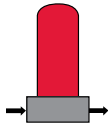


HIGH PRESSURE FILTERS

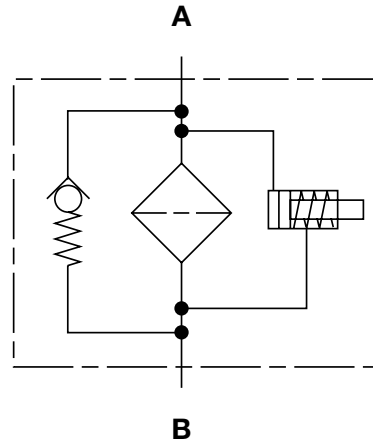
HF4P Series

Inline Filters

5000 psi • up to 120 gpm



Hydraulic Symbol



Features

- Meets HF4 automotive standard
- Non-welded housing design reduces stress concentrations and prevents fatigue failure.
- Inlet/Outlet port options include SAE straight thread O-ring boss, SAE flange code 62 and code 61 (optional) BSPP and subplate mounting to allow easy installation without costly adapters.
- O-ring seals are used to provide positive, reliable sealing. A choice of O-ring materials (nitrile rubber or fluorocarbon elastomer) provides compatibility with petroleum oils, synthetic fluids, water-glycols, oil/water emulsions, and high water based fluids.
- The element filter housing is permanently mounted above the filter head for easy top access and minimal clearance to remove elements for replacement.
- Clogging indicators are actuated by differential pressure and have no external dynamic seal. High reliability is achieved and magnetic indicator actuation eliminates a potential leak point.
- A poppet type bypass valve located in filter head base is mounted between the inlet and outlet port to provide positive sealing during normal operation and fast response during cold starts and flow surges.
- Fatigue pressure rating equals maximum allowable working pressure rating.

Applications



Automotive



Construction



Industrial



Power Generation



Pulp & Paper



Railways



Steel / Heavy Industry

Technical Specifications

Mounting Method	4 mounting holes
Port Connection	SAE-24, 1 1/2" BSPP, 1 1/2" SAE Flange Code 61, 1 1/2" SAE Flange Code 62, Manifold Mount
Flow Direction	Inlet: Side Outlet: Side (opposite each other)
Construction Materials	Head, Cap Housing Ductile iron Steel
Flow Capacity	9" 50 gpm (189 lpm) 18" 100 gpm (378 lpm) 27" 120 gpm (454 lpm)
Housing Pressure Rating	Max. Allowable Working Pressure 5000 psi (345 bar) Fatigue Pressure 5000 psi (345 bar) @ 1 million cycles Burst Pressure 15,000 psi (1040 bar)
Element Collapse Pressure Rating	BH 3045 psid (210 bar) BN 145 psid (10 bar)
Fluid Temperature Range	14°F to 212°F (-10°C to 100°C) Consult HYDAC for applications operating below 14°F (-10°C)
Fluid Compatibility	Compatible with all hydrocarbon based, synthetic, water glycol, oil/water emulsion, and high water based fluids when the appropriate seals are selected.
Indicator Trip Pressure	$\Delta P = 29$ psid (2 bar) -10% (optional) $\Delta P = 72$ psid (5 bar) -10% (standard) $\Delta P = 116$ psid (8 bar) -10% (optional on non-bypass filters)
Bypass Valve Cracking Pressure	$\Delta P = 43$ psid (3 bar) +10% (optional) $\Delta P = 87$ psid (6 bar) +10% (standard) Non Bypass Available

Model Code

HF4P BN 09 G 3 D 1 . 1 / 12 V B6 L115

Filter Type _____
 HF4P = Inline pressure filter

Element Media _____
 BH = Betamicon® (High Collapse) BN = Betamicon® (Low Collapse) W = Wire Mesh

Element Length _____
 09 = 9 inches 18 = 18 inches 27 = 27 inches

Type of Connection _____
 P = Manifold Mount G = Threaded In-Line F = Flanged

Filtration Rating (microns) _____
 3, 5, 10, 20 = BH, BN 25, 74, 149 = W

Type of Clogging Indicator _____
 A, BM, C, D, J, J4 (others available upon request)

Type Code _____
 1

Modification Number (the latest version is always supplied) _____

Port Configuration _____
 (omit) = Manifold mount (use when "P" connection type is selected)
 0 = 1 1/2" BSPP Straight Threads
 12 = SAE-24 straight thread O-ring boss
 16 = 1 1/2" SAE 4 bolt flange code 61 or 62

Seals _____
 (omit) = Nitrile rubber (NBR) (standard) V = Fluorocarbon elastomer (FKM)

