FEATURES

W322 duplex filters provide continuous, uninterrupted filtering of flows up to 50 gpm. The proprietary bowl check valves insure leak free maintenance during replacement element cycle. The high density aluminum material provides for a compact and lightweight filter design. Five media grades are offered down to 5.1µ(c). WF elements core collapse options range from 150 to 3000 PSI. The differential pressure indicator line is designed to work with the wide assortment of bypass valves. Thermal lockout and surge control are two key features incorporated in many of the valves.

Western Filter elements are compatible with petroleum oils, water glycol, oil/water, HWCF and synthetic fluids.

Technical Data:

Maximum Working Pressure	3000 psi (207 bar)
Fatigue Pressure Rating	2000 psi max (138 bar)
Typical Burst Pressure	7500 psi max (517 bar)
Temperature Range	Operating
Buna N	-4°F to + 225°F (-43°C to + 107°C)
Viton	-20°F to + 250°F (-29°C to + 121°C)
Head and Bowl Material	Aluminum
Weight (without elements)	
Assembly length 1 34 lbs.	(15,5 kg.)
Assembly length 2 36 lbs.	(16,4 kg.)

W322

50 gpm (189 l/min)

Two bowl length options for design flexibility

T-Head style standard, alternative L-Head design

Compact, lightweight, ease of changing element (positive pin stop)

Wide range of indicator options

High density anodized aluminum head and bowl

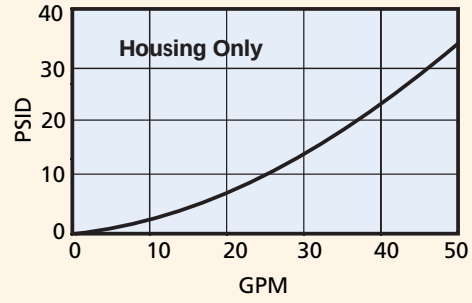
Replacement element available in C-Pak™ media

High collapse H-Pak™ element available for use with non-bypass applications

ACCESSORIES

Seal Kit - Buna N	P-236853-01
Seal Kit - E.P.R.	P-236853-02
Seal Kit - Viton	P-236853-03

Housing and Filter Element
Flow versus Pressure Drop
150 SUS (32 cSt.) oil with specific gravity ≤ 0.9

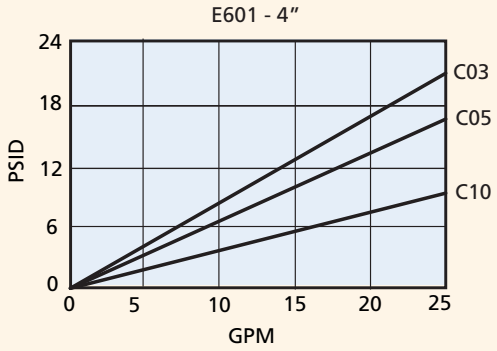


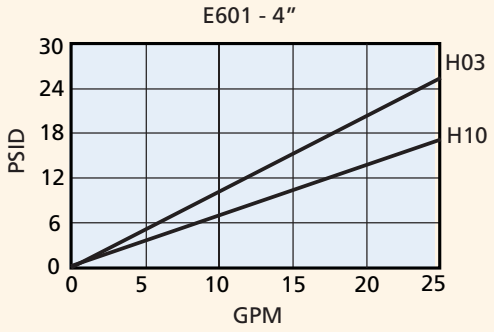
Viscosity Correction Formula

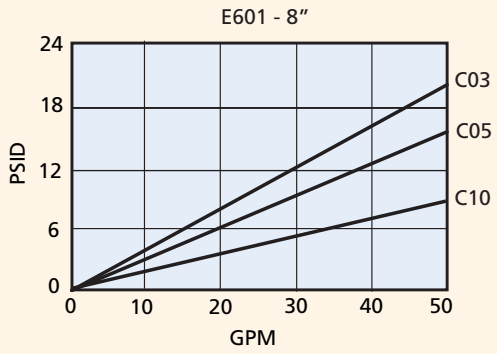
ΔP Element = psid from catalog X $\frac{\text{New Viscosity (SUS)}}{150}$ X $\frac{\text{New Specific Gravity}}{0.90}$

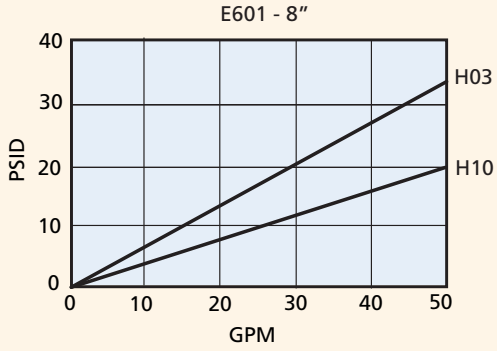
ΔP Housing = psid from catalog X $\frac{\text{New Specific Gravity}}{0.90}$

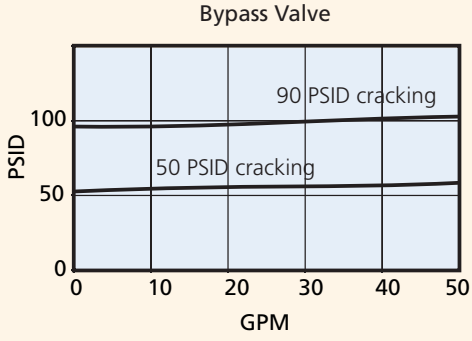
ΔP Assembly = ΔP Element + ΔP Housing











Filter Assembly	W322	1	B	4	D | B	B	2	C	10
	TABLE 1	TABLE 2	TABLE 3	TABLE 4	TABLE 5	TABLE 6	TABLE 7	TABLE 8	TABLE 9
Service Element	E601	1	B	2	C	10			
	TABLE 1	TABLE 2	TABLE 6	TABLE 7	TABLE 8	TABLE 9			

Table 1

Filter Assembly / Service Element	
CODE	DESCRIPTION
W322	Assembly
E601	Element

Table 2

Element Collapse Options	
CODE	DESCRIPTION
1	150 psid for housing w/bypass valve
4	3000 psi for housing w/o bypass valve (H-Pak™ only)

Table 3

Port Size Options	
CODE	PORT SIZE
B	1-5/16" - 12 UN (SAE 16)

Table 4

Bypass Setting Options	
CODE	BYPASS SETTING
1*	Non-bypass
4	Bypass set 50 psid
6	90 psid

***Note:** Use option 1 code only with 3000 psid collapse filter element.

Table 5 (Primary)

Upstream Pressure Gauge and Switch Option	
CODE	ΔP INDICATOR STYLE & SETTING
A	Visual indicator 70 psid w/TL and surge
B	Electrical/visual 70 psid w/TL and surge
D	Electrical/visual 35 psid
E	Electrical/visual 100 psid
G	Electrical/visual 35 psid w/TL
I	Visual indicator 70 psid
J	ΔP indicator plug
L	Visual indicator 35 psid
M	Visual indicator 35 psid w/TL and surge
N	Electrical/visual 35 psid w/12" 3-wire flying lead
O	Visual indicator 100 psid
P	Visual indicator 100 psid w/TL and surge
R	Electrical switch 35 psid
S	Electrical/visual 100 psid w/12" 3-wire flying lead
T	Electrical switch 100 psid
U	Electrical switch 70 psid
V	Electrical/visual 70 psid w/TL
W	Electrical/visual 100 psid w/TL
Y	Electrical/visual 35 psid w/TL and surge
Z	Electrical/visual 100 psid w/TL and surge

TL (thermal lockout)

Table 5 (Secondary)

Receptacle Options	
CODE	ELECTRICAL STYLE
B	Brad Harrison (5-pin)
H	Hirschmann (4-pin)
N	None, for visual ΔP

Table 6

Seal Options	
CODE	MATERIAL
B	Buna N
E	E.P.R.
V	Viton

Table 7

Assembly & Element Length	
CODE (LGTH)	ELEMENT LENGTH
1 (6.88")	4.0"
2 (9.86")	8.00"

Table 8

Element Code	
CODE	DESCRIPTION
C	(Glass) 03, 05, 10
H	(Glass) 03, 10

Table 9

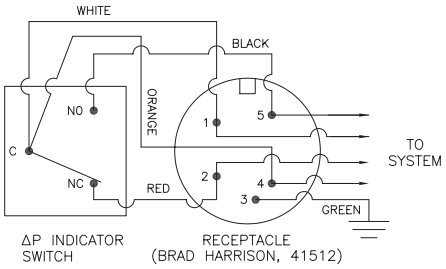
Media Rating	
CODE	TARGET FLUID CLEANLINESS LEVEL
03	16/14/12 or better
05	18/16/14 or better
10	20/18/15 or better

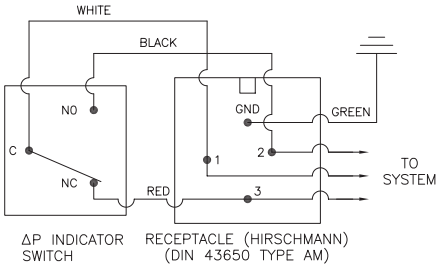
Note: Information concerning fluid cleanliness codes is on page 6, the Media Grade Selection Guide.

Metric Porting Available
Change W322 to G322
Porting code B becomes 1"
ISO 228 BSPP

Indicator Switch Schematic Wiring Diagram

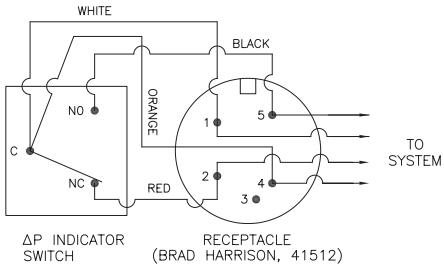
Aluminum Electrical Housings

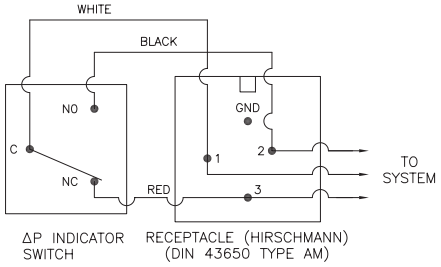




Note: The female plug (connector) is to be furnished by customer.

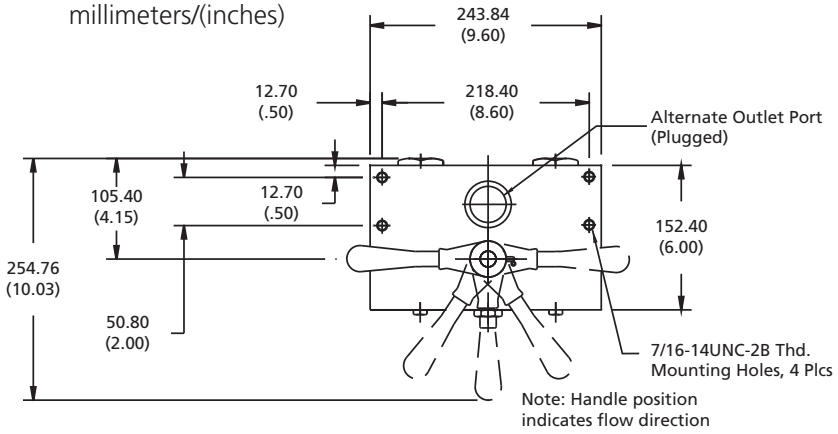
Plastic Electrical Housings

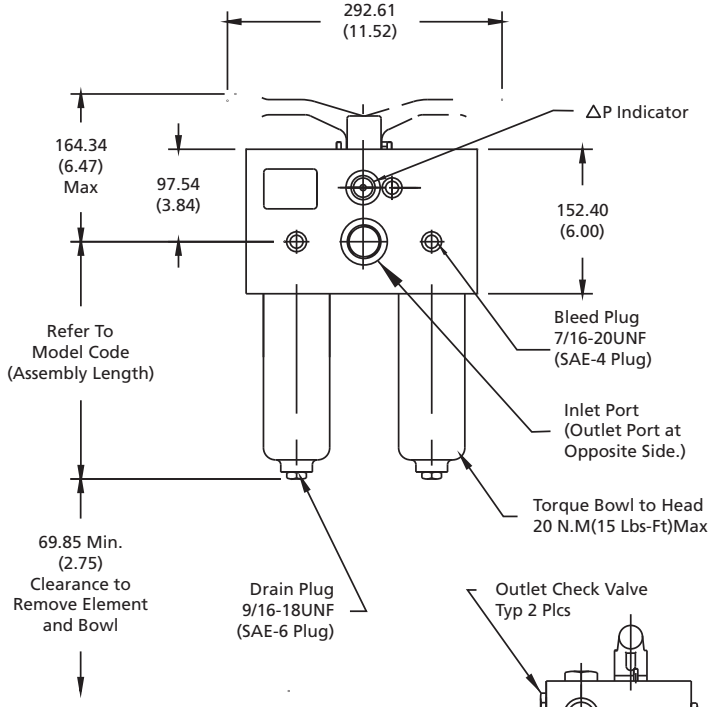


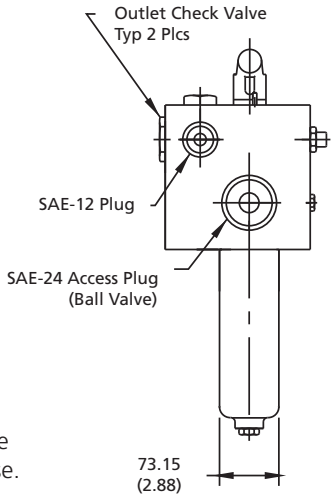


Note: The female plug (connector) is to be furnished by customer.

