

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 optional space saving manifold mounting. 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. 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	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



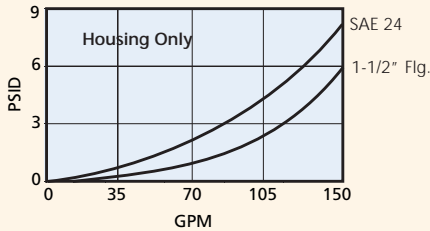
ACCESSORIES

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

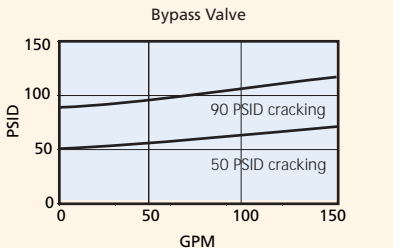
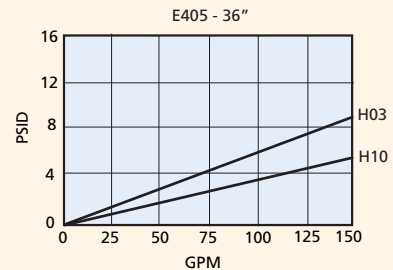
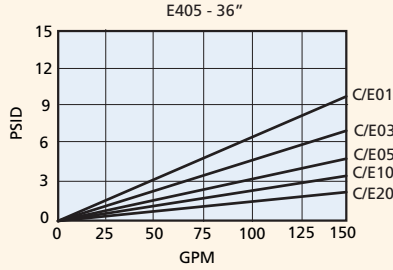
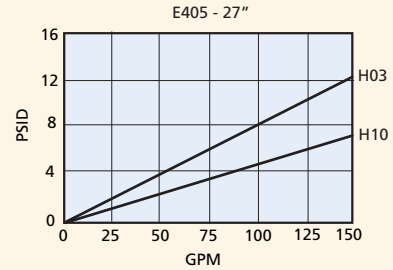
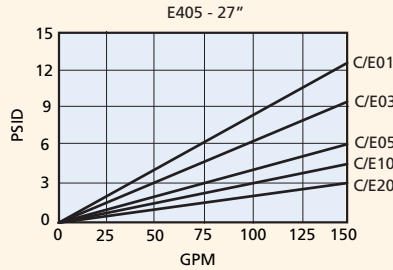
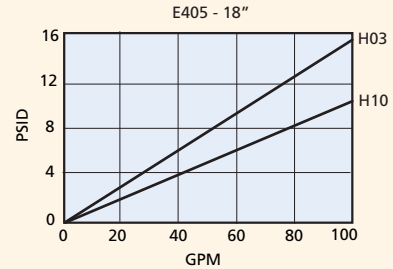
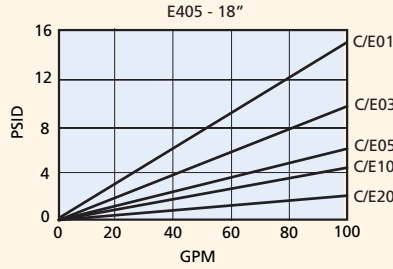
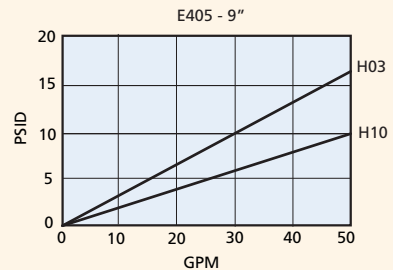
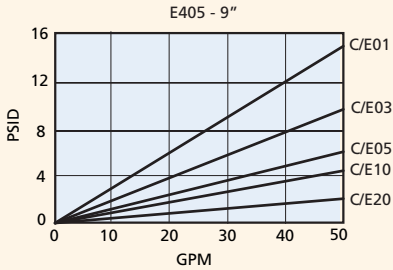
150 SUS (32 cSt.) oil with specific gravity ≤ 0.9



Viscosity Correction Formula

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

$$\Delta P \text{ Housing} = \text{psid from catalog} \times \frac{\text{New Specific Gravity}}{0.90}$$

$$\Delta P \text{ Assembly} = \Delta P \text{ Element} + \Delta P \text{ Housing}$$


HIGH PRESSURE SPIN-ON FILTERS
 LOW PRESSURE SPIN-ON FILTERS
 IN-TANK FILTERS
 LOW PRESSURE FILTERS
 MEDIUM PRESSURE FILTERS
 HIGH PRESSURE FILTERS

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

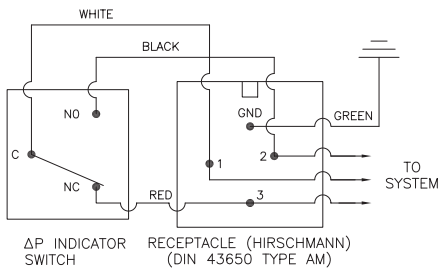
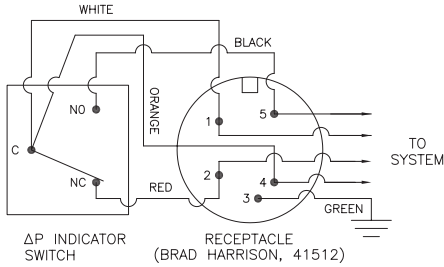
Porting code D becomes 1-1/2" ISO 228 BSPP

