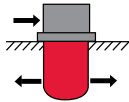


SPECIAL ORDER FILTERS - LOW PRESSURE

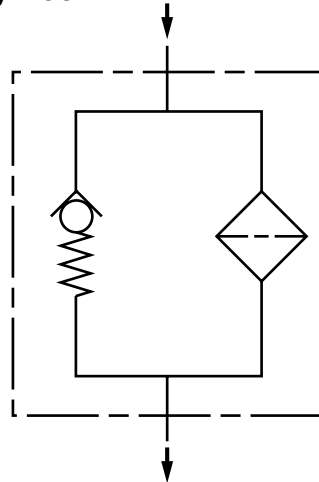
RFT Series

Return Line Filter

145 psi • up to 634 gpm



Hydraulic Symbol



Features

This filter system provides an economic solution for full-flow return line filtration. The filter head is mounted on the tank. The protective tube can be supplied in various optional versions. Firstly as a closed base and rows of opening holes at the height of the tank's oil level. In the second version, separating air from the oil is made easier. The optional magnetic core is connected to the filter element via a bayonet fitting, guaranteeing effective magnetic pre-filtration.

The filter housings are designed in accordance with international regulations. They consist of a filter cover, filter head, shroud cover, and element location nozzle.

The element is top-removable.

Standard equipment

- Magnetic core integrated into clamp (only for RFT 0170 – 0500)
- Magnetic core integrated into cover (only for RFT 0600 – 2400)
- with protective tube
- with bypass valve

Filter Elements

HYDAC filter elements are validated and their quality is constantly monitored according to the following standards:

ISO 2941, ISO 2942, ISO 2943, ISO 3724, ISO 3968, ISO 11170, ISO 16889

Filter elements are available with the following pressure stability values:

Glass fiber (ULP):	87 psi (6 bar)
Glass fiber with pre-filter (UMC):	87 psi (6 bar)
Wire mesh (WPI):	87 psi (6 bar)

Other filtration ratings on request.

Special Models and Accessories

- without magnetic core
- without shroud (*only RFT 0170 – 500*)
- with shroud
- Outlet grill in openings in shroud
- Seals made of FKM
- Hydraulic oils H to HLPD DIN 51524
- Lubrication oils DIN 51517, API, ACEA, DIN 51515, ISO 6743
- Compressor oils DIN 51506
- Biodegradable operating fluids VDMA 24568 HETG, HEES, HEPG

Important Information

- Filter housings must be grounded
- When using electrical clogging indicators, the electrical power supply to the system must be switched off before removing the clogging indicator connector

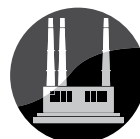
Technical Specifications

Mounting Method	4 Mounting holes - filter housing	
Direction of Flow	Inlet: Side	Outlet: Shroud windows
Materials of Construction	Housing	Lid
0170-0400	Steel	Aluminum
0310-1200	Steel	Aluminum
1800-2400	Steel	Aluminum
Flow Capacity		
0170	45 gpm (170 l/min)	
0230	66 gpm (250 l/min)	
0300	79 gpm (300 l/min)	
0310	92 gpm (350 l/min)	
0400	105 gpm (400 l/min)	
0410	118 gpm (450 l/min)	
0500	145 gpm (550 l/min)	
0600	158 gpm (600 l/min)	
0800	211 gpm (800 l/min)	
1200	317 gpm (1200 l/min)	
1800	475 gpm (1800 l/min)	
2000	528 gpm (2000 l/min)	
2400	634 gpm (2400 l/min)	
Housing Pressure Rating		
Max. Allowable Working Pressure*	145 psi (10 bar) MAWP	
Element Collapse Pressure Rating		
ULP, UMC, WPI	87 psid (6 bar)	
Fluid Temp. Range	-22°F to 248°F (-30°C to 120°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	P = 29 psi (2.0 bar) <i>standard</i> P = 11 psi (0.8 bar) <i>optional - consult factory</i>	
Bypass Valve Cracking Pressure	$\Delta P = 36$ psi (2.5 bar) <i>standard</i> $\Delta P = 11$ psi (0.8 bar) <i>optional</i>	

Applications



Agricultural



Industrial



Construction

SPECIAL ORDER FILTERS - LOW PRESSURE

Model Code

RFT 0600 UMC 010 V M B H L N J0 VX X 1 /-XXX

Filter Type

RFT = Return Line Filter

Size

0170, 0230, 0300, 0400, 0310, 0410, 0500,
0600, 0800, 1200, 1800, 2000, 2400

Element Media

ULP = glass fiber
UMC = glass fiber with pre-filter
WPI = wire mesh

Filtration Rating

ULP = 010, 025
UMC = 010, 020
WPI = 100

Bypass Valve

C = with bypass valve 0.8 bar (11 psi)
V = standard: with bypass valve 2.5 bar (36 psi)
X = without bypass valve

Magnetic Core

M = with magnetic core
X = without magnetic core

Operating Pressure

B = 145 psi (10 bar)

Type and Size of Port

F (sizes 0170 - 0400)	= E1: G 1½", SAE-24
G (sizes 0310 - 0500)	= E1: SAE DN 50 (2") E2: G 1¼", SAE-20
H (sizes 0600 - 1200)	= E1: SAE DN 80 (3") E4: SAE DN 50 (2") E5: G 1½", SAE-24
I (sizes 0600 - 1200)	= E1: SAE DN 65 (2½") E4: SAE DN 40 (1½") E5: G 1½", SAE-24
J (sizes 0310 - 0500)	= E1: SAE DN 40 (1½") E2: G 1", SAE-16
K (sizes 0170 - 0400)	= E1: G 1½", SAE-24 E2: SAE DN 40 (1½")
N (sizes 1800 - 2400)	= E1: SAE DN 80 (3")
P (sizes 1800 - 2400)	= E1: SAE DN 100 (4")
others on request	

Outlet Shroud Version

X = without shroud (only RFT 0170, 0230, 0300, 0400, 0310, 0410, 0500)
B = with shroud, base open
L = standard: with diffuser (perforated)
R = with diffuser (openings with outlet grille)

Seals

N = NBR (nitrile rubber)
V = FKM

Position of Clogging Indicator

JA = both parts machined G1/8; plugged ports
J1 = as per the drawing
J2 = as per the drawing
J0 = without clogging indicator

Clogging Indicator

VA = visual / electrical
VE = electrical
VO = visual
VX = no clogging indicator, sealed up with plugs

Trip Pressure

C = 0.8 bar (Optional - Consult factory)
D = 2.0 bar
X = none (if no clogging indicator is installed)

Modification Number

X = the latest version is always supplied

Supplementary Details

SPECIAL ORDER FILTERS - LOW PRESSURE

Replacement Element Model Code

	UMC	0010	117-X509-S	- N	- RT	/ B1.5	
Element Media	_____						
ULP, UMC, WPI							
Filtration Rating (micron)	_____						
10, 25 = ULP							
10, 20 = UMC							
100 = WPI							
Size	_____						
117-X509-S = RFT0170 element code							
117-X512-S = RFT0230 element code							
117-X516-S = RFT0300 element code							
120-XZ11-Q = RFT0310 element code							
117-X520-S = RFT0400 element code							
120-XZ14-Q = RFT0410 element code							
120-XZ18-Q = RFT0500 element code							
152-X218-S = RFT0600 element code							
152-X225-S = RFT0800 element code							
152-X231-S = RFT1200 element code							
202-X235-S = RFT1800 element code							
202-X245-S = RFT2000 element code							
202-X246-S = RFT2400 element code							
Seals	_____						
N = Nitrile rubber (NBR)							
V = Fluorocarob elastomer (FKM)							
Packaging	_____						
Bypass Valve	_____						
(omit) = 2.5 bar bypass							
B0.8 = 0.8 bar bypass							
B1.5 = 1.8 bar bypass							
KB = No bypass							
Supplemental Details	_____						

