



aerospace
climate control
electromechanical
filtration
fluid & gas handling
hydraulics
pneumatics
process control
sealing & shielding



CLEANDiesel™

Solutions for Diesel Fuel Filtration



ENGINEERING YOUR SUCCESS.

CLEANDiesel™

Diesel and Biodiesel fuels may leave a refinery clean, but fuel quality can vary at the time it is dispensed due to contamination accumulated during transport and storage. Operators and engine manufacturers report that the majority of engine issues are due to dirt and/or water in the fuel. As diesel engines adopt more efficient high pressure common

rail systems (HPCR), demands for removal of abrasive particles smaller than 6 microns are rapidly becoming a standard. Clean diesel fuel plays an important role in reducing maintenance and overall operating cost.

For over 60 years, Velcon has supplied filters for fuel conditioning for applications from 5 gpm to more than 5,000 gpm. Our proven bulk fuel handling experience in combination with the world's largest indoor fuel lab have allowed us to develop a range of high quality products to meet the most stringent diesel and biodiesel fuel market needs.

Primary Markets

Mining

Today's electronically controlled diesel engines utilize the latest high pressure common rail systems that require pressures up to 30,000 psi with injection nozzle sizes down to 6 microns. Given the mining environment, meeting downstream ISO 4406 Cleanliness Standards for bulk fuel storage, dispensing, and during transfer can be challenging. Velcon offers the filtration and process fuel monitoring technology that extend equipment up-time and assures clean dry fuel.



Refinery/Terminals

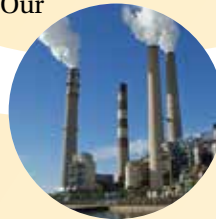
In the process of refining, storing in terminals and distributing bulk diesel fuel, contaminants such as abrasive silica, pipe scale and water are commonly introduced. As fuel is transported, it can quickly deteriorate fuel quality below ISO 4406 Cleanliness Standards required for use in today's diesel engines. Our filtration and separation solutions are



designed to remove contaminants so that the fuel supplied to customers at distribution meet or exceed original manufacturer specifications.

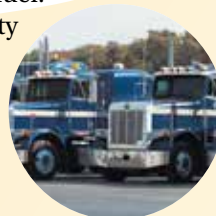
Power Generation

Diesel powered plants require large fuel storage reservoirs and tank farms that must be available on demand. Velcon's fuel monitoring products can help ensure that fuel is monitored for contaminants. Our filtration and separation products are used to remove particulate and water and to ensure that fuel quality meets engine ISO Cleanliness Standards in order to assure reliability.



Transportation

Fuel is the number one operating cost for transportation fleets. The trucking and transportation industry depend upon the reliability of the diesel engines and the diesel fuel. Poor fuel quality directly affects maintenance cost, fuel expenditure, fuel efficiency



and overall operating costs. From monitoring the quality of the fuel source to ensuring that engines utilize fuels that meet ISO 4406 Cleanliness Standards, Velcon provides solutions to help manage and meet your diesel fuel needs.

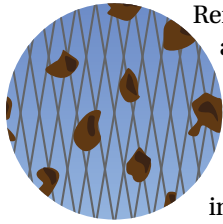
Retail

Retailers rely on their fuel suppliers to provide quality fuels that meet regulatory requirements and consumer demands. Nevertheless, fuel stored and transported can acquire particulate and water contaminants that lower the quality below required specifications. Velcon's filtration and separation solutions are designed to remove these contaminants and return fuel quality to desired levels.



Filtration Solutions

Micronic Filtration



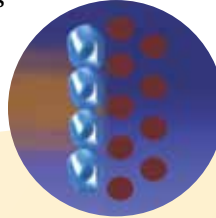
Removing fine and abrasive silica and pipe scale particles reduces engine wear, increases up-time and allows

our customers to meet equipment warranty specifications. From 5 to 5,000 gpm, Velcon's DFO Series filters can meet critical downstream ISO 4406 Cleanliness Standards in both bulk and dispensing (Point-of-Use) applications.

- Reduced operating costs due to fewer repair and replacement of equipment
- Reliable engine performance with ISO 4406 Cleanliness Standards compliant fuel
- Extended equipment uptime as less maintenance is required
- More efficient fuel consumption with fewer contaminants

Protection from particulate and Water (Absorption)

Velcon has been the leader in providing products that can absorb (chemically bind) free water, while filtering particulate from diesel fuel. Our Aquacon[®] AD Series products have over a 30 year history of proven application success and is ideal for use in fuel polishing.



- Removes both particulate and water contaminants in fuels to meet stringent downstream ISO 4406, ASTM D975 and EN 590:2009 cleanliness standards for both diesel or biodiesel fuels
- Filtration prevents damage to injectors
- Constricts flow when media reaches capacity
- For applications up to 5000 gpm

Particle & Water Removal (Coalescing)

Water is the primary cause of pump and injector failures in diesel engines and can displace diesel fuel's lubricant coating on high precision injector components. Water can be introduced throughout the fuel delivery process. Velcon's DI Series coalescer and DSO Series separator work together to separate water and aid in removing water from diesel fuel.



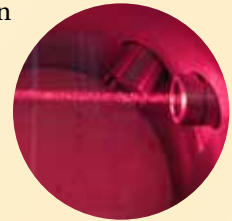
- Removes water from bulk diesel fuel
- Meets stringent ASTM D975 and ISO 4406 fuel cleanliness standards
- Flow rates from 100 to 5000 gpm

Fuel Condition Monitoring

Velcon offers various unique tools that will allow monitoring of diesel fuel quality throughout the distribution

process, and through custody transfers with the correct blend

of products, from disposable test kits to real-time precision instrumentation that measures particulate and water contamination simultaneously.



- VCA-D (Velcon Contaminant Analyzer for Diesel): military grade in-line full flow sensor system that simultaneously detects and differentiates between particulate and water contaminants in real time. Can detect pipe scales, particulate and water from truck pipelines, dirt and water from storage
- icountACM20, icountBSplus, icountOS: portable and online particle counters with proven laser detection technology
- HKD (Hydrokit[®] Diesel): portable test kit to help determine concentration of water in diesel fuel

DFO - Micronic Filtration

High Quality Filtration for Diesel and Biodiesel Applications

Diesel fuel is stored and transferred multiple times from refining to dispensing. Preventative action does not always eliminate contamination. Common contaminants introduced during transportation include both extremely fine and abrasive silica as well as pipe scale. These contaminants can quickly deteriorate fuel quality below engine manufacturer standards, reducing the durability and performance of the engine.

