- Secondary aspiration plus balanced poppet provides quick response and accurate pressure regulation
- Relieving & Non-relieving types
- Non-rising knob

Options:



Port size	Description	Order code [†]	Flow [‡] dm³/s (scfm)	Max. bar (psig)	Height mm (inches)	Width mm (inches)	Depth mm (inches)
1/4"	8 bar (125 psig) relieving	P32RA92BNNP	41 (81)	20 (300)	136 (5.4)	60 (2.36)	60 (2.36)
1/4"	8 bar (125 psig) relieving + gauge	P32RA92BNGP	41 (81)	20 (300)	136 (5.4)	60 (2.36)	60 (2.36)
3/8"	8 bar (125 psig) relieving	P32RA93BNNP	65 (138)	20 (300)	136 (5.4)	60 (2.36)	60 (2.36)
3/8"	8 bar (125 psig) relieving + gauge	P32RA93BNGP	65 (138)	20 (300)	136 (5.4)	60 (2.36)	60 (2.36)
1/2"	8 bar (125 psig) relieving	P32RA94BNNP	67 (142)	20 (300)	136 (5.4)	60 (2.36)	60 (2.36)
1/2"	8 bar (125 psig) relieving + gauge	P32RA94BNGP	67 (142)	20 (300)	136 (5.4)	60 (2.36)	60 (2.36)

 $[\]dagger$ Standard part numbers shown in bold. For other models refer to Options chart above.

CAUTION:

REGULATOR PRESSURE ADJUSTMENT – The working range of knob adjustment is designed to permit outlet pressures within their full range. Pressure adjustment beyond this range is also possible because the knob is not a limiting device. This is a common characteristic of most industrial regulators, and limiting devices may be obtained only by special design. For best performance, regulated pressure should always be set by increasing the pressure up to the desired setting.

Product rupture can cause serious injury. Do not connect regulator to bottled gas. Do not exceed Maximum primary pressure rating.



[‡] Flow with 10 bar (145 psig) inlet pressure, 6.3 bar (91.3) psig) set pressure and 1 bar (14.5 psig) pressure drop.

Specifications

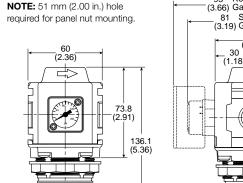
Flow capacity*	1/4		41 d	lm ³ /s (81	scfm)
	3/8		65 dn	n ³ /s (138	scfm)
	1/2		67 dn	n ³ /s (142	scfm)
Operating temperature	-	25°C to 6	5.5°C (-	·13°F to 1	50°F)
Max. supply pressure			20) bar (300) psig)
Adjusting range pressure)		0-	-2 bar (30) psig)
			0-	-4 bar (60) psig)
			3-0	3 bar (125	psig)
			0-17	bar (250) psig)
Port size	BSPF	P/BSPT/	NPT	1/4, 3/	8, 1/2
Gauge port (2 ea.)	BSPF	P/BSPT/	NPT		1/4
Weight			0.4	11 kg (0.9	90 lbs)

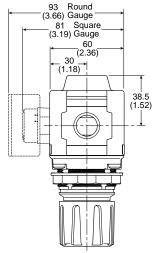
^{*} Inlet pressure 10 bar (145 psig). Secondary pressure 6.3 bar (91.3 psig).

Material Specifications

Body		Aluminum
Adjustment knob		Acetal
Body cap		ABS
Bonnet	33% GI	lass-filled nylon
Diaphragm assembly		Nitrile / Zinc
Bottom plug	33% Glass-filled nylon	
Valve assembly		Brass / Nitrile
Springs	Main regulating valve	Steel S.S.
Seals		Nitrile
Panel nut		Acetal

Dimensions mm (inches)



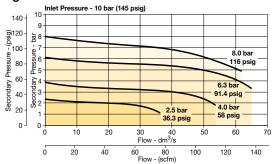


Repair and Service Kits

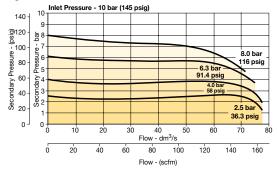
Regulator repair kit - relieving	P32KA00RB
Regulator repair kit - non-relieving	P32KA00RC
Panel mount nut - aluminum	P32KA00MM
Panel mount nut - plastic	P32KA00MP
Angle bracket (uses panel mount threads)	P32KA00MR
T-bracket with body connector	P32KA00MT
T-bracket	P32KA00MB
Body connector	P32KA00CB

Flow Charts

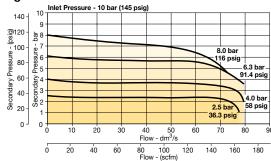
1/4 Regulator



3/8 Regulator



1/2 Regulator



Gauges

50mm (2") Round 1/4" center back mount

0-30 psig / 0-2 bar	K4520N14030
0-60 psig / 0-4 bar	K4520N14060
0-160 psig / 0-11 bar	K4520N14160
0-300 psig / 0-20 bar	K4520N14300

Square flush mount gauge

0-4 bar	K4511SCR04B
0-10 bar	K4511SCR11B
0-60 psig	K4511SCR060
0-150 psig	K4511SCR150

Square with adapter kit

0-4 bar	P6G-PR11040
0-10 bar	P6G-PR11100
0-60 psig	P6G-PR11P06
0-150 psig	P6G-PR11P15

Digital 1.75" Round 1/8" center back mount

0-160 psig / 0-11 bar	K4517N14160D

For best performance, regulated pressure should always be set by increasing the pressure up to the desired setting.



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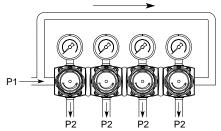
Lubricators

Accessories



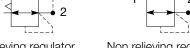
Compact Common - P1 Regulator - P32





Symbols



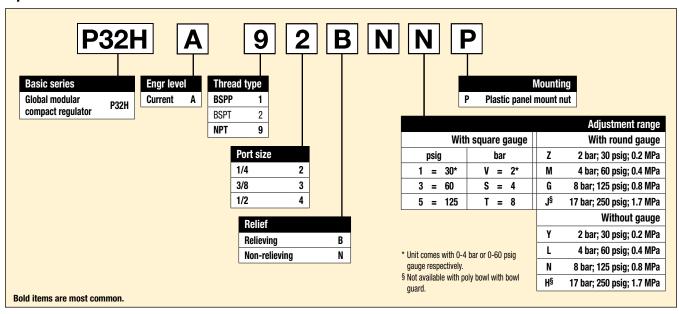


Self relieving regulator with gauge

Non relieving regulator

- Manifold style regulator with line pressure on both sides.
- Pressure output is at front or rear.
- Integral 1/4", 3/8" or 1/2" ports (NPT, BSPP & BSPT)
- Robust construction
- Secondary pressure ranges 0-2 bar (0-30 psig), 0-4 bar, (0-60 psig), 0-8 bar (0-125 psig), 0-17 bar (0-250 psig)
- Secondary aspiration plus balanced poppet provides quick response and accurate pressure regulation
- Relieving & Non-relieving types
- Non-rising knob

Options:



Port size	Description	Order code†	Flow [‡] dm³/s (scfm)	Max. bar (psig)	Height mm (inches)	Width mm (inches)	Depth mm (inches)
1/4"	8 bar (125 psig) relieving	P32HA92BNNP	28 (59)	20 (300)	136 (5.4)	60 (2.36)	60 (2.36)
3/8"	8 bar (125 psig) relieving	P32HA93BNNP	28 (59)	20 (300)	136 (5.4)	60 (2.36)	60 (2.36)
1/2"	8 bar (125 psig) relieving	P32HA94BNNP	28 (59)	20 (300)	136 (5.4)	60 (2.36)	60 (2.36)

B36



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[†] Standard part numbers shown in bold. For other models refer to Options chart above.

[‡] Flow with 10 bar (145 psig) inlet pressure, 6.3 bar (91.3) psig) set pressure and 1 bar (14.5 psig) pressure drop.

Specifications

Flow capacity*	1/4 3/8 1/2	28	8 dm ³ /s (59 scfm) 8 dm ³ /s (59 scfm) 8 dm ³ /s (59 scfm)
Operating temperature	-'2	25°C to 65.5°C	C (-13°F to 150°F)
Max. supply pressure			20 bar (300 psig)
Adjusting range pressure			0-2 bar (30 psig)
			0-4 bar (60 psig)
			0-8 bar (125 psig)
		0	-17 bar (250 psig)
Port size	BSPF	/ BSPT / NP	Г 1/4, 3/8, 1/2
Gauge port (2 ea.)	BSPF	/ BSPT / NP	Γ 1/4
Weight			0.50 kg (1.10 lbs)

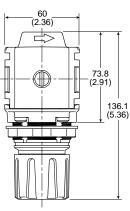
^{*} Inlet pressure 10 bar (145 psig). Secondary pressure 6.3 bar (91.3 psig).

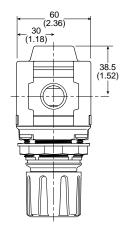
Material Specifications

Body		Zinc
Adjustment knob		Acetal
Body cap		ABS
Bonnet	33% GI	ass-filled nylon
Diaphragm assembly		Nitrile / Zinc
Bottom plug	33% Glass-filled nylon	
Valve assembly		Brass / Nitrile
Springs	Main regulating valve	Steel S.S.
Seals		Nitrile
Panel nut		Acetal

Dimensions mm (inches)

NOTE: 51 mm (2.00 in.) hole required for panel nut mounting.





⚠ WARNING

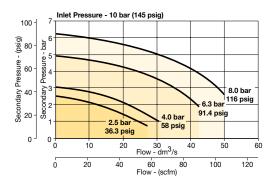
Product rupture can cause serious injury. Do not connect regulator to bottled gas. Do not exceed Maximum primary pressure rating.

CAUTION:

REGULATOR PRESSURE ADJUSTMENT – The working range of knob adjustment is designed to permit outlet pressures within their full range. Pressure adjustment beyond this range is also possible because the knob is not a limiting device. This is a common characteristic of most industrial regulators, and limiting devices may be obtained only by special design. For best performance, regulated pressure should always be set by increasing the pressure up to the desired setting.

Flow Charts

P32 Common Port Regulator



Repair and Service Kits

P32KA00RB
P32KA00RC
P32KA00MM
P32KA00MP
P32KA00MR
P32KA00MT
P32KA00MB
P32KA00CB

Gauges

B37

50mm (2") Round 1/4" center back mount

Square flush mount gauge	
0-300 psig / 0-20 bar	K4520N14300
0-160 psig / 0-11 bar	K4520N14160
0-60 psig / 0-4 bar	K4520N14060
0-30 psig / 0-2 bar	K4520N14030

Square with adapter kit	
0-150 psig	K4511SCR150
0-60 psig	K4511SCR060
0-10 bar	K4511SCR11B
U-4 bar	K4511SCR04B

0-4 bar	P6G-PR11040
0-10 bar	P6G-PR11100
0-60 psig	P6G-PR11P06
0-150 psig	P6G-PR11P15

Digital 1.75" Round 1/8" center back mount

0-100 psig / 0-11 bar K451/N141	0-160 psig /	0-11 bar	K4517N14160D
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For best performance, regulated pressure should always be set by increasing the pressure up to the desired setting.



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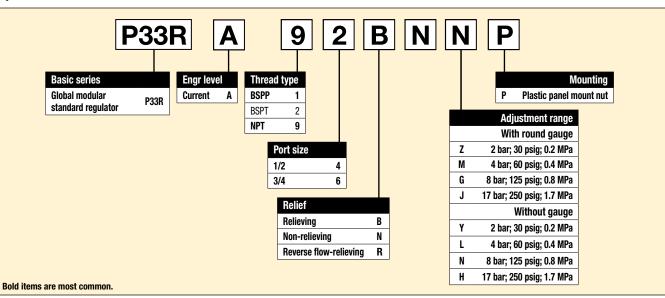


Self relieving regulator with gauge

Non relieving regulator

- Integral 1/2" or 3/4" ports (NPT, BSPP & BSPT)
- Robust but lightweight aluminum construction
- Secondary pressure ranges 0-2 bar (0-30 psig), 0-4 bar, (0-60 psig), 0-8 bar (0-125 psig), 0-17 bar (0-250 psig)
- Secondary aspiration plus balanced poppet provides quick response and accurate pressure regulation
- Relieving & Non-relieving types
- Non-rising knob

Options:



Port size	Description	Order code [†]	Flow [‡] dm³/s (scfm)	Max. bar (psig)	Height mm (inches)	Width mm (inches)	Depth mm (inches)
1/2"	8 bar (125 psig) relieving	P33RA94BNNP	100 (212)	20 (300)	149 (5.9)	73 (2.9)	73 (2.9)
1/2"	8 bar (125 psig) relieving + gauge	P33RA94BNGP	100 (212)	20 (300)	149 (5.9)	73 (2.9)	73 (2.9)
3/4"	8 bar (125 psig) relieving	P33RA96BNNP	100 (212)	20 (300)	149 (5.9)	73 (2.9)	73 (2.9)
3/4"	8 bar (125 psig) relieving + gauge	P33RA96BNGP	100 (212)	20 (300)	149 (5.9)	73 (2.9)	73 (2.9)

 $[\]dagger$ Standard part numbers shown in bold. For other models refer to Options chart above.

‡ Flow with 10 bar (145 psig) inlet pressure, 6.3 bar (91.3) psig) set pressure and 1 bar (14.5 psig) pressure drop.



Specifications

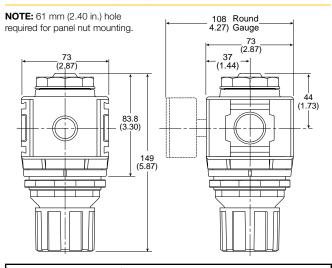
Flow capacity*	1/2 3/4		0 dm ³ /s (2 ⁻ 0 dm ³ /s (2 ⁻	
Operating temperature	-2	5°C to 65.5	°C (-13°F to	150°F)
Max. supply pressure			20 bar (3	00 psig)
Adjusting range pressure	Э		0-2 bar (30 psig)
			0-4 bar (60 psig)
			0-8 bar (1	25 psig)
			0-17 bar (2	50 psig)
Port size	BSPP /	BSPT / NF	PT	1/2, 3/4
Gauge port (2 ea.)	BSPP /	BSPT / NF	PT	1/4
Weight			0.62 kg (⁻	1.37 lbs)

^{*} Inlet pressure 10 bar (145 psig). Secondary pressure 6.3 bar (91.3 psig).

Material Specifications

Body		Aluminum
Adjustment knob		Acetal
Body cap		ABS
Bonnet	33% Gla	ass-filled nylon
Diaphragm assembly		Nitrile / Zinc
Valve assembly	Brass /	Nitrile / Acetal
Springs	Main regulating valve	Steel S.S.
Seals		Nitrile
Panel nut		Acetal

Dimensions mm (inches)



⚠ WARNING

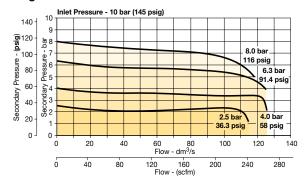
Product rupture can cause serious injury.
Do not connect regulator to bottled gas.
Do not exceed Maximum primary pressure rating.

CAUTION:

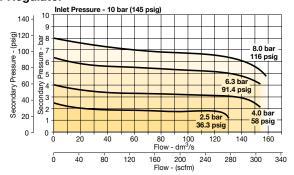
REGULATOR PRESSURE ADJUSTMENT – The working range of knob adjustment is designed to permit outlet pressures within their full range. Pressure adjustment beyond this range is also possible because the knob is not a limiting device. This is a common characteristic of most industrial regulators, and limiting devices may be obtained only by special design. For best performance, regulated pressure should always be set by increasing the pressure up to the desired setting.

