

# **CLEANDiesel®** Vessels, Housings & Skid Systems

VF-61, VF-62, VF-64, VF-65, DVX, DV, DVF, DFS™

aerospace
climate control
electromechanical
filtration
fluid & gas handling

fluid & gas handling hydraulics pneumatics process control sealing & shielding



## **VF-61, VF-62**

### Small Housings for Diesel Fuel Filtration

### DESCRIPTION

The VF-61, and VF-62 are versatile filter housings designed for use with several different high performance **Aquacon**® filter cartridges, as well as a variety of paper filters and coalescer/ separator cartridges.

Use the VF-61E with band clamp closure for areas with limited space.

### OVER PRESSURE PROTECTION

When exposed to a high concentration of water, the differential pressure across an absorbent cartridge (*Aquacon* AD Series) will immediately increase. Pressure bypasses or other means to limit the inlet pressure to 75 psi (5 bar) should be installed to prevent cartridge from collapsing.

### **RECOMMENDED SPARES:**

- 1 each G-0986 Buna-N O-Ring
- If Viton O-Rings are desired, 2 each G-0986A
- 6 each Cartridges

### **ORDERING INFORMATION**

- Unit is supplied with G-0986
  Buna-N O-Ring and 1/8" valve
  and 1/2" drain plug installed.
  1/2" petcock drain valve is
  shipped loose.
- Cartridges are not supplied and must be ordered separately.
- Viton O-Rings (P/N G-0986A) are available but must be ordered separately.



### **Caution**

To protect the fuel system, including the filter housing & other components, be sure to install pressure relief valve(s).

### **PRODUCT SPECIFICATIONS**

- Flow Rates:
  - VF-61 w/ Aquacon AD: 1-50GPM, 25GPM Recommended
  - VF-62 w/ Aquacon AD: 30-100GPM, 50GPM Recommended
- Max. Operating Pressure: 150 psi
- Inlet/Outlet connection: 1-1/2" NPT
- Closure Seal: Buna-N O-ring (P/N G-0986)
- 1/8" brass petcock vent valve and 1/2" drain valve
- Material:
   Die cast aluminum head and closure clamp assembly; carbon steel shell with epoxy coated exterior and interior
- Weight:
  - VF-61: 4.54 kg (10 lbs),
     Shipping weight:
     5.44 kg (12 lbs)
  - VF-62: 7.26 kg (16 lbs),
     Shipping weight:
     8.17 kg (18 lbs)

### **OPTIONAL FEATURES**

- Part Number 554Y020 is a Carbon Steel 1/2" NPT Ball Valve, with Mounting Nipple
- Part Number CK-1488 quick release hand bolts (set of 4) to replace closure bolts (as shown on page 2) VF-61 and VF-62 only.
- Part Number 10678 Differential Pressure Gauge Assembly (See Form #1959)



Color Indicates Pressure Drop

Green: Clean 0 - 15 psi

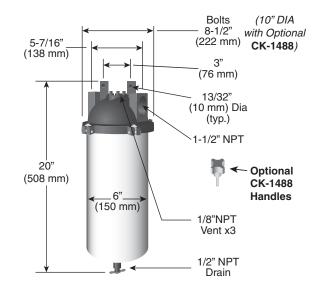
Red: Change 16 - 25 psi

### **DIMENSIONAL DRAWINGS**

Drawings are not to scale. Dimensions are shown for estimating purposes only. Allow 6 inches (15.2 cm) below the vessel to safely remove the vessel to gain access to the cartridge.

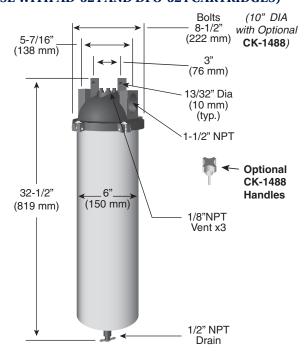
### **VF-61**

### (FOR USE WITH AD-512 AND DFO-512 CARTRIDGES)



### **VF-62**

### (FOR USE WITH AD-524 AND DFO-524 CARTRIDGES)



VF-62 has a longer body for areas and applications that require higher flow rate.

