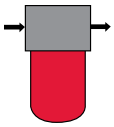
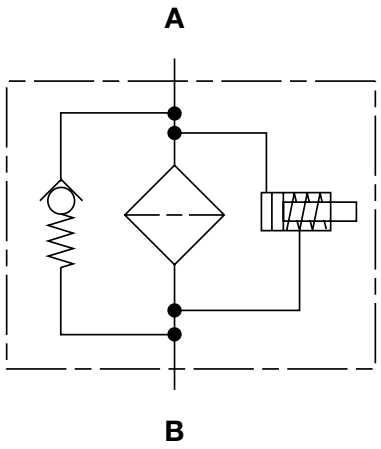
HF3P Series

Inline Filters

6090 psi • up to 120 gpm



Hydraulic Symbol



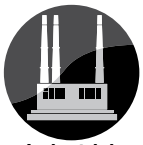
Features

- Non-welded housing design reduces stress concentrations and prevents fatigue failure.
- Inlet/Outlet port options include SAE straight thread O-ring boss, BSPP and flange mounting to allow easy installation without costly adapters.
- O-ring seals are used to provide positive, reliable sealing. Choice of O-ring materials (nitrile rubber, fluorocarbon elastomer, ethylene propylene rubber) provides compatibility with petroleum oils, synthetic fluids, water-glycols, oil/water emulsions, and high water based fluids.
- Screw-in bowl or lid (on 2 piece bowls), mounted below the filter head requires minimal clearance to remove the element for replacement, and contaminated fluid cannot be washed downstream when element is serviced.
- 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, mounted between the inlet and outlet port to provides positive sealing during normal operation and fast response during cold starts and flow surges, while additionally providing low operating ΔP.
- Fatigue pressure rating equals maximum allowable working pressure rating.

Applications


Automotive


Construction


Industrial


Railways


Steel / Heavy Industry

Technical Specifications

Mounting Method	4 mounting holes	
Port Connection	SAE-16, SAE-24, 1” BSPP, 1 1/2” BSPP, 1 1/2” SAE Flange Code 61, 2” SAE Flange Code 62	
Flow Direction	Inlet: Side	Outlet: Side
Construction Materials		
Head	Ductile iron	
Bowl	Steel	
Housing (size 16)	Steel	
Cap (size 16)	Ductile iron	
Flow Capacity		
4”	28 gpm (106 lpm)	
8”	55 gpm (208 lpm)	
13”	91 gpm (344 lpm)	
16”	120 gpm (454 lpm)	
Housing Pressure Rating		
Max. Allowable Working Pressure	6090 psi (420 bar)	
Fatigue Pressure	6090 psi (420 bar) @ 1 million cycles	
Burst Pressure	15,080 psi (1040 bar)	
Element Collapse Pressure Rating		
BH	3045 psid (210 bar)	
BN	290 psid (20 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	ΔP = 29 psid (2 bar) -10% *(optional)* ΔP = 72 psid (5 bar) -10% *(standard)* ΔP = 116 psid (8 bar) -10% *(optional)*	
Bypass Valve Cracking Pressure	ΔP = 43 psid (3 bar) +10% *(optional)* ΔP = 87 psid (6 bar) +10% *(standard* Non Bypass Available	

Model Code

HF3P BN 08 T F 3 B 1 . X / 12 V B6

Filter Type
HF3P = In-Line pressure filter

Element Media
BN = Betamicron® *(Low Collapse)* BH = Betamicron® *(High Collapse)*

Element Length
04 = 4 inches *(non-standard)* 13 = 13 inches
08 = 8 inches 16 = 16 inches *(non-standard)*

Pressure Range
T = 420 bar

Size and Nominal Connection
D = 1" Threaded F = 1-1/2" Threaded
K = 1-1/2" Flanged SAE Code 61 L = 2" Flanged SAE Code 62

Filtration Ratings *(microns)*
3, 6, 12, 25 = BN 3, 6, 10, 17 = BH

Type of ΔP Clogging Indicator
A, B, BM, C, D, J, J4

Type Number
1 = One piece bowl *(lengths 4-13)* 2 = Two piece bowl *(lengths 13 & 16)*

Modification Number *(the latest version is always supplied)*

Port Configuration
0 = BSPP Threaded Ports G 1 1/2" or G 1"
12 = SAE straight thread O-ring boss SAE 24" or SAE 16"
16 = SAE flange ports - SAE 2", code 62 (6000 psi) or 1 1/2" code 61

Seals
(omit) = Nitrile rubber (NBR) *(standard)* V = Fluorocarbon elastomer (FKM) EPR = Ethylene propylene rubber (EPR)

Bypass Valve
(omit) = without bypass *(BH elements recommended)*
B3 = 3 bar/43 psid
B6 = 6 bar/87 psid *(standard)*