Flow Charts

1/2 Regulator



3/4 Regulator



Repair and Service Kits

Regulator repair kit - relieving	P33KA00RB
Regulator repair kit - non-relieving	P33KA00RC
Panel mount nut - aluminum	P33KA00MM
Panel mount nut - plastic	P33KA00MP
Angle bracket (uses panel mount threads)	P33KA00MR
T-bracket with body connector	P32KA00MT
T-bracket	P32KA00MB
Body connector	P32KA00CB

Gauges

50mm (2") Round 1/4" center back mount

0-30 psig / 0-2 bar	K4520N14030
0-60 psig / 0-4 bar	K4520N14060
0-160 psig / 0-11 bar	K4520N14160
0-300 psig / 0-20 bar	K4520N14300

Digital 1.75" Round 1/8" center back mount

0-160 psig /	'0-11 bar	K4517N14160D

For best performance, regulated pressure should always be set by increasing the pressure up to the desired setting.



Introduction

Combos

Filters

Coalescers

Regulators

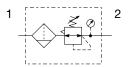
Filter/ Regulators

s Lubricators

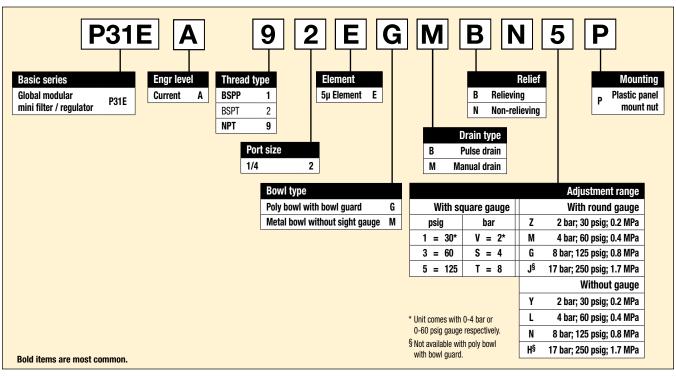
Accessories



Symbols



- Integral 1/4" ports (NPT, BSPP & BSPT)
- High efficiency 5 micron element as standard
- Excellent water removal efficiency
- Robust but lightweight aluminum construction
- Positive bayonet latch to ensure correct & safe fitting Secondary pressure ranges 0-2 bar (0-30 psig), 0-4 bar, (0-60 psig), 0-8 bar (0-125 psig), 0-17 bar (0-250 psig)
- Secondary aspiration plus balanced poppet provides quick response and accurate pressure regulation



Port size	Description	Order code [†]	Flow [‡] dm³/s (scfm)	Max. bar (psig)	Height mm (inches)	Width mm (inches)	Depth mm (inches)
1/4"	8 bar (125 psig) relieving - poly bowl - manual drain	P31EA92EGMBN5P	14 (30)	10 (150)	164.1 (6.46)	40 (1.58)	64 (2.53)
1/4"	8 bar (125 psig) relieving - poly bowl - pulse drain	P31EA92EGBBN5P	14 (30)	10 (150)	164.1 (6.46)	40 (1.58)	64 (2.53)
1/4"	8 bar (125 psig) relieving - metal bowl - manual drain	P31EA92EMMBN5P	14 (30)	17 (250)	164.1 (6.46)	40 (1.58)	64 (2.53)
1/4"	8 bar (125 psig) relieving - metal bowl - pulse drain	P31EA92EMBBN5P	14 (30)	17 (250)	164.1 (6.46)	40 (1.58)	64 (2.53)

[†] Standard part numbers shown in bold. For other models refer to Options chart above.



[‡] Flow with 10 bar (145 psig) inlet pressure, 6.3 bar (91.3) psig) set pressure and 1 bar (14.5 psig) pressure drop.

0.19 kg (0.42 lbs)

Specifications

Flow capacity*	1/4	14	dm ³ /s (30.0 scfm)
Operating	Plastic bow	I -10°C to 52°	C (14°F to 125°F)
temperature [†]	Metal bowl	-10°C to 65.5°C	C (14°F to 150°F)
Max. supply	Plastic bowl		10 bar (150 psig)
pressure	Metal bowl		17 bar (250 psig)
Standard filtration	on		5 micron
Useful retention		12	2 cm ³ (0.4 US oz.)
Adjusting range	pressure		0-2 bar (30 psig)
			0-4 bar (60 psig)
			0-8 bar (125 psig)
		0-	17 bar (250 psig)
Port size	В	SPP / BSPT / NPT	1/4
Gauge port (2 e	a.)** B	SPP / BSPT / NPT	1/8

^{*} Inlet pressure 10 bar (145 psig). Secondary pressure 6.3 bar (91.3 psig).

Air quality:

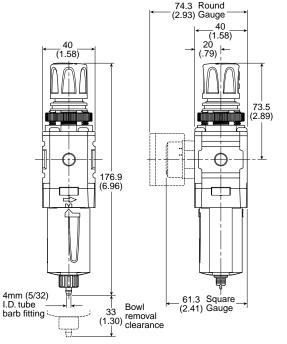
Weight

Within ISO 8573-1: 1991 Class 3 (Particulates) Within ISO 8573-1: 2001 Class 6 (Particulates)

WARNING

Product rupture can cause serious injury. Do not connect regulator to bottled gas. Do not exceed Maximum primary pressure rating.

Dimensions mm (inches)



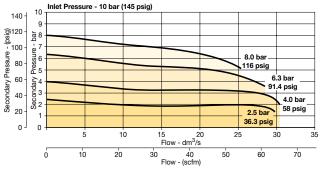
Manual Drain Note:

Pulse Drain

Flush-mounted gauge kits will not fit units originally purchased with threaded gauge ports.

Flow Charts

1/4 Filter / Regulator



Material Specifications

Body		Aluminum
Adjustment knob		Acetal
Body cap		ABS
Bonnet		PBT
Bowl	Plastic bowl Metal bowl	Polycarbonate Aluminum
Bowl guard		Nylon
Filter element		Polyethylene
Seals		Nitrile
Springs		Steel
Valve assembly		Brass / Nitrile
Diaphragm assembly		Brass / Nitrile
Panel nut		Acetal

For best performance, regulated pressure should always be set by increasing the pressure up to the desired setting.

Repair and Service Kits

Plastic bowl / Bowl guard manual drain	P31KA00BGM
Metal bowl / w/o sight gauge manual drain	P31KA00BMM
Plastic bowl / Bowl guard pulse drain	P31KA00BGB
Metal bowl / w/o sight gauge pulse drain	P31KA00BMB
5μ particle filter element	P31KA00ESE
Regulator repair kit - relieving	P31KA00RB
Regulator repair kit - non-relieving	P31KA00RC
Panel mount nut - aluminum	P31KA00MM
Panel mount nut - plastic	P31KA00MP
Angle bracket (uses panel mount threads)	P31KA00MR
C-bracket (fits to body)	P31KA00MW
T-bracket with body connector	P31KA00MT
Body connector	P31KA00CB

Gauges

Square flush mount gauge

oquai o maon mount gang	-
0-4 bar	K4511SCR04B
0-10 bar	K4511SCR11B
0-60 psig	K4511SCR060
0-150 psig	K4511SCR150

For best performance, regulated pressure should always be set by increasing the pressure up to the desired setting.



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^{**} Non-gauge option only.

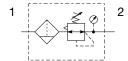
[†] Units with square gauges: -15°C to 65.5°C (5°F to 150°F)

Compact Filter / Regulator - P32

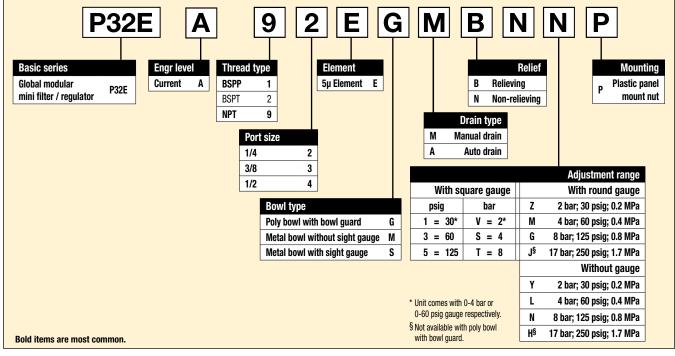


Symbols

P32 Series



- Integral 1/4", 3/8" or 1/2" ports (NPT, BSPP & BSPT)
- High efficiency 5 micron element as standard
- Excellent water removal efficiency
- Robust but lightweight aluminum construction
- Positive bayonet latch to ensure correct & safe fitting
- Secondary pressure ranges 0-2 bar (0-30 psig), 0-4 bar, (0-60 psig), 0-8 bar (0-125 psig), 0-17 bar (0-250 psig)
- Secondary aspiration plus balanced poppet provides quick response and accurate pressure regulation



Port			Flow [‡]	Max.	Height	Width	Depth
size	Description	Order code†	dm³/s (scfm)	bar (psig)	mm (inches)	mm (inches)	mm (inches)
1/4"	8 bar (125 psig) relieving - poly bowl - manual drain	P32EA92EGMBNGP	42 (89)	10 (150)	254 (10.0)	60 (2.36)	60 (2.36)
1/4"	8 bar (125 psig) relieving - poly bowl - auto drain	P32EA92EGABNGP	42 (89)	10 (150)	248 (9.76)	60 (2.36)	60 (2.36)
1/4"	8 bar (125 psig) relieving - metal bowl - manual drain	P32EA92ESMBNGP	42 (89)	17 (250)	245 (9.66)	60 (2.36)	60 (2.36)
1/4"	8 bar (125 psig) relieving - metal bowl - auto drain	P32EA92ESABNGP	42 (89)	17 (250)	254 (10.0)	60 (2.36)	95 (3.74)
3/8"	8 bar (125 psig) relieving - poly bowl - manual drain	P32EA93EGMBNGP	58 (123)	10 (150)	254 (10.0)	60 (2.36)	60 (2.36)
3/8"	8 bar (125 psig) relieving - poly bowl - auto drain	P32EA93EGABNGP	58 (123)	10 (150)	248 (9.76)	60 (2.36)	60 (2.36)
3/8"	8 bar (125 psig) relieving - metal bowl - manual drain	P32EA93ESMBNGP	58 (123)	17 (250)	245 (9.66)	60 (2.36)	60 (2.36)
3/8"	8 bar (125 psig) relieving - metal bowl - auto drain	P32EA93ESABNGP	58 (123)	17 (250)	254 (10.0)	60 (2.36)	95 (3.74)
1/2"	8 bar (125 psig) relieving - poly bowl - manual drain	P32EA94EGMBNGP	64 (136)	10 (150)	245 (9.66)	60 (2.36)	95 (3.74)
1/2"	8 bar (125 psig) relieving - poly bowl - auto drain	P32EA94EGABNGP	64 (136)	10 (150)	248 (9.76)	60 (2.36)	95 (3.74)
1/2"	8 bar (125 psig) relieving - metal bowl - manual drain	P32EA94ESMBNGP	64 (136)	17 (250)	245 (9.66)	60 (2.36)	60 (2.36)
1/2"	8 bar (125 psig) relieving - metal bowl - auto drain	P32EA94ESABNGP	64 (136)	17 (250)	254 (10.0)	60 (2.36)	60 (2.36)

B42

[‡] Flow with 10 bar (145 psig) inlet pressure, 6.3 bar (91.3) psig) set pressure and 1 bar (14.5 psig) pressure drop.



[†] Standard part numbers shown in bold. For other models refer to Options chart above.

Specifications

Flow capacity*	1/4		42 dm ³ /s (89 scfm)
,	3/8		58 dm ³ /s (123 scfm)
	1/2		64 dm ³ /s (136 scfm)
Operating	Plastic bowl		2°C (-13°F to 125°F)
temperature	Metal bowl	-25°C to 65.	5°C (-13°F to 150°F)
Max. supply	Plastic bowl		10 bar (150 psig)
pressure	Metal bowl		17 bar (250 psig)
Standard filtratio	n		5 micron
Useful retention [†]			51 cm ³ (1.7 US oz.)
Adjusting range	pressure		0-2 bar (30 psig)
			0-4 bar (60 psig)
			0-8 bar (125 psig)
			0-17 bar (250 psig)
Port size	BSPP	/BSPT/NPT	1/4, 3/8, 1/2
Gauge port (2 ea	a.) BSPP	/BSPT/NPT	1/4
Weight			0.53 kg (1.17 lbs)

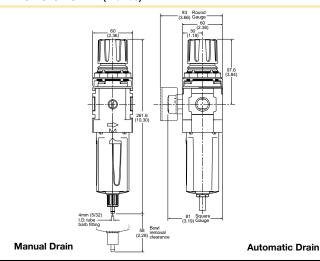
^{*} Inlet pressure 10 bar (145 psig). Secondary pressure 6.3 bar (91.3 psig). † Useful retention refers to volume below the quiet zone baffle.

Within ISO 8573-1: 1991 Class 3 (Particulates) Within ISO 8573-1: 2001 Class 6 (Particulates)

Material Specifications

Body		Aluminum
Adjustment knob		Acetal
Body cap		ABS
Element retainer / Baffle		Acetal
Bowl	Plastic bowl	Polycarbonate
	Metal bowl	Zinc
Bowl guard		Nylon
Filter element		Sintered polyethylene
Seals		Nitrile
Springs	Main regulating / valve	Steel / S.S.
Valve assembly		Brass / Nitrile
Diaphragm assembly		Nitrile / Zinc
Panel nut		Acetal
Sight gauge	Metal bowl	Polycarbonate

Dimensions mm (inches)

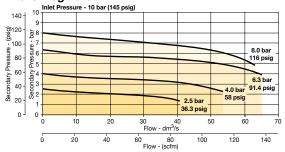


WARNING

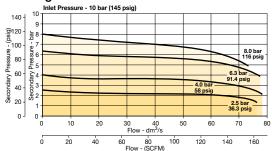
Product rupture can cause serious injury. Do not connect regulator to bottled gas. Do not exceed Maximum primary pressure rating.

Flow Charts

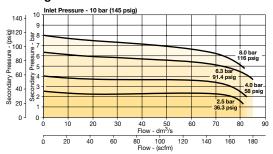
1/4 Filter / Regulator



3/8 Filter/Regulator



1/2 Filter/Regulator



Repair and Service Kits

Plastic bowl / Bowl guard manual drain	P32KA00BGM
Metal bowl / Sight gauge manual drain	P32KA00BSM
Auto drain	P32KA00DA
5µ particle filter element	P32KA00ESE
Regulator repair kit - relieving	P32KB00RB
Regulator repair kit - non-relieving	P32KB00RC
Panel mount nut - aluminum	P32KA00MM
Panel mount nut - plastic	P32KA00MP
Angle bracket (fits to panel mount threads)	P32KB00MR
T-bracket (fits to body connector)	P32KA00MB
T-bracket with body connector	P32KA00MT
Body connector	P32KA00CB

Gauges

50mm (2") Round 1/4" center back mount

0-30 psig / 0-2 bar	K4520N14030
0-60 psig / 0-4 bar	K4520N14060
0-160 psig / 0-11 bar	K4520N14160
0-300 psig / 0-20 bar	K4520N14300

Digital 1.75" Round 1/8" center back mount

0-160 psig / 0-11 bar	K4517N14160D
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For best performance, regulated pressure should always be set by increasing the pressure up to the desired setting.