Bypass Valve _____
 (omit) = Non-bypass – Critical applications (high collapse element required)
 B3 = 43 psid (3 bar)
 B6 = 87 psid (6 bar) Standard setting for pressure filters

Supplementary Details _____
 W = "VD..." indicator modified with a brass piston for use with high water based emulsions/solutions (HFA) & (HFC)
 L24, L48, L110, L220 = Lamp for D-type clogging indicator (LXX, XX = voltage)
 T100 = Thermal lockout on indicator at 100°F (C, D, J, and J4 indicators only)
 Code 61 = 4 Bolt Code 61 (changes MAWP from 5000 PSI to 3000 PSI)
 cRUus = Electrical Indicator with underwriter's recognition

Replacement Element Model Code

5 . 03 . 09 D 03 BN / V

Length (nominal inches) _____
 09, 18, 27

Filtration Rating (micron) _____
 3, 5, 10, 20 = BN, BH
 25, 74, 149 = W

Element Media _____
 BN, BH, W

Seals _____
 (omit) = Nitrile rubber (NBR) (standard)
 V = Fluorocarbon elastomer (FKM)

Clogging Indicator Model Code

VD 5 D . X / V

Indicator Prefix _____
 VD = G 1/2 6000 psi

Trip Pressure _____
 2 = 29 psid (2 bar) (option)
 5 = 72 psid (5 bar) (standard)
 Optional 15 psid (1 bar) & 116 psid (8 bar) available upon request

Type of Indicator _____
 A = No indicator, plugged port
 BM = Pop-up indicator (manual reset)
 C = Electric switch - SPDT
 D = Electric switch and LED light - SPDT
 J = Electric switch
 (Brad Harrison 5-pin mini connector)
 J4 = Electric switch - M12
 (Brad Harrison 4-pin micro connector)

Modification Number _____

Supplementary Details _____

Seals _____
 (omit) = Nitrile rubber (NBR) (standard)
 V = Fluorocarbon elastomer (FKM)

Light Voltage (D type indicators only) _____
 L24 = 24V L48 = 48V L110 = 110V L220 = 220V

Thermal Lockout (VM, VD types C, D, J, and J4 only) _____
 T100 = Lockout below 100°F

Underwriters Approval (VM, VD types C, D, J, and J4 only) _____
 cRUus = Electrical Indicators with underwriter's recognition

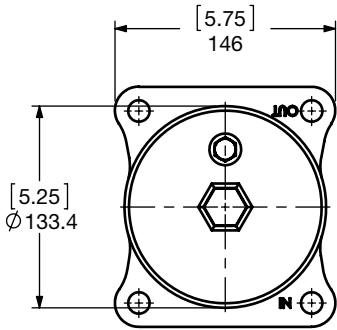
W = "VD..." indicator modified with a brass piston for use with high water based emulsions/solutions (HFA) & (HFC)

(For additional details and options, see Section G - Clogging Indicators.)

Model Codes Containing RED are non-stock items — Minimum quantities may apply — Contact HYDAC for information and availability

HIGH PRESSURE FILTERS

Dimensions HF4P Inline

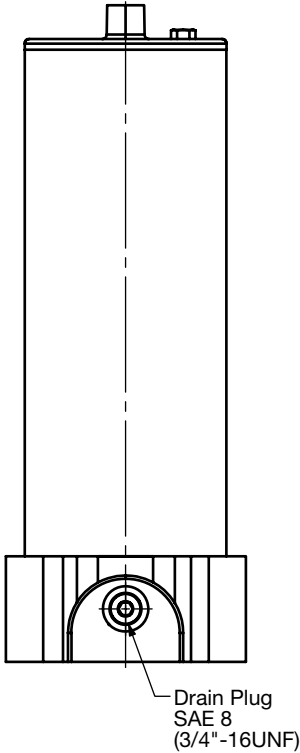
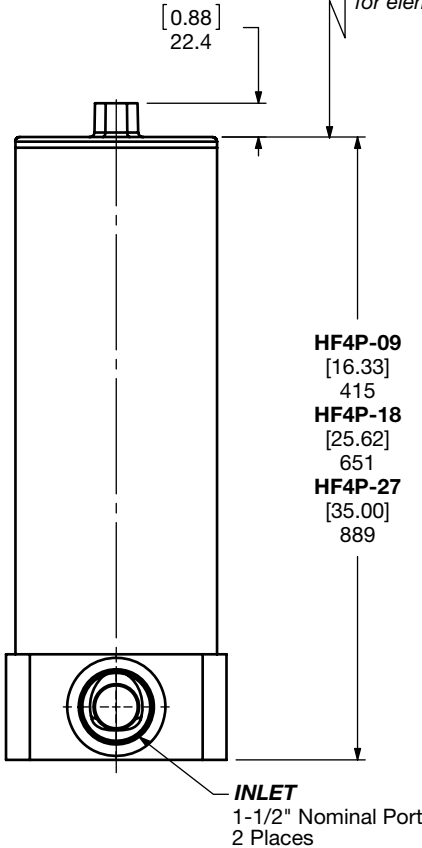
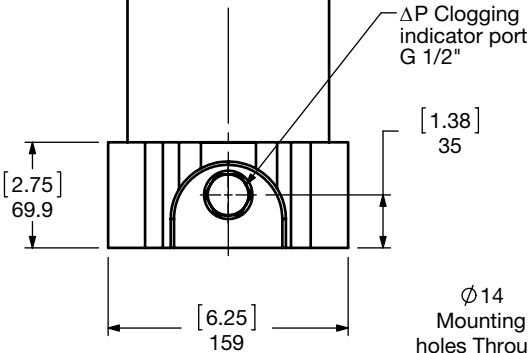


