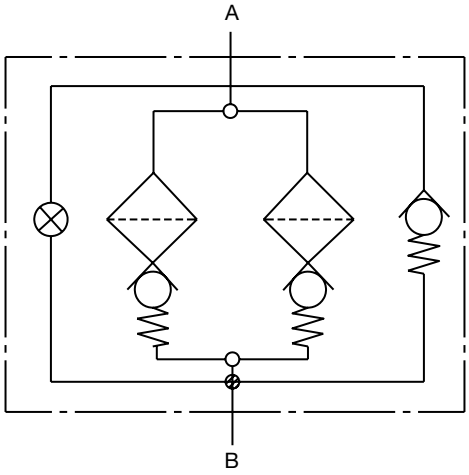
FLND Series

Inline Duplex Filters

360 psi • up to 100 gpm

Hydraulic Symbol



Features

- Lightweight duplex filter constructed of aluminum.
- Aluminum alloy is water tolerant - anodization is not required for high water based fluids (HWBF).
- The filter housings are designed to withstand pressure surges as well as high static pressure loads.
- The screw-in bowl allows the filter element to be easily removed for replacement or cleaning.
- A visual (pop-up), electrical, electrical/visual (lamp), or electronic differential type clogging indicator are possible.
- The standard model is supplied with vent and drain plugs, and also a connection for differential clogging indicator.
- The pressure is equalized between chambers by raising the change-over lever prior to switching it to the relevant filter side. Thus, the filter contains an integrated equalization valve.
- CRN Approval Available. *(Canadian Registration Number)*
- Bypass versions of FLND filters have the bypass valve located in the filter head.
- 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

*Note - QPD design does not meet DIN 24550.

Technical Specifications

Mounting Method	4 mounting holes - 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	42 gpm (160 lpm)
250	66 gpm (250 lpm)
400	105 gpm (400 lpm)
Housing Pressure Rating	
Max. Operating 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)
Fluid Temperature Range	14°F to 212°F (-10°C to 100°C)
Consult HYDAC for applications 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 = 36 psid (2.5 bar) -10% ΔP = 72 psid (5 bar) -10% ΔP = 116 psid (8 bar) -10% *(non-bypass)*	
Bypass Valve Cracking Pressure	
ΔP = 50.75 psid (3.5 bar) +10% ΔP = 102 psid (7 bar) +10%	

Applications

PN#02081318 / 07.19 / FIL1907-2109

Model Code

FLND BN/HC 250 D D F 10 B 1 . X / 12 - V - QPD - B3.5

Filter Type
FLND = Inline duplex filter

Element Media
BN/HC = Betamicron® *(Low Collapse)* W/HC = Wire Mesh

Size
160, 250, 400

Operating Pressure
D = 360 psi (25 bar)

Type of Change-Over
D = segment valve

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 = BN/HC 25, 50, 100, 200 = W/HC

Type of ΔP Clogging Indicator
A, B, BM, C, D *(Others available upon request)*

Type Code
1

Modification Number *(latest version is always supplied)*

Port Configuration
(omit) = SAE DN Flange
0 = BSPP Threaded inlet/outlet
12 = SAE straight thread inlet/outlet

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
L24, L48, L110, L220 = Lamp for D-type clogging indicator *(LXX, XX = voltage)*
RL = Flow Path reversed - Right inlet/Left outlet
EM = Air Bleed Valves
VKD = Drain Valves
CRN = CRN Approvel
SFREE = Element specially designed to minimize electrostatic charge generation
cRUus = Electrical Indicator with underwriter's approval
SO263 = Modification of elements for Skydrol or HYJET phosphate ester fluids

Replacement Element Model Code

0250 DN 010 BN4HC / V QPD

Size
0160, 0250, 0400

Type
DN

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

Element Media
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)*

Clogging Indicator Model Code

VM 2.5 B . X / V

Indicator Prefix
VM = G 1/2 3000 psi

Trip Pressure
2.5 = 36 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 and light – SPDT