Dimensions: millimeters/(inches)







Differential Indicators:

Indicators are designed to actuate at approximately 80% of bypass valve cracking pressure. It is recommended that an indicator with a bypass setting of 100 psid is used with a non-bypass housing.

Surge Control:

This optional feature is used to dampen pressure surges or spikes to avoid premature actuation of the indicator. Surge control delays the indicator response.

Thermal Lockout:

The Thermal Lockout prevents premature signaling of a bypass condition created by viscous fluid during cold start-ups. Normal indicator actuation capability is resumed once the operating temperature of the fluid reaches approximately 80 Deg. F.

FEATURES

The in line pressure filter W331 is ideal for charge pump and pressure line applications. The all aluminum housing has a rated fatigue value of 1500 psi. Western Filter's proprietary BetaPore™ 5 layer media is offered in a variety of Pak™ designs. Four media grades are offered down to 5.1µ(c). Element core collapse options range from 150 to 3000 PSI. The differential pressure indicator line is designed to work with a wide assortment of bypass valves. Thermal lockout and surge control are two key features incorporated in many of the valves.

Western Filter elements are compatible with petroleum oils, water glycol, oil/water, HWCF and synthetic fluids.

W331

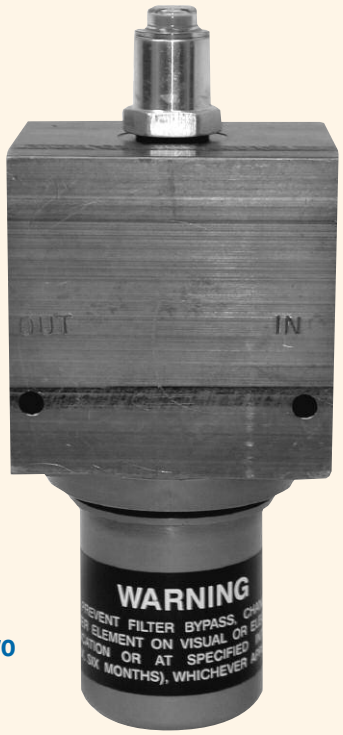
6 gpm (23 l/min)

Positive sealing poppet type bypass for reliability and zero leakage

Wide range of indicator options

High collapse H-Pak™ element available for use with non-bypass applications

Compact, light-weight design for use with servo or proportional valve



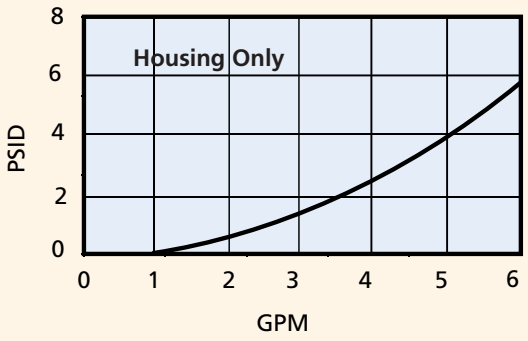
Technical Data:

Maximum Working Pressure	3000 psi (210 bar)
Fatigue Pressure Rating	1500 psi max (100 bar)
Typical Burst Pressure	7500 psi max (517 bar)
Temperature Range	Operating
Buna N	-45°F to + 225°F (-43°C to + 107°C)
Viton	-20°F to + 250°F (-29°C to + 121°C)
Head and Bowl Material	Aluminum
Weight (without elements) Assembly length 1 4.25 lbs.	(1,9 kg.)

ACCESSORIES

Seal Kit -Buna N	P-427466-28
Seal Kit -E.P.R.	P-427466-29
Seal Kit -Viton	P-427466-30

Housing and Filter Element
Flow versus Pressure Drop
150 SUS (32 cSt.) oil with specific gravity ≤ 0.9

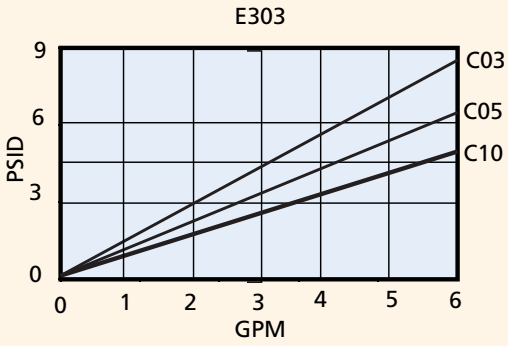


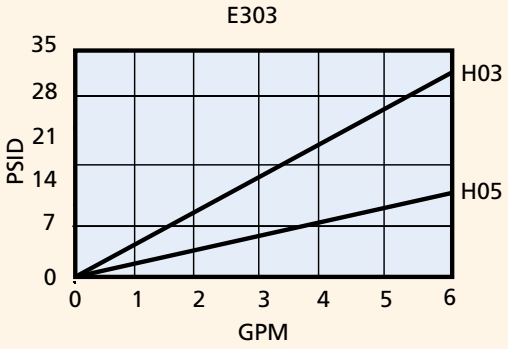
Viscosity Correction Formula

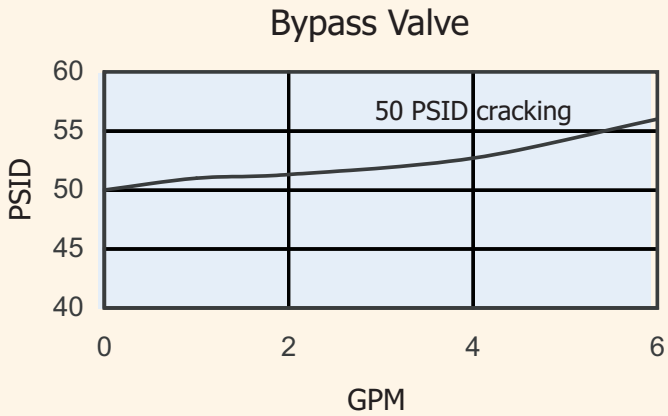
ΔP Element = psid from catalog X $\frac{\text{New Viscosity (SUS)}}{150}$ X $\frac{\text{New Specific Gravity}}{0.90}$

ΔP Housing = psid from catalog X $\frac{\text{New Specific Gravity}}{0.90}$

ΔP Assembly = ΔP Element + ΔP Housing







Filter Assembly	W331 TABLE 1	1 TABLE 2	O TABLE 3	4 TABLE 4	L | N TABLE 5	B TABLE 6	C TABLE 7	10 TABLE 8
Service Element	E303 TABLE 1	1 TABLE 2	B TABLE 6	1	C TABLE 7	10 TABLE 8		

Table 1

Filter Assembly / Service Element	
CODE	DESCRIPTION
W331	Assembly
E303	Element

Table 2

Element Collapse Options	
CODE	DESCRIPTION
1	150 psid for housing w/bypass valve
4	3000 psid for housing without bypass valve (H-Pak™ only)

Table 3

Port Size Options	
CODE	PORT SIZE
O	3/4" - 16 UN (SAE 8)

Table 4

Bypass Setting Options	
CODE	BYPASS SETTING
1	Non-bypass
4	50 psid

Note: Use option code 1 only with 3000 psid collapse filter element.

Table 5 (Primary)

Upstream Pressure Gauge and Switch Option	
CODE	ΔP INDICATOR STYLE & SETTING
D	Electrical/visual 35 psid
E	Electrical/visual 100 psid
G	Electrical/visual 35 psid w/TL
J	ΔP indicator plug
L	Visual indicator 35 psid
M	Visual indicator 35 psid w/ TL and surge
N	Electrical/visual 35 psid w/12" 3 wire flying lead
O	Visual indicator 100 psid
P	Visual indicator 100 psid w/ TL and surge
R	Electrical switch 35 psid
S	Electrical/visual 100 psid w/12" 3 wire flying lead
T	Electrical switch 100 psid
W	Electrical/visual 100 psid w/TL
Y	Electrical/visual 35 psid w/TL and surge
Z	Electrical/visual 100 psid w/TL and surge

TL (thermal lockout)

Table 5 (Secondary)

Receptacle Options	
CODE	ELECTRICAL STYLE
B	Brad Harrison (5-pin)
H	Hirschmann (4-pin)
N	None

Table 6

Seal Options	
CODE	MATERIAL
B	Buna
E	E.P.R.
V	Viton A

Table 7

Element Code	
CODE	DESCRIPTION
C	(Glass) 03, 05, 10
H	(Glass) 03, 10

Table 8

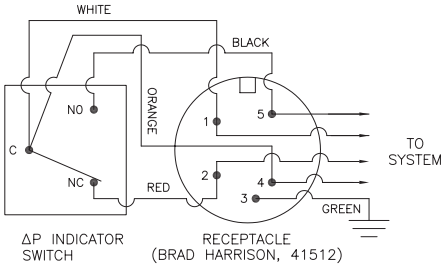
Media Rating	
CODE	TARGET FLUID CLEANLINESS LEVEL
03	16/14/12 or better
05	18/16/14 or better
10	20/18/15 or better

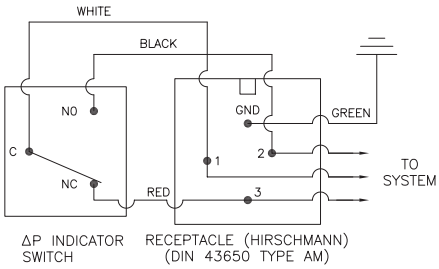
Note: Information concerning fluid cleanliness codes is on page 6, the Media Grade Selection Guide.

Metric Porting Available
Change W331 to G331
Porting code O becomes 1/2" ISO 228 BSPP

Indicator Switch Schematic Wiring Diagram

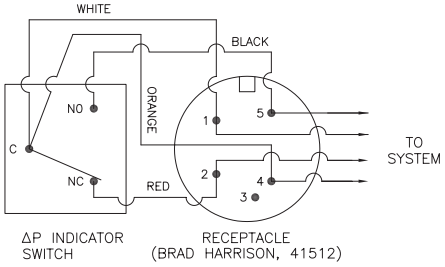
Aluminum Electrical Housings

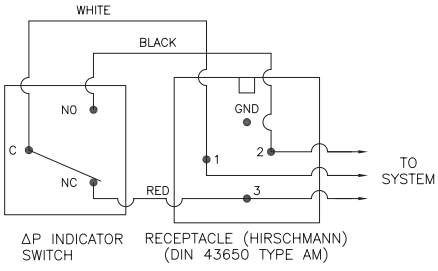




Note: The female plug (connector) is to be furnished by customer.