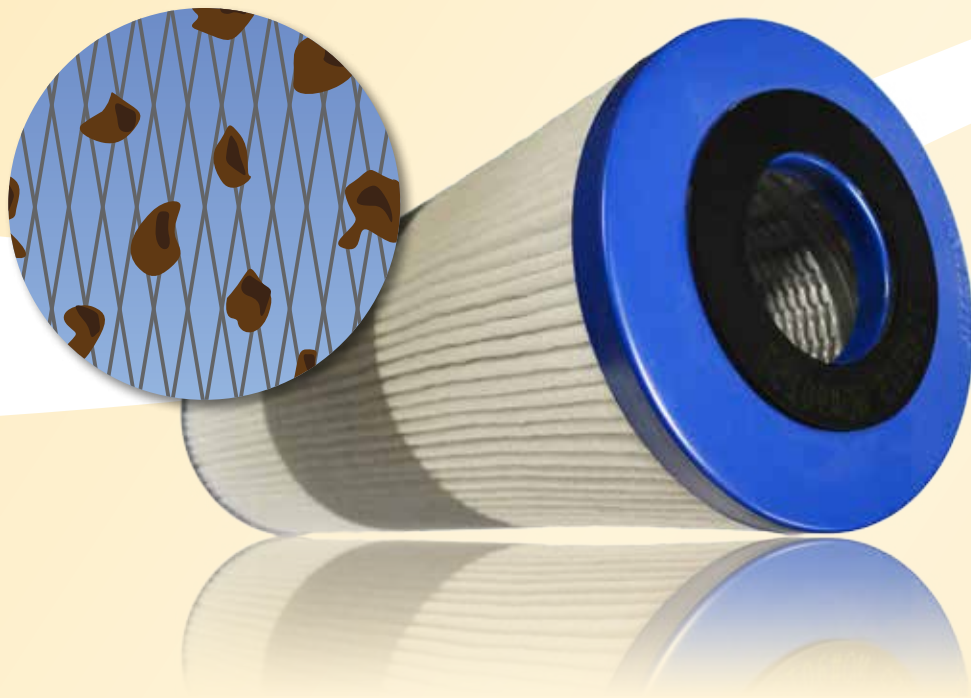
Velcon's DFO filters transform contaminated fuels to meet stringent downstream ISO 4406 cleanliness standards for the demanding limits placed on diesel and biodiesel fuels. The DFO design balances high surface area and depth filtration to maximize filter life which reduces filtration costs.

Tiered Ratings

To meet industry fuel quality standards, Velcon developed pleated media filters for diesel and biodiesel fuels. In accordance with ISO standards, the DFO filters were designed with tiered media classification using absolute rated media. Each media tier provides a unique solution from managing fuel contamination to final fuel conditioning.

- DFO filters with ratings of 2 and 4 micron are the ultimate solution to condition fuel for dispensing while assuring ISO 4406 Cleanliness Standards are consistently met. Each progressively tighter DFO filter rating delivers additional particle removal and fuel cleanliness; therefore progressively lower ISO 4406 particle counts.

- The mid-range DFO filters of 6 and 10 micron extend filter life following secondary conditioning by removing particulate contaminants and allowing Velcon's downstream coalescing products to focus on water removal rather than particle removal.
- The DFO filters rated at 25 and 40 micron are the ideal solution to manage contaminated fuel entering and leaving terminal storage tanks throughout the fuel transferring process.



Benefits

- Reduced operating costs by removing particulates that can cause engine damage
- Reliable fuel injector performance when particulate contaminants are removed to meet ISO 4406 Cleanliness Standards
- Improved equipment uptime, reduces equipment failures, repairs, and/or replacements

Product Specifications

- All filter components compatible with diesel and biodiesel blends
- Recommended change out pressure: 25 psid (1.7 bar)
- Buna-N sealing materials are standard
- Maximum Operating Temperature: 225°F (107°C)

Recommended Housings (See Pages 13-16 for details)



VF-61 & VF-62 (for DFO-5)



Vel-Max® (for DFO-6)



VFD Series (for DFO-6)

DFO Part Numbering

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

		O.D. in. (mm)	Length in. (mm)		Micron Rating (µm)	Endcap Options	<i>Example:</i>
DFO	—	5 5 5/8 (143)	12 – 12 (305) 24 – 24 (610)	PLF	2, 4, 6, 10, 25, 40	S (SOE) V (Viton Seal)	DFO-514PLF25
DFO	—	6 6 (152)	14 – 14 1/8 (371) 29 – 29 1/8 (740) 36 – 36 (915) 44 – 44 1/8 (1121) 56 – 56 1/8 (1426)	PLF	2, 4, 6, 10, 25, 40	S (SOE) V (Viton Seal)	Variables that often change for the DFO part numbers when placing an order are the length and the µm ratings; as seen in the case of the above example with number 14 (length) and number 25 (µm rating)

NOTE: Other lengths and end fittings available. Please contact Velcon for further assistance.

Aquacon[®] - AD

Diesel and Biodiesel (FAME) Protection from Particulate and Water Contaminants

Even when the utmost care is taken, contaminants will be introduced as fuel is transported from the refinery to its point-of-use. Common contaminants, including pipe scale, silica, metal debris and water, can quickly deteriorate fuel cleanliness far beyond engine manufacturer's minimum requirements for fuel cleanliness.

Velcon's Aquacon Diesel (AD) filters can remove both particulate and water contaminants in fuels to meet stringent downstream ISO 4406 and ASTM D975 cleanliness standards for both diesel or biodiesel fuels. The AD design incorporates multiple layers of both high efficiency long-life particulate retention and water absorbing media.

Tiered Ratings

- Velcon's 2, 4 or 6 micron rated AD filters are excellent solutions for delivering fuel ready for dispensing while assuring both ISO 4406 and ASTM D975 cleanliness levels are consistently met. Each progressively tighter AD filter rating adds additional particle removal capability and lowers ISO 4406 particle counts

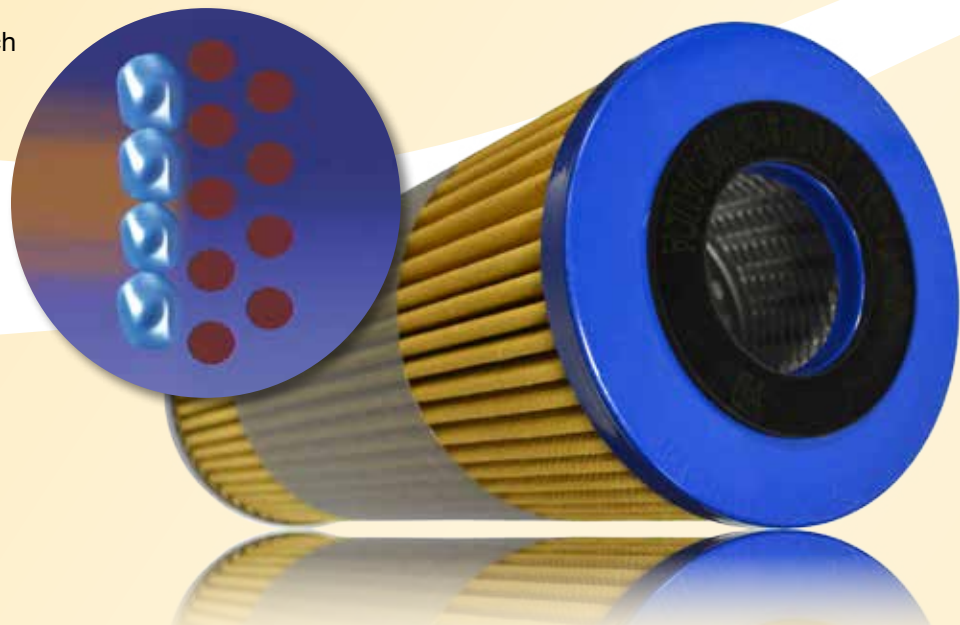
- The 10, 25 and 40 micron rated filters are ideal for managing fuel contamination entering and leaving terminal storage tanks throughout the fuel transfer process