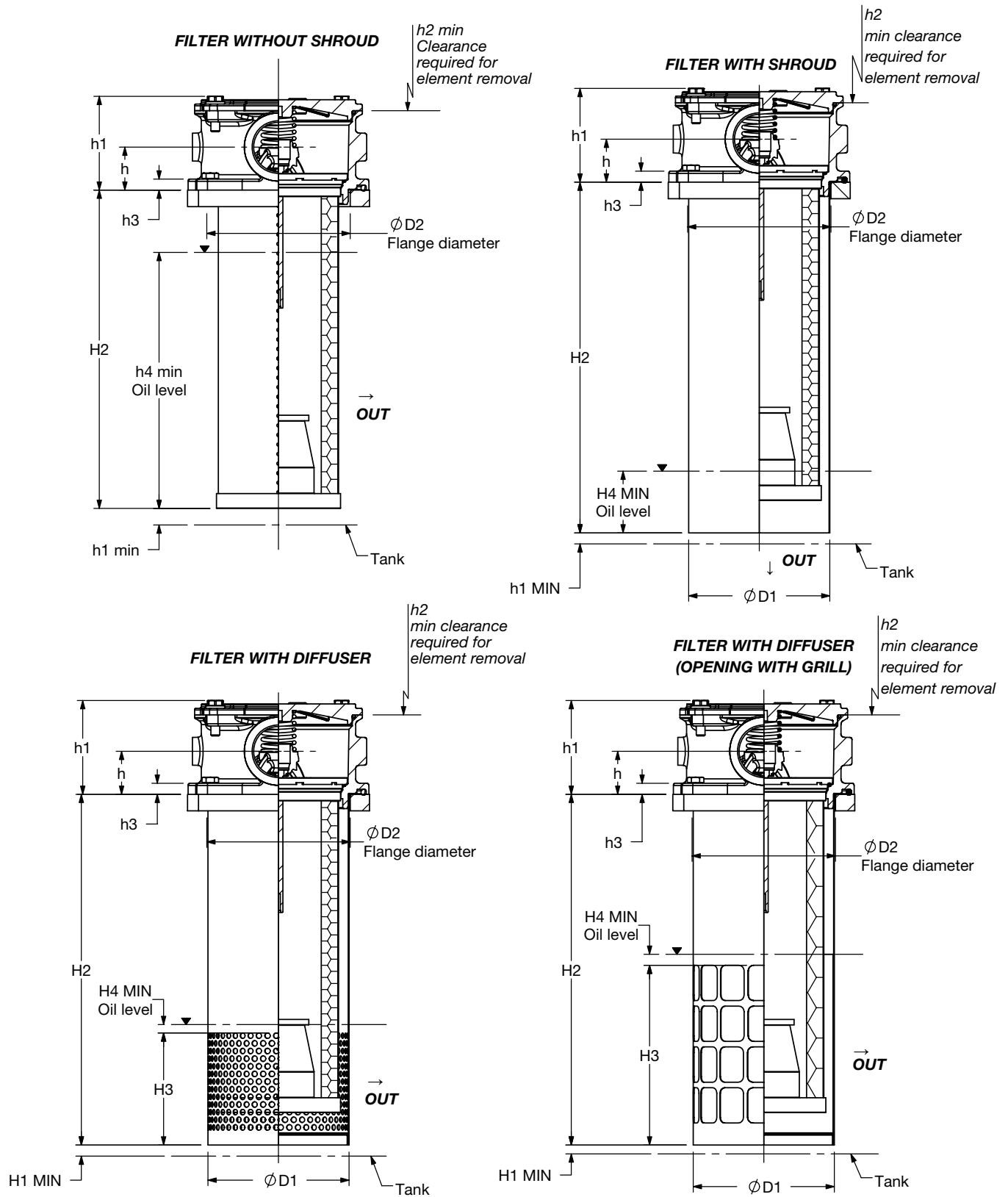
Clogging Indicator Model Code

	VMF	2	B	.	X	/	V
Indicator Prefix	_____						
VMF = Mobile Filters (all sizes)							
Trip Pressure	_____						
0.8 = 11 psid (0.8 bar) - Noted by "C" in filter model code							
2 = 29 psid (2 bar) - Noted by "D" in filter model code							
Type of Indicator	_____						
Note by "VO" in filter model code - use B							
Noted by "VE" in filter model code - use C							
Noted by "VA" in filter model code - use D							
Modification Number	_____						
Supplementary Details	_____						
Seals	_____						
(omit) = Nitrile rubber (NBR) (standard)							
V = Fluorocarbon elastomer (FKM)							

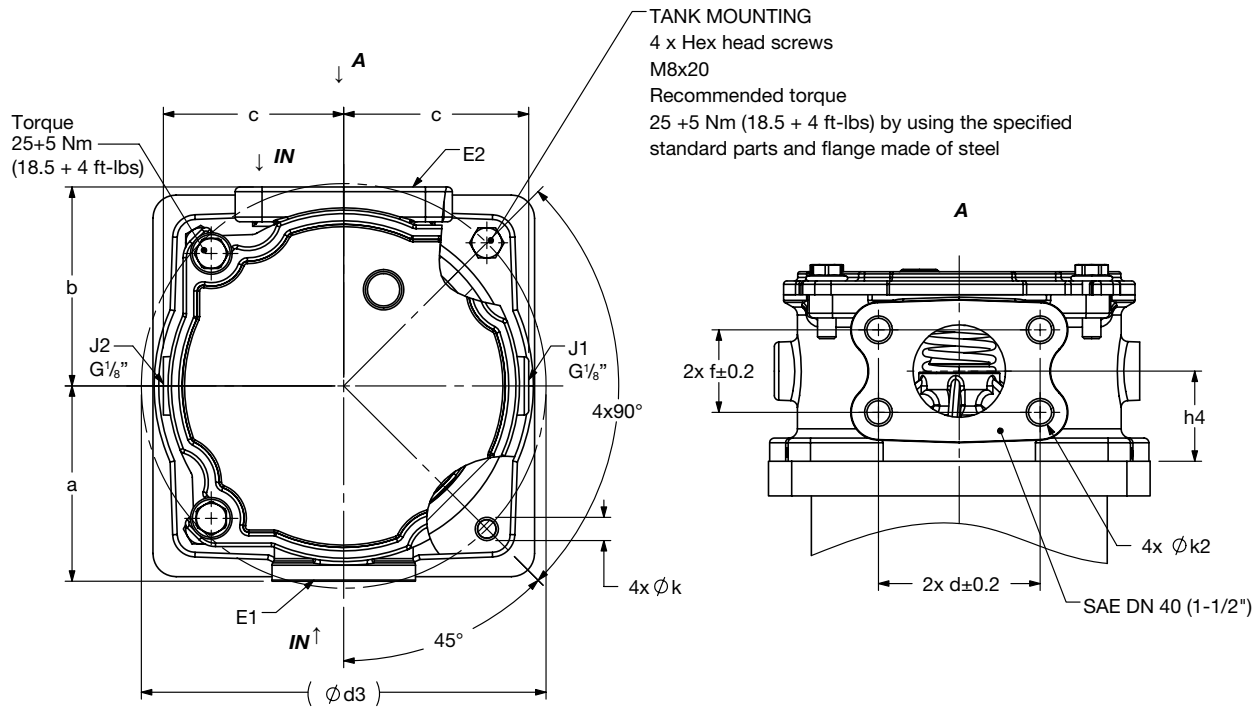
(For additional details and options, see Clogging Indicators section.)

