



Hydraulic And Lube Filter Series

Catalog 2300-GR1/US



Global Filtration Technology

The Parker Hannifin Filtration Group assures:

- Consistent quality
- Technical innovation
- Premier customer service

Parker's technical resources provide the right filtration technologies that conform to your requirements. That's why thousands of manufacturers and equipment users around the world rely on Parker Filtration products and people.

Worldwide Sales and Service

Parker operates sales and service centers in major industrial areas worldwide. Call 1-800-C-PARKER for more information and for a synopsis of our Filtration Technology Textbook.

Hydraulic, Lubrication & Coolant Filtration

High-performance filtration systems for production machinery in industrial, mobile and military/marine.



Compressed Air & Gas Filtration

Complete line of compressed air/gas filtration products; coalescing, particulate and adsorption filters in many applications in many industries.



Process & Chemical Fluid Filtration

Liquid filtration systems for beverage, chemical and food processing; cosmetic, paint, water treatment; photo-processing; and micro-chip fabrication.



Fuel Conditioning & Filtration

Parker air, fuel and oil filtration systems provide quality protection for engines operating in any environment, anywhere in the world.



Legal Notifications



WARNING

FAILURE OR IMPROPER SELECTION OR IMPROPER USE OF THE PRODUCTS AND/OR SYSTEMS DESCRIBED HEREIN OR RELATED ITEMS CAN CAUSE DEATH, PERSONAL INJURY AND PROPERTY DAMAGE.

This document and other information from Parker Hannifin Corporation, its subsidiaries and authorized distributors provide product and/or system options for further investigation by users having technical expertise. It is important that you analyze all aspects of your application and review the information concerning the product or system in the current product catalog. Due to the variety of operating conditions and applications for these products or systems, the user, through its own analysis and testing, is solely responsible for making the final selection of the products and systems and assuring that all performance, safety and warning requirements of the application are met.

The products described herein, including without limitation, product features, specifications, designs, availability and pricing, are subject to change by Parker Hannifin Corporation and its subsidiaries at any time without notice.

Offer of Sale

The items described in this document are hereby offered for sale by Parker Hannifin Corporation, its subsidiaries or its authorized distributors. This offer and its acceptance are governed by the provisions stated in the "Offer of Sale".

© Copyright 2002, Parker Hannifin Corporation, All Rights Reserved.

Index

FST2 Sump Type Filter Assembly 2

FST3 Tank Mounted Suction Screens 4

FBR2 Pressurized Reservoir Filter Breather 6

FSP1 Low Pressure Spin-On Type 8

FSP2 Low Pressure Spin-On Type 10

FSP4 Low Pressure Spin-On Type 12

FLR2 Low Pressure Cartridge Type 14

RF4 Return Line Filter 16

FLR4 Low Pressure Dual Element Cartridge Type 18

Reservoir Accessories 20

Offer of Sale 32

Parker/Gresen General Introduction

When Parker Hannifin acquired Gresen, it was an opportunity for product extension and cross selling. Gresen was a manufacturer of a wide range of hydraulic pumps, motors, cylinders, control valves, filter and electronic controls for on and off highway vehicles.

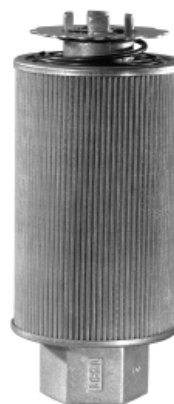
Gresen is a strategic complement to Parker’s existing hydraulics business, adding a variety of mobile products which will offer customers the convenience and value of total system capabilities for their motion and control applications, all from one source.

FST2 Series

Hydraulic and Lube Filters

Sump Type Filter Assembly

- Easy installation and tools free serviceability.
- Five elements including washable wire mesh.
- Two built-in by-pass valves available.
- NPT and SAE ports available for plumbing versatility.



Specifications:

Nominal Flow Rating:

50 GPM (189 litres/min)

Operating Temperature:

-65°F (-54°C) to 250°F (121°C)

Materials:

Center Post: Cast Aluminum

Seals: Buna-N

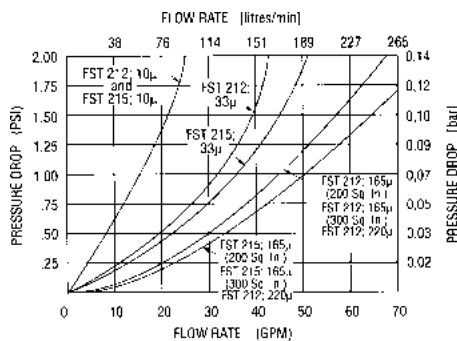
Fluid Compatibility:

All petroleum base fluids

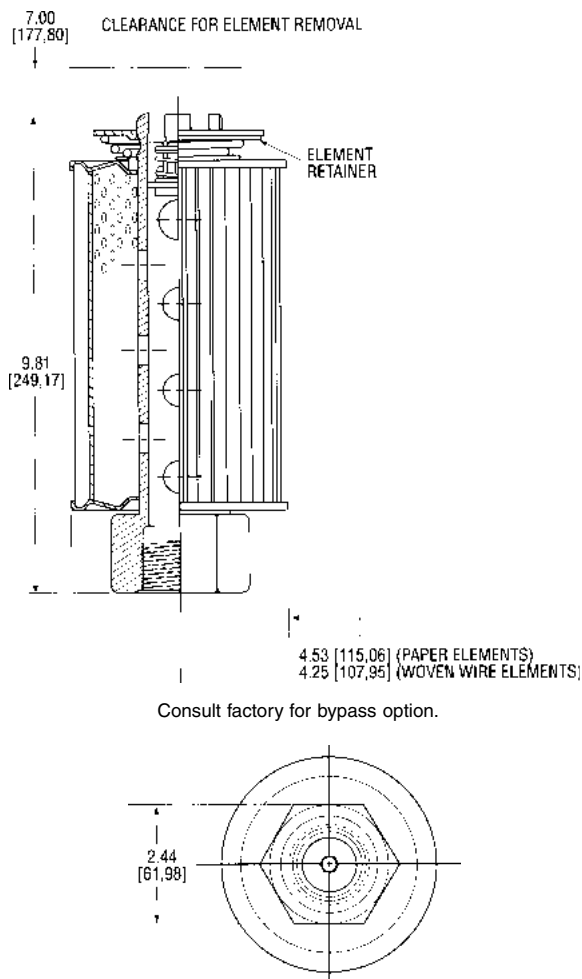
Approximate Shipping Weight:

3 lbs (1.4 kg)

Pressure Curves

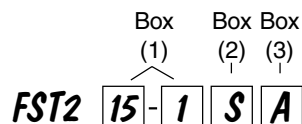


Dimensions=Inches [millimeters]



FST2 How to Specify

Example:



Box 1: Port Type Symbol	Description
12-1	NPT 1¼"
15-1	NPT 1½"
12-2	SAE #20

Box 2: Filter Elements Symbol	Description
E	10 micron cellulose
L	33 micron cellulose
S	165 micron/ 100 wire mesh (200 sq. ft.)
T	165 micron/ 100 wire mesh (300 sq. ft.)
U	220 micron/ 60 wire mesh

Box 3: By-Pass Springs Symbol	Description
A	3 PSI (0.2 Bar)
N	No By-Pass

Replacement Elements

Code	Description	Service Kit Numbers Elements
E	10 micron cellulose	K-23026
L	33 micron cellulose	K-23027
S	165 micron/100 wire mesh (200 sq. ft.)	K-25001
T	165 micron/100 wire mesh (300 sq. ft.)	K-25002
U	220 micron/60 wire mesh	K-23011

New Style By-Pass Service Kits

Individual Bypass Service kits	Code	Description
927719	N	No By-Pass
930506	A	3 PSI (0.2 bar) By-Pass Kit
N/A	B	N/A

FST3 Series

Hydraulic and Lube Filters

Tank Mounted Suction Screens

- Cast iron bushings for long lasting durability.
- Thru-wall design for easy installation and serviceability.
- Twelve washable stainless steel wire mesh elements.
- Optional built-in by-pass for pump protection.
- NPT ports from ½" to 3" for plumbing versatility.

Specifications:

Nominal Flow Rating:

Up to 100 GPM

Operating Temperature:

-65°F (-54°C) to 250°F (121°C)

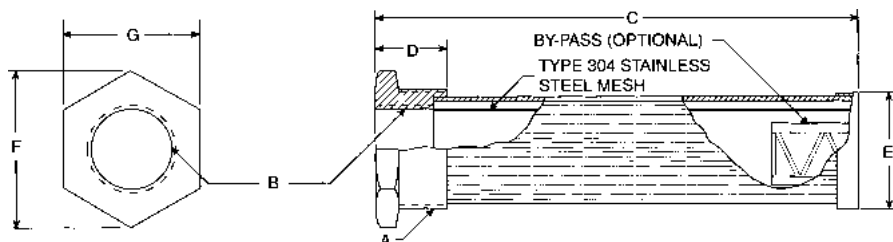
Materials:

Bushings: Cast Iron

Screen: 140μ Stainless Steel Wire Mesh

Fluid Compatibility:

All petroleum base fluids



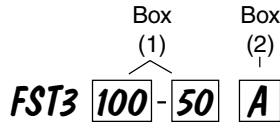
Dimensions

Model Code	Flow Rating		NPT Bushing		Length	Dimensions		Diameter	Dimensions	
	gpm	lpm	inches	inches	inches (mm)	inches (mm)	inches (mm)	inches (mm)	inches (mm)	inches (mm)
			A	B	C	D	E	F	G	
FST 100-50	5	18.93	1	½	5.34 (135.64)	1.10 (27.94)	1.03 (26.16)	1.65 (41.91)	1.45 (36.83)	
FST 100-50 A	5	18.93	1	½	5.34 (135.64)	1.10 (27.94)	1.03 (26.16)	1.65 (41.91)	1.45 (36.83)	
FST 125-75	10	37.85	1¼	¾	8.17 (207.52)	1.20 (30.48)	1.36 (34.54)	2.05 (52.07)	1.81 (45.97)	
FST 125-75 A	10	37.85	1¼	¾	8.17 (207.52)	1.20 (30.48)	1.36 (34.54)	2.05 (52.07)	1.81 (45.97)	
FST 150-100	15	56.78	1½	1	8.20 (208.28)	1.30 (33.02)	1.62 (41.15)	2.50 (63.50)	2.20 (55.88)	
FST 150-100 A	15	56.78	1½	1	8.20 (208.28)	1.30 (33.02)	1.62 (41.15)	2.50 (63.50)	2.20 (55.88)	
FST 200-125	25	94.63	2	1¼	9.04 (229.62)	1.30 (33.02)	2.00 (50.80)	2.94 (74.68)	2.57 (65.28)	
FST 200-125 A	25	94.63	2	1¼	9.04 (229.62)	1.30 (33.02)	2.00 (50.80)	2.94 (74.68)	2.57 (65.28)	
FST 300-200	50	189.25	3	2	9.70 (246.38)	1.70 (43.18)	3.00 (76.20)	3.76 (95.50)	3.25 (82.55)	
FST 300-200 A	50	189.25	3	2	9.70 (246.38)	1.70 (43.18)	3.00 (76.20)	3.76 (95.50)	3.25 (82.55)	
FST 400-300	100	378.50	4	3	11.30 (287.02)	1.80 (45.72)	4.00 (101.60)	5.34 (135.64)	4.67 (118.62)	
FST 400-300 A	100	378.50	4	3	11.30 (287.02)	1.80 (45.72)	4.00 (101.60)	5.34 (135.64)	4.67 (118.62)	

NOTE: Models with an "A" suffix, contain an integral 3 PSI (0.2 bar) By-Pass.

FST3 How to Specify

Example:



Box 1: Element Connection Thread Sizes	
Symbol	Description
100-50	1" NPT Male Tank and ½" NPT Female Element
125-75	1¼" NPT Male Tank and ¾" NPT Female Element
150-100	1½" NPT Male Tank and 1" NPT Female Element
200-125	2" NPT Male Tank and ¾" NPT Female Element
300-200	3" NPT Male Tank and 2" NPT Female Element
400-300	4" NPT Male Tank and 3" NPT Female Element

Box 2: By-Pass Springs	
Symbol	Description
A	3 PSI (0.2 Bar)
N	No Bypass

FBR2 Series

Hydraulic and Lube Filters

Pressurized Reservoir Filter Breather

- One pressurized spring to reduce chance of pump cavitation.
- Low profile, inexpensive spin-on elements in 4" and 6" versions.
- Filters incoming air, allowing clean atmospheric pressure into reservoir.



Specifications:

Air Permeability:

4" Element = 52CFM (409.1 cu.cms/min)

6" Element = 60CFM (472.0 cu.cms/min)

Operating Pressure (Max.):

100 PSI (6.9 bar)

Degree of Filtration:

10μ Micron Nominal

Operating Temperature:

-65°F (-54°C) to 250°F (121°C)

Materials:

Element: Steel Can, Cellulose Media

Seals: Buna-N

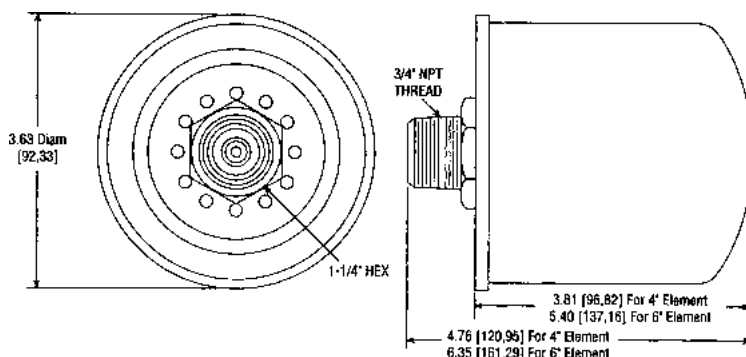
Air Valve: Steel

Approximate Shipping Weight:

2.5 lbs (1.1 kg)



Dimensions=inches [millimeters]



FBR2 How to Specify

Example:

Box Box
(1) (2)
 ↓

FBR2 04 - A

Box 1: Filter Element with Threaded Adapter	
Symbol	Description
04	4" Element 10 Micron 52 CFM (409.1 ccm)
06	6" Element 10 Micron 60 CFM (472.0 ccm)

Box 2: Air Bypass Valve	
Symbol	Description
A	Adapter With 5 PSI Bypass
N	Adapter With No Bypass

Individual Element Service Kit: (04) Filter Breathers

Part Number	Description
K-45000	(04) Replacement Element Only

Individual Element Service Kit: (06) Filter Breathers

Part Number	Description
K-22001	(06) Replacement Element Only

Replacement Bypass Valve

Part Number	Description
355264	Adapter Only
936173	Adapter With 5 PSI Bypass

NOTE: Recommended canister change out is after 500 hours of operation. More frequent replacement may be required when operated in heavily contaminated areas such as grinding operations, primary metal mills, and on mobile equipment. Under such conditions, increase replacement frequency to every 250 hours.