Benefits

- More reliable fuel injector performance by reducing particulate which can cause cascading damages
- Reduced operating costs due to repair of equipment damaged by particulate and water contaminants
- Reduced engine maintenance due to fewer components being damaged by contaminants
- More efficient fuel consumption due to fewer inhibiting particulate and water contaminants
- Removes free aqueous contaminants from fuel

Water Absorbance Versus Water Coalescing

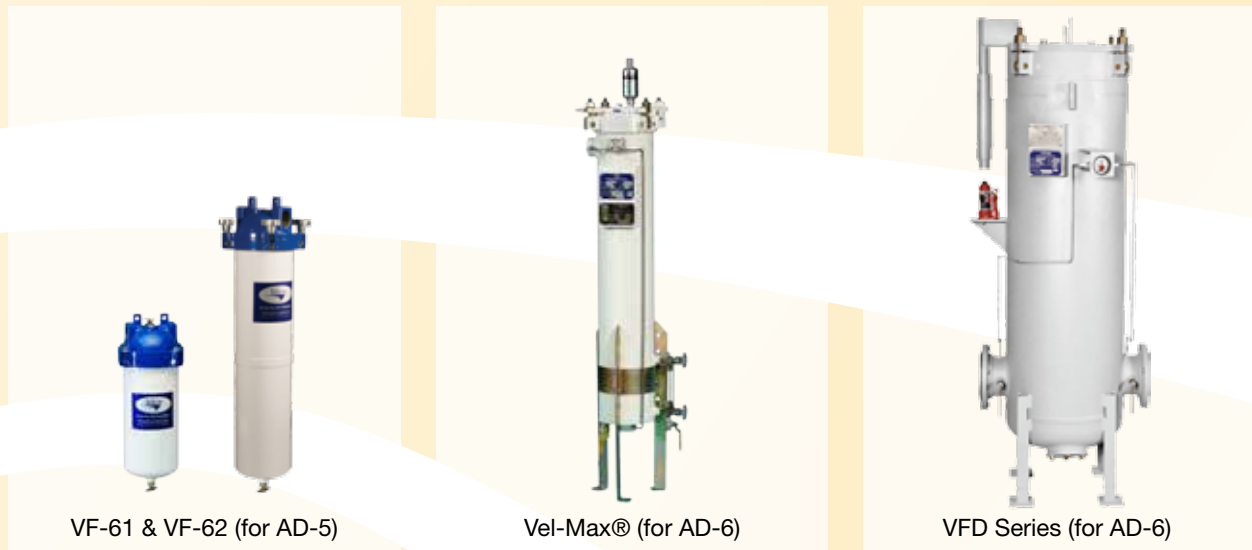
AD filters are designed to remove both water and particulates from either diesel or biodiesel fuels. AD filters are ideal for use in biodiesel and blended fuels where high levels of surfactants (glycerin) could disrupt water coalescing. When continual removal of water from petroleum based fuel is required, the application of coalescing technology is optimal or preferred.



Product Specifications

- All filter components are compatible with diesel and biodiesel blends
- Recommended change out pressure: 25 psid (1.7 bar)
- Water absorbance and particulate retention will increase differential pressure to the change out pressure
- Buna-N sealing materials are standard
- Maximum Operating Temperature: 150°F (65°C)
- All AD products will remove free and emulsified water from both diesel and biodiesel fuels to levels below 50 ppm
- The water absorbing technology used in AD filters is not effective in the presence of fuels containing high concentrations of alcohol

Recommended Housings (See Pages 13-16 for details)



AD Part Numbering

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

		O.D. in (mm)	Length in. (mm)	Micron Rating (µm)	Endcap Options	<i>Example:</i> AD-5122 Variables that often change for the AD part numbers when placing an order are the length and the µm ratings; as seen in the case of the above example with number 12 (length) and number 2 (µm rating).
AD	—	5 5.5 (143)	12 – 12 (305) 24 – 24 (610)	2, 4, 6, 10, 25, 40	V (Viton Seal)	
AD	—	6 6 (152)	14 – 14 5/8 (371) 29 – 29 1/8 (740) 36 – 36 (914) 44 – 44 1/8 (112) 56 – 56 1/8 (143)	2, 4, 6, 10, 25, 40	V (Viton Seal)	

NOTE: Other lengths and end fittings available. Please contact Velcon for further assistance.

DI & DSO

Particulate and Water Removal from Diesel Fuel

As fuel is transported from the refinery to its point-of-use, it can quickly become contaminated from silica, pipe scale, and water condensate. These contaminants rapidly deteriorate fuel cleanliness far below engine manufacturers minimum for fuel cleanliness.

Velcon's DI coalescers in combination with DSO separators, contaminated fuels are cleaned to a level that meets stringent downstream fuel cleanliness standards for petroleum based diesel fuels.

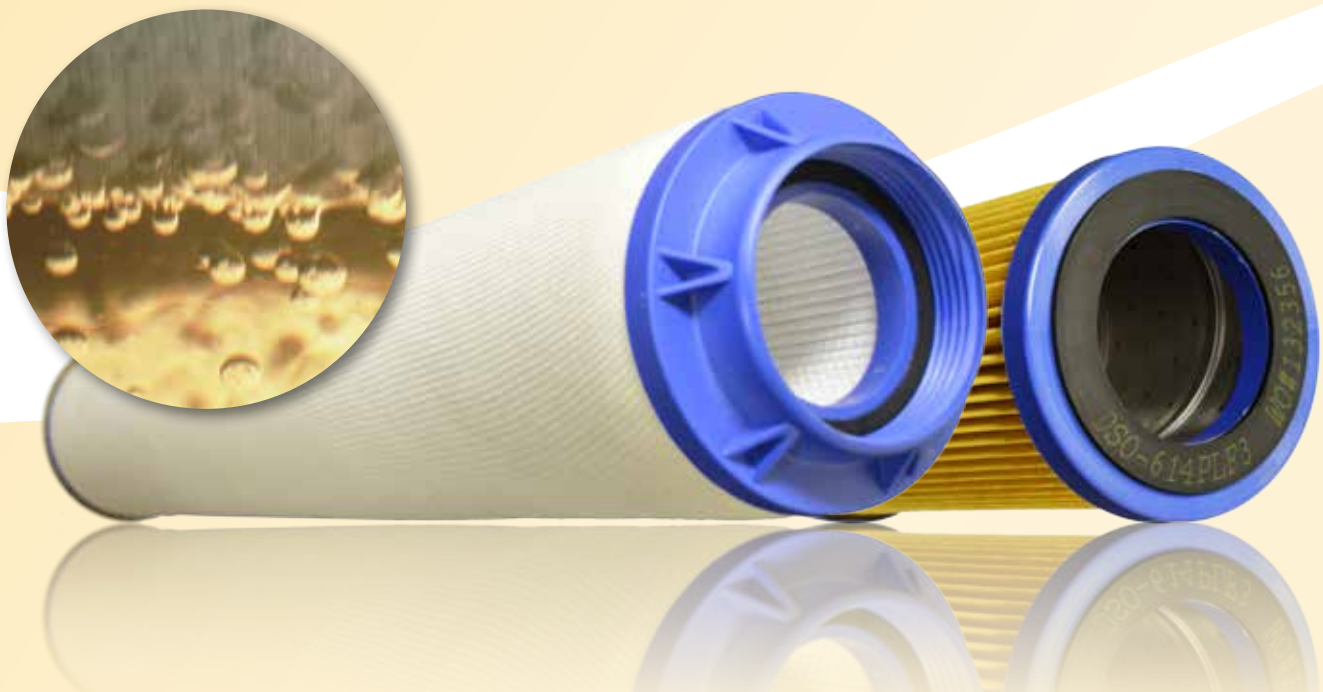
The first stage in the DI coalescer removes particles through an inside-out flow and coalesces emulsified water into large droplets, which then fall to the housing sump. In the second stage, an outside-in process, the DSO separator creates a hydrophobic barrier to block the coalesced water droplets from flowing downstream of the housing. This multi-stage design assures the fuel is conditioned to a clean and dry state, ready for use.

