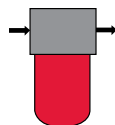


DF Series

Inline Filters

6000 psi • up to 180 gpm



Features

- Non-welded housing design reduces stress concentrations and prevents fatigue failure.
- Choice of NPT, SAE straight thread O-ring boss, and SAE 4-bolt flange porting (sizes 60 - 1320) to allow easy installation without costly adapters.
- O-ring seals are used to provide positive, reliable sealing. Choice of O-ring materials (Nitrile, Fluoroelastomer, EPDM) provides compatibility with petroleum oils, synthetic fluids, water-glycols, oil/water emulsions, and high water base fluids.
- 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) provides positive sealing during normal operation and fast opening during cold starts and flow surges.
- For special finishes and coatings – consult HYDAC for minimum quantities, availability and pricing.
- Fatigue pressure ratings equals maximum allowable working pressure rating.

Applications



Agricultural



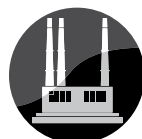
Automotive



Construction



Gearboxes



Industrial



Offshore



Commercial
Municipal



Power
Generation



Pulp & Paper



Railways

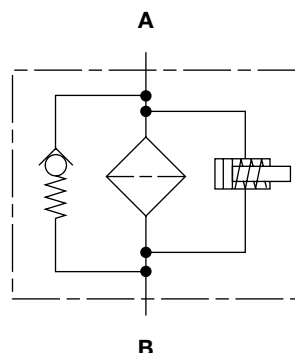


Shipbuilding



Steel / Heavy
Industry

Hydraulic Symbol



Technical Details

Mounting Method	4 mounting holes	
Port Connection		
30	SAE-8, 1/2" NPT, 1/2" BSPP	
60/110	SAE-12, 3/4" NPT, 3/4" BSPP	
	3/4" SAE, Code 62	
160/240/280	SAE-20, 1 1/4" NPT, 1 1/4" BSPP	
	1 1/4" SAE, Code 62	
330/660/1320	SAE-24, 1 1/2" NPT, 1 1/2" BSPP	
	2" SAE Flange Code 62	
Flow Direction	Inlet: Side	Outlet: Side
Construction Materials		
Head	Ductile iron	
Bowl	Steel	
Housing (1320)	Steel	
Cap (660 & 1320 ver. 2)	Ductile iron	
Flow Capacity		
30	8 gpm (30 lpm)	
60	16 gpm (60 lpm)	
110	29 gpm (110 lpm)	
160	42 gpm (160 lpm)	
240	63 gpm (240 lpm)	
280	74 gpm (280 lpm)	
330	87 gpm (330 lpm)	
660	174 gpm (660 lpm)	
1320	190 gpm (720 lpm)	
Housing Pressure Rating		
Max. Operating Pressure	6000 psi (420 bar)	
Proof Pressure	9000 psi (610 bar)	
Fatigue Pressure	6000 psi (420 bar) @ 1 million cycles	
Burst Pressure	30	15950 psi (1100 bar)
	60/110	17400 psi (1200 bar)
	160/240/280	17110 psi (1180 bar)
	330/660/1320	15080 psi (1040 bar)
Element Collapse Pressure Rating		
BH/HC, V	3045 psid (210 bar)	
BN/HC, W/HC	290 psid (20 bar)	
Fluid Temp. Range	-22° to 250°F (-30° to 121°C)	
Fluid Compatibility	Compatible with all petroleum oils and synthetic fluids rated for use with Fluoroelastomer or Ethylene Propylene seals. Contact HYDAC for information on special housing and element constructions available for use with water glycols, oil/water emulsions, and HWBF.	
Indicator Trip Pressure		
	$\Delta P = 29$ psid (2 bar) -10% (optional)	
	$\Delta P = 72$ psid (5 bar) -10% (standard)	
	$\Delta P = 116$ psid (8 bar) -10% (optional non bypass)	
Bypass Valve Cracking Pressure		
	$\Delta P = 43$ psid (3 bar) +10% (optional)	
	$\Delta P = 87$ psid (6 bar) +10% (standard)	
	Non Bypass Available	

Model Code

DF BN/HC 30 T B 3 A 1 . X / 12 - V B6

Filter Type _____
 DF = Inline filter

Element Media _____
 BH/HC = Betamicon® (High Collapse) BN/HC = Betamicon® (Low Collapse)
 V = Metal Fiber W/HC = Wire Screen

