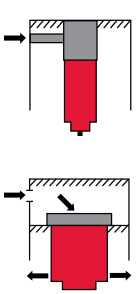
RFM...S & RFM...Set Series

Inside Tank Return Line Filters

145 psi • up to 132 gpm



RFM...S

RFM...Set

Typical Installation of Both Models
Tank Cutaway

Features

- Unique design allows filter to be installed completely inside of the reservoir tank. This saves space, protects the filter, reduces leak points and reduces overall installation cost.
- Lightweight unit requiring no filter head reduces pressure drop while decreasing cost.
- Excellent option for low overhead clearance applications.
- Allows pre-filtration of new make-up oil assuring cleanliness of system.
- Contamination Basket prevents filtered contamination from re-entering the tank during element changeout on 330 & 500 size models.
- Simplifies element changeout procedure in the field.
- RFM Set configuration (tank plenum) allows for multiple returns to enter plenum without manifolding.

Note: This filter is configured with an …..R…. type (return/low pressure) element, so if the filter requires a bypass, the bypass is located in the closed end cap of the cartridge element.

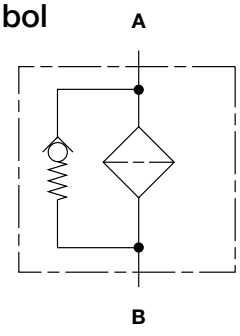
Applications

Agricultural

Automotive

Construction

Hydraulic Symbol



Installation

RFM...SET: Inside Tank Filters are installed into a separate chamber *(see tank cutaway)* built into the reservoir tank via the filter ring and four bolts. More than one filter may be installed in the chamber if required for capacity. This procedure will require a hole to be cut into the top of the reservoir tank and an access cover fastened to the tank for each filter installed. The inlet piping for return should be connected through the tank wall into the separate chamber. A clip installed on the filter ring holds the element in place during filtration operations, and facilitates easy removal for element change out. A static pressure clogging indicator, to warn of high upstream pressure *(element clogged),* can be attached to the access cover. For additional information, contact HYDAC.

RFM...S: Inside Tank Filters are installed to the top of the tank by welding the inner chamber to the tank cover *(see tank cutaway).* This procedure will require a hole to be cut into the top of the reservoir tank and an access cover fastened to the tank. A smaller hole must be cut somewhere in the tank for the return line piping to pass through. The hole located in the side of the inner chamber must be directed towards the return line piping. The inlet piping for return should then be welded through the tank wall and to the inner chamber. The spring located between the element and the access cover provides force to hold element in place during filter operation. A static pressure indicator to warn of high upstream pressure, and if element is clogged can be attached to the access cover. Multiple filters can be installed in the tank. For additional installation information, contact HYDAC.

Technical Specifications

Mounting Method	See Installation at left	
Port Connection	Outlet	
75/165	1.26” Smooth Port	
330/500	2” NPT	
Flow Direction	Inlet: Side	Outlet: Bottom
Construction Materials		
Chamber	Steel (75/165/185)	
Bowl	Plastic	
Ring	Aluminum (330/500)	
Flow Capacity		
75 RFM-S	20 gpm (75 lpm)	
165 RFM-S	43 gpm (165 lpm)	
330 RFM-Set	87 gpm (330 lpm)	
500 RFM-Set	132 gpm (500 lpm)	
Housing Pressure Rating		
Max. Allowable Working Pressure:	145 psi (10 bar)	
Fatigue Pressure	145 psi (10 bar)	
Burst Pressure	> 580 psi (40 bar)	
Element Collapse Pressure Rating		
ON, W/HC, MM,	290 psid (20 bar)	
BN4AM, ECON2, AM, P/HC,	145 psid (10 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.		
Bypass Valve Cracking Pressure		
ΔP = 43 psid (3 bar) +10%		
ΔP = 87 psid (6 bar) +10%		

