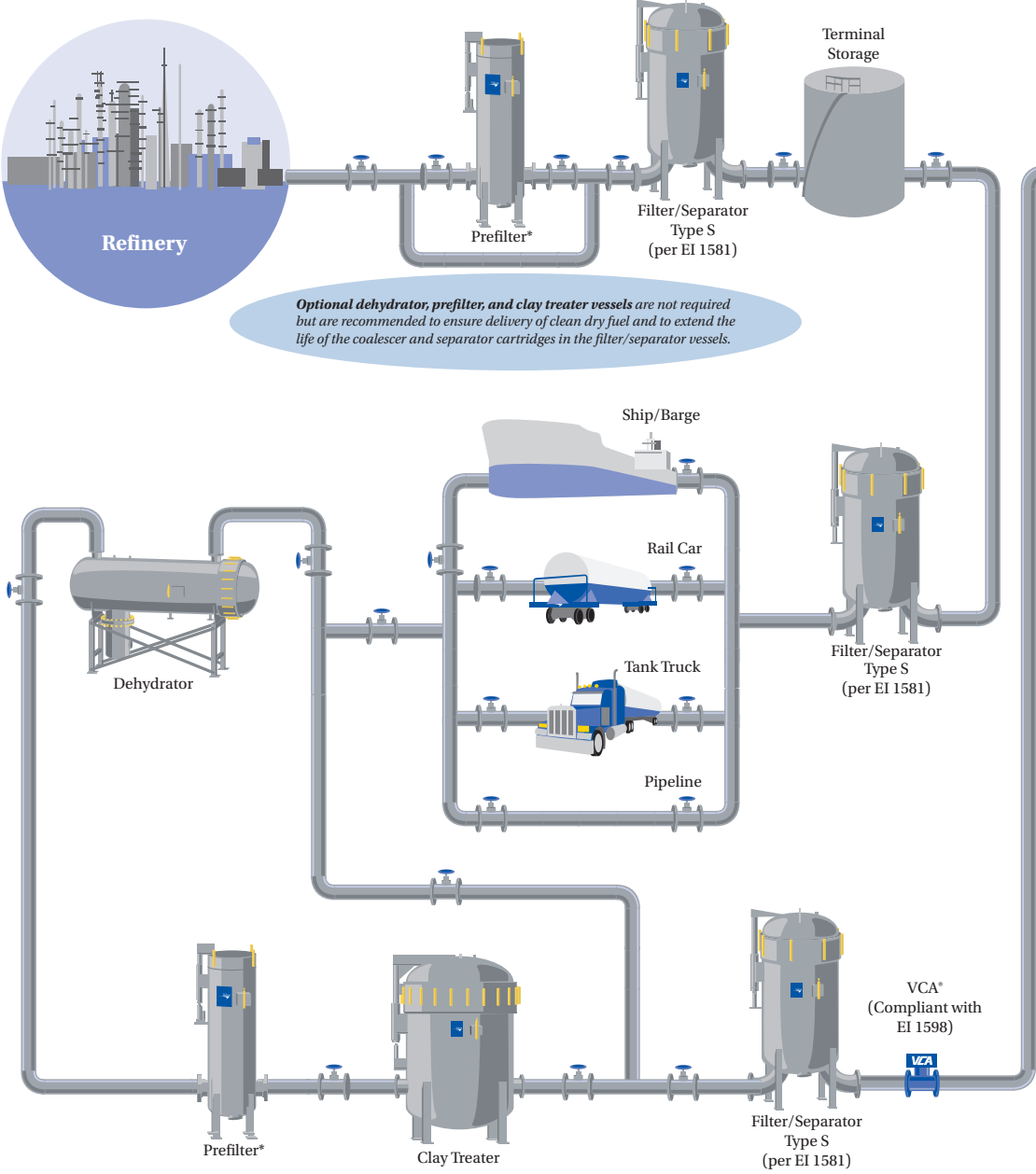




Vessels and Housings for Aviation Fuel Filtration

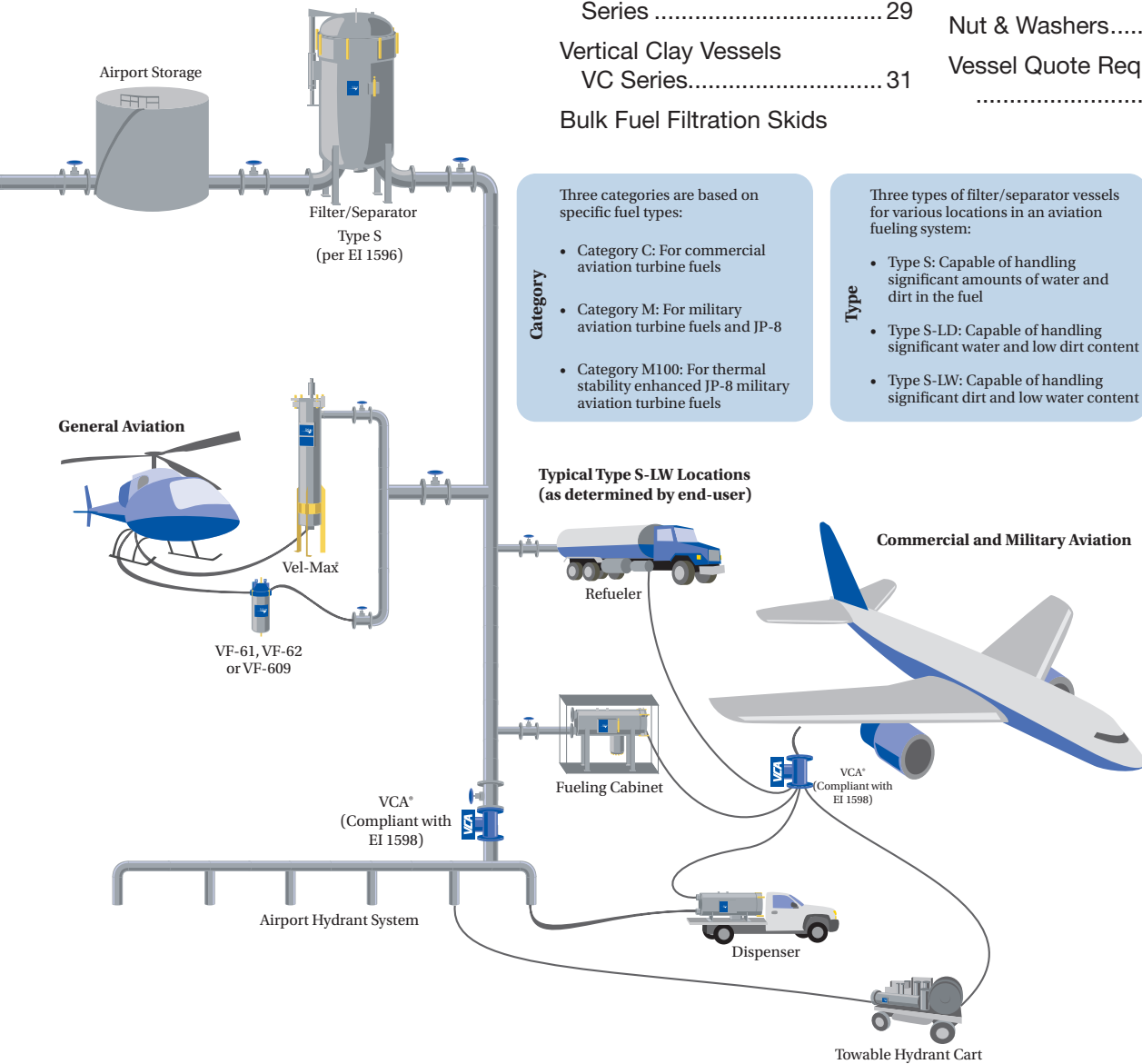
aerospace
climate control
electromechanical
filtration
fluid & gas handling
hydraulics
pneumatics
process control
sealing & shielding

Typical Distribution System for Clean Dry Aviation Fuel



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Category

Three categories are based on specific fuel types:

- Category C: For commercial aviation turbine fuels
- Category M: For military aviation turbine fuels and JP-8
- Category M100: For thermal stability enhanced JP-8 military aviation turbine fuels

Type

Three types of filter/separator vessels for various locations in an aviation fueling system:

- Type S: Capable of handling significant amounts of water and dirt in the fuel
- Type S-LD: Capable of handling significant water and low dirt content
- Type S-LW: Capable of handling significant dirt and low water content

Typical Type S-LW Locations (as determined by end-user)

* Prefilter elements compliance with EI 1590 and vessel compliance with EI 1596 is customer dependent. Optional EI 1583 Qualified Vessels/Absorbent Type Cartridges for jet fuel without anti-icing additive.

Small Filter Housings

VF-31E

Clean Dry Fuels with High Performance

Aquacon[®] Filter Cartridges

FEATURES:

- Free and emulsified water to less than 5 ppm
- 1/2 micrometer particulate removal
- Provides protection against “slugs” of water
- Pressure increase signals cartridge change
- Use with existing filter housings

APPLICATIONS

- Kerosene
- Diesel
- Biodiesel
- Gasoline

NOTE: For non-EI qualified applications. Housing does not meet EI1596 or EI1581 qualifications.



VF-31E
Filter Housing



AC-21005
Filter Cartridge



ACA-210
Filter Cartridge

DESCRIPTION

The VF-31E is a versatile filter housing designed for use with several different high performance **Aquacon** filter cartridges. Cartridges are offered for the optimum filtration of aviation fuel (see caution on reverse side), gasoline, diesel fuel, oils, compressed air, and other gasses. Refer to the Cartridge Selection Table for details.

Aquacon filters eliminate water contamination problems by

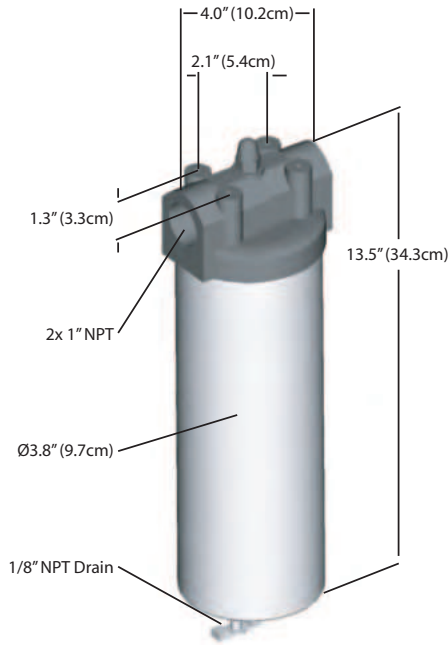
removing water from fuels, oils, and gasses. Filtered water is chemically locked into the cartridge's inner super-absorbent media.