Tiered Ratings

- Velcon's 4 micron coalescer combines leading-edge particle removal with world-class coalescing technology to provide optimal fuel cleanliness
- The 10 and 25 micron rated filter coalescer provides effective particle removal with industry proven coalescing technology.

Benefits

- Extended equipment up-time
- Reduced operating costs
- Reliable fuel injector performance
- Improved equipment up-time
- Reduced fuel system maintenance



Product Specifications

- All filter components compatible with petroleum based diesel fuels
- Downstream free-water level typically below 50 ppm
- Recommended change out pressure: 25 psid (1.7 bar)
- Buna-N sealing materials standard
- Maximum operating temperature: 150°F (65°C)
- 6" (15.2 cm) outer diameter
- DI - coalescer flow direction - inside to outside
- DSO - separator flow direction - outside to inside

Surfactants

- Water coalescing is not effective in the presence of fuels containing high levels of surfactants/alcohols or unrefined biofuels
- Detergents and additives inhibits the ability of coalescers to effectively remove water by reducing Interfacial Tension (IFT) and can eventually disarm coalescers
- Contact Velcon Laboratories for further analysis of your fuel for presence of surfactants

Recommended Housing (See Page 17 for details)



V Series
Filter-Coalescer/Separator

DI Part Numbering

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

		O.D. in. (mm)	Length in. (mm)		Micron Rating (µm)	Endcap Options
DI	-	6 6 (152)	14 - 14 5/8 (371) 28 - 27 7/8 (709) 33 - 33 (838) 38 - 38 (965) 44 - 44 (1118) 56 - 56 (1422)	D	4, 10, 25	S (SOE) V (Viton Seal) TB (Threaded base)

Example:

DI-628D25TB

Variables that often change for the DI part numbers when placing an order are the length and the µm ratings; as seen in the case of the above example with the number 28 (length) and the number 25 (µm rating).

Note: Other lengths and end fittings available. Please contact Velcon for further assistance.

DSO Part Numbering

		O.D. in. (mm)	Length in. (mm)		Endcap Options
DSO	-	6 6 (152)	14 - 14 5/8 (371) 29 - 29 1/8 (737) 33 - 33 1/4 (914) 44 - 44 (1118)	PLF3 (paper) C (screen)	S (SOE) V (Viton Seal)

Example:

DSO-614PLF3

Variables that often change for the DSO part numbers when placing an order are the length and the hydrophobic material. In the case of the above example with the number 14 (length) and the PLF3 (hydrophobic material) change.

Note: Other lengths and end fittings available. Please contact Velcon for further assistance.

Fuel Condition Monitoring

Providing critical real-time data of contaminants in your fuel

Product Features

- Fuel quality accountability upon receipt
- Record of fuel quality at dispensing point
- System alarm or shutdown when fuel contaminant levels exceeded
- Vehicle Warranty Conformance by assuring fuel meets ISO 4406 and ASTM D975 Cleanliness Standards
- Fuel system peace of mind with real-time constant monitoring of your fuel condition
- Flange Sizes: 3, 4, or 6 in.
- Contamination Measurement/Standard:
 - Particulates in Milligrams Per Liter and ISO 4406 Reference Codes
 - Water in Parts Per Million
- Data Output
 - PC-Based Interface (GUI)
 - Local Data Storage: downloadable to USB storage device
- Additional SCADA Integration (optional)
- Cellular Telemetry (optional)
 - E-mail Reports
 - Global Reach



VCA™

icountACM20

State-of-the-art Fuel Contamination Monitoring

The first fully functional particle counter approved for use on fuels.

- Two minute test procedure
- Fully manufactured by Parker with 20 years experience in the Particle Counter Measuring market
- Laser optical scanning analysis
- Multi-standard ISO cleanliness reporting
- On-board, rear-mounted pump enables monitoring possibilities. For example: Fuel storage/vehicle tanks and fuel storage drums
- Latest averaging software as standard
- Downloader software



icountOS

Portable Condition Monitoring for Fuel Systems

- Fluid viscosity as high as 300cSt (usable range) will be able to pass through the detector at the proper flow rate
- Quick connections for testing hydraulic fluid online and offline
- Reporting Standards ISO4406:1999, NAS1638 and RH% moisture sensor display in high intensity OLED format
- Data Storage up to 250,000 test points of information
- Compact, lightweight and robust, truly portable IOS makes field analysis simple, quick and easy
- Able to sample directly from a hydraulic reservoir, barrel and vehicle fuel tank or from a high pressure, online hydraulic system with the addition of a pressure reducing adaptor
- Completely self contained, with laser detection particle counter (icountPD), rechargeable battery and flow management pump
- No special software needed
- Embedded web page generator for data download onto any PC or laptop via a universal RJ45 connection interface
- Fast detection of the presence of contamination with a sampling period from 5 seconds to 999 seconds



icountBSplus

The benchtop solution to fluid contamination bottle sampling

- Quick sample bottle analysis with variable test time options from 15 seconds and volume capacities from 25ml
- Repeatability and re-producible result performance to ISO4406:1999, NAS1638 AS4509E and GOST 17216:2001 (Differential and Cumulative) particle count distributions
- On-board compressor and 'shop' air capability
- Environmentally controlled frontloading bottle chamber
- Selectable 12-language instruction manual menu
- Analysis of fluid moisture and temperature capability
- icountBSplus has the capability for on-line fluid measurement configuration as well as off-line fluid sampling
- Design concept allowing for portability. DC and rechargeable battery pack power option built in
- CE compliant
- Fluid resistant touch type screen panel
- On-board thermal printer
- 500 test memory (fully downloadable)



DFS - Diesel Filtration Skid

Combining Particulate Filtration with Water Coalescing

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 (VFD) and coalescing (V) 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
- Water slug valve
- Automatic vessel drain
- Water sight glass
- Fuel Condition Monitoring



DFS Part Number & Dimensions

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

Series	Flow Rate*		Filter Housing	Filters		Coalescer Housing	Coalescers		Separators		Approx. Footprint mm (in)	I/O Flange mm (in)
	Range lpm (gpm)	Target lpm (gpm)		Qty.	Length mm (in)		Qty.	Length mm (in)	Qty.	Length mm (in)		
DFS1	500 - 1250 (135 - 330)	750 (200)	VF1629	4	737 (29)	V2233	4	838 (33)	3	838 (33)	1778 x 1524 (70 x 60)	102 (4)
DFS2	865 - 2160 (230 - 570)	1300 (345)	VF1644	4	1118 (44)	V2838	6	965 (38)	5	838 (33)	2032 x 1524 (80 x 60)	102 (4)
DFS3	1585 - 3955 (420 - 1045)	2380 (630)	VF2044	6	1118 (44)	V3638	11	965 (38)	9	838 (33)	2794 x 2032 (110 x 80)	152 (6)

*Dimensions shown are for estimating purposes only. For exact dimensional detail, obtain certified copy of drawings.
Flow rates provided are for illustrative purposes. Actual flow rates may vary based on field conditions.