Dimensions

RFT 0170, 0230, 0300, 0400



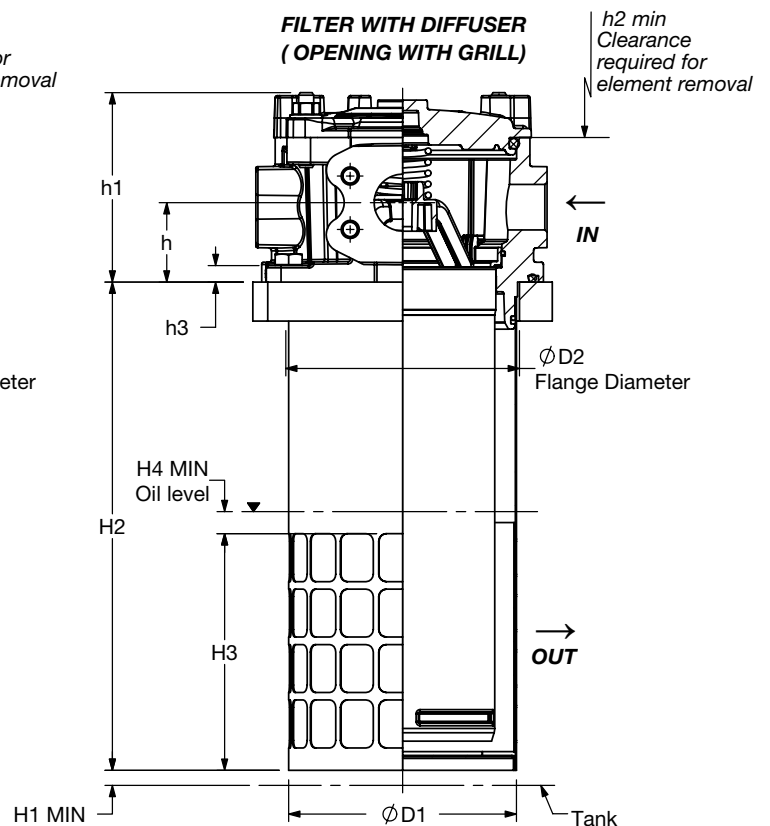
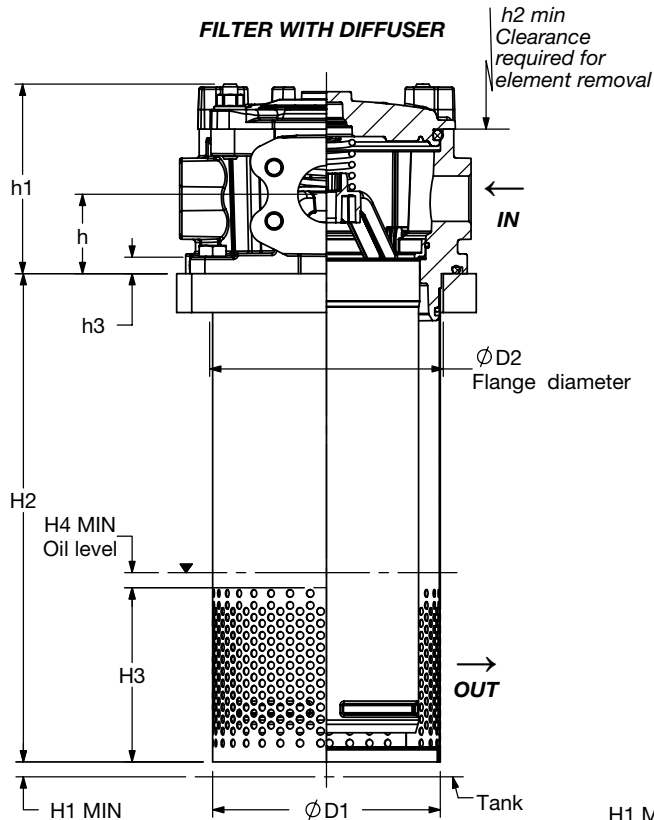
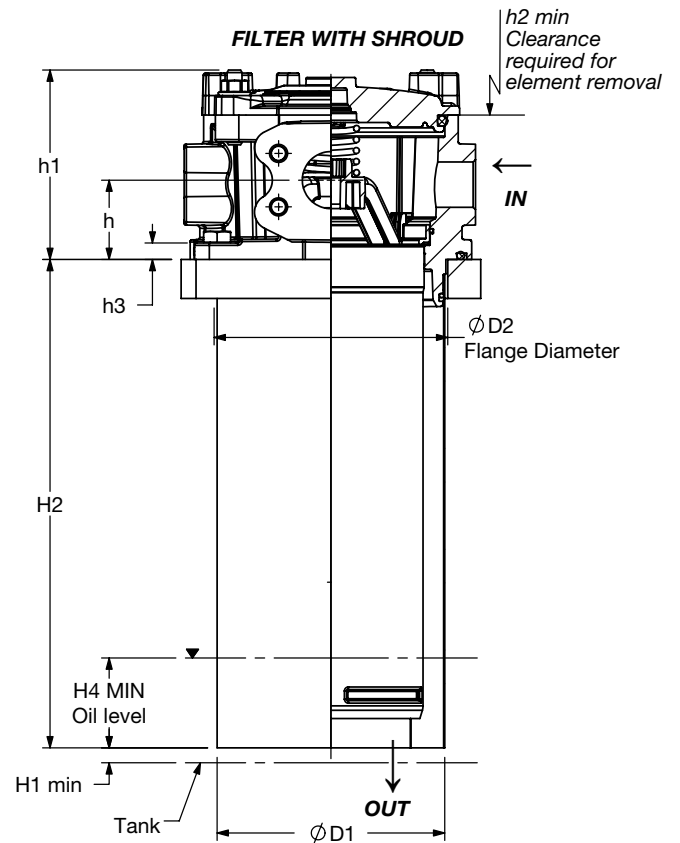
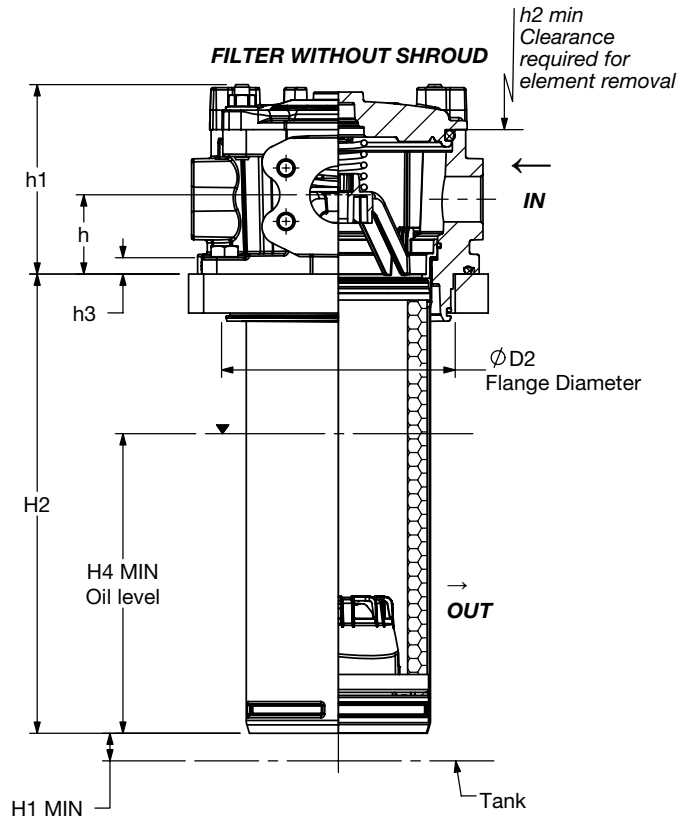
SPECIAL ORDER FILTERS - LOW PRESSURE