HF4P-09 [12.00] 305
HF4P-18 [21.00] 533
HF4P-27 [30.00] 762
Clearance required for element removal

Vent Plug
SAE-4
(7/16-20UNF)

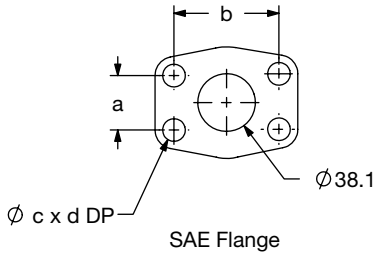
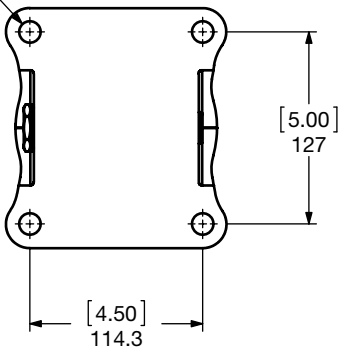
[0.88] 22.4

HF4P-09 [16.33] 415
HF4P-18 [25.62] 651
HF4P-27 [35.00] 889



Ø 14
Mounting
holes Through
4 Places

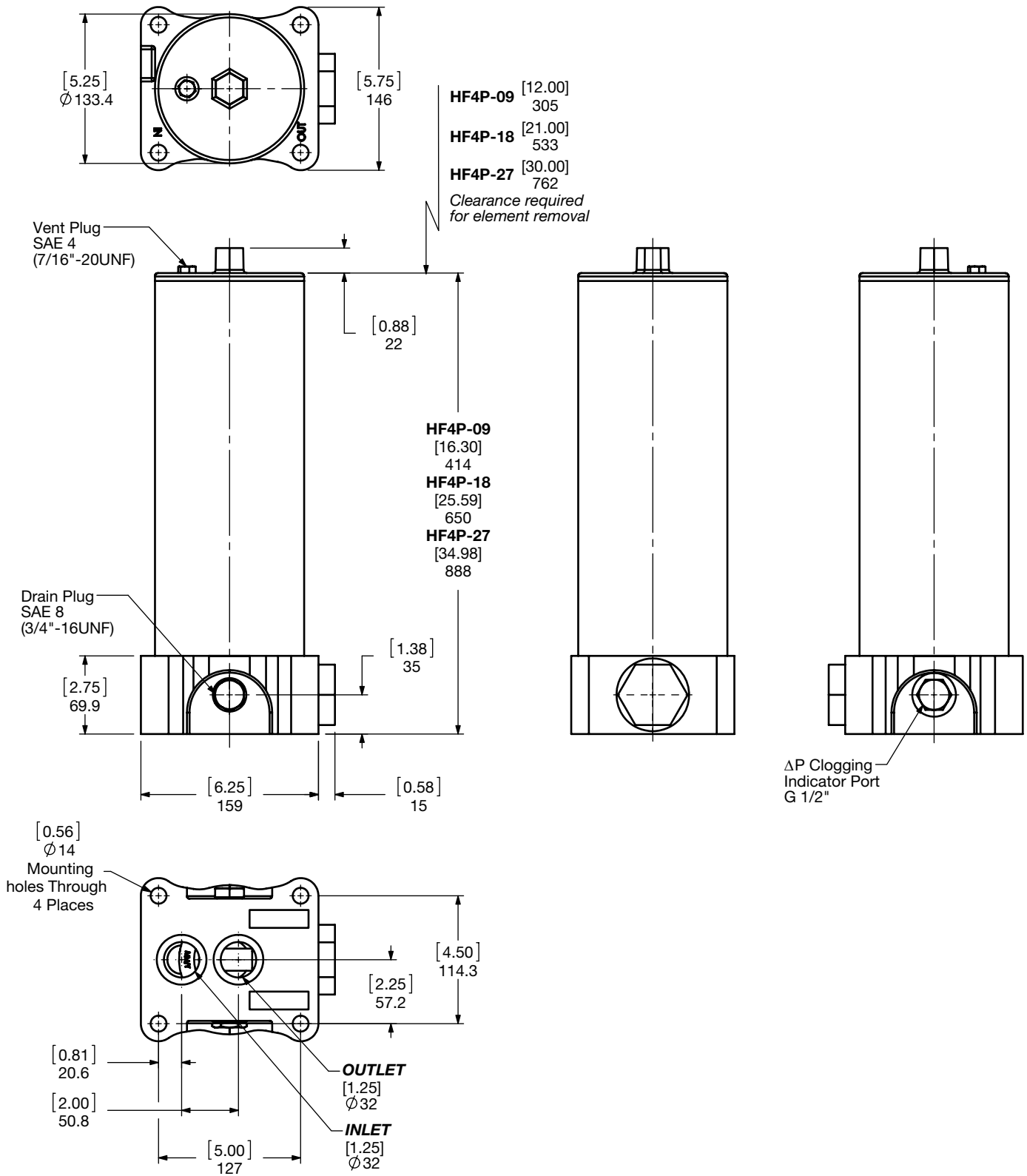
Flange Details	a	b	c	d
Code 61	(1.406) 35.7	(2.750) 69.8	1/2-13UNC	(1.06) 27
Code 62	(1.437) 36.50	(3.125) 79.38	5/8-11UNC	(1.38) 35