VF-61, VF-62

Small Housings for Diesel Fuel Filtration

Product Specifications

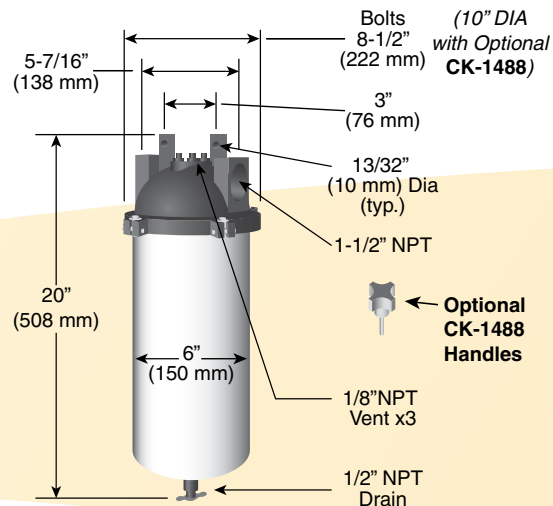
- Max. Operating Pressure: 150 psi
- Inlet/Outlet connection: 1-1/2" NPT
- Closure Seal: Buna-N O-ring (P/N G-0986)
- 1/8" brass petcock vent valve and 1/2" drain valve
- Material: Die cast aluminum head and closure clamp assembly; carbon steel shell with epoxy coated exterior and interior
- Weight:
 - 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

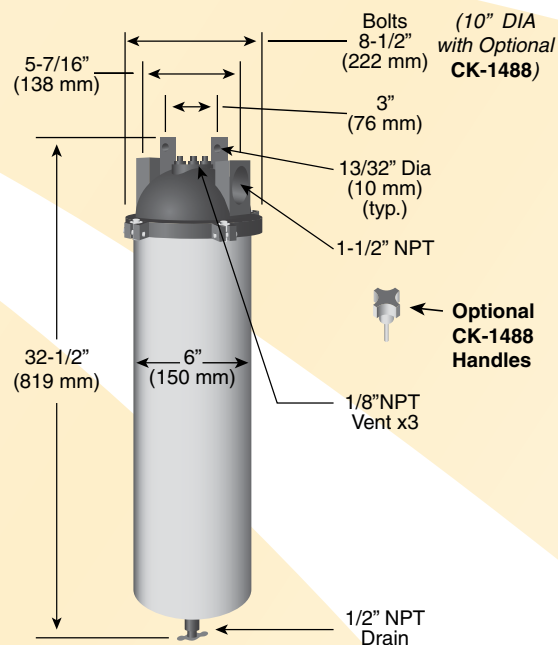
- dP Gauge



VF-61 (For use with AD-5 and DFO-5 Cartridges)



VF-62 (For use with AD-5 and DFO-5 Cartridges)



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

Vel-Max[®] Housings

Housings for Diesel Fuel Filtration

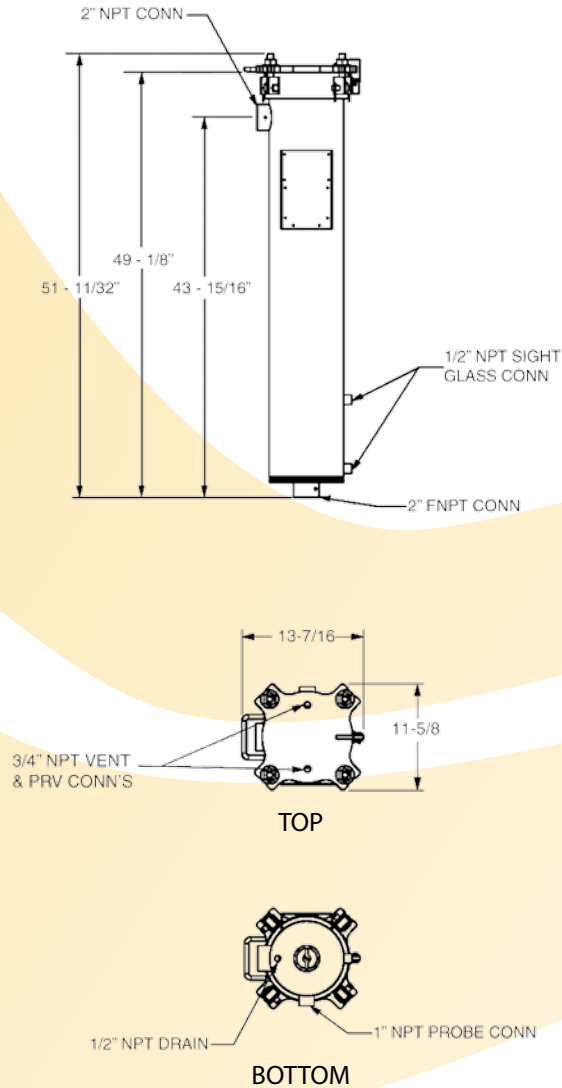
For use with AD-6 and DFO-6 Cartridges

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)

Optional Features

- Air eliminator
- Drain valve
- Pressure relief valve
- Water probe
- Sight gauge
- Leg assembly with adjustable height
- ASME Code Stamp
- CE Mark
- Differential pressure gauge assembly
- Lid Gasket: G-2052V (Viton[®])
- Duplex Configuration

