

OFFLINE FILTRATION SYSTEMS

OLF Series



Applications

Typical applications include:

- Filling and flushing hydraulic units
- Filtration of fluids for hydraulic systems and test stands
- Filtration of cleaning fluids for parts washing machines
- Filtration of coolants

Dimicron® Element

The synthetic membrane ($2\mu\text{m absolute}$) provides a high filtration rating while the cellulose filter layer collects and holds the bulk of the dirt load. This combination results in excellent removal efficiency, even in a single pass, and extremely high dirt holding capacity.



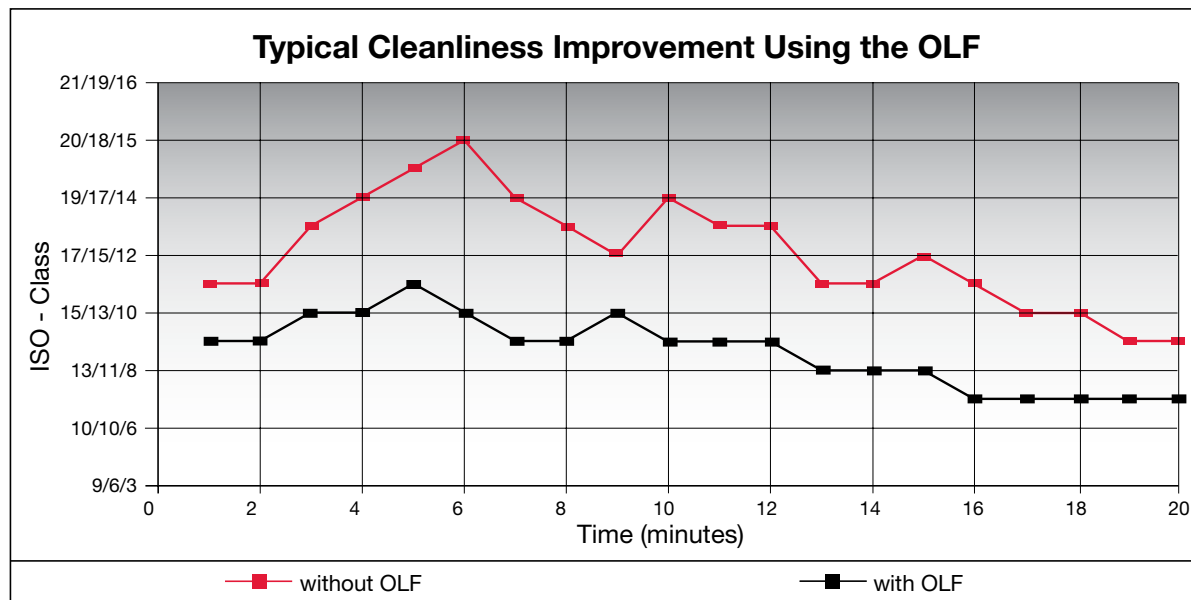
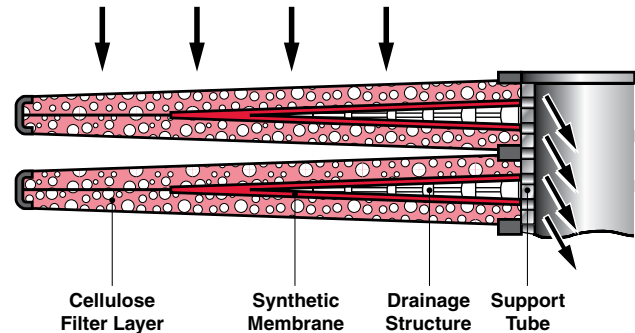
Features and Benefits

The OLF series of filters is designed to efficiently and cost effectively filter hydraulic oils, lubricating oils, cleaning fluids and coolants which are highly contaminated. The filters can be supplied either as individual filters or as ready-to-install offline units complete with optional motor and pump units.

- Lower Operating Costs
- Extended Element Service Life
- Cleaner, more efficient systems

Dimicron® Technology

Dimicron® technology, which incorporates membrane filtration and multi-disc construction, sets the OLF apart from conventional filters by providing it with exceptional dirt holding capacity and separation efficiency. Each filter element is able to capture and hold more than 1 pound of dirt, meaning that the OLF60, which uses four elements, will hold nearly 5 pounds of dirt. Membrane filtration provides the OLF with a separation efficiency over 99.9% for particles 2 micron and larger ($B2 > 1000$) even in a single pass.