## **VF-64, VF-65**

### Small Housings for Diesel Fuel Filtration

### **DESCRIPTION**

The versatile housings are designed to meet various requirements: a fuel filter/water separator and a micronics filter. Ideal for fuel dispensing applications

The VF-64 and VF-65 filter assemblies are designed to meet the toughest hydrocarbon refueling conditions and designed for easy cartridge changeouts. The VF-64 and VF-65 assemblies can be used on mobile refuelers or installed in refueling cabinets. The unit can also be used for diesel fuel dispensing pumps, as a primary fuel filter/water separator for large diesel engines, or as bulk fuel handling, fuel transfer, and other higher flow applications.

### PRODUCT FEATURES

- Die-cast aluminum head
- · Steel filter bowl assembly
- Powder coated components
- Locking ring collar "no V-clamps"
- 1.5" NPT inlet and outlet
- Viton® seals for compatibility to various fuels
- Field proven performance
- Designed to withstand a max. pressure of 150 PSI (10 bar) and a maximum temperature of 240°F (115°C)
- Manual drain valve (1/2" NPT)
- Manual vent valve
- Sight glass (½" NPT)
- Wide variety of accessories, filters and applications available

### **APPLICATIONS**

VF-64 & VF-65 assemblies are specifically designed to meet the filtration requirements of today's high pressure common-rail diesel injection systems. The unit is used for fuel dispensing pumps or as a primary fuel filter/water separator on large diesel engine applications.

VF-64 & VF-65 filter assembly were designed to meet the toughest conditions and offer ease of filter change outs.

The assembly features a "locking ring collar", which attaches the filter housing to the aluminum die cast filter head with four bolts. The slotted "locking ring collar" allows

maintenance personnel to hand loosen the four collar bolts, rotate, and lower the bowl assembly for filter changeouts.

With a new filter cartridge installed, simply raise the bowl and rotate into position on the locking ring and hand tighten evenly (evenly torquing the 4 closure bolts to 100 lb-in is highly recommended).

The closure hardware consists of stainless steel nuts, bolts, and washers with metal hand knobs for ease of maintenance. No wrenches or other special tools are required, allowing one person to easily change the filter cartridge (no V-band clamps are used).



VF-64, VF-65

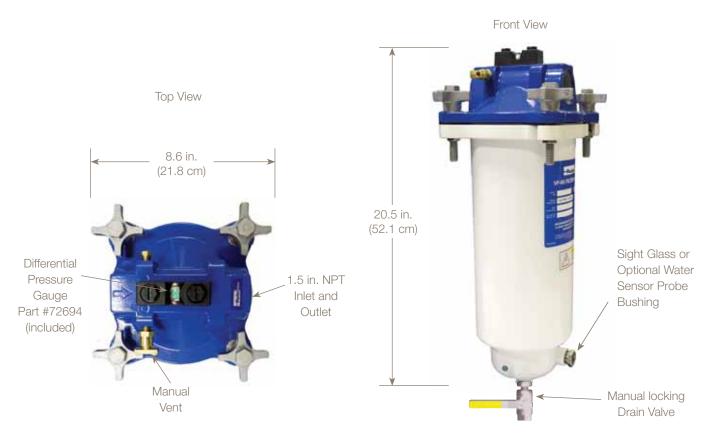
### REPLACEMENT FILTERS

Water separator filters remove water and contaminants from hydrocarbon fuel streams and are the most popular filters.