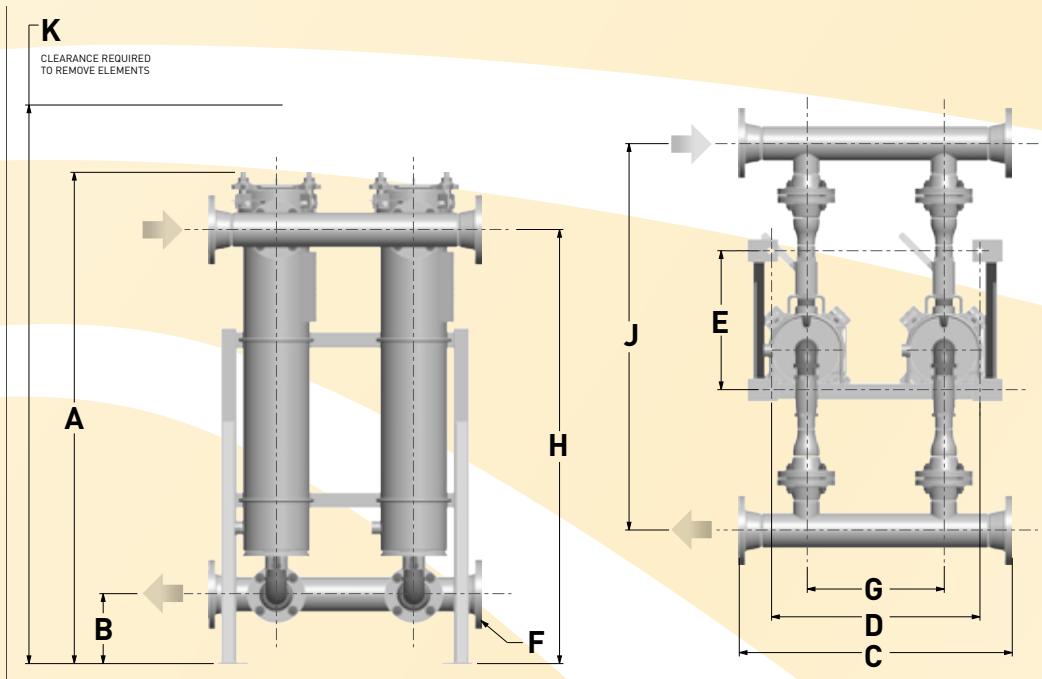
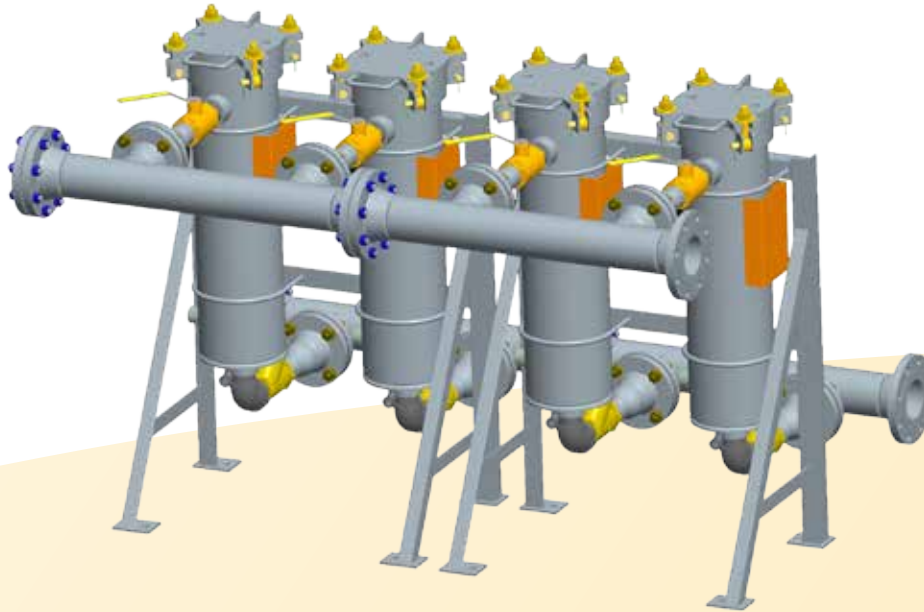


Vel-Max
(VX-2 shown
with optional leg
assembly)

Model	Height		Cover Width		Cover Length		Dry Weight	
	in.	mm	in.	mm	in.	mm	lbs.	kgs
VX-1	36	914	13 7/16	341	11 5/8	295	110	50
VX-2	51	1295	13 7/16	341	11 5/8	295	125	57
VX-3	66	1676	13 7/16	341	11 5/8	295	150	68

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

Duplex Option



Model	A		B		C		D		E		F		G		H		J		K	
	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm
VX-1 DPL	45 5/8	1235	9 1/16	230	35 3/8	898	27	685	19	482	4	101	17 3/4	450	41 1/4	1047	50 1/16	1271	65	1651
VX-2 DPL	63 11/16	1617	9 1/16	230	11 5/8	295	125	57	18	457	4	101	17 3/4	450	56 1/4	1428	50 1/16	1271	93	2362
VX-3 DPL	78 11/16	1998	9 1/16	230	11 5/8	295	150	68	20	508	4	101	17 3/4	450	71 1/4	1809	50 1/16	1271	121	3073