Model Code

RFM ON 75 S 3 W 1.0 / V

Series
RFM = In-Tank Return Line Filter

Element Media
ON = Optimicron®
ECON2 = ECOmicron®
W/HC = Wire Mesh
MM = Mobilemicron® *(Low Collapse)*
BN/AM = Betamicron®/Aquamicron®
AM = Aquamicron®
P/HC = Polyester

Size
75
165 — *Not available in the SET Style*
330
500 — *Not available in the S Style*

Type of Mounting Connection
S = Inside Tank with shroud for welding and spring for element hold-down *(sizes 75 & 165 only)*
SET = Inside Tank with Ring for bolt mounting and clip for element hold-down *(sizes 330 & 500 only)*

Filtration Rating *(micron)*
1, 3, 5, 10, 15, 20 = ON
3, 10 = BN/AM
3, 5, 10, 20 = ECON2
40 = AM
25, 50, 100, 200 = W/HC
10, 20 = P/HC
10, 15 = MM

Clogging Indicator
W = Without Indicator *(Indicators are installed on access cover on top of tank)*
(For additional details and options, see Section G - Clogging Indicators.)

Modification Number *(latest version always supplied)*

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

Bypass Valve
(omit) = 43 psid (3 bar) *(standard)*
B1 = 14.5 psid (1 bar) *(lube or coolant)*
B6 = 87 psid (6 bar) *(return line extended life)* — not available with ECON2
KB = no bypass *(flushing system)*

Supplementary Details
SO263 = Modification of elements for Skydrol or HYJET phosphate ester fluids
SFREE = Element specially designed to minimize electrostatic charge generation

Replacement Element Model Code

0330 R 003 ON / V

Size
0075, 0165, 0330, 0500

Filtration Rating *(micron)*
1, 3, 5, 10, 15, 20 = ON
3, 5, 10, 20 = ECON2
25, 50, 100, 200 = W/HC
10, 15 = MM
3, 10 = BN4AM
40 = AM
10, 20 = P/HC

Element Media
ON, BN4AM, ECON2, AM, W/HC, P/HC, MM

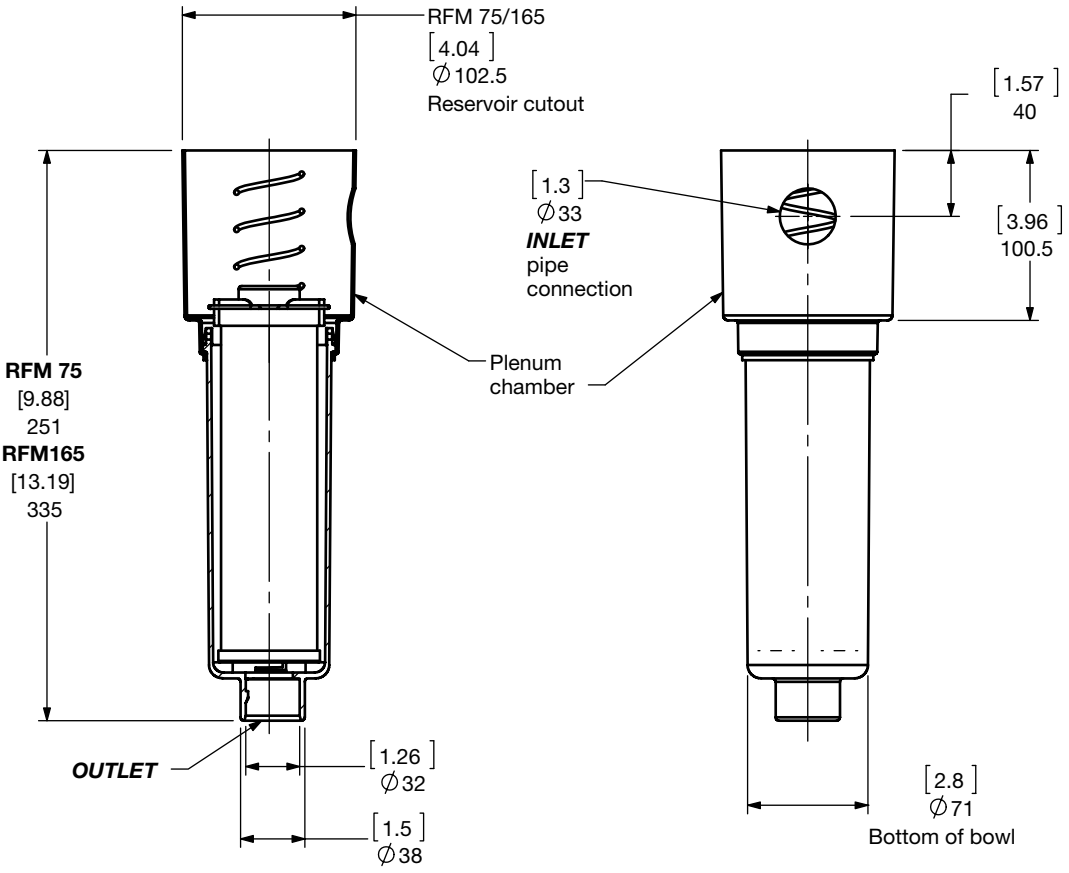
Seals
(omit) = Nitrile rubber (NBR) *(standard)*
V = Fluorocarbon elastomer (FKM)
EPR = Ethylene propylene rubber (EPR)