Specification  VF-64	Micron (μm)	Flow Rate recommended min-max GPM (LPM) Diesel	<b>Clean</b> △P	<b>Change</b> △P
DOS-609D10	10	15 (56.8)		
DOS-609D25	25	1 - 20 (3.8 - 75.7)	2.5 PSID	15 PSID
VF-65		Diesel	ΔP	△P
DOS-612D10	10	20 (75.7)	2.5 PSID	15 PSID
DSO-612D25	25	15 - 25 (56.8 - 95)	2.5 7510	19 5910

### **DIMENSIONS**



## **DVX Housings**

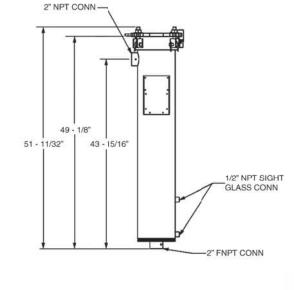
Housings for Diesel Fuel Filtration For use with AD-6, DFO-6, DO-8/DSO-4 Cartridges

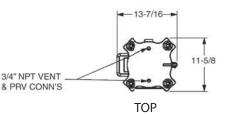
### STANDARD FEATURES

- Carbon steel construction
- 250 psi design pressure
- Epoxy powder coated interior and exterior
- 2" NPT female inlet/outlet
- 1/2" NPT drain connection
- 3/4" NPT vent and relief connection
- 1/2" NPT sight glass connections
- 1" NPT water probe connection
- 1/8" NPT differential pressure gauge connections
- Lid gasket: G-2052 (Buna N)
- Leg Assembly
- Differential pressure gauge assembly

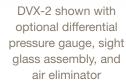
### **OPTIONAL FEATURES**

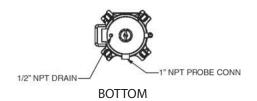
- Air eliminator
- Drain valve
- Pressure relief valve
- Water probe
- Sight gauge
- ASME Code Stamp
- CE Mark
- Lid Gasket: G-2052V (Viton®)
- Duplex Configuration







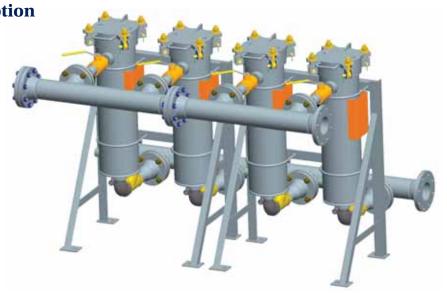


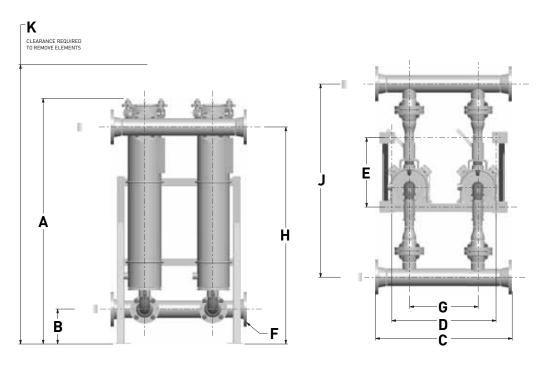


Model	Cartridge	Flow Rates gpm (lpm)			Height	Cover Width	Cover Length	Dry Weight	
Σ		Min	Max	Target	mm(in.)	mm(in.)	mm(in.)	lbs.	kgs
DVX-1	DO-815/DSO-415	1(3.8)	25(94.6)	15(56.8)	914 (36)			110	50
	DFO-614/AD-614	1(3.8)	50(189.3)	25(94.6)		341 (13 ¾ <sub>16</sub> )	295 (11 ¾)	110	50
DVX-2	DO-830/DSO-430	25(94.6)	50(189.3)	40(151.4)				125	57
\\( \)	DFO-629/AD-629	50(189.3)	75(283.9)	75(283.9)	1295 (51)				37
DVX-3	DO-844/DSO-444	50(189.3)	100(387.5)	75(283.9)	1676 (66)			150	60
20	DFO-644/AD-644	75(283.9)	150(567.8)	100(387.5)					68

Dimensions shown are for estimating purposes only. For exact dimensional detail, obtain certified copy of vessel drawing.