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

VFD Series

Vertical Filter Housings

For Use with DFO-6 & AD-6 Cartridges

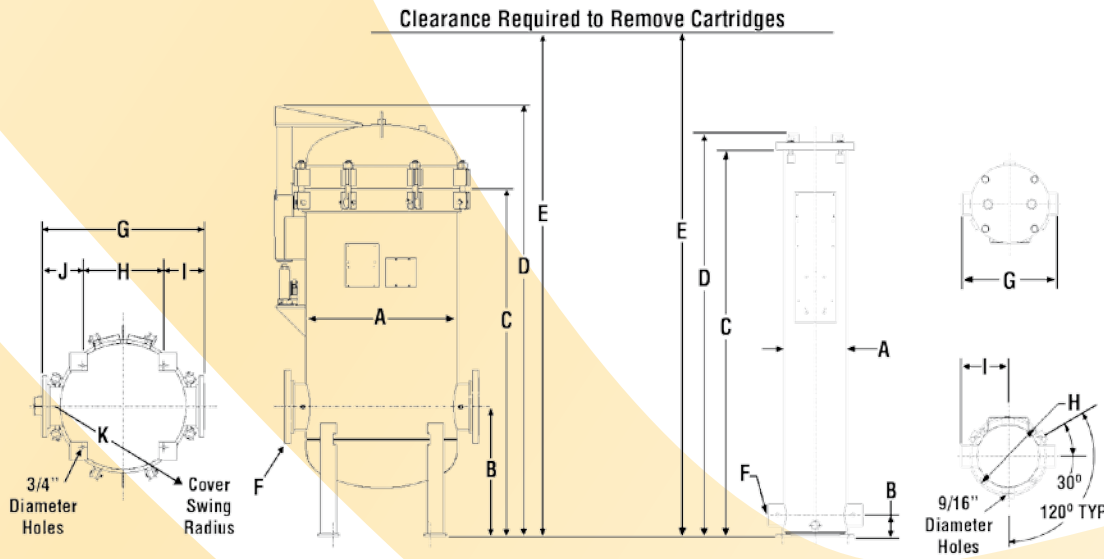


Figure 1

Figure 2



Vessel Model	Flow Rate Range lpm (gpm)		Length mm (in.)	Qty.	Fig. No.	Dimensions mm (in.)											Wt. w/Skid kgs (lbs)	Volume ltr (U.S. gal)
	Min	Max				A	B	C	D	E	F	G	H	I	J	K		
VFD829	110 (29)	496 (131)	737 (29)	1	2	219 (8 5/8)	76 (3)	991 (57 1/8)	1045 (41 1/8)	1727 (68)	51 (2)	330 (13)	264 (10 3/8)	165 (6 1/2)			120 (65)	30 (8)
VFD844	167 (44)	750 (198)	1118 (44)	1	2	219 (8 5/8)	76 (3)	1449 (57 1/8)	1510 (59 7/8)	2565 (101)	51 (2)	330 (13)	264 (10 3/8)	165 (6 1/2)			138 (305)	42 (11)
VFD1629	439 (116)	1976 (522)	737 (29)	4	2	406 (16)	381 (15)	1341 (52 3/8)	1418 (55 3/8)	2083 (82)	102 (4)	616 (24 1/4)	229 (9)	194 (7 7/8)	194 (7 7/8)	468 (18 3/4)	254 (560)	132 (35)
VFD1644	666 (176)	2998 (792)	1118 (44)	4	2	406 (16)	381 (15)	1695 (66 3/4)	1772 (69 3/4)	2794 (110)	102 (4)	616 (24 1/4)	229 (9)	194 (7 7/8)	194 (7 7/8)	468 (18 3/4)	281 (620)	189 (50)
VFD2044	999 (264)	4497 (1188)	1118 (44)	6	2	508 (20)	495 (19 1/2)	1895 (74 5/8)	2043 (80 7/8)	2997 (118)	152 (6)	711 (28)	330 (13)	191 (7 1/2)	191 (7 1/2)	660 (26)	499 (1100)	341 (90)
VFD2444	1332 (352)	5996 (1584)	1118 (44)	8	1	610 (24)	533 (21)	1651 (65)	1829 (72)	2845 (112)	152 (6)	813 (32)	381 (15)	203 (8)	203 (8)	813 (32)	590 (1300)	454 (120)
VFD2456	1696 (448)	7631 (2016)	1422 (56)	8	1	610 (24)	533 (21)	1956 (77)	2134 (84)	3099 (122)	152 (6)	813 (32)	381 (15)	203 (8)	203 (8)	813 (32)	612 (1350)	568 (150)
VFD2844	1999 (528)	9005 (2379)	1118 (44)	12	1	711 (28)	610 (24)	1635 (64 3/8)	2026 (79 3/4)	2743 (108)	203 (8)	914 (36)	457 (18)	229 (9)	229 (9)	889 (35)	726 (1600)	625 (165)
VFD2856	2544 (672)	11447 (3024)	1422 (56)	12	1	711 (28)	610 (24)	1940 (76 3/8)	2330 (91 3/4)	3048 (120)	203 (8)	914 (36)	457 (18)	229 (9)	229 (9)	889 (35)	794 (1750)	757 (200)
VFD2644	2998 (792)	13491 (3564)	1118 (44)	18	1	930 (36 5/8)	660 (26)	1635 (64 3/8)	2134 (84)	2769 (109)	254 (10)	1219 (48)	584 (23)	318 (12 1/2)	318 (12 1/2)	1118 (44)	1021 (2250)	1098 (290)
VFD3656	3816 (1008)	17171 (4536)	1422 (56)	18	1	930 (36 5/8)	660 (26)	1940 (76 3/8)	2438 (96)	3073 (121)	254 (10)	1219 (48)	584 (23)	318 (12 1/2)	318 (12 1/2)	1118 (44)	1089 (2400)	1325 (350)
VFD4244	4497 (1188)	20237 (5346)	1118 (44)	27	1	1086 (42 3/4)	711 (28)	1676 (66)	2219 (87 3/8)	2794 (110)	305 (12)	1372 (54)	711 (28)	330 (13)	330 (13)	1327 (52 1/4)	1724 (3800)	1514 (400)
VFD4256	5724 (1512)	25756 (6804)	1422 (56)	27	1	1086 (42 3/4)	711 (28)	1981 (78)	2499 (98 3/8)	3099 (122)	305 (12)	1372 (54)	711 (28)	330 (13)	330 (13)	1327 (52 1/4)	1814 (4000)	1798 (475)
VFD4856	6995 (1848)	31479 (8316)	1422 (56)	33	1	1219 (48)	737 (29)	2032 (80)	2743 (108)	4191 (165)	356 (14)	1676 (66)	927 (36 1/2)	375 (14 3/4)	375 (14 3/4)	1651 (65)	1996 (4400)	2385 (630)
VFD5456	8903 (2352)	40065 (10584)	1422 (56)	42	1	1397 (55)	787 (31)	2083 (82)	2870 (113)	4216 (166)	406 (16)	1829 (72)	1041 (41)	394 (15 1/2)	394 (15 1/2)	1829 (72)	2268 (5000)	3975 (1050)
VFD6056	10599 (2800)	47696 (12600)	1422 (56)	50	1	1549 (61)	914 (36)	2235 (88)	3023 (119)	4445 (175)	457 (18)	1981 (78)	1156 (45 1/2)	413 (16 1/4)	413 (16 1/4)	1905 (75)	3084 (6800)	4845 (1280)

1. For higher viscosity fluids or operating in highly variable temperature conditions, consult your Velcon Representative.
 2. VFD Series are designed to accommodate our standard 6 in. O.D., 3 1/2 in. I.D. cartridges including Velcon's DFO, DI, DSO, and Aquacon® AD.
 3. Threaded base filter 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. VFD16 and VFD20 Series vessels have flat covers. VFD16 Series vessels do not have hydraulic lift jacks.

V Series

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

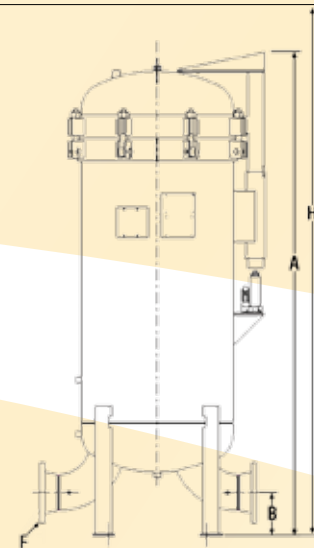
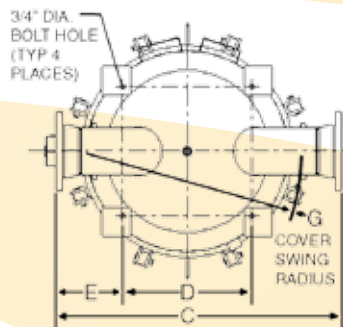
Optional Accessories

- 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.



