HIGH PRESSURE IN-LINE/REVERSE FLOW

Models 50P & 50PR

50P & 50PR

Applications

- Automotive specified equipment
- Hydrostatic transmission circuits
- Servo and proportional controls
- Offshore drilling rigs
- Mining equipment
- Power units

The 50P series allows you to customize each filter to closely match your needs. Choose the options which best fit your application.

The 50P series filters are bowl-up, which provides several possible advantages. The bowl-up mounting makes servicing the elements quick and easy. Simply remove the top cover to access the element. A drain port is provided to allow oil removal prior to element servicing. This design reduces the possibility of oil spillage and injury to maintenance personnel.

The 50P series has optional manifold porting for space saving. The porting is also designed to match the installation of many other manufacturers. Most important, the 50P series meets the SAE HF4 automotive standard.

Vent Plug
- Purge all air from filter assembly
- Improves system performance

Cover
- Durable ductile iron
- Top service elements
- No oil spills during service

Bowl
- Single, double or triple length

Head
- Ductile iron construction
- SAE or manifold ports
- Meets SAE HF4 automotive specification

Indicators
- Visual, electrical or analog
- Several connector options

Bypass (not visible)
- Cartridge style
- Precision matched assemblies

Drain Plug (not shown)
- Drain oil for easy service

Feature	Advantage	Benefit
Base mounted filter	No brackets required for installation	Reduces installation costs
Top access cover	Removing the element from the top is lighter than removing entire bowl	Allows for easier element replacement
Visual, electrical and analog indicators	Know exactly when to service elements	Ensures maximum element life without entering bypass or replacing elements prematurely.
Drain port	Drain all oil from assembly prior to servicing	No oil mess
Vent port	Purges all trapped air in filter	Get the maximum performance from elements Prevents a “spongy” system
Multipass tested elements	Element performance backed by recognized test standards	Elements selected will have consistent performance levels
Microglass elements	Multi-layer media Wire reinforced pleats	High capacity with high efficiency No performance loss from pleat bunching

50PR

Reverse Flow Filter

The 50PR was designed specifically for hydrostatic transmission loops because of it's capability to handle reverse flow.

Closed circuit HSTs frequently reverse direction causing flow to reverse in the fluid lines. Pressure filters installed between pump and motor must be able to handle reverse flow without having contaminant washed off of the elements and back into the system. To prevent such an occurrence, the filters require the use of internal check valves to direct the flow through the element in one direction and around the element in the other. Parker's internal check valve design minimizes additional pressure loss and eliminates the cost associated with external valves and fittings. Also the internal design keeps the envelope dimensions of the filter to a minimum as can be seen on the installation drawing.

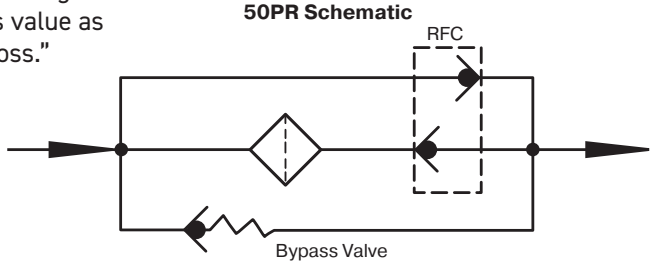
Sizing 50PR Filter Assemblies

To accurately determine the total pressure loss that will be seen when used in your system, the following steps should be taken.