As a cartridge reaches its water holding limit, the media expands very rapidly and restricts the flow of unfiltered material. This causes an increase in the differential pressure which signals the operator to replace the cartridge. When filtering fuels or compressed air, a saturated Aquacon cartridge

will completely block the flow until it is replaced.

Aquacon cartridges are also excellent dirt filters. Silt, rust, and other particulates are removed by the cartridge's outer filter media. One-half, five, and 25 micron rated cartridges are available for use with fuels and oils. The ACA-210 cartridge, for use with compressed air and other gasses, has a 1 micron rating.

DIMENSIONS:



Dimensions are for estimating purposes only.

CAUTION

Do not use **Aquacon** absorbent cartridges (AC, ACO or AD Series) with pre-mixed jet fuel containing anti-icing additives, or with gasoline/alcohol blends.

SPECIFICATION:

- Maximum operating pressure: 150 psi
- Material: cast aluminum head, carbon steel bowl with TGIC-Polyester coated interior and exterior
- Inlet/Outlet Connection: 1" NPT
- Inlet/Outlet face-to-face: 4"
- Mounting holes in head: four 1/4-20 NC
- Seal: Buna-N gasket
- Height: 13.50" without Petcock, 14.50" with Petcock
- Weight: 3 lbs., 15 oz.
- Shipping Weight: 4 lbs., 15 oz.
- Hardware included: 1 ea. Buna-N Lid Gasket, Mounting Brackets, 1 ea. Plug (for fuel and oil applications), and 1 ea. 1/8" Petcock Drain (for air, gas and aviation fuel applications).

ORDERING INFORMATION

- Supplied without cartridge
- Supplied with 1 ea. Model G-0995 Buna-N Lid Gasket, Mounting Brackets, 1 ea. Plug, and 1 ea. 1/8" Drain Petcock

RECOMMENDED SPARES

- 1 ea. Model G-0995 Buna-N Lid Gasket
- 4 ea. filter cartridges (Specify from table.)

FILTER CARTRIDGE SELECTION TABLE

| Product being filtered | Application | Cartridge P/N | Data Sheet | Type | Micron | Flow Rate (GPM) |
|---------------------------------|-------------------|---------------|------------|-----------------------------|--------|-----------------|
| Jet Fuel & Avgas ⁽¹⁾ | Dirt & Free water | ACO-21001R | 1681 | Aquacon [®] | 0.5 | 1-15 |
| Motor Gasoline | | AC-21005 | 1582 | | 5 | |
| Gasohol | Dirt | FOG-21005 | N/A | Paper filter | 5 | 1-15 |

(1) If system pressure can exceed 25 psi, always install pressure gauge or other means of determining differential pressure.

(2) See Data Sheet VEL1709 for absorbent cartridge (AC, AD) flow rates.

Small Filter Housings

VF-609

Clean Dry Fuels with High Performance

Aquacon[®] Filter Cartridges for Helicopter Refueling and Dispensing Pumps

FEATURES

- Positive Water Removal – Aquacon cartridges remove free and emulsified water from fuels
- Positive Water Holding – filtered water is chemically locked in and can't be squeezed out
- Pressure Increase signals cartridge change
- Effective Dirt Removal – 98% + efficiency for 1/2, 5, or 25 micrometer particles

APPLICATIONS

- Jet Fuel
- Avgas



The VF-609 uses high performance **Aquacon** filter cartridges. Model above is shown without optional gauge.

NOTE: For non-EI qualified applications. Housing does not meet EI1596 or EI1581 qualifications.

DESCRIPTION

The VF-609 is a versatile filter housing with bolted cover, designed for use with several different high performance **Aquacon** filter cartridges. Refer to the cartridge selection table on the reverse side.

Aquacon cartridges filter out water by chemically locking it into layers of super-absorbent media. Water removal efficiency is not affected by surfactants or additives, and once captured, the water cannot be squeezed out. Water capacity is as much as 1½ quarts, depending on the flow rate. These cartridges also effectively filter out

dirt, rust and other particulates.

As a cartridge reaches its water-holding limit, the media expands very rapidly and restricts the flow. For fuels, the flow will completely stop, giving positive shut-off and guaranteeing water will not get downstream. For oils and other high viscosity liquids, the pressure drop will rapidly increase, signaling the need to change cartridges.

OVER PRESSURE PROTECTION

When exposed to a high concentration of water, the differential pressure across an **Aquacon** cartridge will

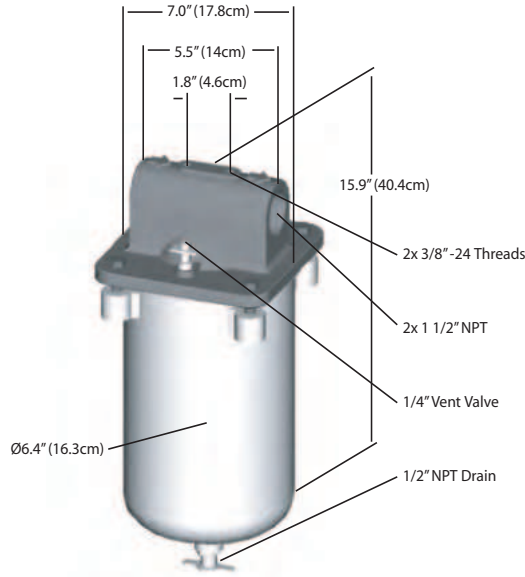
immediately increase. Pressure bypasses or other means to limit the inlet pressure to 75 psi (5 bar) should be installed to prevent the cartridge from collapsing.

CAUTION

To protect the fuel system, including the VF-609 and other components, be sure to install pressure relief valve(s).

Do not use **Aquacon**[®] absorbent cartridges (ACO or AD Series) with pre-mixed jet fuel containing anti-icing additives, or with gasoline/alcohol blends.

DIMENSION:



Dimensions are shown for estimating purposes only.

SPECIFICATION:

Housing

- Max. Operating Pressure: 150 psi
- Cast aluminum head; carbon steel shell with TGIC-polyester coated exterior and interior; four bolt head
- Inlet/Outlet Connections: 1 1/2" NPT
- Closure Seal: Buna-N O-Ring – P/N G-0565
- Weight: 8 lbs.
- Shipping Weight: 10 lbs
- 1/4" brass petcock vent valve and 1/2" drain valve
- Bolted cover

ORDERING INFORMATION

- VF-609 unit is supplied with G-0565 Buna-N O-Ring and 1/4" vent valve and 1/2" drain valve.
- Cartridges are not supplied and must be ordered separately.
- Viton O-Rings (P/N G-0565A) are recommended for gasoline and solvent applications.
- Optional Differential Pressure Gauge Assembly is P/N 07-224.
- Optional mounting block for gauge, PN 07-224AMB.
- Optional Drain Valve Part Number 554Y020 is a Carbon Steel 1/2" NPT Ball Valve, with Mounting nipple.

RECOMMENDED SPARES:

- 1 each G-0565 Buna-N O-Ring (or 2 each G-0565A Viton O-Rings)
- 6 each cartridges

Cartridges

- Max. Operating Temp.: 250°F (121.1°C)
- Collapse Strength: 75 psi (5bar)
- pH Range: 5 - 9
- Nom. Filtration Efficiency: 98%

OPTIONAL PRESSURE GAUGE



The VF-609 gauge is an easy to install optional accessory.

| Color | Indicates | Pressure Drop |
|--------|-----------|---------------|
| Green | Clean | 0 - 15 psi |
| Yellow | Change | 16 - 25 psi |
| Red | Dirty | 26+ psi |

FILTER CARTRIDGE SELECTION

| Product being filtered | Application | Cartridge P/N | Data Sheet | Type | Micron (µm) | Flow Rate (GPM) |
|---------------------------------|-------------------|---------------|------------|----------------------|-------------|--------------------------|
| Jet Fuel & Avgas ⁽¹⁾ | Dirt & Free water | ACO-609P3R | 1681 | Aquacon® | 0.3 | 15-36 |
| | | ACO-60901R | | | 0.5 | |
| | | ACO-60905R | | | 5 | |
| | | OS-60988 | 1858 | Coalescer/ Separator | 0.5 | Jet: 5-35 Avgas: 5-45 |

(1) Always install a differential pressure gauge or other means of determining differential pressure.

Small Filter Housings

VF-61, VF-61E, VF-62

Clean Dry Fuels with High Performance

Aquacon[®] Filter Cartridges

FEATURES

- Free and emulsified water to less than 5 ppm
- 1/2 micrometer particulate removal
- Provides protection against “slugs” of water
- Pressure increase signals cartridge change
- Use with existing filter housings

APPLICATIONS

- Jet Fuel
- Avgas
- Kerosene
- Gasoline

NOTE: For non-EI qualified applications. Housing does not meet EI1596 or EI1581 qualifications.



VF-61
with Optional
DP Gauge

VF-61E
with Band
Clamp Closure

VF-62
with Optional
Hand Knobs

DESCRIPTION

The VF-61, VF-61E, 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.