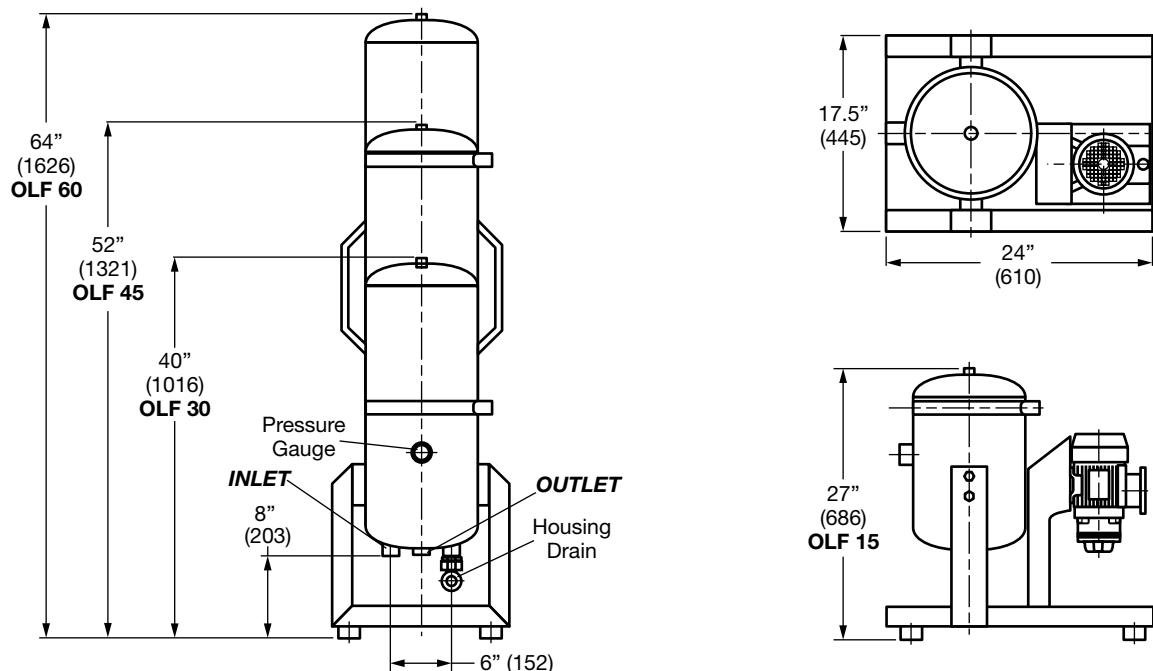
Model Code

		OLF - 15 / 15 - G - L60 - N15DM002 - E / 12	
Series	OLF	=	Stationary offline filter with integrated pressure gauge
Size	15 = 1 element, 30 = 2 elements, 45 = 3 elements, 60 = 4 elements		
Pump Flow Rate	<i>(must be less than or equal to size)</i>		
15	=	5 gpm	This code entry (15,30, 45, 60) must be less than or equal to the size entry (15,30, 45, 60)
30	=	10 gpm	
45	=	15 gpm	
60	=	20 gpm	
Z	=	without pump	
Pump Type	G	=	gear pump
	Z	=	Without motor-pump
Motor Voltage	L60	=	115V, Single Phase
	O60	=	460V, Three Phase
	Z	=	Without motor-pump
Filter Element	N15DM002	=	Dimicron® 2 µm Absolute
	N15DM010	=	Dimicron® 10µm Absolute
	N15DM020	=	Dimicron® 20 µm Absolute
	N15DM030	=	Dimicron® 30 µm Absolute
	Z	=	No filter element supplied
Clogging Indicator	E	=	Standard gauge
	BM	=	Differential visual VM2BM.1
	C	=	Differential electrical VM2C.0
	D	=	Differential visual/electrical
Options	12	=	SAE adapters <i>(supplied as standard)</i>
	V	=	Viton® Seals <i>(NBR seals are standard)</i>
	PKZ	=	On/Off Switch and Overload Protective Motor Switch
	C	=	Cart-style mobile frame
	PC	=	Hytrax-HV Contamination Monitoring Unit <i>(only with L60 motor voltage; contact HYDAC for other product configurations)</i>
	CSI	=	CSI-C-11 Sensor Interface Option for data acquisition <i>(only with PC option)</i>
	CSI-W	=	CSI-C-11 Sensor Interface Option for data acquisition with AS1008 Water Saturation Sensor <i>(only with PC option)</i>
	WD	=	AS3008 Water Sensor w/ Display Option <i>(only with PC option)</i>
	MP	=	Test point before filtration

For replacement element part numbers, please see Section E - REPLACEMENT ELEMENTS of this catalog.