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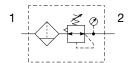




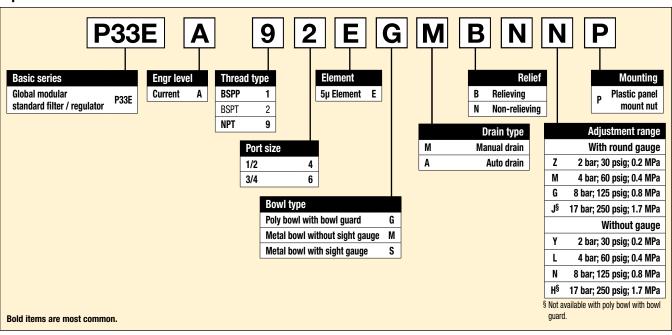




Symbols



- Integral 1/2" or 3/4" ports (NPT, BSPP & BSPT)
- · High efficiency 5 micron element as standard
- Excellent water removal efficiency
- Robust but lightweight aluminum construction
- Positive bayonet latch to ensure correct & safe fitting
- Secondary pressure ranges 0-2 bar (0-30 psig), 0-4 bar, (0-60 psig), 0-8 bar (0-125 psig), 0-17 bar (0-250 psig)
- Secondary aspiration plus balanced poppet provides quick response and accurate pressure regulation



Port size	Description	Order code [†]	Flow [‡] dm³/s (scfm)	Max. bar (psig)	Height mm (inches)	Width mm (inches)	Depth mm (inches)
1/2"	8 bar (125 psig) relieving - poly bowl - manual drain	P33EA94EGMBNGP	90 (191)	10 (150)	291 (11.44)	73 (2.9)	73 (2.9)
1/2"	8 bar (125 psig) relieving - poly bowl - auto drain	P33EA94EGABNGP	90 (191)	10 (150)	285 (11.22)	73 (2.9)	73 (2.9)
1/2"	8 bar (125 psig) relieving - metal bowl - manual drain	P33EA94ESMBNGP	90 (191)	17 (250)	282 (11.0)	73 (2.9)	73 (2.9)
1/2"	8 bar (125 psig) relieving - metal bowl - auto drain	P33EA94ESABNGP	90 (191)	17 (250)	291 (11.44)	73 (2.9)	108 (4.27)
3/4"	8 bar (125 psig) relieving - poly bowl - manual drain	P33EA96EGMBNGP	98 (208)	10 (150)	282 (11.0)	73 (2.9)	108 (4.27)
3/4"	8 bar (125 psig) relieving - poly bowl - auto drain	P33EA96EGABNGP	98 (208)	10 (150)	285 (11.22)	73 (2.9)	108 (4.27)
3/4"	8 bar (125 psig) relieving - metal bowl - manual drain	P33EA96ESMBNGP	98 (208)	17 (250)	291 (11.44)	73 (2.9)	73 (2.9)
3/4"	8 bar (125 psig) Relieving - Metal bowl - Auto drain	P33EA96ESABNGP	98 (208)	17 (250)	282 (11.0)	73 (2.9)	73 (2.9)

[†] Standard part numbers shown in bold. For other models refer to Options chart above.

[‡] Flow with 10 bar (145 psig) inlet pressure, 6.3 bar (91.3) psig) set pressure and 1 bar (14.5 psig) pressure drop.



Specifications

Flow capacity*	1/2		90 dm ³ /s (19 ⁻	1 scfm)
	3/4		98 dm ³ /s (208	
Operating	Plastic bo	owl -2	25°C to 52°C (-13°F to	125°F)
temperature	Metal boy	wl -25°	°C to 65.5°C (-13°F to	150°F)
Supply	Plastic bo	owl	10 bar (15	0 psig)
pressure	Metal boy	Νl	17 bar (25	0 psig)
Standard filtration	on		5	micron
Useful retention	t		85 cm ³ (2.8 l	JS oz.)
Adjusting range	pressure		0-2 bar (3	0 psig)
			0-4 bar (6	i0 psig)
			0-8 bar (12	5 psig)
			0-17 bar (25	0 psig)
Port size		BSPP / BS	PT / NPT 1	/2.3/4

Port size	BSPP / BSPT / NPT	1/2, 3/4
Gauge port (2 ea.)	BSPP / BSPT / NPT	1/4
Weight		0.85 kg (1.87 lbs)

^{*} Inlet pressure 10 bar (145 psig). Secondary pressure 6.3 bar (91.3 psig).

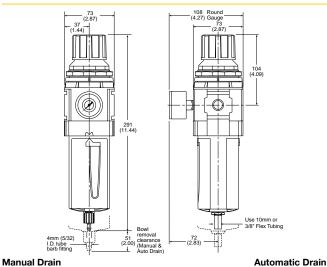
Air quality

Within ISO 8573-1: 1991 Class 3 (Particulates) Within ISO 8573-1: 2001 Class 6 (Particulates)

Material Specifications

Body		Aluminum
Adjustment knob		Acetal
Body cap		ABS
Element retainer / Baffle		Acetal
Bowls	Plastic bowl	Polycarbonate
	Metal bowl	Aluminum
Filter element	S	Sintered Polyethylene
Seals		Nitrile
Springs	Main regulating / Valve	e Steel / S.S.
Valve assembly		Brass / Nitrile
Diaphragm assembly		Nitrile / Zinc
Panel nut		Acetal
Sight gauge	Metal bowl	Polycarbonate

Dimensions mm (inches)

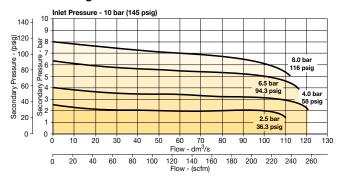


⚠ WARNING

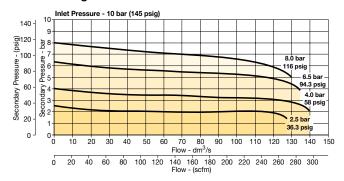
Product rupture can cause serious injury.
Do not connect regulator to bottled gas.
Do not exceed Maximum primary pressure rating.

Flow Charts

1/2 Filter / Regulator



3/4 Filter/Regulator



Repair and Service Kits

Plastic bowl / Bowl guard manual drain	P33KA00BGM
Metal bowl / Sight gauge manual drain	P33KA00BSM
Auto drain	P32KA00DA
5µ particle filter element	P33KA00ESE
Regulator repair kit - Relieving	P33KA00RB
Regulator repair kit - Non-relieving	P33KA00RC
Panel mount nut - Aluminum	P33KA00MM
Panel mount nut - Plastic	P33KA00MP
Angle bracket (fits to panel mount threads)	P33KA00MR
T-bracket (fits to body connector)	P32KA00MB
T-bracket with body connector	P32KA00MT
Body connector	P32KA00CB

Gauges

B45

50mm (2") Round 1/4" center back mount

0-30 psig / 0-2 bar	K4520N14030
0-60 psig / 0-4 bar	K4520N14060
0-160 psig / 0-11 bar	K4520N14160
0-300 psig / 0-20 bar	K4520N14300

Digital 1.75" Round 1/8" center back mount

0-160 psig /	0-11 bar	K4517N14160D

For best performance, regulated pressure should always be set by increasing the pressure up to the desired setting.



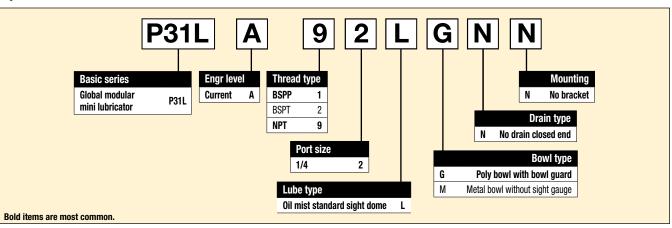
[†] Useful retention refers to volume below the quiet zone baffle.

Symbol



Lubricator with drain

- Integral 1/4" ports (NPT, BSPP & BSPT)
- Robust but lightweight aluminum construction
- Proportional oil delivery over a wide range of air flows
- Finger tip rachet control for precise oil drip rate adjustment



Port size	Description	Order code†	Flow [‡] dm³/s (scfm)	Max. bar (psig)	Height mm (inches)	Width mm (inches)	Depth mm (inches)
1/4"	Poly bowl - No drain	P31LA92LGNN	13 (28)	10 (150)	147.5 (5.80)	40 (1.58)	42.7 (1.68)
1/4"	Metal bowl - No drain	P31LA92LMNN	13 (28)	17 (250)	147.5 (5.80)	40 (1.58)	42.7 (1.68)

 $[\]dagger$ Standard part numbers shown in bold. For other models refer to Options chart above.



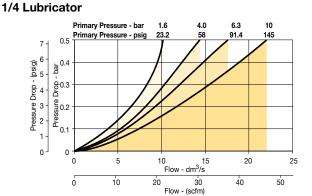
[‡] Flow with 6.3 bar (91.3 psig) inlet pressure and 0.34 bar (4.9 psig) pressure drop.

Specifications

Flow capacity*	1/4	13 dm ³ /s (28 scfm)
Operating temperature	Plastic bowl Metal bowl	-10°C to 52°C (14°F to 125°F) -10°C to 65.5°C (14°F to 150°F)
Max. supply pressure	Plastic bowl Metal bowl	10 bar (150 psig) 17 bar (250 psig)
Useful retention	1	18 cm ³ (0.6 US oz.)
Port size	BSPP / BSP	Γ / NPT 1/4
Weight		0.13 kg (0.29 lbs)
*1.1.1	1 (010 :) 1	1 0041 (40 1)

^{*} Inlet pressure 6.3 bar (91.3 psig). Pressure drop 0.34 bar (4.9 psig).

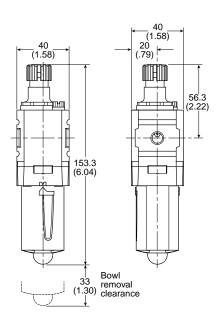
Flow Charts



Material Specifications

Body		Aluminum
Body cap		ABS
Bowl	Plastic bowl Metal bowl	Polycarbonate Aluminum
Seals		Nitrile
Sight dome		Polycarbonate
Suggested lubricant		ISO / ASTM VG32
Pick-up filter		Sintered bronze

Dimensions mm (inches)



Repair and Service Kits

B47

Plastic bowl / Bowl guard no drain	P31KA00BGN
Drip control assembly	P32KA00PG
Fill plug	P31KA00PL
C-bracket (fits to body)	P31KA00MW
T-bracket with body connector	P31KA00MT
Body connector	P31KA00CB

Suggested LubricantF442 Oil

Petroleum based oil of 100 to 200 SUS viscosity at 38°C (100°F) and an aniline point greater than 93°C (200°F) (DO NOT USE OILS WITH ADDITIVES, COMPOUNDED OILS CONTAINING SOLVENTS, GRAPHITE, DETERGENTS, OR SYNTHETIC OILS.)



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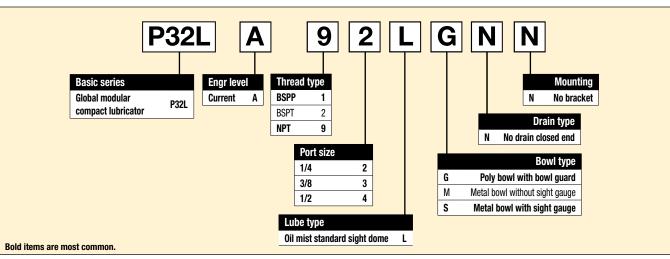
Filters

Symbol



Lubricator with drain

- Integral 1/4", 3/8" or 1/2" ports (NPT, BSPP & BSPT)
- Robust but lightweight aluminum construction
- Proportional oil delivery over a wide range of air flows
- Finger tip rachet control for precise oil drip rate adjustment
- Fill from top under system pressure



Port size	Description	Order code [†]	Flow [‡] dm³/s (scfm)	Max. bar (psig)	Height mm (inches)	Width mm (inches)	Depth mm (inches)
1/4"	Poly bowl - No drain	P32LA92LGNN	18 (38)	10 (150)	211 (8.30)	60 (2.36)	60 (2.36)
1/4"	Metal bowl - No drain	P32LA92LSNN	18 (38)	17 (250)	211 (8.30)	60 (2.36)	60 (2.36)
3/8"	Poly bowl - No drain	P32LA93LGNN	32 (68)	10 (150)	211 (8.30)	60 (2.36)	60 (2.36)
3/8"	Metal bowl - No drain	P32LA93LSNN	32 (68)	17 (250)	211 (8.30)	60 (2.36)	60 (2.36)
1/2"	Poly bowl - No drain	P32LA94LGNN	47 (100)	10 (150)	211 (8.30)	60 (2.36)	60 (2.36)
1/2"	Metal bowl - No drain	P32LA94LSNN	47 (100)	17 (250)	211 (8.30)	60 (2.36)	60 (2.36)

[†] Standard part numbers shown in bold. For other models refer to Options chart above.



[‡] Flow with 6.3 bar (91.3 psig) inlet pressure and 0.34 bar (4.9 psig) pressure drop

Specifications

Global Air Preparation System

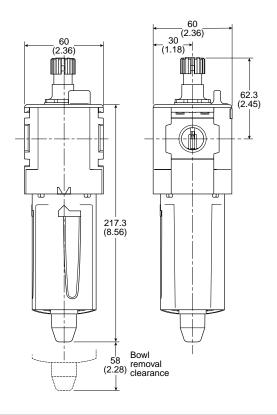
Flow capacity*	1/4 3/8 1/2	18 dm ³ /s (38 scfm) 32 dm ³ /s (68 scfm) 47 dm ³ /s (100 scfm)
Operating temperature	Plastic bowl Metal bowl	-10°C to 52°C (14°F to 125°F) -10°C to 65.5°C (14°F to 150°F)
Max. supply pressure	Plastic bowl Metal bowl	10 bar (150 psig) 17 bar (250 psig)
Useful retention		121 cm ³ (4.09 US oz.)
Port size	BSPP / BSP	Γ/NPT 1/4, 3/8, 1/2
Weight		0.31 kg (0.68 lbs)
* Inlet pressure 6.2	har (01 2 paid) [Properties drap 0.34 har (4.0 paid)

^{*} Inlet pressure 6.3 bar (91.3 psig). Pressure drop 0.34 bar (4.9 psig).

Material Specifications

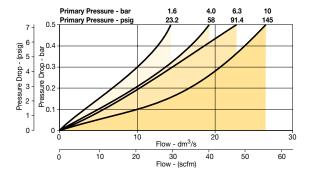
Body		Aluminum
Body cap		ABS
Bowls	Plastic bowl Metal bowl	Polycarbonate Aluminum
Seals		Nitrile
Sight dome		Polycarbonate
Sight gauge	Metal bowl	Polycarbonate
Suggested lubricant		ISO / ASTM VG32
Pick-up filter		Sintered bronze

Dimensions mm (inches)

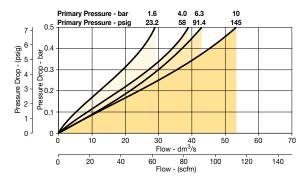


Flow Charts

1/4 Lubricator

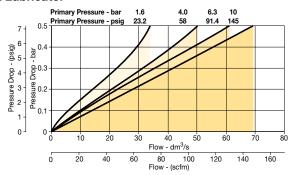


3/8 Lubricator



1/2 Lubricator

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Repair and Service Kits

Plastic bowl / Bowl guard no drain	P32KA00BGN
Drip control assembly	P32KA00PG
Fill plug	P32KA00PL
L-bracket (fits to body)	P32KA00ML
T-bracket (fits to body connector)	P32KA00MB
T-bracket with body connector	P32KA00MT
Body connector	P32KA00CB

Suggested LubricantF442 Oil

Petroleum based oil of 100 to 200 SUS viscosity at 38°C (100°F) and an aniline point greater than 93°C (200°F) (DO NOT USE OILS WITH ADDITIVES, COMPOUNDED OILS CONTAINING SOLVENTS, GRAPHITE, DETERGENTS, OR SYNTHETIC OILS.)

