FC

Filter Cart

A fully self-contained mobile solution for bulk oil handling, fluid transfer and reservoir or gearbox conditioning.

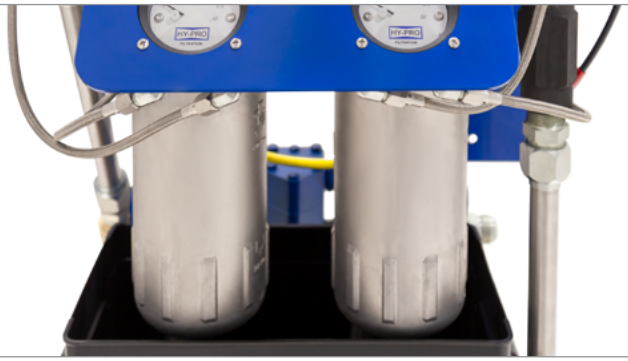
Ideal for lower viscosity hydraulic oil, lube oil and diesel fuel.

HY-PRO

hyprofiltration.com/

Engineered for industrial use.

Rugged construction and attention to the smallest of details come together remarkably so that nothing holds you or your equipment back. The easy to maneuver hand-truck style design with never-flat pneumatic tires and cast iron gear pump with internal relief mean you get powerful filtration exactly when and where you need it.



Set the stage for your success.

Staged filtration allows a range of media selections for particulate and water removal to deliver ISO Codes right on target. Choose between dual MF110 cartridge (standard) or up to four Spin-On elements to tackle the most viscous fluids and achieve unimaginably low ISO Codes in a single pass.

Media matters.

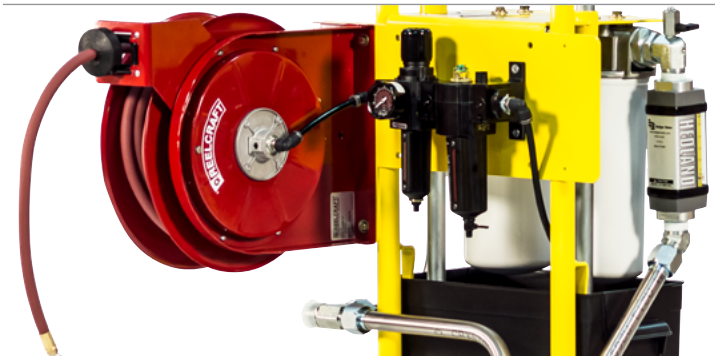
DFE rated filter elements stay true to efficiency ratings and ensure the highest level of particulate capture and retention capabilities. And with media options down to $\beta 3_{[C]} \geq 4000$, you can be sure contamination stays exactly where you want it: out of your systems.

Your standard Filter Cart, reimagined.

Sample ports in the right locations arm you with access to consistently accurate system conditions which is why every FC comes standard with up- and downstream sample ports in their proper positions. And with the 35' (11m) retractable cord reel or 35' air hose for pneumatic models, it's easy to see why the standard FC isn't so standard after all.

With options to make your job easier.

With the optional filter bypass line, cold starts, gearbox pump-outs, and even element change outs become easier than ever. Add the optional PM-1 particle monitor for real time cleanliness data and know exactly how your filtration is performing without the need for a bottle.



Completely customizable.

The FC comes in a variety of flow rates and with electric options that range from 120 to 575 V ac, single or three phase. Or choose the pneumatic and explosion proof models to take your filtration into hazardous zones like you never thought possible. Even color coordinate each FC to your existing safety standards. With thousands of combinations to choose from, the possibilities are endless for what you can do with the FC.

FC Quick Guide

Standard FC

Filter Sizing Guidelines

Filter Sizing Guidelines and Viscosity Conversion

Effective filter sizing requires consideration of flow rate, viscosity (operating and cold start), fluid type and degree of filtration. When properly sized, bypass during cold start can be avoided/minimized and optimum element efficiency and life achieved. The filter assembly differential pressure values provided for sizing differ for each media code, and assume 32 cSt (150 SUS) viscosity and 0.86 fluid specific gravity. Use the following steps to calculate clean element assembly pressure drop.