Clearance Required to Remove Cartridges



Vessel Model Number	Flow Rate Range lpm (gpm)		DI/DSO		A	B	C	D	E	F	G	H	Wt. w/ Skid kgs (lbs)	Volume ltr (U.S. gal)
	Min - Max	Target	Length mm (in.)	Qty. (C/S)										
V2222	335 - 835 (90 - 220)	500 (130)	559 (22)	4/3	1575 (62)	203 (8)	689 (27 1/8)	394 (15 1/2)	159 (6 1/4)	102 (4)	762 (30)	2184 (86)	503 (1110)	242 (64)
V2233	500 - 1250 (135 - 330)	750 (200)	838 (33)	4/3	1753 (69)	203 (8)	689 (27 1/8)	394 (15 1/2)	159 (6 1/4)	102 (4)	762 (30)	2591 (102)	513 (1130)	273 (72)
V2833	750 - 1875 (200 - 495)	1125 (300)	838 (33)	6/5	2108 (83)	203 (8)	1016 (40)	457 (18)	321 (12 1/2)	152 (6)	889 (35)	2997 (118)	748 (1650)	644 (170)
V2844	1000 - 2500 (265 - 660)	1500 (400)	1118 (44)	6/5	2261 (89)	203 (8)	1016 (40)	457 (18)	321 (12 1/2)	152 (6)	889 (35)	3378 (133)	767 (1690)	700 (185)
V3638	1585 - 3955 (420 - 1045)	2380 (630)	965 (38)	11/9	2326 (91 3/8)	203 (8)	1607 (63 1/4)	584 (23)	511 (20 1/2)	152 (6)	1118 (44)	3277 (129)	943 (2080)	1060 (280)
V3644	1835 - 4580 (485 - 1210)	2750 (730)	1118 (44)	11/9	2448 (96 3/8)	229 (9)	1324 (52 1/8)	584 (23)	371 (14 1/4)	203 (8)	1118 (44)	3556 (140)	975 (2150)	1155 (305)
V3656	2335 - 5830 (620 - 1540)	3500 (930)	1422 (56)	11/9	2786 (109 1/8)	229 (9)	1324 (52 1/8)	584 (23)	371 (14 1/4)	203 (8)	1118 (44)	4064 (160)	1043 (2300)	1344 (355)
V4244	2500 - 6245 (660 - 1650)	3750 (995)	1118 (44)	15/12	2626 (103 3/8)	229 (9)	1405 (55 3/8)	711 (28)	381 (15)	203 (8)	1270 (50)	3810 (150)	1520 (3350)	1703 (450)
V4256	3180 - 7950 (840 - 2100)	4770 (1260)	1422 (56)	15/12	2931 (115 3/8)	229 (9)	1405 (55 3/8)	711 (28)	381 (15)	203 (8)	1270 (50)	4191 (165)	1588 (3500)	1968 (520)

*Dimensions shown are for estimating purposes only. For exact dimensional detail, obtain certified copy of vessel drawing.
Flow rates provided are for illustrative purposes. Actual flow rates may vary based on field conditions.

Laboratories



Diesel Fuel Laboratory

Velcon is committed to supplying the highest quality filtration technology available. Our state-of-the-art Diesel Fuel Laboratories are uniquely capable of performing full-flow single-pass efficiency testing similar to real world

conditions. We also structurally challenge our products to assure consistent performance in the most extreme conditions. At Velcon, we stand behind our products, as we continue to seek solutions to ensure quality fuel whenever and wherever needed.

Analytical Laboratory

The Velcon Analytical Laboratory houses a wide range of capabilities to support the development of filtration products. These capabilities include the testing of filters, in-house quality control testing, and the analysis of customer-provided samples. Using our broad range of cutting edge technology and diagnostic equipment for conducting both quantitative and qualitative testing, Velcon is committed to providing

quality solutions and industry leading technology. All equipment and testing are performed within the guidelines of ASTM, ISO, SAE, and ANSI standards.

Laboratory Services

- Custom product testing available for specialty application needs
- Fluid filtration analysis to determine optimal product application
- Post use contamination analysis to determine level and composition of contaminants
- Customized laboratory reports for informed decision making

System Sizing

SizeRight™

Velcon's extensive bulk fuel handling experience and our state-of-the-art fuel testing laboratory have quantitatively proven that increased system/housing will allow for lower flow rates per filter while dramatically extending the service life of the

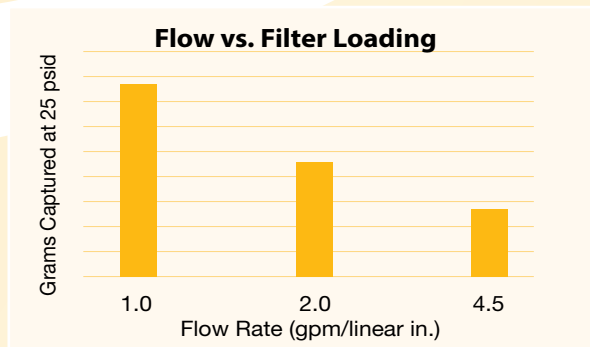
elements. Systems "sized for life" commonly see a full repayment of the additional system cost through operating savings. Using Velcon's proprietary calculator in **SizeRight**, for system sizing, we can help you select the right housing and elements for your application based on your ISO 4406 cleanliness 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)

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



Worldwide Filtration Manufacturing Locations

North America

Compressed Air Treatment

Filtration & Separation/Balston

Haverhill, MA
978 858 0505
www.parker.com/balston

Finite Airtex Filtration

Airtex/dornick hunter/Zander

Lancaster, NY
716 686 6400
www.parker.com/faf

Finite Airtex Filtration/Finite

Oxford, MI
248 628 6400
www.parker.com/finitefilter

Engine Filtration & Water Purification

Modesto, CA
209 521 7860
www.parker.com/racor

Holly Springs, MS
662 252 2656
www.parker.com/racor

Beaufort, SC
843 846 3200
www.parker.com/racor

Racor – Village Marine Tec.

Gardena, CA
310 516 9911
desalination.parker.com

Parker Sea Recovery

Carson, CA
310 637 3400
www.searecovery.com

Hydraulic Filtration

Hydraulic Filter

Metamora, OH
419 644 4311
www.parker.com/hydraulicfilter

Laval, QC Canada
450 629 9594
www.parkerfarr.com

Process Filtration

dornick hunter Process Filtration

Oxnard, CA
805 604 3400
www.parker.com/processfiltration

Madison, WI
608 824 0500
www.scilog.com

Phoenixville, PA
610 933 1600
www.parker.com/processfiltration

Aerospace Filtration

Velcon Filtration

Colorado Springs, CO
719 531 5855
www.velcon.com

Europe

Compressed Air Treatment

dornick hunter Filtration & Separation

Gateshead, England
+44 (0) 191 402 9000
www.parker.com/dhfn

Parker Gas Separations

Etten-Leur, Netherlands
+31 76 508 5300
www.parker.com/dhfn

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www.parker.com/hzd

Hiross Zander

Essen Business Unit
Essen, Germany
+49 2054 9340
www.parker.com/hzd

Engine Filtration & Water Purification

Racor

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www.parker.com/rfde

Racor Research & Development

Stuttgart, Germany
+49 (0)711 7071 290-10
www.parker.com/rfde

Hydraulic Filtration

Hydraulic Filter

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www.parker.com/hfde

Urzala Operation

Urzala, Finland
+358 20 753 2500
www.parker.com/hfde

Condition Monitoring Centre

Norfolk, England
+44 (0) 1842 763 299
www.parker.com/hfde

Parker Kittiwake

West Sussex, England
+44 (0) 1903 731 470
www.kittiwake.com

Parker Procal

Peterborough, England
+44 (0) 1733 232 495
www.kittiwake.com

Process Filtration

dornick hunter Process Filtration

Birtley, England
+44 (0) 191 410 5121
www.parker.com/processfiltration

Parker Twin Filter BV

Zaandam, Netherlands
+31(0)75 655 50 00
www.twinfilter.com

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+61 2 9634 7777
www.parker.com/australia

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www.parker.com/china

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www.johnfowlerindia.com

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