Bypass Valve
(omit) = 43 psid (3 bar) *(standard)*
B1 = 14.5 psid (1 bar) *(lube or coolant)*
B6 = 87 psid (6 bar) *(return line extended life)* — not available with ECON2
KB = no bypass *(flushing system*

Supplementary Details
SO263 = Modification of elements for Skydrol or HYJET phosphate ester fluids
SFREE = Element specially designed to minimize electrostatic charge generation

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

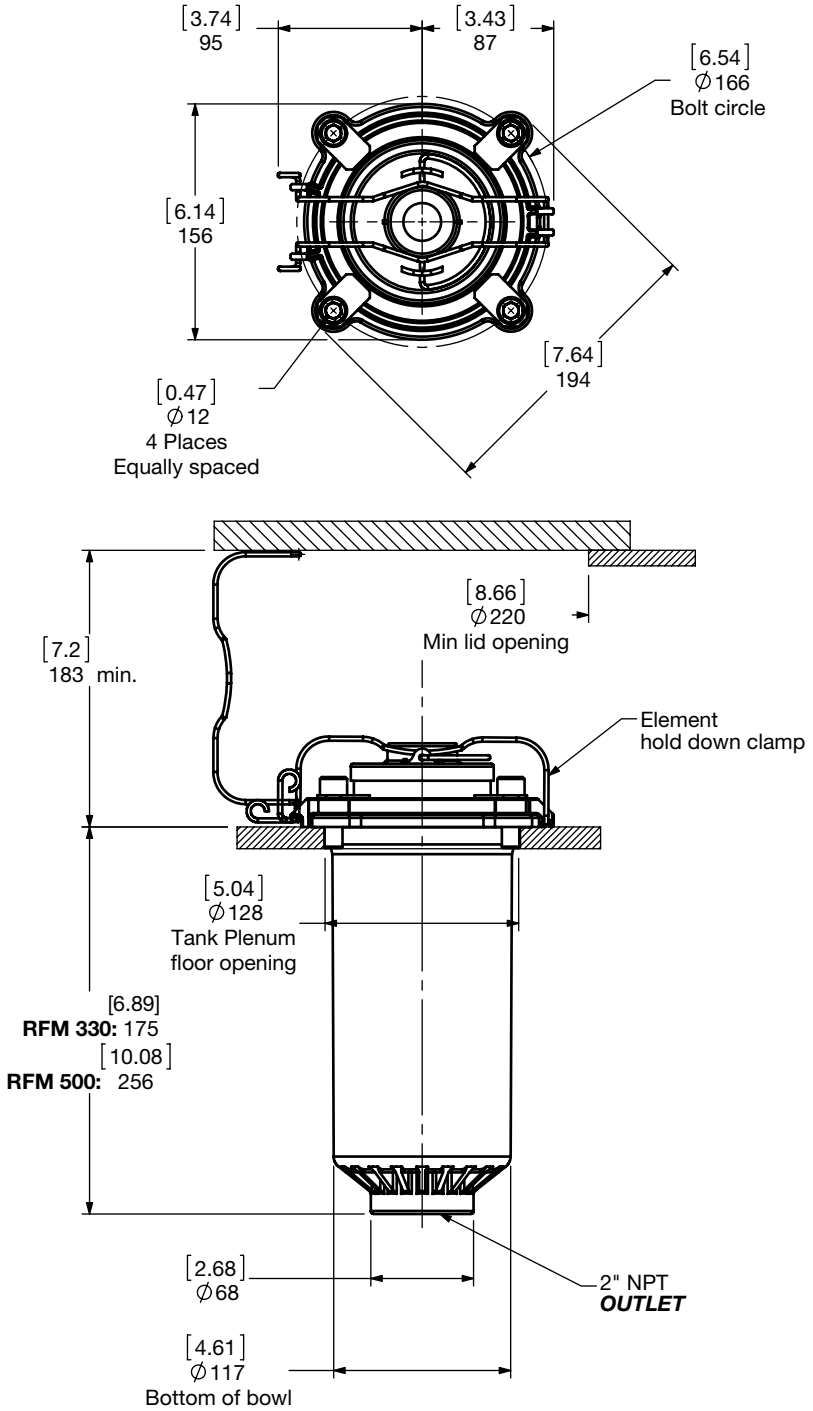
Dimensions
RFM…S



Size	75	165
Weight (lbs.)	2.1	2.7

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.

Dimensions
RFM…Set



Size	330	500
Weight (lbs.)	5.2	6

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.

SPECIAL ORDER FILTERS - LOW PRESSURE

Sizing Information

Total pressure loss through the filter is as follows:

Assembly ΔP = Housing ΔP + Element ΔP = Ø (no housing) + Element ΔP = Element ΔP

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

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

Optimicron	...R...ON					
Size	1 µm	3 µm	5 µm	10 µm	15 µm	20 µm