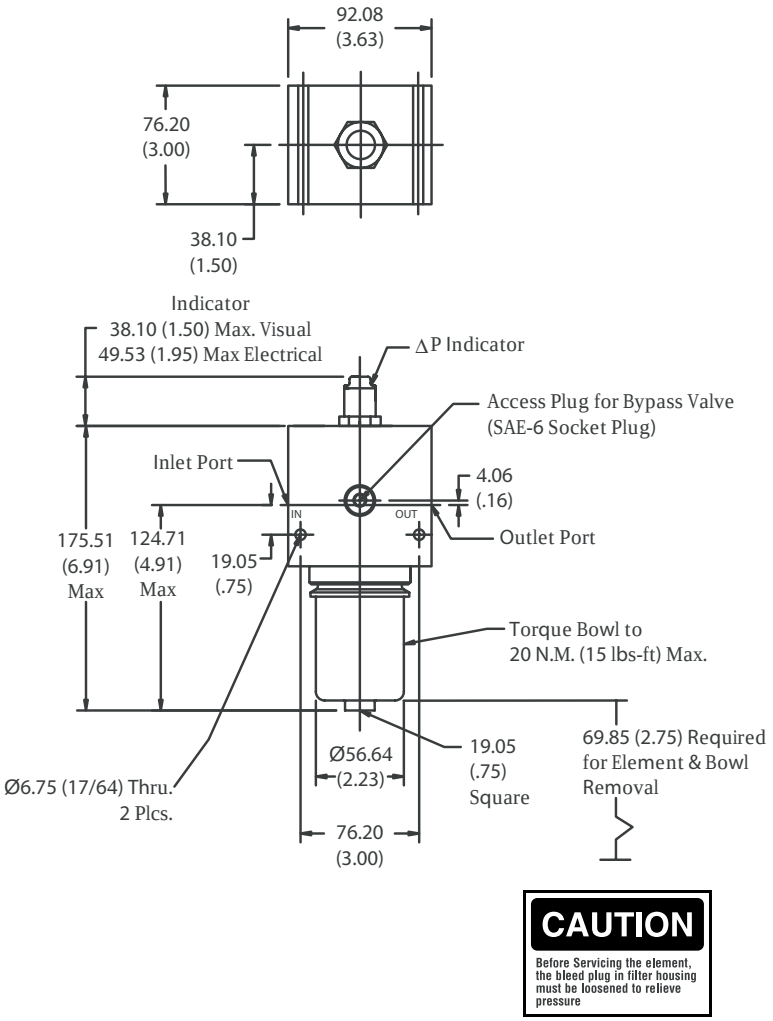
Plastic Electrical Housings





Note: The female plug (connector) is to be furnished by customer.

Dimensions:
millimeters/(inches)



Differential Indicators:
Indicators are designed to actuate at approximately 80% of bypass valve cracking pressure. It is recommended that an indicator with a bypass setting of 100 psid is used with a non-bypass housing.

Surge Control:
This optional feature is used to dampen pressure surges or spikes to avoid premature actuation of the indicator. Surge control delays the indicator response.

Thermal Lockout:
The Thermal Lockout prevents premature signaling of a bypass condition created by viscous fluid during cold start-ups. Normal indicator actuation capability is resumed once the operating temperature of the fluid reaches approximately 80 Deg. F.

FEATURES

The in line pressure filter W341 is ideal for charge pump and pressure line applications. The all aluminum housing has a rated fatigue value of 1500 psi. Western Filter's proprietary BetaPore™ 5 layer media is offered in a variety of Pak™ designs. Four media grades are offered down to 5.1µ(c). Element core collapse options range from 150 to 3000 PSI. The differential pressure indicator line is designed to work with a wide assortment of bypass valves. Thermal lockout and surge control are two key features incorporated in many of the valves.

The W341 Western Filter elements (W305 series) are compatible with petroleum oils, water glycol, oil/water, HWCF, synthetic fluids and are interchangeable with Schroeder N and NN series elements.

W341

20 gpm (76 l/min)

Positive sealing poppet type bypass for reliability and zero leakage

Wide range of indicator options

High collapse H-Pak™ element available for use with non-bypass applications

Technical Data:

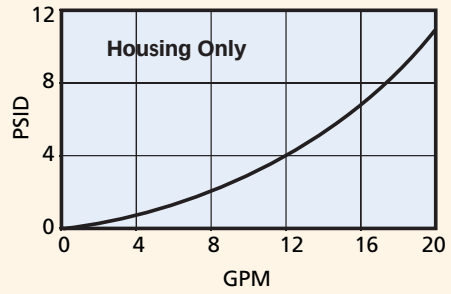
Maximum Working Pressure	3000 psi (207 bar)
Fatigue Pressure Rating	1500 psi max (103 bar)
Typical Burst Pressure	7500 psi max (517 bar)
Temperature Range	Operating
Buna N	-45°F to + 225°F (-43°C to + 107°C)
Viton	-20°F to + 250°F (-29°C to + 121°C)
Head and Bowl Material	Aluminum
Weight (without elements)	
Assembly length 1 5.3 lbs.	(2,4 kg.)
Assembly length 2 5.7 lbs.	(2,6 kg.)

ACCESSORIES

Seal Kit -Buna N	P-238968-01
Seal Kit -E.P.R.	P-238968-02
Seal Kit -Viton	P-238968-03

Housing and Filter Element

Flow versus Pressure Drop
150 SUS (32 cSt.) oil with specific gravity ≤ 0.9

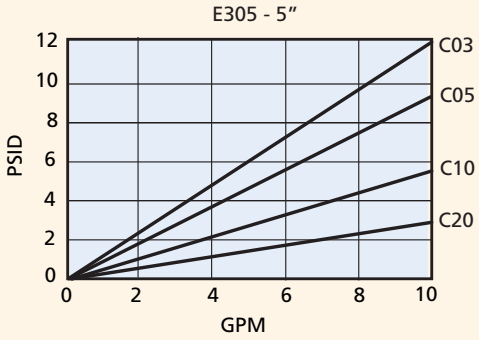


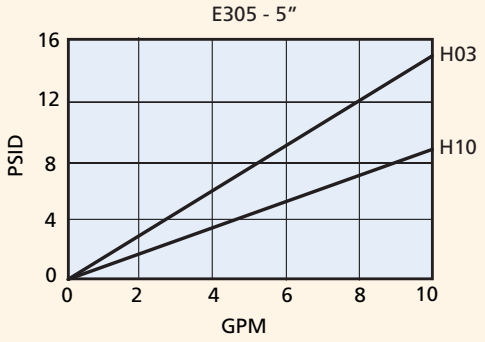
Viscosity Correction Formula

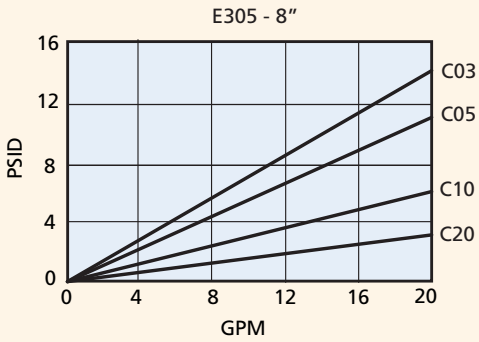
ΔP Element = psid from catalog X $\frac{\text{New Viscosity (SUS)}}{150}$ X $\frac{\text{New Specific Gravity}}{0.90}$

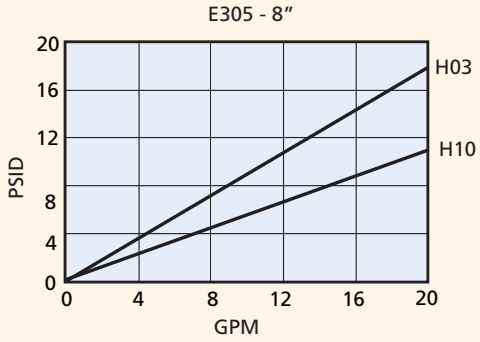
ΔP Housing = psid from catalog X $\frac{\text{New Specific Gravity}}{0.90}$

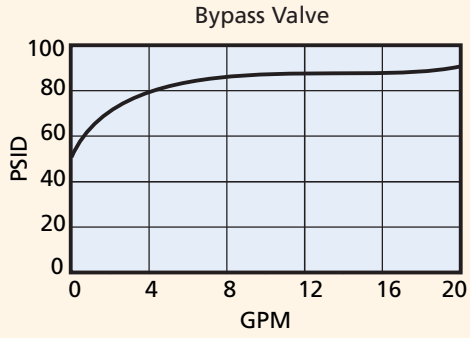
ΔP Assembly = ΔP Element + ΔP Housing











Filter Assembly	W341	1	A	4	M | N	B	1	C	10
	TABLE 1	TABLE 2	TABLE 3	TABLE 4	TABLE 5	TABLE 6	TABLE 7	TABLE 8	TABLE 9
Service Element	E305	1	B	1	C	10			
	TABLE 1	TABLE 2	TABLE 6	TABLE 7	TABLE 8	TABLE 9			

Order model code W3411A4LNB2C10 for same day shipment.

Table 1

Filter Assembly / Service Element	
CODE	DESCRIPTION
W341	Assembly
E305	Element

Table 2

Element Collapse Options	
CODE	DESCRIPTION
1	150 psid for housing w/bypass valve
4	3000 psid for housing without bypass valve (H-Pak™ only)

Table 3

Port Size Options	
CODE	PORT SIZE
A	1-1/16" - 12 UN (SAE 12)

Table 4

Bypass Setting Options	
CODE	BYPASS SETTING
1	Non-bypass
4	50 psid

Table 5 (Primary)

Upstream Pressure Gauge and Switch Option	
CODE	ΔP INDICATOR STYLE & SETTING
D	Electrical/visual 35 ± 5 psid
E	Electrical/visual 100 ± 12 psid
G	Electrical/visual 35 ± 5 psid w/TL
J	No indicator
L	Visual indicator 35 ± 5 psid
M	Visual indicator 35 ± 5 psid w/ TL and surge
N	Electrical/visual 35 ± 5 psid w/12" 3 wire flying lead
O	Visual indicator 100 ± 12 psid
P	Visual indicator 100 ± 12 psid w/ TL and surge
R	Electrical switch 35 ± 5 psid
S	Electrical/visual 100 ± 12 psid w/12" 3 wire flying lead
T	Electrical switch 100 ± 12 psid
W	Electrical/visual 100 ± 12 psid w/TL
Y	Electrical/visual 35 ± 5 psid w/TL and surge
Z	Electrical/visual 100 ± 12 psid w/TL and surge

TL (thermal lockout)

Table 5 (Secondary)

Receptacle Options	
CODE	ELECTRICAL STYLE
B	Brad Harrison (5-pin)
H	Hirschmann (4-pin)
N	None, for visual ΔP

Table 6

Seal Options	
CODE	MATERIAL
B	Buna N
E	E.P.R.
V	Viton

Table 7

Assembly & Element Length	
CODE (LGTH)	ELEMENT LENGTH
1 (7.28")	5.25"
2 (10.03")	8.00"

Table 8

Element Code	
CODE	DESCRIPTION
C	(Glass) 03, 05, 10, 20
H	(Glass) 03, 10

Table 9

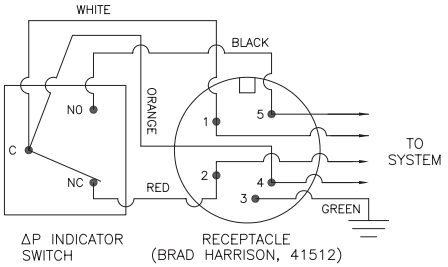
Media Rating	
CODE	TARGET FLUID CLEANLINESS LEVEL
03	16/14/12 or better
05	18/16/14 or better
10	20/18/15 or better
20	22/19/16 or better

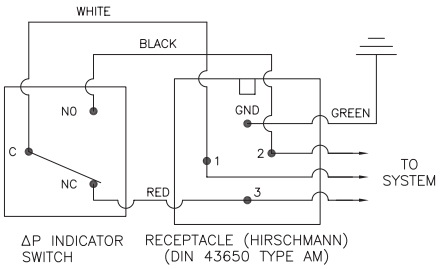
Note: Information concerning fluid cleanliness codes is on page 6, the Media Grade Selection Guide.

Metric Porting Available
Change W341 to G341
Porting code A becomes G-3/4" ISO 228 BSPP

Indicator Switch Schematic Wiring Diagram

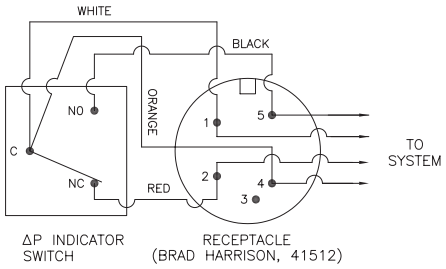
Aluminum Electrical Housings

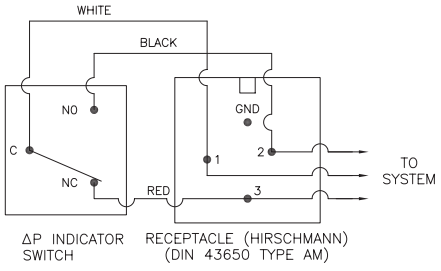




Note: The female plug (connector) is to be furnished by customer.