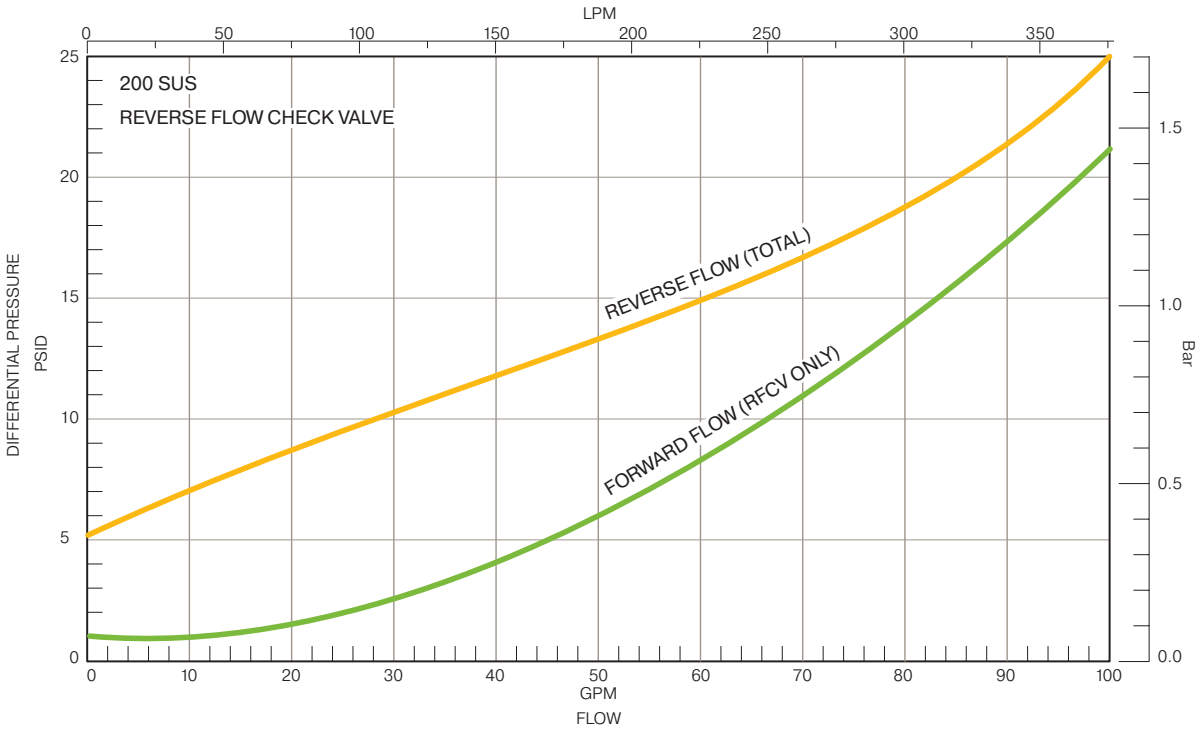
1. Examine the "Flow vs. Pressure" curve below. Find the pressure drop for the maximum system flow on the forward flow curve. Record this value as "housing with check valve pressure loss."
2. Examine the appropriate pressure loss curve for the media and bowl length combination. These curves are found in the Element Performance Data section.
3. Find the pressure drop for the maximum flow rate through the filter and record this value as "element pressure loss."
4. Find the empty housing pressure drop for the maximum flow rate through the filter and record this value as "empty housing pressure loss."
5. Add the values obtained in steps 1 and 3, then subtract out the value from step 4. The resultant pressure loss should not exceed 1/3 of the bypass valve or indicator you intend to select. If this ratio exceeds 1/3, then a double length housing or other media grade may need to be considered.

Contact the division if there is any doubt as to the total pressure loss you have calculated.