Size	09	18	27
Weight (lbs.)	69.9	98.4	132.8

Dimensions shown are [inches] millimeters for general information and overall envelope size only. Weights listed include element.
For complete dimensions please contact HYDAC to request a certified print.

Dimensions
HF4P Manifold



Size	09	18	27
Weight (lbs.)	71.7	100.2	134.6

Dimensions shown are [inches] millimeters for general information and overall envelope size only. Weights listed include element.
For complete dimensions please contact HYDAC to request a certified print.

HIGH PRESSURE FILTERS

Sizing Information

Total pressure loss through the filter is as follows:

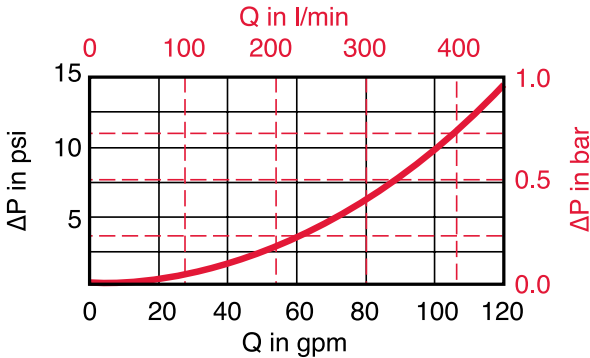
Assembly ΔP = Housing ΔP + Element ΔP

Housing Curve:

Pressure loss through housing is as follows:

Housing ΔP = Housing Curve ΔP x $\frac{\text{Actual Specific Gravity}}{0.86}$

Adjustments must be made for viscosity & specific gravity of the fluid to be used! (see "Sizing HYDAC Filter Assemblies" in Section B - Overview)



Element K Factors

ΔP Elements = Elements (K) Flow Factor x Flow Rate (gpm) x $\frac{\text{Actual Viscosity (SUS)}}{141 \text{ SUS}}$ x $\frac{\text{Actual Specific Gravity}}{0.86}$
(From Tables Below)

Autospec HF4 Depth	5.03.XXDXXBN (Low Collapse)			
Size	3 μm	5 μm	10 μm	20 μm
5.03.09DXXBN	0.168	0.141	0.079	0.044
5.03.18DXXBN	0.080	0.067	0.038	0.021
5.03.27DXXBN	0.052	0.043	0.024	0.014

Autospec HF4 Depth	5.03.XXDXXBH (High Collapse)			
Size	3 μm	5 μm	10 μm	20 μm
5.03.09DXXBH	0.207	0.146	0.089	0.047
5.03.18DXXBH	0.097	0.068	0.041	0.022
5.03.27DXXBH	0.063	0.044	0.027	0.014

Autospec HF4 Wire Mesh	5.03.XXDXXW
Size	25, 74, 149, μm
5.03.09DXXW	0.007
5.03.18DXXW	0.004
5.03.27DXXW	0.002

All Element K Factors in psi / gpm.