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

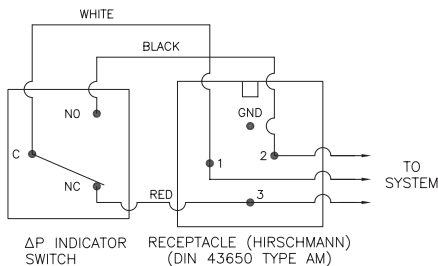
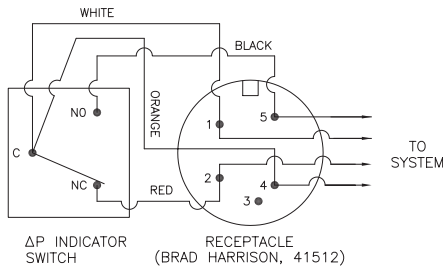
Indicator Switch Schematic Wiring Diagram

Aluminum Electrical Housings



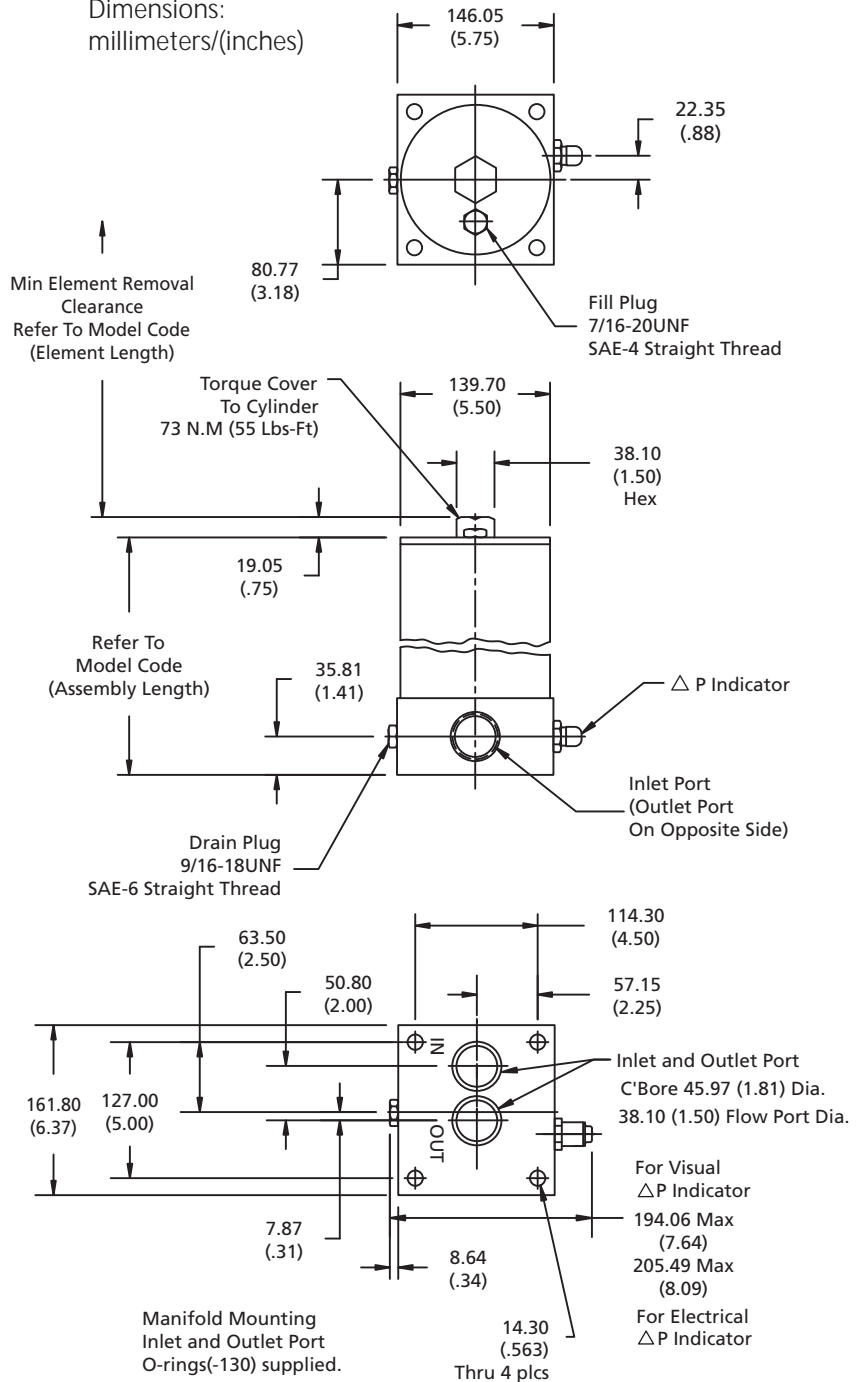
Note: The female plug (connector) is to be furnished by customer.

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.