Aquacon cartridges filter out water by chemically locking it into layers of super-absorbent media. Water removal efficiency is not

affected by common surfactants or additives. Water capacity is as much as 1-½ quarts, depending on the flow rate. These cartridges also effectively filter out dirt, rust and other particulates. (See caution)

As a cartridge reaches its water-holding limit, the media expands very rapidly and restricts the flow. For oils and other high viscosity liquids, the pressure drop will

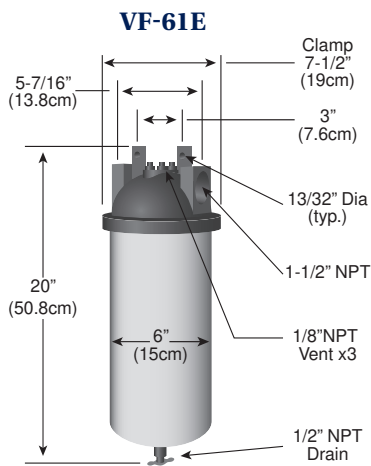
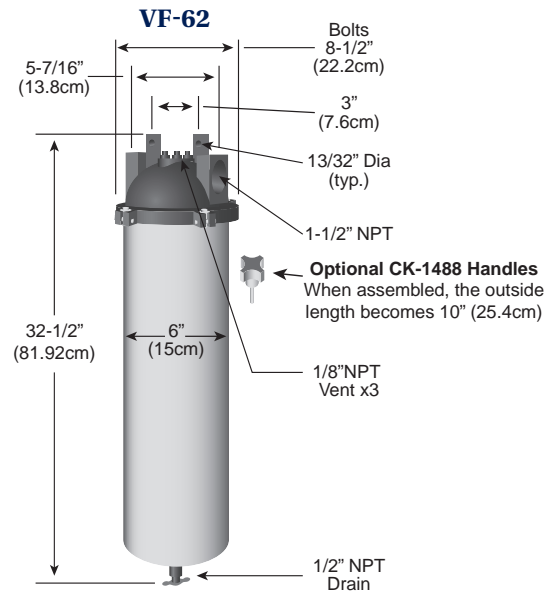
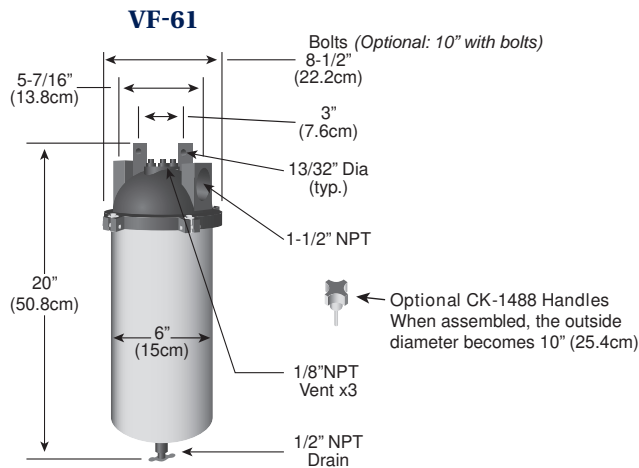
rapidly increase, signaling the need to change cartridges.

The VF-61, with ACO series cartridges installed, has become the standard for low flow rate full flow aviation fuel monitor applications.

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

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-61E has a band clamp closure. Use in areas with limited space.

FILTER CARTRIDGE SELECTION

| | Product being filtered | Application | Cartridge P/N | Type | Micron | Flow Rate (GPM) |
|---------------|---------------------------------|-------------------|---------------|----------------------|--------------|------------------------|
| VF-61, VF-61E | Jet Fuel & Avgas ⁽¹⁾ | Dirt & Free water | ACO-512P3R | Aquacon | 0.3 | 5-50 |
| | | | ACO-51201R | | 0.5 | 5-50 |
| | | | OS-51288 | Coalescer/ Separator | 0.5 | Jet: 5-35, Avgas: 5-45 |
| | ALL | Dirt | FO-512PL1/2 | Paper Filter | 0.5 | Fuels: 5-50 |
| FO-512PL05 | | | 5 | | | |
| FO-512PL25 | | | 25 | | | |
| VF-62 | Jet Fuel & Avgas ⁽¹⁾ | Dirt & Free water | ACO-52401R | Aquacon | 0.5 | 10-100 |
| | | | FO-524PL1/2 | | Paper Filter | 0.5 |
| | FO-524PL05 | 5 | | | | |
| | FO-524PL25 | 25 | | | | |

(1) Always install a differential pressure gauge or other means of determining differential pressure. Please consult installation instructions and operating procedures that accompany products for more detailed information.

OVER PRESSURE PROTECTION

When exposed to a high concentration of water, the differential pressure across an absorbent cartridge (AC, ACO, AD, or ASL Series cartridges) 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.

CAUTION

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

Do not use **Aquacon**[®] absorbent cartridges (AC, ACO, AD or ASL Series) with pre-mixed jet fuel containing anti-icing additives, or with gasoline/alcohol blends.

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

- Specify Model VF-61, VF-61E, or VF-62 Filter Housing
- 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. They are recommended for gasoline and solvent applications. Caution

OPTIONS

- 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 for VF-61 and VF-62 only.
- Part Number 10678 Differential Pressure Gauge Assembly

SPECIFICATION

Housings

- Max. Pressure: 150 psi
- Connection: 1 1/2" NPT
- Seal: Buna-N O-Ring (P/N G-0986)
- 1/8" brass petcock vent valve and 1/2" drain valve
- Material:
 - VF-61, VF-62: Die cast

aluminum head and closure clamp assembly; carbon steel shell with TGIC-Polyester coated exterior and interior.

- VF-61E: Die cast aluminum head; stainless steel band clamp; carbon steel shell with TGIC-Polyester coated exterior and interior.
- Weight:
 - VF-61: 10 lbs., Shipping Weight: 12lbs.
 - VF-61E: 8 lbs., Shipping Weight: 10 lbs.
 - VF-62: 16 lbs., Shipping Weight: 18 lbs.

Cartridges

- Max. Operating Temp.: 250°F (121.1°C)
- Collapse Strength: 75 psi (5 bar)
- pH Range: 5 - 9
- Nom. Filtration Efficiency: 98%

OPTIONAL DIFFERENTIAL PRESSURE GAUGE ASSEMBLY PART NUMBER 10678 FOR USE WITH VF-61, VF-61E, VF-62

DESCRIPTION

This unit measures pressure difference between two points. The gauge allows for a simple reading on an easy-to-read scale. A red/green dial with a breakpoint located at 15 psid alerts the user of the condition of the process.

This kit consists of the following components:

- Differential Pressure Gauge: aluminum body, 1/8" NPT bottom, 1" molded lens & 0-20 psid scale
- Compression Fittings: 4 straight, 2 90° elbow
- 1/4 O.D. Copper Tubing

OPERATION

When the needle is in the green zone of the gauge during normal flow, the differential pressure is less than 15 psid across the installed element, and the element does not need to be changed out.

When the needle is in the red zone, the differential pressure is more than 15 psid and the element should be changed out. It has reached its recommended maximum pressure differential.



CAUTION:

Do not mount the P/N 10678 differential pressure gauge assembly any closer than 2" from a steel bracket or pipe. The gauge has a magnetic piston, and mounting too close to steel may affect the accuracy.

Vel-Max[®] Filter Vessel

VX Series

Compact, Flexible Filtration, Multipurpose Design,
Simplified Maintenance

DESCRIPTION

The compact Vel-Max Filter Vessel is suitable for flowrates up to 204 USGPM with micronic cartridges, up to 198 USGPM as a filter/separator, and up to 150 USGPM with CDF[®] monitor cartridges. The Vel-Max[®] can be used on mobile refueling equipment, fueling cabinets and for fixed fueling installations. Vel-Max is designed for easy maintenance and easy conversion to a prefilter, filter/separator, or monitor.

APPLICATIONS

- Jet Fuel
- JP5/JP8
- Avgas
- Gasoline
- Kerosene

STANDARD FEATURES

- Carbon steel construction
- 250 psi design pressure
- Epoxy powder coated interior & exterior
- 2" NPT female inlet/outlet
- 1/2" NPT drain connection
- 3/4" NPT vent and pressure 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)

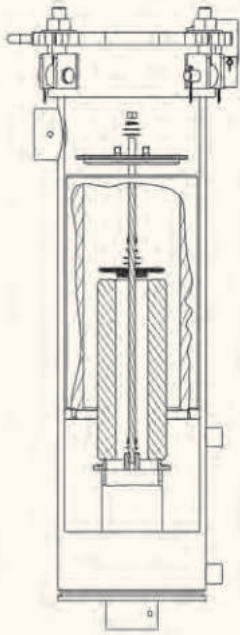
NOTE: For non-EI qualified applications. Housing does not meet EI1596 or EI1581 qualifications.



Vel-Max VX-2 showing optional leg assembly, differential pressure gauge, sight glass assembly, and air eliminator.

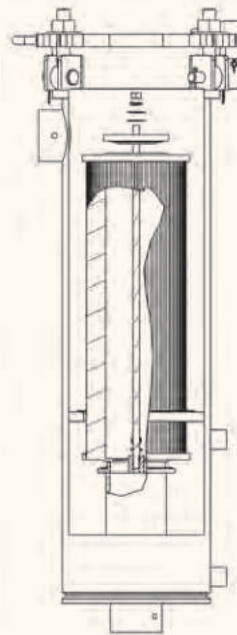
VEL-MAX FILTER VESSEL CONFIGURATIONS/APPLICATIONS

Filter/Separator Configuration



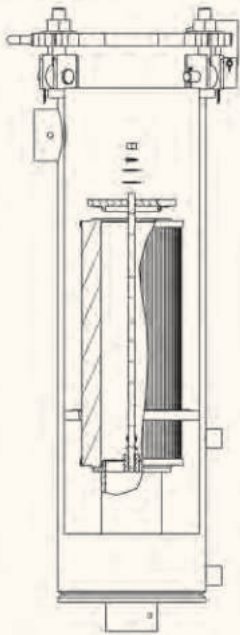
Vel-Max Series for liquid/liquid separation uses a 2-stage coalescer separator cartridge combination to remove free and emulsified water from a liquid product stream. The first stage coalescing cartridge provides filtration as well as coalescing of free and emulsified water. The second stage separator is a hydrophobic barrier designed to repel the coalesced water droplets. The water droplets will fall and collect in the sump for removal through the manual drain.

6" or 6.25" OD x 2.625" ID Configuration



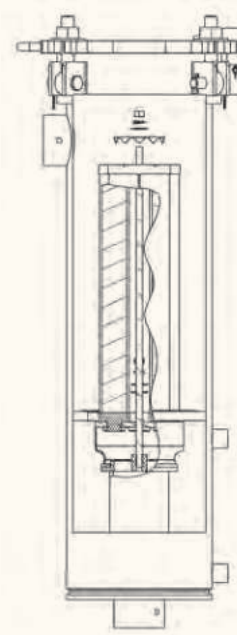
Vel-Max Series for 6" or 6.25" OD x 2.625" ID cartridges can be used in several ways. To remove solid contaminants from a flow stream, use the vessel with a pleated media filter. When used with **Aquacon** cartridges the Vel-Max will remove solids and free water by absorption from a fuel or industrial oil flow stream. Using Vel-Max with clay cartridges will remove surfactants, color and other impurities by adsorption from a fuel or industrial oil system.