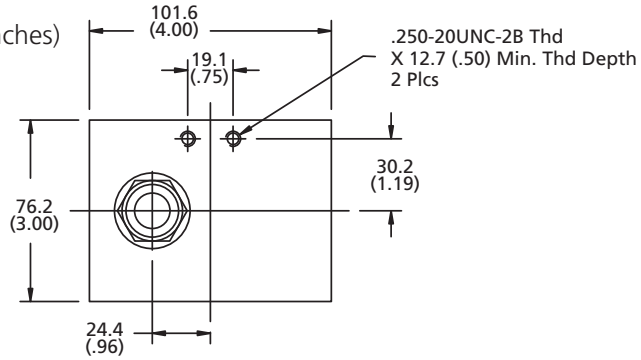
Plastic Electrical Housings

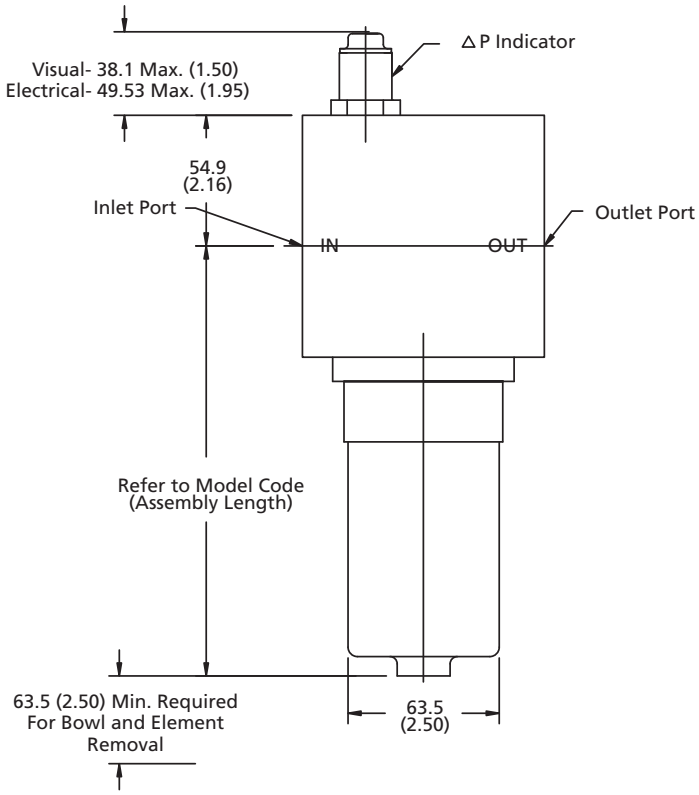




Note: The female plug (connector) is to be furnished by customer.

Dimensions: millimeters/(inches)





Differential Indicators:
Indicators are designed to actuate at approximately 80% of bypass valve cracking pressure. It is recommended that an indicator with a bypass setting of 100 psid is used with a non-bypass housing.

Surge Control:
This optional feature is used to dampen pressure surges or spikes to avoid premature actuation of the indicator. Surge control delays the indicator response.

Thermal Lockout:
The Thermal Lockout prevents premature signaling of a bypass condition created by viscous fluid during cold start-ups. Normal indicator actuation capability is resumed once the operating temperature of the fluid reaches approximately 80 Deg. F.

FEATURES

The W350 T-type ported series offers flows to 50 gpm with 4 bypass options and conforms to the HF3 automotive standard. Our standard bowl drain plug helps relieve system pressure during filter change outs. Western Filter's proprietary BetaPore™ 5 layer media is offered in a variety of Pak™ designs. Five different media grades are offered down to 4.0µ(c) and Z-Pak™ stainless steel media is optional. Element core collapse options range from 150 to 3000 PSI. The differential pressure indicator line is designed to work with the wide assortment of bypass valves. Thermal lockout and surge control are two key features incorporated in many of the valves.

Western Filter elements are compatible with petroleum oils, water glycol, oil/water, HWCF and synthetic fluids.

Technical Data:

Maximum Working Pressure	3000 psi (210 bar)
Fatigue Pressure Rating	1500 psi max (100 bar)
Typical Burst Pressure	7500 psi max (517 bar)
Temperature Range	Operating
Buna N	-45°F to + 225°F (-43°C to + 107°C)
Viton	-20°F to + 250°F (-29°C to + 121°C)
Head Material	Cast Iron
Bowl Material	Steel
Weight (without elements)	
Assembly length 1 13 lbs.	(5,9 kg.)
Assembly length 2 15 lbs.	(6,8 kg.)

W350

50 gpm (189 l/min)

Conforms to HF3 specifications

Accepts coreless elements with removable coretube

Wide range of indicator options

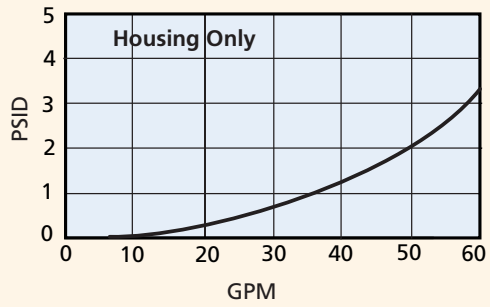
High collapse H-Pak™ element available for use in non-bypass applications

ACCESSORIES

Seal Kit -Buna N	P-427466-1B
Seal Kit -E.P.R.	P-427466-2B
Seal Kit -Viton	P-427466-3B

Housing and Filter Element

Flow versus Pressure Drop
150 SUS (32 cSt.) oil with specific gravity ≤ 0.9

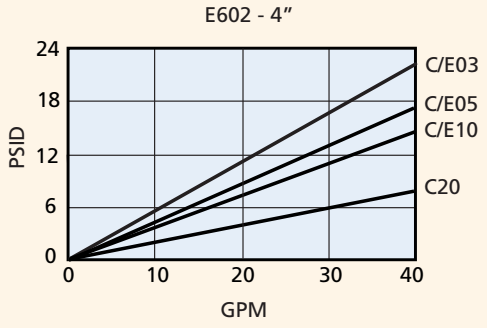


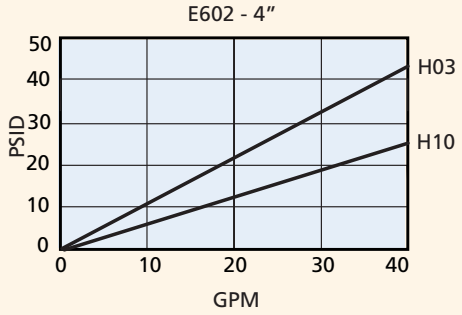
Viscosity Correction Formula

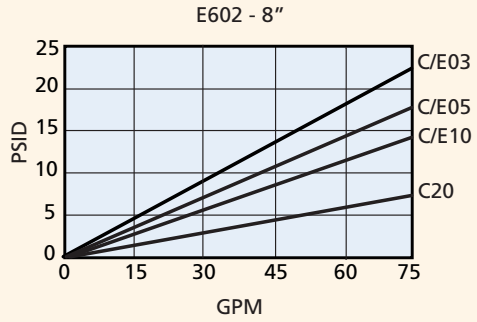
ΔP Element = psid from catalog X $\frac{\text{New Viscosity (SUS)}}{150}$ X $\frac{\text{New Specific Gravity}}{0.90}$

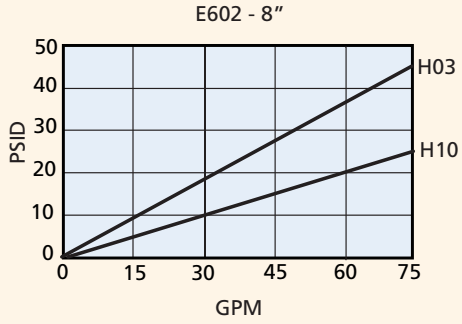
ΔP Housing = psid from catalog X $\frac{\text{New Specific Gravity}}{0.90}$

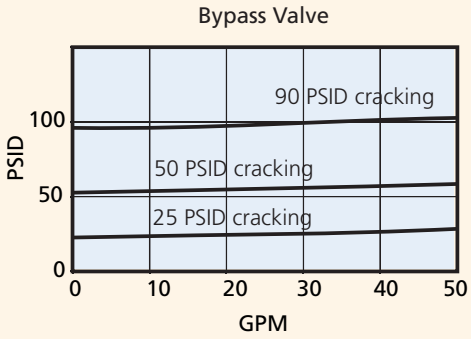
ΔP Assembly = ΔP Element + ΔP Housing











Filter Assembly	W350	1	B	1	J | N	B	1	C	10
	TABLE 1	TABLE 2	TABLE 3	TABLE 4	TABLE 5	TABLE 6	TABLE 7	TABLE 8	TABLE 9
Service Element	E602	1	B	1	C	10			
	TABLE 1	TABLE 2	TABLE 6	TABLE 7	TABLE 8	TABLE 9			

Order model code W3501B4LNB2C10 for same day shipment.

Table 1

Filter Assembly / Service Element	
CODE	DESCRIPTION
W350	Assembly
E602	Element

Table 2

Element Collapse Options	
CODE	DESCRIPTION
1	150 psid for housing w/bypass valve
4	3000 psi for housing w/o bypass valve (H-Pak™ only)

Note: E-Pak™ elements rated at 100 psid collapse. If used in non-bypass housing, a differential pressure indicator (70 psid max.) should be used.

Table 3

Port Size Options	
CODE	PORT SIZE
A	1-1/16" - 12 UN (SAE 12)
B	1-5/16" - 12 UN (SAE 16)

Table 4

Bypass Setting Options	
CODE	BYPASS SETTING
1	Non-bypass
3	25 psid
4	50 psid
6	90 psid

Note: Use option 1 code only with 3000 psid collapse filter element.

Table 5 (Primary)

Indicator Style and Setting	
CODE	ΔP INDICATOR STYLE & SETTING
A	Visual indicator 70 psid w/TL & surge
B	Electrical/visual 70 psid w/TL and surge
C	Electrical/visual 15 psid
D	Electrical/visual 35 psid
E	Electrical/visual 100 psid
F	Electrical/visual 15 psid w/TL
G	Electrical/visual 35 psid w/TL
H	Electrical/visual 15 psid w/12" 3-wire flying lead
I	Visual indicator 70 psid
J	ΔP indicator plug
K	Visual indicator 15 psid
L	Visual indicator 35 psid
M	Visual indicator 35 psid w/ TL and surge
N	Electrical/visual 35 psid w/12" 3-wire flying lead
O	Visual indicator 100 psid
P	Visual indicator 100 psid w/TL and surge
Q	Electrical switch 15 psid
R	Electrical switch 35 psid
S	Electrical/visual 100 psid w/12" 3-wire flying lead
T	Electrical switch 100 psid
U	Electrical switch 70 psid
V	Electrical/visual 70 psid w/TL
W	Electrical/visual 100 psid w/TL
X	Electrical/visual 15 psid w/TL and surge
Y	Electrical/visual 35 psid w/TL and surge
Z	Electrical/visual 100 psid w/TL and surge

TL (thermal lockout)

Table 5 (Secondary)

Receptacle Options	
CODE	ELECTRICAL STYLE
B	Brad Harrison (5-pin)
H	Hirschmann (4-pin)
N	None, for visual ΔP

Table 6

Seal Options	
CODE	MATERIAL
B	Buna N
E	E.P.R.
V	Viton

Table 7

Assembly & Element Length	
CODE (LGTH)	ELEMENT LENGTH
1 (8.5")	4.0"
2 (12.0")	8.0"

Table 8

Element Code	
CODE	DESCRIPTION
C	(Glass) 01, 03, 05, 10, 20
E	(Coreless) 01, 03, 05, 10
H	(Glass) 03, 10
Z	(Stainless steel)* 60,125,260

*Available in code length 2 only

Table 9

Media Rating	
CODE	TARGET FLUID CLEANLINESS LEVEL
01	Flushing only
03	16/14/12 or better
05	18/16/14 or better
10	20/18/15 or better
20	22/19/16 or better

Note: Information concerning fluid cleanliness codes is on page 6, the Media Grade Selection Guide.