Modification Number

Supplementary Details

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

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

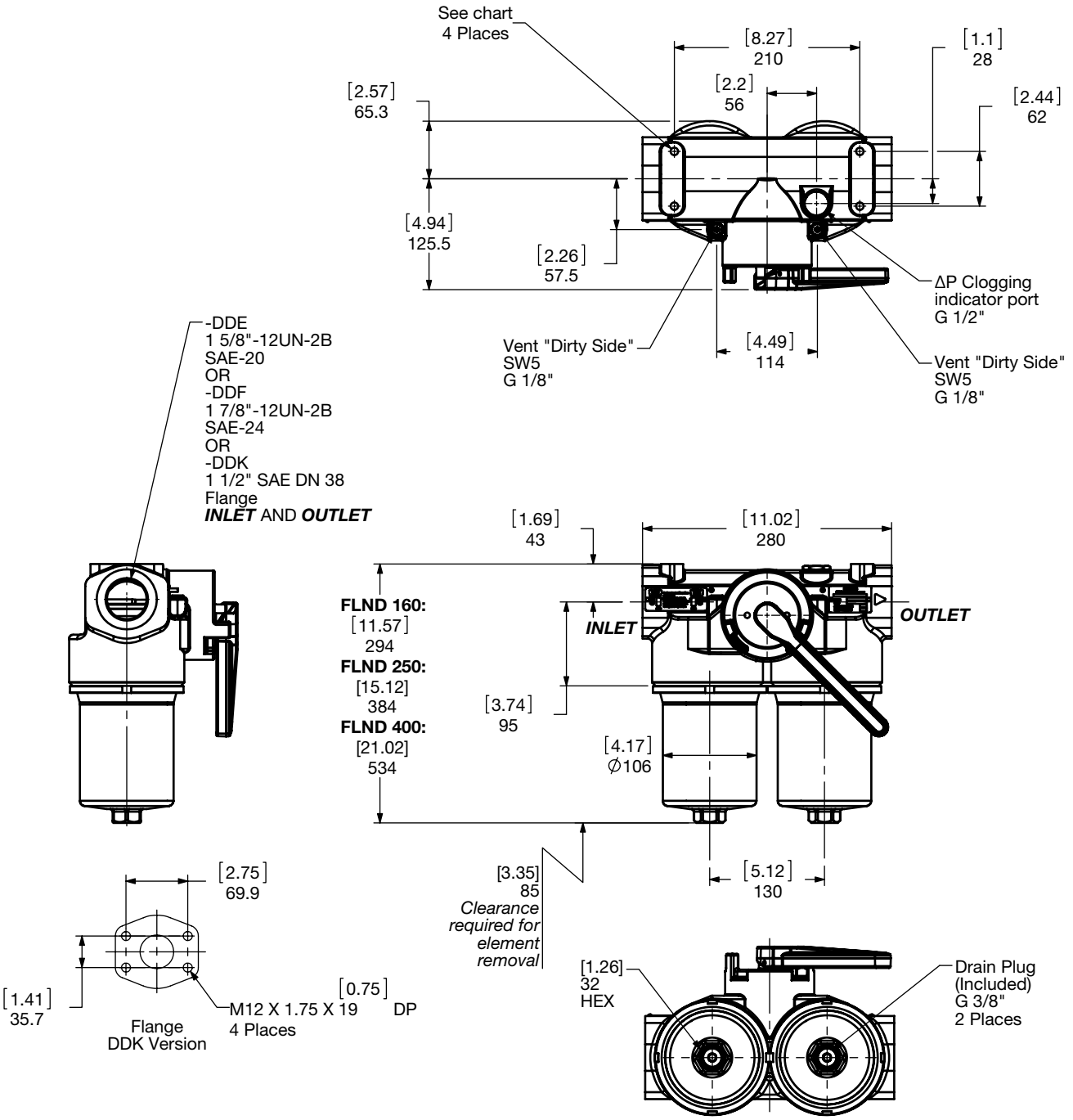
Underwriters Approval *(VM, VD types C, D, J, and J4 only)*
cRUus = Electrical Indicator with underwriter's approval