Calculate ΔP coefficient for actual viscosity

Using Saybolt Universal Seconds (SUS)

$$\Delta P \text{ Coefficient} = \frac{\text{Actual Operating Viscosity}^{1} \text{ (SUS)}}{150} \times \frac{\text{Actual Specific Gravity}}{0.86}$$

Using Centistokes (cSt)

$$\Delta P \text{ Coefficient} = \frac{\text{Actual Operating Viscosity}^{1} \text{ (cSt)}}{32} \times \frac{\text{Actual Specific Gravity}}{0.86}$$

Calculate actual clean filter assembly ΔP at both operating and cold start viscosity

$$\text{Actual Assembly Clean } \Delta P = \text{Flow Rate} \times \Delta P \text{ Coefficient (from calculation above)} \times \text{Assembly } \Delta P \text{ Factor (from sizing table)}$$

Sizing recommendations to optimize performance and permit future flexibility

- To avoid or minimize bypass during cold start the actual assembly clean ΔP calculation should be repeated for start-up conditions if cold starts are frequent.
- Actual assembly clean ΔP should not exceed 10% of bypass ΔP gauge/indicator set point at normal operating viscosity.
- If suitable assembly size is approaching the upper limit of the recommended flow rate at the desired degree of filtration consider increasing the assembly to the next larger size if a finer degree of filtration might be preferred in the future. This practice allows the future flexibility to enhance fluid cleanliness without compromising clean ΔP or filter element life.
- Once a suitable filter assembly size is determined consider increasing the assembly to the next larger size to optimize filter element life and avoid bypass during cold start.
- When using water glycol or other specified synthetics we recommend increasing the filter assembly by 1~2 sizes.

FC Filter Sizing Guidelines

MF90-MF110 Options ΔP Factors[1]

Series	Length	Units	Media 1M	3M	6M	10M	16M	25M	**W
MF90	L9	psid/gpm	0.270	0.228	0.177	0.159	0.155	0.149	0.027
		bard/lpm	0.005	0.004	0.003	0.003	0.003	0.003	0.000
MF110	L8	psid/gpm	0.250	0.211	0.164	0.147	0.144	0.138	0.025
		bard/lpm	0.005	0.004	0.003	0.003	0.003	0.003	0.000
	L11	psid/gpm	0.176	0.149	0.115	0.103	0.101	0.097	0.018
		bard/lpm	0.003	0.003	0.002	0.002	0.002	0.002	0.000

S75D Options ΔP Factors[1]

Series	Length	Units	Media 1M	3M	6M	12M	16M	25M	**W
S75D	L8	psid/gpm	0.092	0.077	0.060	0.054	0.053	0.051	0.009
		bard/lpm	0.002	0.001	0.001	0.001	0.001	0.001	0.000

Series	Length	Units	Media 3A	6A	12A	25A	3C	10C	25C
S75D	L8	psid/gpm	0.086	0.067	0.060	0.056	0.124	0.081	0.078
		bard/lpm	0.002	0.001	0.001	0.001	0.002	0.001	0.001

[1]Max flow rates and ΔP factors assume υ = 150 SUS, 32 cSt. See filter assembly sizing guideline for viscosity conversion formula.

FC Specifications

Dimensions[1]	**Height** 45" (114 cm)	**Width** 20" (50 cm)	**Depth** 23" (58 cm)	**Weight** 125 lbs (57 kg)

Connections	**Inlet** FC05-FC5: 1" male JIC (37° flare) FC10: 1.25" male JIC (37° flare) FC20: 1.5" male JIC (37° flare)	**Outlet** FC05-FC10 1" male JIC (37° flare) FC20: 1.25" male JIC (37° flare)	**Hoses** FC05-FC5: 1" x 10 ft (2.4 m) FC10: 1.25" x 10 ft (2.4 m) suction 1" x 10 ft (2.4 m) discharge FC20: 1.5" x 10 ft (2.4 m) suction

Operating Temperature	**Fluid Temperature** 30°F to 225°F (0°C to 105°C)	**Ambient Temperature** -4°F to 104°F (-20C to 40C)

ΔP Indicator Trigger	22 psi (1.5 bar). Consult factory for other options.
Filter Assembly Bypass	25 psid (1.7 bard). Consult factory for other options.