50PR Schematic

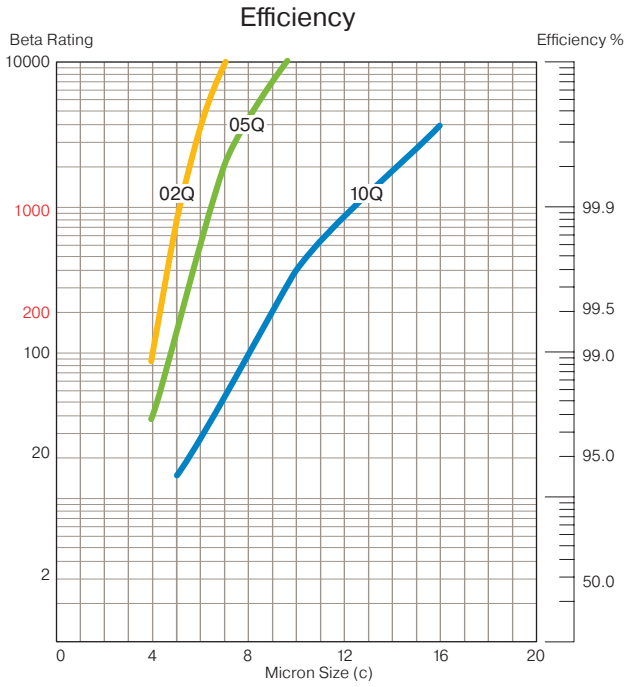


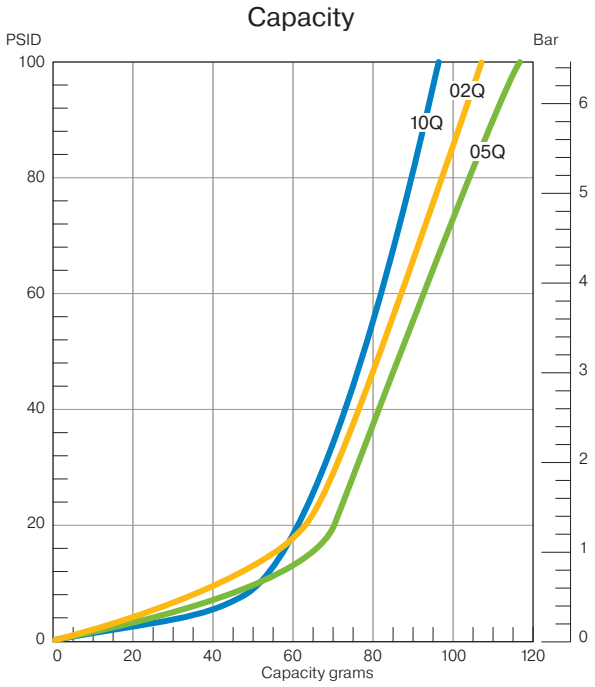
Typical Flow / Pressure Curves for 50PR



50P-1

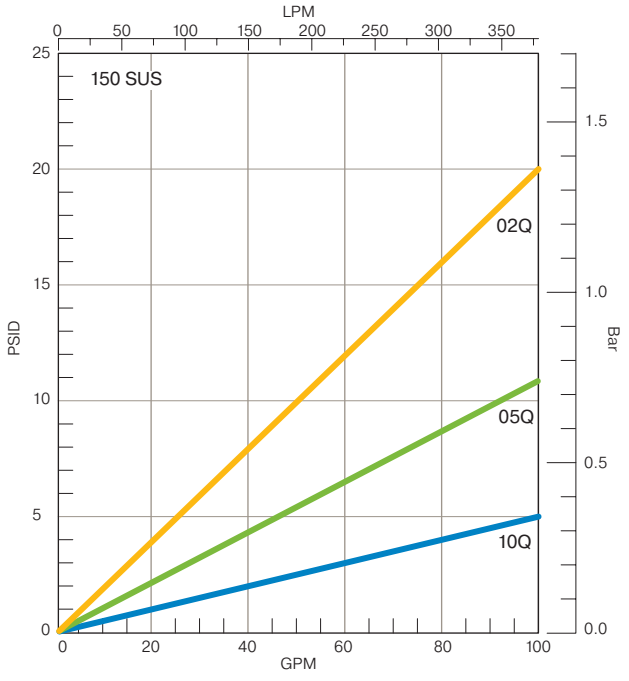
Element Performance

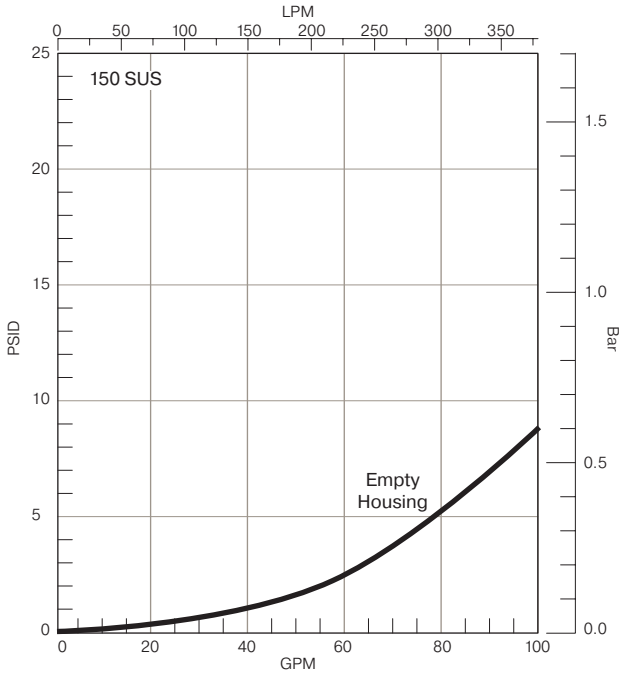




Results typical from Multi-pass tests run per test standard ISO 16889 @ 50 gpm to 100 psid terminal - 10 mg/L BUGL
Refer to Appendix for relationship to test standard ISO 4572.