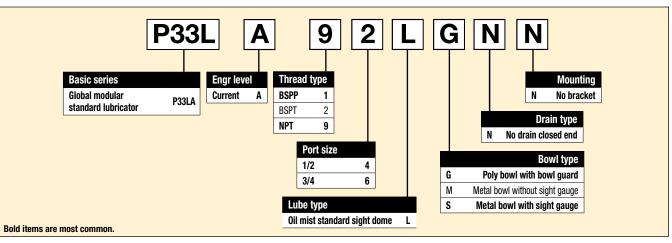


Symbol



Lubricator with drain

- Integral 1/2" or 3/4" ports (NPT, BSPP & BSPT)
- Robust but lightweight aluminum construction
- Proportional oil delivery over a wide range of air flows
- Finger tip rachet control for precise oil drip rate adjustment
- Fill from top under system pressure



Port size	Description	Order code [†]	Flow [‡] dm³/s (scfm)	Max. bar (psig)	Height mm (inches)	Width mm (inches)	Depth mm (inches)
1/2"	Poly bowl - No drain	P33LA94LGNN	48 (102)	10 (150)	234 (9.21)	73 (2.9)	73 (2.9)
1/2"	Metal bowl - No drain	P33LA94LSNN	48 (102)	17 (250)	234 (9.21)	73 (2.9)	73 (2.9)
3/4"	Poly bowl - No drain	P33LA96LGNN	68 (144)	10 (150)	234 (9.21)	73 (2.9)	73 (2.9)
3/4"	Metal bowl - No drain	P33LA96LSNN	68 (144)	17 (250)	234 (9.21)	73 (2.9)	73 (2.9)

[†] Standard part numbers shown in bold. For other models refer to Options chart above.



[‡] Flow with 6.3 bar (91.3 psig) inlet pressure and 0.34 bar (4.9 psig) pressure drop.

Specifications

Flow capacity*	1/2 3/4	48 dm ³ /s (102 scfm) 68 dm ³ /s (144 scfm)
Operating temperature	Plastic bowl Metal Bowl	-10°C to 52°C (14°F to 125°F) -10°C to 65.5°C (14°F to 150°F)
Max. supply pressure	Plastic bowl Metal bowl	10 bar (150 psig) 17 bar (250 psig)
Useful retention		181 cm ³ (6.1 US oz.)
Port size	BSPP / BSP	T / NPT 1/2, 3/4
Weight		0.47 kg (1.04 lbs)

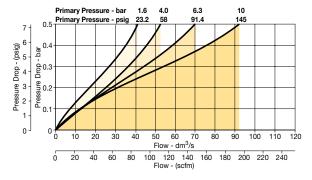
^{*} Inlet pressure 6.3 bar (91.3 psig). Pressure drop 0.34 bar (4.9 psig).

Material Specifications

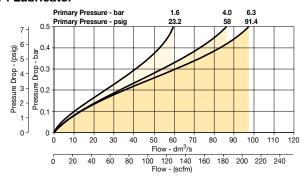
Body		Aluminum
Body cap		ABS
Bowls	Plastic bowl Metal bowl	Polycarbonate Aluminum
Seals		Nitrile
Sight dome		Polycarbonate
Sight gauge	Metal bowl	Polycarbonate
Suggested lubricant		ISO / ASTM VG32
Pick-up filter		Sintered bronze

Flow Charts

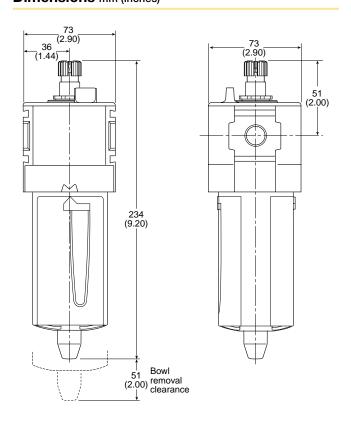
1/2 Lubricator



3/4 Lubricator



Dimensions mm (inches)



Repair and Service Kits

Plastic bowl / Bowl guard no drain	P33KA00BGN
Drip control assembly	P32KA00PG
Fill plug	P32KA00PL
L-bracket (fits to body)	P33KA00ML
T-bracket (fits to body connector)	P32KA00MB
T-bracket with body connector	P32KA00MT
Body connector	P32KA00CB

Suggested LubricantF442 Oil

Petroleum based oil of 100 to 200 SUS viscosity at 38°C (100°F) and an aniline point greater than 93°C (200°F) (DO NOT USE OILS WITH ADDITIVES, COMPOUNDED OILS CONTAINING SOLVENTS, GRAPHITE, DETERGENTS, OR SYNTHETIC OILS.)



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Proportional Regulators - P31P & P32P

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Combos







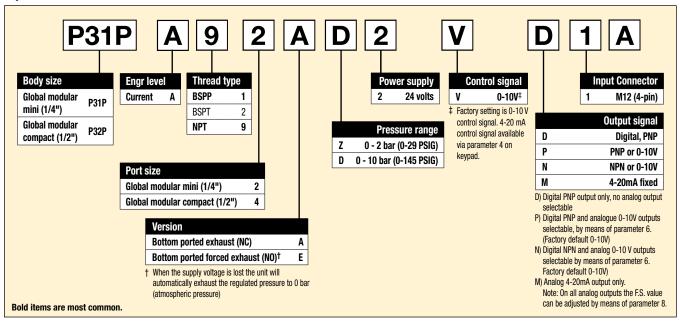
P31P Series Bottom exhaust



P32P Series Bottom exhaust

- Very fast response times
- Accurate output pressure
- Micro parameter settings
- Selectable I/O parameters
- · Quick, full flow exhaust
- LED display indicates output pressure
- No air consumption in steady state
- Multiple mounting options
- Protection to IP65
- P31P flows to 19 dm3/s (40 scfm)
- P32P flows to 57 dm3/s (120 scfm)

Options:



P31P Mounting brackets

Order Code	Description	
P3HKA00ML	L-Bracket mounting kit	
РЗНКА00МС	Foot bracket mounting kit	
L-Bracket	Foot Bracket	

Cables

Order Code	Description
CB-M12-4P-2M	2 mtr. cable with moulded straight M12x1 connector

P32P Mounting brackets

Order Code	Description		
P3KKA00ML	L-Bracket mounting kit		
P3KKA00MC	Foot bracket mounting kit		
A Product	To a Parallel		
L-Bracket	Foot Bracket		



Technical Information

Working medium

Compressed air or inert gasses, filtered to 40µ.

Supply pressure

Max. Operating Pressure:

Min. Operating Pressure P2 Pressure + 0.5 bar (7.3 psig)

Pressure control range

Available in three pressure ranges, 0-2 bar (0-29 psig), 0-7 bar (0-101.5 psig) or 0-10 bar (0-145 psig). Pressure range can be changed through the software at all times. (parameter 19)

Temperature range

0°C up to +50°C (32°F up to 122°F)

Weights:

P31P = 0.291 kg (0.64 lbs)P32P = 0.645 kg (1.42 lbs)

Air consumption

No consumption in stable regulated situation.

Display

The regulator is provided with a digital display, indicating the output pressure, either in bar or psig.

The factory setting is as indicated on the label, can be changed through to software at all times (parameter 14)

Supply voltage

24 VDC +/- 10%

Power consumption

Max. 1.1W with unloaded signal outputs

Control signals

The electronic pressure regulator can be externally controlled through an analogue control signal of either 0-10V or 4-20mA. (parameter 4).

Output signals

As soon as the output pressure is within the signal band a signal is given of 24VDC, PNP Ri = 1 kOhm Outside the signal band this connection is 0V.

Connections

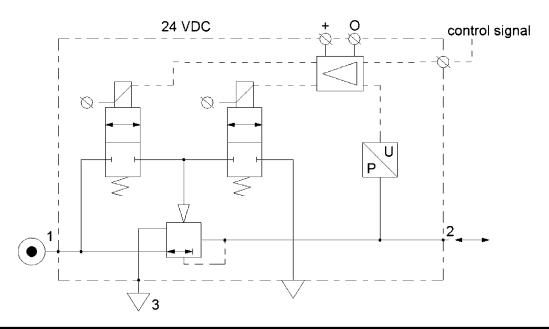
(In case of output signal (Option D)

Central M12 connector 4-pole

The electrical connections are as follows:

	Pin No.	Function	Color	
1	24 V	Supply	Brown	
0 to 10 V		Control Signal Ri = 100k Ω	White	
2	4 to 20mA	Control Signal Ri = 500 Ω	vvnite	
3	0 V (GND)	Supply	Blue	
4	24 V	Alarm Output Signal	Black	

Schematic



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Dead band

The dead band is preset at 1.3% of Full Scale*, adjustable via parameter 13.

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Linearity: = < 0.3% of Full Scale.*

Proportional band

The proportional band is preset at 10% of Full Scale.*

Fail safe operation

- If the P31P / P32P unit has an "0" or "A" in the 12th digit of the model number
 - When the supply voltage drops, the electronic control reverts to the fail safe mode. The last known output pressure is maintained at approximately the same level depending upon air consumption. The digital display indicates the last known pressure setting.
 - When the supply voltage is reinstated to the correct level, the valve moves from the fail safe mode and the output pressure immediately follows the control signal requirement. The display indicates the actual output pressure.
 - Note: In the event of loss of both power and inlet pressure the unit will exhaust downstream pressure.
- If the P31P / P32P unit has an "E" in the 12th digit of the model number
 - When the supply voltage drops, the electronic control reverts to "Forced Exhaust Mode" and will automatically exhaust the downstream (regulated) pressure.
 - When the supply voltage is reinstated to the correct level the unit will return to normal operation and follows the control signal requirement. The display indicates the actual pressure.
- If the unit has been programmed in manual mode (not with a control signal) the unit will EXHAUST and the regulator will need to be reset when power is applied.

Full exhaust

Complete exhaust of the regulator is defined as $P2 \le 1\%$ Full Scale

* Full scale (F.S.)

For 2 bar (29 psig) versions this will be 2 bar (29 psig), for the 10 bar (145 psig) version full scale will be 10 bar (145 psig).

Degree of protection

IP65

EU conformity

CE: standard

EMC: according to directive 89/336/EEC

The new pressure regulator is in accordance with:

EN 61000-6-1:2001 EN 61000-6-2:2001 EN 61000-6-3:2001 EN 61000-6-4:2001

These standards ensure that this unit meets the highest level of EMC protection.

Mounting position

Preferably vertical, with the cable gland on top.

Materials: P31P & P32P

Magnet Core	Steel
Solenoid Valve Poppet	FPM
Solenoid Valve Housing	Techno Polymer
• Regulator Body (P31P & P32P versions)	Aluminium
Regulator Top Housing	Nylon
Valve Head	Brass & NBR
Remaining Seals	NBR

Advanced functionality

P31P / P32P Series

Pilot valve protection

When the required output pressure can not be achieved because of a lack of input pressure the unit will open fully and will display NoP. Approximately every 10 seconds the unit will retry. The output pressure will then be approximately equal to the inlet pressure. As soon as the input pressure is back on the required level, the normal control function follows.

Safety exhaust

Should the **control signal** fall below 0.1 volts the valve will automatically dump downstream system pressure.

Input protection

The unit has built-in protection against failure and burnout resulting from incorrect input value, typically:

The 24VDC supply is incorrectly connected to the setpoint input, the display will show 'OL', as an overload indication. The unit will need to be rewired and when correctly connected will operate normally.

The overload indicator 'OL' will also appear should the wrong input value be applied or the wrong input value be programmed: 4 - 20m instead of 0 - 10V. To correct this a different set point value should be input or the unit reprogrammed to correct the set point value acceptance. (via parameter 4).

Response time	P31P	P32P	
2 to 4 bar	25 msecs	35 msecs	
1 to 6 bar	55 msecs	135 msecs	
4 to 2 bar	70 msecs	85 msecs	
6 to 1 bar	80 msecs	225 msecs	

To fill volume of:

100cm³ - P31P

330cm3 - P32P

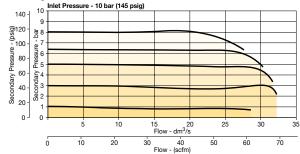
connected to the outlet of the regulator.

Settings

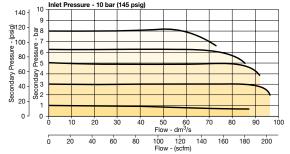
The regulator is pre-set at the factory. If required, adjustments can be made.

Flow Charts

P31P Regulator 1/4" Ports



P32P Regulator 1/2" Ports





How to change parameters

Pressing the Accept key "acc" for more than 3 seconds, will activate parameter change mode. The user can then select the parameters by pressing up or down key. (display will show Pxx). When parameter number is correct, pressing accept again will enter parameter number. (display will show parameter value).

Pressing the up or down key will change the parameter itself. (display will flash indicating parameter editing mode). Pressing the accept key will accept the new parameter value. (all digits will flash whilst being accepted).

After releasing all keys, the next parameter number will be presented on the display. (you may step to the next parameter). When no key is pressed, after 3 seconds the display will show the actual output pressure.

When the unit is initially powered up allow approximately 10 seconds for the unit to "boot-up" before changing parameter settings

Only parameter numbers 0, 4, 6, 8, 9, 14, 18, 19, 20, 12, 13 and 21 are accessible to edit. All other parameters are fixed.

Manual mode:

When keys DOWN and UP are pressed during startup, (connecting to the 24V power supply) manual mode is activated. This means that the user is able to in/decrease the output pressure of the regulator, by pressing the UP or DOWN key. During this action the display will blink, indicating that the manual mode is activated. After powering up again, the unit will revert back to normal mode.

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Back to Factory Setting

After start up. (Power is on)
Entering this value in parameter 0 will store the calibrated factory data into the working parameters.
(Default calibration data is used)

Parameter Number 0 – Reset Back to Factory Settings							
Step	1	2	3	4	5		
Press	acc 3-6 seconds	or	acc	or	acc		
Until Display Reads	Pxx	P00	Flashing Decimal	Flashing Decimal	Flashing	PD 1	
Description	Accesses changeable parameters.	Accesses parameter no. 0.	Displays current parameter value.	Edits parameter. 3 = standard factory settings. If other than 3, use Up or Down Arrow and accept 3	Accepts and saves new parameter setting.	Sequences to next parameter.	

Set Control Signal

The unit is factory set for 0-10 V control signal. If 4-20 mA control signal is required, change parameter 4.

Parameter Number 4 – Set Control Signal in Volts or Milliamps							
Step	1	2	3	4	5		
Press	3-6 seconds	or	acc	or	acc		
Until Display Reads	Pxx	PDY	Flashing Decimal	Flashing Decimal	Flashing	P05	
Description	Accesses changeable parameters.	Accesses parameter no. 4.	Displays current parameter value. 1 = V 0 = mA	Edits parameter.	Accepts and saves new parameter setting.	Sequences to next parameter.	



Output Signal option "0" = Digital Output - PNP

• Factory set at "0" Non Adjustable

Output Signal option "P" = Digital PNP or Analog 1-10V

- Factory set at "1" for Analog Signal
- Convert to Digital PNP by changing parameter to "0" setting

Output Signal option "N" = Digital NPN or Analog 1-10V

- Factory set at "1" Analog Signal
- Convert to Digital NPN by changing parameter to "0"

Output Signal option "M" = Analog 4-20 mA

Factory set at "2" Non Adjustable

Parameter Number 6 – Set Output Signal								
Step	1	2	3	4	5			
Press	3-6 seconds	or	acc	or	acc			
Until Display Reads	Pxx	P05	Flashing Decimal	#### Flashing Decimal (Value 0, 1 or 2)	# # # Flashing	P07		
Description	Accesses changeable parameters.	Accesses parameter no. 6.	Displays current parameter value. 1 = m factory default for P3H with analog options	Edits parameter. 0 = digital (NPN or PNP) 1 = analog 010V 2 = analog 420 mA	Accepts and saves new parameter setting.	Sequences to next parameter.		