6" OD x 3.5" ID Configuration



Vel-Max Series with 6" OD x 3.5" ID cartridges can be used in two ways. To remove solid contaminants from a flow stream, use the vessel with a pleated media filter. When used with **Aquacon** cartridges* the Vel-Max will remove solid contaminants and free water by absorption from a jet fuel or aviation gasoline flow stream.

6" or 6.25" OD x 2.625" ID Configuration



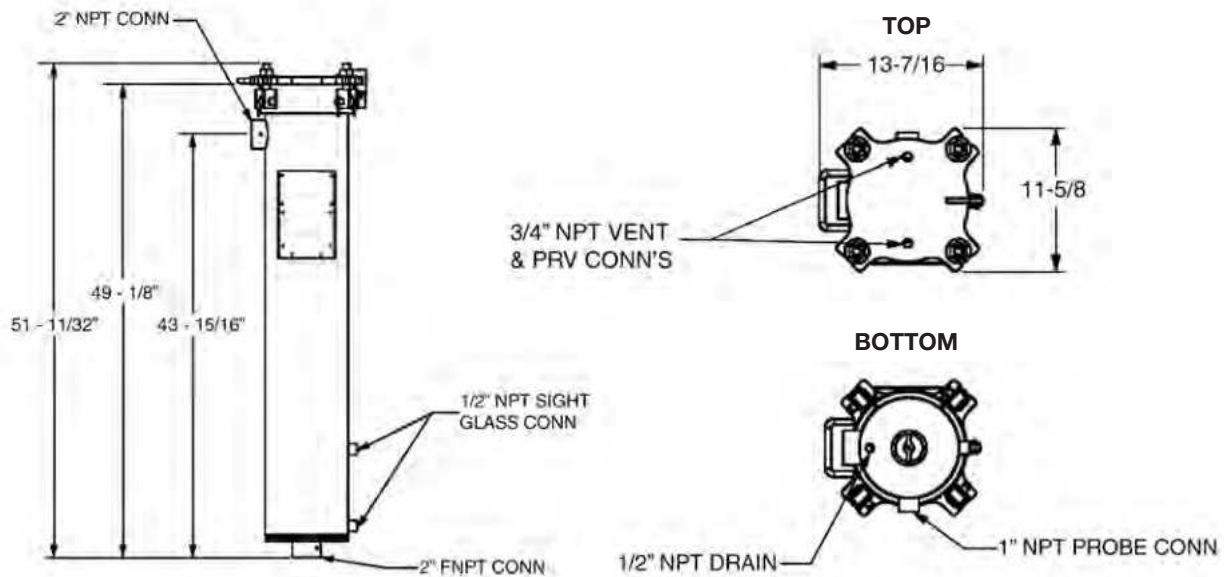
Vel-Max Series can be adapted to use 2" diameter CDF® type monitor cartridges* for removing solid contaminants and free water by absorption from jet fuel or aviation gasoline flow streams.

***CAUTION: Do not use Aquacon® or CDF® water absorbing monitor cartridges in pre-mixed jet fuel containing anti-icing additives (DiEGME, FIZZY®, Prist®, FSII)**

VEL-MAX FILTER VESSEL SPECIFICATIONS

DIMENSIONS

| 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 |



Drawing Shows
Dimensions for VX-2

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

FLOW RATES (USGPM)

| Configuration | Applications | VX-1 | VX-2 | VX-3 |
|--|--|------|------|------|
| Filter/Separator | Gasoline / Aviation Gasoline | 66 | 132 | 198 |
| | Jet Fuel / Kerosene | 50 | 100 | 150 |
| Micronic Cartridges 6" OD x 3.5" ID | Gasoline / Aviation Gasoline | 68 | 136 | 204 |
| | Jet Fuel / Kerosene | 66 | 132 | 198 |
| Aviation Aquacon Cartridges 6" Od X 3.5" ID | Jet Fuel / Kerosene | 58 | 115 | 176 |
| Industrial Micronic & Aquacon Cartridges 6" or 6.25" OD x 2.625" ID | Gasoline / Av Gas / Jet Fuel / Kerosene | 50 | 100 | 150 |
| Clay Cartridges (LA-61801B) | Jet Fuel / Kerosene / Gasoline | 7.5 | N/A | 15 |
| CDF® Monitor Cartridges | | 75 | 150 | N/A |

VEL-MAX® CARTRIDGE SELECTION TABLE

| Filter/Separator Configuration | | | | | |
|---|--|-------------|------------------------------|--------------------------------|----------|
| First Stage Coalescers For: | Micron Rating | Vx-1 | Vx-2 | Vx-3 | |
| Gasoline | 2 | O-8156 | O-8306 | O-8446 | |
| Jet Fuel / Kerosene | 0.5 | O-81588 | O-83088 | O-84488 | |
| Second Stage Separators For: | TYPE | VX-1 | VX-2 | VX-3 | |
| Jet Fuel / Kerosene / Gas | TCS | SO-415VX5 | SO-430VX5 | SO-444C | |
| 6" OD X 3.5" ID CONFIGURATION | TYPE | VX-1 | VX-2 | VX-3 | |
| MICRONIC CARTRIDGES | PLEATED PAPER | FO-614PLFxx | FO-614PLFxx (STACK OF 2) | FO-614PLFxx (STACK OF 3) | |
| | | | FO-629PLFxx | FO-644PLFxx | |
| | FIBERGLASS DEPTH | FO-614FGxx | FO-614FGxx (STACK OF 2) | FO-614FGxx (STACK OF 3) | |
| | | | FO-629FGxx | FO-644FGxx | |
| AVIATION <i>Aquacon</i> CARTRIDGES* | | ACO-61401R | ACO-61401R (STACK OF 2) | ACO-61405 (STACK OF 3) | |
| | | | ACO-62901R | ACO-64401R | |
| INDUSTRIAL <i>Aquacon</i> CARTRIDGES | | AC-61405 | A(C/D)-614xx (STACK OF 2) | A(C/D)-614xx (STACK OF 3) | |
| | | AD-61410 | | | |
| | | AD-61425 | | | AC-62905 |
| 6" OR 6.25" OD X 2.5625" ID CONFIGURATION | | VX-1 | VX-2 | VX-3 | |
| MICRONIC CARTRIDGES | PLEATED PAPER (FO) & PLEATED SYNTHETIC (FOS) | FO-718PLxx | N/A | (FO/FOS)-718xx (STACK OF 2) | |
| | | FOS-618PLxx | | FO-736PLxx | |
| | | FOS-718PLxx | | FOS-636PLxx | |
| | FIBERGLASS DEPTH | FO-618FGAxx | | FO-618FGAxx (STACK OF 2) | |
| FO-636FGAxx | | | | | |
| INDUSTRIAL <i>Aquacon</i> ® CARTRIDGES | | AC-718xx | | AC-718xx (STACK OF 2) | AC-736xx |
| CLAY (FULLER'S EARTH) CARTRIDGES | | LA-61801B | | LA-61801B (STACK OF 2) | |
| CDF® MONITOR CONFIGURATION | | VX-1 | VX-2 | VX-3 | |
| CDF® CARTRIDGES* | | CDF-215P | CDF-230P | N/A | |

The suffix "xx" on the part number of cartridges denotes the micron rating of the cartridge. Contact Parker AFD for available micron ratings.

HARDWARE KITS

| CONFIGURATION | VX-1 | VX-2 | VX-3 |
|--|-----------|-----------|-----------|
| Filter / Separator (Coalescer + Separator) | VX1-FSKIT | VX2-FSKIT | VX3-FSKIT |
| 6" OD X 3.5" ID Cartridge(s) | VX1-AVKIT | VX2-AVKIT | VX3-AVKIT |
| 6" OR 6.25" OD X 2.5625" ID Cartridge(s) | VX1-INKIT | N/A | VX3-INKIT |
| CDF® Monitor Cartridge(s) | VX1-CDKIT | VX2-CDKIT | N/A |

***CAUTION: Do not use Aquacon® or CDF® water absorbing monitor cartridges in pre-mixed jet fuel containing anti-icing additives (DiEGME, FIZZY®, Prist®, FSII)**

Aviation Filter Vessels

Qualified to EI1596 & EI1541

VFAP Series



VFAP2044150



VFAP814150

VFAP Series Aviation Filter Vessels differ from standard filter vessels. EI 1596 design requirements for jet fuel include: sloped deck plates, cartridge spacing, and spider plates. Consult our Micronic Filters for Aviation Fuel Handling catalog (VEL2159) to select the appropriate EI1590 cartridge for your application.

Filter vessels VFAP814 through VFAP844, such as the VFAP814150 shown at right, have through-bolt covers, NPT connections, and include fittings for drain, pressure gauge and air vent.

VFAP1614 and larger vessels, such as the VFAP2044150 shown at far right, are provided with swing bolt closure, RF flange connections and fittings for pressure gauge, air eliminator, pressure relief valve and drain valve.