FSP2 Series

Hydraulic and Lube Filters

Low Pressure Spin-On Type

Specifications:

Pressure Ratings:

Maximum Allowable Operating Pressure (MAOP): 150 psi (10.3 bar)

Design Safety Factor: 2.5:1

Operating Temperatures:

-40°F to 225°F (-40°C to 107°C)

Element Collapse Rating:

100 psid minimum

Element Condition Indicators:

Gauge: Color coded 15/25 psi

Pressure Switch:

Normally open

20 +/- 2 psi

5 Amps @ 24 VDC

Vacuum Switch:

Normally open

5" +/- 1" Hg

1.0 Amp @ 120 VAC

Filter Material:

Head: Aluminum

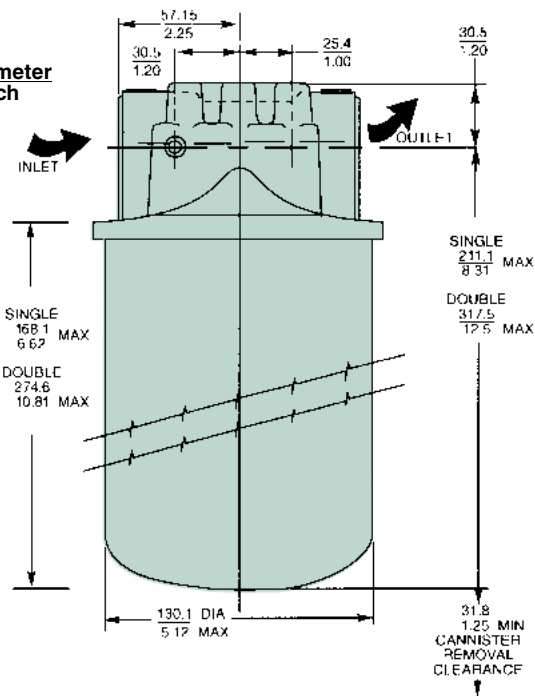
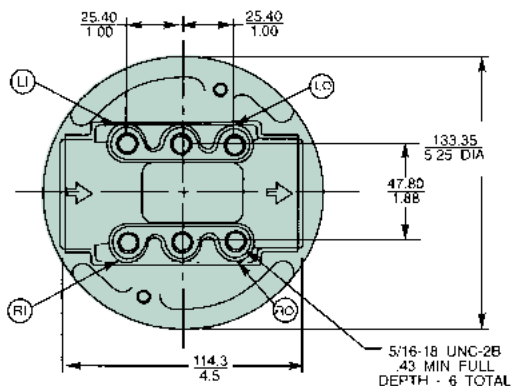
Canister: Low Carbon Steel

Shipping Weights (approximate):

Single length: 3.7 lbs.

Double length: 5.3 lbs.

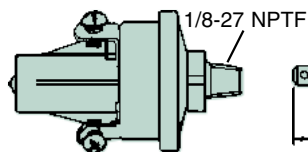
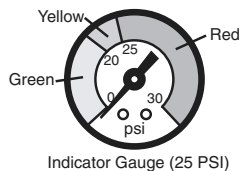
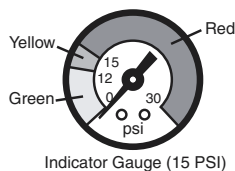
Linear Measure: millimeter
inch



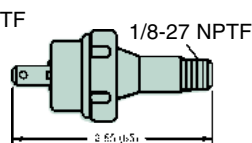
Ports: (both ends)
1 1/4"-1 1/2" NPTF
or
1 1/4" SAE-20

SINGLE
168.1
6.62 MAX
DOUBLE
274.6
10.81 MAX

SINGLE
211.1
8.31 MAX
DOUBLE
317.5
12.5 MAX



VACUUM SWITCH



PRESSURE SWITCH

FSP2 How to Specify

Example:

Box (1) Box (2) Box (3) Box (4) Box (5)
FSP212 - **1** - **F** - **F** - **4** - **H**

Symbol	Description
FSP212	Spin-on (1¼" Nom.)

BOX 1: Port Size	
Symbol	Description
1	1¼" NPT
2	SAE 20

BOX 2: Element Media	
Symbol	Description
A	03B-1, 3 micron glass combo, single length
B	03B-2, 3 micron glass/synth., double length
E	10C-1, 10 micron cellulose/poly, single length
F	10C-2, 10 micron cellulose/poly, double length
J	25C-1, 25 micron cellulose, single length
K	10B-1, 10 micron glass, single length
L	10B-2, 10 micron glass, double length

BOX 3: Bypass Setting	
Symbol	Description
N	None
A	3 psi
D	15 psi
F	25 psi

BOX 4: Indicator	
Symbol	Description
N	None
1	Pressure Gauge
2	Vacuum Gauge
3	Tri-color, 15 psi
4	Tri-color, 25 psi
6	Vacuum Switch, 2 psi
7	Pressure Switch

Fluid Condition Indicators

Part Number	Description
K-F-PSI	0-200 PSI Pressure gauge
934239	Vacuum gauge
926359	15 PSI Pressure switch
926923	25 PSI Pressure switch
934238	15 PSI Tri-color gauge
934237	25 PSI Tri-color gauge
926949	Vacuum switch

BOX 5: Gauge Port Location	
Symbol	Description
H	Inlet and Outlet, Both Sides

Replacement Bypass Valves

Part Number	Description
K-23046	No Bypass
930506	3 PSI
930509	15 PSI
930507	25 PSI

Replacement Spin-on Cans

Part Number	Description
K-23020	3 micron glass combo, single length
K-23062	3 micron glass/synth., double length
K-23018	10 micron cellulose/poly, single length
K-23063	10 micron cellulose/poly, double length
K-23019	25 micron cellulose, single length
K-23064	10 micron glass, single length
K-23065	10 micron glass, double length

NOTE: For replacement head, consult factory.

FSP4 Series

Hydraulic and Lube Filters

Low Pressure Spin-On Type

- Heavy duty cast aluminum head for economical long lasting durability.
- NPT, SAE, BSPP and SAE 4-bolt flange ports available for plumbing versatility.
- Easy to install and service spin-on elements.
- Standard (6") and long (10") elements for greater contamination capacities.
- Three field installable, built in by-pass options.



Specifications:

Nominal Flow Rating:
90 GPM (340 litres/min)

Operating Pressure (Max.):
200PSI (14 bar)

Operating Temperature:
-65°F (-54°C) to 250°F (121°C)

Materials:

Head: Cast Aluminum
Seals: Buna-N

Fluid Compatibility:
All petroleum base fluids

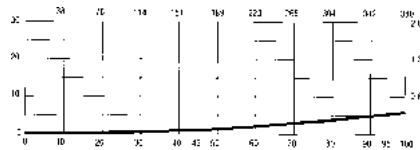
Approximate Shipping Weight:
19 lbs. (8.6 kg)

Element Condition Indicators:
Gauge: Color coded 15/25 psi

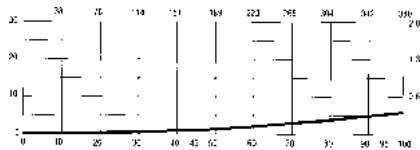
Pressure Switch:
Normally open
20 +/- 2 psi
5 Amps @ 24 VDC

Vacuum Switch:
Normally open
5" +/- 1" Hg
1.0 Amp @ 120 VAC

Pressure Curves

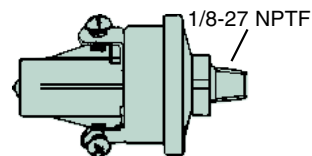
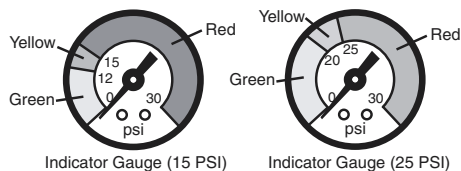
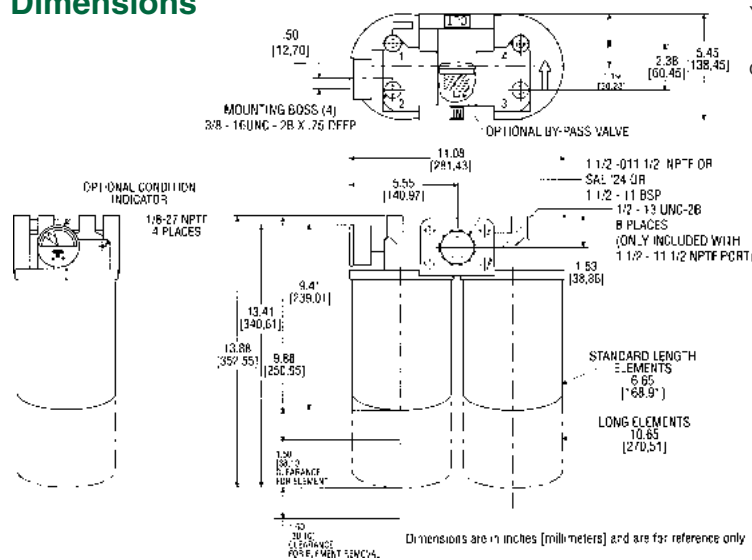


*Typical curves for this design when filter assembly is filled with clean oil at 100 psi.

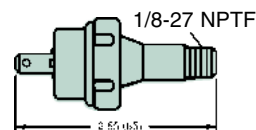


*Typical curves for this design when filter assembly is filled with clean oil at 100 psi.

Dimensions



VACUUM SWITCH



PRESSURE SWITCH

FSP4 How to Specify

Example:

Box Box Box Box Box
(1) (2) (3) (4) (5)
↓ ↓ ↓ ↓ ↓
FSP415 - 2 A D 3 H

Box 1: Inlet & Outlet Port Size Symbol	Description
2	SAE #24
3	BSPP 1½"
5	1¼" NPT and 1½" SAE Flange

Box 2: Elements Symbol	Description
A	3 micron glass combo, single length
B	3 micron glass/syn., double length
E	10 micron cellulose/ poly, single length
F	10 micron cell/poly, double length
J	25 micron cellulose, single length
K	10 micron glass, single length
L	10 micron glass, double length

Box 3: By-Pass Springs and Service Kits Symbol	Description	Service Kit
N	None	K-23046
A	3 PSI (0.2 Bar)	930506
D	15 PSI (1.0 Bar)	930509
F	25 PSI (1.7 Bar)	930507

BOX 4 : Indicator Symbol	Description
N	None
1	Pressure Gauge
2	Vacuum Gauge
3	Tri-color, 15 psi
4	Tri-color, 25 psi
6	Vacuum Switch, 2 psi
7	Pressure Switch

Box 5: Port Location Symbol	Description
H	Inlet and Outlet, Both Sides
Note: Indicator ports are 1/8" - 27 NPT	

Replacement Spin-on Cans

Part Number	Description
K-23020	3 micron glass combo, single length
K-23062	3 micron glass/syn., double length
K-23018	10 micron cellulose/ poly, single length
K-23063	10 micron cell/poly, double length
K-23019	25 micron cellulose, single length
K-23064	10 micron glass, single length
K-23065	10 micron glass, double length

Fluid Condition Indicators

Part Number	Description
K-F-PSI	0-200 PSI Pressure gauge
934239	Vacuum gauge
926359	15 PSI Pressure switch
926923	25 PSI Pressure switch
934238	15 PSI Tri-color gauge
934237	25 PSI Tri-color gauge
926949	Vacuum switch

FLR2 Series

Hydraulic and Lube Filters

Low Pressure Cartridge Type

- Heavy duty cast aluminum head for economical long lasting durability.
- NPT, SAE, BSPP and flange available for plumbing versatility.
- Seven element choices for application variations.
- Three field installable, built in by-pass options.
- Five filter condition indicators to aid in circuit troubleshooting and system preventive maintenance plan



Specifications:

Nominal Flow Rating:
50 GPM (189 litres/min)

Operating Pressure (Max.):
200PSI (14 bar)

Operating Temperature:
-65°F (-54°C) to
250°F (121°C)

Materials:

Head: Cast Aluminum
Bowl: Zinc Plated Steel
Seals: Buna-N

Fluid Compatibility:

All petroleum base fluids

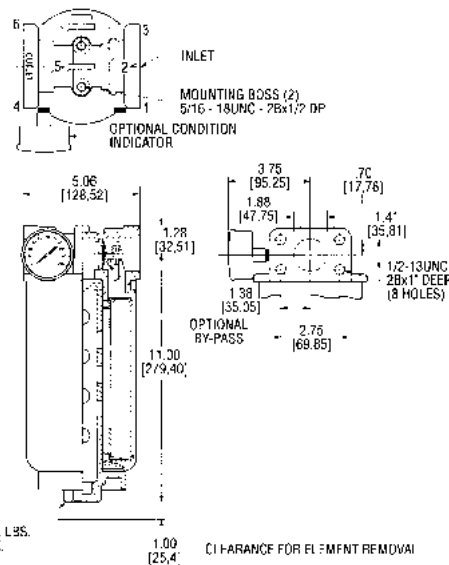
Approximate Shipping Weight:
9 lbs. (4.1 kg)

Element Condition Indicators:
Gauge: Color coded 15/25 psi

Pressure Switch:
Normally open
20 +/- 2 psi
5 Amps @ 24 VDC

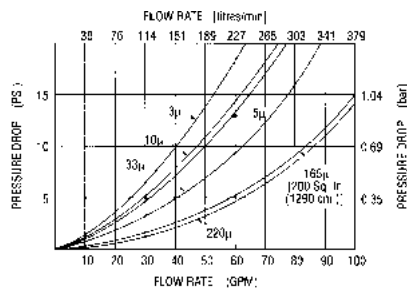
Vacuum Switch:
Normally open
5" +/- 1" Hg
1.0 Amp @ 120 VAC

Dimensions

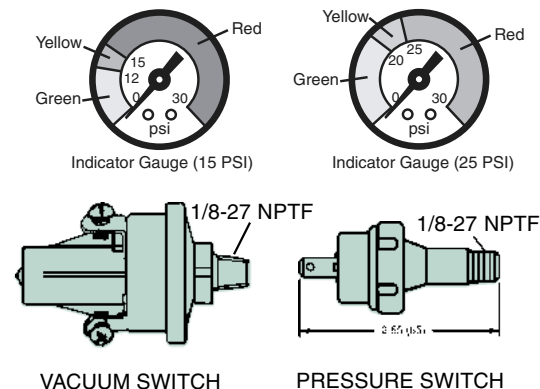


Dimensions are in inches [millimeters] and are for reference only

Pressure Curves



Typical pressure drop through clean filter assembly with oil viscosity of 150 s.u.s.



FLR2 How to Specify

Example:

Box Box Box Box Box
(1) (2) (3) (4) (5)
↓ ↓ ↓ ↓ ↓
FLR215 - 1 A D 3 H

Symbol	Description
1	NPT 1½"
2	SAE 20
3	BSPP 1½"
9	1¼" NPT and 1½" SAE Flange

Symbol	Description
A	3 micron glass combination
W	5 micron glass
E	10 micron cellulose
L	33 micron cellulose
S	165 micron/ 100 wire mesh (200 sq. in.)
T	165 micron/ 100 wire mesh (300 sq. in.)
U	220 micron/ 60 wire mesh

Symbol	Description	Service Kit
N	None	K-23046
A	3 PSI (0.2 Bar)	930506
D	15 PSI (1.0 Bar)	930509
F	25 PSI (1.7 Bar)	93507

Symbol	Description
N	None
1	Pressure Gauge
2	Vacuum Gauge
3	Tri-color, 15 psi
4	Tri-color, 25 psi
6	Vacuum Switch, 2 psi
7	Pressure Switch

Symbol	Description
H	Inlet and Outlet, Both Sides
These ports are 1/8" - 27 NPTF (4) ea 1/8" pipe plugs included with every assembly	

Element Service Kits

Part Number	Description
K-23045	3 micron glass combination
K-23049	5 micron glass
K-23015	10 micron cellulose
K-23014	33 micron cellulose
K-23001	165 micron/100 wire mesh (200 sq. in.)
K-23003	165 micron/100 wire mesh (300 sq. in.)
K-23002	220 micron/60 wire mesh

Fluid Condition Indicators

Part Number	Description
K-F-PSI	0-200 PSI Pressure gauge
934239	Vacuum gauge
926359	15 PSI Pressure switch
926923	25 PSI Pressure switch
934238	15 PSI Tri-color gauge
934237	25 PSI Tri-color gauge
926949	Vacuum switch

RF4 Series

Hydraulic and Lube Filters

RF4 Return Line Filter

150 psi Application

Full Flow Bypass

Mandatory to prevent excessive back pressure into system, which could cause improper adjustments to actuator circuits to meet cycle times.

Gauge Port Available

For visual or electrical indication.

Gauge or Electrical Indicator

With 15 PSI and 25 PSI calibration.