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

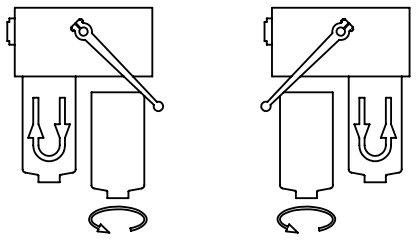
Model Codes Containing RED are non-stock items — Minimum quantities may apply – Contact HYDAC for information and availability

LOW PRESSURE FILTERS

Dimensions
FLND



Model	Mounting Hole
FLND160-400DDE	M10-1.5 x 19mm Deep
FLND160-400DDE/12	3/8-24UNF x 14mm Deep
FLND160-400DDF	M10-1.5 x 19mm Deep
FLND160-400DDF/12	3/8-24UNF x 14mm Deep
FLND160-400DDK	M10-1.5 x 19mm Deep



Before changing the element, relieve pressure in the filter housing.

Size	160	250	400
Weight (lbs.)	20.1	21.2	26.5

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:

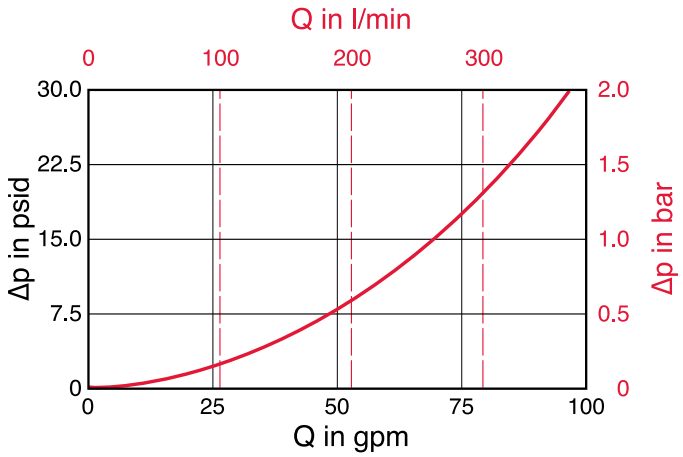
Assembly ΔP = Housing ΔP + Element ΔP

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

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

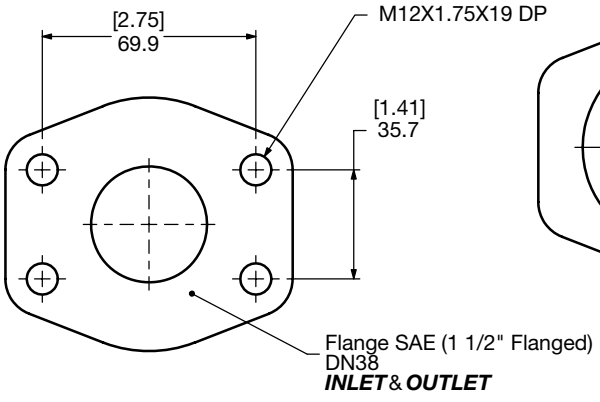
BN4HC	...DN...BN4HC (Betamicron Low Collapse)			
Size	3 µm	6 µm	10 µm	25 µm
0160 DN XXX BN4HC	0.434	0.280	0.187	0.143
0250 DN XXX BN4HC	0.280	0.176	0.115	0.099
0400 DN XXX BN4HC	0.176	0.110	0.071	0.055

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

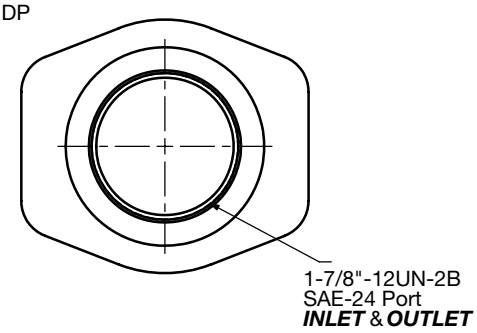
All Element K Factors in psi / gpm.

FLND 160/250/400

FLND 160/250/400 DDK



FLND 160/250/400 DDF



FLND 160/250/400 DDE