Size _____
 30, 60, 110, 160, 240, 280, 330, 660, 1320

Pressure Range _____
 T = 420 bar

Size and Nominal Connection _____
 B = 1/2 Threaded (size 30 only) I = SAE 3/4" Code 62 Flange (sizes 60-140 only)
 C = 3/4 Threaded (sizes 60-140 only) J = SAE 1 1/4" Code 62 Flange (sizes 160-280 only)
 E = 1 1/4 Threaded (sizes 160-280 only) L = SAE 2" Code 62 Flange (sizes 330-1320 only)
 F = 1 1/2 Threaded (sizes 330-1320 only)

Filtration Rating (microns) _____
 3, 5, 10, 20 = BH/HC, BN/HC 3, 5, 10, 20 = V 25, 74, 149 = W/HC

Type of ΔP Clogging Indicator _____
 A, B/BM, C, D

Type Number _____
 1 = One piece bowl (sizes 30-660 only) 2 = Two piece bowl (sizes 660-1320 only)

Modification Number (latest version always supplied) _____

Port Configuration _____
 (omit) = BSPP
 3 = NPT ports – NPT ported filters will be SAE with adaptors in each port
 12 = SAE straight thread o-ring boss ports
 16 = SAE flange ports (sizes 60-1320 only)

Seals _____
 (omit) = Nitrile (NBR) standard
 V = Fluoroelastomer (FPM)
 EPR = Ethylene Propylene (EPDM) Seals (subject to minimum quantities)

Bypass Valve _____
 (omit) = Non-bypass B3 = Bypass (3 bar) B6 = Bypass (6 bar)

Supplementary Details _____
 SO103H = Modification of BN4HC (Low Collapse) Element For Phosphate Esters
 SO155H = Modification of BH4HC (High Collapse) Element For Phosphate Esters
 SO184 = G-1/2 Drain in Bowl Option For Sizes 60 - 280 (comes standard for sizes 330, 660, & 1320)
 W = Indicator with brass piston (for use with water based fluids)
 L24, L48, L110, L220 = Lamp for D-type clogging indicator (LXX, XX = voltage)
 T100 = Indicator Thermal Lockout, 100°F (C and D indicators only)

Replacement Element Model Code

0030 D 010 BN4HC / V

Size _____
 0030, 0060, 0110, 0160,
 0240, 0280, 0330, 0660, 1320

Filtration Rating (micron) _____
 3, 5, 10, 20 = BH4HC, BN4HC
 3, 5, 10, 20 = V
 25, 74, 149 = W/HC

Element Media _____
 BH4HC, BN4HC, V, W/HC

Supplementary Details _____
 (omit) = standard
 V = Fluoroelastomer (FPM) seals

Clogging Indicator Model Code

VD 5 B . X /

Indicator Prefix _____
 VD = G 1/2 6000 psi

Trip Pressure _____
 2 = 29 psid (2 bar) (option)
 5 = 72 psid (5 bar) (standard)
 Optional 15 psid (1 bar) & 116 psid (8 bar) available upon request

Type of Indicator _____
 A = no indicator, plugged port
 B/BM = Visual pop-up (auto/manual reset)
 C = Electric switch
 D = Electric switch and light

Modification Number _____

Supplementary Details _____

Seals _____
 (omit) = Nitrile (NBR) (standard)
 V = Fluoroelastomer (FPM)

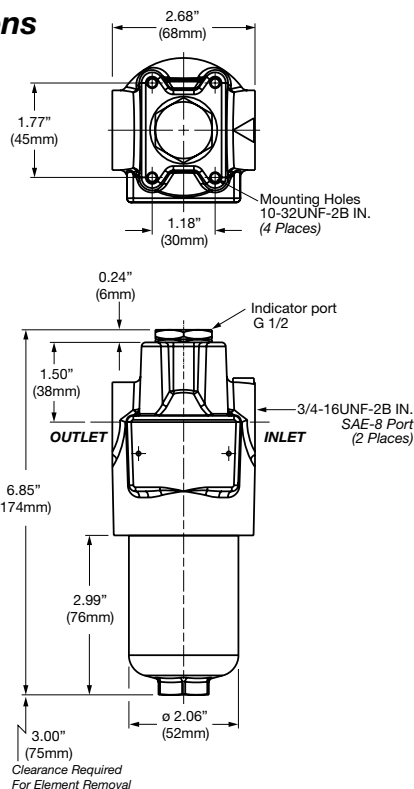
Light Voltage (D type indicators only) _____
 L24 = 24V L110 = 110V