Element

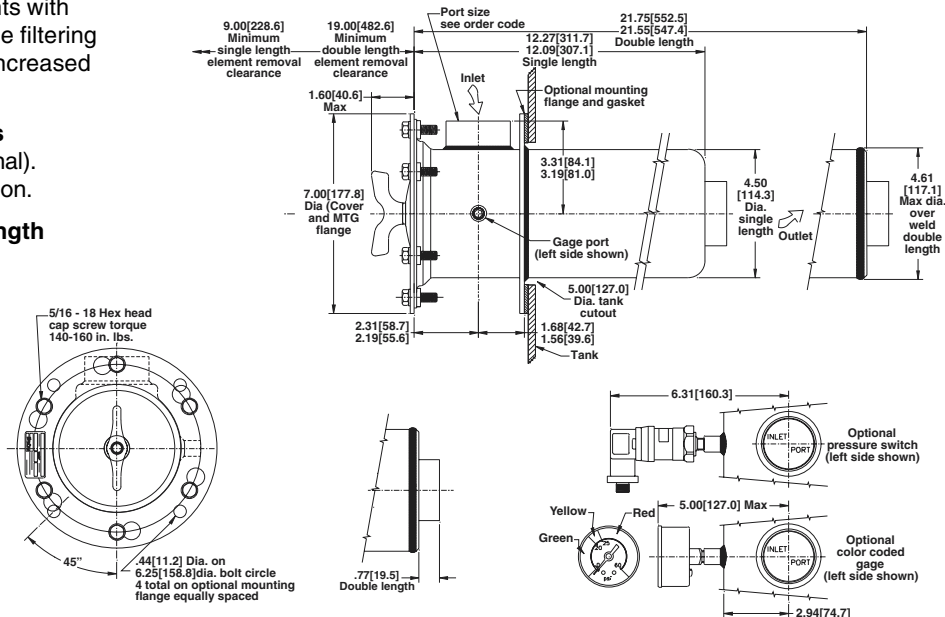
2, 3, 5, 10, and 20 micron and water removal elements with $\beta \geq 200$ with dual stage filtering media for up to 40% increased dirt holding capacity.

Mounting Provisions

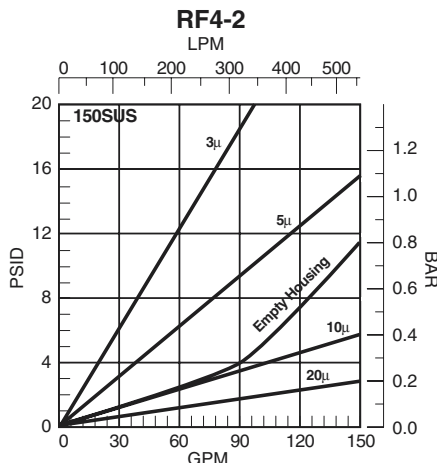
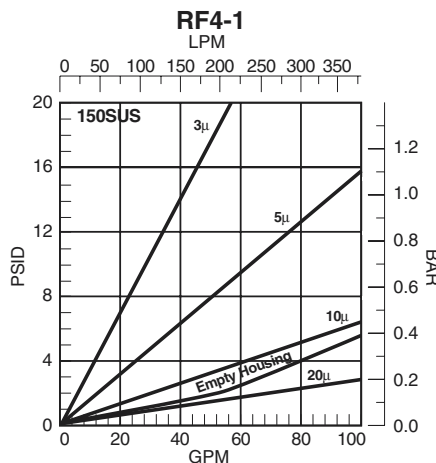
Mounting flange (optional).
Simple in-tank installation.

Single or Double Length

RF4-1



Flow Rate Curves



RF4 How to Specify

Example:

Box (1)	Box (2)	Box (3)	Box (4)	Box (5)	Box (6)	Box (7)	Box (8)	Box (9)
	RF4	1	10Q	GL	25	P999	1	Design number assigned by Parker

BOX 1: Seals	
Symbol	Description
None	Buna N (nitrile)
F3	Fluorocarbon

BOX 2 : Housing	
Symbol	Description
RF4	Return filter

BOX 3 : Housing Length	
Symbol	Description
1	Single length
2	Double length
1F	Single length with mounting flange
2F	Double length with mounting flange

BOX 4 : Filter Media	
Symbol	Description
20C	20 micron cellulose
10C	10 micron cellulose
03C	3 micron cellulose
WR	Water removal
20Q	Microglass III
10Q	Microglass III
05Q	Microglass III
02Q	Microglass III

BOX 5 : Indicator	
Symbol	Description
N	No indicator, no pressure port
GL	Gauge, left side
PL	No indicator, plugged pressure port (left side)
SL	Pressure switch, left side
Note: Left side is on the viewer's left when looking into inlet with bowl down.	

BOX 6 : Bypass Setting	
Symbol	Description
15	15 psid
25	25 psid

BOX 7 : PORTS	
Symbol	Description
Inlet (Side)	
E9	1½" NPT
P9	SAE-24
Outlet (Bottom)	
99	No fitting
E9	1½" NPT
F8	Check valve
Note: Two symbols required. The first symbol describes inlet port.	

BOX 8 : Modifications	
Symbol	Description
1	None
11	No bypass

BOX 9: Design Number	
Applied to the filter by Parker Hydraulic Filter Division. Use the full model code, including the design number when ordering replacement parts.	

REPLACEMENT ELEMENTS

Element Code	ELEMENT: SINGLE (RF4-1)	ELEMENT: DOUBLE (RF4-2)
	Fluorocarbon P/N	Fluorocarbon P/N
03C	925772	925791
10C	925520	925792
20C	925773	925793
WR	930156	928557
20Q	931018Q	931020Q
10Q	932670Q	932679Q
05Q	932669Q	932678Q
02Q	932668Q	932677Q

PARTS LIST

Description	Part Number	Quantity	Description	Part Number	Quantity
Bowl assembly	Consult Factory	1	Elements	See Table	1
Cover assembly			Check valve	925119	1 (optional)
15 psid bypass	932908	1	Pressure gauge		
25 psid bypass	932909	1	15 psi	934238	1 (optional)
Cover o-ring			25 psi	934237	1 (optional)
Buna	N72247	1	Pressure Switch		
Fluorocarbon	V72247	1	15 psi	926359	1 (optional)
Hex head cap screws	926633	6	25 psi	926923	1 (optional)
Gasket (mounting flange)	928852	1			

FLR4 Series

Hydraulic and Lube Filters

Low Pressure Dual Element Cartridge Type

- Heavy duty cast aluminum head and zinc plated steel housing for economical long lasting durability.
- Dual element design for maximum contamination capacity.
- NPT, SAE, BSPP and flange available for plumbing versatility.
- Seven element choices for application variations.
- Four field installable, built in by-pass options for over pressure protection.
- Five filter condition indicators to aid in circuit troubleshooting and system preventive maintenance plans.

Specifications:

Nominal Flow Rating:

90 GPM (340 litres/min)

Operating Pressure (Max.):

200PSI (14 bar)

Operating Temperature:

-65°F (-54°C) to 250°F (121°C)

Element Condition Indicators:

Gauge: Color coded 15/25 psi

Pressure Switch:

Normally open

20 +/- 2 psi

5 Amps @ 24 VDC

Vacuum Switch:

Normally open

5" +/- 1" Hg

1.0 Amp @ 120 VAC

Materials:

Head: Cast Aluminum

Bowl: Zinc Plated Steel

Seals: Buna-N

Fluid Compatibility:

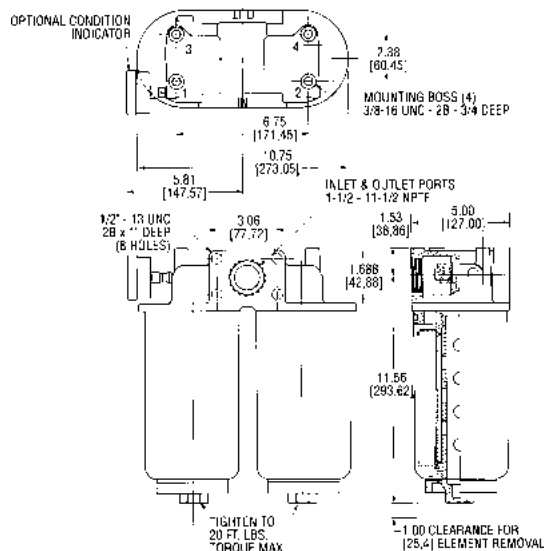
All petroleum base fluids

Approximate Shipping Weight:

19 lbs. (8.6 kg)

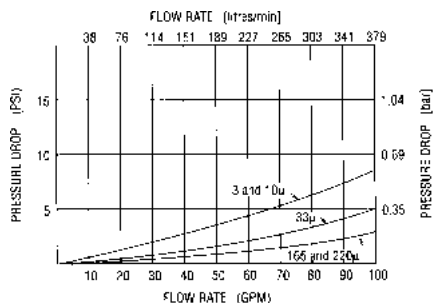


Dimensions

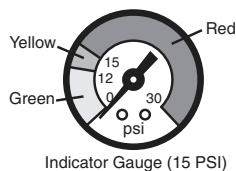


Dimensions are in inches [in millimeters] and are for reference only.

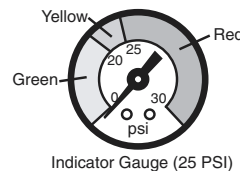
Pressure Curves



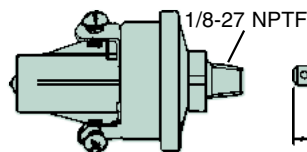
Typical pressure drop through clean filter assembly with oil viscosity of 150 cSt



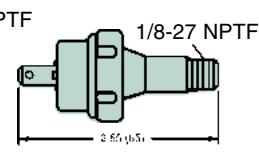
Indicator Gauge (15 PSI)



Indicator Gauge (25 PSI)



VACUUM SWITCH



PRESSURE SWITCH

FLR4 How to Specify

Example:

Box Box Box Box Box
(1) (2) (3) (4) (5)
↓ ↓ ↓ ↓ ↓
FLR415 - 5 A D 1 H

Box 1: Port Type	
Symbol	Description
2	SAE 24
3	BSPP 1½"
5	1¼" NPT and 1½" SAE SAE Flange

Box 2: Elements	
Symbol	Description
A	3 micron glass combination
W	5 micron glass
E	10 micron cellulose
L	33 micron cellulose
S	165 micron/ 100 wire mesh (200 sq. in.)
T	165 micron/ 100 wire mesh (300 sq. in.)
U	220 micron/ 60 wire mesh

Box 3: By-Pass Springs and Service Kits		
Symbol	Description	Service Kit
N	None	K-23046
A	3 PSI (0.2 Bar)	930506
D	15 PSI (1.0 Bar)	930509
F	25 PSI (1.7 Bar)	930507

Box 4: Filter Condition Indicators	
Symbol	Description
N	None
1	Pressure Gauge
2	Vacuum Gauge
3	Tri-color, 15 psi
4	Tri-color, 25 psi
6	Vacuum Switch, 2 psi
7	Pressure Switch

Box 5: Indicator Location
H Inlet and Outlet, Both Sides
These ports are 1/8" - 27 NPTF (4) ea 1/8" pipe plugs included with every assembly

Element Service Kit Numbers

Part Number	Description
K-23045	3 micron glass combination
K-23049	5 micron glass
K-23015	10 micron cellulose
K-23014	33 micron cellulose
K-23001	165 micron/100 wire mesh (200 sq. in.)
K-23003	165 micron/100 wire mesh (300 sq. in.)
K-23002	220 micron/60 wire mesh

Fluid Condition Indicators

Part Number	Description
K-F-PSI	0-200 PSI Pressure gauge
934239	Vacuum gauge
926359	15 PSI Pressure switch
926923	25 PSI Pressure switch
934238	15 PSI Tri-color gauge
934237	25 PSI Tri-color gauge
926949	Vacuum switch

Reservoir Accessories

Hydraulic and Lube Filters

Non-Metallic Filler Breathers

Single-Hole and Six-Hole Styles

Specifications:

Materials:

Body: Non-corrodible glass filled nylon.

Valve: Nylon/Nitrile.

Dipstick: ABS, acetal Hi/Lo indicators.

Filtration Element: Expanded polyurethane foam, 10 micron.

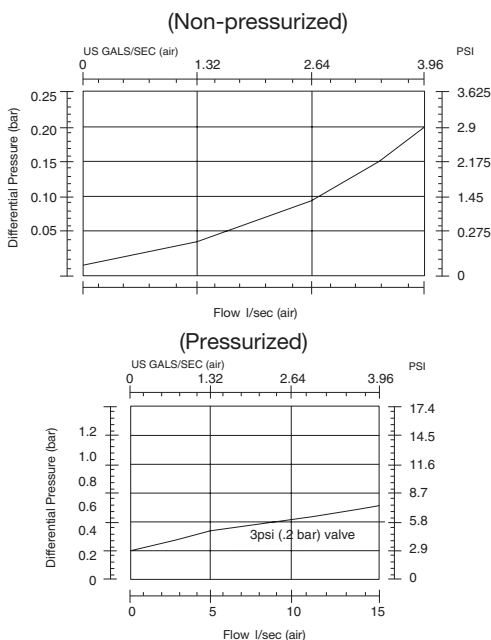
Operating Temperatures: -22°F (-30°C) to 195°F (90°C).

Seals: Nitrile (single-hole), cork gasket (six-hole).

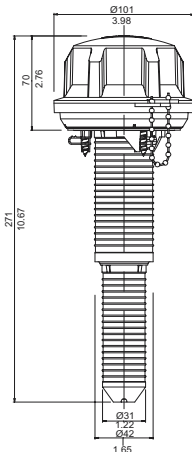
Pressurization Options: 3 psi (0.2 bar).

Dipstick: (optional) 7.9 in. (200 mm) or 15.8 in. (400 mm) lengths with adjustable Hi/Lo indicators.

Anti-Splash Design!

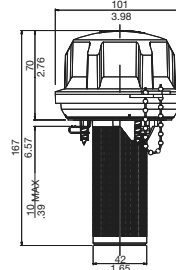


Telescopic Strainer



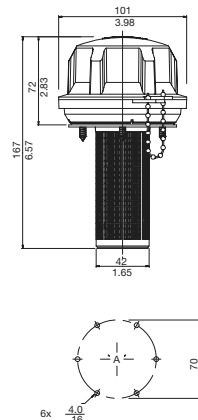
TANK MOUNTING HOLE Ø83
NOTE: REFER TO UCC PRODUCTION
INSTRUCTIONS FOR ASSEMBLY DETAILS
AND PACKING REQUIREMENTS

Single-Hole Option



Linear Measurement= $\frac{\text{mm}}{\text{in}}$

Six-Hole Option



Non-pressurized

Single-Hole	Six-Hole	Micron Rating	Description	Screws*
FB1.A1A1A2P	FB1.D1A1A2P	10	Filler breather without strainer	(6)-M10x.5
FB1.A1A1B2P	FB1.D1A1B2P	10	Filler breather with 3.7" (95 mm) strainer	(6)-M10x.5
FB1.A1A1C2P	FB1.D1A1C2P	10	Filler breather with telescopic strainer	(6)-M10x.5

Pressurized

Single-Hole	Six-Hole	Micron Rating	Description	Screws*
Not Available	FB1.D1B1A2P	10	3 psi (.2 bar) without strainer	(6)-M10x.5
Not Available	FB1.D1B1B2P	10	3 psi (.2 bar) with 3.7" (95 mm) strainer	(6)-M10x.5
Not Available	FB1.D1B1C2P	10	3 psi (.2 bar) with telescopic strainer	(6)-M10x.5

Dipsticks

Part Number	Description
DIP.FB2	Pack of (10) x 7.9"
DIP.FB4	Pack of (10) x 15.8"

*Mounting screws
for six-hole only

Non-Metallic Breathers

Threaded Type

Specifications:

Materials:

Body: Nylon 66.

Valve: Nylon/Nitrile.

Dipstick: ABS, acetal Hi/Lo indicators.

Filtration Element: Expanded polyurethane foam, 10 micron.

