Moduflow™ *Plus* Series

Low Pressure Filters

ENGINEERING YOUR SUCCESS.

Moduflow™ *Plus* Series

Applications

- **Power Unit Fabrication**
- **Off-line Filter Loops**
- **Mobile Equipment**

The Moduflow filter is widely considered the most versatile filter available on the market.

The end cap minimizes turbulence and pressure loss through the filter, improving system performance.

The closed bottom elements for the ILP models insures all contamination remains trapped within the element as the filter is serviced.

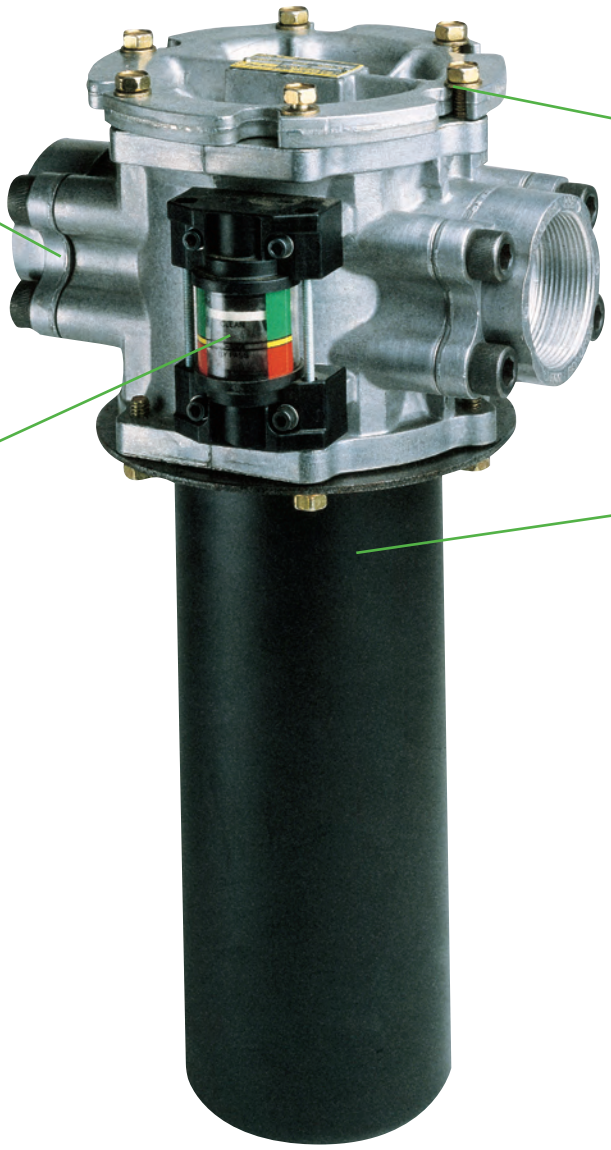
A wide variety of visual and electrical indicators allows you to know exactly when the element needs to be serviced. There is even a "no element" indicator that can sense when there is not an element installed in the filter.

From top to bottom, the Moduflow filter series provides the high level of filtration and long term dependability so vital to today's hydraulic systems.

Parker's Moduflow element was designed with built-in diverter and bypass valve, to meet your application needs.

Moduflow™ *Plus* Series

Features



Flanges
- NPT or SAE ¾” to 2”
- Lightweight aluminum

Cover
- Slotted for quick release
- Lightweight aluminum

Indicators
- Visual or electrical
- Mounted on either side
- Standard “no element” indication

Bowl
- Single or double length
- Durable steel construction

Bypass
(not visible)
- Integral 35 psi bypass replaced with every element change

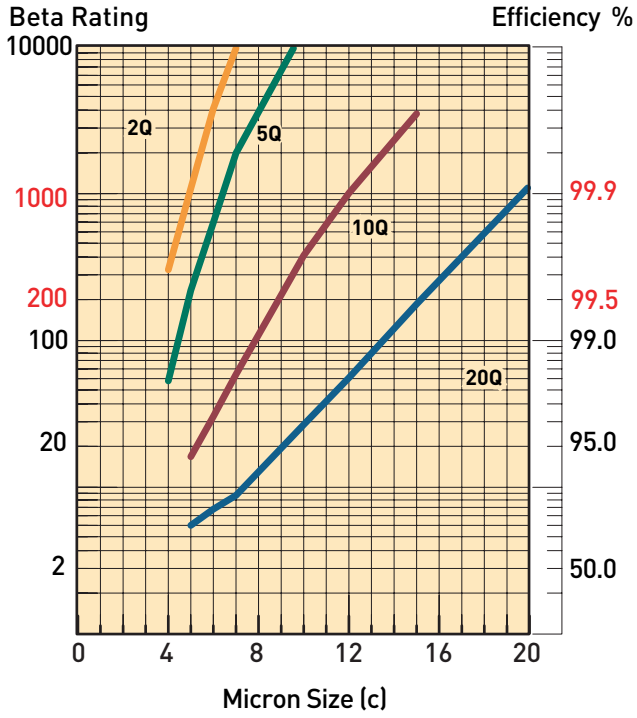
Element
(not visible)
- Available in high performance Microglass media
- Single or double length

Feature	Advantage	Benefit
• Top access element service	• Oil remains in housing • Quicker elements change	• No Spills • Reduced maintenance costs
• Slotted cover	• Quick release cover • Cap screws remain in housing	• Reduced maintenance cost • No loose parts to lose
• Closed bottom elements	• Removes all contaminant during element service	• No downtime contamination from servicing
• Visual or electrical indicators	• Know exactly when to service elements	• Helps prevent bypass condition • No premature disposal
• Flange face ports	• Flexible mounting (3/4” to 2”)	• Easy plumbing to your system

