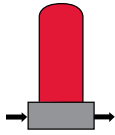


# MEDIUM PRESSURE FILTERS

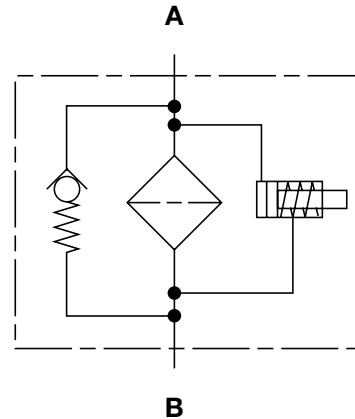
## HF4RL Series

Inline Filters

750 psi • up to 90 gpm



### Hydraulic Symbol



### Features

- Inlet/outlet port options include SAE straight thread O-ring boss, and 1 1/2" SAE 4-bolt flange to allow easy installation without costly adapters.
- Choice of Nitrile rubber or Fluorocarbon elastomer seal material provides compatibility with petroleum oils, and most synthetic fluids, water-glycols, oil/water emulsions, and water based fluids.
- Screw-in cap mounted on top of the filter bowl allows quick and easy element changeout.
- To allow fluid to be drained from the filter before changing the element, a vent plug and a drain plug are provided. Element changes can be made with no mess and minimal loss of fluid.
- Clogging indicators, with and without thermal lockout, are magnetically actuated and have no external dynamic seal. High reliability is achieved and magnetic actuation eliminates leakage.
- A cartridge type bypass valve (optional) is mounted in-line in the filter head between the inlet and outlet port to provide positive sealing during normal operation and fast response during cold starts and flow surges.