Flow vs. Pressure Loss

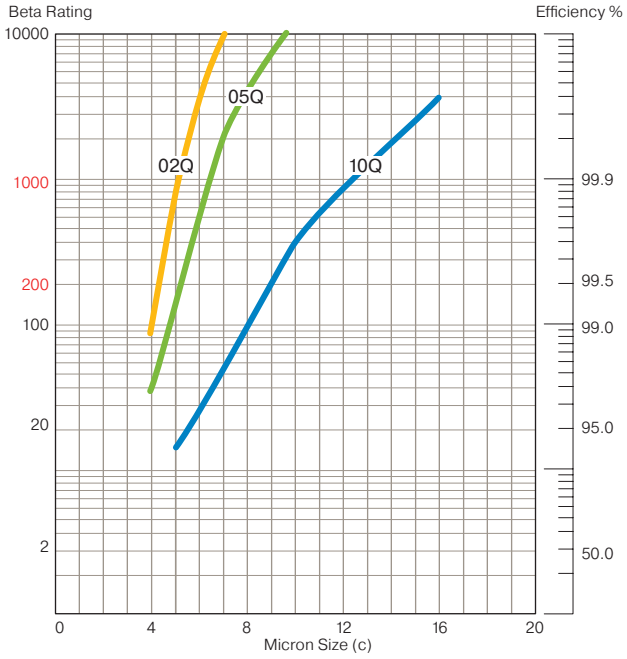


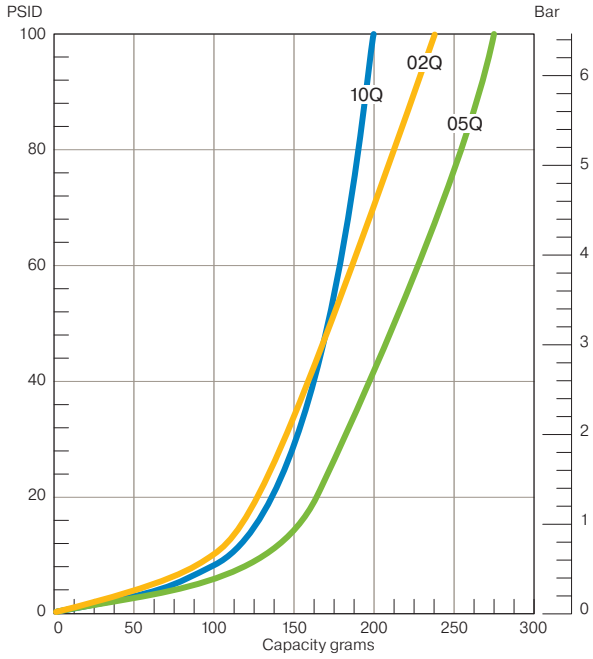


*High Collapse Correction Factor:
"QH" Elements (2000 psid) = 1.4 times reported loss

50P-2

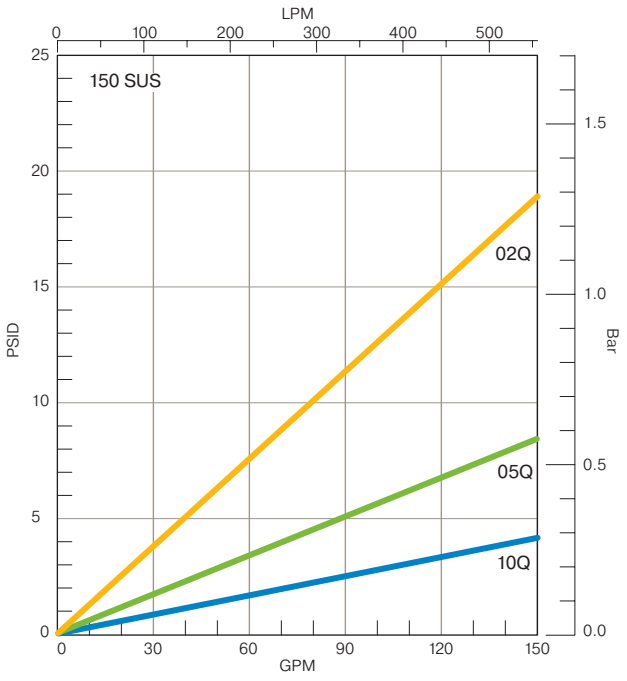
Element Performance

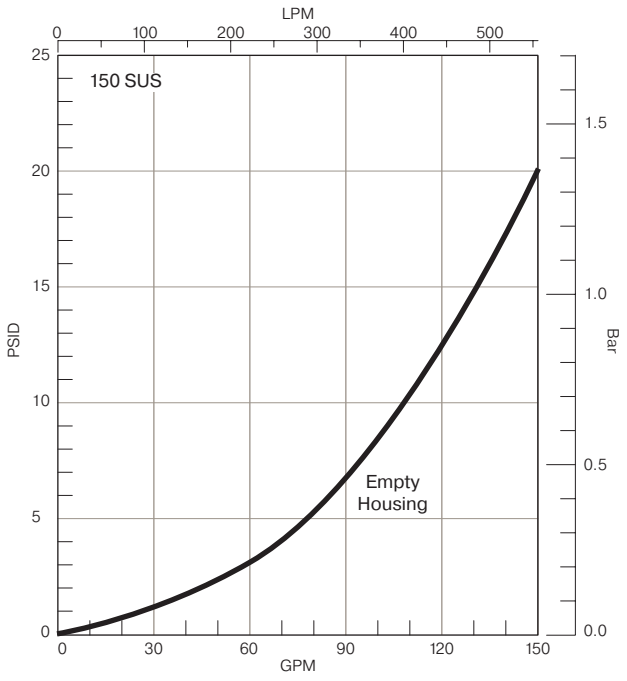




Results typical from Multi-pass tests run per test standard ISO 16889 @ 50 gpm to 100 psid terminal - 10 mg/L BUGL
Refer to Appendix for relationship to test standard ISO 4572.

