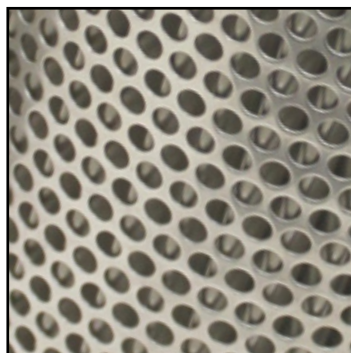
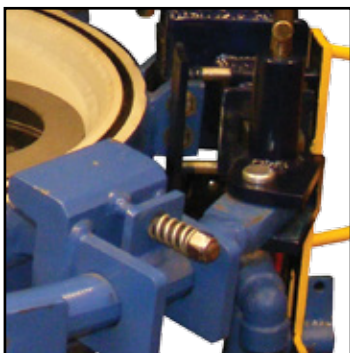
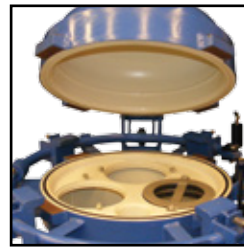
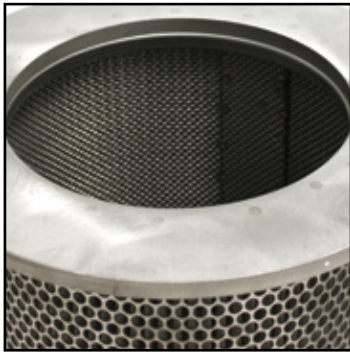




**CCI Thermal**  
Technologies INC.  
Heating and Filtration Solutions



**3L Filters**<sup>TM</sup>  
Engineered Filtration Systems

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Edmonton, Alberta



Houston, Texas



Orillia, Ontario



Oakville, Ontario



Denver, Colorado

As a leader in heating and filtration solutions, CCI Thermal Technologies Inc. is committed to ongoing research, product development and above all, excellence in customer service. With facilities across North America, CCI Thermal manufactures seven of the top brands in industrial heating in addition to a comprehensive line of engineered industrial filtration products including:

**Cata-Dyne™** [Explosion-Proof Gas Catalytic Heaters](#)

**Ruffneck™** [Heaters for the Harshes Environment](#)

**Caloritech™** [Engineered Electric Heat](#)

**3L Filters™** [Engineered Filtration Systems](#)

**Norseman™** [Electric Explosion-Proof Heaters](#)

**DriQuik™** [Infrared Oven Components](#)

**Fastrax®** [Track and Switch Heaters](#)

3L Filters™ has exceeded the most demanding industrial filtration requirements for over 40 years. A broad range of standard and custom products includes liquid filters, strainers, separators, pressure vessels, and engineered products and systems. 3L Filters™ has special expertise for nuclear, oil & gas, petrochemical, water treatment and environmental applications.

We invite you to visit [www.ccithermal.com](http://www.ccithermal.com) to view the broad range of innovative industrial heating products manufactured by CCI Thermal Technologies Inc.

## Locations

## Caloritech™ Catalog: Section A Elements and Specialty Heaters

Calvane™ heaters, tubular heaters, bolt heaters, tubular band heaters, mitosis heaters, finned tubular heaters, cartridge heaters, strip and finned strip heaters, hot plate/drum heaters, cast-in heaters, transit heaters.



## Caloritech™ Catalog: Section D Engineered Products

circulation heaters, heat transfer systems, custom engineered products, panel heaters, control panels, technical data.



## Caloritech™ Catalog: Section B Immersion Heaters

screwplug heaters, domestic immersion heaters, urn heaters, flange heaters, over-the-side heaters, pipe insert heaters, gate and gain heaters.



## Caloritech™ Catalog: Section E Boilers

hot water boilers, steam boilers, condensate receiver packages, blow off tanks, packaged circulation heaters, calorifiers.



## Caloritech™ Catalog: Section C Air and Space Heaters

infrared radiant heaters, panel heaters, convection heaters, commercial and explosion-proof duct heaters, unit heaters, gate and gain heaters.



## Caloritech™ Catalog: Section F Controls

electronic controls, industrial thermostats, explosion-proof thermostats, thermoswitches, thermocouples and thermowells, x-Max® explosion-proof housings.





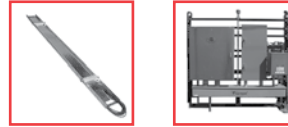
## Cata-Dyne™ Catalog

explosion-proof infrared gas catalytic heaters, high temperature industrial infrared heaters, infrared gas catalytic heating systems, accessories.



## Fastrax® Catalog

track and switch heaters, custom designed automated control systems, accessories.



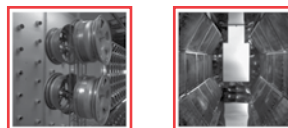
## Ruffneck™ Catalog

explosion-proof electric air heaters, heat-exchanger unit heaters, corrosion-resistant washdown unit heaters, convection heaters, thermostats.



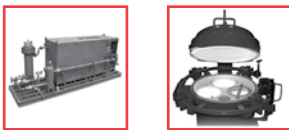
## DriQuik™ Catalog

long, medium and short wavelength infrared oven components and control panels.



## 3L Filters™ Catalog

filters, strainers, separators, dehydrators, fuel monitors, clay treaters, head lifts, closures, pressure vessels, engineered products, nuclear, aviation general industrial products.



## CCI Thermal Technologies Inc.

### Putting Safety First

CCI Thermal Technologies Inc. has always been committed to the safety and well being of our customers. We are familiar with the safety regulations of heating products in a wide variety of environments and ensure that our products meet or exceed the requirements for their applications. CCI Thermal Technologies Inc. takes great pride in its lines of certified products.

Visit us at [www.ccithermal.com](http://www.ccithermal.com)

Our website offers on-line PDF catalogs, product specifications, installation manuals, and technical documentation 24 hours a day. Additionally, you will find easy access to anyone of our factory representatives, regional sales managers or customer service personnel.

### Quality








All our business processes are steered by the principles of ISO 9001 and ASME, providing an operational framework that places emphasis on continual improvement and customer satisfaction.

## Norseman™ Catalog

natural convection explosion-proof heaters, forced air explosion-proof heaters, thermostats.



# 3L Filters™ Certifications

Agency	Applicable Symbol or Standard	Description / Product Class
ASME		Manufacture of pressure vessels
ASME		Manufacture of pressure vessels
ASME		Manufacture and assembly of power boilers
ASME		Manufacture of miniature pressure vessels
National Board		Manufacture of boilers, pressure vessels or other pressure retaining items to ASME code - U, S and UM stamps
ASME		Construction of Class 1, 2 & 3 vessels; Class 1, 2 & 3 Piping Systems; and Class 1, 2 & 3 Shop Assembly
NPT		Manufacture of Nuclear Partials
TSSA	ASME Sec. VIII Div. 1 CSA B51	Manufacture of pressure vessels to ASME Boiler and Pressure Vessel Code, Section VIII Division 1; and CSA Standard B51 Boiler Pressure Vessel and Pressure Piping Code
TSSA	CSA N285.0	Construction of Class 1, 2, 3 & 4 Vessels and Supports; in accordance with CSA Standard N285.0, General Requirements for Pressure Retaining Systems and Components in CANDU Nuclear Power Plants
CANPAC (Auditors)	CSA Z299.2	Manufacture of cartridge type filters, strainers, separators, purifiers, pressure vessels, tanks, appurtenances and distribution of associated parts

# FW General Industrial Cartridge Filter Housing

The 3L Filters™ FW Series cartridge filter housing removes particulates from liquid streams, often as a pre-filter ahead of finer particle separation equipment. The standard design is based upon the replaceable spun yarn cartridge, but can be adapted to many filter cartridge designs, configurations and sizes.

## Applications

Used in many processing industries such as food and beverage, pharmaceutical, semi-conductor, chemical plants, water treatment and remediation.

## Standard Features

- designed to ASME Section VIII Div.1 & 2
- 150 psig standard design pressure
- -20°F to 150°F (-29°C to 66°C) standard design temperature
- 150 lb ANSI RF flanged inlet/outlet nozzles
- 3000 lb NPT couplings for vent, drain and pressure gauge connections
- stainless steel cartridge hardware
- housing dimensions under 12" (305 mm) utilize handles, not headlifts
- 3L Pogo (spring-assisted) headlift on housing diameters 8" to 18" (203 mm to 457 mm); hydraulic Jack headlift on housing diameters over 18" (457 mm)
- quick access to replace cartridges
- standard Swing Bolt closures
- O-ring closure seal
- replaceable spun yarn cartridges
- standard cartridge lengths 10" (254 mm), 20" (508 mm), 30" (762 mm) and 40" (1016 mm)
- external primer finish for carbon steel housings

## Options & Accessories

- stainless steel standard housings
- custom design pressures to 3000 psig
- higher design temperatures
- custom flange rating
- custom housing materials
- optional headlifts: handwheel or 3L Cantilever
- optional closures: Thru-Bolt or patented Easy Access Closure
- O-ring closure seal in Buna, Viton®, Teflon®, Silicone or EPDM
- custom cartridge configurations and size
- custom filter media
- internal epoxy coating on carbon steel models
- electropolishing of stainless steel housings
- passivation of stainless steel housings
- paint or coating to customer specification
- additional nozzles as needed
- valves
- safety relief valves
- pressure gauges
- duplex or multiplex arrangement
- rubber, PVC, PVDF and other internal linings
- steam jackets
- working platform



FW

## General Industrial Cartridge Filter Housing

Fig.	Model No.	Filter Elements		A Vessel OD in (mm)	B1 in (mm)	B2 in (mm)	C in (mm)	D in (mm)	E in (mm)	G in (mm)	H in (mm)	L in (mm)	Inlet/ Outlet (RF)	Vent Safety Drains (NPT)	Press. Gauge (NPT)	GPM (US)	Weight lbs (kg)
		Qty	Lg in (mm)														
1	FWWFAV630E150	6	30 (762)	8.625 (219)	45 (1143)	14.5 (368)	50 (1270)	53 (1346)	80 (2032)	16.625 (422)	9.00 (229)	8 (203)	2"	3/4"	1/2"	90	210 (95)
1	FWWFAV1030E150	10	30 (762)	10.750 (273)	48 (1219)	18.0 (457)	54 (1372)	57 (1448)	84 (2134)	22.750 (578)	10.75 (273)	8 (203)	2"	3/4"	1/2"	150	315 (143)
2	FWWFAV1230E150	12	30 (762)	12.750 (324)	48 (1219)	18.0 (457)	54 (1372)	60 (1524)	84 (2134)	24.750 (629)	6.50 (165)	10 (254)	3"	3/4"	1/2"	180	360 (163)
2	FWWFAV1830E150	18	30 (762)	14.000 (356)	50 (1270)	20.0 (508)	58 (1473)	64 (1626)	88 (2235)	26.000 (660)	7.50 (191)	10 (254)	3"	3/4"	1/2"	270	440 (200)
2	FWWFAV2230E150	22	30 (762)	16.000 (406)	50 (1270)	20.0 (508)	58 (1473)	64 (1626)	88 (2235)	28.000 (711)	9.00 (229)	10 (254)	4"	3/4"	1/2"	330	480 (218)
2	FWWFAV2830E150	28	30 (762)	18.000 (457)	50 (1270)	22.5 (572)	60 (1524)	66 (1676)	90 (2286)	30.000 (762)	10.00 (254)	10 (254)	4"	3/4"	1/2"	420	575 (261)
3	FWWFAV3630E150	36	30 (762)	20.000 (508)	50 (1270)	22.5 (572)	60 (1524)	72 (1829)	90 (2286)	32.000 (813)	11.00 (279)	12 (305)	4"	3/4"	1/2"	540	625 (283)
3	FWWFAV5530E150	55	30 (762)	24.000 (610)	50 (1270)	22.5 (572)	62 (1575)	75 (1905)	92 (2337)	36.000 (914)	15.00 (381)	12 (305)	6"	3/4"	1/2"	825	725 (329)

### Note:

Dimension 'E' is the minimum clearance required to remove 30" long cartridges. This dimension will vary for other cartridge lengths. Flow rates are based on water. More viscous liquids will have lower flow rates. Standard vessels based on 150 psi at 66°C (150°F). Drawings for reference only. Certified drawings will be supplied after receipt of order. Standard off the shelf products available, contact factory for more information.

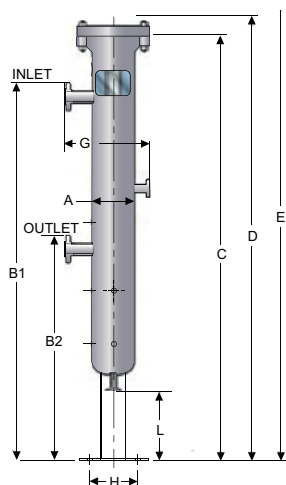


Figure 1

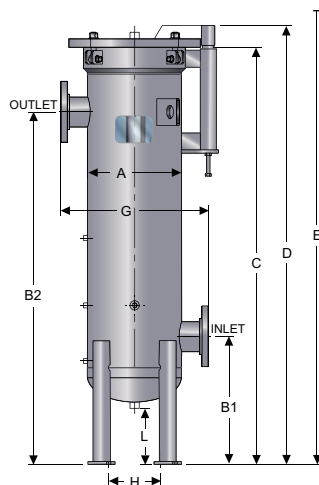


Figure 2

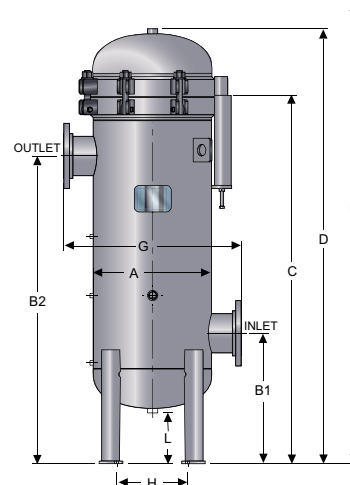


Figure 3

### Model Coding

FW	W	F	A	V	10	20	E	150
<b>GENERAL INDUSTRIAL FILTER</b>	<b>ELEMENT SERIES</b> F - DOE 7 - CODE 7 0 - 222 "O" RING 4 - 425 "O" RING S - SOE TM - THREADED MALE NPT TF - THREADED FEMALE NPT	<b>ELEMENT DIAMETER</b> A - 2 1/2" OD B - 2 5/8" OD C - 2 3/4" OD D - 2 7/8" OD E - 3" OD F - 3 1/8" OD G - 1 1/2" OD H - 4" OD X - SPECIAL	<b>VESSEL CONFIGURATION</b> H - HORIZONTAL V - VERTICAL D - DUPLEX	<b>NUMBER OF CARTRIDGES</b>	<b>CARTRIDGE LENGTH</b>	<b>MATERIAL</b> A - ALUMINUM C - CARBON STEEL E - SS304 H - HASTALLOY M - MONEL® S - SS316 X - SPECIAL	<b>DESIGN PRESSURE (psig)</b>	
<b>ELEMENT TYPE</b> M-METALLIC W - WOUND								



# General Industrial Cartridge Filter RFQ Form

## Client Information:

Company Name: \_\_\_\_\_  
Address: \_\_\_\_\_  
City, State (Prov): \_\_\_\_\_  
Country, Zip (Postal Code): \_\_\_\_\_  
Contact Name: \_\_\_\_\_  
Contact Title: \_\_\_\_\_  
Phone / Fax: \_\_\_\_\_  
E-mail: \_\_\_\_\_  
Project Name: \_\_\_\_\_  
Project Location: \_\_\_\_\_  
Item: \_\_\_\_\_  
Tag No: \_\_\_\_\_  
Date: \_\_\_\_\_

## Proposal Type Required:

☐ Budgetary ☐ Bid ☐ Buy  
Other: \_\_\_\_\_  
Required Date for Proposal: \_\_\_\_\_  
Anticipated Shipping Date for Project: \_\_\_\_\_

## Required Data:

Type of Liquid: \_\_\_\_\_  
Max./ Design Flow Rate: \_\_\_\_\_  
☐ gpm ☐ ft<sup>3</sup>/hr ☐ m<sup>3</sup>/hr ☐ Other  
Operating Pressure: \_\_\_\_\_  
☐ psig ☐ barg ☐ Other  
Operating Temperature: \_\_\_\_\_ °F/°C  
Desired Particle Retention: \_\_\_\_\_ %  
Particle Size \_\_\_\_\_ Microns ☐ Nominal ☐ Absolute  
Density of Liquid at Op. Condition: \_\_\_\_\_  
☐ lb/ft<sup>3</sup> ☐ Other ☐ Liquid sp. gr.  
Viscosity of Liquid at Op. Condition: \_\_\_\_\_  
☐ cp ☐ SSU ☐ Other

## Additional Data:

Solid Contaminants: \_\_\_\_\_  
☐ % wt ☐ % vol ☐ Other

### Type of Solid Contaminant:

Allowable Clean Pressure Drop: \_\_\_\_\_  
☐ psi ☐ bar ☐ Other

Max. Allowable Pressure Drop: \_\_\_\_\_  
☐ psi ☐ bar ☐ Other

Material of Construction: \_\_\_\_\_

Vessel: \_\_\_\_\_ Internals: \_\_\_\_\_ Support: \_\_\_\_\_

### Design & Code:

☐ ASME  
☐ Other

CRN: \_\_\_\_\_

☐ Yes  
☐ No  
☐ Province \_\_\_\_\_

Design Pressure: \_\_\_\_\_  
☐ psig ☐ barg ☐ kg/cm<sup>2</sup> g ☐ Other

Design Temperature: Min. \_\_\_\_\_ Max. \_\_\_\_\_ °F/°C

Corrosion Allowance: \_\_\_\_\_ in/mm

### Radiography:

☐ None  
☐ Spot  
☐ Full  
☐ 100% All Butt Wells

### Filter Element Type:

☐ Disposable  
☐ Cleanable

### Filter Media:

☐ Cotton  
☐ Polypropylene  
☐ Gas Fiber  
☐ Other

### Gasket:

☐ Buna-N  
☐ Viton® A  
☐ EPDM  
☐ Other

### Vessel Finish:

☐ Clean & Dry  
☐ Other

Inlet Nozzle Size: \_\_\_\_\_

☐ in ☐ mm

Specify: \_\_\_\_\_

Outlet Nozzle Size: \_\_\_\_\_

☐ in ☐ mm

Notes: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

General Industrial Cartridge Filter RFQ

# FC Single Bag Filter Housing

The 3L Filters™ FC Series single bag filters provide effective, economical filtration of liquids. Disposable filter bags are available in a wide range of materials and micron ratings to remove particulate matter down to 1 micron.

## Applications

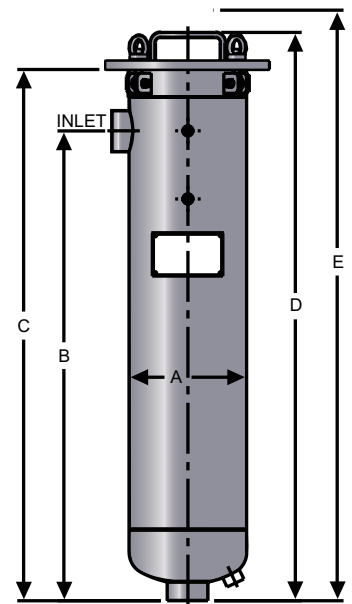
Filtration of liquids such as paints, inks, coolants, water, solvents, glues, recycled oils and beverages.

## Standard Features

- designed to ASME Section VIII Div.1 & 2
- 150 psig standard design pressure
- -20°F to 150°F (-29°C to 66°C) standard design temperature
- 3000 lb NPT couplings or 150 lb ANSI RF flanged inlet/outlet
- 3000 lb NPT couplings for vent, drain and pressure gauge connections
- stainless steel or carbon steel housing material
- perforated stainless steel (SS304 or SS316) basket construction
- hinged lid
- quick access to replace bags
- standard Swing Bolt closures
- O-ring closure seal

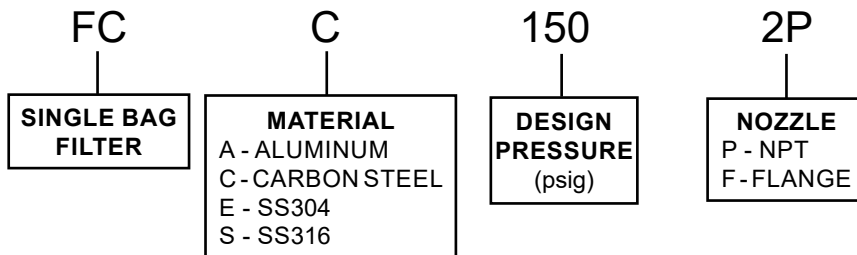
## Options & Accessories

- custom design pressures to 3000 psig
- custom flange rating
- custom housing materials
- optional closure: Thru-Bolt
- O-ring closure seal in Buna, Viton®, EPDM
- internal epoxy coating on carbon steel models
- external primer finish for carbon steel housing
- electropolishing of stainless steel housings
- passivation of stainless steel housings
- paint or coating to customer specification
- duplex or multiplex arrangement
- additional nozzles as needed
- safety relief valves
- pressure gauges
- working platform
- valves
- rubber, PVC, PVDF and other internal linings



OUTLET  
Figure 1

## Model Coding



## Single Bag Filter Housing

Fig.	Model No.	Material	Bag Qty	A Vessel OD in (mm)	B in (mm)	C in (mm)	D in (mm)	E in (mm)	Inlet/ Outlet (RF)	Drains (NPT)	Press. Gauge (NPT)	GPM (US)	Weight lbs (kg)
1	FC-C1502P	Carbon Steel	1	8.625 (219)	34.75 (883)	39.25 (997)	41.75 (806)	69.25 (1759)	2"	3/4"	1/2"	180	45 (20)
1	FC-E1502P	SS304	1	8.625 (219)	34.75 (883)	39.25 (997)	41.75 (806)	69.25 (1759)	2"	3/4"	1/2"	180	45 (20)

### Note:

Dimension 'E' is the minimum clearance required for bag removal.  
Flow rates are based on water. More viscous liquids will have lower flow rates.  
Drawings for reference only. Certified drawings will be supplied after receipt of order.

# BF Multi-Bag Filter Housing

The 3L Filters™ BF Series multi-bag filters provide economical bulk filtration for liquids. The BF is sized from 3 to 6 bags, larger housings are available within our capabilities, and accommodates replaceable filter bags to remove particulates down to 1 micron.

## Applications

Filtration for liquids such as paints, inks, coolants, water, solvents, glues, recycled oils and beverages.