### Applications



Automotive



Gearboxes



Industrial



Pulp & Paper



Shipbuilding



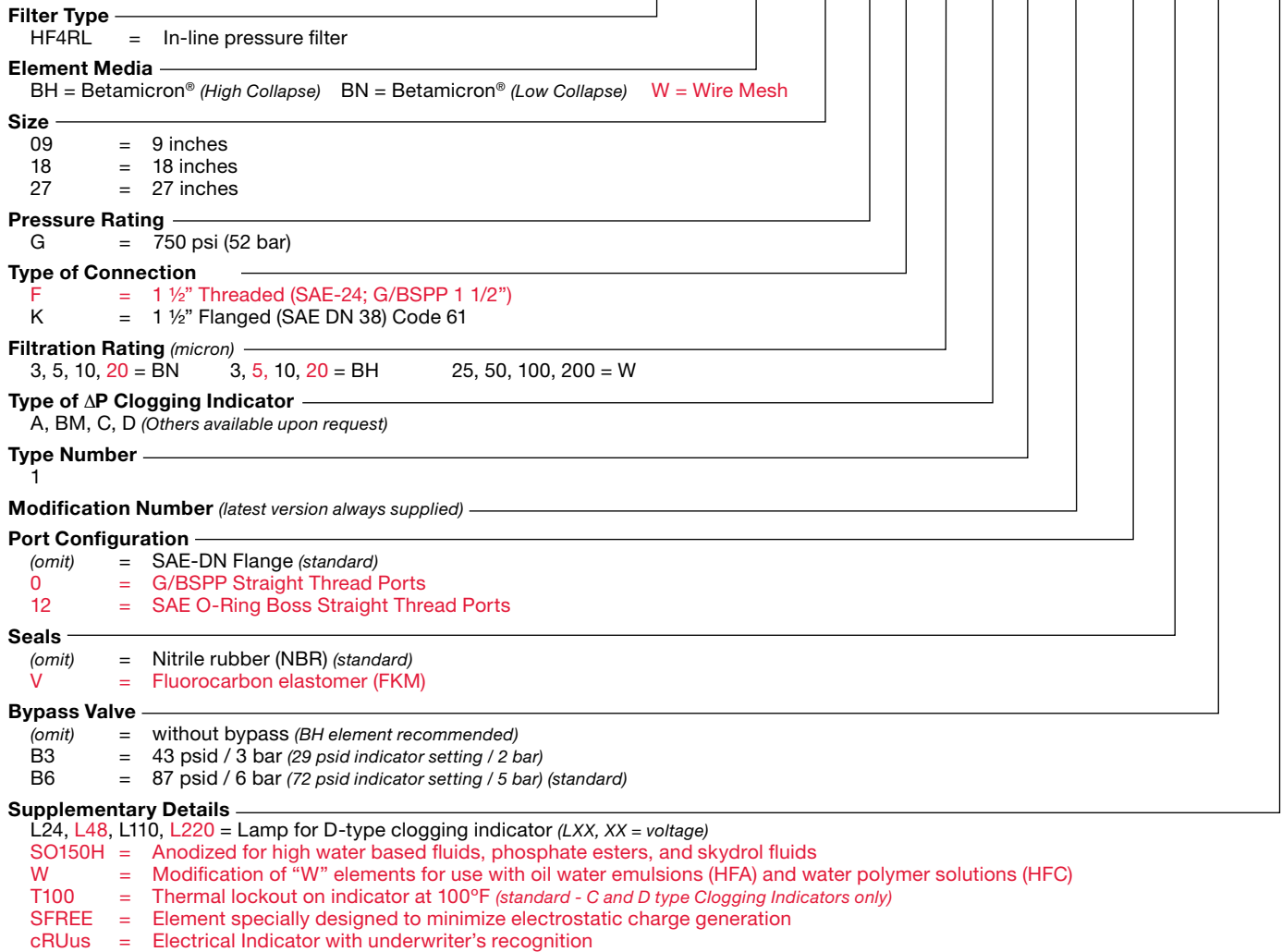
Steel / Heavy Industry

### Technical Specifications

<b>Mounting Method</b>	4 mounting holes
<b>Port Connection</b>	SAE-24, 1 1/2" BSPP, SAE-DN 38 Flange Code 61
<b>Flow Direction</b>	
Inlet / Outlet	Side
<b>Construction Materials</b>	
Head, Cap	Cast Aluminum
Housing	Steel
<b>Flow Capacity</b>	
09	50 gpm (190 lpm)
18	70 gpm (265 lpm)
27	90 gpm (341 lpm)
<b>Housing Pressure Rating</b>	
Max. Allowable Working Pressure	750 psi (52 bar)
Fatigue Pressure	750 psi (52 bar) @ 750,000 cycles
Burst Pressure	3200 psi (221 bar)
<b>Element Collapse Pressure Rating</b>	
BH	3045 psid (210 bar)
BN, W	145 psid (10 bar)
<b>Fluid Temperature Range</b>	14°F to 212°F (-10°C to 100°C)
Consult HYDAC for applications below 14°F (-10°C)	
<b>Fluid Compatibility</b>	Compatible with all hydrocarbon based, synthetic, water glycol, oil/water emulsion, and high water based fluids when the appropriate seals are selected.
<b>Indicator Trip Pressure</b>	
$\Delta P = 29$ psid (2 bar) -10% (optional)	
$\Delta P = 72$ psid (5 bar) -10% (standard)	
<b>Bypass Valve Cracking Pressure</b>	
$\Delta P = 43$ psid (3 bar) +10% (optional)	
$\Delta P = 87$ psid (6 bar) +10% (standard)	