Metric Porting Available

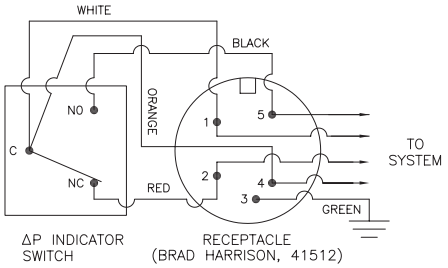
Change W350 to G350

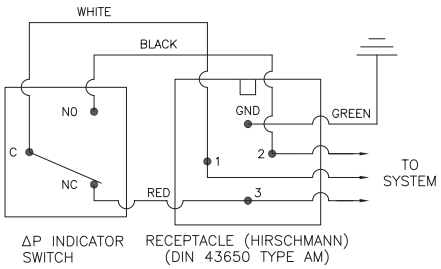
Porting code A becomes G-3/4" ISO 228 BSPP

Porting code B becomes G-1" ISO 228 BSPP

Indicator Switch Schematic Wiring Diagram

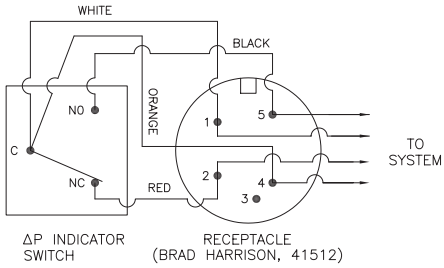
Aluminum Electrical Housings

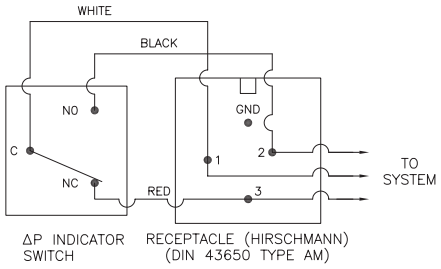




Note: The female plug (connector) is to be furnished by customer.

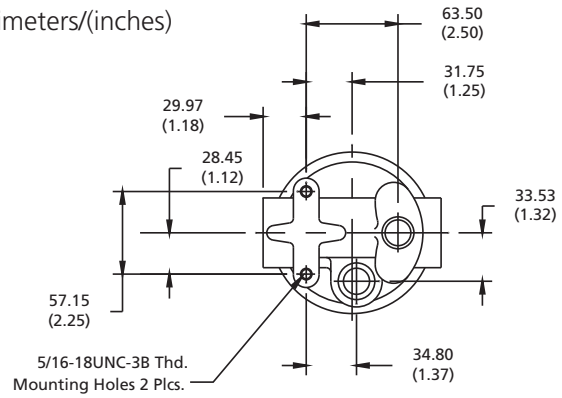
Plastic Electrical Housings

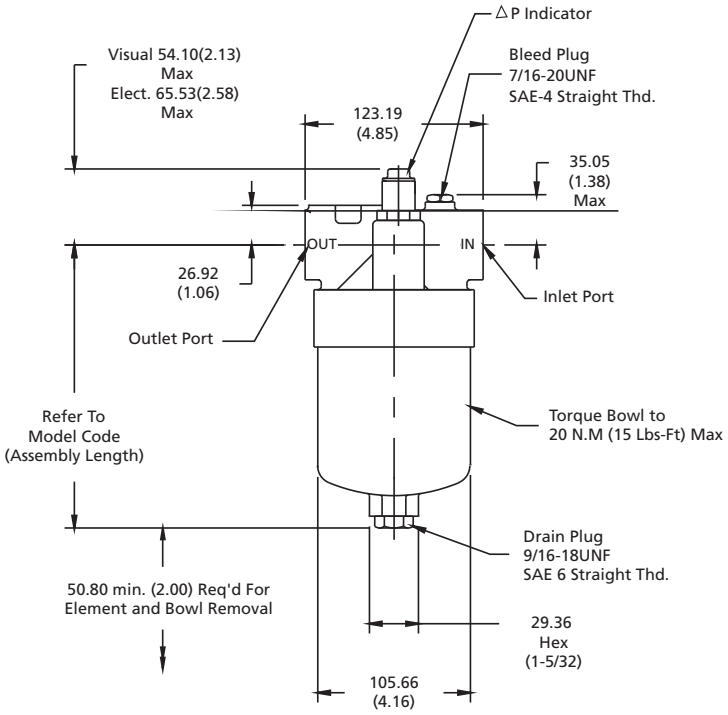




Note: The female plug (connector) is to be furnished by customer.

Dimensions: millimeters/(inches)





Differential Indicators:

Indicators are designed to actuate at approximately 80% of bypass valve cracking pressure. It is recommended that an indicator with a bypass setting of 100 psid is used with a non-bypass housing.

Surge Control:

This optional feature is used to dampen pressure surges or spikes to avoid premature actuation of the indicator. Surge control delays the indicator response.

Thermal Lockout:

The Thermal Lockout prevents premature signaling of a bypass condition created by viscous fluid during cold start-ups. Normal indicator actuation capability is resumed once the operating temperature of the fluid reaches approximately 80 Deg. F.

FEATURES

The W440 Series filter assembly can be manifold mounted to the hydraulic system. The size and material configuration are well suited for today's demanding proportional and servo applications. Our standard bowl drain plug helps relieve system pressure during filter change outs. Western Filter's proprietary BetaPore™ 5 layer media is offered in a variety of Pak™ designs. Three different media grades are offered down to 5.1µ(c). Element core collapse options range from 150 to 3000 PSI. The differential pressure indicator line is designed to work with the wide assortment of bypass valves. Thermal lockout and surge control are two key features incorporated in many of the valves.

Western Filter elements are compatible with petroleum oils, water glycol, oil/water, HWCF and synthetic fluids.

Technical Data:

Maximum Working Pressure	4000 psi (276 bar)
Fatigue Pressure Rating	2450 psi max (169 bar)
Typical Burst Pressure	10000 psi max (690 bar)
Temperature Range	Operating
Buna N	-45°F to + 225°F (-43°C to + 107°C)
Viton	-20°F to + 250°F (-29°C to + 121°C)
Head Material	Cast Iron
Bowl Material	Steel
Weight (without elements)	
Assembly length 1 8.4 lbs.	(3,8 kg.)
Assembly length 2 10.6 lbs.	(4,8 kg.)

W440

20 gpm (91 l/min)

Conforms to HF2 specifications

Positive sealing poppet bypass for reliability and zero leakage

Wide range of indicator options

Compact design for use with servo or proportional valve

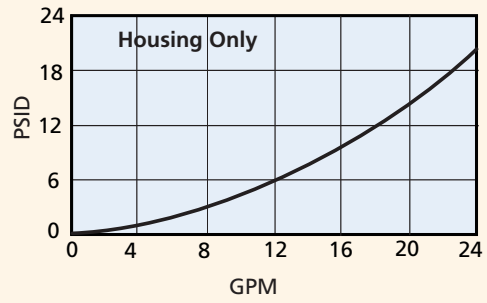
Two bowl length options for design flexibility

ACCESSORIES

Seal Kit -Buna N	P-427466-22
Seal Kit -E.P.R.	P-427466-24
Seal Kit -Viton	P-427466-23

Housing and Filter Element

Flow versus Pressure Drop
150 SUS (32 cSt.) oil with specific gravity ≤ 0.9

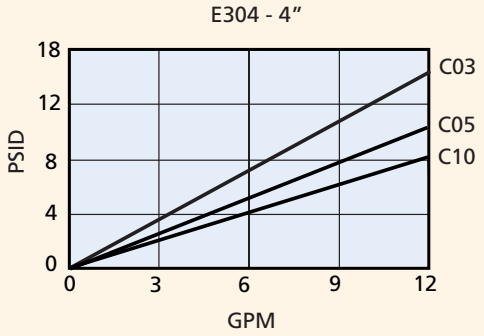


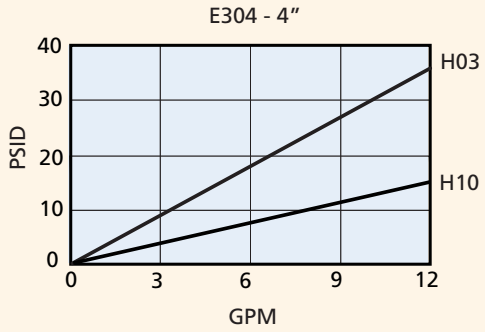
Viscosity Correction Formula

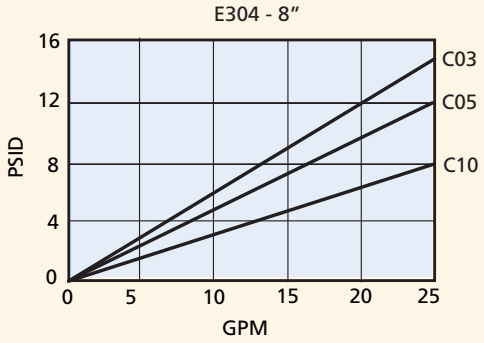
ΔP Element = psid from catalog X $\frac{\text{New Viscosity (SUS)}}{150}$ X $\frac{\text{New Specific Gravity}}{0.90}$

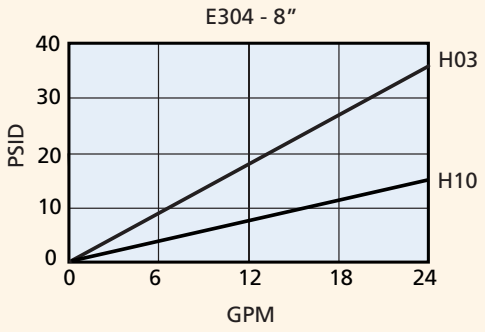
ΔP Housing = psid from catalog X $\frac{\text{New Specific Gravity}}{0.90}$

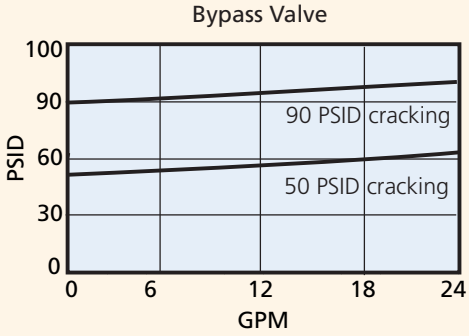
ΔP Assembly = ΔP Element + ΔP Housing











Filter Assembly	W440 (TABLE 1)	1 (TABLE 2)	S (TABLE 3)	1 (TABLE 4)	J | N (TABLE 5)	B (TABLE 6)	1 (TABLE 7)	C (TABLE 8)	10 (TABLE 9)
Service Element	E304 (TABLE 1)	1 (TABLE 2)	B (TABLE 6)	1 (TABLE 7)	C (TABLE 8)	10 (TABLE 9)			

Order model code W4401A4LNB2C10 for same day shipment.

Table 1

Filter Assembly / Service Element	
CODE	DESCRIPTION
W440	Assembly
E304	Element

Table 2

Element Collapse Options	
CODE	DESCRIPTION
1	150 psid for housing w/bypass valve
4	3000 psi for housing w/o bypass valve (H-Pak™ only)

Table 3

Port Size Options	
CODE	PORT SIZE
A	1-1/16" - 12 UN (SAE 12)
S	Manifold mounting

Table 4

Bypass Setting Options	
CODE	BYPASS SETTING
1	Non-bypass
4	50 psid
6	90 psid

Note: Use option 1 code only with 3000 psid collapse filter element.

Table 5 (Primary)

Indicator Style and Setting	
CODE	ΔP INDICATOR STYLE & SETTING
A	Visual indicator 70 psid w/TL & surge
B	Electrical/visual 70 psid w/TL and surge
D	Electrical/visual 35 psid
E	Electrical/visual 100 psid
G	Electrical/visual 35 psid w/TL
I	Visual indicator 70 psid
J	ΔP indicator plug
L	Visual indicator 35 psid
M	Visual indicator 35 psid w/ TL and surge
N	Electrical/visual 35 psid w/12" 3-wire flying lead
O	Visual indicator 100 psid
P	Visual indicator 100 psid w/TL and surge
R	Electrical switch 35 psid
S	Electrical/visual 100 psid w/12" 3-wire flying lead
T	Electrical switch 100 psid
U	Electrical switch 70 psid
V	Electrical/visual 70 psid w/TL
W	Electrical/visual 100 psid w/TL
Y	Electrical/visual 35 psid w/TL and surge
Z	Electrical/visual 100 psid w/TL and surge

TL (thermal lockout)

Table 5 (Secondary)

Receptacle Options	
CODE	ELECTRICAL STYLE
B	Brad Harrison (5-pin)
H	Hirschmann (4-pin)
N	None, for visual ΔP

Table 6

Seal Options	
CODE	MATERIAL
B	Buna N
E	E.P.R.
V	Viton

Table 7

Assembly & Element Length	
CODE (LGTH)	ELEMENT LENGTH
1 (7.18")	4.0"
2 (10.8")	8.0"*

*HF2

Table 8

Element Code	
CODE	DESCRIPTION
C	(Glass) 03, 05, 10
H	(Glass) 03, 10

Table 9

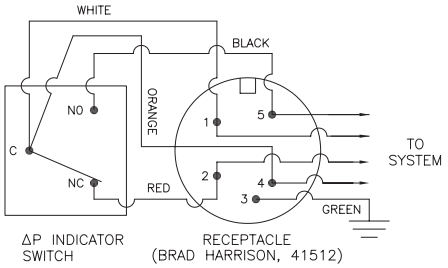
Media Rating	
CODE	TARGET FLUID CLEANLINESS LEVEL
03	16/14/12 or better
05	18/16/14 or better
10	20/18/15 or better
15	21/19/16 or better
20	22/19/16 or better

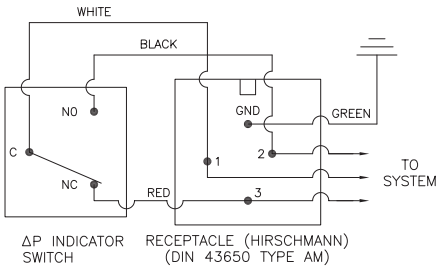
Note: Information concerning fluid cleanliness codes is on page 6, the Media Grade Selection Guide.