Adjust Span Analog Output Signal

Set value is a % of Full Analog range. As an example for a 0-10V output signal, the original factory setting of 100% will give you an adjustment of 0-10V. If you reset Parameter 8 to 50%, the new output range would be 0-5V or 50% of the full range.

In the event that the output signal is to low, in a certain application, you can adjust it by increasing Parameter 8 to a maximum value of 130% of scale.

Note that all values are nominal and that an actual measurement may be required to ensure signal strength.

Parameter Number 8 – Adjust Span Analog Output Signal							
Step	1	2	3	4	5		
Press	3-6 seconds	or	acc	or	acc		
Until Display Reads	Pxx	P08	Flashing Decimal (For 2 bar versions value = 92)	Flashing Decimal (Value between 0 and 130)	###	P[]9	
Description	Accesses changeable parameters.	Accesses parameter no. 8.	Displays current parameter value.	Edits parameter.	Accepts and saves new parameter setting and implements the new analog signal span.	Sequences to next parameter.	

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Adjust Digital Display

If necessary, adjustments can be made to the digital display when using an external pressure sensor.

Parameter Number 9 – Adjust Digital Display Value (Pressure Calibration)							
Step	1	2	3	4	5		
Press	acc 3-6 seconds	or	acc	or	acc		
Until Display Reads	Pxx	P[]9	###	###	###	P 10	
Description	Accesses changeable parameters.	Accesses parameter no. 9.	Displays current digital display	Use up or down arrows and accept to adjust the display value if using an external pressure sensor.	Accepts and saves new parameter setting.	Sequences to next parameter.	

Set Pressure Scale

Units with NPT port threads are supplied with a factory set psig pressure scale. Use parameter 14 to change scale to bar.

Parameter Number 14 – Set Pressure Scale in psig or bar							
Step	1	2	3	4	5		
Press	acc 3-6 seconds	or	acc	or	acc		
Until Display Reads	Pxx	PIY	Flashing Decimal	Flashing Decimal	Flashing	P 15	
Description	Accesses changeable parameters.	Accesses parameter no. 14.	Displays current parameter value. 1 = psig 0 = bar 2 = MPA	Edits parameter.	Accepts and saves new parameter setting.	Sequences to next parameter.	

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Preset Minimum Pressure

If there is a need for a pre-set Minimum pressure, use parameter 18. (Note: preset pressure is affected by % P19.)

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Parameter	Parameter Number 18 – Set Minimum Preset Pressure							
Step	1	2	3	4	5			
Press	acc 3-6 seconds	or	acc	or	acc			
Until Display Reads	Pxx	P 18	Flashing Decimal	Flashing Decimal (value between 0 and 200)	###	P 19		
Description	Accesses changeable parameters.	Accesses parameter no. 18.	Displays current parameter value. Incremental value is: 2 bar unit: x 2 mbar x % P19 10 bar unit: x 10 mbar x % P19	Edits parameter.	Accepts and saves new parameter setting.	Sequences to next parameter.		

Set Pressure Correction

Pressure correction allows the user to set a Maximum pressure as a percentage of secondary pressure F.S.

Example: If F.S. is 10 bar, set parameter 19 to 50 for Maximum preset pressure of 5 bar.

Pressure correction also affects the Minimum preset pressure in parameter 18.

Example: If F.S. is 10 bar and parameter 18 is set to a value of 100 (1 bar), and parameter 19 is set to 50%, then the actual Minimum preset pressure seen is 0.5 bar.

Parameter Number 19 - Set Maximum Preset Pressure 2 3 5 Step **Press** acc acc 3-6 seconds **Until Display** Reads Flashing Decimal (value between Flashing Decimal 0 and 100) Flashing Displays current parameter value. Accepts and Description Accesses Incremental saves new changeable Accesses value is: parameter Sequences to parameters. % of F.S. Edits parameter. setting. next parameter. parameter no. 19.



Behavior Control

The regulation speed of the pressure regulator can be modified by means of one parameter. (P 20)

The value in this parameter has a range from 0-5. A higher value indicates slower regulation speed, but will be more stable.

Parameter Number 20 – Set Behavior Control								
Step	1	2	3	4	5			
Press	acc 3-6 seconds	or	acc	or	acc			
Until Display Reads	Pxx	P20	Flashing Decimal	Flashing Decimal (value between 0 and 5)	###	P2		
Description	Accesses changeable parameters.	Accesses parameter no. 20.	Displays current parameter value.	Edits parameter 0 = custom set* 1 = fastest (narrow proportional band) 2 = fast 3 = normal 4 = slow 5 = slowest (proportional band is broad)	Accepts and saves new parameter setting.	Sequences to next parameter.		

^{*} When the value 0 is entered, you are able to create your own custom settings true parameters 12, 13 and 21.

Fine Settings

Set Proportional Band

Proportional band is used for setting the reaction sensitivity of the regulator. The displayed value is X 10 mbar and has a range between 50 (0.5 bar) and 250 (2.5 bar).

Parameter	Number 1	12 – Set Pr	oportiona	I Band (P2	0 Must be	Set to 0)
Step	1	2	3	4	5	
Press	acc 3-6 seconds	or	acc	or	acc	
Until Display Reads	Pxx	P 12	Flashing Decimal	Flashing Decimal (value between 50 and 250)	###	P 13
Description	Accesses changeable	Accesses	Displays current parameter value. Incremental value is:	Edits parameter	Accepts and saves new parameter	Sequences to



Set Deadband

Deadband is the Minimum limit of accuracy at which the regulator is set for normal operation. The displayed value is X 10 mbar and has a range between 4 (40 mbar) and 40 (400 mbar).

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Parameter	Parameter Number 13 – Set Deadband (P20 Must be Set to 0)						
Step	1	2	3	4	5		
Press	acc 3-6 seconds	or	acc	or	acc		
Until Display Reads	Pxx	P 13	Flashing Decimal	#### Flashing Decimal (value between 4 and 40)	###	PIY	
Description	Accesses changeable parameters.	Accesses parameter no. 13.	Displays current parameter value. Incremental value is x 10 mbar	Edits parameter.	Accepts and saves new parameter setting.	Sequences to next parameter.	

Proportional Effect

Parameter	Number 2	21 – Set Pr	oportiona	Effect (P2	20 Must be	Set to 0)
Step	1	2	3	4	5	
Press	acc 3-6 seconds	or	acc	or	acc	
Until Display Reads	Pxx	P2	Flashing Decimal	#### Flashing Decimal (value between 5 and 100)	###	P22
Description	Accesses changeable parameters.	Accesses parameter no. 21.	Displays current parameter value.	Edits parameter. 5 = fastest regulation 100 = slowest regulation.	Accepts and saves new parameter setting.	Sequences to next parameter.

Parameter Number 39 – Displays Current Software Version							
Step	1	2	3				
Press	acc 3-6 seconds	or	acc				
Until Display Reads	Pxx	P39	###				
Description	Accesses changeable parameters.	Accesses parameter no. 39.	Displays current parameter value. XXX = current software version				

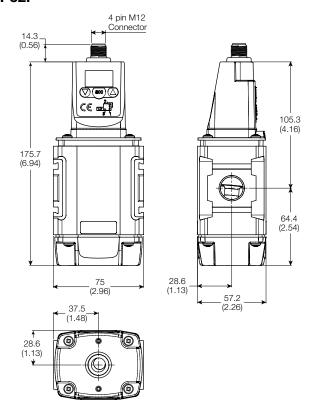


Electronic Proportional Regulators

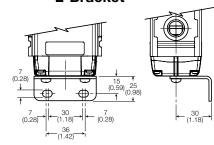
P31P

4 pin M12 Connector (0.56) 126.25 (4.99) 126.25 (1.47) 20 (0.79) 126.25 (1.47)

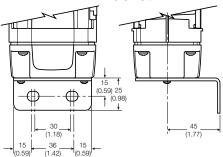
P32P



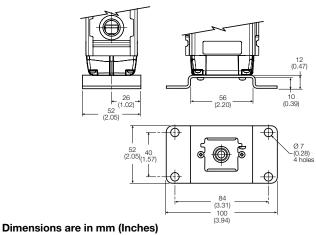
L-Bracket



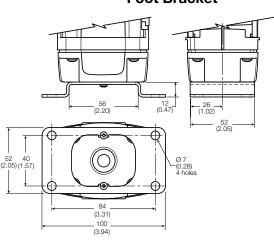




Foot Bracket



Foot Bracket





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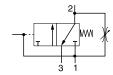
Combined Soft Start / Dump Valve





Parker Global Series Combined Soft Start / Dump Valves. provide for the safe introduction of pressure to machines or systems. Soft Start / Dump Valves when set, allow the pressure to gradually build to the set point before fully opening to deliver full flow at line pressure.

Symbol

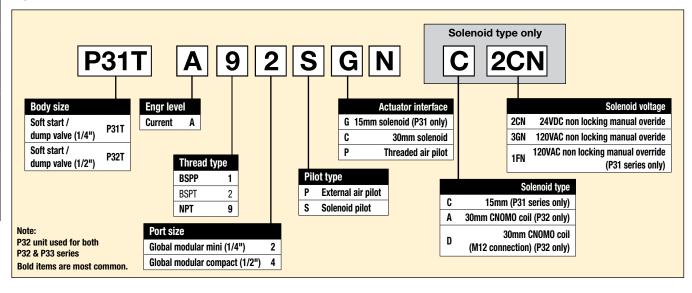


- Modular design with 1/4" or 1/2" integral ports (NPT, BSPP & BSPT)
- Provides for the safe introduction of pressure
- The 3-way, 2-position function automatically dumps downstream pressure on the loss of pilot signal
- Adjustable slow start
- Solenoid or air pilot options
- · High flow & exhaust capability
- Silencer included

The controlled introduction of pressure can be an important safety factor and prevent damage to tooling when air pressure is introduced at machine or system start up.

To maintain these units in the open position a pilot supply to the air pilot operated version or an electrical signal to the solenoid operated version must be maintained. The valve will automatically dump when the holding signal is removed.

Options:



D4			Florid	14	I I a lanka	\A/: - 4 -	Danath	
Port size	Description	Order code†	Flow [‡] dm ³ /s (scfm)	Max. bar (psig)	Height mm (inches)	Width mm (inches)	Depth mm (inches)	Weight
1/4"	120VAC Solenoid & cable plug	P31TA92SGNC1FN	17 (36)	10 (150)	115.6 (4.5)	57 (2.2)	40 (1.5)	0.37kg (0.8lbs)
1/4"	24VDC Solenoid & cable plug	P31TA92SGNC2CN	17 (36)	10 (150)	166 [‡] (6.5)	57 (2.2)	40 (1.5)	0.41kg (0.9lbs)
1/4"	External air pilot operated	P31TA92PPN	17 (36)	17 (250)	115.6 (4.5)	57 (2.2)	40 (1.5)	0.37kg (0.8lbs)
1/2"	120VAC 30mm coil & cable plug included	P32TA94SCNA3GN	46 (97)	10 (150)	162.5‡ (6.3)	88 (3.4)	57.2 (2.2)	0.87kg (1.9lbs)
1/2"	24VDC 30mm coil & cable plug included	P32TA94SCNA2CN	46 (97)	10 (150)	227.5‡ (8.9)	88 (3.4)	57.2 (2.2)	0.91kg (2.0lbs)
1/2"	External air pilot operated	P32TA94PPN	46 (97)	17 (250)	162.5‡ (6.3)	75 (2.9)	57.2 (2.2)	0.87kg (1.9lbs)

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‡ Includes exhaust silencer. Flow with 6.3 bar (91.3) psig) inlet and 1 bar (14.5 psig) pressure drop.

Standard part numbers shown in bold. For other models refer to Options chart above.



Filters

Coalescers

Regulators

Filter / Regulators

Technical Information

Fluid:		Compressed air
Max. pressure solenoid operated:		10 bar (150 psig)
Max. pressure air pilot operated:		17 bar (250 psig)
Min. operating pressure:		3 bar (44 psig)
Temperature Max.* solenoid operat	-10°C to 50°C (14°F to 122°F)	
Temperature Max.* air pilot operate	-20°C to 80°C (-4°F to 176°F)	
Air pilot port:		1/8"
Exhaust port:		P31T - 1/4" / P32T - 1/2"
Typical flow with 6.3 bar inlet pressure and 1 bar pressure drop:	P31T P32T	17 dm³/s (36 scfm) 48 dm³/s (101 scfm)

 $^{^{\}star}$ Air supply must be dry enough to avoid ice formation at temperatures below +2°C Snap pressure: Full flow when downstream pressure reaches 50% of the inlet pressure

Material Specifications

Body:	Aluminum
Body cover:	Polyester
Seals:	Nitrile NBR

Mounting Brackets

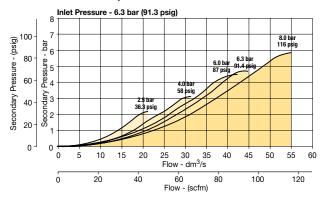
	Order code
Description	P31T
L-bracket mounting kit	P3HKA00ML
Foot bracket mounting kit	РЗНКА00МС

Note:

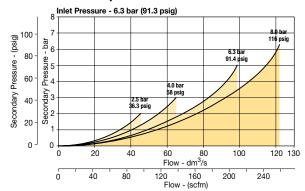
For solenoid operators and cable plugs (connectors) see pages 68 to 69.

Flow Charts

1/4 Soft Start & Dump Valve

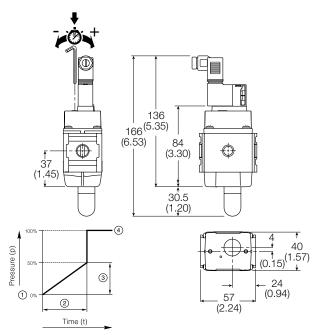


1/2 Soft Start & Dump Valve

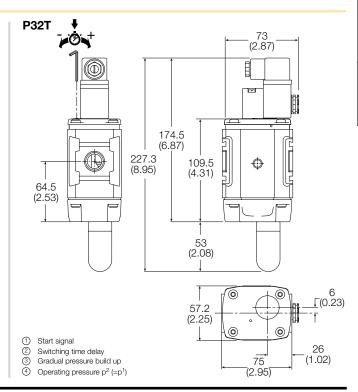


Dimensions mm (inches)

P31T



For mounting brackets see page 52



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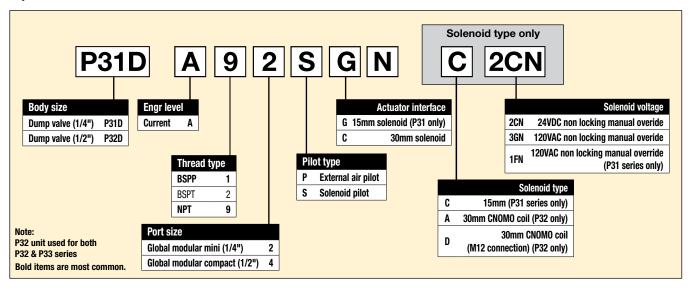
Remotely operated dump valves automatically shut off upstream pressure and exhaust the downstream pressure when the pilot pressure is released.

Symbol



- Modular design with 1/4" or 1/2" integral ports (NPT, BSPP & BSPT)
- Provides for the safe introduction of pressure
- The 3-way, 2-position function automatically dumps downstream pressure on the loss of pilot signal
- Solenoid or air pilot options
- High flow & exhaust capability
- Silencer included

To maintain these units in the open position a pilot supply to the air pilot operated version or an electrical signal to the solenoid operated version must be maintained. The valve will automatically dump when the holding signal is removed.