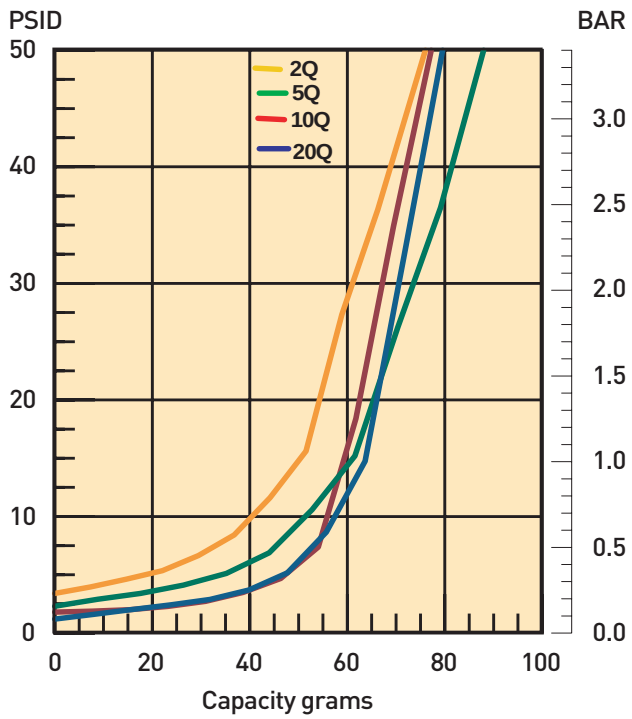
Moduflow™ *Plus* Series

ILP-1 Element Performance

Efficiency

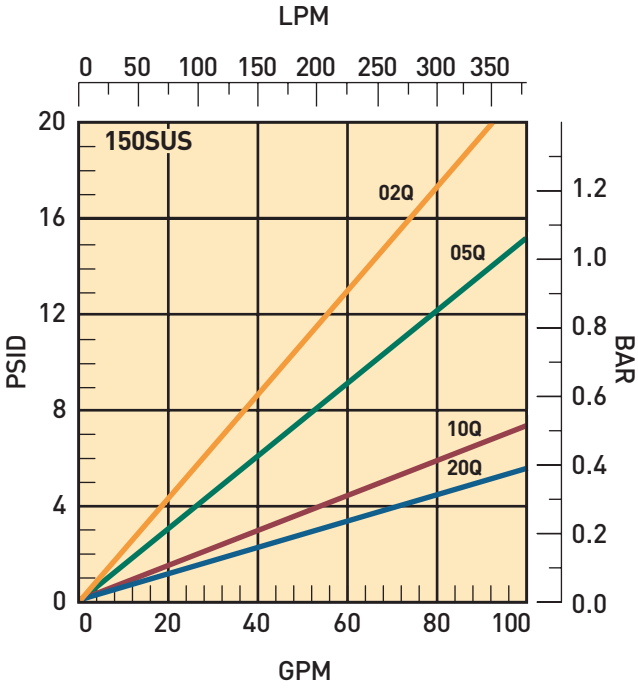


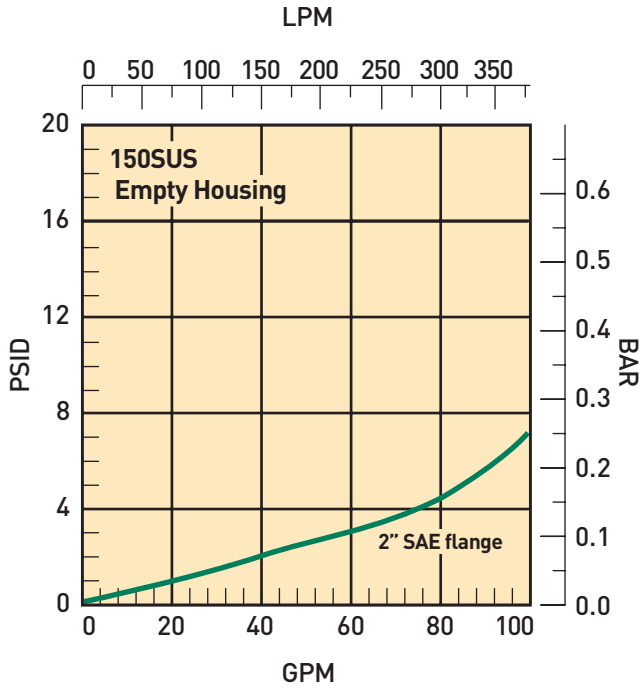
Capacity



Multipass tests run @ 40 gpm to 50 psid terminal - 5mg/L BUGL

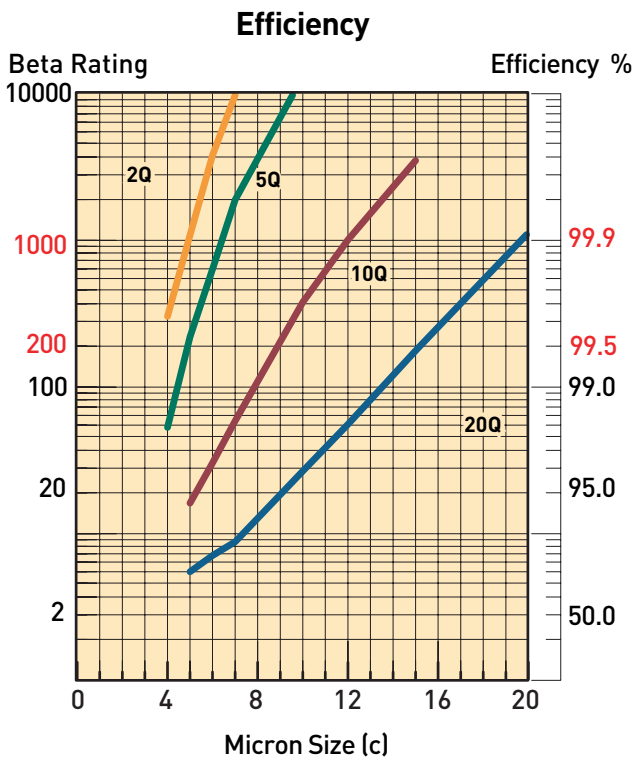
Flow vs. Pressure Loss

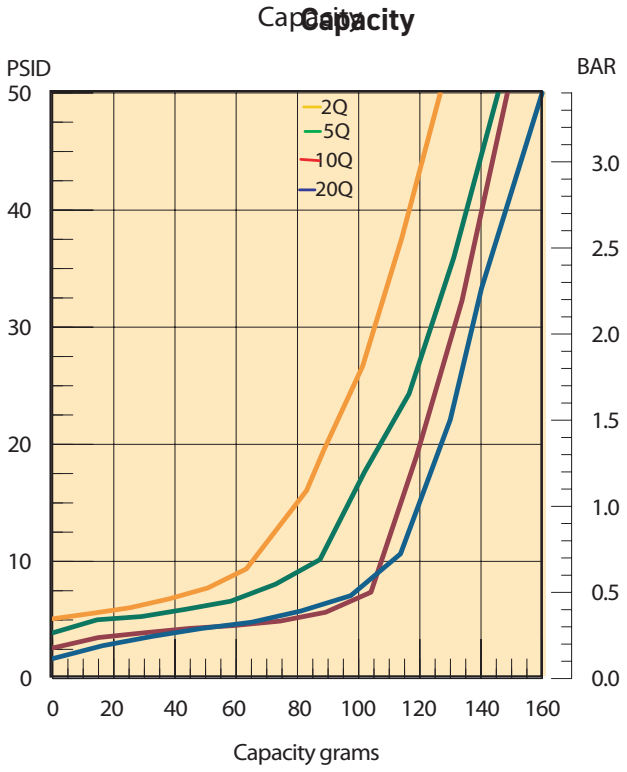




Moduflow™ *Plus* Series

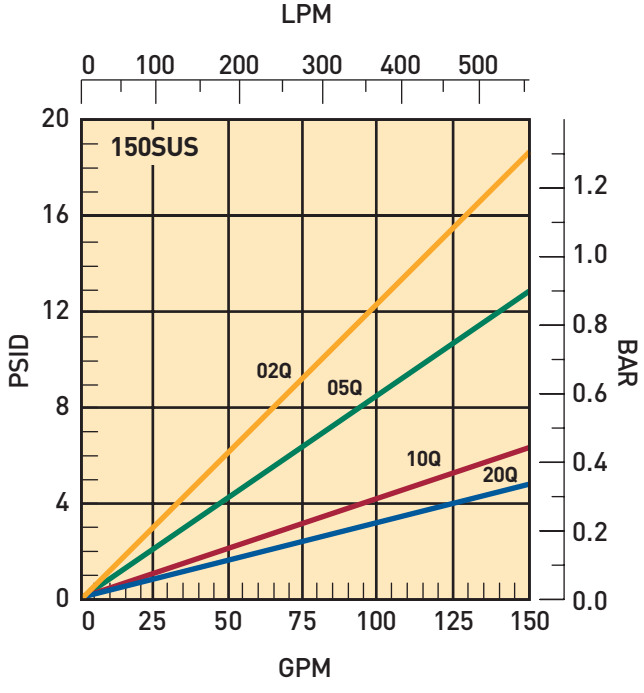
ILP-2 Element Performance

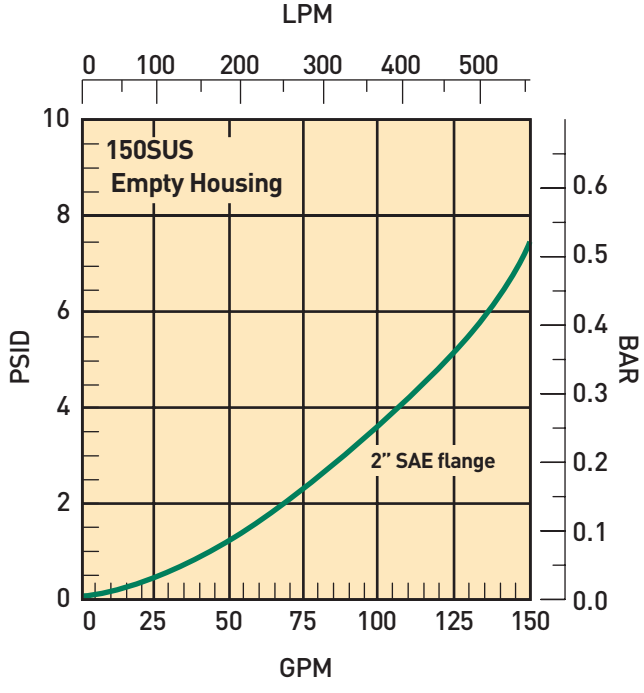




Multipass tests run @ 80 gpm to 50 psid terminal - 5mg/L BUGL

Flow vs. Pressure Loss





Moduflow™ *Plus* Series

Specifications

Pressure Ratings:
Maximum Allowable Operating Pressure (MAOP): 200 psi (13.8 bar)
Design Safety Factor: 2:1
Rated Fatigue Pressure: 150 psi (10.3 bar)

Element Burst Rating: 70 psid (4.8 bar)

Filter Materials:
Head, Cover, Flanges: die cast aluminum
Bowl: steel

Operating Temperatures:
Nitrile: -40°F to 225°F (-40°C to 107°C)
Fluorocarbon: -15°F to 275°F (-26°C to 135°C)

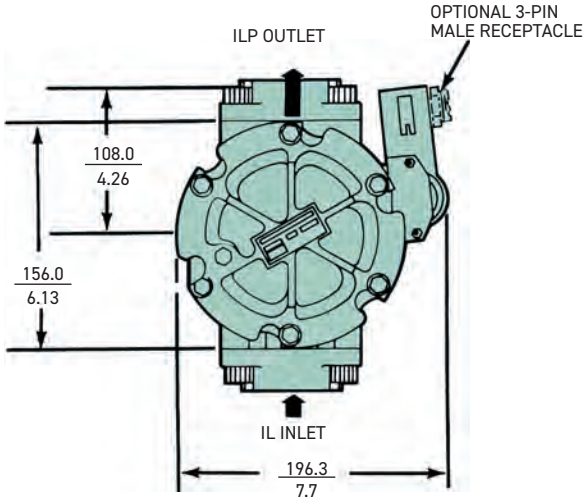
Weight (approximate):
Single: 20 lbs. (9.1 kg)
Double: 25 lbs. (11.3 kg)

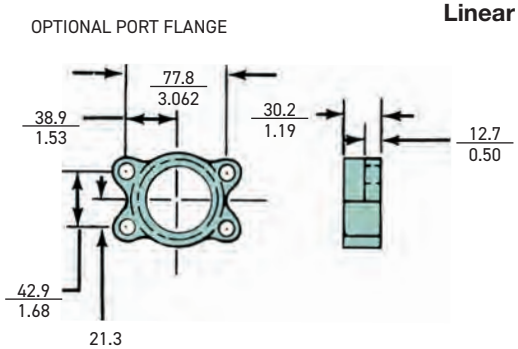
Indicators:
Visual (optional)
Electrical (optional) 15A @ 125VAC / .5A @ 125 VDC
Electrical ("D" option) 5A @ 250VAC / 3A @ 28 VDC

Color Coding:
White (normally closed)
Red (normally open)
Black (common)