Model Codes Containing RED are non-standard items – Minimum quantities and longer lead times may apply - Contact HYDAC for information and availability.

Dimensions



Dimensions are for general information only, all critical dimensions should be verified by requesting a certified print.

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Technical Specifications

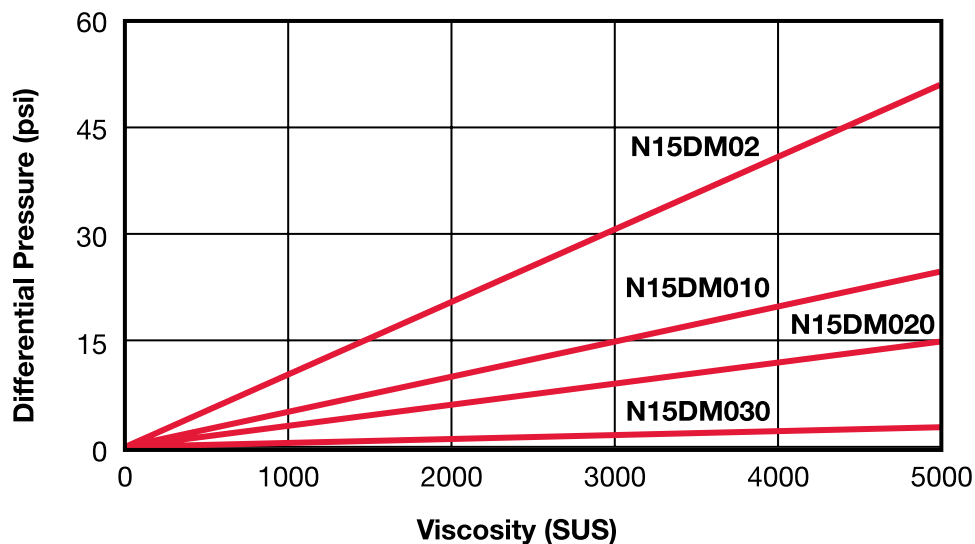
Model	OLF-15	OLF-30	OLF-45	OLF-60
Connections	Inlet = Female O-Ring Boss; Outlet Male JIC			
Housing Inlet & Outlet	1 5/16 - 12UN (SAE 16); G 1" BSPP			
Pump Inlet: Gear	1 1/16 -12UN (SAE 12); G 3/4" BSPP	1 5/16 -12UN (SAE 16); G 1" BSPP	1 7/8 -12UN (SAE 24); G 1 1/2" BSPP	
Filter Element	N15DMxxx(1x)	N15DMxxx(2x)	N15DMxxx(3x)	N15DMxxx(4x)
Contamination Retention Capacity	1.1lbs (500g)	2.2lbs (1000g)	3.3lbs (1500g)	4.4lbs (2000g)
Filter Efficiency	$\beta_x > 1000$			
Permissible Δp Across the Element	72.5 psi (5 bar)			
Element Weight	6.6lbs (3 kg)	13.2lbs (6 kg)	19.8lbs (9 kg)	26.4lbs (12 kg)
Material of Filter Housing	Stainless Steel			
Capacity of Pressure Vessel	5.25 gal. (20 l)	10.50 gal. (39.7 l)	15.75 gal. (59.6 l)	20.5 gal. (28.1 l)
Max. Operating Pressure - Filter Housing	85 psi (5.86)			
Material of Seals - Housing	NBR (standard)			
Housing Weight	25lbs (11.3 kg)	33lbs (15 kg)	53lbs (24 kg)	62lbs (28.1 kg)
Fluid Temperature	15 to 175°F (-9.4 to 79.4°C)			
Motor-Pump Units	5 gpm (18.9 lpm)	10 gpm (37.8 lpm)	15 gpm (56.8 lpm)	20 gpm (75.5 lpm)
Pump Operating Pressure	65 psi (4.5 bar)			
Gear Pump Viscosity Range	7-5000 SUS (14 to 1078 cSt)			
Gear Pump Motor Capacity	370 W	570 W	1500 W	1500W
Material of Seals - Pumps	NBR (standard)			
Dry Weight of OLF System	50 lbs. (22.7 kg)	77 lbs. (34.9 kg)	116 lbs. (57.6 kg)	132 lbs. (60 kg)

Housing drain standard on all units

BLACK = SAE connections when using adapters which are supplied standard

RED = BSPP connections if supplied adapters are not used

Differential Pressure at 3.96 gpm (15 L/min)



Sizing Offline Filtration

The following calculations will help to approximate the attainable system cleanliness level when applying offline filtration.