### **Duplex Option**





Model (Flow Rate, US-	Dimensions mm (in)									
GPM)	Α	В	С	D	E	F	G	Н	J	K
DVX-1 DPL (100)	1235 (45 %)		898 (35 ¾)	685 (27)	482 (19)			1047 (41 ½)	1271 (50 ½ <sub>16</sub> )	1651 (65)
DVX-2 DPL (200)	1617 (63 <sup>11</sup> / <sub>16</sub> )	230 (9 1/16)	295 (11 <sup>5</sup> %)	57 (125)	457 (18)	101 (4)	450 (17 ¾)	1428 (56 ½)	1271 (50 ½)	2362 (93)
DVX-3 DPL (300)	1998 (78 <sup>11</sup> / <sub>16</sub> )		295 (11 <sup>5</sup> %)	68 (150)	508 (20)			1809 (71 ½)	1271 (50 ½ <sub>16</sub> )	3073 (121)

Dimensions shown are for estimating purposes only. For exact dimensional detail, obtain certified copy of vessel drawing.

## **DVF Series**

### Vertical Filter Housings For Use with DFO-6 & AD-6 Cartridges

### STANDARD DESIGN FEATURES

- 150 psi welded steel ASME Code construction.
- Choice of micron rating from 0.5 to 75 microns.
- Choice of pleated or depth type media.
- Epoxy coated interior, primed exterior.
- Buna-N O-ring cover seals.

### RECOMMENDED OPTIONAL **ACCESSORIES**

- Automatic Air Eliminator
- Pressure Relief Valve
- Differential Pressure Gauge
- Drain Valve(s)
- Sampling Probes
- ASME Code Stamp

DVF1644 and larger vessels, such as the DVF2044 shown on the right, are provided with swing bolt closure, RF flange connections and fittings for pressure gauge, air eliminator, pressure relief valve and drain valve.

Note: In applications where increased dirt contamination is present, it may be desirable to oversize filtration equipment. Contact Velcon for oversizing recommendations



DVF2044

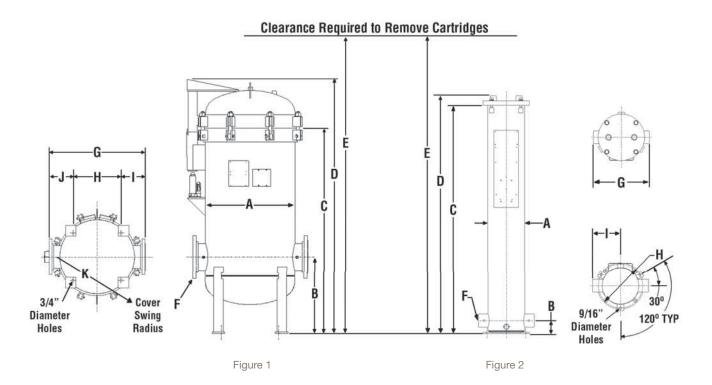
	Flow Ra	Flow Rate Range				Din	nensions mm	(in.)
Model	lpm (gpm)		Length		Fig.			
	Min	Max	mm (in.)	Qty.	No.	Α	В	С
DVF829	110 (29)	496 (131)	737 (29)	1	2	219 (8 %)	76 (3)	991 (57 ½ <sub>16</sub> )
DVF844	167 (44)	750 (198)	1118 (44)	1	2	219 (8 %)	76 (3)	1449 (57 1/16)
DVF1629	439 (116)	1976 (522)	737 (29)	4	2	406 (16)	381 (15)	1341 (52 <sup>13</sup> / <sub>16</sub> )
DVF1644	666 (176)	2998 (792)	1118 (44)	4	2	406 (16)	381 (15)	1695 (66 ¾)
DVF2044	999 (264)	4497 (1188)	1118 (44)	6	2	508 (20)	495 (19 ½)	1895 (74 5/8)
DVF2444	1332 (352)	5996 (1584)	1118 (44)	8	1	610 (24)	533 (21)	1651 (65)
DVF2456	1696 (448)	7631 (2016)	1422 (56)	8	1	610 (24)	533 (21)	1956 (77)
DVF2844	1999 (528)	9005 (2379)	1118 (44)	12	1	711 (28)	610 (24)	1635 (64 ¾)
DVF2856	2544 (672)	11447 (3024)	1422 (56)	12	1	711 (28)	610 (24)	1940 (76 ¾)
DVF3644	2998 (792)	13491 (3564)	1118 (44)	18	1	930 (36 %)	660 (26)	1635 (64 ¾)
DVF3656	3816 (1008)	17171 (4536)	1422 (56)	18	1	930 (36 %)	660 (26)	1940 (76 ¾)
DVF4244	4497 (1188)	20237 (5346)	1118 (44)	27	1	1086 (42 ¾)	711 (28)	1676 (66)
DVF4256	5724 (1512)	25756 (6804)	1422 (56)	27	1	1086 (42 ¾)	711 (28)	1981 (78)
DVF4856	6995 (1848)	31479 (8316)	1422 (56)	33	1	1219 (48)	737 (29)	2032 (80)
DVF5456	8903 (2352)	40065 (10584)	1422 (56)	42	1	1397 (55)	787 (31)	2083 (82)
DVF6056	10599 (2800)	47696 (12600)	1422 (56)	50	1	1549 (61)	914 (36)	2235 (88)