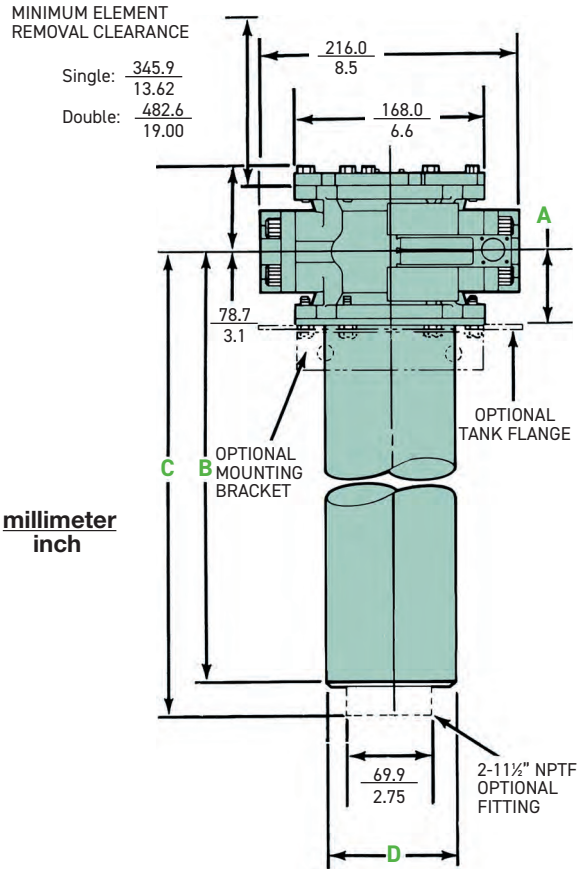
Model	Dimensions: mm/inch			
	A	B	C	D
ILP-1	65.0 2.56	336.0 13.24	N/A	117.1 4.61
ILP-2	68.3 2.69	618.0 24.32	N/A	117.1 4.61

Drawings are for reference only.
Contact factory for current version.





Linear Measure: millimeter / inch



Moduflow™ *Plus* Series

Drawings are for reference only.
Contact factory for current version.

Specifications: DILP

Pressure Ratings:
Maximum Allowable Operating Pressure (MAOP): 200 psi (13.8 bar)
Design Safety Factor: 2:1
Rated Fatigue Pressure: 150 psi (10.3 bar)

Element Burst Rating: 70 psid (4.8 bar)

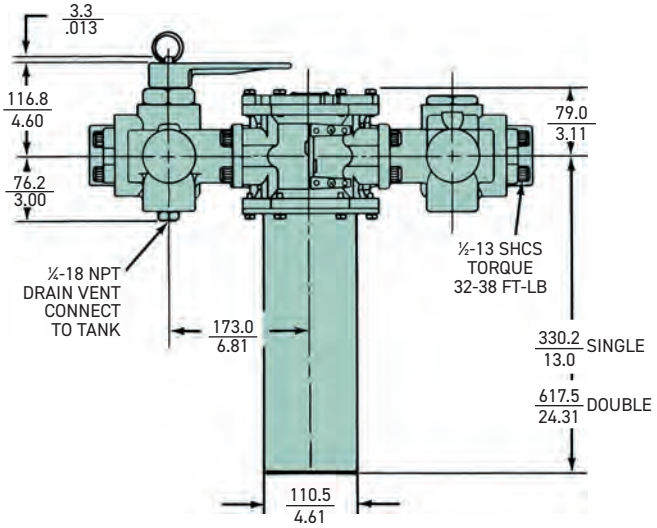
Filter Materials:
Diverter Valve Assembly: die cast aluminum
Check Valve Assembly: die cast aluminum
Filter Assembly: see IL2 specifications

Operating Temperatures:
Nitrile: -40°F to 225°F (-40°C to 107°C)
Fluorocarbon: -15°F to 275°F (-26°C to 135°C)

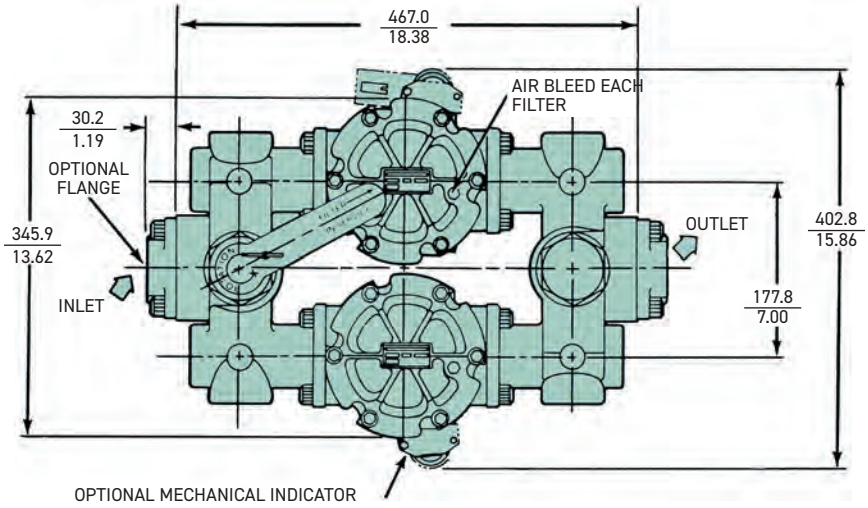
Weight (approximate):
Single: 55 lbs. (24.9 kg) / Double: 65 lbs. (29.5 kg)

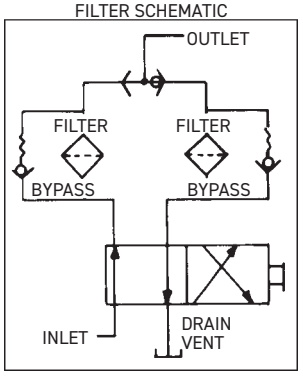
Indicators:
Visual (optional)
Electrical (optional) 15A @ 250VAC / .5A @ 125 VDC
Electrical ("D" option) 5A @ 250VAC / 3A @ 28 VDC

Color Coding:
White (normally closed)
Red (normally open)
Black (common)



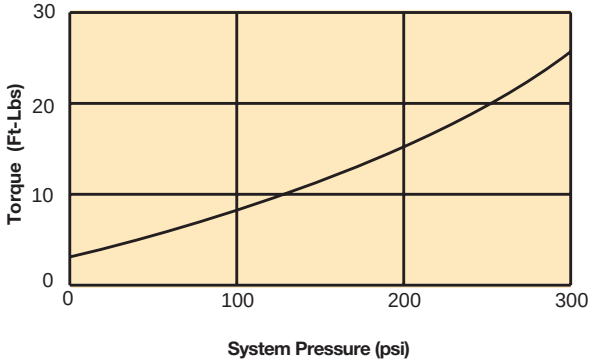
Linear Measure: millimeter / inch



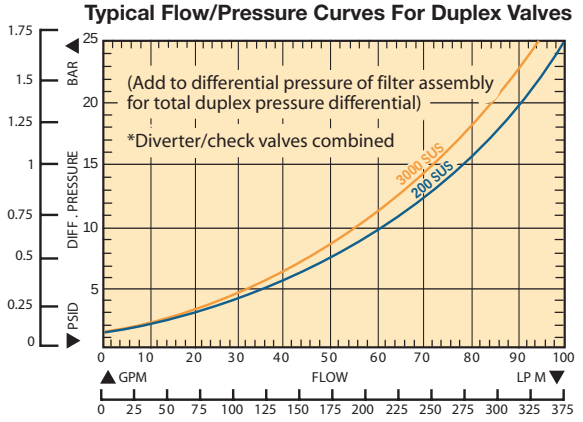


BOTH CHECK VALVES MOVE SAME DIRECTION

Approximate handle torque required for changeover.



Typical Flow/Pressure Curves For Duplex Valves



Moduflow™ *Plus* Series

Specifications

Manifold Specifications

Rated Static Pressure, max.:
20.7 bar (300 psi)
Typical Burst Pressure:
62.1 bar (900 psi)
Operating Temperature (Nitrile seals): -40°C to 121°C (-40°F to 250°F)

Housing Material:
ANSI 356-T6 cast aluminum

Approximate Shipping Weight:
3.6 kg (8 lbs)

Porting: See Options Below

Screws & O-Rings Separately:
Inlet & outlet screws (12 required):
P/N 900228

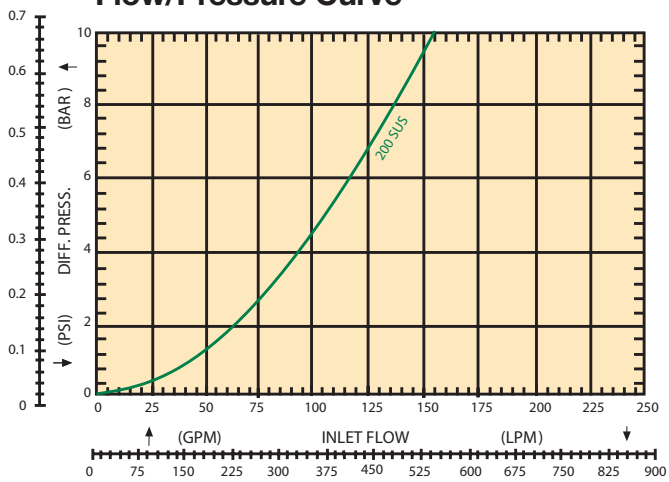
Outlet port o-rings (2 required):
Nitrile: P/N N72228
Fluorocarbon: P/N V92228