Materials of Construction	**Frame** Industrial coated steel	**Filter Assembly** Aluminum head & canister	**Hoses** Reinforced synthetic	**Wands** Stainless Steel	**Element Bypass Valve** Nylon

Electric Motor	TEFC, 56-215 frame 0.5-3 hp, 1450-1750 RPM
Motor Starter	MSP (motor starter/protector) in an IP65, aluminum enclosure with short circuit and overload protection.
Electric Connection	Voltages 230 V ac and under, single phase: 35' (11 m) retractable cord reel included. NEMA 5-15 plug installed on Power Option 12. Voltages over 230 V ac: 35' (11 m) power cord included.
Pump	Cast iron, positive displacement gear pump with internal relief. Maximum pressure on pump inlet 15 psi (1 bar). Consult factory for higher pressures.
Pump Bypass	Full bypass at 150 psi (10 bar)[2]
Pneumatic Option Air Consumption	~40 cfm @ 80 psi[3] 35' (11 m) retractable air hose included when pneumatic option selected (replaces electric cord reel).

Media Description	**M** G8 Dualglass, our latest generation of DFE rated, high performance glass media for all hydraulic & lubrication fluids. $\beta x_{[c]} \geq 4000$ ($\beta x \geq 200$)	**A** G8 Dualglass high performance media combined with water removal scrim. $\beta x_{[c]} \geq 4000$ ($\beta x \geq 200$)	**W** Stainless steel wire mesh media $\beta x_{[c]} \geq 2$ ($\beta x \geq 2$)

Replacement Elements

To determine replacement elements, use corresponding codes from your equipment part number:

Model	**Filter Element Part Number**	**Example**
Standard FC (2x MF110 11" bowls)	HP110NL11 – [Media Selection Code] [Seal Code]	HP110NL11-12MV
Special Option D1	HP75L8 – [Media Selection Code] [Seal Code]	HP75L8-25MB

Viscosity	2-5000 cSt[4]
Fluid Compatibility	Petroleum and mineral based fluids, #2 diesel fuels (standard). For specified synthetics contact factory for compatibility with fluorocarbon seal option. For phosphate ester (P9) or skydrol fluid (S9) compatibility select fluid compatibility from special options.
Hazardous Environment Options	Select pneumatic powered unit (Power Option 00) or explosion proof NEC Article 501, Class 1, Division 1, Group C+D. Call for IEC, Atex or other requirements. If Explosion Proof option (X--) selected, no electrical cord will be included.

[1]Dimensions are approximations taken from base model and will vary according to options chosen.
[2]10 GPM pump is rated for intermittent duty only at pressures above 100 psi. Continual operation with dual clogged filters resulting in operating pressures over 100 psi will reduce pump life and/or cause premature pump failure.
[3]Air consumption values are estimated maximums and will vary with regulator setting.
[4]When sized and installed appropriately. Contact factory for applications above 800 cSt for sizing requirements.

FC Part Number Builder

FC				-		-		
	Flow Rate	Power Options	Hose Connection		Special Options		Media 1	Media 2	Seal

Flow Rate[1]

05	0.5 gpm (1.7 lpm)
1	1 gpm (3.7 lpm)
2	2 gpm (7.5 lpm)
5	5 gpm (18.9 lpm)
10	10 gpm (37.9 lpm)
20[2]	20 gpm (75.7 lpm)

Power Options

Contact factory for options not listed

60 Hz, 1750 RPM

12	120 V ac, 1P
22	208-230 V ac, 1P
23	208-230 V ac, 3P
46	460-480 V ac, 3P
57	575 V ac, 3P

50 Hz, 1450 RPM

11	110 V ac, 1P
21	220 V ac, 1P
40	380-440 V ac, 3P
52	525 V ac, 3P

Pneumatic

00	Pneumatically driven air motor & PD pump. FRL & flow meter included.

Explosion proof - Class 1, Division 1, Group C+D per NEC 501 – Ready for outdoor use

X__ Add X prefix to power option listed above. Not available with (00) Pneumatic Option

Hose Connection

G	Female BSPP swivel hose ends, no wands
S	Female JIC swivel hose ends, no wands
W	Female JIC swivel hose ends, with wands