Supplementary Details
SO263 = Modification of elements for Skydrol or HYJET phosphate ester fluids
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)*
cRUus = Electrical Indicator with underwriter's recognition
SFREE = Element specially designed to minimize electrostatic charge generation

Replacement Element Model Code

1 . 11 . 08 D 03 BN / V

Length *(nominal inches)*
04, 08, 13, 16

Filtration Rating *(micron)*
3, 6, 12, 25 = BN
3, 6, 10, 17 = BH

Element Media
BN, BH

Seals
(omit) = Nitrile rubber (NBR) *(standard)*
V = Fluorocarbon elastomer (FKM)
EPR = Ethylene propylene rubber (EPR)

Supplementary Details
SO263 = *(same as above)*
SFREE = *(same as above)*

Clogging Indicator Model Code

VD 5 C . 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 116 psid (8 bar) available upon request

Type of Indicator
A = No indicator, plugged port
B = Pop-up indicator *(auto reset)*
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)
EPR = Ethylene propylene rubber (EPR)

Light Voltage *(D type indicators only)*
L24 = 24V L110 = 110V

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

Underwriters Recognition *(VM, VD types C, D, J, and J4 only)*
cRUus = Electrical Indicator with underwriter's recognition

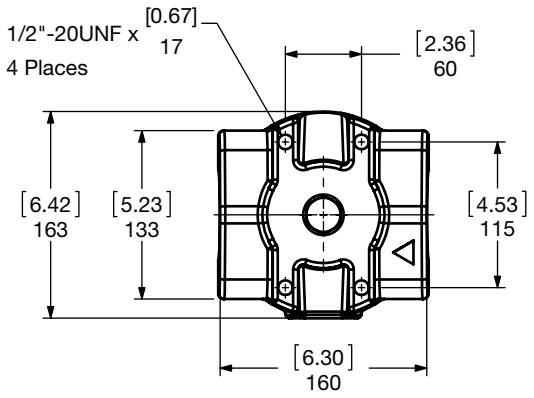
W = "VD…" indicator modified with a brass piston for use with high water based emulsions/solutions (HFA) & (HFC)

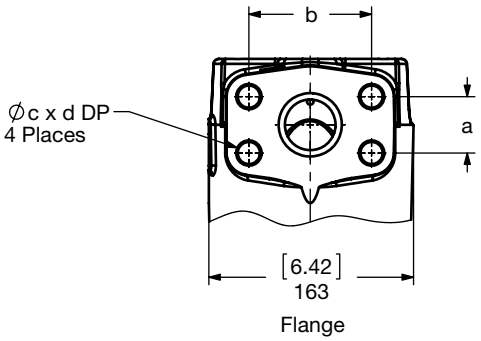
(For additional details and options, see Section H - Clogging Indicators.)

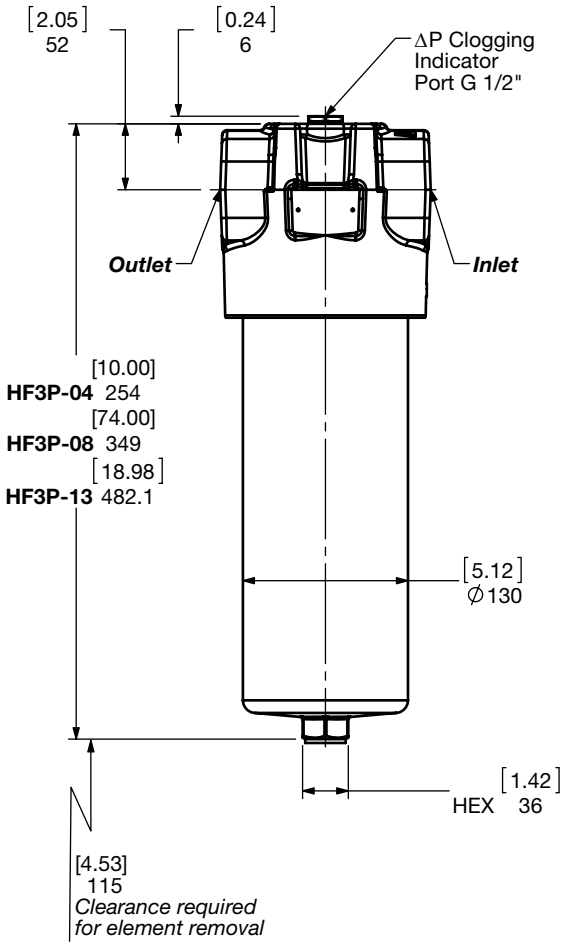
Model Codes Containing RED are non-stock items — Minimum quantities may apply – Contact HYDAC for information and availability