<sup>1.</sup> For higher viscosity fluids or operating in highly variable temperature conditions, consult your Velcon Representative.

2. DVF Series are designed to accommodate our standard 6 in. O.D., 3½ in. I.D. cartridges including Velcon's DFO, DI, DSO, and Aquacon® AD.

3. Threaded base fluer cartridges are available, which allow for easier cartridge change out and removal of particulate matter from the deckplates. The threaded base cartridges mount on the optional 6000T adapters.

4. DVF16 and DVF20 Series vessels have flat covers. DVF16 Series vessels do not have hydraulic lift jacks.



		Dime	ensions mm	(in.)			Wt.	Volume
E	F	G	н	1	J	K	w/Skid kgs (lbs)	ltr. (U.S. gal)
1727 (68)	51 (2)	330 (13)	264 (10 ¾)	165 (6 ½)			120 (65)	30 (8)
2565 (101)	51 (2)	330 (13)	264 (10 %)	165 (6 ½)			138 (305)	42 (11)
2083 (82)	102 (4)	616 (24 1/4)	229 (9)	194 (7 %)	194 (7 %)	468 (18 7/16)	254 (560)	132 (35)
2794 (110)	102 (4)	616 (24 1/4)	229 (9)	194 (7 %)	194 (7 5%)	468 (18 7/16)	281 (620)	189 (50)
2997 (118)	152 (6)	711 (28)	330 (13)	191 (7 ½)	191 (7 ½)	660 (26)	499 (1100)	341 (90)
2845 (112)	152 (6)	813 (32)	381 (15)	203 (8)	203 (8)	813 (32)	590 (1300)	454 (120)
3099 (122)	152 (6)	813 (32)	381 (15)	203 (8)	203 (8)	813 (32)	612 (1350)	568 (150)
2743 (108)	203 (8)	914 (36)	457 (18)	229 (9)	229 (9)	889 (35)	726 (1600)	625 (165)
3048 (120)	203 (8)	914 (36)	457 (18)	229 (9)	229 (9)	889 (35)	794 (1750)	757 (200)
2769 (109)	254 (10)	1219 (48)	584 (23)	318 (12 ½)	318 (12 ½)	1118 (44)	1021 (2250)	1098 (290)
3073 (121)	254 (10)	1219 (48)	584 (23)	318 (12 ½)	318 (12 ½)	1118 (44)	1089 (2400)	1325 (350)
2794 (110)	305 (12)	1372 (54)	711 (28)	330 (13)	330 (13)	1327 (52 1/4)	1724 (3800)	1514 (400)
3099 (122)	305 (12)	1372 (54)	711 (28)	330 (13)	330 (13)	1327 (52 1/4)	1814 (4000)	1798 (475)
4191 (165)	356 (14)	1676 (66)	927 (36 ½)	375 (14 ¾)	375 (14 ¾)	1651 (65)	1996 (4400)	2385 (630)
4216 (166)	406 (16)	1829 (72)	1041 (41)	394 (15 ½)	394 (15 ½)	1829 (72)	2268 (5000)	3975 (1050)
4445 (175)	457 (18)	1981 (78)	1156 (45 ½)	413 (16 1/4)	413 (16 1/4)	1905 (75)	3084 (6800)	4845 (1280)