## Standard Features

- designed to ASME Section VIII Div.1 & 2
- 150 psig standard design pressure
- -20°F to 150°F (-29°C to 66°C) standard design temperature
- 150 lb ANSI RF flanged inlet/outlet
- 3000 lb NPT couplings for vent, drain and pressure gauge connections
- housing of carbon steel material
- perforated stainless steel (SS304 or SS316) basket construction
- housing dimensions under 12" (305 mm) utilize handles, not headlifts
- 3L Pogo (spring-assisted) headlift on housing diameters 8" to 18" (203 mm to 457 mm); hydraulic Jack on housing diameters over 18" (457 mm)
- quick access to replace bags
- standard Swing Bolt closures
- O-ring closure seal
- external primer finish for carbon steel housing

## Options & Accessories

- custom design pressures to 3000 psig
- custom flange rating
- custom housing materials
- optional headlifts: handwheel or 3L Cantilever
- optional closures: Thru-Bolt or patented Easy Access Closure
- O-ring closure seal in Buna, Viton®, Teflon®, Silicone or EPDM
- internal epoxy coating on carbon steel models
- electropolishing of stainless steel housings
- passivation of stainless steel housings
- paint or coating to customer specification
- additional nozzles as needed
- valves
- safety relief valves
- pressure gauges
- sampling probe
- duplex or multiplex arrangement
- working platform
- rubber, PVC, PVDF and other internal linings



## Model Coding

BF	10	C	B	6F	LP	L
<b>MULTI-BAG FILTER</b>	<b>MATERIAL</b> A - ALUMINUM C - CARBON STEEL E - SS304 S - SS316 X - SPECIAL		<b>CLOSURE</b> B - SWING BOLT Q - QUICK CLOSURE F - FLANGED	<b>CONNECTION</b> F - RF FLANGE N - NPT	<b>NOZZLE ORIENTATION</b> IL - INLINE LP - LOW PROFILE SBO - SIDE-IN/ BOTTOM OUT T - TEE INLINE O - OTHER BBO - BTM IN/OUT	<b>HEADLIFT</b> P - POGO L - CANTILEVER W - HANDWHEEL J - HYDRAULIC JACK
<b>QUANTITY OF BAGS</b>						

BF

## Multi-Bag Filter Housing

Fig.	Model No.	Bag Qty	A Vessel OD in (mm)	B		C in (mm)	D in (mm)	E in (mm)	G in (mm)	H in (mm)	L in (mm)	Inlet/ Outlet (RF)	Vent Safety Drains (NPT)	Press. Gauge (NPT)	GPM (US)	Weight lbs (kg)
				B1 in (mm)	B2 in (mm)											
1	BF3CB3FLPP	3	18 (457)	27.5 (699)	13.25 (337)	45.5 (1156)	55 (1397)	75.0 (1905)	15 (381)	10 (254)	10 (254)	3"	3/4"	1/2"	525	700 (318)
1	BF4CB4FLPP	4	22 (559)	27.5 (699)	15.75 (400)	48.5 (1232)	58 (1473)	78.0 (1981)	17 (432)	13 (330)	12 (305)	4"	3/4"	1/2"	700	875 (297)
1	BF6CB6FLPP	6	24 (610)	27.5 (699)	16.75 (425)	49.0 (1245)	60 (1524)	78.5 (1994)	18 (457)	15 (381)	12 (305)	6"	3/4"	1/2"	1050	1175 (533)
1	BF8CB6FLPJ	8	30 (762)	28.5 (724)	16.75 (425)	50.5 (1283)	64 (1626)	80.0 (2032)	21 (533)	19 (483)	12 (305)	6"	3/4"	1/2"	1400	1250 (567)
1	BF10CB8FLPJ	10	36 (914)	32.5 (826)	19.75 (502)	54.0 (1372)	69 (1753)	83.5 (2121)	24 (610)	23 (584)	14 (356)	8"	3/4"	1/2"	1750	1500 (3307)
1	BF12CB8FLPJ	12	36 (914)	32.5 (826)	19.75 (502)	54.0 (1372)	69 (1753)	83.5 (2121)	24 (610)	23 (584)	14 (356)	8"	3/4"	1/2"	2100	1700 (771)
2	BF3CB3FTP	3	18 (457)	27.5 (699)	27.50 (699)	45.5 (1156)	55 (1397)	75.0 (1905)	30 (762)	10 (254)	10 (254)	3"	3/4"	1/2"	525	700 (318)
2	BF4CB4FTP	4	22 (559)	27.5 (699)	27.50 (699)	48.5 (1232)	58 (1473)	78.0 (1981)	34 (864)	13 (330)	12 (305)	4"	3/4"	1/2"	700	875 (297)
2	BF6CB6FTP	6	24 (610)	27.5 (699)	27.50 (699)	49.0 (1245)	60 (1524)	78.5 (1994)	36 (914)	15 (381)	12 (305)	6"	3/4"	1/2"	1050	1175 (533)
2	BF8CB6FTJ	8	30 (762)	28.5 (724)	28.50 (724)	50.5 (1283)	64 (1626)	80.0 (2032)	42 (1067)	19 (483)	12 (305)	6"	3/4"	1/2"	1400	1250 (567)
2	BF10CB8FTJ	10	36 (914)	32.5 (826)	32.50 (826)	54.0 (1372)	69 (1753)	83.5 (2121)	48 (1219)	23 (584)	14 (356)	8"	3/4"	1/2"	1750	1500 (3307)
2	BF12CB8FTJ	12	36 (914)	32.5 (826)	32.50 (826)	54.0 (1372)	69 (1753)	83.5 (2121)	48 (1219)	23 (584)	14 (356)	8"	3/4"	1/2"	2100	1700 (771)

### Note:

Dimension 'E' is the minimum clearance required for cartridge removal.  
Flow rates are based on water. More viscous liquids will have lower flow rates.  
Drawings for reference only. Certified drawings will be supplied after receipt of order.  
Number of bags based on Figure 2's style.

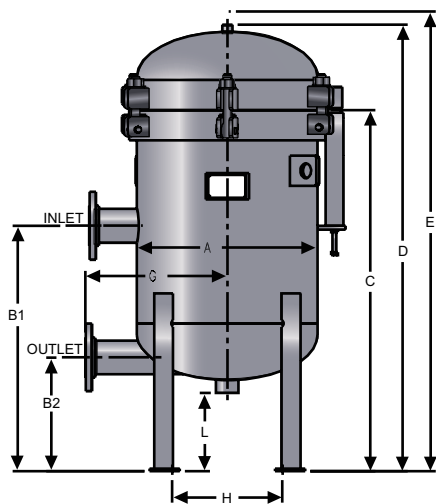


Figure 1

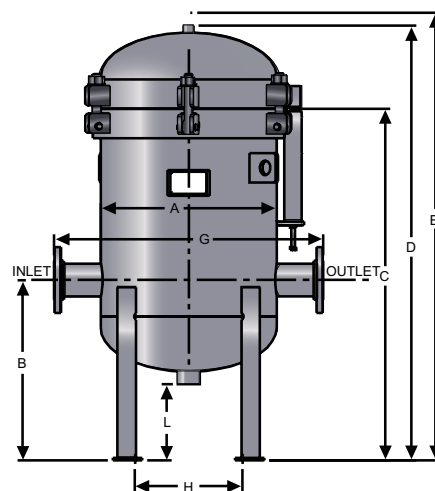


Figure 2



To receive your enclosure quote,  
fax these pages to:  
**(905) 829-4430** Attention: Projects

# Bag Filter RFQ Form

## Client Information:

Company Name: \_\_\_\_\_  
Address: \_\_\_\_\_  
City, State (Prov): \_\_\_\_\_  
Country, Zip (Postal Code): \_\_\_\_\_  
Contact Name: \_\_\_\_\_  
Contact Title: \_\_\_\_\_  
Phone / Fax: \_\_\_\_\_  
E-mail: \_\_\_\_\_  
Project Name: \_\_\_\_\_  
Project Location: \_\_\_\_\_  
Item: \_\_\_\_\_  
Tag No: \_\_\_\_\_  
Date: \_\_\_\_\_

## Proposal Type Required:

☐ Budgetary ☐ Bid ☐ Buy  
Other: \_\_\_\_\_  
Required Date for Proposal: \_\_\_\_\_  
Anticipated Shipping Date for Project: \_\_\_\_\_

## Required Data:

Type of Liquid: \_\_\_\_\_  
Max. Design Flow Rate: \_\_\_\_\_  
☐ gpm ☐ ft<sup>3</sup>/hr ☐ m<sup>3</sup>/hr ☐ Other  
Operating Pressure: \_\_\_\_\_  
☐ psig ☐ barg ☐ m<sup>3</sup>/hr ☐ Other  
Operating Temperature: \_\_\_\_\_ °F/°C  
Desired Particle Retention: \_\_\_\_\_ %  
Particle Size \_\_\_\_\_ Microns ☐ Nominal ☐ Absolute  
Density of Liquid at Op. Condition: \_\_\_\_\_  
☐ lb/ft<sup>3</sup> ☐ Liquid sp. gr. ☐ Other  
Viscosity of Liquid at Op. Condition: \_\_\_\_\_  
☐ cp ☐ SSU ☐ Other

## Additional Data:

Solid Contaminants: \_\_\_\_\_  
☐ % wt ☐ % vol ☐ Other  
**Type of Solid Contaminant:**  
Allowable Clean Pressure Drop: \_\_\_\_\_  
☐ psi ☐ bar ☐ Other  
Max. Allowable Pressure Drop: \_\_\_\_\_  
☐ psi ☐ bar ☐ Other  
Bag Filter Media: Fiber:  
☐ Polypropylene ☐ Monofilament  
☐ Polyester ☐ Multifilament  
☐ Nylon ☐ Felt  
☐ Other \_\_\_\_\_ ☐ Other \_\_\_\_\_  
Bag Size: Nozzle Inlet/Outlet Size: \_\_\_\_\_ in/mm  
☐ Size #1  
☐ Size #2  
☐ Size #3  
☐ Other \_\_\_\_\_  
Material of Construction: \_\_\_\_\_  
Vessel: \_\_\_\_\_ Internals: \_\_\_\_\_ Support: \_\_\_\_\_  
Design & Code: CRN: \_\_\_\_\_  
☐ ASME ☐ Yes  
☐ Other ☐ No  
☐ Province \_\_\_\_\_  
Design Pressure: \_\_\_\_\_  
☐ psig ☐ barg ☐ kg/cm<sup>2</sup> g ☐ Other  
Design Temperature: Min. \_\_\_\_\_ Max. \_\_\_\_\_ °F/°C  
Corrosion Allowance: \_\_\_\_\_ in/mm  
Radiography: Filter Element Type:  
☐ None ☐ Disposable  
☐ Spot ☐ Cleanable  
☐ Full  
☐ 100% All Butt Wells  
Filter Media: Gasket:  
☐ Cotton ☐ Buna-N  
☐ Polypropylene ☐ Viton® A  
☐ Gas Fiber ☐ EPDM  
☐ Other ☐ Other  
Vessel Internal Finish: Vessel External Finish:  
☐ Clean & Dry ☐ Primer  
☐ Other ☐ Other  
Specify \_\_\_\_\_  
Specify \_\_\_\_\_  
Closure: ☐ Standard ☐ Quick Opening  
☐ Other \_\_\_\_\_

Bag Filter RFQ

# VF Cartridge Filter Housing

The 3L Filters™ VF Series cartridge filter housing for aviation and petroleum use specific pleated or depth media cartridges to remove particles as small as 0.5 micron.

## Applications

Filtration of particulate from hydrocarbon liquids including jet fuels, diesel, gasoline, solvents, coolants, lubricating oils, hydraulic oils and processing fluids.

## Standard Features

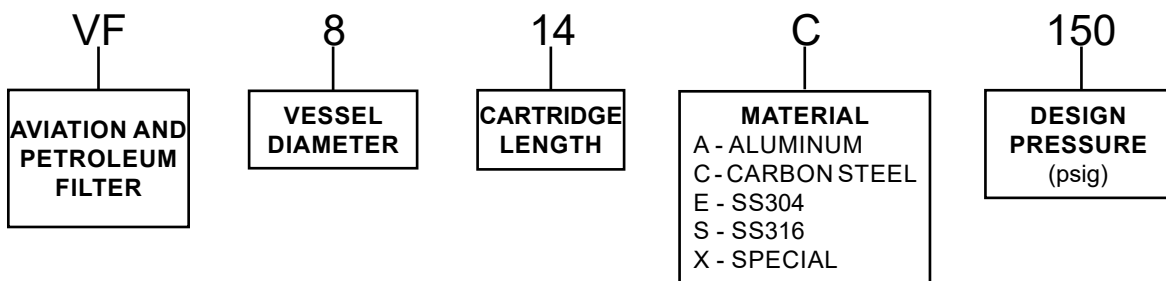
- designed to ASME Section VIII Div.1 & 2
- 150 psig standard design pressure
- -20°F to 150°F (-29°C to 66°C) standard design temperature
- 150 lb ANSI RF flanged inlet/outlet nozzles
- 3000 lb NPT couplings for vent, drain and pressure gauge connections
- carbon steel standard housings
- stainless steel cartridge hardware
- housing dimensions under 12" (305 mm) utilize handles, not headlifts
- 3L Pogo (spring-assisted) headlift on housing diameters 8" to 18" (203 mm to 457 mm); hydraulic Jack headlift on housing diameters over 18" (457 mm)
- quick access to replace cartridges
- standard Swing Bolt closures
- O-ring closure seal
- standard cartridge lengths 14" (356 mm), 29" (737 mm), 44" (1118 mm) and 56" (1424 mm)
- external primer finish for carbon steel housings
- epoxy coated interior

## Options & Accessories

- custom design pressures to 3000 psig
- higher design temperatures
- custom flange rating
- custom housing materials
- optional headlifts: handwheel or 3L Cantilever
- optional closures: Thru-Bolt or patented Easy Access Closure
- O-ring closure seal in Buna, Viton® or Teflon®
- custom cartridge configurations and size
- custom filter media
- additional nozzles as needed
- valves
- safety relief valves
- pressure gauges
- duplex or multiplex arrangement
- working platform
- rubber, PVC, PVDF and other internal linings



## Model Coding



VF

## Aviation and Petroleum Cartridge Filters

Fig.	Model No.	Filter Elements		A Vessel OD in (mm)	B in (mm)	C in (mm)	D in (mm)	E in (mm)	G in (mm)	H in (mm)	L in (mm)	Inlet/ Outlet (RF)	Vent Safety Drains (NPT)	Press. Gauge (NPT)	GPM (US)	Weight lbs (kg)
		Qty	Lg in (mm)													
1	VF814C150	1	14 (356)	8.625 (219)	3.0 (76)	27.750 (705)	29.500 (749)	42.250 (1073)	13.00 (330)	10.375 (264)	2 (51)	2"	3/4"	1/2"	50	225 (102)
1	VF829C150	1	29 (737)	8.625 (219)	3.0 (76)	41.750 (1060)	43.500 (1110)	70.750 (1778)	13.00 (330)	10.375 (264)	2 (51)	2"	3/4"	1/2"	100	265 (120)
1	VF844C150	1	44 (1118)	8.625 (219)	3.0 (76)	55.750 (1416)	57.500 (1461)	99.250 (2521)	13.00 (330)	10.375 (264)	2 (51)	2"	3/4"	1/2"	150	305 (138)
2	VF1614C150	4	14 (356)	16.000 (406)	15.0 (381)	37.375 (949)	40.375 (1026)	51.875 (1318)	24.25 (616)	9.000 (229)	10 (254)	4"	3/4"	1/2"	200	500 (227)
2	VF1629C150	4	29 (737)	16.000 (406)	15.0 (381)	52.125 (1324)	55.625 (1413)	81.125 (2061)	24.25 (616)	9.000 (229)	10 (254)	4"	3/4"	1/2"	400	560 (254)
2	VF2029C150	6	29 (737)	20.000 (508)	19.5 (497)	56.500 (1435)	62.000 (1575)	85.500 (2172)	28.00 (711)	13.000 (330)	10 (254)	6"	3/4"	1/2"	600	1000 (454)
2	VF2044C150	6	44 (1118)	20.000 (508)	19.5 (497)	71.000 (1803)	76.375 (1940)	114.500 (2908)	28.00 (711)	13.000 (330)	10 (254)	6"	3/4"	1/2"	900	1100 (499)
3	VF2829C150	12	29 (737)	28.000 (711)	24.0 (610)	48.500 (1232)	64.750 (1645)	77.500 (1969)	36.00 (914)	18.000 (457)	12 (305)	8"	3/4"	1/2"	1200	1500 (680)
3	VF2844C150	12	44 (1118)	28.000 (711)	24.0 (610)	63.500 (1613)	79.750 (2026)	107.000 (2718)	36.00 (914)	18.000 (457)	12 (305)	8"	3/4"	1/2"	1800	1600 (726)
3	VF3644C150	18	44 (1118)	36.000 (914)	26.0 (660)	63.375 (1610)	77.000 (1956)	106.875 (2715)	48.00 (1219)	23.000 (584)	12 (305)	10"	3/4"	1/2"	2700	2250 (1021)
3	VF4244C150	27	44 (1118)	42.000 (1067)	28.0 (711)	66.000 (1676)	86.625 (2200)	109.500 (2781)	54.00 (1372)	28.000 (711)	12 (305)	12"	3/4"	1/2"	4050	3800 (1724)

### Note:

Dimension 'E' is the minimum clearance required for cartridge removal.  
Flow rates are based on water. More viscous liquids will have lower flow rates.  
Drawings for reference only. Certified drawings will be supplied after receipt of order.

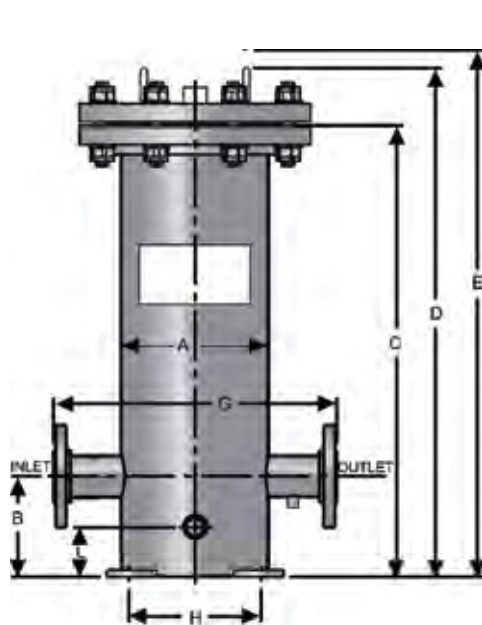


Figure 1

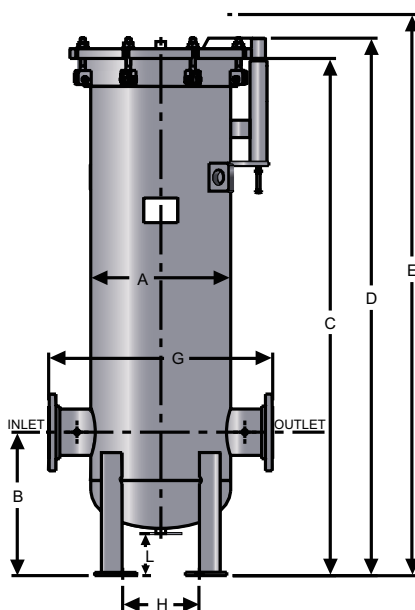


Figure 2

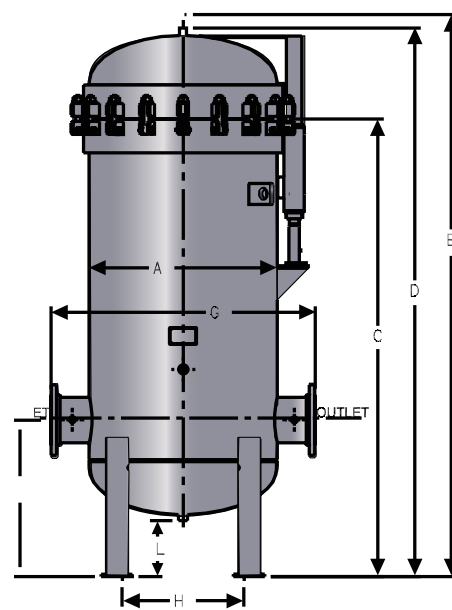


Figure 3

VF

# F & FD Lube Oil, Seal Oil & Control Oil Cartridge Filter Housing

The 3L Filters™ F & FD Series oil cartridge filters provide continuous particulate filtration for critical and non-critical lube, seal and control oil applications. Many standard systems conform to API 614 requirements for system components, including filters and transfer valves as well as the required controls and instrumentation.

## Applications

Turbine manufacturers, machine tool manufacturers, lube oil console manufacturers, mining-gear lube oil filters, transformer oil filtration-distribution terminals, oil recycling plants, hydraulic systems, heat transfer oil filtration and any other rotating equipment such as compressors and motors.

## Standard Features

- 150 psig at 150°F (66°C) standard design pressure
- -20°F to 200°F (-29°C to 93°C ) standard design temperature
- 150 lb ANSI RF50 flanged inlet/outlet nozzles
- 3000 lb NPT couplings for vent, drain and pressure gauge connections
- vertical housing of carbon steel material
- stainless steel cartridge hardware
- housing dimensions under 12" (305 mm) utilize handles, not headlifts
- 3L Pogo (spring-assisted) headlift on housing diameters 8" to 18" (203 mm to 457 mm); hydraulic Jack headlift on housing diameters over 18" (457 mm)
- quick access to replace cartridges
- standard Swing Bolt closures
- O-ring closure seal
- Standard cartridge lengths 18" (457 mm) and 36" (914 mm)
- external primer finish for carbon steel housings

## Options & Accessories

- custom design pressures to 3000 psig
- higher design temperatures
- custom flange rating
- custom housing materials
- optional headlifts: handwheel or 3L Cantilever
- optional closures: Thru-Bolt or patented Easy Access Closure
- O-ring closure seal in Buna, Viton®, Teflon® or EPDM
- custom cartridge configurations and sizes
- custom filter media
- paint or coating to customer specification
- additional nozzles as needed
- three way valves
- safety relief valves
- pressure gauges
- steam jackets
- working platform

## Certifications

- designed to ASME Section VIII Div.1 & 2



## Model Coding

**F & FD**  
LUBE OIL, SEAL OIL, CONTROL OIL FILTERS  
F - SINGLE  
FD - DUPLEX

**8**  
VESSEL DIAMETER

**18**  
CARTRIDGE LENGTH

**C**  
MATERIAL  
A - ALUMINUM  
C - CARBON STEEL  
E - SS304  
S - SS316

**150**  
DESIGN PRESSURE (psig)

F & FD



## Cartridge Filters (Lube Oil, Seal Oil & Control Oil)

Fig.	Model No.	Filter Elements		A Vessel OD in (mm)	B1 in (mm)	B2 in (mm)	C in (mm)	D in (mm)	E in (mm)	F in (mm)	G in (mm)	H in (mm)	Inlet/ Outlet (RF)	Vent Safety Drains (NPT)	Press. Gauge (NPT)	GPM (US)	Weight lbs (kg)
		Qty	Lg in (mm)														
1	FD818C150	1	18 (257)	8.625 (219)	8.75 (222)	6 (152)	32.50 (826)	36 (914)	50.50 (1283)	21 (533)	—	8.500 (216)	1 1/2"	3/4"	1/2"	50	215 (98)
1	FD836C150	1	36 (914)	8.625 (219)	10.00 (254)	6 (152)	51.00 (1295)	55 (1397)	87.00 (2210)	21 (533)	—	8.500 (216)	2"	3/4"	1/2"	100	260 (118)
1	FD1436C150	2	36 (914)	14.000 (356)	11.50 (292)	6 (152)	51.75 (1314)	56 (1422)	87.75 (2229)	33 (838)	—	12.375 (314)	3"	3/4"	1/2"	200	365 (166)
1	FD1636C150	3	36 (914)	16.000 (406)	11.50 (292)	6 (152)	51.75 (1314)	56 (1422)	87.75 (2229)	39 (991)	—	13.750 (349)	3"	3/4"	1/2"	300	440 (200)
1	FD1836C150	4	36 (914)	18.000 (457)	13.00 (330)	6 (152)	52.50 (1334)	57 (1448)	88.50 (2248)	45 (1143)	—	15.250 (387)	4"	3/4"	1/2"	400	470 (213)
2	F818C150	1	18 (457)	8.625 (219)	14.75 (375)	6 (152)	32.50 (826)	36 (914)	50.50 (1283)	—	20.625 (524)	8.500 (216)	1 1/2"	3/4"	1/2"	50	215 (98)
2	F836C150	1	36 (914)	8.625 (219)	16.00 (406)	6 (152)	51.00 (1295)	55 (1397)	87.00 (2210)	—	20.625 (524)	8.500 (216)	2"	3/4"	1/2"	100	260 (118)
2	F1436C150	2	36 (914)	14.000 (356)	17.50 (445)	6 (152)	51.75 (1314)	56 (1422)	87.75 (2229)	—	26.000 (660)	12.375 (314)	3"	3/4"	1/2"	200	365 (166)
2	F1636C150	3	36 (914)	16.000 (406)	17.50 (445)	6 (152)	51.75 (1314)	56 (1422)	87.75 (2229)	—	28.000 (711)	13.750 (349)	3"	3/4"	1/2"	300	440 (200)
2	F1836C150	4	36 (914)	18.000 (457)	19.00 (483)	6 (152)	52.50 (1334)	57 (1448)	88.50 (2248)	—	30.000 (762)	15.250 (387)	4"	3/4"	1/2"	400	470 (213)

### Note:

Dimension 'E' is the minimum clearance required for cartridge removal.  
Flow rates are based on a liquid viscosity of 200 SSU.  
Drawings for reference only. Certified drawings will be supplied after receipt of order.  
1.5" (38 mm) and 2" (51 mm) Inlet/Outlet nozzles are 3000# NPT.  
3" (76 mm) and 4" (102 mm) Inlet/Outlet nozzles are 150# RFSSO.

