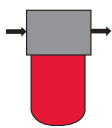


# LOW PRESSURE FILTERS

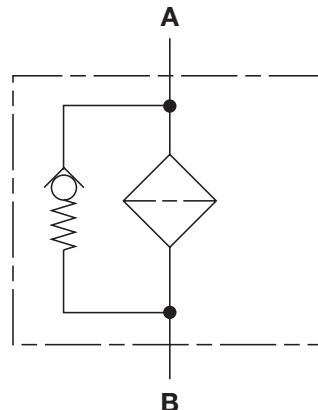
## FLN Series

Inline Filters

360 psi • up to 100 gpm



### Hydraulic Symbol



### Features

- Aluminum alloy is water tolerant - anodization is not required for high water based fluids (HWBF).
- Non-welded housing design reduces stress concentrations and prevents fatigue failure.
- SAE straight thread O-ring boss porting to allow easy installation without costly adapters.
- O-ring axial seals are used to provide positive, reliable sealing.
- Screw-in bowl 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.
- Differential Pressure Indicators. HYDAC indicators have no external dynamic seal. This results in a high system reliability due to magnetic actuation, thus eliminating a potential leak point.
- A poppet-type bypass valve (optional) is mounted in-line between the inlet and outlet ports to provide positive sealing during normal operation and fast opening during cold starts and flow surges.
- This filter can be modified to meet the requirements of DIN 24550\* as follows:
  - Filter size 0160 with G 1-1/4" port selection
  - Filter size 0250 with G 1-1/2" port selection
  - Filter size 0400 with SAE-DN 38 1-1/2" Flange
- Bypass versions of FLN filters have the bypass valve located in the filter head.

\*Note - SO882 design does not meet DIN 24550.

### Applications



Agricultural



Automotive



Construction



Gearboxes



Industrial



Power Generation



Pulp & Paper

### Technical Specifications

|   |  |
|---|--|
| <b>Mounting Method</b>                  | 2 mounting holes in the filter head  |
| <b>Port Connection</b>                  | Inlet / Outlet<br>1-1/4" Threaded – SAE 20, 1-1/4" BSPP<br>1-1/2" Threaded – SAE 24, 1-1/2" BSPP<br>1-1/2" Flange-SAE-DN 38 Code 61                      |
| <b>Flow Direction</b>                   | Inlet: Side    Outlet: Opposite Side   |
| <b>Construction Materials</b>           | Head, Bowl    Aluminum   |
| <b>Flow Capacity</b>                    | 160    43 gpm (160 lpm)<br>250    66 gpm (250 lpm)<br>400    105 gpm (400 lpm)   |
| <b>Housing Pressure Rating</b>          | Max. Allowable Working Pressure: 360 psi (25 bar)<br>Fatigue Pressure: 360 psi (25 bar)<br>Burst Pressure: 1450 psi (100 bar)                            |
| <b>Element Collapse Pressure Rating</b> | BN4HC, W/HC    290 psid (20 bar)<br>BH4HC    3045 psid (210 bar)   |
| <b>Fluid Temperature Range</b>          | -22°F to 212°F (-30°C to 100°C)<br>Consult HYDAC for applications below -22°F (-30°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>          | $\Delta P = 36.25$ psid (2.5 bar) -10% (standard)<br>$\Delta P = 72$ psid (5 bar) -10%<br>$\Delta P = 116$ psid (8 bar) -10%                             |
| <b>Bypass Valve Cracking Pressure</b>   | $\Delta P = 50.75$ psid (3.5 bar) +10% (standard)<br>$\Delta P = 102$ psid (7 bar) +10%  |

## Model Code

**Filter Type** \_\_\_\_\_ **FLN** = Inline filter

**Element Media** \_\_\_\_\_  
 BH/HC = Betamicon® (High Collapse)  
 BN/HC = Betamicon® (Low Collapse) W/HC = Wire Mesh

**Size** \_\_\_\_\_  
 160, 250, 400

**Operating Pressure** \_\_\_\_\_  
 D = 360 psi (25 bar)

**Port Type / Size** \_\_\_\_\_  
 E = 1-1/4" SAE or BSPP Threaded  
 F = 1-1/2" SAE or BSPP Threaded  
 K = 1-1/2" Flange-SAE-DN 38 Code 61 Flange