## **DV Series**

### Vertical Filter-Coalescer/Separator Housings For Use with DI-6/DSO-6 Cartridges

### STANDARD DESIGN FEATURES

- Pleated paper separator cartridges
- 150 psi ASME Code construction
- RF flanged connections
- Swing bolt closure with O-ring seal
- Epoxy-coated interior, primed exterior
- Threaded base coalescer
- Carbon Steel Construct

### **OPTIONAL ACCESSORIES**

- Automatic air vent (R)
- Water slug valve (R)
- Sump heater
- Pressure relief valve (R)
- Water interface control (R)
- Sump sight glass
- Differential pressure gauge (R)
- Sampling probes (R)
- Manual drain valve (R)

The accessory items marked with an (R) are recommended for safe, effective operation of all installations.

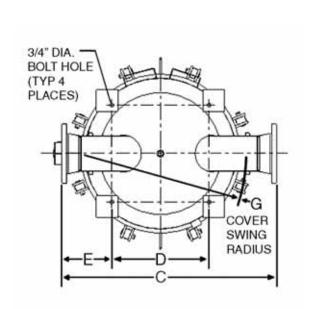


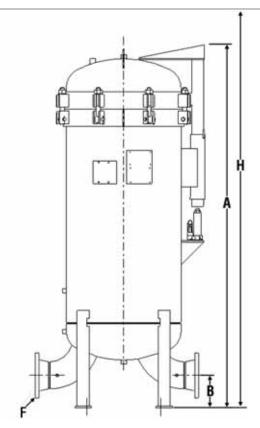
Model	Flow Rate Ran	ige	Cartridge	es	Dimensions mm (in.)		
Number	Ipm (gpm) Min - Max	DI/DSO		Qty. (C/S)	Α	В	
	IVIIII - IVIAX	larget		(0/3)			
DV2222	335 - 835 (90 - 220)	500 (130)	DI-622 DSO-622	4/3	1575 (62)	203 (8)	
DV2233	500 - 1250 (135 - 330)	750 (200)	DI-633 DSO-629	4/3	1753 (69)	203 (8)	
DV2833	750 - 1875 (200 - 495)	1125 (300)	DI-633 DSO-629	6/5	2108 (83)	203 (8)	
DV2844	1000 - 2500 (265 - 660)	1500 (400)	DI-644 DSO-633	6/5	2261 (89)	203 (8)	
DV3638	1585 - 3955 (420 - 1045)	2380 (630)	DI-638 DSO-629	11/9	2326 (91 %16)	203 (8)	
DV3644	1835 - 4580 (485 - 1210)	2750 (730)	DI-644 DSO-633	11/9	2448 (96 %)	229 (9)	
DV3656	2335 - 5830 (620 - 1540)	3500 (930)	DI-656 DSO-644	11/9	2786 (109 11/16)	229 (9)	
DV4244	2500 - 6245 (660 - 1650)	3750 (995)	DI-644 DSO-633	15/12	2626 (103 %)	229 (9)	
DV4256	3180 - 7950 (840 - 2100)	4770 (1260)	DI-656 DSO-644	15/12	2931 (115 %)	229 (9)	

Dimensions shown are for estimating purposes only. For exact dimensional detail, obtain certified copy of vessel drawing.