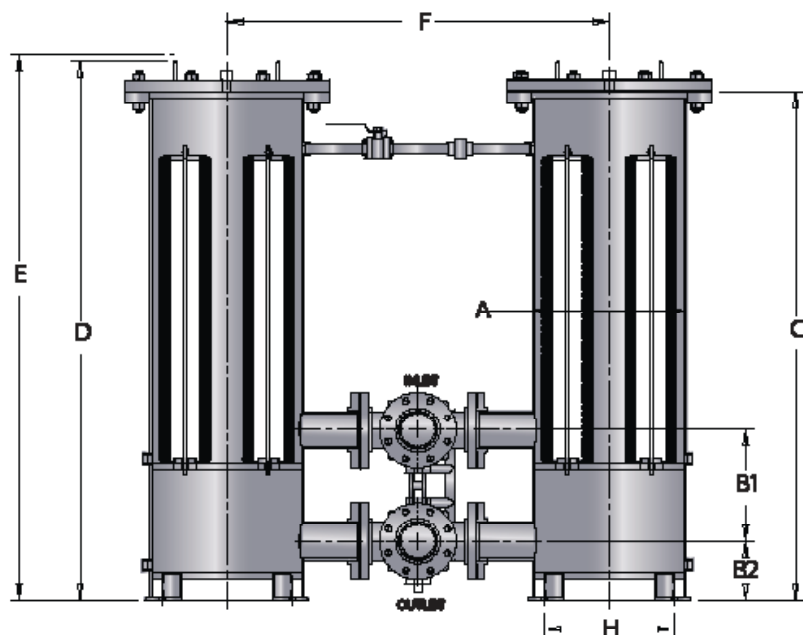


Figure 1

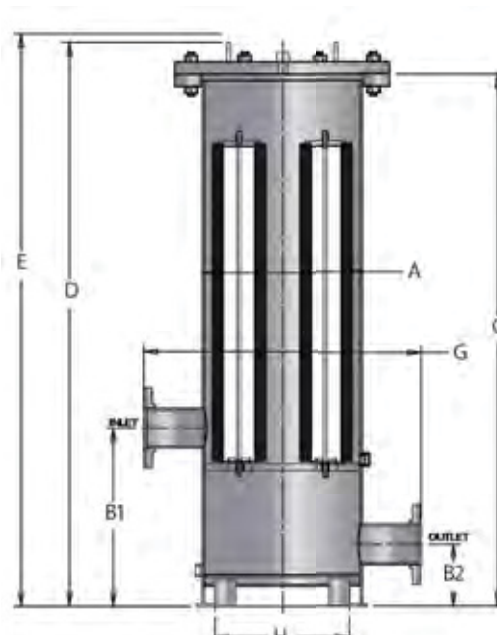


Figure 2

F & FD

To receive your enclosure quote,  
fax these pages to:  
**(905) 829-4430** Attention: Projects

# Oil Cartridge Filter RFQ Form

## Client Information:

Company Name: \_\_\_\_\_  
Address: \_\_\_\_\_  
City, State (Prov): \_\_\_\_\_  
Country, Zip (Postal Code): \_\_\_\_\_  
Contact Name: \_\_\_\_\_  
Contact Title: \_\_\_\_\_  
Phone / Fax: \_\_\_\_\_  
E-mail: \_\_\_\_\_  
Project Name: \_\_\_\_\_  
Project Location: \_\_\_\_\_  
Item: \_\_\_\_\_  
Tag No: \_\_\_\_\_  
Date: \_\_\_\_\_

## Proposal Type Required:

☐ Budgetary ☐ Bid ☐ Buy  
Other: \_\_\_\_\_  
Required Date for Proposal: \_\_\_\_\_  
Anticipated Shipping Date for Project: \_\_\_\_\_

## Required Data:

Liquid To Be Filtered: \_\_\_\_\_  
☐ Hydraulic Oil ☐ Lube Oil ☐ Seal Oil ☐ Other  
Type of Oil: \_\_\_\_\_  
Maximum/Design Flow Rate: \_\_\_\_\_  
☐ gpm ☐ ft<sup>3</sup>/hr ☐ m<sup>3</sup>/hr ☐ Other  
Operating Pressure: \_\_\_\_\_  
☐ psig ☐ barg ☐ Other  
Operating Temperature: \_\_\_\_\_ °F/°C  
Particle Removal Size: \_\_\_\_\_  
Microns: \_\_\_\_\_  
Density of Liquid at Op. Condition: \_\_\_\_\_  
☐ lb/ft<sup>3</sup> ☐ Liquid sp. gr. ☐ Other  
Viscosity of Liquid at Op. Condition: \_\_\_\_\_  
☐ cp ☐ SSU ☐ Other  
Filter Style: \_\_\_\_\_ ☐ Single/ ☐ Duplex

## Additional Data:

Solid Contaminants: \_\_\_\_\_  
☐ % wt ☐ % vol ☐ Other  
Type of Solid Contaminant: \_\_\_\_\_  
Allowable Clean Pressure Drop: \_\_\_\_\_  
☐ psi ☐ bar ☐ Other  
Max. Allowable Pressure Drop: \_\_\_\_\_  
☐ psi ☐ bar ☐ Other  
Nozzle Inlet/Outlet Size: \_\_\_\_\_ in/mm  
Material of Construction: \_\_\_\_\_  
Vessel: \_\_\_\_\_ Internals: \_\_\_\_\_ Support: \_\_\_\_\_  
Design & Code: \_\_\_\_\_  
☐ ASME ☐ Other  
CRN: \_\_\_\_\_  
☐ Yes ☐ No ☐ Province \_\_\_\_\_  
API 614 Compliance: \_\_\_\_\_ ☐ Yes/ ☐ No  
Design Pressure: \_\_\_\_\_  
☐ psig ☐ barg ☐ kg/cm<sup>2</sup> g ☐ Other  
Design Temperature: Min. \_\_\_\_\_ Max. \_\_\_\_\_ °F/°C  
Corrosion Allowance: \_\_\_\_\_ in/mm  
Radiography: \_\_\_\_\_  
☐ None ☐ Spot ☐ Full ☐ 100% All Butt Wells  
Gasket: \_\_\_\_\_  
☐ Buna-N ☐ Viton® A ☐ EPDM ☐ Other  
ASME Section VII, Div. 1  
Vessel Internal Finish: \_\_\_\_\_  
☐ Clean & Dry ☐ Other  
Specify: \_\_\_\_\_  
Vessel External Finish: \_\_\_\_\_  
☐ Primer ☐ Other  
Specify: \_\_\_\_\_  
Closure: \_\_\_\_\_  
☐ Standard ☐ Quick Opening  
Notes: \_\_\_\_\_

Oil Cartridge Filter RFQ

# BSF Fabricated Basket Strainer

The 3L Filters™ BSF Series fabricated basket strainers remove gross particles from a liquid stream. The BSF is often used as a pre-filter placed before finishing filtration equipment. A removable stainless steel basket allows easy cleaning and quick change out when heavy particle loading is present.

## Applications

The BSF is ideal for removing large amounts of solid matter from liquids such as water, coolants, resins, adhesives, solvents, paints and inks.

## Standard Features

- designed to ASME Section VIII Div.1 & 2
- 150 psig standard design pressure
- -20°F to 200°F (-29°C to 93°C) standard design temperature
- 150 lb ANSI RF flanged inlet/outlet, offset or inline configuration
- 3000 lb NPT couplings for vent, drain, and pressure gauge connections
- carbon steel housing material
- perforated stainless steel (SS304 or SS316) basket construction
- 3L Pogo (spring-assisted) headlift on housing diameters over 8" to 18" (203 mm to 457 mm); hydraulic Jack headlift on housing diameters over 18" (457 mm)
- quick access for replacement of basket
- standard Swing Bolt or Thru-Bolt closures
- O-ring closure seal
- external primer finish for carbon steel housing

## Options & Accessories

- custom design pressures to 3000 psig
- custom flange rating
- custom housing materials
- optional headlifts: handwheel or 3L Cantilever
- optional closures: Thru-Bolt or patented Easy Access Closure
- O-ring closure seal in Buna, Viton®, Teflon®, Silicone or EPDM
- strainer baskets available in a range of materials and mesh sizes
- internal epoxy coating on carbon steel models
- electropolishing of stainless steel housings
- passivation of stainless steel housings
- paint or coating to customer specification
- additional nozzles as needed
- valves
- safety relief valves
- pressure gauges
- duplex or multiplex arrangement
- working platform
- rubber, PVC, PVDF and other internal linings



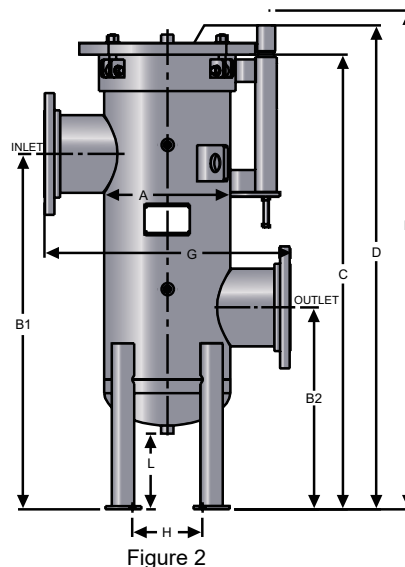
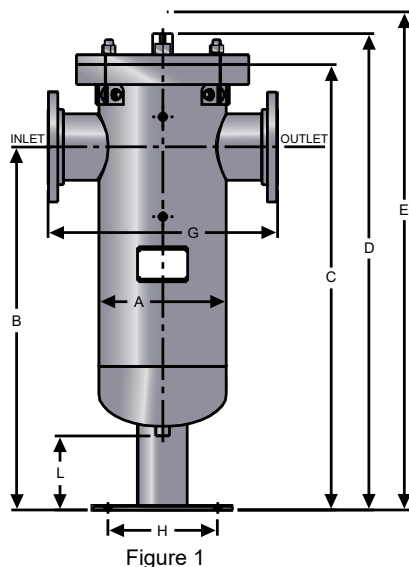
BSF

## Fabricated Basket Strainer

Fig.	Model No.	A Vessel OD in (mm)	B1 in (mm)	B2 in (mm)	C in (mm)	D in (mm)	E in (mm)	G in (mm)	H in (mm)	L in (mm)	Inlet/ Outlet (RF)	Vent Safety Drains (NPT)	Press. Gauge (NPT)	GPM (US)	Weight lbs (kg)
1	BSFV51B0150C03	6.625 (168)	21.5 (546)	21.5 (546)	32.0 (813)	34.0 (864)	47.0 (1194)	19 (483)	8.0 (203)	8 (203)	3"	3/4"	1/2"	210	120 (54.4)
1	BSFV51B0150C04	8.625 (219)	25.0 (635)	25.0 (635)	37.0 (940)	39.0 (991)	55.0 (1397)	21 (533)	9.0 (229)	8 (203)	4"	3/4"	1/2"	410	190 (86.2)
1	BSFV51B0150C06	12.750 (323)	33.0 (838)	33.0 (838)	48.0 (1219)	50.0 (1270)	70.0 (1778)	25 (635)	13.0 (330)	10 (254)	6"	3/4"	1/2"	760	320 (145.2)
2	BSFV53C0150C08	14.000 (355)	40.0 (1016)	24.0 (610)	52.0 (1321)	56.0 (1422)	82.0 (2083)	26 (660)	7.5 (191)	10 (254)	8"	3/4"	1/2"	1000	430 (195.0)
2	BSFV53C0150C010	16.000 (406)	47.5 (1207)	27.5 (699)	60.5 (1537)	64.5 (1638)	97.5 (2477)	28 (711)	9.0 (229)	10 (254)	10"	3/4"	1/2"	1490	580 (263.1)
2	BSFV53C0150C012	18.000 (457)	57.0 (1448)	33.0 (838)	71.0 (1803)	75.0 (1905)	117.0 (2972)	30 (762)	10.0 (254)	10 (254)	12"	3/4"	1/2"	2640	750 (340.2)
2	BSFV53C0150C014	20.000 (508)	64.5 (1638)	36.5 (927)	79.5 (2019)	83.5 (2121)	130.5 (3315)	32 (813)	11.0 (279)	12 (305)	14"	3/4"	1/2"	3340	900 (408.2)
2	BSFV53C0150C016	24.000 (609)	72.5 (1842)	40.5 (1029)	88.5 (2248)	92.5 (2350)	146.5 (3721)	36 (914)	15.0 (381)	12 (305)	16"	3/4"	1/2"	4310	1140 (517.1)

### Note:

Dimension 'E' is the minimum clearance required for basket removal.  
Flow rates are based on water. More viscous liquids will have lower flow rates.  
Drawings for reference only. Certified drawings will be supplied after receipt of order.



## Model Coding

**BSF**

**BASKET  
STRAINER**

**V**

**VESSEL  
CONFIGURATION**  
H - HORIZONTAL  
V - VERTICAL  
D - DUPLEX

**53B**

### STAINER SERIES

51A - INLINE NO LEGS  
51B - INLINE WITH LEGS  
51C - INLINE WITH LEGS  
AND HEADLIFT  
53A - OFFLINE NO LEGS  
53B - OFFLINE WITH LEGS  
53C - OFFLINE WITH  
LEGS AND HEADLIFT

**0150**

### NOZZLE ANSI FLANGE RATING

0150 - 150 lb  
0300 - 300 lb  
0600 - 600 lb  
0900 - 900 lb  
1500 - 1500 lb

**E**

### MATERIAL

C - CARBON STEEL  
E - SS304  
S - SS316  
X - SPECIAL

**04**

### NOZZLE SIZE

5 - 1/2" 34 - 3/4"  
01 - 1" 15 - 1 1/2"  
02 - 2" 25 - 2 1/2"  
03 - 3" 04 - 4"  
06 - 6" 08 - 8"  
10 - 10"

BSF



# CS Cone Strainer

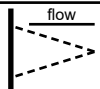
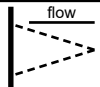
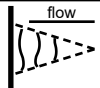
The 3L Filters™ CS Series cone strainers are used to protect fluid and gas handling equipment by removing debris during the start-up of a system. These can easily be installed or placed between pipeline flanges without modifying the surrounding pipe work and are easily removed.

## Standard Features

- available in 316 stainless steel or carbon steel; media available in a selection of four perforated and five mesh styles
- flanged ID (inside diameter) is pressed and welded to prevent possible failures and cone ending up down stream
- phonographic finish
- easy reference part numbers located on the handle
- custom build available upon request



## Type CS Model Coding

CS	-	C	06	-	300	-	40	I	W	80	
<b>MATERIAL</b> C - CARBON STEEL S - 316 STAINLESS		<b>PIPE SIZE (in)</b> (If pipe is less than 10" proceed number with 0)			<b>FLANGE (lbs)</b>		<b>MESH (microns)</b>		<b>OPEN AREA</b> W - 100% X - 150% Y - 200%		<b>PIPE SCHEDULE</b> 40 80 160 XXS
<b>PRODUCT CODE</b> CS - CONE STRAINER		1.5	2	2.5	150		--		<b>MESH REPLACEMENT</b>		
		3	4	5	300		20			Wire mesh on outside supported	No # - Standard
		6	8	10	400		40			Wire mesh on inside supported	I - Cloth Standard
		12	14	16	600		60			Wire mesh on outside supports inside	R - Reinforced
		20	24	18	900		80				
		30	32	28	1500		100				

**Note:**  
Reinforced cones available upon request.

### Note:

Reinforced cones available upon request.

CS

# PS Plate Strainer

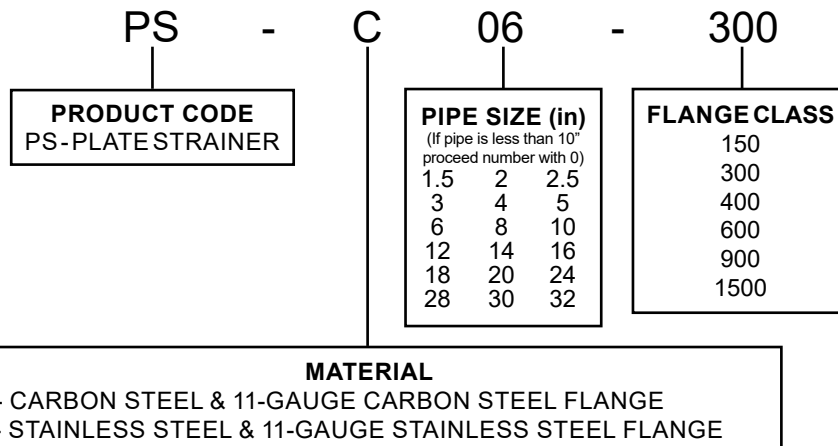
The 3L Filters™ PS Series plate strainers are used to protect fluid and gas handling equipment by removing debris during the start-up of a system. These can easily be installed or placed between large flange faces without modifying the surrounding pipe work and are easily removed.

## Standard Features

- available in 316 stainless steel or carbon steel
- phonographic finish
- strainer has 11-gauge perforated material with 1/8" holes on staggered centers
- easy reference part numbers located on the handle
- custom build available upon request



## Model Coding



# FGCS Fuel Gas Conditioning System

The 3L Filters™ fuel gas conditioning systems remove moisture, liquid mist and particulate contaminants from fuel gases. Capabilities include gas preheating and pressure reduction as required by specification. Gas metering is also available.

## Applications

The FGCS prepares the fuel (natural) gas for use in gas turbines, gas furnaces, gas burners, etc. It is typically used by gas turbine manufacturers, combined cycle power plants, natural gas turbine installations, gas fired furnaces, and small off-shore and on-shore power generators.

A variety of fuel gas conditioning system configurations are available to match the specific needs of different applications.

## Features

- can be designed to deliver gas at any pressure, temperature and degree of purity
- scrubs liquids from the gas stream
- heats gas indirectly to prevent hydrate formation due to Joule Thompson effect
- reduces pressure from 650 psi to 100 psi
- accommodates flow measurement/custody transfer via D.P. orifice flow meter
- full PLC control logic

## Certifications

- hazardous location (Class 1, Div.1, Group D)



FGCS

# GFS Gas Filter Separator

The 3L Filters™ GFS Series gas filter separators remove moisture, liquid mists, aerosols and contaminants from hydrocarbon gases, including natural gas, propane, butane and methane, using a three-stage design. The first stage removes gross water by impingement on cartridge stools. The second stage coalesces water using cartridges, with particulate removal down to 0.3 micron. During the third stage, a stainless steel vane mist eliminator removes any remaining moisture. Water collects in the sump to be purged from the system, and clean, dry gas passes through the outlet.

## Applications

Removal of water and contaminants from many hydrocarbon gases such as natural gas, propane, butane and methane. These applications include:

- chemical plants
- pipelines
- natural gas plants
- refineries
- petrochemical plants
- compressor stations
- metering and regulation stations
- power generation plants

## Features

- designed to ASME Section VIII Div.1 & 2
- -20°F to 60°F (-29°C to 16°C) standard design temperature
- 6000 lb NPT couplings for vent, drain and pressure gauge connections
- carbon steel housing material
- horizontal configuration with sump
- 8" to 18" (203 mm to 457 mm) 3L Pogo (spring-assisted) or hydraulic Jack headlift on vertical models over 18" (457 mm)
- standard Swing Bolt closure with O-ring seal
- external primer finish for carbon steel housings
- multi-staged for better efficiency
- low pressure drops

## Options & Accessories

- custom design pressures to 3000 psig
- custom housing materials
- optional closure: Thru-Bolt
- O-ring closure seal in Buna or Viton®
- internal epoxy coating on carbon steel models
- electropolishing of stainless steel housings
- passivation of stainless steel housings
- paint or coating to customer specifications
- sump heater
- additional nozzles as needed
- valves
- safety relief valves
- pressure gauges
- liquid level gauges
- duplex or multiplex arrangement
- working platform
- skid packaged configurations with controls and heating equipment
- quick access for replacement of cartridges
- optional manual, pneumatic or electric drainage control package



### Note:

\*Model Coding is an example only.  
Gas Conditioning System can be custom engineered to specific requirements.

## Model Coding\*

GFSH

GFSV  
GFSH

24

VESSEL  
DIAMETER  
(inch)

124

VESSEL  
LENGTH  
(inch)

C

**MATERIAL**  
A - ALUMINUM E - SS304  
C - CARBON S - SS316  
STEEL X - SPECIAL

740

**DESIGN  
PRESSURE**  
(psig)

GFS

## Gas Filter Separators (Vertical)

Fig.	Model No.	Filter Elements		A Vessel OD in (mm)	B1 in (mm)	B2 in (mm)	C in (mm)	D in (mm)	E in (mm)	G in (mm)	H in (mm)	L in (mm)	Inlet/ Outlet (RF)	Vent Safety Drains (NPT)	Press. Gauge (NPT)	Typical Operating Press. (psia)	Typical Flow rate (mmscfd) Note 1
		Qty	Lg in (mm)														
1	GFSV636740	1	36 (914)	6.625 (168)	7.5 (191)	13.5 (343)	66.0 (1676)	70.0 (1778)	90.0 (2286)	18.625 (473)	9.0 (229)	8 (203)	2"	3/4"	1/2"	600	8
1	GFSV6361480	1	36 (914)	6.625 (168)	7.5 (191)	13.5 (343)	66.0 (1676)	70.0 (1778)	90.0 (2286)	18.625 (473)	9.0 (229)	8 (203)	2"	3/4"	1/2"	1200	11
2	GFSV1236740	3	36 (914)	12.750 (324)	17.0 (432)	18.0 (457)	76.5 (1943)	80.5 (2045)	112.5 (2858)	24.750 (629)	6.5 (165)	10.0 (254)	3"	3/4"	1/2"	600	24
2	GFSV12361480	3	36 (914)	12.750 (324)	17.0 (432)	18.0 (457)	76.5 (1943)	80.5 (2045)	112.5 (2858)	24.750 (629)	6.5 (165)	10.0 (254)	3"	3/4"	1/2"	1200	34
3	GFSV1836740	7	36 (914)	18.000 (457)	18.0 (457)	22.5 (572)	81.0 (2057)	85.0 (2159)	117.0 (2972)	30.000 (762)	10.0 (254)	10.0 (254)	4"	3/4"	1/2"	600	55
3	GFSV18361480	6	36 (914)	18.000 (457)	18.0 (457)	22.5 (572)	81.0 (2057)	85.0 (2159)	117.0 (2972)	30.000 (762)	10.0 (254)	10.0 (254)	4"	3/4"	1/2"	1200	67
3	GFSV2036740	8	36 (914)	20.000 (508)	20.0 (508)	22.5 (572)	86.0 (2184)	90.0 (2286)	122.0 (3099)	32.000 (813)	11.0 (279)	12 (305)	6"	3/4"	1/2"	600	63
3	GFSV20361480	8	36 (914)	20.000 (508)	20.0 (508)	22.5 (572)	86.0 (2184)	90.0 (2286)	122.0 (3099)	32.000 (813)	11.0 (279)	12 (305)	6"	3/4"	1/2"	1200	90
3	GFSV2436740	13	36 (914)	24.000 (610)	22.0 (559)	22.5 (572)	91.0 (2311)	95.0 (2413)	127.0 (3226)	36.000 (914)	15.0 (381)	12 (305)	8"	3/4"	1/2"	600	103
3	GFSV24361480	12	36 (914)	24.000 (610)	22.0 (559)	22.5 (572)	91.0 (2311)	95.0 (2413)	127.0 (3226)	36.000 (914)	15.0 (381)	12 (305)	8"	3/4"	1/2"	1200	134

### Note:

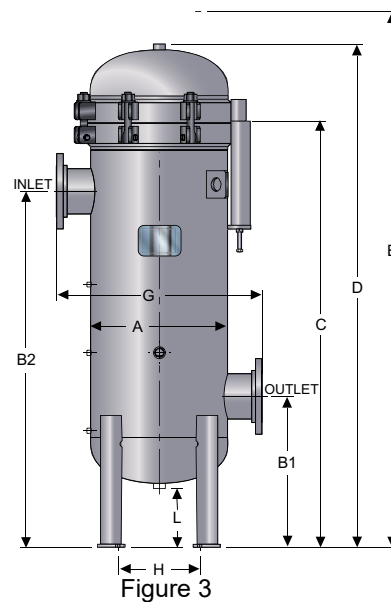
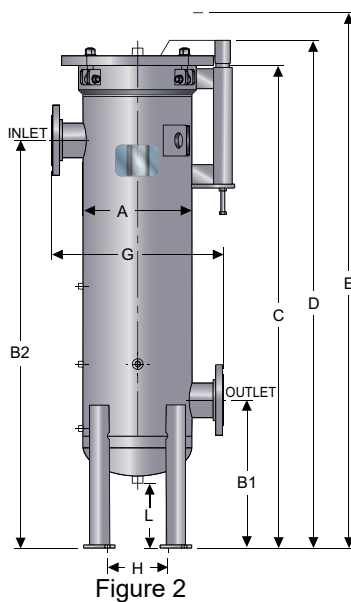
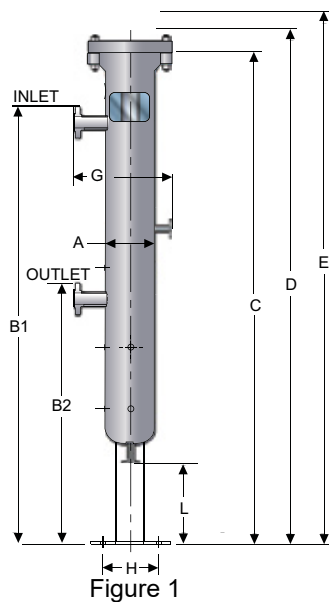
Flow rate based on natural gas at the operating pressure indicated above at an operating temperature of 60°F (16°C).

Dimension 'E' is the minimum clearance required for cartridge removal.

Drawings for reference only. Certified drawings will be supplied after receipt of order.

Standard off the shelf products available, contact factory for more information.

Reverse Flow Configuration is available.