High Flows At Low Cost

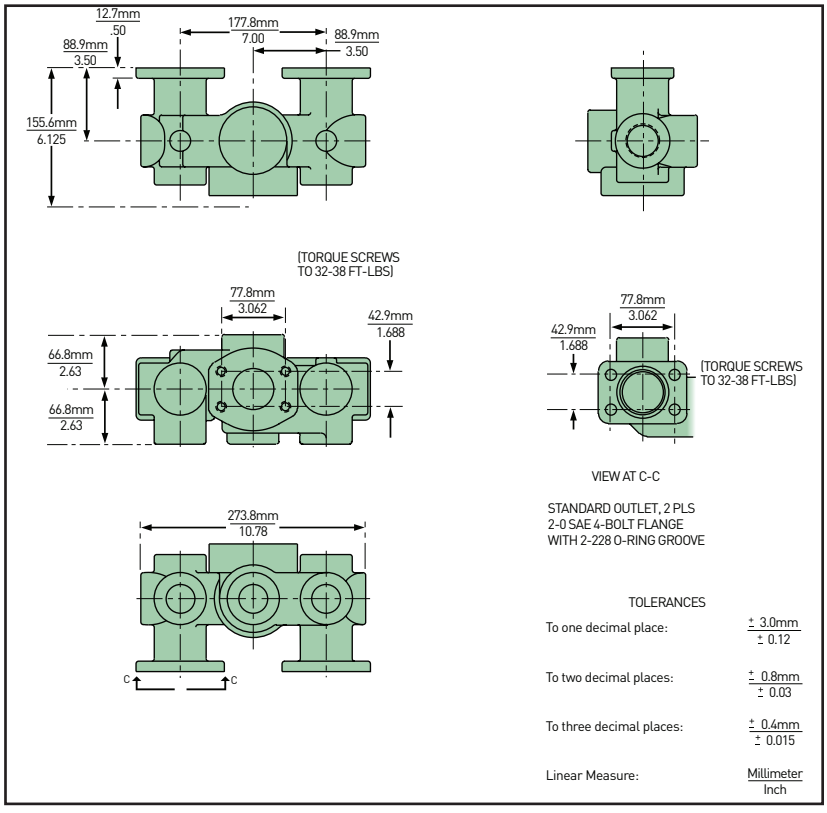
The model MM is designed to extend the flow range of Moduflow™ Filters when operating with 10 Micron and finer filter media. When mounted to a pair of ILP-2 filters, this manifold will allow flows up to 130 gpm in return lines (15 fps velocity).

Note: The Model MM is not applicable to suction lines due to its pressure drop characteristics.

Flow/Pressure Curve



INSTALLATION DIMENSIONS



How to order manifolds

Part Number	Description
926466	Moduflow Manifold (MM)

* Inline mounted ILP filters will require two manifolds on both inlets and outlets.

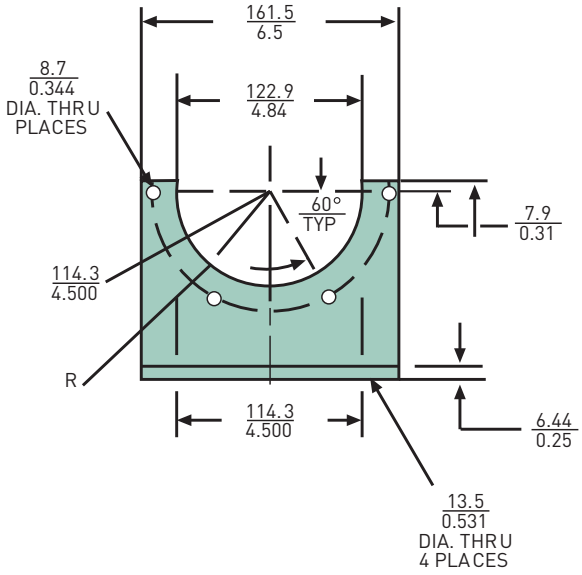
Drawings are for reference only.
Contact factory for current version.

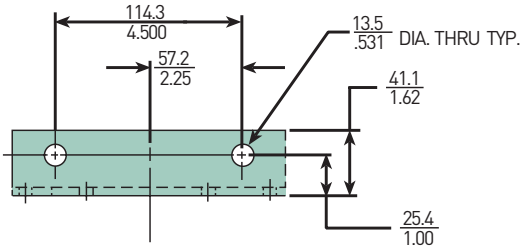
Moduflow™ *Plus* Series

Accessories

Linear Measure: millimeter / inch

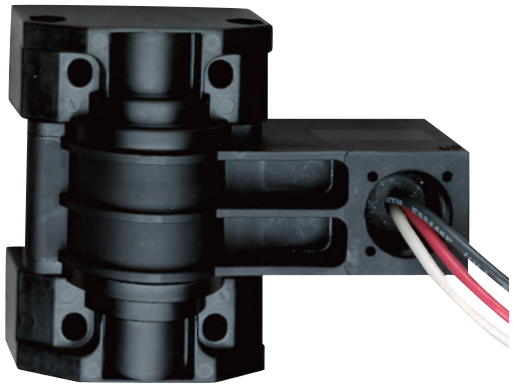
OPTIONAL MOUNTING BRACKET (924904)





"M" OPTION-VISUAL INDICATOR, NO ELEMENT WARNING

"E" OPTION-ELECTRICAL INDICATOR 926643



Black - Common
White - Normally Closed
Red - Normally Open

Parts List

Flange Kits (flange, 4 bolts, o-ring)

		Part Number	
Size	Code	Nitrile	Fluorocarbon
¾ inch NPTF	YB	924788	926013
1 inch NPTF	YC	924787	926012
1¼ inch NPTF	YD	924912	926004
1½ inch NPTF	YE	924786	926011
2 inch NPTF	YF	924785	926010
SAE - 12	YM	924784	926009
SAE - 16	YN	924783	926008
SAE - 20	YO	924913	926005
SAE - 24	YP	924782	926007
BLANK FLANGE	—	924781	926006

Drawings are for reference only.
Contact factory for current version.

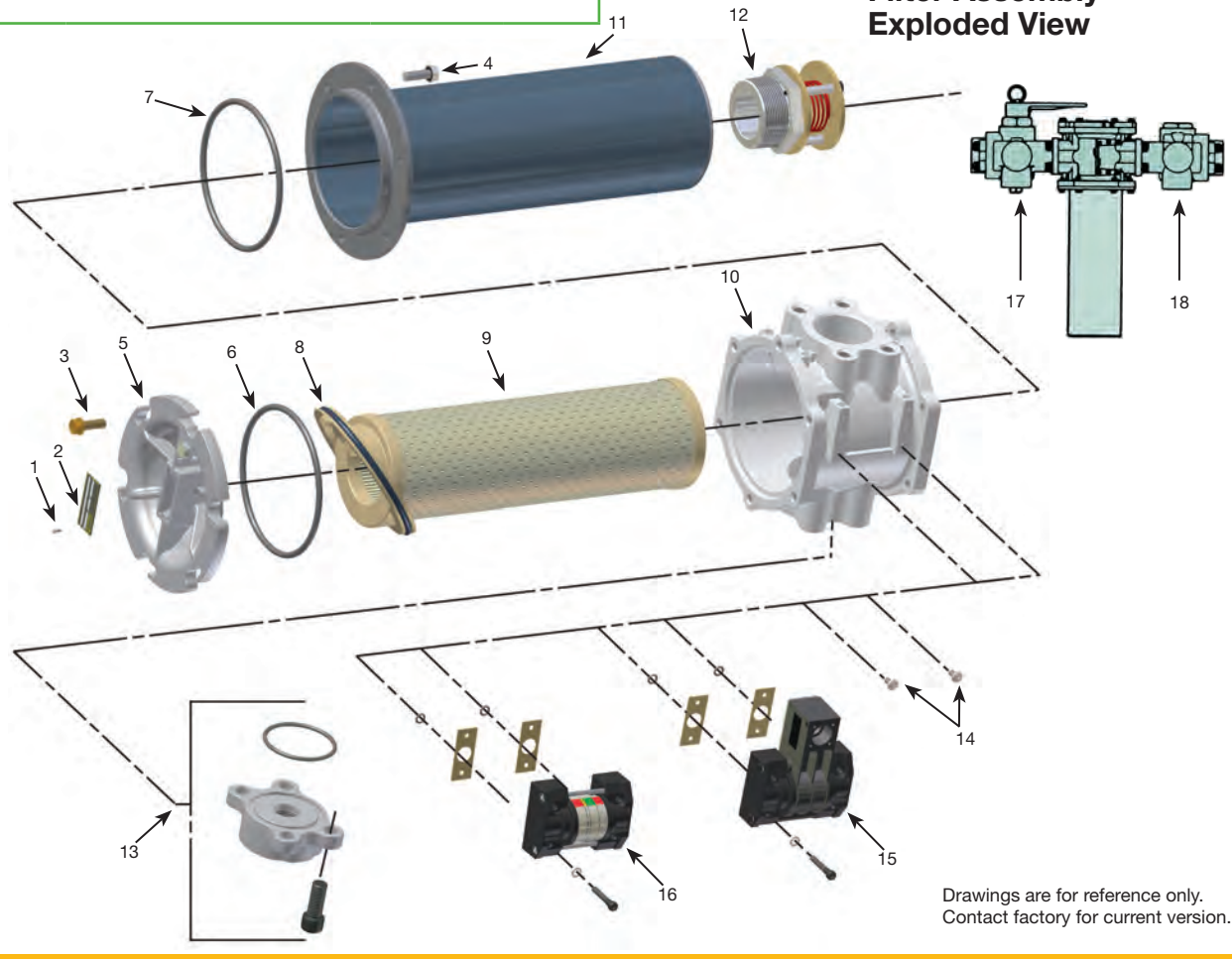
Moduflow™ *Plus* Series

Parts List

Index	Description	Part No.	Quantity
1	Screws, Nameplate	900028	2
2	Name Plate, Unstamped	920928	1
3	Cover Screws, 5/16-18 UNC x 1”	926633	6
4	Bowl Screws, 5/16-18 UNC x 1”	926633	6
5	Cover, Without nameplate	924634	1
6	Cover O-Ring Nitrile Fluorocarbon	 N72350 V72350	 1 1
7	Bowl O-Ring Nitrile Fluorocarbon	 N72251 V72251	 1 1
8	Element Seal Nitrile Fluorocarbon	 937410 937411	 1 1
9	Element	Refer to Table	1
10	Head, Machined only 2” SAE flange face SAE-24 combination inlet port	 941160	 1
11	Bowl, Select desired model ILP-1 ILP-2	 925916 924816	 1