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

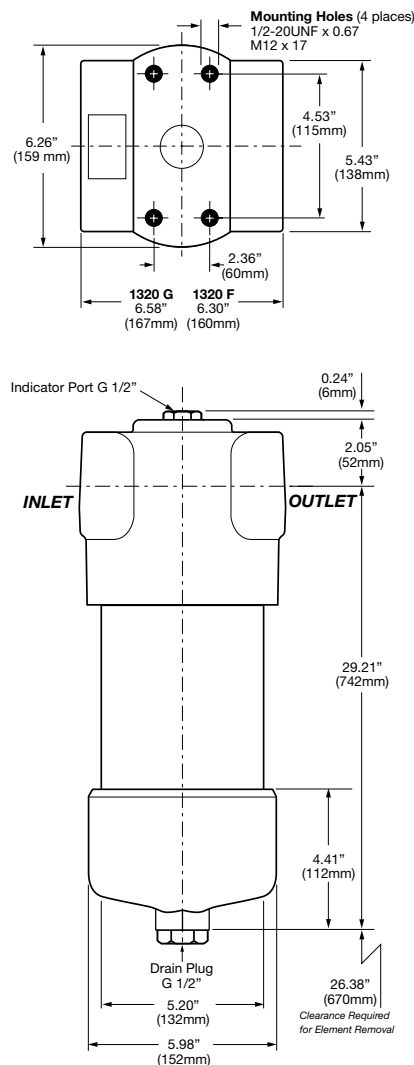
Underwriters Approval (VM, VD types C, D, J, and J4 only) _____
 CRUUS = Electrical Indicators
 (For additional details and options, see Clogging Indicators section.)

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

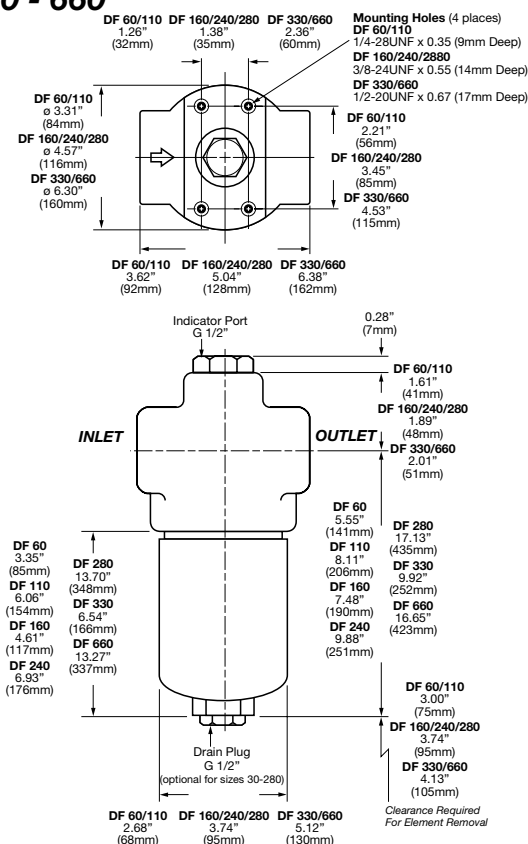
Dimensions DF 30



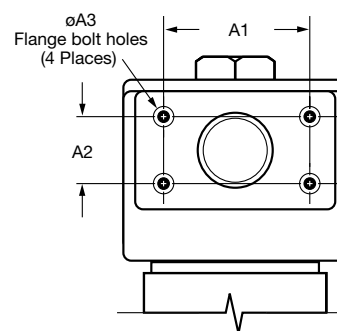
DF 1320



DF 60 - 660



SAE - Code 62



Size	A1	A2	A3
60/110/140	50.8±0.3	23.8±0.3	3/8"-16UNC-2B x 24 DP
160/240/280	66.7±0.3	31.8±0.3	1/2"-UNC-2B x 25 DP
330/660/990/1320	96.8±0.3	44.5±0.3	3/4"-10UNC-2B x 38 DP

Size	30	60	110	160	240	280	330	660	1320
Weight (lbs.)	4.0	8.6	10.5	20.0	23.4	32.0	47.2	62.4	105.8

Dimensions shown are for general information and overall envelope size only. Weights listed are without 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