**Filtration Rating (micron)** \_\_\_\_\_  
 3, 6, 10, 25 = BH/HC, BN/HC 25, 50, 100, 200 = W/HC

**Type of ΔP Clogging Indicator** \_\_\_\_\_  
 A, B, BM, C, D (Others available upon request, see Clogging Indicators section.)

**Type Code** \_\_\_\_\_  
 1

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

**Port Configuration** \_\_\_\_\_  
 (omit) = SAE DN Flange  
 0 = BSPP Threaded  
 12 = SAE Straight Threaded

**Seals** \_\_\_\_\_  
 (omit) = Nitrile rubber (NBR)  
 V = Fluorocarbon elastomer (FKM) (standard)

**Version** \_\_\_\_\_  
 DIN = meets DIN 24550  
 SO882 = Quality Protection Design (standard)

**Bypass Valve** \_\_\_\_\_  
 (omit) = no bypass (optional)  
 B3.5 = 50.75 psid (3.5 bar) (standard)  
 B7 = 101.5 psid (7 bar) (optional)

**Supplementary Details** \_\_\_\_\_  
 SO263 = Modification of elements for Skydrol or HYJET phosphate ester fluids  
 L24, L48, L110, L220 = Lamp for D-type clogging indicator (LXX, XX = voltage)  
 cRUus = Electrical Indicator with underwriter's approval  
 SFREE = Element specially designed to minimize electrostatic charge generation  
 T100 = Indicator lockout under 100°F  
 SO376 = Modification of ON and W/HC elements for HFA, HFB, HFC, and HFD flame retardant liquids