Flow vs. Pressure Loss

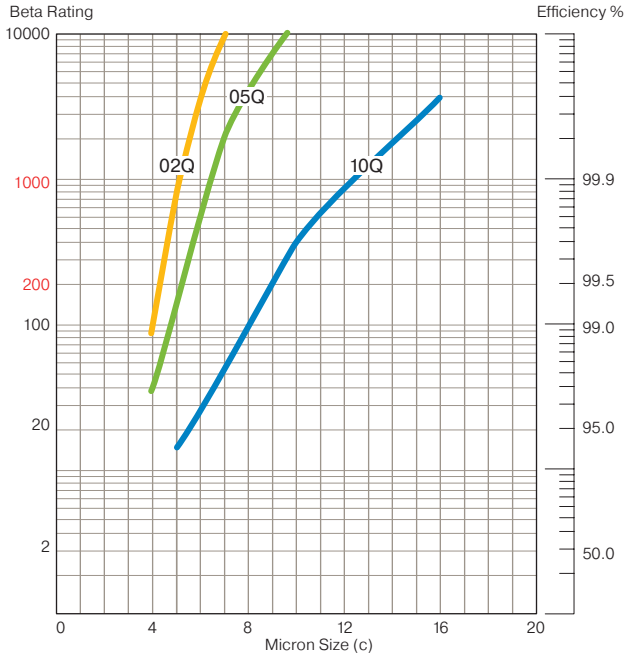


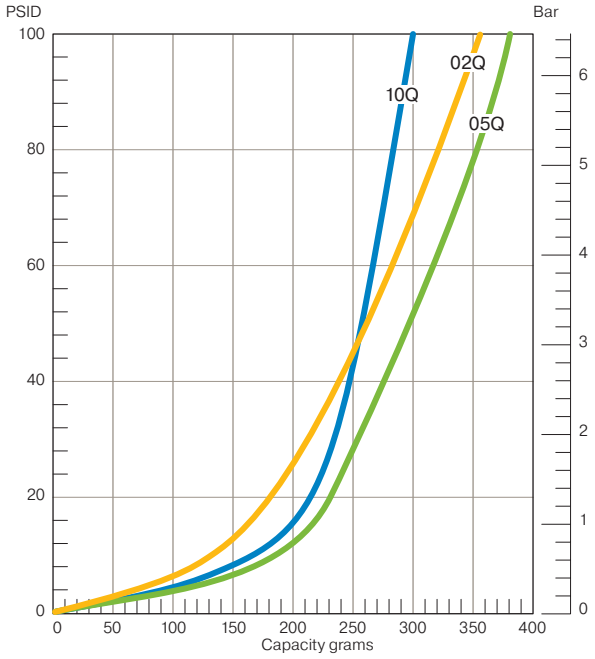


*High Collapse Correction Factor:
"QH" Elements (2000 psid) = 1.4 times reported loss

50P-3

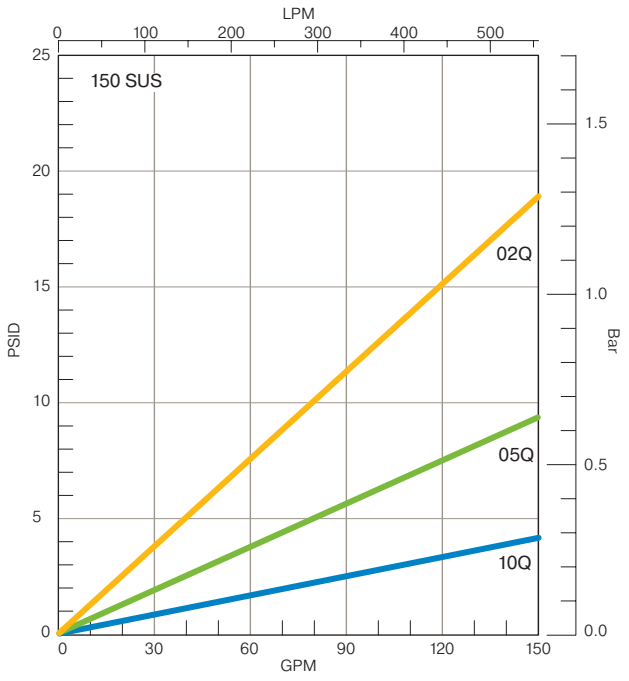
Element Performance

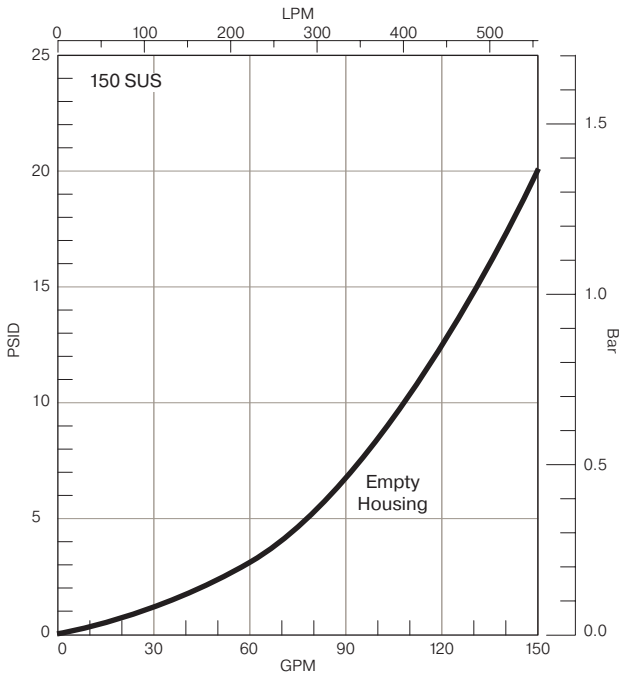




Results typical from Multi-pass tests run per test standard ISO 16889 @ 50 gpm to 100 psid terminal - 10 mg/L BUGL
Refer to Appendix for relationship to test standard ISO 4572.