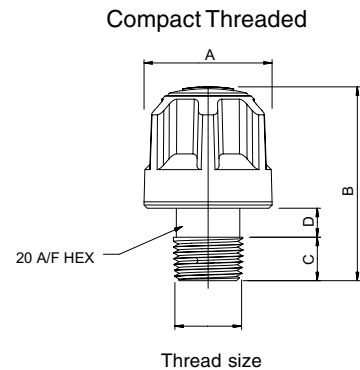
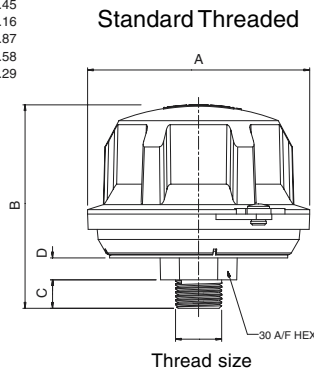
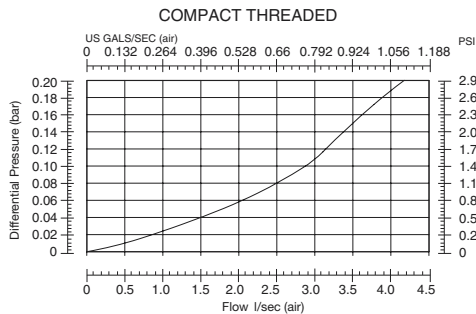
Operating Temperatures: -22°F (-30°C) to 195°F (90°C).

Seals: Nitrile.

Pressurization Options: 3 psi (0.2 bar).

Dipstick: (optional) 7.9 in. (200 mm) or 15.8 in. (400 mm) lengths with adjustable Hi/Lo indicators.

Anti-Splash Design!



Compact Threaded

Part Number	Micron Rating	Thread	Pressure	"A"	"B"	"C"	"D"
SB1.A1A2P*	10	1/4"NPT	non-pressurized	1.6" (40 mm)	2.2" (57 mm)	.55" (14 mm)	.24" (6 mm)
SB1.B1A2P*	10	3/8" NPT	non-pressurized	1.6" (40 mm)	2.3" (57 mm)	.49" (12.5 mm)	.35" (9 mm)
SB1.C1A2P*	10	1/2" NPT	non-pressurized	1.6" (40 mm)	2.4" (60 mm)	.53" (13.5 mm)	.35" (9 mm)
SB1.D1A2P*	10	3/4" NPT	non-pressurized	1.6" (40 mm)	2.4" (60 mm)	.55" (14 mm)	.35" (9 mm)

*Pack of (10) pieces.

Standard Threaded

Part Number	Micron Rating	Thread	Pressure	"A"	"B"	"C"	"D"
FB1.C1A3A2P	10	1/2"NPT	non-pressurized	4.0" (101 mm)	3.7" (93 mm)	.51" (13 mm)	.39" (10 mm)
FB1.C1B3A2P	10	1/2" NPT	3 psi (.2 bar)	4.0" (101 mm)	3.7" (93 mm)	.51" (13 mm)	.39" (10 mm)
FB1.B1A3A2P	10	3/4" NPT	non-pressurized	4.0" (101 mm)	3.8" (95 mm)	.63" (16 mm)	.39" (10 mm)
FB1.B1B3A2P	10	3/4" NPT	3 psi (.2 bar)	4.0" (101 mm)	3.8" (95 mm)	.63" (16 mm)	.39" (10 mm)

Dipsticks

Part Number	Description
DIP.FB2	Pack of (10) x 7.9"
DIP.FB4	Pack of (10) x 15.8"

Reservoir Accessories

Hydraulic and Lube Filters

Metal Filler Breathers

Flange Type

Specifications:

Materials:

Cap & Plate: Nickel chrome plated steel.

Valve: Nylon/Nitrile.

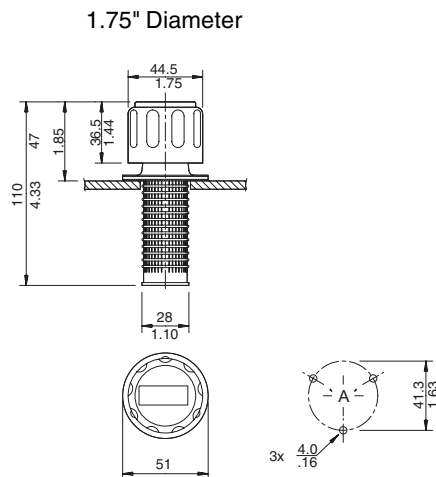
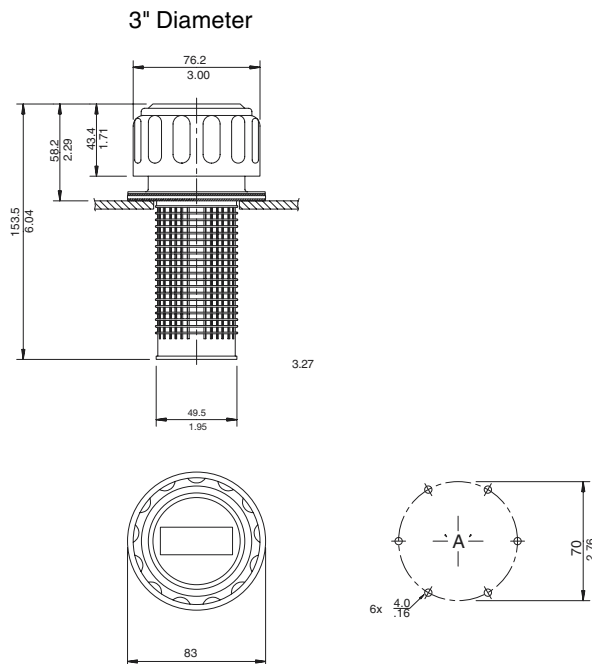
Gasket: Cork.

Filtration Element: Expanded polyurethane foam, 10 micron.

Operating Temperatures: -22°F (-30°C) to 195°F (90°C).

Seals: Nitrile.

Pressurization Options: none, 5 psi (0.35 bar).



Linear Measurement= $\frac{\text{mm}}{\text{in}}$

Flange Type, Non-pressurized

Part No.	Part No. (Cap Assy.)	Micron Rating	Air Flow	Description	Screws
AB.1163.10	CP1.D1A1A1P	10	2 gallon/sec. (7.5 l/sec.)	3" (76 mm) diameter	(6)-M10x.5
MB1.D1A1B2P	Not Available	10	2 gallon/sec. (7.5 l/sec.)	3" (76 mm) diameter, with locking lug	(6)-M10x.5
MB1.A1A1B1P	CP1.A2A1A1P	10	1.3 gallon/sec. (5 l/sec.)	1.75" (44.5 mm) diameter	(6)-M10x.5

Flange Type, Pressurized

Part No.	Part No. (Cap Assy.)	Micron Rating	Air Flow	Description	Screws
MB1.D1C1B1P	CP1.D1C1A1P	10	2 gallon/sec. (7.5 l/sec.)	5 psi (.35 bar), 3" (76 mm) diameter	(6)-M10x.5

Metal Breathers

Threaded Type

Specifications:

Materials:

Cap & Plate: Nickel chrome plated steel.

Valve: Nylon/Nitrile.

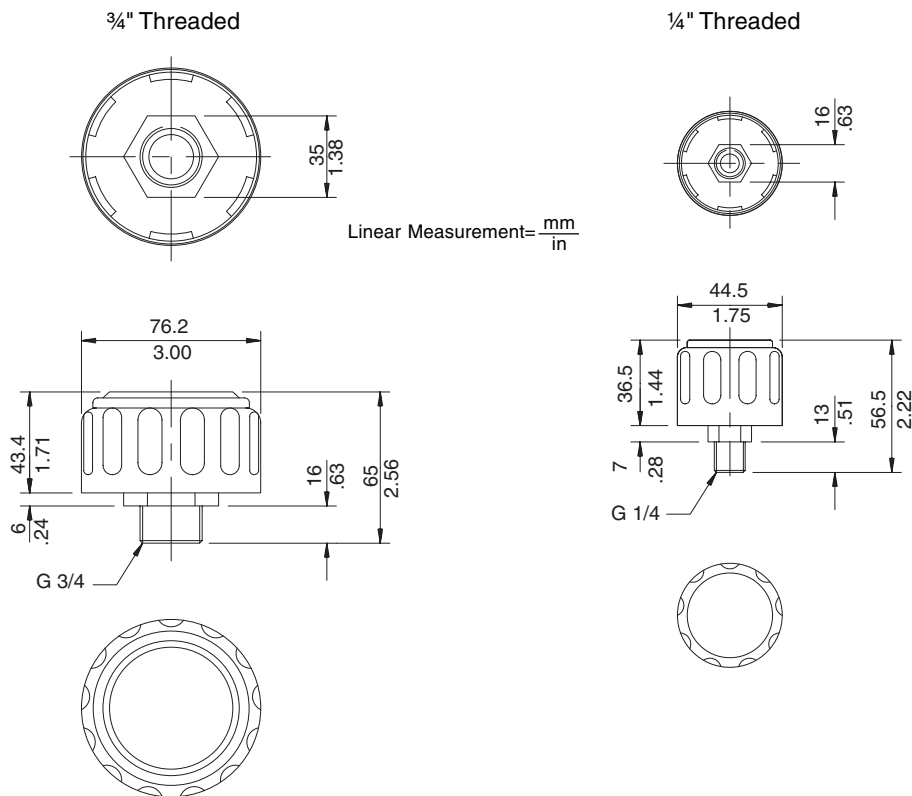
Gasket: Cork.

Filtration Element: Expanded polyurethane foam, 10 micron.

Operating Temperatures: -22°F (-30°C) to 195°F (90°C).

Seals: Nitrile.

Pressurization Options: none, 5 psi (0.35 bar).



Threaded, Non-pressurized

Part Number	Micron Rating	Air Flow	Thread	Description
MB1.B1A3A1P	10	1.3 gallon/sec. (5 l/sec.)	3/4" NPT	3" (76 mm) diameter
MB1.C1A3A1P	10	.7 gallon/sec. (2.5 l/sec.)	1/4" NPT	1.75" (44.5 mm) diameter

Threaded, Pressurized

Part Number	Micron Rating	Air Flow	Thread	Description
MB1.B1C3A1P	10	2 gallon/sec. (7.5 l/sec.)	3/4" NPT	5psi (.35 bar) with 3" (76 mm) diameter

Reservoir Accessories

Hydraulic and Lube Filters

Breathers

Desiccant Type

Specifications:

Materials:

Casing: Clarified copolymer polypropylene.

Cap: Copolymer polypropylene.

Stand pipe: PVC.

Filtration Element: Polyester, silica gel, activated carbon.

Operating Temperatures: -20°F (-29°C) to 250°F (121°C).

Seals: None.

Maximum Allowable

Operating Pressure (MAOP): 5 psi (.34 bar).

Particle Removal Efficiency:

98.7% (beta 75) @ 3 micron

99.5% (beta 200) @ 4 micron

99.9% (beta 1000) @ 5.3 micron

Weight:

934330 1.25 lbs. (.57 kg) each.

934331 1.75 lbs. (.79 kg) each.

934332 2.25 lbs. (1.02 kg) each.

P/N 934330

P/N 934331

P/N 934332

Features

Foam Pads

Isolates the removal materials from contact with heavy reservoir mist and securely holds materials in place.

Filter Pads

Specially designed filter pads remove solid particulate on upstream side and then regenerate by releasing those particles when air flow reverses direction. Lower pad removes airborne contamination and second pad protects against any migration of desiccant and activated carbon.

Air Intakes

A total of eight air intakes may be exposed to allow air to freely flow in and out of the TriCeptor.

Silica Gel Desiccant

Has the highest removal capability by volume of any adsorption method. Indicates condition by changing color.

Activated Carbon

Removes oil vapors and associated odors. The mixture percentage is designed to provide a life consistent with the silica gel.

Foam pad

Insures filter pad is properly positioned and protects it from external damage.

Molded Housing

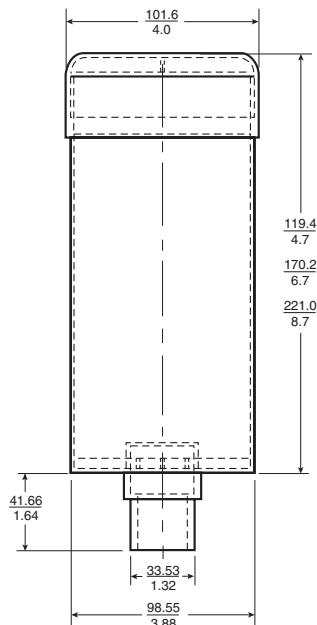
Durable shock absorbing casing provides reliable service and simple press in mounting.

Installation

TriCeptor breathers are designed for simple installation on most equipment, regardless of mounting connection. Since TriCeptor breathers are disposable, the simple press fit design allows for quick and easy maintenance. Several mounting adapters (shown below) are available to provide the desired mounting. The installation/ replacement process consists of four easy steps:

1. Remove from protective plastic wrap.
2. Remove 1" blue cap from standpipe.
3. Remove foil label to expose the necessary amount of air intake holes.
4. Press TriCeptor into mounting adapter.

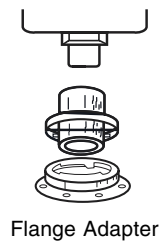
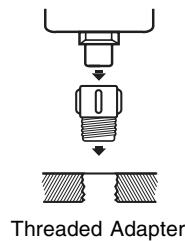
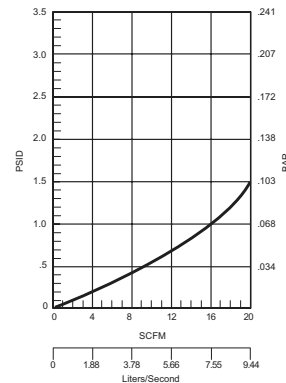
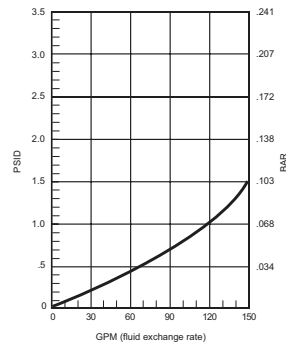
Servicing the TriCeptor breather is also very easy. When the silica gel changes color from blue to a pink, the breather is no longer active and needs to be replaced. Simply remove the unit and discard properly.



Linear Measurement = $\frac{\text{mm}}{\text{in}}$

Air Flow Performance

The curves below show the air flow performance of the three TriCeptor breathers. To insure the longest life possible, the initial clean pressure drop should not exceed 1.5 psid (.103 bar).



Model	Part Number	Quantity
5" Breather	934330	6 pcs.
7" Breather	934331	6 pcs.
9" Breather	934332	6 pcs.
Threaded Adapter	934365	1 pc.
Field Adapter	934366	1 pc.
Flange Adapter	934367	1 pc.

Reservoir Accessories

Hydraulic and Lube Filters

Breathers

Spin-on Type

Specifications:

Materials: Low carbon steel.

Filtration Element: Cellulose.

Operating Temperatures:

-40°F (-40°C) to 225°F (107°C).

Seals: Nitrile.

Weight: 12AT - 1.2 lbs(.54 kg) each.
50AT - 2.3 lbs. (1.0 kg) each.

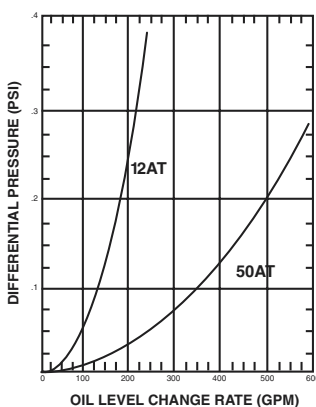
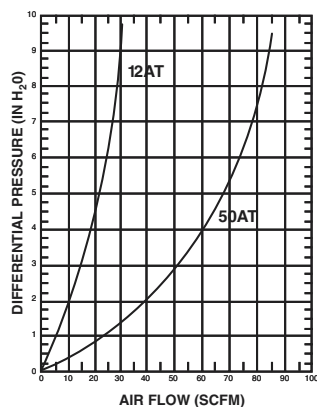
Sizing

Select the proper size canister for the maximum rate of reservoir draw down or air exchange rate. As a rule of thumb, clean pressure drop should be limited to 0.18 psid (5" H₂O).

Recommended canister change out is after 500 hours of operation. More frequent replacement may be required when operated in heavily contaminated areas such as grinding operations, primary metal mills, and on mobile equipment. Under such conditions, increase replacement frequency to every 250 hours.