GFS

## Gas Filter Separators (Horizontal)

Fig.	Model No.	Filter Elements		A Vessel OD in (mm)	B1 in (mm)	B2 in (mm)	C in (mm)	D in (mm)	E in (mm)	G in (mm)	H in (mm)	Inlet/ Outlet (RF)	Vent Safety Drains (NPT)	Press. Gauge (NPT)	Weight lbs (kg)	Typical Operating Press. (psia)	Typical Flow rate (mmscfd) Note 1
		Qty	Lg in (mm)														
4	GFSH636740	1	36 (914)	6.625 (168)	18.5 (470)	27 (686)	56.5 (1435)	64.00 (1626)	80.5 (2045)	36.25 (921)	27 (686)	2"	3/4"	1/2"	250 (113)	600	8
4	GFSH6361480	1	36 (914)	6.625 (168)	18.5 (470)	27 (686)	56.5 (1435)	64.00 (1626)	80.5 (2045)	36.25 (921)	27 (686)	2"	3/4"	1/2"	400 (181)	1200	11
4	GFSH1236740	3	36 (914)	12.750 (324)	43.5 (1105)	32 (813)	96.5 (2451)	104.00 (2642)	132.5 (3366)	44.50 (1130)	57 (1448)	3"	3/4"	1/2"	900 (408)	600	24
4	GFSH12361480	3	36 (914)	12.750 (324)	43.5 (1105)	32 (813)	96.5 (2451)	104.00 (2642)	132.5 (3366)	44.50 (1130)	57 (1448)	3"	3/4"	1/2"	1450 (658)	1200	34
4	GFSH1636740	6	36 (914)	16.000 (406)	44.0 (1118)	34 (864)	101.5 (2578)	110.00 (2794)	137.5 (3493)	48.00 (1219)	61 (1549)	4"	3/4"	1/2"	1400 (653)	600	47
4	GFSH16361480	4	36 (914)	16.000 (406)	44.0 (1118)	34 (864)	101.5 (2578)	110.00 (2794)	137.5 (3493)	48.00 (1219)	61 (1549)	4"	3/4"	1/2"	2275 (1032)	1200	45
4	GFSH1836740	7	36 (914)	18.000 (457)	46.5 (1181)	37 (940)	107.5 (2731)	118.00 (2997)	143.5 (3645)	52.00 (1321)	66 (1676)	6"	3/4"	1/2"	1750 (794)	600	55
4	GFSH18361480	6	36 (914)	18.000 (457)	46.5 (1181)	37 (940)	107.5 (2731)	118.00 (2997)	143.5 (3645)	52.00 (1321)	66 (1676)	6"	3/4"	1/2"	2850 (1293)	1200	67
4	GFSH2036740	8	36 (914)	20.000 (508)	48.0 (1219)	38 (965)	115.5 (2934)	126.50 (3213)	151.5 (3848)	54.00 (1372)	67 (1702)	6"	3/4"	1/2"	2175 (987)	600	63
4	GFSH20361480	8	36 (914)	20.000 (508)	48.0 (1219)	38 (965)	115.5 (2934)	126.50 (3213)	151.5 (3848)	54.00 (1372)	67 (1702)	6"	3/4"	1/2"	3600 (1633)	1200	90
4	GFSH2472740	13	72 (1829)	24.000 (610)	84.0 (2134)	40 (1016)	184.5 (4686)	195.75 (4972)	256.5 (6515)	60.00 (1524)	132 (3353)	8"	3/4"	1/2"	6100 (2767)	600	134
4	GFSH24721480	12	72 (1829)	24.000 (610)	84.0 (2134)	40 (1016)	184.5 (4686)	195.75 (4972)	256.5 (6515)	60.00 (1524)	132 (3353)	8"	3/4"	1/2"	9600 (4354)	1200	175
4	GFSH2872740	18	72 (1829)	28.000 (711)	84.0 (2134)	44 (1118)	213.0 (5410)	227.50 (5779)	249.0 (6325)	66.00 (1676)	158 (4013)	12"	3/4"	1/2"	8200 (3719)	600	185
4	GFSH28721480	18	72 (1829)	28.000 (711)	84.0 (2134)	44 (1118)	213.0 (5410)	227.50 (5779)	249.0 (6325)	66.00 (1676)	158 (4013)	12"	3/4"	1/2"	12700 (5761)	1200	262
4	GFSH3872740	37	72 (1829)	38.000 (965)	89.0 (2261)	57 (1448)	230.0 (5842)	250.50 (6363)	302.0 (7671)	84.00 (2134)	175 (4445)	12"	3/4"	1/2"	14400 (6532)	600	381
4	GFSH38721480	34	72 (1829)	38.000 (965)	89.0 (2261)	57 (1448)	230.0 (5842)	250.50 (6363)	302.0 (7671)	84.00 (2134)	175 (4445)	12"	3/4"	1/2"	21100 (9571)	1200	495

### Note:

Flow rate based on natural gas at the operating pressure indicated above at an operating temperature of 60°F (16°C).  
Dimension 'E' is the minimum clearance required for cartridge removal.  
Drawings for reference only. Certified drawings will be supplied after receipt of order.  
Standard off the shelf products available, contact factory for more information.

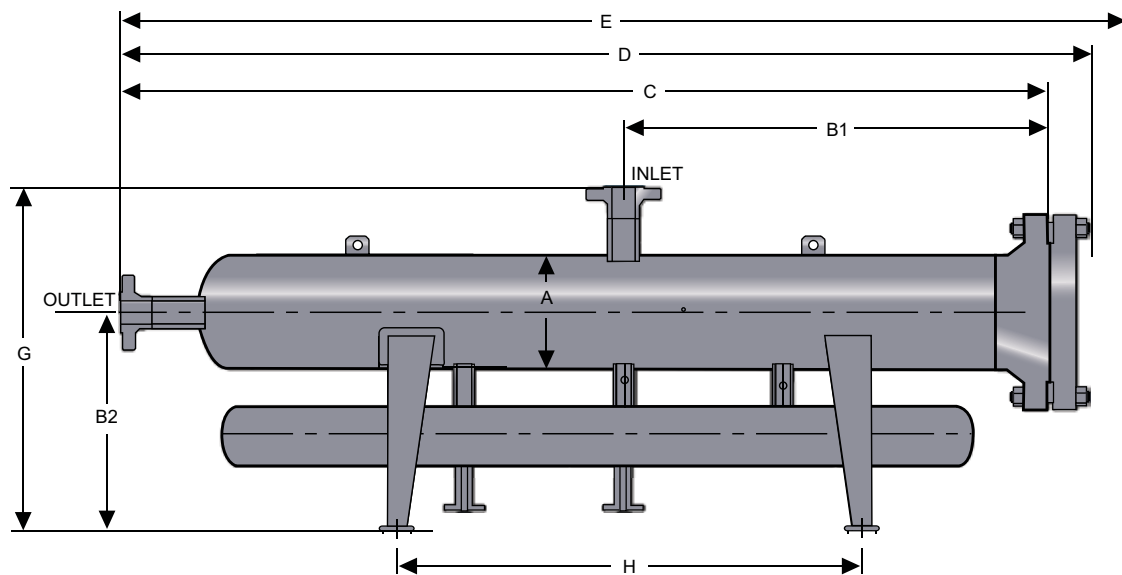


Figure 4



# Gas Filtration

Description	Abbreviation
Vertical Gas Separator (mesh or vane type mist eliminator)	GSV
Horizontal Gas Separator (mesh or vane)	GSH
Vertical Gas Coalescing Filter	GFCV
Horizontal Gas Filter Separator	GFSH
Vertical Dry Gas Filter	GFV
Horizontal Dry Gas Filter	GFH
Vertical Desiccant Coalescing	GDV

In addition to the standard GFS Gas Filter Series of vessels, CCI Thermal Technologies can provide engineered filtration solutions for removing moisture, liquid mists, aerosols, and contaminants from hydrocarbon gases including natural gas, propane, butane and methane, using various processes. These processes include mesh or vane type mist eliminator vessels, desiccants and a wide variety of cartridge elements. Please contact CCI Thermal to obtain more information or clarifications.

## Applications

These vessels prepare the fuel gas for use in gas applications such as gas turbines, gas burners etc. Typically these systems are used by petrochemical users. A variety of gas conditioning system configurations are available to match the specific needs of different applications.

## Features

- designed to ASME Section VIII, Div. 1 & 2
- temperature range to suit applications
- materials of fabrication to suit applications
- horizontal and vertical configurations available for most applications
- standard swing bolt closure with O-ring seal; however, other closure systems are available
- external primer finish for carbon steel housings
- low pressure drops

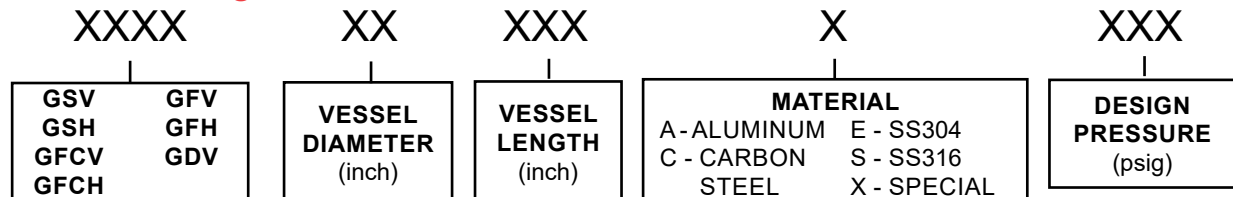
## Options & Accessories

- custom design pressures to 3000 psig
- custom housing materials
- optional closure: Thru-Bolt
- O-ring closure seal in Buna or Viton®
- internal epoxy coating on carbon steel models
- electropolishing of stainless steel housings
- passivation of stainless steel housings
- paint or coating to customer specifications
- sump heater
- additional nozzles as needed
- valves
- safety relief valves
- pressure gauges
- liquid level gauges
- duplex or multiplex arrangement
- working platform
- skid packaged configurations with controls and heating equipment
- quick access for replacement of cartridges
- optional manual, pneumatic or electric drainage control package
- rubber, PVC, PVDF and other internal linings

### Note:

\*Model Coding is an example only.  
Each Gas Conditioning System is custom engineered and not standard.

## Model Coding\*



# Gas Filter Separator RFQ Form

## Client Information:

Company Name: \_\_\_\_\_

Address: \_\_\_\_\_

City, State (Prov): \_\_\_\_\_

Country, Zip (Postal Code): \_\_\_\_\_

Contact Name: \_\_\_\_\_

Contact Title: \_\_\_\_\_

Phone / Fax: \_\_\_\_\_

E-mail: \_\_\_\_\_

Project Name: \_\_\_\_\_

Project Location: \_\_\_\_\_

Item: \_\_\_\_\_

Tag No: \_\_\_\_\_

Date: \_\_\_\_\_

## Vessel Connections:

### Inlet:

Size: \_\_\_\_\_ Rating: \_\_\_\_\_

Connection Type: \_\_\_\_\_ Qty: \_\_\_\_\_

### Outlet:

Size: \_\_\_\_\_ Rating: \_\_\_\_\_

Connection Type: \_\_\_\_\_ Qty: \_\_\_\_\_

### Drain:

Size: \_\_\_\_\_ Rating: \_\_\_\_\_

Connection Type: \_\_\_\_\_ Qty: \_\_\_\_\_

### Vent:

Size: \_\_\_\_\_ Rating: \_\_\_\_\_

Connection Type: \_\_\_\_\_ Qty: \_\_\_\_\_

### Level Gauge:

Size: \_\_\_\_\_ Rating: \_\_\_\_\_

Connection Type: \_\_\_\_\_ Qty: \_\_\_\_\_

### Level Switch:

Size: \_\_\_\_\_ Rating: \_\_\_\_\_

Connection Type: \_\_\_\_\_ Qty: \_\_\_\_\_

### Level Conductor:

Size: \_\_\_\_\_ Rating: \_\_\_\_\_

Connection Type: \_\_\_\_\_ Qty: \_\_\_\_\_

### Pressure:

Size: \_\_\_\_\_ Rating: \_\_\_\_\_

Connection Type: \_\_\_\_\_ Qty: \_\_\_\_\_

### Differential:

Size: \_\_\_\_\_ Rating: \_\_\_\_\_

Connection Type: \_\_\_\_\_ Qty: \_\_\_\_\_

### Relief:

Size: \_\_\_\_\_ Rating: \_\_\_\_\_

Connection Type: \_\_\_\_\_ Qty: \_\_\_\_\_

### Inspection/Manway:

Size: \_\_\_\_\_ Rating: \_\_\_\_\_

Connection Type: \_\_\_\_\_ Qty: \_\_\_\_\_

### Other:

Size: \_\_\_\_\_ Rating: \_\_\_\_\_

Connection Type: \_\_\_\_\_ Qty: \_\_\_\_\_

Gas Filter Separator RFQ

## Connection Notes:

Acceptance of NPT Connection: ☐ Yes ☐ No

Quick Opening Closure: ☐ Yes ☐ No

Prefer Inlet: ☐ Yes ☐ No

Prefer Outlet: ☐ Yes ☐ No

Other Notes: ☐ Yes ☐ No

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## Instrumentation Options:

Manual Operation: ☐ Yes ☐ No  
(Level Gauge & Manual Drain Valves)

Electric Level Controllers: ☐ Yes ☐ No  
(Level Switches Controlling Colenoid Actuated Drain Valves)

Pneumatic Level Controller: ☐ Yes ☐ No  
(Level Float Controlling Pneumatic Actuated Drain Valve)

Differential Pressure: ☐ Gauge ☐ Switch ☐ None

Relief Valve: ☐ Yes ☐ No

## Gas Data:

Gas: \_\_\_\_\_ ☐ Natural Gas ☐ Other

Composition: \_\_\_\_\_

Molecular Weight: \_\_\_\_\_ or Specific Gravity: \_\_\_\_\_

Flow Rate: \_\_\_\_\_

☐ scfm ☐ MMSCFD ☐ lb/hr ☐ Other

Operating Pressure: \_\_\_\_\_

☐ psia ☐ psig ☐ Other

Operating Temperature: \_\_\_\_\_ ☐ °F/☐ °C

Compressibility (z): \_\_\_\_\_

Allowable Pressure Drop - Inlet to Outlet: \_\_\_\_\_

## Entrained Liquid Data:

Liquid: \_\_\_\_\_  
☐ Water ☐ Oil ☐ Other

Liquid Density: \_\_\_\_\_  
☐ lb/ft<sup>3</sup> ☐ Liquid sp. gr. ☐ Other

Liquid Loading: ☐ GPM ☐ lb/hr  
☐ kg/hr ☐ PPM ☐ Other

Solid Removal: ☐ Yes ☐ No

Desired Removal Efficiency: \_\_\_\_\_ %

Particle Size: \_\_\_\_\_ Microns: \_\_\_\_\_

## Vessel Data:

Material of Construction: \_\_\_\_\_

Vessel: \_\_\_\_\_ Internals: \_\_\_\_\_

Design & Code: ☐ ASME ☐ Other  
CRN: ☐ Yes ☐ No ☐ Province \_\_\_\_\_

Design Pressure: \_\_\_\_\_  
☐ psig ☐ barg ☐ kg/cm<sup>2</sup> g ☐ Other

Design Temperature: Min. \_\_\_\_\_ Max. \_\_\_\_\_ ☐ °F/☐ °C

Corrosion Allowance: \_\_\_\_\_ ☐ in/☐ mm

Service: ☐ Lethal ☐ Nace ☐ Other

Radiography: ☐ None ☐ Spot ☐ Full ☐ 100% All Butt Welds

## Notes or Comments:

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To receive your enclosure quote, fax these pages to:  
**(905) 829-4430** Attention: Projects

# FLO-DRI Compressed Gas Scrubbing System

The 3L filters™ FLO-DRI gas scrubber removes gas contaminants including ppm H<sub>2</sub>S scrubbing, moisture, hydrocarbon, aerosols and particulate solids at point of use. All FLO-DRI filters are engineered for low cost and long life, featuring easy cartridge change out, low pressure drop and low maintenance.

## Applications

FLO-DRI gas scrubbers employ various media cartridges to remove moisture oil, H<sub>2</sub>S and particulate down to 0.5 micron in size, providing clean, dry gas for critical applications.

## Standard Features

- removes particulate down to 0.5 microns in size
- O-ring closure seal
- working pressures up to 250 psig
- variable flow rates with low pressure drop
- drain cock
- patented "quick change" filters
- variety of filtration media available, including activated carbon, activated aluminum and molecular sieve.



## Scrubbing System

Scrubbing System	Model Number	PSIG	Number of Cartridges	Overall Length in (mm)	Overall Diameter in (mm)	Port to Port in (mm)	Pipe Size NPT	Bed Cubic in <sup>3</sup>	Cartridge Media Part Number
Natural Gas	FLODRI-G10A	150	1	8.50 (216)	4.00 (102)	5.00 (1270)	1/4"	12.56	FLODRI-10AA
									FLODRI-10AC
									FLODRI-10MS
	FLODRI-G25A	250	2	12.88 (327)	5.12 (130)	8.13 (206)	3/4"	30.78	FLODRI-25AA
									FLODRI-25AC
									FLODRI-25MS
	FLODRI-G60A	250	3	18.25 (464)	6.25 (159)	12.38 (314)	1"	84.47	FLODRI-60AA
									FLODRI-60AC
									FLODRI-60MS
	FLODRI-G100A	250	4	23.31 (592)	7.75 (197)	17.00 (432)	1 1/2"	199.06	FLODRI-100A
Compressed Air									FLODRI-100AC
									FLODRI-100MS
	FLODRI-G150A	250	2	26.00 (660)	9.25 (241)	18.19 (462)	2"	376.52	FLODRI-150AA
									FLODRI-150AC
									FLODRI-150MS
	FLODRI-M10A	150	1	8.50 (216)	4.00 (102)	5.00 (1270)	1/4"	12.56	FLODRI-10R
	FLODRI-M25V	125	2	12.88 (327)	5.12 (133)	8.13 (206)	3/4"	30.78	FLODRI-25R
	FLODRI-M25A	250	2	12.88 (327)	5.12 (133)	8.13 (206)	3/4"	30.78	
	FLODRI-M60A	250	3	18.25 (464)	6.25 (159)	12.38 (314)	1"	84.47	FLODRI-60R
	FLODRI-M100A	250	4	23.31 (592)	7.75 (197)	17.00 (432)	1 1/2"	199.06	FLODRI-100R
	FLODRI-M150A	250	2	26.00 (660)	9.25 (241)	18.19 (462)	2"	376.52	FLODRI-150R

## Model Coding

FLODRI

-

G

10

A

FLO-DRI

**SCRUBBING SYSTEM**  
G - NATURAL GAS  
M - COMPRESSED AIR\*

**PIPE SIZE**  
10 - 1/4"  
25 - 3/4"  
60 - 1"  
100 - 1 1/2"  
150 - 2"

**BARREL MATERIAL**  
A - ALUMINUM  
V - ACRYLIC

### Note:

\*Compressed air scrubbing system includes air filter cartridges.

FLO-DRI

### G-10/M-10

- 150 psig maximum allowable pressure
- 1/4" NPT pipe size
- Complete with mounting brackets



### G-100/M-100

- 250 psig maximum allowable pressure
- 1 1/2" NPT pipe size



### G-25

- 250 psig maximum allowable pressure
- 3/4" NPT pipe size
- Complete with mounting brackets



### G-150/M-150

- 250 psig maximum allowable pressure
- 2" NPT pipe size



### G-60/M-60

- 250 psig maximum allowable pressure
- 1" NPT pipe size



### M-25

- 125 psig maximum allowable pressure
- 3/4" NPT pipe size
- For compressed air applications



## Replacement Cartridge Model Coding

FLODRI

-

10

AA

FLO-DRI

#### PIPE SIZE

10 - 1/4"  
25 - 3/4"  
60 - 1"  
100 - 1 1/2"  
150 - 2"

#### NATURAL GAS CARTRIDGE MEDIA

AA - MOISTURE REMOVAL  
AC - ODOR REMOVAL  
MS - H<sub>2</sub>S & MOISTURE REMOVAL

#### COMPRESSED AIR CARTRIDGE MEDIA

R - MOISTURE REMOVAL, AIR PURIFIER

#### Note:

To order specify model number and cartridge media part number.

FLO-DRI

# HV Two Stage Horizontal Liquid Filter Separator

The 3L Filters™ HV Series liquid filter separators provide water coalescing and filtration of hydrocarbon fuels. The HV's horizontal layout and two-stage design effectively removes particulate from fuel and provides convenient access for cartridge replacement. Units can be engineered for either fixed or mobile applications

## Applications

Water coalescing and filtration of hydrocarbon fuels such as jet fuel, kerosene, diesel, gasoline and similar liquids.

## Standard Features

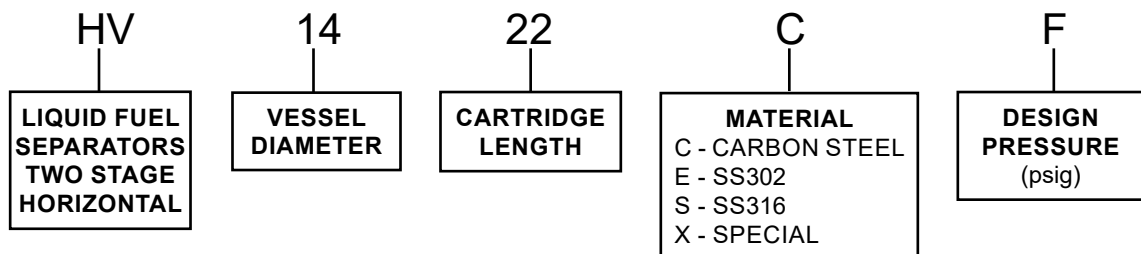
- designed to ASME Section VIII Div.1 & 2 and API Bulletin 1581
- 150 psig standard design pressure
- -320°F to 150°F (-118°C to 66°C) standard design temperature
- 150 lb ANSI RF flanged inlet/outlet
- 3000 lb NPT couplings for vent, drain and pressure gauge connections
- carbon steel housing material
- leg supports for housings under 12" (305 mm) diameter
- saddle supports for housings 12" (305 mm) diameter and over
- quick access for replacement of cartridges
- standard Swing Bolt closure with O-ring seal
- external primer finish for carbon steel housing
- internal epoxy coating

## Options & Accessories

- custom design pressures to 3000 psig
- custom flange rating
- custom housing materials
- optional closure: Thru-Bolt
- O-ring closure seal in Buna or Viton®
- electropolishing of stainless steel housings
- passivation of stainless steel housings
- paint or coating to customer specification
- sump heater
- additional nozzles as needed
- air eliminators
- valves
- safety relief valves
- automatic water dump valve
- water slug shut-off device
- pressure gauges
- liquid level gauges
- duplex or multiplex arrangement
- working platform



## Model Coding



HV



## Liquid Filter Separators (Two Stage Horizontal)

Fig.	Model No.	Coalescer Elements		Separator Elements		A Vessel OD in (mm)	B1 in (mm)	B2 in (mm)	C in (mm)	D in (mm)	E in (mm)	G in (mm)	H1 in (mm)	H2 in (mm)	Inlet/ Outlet (RF)	Vent Safety Drains (NPT)	Press. Gauge (NPT)	GPM (US) Kerosene API Group II	GPM (US) Gasoline	Weight lbs (kg)
		Qty	Lg in (mm)	Qty	Lg in (mm)															
1	HV1422C150	2	22 (559)	1	23 (284)	14 (356)	8.125 (206)	25.125 (638)	33 (838)	37.0 (940)	56 (1422)	35.750 (908)	9 (229)	18.00 (457)	2"	3/4"	1/2"	100	150	390 (171)
1	HV1622C150	3	22 (559)	1	24 (610)	16 (406)	10.000 (254)	23.375 (594)	34 (864)	38.0 (965)	58 (1473)	36.375 (924)	13 (330)	16.00 (406)	4"	3/4"	1/2"	150	230	435 (197)
1	HV1633C150	3	33 (838)	1	36 (914)	16 (406)	10.000 (254)	23.375 (594)	44 (1118)	48.0 (1219)	80 (2032)	36.375 (924)	13 (330)	27.00 (686)	4"	3/4"	1/2"	240	350	475 (215)
1	HV2233C150	4	33 (838)	2	30 (762)	22 (559)	10.000 (254)	38.500 (978)	50 (1270)	54.0 (1372)	83 (2108)	53.000 (1346)	16 (406)	23.50 (597)	4"	3/4"	1/2"	320	475	800 (363)
1	HV2244C150	4	44 (1118)	2	36 (914)	22 (559)	10.000 (254)	38.500 (978)	61 (1549)	65.0 (1651)	105 (2667)	53.000 (1346)	16 (406)	29.50 (749)	4"	3/4"	1/2"	435	650	860 (390)
1	HV2838C150	7	38 (965)	2	36 (914)	28 (711)	16.750 (425)	34.250 (870)	45 (1143)	57.0 (1448)	83 (2108)	55.750 (1416)	22 (559)	22.00 (559)	6"	3/4"	1/2"	655	950	1050 (476)
1	HV2844C150	7	44 (1118)	2	40 (1016)	28 (711)	16.750 (425)	34.250 (870)	49 (1245)	61.0 (1549)	93 (2362)	55.750 (1416)	22 (559)	22.50 (571)	6"	3/4"	1/2"	765	1100	1100 (499)
1	HV2856C150	7	56 (1422)	2	48 (1219)	28 (711)	16.750 (425)	34.250 (870)	66 (1676)	78.0 (1981)	122 (3099)	55.750 (1416)	22 (559)	42.00 (1067)	6"	3/4"	1/2"	990	1400	1200 (544)
1	HV3456C150	10	56 (1422)	3	48 (1219)	34 (864)	20.000 (508)	38.375 (975)	68 (1727)	81.5 (2070)	124 (3150)	65.375 (1661)	28 (711)	38.25 (972)	6"	3/4"	1/2"	1400	1900	1800 (816)

### Note:

Dimension 'E' is the minimum clearance required for cartridge removal.  
 Drawings for reference only. Certified drawings will be supplied after receipt of order.  
 Flow rates based on kerosene.