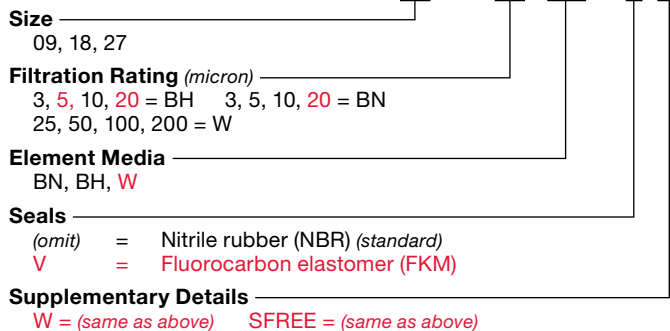
## Model Code

**HF4RL - BN - 09 G F 25 A 1 . 0 / 12 V B6 L110**



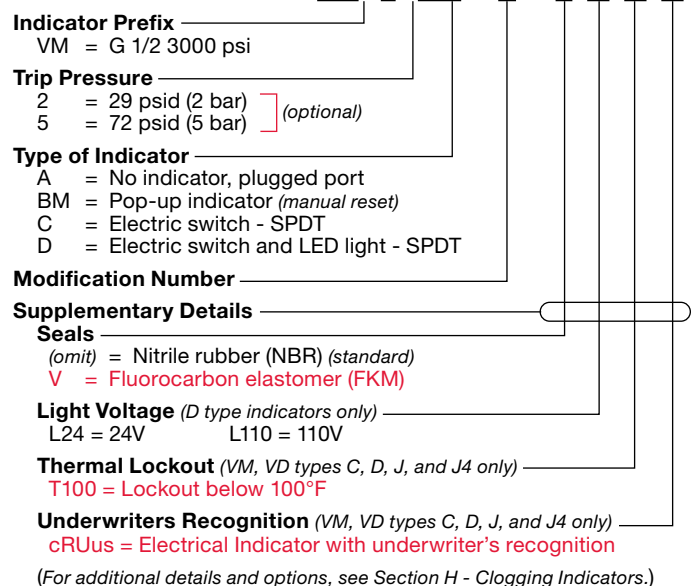
## Replacement Element Model Code

**5 . 03 . 09 D 03 BN / V**



## Clogging Indicator Model Code

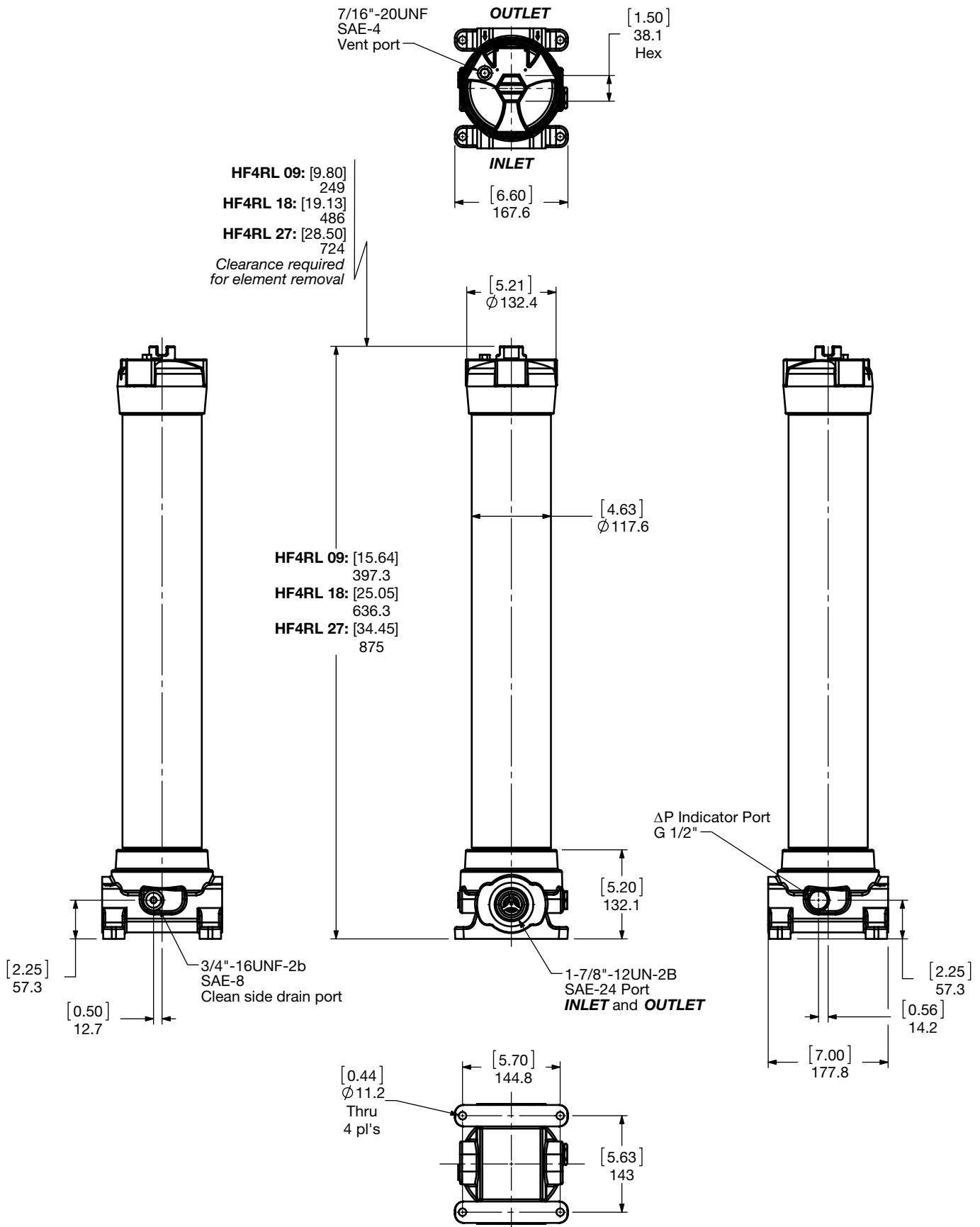
**VM 5 BM . X / V**



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

# MEDIUM PRESSURE FILTERS

## Dimensions HF4RL



Size	09	18	27
Weight (lbs.)	10.7	33	45.5

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:

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

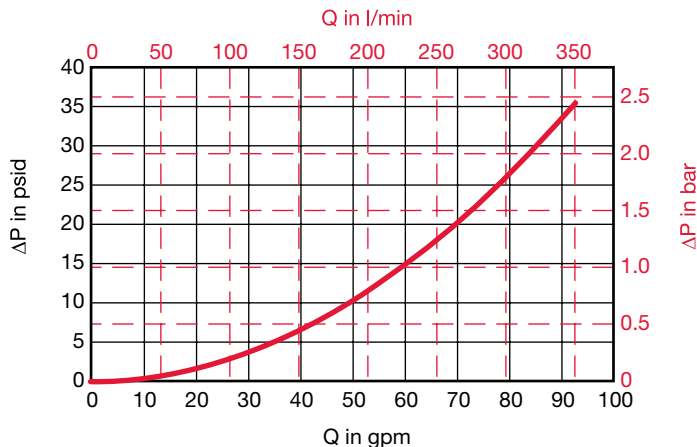
### Housing Curve:

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)

### HF4RL Housing



## Element K Factors

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

(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, 50, 100, 200 μm
5.03.09DXXW	0.007
5.03.18DXXW	0.004
5.03.27DXXW	0.002

All Element K Factors in psi / gpm.