Metric Porting Available
Change W440 to G440
Porting code A becomes G-3/4" ISO 228 BSPP

Indicator Switch Schematic Wiring Diagram

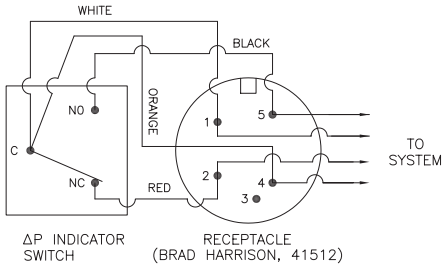
Aluminum Electrical Housings

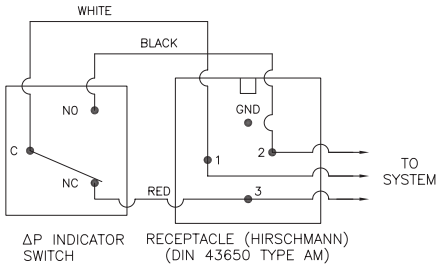




Note: The female plug (connector) is to be furnished by customer.

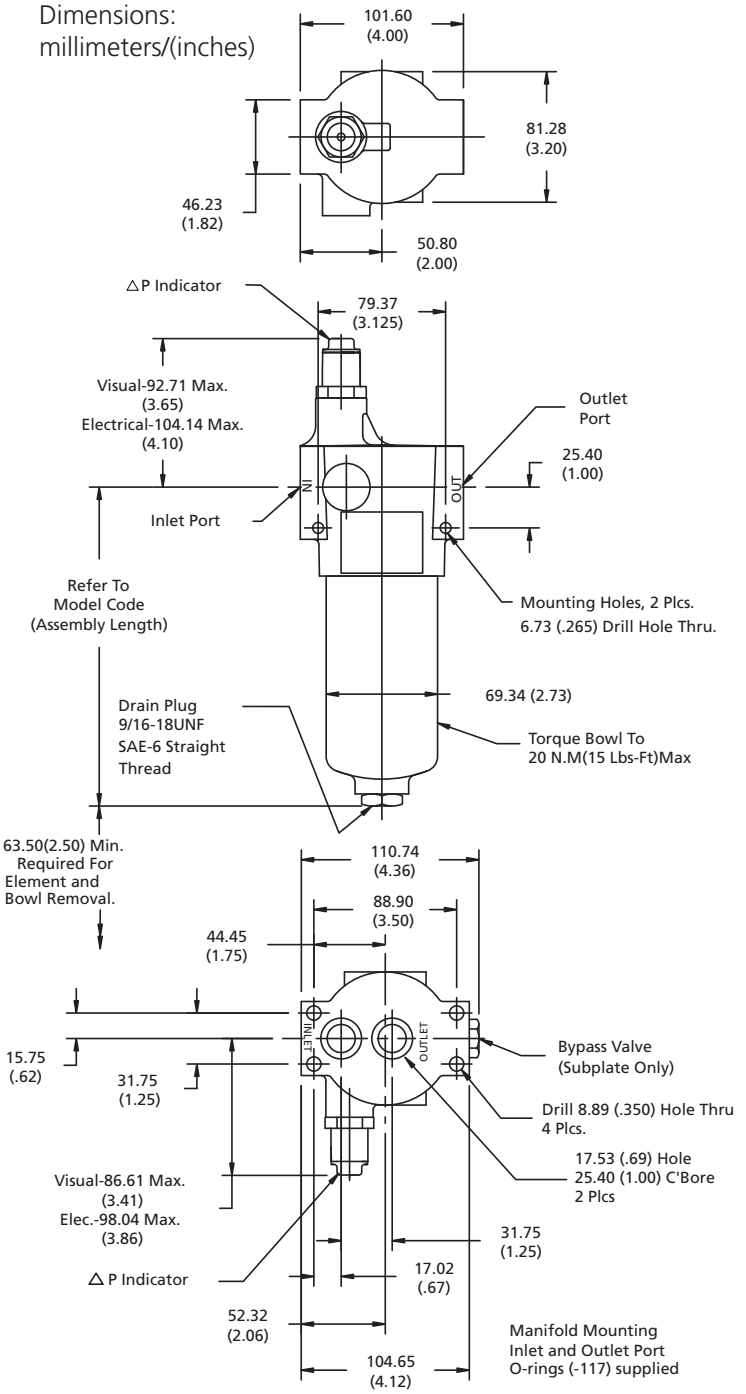
Plastic Electrical Housings





Note: The female plug (connector) is to be furnished by customer.

Dimensions: millimeters/(inches)



Differential Indicators: Indicators are designed to actuate at approximately 80% of bypass valve cracking pressure. It is recommended that an indicator with a bypass setting of 100 psid is used with a non-bypass housing.

Surge Control: This optional feature is used to dampen pressure surges or spikes to avoid premature actuation of the indicator. Surge control delays the indicator response.

Thermal Lockout: The Thermal Lockout prevents premature signaling of a bypass condition created by viscous fluid during cold start-ups. Normal indicator actuation capability is resumed once the operating temperature of the fluid reaches approximately 80 Deg. F.

FEATURES

The W451 base mounted filter series provide for easy servicing featuring top cover access for element change out. The ductile iron filter head design provides for SAE ports along with a space saving manifold mounting pattern that is interchangable with many competitive models. This product features the popular HF4 automotive standard. Western Filter's proprietary BetaPore™ 5 layer media is offered in a variety of Pak™ designs. Five media grades are offered down to 4.0µ(c) and Z-Pak™ stainless steel media is optional. Element core collapse options range from 150 to 3000 PSI. The differential pressure indicator line is designed to work with the wide assortment of bypass valves. Thermal lockout and surge control are two key features incorporated in many of the valves.

Western Filter elements are compatible with petroleum oils, water glycol, oil/water, HWCF and synthetic fluids.

Technical Data:

Maximum Working Pressure	4500 psi (310 bar)
Fatigue Pressure Rating	3000 psi max (207 bar)
Typical Burst Pressure	13,500 psi max (931 bar)
Temperature Range	Operating -45°F to + 250°F (-43°C to + 121°C)
Head and Cap Material	Cast Iron
Bowl and Cap Material	Steel
Weight (without elements)	
Assembly length 3 57.7 lbs.	(26,2 kg.)
Assembly length 6 78.1 lbs.	(35,4 kg.)
Assembly length 7 98.5 lbs.	(44,7 kg.)
Assembly length 8 119.9 lbs.	(54,4 kg.)

W451

150 gpm (568 l/min)

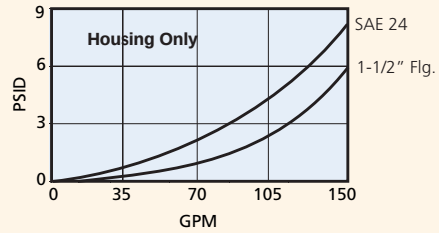
- Conforms to HF4 automotive specifications
- High collapse H-Pak™ element available for use with non-bypass applications
- Accepts coreless elements with removable core tube
- Four bowl length options for design flexibility
- Wide range of visual or electrical/visual indicators
- Diagnostic port in head for easy system analysis
- Drain port in base

ACCESSORIES

Seal Kit -Buna N	P-427466-46
Seal Kit -E.P.R.	P-427466-47
Seal Kit -Viton	P-427466-48
Element Connector	P-227567-01
Core Tube Assembly-Code Length-3	PW451R3BN
Core Tube Assembly-Code Length-6	PW451R6BN
Core Tube Assembly-Code Length-7	PW451R7BN
Core Tube Assembly-Code Length-8	PW451R8BN

Housing and Filter Element

Flow versus Pressure Drop
150 SUS (32 cSt.) oil with specific gravity ≤ 0.9



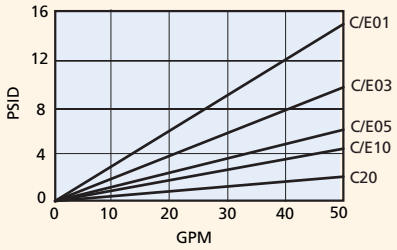
Viscosity Correction Formula

ΔP Element = psid from catalog X $\frac{\text{New Viscosity (SUS)}}{150}$ X $\frac{\text{New Specific Gravity}}{0.90}$

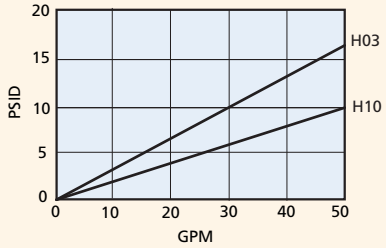
ΔP Housing = psid from catalog X $\frac{\text{New Specific Gravity}}{0.90}$

ΔP Assembly = ΔP Element + ΔP Housing

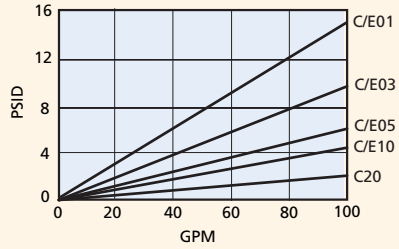
E405 - 9"



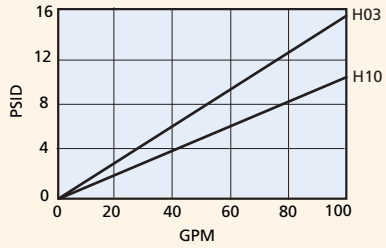
E405 - 9"



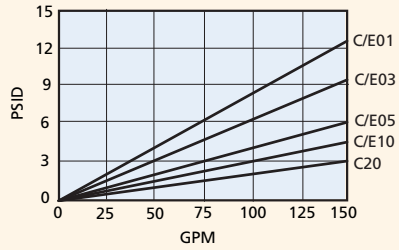
E405 - 18"



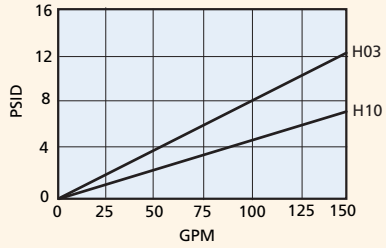
E405 - 18"



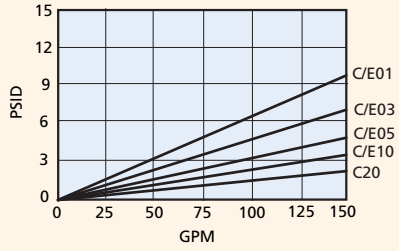
E405 - 27"



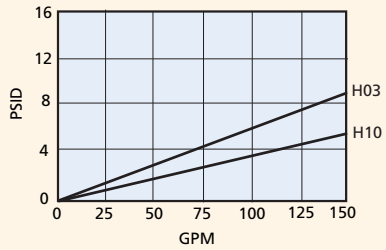
E405 - 27"



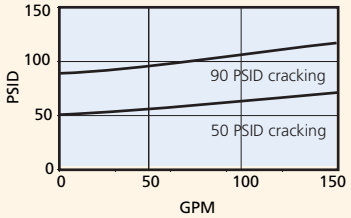
E405 - 36"



E405 - 36"



Bypass Valve



Filter Assembly	W451 (TABLE 1)	1 (TABLE 2)	D (TABLE 3)	4 (TABLE 4)	J | N (TABLE 5)	B (TABLE 6)	3 (TABLE 7)	C (TABLE 8)	10 (TABLE 9)
Service Element	E405 (TABLE 1)	1 (TABLE 2)	B (TABLE 6)	3 (TABLE 7)	C (TABLE 8)	10 (TABLE 9)			

Table 1

Filter Assembly / Service Element	
CODE	DESCRIPTION
W451	Assembly
E405	Element

Table 2

Element Collapse Options	
CODE	DESCRIPTION
1	150 psid for housing w/bypass valve
4	3000 psi for housing w/o bypass valve (H-Pak™ only)

Note: E-Pak™ elements rated at 100 psid collapse. If used in non-bypass housing, a differential pressure indicator (70 psid max.) should be used.