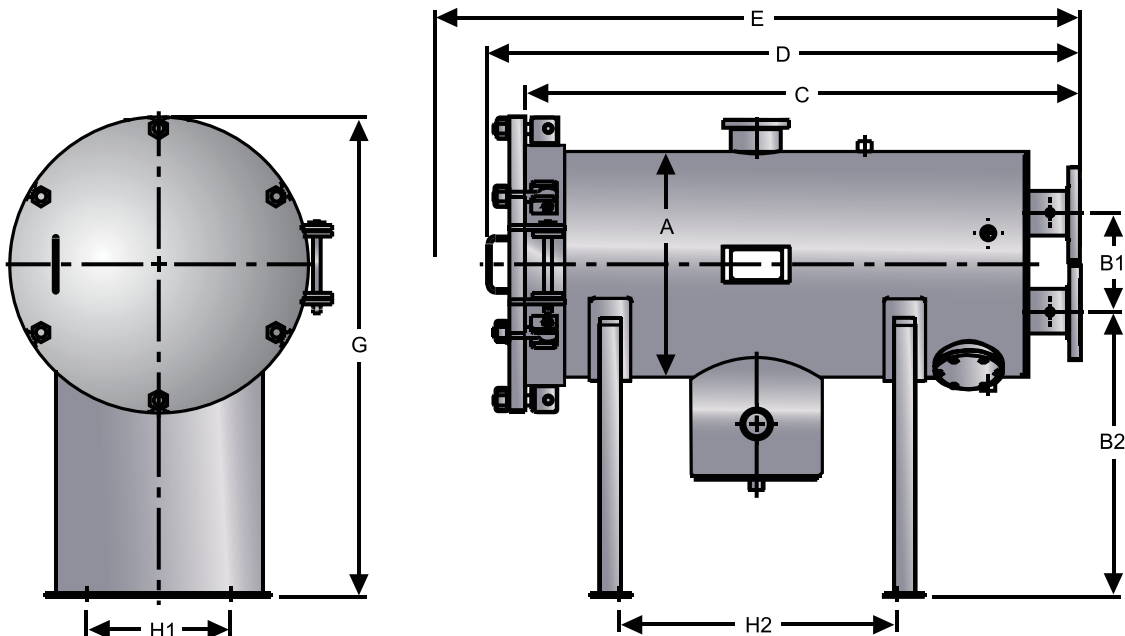


Figure 1

HV



# VV Two Stage Vertical Liquid Filter Separator

The 3L Filters™ VV Series liquid filter separators provide water coalescing and filtration of hydrocarbon fuels. The VV's vertical two stage design combines coalescer and separator cartridges based on flow and product.

## Applications

Water coalescing and filtration of hydrocarbon fuels, such as jet fuel, kerosene, diesel, gasoline and similar liquids.

## Standard Features

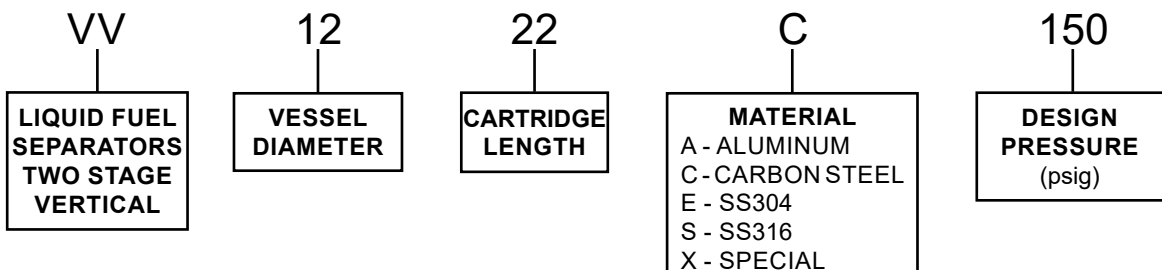
- designed to ASME Section VIII Div.1 & 2 and API Bulletin 1581
- 150 psig standard design pressure
- -340°F to 150°F (-129°C to 66°C) standard design temperature
- 150 lb ANSI RF flanged inlet/outlet
- 3000 lb NPT couplings for vent, drain and pressure gauge connections
- carbon steel housing material
- housing dimensions up to 8" to 18" (203 mm to 457 mm) utilize 3L Pogo (spring-assisted) headlift; hydraulic Jack headlift on housing dimensions larger than 18" (457 mm)
- quick access for replacement of cartridges
- standard Swing Bolt closure with O-ring seal
- external primer finish for carbon steel housing
- internal epoxy coating
- angle legs

## Options & Accessories

- custom design pressures to 3000 psig
- custom flange rating
- custom housing materials
- optional closure: Thru-Bolt
- O-ring closure seal in Buna or Viton®
- electropolishing of stainless steel housings
- passivation of stainless steel housings
- paint or coating to customer specification
- sump heater
- additional nozzles as needed
- air eliminators
- valves
- safety relief valves
- automatic water dump valve
- water slug shut-off device
- pressure gauges
- liquid level gauges
- working platform



## Model Coding



## Liquid Filter Separators (Two Stage Vertical)

Fig.	Model No.	Coalescer Elements		Separator Elements		A Vessel OD in (mm)	B Inlet/Outlet in (mm)	C in (mm)	D in (mm)	E in (mm)	G in (mm)	H in (mm)	L in (mm)	Inlet/Outlet (RF)	Vent Safety Drains (NPT)	Press. Gauge (NPT)	GPM (US) Kerosene API Group II	GPM (US) Gasoline	Weight lbs (kg)
		Qty	Lg in (mm)	Qty	Lg in (mm)														
1	V1222C150	1	22 (559)	1	18 (457)	12.75 (324)	6 (152)	35.25 (895)	39.25 (997)	57.25 (1454)	17.125 (435)	8.0 (203)	6.5 (165)	1 1/2"	3/4"	1/2"	50	70	360 (163)
1	V1622C150	2	22 (559)	1	23 (584)	16.00 (406)	6 (152)	42.00 (1067)	46.00 (1168)	65.00 (1651)	23.000 (584)	9.0 (229)	7.0 (178)	2 1/2"	3/4"	1/2"	100	140	500 (227)
1	V1633C150	2	33 (838)	1	29 (737)	16.00 (406)	6 (152)	52.50 (1334)	56.50 (1435)	85.50 (2172)	23.00 (584)	9.0 (229)	7.5 (191)	2 1/2"	3/4"	1/2"	155	215	600 (272)
1	VV1633C150	3	33 (838)	1	36 (914)	16.00 (406)	6 (152)	58.00 (1473)	62.00 (1575)	91.00 (2311)	28.250 (718)	9.0 (229)	7.5 (191)	4"	3/4"	1/2"	200	260	620 (281)
1	VV1833C150	3	33 (838)	1	33 (838)	18.00 (457)	6 (152)	59.50 (1511)	63.50 (1613)	92.50 (2350)	29.375 (746)	10.5 (267)	8.0 (203)	4"	3/4"	1/2"	220	305	700 (318)
1	VV1838C150	3	38 (965)	1	40 (1016)	18.00 (457)	6 (152)	64.50 (1638)	68.50 (1740)	102.50 (2604)	29.375 (746)	10.5 (267)	8.0 (203)	4"	3/4"	1/2"	270	380	950 (431)
1	VV2044C150	3	44 (1118)	1	44 (1118)	20.00 (508)	6 (152)	71.50 (1816)	75.50 (1918)	115.50 (2934)	29.625 (752)	13.0 (330)	8.0 (203)	4"	3/4"	1/2"	300	445	1075 (488)
1	VV2328C150	5	28 (711)	2	30 (762)	24.00 (610)	6 (152)	63.50 (1613)	67.50 (1715)	91.50 (2324)	31.250 (794)	15.5 (394)	8.0 (203)	4"	3/4"	1/2"	335	450	1175 (533)
1	VV2333C150	5	33 (838)	2	30 (762)	24.00 (610)	8 (203)	63.50 (1613)	67.50 (1715)	96.50 (2451)	35.813 (910)	15.5 (394)	11.0 (279)	6"	3/4"	1/2"	400	540	1175 (533)
1	VV2338C150	5	38 (965)	2	36 (914)	24.00 (610)	8 (203)	69.50 (1765)	73.50 (1867)	107.50 (2731)	35.813 (910)	15.5 (394)	11.0 (279)	6"	3/4"	1/2"	465	630	1200 (544)
1	VV2344C150	5	44 (1118)	2	40 (1016)	24.00 (610)	8 (203)	74.00 (1880)	78.00 (1981)	118.00 (2997)	35.813 (910)	15.5 (394)	11.0 (279)	6"	3/4"	1/2"	540	740	1225 (556)
2	VV2833C150	7	33 (838)	3	30 (762)	28.00 (711)	8 (203)	69.50 (1765)	81.50 (2070)	102.50 (2604)	37.125 (943)	18.0 (457)	11.0 (279)	6"	3/4"	1/2"	560	760	1600 (726)
2	VV2838C150	7	38 (965)	3	30 (762)	28.00 (711)	8 (203)	69.50 (1765)	81.50 (2070)	107.50 (2731)	37.125 (943)	18.0 (457)	11.0 (279)	6"	3/4"	1/2"	605	880	1600 (726)
2	VV2844C150	7	44 (1118)	3	40 (1016)	28.00 (711)	8 (203)	75.50 (1918)	87.50 (2223)	119.50 (3035)	37.125 (943)	18.0 (457)	11.0 (279)	6"	3/4"	1/2"	765	1035	1650 (748)
2	VV2856C150	7	56 (1422)	3	44 (1118)	28.00 (711)	8 (203)	88.00 (2235)	100.00 (2540)	144.00 (3658)	37.125 (943)	18.0 (457)	11.0 (279)	6"	3/4"	1/2"	900	1340	1750 (794)
2	VV3638C150	11	38 (838)	5	36 (914)	36.00 (914)	9 (229)	82.00 (2083)	96.00 (2438)	120.00 (3048)	53.000 (1346)	24.0 (610)	13.0 (330)	8"	3/4"	1/2"	1030	1390	2125 (964)
2	VV3644C150	11	44 (1118)	5	36 (914)	36.00 (914)	9 (229)	83.00 (2108)	97.00 (2464)	127.00 (3226)	53.000 (1346)	24.0 (610)	13.0 (330)	8"	3/4"	1/2"	1205	1630	2150 (975)
2	VV3656C150	12	56 (1422)	6	44 (1118)	36.00 (914)	9 (229)	95.00 (2413)	109.00 (2469)	151.00 (3835)	53.000 (1346)	24.0 (610)	13.0 (330)	8"	3/4"	1/2"	1800	2340	2300 (1043)
2	VV4856C150	20	56 (1422)	10	44 (1118)	48.00 (1219)	9 (229)	96.00 (2438)	113.00 (2870)	152.00 (3861)	56.500 (1435)	32.0 (813)	14.0 (356)	10"	3/4"	1/2"	3000	3900	3600 (1633)

### Note:

Dimension 'E' is the minimum clearance required for cartridge removal.  
 Drawings for reference only. Certified drawings will be supplied after receipt of order.  
 Flow rates based on kerosene.

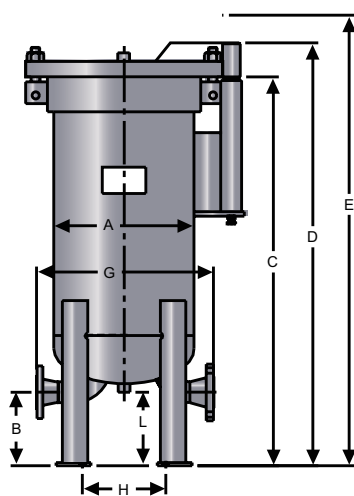


Figure 1

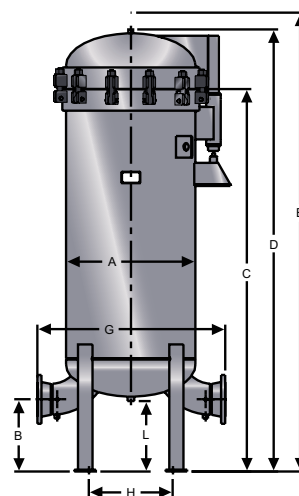


Figure 2

VV

# WAL Three Stage Horizontal Liquid Filter Separator

The 3L Filters™ WAL Series liquid filter separators provide water coalescing and filtration of hydrocarbon fuels. The WAL is a three-stage horizontal liquid filter separator. The first stage removes particulate and coalesces the water contaminant while the second stage separates water droplets from the fuel. The third stage is an extra safeguard to absorb any remaining water.

## Applications

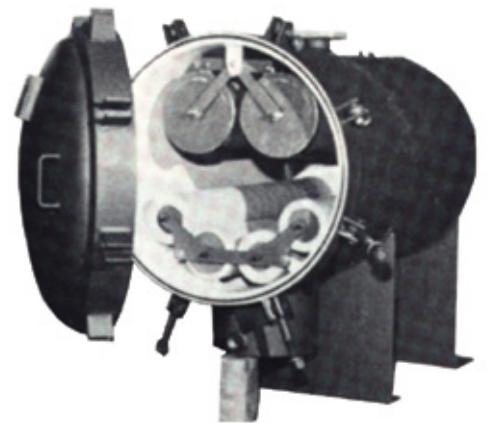
Water coalescing and filtration of hydrocarbon fuels, such as jet fuel, kerosene, diesel, gasoline and similar liquids where greater efficiency of water removal is required, such as in jet fuel refuelling cabinets.

## Standard Features

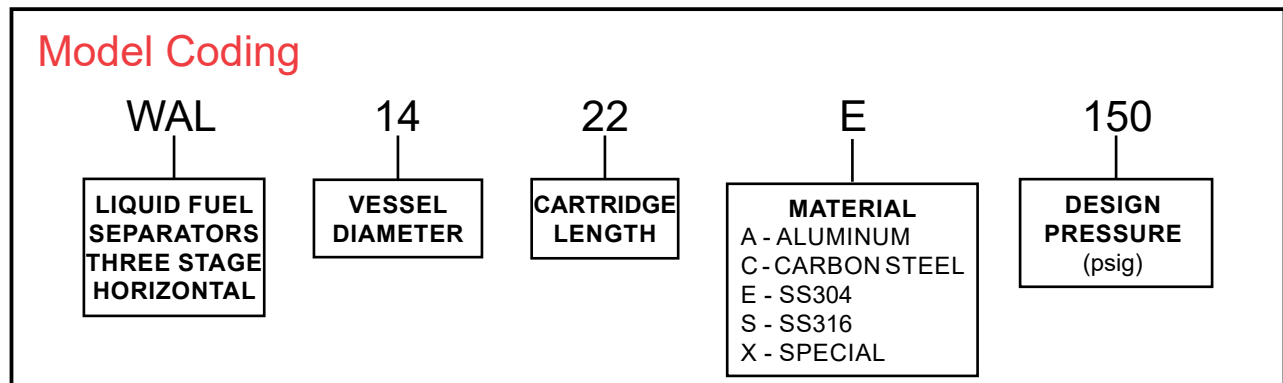
- designed to ASME Section VIII Div.1 & 2
- 150 psig standard design pressure
- -20°F to 150°F (-29°C to 66°C) standard design temperature
- 150 lb ANSI RF flanged inlet/outlet
- 3000 lb NPT couplings for vent, drain and pressure gauge connections
- carbon steel housing material
- leg supports for housings under 12" (305 mm) diameter
- saddle supports for housings 12" (305 mm) diameter and over
- quick access for replacement of cartridges
- standard Swing Bolt closure with O-ring seal
- external primer finish for carbon steel housing
- internal epoxy coating

## Options & Accessories

- custom design pressures to 3000 psig
- custom flange rating
- custom housing materials
- optional closure: Thru-Bolt
- O-ring closure seal in Buna or Viton®
- electropolishing of stainless steel housings
- passivation of stainless steel housings
- paint or coating to customer specification
- sump heater
- additional nozzles as needed
- air eliminators
- valves
- safety relief valves
- automatic water dump valve
- pressure gauges
- liquid level gauges
- working platform



## Model Coding



WAL

## Liquid Filter Separators (Three Stage Horizontal)

Fig.	Model No.	Coalescer Elements		Separator Elements		Fuse Elements		A Vessel OD in (mm)	B1 in (mm)	B2 in (mm)	C in (mm)	D in (mm)	E in (mm)	G in (mm)	H1 in (mm)	H2 in (mm)	Inlet/ Outlet (RF)	Vent Safety Drains (NPT)	Press. Gauge (NPT)	GPM (US)	Weight lbs (kg)
		Qty	Lg in (mm)	Qty	Lg in (mm)	Qty	Lg in (mm)														
1	WAL1422E150	1	22	1	13	5	10	14 (356)	8.125 (206)	25.125 (638)	33 (838)	37 (940)	55 (1397)	37.500 (953)	9 (229)	18.0 (457)	2"	3/4"	1/2"	50	390 (177)
1	WAL1622E150	2	22	1	23	5	20	16 (406)	10.000 (254)	23.375 (594)	34 (864)	38 (965)	57 (1448)	36.375 (924)	13 (330)	16.0 (406)	4"	3/4"	1/2"	100	435 (197)
1	WAL1633E150	2	33	1	33	5	30	16 (406)	10.000 (254)	23.375 (594)	44 (1118)	48 (1219)	77 (1956)	36.375 (924)	13 (330)	27.0 (686)	4"	3/4"	1/2"	150	475 (215)
1	WAL2028E150	3	28	2	23	10	20	20 (508)	12.500 (318)	27.500 (699)	40 (1016)	44 (1118)	68 (1727)	46.750 (1187)	18 (457)	22.0 (559)	4"	3/4"	1/2"	200	600 (272)
1	WAL2044E150	3	44	2	33	10	30	20 (508)	12.500 (318)	27.500 (699)	56 (1422)	60 (1524)	100 (2540)	46.750 (1187)	18 (457)	30.0 (762)	4"	3/4"	1/2"	300	750 (340)
1	WAL2444E150	4	44	3	33	15	30	24 (610)	14.625 (371)	30.750 (781)	56 (1422)	60 (1524)	100 (2540)	54.000 (1372)	20 (508)	30.0 (762)	6"	3/4"	1/2"	450	900 (408)
1	WAL2844E150	5	44	4	33	20	30	28 (711)	16.750 (425)	34.250 (870)	49 (1245)	61 (1549)	93 (2362)	55.750 (1416)	22 (559)	22.5 (572)	6"	3/4"	1/2"	600	1100 (499)
1	WAL3056E150	6	56	5	33	25	30	30 (762)	18.000 (457)	36.000 (914)	68 (1727)	80.5 (2045)	124 (3150)	63.500 (1613)	24 (610)	30.0 (762)	6"	3/4"	1/2"	750	2000 (907)

### Note:

Dimension 'E' is the minimum clearance required for cartridge removal.  
 Drawings for reference only. Certified drawings will be supplied after receipt of order.  
 Flow rates based on kerosene.

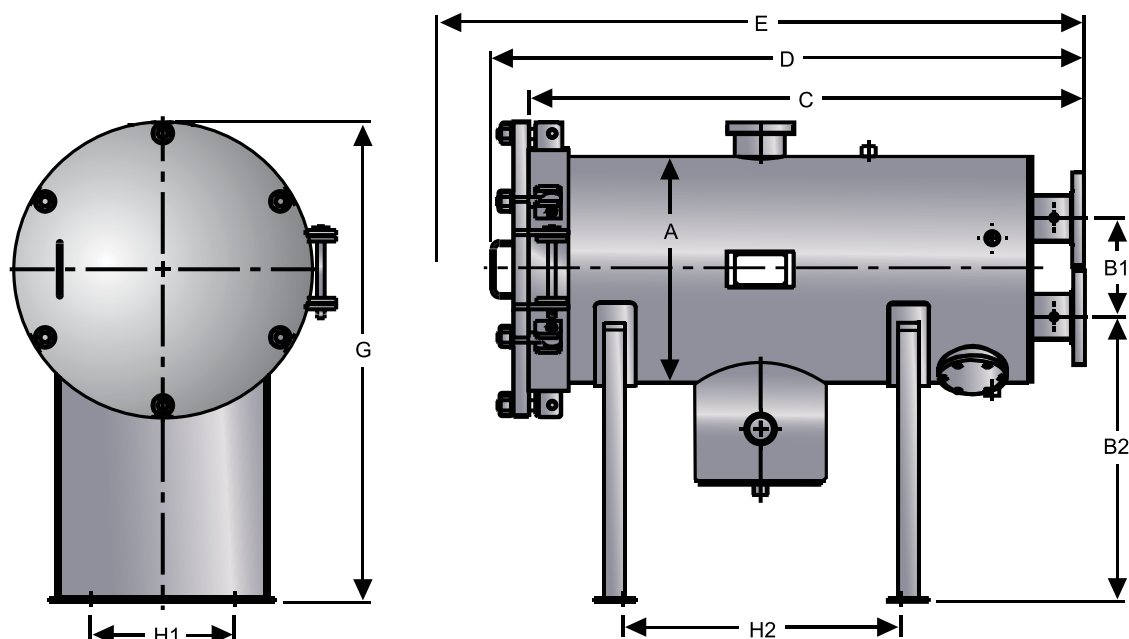


Figure 1

WAL

# Fuel Monitor

The 3L Filters™ fuel monitors provide clean, dry fuel in aviation fueling systems. An increase in differential pressure across the unit or a corresponding decrease in flow rate indicates water and/or dirt is present in the influent fuel.

## Applications

Final point of filtration in aviation fuelling systems.