Special Options

B	Complete filter bypass line
C	CE marked for machinery safety directive 2006/42/EC
D1[3]	2 x S75DL8 filter assemblies in series
D3	True differential pressure gauge, visual green to red
E	100 mesh cast iron basket strainer (Can't be paired with K option)
H1	10' (3 m) return line hose extension
H2	20' (6 m) return line hose extension
J	Add pressure gauge between pump & filter assembly
K	HP75L8-149W Spin-On suction strainer (Can't be paired with K option)
M	Total system flow meter (120 cSt max)
O	On-board PM-1 particle monitor & clean oil indicator light
P9[4]	Phosphate ester fluid compatibility modification
S9[5]	Skydrol fluid compatibility modification
U	CUL and/or CSA marked starter enclosure for Canada
Z	On site start-up training

Media Selection

G8 Dualglass

1M	$\beta 3_{[C]} \geq 4000$
3M	$\beta 4_{[C]} \geq 4000$
6M	$\beta 6_{[C]} \geq 4000$
10M	$\beta 11_{[C]} \geq 4000$
16M	$\beta 16_{[C]} \geq 4000$
25M	$\beta 22_{[C]} \geq 4000$

G8 Dualglass + water removal

3A	$\beta 4_{[C]} \geq 4000$
6A	$\beta 6_{[C]} \geq 4000$
10A	$\beta 11_{[C]} \geq 4000$
25A	$\beta 22_{[C]} \geq 4000$

Stainless wire mesh

25W	25µ nominal
40W	40µ nominal
74W	74µ nominal
149W	149µ nominal

Seals

B	Nitrile (Buna)
V	Fluorocarbon
	EPR seals + stainless steel support mesh

[1]Nominal flow rates at 60 Hz motor speeds.
[2]Contact factory for sizing assistance on all viscosities.
[3]Replaces standard MF110 housings.
[4]When selected, must be paired with Seal option "V." Contact factory for more information or assistance in fluid compatibility.
[5]When selected, must be paired with Seal option "E-WS." Contact factory for more information or assistance in fluid compatibility.
[6]Only available in 3M media for HP75L8 series elements.

For all up to date option details and compatibilites, please reference our Contamination Solutions Price List or contact customer service.

Filtration starts with the filter.

Lower ISO Codes: Lower Total Cost of Ownership Hy-Pro filter elements deliver lower operating ISO Codes so you know your fluids are always clean, meaning lower total cost of ownership and reducing element consumption, downtime, repairs, and efficiency losses.

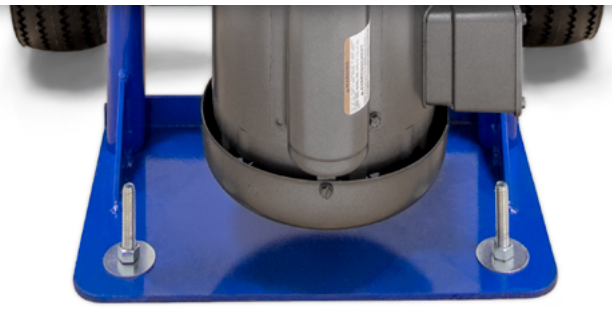
DFE Rated Filter Elements DFE is Hy-Pro's proprietary testing process which extends ISO 16889 Multi Pass testing to include real world, dynamic conditions and ensures that our filter elements excel in your most demanding hydraulic and lube applications.

Upgrade Your Filtration Keeping fluids clean results in big reliability gains and upgrading to Hy-Pro filter elements is the first step to clean oil and improved efficiency.

Advanced Media Options DFE glass media maintaining efficiency to $\beta 3_{[c]} > 4000$, Dualglass + water removal media to remove free and emulsified water, stainless wire mesh for coarse filtration applications, and Dynafuzz stainless fiber media for EHC and aerospace applications.

Delivery in days, not weeks From a massive inventory of ready-to-ship filter elements to flexible manufacturing processes, Hy-Pro is equipped for incredibly fast response time to ensure you get your filter elements and protect your uptime.

More than just filtration Purchasing Hy-Pro filter elements means you not only get the best filters, you also get the unrivaled support, training, knowledge and expertise of the Hy-Pro team working shoulder-to-shoulder with you to eliminate fluid contamination.



Want to find out more? Get in touch.

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