Flow vs. Pressure Loss





*High Collapse Correction Factor:
"QH" Elements (2000 psid) = 1.4 times reported loss

50P & 50PR

Specifications

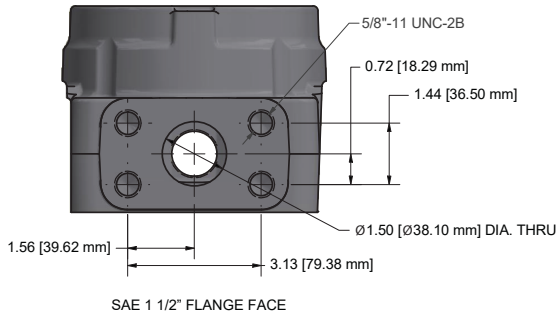
Pressure Ratings:
Maximum Allowable Operating Pressure (MAOP): 5000 psi (344.8 bar)
Rated Fatigue Pressure: 3500 psi (241.4 bar)
Design Safety Factor: 2.5:1

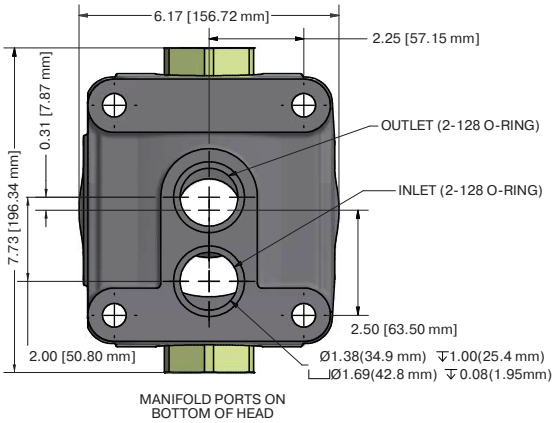
Element Collapse Rating:
150 psid (10.2 bar) standard

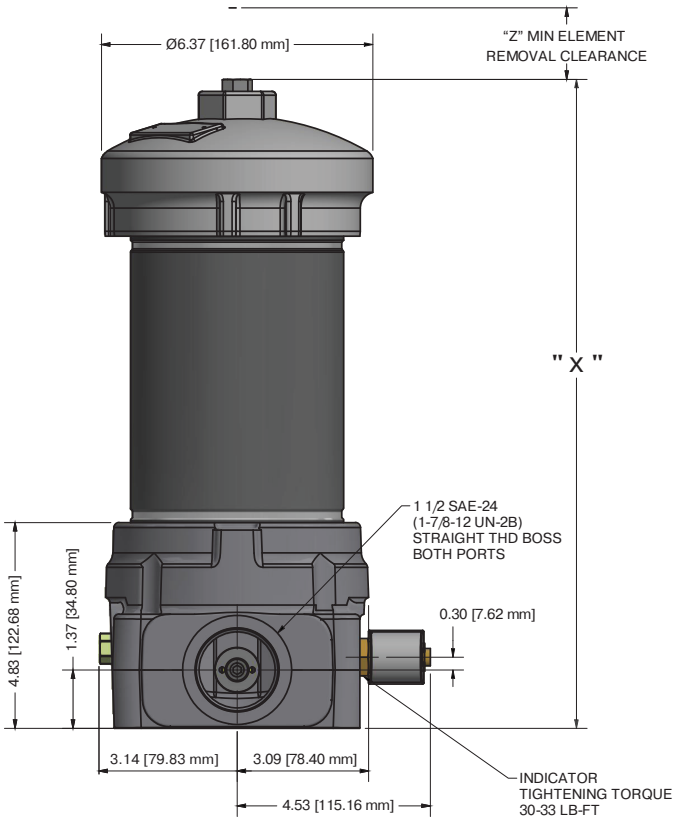
Operating Temperatures:
Buna: -40°F (-40°C) to 225°F (107°C)
Fluorocarbon: -15°F (-26°C) to 275°F (135°C)

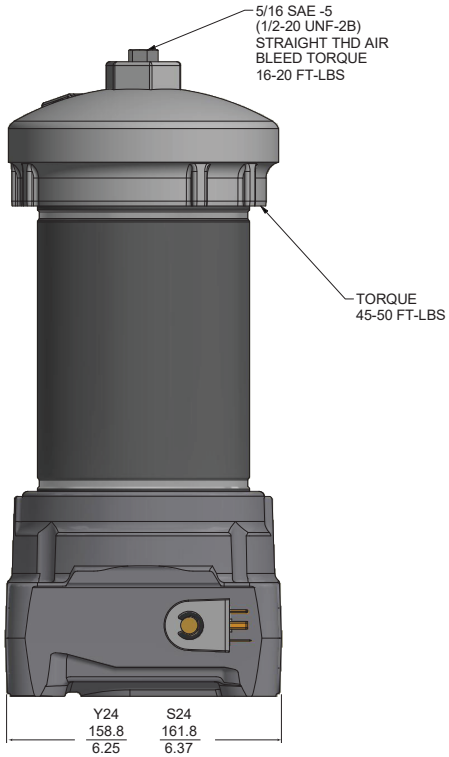
Filter Materials:
Head (base) and Cover: ductile iron
Bowl: seamless steel tube