Graphs are for 03C canisters only. Total pressure drop across canister, adaptor, and pipe may be found by adding pressure drops below:

- + 1.5% for each inch of 12AT adaptor or 3/4" pipe used.
- + 3.0% for each 3/4" elbow used.
- + 1.0% for each inch of 50AT adaptor or 1-1/4" pipe used.
- + 2.0% for each 1-1/4" elbow used.

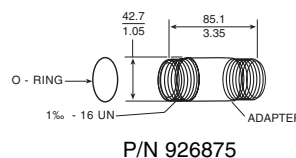
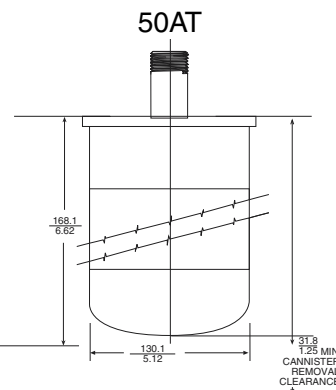
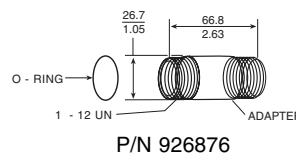
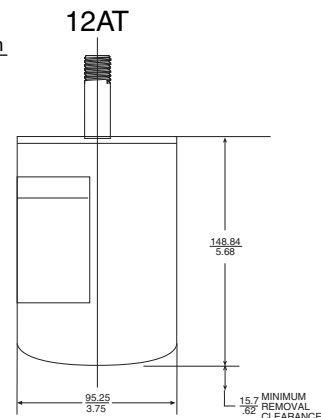


Element	Air Rating*	Diameter	Adaptor Kit
926543	1 micron	3.75"	926876
921999	2 micron	3.75"	926876
925023	5 micron	3.75"	926876
926541	1 micron	5.1"	926875
926169	2 micron	5.1"	926875
926170	5 micron	5.1"	926875

*99% removal efficiency for particles larger than stated size in air.



Linear Measurement= $\frac{\text{mm}}{\text{in}}$



Diffusers

Specifications:

Operating Temperatures: 195°F (90°C) maximum.

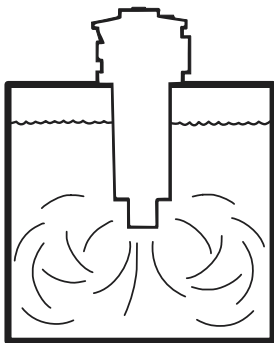
Materials: Body & end cap: Zintec.

Head: glass-filled nylon.

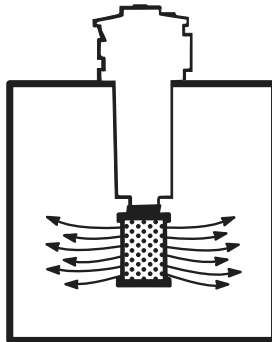
Weight: See chart below.

Benefits:

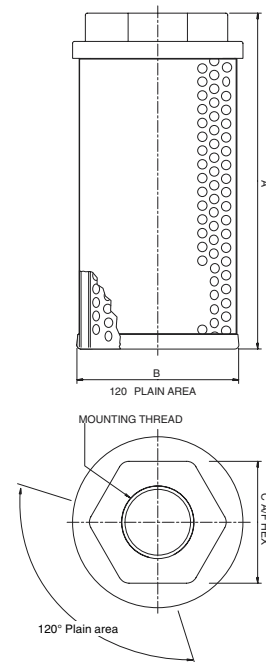
Installing a diffuser in a hydraulic reservoir is a simple change that can make a dramatic difference in system efficiency. With special concentric tubes designed with discharge holes 180° opposed, fluid aeration, foaming and reservoir noise are reduced. Pump life is also extended by reducing cavitation to the pump inlet. The effects of fitting a system with a diffuser are shown below.



Flow without diffuser



Flow with diffuser fitted



Part Number	Thread (NPT)	Nominal Flow GPM (LPM)	Length "A" Inch (mm)	Diameter "B" Inch (mm)	HEX "C" Inch (mm)	Weight Lbs. (kg)
DF1.A2BP	3/4"	13 (50)	4.7 (120)	2.4 (62)	1.81 (46)	.60 (0.27)
DF1.B4BP	1"	30 (114)	5.0 (127)	3.4 (86)	2.17 (55)	.93 (0.42)
DF1.B6BP	1 1/2"	60 (227)	7.0 (178)	3.4 (86)	2.56 (65)	1.23 (0.56)
DF1.B9BP	2"	120 (454)	9.5 (242)	3.4 (86)	2.95 (75)	1.52 (0.69)

Reservoir Accessories

Hydraulic and Lube Filters

Fluid Level/ Temperature Gauges

Specifications:

Materials:

Lens: Transparent polyamide.

Lens base: Nylon 66.

Shroud: High impact polystyrene (no aluminum content).

Seals: Nitrile.

Maximum Operating Pressure: 14.7 psi (1 bar).

Operating Temperatures: -22°F (-30°C) to 195°F (90°C).

Thermometer Range: 90°F to 210°F (30°C to 90°C).

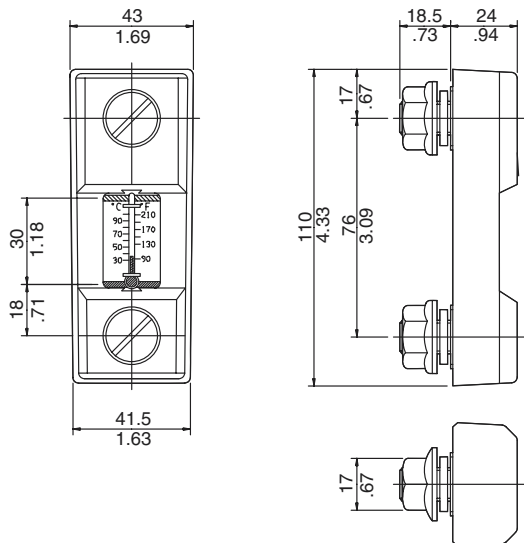
Indicator: Blue alcohol.

Fluid Compatibility: Mineral and petroleum based fluids.

Mounting: Front or rear fixing, two holes (M10).



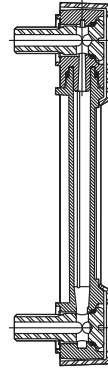
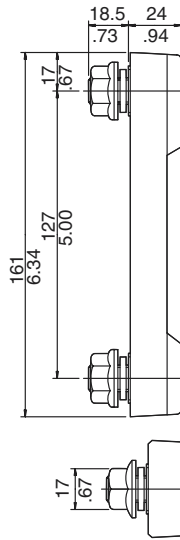
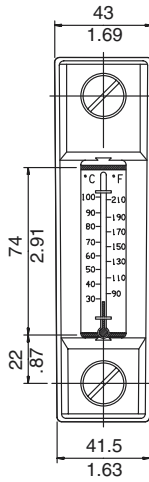
Length 3



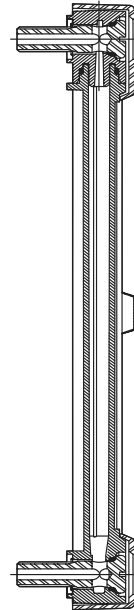
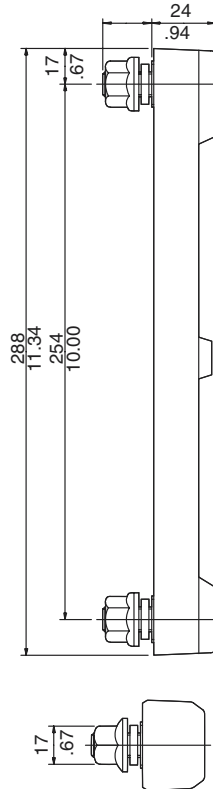
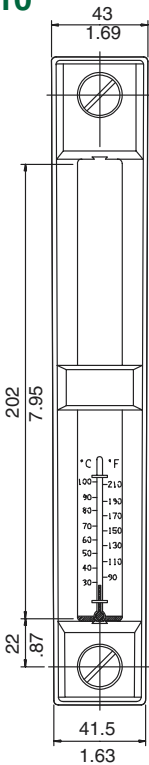
Linear Measurement= $\frac{\text{mm}}{\text{in}}$

Part Number	Thread	Length	Description
LG1.A2A2P	M10	3	Fluid level and temperature
LG1.B2A2P	M10	5	Fluid level and temperature
LG1.C2A2P	M10	10	Fluid level and temperature

Length 5



Length 10



Linear Measurement = $\frac{\text{mm}}{\text{in}}$

Suction Strainers

Specifications:

Materials:

Media: Stainless steel.

Tube and endcap: Zintec.

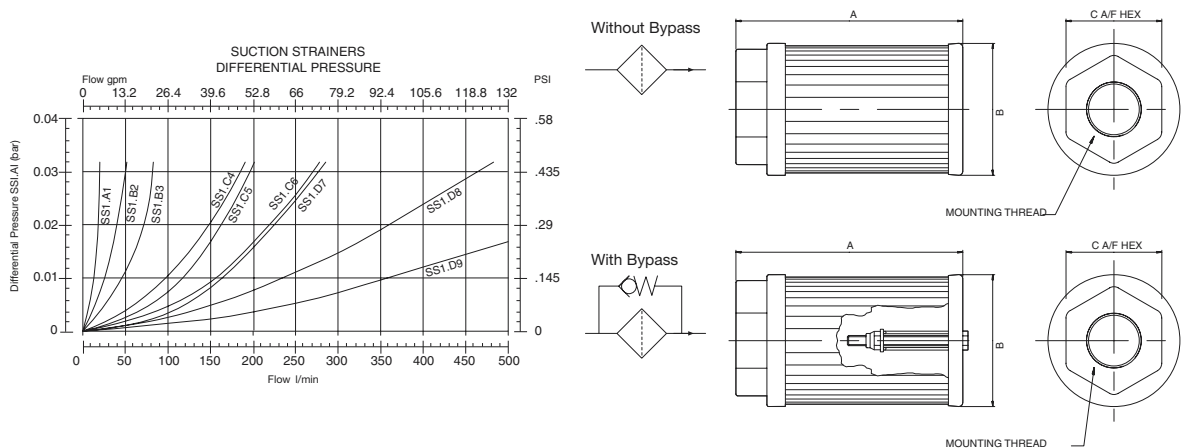
Head: glass filled nylon.

Filtration Element: 125 micron stainless steel mesh.

Operating Temperatures: 195°F (90°C) maximum.

Bypass: None, 3 psi (0.2 bar).

Weight: See chart below.



Part Number With Bypass	Part Number Without Bypass	Port (NPT)	Nominal Flow GPM (LPM)	Length "A" Inch (mm)	Diameter "B" Inch (mm)	Hex "C" Inch (mm)	Weight Lbs. (kg)
SS1.A1B1BP	SS1.A1B1AP	1/2"	4 (15)	4.15 (105.5)	1.81 (46)	1.42 (36)	.18 (.08)
SS1.B2B1BP	SS1.B2B1AP	3/4"	7 (25)	4.31 (109.5)	2.52 (64)	1.81 (46)	.33 (.15)
SS1.B3B1BP	SS1.B3B1AP	1"	13 (50)	5.50 (139.5)	2.52 (64)	2.17 (55)	.37 (.17)
SS1.C4B1BP	SS1.C4B1AP	1 1/2"	25 (95)	5.51 (140)	3.39 (86)	2.56 (65)	.62 (.28)
SS1.C5B1BP	SS1.C5B1AP	1 1/2"	34 (130)	7.87 (200)	3.39 (86)	2.56 (65)	.73 (.33)
SS1.C6B1BP	SS1.C6B1AP	2"	48 (180)	10.24 (260)	3.39 (86)	2.95 (75)	.88 (.40)
SS1.D7B1BP	SS1.D7B1AP	2"	59 (225)	5.91 (150)	5.91 (150)	2.76 (70)	1.41 (.64)
SS1.D8B1BP	SS1.D8B1AP	2 1/2"	92 (350)	8.35 (212)	5.91 (150)	3.54 (90)	1.59 (.72)
SS1.D9B1BP	SS1.D9B1AP	3"	132 (500)	10.71 (272)	5.91 (150)	3.94 (100)	2.03 (.92)

Offer of Sale

The items described in this document are hereby offered for sale at prices to be established by Parker Hannifin Corporation, its subsidiaries and its authorized distributors. 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 Parker Hannifin Corporation, its subsidiary or an authorized distributor ("Seller") verbally or in writing, shall constitute acceptance of this offer.

1. Terms and Conditions of Sale: All descriptions, quotations, proposals, offers, acknowledgments, acceptances and sales of Seller's products are subject to and shall be governed exclusively by the terms and conditions stated herein. Buyer's acceptance of any offer to sell is limited to these terms and conditions. Any terms or conditions in addition to, or inconsistent with those stated herein, proposed by Buyer in any acceptance of an offer by Seller, are hereby objected to. No such additional, different or inconsistent terms and conditions shall become part of the contract between Buyer and Seller unless expressly accepted in writing by Seller. Seller's acceptance of any offer to purchase by Buyer is expressly conditional upon Buyer's assent to all the terms and conditions stated herein, including any terms in addition to, or inconsistent with those contained in Buyer's offer. Acceptance of Seller's products shall in all events constitute such assent.

2. Payment: Payment shall be made by Buyer net 30 days from the date of delivery of the items purchased hereunder. Any claims by Buyer for omissions or shortages in a shipment shall be waived unless Seller receives notice thereof within 30 days after Buyer's receipt of the shipment.

3. Delivery: Unless otherwise provided on the face hereof, delivery shall be made F.O.B. Seller's plant. Regardless of the method of delivery, however, risk of loss shall pass to Buyer upon Seller's delivery to a carrier. Any delivery dates shown are approximate only and Seller shall have no liability for any delays in delivery.

4. Warranty: Seller warrants that the item sold hereunder shall be free from defects in material or workmanship for a period of 547 days from the date of shipment to Buyer, or 3,000 hours of use, whichever expires first. **THIS WARRANTY COMPRISES THE SOLE AND ENTIRE WARRANTY PERTAINING TO ITEMS PROVIDED HEREUNDER. SELLER MAKES NO OTHER WARRANTY, GUARANTEE, OR REPRESENTATION OF ANY KIND WHATSOEVER. ALL OTHER WARRANTIES, INCLUDING BUT NOT LIMITED TO, MERCHANTABILITY AND FITNESS FOR PURPOSE, WHETHER EXPRESS, IMPLIED, OR ARISING BY OPERATION OF LAW, TRADE USAGE, OR COURSE OF DEALING ARE HEREBY DISCLAIMED.**

NOTWITHSTANDING THE FOREGOING, THERE ARE NO WARRANTIES WHATSOEVER ON ITEMS BUILT OR ACQUIRED WHOLLY OR PARTIALLY, TO BUYERS DESIGNS OR SPECIFICATIONS.

5. Limitation of Remedy: SELLER'S LIABILITY ARISING FROM OR IN ANY WAY CONNECTED WITH THE ITEMS SOLD OR THIS CONTRACT SHALL BE LIMITED EXCLUSIVELY TO REPAIR OR REPLACEMENT OF THE ITEMS SOLD OR REFUND OF THE PURCHASE PRICE PAID BY BUYER, AT SELLER'S SOLE OPTION IN NO EVENT SHALL SELLER BE LIABLE FOR ANY INCIDENTAL OR CONSEQUENTIAL OR SPECIAL DAMAGES OF ANY KIND OR NATURE WHATSOEVER, INCLUDING BUT NOT LIMITED TO LOST PROFITS ARISING FROM OR IN ANY WAY CONNECTED WITH THIS AGREEMENT OR ITEM SOLD HEREUNDER, WHETHER ALLEGED TO ARISE FROM BREACH OF CONTRACT, EXPRESS OR IMPLIED WARRANTY, OR IN TORT, INCLUDING WITHOUT LIMITATION, NEGLIGENCE, FAILURE TO WARN OR STRICT LIABILITY.