Port			Flow	Max.	Height	Width	Depth	
size	Description	Order code†	dm ³ /s (scfm)	bar (psig)	mm (inches)	mm (inches)	mm (inches)	Weight
1/4"	120VAC Solenoid & cable plug	P31DA92SGNC1FN	17 (36)	10 (150)	115.6 (4.5)	57 (2.2)	40 (1.5)	0.37kg (0.8lbs)
1/4"	24VDC Solenoid & cable plug	P31DA92SGNC2CN	17 (36)	10 (150)	166 [‡] (6.5)	57 (2.2)	40 (1.5)	0.41kg (0.9lbs)
1/4"	External air pilot operated	P31DA92PPN	17 (36)	17 (250)	115.6 (4.5)	57 (2.2)	40 (1.5)	0.37kg (0.8lbs)
1/2"	120VAC 30mm coil & cable plug included	P32DA94SCNA3GN	51 (108)	10 (150)	162.5‡ (6.3)	75 (2.9)	57.2 (2.2)	0.69kg (1.5lbs)
1/2"	24VDC 30mm coil & cable plug included	P32DA94SCNA2CN	51 (108)	10 (150)	227.5 [‡] (8.9)	75 (2.9)	57.2 (2.2)	0.91kg (2.0lbs)
1/2"	External air pilot operated	P32DA94PPN	51 (108)	17 (250)	162.5‡ (6.3)	75 (2.9)	57.2 (2.2)	0.87kg (1.9lbs)

[±] Includes exhaust silencer

[†] Standard part numbers shown in bold. For other models refer to Options chart above.



Technical Information

Fluid:		Compressed air
Max. pressure solenoid operated:		10 bar (150 psig)
Max. pressure air pilot operated:		17 bar (250 psig)
Min. operating pressure:		3 bar (44 psig)
Temperature Max.* solenoid opera	-10°C to 50°C (14°F to 122°F)	
Temperature Max.* air pilot operate	-20°C to 80°C (-4°F to 176°F)	
Air pilot port:		1/8"
Exhaust port:		P31D - 1/4" / P32D - 1/2"
Typical flow with 6.3 bar inlet pressure and 1 bar pressure drop:	P31D P32D	17 dm ³ /s (36 scfm) 51 dm ³ /s (108 scfm)

 $^{^{\}star}$ Air supply must be dry enough to avoid ice formation at temperatures below +2°C Snap pressure: Full flow when downstream pressure reaches 50% of the inlet pressure

Material Specifications

Body:	Aluminum
Body cover:	Polyester
Seals:	Nitrile NBR

Mounting Brackets

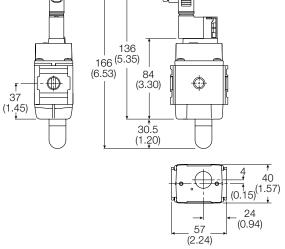
	Order code
Description	P31D
L-bracket mounting kit	P3HKA00ML
Foot bracket mounting kit	P3HKA00MC

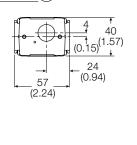
Note:

For solenoid operators and cable plugs (connectors) see pages 68 to 69.

Dimensions mm (inches)

P31D

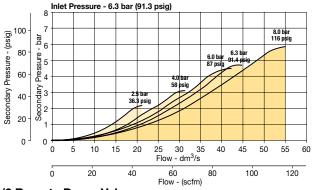




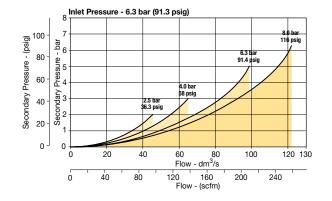
B65

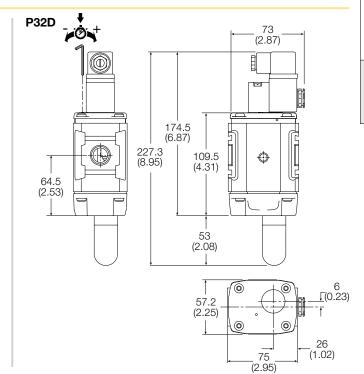
Flow Charts

1/4 Remote Dump Valve



1/2 Remote Dump Valve





For mounting brackets see page 52



Introduction

Combos

Filters

Coalescers

Regulators

Lubricators

Soft Start Valve

B

troduction

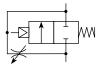
Combos

Filters

Coalescers



Symbol

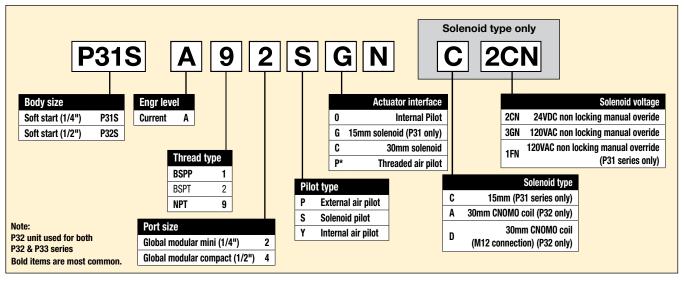


- Modular design with 1/4" or 1/2" integral ports (NPT, BSPP & BSPT)
- The 2-way, 2-position function provides for the safe introduction of pressurel
- Adjustable slow start
- Solenoid or air pilot options
- High flow

Parker Global Series Soft Start Valves, provide for the safe introduction of pressure to machines or systems. Soft Start Valves, allow the pressure to gradually build to the set point before fully opening to deliver full flow at line pressure.

The controlled introduction of pressure can be an important safety factor and prevent damage to tooling when air pressure is introduced at machine or system start up.

Note: Soft Start Valves must be installed downstream of a 3/2 valve with exhaust capability



Port size	Description	Order code†	Flow dm ³ /s (scfm)	Max. bar (psig)	Height mm (inches)	Width mm (inches)	Depth mm (inches)	Weight
1/4"	120VAC Solenoid & cable plug	P31SA92SGNC1FN	17 (36)	10 (150)	115.6 (4.5)	57 (2.2)	40 (1.5)	0.37kg (0.8lbs)
1/4"	24VDC Solenoid & cable plug	P31SA92SGNC2CN	17 (36)	10 (150)	166.0 (6.5)	57 (2.2)	40 (1.5)	0.41kg (0.9lbs)
1/4"	Internal air pilot operated	P31SA92Y0N	17 (36)	17 (250)	115.6 (4.5)	57 (2.2)	40 (1.5)	0.37kg (0.8lbs)
1/4"	External air pilot (1/8" threaded)	P31SA92PPN	17 (36)	17 (250)	115.6 (4.5)	57 (2.2)	40 (1.5)	0.37kg (0.8lbs)
1/2"	120VAC 30mm coil & cable plug incl.	P32SA94SCNA3GN	48 (101)	10 (150)	162.5 (6.3)	88 (3.4)	57.2 (2.28)	0.87kg (1.5lbs)
1/2"	24VDC 30mm coil & cable plug	P32SA94SCNA2CN	48 (101)	10 (150)	227.5 (8.9)	88 (3.4)	57.2 (2.28)	0.90kg (2.0lbs)
1/2"	Internal air pilot operated	P32SA94Y0N	48 (101)	17 (250)	162.5 (6.3)	75 (2.9)	57.2 (2.28)	0.90kg (2.0lbs)
1/2"	External air pilot (1/8 threaded)	P32SA94PPN	48 (101)	17 (250)	162.5 (6.3)	75 (2.9)	57.2 (2.28)	0.87kg (1.5lbs)

 $[\]dagger$ Standard part numbers shown in bold. For other models refer to Options chart above.

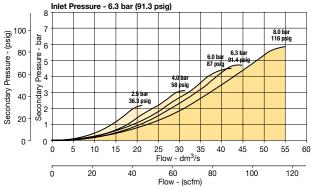


Technical Information

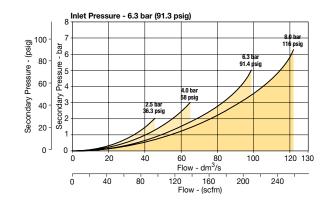
Fluid:		Compressed air
Max. pressure solenoid operat	red:	10 bar (150 psig)
Max. pressure air pilot operate	ed:	17 bar (250 psig)
Min. operating pressure:		3 bar (44 psig)
Temperature Max.* solenoid op	-10°C to 50°C (14°F to 122°F)	
Temperature Max.* air pilot op	-20°C to 80°C (-4°F to 176°F)	
Air pilot port:		1/8"
Typical flow with 6.3bar inlet pressure and 1 bar pressure drop:	P31S P32S	17 dm³/s (36 scfm) 48 dm³/s (101 scfm)

^{*} Air supply must be dry enough to avoid ice formation at temperatures below +2°C Snap pressure: Full flow when downstream pressure reaches 50% of the inlet pressure

Flow Charts 1/4 Soft Start Valve



1/2 Soft Start Valve



Material Specifications

Body:	Aluminum
Body cover:	Polyester
Seals:	Nitrile NBR

Mounting Brackets

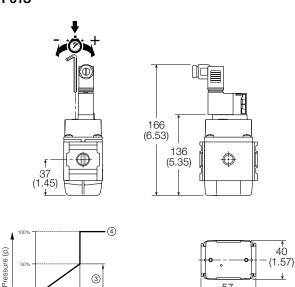
Description	Order code P31S
L-bracket mounting kit	P3HKA00ML
Foot bracket mounting kit	P3HKA00MC

Note:

For solenoid operators and cable plugs (connectors) see pages 68 to 69.

Dimensions mm (inches)

P31S

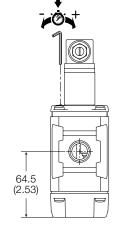


57

(2.24)

For mounting brackets see page 52

3

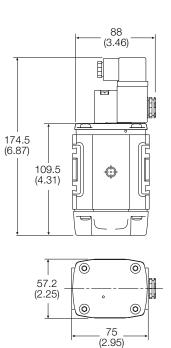


P32S



B67

Gradual pressure build up Operating pressure p2 (=p1)





2

Time (t)

1

Accessories

Introduction

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Redundant Safety Exhaust Valve



P33T Schematic

Filters

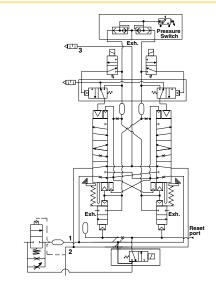
Coalescers

Regulators

Filter / Regulators

Lubricators

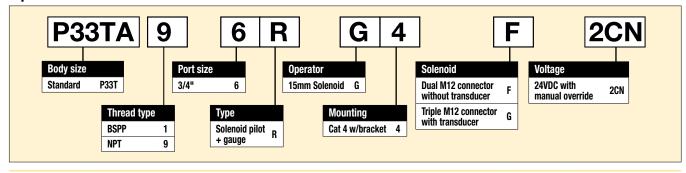
Accessories



Symbol



- Proven control reliable technology with integrated soft start
- Soft start application of air to the system when energized; can be adjusted for slower or faster buildup of system pressure
- Rapid exhaust of downstream air when de-energized to remove stored energy and allow safe access
- Memory, monitoring, and air flow control functions are integrated into two identical valve elements. Valves lock-out if asynchronous movement of valve elements occurs during actuation or de-actuation, resulting in a residual outlet pressure of less than 1% of supply.
- Reset can only be accomplished by the integrated electrical (solenoid) reset. Cannot be reset by removing and re-applying supply pressure.
- Basic 3/2 normally closed valve function: Dirt tolerant, wear compensating poppet design for quick response and high flow capacity.
- LED indicators of main solenoid operation, reset solenoid operation, and status indicator condition.
- Optional transducer for monitoring of downstream pressure in the system.
- · Dual exhaust silencers included.
- Not for use with clutch / brake applications.
- For use in conjunction with a safety relay or safety PLC.



Port size			Cv		- Height	Width	Depth	Weight	
Inlet	Outlet	Transducer	1 to 2	2 to 3	mm (inches)	mm (inches)	mm (inches)	kg (lb)	Part number*
3/4	3/4	w/o transducer	3.7	8.5	273.8 (10.78)	136.0 (5.35)	147.6 (581)	7.3 (16.1)	P33TA96RG4F2CN
3/4	3/4	w/ transducer	3.7	8.5	273.8 (10.78)	136.0 (5.35)	147.6 (581)	7.4 (16.3)	P33TA96RG4G2CN

^{*} NPT port threads. For BSPP threads , replace " $\underline{9}$ " in the part number with a " $\underline{1}$ ".



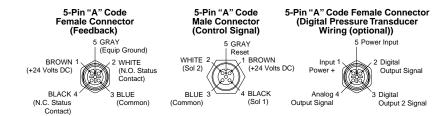
Technical Information

Pilot Solenoids: Enclosure rating: Connector socket:	Acco	According to VDE 0580 ording to DIN 400 50 IP 65 rding to DIN 43650 Form A s, rated for continuous duty
Standard voltages:		24VDC
Power consumption (e for primary and reset s		1.2 Watts on DC
Enclosure rating:		IP65, IEC 60529
Electrical connection:		M12, 5-pin
Ambient temperature:	15°	F to 122°F (-10°C to 50°C)
Media temperature:	4	0°F to 175°F (4°C to 80°C)
Flow media: C	Compressed Air, Filte	ered to Minimum 40 Micron
Inlet pressure:	30	0 to 150 PSIG (2 to 10 bar)
Pressure switch rating	(Status indicator):	5 Amps at 30 Volts DC.
Monitoring:	actuating an Monitoring function	cally, internally during each nd de-actuating movement. n has memory and requires at to reset unit after lockout.
Mounting orientation:	Vertically	with pilot solenoids on top
Port threads:		3/4 NPT, 3/4 BSPP
Control reliable:	Level	ory 4 (Cat 4); performance e (PLe) in accordance with directive - EN ISO 13849-1

Accessories - P33T Series

Description	Part number
Black grill	1834C05-001
Body connector	P32KA00CB
Cables M12, 5-pin female to flying lead cable, TPE; 2 m (6.6 ft) M12, 5-pin male to flying lead cable, TPE; 2 m (6.6 ft)	
Port block kit 1/2 NPT 3/4 NPT 1/2 BSPP 3/4 BSPP 1/2 BSPT 3/4 BSPT	P32KA96CP P32KA14CP P32KA16CP P32KA24CP
Pressure switch	1227A30-001
Pressure transducer (Optional)	1232H30-001
T-bracket w/ body connector	P32KA00MT
T-bracket (Fits to body connector or port block)	P32KA00MB
Silencer(s) 3/4"	5500A5013
Solenoid (Main & reset)	1527B7916-001
Square flush mounting gauge kit, 0-160 psig	K4511SCR160

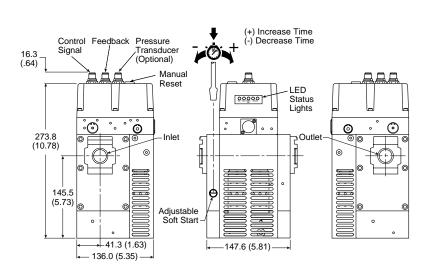
Valve Wiring

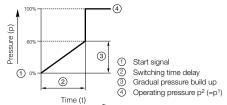


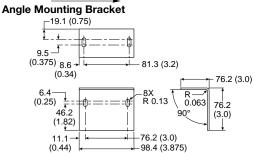
B69

(Certification pending)

Dimensions mm (inches)







Note: Mounting bracket and installation screws included and required to install unit in the system.