<sup>\*</sup>Flow rates provided are for illustrative purposes. Actual flow rates may vary based on field conditions.

### Clearance Required to Remove Cartridges





	D	imensions	mm (in.)			Wt.	Volume
С	D	E	F	G	Н	w/ Skid kgs (lbs)	ltr (U.S. gal)
689 (27 1/8)	394 (15 ½)	159 (6 1/4)	102 (4)	762 (30)	2184 (86)	503 (1110)	242 (64)
689 (27 1/8)	394 (15 ½)	159 (6 1/4)	102 (4)	762 (30)	2591 (102)	513 (1130)	273 (72)
1016 (40)	457 (18)	321 (12 %)	152 (6)	889 (35)	2997 (118)	748 (1650)	644 (170)
1016 (40)	457 (18)	321 (12 %)	152 (6)	889 (35)	3378 (133)	767 (1690)	700 (185)
1607 (63 1/4)	584 (23)	511 (20 1/8)	152 (6)	1118 (44)	3277 (129)	943 (2080)	1060 (280)
1324 (52 1/8)	584 (23)	371 (14 %)	203 (8)	1118 (44)	3556 (140)	975 (2150)	1155 (305)
1324 (52 1/8)	584 (23)	371 (14 %)	203 (8)	1118 (44)	4064 (160)	1043 (2300)	1344 (355)
1405 (55 5/16)	711 (28)	381 (15)	203 (8)	1270 (50)	3810 (150)	1520 (3350)	1703 (450)
1405 (55 1/16)	711 (28)	381 (15)	203 (8)	1270 (50)	4191 (165)	1588 (3500)	1968 (520)

## **Diesel Filtration Skid**

# DFS™ Series - System for Removal of Particulates and Protection from Water Contaminants

Providing high quality fuel to the modern high pressure common rail fuel injection systems is imperative to avoid costly downtime and engine repair.

The Velcon Diesel Filtration Skid (DFS) plays an important role in a comprehensive fuel contaminant control program as it provides fuel conditioning to assure the consistent removal of abrasive particles and damaging water.

The DFS offers a complete fuel filtration solutions which incorporates both particulate and water contaminant removal technologies mounted on a skid base that can be quickly installed and put into operation.

Key components of the DFS includes filter (DVF) and coalescing (DV) housings which have proven to withstand years of service in the most challenging environments. Velcon DFO particulate filters and DI and DSO coalescer and separator cartridges are used for conditioning contaminated fuels to meet the most stringent ISO 4406 and ASTM D975 standards for emulsified and free water as well as abrasive particulate. All filtration cartridges are available with threaded base endcap option for quick filter removal and ease of installation.

### **STANDARD FEATURES**

- ASME code epoxy painted carbon steel vessels
- Swing bolt housing closures
- Independent differential pressure gauges

- Air eliminators
- Walkway
- Inlet/Outlet sample ports
- Hydraulic or mechanical housing lid lifting
- Isolation valves
- Pressure relief valve
- Threaded base coalescer
  - One package
  - Quick installation
  - Maximize Second Stage Water Removal

#### **OPTIONAL FEATURES**

- Support hand rail
- Electronic water sensing
- Automatic vessel drain
- Water sight glass
- Fuel Condition Monitoring



### Parker Velcon Bulk Diesel Fuel Filtration



### **GATE VALVES**

Allows flow shut-off to service vessels.



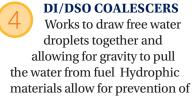
### **DP GAUGES**

Provides indication of pressure difference between inlet and outlet of vessel so as to determine if cartridges needs to be changed out.