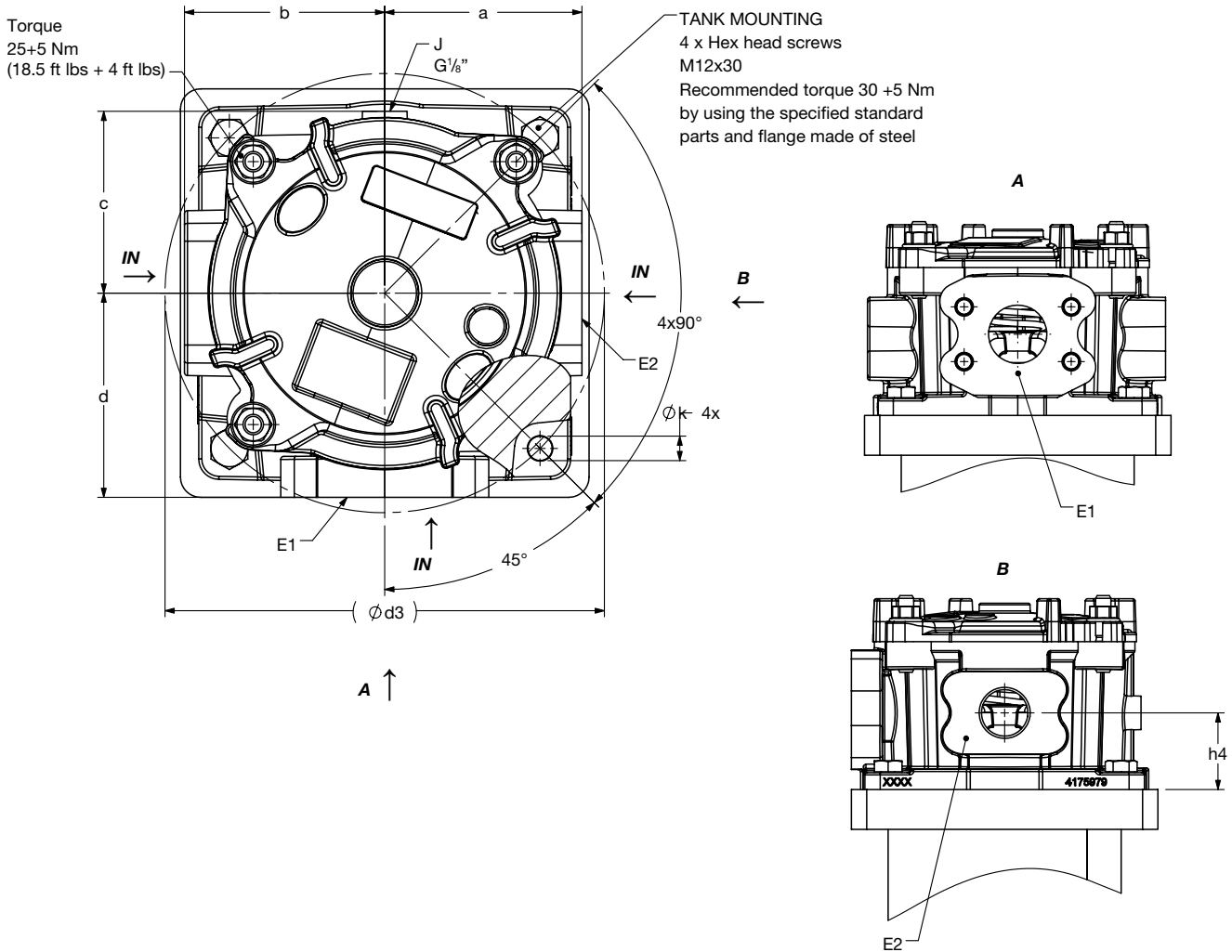
Type	Shroud Version	H1	H2	H3	H4	h	h1	h2	h3	h4	ØD1	ØD2	Ød3	a	b	c	d	f	Øk	Øk2	Wt (lbs)
RFT 0170	Without shroud	[0.39]	[8.58] 218	-	[6.1] 155						-										5.7
	With shroud	10		-	[1.97] 50																7.1
	With diffuser	[0.2]	[9.72] 247	[4.02] 102	[0.39] 10				[10.24] 260		[5.04] 128										7.5
	Diffuser with opening	5		[4.96] 126																	7.7
RFT 0230	Without shroud	[0.39]	[11.38] 289	-	[7.99] 203						-										6.4
	With shroud	10		-	[1.97] 50																7.7
	With diffuser	[0.2]	[12.52] 318	[4.02] 102	[0.39] 10				[12.99] 330		[5.04] 128										8.2
	Diffuser with opening	5		[6.42] 163		[1.54] 39	[3.35] 85		[0.39] 10		[5.31] 135	[6.89] 175	[3.33] 84.5	[3.39] 86.0*	[3.15] 80*	[2.75] 69.9	[1.48] 37.5	[0.39] 10	M12		8.4
RFT 0300	Without shroud	[0.39]	[15.16] 385	-	[10.51] 267						-										6.8
	With shroud	10		-	[1.97] 50																8.2
	With diffuser	[0.2]	[16.3] 414	[4.02] 102	[0.39] 10				[16.93] 430		[5.04] 128										8.6
	Diffuser with opening	5		[7.87] 200						[1.54] 39											8.8
RFT 0400	Without shroud	[0.39]	[19.65] 499	-	[13.23] 336						-										75
	With shroud	10		-	[1.97] 50																9.0
	With diffuser	[0.2]	[20.79] 528	[4.02] 102	[0.39] 10				[21.26] 540		[5.04] 128										9.5
	Diffuser with opening	5		[9.33] 237																	9.7

* Non-machined port
 ** Machined port

Dimensions RFT 0310, 0410, 0500



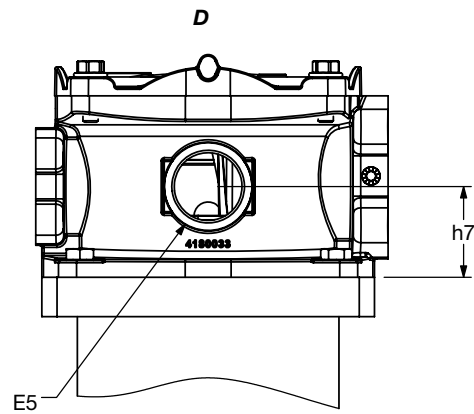
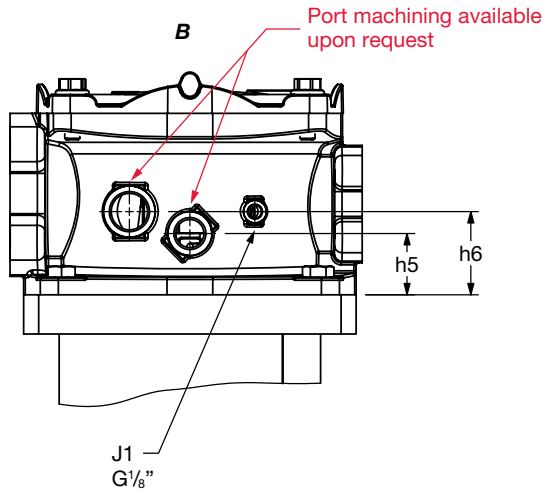
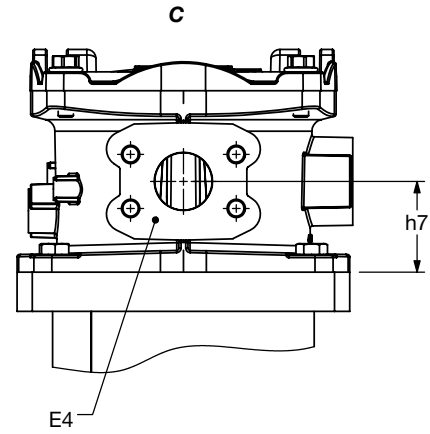
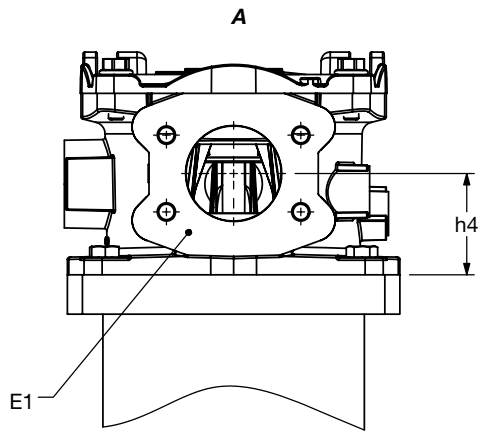
SPECIAL ORDER FILTERS - LOW PRESSURE



Type	Design	H1	H2	H3	H4	h	h1	h2	h3	h4	∅D1	∅D2	∅d3	a	b	c	d	∅k	Wt (lbs)
RFT 0310	Without shroud	[0.39]	[12.03] 305.5	-	[7.87] 200						-								9.3
	With shroud	10		-	[2.36] 60			[16.54] 420											10.8
	With diffuser	[0.2]	[12.83] 326	[4.53] 115	[0.39] 10						[5.98] 152								11.0
	Diffuser with opening	5		[6.22] 158															11.2
RFT 0410	Without shroud	[0.39]	[15.96] 405.5	-	[10.63] 270						-								9.9
	With shroud	10		-	[2.36] 60	[2.09] 53	[4.98] 126.5	[20.47] 520	[0.43] 11	[1.97] 50		[6.14] 156	[8.46] 215	[3.85] 98.0*	[3.85] 98.0*	[3.58] 91*	[3.94] 100	[0.49] 12.5	11.9
	With diffuser	[0.2]	[16.77] 426	[4.53] 115	[0.39] 10						[5.98] 152			[3.80] 96.5**	[3.80] 96.5**	[3.50] 89**			12.1
	Diffuser with opening	5		[7.68] 195															12.3
RFT 0500	Without shroud	[0.39]	[19.51] 495.5	-	[12.99] 330						-								11.0
	With shroud	10		-	[2.36] 60			[24.02] 610											13.2
	With diffuser	[0.2]	[20.31] 516	[4.53] 115	[0.39] 10						[5.98] 152								13.4
	Diffuser with opening	5		[10.63] 270															13.7