## Standard Features

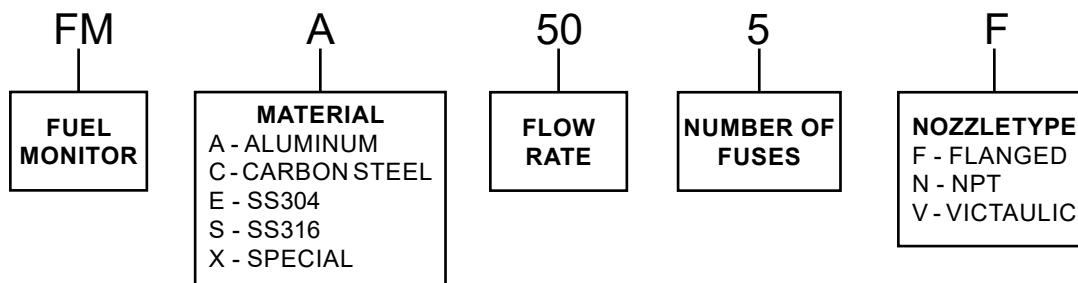
- designed to ASME Section VIII Div.1 & 2
- 150 psig standard design pressure
- -20°F to 160°F (-29°C to 71°C) standard design temperature
- 150 lb ANSI RF flanged inlet/outlet
- 600 lb NPT couplings for vent, drain pressure gauge and air eliminator connections
- victaulic connections for quick uncoupling
- aluminum housing material
- horizontal housings
- quick access for replacement of cartridges
- standard Swing Bolt closure with O-ring seal
- saddle supports

## Options & Accessories

- custom design pressures to 2500 psig
- custom flange ratings
- custom housing materials
- vertical housings in carbon or stainless steel
- optional closure: Thru-Bolt
- O-ring closure seal in Buna or Viton®
- internal epoxy coating on carbon steel models
- electropolishing of stainless steel housings
- passivation of stainless steel housings
- paint or coating to customer specifications
- additional nozzles as needed
- air eliminator
- valves
- safety relief valves
- pressure gauges
- sampling kit



## Model Coding



Fuel Monitor



## Fuel Monitor

Fig.	Model No.	Separator Elements		Vessel OD A in (mm)	B1 in (mm)	B2 in (mm)	C in (mm)	D in (mm)	E in (mm)	H in (mm)	Inlet/ Outlet (RF)	Vent Safety Drains (NPT)	Press. Gauge (NPT)	GPM (US) Light Fluids	Weight lbs (kg)
		Qty	Lg in (mm)												
1	FMA505F	5	10.8125 (275)	6.625 (168)	14.00 (356)	6.250 (159)	11.5 (292)	18.75 (476)	28 (711)	6.875 (175)	2"	3/4"	1/2"	50	40 (18.1)
1	FMA1005F	5	20.8125 (529)	6.625 (168)	23.25 (591)	6.250 (159)	11.5 (292)	29.75 (756)	49 (1245)	15.000 (381)	2"	3/4"	1/2"	100	45 (20.4)
1	FMA1505F	5	30.8125 (783)	6.625 (168)	33.00 (838)	6.250 (159)	11.5 (292)	40.50 (1029)	70 (1778)	25.000 (635)	2"	3/4"	1/2"	150	50 (22.7)
1	FMA20020F	20	10.8125 (275)	12.750 (324)	28.50 (724)	9.375 (238)	18.0 (457)	38.25 (978)	47 (1194)	20.000 (508)	4"	3/4"	1/2"	200	110 (49.9)
1	FMA20010F	10	20.8125 (529)	10.750 (273)	10.00 (254)	9.375 (238)	17.0 (432)	41.00 (1041)	60 (1524)	25.000 (635)	4"	3/4"	1/2"	200	155 (70.3)
1	FMA30020F	20	15.8125 (402)	12.750 (324)	14.00 (356)	9.375 (238)	18.0 (457)	43.25 (1099)	57 (1448)	25.000 (635)	4"	3/4"	1/2"	300	130 (60.0)
1	FMA30010F	10	30.8125 (783)	10.750 (273)	10.00 (254)	9.375 (238)	17.0 (432)	51.00 (1295)	80 (2032)	30.000 (762)	4"	3/4"	1/2"	300	165 (74.8)
1	FMA40020F	20	20.8125 (529)	12.750 (324)	14.00 (356)	9.375 (238)	18.0 (457)	48.25 (1226)	67 (1702)	30.000 (762)	4"	3/4"	1/2"	400	155 (70.3)
1	FMA50020F	20	25.8125 (656)	12.750 (324)	14.00 (356)	9.375 (238)	18.0 (457)	53.25 (1353)	77 (1956)	35.000 (889)	6"	3/4"	1/2"	500	175 (79.4)
1	FMA60020F	20	30.8125 (783)	12.750 (324)	14.00 (356)	9.375 (238)	18.0 (457)	58.25 (1480)	87 (2210)	40.000 (1016)	6"	3/4"	1/2"	600	200 (90.7)
1	FMA80027F	27	30.8125 (783)	14.000 (356)	25.00 (635)	10.500 (267)	20.0 (508)	51.50 (1308)	80 (2032)	35.000 (889)	6"	3/4"	1/2"	800	170 (77.1)
1	FMA100034F	34	30.8125 (783)	16.000 (406)	25.00 (635)	11.500 (292)	22.5 (572)	57.75 (1467)	86 (2184)	40.000 (1016)	6"	3/4"	1/2"	1000	200 (90.7)
1	FMA120040F	40	30.8125 (783)	18.250 (457)	25.00 (635)	15.125 (384)	27.5 (699)	57.75 (1467)	86 (2184)	40.000 (1016)	6"	3/4"	1/2"	1200	290 (131.5)

### Note:

Dimension 'E' is the minimum clearance required for cartridge removal.  
Flow rates based on kerosene.  
Drawings for reference only. Certified drawings will be supplied after receipt of order.

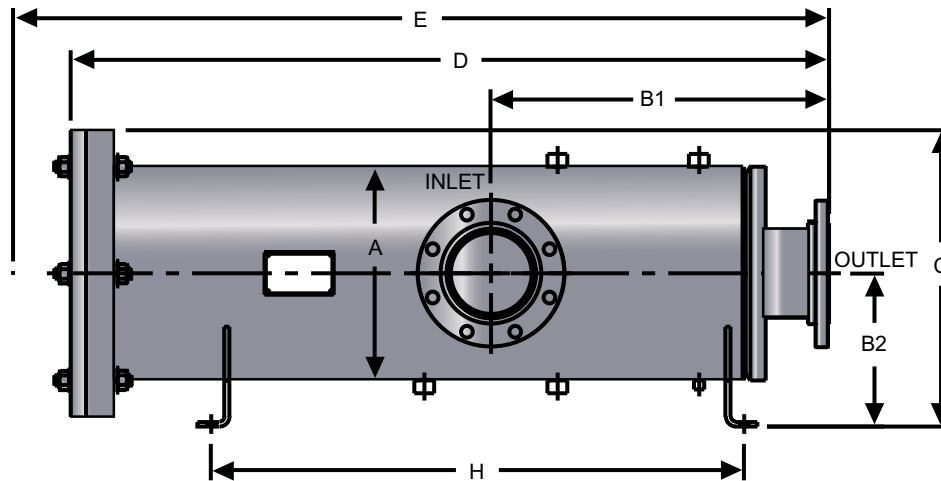


Figure 1 Fuel Monitor

Fuel Monitor

# VC Clay Treater

The 3L Filters™ VC Series clay treaters provide removal of surfactants from liquid hydrocarbon fuels and removal of acids or oxidation products from lubrication or hydraulic oils. The VC uses clay canister filtration media to adsorb surfactants, often as a pre-filter.

## Applications

Clay treaters are commonly installed upstream of filter separators to remove surfactants that can disarm filter separators.

## Standard Features

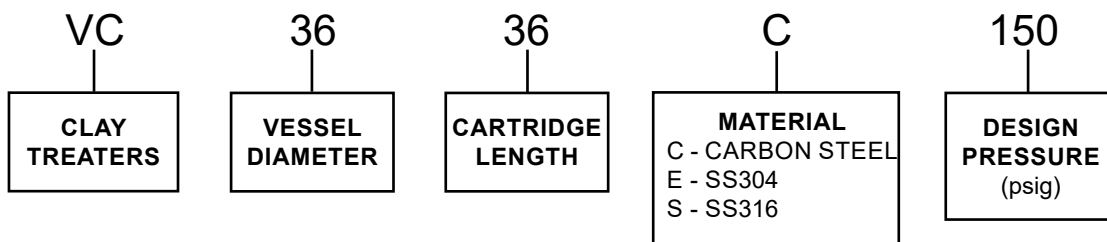
- designed to ASME Section VIII Div.1 & 2
- 150 psig standard design pressure
- -20°F to 150°F (-29°C to 66°C) standard design temperature
- 150 lb ANSI RF flanged inlet/outlet
- 3000 lb NPT couplings for vent, drain and pressure gauge connections
- carbon steel housing material
- hydraulic Jack headlift
- quick access for replacement of clay canisters
- standard Swing Bolt closure with O-ring seal
- external primer finish for carbon steel housings
- internal epoxy coating
- angle leg supports

## Options & Accessories

- custom design pressures to 2500 psig
- custom flange ratings
- custom housing materials
- optional handwheel headlift
- optional closure: Thru-Bolt
- O-ring closure seal in Buna or Viton®
- electropolishing of stainless steel housings
- passivation of stainless steel housings
- paint or coating to customer specifications
- additional nozzles as needed
- air eliminator
- valves
- safety relief valves
- pressure gauges
- sampling kit
- working platform



## Model Coding



VC

## Clay Treater

Fig.	Model No.	Element Qty	A Vessel OD in (mm)	B in (mm)	C in (mm)	D in (mm)	E in (mm)	G in (mm)	H in (mm)	L in (mm)	Inlet/ Outlet (RF)	Vent Safety Drains (NPT)	Press. Gauge (NPT)	GPM (US) Diesel	GPM (US) Gasoline	GPM (US) Kerosene	Weight lbs (kg)
1	VC3636C150	34	36 (914)	25.0 (635)	58.0 (1473)	74.0 (1880)	94.0 (2388)	48 (1219)	23.0 (584)	12 (305)	4"	3/4"	1/2"	140	300	230	2125 (964)
1	VC3654C150	51	36 (914)	25.0 (635)	74.5 (1892)	90.5 (2299)	128.5 (3264)	48 (1219)	23.0 (584)	12 (305)	4"	3/4"	1/2"	200	440	340	2375 (1077)
1	VC4254C150	72	42 (1067)	26.5 (673)	77.5 (1968)	95.0 (2413)	131.5 (3340)	54 (1372)	28.0 (711)	14 (356)	6"	3/4"	1/2"	280	600	465	3000 (1361)
1	VC4854C150	93	48 (1219)	28.0 (711)	79.0 (2007)	99.0 (2515)	133.0 (3378)	60 (1524)	32.0 (813)	14 (356)	6"	3/4"	1/2"	360	780	600	3500 (1588)
1	VC5454C150	120	54 (1372)	29.0 (737)	80.0 (2032)	102.5 (2604)	134.0 (3404)	66 (1676)	36.5 (927)	14 (356)	6"	3/4"	1/2"	480	1040	800	4100 (1860)
1	VC6054C150	150	60 (1524)	31.0 (787)	82.0 (2083)	107.0 (2718)	136.0 (3454)	72 (1829)	41.0 (1041)	14 (356)	8"	3/4"	1/2"	590	1265	975	4750 (2155)
1	VC6654C150	183	66 (1676)	36.0 (914)	87.0 (2210)	116.0 (2946)	141.0 (3581)	78 (1981)	45.5 (1156)	14 (356)	8"	3/4"	1/2"	700	1500	1200	6500 (2948)

**Note:**

Dimension 'E' is the minimum clearance required for clay canister removal.  
Drawings for reference only. Certified drawings will be supplied after receipt of order.

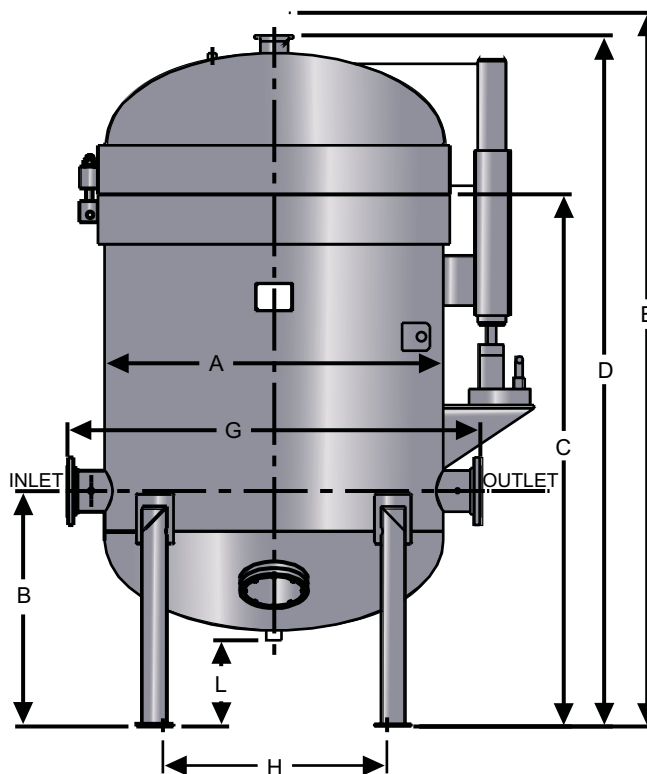


Figure 1 VC Series Clay Treater

VC

# L Dehydrator

The 3L Filters™ L Series dehydrators provide gross water removal from liquid hydrocarbon fuels to an efficiency of 99%. They employ a variety of replaceable coalescent filter packs to trap particle contamination and coalesce water from the fuel. Free water is collected in a drainage sump.

## Applications

Gross water removal from liquid hydrocarbon fuels such as aviation fuel, kerosene, gasoline, diesel and liquid propane.

## Standard Features

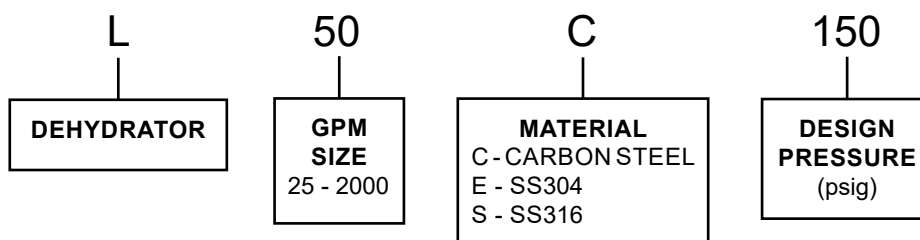
- designed to ASME Section VIII Div.1 & 2
- 150 psig standard design pressure
- -20°F to 150°F (-29°C to 66°C) standard design temperature
- 150 lb ANSI RF flanged inlet/outlet
- 3000 lb NPT couplings for vent, drain and pressure gauge connections
- horizontal vessel design
- carbon steel housing material
- hinged closure
- excelsior repack media
- water collection sump
- quick access for replacement of filter packs
- standard Swing Bolt closure with O-ring seal
- external primer finish for carbon steel housings
- saddle support



## Options & Accessories

- custom design pressures to 2500 psig
- custom flange ratings
- custom housing materials
- optional closure: Thru-Bolt
- O-ring closure seal in Buna or Viton®
- various application specific repack media available
- internal epoxy coating on carbon steel models
- electropolishing of stainless steel housings
- passivation of stainless steel housings
- paint or coating to customer specifications
- sump heater
- additional nozzles as needed
- air eliminators
- valves
- safety relief valves
- automatic water dump valve
- pressure gauges
- liquid level gauges
- working platform

## Model Coding



## Dehydrator

Fig.	Model No.	A Vessel OD in (mm)	B1 in (mm)	B2 in (mm)	C in (mm)	D in (mm)	E in (mm)	G in (mm)	H in (mm)	Inlet/ Outlet (RF)	Vent Safety Drains (NPT)	Press. Gauge (NPT)	GPM (US)	Weight lbs (kg)
1	L50C150	10.75 (273)	4.50 (114)	30.00 (762)	38.00 (965)	42.00 (1067)	62.00 (1575)	8.125 (206)	20 (508)	2"	3/4"	1/2"	50	240 (109)
1	L100C150	14.00 (356)	10.00 (254)	48.00 (1219)	69.50 (1765)	73.50 (1867)	105.50 (2680)	12.000 (305)	52 (1321)	2"	3/4"	1/2"	100	430 (331)
1	L200C150	20.00 (508)	12.00 (305)	56.0 (1422)	83.50 (2121)	87.50 (2223)	131.50 (3340)	15.000 (381)	62 (1575)	3"	3/4"	1/2"	200	650 (295)
1	L300C150	24.00 (610)	15.00 (381)	61.5 (1562)	96.00 (2438)	100.00 (2540)	144.00 (3658)	17.000 (432)	70 (1778)	4"	3/4"	1/2"	300	790 (358)
1	L500C150	30.00 (762)	17.50 (445)	72.0 (1829)	112.00 (2845)	124.50 (3162)	166.00 (4216)	21.000 (533)	84 (2134)	6"	3/4"	1/2"	500	1250 (567)
1	L750C150	36.00 (914)	22.50 (572)	88.0 (2235)	138.00 (3505)	152.00 (3861)	210.00 (5334)	24.000 (610)	100 (2540)	6"	3/4"	1/2"	750	1650 (748)
1	L1000C150	42.00 (1067)	24.25 (616)	98.0 (2489)	152.75 (3880)	169.25 (4299)	224.75 (5709)	29.000 (737)	108 (2743)	8"	3/4"	1/2"	1000	2670 (1211)
1	L1300C150	48.00 (1219)	28.00 (711)	106.0 (2692)	167.50 (4255)	185.50 (4712)	239.50 (6083)	32.000 (813)	112 (2845)	8"	3/4"	1/2"	1300	3500 (1588)
1	L1600C150	54.00 (1372)	32.00 (813)	114.0 (2896)	182.50 (4636)	204.00 (5182)	262.50 (6668)	35.000 (889)	116 (2946)	10"	3/4"	1/2"	1600	4600 (2087)
1	L2000C150	60.00 (1524)	34.00 (864)	120.0 (3048)	193.50 (4915)	216.50 (5499)	277.50 (7049)	40.000 (1016)	120 (3048)	12"	3/4"	1/2"	2000	5700 (2585)

### Note:

Dimension 'E' is the minimum clearance required for removal of filter packs.  
Flow rates are based on gasoline. More viscous liquids will have lower flow rates.  
Drawings for reference only. Certified drawings will be supplied after receipt of order.

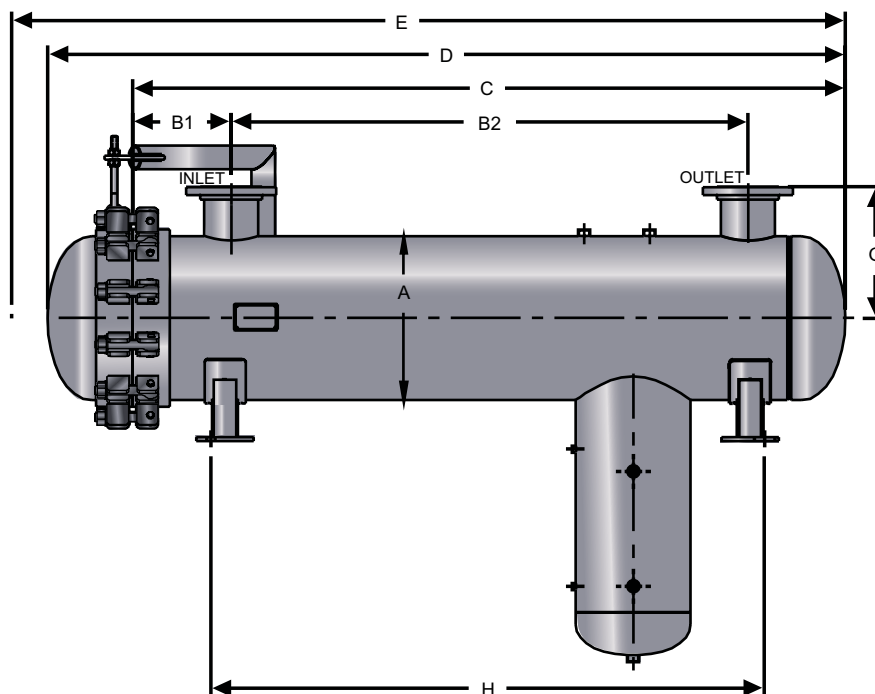


Figure 1 L Series Dehydrator

# ACF Activated Carbon

The 3L Filters™ ACF Series activated carbon filters remove dissolved organics from a liquid stream by adsorption.

## Applications

Typical uses include removal of chlorine, dissolved organics, hydrocarbons and chlorinated hydrocarbons in water treatment systems as well removal of acids in amine treatment systems.

## Standard Features

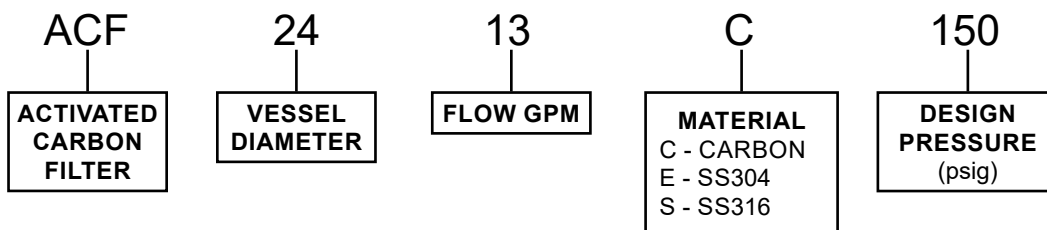
- designed to ASME Section VIII Div.1 & 2
- 150 psig standard design pressure
- -20°F to 100°F (-29°C to 38°C) standard design temperature
- 150 lb ANSI RF flanged inlet/outlet
- 3000 lb NPT couplings for vent, drain and pressure
- gauge connections
- welded carbon steel with double epoxy lining or stainless steel housing material
- stainless steel interior mesh screen for carbon load
- quick access for spent carbon removal
- standard Swing Bolt closure
- backwashable
- external primer finish for carbon steel housings

## Options & Accessories

- custom design pressures to 3000 psig
- custom housing materials
- optional closure: Thru-Bolt
- RF flanges and other connections
- electropolishing of stainless steel housings
- passivation of stainless steel housings
- paint or coating to customer specifications
- distribution head on outlet
- additional nozzles as needed
- valves
- safety relief valves
- differential pressure gauge
- epoxy, rubber or Teflon® linings
- site glass



## Model Coding



ACF

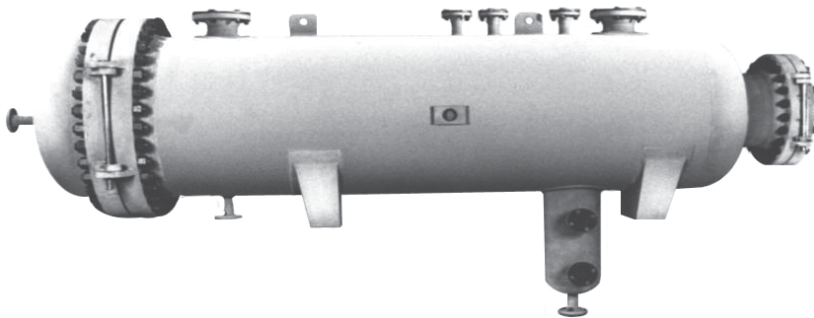


# Tanks & Pressure Vessels

3L Filters™ has over 40 years of experience in the design and fabrication of tanks and pressure vessels. Our engineering group can perform complete stress and seismic analysis and design registration. 3L Filters™ has registered Quality Assurance Programs for nuclear and non-nuclear applications.

## Applications

Tanks, pressure vessels, boiler shells and filter housings for most uses. 3L Filters™ has special expertise for nuclear, oil and gas, petrochemical, water treatment and environmental applications.



## Model Coding

PV

PRESSURE  
VESSEL

H

H - HORIZONTAL  
V - VERTICAL

XX

VESSEL  
DIAMETER

XXX

VESSEL  
LENGTH

X

A - ALUMINUM  
C - CARBON  
STEEL  
E - SS304  
S - SS316  
X - SPECIAL

XXX

DESIGN  
PRESSURE  
(psig)

### Note:

Just VIII-H vessel, no internals.  
This is just an example; not a standard product.

Tanks & Pressure Vessels

# Headlifts

All 3L Filters™ products are designed for ease of maintenance and quick access to replace bags, cartridges, canisters and filter packs. 3L Filters™ has a variety of standard and optional headlifts for specific vessel designs. Let us help you select the optimal headlift to suit your operational requirements.

## 3L Pogo

- for vertical housings only
- used on housings up to 18" (457 mm) OD
- spring-assisted pop-up allows for lid to swing sideways for access



## Hinge

- for horizontal housings only
- used on housings of any diameter
- space saving

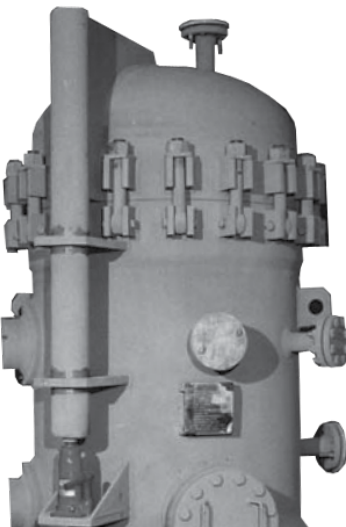
## Davit (Handwheel)

- for horizontal or vertical housings
- no limit on housing diameter
- handle or handwheel designs available



## Jack

- for vertical housings only
- used on housings 18" (457 mm) OD and over
- lever actuated lift



## Cantilever

- for vertical housings only
- used on housings from 18" to 36" (914 mm) OD
- hinged lid for all vertical positions, 0 to 90 degrees
- Class 1 lever
- complements Easy Access Closure
- less area required for maintenance



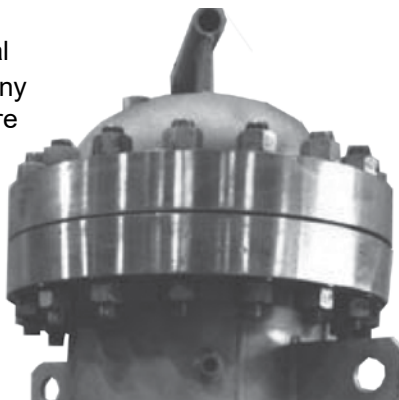
3L Pogo, Hinge, Davit, Jack & Cantilever

# Closures

3L Filters™ offers three closure options to suit a broad range of industries and process conditions including the Thru-Bolt, and Swing Bolt Closures. 3L Filters™ closures are designed to save time when opening and closing.