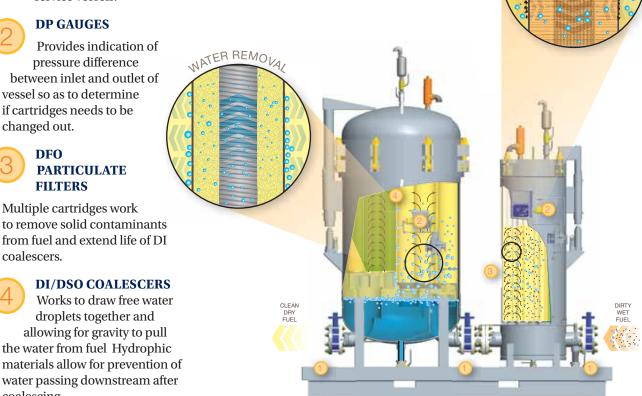


### **DFO PARTICULATE FILTERS**

Multiple cartridges work to remove solid contaminants from fuel and extend life of DI coalescers.



coalescing.



Coalescers: Fuel flow inside to outside

Separators: Fuel flow outside to inside

Filter: Fuel flow outside to inside

### **DFS PART NUMBER & DIMENSIONS**

Velcon recommends use of threaded base endcaps for ease of installation and to minimize components.

Flo	Flow Rate*		_	Filters		- L	Coalescers		Sep	arators	. 4	/eight :s, Tie Plate)	<u>o</u>
Series	Range Ipm (gpm)	Target Ipm (gpm)	Filter Housing	Qty.	Part Number	Coalescer	Qty.	Part Number	Qty.	Part Number	Approx. Footprint mm (in)	Approx. DryWeight (w/o Elements, Tie Rods, Spider Plate) kg (lb)	I/O Flange mm (in)
DFS1	500 - 1250 (135 - 330)	750 (200)	DVF1629	4	DFO-629	DV2233	4	DI-633	3	DS0-629	1778 x 1524 (70 x 60)	900 (1985)	102 (4)
DFS2	865 - 2160 (230 - 570)	1300 (345)	DVF1644	4	DFO-644	DV2838	6	DI-638	5	DSO-629	2032 x 1524 (80 x 60)	1021 (2250)	102 (4)
DFS3	1585 - 3955 (420 - 1045)	2380 (630)	DVF2044	6	DFO-644	DV3638	11	DI-638	9	DSO-629	2794 x 2032 (110 x 80)	1542 (3400)	152 (6)

Dimensions shown are for estimating purposes only. For exact dimensional detail, obtain certified copy of drawings.

<sup>\*</sup>Flow rates provided are for illustrative purposes. Actual flow rates may vary based on field conditions.

### **System Sizing**

dramatically extending the service life of the elements.
Systems "sized for life" commonly see a

extensive bulk fuel handling experience and our stateof-the-art fuel testing laboratory have quantitatively proven that increased system/housing will allow for lower flow rates per filter while Systems "sized for life" commonly see a full repayment of the additional system cost through operating savings. Using Velcon's proprietary calculator in **SizeRight**, for system sizing, we can help you select the right housing and elements for your application based on your ISO 4406 cleanliness requirements and

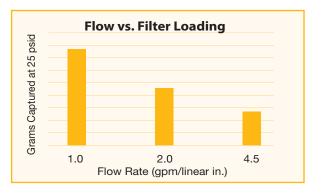
specified change-out interval. This invaluable tool can also help us in estimating your annual operating cost in maintaining your filtration system.

For additional information on this powerful tool, please contact Velcon or our local representative to have your filtration system **SizeRight** for your specific needs.

ISO Code vs Mass						
ISO Code	lbs/yr (kg/yr)					
24/22/20	1609 (730)					
22/20/18	564 (256)					
17/15/13	20 (9.1)					
12/9/7	4 (1.8)					

Velcon's

Notes: Values are based on usage of +3.5M Liter of fuel per year. Field results may vary.



Notes			



© 2014 Parker Hannifin Corporation. Product names are trademarks or registered trademarks of their respective companies.

VEL2147R4 0415

Parker Hannifin Corporation

Velcon Filtration Division

1210 Garden of the Gods Road

Colorado Springs, CO 80907

tel +1 719 531 5855

www.velcon.com

ENGINEE

ENGINEERING YOUR SUCCESS.