* Non-machined port
** Machined port

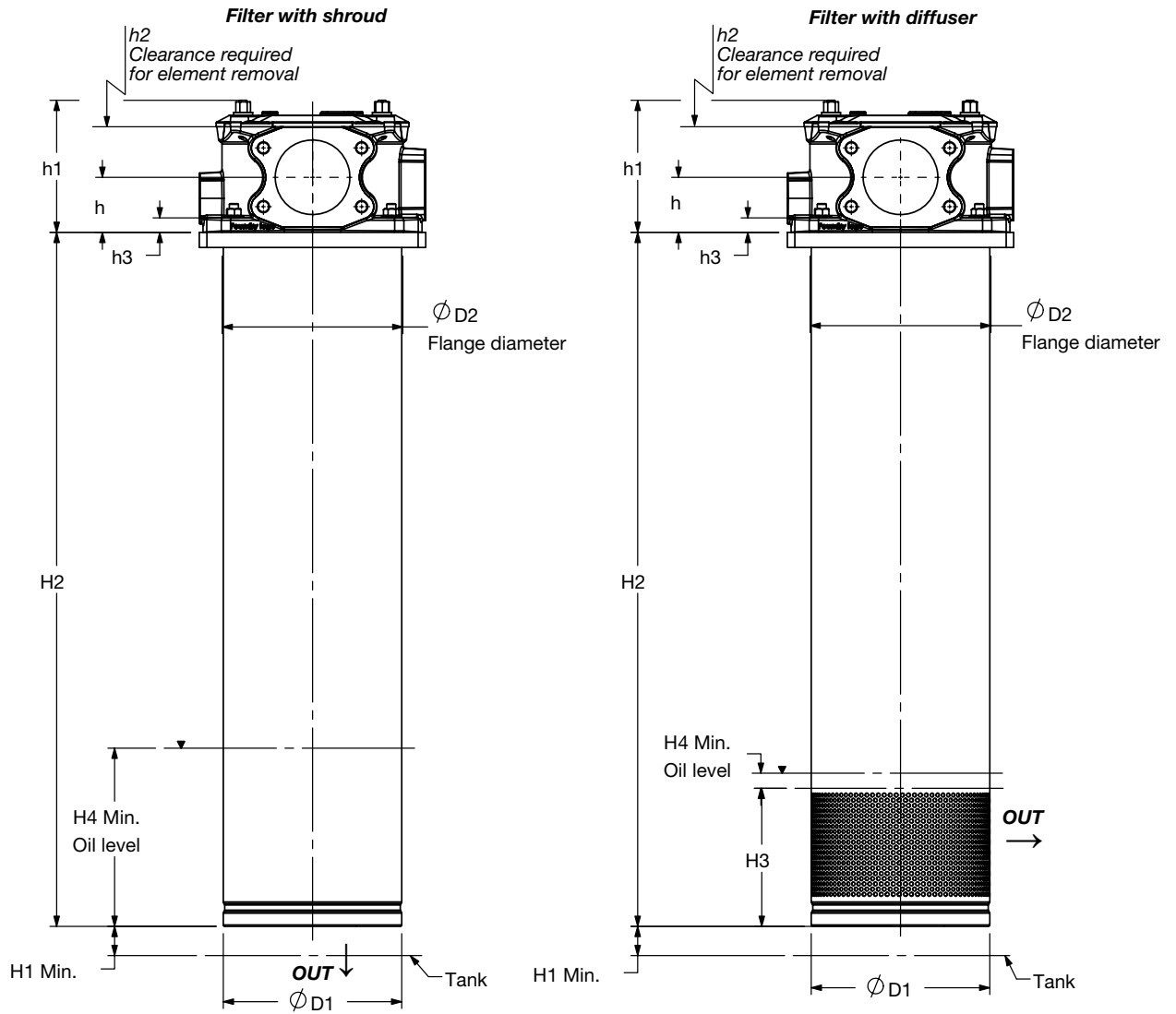
SPECIAL ORDER FILTERS - LOW PRESSURE



Type	Design	H1	H2	H3	H4	h	h1	h2	h3	h4	ØD1	ØD2	Ød3	a	f	f2	g	g2	Øk	Øk2	Wt (lbs)		
RFT 0600	With shroud	[0.39] 10		-	[3.15] 80																	26.5	
	With diffuser		[18.94] 481	[5.51] 140				[19.69] 500															26.9
	Diffuser with opening	[0.2] 5		[11.42] 290	[0.39] 10																		27.1
RFT 0800	With shroud	[0.39] 10		-	[3.15] 80																		28.2
	With diffuser		[26.54] 674	[5.51] 140		[1.63] 41.5	[4.41] 112	[27.56] 700	[0.51] 13	[2.01] 51	[6.81] 173	[6.89] 175	[8.66] 220	[4.21] 107*	[2.75] 69.9	[3.06] 77.8	[1.41] 35.7	[1.69] 42.9	[0.49] 12.5	M12 18 deep		28.7	
	Diffuser with opening	[0.2] 5		[15.75] 400	[0.39] 10									[4.17] 106**									28.9
RFT 1200	With shroud	[0.39] 10		-	[3.15] 80																		34.6
	With diffuser		[32.6] 828	[5.51] 140				[35.43] 900															35.1
	Diffuser with opening	[0.2] 5		[21.65] 550	[0.39] 10																		35.3

* Non-machined port
** Machined port

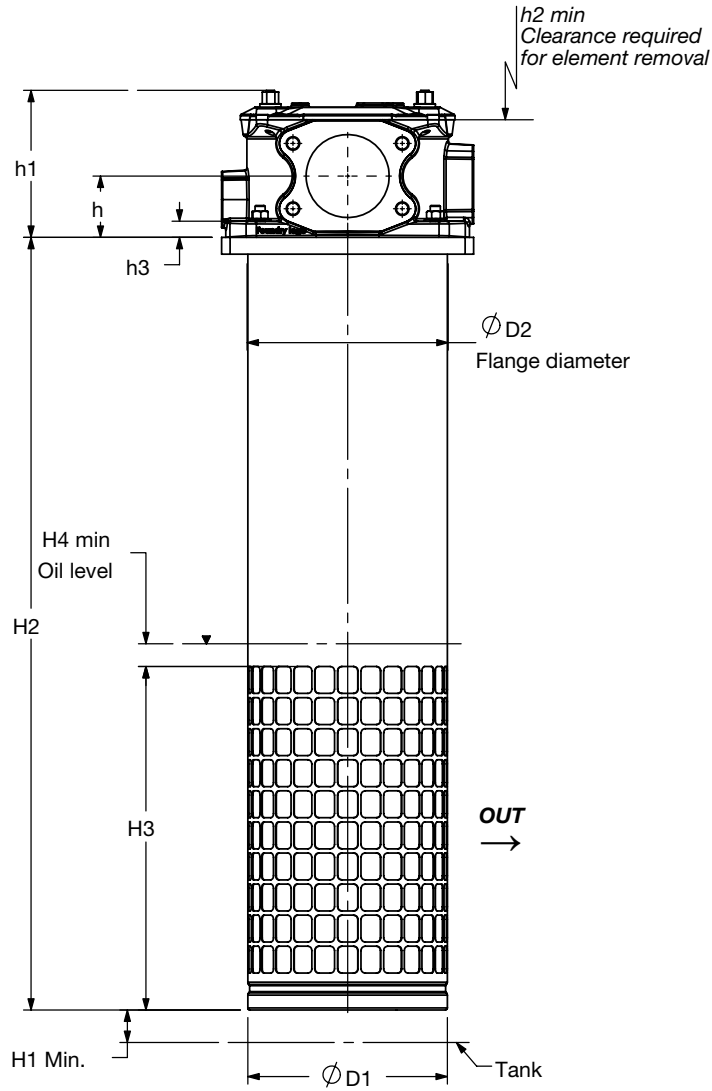
Dimensions RFT 1800, 2000, 2400



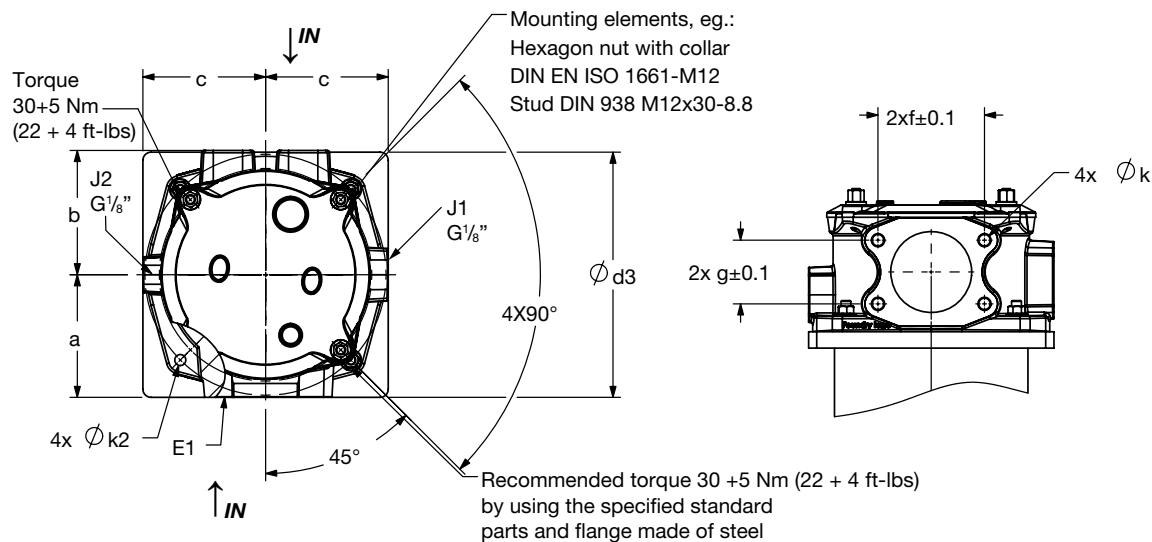
SPECIAL ORDER FILTERS - LOW PRESSURE

RFT 1800, 2000, 2400

Filter with diffuser (opening with grill)



