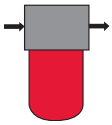
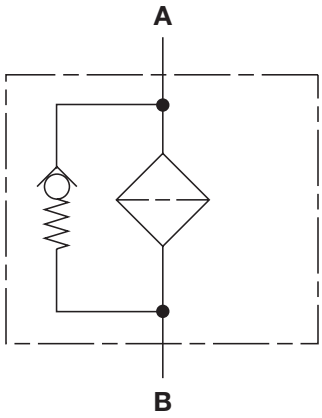
FLN Series

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 - QPD design does not meet DIN 24550.

Applications


Agricultural


Automotive


Construction


Gearboxes


Industrial


Power Generation


Pulp & Paper

Technical Specifications

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

Model Code

FLN BN/HC 250 D E 10 C 1 . X / 12 - V - QPD - B3.5

Filter Type
FLN = Inline filter

Element Media
BH/HC = Betamicron® *(High Collapse)*
BN/HC = Betamicron® *(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
(omit) = meets DIN 24550
QPD = Quality Protection Design

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

0250 DN 010 BN4HC / V QPD

Size
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
QPD = Quality Protection Design

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

Clogging Indicator Model Code

VM 2 C . X / V

Indicator Prefix
VM = G 1/2 3000 psi

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

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

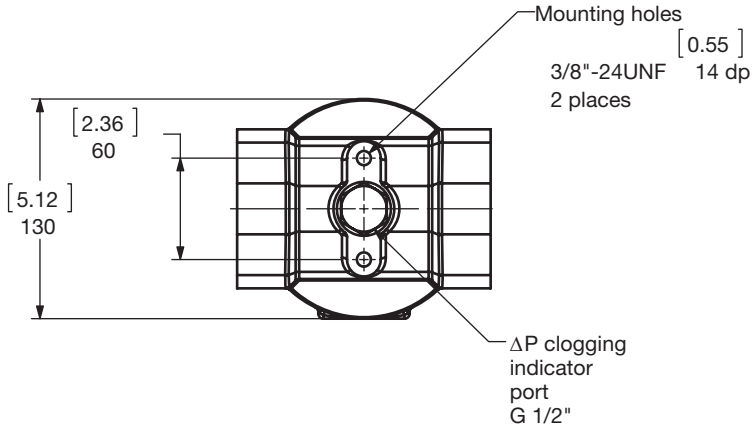
Underwriters Approval *(VM, VD types C, D, J, and J4 only)*
cRUus = Electrical Indicator with underwriter's approval

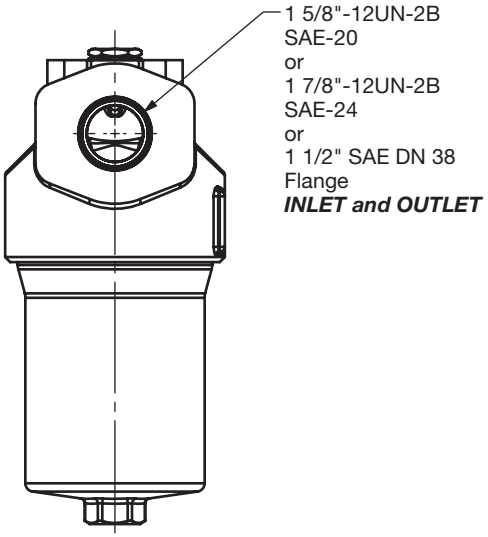
(For additional details and options, see Clogging Indicators section.)