STANDARD DESIGN FEATURES

- ASME Code construction to any pressure
- Choice of micron rating: 1 & 5 microns
- Pleated cellulose media
- EI qualified epoxy coated interior, primed exterior
- Buna-N O-ring cover seals.
- 3° slope deck plate

RECOMMENDED OPTIONAL ACCESSORIES

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

DIMENSIONS

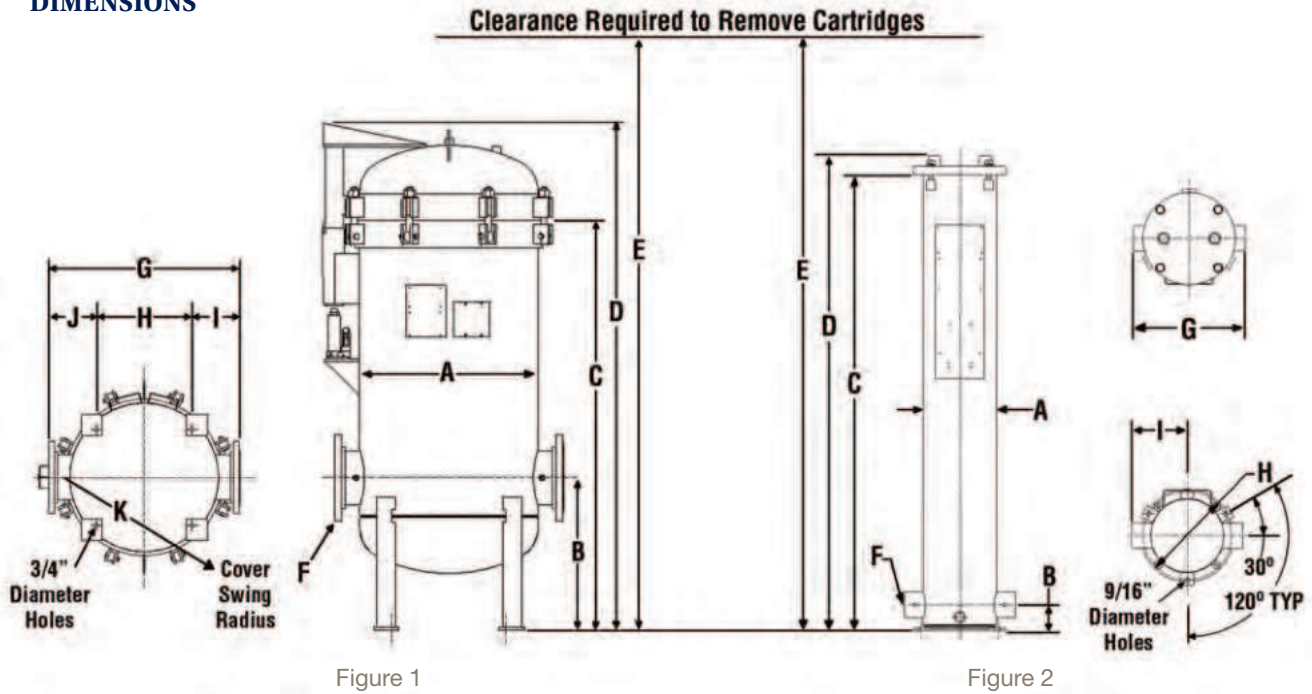


Figure 1

Figure 2

| Vessel Model Number | Max. Flow US-GPM | FO Series | | Fig. No. | Dimensions in Inches | | | | | | | | | | | Weight with Skid, lbs. | Volume U.S. Gallons |
|---------------------|------------------|-----------|--------|----------|--------------------------------|--------------------------------|----------------------------------|----------------------------------|-----|----|--------------------------------|--------------------------------|--------------------------------|--------------------------------|---------------------------------|------------------------|---------------------|
| | | Jet Fuel | Length | | Qty. | A | B | C | D | E | F | G | H | I | J | | |
| VFAP814 | 50 | 14 | 1 | 2 | 8 ⁵ / ₈ | 3 | 24 ³ / ₄ | 26 ³ / ₄ | 39 | 2 | 13 | 10 ³ / ₈ | 6 ¹ / ₂ | - | - | 225 | 5 |
| VFAP829 | 100 | 29 | 1 | 2 | 8 ⁵ / ₈ | 3 | 39 | 41 ¹ / ₈ | 68 | 2 | 13 | 10 ³ / ₈ | 6 ¹ / ₂ | - | - | 265 | 8 |
| VFAP844 | 150 | 44 | 1 | 2 | 8 ⁵ / ₈ | 3 | 57 ¹ / ₁₆ | 59 ⁷ / ₁₆ | 101 | 2 | 13 | 10 ³ / ₈ | 6 ¹ / ₂ | - | - | 305 | 11 |
| VFAP1614 | 200 | 14 | 4 | 1 | 16 | 15 | 37 ¹³ / ₁₆ | 40 ¹³ / ₁₆ | 52 | 4 | 24 ¹ / ₄ | 9 | 7 ⁵ / ₈ | 7 ⁵ / ₈ | 18 ⁷ / ₁₆ | 500 | 22 |
| VFAP1629 | 400 | 29 | 4 | 1 | 16 | 15 | 52 ¹³ / ₁₆ | 55 ¹³ / ₁₆ | 82 | 4 | 24 ¹ / ₄ | 9 | 7 ⁵ / ₈ | 7 ⁵ / ₈ | 18 ⁷ / ₁₆ | 560 | 35 |
| VFAP1829 | 450 | 29 | 4 | 1 | 18 | 11 | 53 | 58 ¹¹ / ₁₆ | 83 | 4 | 30 | 10 ¹ / ₂ | 9 ³ / ₄ | 9 ³ / ₄ | 20 ¹ / ₂ | 580 | 42 |
| VFAP2029 | 600 | 29 | 6 | 1 | 20 | 19 ¹ / ₂ | 60 ¹ / ₈ | 65 ⁵ / ₈ | 89 | 6 | 28 | 13 | 7 ¹ / ₂ | 7 ¹ / ₂ | 26 | 1000 | 67 |
| VFAP2044 | 900 | 44 | 6 | 1 | 20 | 19 ¹ / ₂ | 74 ⁵ / ₈ | 80 ⁷ / ₁₆ | 118 | 6 | 28 | 13 | 7 ¹ / ₂ | 7 ¹ / ₂ | 26 | 1100 | 88 |
| VFAP2829 | 1200 | 29 | 12 | 1 | 28 | 24 | 48 ¹ / ₂ | 64 ¹ / ₄ | 77 | 8 | 36 | 18 | 9 | 9 | 35 | 1500 | 125 |
| VFAP2844 | 1600 | 44 | 12 | 1 | 28 | 24 | 64 ³ / ₈ | 79 ³ / ₄ | 108 | 8 | 36 | 18 | 9 | 9 | 35 | 1600 | 165 |
| VFAP3644 | 2700 | 44 | 18 | 1 | 36 ⁵ / ₈ | 26 | 63 ³ / ₈ | 84 | 109 | 10 | 48 | 23 | 12 ¹ / ₂ | 12 ¹ / ₂ | 44 | 2250 | 288 |
| VFAP4244 | 4600 | 44 | 27 | 1 | 42 ³ / ₄ | 28 | 66 | 87 ³ / ₈ | 110 | 12 | 54 | 28 | 13 | 13 | 52 ¹ / ₄ | 3800 | 400 |

1. Flow rates are for pleated paper cartridges. For higher viscosity fluids, consult your Parker AFD Representative.
2. VFAP Series Filters are designed to accommodate our standard 6 in. O.D., 3 1/2 in. I.D., 14 1/2 in. long cartridges that are stacked one, two, or three high. Many cartridges are available in longer lengths that eliminate stacking. For example, a 44 inch long FO-644PLF1M could be used in place of three 14 1/2 inch long cartridges. This makes for easier and less expensive changeouts.
3. A number of threaded base filter cartridges (e.g. FO-644PLF5TB) are available, which allow for easier cartridge changeout and removal of particulate matter from the deckplates. The threaded base cartridges mount on the 6000T Adapters.
4. Dimensions shown are for estimating purposes only. For exact dimensions, obtain certified drawing.
5. VFAP16 and VFAP20 Series vessels have flat covers. VFAP16 Series vessels do not have hydraulic lift jacks.

Vertical Filter/Separator Vessels

EI 1581 6th Edition Qualified VV Series

Compact Filter/Separator Vessels for Fixed Installations



Parker Velcon at London Heathrow T5

FEATURES

- Compact Design
- Code Qualification
- Simplified Maintenance
- Field Proven Performance

DESCRIPTION

Compact VV Series Filter/Separators comply fully with EI 1581, Sixth Edition, requirements for Category C equipment. Units are designed for ease of maintenance with one piece threaded base “C5” Series Coalescer Elements and reusable one-piece PTFE coated screen “V5” Series Separator Elements.

SPECIFICATIONS

- 150 PSI ASME Code
- RF Flanged Connections
- Swing Bolted Closure
- Buna-N O-ring Cover Seal
- EI-1596 Epoxy Coated Interior, Primer Exterior
- 3% positive sloped deck plates or manifolds to facilitate drainage
- Meets EI1596 and EI1541 construction requirements

RECOMMENDED ACCESSORIES

The following accessories are recommended for safe, effective operation at all installations.

- Automatic Air Vent
- Pressure Relief Valve
- Differential Pressure Gauge
- Sampling Probes
- Interface Control
- ASME Code Stamp
- Water Slug Control Valve
- Manual Drain Valve

OTHER ACCESSORIES AVAILABLE

- Sump Heater
- Sight Glass

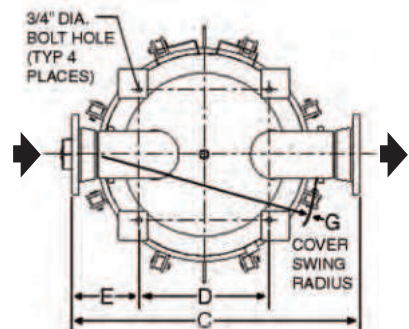
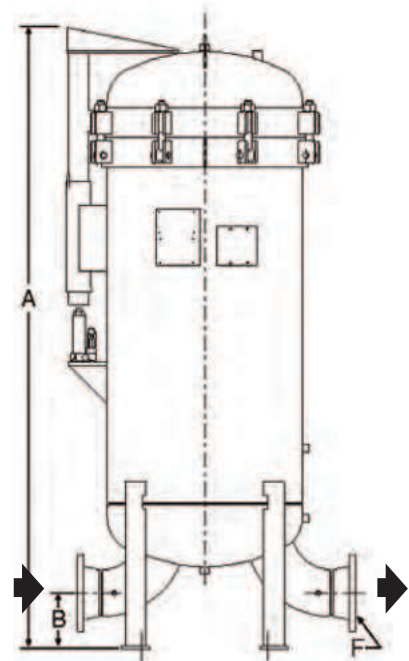
CARTRIDGE SELECTION

| Model | Jet Fuel Flow Rates (USGPM) | Coalescer Elements | | Separator Elements | |
|-----------------------|-----------------------------|--------------------|-----------|--------------------|-----------|
| | | Qty | Model | Qty | Model |
| VV1222 ⁽¹⁾ | 50 | 1 | I-622C5TB | 1 | SO-318V5 |
| VV1522 | 100 | 2 | I-622C5TB | 1 | SO-623VA5 |
| VV1533 ⁽¹⁾ | 160 | 2 | I-633C5TB | 1 | SO-629VA5 |
| VV2028 | 200 | 3 | I-628C5TB | 1 | SO-630V5 |
| VV2328 | 340 | 5 | I-628C5TB | 2 | SO-630PV5 |
| VV2333 | 400 | 5 | I-633C5TB | 2 | SO-630PV5 |
| VV2828 | 475 | 7 | I-628C5TB | 3 | SO-630PV5 |
| VV2838 | 605 | 7 | I-638C5TB | 3 | SO-630PV5 |
| VV2844 | 780 | 7 | I-644C5TB | 3 | SO-640PV5 |
| VV2856 | 900 | 7 | I-656C5TB | 3 | SO-644PV5 |
| VV3638 | 1045 | 11 | I-638C5TB | 5 | SO-636PV5 |
| VV3644 | 1220 | 11 | I-644C5TB | 5 | SO-636PV5 |
| VV3656 | 1500 | 11 | I-656C5TB | 5 | SO-644PV5 |
| VV3756 | 1725 | 12 | I-656C5TB | 6 | SO-644V5 |
| VV4244 | 2000 | 18 | I-644C5TB | 7 | SO-644V5 |
| VV4256 | 2300 | 16 | I-656C5TB | 8 | SO-644V5 |
| VV4456 | 2500 | 18 | I-656C5TB | 8 | SO-646V5 |