Step 1: Select the approximate contamination ingress rate from the chart below. HYDAC quantitative investigations have yielded the following approximate figures.

Type of System	Contamination Ingression (µg/gal) Surroundings		
	Clean	Normal	Polluted
Closed circuit	1	3	5
Injection molding machine	3	6	9
Standard hydraulic system	6	9	12
Lubrication system	8	11	14
Mobile equipment	10	13	16
Heavy industrial press	14	18	22
Flushing test equipment	42	60	78

Step 2: Make the correction required for offline filtration.
The contamination input selected above must be multiplied by the factor:

Main System Flow Rate / Desired Offline Flow Rate

Note: Main system flow rate must be corrected for cycle time. For example, if the flow rate is 500 gpm, but only runs for 20% of the system cycle, the main system flow rate would be 100 gpm. (500 gpm X 20%)

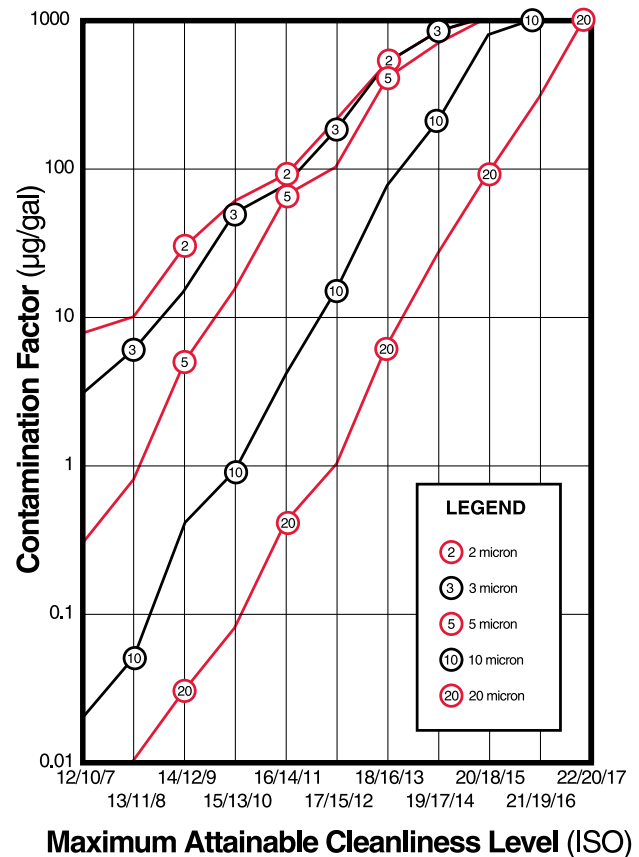
This yields the expression:

$$\text{Contamination Factor} = \text{Contamination Input } (\mu\text{g/gal}) \times$$

$$\frac{\text{Main System Flow Rate (gpm)}}{\text{Desired Offline Flow Rate (gpm)}}$$

Calculate the contamination factor using this expression.

Step 3: Determine the attainable cleanliness level. Locate the calculated contamination factor on the y-axis of the attached graph. Go to the right to find the intersection point on the curve corresponding to the desired absolute filter micron rating. Read the resulting attainable cleanliness level on the x-axis. (In case of dynamic flow through the offline filter, the attainable cleanliness level will be 2 to 3 times worse than indicated by the graph.)



Offline Filtration Sizing Example

Type of System: Heavy industrial press

Surroundings: Normal

Main System Flow Rate: 150 gpm

Desired Offline Flow Rate: 20 gpm = 135 (OLF 60)

Step 1: Using this criterion select the approximate contamination ingress rate from the chart above.

This yields a contamination input of **18 µg/gal** based on a **heavy industrial press** with **normal** surroundings.

Step 2: Make the correction required for offline filtration.

$$\text{Contamination Factor} = 18 \mu\text{g/gal} \times 150 \text{ gpm} / 20 \text{ gpm} = 135$$

Step 3: Determine the approximate attainable cleanliness level for each micron rating using the attached graph. If the attainable cleanliness level is not acceptable, the desired offline flow rate should be increased. The approximate attainable levels for this example are as follows.

2µm - ISO 17/15/12

20µm - Between ISO 20/18/15 and ISO 21/19/16