6. Changes, Reschedules and Cancellations: Buyer may request to modify the designs or specifications for the items sold hereunder as well as the quantities and delivery dates thereof, or may request to cancel all or part of this order, however, no such requested modification or cancellation shall become part of the contract between Buyer and Seller unless accepted by Seller in a written amendment to this Agreement. Acceptance of any such requested modification or cancellation shall be at Seller's discretion, and shall be upon such terms and conditions as Seller may require.

7. Special Tooling: A tooling charge may be imposed for any special tooling, including without limitation, dies, fixtures, molds and patterns, acquired to manufacture items sold pursuant to this contract. 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 items sold hereunder, 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.

8. 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 (2) consecutive years have elapsed without Buyer placing an order for the items which are 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. Taxes: Unless otherwise indicated on the face hereof, all prices and charges are exclusive of excise, sales, use, property, occupational or like taxes which may be imposed by any taxing authority upon the manufacture, sale or delivery of the items sold hereunder. If any such taxes must be paid by Seller or if Seller is liable for the collection of such tax, the amount thereof shall be in addition to the amounts for the items sold. Buyer agrees to pay all such taxes or to reimburse Seller therefore upon receipt of its invoice. If Buyer claims exemption from any sales, use or other tax imposed by any taxing authority, Buyer shall save Seller harmless from and against any such tax, together with any interest or penalties thereon which may be assessed if the items are held to be taxable.

10. 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 Part 10. Seller will defend and indemnify Buyer against allegations of infringement of U.S. patents, U.S. trademarks, copyrights, trade dress and trade secrets (hereinafter '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 an item sold pursuant to this contract 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 an item sold hereunder 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 said item, replace or modify said time so as to make it noninfringing, or offer to accept return of said item 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 items 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 item sold hereunder. The foregoing provisions of this Part 10 shall constitute Seller's sole and exclusive liability and Buyer's sole and exclusive remedy for infringement of Intellectual Property Rights.

If a claim is based on information provided by Buyer or if the design for an item delivered hereunder is specified in whole or in part by Buyer, Buyer shall defend and indemnify Seller for all costs, expenses or judgments resulting from any claim that such item infringes any patent, trademark, copyright, trade dress, trade secret or any similar right.

11. Force Majeure: Seller does not assume the risk of 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, acts of God, strikes or labor disputes, acts, laws, rules or regulations of any government or government agency, fires, floods, delays or failures in delivery of carriers or suppliers, shortages of materials and any other cause beyond Seller's control.

12. Entire Agreement/Governing Law: The terms and conditions set forth herein, together with any amendments, modifications and any different terms or conditions expressly accepted by Seller in writing, shall constitute the entire Agreement concerning the items sold, and there are no oral or other representations or agreements which pertain thereto. This Agreement shall be governed in all respects by the law of the State of Ohio. No actions arising out of the sale of the items sold hereunder or this Agreement may be brought by either party more than two (2) years after the cause of action accrues.



Parker Hannifin Corporation
6035 Parkland Blvd.
Cleveland, Ohio 44124-4141
Telephone: (216) 896-3000
Fax: (216) 896-4000
Web site: www.parker.com

Parker Hannifin Corporation

About Parker Hannifin Corporation

Parker Hannifin is a leading global motion-control company dedicated to delivering premier customer service. A Fortune 500 corporation listed on the New York Stock Exchange (PH), our components and systems comprise over 1,400 product lines that control motion in some 1,000 industrial and aerospace markets. Parker is the only manufacturer to offer its customers a choice of hydraulic, pneumatic, and electromechanical motion-control solutions. Our Company has the largest distribution network in its field, with over 7,500 distributors serving more than 350,000 customers worldwide.

Parker's Charter

To be a leading worldwide manufacturer of components and systems for the builders and users of durable goods. More specifically, we will design, market and manufacture products controlling motion, flow and pressure. We will achieve profitable growth through premier customer service.

Product Information

North American customers seeking product information, the location of a nearby distributor, or repair services will receive prompt attention by calling the Parker Product Information Center at our toll-free number: 1-800-C-PARKER (1-800-272-7537). In the UK, a similar service is available by calling 0500-103-203.

The Aerospace Group

is a leader in the development, design, manufacture and servicing of control systems and components for aerospace and related high-technology markets, while achieving growth through premier customer service.



The Climate & Industrial Controls Group

designs, manufactures and markets system-control and fluid-handling components and systems to refrigeration, air-conditioning and industrial customers worldwide.



The Fluid Connectors Group

designs, manufactures and markets rigid and flexible connectors, and associated products used in pneumatic and fluid systems.



The Seal Group designs, manufactures and distributes industrial and commercial sealing devices and related products by providing superior quality and total customer satisfaction.



The Hydraulics Group

designs, produces and markets a full spectrum of hydraulic components and systems to builders and users of industrial and mobile machinery and equipment.



The Filtration Group

designs, manufactures and markets quality filtration and clarification products, providing customers with the best value, quality, technical support, and global availability.



The Automation Group

is a leading supplier of pneumatic and electromechanical components and systems to automation customers worldwide.



The Instrumentation Group

is a global leader in the design, manufacture and distribution of high-quality critical flow components for worldwide process instrumentation, ultra-high-purity, medical and analytical applications.



Parker Worldwide Sales Offices

**Contact Parker's worldwide service
and distribution network by calling:**

Argentina • +54 (1) 752 4129
Australia • +61 (2) 634 7777
Austria • +43 (2622) 23501 3
Belgium • +32 (2) 762 1800
Brazil • +55 (11) 3917 1407
Canada • 1-800-272-7537
China • +86 (21) 6249 9755
Czech Republic • +42 (2) 752544
Denmark • +45 (43) 541133
Finland • +358 (0) 8784211
France • +33 (50) 258025
Germany • +49 (69) 311096
Hong Kong • +852 2428 8008
Hungary • +36 (1) 25 22 539
India • +91 (22) 577 1671
Italy • +39 (02) 451921
Japan • +81 (45) 861 3811
Korea • +82 (2) 561 0414
Mexico • 1-800-272-7537
Netherlands • +31 (5410) 85000
New Zealand • +64 (9) 573 1523
Norway • +55 (99) 867760
Poland • +48 (22) 461455
Singapore • +65 261 5233
South Africa • +27 (11) 9703630
Spain • +34 (1) 6757300
Sweden • +46 (8) 760 2960
Taiwan • +886 (2) 781 3206
United Arab Emirates • +971 (2) 788587
United Kingdom +44 1924 487000
United States of America • 1-800-272-7537
Venezuela +58 (2) 238 5422

Filtration Group Technical Sales & Service Locations

Finite Filter Division

500 Glaspie Street
Oxford, MI 48371
Phone: (248) 628-6400
Fax: (248) 628-1850

Hydraulic Filter Division

16810 Fulton County Road #2
Metamora, OH 43540
Phone: (800) 253-1258
Phone: (419) 644-4311
Fax: (419) 644-6205

Process Filtration Division

6640 Intech Blvd.
Indianapolis, IN 46278
Phone: (888) 238-5356
Phone: (317) 275-8300
Fax: (317) 275-8410

Racor Division

3400 Finch Road
P.O. Box 3208
Modesto, CA 95353
Phone: (800) 344-3286
Phone: (209) 521-7860
Fax: (209) 529-3278

Racor Division

Hydrocarbon Products
Route #3 Box 9
Henryetta, OK 74437
Phone: (918) 652-4481
FAX: (918) 652-8882

Parker Filtration BV

8 Stieltjesweg
6827 BV Arnhem
Holland
Phone: 31 26 3760376
Fax: 31 26 3643620

Filter Division U.K.

Churwell Vale
Shaw Cross Business Park
Dewsbury, England WF12 7RD
Phone: +44 1924 487000
Fax: +44 1924 487060

Filter Division U.K.

UCC Products
P.O. Box 3
Thetford, Norfolk
IP24 3RT England
Phone: (44) 1842-756240
Fax: (44) 1842-756306

Finn Filter Division

Fin-31700
Ujala As., Finland
Phone: (358) 3 54 100
Fax: (358) 3 54 10100

Parker Hannifin Ind.eCom. Ltda. Filter Division

Via Anhanguera, Km.25,3
05276-977 - Sao Paulo
- SP, Brazil
Phone: +55 (11) 3917 1407
Fax: +55 (11) 3917 1623

Parker Hannifin Asia Pacific Company, LTD

902 Dae Heung Bldg.
648-23 Yeoksam-dong
Kangnam-ku, Seoul,
Korea 135-080
Phone: 82 2 561 0414
Fax: 82 2 556 8187

GRESEN®

Parker Hannifin Corporation

Hydraulic Filter Division
16810 Fulton County Road #2
Metamora, OH 43540
Phone: (800) 253-1258
Phone: (419) 644-4311
Fax: (419) 644-6205
<http://www.parker.com/hydraulicfilter>

Catalog 2300-GR1/US
5M, 04/02

Offer of Sale

The items described in this document are hereby offered for sale at prices to be established by Parker Hannifin Corporation, its subsidiaries and its authorized distributors. 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 Parker Hannifin Corporation, its subsidiary or an authorized distributor ("Seller") verbally or in writing, shall constitute acceptance of this offer.

1. Terms and Conditions of Sale: All descriptions, quotations, proposals, offers, acknowledgments, acceptances and sales of Seller's products are subject to and shall be governed exclusively by the terms and conditions stated herein. Buyer's acceptance of any offer to sell is limited to these terms and conditions. Any terms or conditions in addition to, or inconsistent with those stated herein, proposed by Buyer in any acceptance of an offer by Seller, are hereby objected to. No such additional, different or inconsistent terms and conditions shall become part of the contract between Buyer and Seller unless expressly accepted in writing by Seller. Seller's acceptance of any offer to purchase by Buyer is expressly conditional upon Buyer's assent to all the terms and conditions stated herein, including any terms in addition to, or inconsistent with those contained in Buyer's offer. Acceptance of Seller's products shall in all events constitute such assent.

2. Payment: Payment shall be made by Buyer net 30 days from the date of delivery of the items purchased hereunder. Any claims by Buyer for omissions or shortages in a shipment shall be waived unless Seller receives notice thereof within 30 days after Buyer's receipt of the shipment.

3. Delivery: Unless otherwise provided on the face hereof, delivery shall be made F.O.B. Seller's plant. Regardless of the method of delivery, however, risk of loss shall pass to Buyer upon Seller's delivery to a carrier. Any delivery dates shown are approximate only and Seller shall have no liability for any delays in delivery.

4. Warranty: Seller warrants that the item sold hereunder shall be free from defects in material or workmanship for a period of 547 days from the date of shipment to Buyer, or 3,000 hours of use, whichever expires first. **THIS WARRANTY COMPRISES THE SOLE AND ENTIRE WARRANTY PERTAINING TO ITEMS PROVIDED HEREUNDER. SELLER MAKES NO OTHER WARRANTY, GUARANTEE, OR REPRESENTATION OF ANY KIND WHATSOEVER. ALL OTHER WARRANTIES, INCLUDING BUT NOT LIMITED TO, MERCHANTABILITY AND FITNESS FOR PURPOSE, WHETHER EXPRESS, IMPLIED, OR ARISING BY OPERATION OF LAW, TRADE USAGE, OR COURSE OF DEALING ARE HEREBY DISCLAIMED.**

NOTWITHSTANDING THE FOREGOING, THERE ARE NO WARRANTIES WHATSOEVER ON ITEMS BUILT OR ACQUIRED WHOLLY OR PARTIALLY, TO BUYERS DESIGNS OR SPECIFICATIONS.

5. Limitation of Remedy: SELLER'S LIABILITY ARISING FROM OR IN ANY WAY CONNECTED WITH THE ITEMS SOLD OR THIS CONTRACT SHALL BE LIMITED EXCLUSIVELY TO REPAIR OR REPLACEMENT OF THE ITEMS SOLD OR REFUND OF THE PURCHASE PRICE PAID BY BUYER, AT SELLER'S SOLE OPTION IN NO EVENT SHALL SELLER BE LIABLE FOR ANY INCIDENTAL OR CONSEQUENTIAL OR SPECIAL DAMAGES OF ANY KIND OR NATURE WHATSOEVER, INCLUDING BUT NOT LIMITED TO LOST PROFITS ARISING FROM OR IN ANY WAY CONNECTED WITH THIS AGREEMENT OR ITEM SOLD HEREUNDER, WHETHER ALLEGED TO ARISE FROM BREACH OF CONTRACT, EXPRESS OR IMPLIED WARRANTY, OR IN TORT, INCLUDING WITHOUT LIMITATION, NEGLIGENCE, FAILURE TO WARN OR STRICT LIABILITY.

6. Changes, Reschedules and Cancellations: Buyer may request to modify the designs or specifications for the items sold hereunder as well as the quantities and delivery dates thereof, or may request to cancel all or part of this order, however, no such requested modification or cancellation shall become part of the contract between Buyer and Seller unless accepted by Seller in a written amendment to this Agreement. Acceptance of any such requested modification or cancellation shall be at Seller's discretion, and shall be upon such terms and conditions as Seller may require.

7. Special Tooling: A tooling charge may be imposed for any special tooling, including without limitation, dies, fixtures, molds and patterns, acquired to manufacture items sold pursuant to this contract. 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 items sold hereunder, 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.

8. 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 (2) consecutive years have elapsed without Buyer placing an order for the items which are 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. Taxes: Unless otherwise indicated on the face hereof, all prices and charges are exclusive of excise, sales, use, property, occupational or like taxes which may be imposed by any taxing authority upon the manufacture, sale or delivery of the items sold hereunder. If any such taxes must be paid by Seller or if Seller is liable for the collection of such tax, the amount thereof shall be in addition to the amounts for the items sold. Buyer agrees to pay all such taxes or to reimburse Seller therefore upon receipt of its invoice. If Buyer claims exemption from any sales, use or other tax imposed by any taxing authority, Buyer shall save Seller harmless from and against any such tax, together with any interest or penalties thereon which may be assessed if the items are held to be taxable.

10. 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 Part 10. Seller will defend and indemnify Buyer against allegations of infringement of U.S. patents, U.S. trademarks, copyrights, trade dress and trade secrets (hereinafter '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 an item sold pursuant to this contract 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 an item sold hereunder 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 said item, replace or modify said time so as to make it noninfringing, or offer to accept return of said item 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 items 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 item sold hereunder. The foregoing provisions of this Part 10 shall constitute Seller's sole and exclusive liability and Buyer's sole and exclusive remedy for infringement of Intellectual Property Rights.

If a claim is based on information provided by Buyer or if the design for an item delivered hereunder is specified in whole or in part by Buyer, Buyer shall defend and indemnify Seller for all costs, expenses or judgments resulting from any claim that such item infringes any patent, trademark, copyright, trade dress, trade secret or any similar right.

11. Force Majeure: Seller does not assume the risk of 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, acts of God, strikes or labor disputes, acts, laws, rules or regulations of any government or government agency, fires, floods, delays or failures in delivery of carriers or suppliers, shortages of materials and any other cause beyond Seller's control.

12. Entire Agreement/Governing Law: The terms and conditions set forth herein, together with any amendments, modifications and any different terms or conditions expressly accepted by Seller in writing, shall constitute the entire Agreement concerning the items sold, and there are no oral or other representations or agreements which pertain thereto. This Agreement shall be governed in all respects by the law of the State of Ohio. No actions arising out of the sale of the items sold hereunder or this Agreement may be brought by either party more than two (2) years after the cause of action accrues.