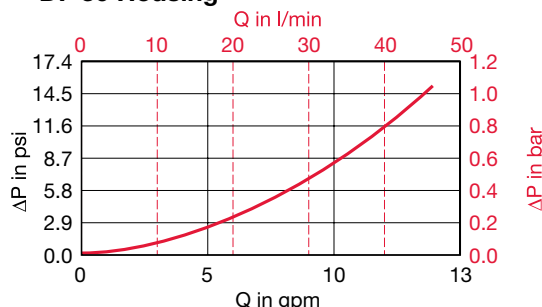
Housing Curve:

Pressure loss through housing is as follows:

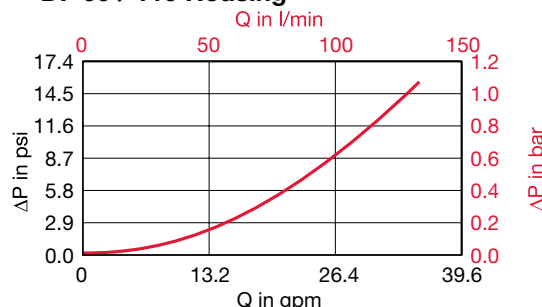
Housing ΔP = Housing Curve $\Delta P \times \frac{\text{Actual Specific Gravity}}{0.86}$

Adjustments must be made for viscosity & specific gravity of the fluid to be used! (see sizing section on page 19)

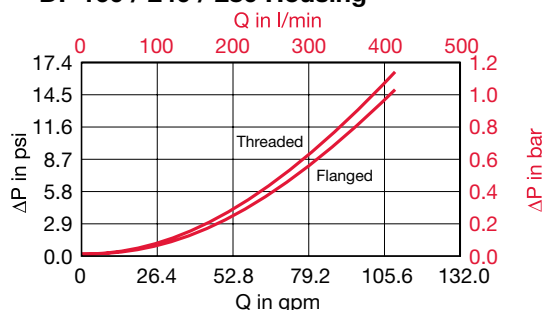
DF 30 Housing



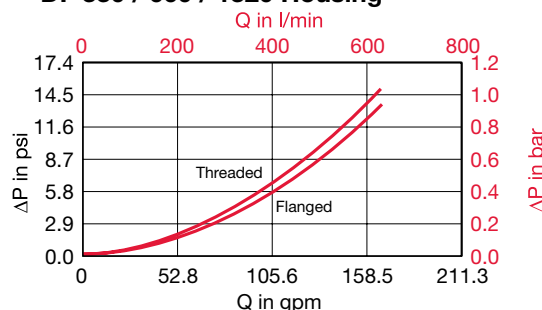
DF 60 / 110 Housing



DF 160 / 240 / 280 Housing



DF 330 / 660 / 1320 Housing



Element K Factors

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

Size	...D...BN4HC (Betamicon® Low Collapse)			
	3 μm	5 μm	10 μm	20 μm
0030	3.504	2.374	1.251	0.618
0060	1.582	1.116	0.723	0.433
0110	0.819	0.585	0.361	0.205
0160	0.718	0.480	0.252	0.193
0240	0.450	0.333	0.196	0.128
0280	0.220	0.171	0.092	0.071
0330	0.294	0.215	0.163	0.095
0660	0.136	0.099	0.061	0.044
1320	0.068	0.048	0.030	0.021

Size	...D...BH4HC (Betamicon® High Collapse)			
	3 μm	5 μm	10 μm	20 μm
0030	5.000	2.780	1.989	1.042
0060	3.210	1.785	0.993	0.669
0110	1.394	0.819	0.488	0.307
0160	0.919	0.569	0.322	0.240
0240	0.578	0.374	0.214	0.158
0280	0.313	0.184	0.097	0.090
0330	0.422	0.244	0.154	0.108
0660	0.179	0.106	0.055	0.049
1320	0.089	0.054	0.031	0.024

Size	...D...V Elements			
	3 μm	5 μm	10 μm	20 μm
0030	1.011	0.740	0.411	0.200
0060	0.877	0.511	0.296	0.183
0110	0.452	0.304	0.182	0.118
0160	0.251	0.177	0.123	0.079
0240	0.169	0.137	0.093	0.062
0280	0.126	0.093	0.064	0.041
0330	0.121	0.097	0.065	0.043
0660	0.063	0.050	0.034	0.021
1320	0.032	0.026	0.018	0.012

Size	...D...W/HC Elements 25, 50, 74, 100, 149, 200 μm			
0030	0.166			
0060	0.042			
0110	0.023			
0160	0.016			
0240	0.010			
0280	0.009			
0330	0.008			
0660	0.004			
1320	0.002			

All Element K Factors in psi / gpm.