**OTHER MODELS AVAILABLE
UPON REQUEST**

DIMENSIONAL DATA

| Model | Dimensions (in.) ⁽¹⁾ | | | | | | | Weight w/ Skid (lbs) | Volume (US gal) |
|--------|---------------------------------|----|------|------|------|-----|---------|----------------------|-----------------|
| | A | B | C | D | E | F | G | | |
| VV1222 | 39 ¼ | 6 | 17 ½ | 8 | 4 ⅙ | 1 ½ | No Lift | 360 | 14 |
| VV1522 | 51 ⅙ | 6 | 22 ⅞ | 9 | 7 ⅙ | 2 ½ | 17 ½ | 500 | 28 |
| VV1533 | 57 ⅙ | 6 | 22 ⅞ | 9 | 7 ⅙ | 2 ½ | 17 ½ | 600 | 37 |
| VV2028 | 59 ¾ | 6 | 29 ⅝ | 13 | 8 ⅝ | 4 | 23 ¾ | 825 | 63 |
| VV2328 | 69 ½ | 6 | 46 ⅞ | 15 ½ | 14 ⅞ | 4 | 29 ⅝ | 1170 | 85 |
| VV2333 | 69 ½ | 8 | 36 ⅞ | 15 ½ | 9 ⅙ | 6 | 29 ⅝ | 1170 | 85 |
| VV2828 | 71 ¼ | 8 | 37 ⅞ | 18 | 9 ⅝ | 6 | 35 | 1525 | 137 |
| VV2838 | 80 ⅔ | 8 | 37 ⅞ | 18 | 9 ⅝ | 6 | 35 | 1600 | 155 |
| VV2844 | 86 ⅞ | 8 | 37 ⅞ | 18 | 9 ⅝ | 6 | 35 | 1650 | 170 |
| VV2856 | 99 ⅝ | 8 | 37 ⅞ | 18 | 9 ⅝ | 6 | 35 | 1750 | 200 |
| VV3638 | 91 ½ | 9 | 52 ⅞ | 24 | 12 ⅞ | 8 | 44 | 2140 | 300 |
| VV3644 | 96 | 9 | 52 ⅞ | 24 | 12 ⅞ | 8 | 44 | 2150 | 305 |
| VV3656 | 110 ½ | 9 | 52 ⅞ | 24 | 12 ⅞ | 8 | 44 | 2300 | 355 |
| VV3756 | 108 ⅝ | 9 | 52 ⅞ | 24 | 12 ⅞ | 8 | 44 | 2300 | 355 |
| VV4244 | 102 ⅔ | 10 | 61 | 28 | 16 ½ | 10 | 52 ½ | 3500 | 500 |
| VV4256 | 114 ⅔ | 10 | 61 | 28 | 16 ½ | 10 | 52 ½ | 3575 | 536 |
| VV4456 | 116 ⅝ | 9 | 62 | 30 | 16 | 10 | 55 ⅞ | 3800 | 595 |



VV15, VV20, and VV23 Series Filter/Separators have flat covers. All other models have domes.

VV15 Series Filter/Separators have screw-type jacks. All other models have hydraulic-type jacks.

1. Dimensions shown are for estimating purposes only.

For exact dimensional detail, obtain certified copy of vessel drawing.

Horizontal Filter/Separator Vessels

HV and HVS Series. Designed Specifically for Hydrant Carts and Refuelers. EI 1581 6th Edition Qualified. Cat C, Type S-LW and Cat M, Type S.

FEATURES

- Reduced Weight is vital in the manufacture of refuelers and hydrant carts. Parker Velcon Filter/Separators drastically reduce the weight of the vessel.
- Reduced Size is another important factor in designing refuelers and hydrant carts. Parker Velcon Filter/Separators reduce the size of the vessel by up to 50%.
- Easier Maintenance. One piece cartridge design provides faster changeout and fewer potential gasket leaks than stacked cartridges.
- Industry Qualified. Parker Velcon HV and HVS Series Horizontal Filters/Separators are fully qualified to EI 1581, 6th Edition. These units incorporate one piece threaded base coalescer elements for easy, reliable installation and reusable one piece PTFE coated screen separators.

SPECIFICATIONS

- 150 psi ASME Code & EI 1596 Construction
- Victaulic Connections (Flanges Optional)
- Swing Bolted Closure
- Buna-N O-ring Cover Seal
- Spider Assembly to stabilize cartridges
- EI 1541 Epoxy Coated Interior, Primed Exterior
- Fittings for Pressure Relief Valve, Air Vent, and Pressure Gauge
- Sump is covered with plywood when shipped. Bolted steel cover is available as an option



Model No. HV1633M

A fully-qualified 300 USGPM Filter/Separator. End Opening unit is only 16 inches in diameter and 47 inches long.



Model No. HVS2228M

A fully-qualified 510 USGPM Filter/Separator. Side Opening unit is only 22 inches in diameter and 65 inches long.

MOBILE FUELING

HVS SERIES SIDE OPENING VESSELS

A side opening vessel allows access to the cartridges from the main shell of the vessel. The cartridges are mounted in an “end opposed” configuration, with coalescers mounted on one end of the vessels and separators mounted on the other. These vessels are often used on refueling vehicles that require special orientation of the vessel for servicing the cartridges.

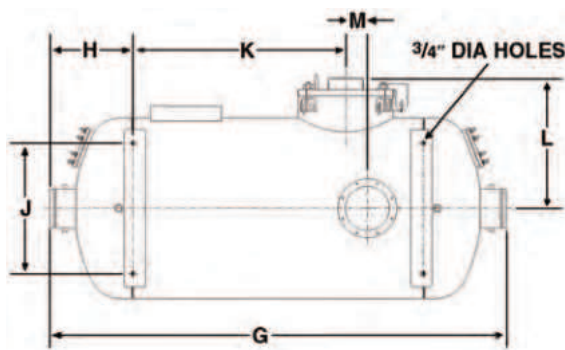
Parker AFD has qualified several side opening vessel configurations, shown below, for EI1581 5th Edition, as follows: Category “C” vessels are for use in commercial applications where minimal amounts of water can be expected in the jet fuel. Type “S-LW” vessels can be used for mobile applications where minimal



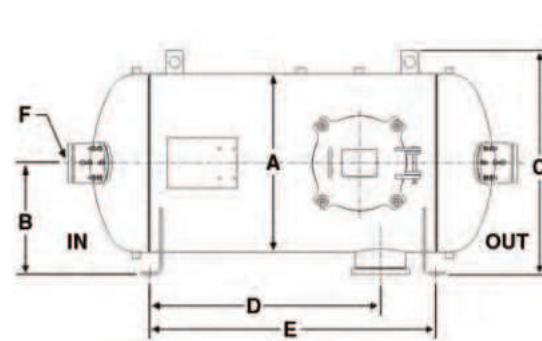
Photo courtesy of Rampmaster

amounts of water can be expected in the jet fuel.

BOTTOM VIEW



SIDE VIEW



SIDE OPENING VESSEL DIMENSIONS**

| Vessel Model | Dimensions (in.) | | | | | | | | | | | | Wt w/Skid (lbs) | Vol (US Gal) |
|--------------|------------------|----|------|------|----|---|----|-----|----|------|------|---|-----------------|--------------|
| | A | B | C | D | E | F | G | H | J | K | L | M | | |
| HVS2222M | 22 | 14 | 29 | 30 ½ | 41 | 4 | 60 | 9 ½ | 16 | 30 ½ | 16 ½ | 0 | 1070 | 85 |
| HVS2228M | 22 | 14 | 29 | 35 ½ | 46 | 4 | 65 | 9 ½ | 16 | 35 ½ | 16 ½ | 0 | 1100 | 95 |
| HVS2628M | 26 | 16 | 32 | 36 | 45 | 6 | 71 | 13 | 21 | 30 | 19 ½ | 6 | 1340 | 132 |
| HVS2828M | 28 | 18 | 36 | 36 | 45 | 6 | 71 | 13 | 21 | 30 | 19 ½ | 6 | 1580 | 150 |
| HVS3133M | 31 | 19 | 38 ¼ | 36 | 49 | 6 | 77 | 14 | 22 | 36 | 22 ½ | 0 | 2000 | 195 |

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

SIDE OPENING VESSELS CARTRIDGE SELECTION CATEGORY C, TYPE S-LW

| Vessel Model | Flow Rate (GPM) | Coalescer Element | | Separator Element | |
|--------------|-----------------|-------------------|-----------|-------------------|----------|
| | | Qty. | Model | Qty. | Model |
| HVS2222M | 380 | 7 | I-622C5TB | 3 | SO-609V5 |
| HVS2228M | 510 | 7 | I-628C5TB | 4 | SO-609V5 |
| HVS2628M | 635 | 9 | I-628C5TB | 5 | SO-609V5 |
| HVS2828M | 730 | 10 | I-628C5TB | 6 | SO-609V5 |
| HVS3133M | 1020 | 12 | I-633C5TB | 8 | SO-609V5 |



HV SERIES END OPENING VESSELS

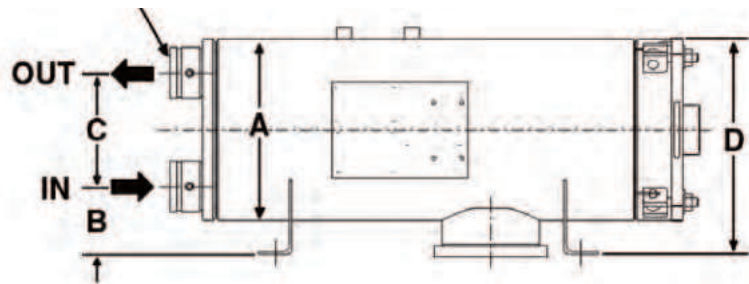
The coalescer and separator cartridges on end opening vessels are mounted on the same end. These vessels are normally used on refueling vehicles.