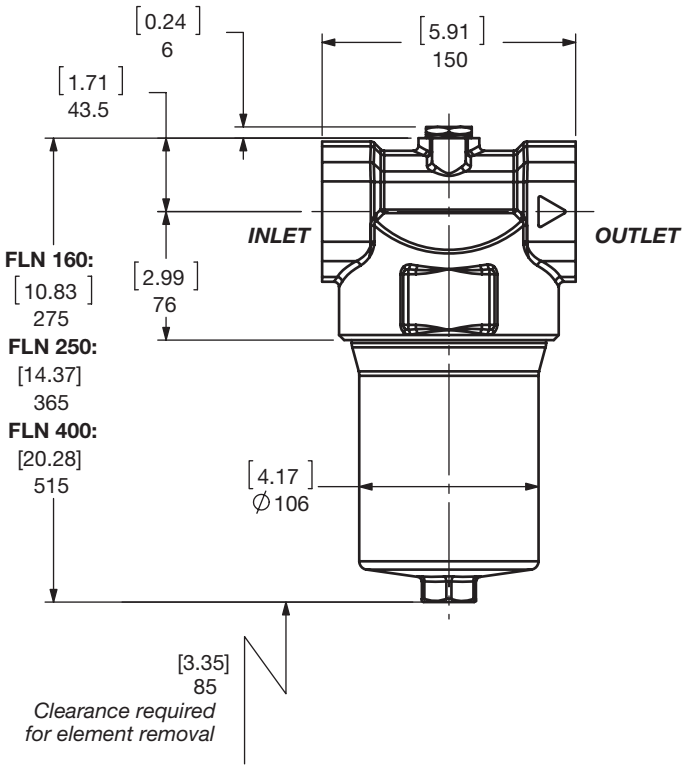
Model Codes Containing RED are non-stock items — Minimum quantities may apply – Contact HYDAC for information and availability

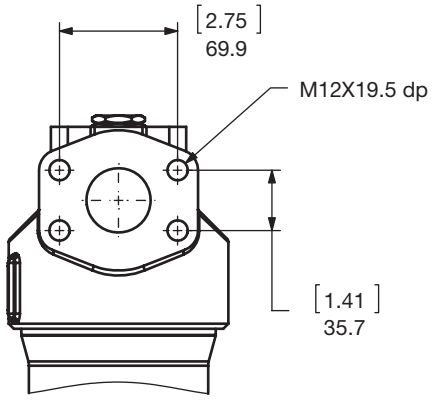
LOW PRESSURE FILTERS

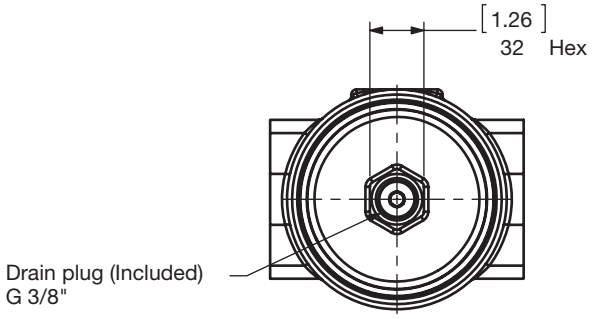
Dimensions
FLN 160 / 250 / 400











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 ΔP = Housing ΔP + Element ΔP

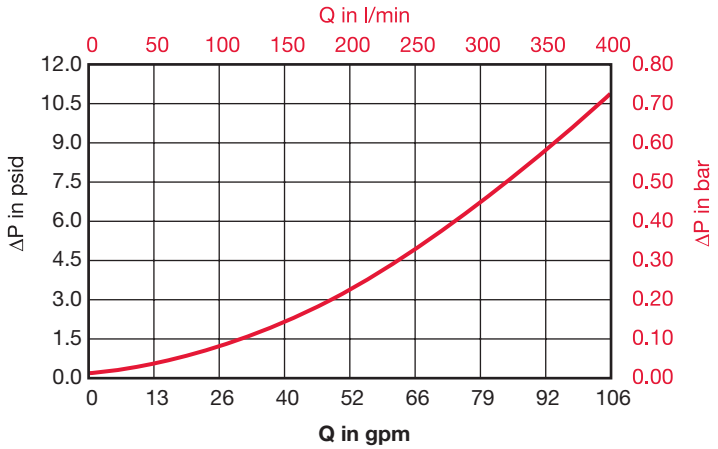
Housing Curve:

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)*

FLN 160 / 250 / 400 Housing



Element K Factors

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

BN4HC	...DN...BN4HC (Betamicron 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 (Betamicron 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 (Betamicron 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.