Regulators Coalescers

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Valve De-actuated (ready-to-run):

The flow of inlet air pressure to the inlet chamber of the main valve internals is restricted by a fixed orifice and an adjustable flow control as well as an air piloted 2-way normally closed poppet valve. The flow of inlet air pressure into the crossover passages is restricted by the size of the passage between the stem and the valve body opening. Flow is sufficient to quickly pressurize pilot supply / timing chambers 1 and 2. The inlet poppets prevent air flow from crossover passages into the outlet chamber. Air pressure acting on the inlet poppets and return pistons securely hold the valve elements in the closed position. (Reset adapter omitted for clarity.)

The green "Status" LED will be illuminated indicating the valve is operational.



Combos

Filters

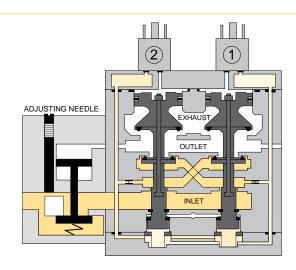
Coalescers

Regulators

Filter / Regulators

Lubricators

Accessories



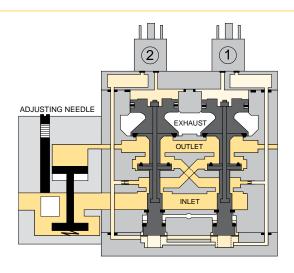
Valve Actuated:

Energizing the pilot valves simultaneously applies pressure to both pistons, forcing the internal parts to move to their actuated (open) position, where inlet air flow to crossover passages is fully open, inlet poppets are fully open and exhaust poppets are fully closed. The outlet is then pressurized at a rate allowed by the fixed orifice and the adjusted flow control. Once the air pressure in the outlet chamber reaches approximately 60% of inlet pressure, the air piloted 2-way normally closed poppet valve opens fully and the pressure in the inlet, crossovers, outlet, and timing chambers are quickly equalized. The adjustable flow control will control the time it takes for the outlet air pressure to reach approximately 60% of inlet pressure.

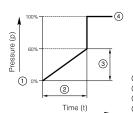
De-energizing the pilots quickly causes the valve elements to return to the ready-to-run position.

Solenoid 1, Solenoid 2 and the green "Status" LED's will be illuminated indicating the valve is operating properly.





Soft Start Function:



1) Start signal

Switching time delayGradual pressure build up

Operating pressure p2 (=p1)



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Global Air Preparation System

Valve Fault and Lock-out:

Whenever the valve elements operate in a sufficiently asynchronous manner, either on actuation or de-actuation, the valve will move to a locked-out position. In the locked-out position, one crossover and its related timing chamber will be exhausted, and the other crossover and its related timing chamber will be fully pressurized. The valve element (side 2) that is partially actuated has pilot air available to fully actuate it, but no air pressure on the return piston to fully de-actuate the valve element.

Air pressure in the crossover acts on the differential of side 2 stem diameters creating a latching force. Side 1 is in a fully closed position, and has no pilot air available to actuate, but has full pressure on the inlet poppet and return piston to hold the element in the fully closed position. Inlet air flow on side 1 into its crossover is restricted, and flows through the open inlet poppet on side 2, through the outlet into the exhaust port, and from the exhaust port to atmosphere. Residual pressure in the outlet is less than 1% of inlet pressure. The return springs are limited in travel, and can only return the valve elements to the intermediate (locked-out) position. Sufficient air pressure acting on the return pistons is needed to return the valve elements to a fully closed position.

The red "Status" LED will be illuminated indicating the valve in fault and lock-out must be reset



Valve Reset (electrical or manual):

The reset procedure is as follows:

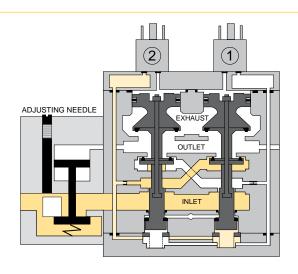
- · Remove the electrical signals to the main coils
- · Ensure there is air supplied to the valve
- Energize the reset solenoid for a minimum of 200 ms
- · Allow a 200 ms delay after de-energizing the reset solenoid and re-energizing the main solenoids

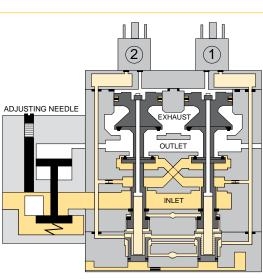
The valve will remain in the locked-out position, even if the inlet air supply is removed and re-applied.

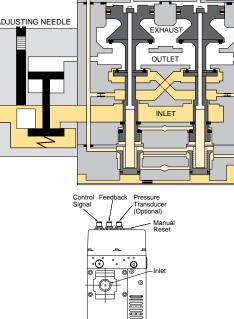
A remote reset signal must be applied to reset the valve. A momentary, remote electrical signal must be applied to the reset solenoid to apply pressure to the reset pistons in the valve. Actuation of the reset piston physically pushes the main valve elements to their closed position. Inlet air fully pressurizes the crossovers and holds the inlet poppets on seat. Actuation of the reset piston opens the reset poppet, thereby, immediately exhausting pilot supply air, thus, preventing valve operation during reset (Reset adapter added to illustration.). De-actuation of reset pistons causes the reset poppets to close and pilot supply to fully pressurize. Reset air pressure is applied by a 3/2 normally closed solenoid, or a manual push button mounted on the reset adapter in the top valve cover.

The green "Status" LED will be illuminated once the valve is reset.













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Solenoid Operators - CNOMO

Technical data -

Solenoid operators, coil combinations

•	•	
	NC Normal Operator with 22 x 30 standard coil	NC Normal Operator with 30 x 30 standard coil
Working pressure	0 to 10 bar	0 to 10 bar
Ambient temperature	-10°C to 60°C *	-10°C to 60°C *
Power (DC)	4.8W	2.7W
Power (AC)	8.5VA	4.9VA
Voltage tolerance	+/-10%	+/-10%
Duty cycle	100%	100%
Insulation class	F	F
Electric connection	B Industrial	DIN 43650A
Protection	IP65	IP65
Approval		UL/CSA
Working media	All neutral media such a	is compressed air
**** 5000 16		

^{*} Limited to 50°C if use with 100% duty cycle

Solenoid Coils with M12 Connection



Coalescers

Regulators

Filter / Regulators

Lubricators

Voltage	Order code	Weight (Kg)
Direct current		
24VDC	P2FC6449	0.065

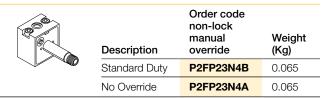
Transients

Interrupting the current through the solenoid coil produces momentary voltage peaks which, under unfavourable 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 EN175301-803 with LED's include this type of circuit protection.

Materials

Pilot Valve	
Body:	Polyamide
Armature tube:	Brass
Plunger & core:	Corrosion resistant Cr-Ni steel
Seals:	Fluorocarbon
Screws:	Stainless steel
Coil	
Encapsualtion material:	Thermoplastic as standard
	Duroplast for M12 connection

Spare Base Solenoid Pilot Operator CNOMO NC

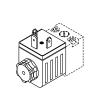


Note: Solenoid pilot operators are fitted to the Global range. Order the above part numbers for spares. The operators are supplied with mounting screws and interface 'O' rings. Coils and connectors must be ordered separately.

30mm x 30mm

Solenoid Coils with DIN A or Industrial B Connection

22mm x 30mm



Voltage	Order code B industrial standard	Weight (Kg)	Order code DIN 43650A standard	Weight (Kg)
Direct current				
24VDC	P2FCB449	0.093	P2FCA449	0.105
Alternative current				
110V 50Hz, 120V 60Hz	P2FCB453	0.093	P2FCA453	0.105

B72



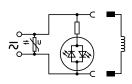
Solenoid Connectors / Cable Plugs EN175301-803

	Description	Order code 22mm Form B Industrial	Order code 30mm Form A DIN 43650A
With standard screw	Standard IP65 without flying lead	PS2429BP	PS2028BP
	With LED and protection 24VAC/DC	PS243079BP	PS203279BP
	With LED and protection 110VAC	PS243083BP	PS203283BP
With cable	Standard with 2m cable IP65	PS2429JBP	PS2028JCP
	24VAC/DC, 2m cable LED and protection IP65	PS2430J79BP	PS2032J79CP
146	110VAC/DC, 2m cable LED and protection IP65	PS2430J83BP	PS2032J83CP

Solenoid coil dimensions mm (inches)

22 x 30mm 30 x 30mm (1.18)(.86) (1.18)(.8

Electrical schematics

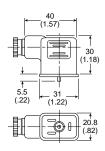


PS203279BP
PS2032J79CP
PS203283BP
PS2032J83CP
PS294683BP
PS2946J83BP

Cable plug dimensions mm (inches)

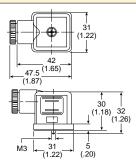
22mm Form B Industrial Cable plugs

PS2429BP



30mm DIN 43650A Cable plugs

PS2028BP



Slide Valve / Lockout Valve

B

Introduction

Combos

Filters Coalescers

Regulators

Filter / Regulators

Lubricators

Symbol



Features

- The Safety Lockout valve is a manually operated, slide-type, 2-position, 3-way valve. In the closed position, downstream air pressure is exhausted to atmosphere.
- The valve slide can be locked in the closed position with a customer supplied padlock.
- The Safety Lockout valves conform to OSHA #29 CFR part 1910 – control of hazardous energy source (lockout / tagout).
- Left to right flow orange slide
- Right to left yellow slide

Ordering Information

Model type	Port size	Thread type	Flow dm ³ /s (scfm)	Safety Lockout Valve Flow from left to right	Safety Lockout Valve Flow from right to left
P31	1/4"	NPT	47.2 (100)	P31VA <u>9</u> 2LSAN	-
P32	1/4"	NPT	66.5 (141)	P32VA <u>9</u> 2LSAN	P32VA <u>9</u> 2LSBN
	3/8"	NPT	101.9 (216)	P32VA <u>9</u> 3LSAN	P32VA <u>9</u> 3LSBN
	1/2"	NPT	128.4 (272)	P32VA <u>9</u> 4LSAN	P32VA94LSBN
P33	1/2"	NPT	136.9 (290)	P33VA <u>9</u> 4LSAN	P33VA94LSBN
	3/4"	NPT	141.6 (300)	P33VA <u>9</u> 6LSAN	P33VA <u>9</u> 6LSBN

For thread type: BSPP 1

BSPT 2

NPT 9

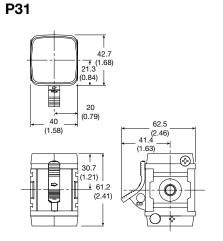
Material Specifications

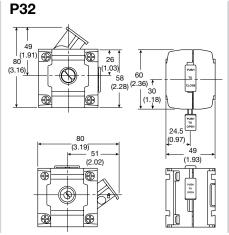
Body	Zinc
Blade	Acetal
Seals	Nitrile

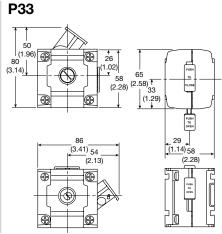
Specifications

Operating temp	oerature	P31: P32/P33:	-10°C to 65.5°C (14°F to 150°F) -25°C to 65.5°C (-13°F to 150°F)
Max. supply pr	essure		10 bar (150 psig)
Port size	BSPP/	BSPT / NPT	1/4, 3/8, 1/2, 3/4
Weight		P31:	0.30 kg (0.66 lbs)
		P32:	0.34 kg (0.74 lbs)
		P33:	0.41 kg (0.90 lbs)

Dimensions mm (inches)











Ordering Information

Model type	Port size	Exhaust port	Thread type	Flow dm ³ /s (scfm)	Modular ball valve flow from left to right
P31	1/4"	1/4"	NPT	20 (42.4)	P31VA92LBNN
P32	3/8"	1/4"	NPT	90 (190.7)	P32VA93LBNN
	1/2"	1/4"	NPT	122 (258.5)	P32VA94LBNN
P33	1/2"	1/2"	NPT	265 (561.5)	P33VA94LBNN
	3/4"	1/2"	NPT	320 (678)	P33VA96LBNN

For thread type: BSPP 1

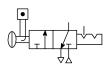
BSPT 2

NPT 9

Material Specifications

Body		Aluminum
Seals		PTFE
Ball	P31	Brass
	P32 / P33	Chrome plated brass

Symbol



Features

The Ball / Lockout Valve shuts off downstream line pressure in the closed position with a 90° turn of the handle. In the closed position, inlet air pressure is blocked and downstream / system air is exhausted through a threaded port. To prevent unauthorized adjustment, the padlock slide may be assembled on either side. It is recommended that this slide is installed after final system assembly.

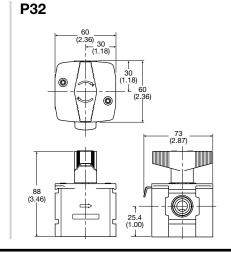
Note: This padlock slide is a permanent assembly and may not be removed later, any unauthorized tampering will void any warranty claims. The valve can only be locked in the closed

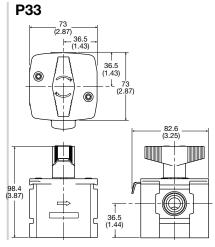
Specifications

Operating temperature	-40°C to 8	30°C (-40°F to 176°F)
Max. supply pressure		17 bar (250 psig)
Port size	BSPP / BSPT / NPT	1/4, 3/8, 1/2, 3/4
Weight	P31:	0.15 kg (0.33 lbs)
	P32:	0.36 kg (0.79 lbs)
	P33:	0.55 kg (1.21 lbs)

Dimensions mm (inches)

P31



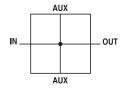




Manifold Blocks



Symbol



Features

- Available in 1/4" or 3/4" threaded inlet / outlet ports
- Two additional top and bottom auxiliary ports standard
- Can be mounted anywhere in the FRL system

Ordering Information

Model type	In / Out port size	Auxiliary port size top	Auxilliary port size bottom	Thread type	Order code
P31	1/4"	1/4"	1/4"	NPT	P31MA <u>9</u> 2022N
P32	1/2"	1/4"	1/2"	NPT	P32MA <u>9</u> 4024N
P33	3/4"	1/4"	1/2"	NPT	P33MA <u>9</u> 6024N
For thre	ead type:	BSPP 1 BSPT 2			

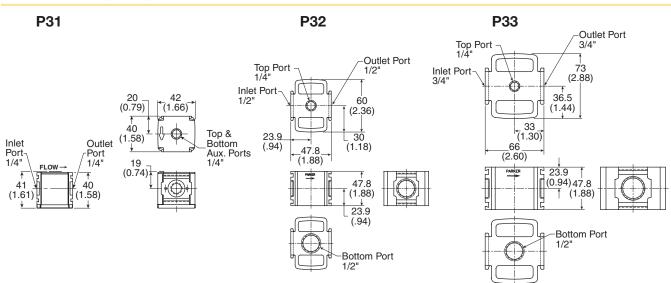
Specifications

Operating temperature	-40°C to 65.5°C (-40°F to 150°F)
Max. supply pressure	20.7 bar (300 psig)
Weight	P31: 0.19 kg (0.26 lbs) P33: 0.34 kg (0.42 lbs)

Material Specifications

Body	Aluminum

Dimensions mm (inches)



B76

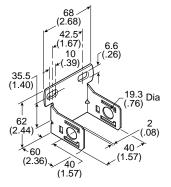
Accessories - P31 Series

C-Bracket

(Fits to filter and lubricator body)

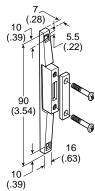
P31KA00MW





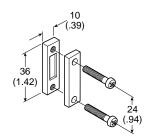
T-Bracket w/ Body Connector (O-ring not shown) P31KA00MT





Body Connector (O-ring not shown) P31KA00CB





Port Block Kit (O-ring not shown)

1/8 NPT	. P31KA91CP
1/4 NPT	. P31KA92CP
3/8 NPT	. P31KA93CP
1/8 BSPP	. P31KA11CP
1/4 BSPP	. P31KA12CP
3/8 BSPP	. P31KA13CP