Index	Description	Part No.	Quantity
12	Check Valve Assy.	925120	1
13	Flange Kits O-Ring	Refer to Table V72228	1 1
14	Plug Kit, Fastener, self-sealing, O-ring seal included with fastener	925974	2
15	Indicator Electrical 35 psid 35 psid, 3-pin male receptacle Gasket O-Ring	 926643 926753 926126 V72010	Optional 2 2
16	Indicator Visual 35 psid 4-band Bracket, Inline mounting Indicator Kit, Remote mount	 926748 924904 924894	Optional Optional Optional
17	Changeover Valve Assy., Duplex	926758	Optional
18	Check Valve Assy., Duplex	926757	Optional
Not Shown	Check Valve Assy., Duplex	N72265	1

Filter Assembly Exploded View



Drawings are for reference only.
Contact factory for current version.

Moduflow™ Plus Series[1]

Low pressure filters

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
ILP	1	10Q	B	MP	35	Y9Y9	1

BOX 1: Filter Series

Symbol	Description
ILP	Inline filter
ILPW	Inline filter anodized for HWCF fluid
DILP	Inline duplex filter
DILPW	Inline duplex filter anodized for HWCF fluid

BOX 2: Element Length

Symbol	Description
1	Single
2	Double

BOX 3: Media Code

Symbol	Description
02Q	Microglass, 2 micron
05Q	Microglass, 5 micron
10Q	Microglass, 10 micron
20Q	Microglass, 20 micron
WR	Water Removal

BOX 4: Seals

Symbol	Description
B	Nitrile
E[2]	Ethylene Propylene
V	Fluorocarbon

BOX 5: Indicator[3]

Symbol	Description
P	Pressure ports drilled/ plugged
M	Visual indicator w/ "no element" warning
MM	Visual indicator (DILP)
E	Electrical indicator w/ 12" leads
EE	Electrical indicator (DILP)
D	Electrical indicator w/ 3-pin male quick disconnect
DD	Electrical 3-pin indicator (DILP)

BOX 6: Bypass

Symbol	Description
35	35 psid (2.4 bar)

BOX 7: Ports[4]

Symbol		Description
ILP	Y9Y9	2" SAE Flange Face /SAE-24 combination inlet port
DILP	Y9Y9	2" SAE Flange Face only

BOX 8: Options

Symbol	Description
1	None

1. Filters include the element you select already installed.
2. Par-Gel™ Water Removal (WR) elements are not available with EPR seals.
3. Two letters are required for the indicator code.
4. See Flange Kits table for port flange options. Flange Kits are ordered separately.

ILP / DILP Replacement Elements

	Nitrile Seals		Fluorocarbon Seals	
Media	Single	Double	Single	Double
02Q	937393Q	937397Q	937401Q	937405Q
05Q	937394Q	937398Q	937402Q	937406Q
10Q	937395Q	937399Q	937403Q	937407Q
20Q	937396Q	937400Q	937404Q	937408Q
WR	940733	940734	940735	940736

12CS/50CS Series

Coreless Medium Pressure Filters

ENGINEERING YOUR SUCCESS.

12CS/50CS Series

Applications

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 Microglass filtration, without the environmental impact.

The new environmentally-friendly 12CS and 50CS hydraulic filters feature a reusable bowl and filter element constructed of reinforced polymer end caps, microglass media, and polymer pleat support. 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.

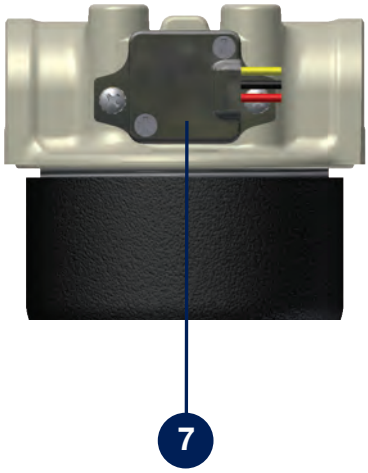
The 500 psi filters are rated up to 50 gpm, with premium elements as standard offerings. The element design also prevents filter operation if the proper element is not in place.

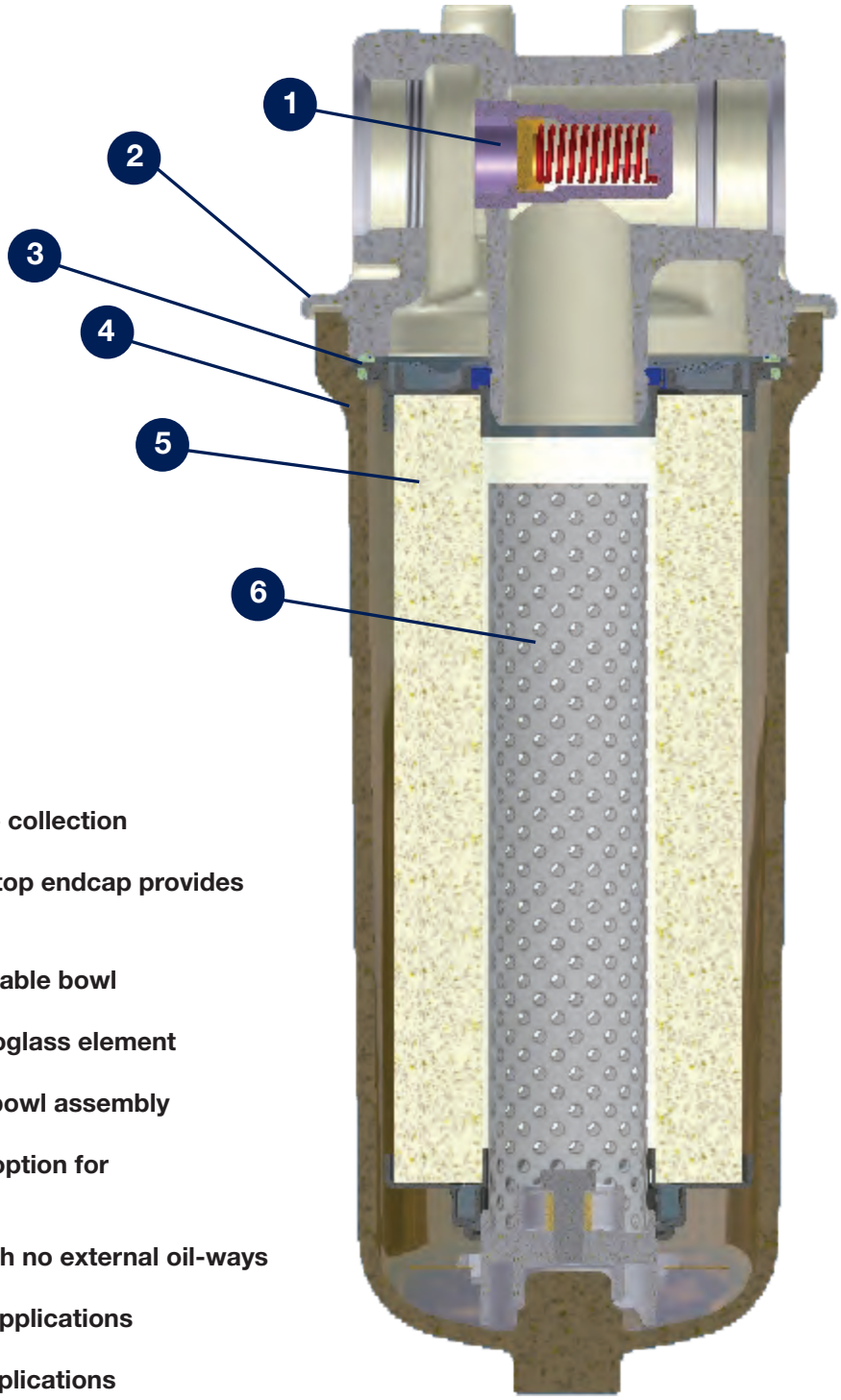
Typical Applications

- **Mobile Ag**
- **Mobile Construction**
- **Material Handlers**
- **Aerial Lifts**
- **Pilot Lines**
- **Charge Pump Hydrostatic Drives**
- **Industrial Power Units**
- **Machine Tools**
- **Joy Stick Controls**