## Replacement Element Model Code

**Size** \_\_\_\_\_ **0250** **DN** **010** **BN4HC** / **V** **SO882**

0160, 0250, 0400

**Type** \_\_\_\_\_  
 DN

**Filtration Rating (micron)** \_\_\_\_\_  
 3, 6, 10, 25 = BH4HC, BN4HC  
 25, 50, 100, 200 = W/HC

**Element Media** \_\_\_\_\_  
 BH4HC, BN4HC, W/HC

**Seals** \_\_\_\_\_  
 (omit) = Nitrile rubber (NBR)  
 V = Fluorocarbon elastomer (FKM) (standard)

**Version** \_\_\_\_\_  
 (omit) = meets DIN 24550  
 SO882 = Quality Protection Design

**Supplementary Details** \_\_\_\_\_  
 SO263 = (same as above)  
 SFREE = (same as above)  
 SO376 = (same as above)

## Clogging Indicator Model Code

**Indicator Prefix** \_\_\_\_\_ **VM** **2** **C** . **X** / **V**

VM = G 1/2 3000 psi

**Trip Pressure** \_\_\_\_\_  
 2.5 = 36.25 psid (2.5 bar)  
 5 = 72 psid (5 bar) (optional)

**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 & LED light - SPDT

**Modification Number** \_\_\_\_\_

**Supplementary Details** \_\_\_\_\_

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

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

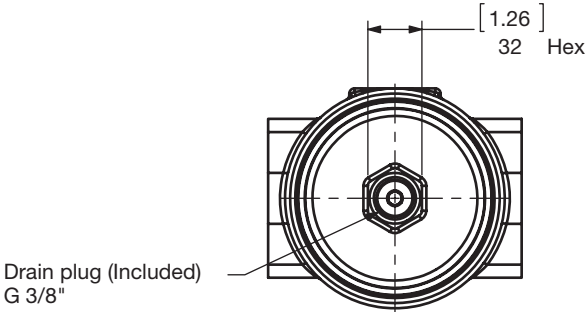
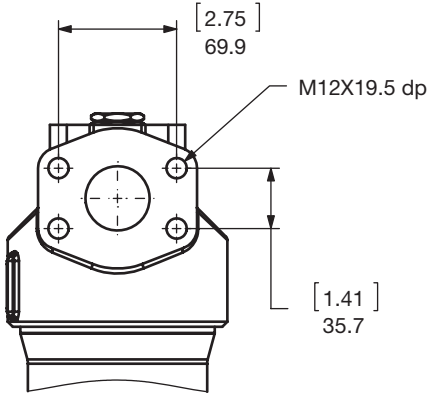
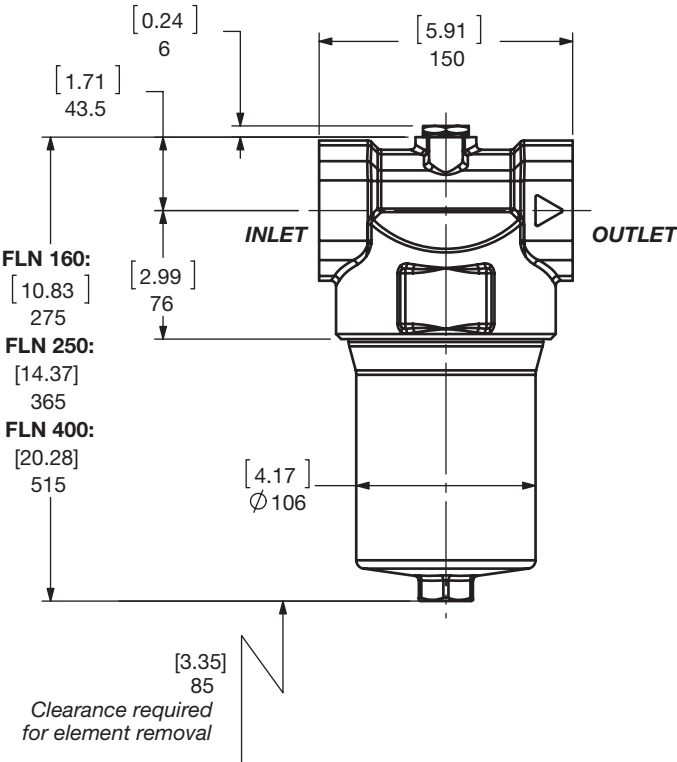
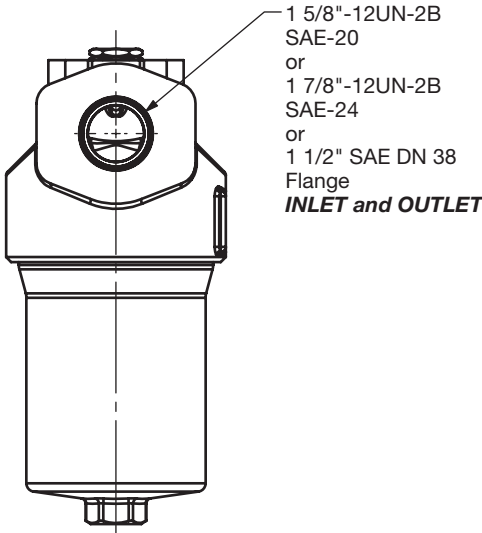
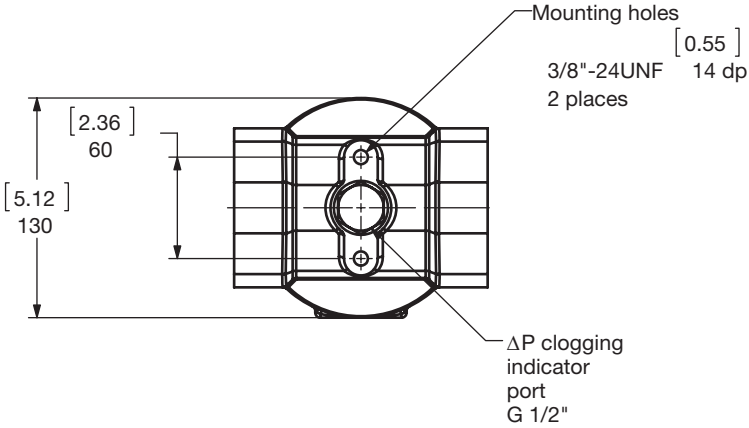
**Thermal Lockout** (VM, VD types C, D, J, and J4 only) \_\_\_\_\_  
 T100 = Lockout below 100°F