Parker AFD has qualified several end opening vessel configurations, shown below, for EI 1581 6th Edition, as follows: Category "C" vessels are for use in commercial Jet-A or Jet-A1 fuel.

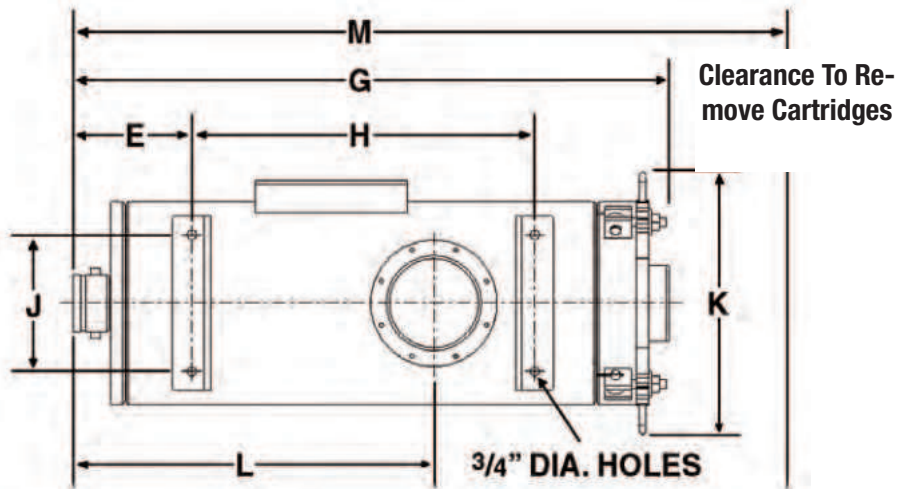
Category "M" vessels are for use in military JP-8 or JP-5 fuel. Testing to Category "M" qualifies for both Category "M" and Category "C".

Type "S-LW" vessels are used for mobile applications where minimal amounts of water can be expected in the jet fuel. Type "S" filter/separators are used locations where significant levels of both dirt and water can be expected.

SIDE VIEW



BOTTOM VIEW



*End Opening Vessel Dimensions***

| Model | Dimensions (in.) | | | | | | | | | | | | Wt w/ Skid (lbs) | Vol (US Gal) |
|---------|------------------|------|------|------|------|---|----------|------|------|---------|------|-----|------------------------|--------------------|
| | A | B | C | D | E | F | G | H | J | K | L | M | | |
| HV1414M | 14 | 6 ¾ | 8 ½ | 17 ¾ | 4 ⅞ | 2 | 28 ¾ | 18 ¼ | 10 ¾ | 18 ⅞ | 13 ⅞ | 43 | 350 | 17 |
| HV1416M | 14 | 6 ¾ | 8 ½ | 17 ¾ | 4 ⅞ | 2 | 30 ¾ | 20 ¼ | 10 ¾ | 18 ⅞ | 15 ⅞ | 45 | 400 | 18 |
| HV1422M | 14 | 6 ¾ | 8 ½ | 17 ¾ | 4 ⅞ | 2 | 36 ½ | 26 ¼ | 10 ¾ | 18 ⅞ | 21 ¾ | 51 | 420 | 20 |
| HV1622M | 16 | 6 | 10 | 19 | 9 ¾ | 4 | 36 13/16 | 16 | 10 ¾ | 20 ¾ | 17 ¼ | 56 | 440 | 32 |
| HV1633M | 16 | 6 | 10 | 19 | 9 ⅞ | 4 | 46 ⅞ | 27 | 10 ¾ | 20 ¾ | 28 ¾ | 79 | 450 | 42 |
| HV2233M | 22 | 10 ½ | 10 | 30 | 11 ½ | 4 | 52 11/16 | 29 | 16 | 27 1/16 | 29 | 85 | 800 | 69 |
| HV2238M | 22 | 10 ½ | 10 | 30 | 11 ½ | 4 | 55 | 34 | 16 | 27 1/16 | 37 ¾ | 92 | 835 | 77 |
| HV2244M | 24 | 9 | 12 ½ | 30 | 15 | 6 | 63 13/16 | 31 ½ | 16 | 27 1/16 | 32 ⅞ | 107 | 870 | 87 |
| HV2456M | 24 | 12 | 11 ½ | 33 | 15 ⅞ | 6 | 72 11/16 | 38 | 18 | 33 1/2 | 36 ⅞ | 125 | 1255 | 124 |
| HV2828M | 28 | 10 ½ | 16 ¾ | 36 | 12 | 6 | 55 ¾ | 22 ½ | 21 | 34 ¾ | 23 ¼ | 69 | 1210 | 120 |
| HV2833M | 28 | 10 ½ | 16 ¾ | 36 | 12 | 6 | 61 1/16 | 28 | 21 | 34 ¾ | 23 ¼ | 83 | 1255 | 135 |
| HV2838M | 28 | 10 ½ | 16 ¾ | 36 | 12 | 6 | 59 15/16 | 28 | 21 | 34 ¾ | 23 ¼ | 85 | 1300 | 150 |
| HV2844M | 28 | 10 ½ | 16 ¾ | 36 | 12 | 6 | 64 ½ | 29 | 21 | 34 ¾ | 23 ¼ | 98 | 1350 | 166 |
| HV2856M | 28 | 10 ½ | 16 ¾ | 36 | 12 | 6 | 75 25/32 | 41 | 21 | 34 ¾ | 23 ¼ | 119 | 1460 | 198 |

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

END OPENING VESSELS CARTRIDGE SELECTION

| Vessel Model | Category | Type | Flow Rate GPM(LPM) | Cover Style | Coalescer | | Separator | |
|--------------|----------|------|-----------------------|-------------|-----------|-----------|-----------|----------|
| | | | | | Qty | Model | Qty | Model |
| HV1414M | C | S-LW | 70 (265) | Flat | 2 | I-614C5TB | 1 | SO-417V5 |
| | M | S | 55 (208) | | | I-614MMTB | | |
| HV1416M | C | S-LW | 90 (341) | | 2 | I-616C5TB | 1 | SO-318V5 |
| | M | S | 70 (265) | | | I-616MMTB | | |
| HV1422M | C | S-LW | 125 (473) | | 2 | I-622C5TB | 1 | SO-324V5 |
| | M | S | 100 (379) | | | I-622MMTB | | |
| HV1622M | C | S-LW | 190 (719) | | 3 | I-622C5TB | 1 | SO-424V5 |
| | M | S | 150 (568) | | | I-622MMTB | | |
| HV1633M | C | S-LW | 300 (1136) | | 3 | I-633C5TB | 1 | SO-436V5 |
| | M | S | 240 (908) | | | I-633MMTB | | |
| HV2233M | C | S-LW | 425 (1609) | | 4 | I-633C5TB | 2 | SO-424V |
| | M | S | 305 (1155) | | | I-633MMTB | | SO-424V5 |
| HV2238M | C | S-LW | 495 (1874) | | 4 | I-638C5TB | 2 | SO-430V |
| | M | S | 365 (1382) | | | I-638MMTB | | SO-430V5 |
| HV2244M | C | S-LW | 580 (2196) | | 4 | I-644C5TB | 2 | SO-436V |
| | M | S | 425 (1609) | | | I-644MMTB | | SO-436V5 |
| HV2456M | C | S-LW | 745 (2820) | | 4 | I-656C5TB | 2 | SO-636V |
| | M | S | 555 (2101) | | | I-656MMTB | | SO-636V5 |
| HV2828M | C | S-LW | 615 (2328) | | 7 | I-628C5TB | 2 | SO-624V |
| | M | S | 405 (1533) | | | I-628MMTB | | SO-624V5 |
| HV2833M | C | S-LW | 740 (2801) | 7 | I-633C5TB | 2 | SO-636V | |
| | M | S | 550 (2082) | | I-633MMTB | | SO-636V5 | |
| HV2838M | C | S-LW | 865 (3274) | 7 | I-638C5TB | 2 | SO-636V | |
| | M | S | 615 (2328) | | I-638MMTB | | SO-636V5 | |
| HV2844M | C | S-LW | 1015 (3842) | 7 | I-644C5TB | 2 | SO-640V | |
| | M | S | 690 (2612) | | I-644MMTB | | SO-640V5 | |
| HV2856M | C | S-LW | 1310 (4959) | 7 | I-656C5TB | 2 | SO-648V | |
| | M | S | 830 (3142) | | I-656MMTB | | SO-648V5 | |

Please contact Parker AFD for additional possible vessel configurations.

Horizontal Filter/Separator Vessels

HV Series - Compact Vessels for Fixed Installations

EI 1581 6th Edition, Cat C/M, Type S

EASIER CARTRIDGE CHANGE

The horizontal filter/separator design provides more convenient access to the cartridges than the vertical design.

EFFLUENT CLEANLINESS

A horizontal filter/separator must be drained to change the elements. This prevents the possibility of getting dirt in the effluent that can occur if the operator does not fully drain a vertical vessel when changing elements. The separator mounting holes on a horizontal vessel are in a vertical plane at the top of the vessel so it is nearly impossible to get dirt in the effluent when cartridges are being changed.

LOWER COST

A horizontal filter/separator will often cost less than a vertical filter/separator of the same rated flow, for the same specifications.

INDUSTRY QUALIFIED

Parker Velcon HV Series Horizontal Filter/Separators are fully qualified to EI 1581, Sixth Edition, Category C, Type S (fixed installations). These units incorporate one piece threaded base coalescer cartridges for easy, reliable installation and reusable one piece PTFE coated screen separators.