12CS/50CS Series

Features



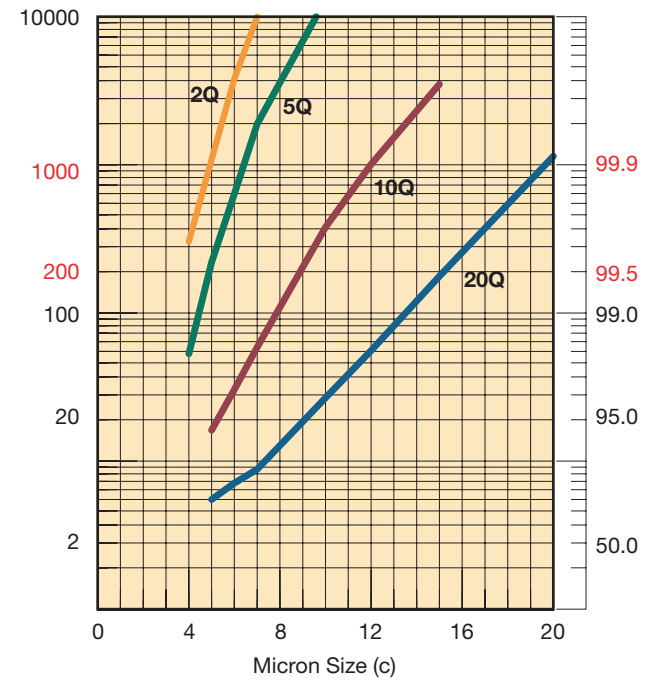


1. Zero leakage bypass valve
2. Drip edge to avoid moisture collection
3. Flow diverting overmolded top endcap provides head/bowl seal
4. Spin-on assembly with reusable bowl
5. Coreless non-metallic Microglass element
6. Permanent core as part of bowl assembly
7. Analog or switch indicator option for predictive maintenance
8. Indicators sense delta P with no external oil-ways
9. Rugged design for mobile applications
10. Upgrade for spin-on can applications
11. Low cost manifold mount option available