Weight:
50P-1: 56 lb. (25.4 kg)
50P-2: 77 lb. (34.9 kg)
50P-3: 95 lb. (43 kg)









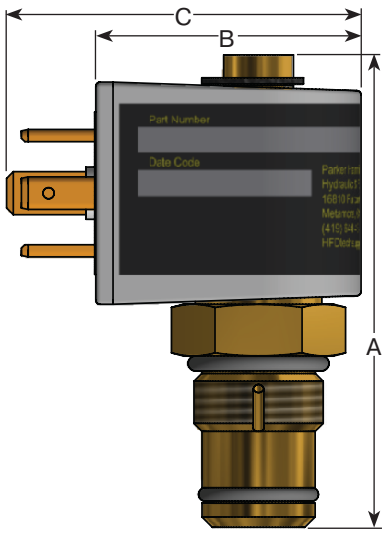
mm/in	50P-1	50P-2	50P-3
X	387.1 15.24	622.8 24.52	850.4 33.48
Z	254.0 10.00	508.0 20.00	760.2 30.00

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

50P & 50PR

Indicator Specifications

GS/GA



GS

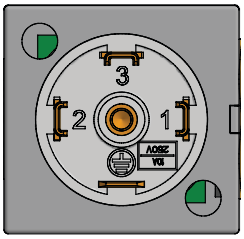
Output: Dry Contact Reed Switch

- Absolute maximum carry current 1 amp (AC/DC)
- Absolute maximum switching current 500 mA (AC/DC)
- Absolute maximum voltage 125 VAC/30 VDC

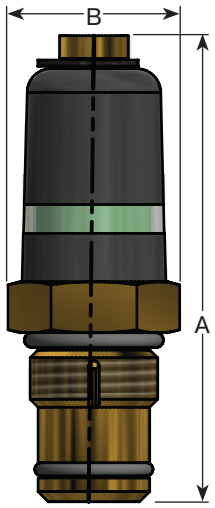
Torque: 30-35 ft lbs

GA

Output: Analog 4-20 mA
Supply Voltage: 10.0 VDC - 28 VDC (Clean and Filtered)
Torque: 30-35 ft lbs

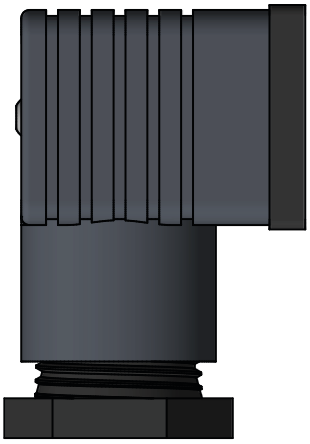


M2



Output: Visual

947356



- DIN43650 standard socket
- For use with GS and GA

947355

- DIN43650 visual LED socket
- 12-35 VDC
- For use with GS

Option	Description	Connection/Power	Wiring	A	B	C
				inches/mm		
GS	Reed Switch	DIN 43650 3 Pole + Earth 500mA @ 30 VDC 500mA @125 VAC	Pin 1 - Common Pin 2 - Normally Open Pin 3 - Normally Closed Pin 4 - Not Connected	2.74 69.6	1.54 39.1	2.06 52.3
GA	4-20mA Analog	DIN 43650 3 Pole + Earth Supply Voltage: 10 VDC - 28 VDC Output: 4-20 mA	Pin 1 - Supply (10VDC - 28VDC) Pin 2 - Common (Circuit Ground) Pin 3 - 4-20mA Out Pin 4 - Not Connected	2.74 69.6	1.54 39.1	2.06 52.3
M2	Visual	N/A	N/A	2.74 69.6	1.45 36.8	N/A

50P & 50PR

Parts List and Service Instructions

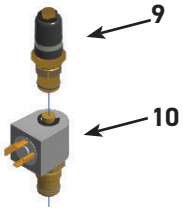
Index	Description	Part Number 50P	
1	Head Assembly	Consult Factory	
2	Bowl	Consult Factory	
3	Cover	926655	
4	Cover O-ring, Nitrile Cover O-ring, Fluorocarbon	N92246 V92246	
5	Vent Plug Vent Plug O-ring - Nitrile Vent Plug O-ring - Fluorocarbon	927363 N93905 V93905	
6	Element	See Replacement Element Table	
7	Drain Plug Drain Plug O-ring - Nitrile Drain Plug O-ring - Fluorocarbon	927363 N93905 V93905	
8	Bypass Valve 50 psid 90 psid	 924189 927399	
Indicators[1]		50 psid	90 psid
9	M2 - Visual	945661	947378
10	GS - Electrical	946201	946204
10	GA - Analog	946210	946213
Not Shown	Standard DIN 43650 Socket Kit	947356	
Not Shown[2]	12-35VDC LED Visual DIN 43650 Socket	947355	
Not Shown	Manifold port O-ring - Nitrile Manifold port O-ring - Fluorocarbon	N92128 V92128	