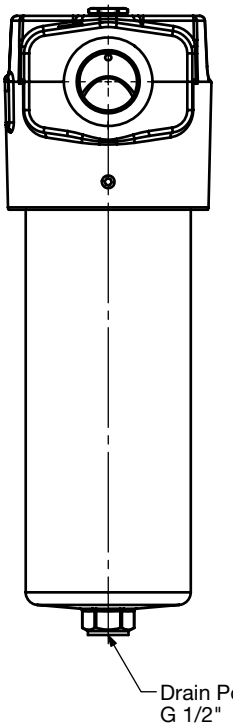
Dimensions
HF3P-04/08/13/16

	a	b	c	d
1-1/2” Code 61	(1.406) 35.71	(2.750) 69.85	1/2-13UNC-2B	(0.87) 22
2” Code 62	(1.750) 44.45	(3.812) 96.80	3/4-10UNC-2B	(0.98) 25

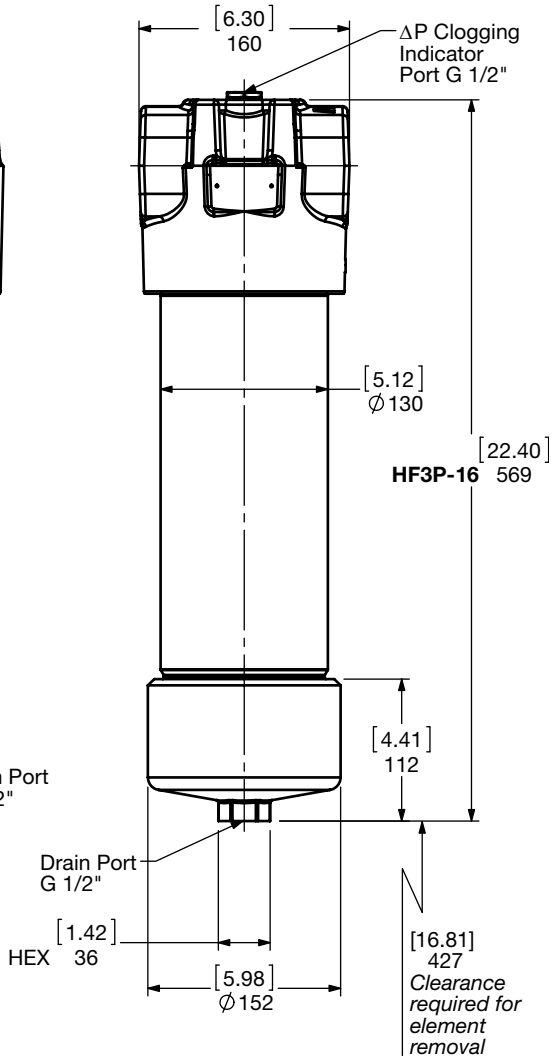








HF3P-16



Size	04	08	13	16
Weight (lbs.)	49.2	56.1	72.5	107.3

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.

Sizing Information

Total pressure loss through the filter is as follows:

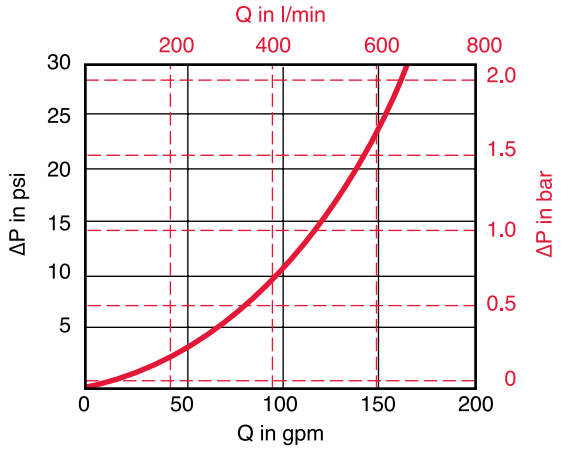
Assembly ΔP = Housing ΔP + Element ΔP

Housing Curve:

Pressure loss through housing is as follows:

$$\text{Housing } \Delta P = \text{Housing Curve } \Delta P \times \frac{\text{Actual Specific Gravity}}{0.86}$$

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

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

Autospec HF3 Depth	1.11.08DXXBN (Low Collapse)			
Size	3 µm	6 µm	12 µm	25 µm
1.11.04DXXBN	0.590	0.500	0.266	0.153
1.11.08DXXBN	0.289	0.241	0.135	0.076
1.11.13DXXBN	0.175	0.146	0.082	0.046
1.11.16DXXBN	0.132	0.110	0.062	0.035

Autospec HF3 Depth	1.11.08DXXBH (High Collapse)			
Size	3 µm	6 µm	10 µm	17 µm
1.11.04DXXBH	0.937	0.660	0.401	0.210
1.11.08DXXBH	0.460	0.321	0.195	0.102
1.11.13DXXBH	0.274	0.193	0.117	0.615
1.11.16DXXBH	0.206	0.145	0.089	0.046

All Element K Factors in psi / gpm.