Table 3

Port Size Options	
CODE	PORT SIZE
D	1-7/8" - 12 UN (SAE 24)
E	1-1/2" 4 Bolt Flange Code 61
R	1-1/2" 4 Bolt Flange Code 62
S	Manifold Mounting
U	1-1/2" NPT

Table 4

Bypass Setting Options	
CODE	BYPASS SETTING
1	Non-bypass
4	50 psid
6	90 psid

Note: Use option 1 code only with 3000 psid collapse filter element.

Table 5 (Primary)

Indicator Style and Setting	
CODE	ΔP INDICATOR STYLE & SETTING
A	Visual indicator 70 psid w/TL and surge
B	Electrical/visual 70 psid w/TL and surge
D	Electrical/visual 35 psid
E	Electrical/visual 100 psid
G	Electrical/visual 35 psid w/TL
I	Visual indicator 70 psid
J	ΔP indicator plug
L	Visual indicator 35 psid
M	Visual indicator 35 psid w/ TL and surge
N	Electrical/visual 35 psid w/12" 3-wire flying lead
O	Visual indicator 100 psid
P	Visual indicator 100 psid w/TL and surge
R	Electrical switch 35 psid
S	Electrical/visual 100 psid w/12" 3-wire flying lead
T	Electrical switch 100 psid
U	Electrical switch 70 psid
V	Electrical/visual 70 psid w/TL
W	Electrical/visual 100 psid w/TL
Y	Electrical/visual 35 psid w/TL and surge
Z	Electrical/visual 100 psid w/TL and surge

TL (thermal lockout)

Table 5 (Secondary)

Receptacle Options	
CODE	ELECTRICAL STYLE
B	Brad Harrison (5-pin)
H	Hirschmann (4-pin)
N	None, for visual ΔP

Table 6

Seal Options	
CODE	MATERIAL
B	Buna N
E	E.P.R.
V	Viton

Table 7

Assembly & Element Length	
CODE (LGTH)	ELEMENT LENGTH
3 (15.31")	9.0"
6 (24.70")	18.0"*
7 (34.00")	27.0"
8 (37.56")	36.0"

Note: Code lengths 6, 7 & 8 media elements may be stacked using connector part # P-227567-01 and code length 3 elements.

Table 8

Element Code	
CODE	DESCRIPTION
C	(Glass) 01, 03, 05, 10, 20
E	(Coreless) 01, 03, 05, 10
H	(Glass) 03, 10

Table 9

Media Rating	
CODE	TARGET FLUID CLEANLINESS LEVEL
01	Flushing only
03	16/14/12 or better
05	18/16/14 or better
10	20/18/15 or better
20	22/19/16 or better

Note: Information concerning fluid cleanliness codes is on page 6, the Media Grade Selection Guide.

Metric Porting Available

Change W451 to G451

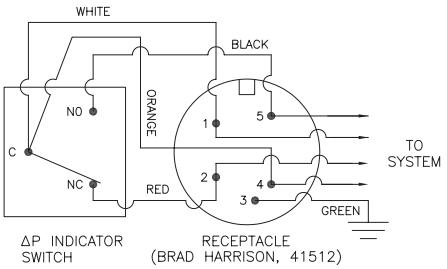
Porting code D becomes 1-1/2" ISO 228 BSPP

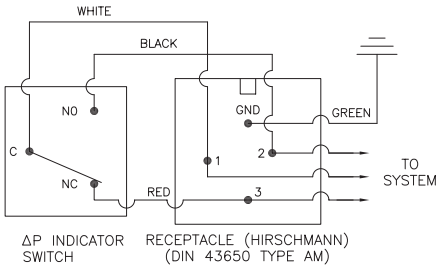
Porting code E becomes 1-1/2" SAE 4 bolt flange with M12 mounting threads

Porting code R becomes 1-1/2" SAE 4 bolt flange with M16 mounting threads

Indicator Switch Schematic Wiring Diagram

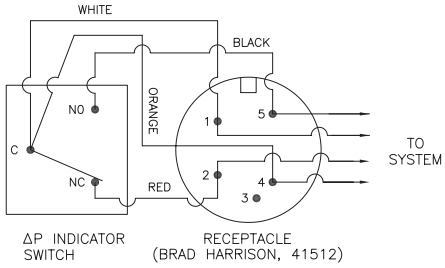
Aluminum Electrical Housings

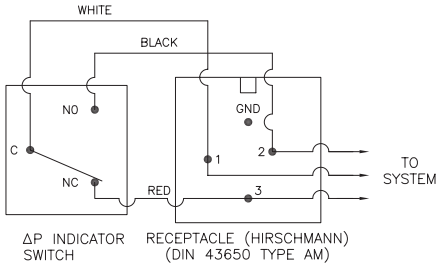




Note: The female plug (connector) is to be furnished by customer.

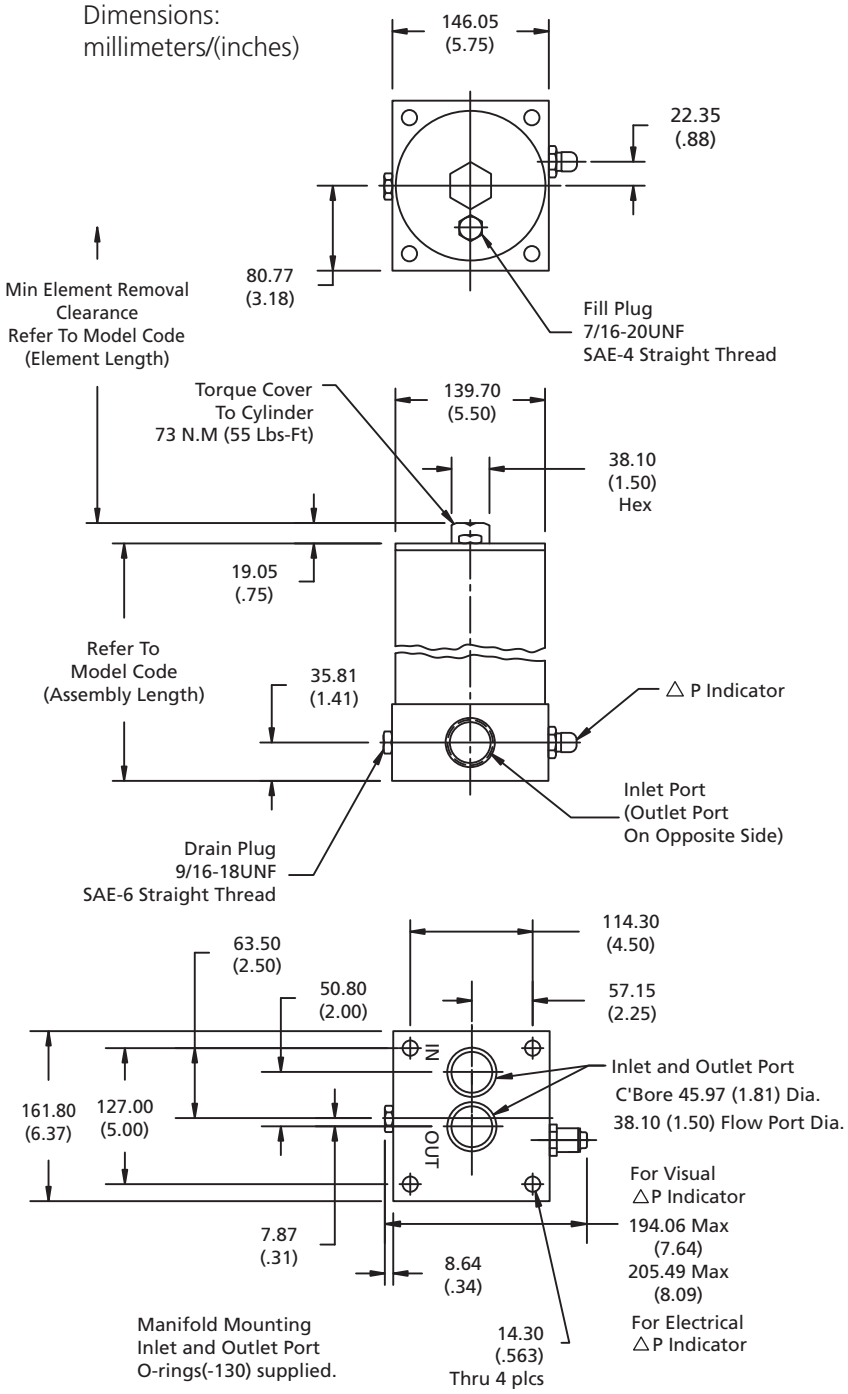
Plastic Electrical Housings





Note: The female plug (connector) is to be furnished by customer.

Dimensions: millimeters/(inches)



Differential Indicators: Indicators are designed to actuate at approximately 80% of bypass valve cracking pressure. It is recommended that an indicator with a bypass setting of 100 psid is used with a non-bypass housing.

Surge Control: This optional feature is used to dampen pressure surges or spikes to avoid premature actuation of the indicator. Surge control delays the indicator response.

Thermal Lockout: The Thermal Lockout prevents premature signaling of a bypass condition created by viscous fluid during cold start-ups. Normal indicator actuation capability is resumed once the operating temperature of the fluid reaches approximately 80 Deg. F.

FEATURES

The W551 base mounted filter series provide for easy servicing featuring top cover access for element change out. Similar to other HF4 series, the W551 exceeds the operating, fatigue, and burst pressure of most competitive models and makes it the ideal choice for higher cyclic and heavy-duty applications without the higher cost of going to a full 6,000 PSI rated filter. This product features the popular HF4 automotive standard. Western Filter's proprietary BetaPore™ 5 layer media is offered in a variety of Pak™ designs. Five media grades are offered down to 4.0µ(c) and Z-Pak™ stainless steel media is optional. Element core collapse options range from 150 to 3000 PSI. The differential pressure indicator line is designed to work with the wide assortment of bypass valves. Thermal lockout and surge control are two key features incorporated in many of the indicators.

Western Filter elements are compatible with petroleum oils, water glycol, oil/water, HWCF and synthetic fluids.

Technical Data:

Maximum Working Pressure	5250 psi
Fatigue Pressure Rating	3750 psi
Typical Burst Pressure	15750 psi
Temperature Range	Operating -45°F to + 250°F (-43°C to + 121°C)
Head and Cap Material	Cast Iron
Bowl and Cap Material	Steel
Weight (without elements)	
Assembly length 3 71 lbs.	(32,2 kg.)
Assembly length 6 91.45 lbs.	(41,6 kg.)
Assembly length 7 111.8 lbs.	(50,7 kg.)
Assembly length 8 132.4 lbs.	(60,1 kg.)