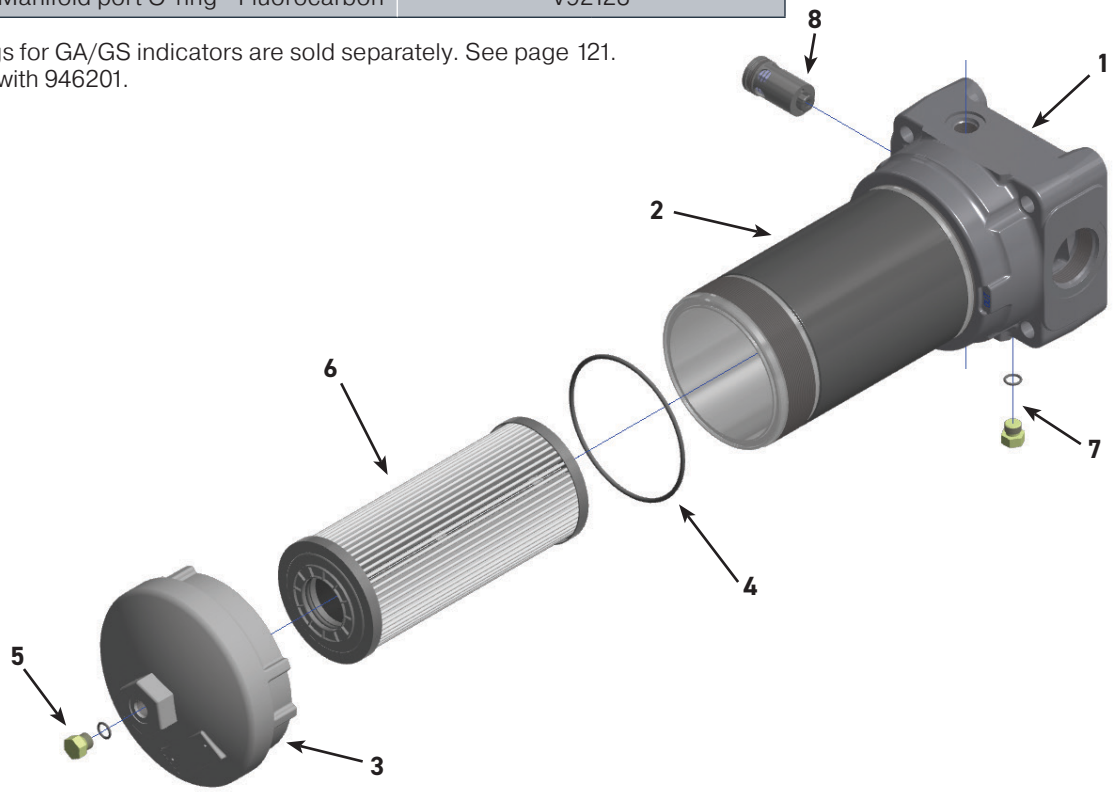
1. DIN plugs for GA/GS indicators are sold separately. See page 121.
2. For use with 946201.

Element Service Instructions

When servicing the 50P filter, use the following procedure.

A. Stop the system's power unit.
B. Relieve any pressure in the filter or line.
C. If desired, oil can be drained from filter housing by removing the drain port plug located in the head.
D. Rotate the cover counterclockwise and remove.
E. Remove element from housing.
F Place new, clean element into housing centering element over locator.
G. Inspect cover o-ring and replace if necessary
H. Apply cover to filter and tighten to 45-50 ft. lbs.
I. Replace drain plug and tighten 20-25 ft. lbs.





50P & 50PR[1,2]

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
50P	1	10Q	B	GS	M	S24	1

BOX 1: Filter Series

Symbol	Description
50P	5000 PSI (MAOP)
50PR[3]	Reverse flow hydrostatic version

BOX 2: Element Length

Symbol	Description
1	Single
2	Double
3	Triple (50P only)

BOX 3: Media Code

Symbol	Description
02Q	Microglass, 2 micron
05Q	Microglass, 5 micron
10Q	Microglass, 10 micron

BOX 4: Seal Material

Symbol	Description
B	Nitrile
V	Fluorocarbon

BOX 5: Indicator

Symbol	Description
P	Plugged indicator port
M2	Visual
GS	Electrical Reed Switch with DIN 43650 socket
GA	Analog 4-20mA with DIN 43650 socket

BOX 6: Bypass

Symbol	Description
K	50 psid
M	90 psid

BOX 7: Ports

Symbol	Description
S24	SAE-24
Y24	1 1/2" SAE Code 62 Flange
X22	1 3/8" Manifold ports

BOX 8: Options

Symbol	Description
1	None

1. Filters include the element you select already installed.
2. This is a non-returnable product.
3. Not available on triple length, must choose 1 or 2 in box 2.

Replacement Elements (Fluorocarbon)

	Standard Collapse		
Media	Single	Double	Triple
02Q	932668Q	932677Q	933486Q
05Q	932669Q	932678Q	933487Q
10Q	932670Q	932679Q	933488Q

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2300-HL 50P 09/16/2024

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