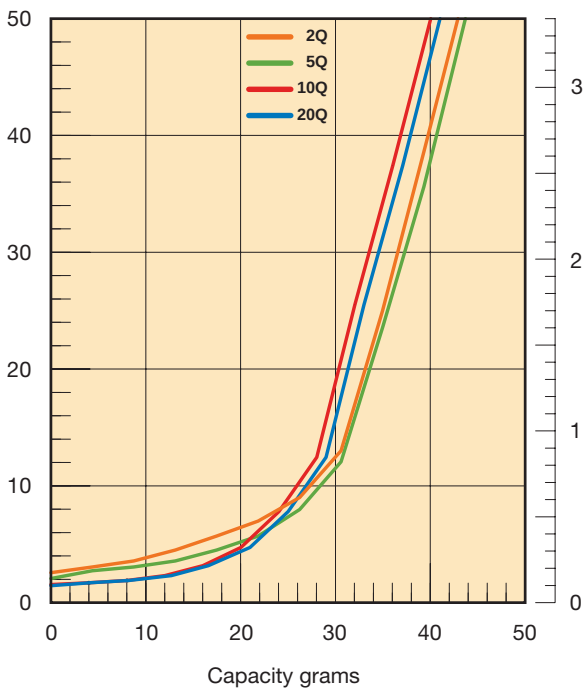
12CS Series

Performance

Efficiency

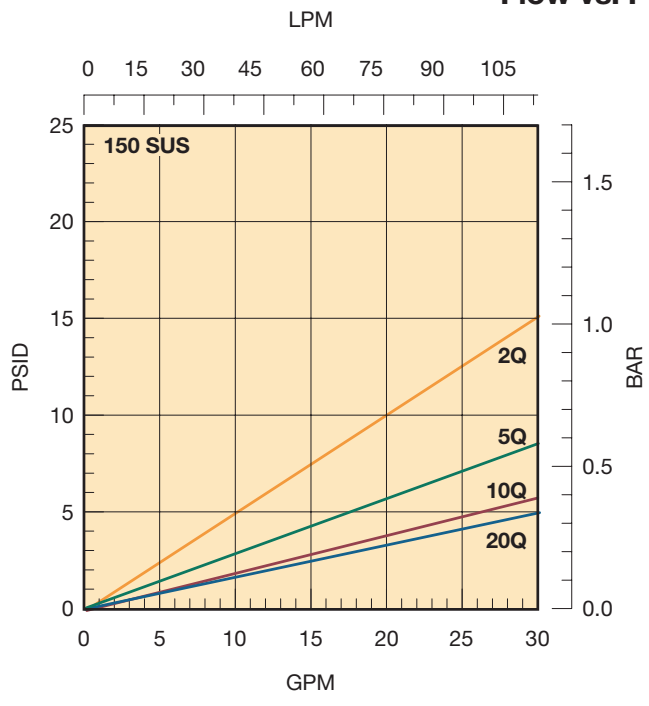


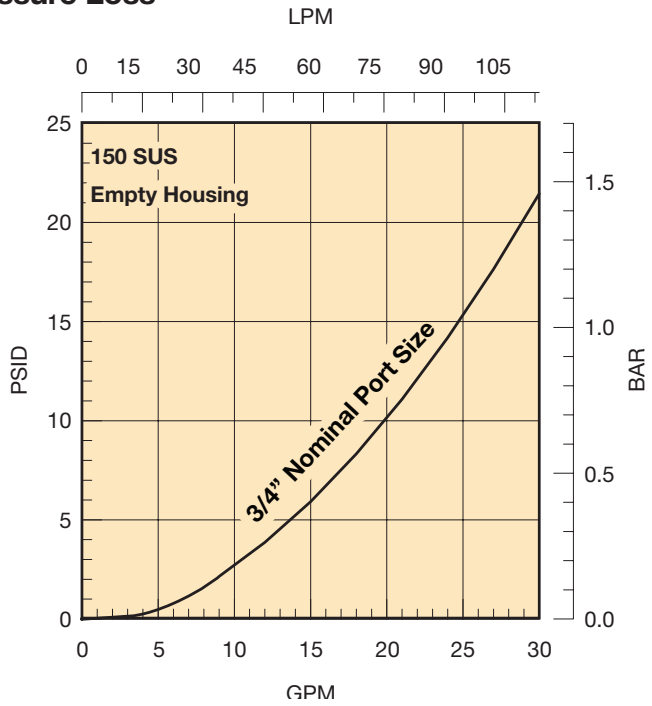
Capacity



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

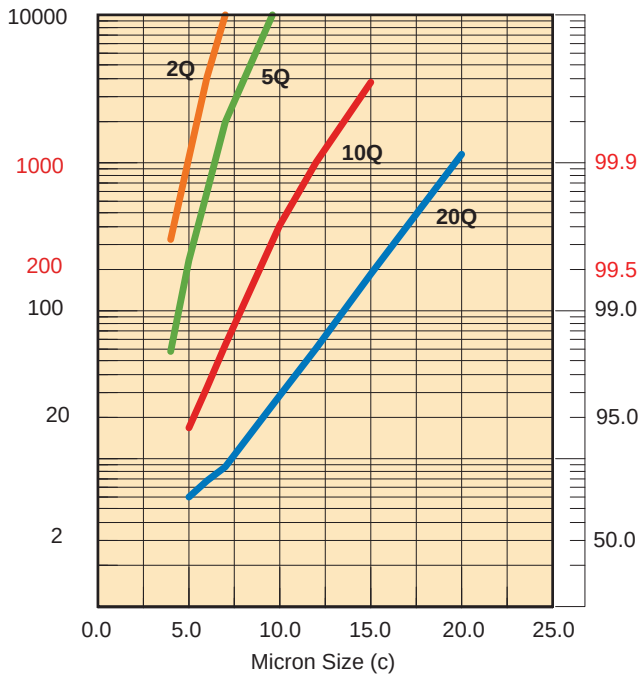




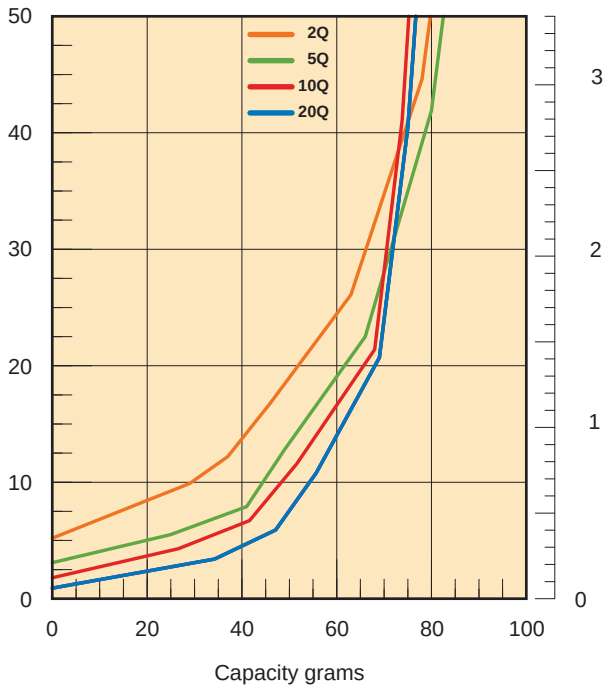
50CS Series

Performance

Efficiency

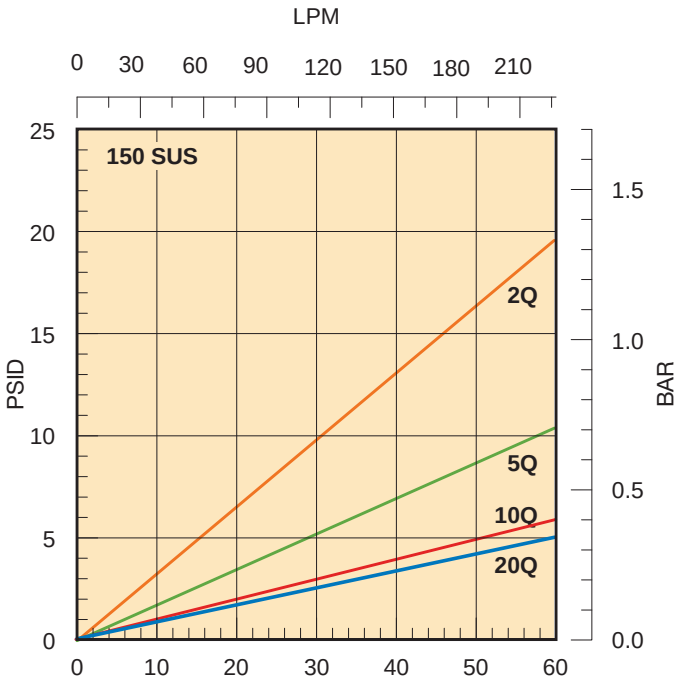


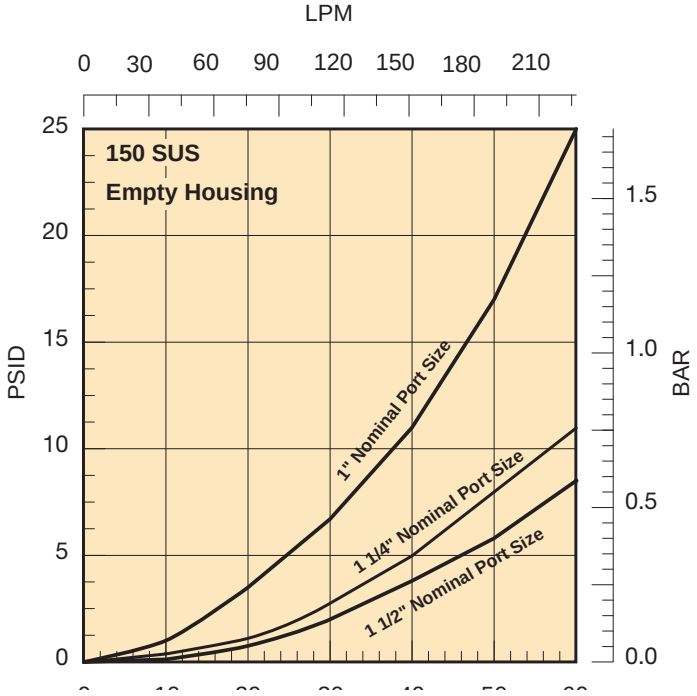
Capacity



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





12CS Series

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:

Nitrile: -40°F to 225°F (-40°C to 107°C)

Fluorocarbon: -15°F to 225°F (-26°C to 107°C)

Element Collapse Rating:

150 psid (10.3 bar)

Weights (approximate):

12CS-2.....3 lbs. (1.4 kg)

Materials:

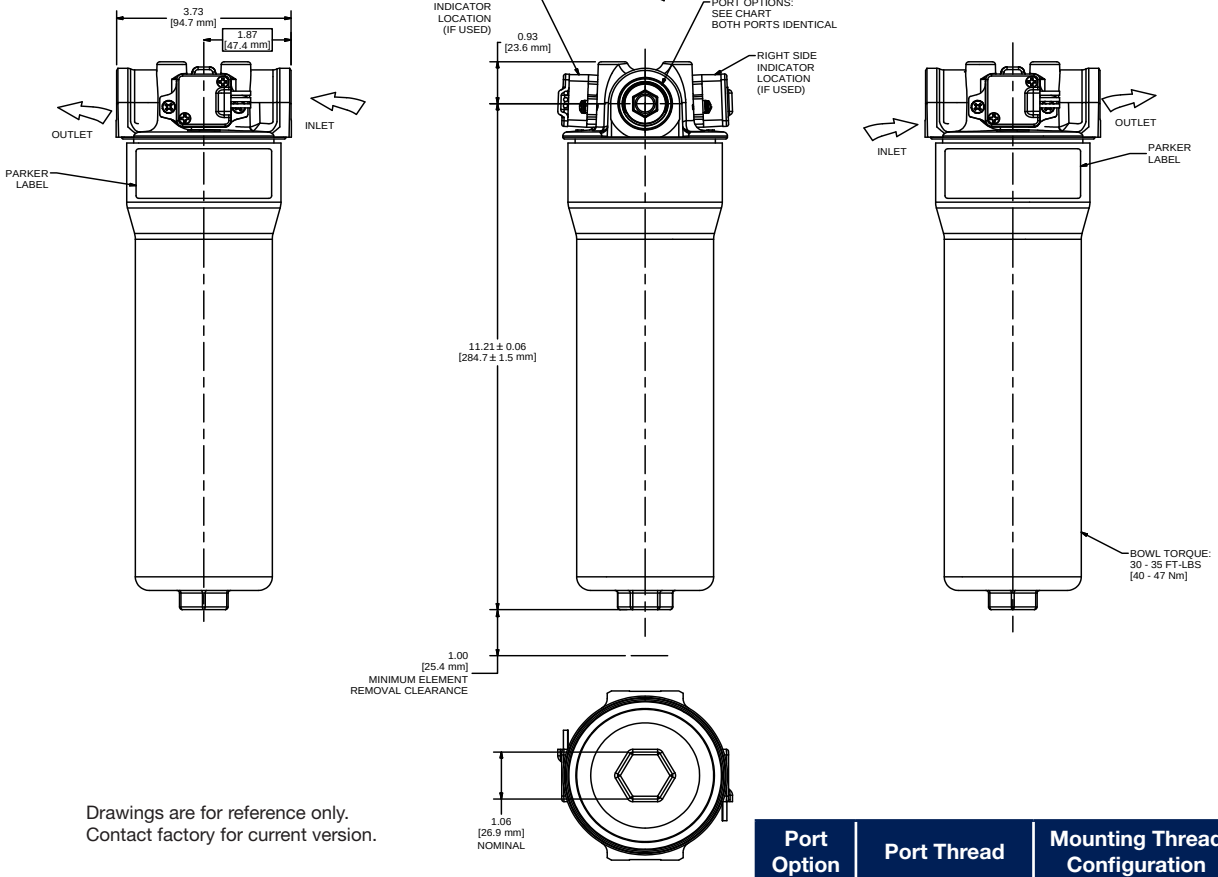
Head: cast aluminum

Bypass valve: nylon with steel spring

Filter element: reinforced polymer end caps, microglass media, and polymer pleat support

Bowl: wrought aluminum

Permanent core: steel



Drawings are for reference only.
Contact factory for current version.

Port Option	Port Thread	Mounting Thread Configuration
S12	1-1/16”-12 UN-2B	3/8” x 16 x 5/8”
N12	3/4”-14 NPTF-1	3/8” x 16 x 5/8”
G12	G3/4” BSPP	3/8” x 16 x 5/8”

50CS Series

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:

Nitrile: -40°F to 225°F (-40°C to 107°C)

Fluorocarbon: -15°F to 225°F (-26°C to 107°C)

Element Collapse Rating:

150 psid (10.3 bar)

Weights (approximate):

50CS-1.....6 lbs. (2.7 kg)

Materials:

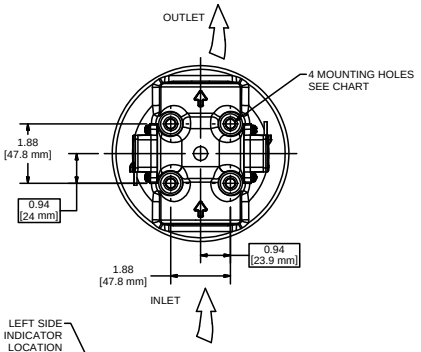
Head: cast aluminum

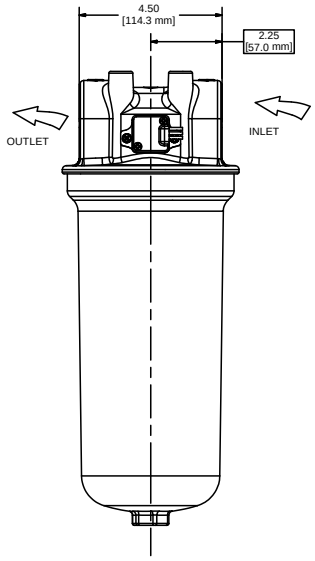
Bypass valve: nylon with steel spring

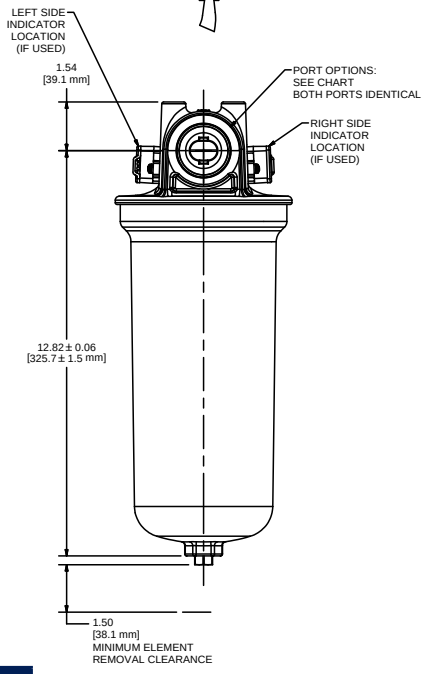
Filter element: reinforced polymer end caps, microglass media, and polymer pleat support

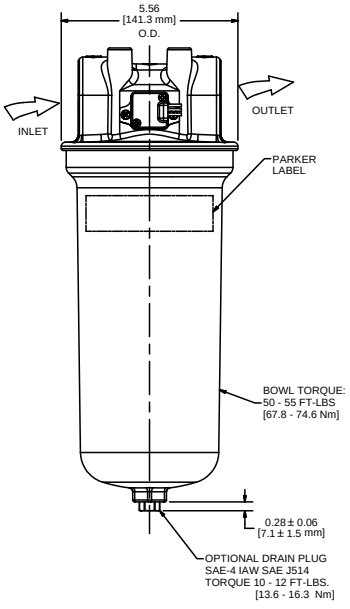
Bowl: cast aluminum

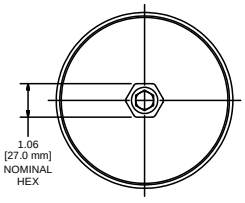
Permanent core: steel











Port Option	Port Thread	Mounting Thread Configuration
S16	1-5/16”-12 UN-2B	3/8” x 16 x 5/8”
S20	1-5/8”-12 UN-2B	3/8” x 16 x 5/8”
S24	1-7/8”-12 UN-2B	3/8” x 16 x 5/8”
N16	1”-11.5 NPT -1	3/8” x 16 x 5/8”
N20	1-1/4”-11.5 NPTF-1	3/8” x 16 x 5/8”
N24	1-1/2”-11.5 NPTF-1	3/8” x 16 x 5/8”
G20	G1-1/4” BSPP	M10 x 1.5 x 16

Drawings are for reference only. Contact factory for current version.