SPECIAL ORDER FILTERS - LOW PRESSURE



Type	Design	H1	H2	H3	H4	h	h1	h2	h3	$\phi D1$	$\phi D2$	$\phi d3$	a	b	c	f	g	ϕk	ϕk_2	Wt (lbs)								
RFT 1800	With shroud	[1.38] 35	[36.22] 920	-	[5.12] 130																64.6							
	With diffuser	[0.59] 15		[7.09] 180	[0.39] 10																[35.43] 900	66.8						
	Diffuser with opening	[16.14] 410																				67.2						
RFT 2000	With shroud	[1.38] 35	[47.24] 1200	-	[5.12] 130	[2.87] 73	[6.89] 175	[45.28] 1150	[0.75] 19	[9.35] 237.5	[9.43] 239.5	[11.61] 295	[5.98] 152*	[5.98] 152*	[5.98] 152*	SAE 4" [5.13] 130.2	SAE 4" [3.06] 77.8	M 16x32 deep	[0.53] 13.5		76.5							
	With diffuser	[0.59] 15		[8.07] 205	[0.39] 10																		[5.91] 150**	[5.91] 150**	[5.91] 150**	SAE 3" [4.19] 106.4	SAE 3" [2.44] 61.9	78.7
	Diffuser with opening	[21.65] 550																										79.1
RFT 2400	With shroud	[1.38] 35	[47.24] 1200	-	[5.12] 130																78.9							
	With diffuser	[0.59] 15		[8.07] 205	[0.39] 10																[46.46] 1180	81.1						
	Diffuser with opening	[21.65] 550																				81.6						

* Non-machined port
 ** Machined port

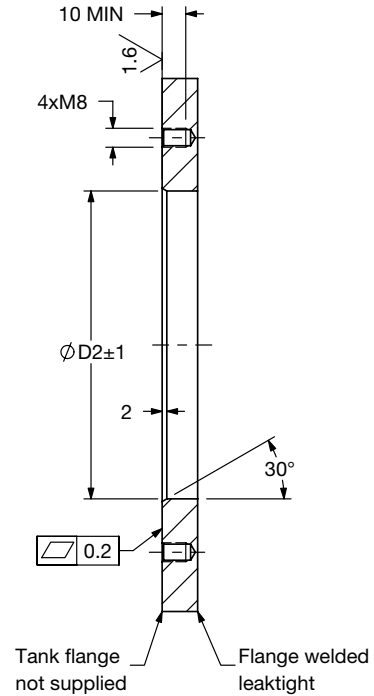
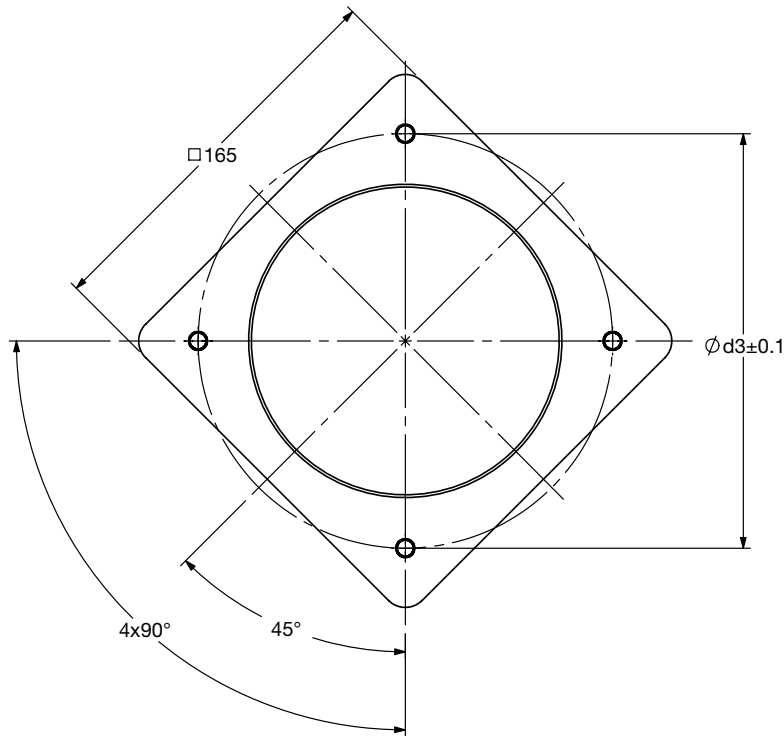
SPECIAL ORDER FILTERS - LOW PRESSURE

Specifications For The Tank Flange

1. In the filter mounting interface, the tank flange should have a maximum flatness of 0.3 mm and maximum roughness of Ra 3.2 μm .
2. In addition, the mounting interface should be free from damage and scratches.
3. The mounting holes of the flange must be blind, or stud bolts. Loctite must be used to mount the filter. As an alternative, the tank flange can be continuously welded from the inside.
4. Both the tank sheet metal and the filter mounting flange must be sufficiently robust so that neither deform when the seal is compressed during tightening.

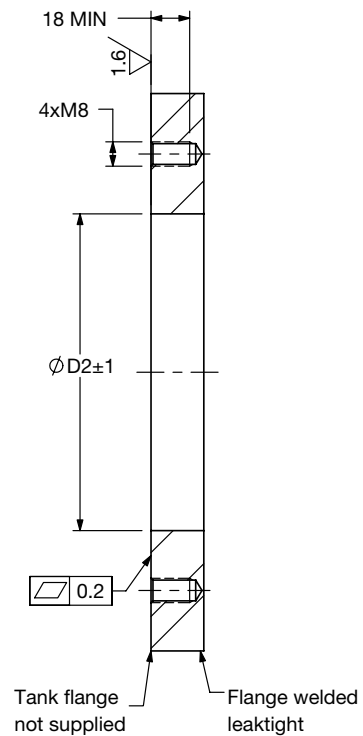
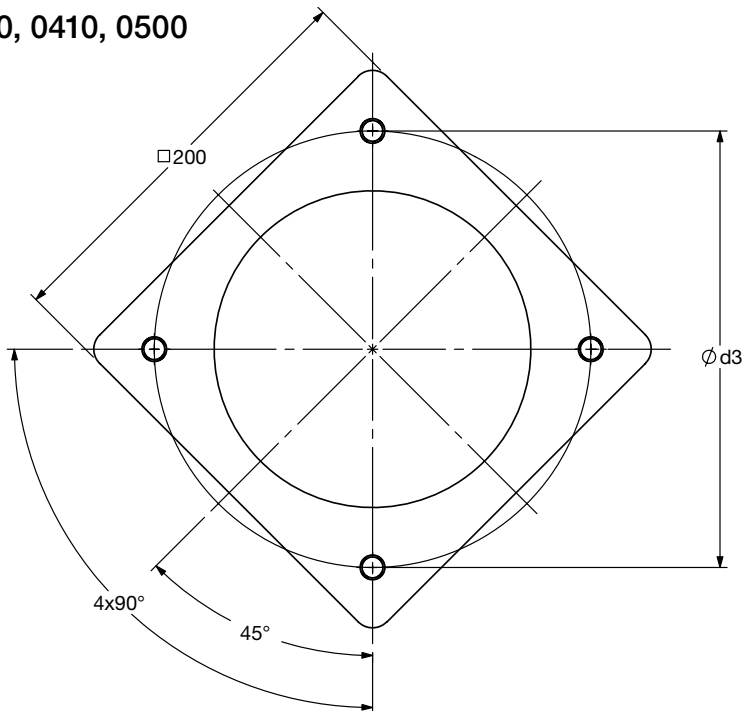
Dimensions