**Underwriters Approval** (VM, VD types C, D, J, and J4 only) \_\_\_\_\_  
 cRUus = Electrical Indicator with underwriter's approval  
 (For additional details and options, see Clogging Indicators section.)

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

# LOW PRESSURE FILTERS

Dimensions  
FLN 160 / 250 / 400



1 1/2" SAE DN 38 Flange

| Size          | 160 | 250  | 400  |
|---------------|-----|------|------|
| Weight (lbs.) | 9.5 | 10.9 | 13.1 |

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:

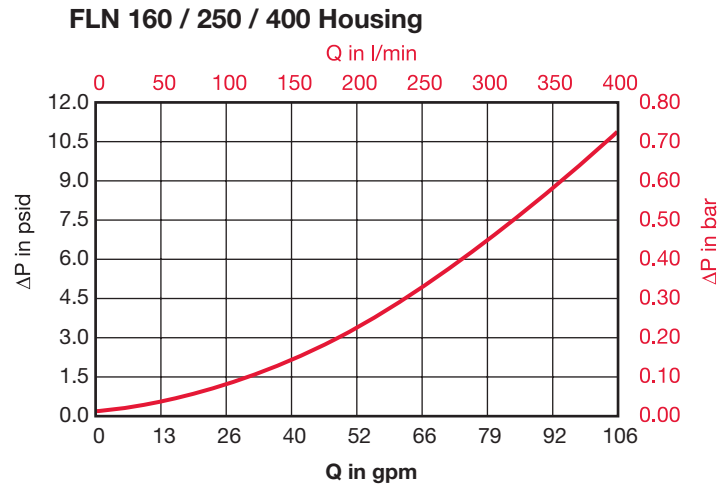
Assembly  $\Delta P$  = Housing  $\Delta P$  + Element  $\Delta P$

### Housing Curve:

Pressure loss through housing is as follows:

Housing  $\Delta P$  = 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

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

| BN4HC             | ...DN...BN4HC (Betamicon Low Collapse) |       |       |       |
|-------------------|--|-------|-------|-------|
| Size              | 3 μm                                   | 6 μm  | 10 μm | 25 μm |
| 0160 DN XXX BN4HC | 0.434                                  | 0.280 | 0.187 | 0.143 |
| 0250 DN XXX BN4HC | 0.280                                  | 0.176 | 0.115 | 0.099 |
| 0400 DN XXX BN4HC | 0.176                                  | 0.110 | 0.071 | 0.055 |

| BH4HC             | ...DN...BH/HC (Betamicon High Collapse) |       |       |       |
|-------------------|---|-------|-------|-------|
| Size              | 3 μm                                    | 6 μm  | 10 μm | 25 μm |
| 0160 DN XXX BH4HC | 0.439                                   | 0.280 | 0.209 | 0.137 |
| 0250 DN XXX BH4HC | 0.296                                   | 0.187 | 0.154 | 0.104 |
| 0400 DN XXX BH4HC | 0.187                                   | 0.115 | 0.093 | 0.060 |

| W/HC             | ...DN...W/HC (Betamicon Low Collapse) |       |        |        |
|------------------|---------------------------------------|-------|--------|--------|
| Size             | 25 μm                                 | 50 μm | 100 μm | 200 μm |
| 0160 DN XXX W/HC | 0.009                                 | 0.009 | 0.009  | 0.009  |
| 0250 DN XXX W/HC | 0.006                                 | 0.006 | 0.006  | 0.006  |
| 0400 DN XXX W/HC | 0.004                                 | 0.004 | 0.004  | 0.004  |

All Element K Factors in psi / gpm.