0075 R XXX ON	1.405	1.065	0.735	0.401	0.263	0.241
0165 R XXX ON	0.774	0.518	0.404	0.221	0.123	0.133
0330 R XXX ON	0.444	0.204	0.15	0.081	0.07	0.056
0500 R XXX ON	0.289	0.143	0.104	0.06	0.046	0.038

ECOmicron	...R...ECON2			
Size	3 µm	5 µm	10 µm	20 µm
0165 R XXX ECON2	0.615	0.428	0.247	0.132
0330 R XXX ECON2	0.230	0.148	0.093	0.066
0500 R XXX ECON2	0.165	0.104	0.071	0.044

Betamicron/Aquamicron	...R...BN4AM	
Size	3 µm	10 µm
0330 R XXX BN4AM	0.477	0.165
0500 R XXX BN4AM	0.313	0.11

Aquamicron	...R...AM
Size	40 µm
0330 R 040 AM	0.115
0500 R 040 AM	0.076

Wire Mesh	...R...W/HC
Size	25, 50, 100, 200 µm
0075 R XXX W/HC	0.020
0165 R XXX W/HC	0.011
0330 R XXX W/HC	0.011
0500 R XXX W/HC	0.007

Polyester	...R...P/HC	
Size	10 µm	20 µm
0075 R XXX P/HC	0.071	0.036
0165 R XXX P/HC	0.033	0.016
0330 R XXX P/HC	0.016	0.008
0500 R XXX P/HC	0.011	0.005

Mobilemicron	...R...MM		
Size	8 µm	10 µm	15 µm
0075 R XXX MM	0.265	0.265	0.166
0165 R XXX MM	0.146	0.146	0.091
0330 R XXX MM	0.078	0.078	0.049
0500 R XXX MM	0.052	0.052	0.032

All Element K Factors in psi / gpm.

Notes