12CS/50CS Series

Element Condition Indicators

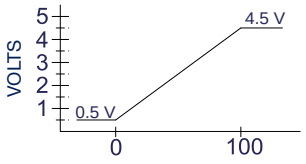
1. **Electrical Switch**
   - Connector: 12” wire leads, 18 Gauge
   - Yellow (NC), black (NO), Red (C)
   - Maximum switching voltage: 30V (DC/AC)
   - Maximum switching current 0.2A
   - Maximum carry current: 0.5A
   - Approvals: CE, IP68

2. **Analog Sensor**
   - Supply voltage: 4.5 to 5.5 VDC
   - Maximum output current: 1 mA
   - Output voltage: Ratiometric (see graph)
   - Approvals: CE, IP68
   - Connector: 12” wire leads, 18 Gauge
     Yellow (analog out)
     Black (OV)
     Red (supply +5 V)

3. **Visual Indicator**
   - Push to test
   - Battery operated
   - Visual LED (red = change element)

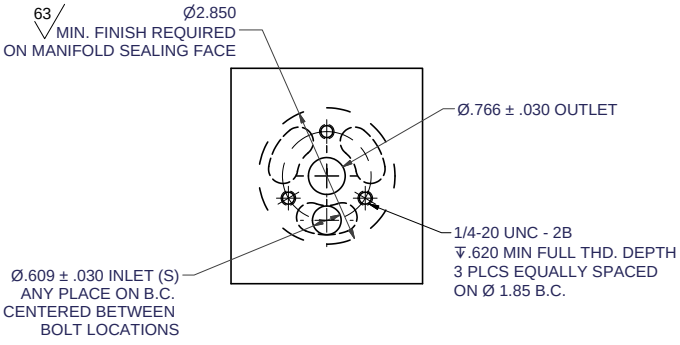
Electrical Switch
or Analog Sensor

Visual Indicator

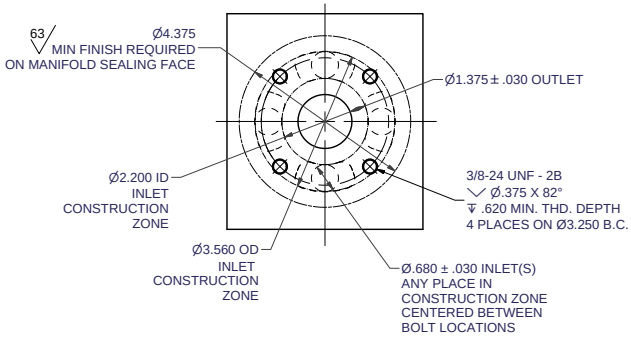


ELEMENT LOAD CONDITION
(% LOADED)

Suggested Manifold Mounting Arrangement
(Consult Factory for Application Specifics)



12CS Adaptor Mounting Arrangement



50CS Adaptor Mounting Arrangement

Manifold Block by Customer

Drawings are for reference only.
Contact factory for current version.

Manifold Adaptor Kits*				
Media	02QE	05QE	10QE	20QE
12CS	942204	942205	942206	942207
50CS	942208	942209	942210	942211

* Kit includes O-rings, adaptor, mounting screws, element and bowl.

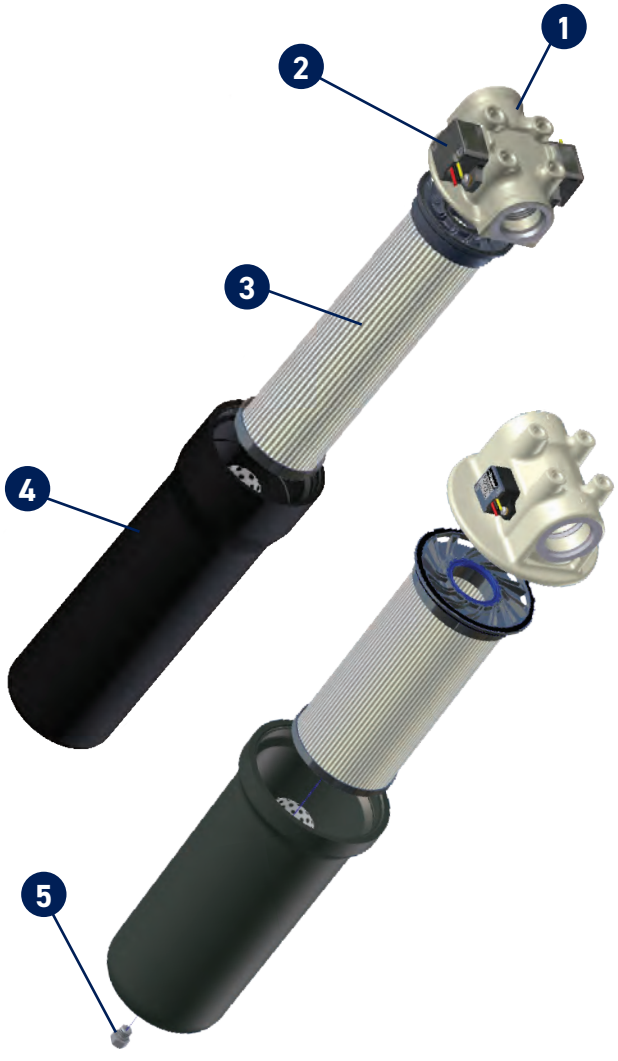
12CS/50CS Series

Service Instructions

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

Replacement element procedure

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



Parts List

Index	Description	12CS	50CS
1	**Head Assembly** (50 PSI electrical switch indicator ready)		
	SAE-12	942249	N/A
	3/4" NPT	942250	N/A
	G3/4" BSPP	942251	N/A
	SAE-16	N/A	942259
	SAE-20	N/A	942260
	SAE-24	N/A	942261
	1" NPT	N/A	942262
	1 1/4" NPT	N/A	942263
	1 1/2" NPT	N/A	942264
	G1 1/4" BSPP	N/A	942265
2	**Indicator**		
	Electrical	941814	941814
	Analog	941802	941802
	Mounting Screws	941944	941944
3	**Element (**see chart on next page)		
4	**Bowl Assembly**		
	Single - no drain	N/A	942011
	Single - w/ drain	N/A	942012
	Double - no drain	942220	N/A
5	**Drain Plug SAE-4**		
	Nitrile	N/A	921088
	Fluorocarbon	N/A	928882
6	**Bypass (not shown)**		
	50 psid	928981	933424
7	**Manifold Adaptor Kit (**see drawing on previous page)		
	O-Ring (I.D.)	V92020	V72135
	O-Ring (O.D.)	V92038	V72155
	Manifold Adaptor	941811	941986
	Mounting Screws	975689	942174
	Element	see chart on page 85	
	Bowl Assembly	see #4 above	

12CS/50CS Series[1]

Coreless Medium Pressure Filters

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
12CS	2	10QE	B	N	K	S12	A

BOX 1: Filter Series

Symbol	Description
12CS	15 GPM max.
50CS	5o GPM max.

BOX 2: Element Length

Symbol	Description
1	Single (50CS only)
2	Double (12CS only)

BOX 3: Media Code

Symbol	Description
02QE	Microglass, 2 micron
05QE	Microglass, 5 micron
10QE	Microglass, 10 micron
20QE	Microglass, 20 micron

BOX 4: Seals

Symbol	Description
B	Nitrile
V	Fluorocarbon

BOX 5: Indicator

Symbol	Description
N	No indicator
ML	Visual w/ push to test, left
M	Visual w/ push to test, right
EL	Electrical w/12" flying leads, left
E	Electrical w/12" flying leads, right
AL	Analog w/12" flying leads, left
A	Analog w/12" flying leads, right

BOX 6: Bypass

Symbol	Description
G	25 PSID (1.7 bar)
K	50 PSID (3.5 bar)

BOX 7: Ports

Symbol	Description
12CS	
S12	SAE-12 integral threads
N12	3/4" NPT integral threads
50CS	
S16	SAE-16 integral threads
N16	1" NPT integral threads
S20	SAE-20 integral threads
N20	1-1/4" NPT integral threads
S24	SAE-24 integral threads
N24	1-1/2" NPT integral threads

BOX 8: Options

Symbol	Description
1	None
4	Drain port

1. Filters include the element you select already installed.
2. Drain port available on 50CS only.

Replacement Elements

Media	Filter Model (Nitrile Seals)		Filter Model (Fluorocarbon Seals)	
	12CS-2	50CS-1	12CS-2	50CS-1
02QE	940765Q	940816Q	937619Q	940881Q
05QE	940764Q	940817Q	937618Q	940882Q
10QE	940763Q	940818Q	937617Q	940883Q
20QE	940762Q	940819Q	937622Q	940884Q