P31KA21CP	1/8 BSPT	
P31KA22CP	1/4 BSPT	
P31KA23CP	3/8 BSPT	



Port Block Kit w/ T-Bracket (O-ring not shown)

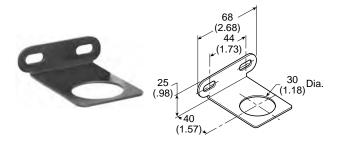
1/8 NPT	P31KA91CN
1/4 NPT	P31KA92CN
3/8 NPT	P31KA93CN
1/8 BSPP	P31KA11CN
1/4 BSPP	P31KA12CN
3/8 BSPP	P31KA13CN

1/8 BSPT	P31KA21CN
1/4 BSPT	P31KA22CN
3/8 BSPT	P31KA23CN

B77



Angle Bracket (Fits to regulator and filter/regulator body) P31KA00MR



Accessories - P32 Series

T-Bracket w/ Body Connector



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Combos

Filters

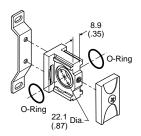
Coalescers

Regulators

Filter / Regulators

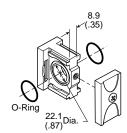
P32KA00MT





Body Connector P32KA00CB





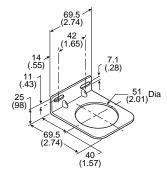
Port Block Kit

1/4 NP1 P32KA92CP	•
3/8 NPT P32KA93CP	•
1/2 NPT P32KA94CP	•
3/4 NPT P32KA96CP	•
1/4 BSPP P32KA12CP	•
3/8 BSPP P32KA13CP	•
1/2 BSPP P32KA14CP	•
3/4 BSPP P32KA16CP	•

P32KA22CP	1// RSPT
P32KA23CP	
P32KA24CP	
P32KA26CP	3/4 BSPT

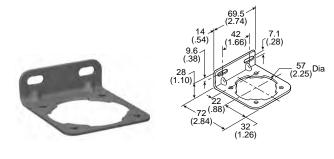
Angle Bracket (Fits to regulator and filter/regulator bonnet) P32KA00MR





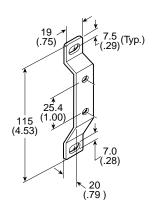
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L-Bracket (Fits to filter and lubricator body) P32KA00ML



T-Bracket (fits to body connector or port block) P32KA00MB



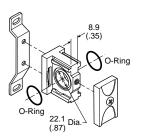




T-Bracket w/ Body Connector

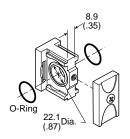
P32KA00MT





Body Connector P32KA00CB





Port Block Ki	Port	В	lock	: Ki
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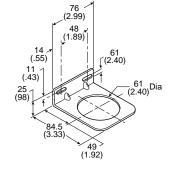
1/4 NP1	P32KA92CP
3/8 NPT	P32KA93CP
1/2 NPT	P32KA94CP
3/4 NPT	P32KA96CP
1/4 BSPP	P32KA12CP
3/8 BSPP	P32KA13CP
1/2 BSPP	P32KA14CP
3/4 BSPP	P32KA16CP

P32KA22CP	1/4 BSPT
P32KA23CP	3/8 BSPT
P32KA24CP	1/2 BSPT
P32KA26CP	3/4 BSPT

40

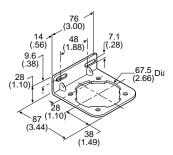
Angle Bracket (Fits to regulator and filter/regulator bonnet) P33KA00MR





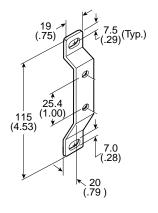
L-Bracket (Fits to filter and lubricator body) P33KA00ML





T-Bracket (fits to body connector or port block) P32KA00MB







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Lubricators

Accessories

Pressure Switch - PPS1

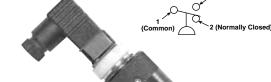


- · Long life elastomer diaphragm
- High quality snap action switch
- Field adjustable
- · Compact design
- Easily customized
- Quick delivery
- NEMA 4, 13

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.





Combos

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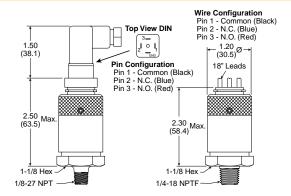
Regulators

Filter / Regulators

Lubricators

Accessories

Dimensions



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.

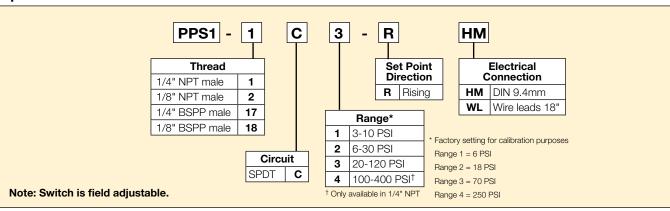
Specifications

Set point tolerance	±1 PSI or 5% (.07 bar)
Temperature range	-40F° to 220F° (-40C° to 105C°)
Max. operating pressure (Ranges 1, 2	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

Material Specifications

Adjustment knob	Anodized aluminum
Body	Brass
Diaphragm	Nitrile

Options:





Kits

Series	Description	Order code	
P31 P32 P33	Panel Mount Nut (Plastic)	P31KA00MP P32KA00MP P33KA00MP	0
P31 P32 P33	Panel Mount Nut (Aluminum)	P31KA00MM P32KA00MM P33KA00MM	
P31 P32 P33	5μ Element Kit	P31KA00ESE P32KA00ESE P33KA00ESE	
P31 P32 P33	1μ Element Kit	P31KA00ES9 P32KA00ES9 P33KA00ES9	
P31 P32 P33	0.01μ Element Kit	P31KA00ESC P32KA00ESC P33KA00ESC	
P31 P32 P33	Adsorber Element Kit	P31KA00ESA P32KA00ESA P33KA00ESA	
P32 / P33	Auto Drain Kit	P32KA00DA	P
P31		P31KA00RQ	
P32 / P33	— Differential Pressure Indicator Kit	P32KA00RQ	
P31 P32 / P33	Fill Plug Kit	P31KA00PL P32KA00PL	
P31 / P32 / P33	Drip Control Assembly Kit	P32KA00PH	
P31 P32 P33	Plastic Bowl w/ Bowl Guard & Manual Drain	P31KA00BGM P32KA00BGM P33KA00BGM	



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Ki	ts	

	Series Description		Order code	Order code	
	P31	Plastic Bowl w/ Bowl Guard & Pulse Drain	P31KA00BGB		
В	P32 P33	Plastic Bowl w/ Bowl Guard & Auto Drain	P32KA00BGA P33KA00BGA		
Introduction	P31 P32 P33	Metal Bowl w/o Sight Gauge & Manual Drain	P31KA00BMM P32KA00BMM P33KA00BMM		
Combos	P31	Metal Bowl w/o Sight Gauge & Pulse Drain	P31KA00BMB		
Filters	P32 P33	Metal Bowl w/o Sight Gauge & Auto Drain	P32KA00BMA P33KA00BMA		
Coalescers F	P32 P33	Metal Bowl w/ Sight Gauge & Manual Drain	P32KA00BSM P33KA00BSM		
Regulators re	P32 P33	Metal Bowl w/ Sight Gauge & Auto Drain	P32KA00BSA P33KA00BSA		
Filter / Lubricators	P31 P32 P33	Lubricator - Plastic Bowl w/ Bowl Guard No Drain	P31KA00BGN P32KA00BGN P33KA00BGN		
Accessories	P31 P32 P33	Lubricator - Metal Bowl w/o Sight Gauge No Drain	P31KA00BMN P32KA00BMN P33KA00BMN		
	P32 P33	Lubricator - Metal Bowl w/ Sight Gauge No Drain	P32KB00BSN P33KA00BSN		
	P31 P32 P33	Regulator - Relieving Repair Kit	P31KA00RB P32KA00RB P33KA00RB		
	P31 P32 P33	Regulator - Non Relieving Repair Kit	P31KA00RC P32KA00RC P33KA00RC		



Series	Description	Connection	Order code	
P31 P32 P33	Regulator - Main Adjusting Spring 0-2 bar (0-30 psig) Kit		P31KA00PR P32KA00PR P33KA00PR	
P31 P32 P33	Regulator - Main Adjusting Spring 0-4.1 bar (0-60 psig) Kit		P31KA00PS P32KA00PS P33KA00PS	
P31 P32 P33	Regulator - Main Adjusting Spring 0-8.6 bar (0-125 psig) Kit		P31KA00PT P32KA00PT P33KA00PT	
P32 P33	Regulator - Main Adjusting Spring 0-17 bar (0-250 psig) Kit		P32KA00PV P33KA00PV	
P31	Square Flush Mounting Gauge Kit	0-4 bar 0-11 bar 0-60 psig 0-160 psig	K4511SCR04B K4511SCR11B K4511SCR060 K4511SCR160	(156) (176) (176) (176)
P31	1" Round Gauge	0-60 psig / 0-4.1 bar 1/8" 0-160 psig / 0-10 bar 1/8"	K4510N18060 K4510N18160	16 (63) 19 (75) (125)
P31	40mm Round Gauge	0-30 psig / 0-2 bar 1/8" 0-60 psig / 0-4.1 bar 1/8" 0-160 psig / 0-10 bar 1/8"	K4515N18030 K4515N18060 K4515N18160	16 (63) 225 (39) (11,57)
P32 / P33	50mm Round Gauge	0-30 psig / 0-2 bar 1/4" 0-60 psig / 0-4.1 bar 1/4" 0-160 psig / 0-10 bar 1/4" 0-300 psig / 0-20 bar 1/4"	K4520N14030 K4520N14060 K4520N14160 K4520N14300	18 50 (54) (54) (1.97)
P32 / P33	44mm Round Gauge	0-160 psig / 0-10 bar 1/4"	K4517N14160D	
P31 P32 / P33	Body Connector O-ring (Spares kit) (Pack of 10)		P31KA00CY P32KA00CY	88
P31 P32	Tamperproof Knob Kit		P31KB00AT P32KB00AT	



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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.



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- 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.





Offer of Sale

The items described in this document and other documents and descriptions provided by Parker Hannifin Corporation, its subsidiaries and its authorized distributors ("Seller") are hereby offered for sale at prices to be established by Seller. This offer and its acceptance by any customer ("Buyer") shall be governed by all of the following Terms and Conditions. Buyer's order for any item described in its document, when communicated to Seller verbally, or in writing, shall constitute acceptance of this offer. All goods or work described will be referred to as "Products".

- Terms and Conditions. Seller's willingness to offer Products, or accept an order for Products, to or from Buyer is subject to these Terms and Conditions or any newer version of the terms and conditions found on-line at www.parker.com/saleterms/. Seller objects to any contrary or additional terms or conditions of Buyer's order or any other document issued by Buyer.
- 2. <u>Price Adjustments: Payments.</u> Prices stated on Seller's quote or other documentation offered by Seller are valid for 30 days, and do not include any sales, use, or other taxes unless specifically stated, Unless otherwise specified by Seller, all prices are F.C.A. Seller's facility (INCOTERMS 2010). Payment is subject to credit approval and is due 30 days from the date of invoice or such other term as required by Seller's Credit Department, after which Buyer shall pay interest on any unpaid invoices at the rate of 1.5% per month or the maximum allowable rate under applicable law.
- 3. Delivery Dates; Title and Risk; Shipment. All delivery dates are approximate and Seller shall not be responsible for any damages resulting from any delay. Regardless of the manner of shipment, title to any products and risk of loss or damage shall pass to Buyer upon placement of the products with the shipment carrier at Seller's facility. Unless otherwise stated, Seller may exercise its judgment in choosing the carrier and means of delivery. No deferment of shipment at Buyers' request beyond the respective dates indicated will be made except on terms that will indemnify, defend and hold Seller harmless against all loss and additional expense. Buyer shall be responsible for any additional shipping charges incurred by Seller due to Buyer's acts or omissions.
- 4. Warranty. Seller warrants that the Products sold hereunder shall be free from defects in material or workmanship for a period of twelve months from the date of delivery to Buyer or 2,000 hours of normal use, whichever occurs first. The prices charged for Seller's products are based upon the exclusive limited warranty stated above, and upon the following disclaimer: DISCLAIMER OF WARRANTY: THIS WARRANTY COMPRISES THE SOLE AND ENTIRE WARRANTY PERTAINING TO PRODUCTS PROVIDED HEREUNDER. SELLER DISCLAIMS ALL OTHER WARRANTIES, EXPRESS AND IMPLIED, INCLUDING DESIGN, MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.
- 5. Claims; Commencement of Actions. Buyer shall promptly inspect all Products upon delivery. No claims for shortages will be allowed unless reported to the Seller within 10 days of delivery. No other claims against Seller will be allowed unless asserted in writing within 30 days after delivery. Buyer shall notify Seller of any alleged breach of warranty within 30 days after the date the defect is or should have been discovered by Buyer. Any action based upon breach of this agreement or upon any other claim arising out of this sale (other than an action by Seller for an amount due on any invoice) must be commenced within 12 months from the date of the breach without regard to the date breach is discovered.
- 6. LIMITATION OF LIABILITY. UPON NOTIFICATION, SELLER WILL, AT ITS OPTION, REPAIR OR REPLACE A DEFECTIVE PRODUCT, OR REFUND THE PURCHASE PRICE. IN NO EVENT SHALL SELLER BE LIABLE TO BUYER 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, EVEN IF SELLER HAS BEEN NEGLIGENT, WHETHER 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, 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, may be considered obsolete and may be destroyed by Seller after two 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 shall have the right to alter, discard or otherwise dispose of any special tooling or other property in its sole discretion at any time.
- 10. <u>Buyer's Obligation</u>; <u>Rights of Seller</u>. To secure payment of all sums due or otherwise, Seller shall retain a security interest in the goods delivered and this agreement shall be deemed 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 claim, liability, damages, lawsuits, and costs (including attorney fees), 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, improper application 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 turnished by Buyer to manufacture Product; 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. <u>Cancellations and Changes.</u> Orders shall not be subject to cancellation or change by Buyer 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 with notice to Buyer.
- 13. <u>Limitation on Assignment.</u> 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 shall not be liable for delay or failure to perform any of Seller's obligations by reason of circumstances beyond the reasonable control of Seller (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. <u>Waiver and Severability.</u> Failure to enforce any provision of this agreement will not waive 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. <u>Termination.</u> Seller may terminate this agreement for any reason and at any time by giving Buyer thirty (30) days written notice of termination. Seller may immediately terminate this agreement, in writing, if Buyer: (a) commits a breach of any provision of this agreement (b) appointments 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 by a third party (d) makes an assignment for the benefit of creditors, or (e) the dissolves or liquidates all or a majority of its assets.
- 17. Governing Law. This agreement and the sale and delivery of all Products hereunder shall be 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 shall have no liability 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 return the purchase price less a reasonable allowance for depreciation. Notwithstanding the foregoing, Seller shall have no liability 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 shall 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.
- 20. Compliance with Law, U. K. Bribery Act and U.S. Foreign Corrupt Practices Act. Buyer agrees to comply with all applicable laws and regulations, including both those of the United Kingdom and the United States of America, and of the country or countries of the Territory in which the Buyer may operate, including without limitation the U. K. Bribery Act, the U.S. Foreign Corrupt Practices Act ("FCPA") and the U.S. Anti-Kickback Act (the "Anti-Kickback Act"), 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 they are familiar with the provisions of the U. K. Bribery Act, the FCPA and the Anti-Kickback Act, and certifies that Buyer will adhere to the requirements thereof. In particular, Buyer represents and agrees that Buyer shall 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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