RFT 0170, 0230, 0300, 0400

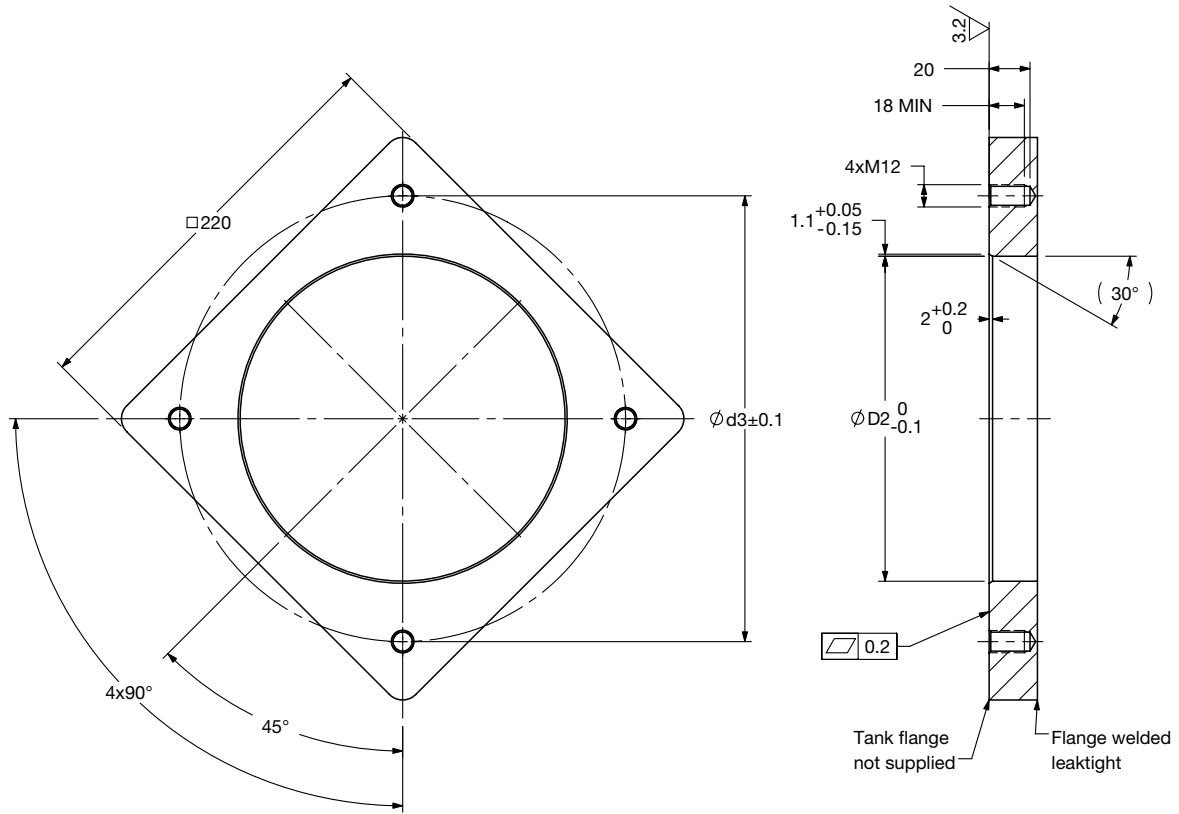


Dimensions

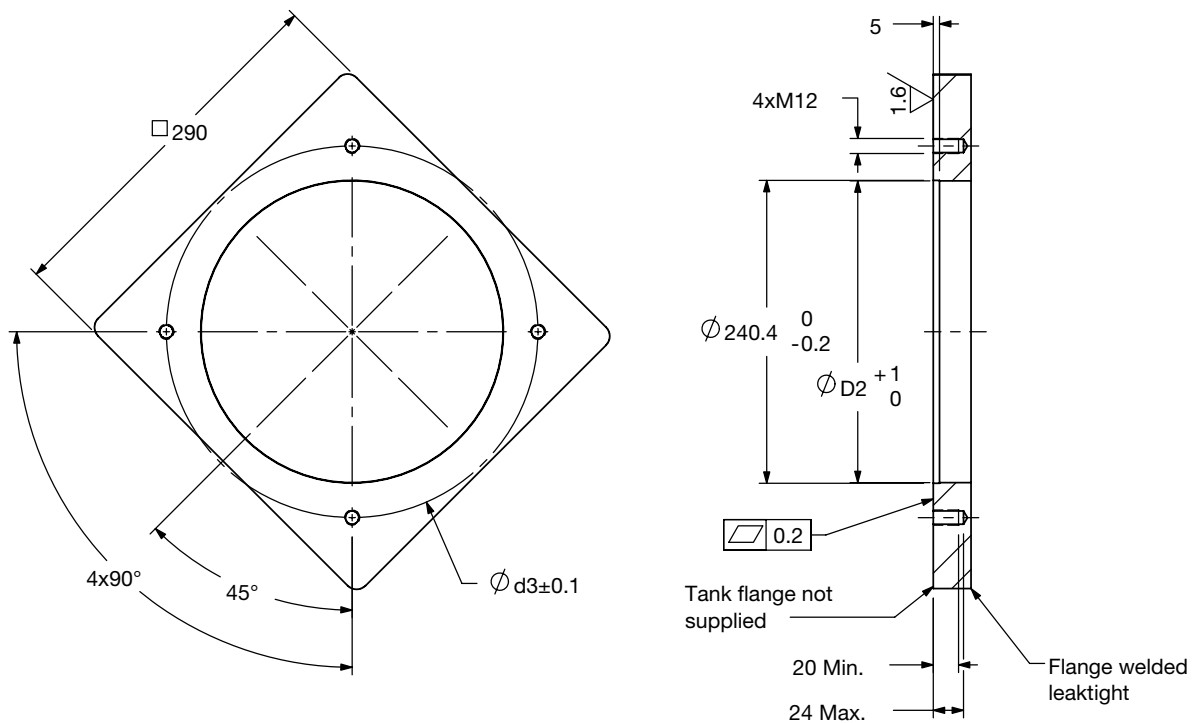
RFT 0310, 0410, 0500



Dimensions RFT 0600, 0800, 1200



Dimensions RFT 1800, 2000, 2400



SPECIAL ORDER FILTERS - LOW PRESSURE

Sizing Information

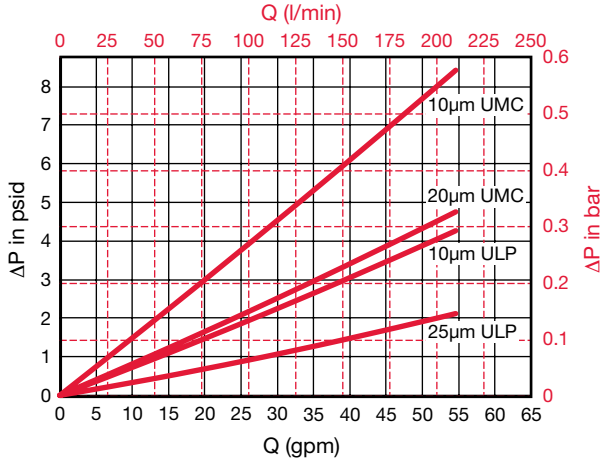
Assembly Curve:

Pressure loss through Assembly is as follows. These curves are based on a viscosity of 30 cst.

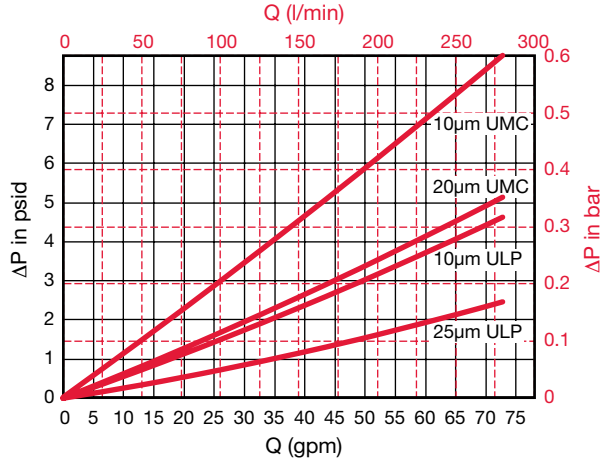
Adjustments must be made for viscosity & specific gravity of the fluid to be used!