Parker Worldwide Sales Offices

**Contact Parker's worldwide service
and distribution network by calling:**

Argentina • +54 (1) 752 4129
Australia • +61 (2) 634 7777
Austria • +43 (2622) 23501 3
Belgium • +32 (2) 762 1800
Brazil • +55 (11) 3917 1407
Canada • 1-800-272-7537
China • +86 (21) 6249 9755
Czech Republic • +42 (2) 752544
Denmark • +45 (43) 541133
Finland • +358 (0) 8784211
France • +33 (50) 258025
Germany • +49 (69) 311096
Hong Kong • +852 2428 8008
Hungary • +36 (1) 25 22 539
India • +91 (22) 577 1671
Italy • +39 (02) 451921
Japan • +81 (45) 861 3811
Korea • +82 (2) 561 0414
Mexico • 1-800-272-7537
Netherlands • +31 (5410) 85000
New Zealand • +64 (9) 573 1523
Norway • +55 (99) 867760
Poland • +48 (22) 461455
Singapore • +65 261 5233
South Africa • +27 (11) 9703630
Spain • +34 (1) 6757300
Sweden • +46 (8) 760 2960
Taiwan • +886 (2) 781 3206
United Arab Emirates • +971 (2) 788587
United Kingdom +44 1924 487000
United States of America • 1-800-272-7537
Venezuela +58 (2) 238 5422

Filtration Group Technical Sales & Service Locations

Finite Filter Division

500 Glaspie Street
Oxford, MI 48371
Phone: (248) 628-6400
Fax: (248) 628-1850

Hydraulic Filter Division

16810 Fulton County Road #2
Metamora, OH 43540
Phone: (800) 253-1258
Phone: (419) 644-4311
Fax: (419) 644-6205

Process Filtration Division

6640 Intech Blvd.
Indianapolis, IN 46278
Phone: (888) 238-5356
Phone: (317) 275-8300
Fax: (317) 275-8410

Racor Division

3400 Finch Road
P.O. Box 3208
Modesto, CA 95353
Phone: (800) 344-3286
Phone: (209) 521-7860
Fax: (209) 529-3278

Racor Division

Hydrocarbon Products
Route #3 Box 9
Henryetta, OK 74437
Phone: (918) 652-4481
FAX: (918) 652-8882

Parker Filtration BV

8 Stieltjesweg
6827 BV Arnhem
Holland
Phone: 31 26 3760376
Fax: 31 26 3643620

Filter Division U.K.

Churwell Vale
Shaw Cross Business Park
Dewsbury, England WF12 7RD
Phone: +44 1924 487000
Fax: +44 1924 487060

Filter Division U.K.

UCC Products
P.O. Box 3
Thetford, Norfolk
IP24 3RT England
Phone: (44) 1842-756240
Fax: (44) 1842-756306

Finn Filter Division

Fin-31700
Ujala As., Finland
Phone: (358) 3 54 100
Fax: (358) 3 54 10100

Parker Hannifin Ind.eCom. Ltda. Filter Division

Via Anhanguera, Km.25,3
05276-977 - Sao Paulo
– SP, Brazil
Phone: +55 (11) 3917 1407
Fax: +55 (11) 3917 1623

Parker Hannifin Asia Pacific Company, LTD

902 Dae Heung Bldg.
648-23 Yeoksam-dong
Kangnam-ku, Seoul,
Korea 135-080
Phone: 82 2 561 0414
Fax: 82 2 556 8187

GRESEN®

Parker Hannifin Corporation

Hydraulic Filter Division
16810 Fulton County Road #2
Metamora, OH 43540
Phone: (800) 253-1258
Phone: (419) 644-4311
Fax: (419) 644-6205
<http://www.parker.com/hydraulicfilter>

Catalog 2300-GR1/US
5M, 04/02

12AS/50AS Series



Coreless Spin-on Filters

12AS/50AS Series

WASTE.



500,000,000+
spin-on cans disposed
of each year in North
American landfills.

30,000,000
gallons of discarded
residual waste oil.

250,000
tons of scrap metal.
Expensive disposal costs.

NOT.



The Smart Alternative to Spin-on Cans!

Features:

Parker engineers have developed an innovative alternative to the age old spin-on style can. This new design provides all of the benefits of high efficiency, long life Ecoglass III filtration, without the environmental impact.

The new environmentally-friendly 12AS and 50AS hydraulic filters feature a reuseable bowl and a patented filter element constructed primarily of nylon and fiberglass. The element core is permanently attached as part of the filter bowl. When replaced, the element reduces costs, eliminates hot drain requirements, can be easily incinerated, and is better-suited for most landfills.

The 500 psi filters are rated up to 50 gpm, with premium Ecoglass III elements as standard offerings. The patented element design also prevents filter operation if the proper element is not in place.

Applications:

Mobile Ag
Mobile Construction
Material Handlers
Aerial Lifts
Pilot lines
Charge pump hydrostatic drives
Industrial power units
Machine tools

Feature	Advantage	Benefit
<ul style="list-style-type: none">• 500 PSI operating pressure	<ul style="list-style-type: none">• Withstands pressure surges, allows application versatility.	<ul style="list-style-type: none">• Broader applications compared to 150 PSI rated spin-on cans.
<ul style="list-style-type: none">• Patented element	<ul style="list-style-type: none">• Provides head-to-bowl seal.• Must be installed for operation.• Ensures original element must be used.	<ul style="list-style-type: none">• Provides optimum leak-free performance.• Meets system cleanliness requirements.
<ul style="list-style-type: none">• Coreless Ecoglass elements	<ul style="list-style-type: none">• Lightweight, non-metallic.• Ease of service and disposal.	<ul style="list-style-type: none">• Reduces disposal costs.• Can be incinerated.• Low environmental impact in landfills.
<ul style="list-style-type: none">• Spin-on filter assembly w/reuseable bowl	<ul style="list-style-type: none">• Improved, cost-effective design.	<ul style="list-style-type: none">• Easy to maintain.

Specifications

Pressure Ratings:

Maximum Allowable
Operating Pressure (MAOP):
500 psi (34.5 bar)
Fatigue: 400 psi (27.6 bar)
1,000,000 cycles: 0-400 psi
Design Safety Factor: 2.5:1

Operating Temperatures:

Buna: -40°F to 225°F
(-40°C to 107°C)

Element Collapse Rating:

150 psid (10.3 bar)

Element Condition Indicators:

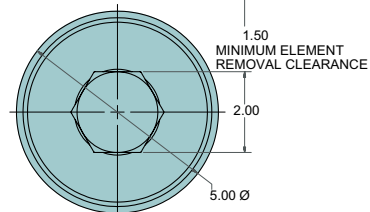
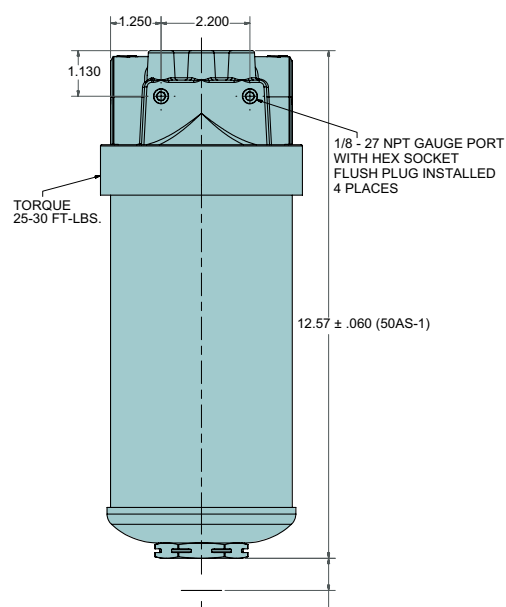
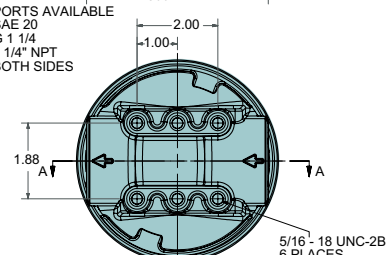
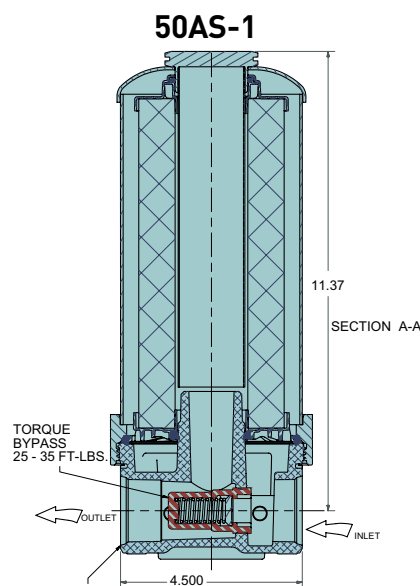
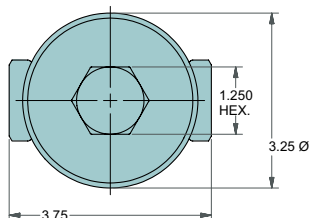
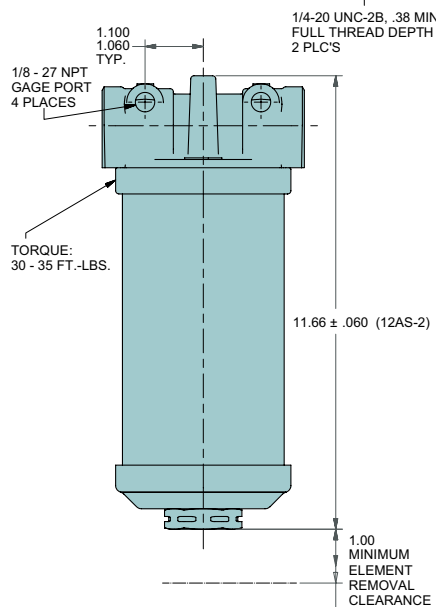
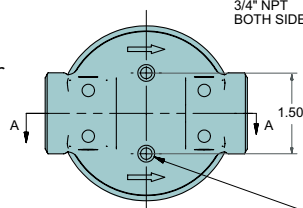
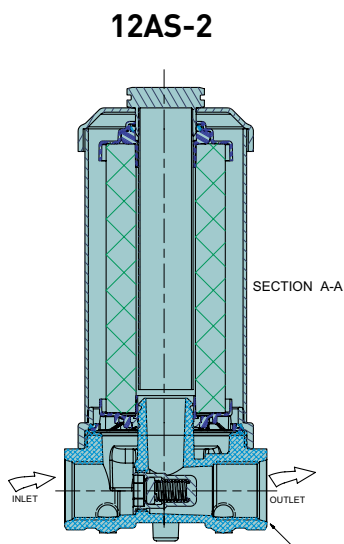
Gauge: 0-60 psi color coded
(For use in low pressure
applications only.)
Pressure Switch: normally open,
20 ± 2 psi, 5A @ 24 VDC

Materials:

Head: die cast aluminum
Bypass valve: nylon with steel spring
Filter element: fiberglass and polyester
with nylon endcaps
Bowl: steel
Permanent core: steel

Weights (approximate):

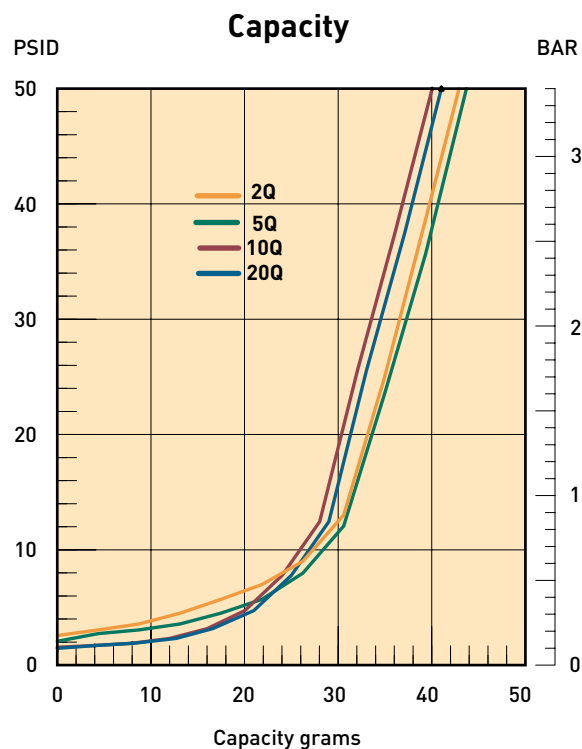
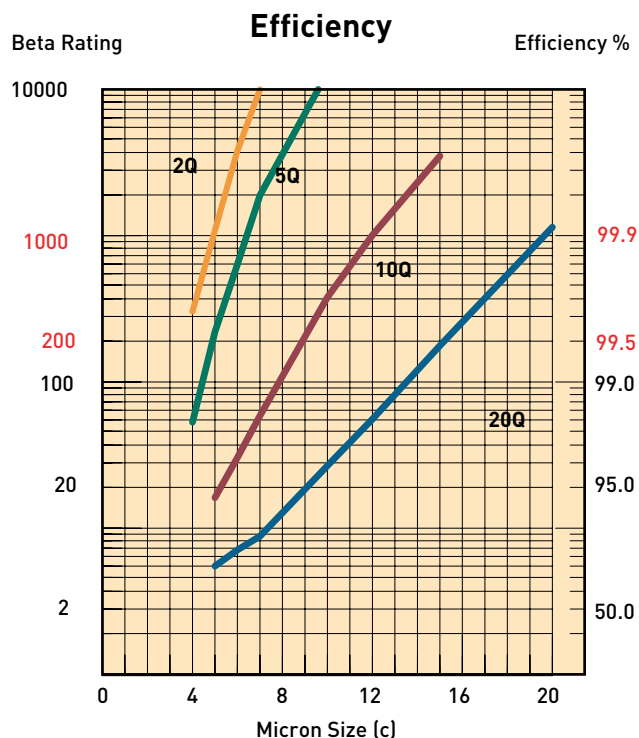
12AS-2.....3lbs. (1.4 kg)
50AS-1.....6lbs. (2.7 kg)



Coreless Spin-on Filters

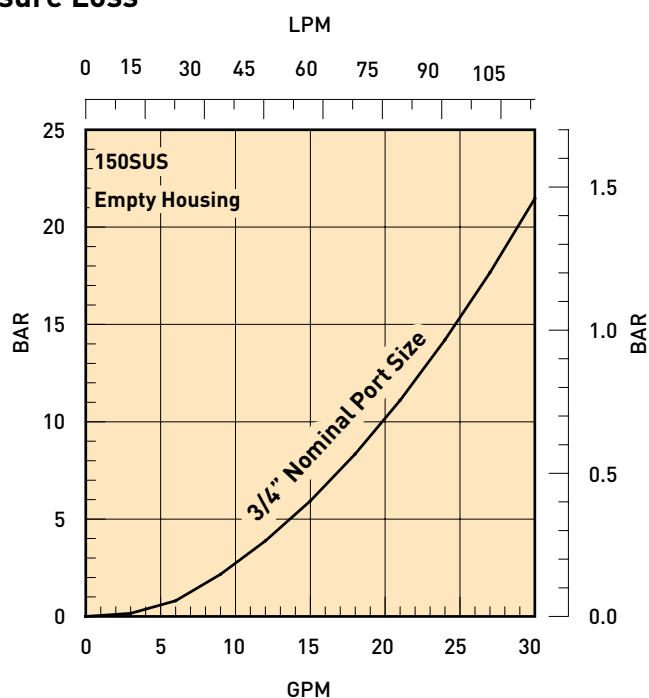
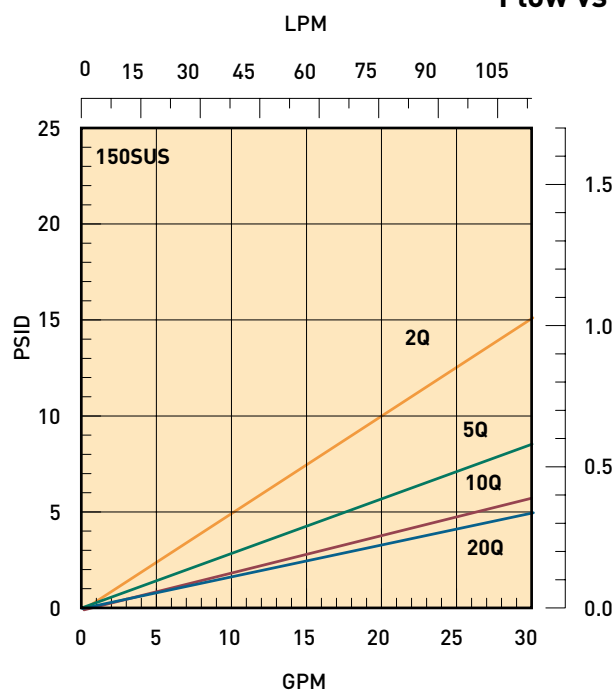
12AS/50AS Series