## Thru-Bolt

- for vertical or horizontal housings suitable for any temperature or pressure
- O-ring, flat gasket and spiral wound seals available



## Swing Bolt

- for vertical or horizontal housings
- uses elastomer O-ring seal
- bolting stays attached when released
- quicker change out than Thru-Bolt closure

Thru-Bolt and Swing Bolt Closures

# Engineered Products & Skid Systems

For over 40 years, 3L Filters™ has designed, manufactured and tested a wide variety of custom engineered products and complete skid-mounted systems.

Our experienced engineering team has created systems for a multitude of markets and customers. We apply our in-house talents to accommodate all aspects of design, from piping and structural to instrumentation and PLC programming. Systems can be designed to meet ASME codes, seismic requirements and military specifications as required.

With designs on file from hundreds of successful applications, 3L Filters™ can provide a custom engineered system that is guaranteed to perform to the customer's specifications.

## Applications

3L Filters™ has special expertise in liquid filtration systems for nuclear, petrochemical, water treatment and environmental applications.

## Capabilities

- stress analysis, seismic analysis and design registration
- AutoCAD & Solid Edge design drawings
- fabrication in carbon steel, stainless steel, aluminum or specialty/exotic materials
- GMAW, SMAW, SAW, and GTAW welding methods
- experienced, qualified welder
- large library of approved welding procedures
- 25 ton lift capacity
- in-house machining, blasting and painting
- in-house and third-party NDE testing
- in-house pressure and performance testing



## Examples of Other Engineered Products & Skid Systems

- amine filtration skids
- turbine polishing filtration skids
- turbine fuel gas filter separator packages
- turbine jet fuel polishing filtration skids
- helicopter refuelling skids
- fuel pumping stations
- water filtration skids
- boiler condensate polishers
- natural gas purification skid
- biogas separators for municipal landfill
- offshore drilling platform fuel dispensing skids
- ion exchanger skids

Engineered Products & Skid Systems

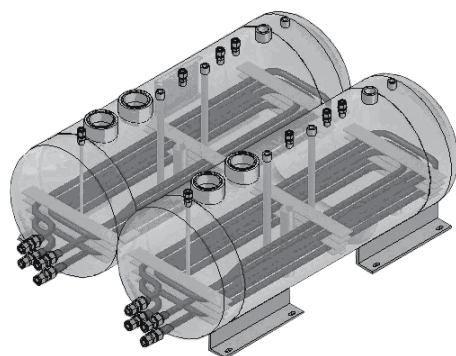


### Groundwater Recovery System

- pre-filter plus oily water separator

### Fuel Forwarding Skid

- pumps, pre-filter & filter separator

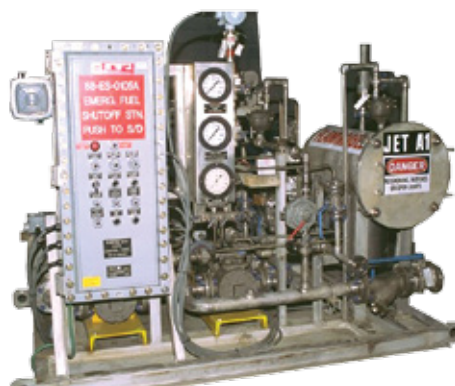


### Gas Separator Assembly

- for hydrogen gas production

### Helicopter Refuelling System

- for offshore drilling platform



### Single Tower D<sub>2</sub>O Vapour Recovery Dryer

- removal of heavy water vapours from air

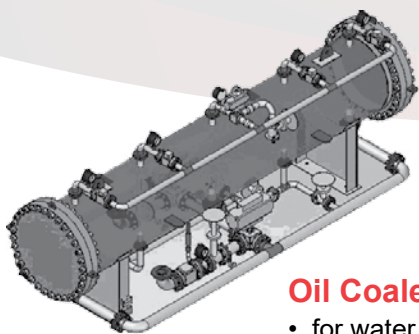


### Dual Tower D<sub>2</sub>O Vapour Recovery Dryer

- removal of heavy water vapours from air

Typical Engineered Products & Skid Systems

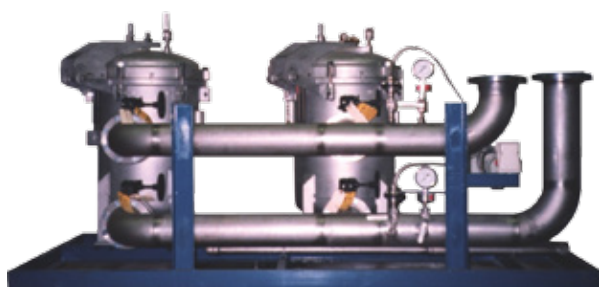
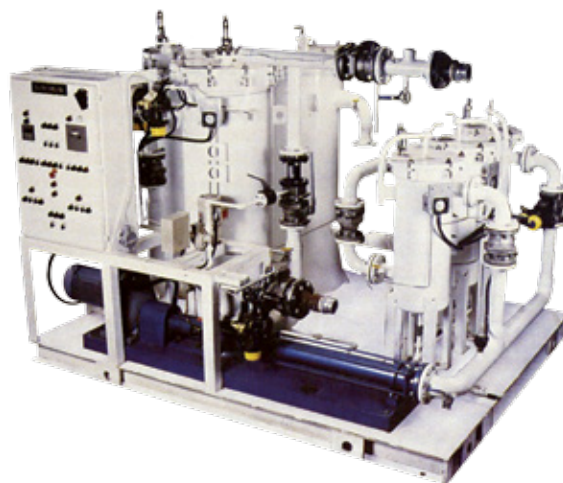




### Oil Coalescer

- for water remediation

### Oil Water Separator



### Automotive Paint System

- bag filters



### Tank



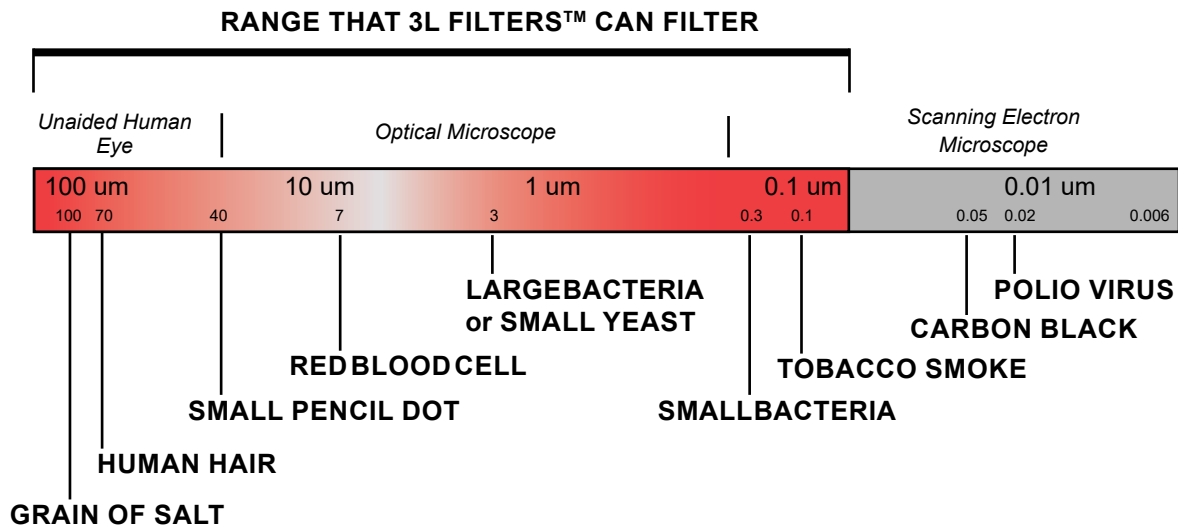
### Ion Exchanger

- anion and cation beds

Typical Engineered Products & Skid Systems



# Bag Filter Media



**Size #1 Filter**  
Bag  
7" x 16.5" bag  
15" basket  
67 US GPM  
Surface Area 362<sup>2</sup>"

**Size #2 Filter**  
Bag  
7" x 32" bag  
30" basket  
150 US GPM  
Surface Area 704<sup>2</sup>"

**Size #3 Filter**  
Bag  
7" x 16.5" bag  
15" basket  
17 US GPM  
Surface Area 362<sup>2</sup>"

**Size #4 Filter**  
Bag  
4.1" x 14" bag  
12" basket  
34 US GPM  
Surface Area 180<sup>2</sup>"

**Size #7 Filter**  
Bag  
7" x 16.5" bag  
15" basket  
50 US GPM  
Surface Area 362<sup>2</sup>"

**Size #8 Filter**  
Bag  
7" x 32" bag  
30" basket  
67 US GPM  
Surface Area 704<sup>2</sup>"

**Size #9 Filter**  
Bag  
7" x 16.5" bag  
15" basket  
100 US GPM  
Surface Area 362<sup>2</sup>"

**Filter Bag Material Compatibility**

Substance	Polyester	Polypropylene	Nylon
Organic Solvents	Excellent	Excellent	Excellent
Animal, Petroleum, and Vegetable Oils	Excellent	Excellent	Excellent
Microorganisms	Excellent	Excellent	Excellent
Alkalies	Good	Excellent	Good
Organic Acids	Good	Excellent	Good
Oxidizing Agents	Good	Good	Fair
Mineral Acids	Good	Good	Poor

Bag Filter Media

# BS Basket Strainer

The 3L Filters™ BS Series basket strainers are used to protect fluid and gas handling equipment by removing debris during the start-up of a system. These can easily be installed or placed between large flange faces without modifying the surrounding pipe work and are easily removed.

## Standard Features

- available in 316 stainless steel or carbon steel; media available in a selection of four perforated and five mesh styles
- flanged ID (inside diameter) is pressed and welded to prevent possible failures and basket ending up down stream
- phonographic finish
- easy reference part numbers located on the handle
- custom build available upon request



From left to right: Figure 1, Figure 1, Figure 2

## Type BS Model Coding

BS - P - O - 7.5 - X - 24 - C

PRODUCT CODE	CONSTRUCTION	STYLE	DIAMETER OF BASKET (in)	BASKET LENGTH	MATERIAL
BS - BASKET STRAINER	P - PERFORATED PLATE ONLY M - MESH LINER	I - INLINE AS PER FIGURE 1 O - OFFLINE AS PER FIGURE 2	(IF PIPE IS LESS THAN 10" PROCEED NUMBER WITH 0) 1.5 2 2.5 3 4 5 6 8 10 12 14 16 20 24 18 30 32 28	FOR TYPE 1; AND OF NOZZLE TO BOTTOM OF BASKET	C - CARBON E - SS 304 S - SS 316 X - SPECIAL

BS

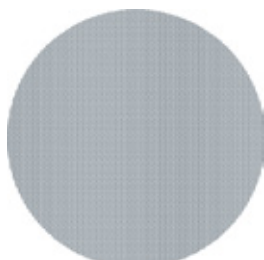
# Stainless Steel Wire Cloth Strainer Basket Liner



20 Mesh  
Approx. 841 Micron  
.0201" Opening



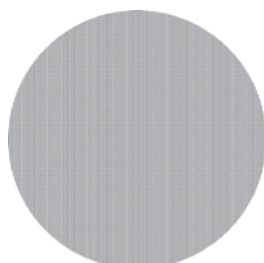
40 Mesh  
Approx. 381 Micron  
.015" Opening



60 Mesh  
Approx. 234 Micron  
.0092" Opening



80 Mesh  
Approx. 178 Micron  
.0070" Opening



100 Mesh  
Approx. 149 Micron  
.0043" Opening

**Sieve Series  
and Tyler Equivalents**

6.73 mm	0.265 in.	3 mesh
6.35 mm	0.25 in.	
5.66 mm*	No. 3.5	3.5 mesh
4.76 mm	No. 4	4 mesh
4.00 mm*	No. 5	5 mesh
3.36 mm	No. 6	6 mesh
2.83 mm*	No. 7	7 mesh
2.38 mm	No. 8	8 mesh
2.00 mm*	No. 10	9 mesh
1.68 mm	No. 12	10 mesh
1.41 mm*	No. 14	12 mesh
1.19 mm	No. 16	14 mesh
1.00 mm*	No. 18	16 mesh
841 micron	No. 20	20 mesh
707 micron*	No. 25	24 mesh
595 micron	No. 30	28 mesh
500 micron*	No. 35	32 mesh
420 micron	No. 40	35 mesh
354 micron*	No. 45	42 mesh
297 micron	No. 50	48 mesh
250 micron*	No. 60	60 mesh
210 micron	No. 70	65 mesh
177 micron*	No. 80	80 mesh
149 micron	No. 100	100 mesh
125 micron*	No. 120	115 mesh
105 micron	No. 140	150 mesh
88 micron*	No. 170	170 mesh
74 micron	No. 200	200 mesh
63 micron*	No. 230	250 mesh
53 micron	No. 270	270 mesh
44 micron*	No. 325	325 mesh
37 micron	No. 400	400 mesh

\*These sieves correspond to those proposed as an international (I.S.O.)

Strainer Media

# Perforated Stainless Steel Strainer Media



Ø 1/16" Holes  
3/32" Centers



Ø 1/8" Holes  
3/16" Centers



Ø 3/16" Holes  
1/4" Centers



Ø 1/4" Holes  
5/16" Centers

Hole & Pattern	% Open	kgs (lbs)	kgs/m <sup>2</sup> (lbs/ft <sup>2</sup> )
.033" Rnd. - .055" Str.	28%	6.35 (14)	2.84 (0.58)
.45" Rnd - .066" Sfr.	36%	5.44 (12)	2.45 (0.50)
1/16" Rnd - 1/8" Sfg.	23%	16.33 (36)	7.34 (1.50)
1/16" Rnd - 3/32" Stg.	41%	8.16 (18)	3.68 (0.75)
3/32" Rnd. - 5/32" Stg.	33%	11.34 (25)	5.09 (1.04)
1/8" Rnd. - 3/16" Stg.	41%	8.62 (19)	3.86 (0.79)
5/32" Rnd. - 3/16" Stg.	63%	6.35 (14)	2.84 (0.58)
3/16" Rnd. - 1/4" Stg.	51%	9.53 (21)	3.23 (0.66)
1/4" Rnd. - 5/16" Stg.	51%	10.43 (23)	3.77 (0.77)
3/8" Rnd. - 9/16" Stg.	40%	22.70 (50)	7.63 (1.56)
1/2" Rnd. - 11/16" Stg.	48%	19.96 (44)	6.75 (1.38)

Strainer Media

# SSF Stainless Re-cleanable Filter Cartridges

The 3L Filters™ stainless re-cleanable filter cartridges provide effective filtration for gasses and liquids in high temperature and flow rate applications. These filters are available in flat wrap or pleated format and offer flexibility in particle removal ratings, size choices and end cap configurations.

## Applications

Used in a range of applications including aggressive gasses, catalyst recovery, caustic cleaning solutions, corrosive fluids, heat transfer fluids, high temperature applications, molten melt processes, hot wax, polymer filtration, process steam and viscous fluids.

## Standard Features

- 20 standard particle removal ratings from 2 to 800 micron
- filter media: stainless steel wire cloth
- maximum operating temperatures of 1100°F (593°C) for NPTF and NPTM styles, 400°F (204°C) for any cartridge style with Viton® O-ring or grommet and 250°F (121°C) for any cartridge style with Buna-N O-ring or grommet
- collapse pressure: Standard core is 100 psi and high pressure core is 300 psi
- maximum recommended operating differential pressure is 50 psi for flat wrap and 25 psi for pleated
- available in three different diameters: 2.625" (A Series), 4" (B Series) and 6" (C Series)



## Options & Accessories

- meets FDA guidelines with optional seal materials, for use with potable and edible liquids
- available in 304 and 316 stainless steel for aggressive chemicals
- wide range of nominal particle size removal options
- filters are available with a range of grommet and O-ring materials to optimize fluid and temperature compatibility
- wide variety of seal configurations which allows retrofit of many filter designs
- optional perforated stainless pleat protectors available to minimize handling damage
- maximum operating pressure is 2500 psi for the flat wrap format and 2000 psi for the pleated format
- service: 50 psi Delta P for the flat wrap format and 25 psi Delta P for the pleated format
- collapse pressure of 150 psi Delta P
- flow rates vary based on micron rating and viscosity of fluid filtered (call for information on the rating for your application, micron rating and fluid)
- grommets: Buna-N or Viton®
- O-rings: Buna-N, EPDM or Viton®

Standard Available Micron Sizes

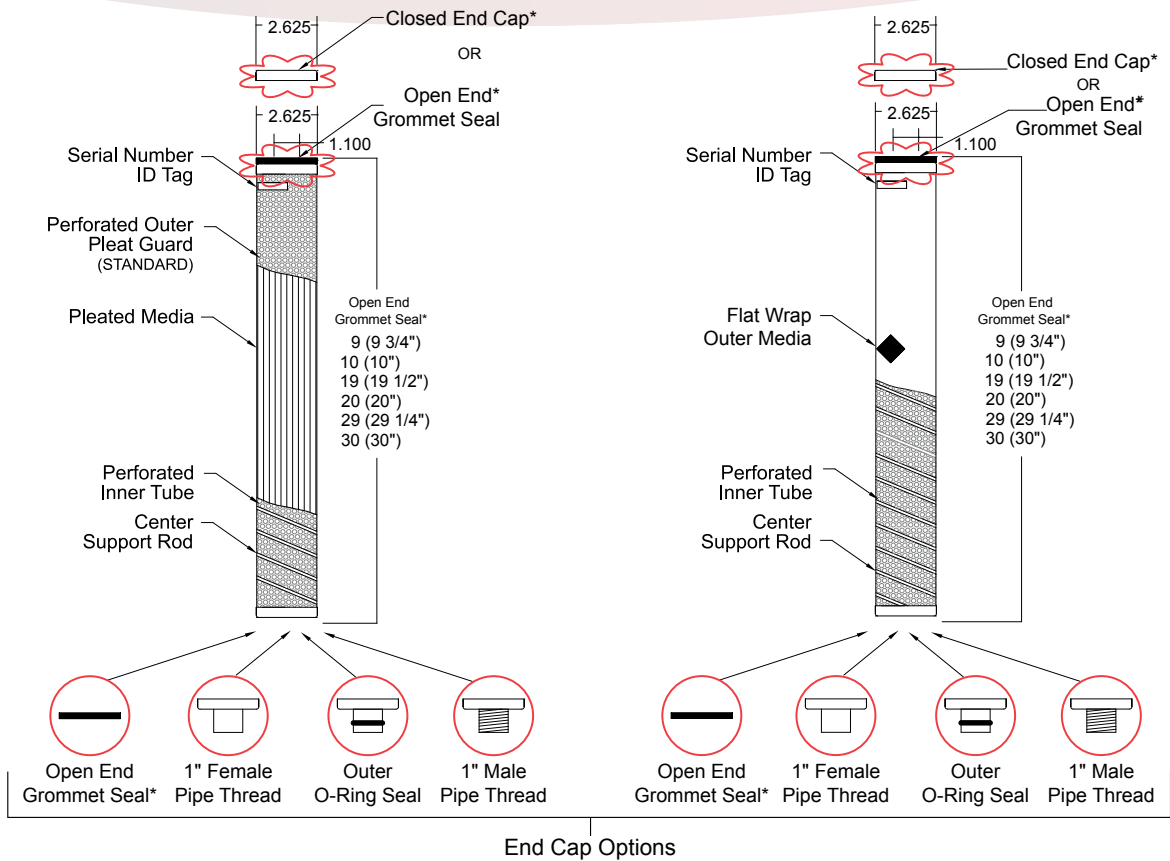
Nominal	2	5	10	15	20	25	30	40	50	55	65	80	100	150	190	230	280	370	540	800
Absolute	9	12	17	25	30	35	40	58	70	75	95	115	150	—	—	—	—	—	—	—

**Note:**

\* Custom Sizes Available.

SSF

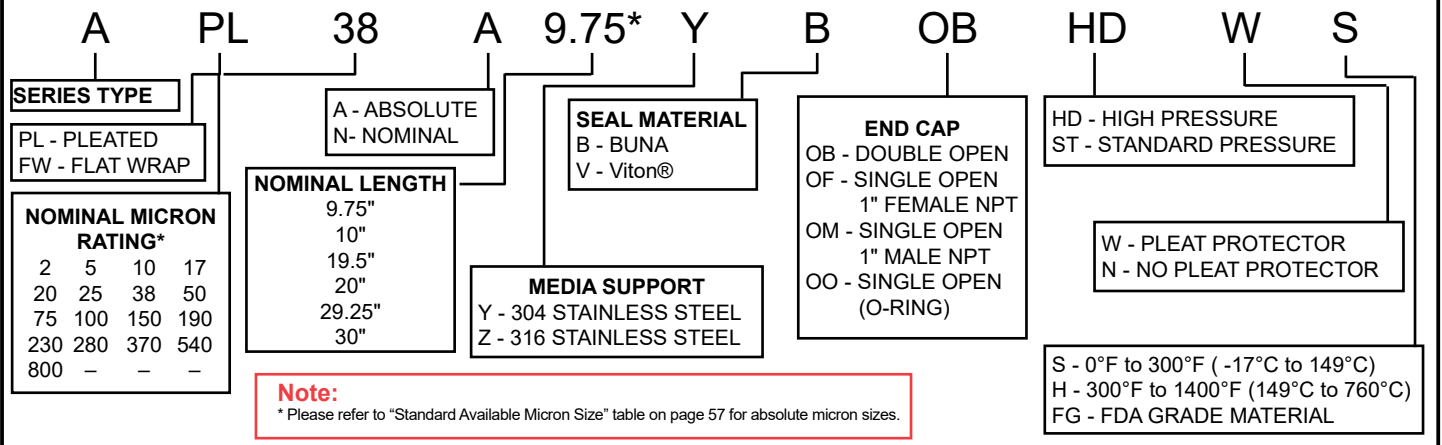
# Type SSF - A Series



## Note:

\*The 'open end grommet seal' option for the top of a filter only corresponds with an 'open end grommet seal' at the bottom. All other bottom end cap options have a 'closed end cap' at the top. The overall length includes end seals & fittings.