W551

Conforms to HF4 automotive specifications

Four bowl length options for design flexibility

Accepts coreless elements with removable core tube

High collapse H-Pak™ element available for use with non-bypass applications

Wide range of visual or electrical/visual indicators

Diagnostic port in head for easy system analysis

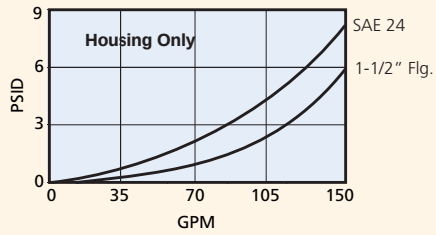
Drain port in base

ACCESSORIES

Seal Kit -Buna N	P-239935-01
Seal Kit -E.P.R.	P-239935-02
Seal Kit -Viton	P-239935-03
Element Connector	P-227567-01
Core Tube Assembly-Code Length-3	PW451R3BN
Core Tube Assembly-Code Length-6	PW451R6BN
Core Tube Assembly-Code Length-7	PW451R7BN
Core Tube Assembly-Code Length-8	PW451R8BN

Housing and Filter Element

Flow versus Pressure Drop
150 SUS (32 cSt.) oil with specific gravity ≤ 0.9



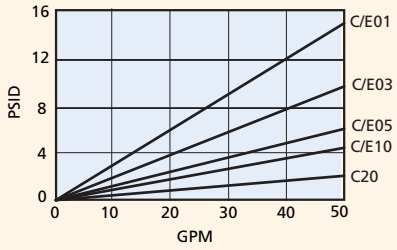
Viscosity Correction Formula

ΔP Element = psid from catalog X $\frac{\text{New Viscosity (SUS)}}{150}$ X $\frac{\text{New Specific Gravity}}{0.90}$

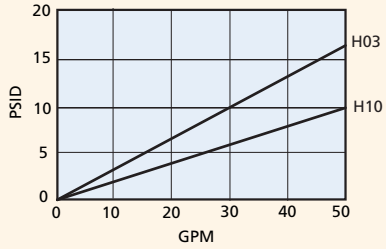
ΔP Housing = psid from catalog X $\frac{\text{New Specific Gravity}}{0.90}$

ΔP Assembly = ΔP Element + ΔP Housing

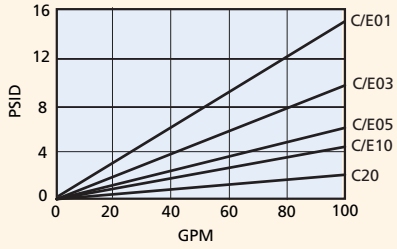
E405 - 9"



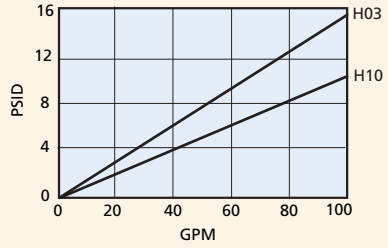
E405 - 9"



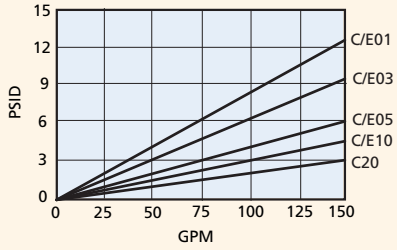
E405 - 18"



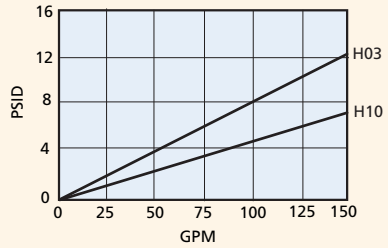
E405 - 18"



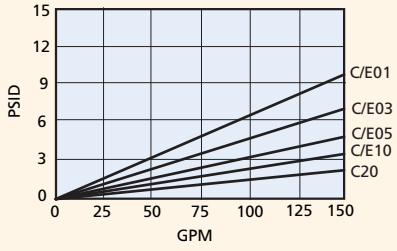
E405 - 27"



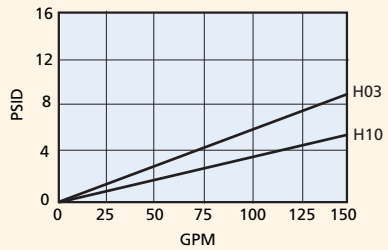
E405 - 27"



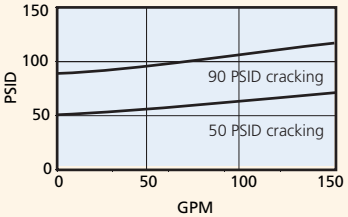
E405 - 36"



E405 - 36"



Bypass Valve



Filter Assembly	W551 TABLE 1	1 TABLE 2	D TABLE 3	4 TABLE 4	J | N TABLE 5	B TABLE 6	3 TABLE 7	C TABLE 8	10 TABLE 9
Service Element	E405 TABLE 1	1 TABLE 2	B TABLE 6	3 TABLE 7	C TABLE 8	10 TABLE 9			

Order model code W5511E4LNB3C10 or W5511E4LNB6C10 for same day shipment.

Table 1

Filter Assembly / Service Element	
CODE	DESCRIPTION
W551	Assembly
E405	Element

Table 2

Element Collapse Options	
CODE	DESCRIPTION
1	150 psid for housing w/bypass valve
4	3000 psi for housing w/o bypass valve (H-Pak™ only)

Note: E-Pak™ elements rated at 100 psid collapse. If used in non-bypass housing, a differential pressure indicator (70 psid max.) should be used.

Table 3

Port Size Options	
CODE	PORT SIZE
D	1-7/8" - 12 UN (SAE 24)
R	1-1/2" 4 Bolt Flange Code 62
S	Manifold Mounting
U	1-1/2" NPT

Table 4

Bypass Setting Options	
CODE	BYPASS SETTING
1	Non-bypass
4	50 psid
6	90 psid

Note: Use option 1 code only with 3000 psid collapse filter element.

Table 5 (Primary)

Indicator Style and Setting	
CODE	ΔP INDICATOR STYLE & SETTING
A	Visual indicator 70 psid w/TL and surge
B	Electrical/visual 70 psid w/TL and surge
D	Electrical/visual 35 psid
E	Electrical/visual 100 psid
G	Electrical/visual 35 psid w/TL
I	Visual indicator 70 psid
J	ΔP indicator plug
L	Visual indicator 35 psid
M	Visual indicator 35 psid w/ TL and surge
N	Electrical/visual 35 psid w/12" 3-wire flying lead
O	Visual indicator 100 psid
P	Visual indicator 100 psid w/TL and surge
R	Electrical switch 35 psid
S	Electrical/visual 100 psid w/12" 3-wire flying lead
T	Electrical switch 100 psid
U	Electrical switch 70 psid
V	Electrical/visual 70 psid w/TL
W	Electrical/visual 100 psid w/TL
Y	Electrical/visual 35 psid w/TL and surge
Z	Electrical/visual 100 psid w/TL and surge

TL (thermal lockout)

Table 5 (Secondary)

Receptacle Options	
CODE	ELECTRICAL STYLE
B	Brad Harrison (5-pin)
H	Hirschmann (4-pin)
N	None, for visual ΔP

Table 6

Seal Options	
CODE	MATERIAL
B	Buna N
E	E.P.R.
V	Viton

Table 7

Assembly & Element Length	
CODE (LGTH)	ELEMENT LENGTH
3 (15.31")	9.0"
6 (24.70")	18.0"*
7 (34.00")	27.0"
8 (43.39")	36.0"

Note: Code lengths 6, 7 & 9 media elements may be stacked using connector part # P-227567-9 and code length 3 elements.

Table 8

Element Code	
CODE	DESCRIPTION
C	(Glass) 01, 03, 05, 10, 20
E	(Coreless) 01, 03, 05, 10
H	(Glass) 03, 10

Table 9

Media Rating	
CODE	TARGET FLUID CLEANLINESS LEVEL
01	Flushing only
03	16/14/12 or better
05	18/16/14 or better
10	20/18/15 or better
20	22/19/16 or better

Note: Information concerning fluid cleanliness codes is on page 6, the Media Grade Selection Guide.

Metric Porting Available

Change W451 to G451

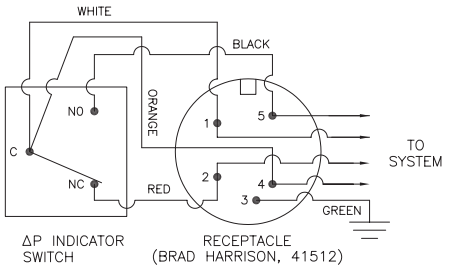
Porting code D becomes 1-1/2" ISO 228 BSPP

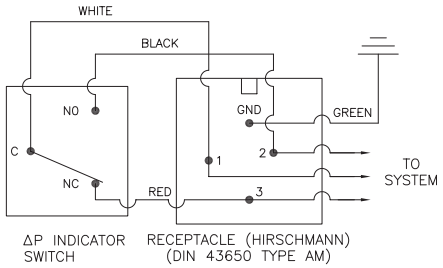
Porting code E becomes 1-1/2" SAE 4 bolt flange with M12 mounting threads

Porting code R becomes 1-1/2" SAE 4 bolt flange with M16 mounting threads

Indicator Switch Schematic Wiring Diagram

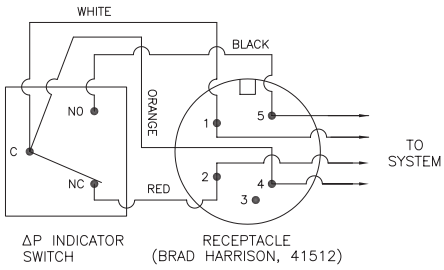
Aluminum Electrical Housings

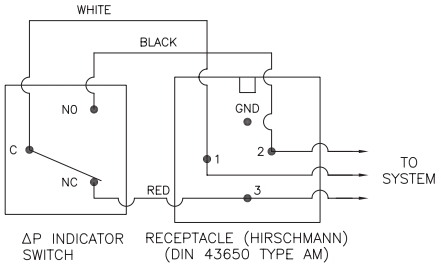




Note: The female plug (connector) is to be furnished by customer.

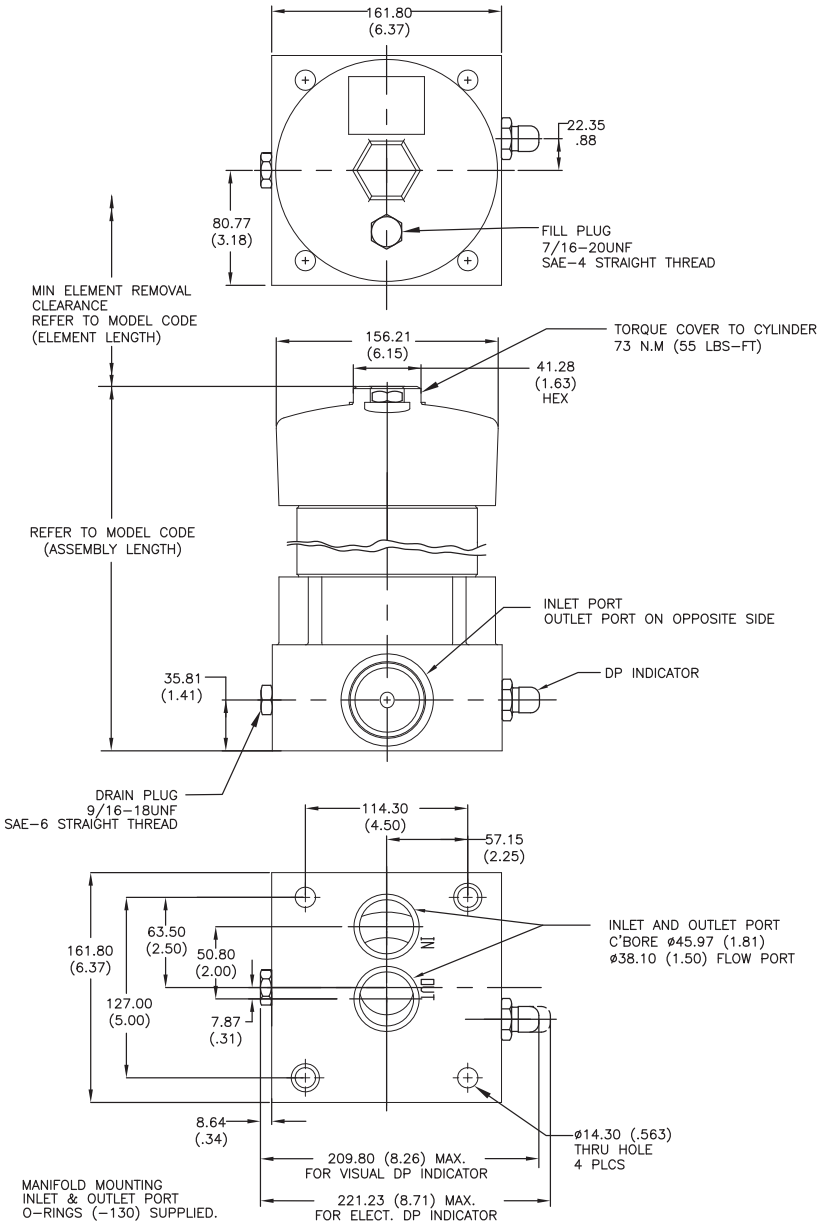
Plastic Electrical Housings





Note: The female plug (connector) is to be furnished by customer.

Dimensions:
millimeters/(inches)



Differential Indicators: Indicators are designed to actuate at approximately 80% of bypass valve cracking pressure. It is recommended that an indicator with a bypass setting of 100 psid is used with a non-bypass housing.

Surge Control: This optional feature is used to dampen pressure surges or spikes to avoid premature actuation of the indicator. Surge control delays the indicator response.

Thermal Lockout: The Thermal Lockout prevents premature signaling of a bypass condition created by viscous fluid during cold start-ups. Normal indicator actuation capability is resumed once the operating temperature of the fluid reaches approximately 80 Deg. F.