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

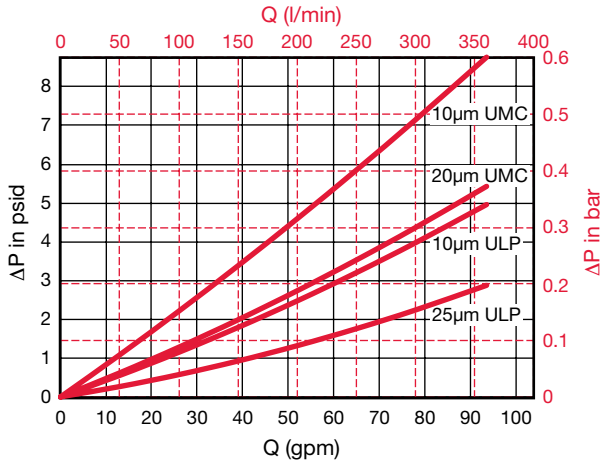
RFT 170 Assembly



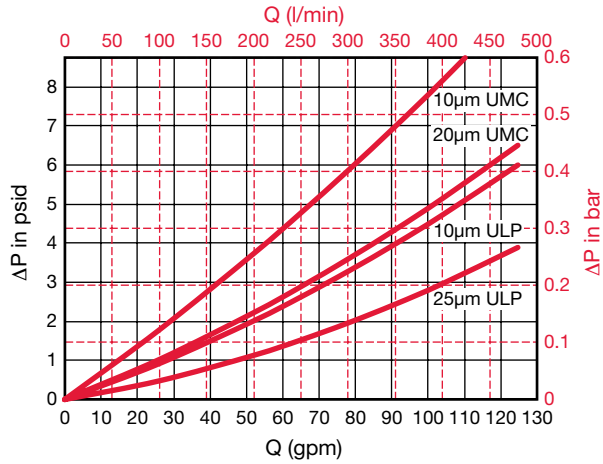
RFT 230 Assembly



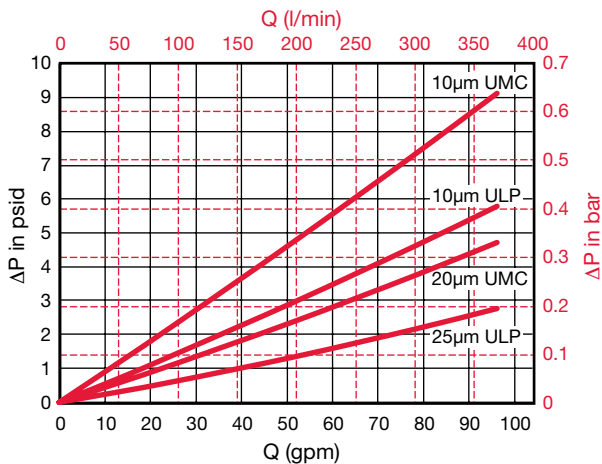
RFT 300 Assembly



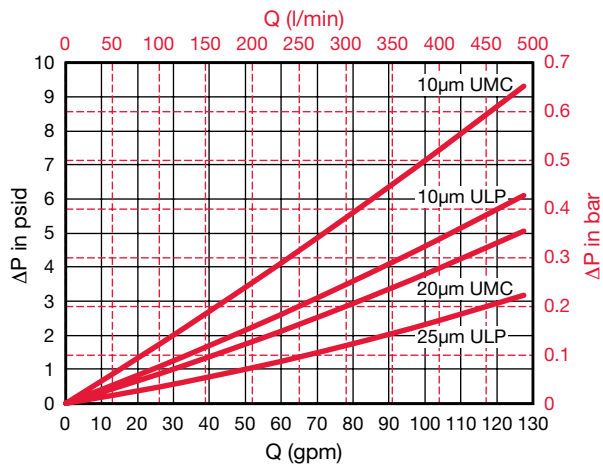
RFT 400 Assembly



RFT 310 Assembly

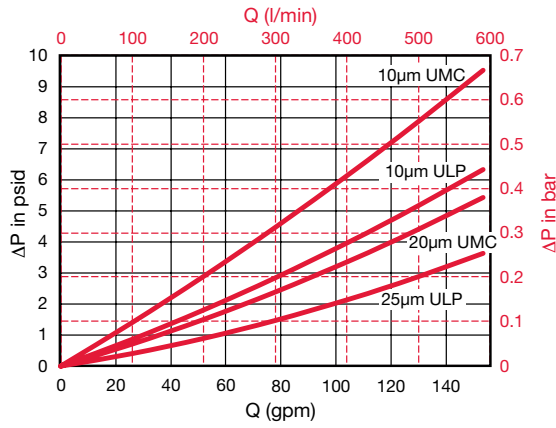


RFT 410 Assembly

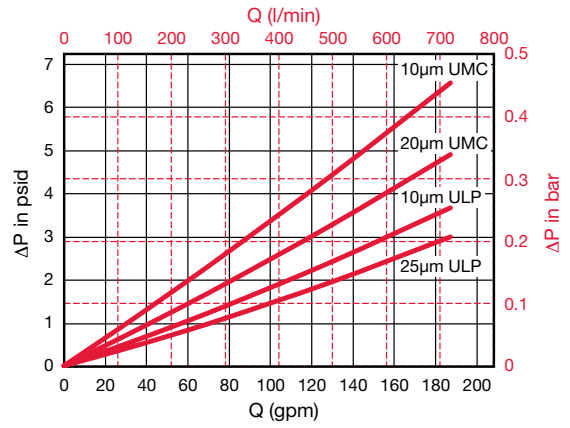


SPECIAL ORDER FILTERS - LOW PRESSURE

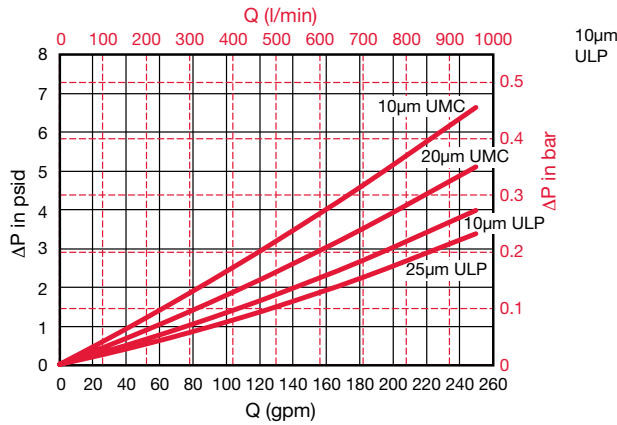
RFT 500 Assembly



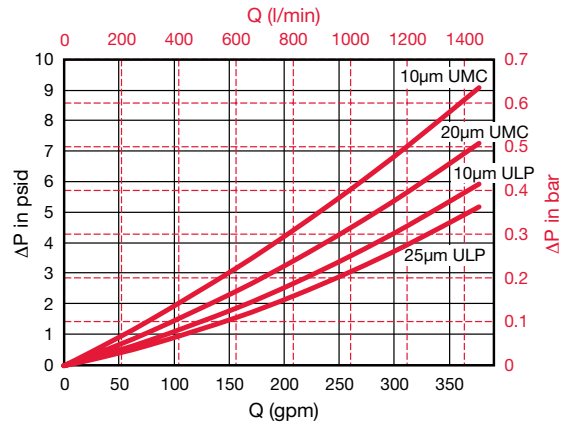
RFT 600 Assembly



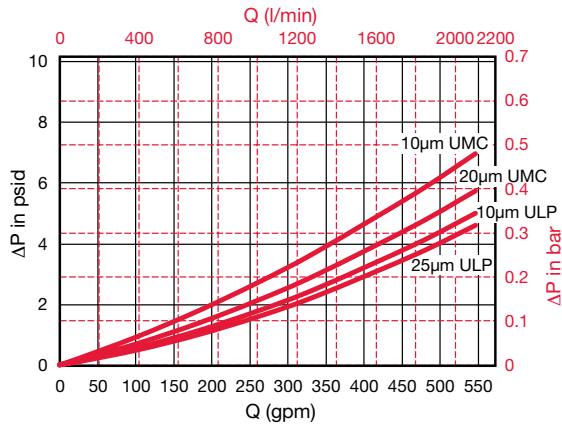
RFT 800 Assembly



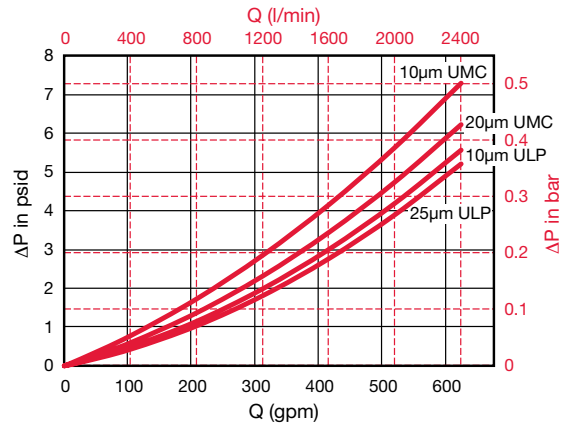
RFT 1200 Assembly



RFT 1800 Assembly



RFT 2000 Assembly



RFT 2400 Assembly