12AS-2 Performance

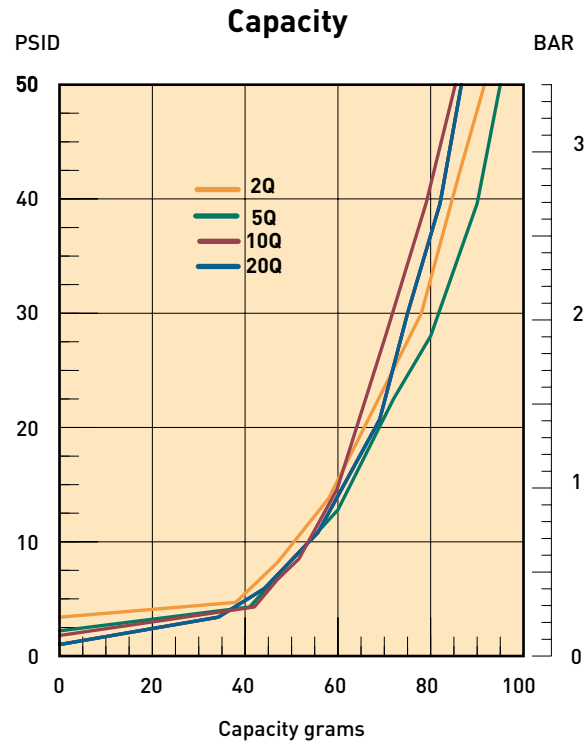
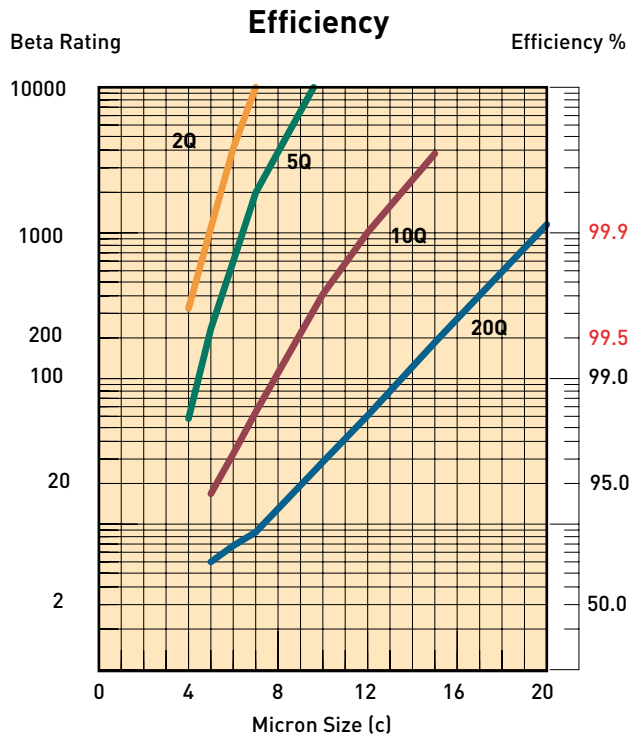


Results typical from Multi-pass tests run per test standard ISO 16889 @ 15 gpm to 50 psid terminal - 10 mg/L BUGL
Refer to Appendix for relationship to test standard ISO 4572.

Flow vs Pressure Loss

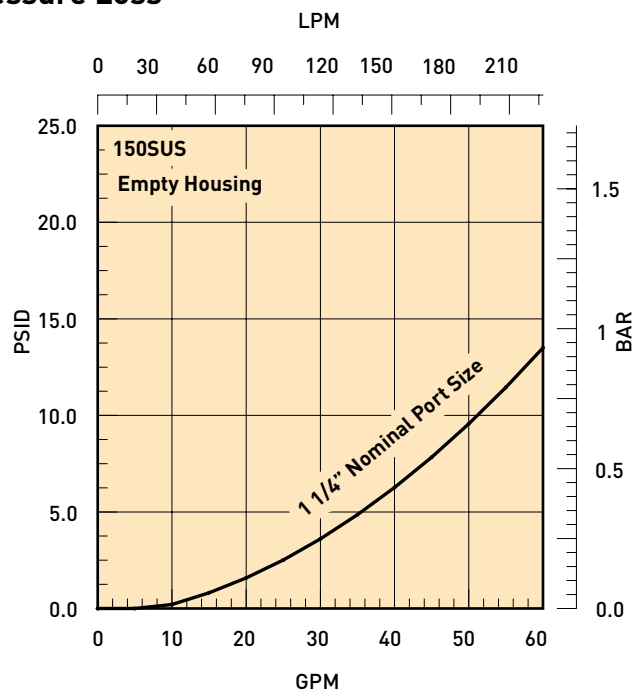
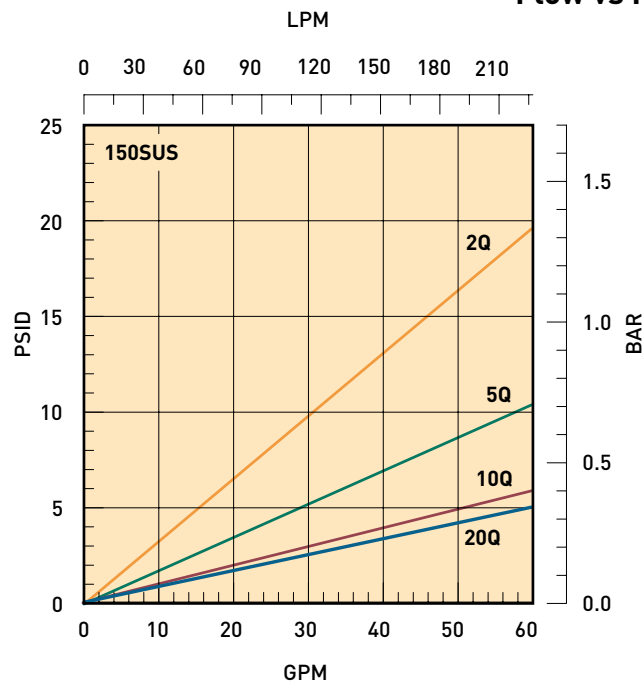


50AS-1 Performance



Results typical from Multi-pass tests run per test standard ISO 16889 @ 30 gpm to 50 psid terminal - 10 mg/L BUGL
Refer to Appendix for relationship to test standard ISO 4572.

Flow vs Pressure Loss



Coreless Spin-on Filters

12AS/50AS Series

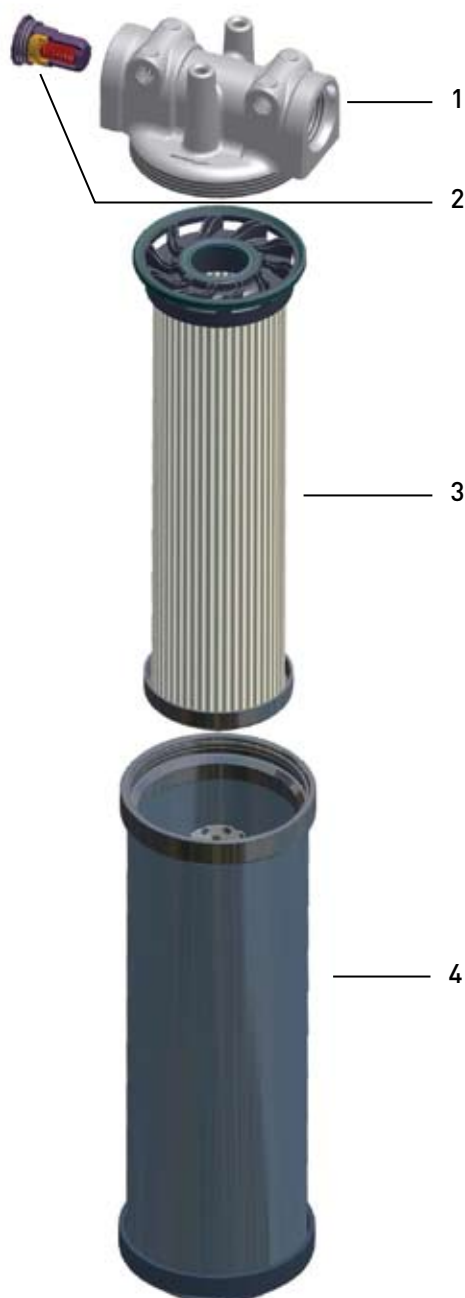
Service Instructions 12AS/50AS Series

Filter Service

Filter element should be replaced as indicated by filter indicator gauge, or at specified service intervals recommended by the OEM.

Replacement element procedure

- Shut down system and release pressure in the filter line.
- Loosen bowl and remove rotating counter clockwise.
- Remove dirty element from filter head and discard.
- Lubricate element seals on clean element and install on filter head element locator.
- Install reusable bowl onto element and filter head. Tighten to specified torque.

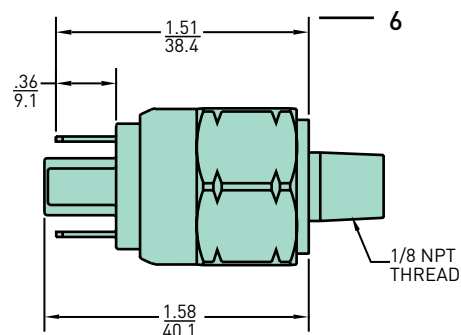


Parts List

Index		12AS	50AS
1	Head		
	SAE-12	937600	N/A
	3/4" NPT	937612	N/A
	G3/4" BSPP	940898	N/A
	SAE-20	N/A	940791
	1 1/4" NPT	N/A	940792
	G1 1/4" BSPP	NA	940918
2	Bypass		
	25 psid assembly	928979	930507
	50 psid assembly	928981	933424
3	Element		
	Single		
	02QE	N/A	940816Q
	05QE	N/A	940817Q
	10QE	N/A	940818Q
	20QE	N/A	940819Q
	Double		
	02QE	940765Q	N/A
	05QE	940764Q	N/A
	10QE	940763Q	N/A
	20QE	940762Q	N/A
4	Bowl		
	Single	N/A	940823
	Double	937599	N/A
5	Gauge		
	50 PSID bypass	936628	936628
	25 PSID bypass	936912	936912
6	Pressure Switch		
	50 PSID bypass	934617	934617
	25 PSID bypass	926923	926923



Indicator Gauge (25 PSI)



Pressure Switch

Linear Measure = inches
mm

Coreless Spin-On Filters

12AS/50AS Series

How To Order

Select the desired symbol (in the correct position) to construct a model code.

Example:

BOX 1	BOX 2	BOX 3	BOX 4	BOX 5	BOX 6	BOX 7	BOX 8
12AS	2	10QE	B	P	G	S12	1

BOX 1: Basic Assembly	
Symbol	Description
12AS	Coreless Spin-On, 20 GPM nominal
50AS	Coreless Spin-On, 40 GPM nominal

BOX 6: Bypass	
Symbol	Description
G	25 PSID (1.7 bar)
K	50 PSID (3.5 bar)

BOX 2: Length	
Symbol	Description
1	Single (50AS model only)
2	Double (12AS model only)

BOX 7: Ports	
Symbol	Description
	<u>12AS</u>
S12	SAE-12 integral threads*
N12	3/4" NPT integral threads
G12	G3/4" BSPP (ISO 220) integral threads
	<u>50AS</u>
S20	SAE-20 integral threads*
N20	1 1/4" NPT integral threads
G20	G1 1/4" BSPP (ISO 220) integral threads

BOX 3: Element Media	
Symbol	Description
02QE	Ecoglass III, 2µm
05QE	Ecoglass III, 5µm
10QE	Ecoglass III, 10µm
20QE	Ecoglass III, 20µm

BOX 4: Seals	
Symbol	Description
B	Nitrile (NBR)
Consult Factory for additional seal options	

*Porting recommended for best delivery.

Symbol	Description
1	No options

BOX 5: Indicator	
Symbol	Description
P	Gauge Ports (4) Plugged

Replacement Elements (Ecoglass)

Media	Filter Model - Nitrile seals	
	12AS-2	50AS-1
02QE	940765Q	940816Q
05QE	940764Q	940817Q
10QE	940763Q	940818Q
20QE	940762Q	940819Q

Accessories

Part Number	Description
936912	Pressure gauge, 2" 0-60 psid (25 psid bypass)
936628	Pressure gauge, 0-100 psid (50 psid bypass)
926923	Pressure switch, 20 ± 2 psid 5A @ 24 VDC (25 psid bypass)
934617	Pressure switch, 43 ± 3 psid (50 psid bypass)

Accessories for use in low pressure application only.



Parker Worldwide Sales Offices

Contact Parker's worldwide service and distribution network by calling:

Argentina • +54 (1) 752 4129
Australia • +61 (2) 634 7777
Austria • +43 (2622) 23501 3
Belgium • +32 (2) 762 1800
Brazil • +55 (11) 3917 1407
Canada • 1-800-272-7537
China • +86 (21) 6249 9755
Czech Republic • +42 (2) 752544
Denmark • +45 (43) 541133
Finland • +358 (0) 8784211
France • +33 (50) 258025
Germany • +49 (69) 311096
Hong Kong • +852 2428 8008
Hungary • +36 (1) 25 22 539
India • +91 (22) 577 1671
Italy • +39 (02) 451921
Japan • +81 (45) 861 3811
Korea • +82 (2) 561 0414
Mexico • 1-800-272-7537
Netherlands • +31 (5410) 85000
New Zealand • +64 (9) 573 1523
Norway • +55 (99) 867760
Poland • +48 (22) 461455
Singapore • +65 261 5233
South Africa • +27 (11) 9703630
Spain • +34 (1) 6757300
Sweden • +46 (8) 760 2960
Taiwan • +886 (2) 781 3206
United Arab Emirates • +971 (2) 788587
United Kingdom +44 1924 487000
United States of America • 1-800-272-7537
Venezuela +58 (2) 238 5422

Filtration Group Technical Sales & Service Locations

Hydraulic Filter Division

16810 Fulton County Road #2
Metamora, OH 43540
Phone: (800) 253-1258
Phone: (419) 644-4311
Fax: (419) 644-6205

Process Advanced Filtration

2340 Eastman Ave.
Oxnard, CA 93030
Phone: (805) 604-3502
Fax: (805) 604-3401

Racor Division

3400 Finch Road
P.O. Box 3208
Modesto, CA 95353
Phone: (800) 344-3286
Phone: (209) 521-7860
Fax: (209) 529-3278

Filtration and Separation, Finite Filter Operation

500 Glaspie Street
Oxford, MI 48371
Phone: (800) 521-4357
Phone: (248) 628-6400
Fax: (248) 628-1850

Filtration and Separation, Balston Operation

242 Neck Road
P.O. Box 8223
Haverhill, MA 01835-0723
Phone: (800) 343-4048
Fax: (978) 858-0625

Filter Division U.K.

Condition Monitoring Centre
Brunel Way
Thetford, Norfolk
IP24 3RT England
Phone: (44) 1842-763299
Fax: (44) 1842-756300

Parker Hannifin Oy Filter Division Europe (Finn Filter Division)

FIN-31700 Urjala As.
Finland
Phone: +358 20 753 2500
Fax: +358 20 753 2502

Parker Hannifin Ind. e Com. Ltda. Filter Division

Av. Getulio Dorneles Vargas
1331/1333
12305-000 Jacarei, SP
Brasil
Phone: 55 12 3955-1000
Fax: 55 12 3955-1010

Parker Hannifin Asia Pacific Company, LTD

902 Dae Heung Bldg.
648-23 Yeoksam-dong
Kangnam-ku, Seoul,
Korea 135-080
Phone: 82 2 561 0414
Fax: 82 2 556 8187

Parker Filtration BV Filter Division Europe

Stieltjesweg 8
6827 BV Arnhem
The Netherlands
Phone: +31 26 3760 376
Fax: +31 26 3643 620



Parker Hannifin Corporation

Hydraulic Filter Division
16810 Fulton County Road #2
Metamora, OH 43540
Phone: (800) 253-1258
Phone: (419) 644-4311
Fax: (419) 644-6205
<http://www.parker.com/hydraulicfilter>