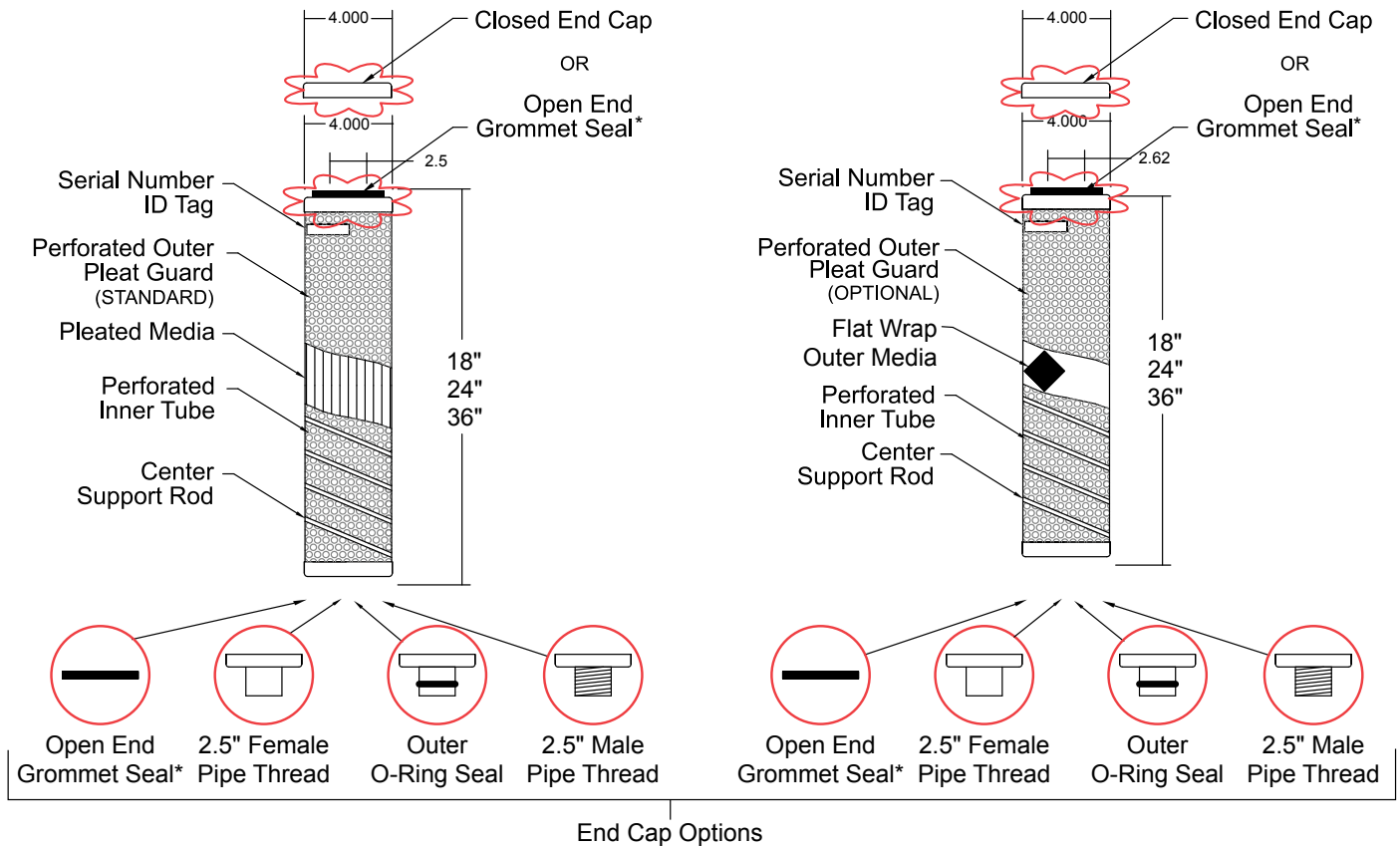
## A - Series Model Coding



SSF - A Series



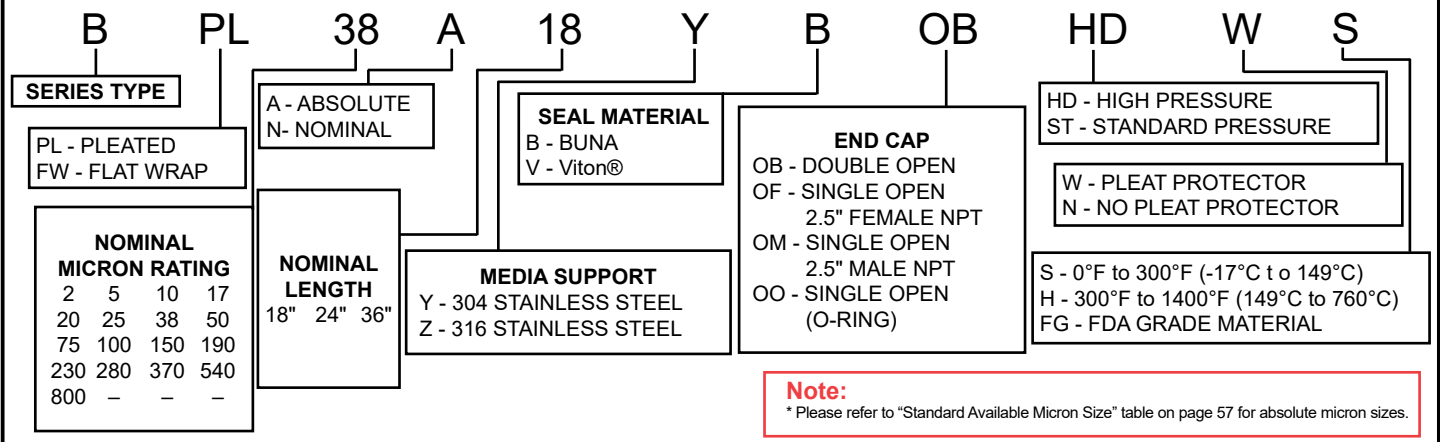
# Type SSF - B Series



## Note:

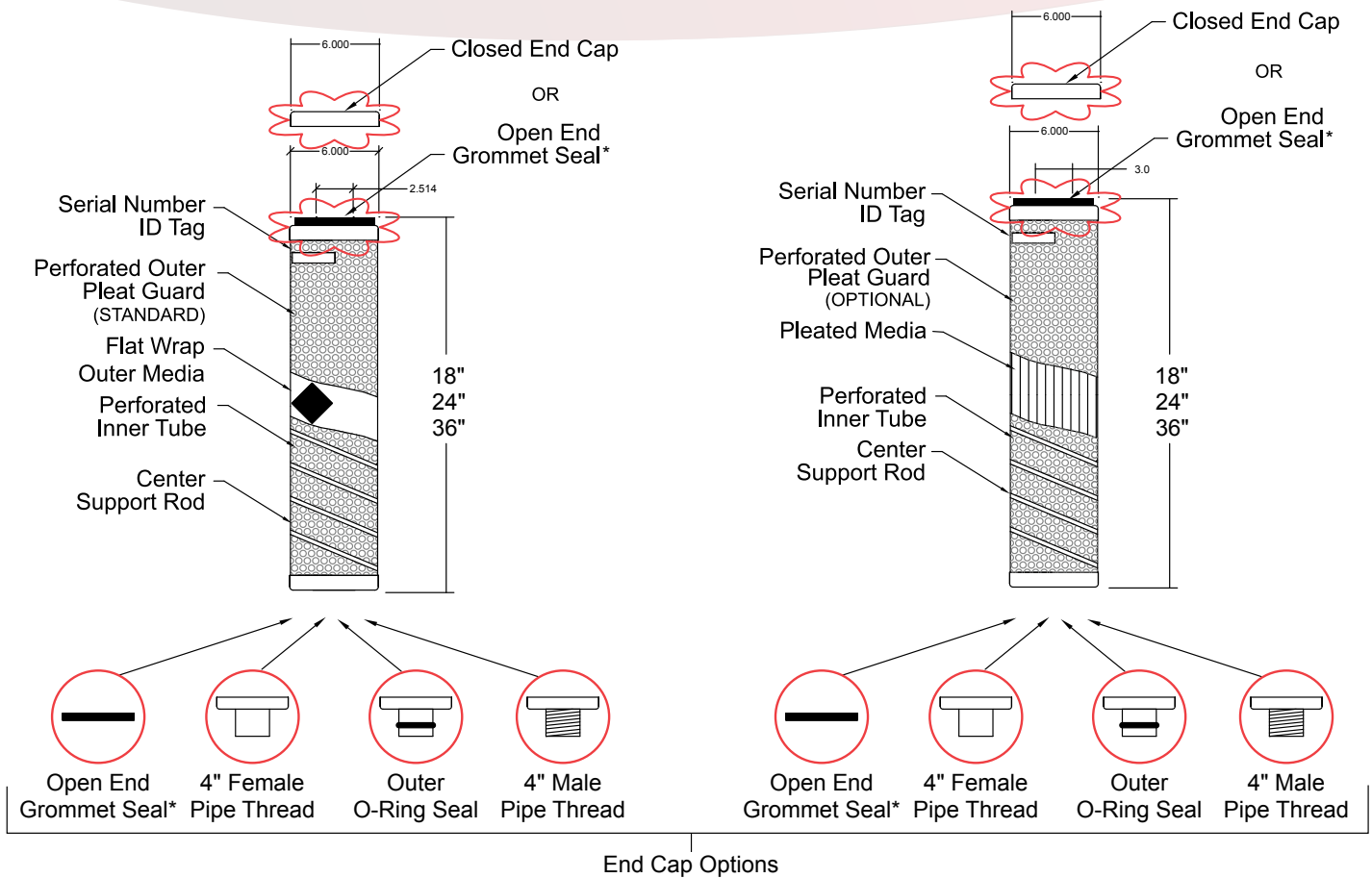
\*The 'open end grommet seal' option for the top of a filter only corresponds with an 'open end grommet seal' at the bottom. All other bottom end cap options have a 'closed end cap' at the top. The overall length includes end seals & fittings.

## B - Series Model Coding



SSF - B Series

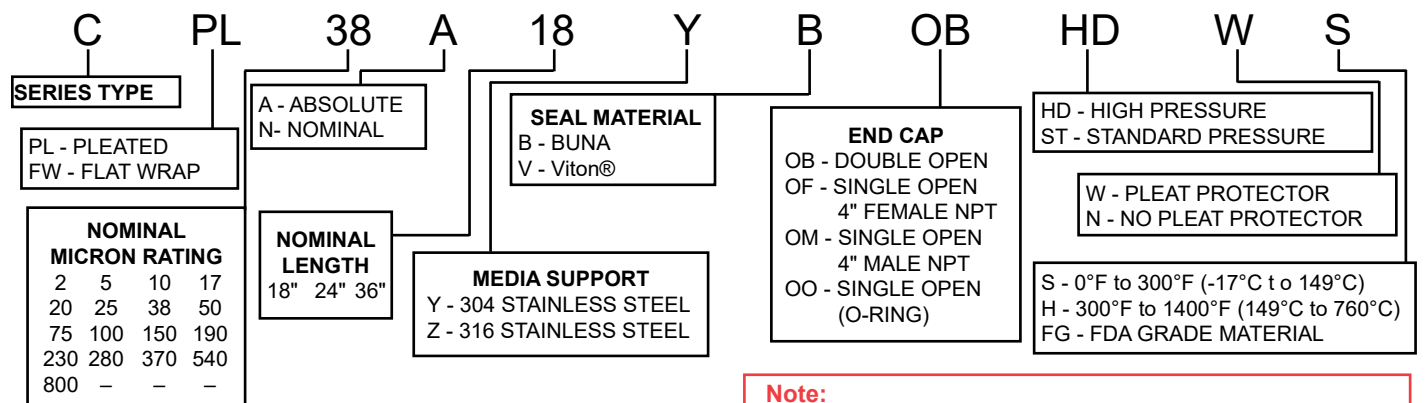
# Type SSF - C Series



## Note:

\*The 'open end grommet seal' option for the top of a filter only corresponds with an 'open end grommet seal' at the bottom. All other bottom end cap options have a 'closed end cap' at the top. The overall length includes end seals & fittings.

## C - Series Model Coding



## Note:

\* Please refer to "Standard Available Micron Size" table on page 57 for absolute micron sizes.

SSF - C Series

# Repacks

## What is a Repack?

A repack is a "Dehydrator" filter pack or cartridge. Repacks have replaced hand-packed media previously used in dehydrator vessels.

## The Excelsior Repack

### Primary Application of an Excelsior Repack

Excelsior repacks are used to dehydrate or de-water hydrocarbon liquids having a specific gravity of 0.78 to 0.90. For liquids having a specific gravity of 0.55 to 0.77, use excelsior repacks with fibreglass inserts.

The resulting coarse filtration from the application of an excelsior repack for dehydrating or de-watering is an incidental benefit.

Most products conditioned in a dehydrator with fine wood excelsior repack require additional processing in a filter separator vessel before dispensing as an end product. This applies particularly to end products used as fuels in combustion engines.

### How does an Excelsior Repack Perform?

An excelsior repack may be used for the de-watering of hydrocarbon liquids having a pH range from 5 to 9 at a temperature of 32°F to 250°F (0°C to 120°C).

The water removal efficiency of an excelsior repack is 98%+ by volume.

With some product streams, a 98% filtration efficiency of particles in the 50 to 60 micron range can be obtained.

Remember, the stated values are based on standard design and will change if velocity or residence times are altered.

## Wafer-Type Repacks

As an alternative to standard cylindrical repacks, wafer-type repacks should be considered when operating conditions apply as follows:

- a) Where solid contaminants tend to blind off the face of the repack. Sections of wafer repacks may be replaced as required.
- b) Where access to the dehydrator vessel is restricted or does not permit the use of lifting and handling equipment during the change-out of the repack.

Wafer-type repacks up to size L-100 (42"dia.) are made up in four separate wafers. Wafer-type repacks from the L-150 (48" dia.) and up consist of five separate wafers. To minimize cost, four separate wafers may be used if no detrimental effect is anticipated.

Repack grids are used instead of repack rings for the manufacture of the separate wafers of a wafer-type repack.

Standard cylindrical excelsior repacks are interchangeable with wafer-type excelsior repacks. No change or modification of the dehydrator vessel is required.

## Excelsior Repacks with Fibreglass Inserts

Soft fibreglass discs inserted into excelsior repacks increase the coalescing effect by speeding up the formation of water droplets. The fibreglass discs also present an attractive surface area for surfactants, additives and contaminants contained in the hydrocarbon liquids being processed. These particles have an affinity for the glass fibres. They build up rapidly and restrict product flow, resulting in a dramatic rise of the differential pressure between vessel inlet and vessel outlet. Premature failure of the repack may occur if it is incorrectly applied to treat hydrocarbon liquids having a specific gravity 0.78 and over.

### Primary Application of an Excelsior Repack with Fibreglass Inserts

Commonly known as the gasoline repack, the excelsior repack with fibreglass inserts is used to dehydrate or de-water hydrocarbon liquids having a specific gravity of 0.55 to 0.77.

### The Manufacture of Excelsior Repacks

Repacks are built up in adjustable tubular forms. The coalescing media, Fine Wood Excelsior, is compressed to the density required (normally 7 pounds per cubic foot), retained between migration barriers and grid rings. The resulting assembly is wire-tied in the form to the desired overall length.

Repacks

Never cut or damage the repack tie wires. If tie wires are cut or accidentally separated, the compressed media will literally cause the repack to explode.

### The Construction of Repacks with Fibreglass Inserts

Added to the basic structure of an excelsior repack are two (2) fibreglass inserts. Located approximately 6" from the downstream end is the first fibreglass disc. The second disc is located another 6" upstream, separated by the basic excelsior media. On small repacks shorter than 24" long, the spacing is proportional.

### Dehydrator Repack Cartridges

Careful weighing and hydraulically-controlled machine packing of media insures uniform density that resists channeling and increases efficiency.

#### Made of a wide selection of media:

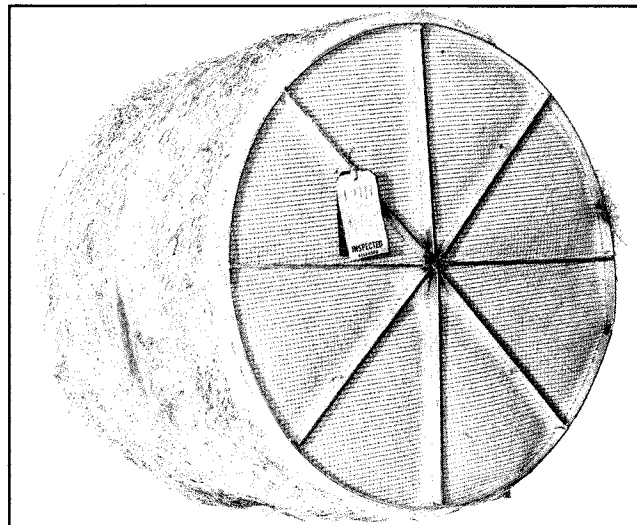
Excelsior

Fibreglass: Rigid or Compressed

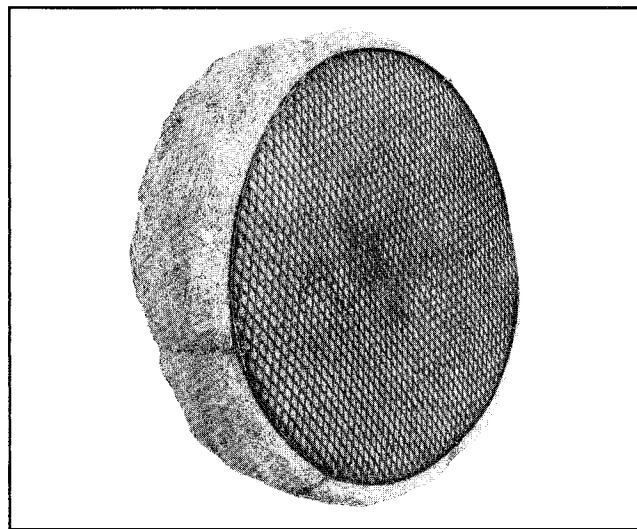
Steel Wool: Carbon or Stainless

Wire Mesh: Monel, Synthetic, Carbon Steel,  
or Stainless Steel

Combination of the above.



CYLINDRICAL REPACK



WAFER

## Repacks

# Replacement Parts & Accessories

To ensure peak performance of 3L Filters™ equipment, use only certified 3L Filters™ original quality replacement parts and accessories. Standard parts are usually available from our stock. Custom parts are fabricated quickly and accurately from our drawings.

## Available Parts and Accessories

- filter cartridges
  - spun yarn
  - pleated
  - depth media
  - coalescers, separators
  - specialized; available in disposable or cleanable stainless steel with ratings from 0.1 to 50 micron
- strainer baskets
  - 304 or 316 stainless steel perforated or mesh-lined
- repack media
  - excelsior
  - polypropylene
  - Monel®
  - stainless steel
  - fiberglass
- demister pads
  - polypropylene
  - stainless steel mesh
- liquid filter bags - standard size 1 and 2 in a variety of materials and micron ratings
- cartridge mounting hardware
- O-rings and gaskets for housings
- replacement closure bolting
- valves
  - for shut-offs
  - transfer
  - 2-way
  - 3-way
- differential pressure gauges & transmitters
- liquid level gauges, switches & transmitters
- safety reliefs
- air eliminators
- sump heaters



## Filter Separator Accessories

- water slug shut-off device
  - an automatic water discharge system, which is recommended for filter separator installations to prevent carry-over of accumulated water. Systems can also be equipped with a rate-of-flow control feature which will reduce or isolate the flow on high water levels
- water dump valve (mechanical float type)
  - these float valves operate on the interface between two liquids and only a slight difference in specific gravity is required to operate the valve
- air eliminator
  - float-operated air eliminators exhaust trapped air during filling of the vessel. When air is exhausted and liquid fills the vessel dome, the float lifts to shut the valve

Replacement Parts & Accessories

# MP Restriction Orifice Plate

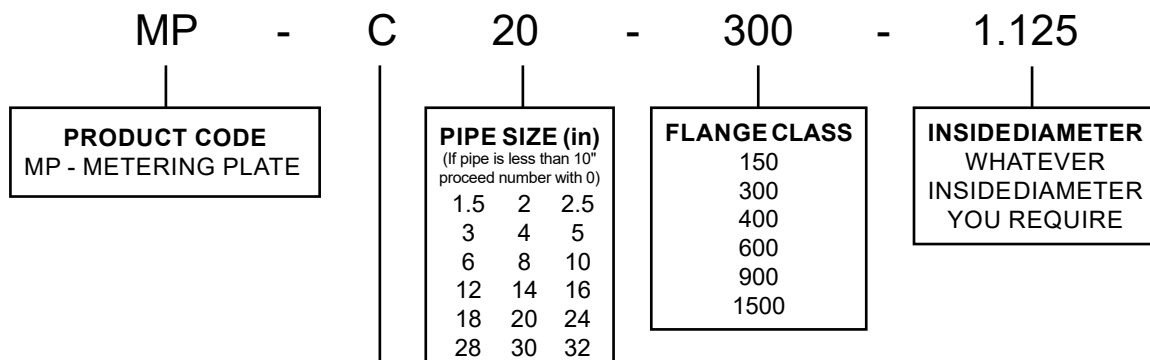
The 3L Filters™ MP Series restriction orifice plates are used as a simple pressure reducing device or to limit the flow rate in a pipeline. In addition they can also be used for precise flow measurement. Restriction orifice plates are assembled between pipeline flanges.

## Standard Features

- available in 316 stainless steel or carbon steel
- phonographic finish
- easy reference part numbers located on the handle
- custom build available upon request



## Model Coding



### MATERIAL

C - CARBON STEEL & 11-GAUGE CARBON STEEL FLANGE  
S - STAINLESS STEEL & 11-GAUGE STAINLESS STEEL FLANGE



## This image shows a blank sheet of white paper with horizontal ruling lines. The lines are evenly spaced and extend across the width of the page. In the top right corner, there is a small, light pink triangular tab pointing towards the right edge. The rest of the page is empty, with no text or other markings.

[illegible]



Engineered Filtration Systems

2721 Plymouth Drive, Oakville, Ontario, Canada L6H R5R

Phone: (905) 829-4422 Fax: (905) 829-4430

PLEASE ADHERE TO INSTRUCTIONS PUBLISHED IN THIS MANUAL.

Failure to do so may be dangerous and may void certain provisions of your warranty.

For further assistance, please call:

Oakville: 1-800-410-3131

(U.S.A. and Canada)

Please have model and serial numbers available before calling.

**WARRANTY:** Under normal use the Company warrants to the purchaser that defects in material or workmanship will be repaired or replaced without charge for a period of 18 months from date of shipment, or 12 months from the start date of operation, whichever expires first. Any claim for warranty must be reported to the sales office where the product was purchased for authorized repair or replacement within the terms of this warranty.

Subject to State or Provincial law to the contrary, the Company will not be responsible for any expense for installation, removal from service, transportation, or damages of any type whatsoever, including damages arising from lack of use, business interruptions, or incidental or consequential damages.

The Company cannot anticipate or control the conditions of product usage and therefore accepts no responsibility for the safe application and suitability of its products when used alone or in combination with other products. Tests for the safe application and suitability of the products are the sole responsibility of the user.

This warranty will be void if, in the judgment of the Company, the damage, failure or defect is the result of:

- vibration, radiation, erosion, corrosion, process contamination, abnormal process conditions, temperature and pressures, unusual surges or pulsation, fouling, ordinary wear and tear, lack of maintenance, incorrectly applied utilities such as voltage, air, gas, water, and others or any combination of the aforementioned causes not specifically allowed for in the design conditions or
- any act or omission by the Purchaser, its agents, servants or independent contractors which for greater certainty, but not so as to limit the generality of the foregoing, includes physical, chemical or mechanical abuse, accident, improper installation of the product, improper storage and handling of the product, improper application or the misalignment of parts.

No warranty applies to paint finishes except for manufacturing defects apparent within 30 days from the date of installation.

The Company neither assumes nor authorizes any person to assume for it any other obligation or liability in connection with the product(s).

The Purchaser agrees that all warranty work required after the initial commissioning of the product will be provided only if the Company has been paid by the Purchaser in full accordance with the terms and conditions of the contract.

The Purchaser agrees that the Company makes no warranty or guarantee, express, implied or statutory, **(INCLUDING ANY WARRANTY OF MERCHANTABILITY OR WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE)** written or oral, of the Article or incidental labour, except as is expressed or contained in the agreement herein.

**LIABILITY:** Technical data contained in the catalog or on the website is subject to change without notice. The Company reserves the right to make dimensional and other design changes as required. The Purchaser acknowledges the Company shall not be obligated to modify those articles manufactured before the formulation of the changes in design or improvements of the products by the Company.

The Company shall not be liable to compensate or indemnify the Purchaser, end user or any other party against any actions, claims, liabilities, injury, loss, loss of use, loss of business, damages, indirect or consequential damages, demands, penalties, fines, expenses (including legal expenses), costs, obligations and causes of action of any kind arising wholly or partly from negligence or omission of the user or the misuse, incorrect application, unsafe application, incorrect storage and handling, incorrect installation, lack of maintenance, improper maintenance or improper operation of products furnished by the Company.

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F 780-468-5904

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(905) 829-4422  
F 905-829-4430

Orillia  
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(705) 325-3473  
F 705-325-2106

Houston  
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As a leader in advanced heating and filtration solutions with facilities across North America, CCI Thermal Technologies Inc. manufactures six of the top brands in industrial heating in addition to a comprehensive line of engineered industrial filtration products including:



Cata-Dyne™ is the industry standard in infrared gas catalytic heaters, enclosures, pipeline systems and accessories. Customers across a wide range of industries rely on Cata-Dyne™ to supply them with safe, reliable, efficient and versatile infrared catalytic heating equipment for a variety of applications in both hazardous and non-hazardous environments.

Ruffneck™ is renowned for its rugged, reliable and versatile heavy-duty explosion-proof heaters, heating systems and heating accessories. Ruffneck™ has a long and proud history of supplying quality heating products for the harshest industrial environments to a worldwide customer base for over 30 years. Ruffneck™ is well-known in the industry for its "ship the heat in a week" policy, where 95% of all standard orders are shipped within one week of order placement.



Caloritech™ electric heaters, heating elements and heating accessories are well-known in the industry for their quality, reliability, performance and versatility. In addition to standard "off the shelf" industrial heaters and heating systems components, Caloritech™ also offers engineered heating solutions custom designed, manufactured and tested to satisfy customer specifications. No matter what your application or environment, Caloritech™ has a solution to fit your heating needs.

3L Filters™ has satisfied the most demanding industrial filtration requirements for over 40 years. A broad range of standard and custom products includes liquid filters, strainers, separators, pressure vessels, and engineered products and systems. 3L Filters™ has special expertise for nuclear, petrochemical, water treatment and environmental applications.



Norseman™ is the most technologically advanced line of explosion-proof electric air heaters and heating accessories, including both forced air heaters and natural convection heaters, as well as unit heaters, panel heaters and thermostats. Norseman™ offers innovative, low maintenance solutions for a wide range of applications in a variety of industrial and commercial environments. Custom engineered heaters or heating systems are available for specialized applications.

Fastrax® has manufactured railroad track and switch heating since 1995. Fastrax® engineers complete heating packages for the rail industry. Fastrax® track and switch heaters are designed to provide the most efficient heat transfer on rail equipment and components for the coldest environments. In addition to heaters, Fastrax® manufactures fully automatic energy saving controls to complete the rail heating system.



DriQuik™ provides components for infrared drying ovens. DriQuik™ utilizes a pioneered radiant oven technology established in the 1930s providing the industry standard in infrared radiant heating components.

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