SPECIFICATIONS

- 150 psi ASME Code & EI 1596 Construction
- RF Flanged Connections
- Swing Bolted Closure
- Buna-N O-ring Cover Seal
- EI 1541 Epoxy Coated Interior, Primed Exterior



RECOMMENDED ACCESSORIES

The following accessories are recommended for safe effective operation at all installations:

- Automatic Air Vent*
- Pressure Relief Valve*
- Differential Pressure Gauge*
- Sampling Probes
- Interface Control (ballast type float recommended)
- Water Slug Control Valve
- Manual Drain Valve
- ASME Code Stamp
- EI Nameplate

**Required for EI1581 6th edition*

OTHER ACCESSORIES AVAILABLE

- Sump Heater
- Sight Glass

CARTRIDGE SELECTION

| Model | Category | Type | Flow Rates GPM (LPM) | Qty | Coalescer Cartridges | Qty | Separator Cartridges |
|--------|----------|------|-------------------------|-----|--------------------------|-----|-------------------------|
| HV1422 | C | S | 100 (379) | 2 | I-622C5TB | 1 | SO-324V5 |
| | M | | | | I-622MMTB | | |
| HV1622 | C | S | 150 (568) | 3 | I-622MMTB ⁽¹⁾ | 1 | SO-424V5 |
| | M | | | | I-622MMTB | | |
| HV1633 | C | S | 240 (908) | 3 | I-633MMTB ⁽¹⁾ | 1 | SO-436V5 |
| | M | | | | I-633MMTB | | |
| HV2233 | C | S | 365 (1382) | 4 | I-633C5TB | 2 | SO-430V |
| | M | | 315 (1192) | | I-633MMTB | | SO-430V5 |
| HV2244 | C | S | 495 (1874) | 4 | I-644C5TB | 2 | SO-436V |
| | M | | 425 (1609) | | I-644MMTB | | SO-436V5 |
| HV2838 | C | S | 745 (2820) | 7 | I-638C5TB | 2 | SO-636V |
| | M | | 615 (2328) | | I-638MMTB | | SO-636V5 |
| HV2844 | C | S | 870 (3293) | 7 | I-644C5TB | 2 | SO-640V |
| | M | | 690 (2612) | | I-644MMTB | | SO-640V5 |
| HV2856 | C | S | 1130 (4278) | 7 | I-656C5TB | 2 | SO-648V |
| | M | | 830 (3142) | | I-656MMTB | | SO-648V5 |
| HV3456 | C | S | 1420 (5375) | 10 | I-656C5TB | 5 | SO-648V5 |
| | M | | 1250 (4732) | | I-656MMTB | 3 | |

Notes: 1. Testing to Category "M" qualifies for both Category "M" and Category "C".

DIMENSIONAL DATA

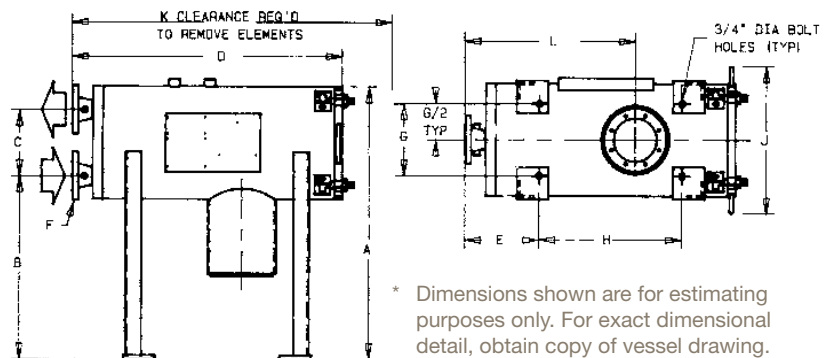
| Model No. | Dimensions in.(mm)* | | | | | | | | | | |
|-----------|-----------------------------|-----------------------------|----------------------------|-----------------------------|----------------------------|--------------|-------------|---------------------------|----------------------------|---------------|----------------------------|
| | A | B | C | D | E | F | G | H | J | K | L |
| HV1422 | 35 $\frac{3}{4}$ (10897) | 25 $\frac{1}{8}$ (7658) | 8 $\frac{1}{8}$ (2477) | 35 $\frac{1}{16}$ (906) | 9 $\frac{3}{8}$ (238) | 2 (51) | 9 (229) | 18 (457) | 18 $\frac{1}{2}$ (470) | 56 (1422) | 21 $\frac{1}{2}$ (546) |
| HV1622 | 36 $\frac{3}{8}$ (11087) | 23 $\frac{3}{8}$ (7125) | 10 (3048) | 35 $\frac{1}{16}$ (891) | 9 $\frac{3}{8}$ (238) | 4 (102) | 13 (330) | 16 (406) | 20 $\frac{3}{8}$ (524) | 58 (1473) | 17 $\frac{1}{2}$ (445) |
| HV1633 | 36 $\frac{3}{8}$ (11087) | 23 $\frac{3}{8}$ (7125) | 10 (3048) | 45 $\frac{1}{16}$ (1157) | 9 $\frac{3}{8}$ (238) | 4 (102) | 13 (330) | 27 (686) | 20 $\frac{3}{8}$ (524) | 80 (2032) | 28 $\frac{5}{8}$ (727) |
| HV2233 | 53 (16154) | 38 $\frac{1}{2}$ (11735) | 10 (3048) | 50 $\frac{3}{4}$ (1289) | 14 $\frac{7}{16}$ (367) | 4 (102) | 16 (406) | 23 $\frac{1}{2}$ (597) | 27 $\frac{1}{16}$ (687) | 85 (2159) | 29 (737) |
| HV2244 | 53 (16154) | 38 $\frac{1}{2}$ (11735) | 10 (3048) | 62 $\frac{1}{4}$ (1581) | 14 $\frac{7}{16}$ (367) | 4 (102) | 16 (406) | 29 $\frac{1}{2}$ (749) | 27 $\frac{1}{16}$ (687) | 105 (2667) | 29 $\frac{3}{16}$ (745) |
| HV2838 | 55 $\frac{3}{4}$ (16993) | 34 $\frac{1}{4}$ (10439) | 16 $\frac{3}{4}$ (5105) | 57 (1448) | 15 (381) | 6 (152) | 22 (559) | 22 (559) | 34 $\frac{1}{2}$ (876) | 83 (2108) | 27 (686) |
| HV2844 | 55 $\frac{3}{4}$ (16993) | 34 $\frac{1}{4}$ (10439) | 16 $\frac{3}{4}$ (5105) | 61 (1549) | 16 (406) | 6 (152) | 22 (559) | 22 $\frac{1}{2}$ (572) | 34 $\frac{1}{2}$ (876) | 93 (2362) | 33 (838) |
| HV2856 | 55 $\frac{3}{4}$ (16993) | 34 $\frac{1}{4}$ (10439) | 16 $\frac{3}{4}$ (5105) | 67 $\frac{3}{4}$ (1721) | 15 (381) | 6 (152) | 22 (559) | 42 (1067) | 34 $\frac{1}{2}$ (876) | 122 (3099) | 45 (1143) |
| HV3456 | 65 $\frac{3}{8}$ (19926) | 38 $\frac{3}{8}$ (11697) | 20 (6096) | 82 $\frac{1}{2}$ (2096) | 18 $\frac{1}{16}$ (468) | 6** (152) | 28 (711) | 38 $\frac{1}{4}$ (972) | 39 $\frac{3}{4}$ (1010) | 124 (3150) | 37 $\frac{1}{2}$ (953) |

Notes: HV-14, -16 and -22 series filter/separators have flat covers while the HV-28, and HV-34 series have domed covers.

** If 8 in. flanges are desired, specify P/N 180-CC.

WEIGHTS AND VOLUMES

| Model | Weight With Skid lbs.(kg) | Volume Gal.(Ltr.) |
|--------|------------------------------|----------------------|
| HV1422 | 390 (177) | 20 (76) |
| HV1622 | 435 (197) | 28 (106) |
| HV1633 | 475 (215) | 37 (140) |
| HV2233 | 800 (363) | 73 (276) |
| HV2244 | 860 (363) | 90 (341) |
| HV2838 | 1050 (476) | 130 (492) |
| HV2844 | 1100 (499) | 145 (549) |
| HV2856 | 1200 (544) | 176 (666) |
| HV3456 | 1800 (816) | 290 (1098) |



Horizontal Filter/Separator Vessels for Fixed Installations at Military Facilities

HV-xxxx225 Series

Meeting USAF Filter/Separator Specifications Section 15880

EASIER CARTRIDGE CHANGE

The horizontal filter/separator design provides more convenient access to the cartridges than the vertical design.

EFFLUENT CLEANLINESS

A horizontal filter/separator must be drained to change the elements. This prevents the possibility of getting dirt in the effluent that can occur if the operator does not fully drain a vertical vessel when changing elements. The separator mounting holes on a horizontal vessel are in a vertical plane at the top of the vessel so it is nearly impossible to get dirt in the effluent when cartridges are being changed.

TESTED AND APPROVED* VESSELS

Parker Velcon HV-xxxx225 Series Horizontal Filter/Separators are qualified to USAF Specification 15880. This specification is similar to EI 1581, Sixth Edition, Category M. These vessels incorporate one piece threaded base coalescer elements for easy, reliable installation and reusable one piece PTFE coated screen separators.

SPECIFICATIONS

- 225 psi ASME Code & EI 1596 Construction
- RF Flanged Connections
- Swing Bolted Closure
- Buna-N O-Ring Cover Seal
- EI 1541 Epoxy Coated Interior, Primed Exterior

STANDARD ACCESSORIES

In compliance with USAF Specification 15880, the following accessories are recommended for safe, effective operation:

- Automatic Air Vent with Check Valve
- Pressure Relief Valve**
- Direct Reading Differential Pressure Gauge
- Sampling Probes with Ball Valves
- Stainless Steel Ball Valve Manual Drain
- Sight Gauge with Ball Checks and Colored Density Sensitive Ball
- ASME Code Stamp
- API Nameplate

** Does not meet Mil-V-11201

OPTIONAL ACCESSORIES

- Interface Control
 - Water Slug Control Valve
- These optional accessories may be supplied directly by the control valve manufacturer, depending on purchase specifications.



* Approval letters are available upon request.

FLOW RATES AND CARTRIDGES

| Model | Flow Rates ⁽¹⁾ gpm (lpm) | Coalescer Quantity | Cartridge Model | Separator Quantity | Cartridge Model | Weight with Skid lbs(kgs) | Volume gal(ltr) |
|-----------|--|-----------------------|--------------------|-----------------------|--------------------|---------------------------------|--------------------|
| HV2238225 | 300 (1136) | 4 | I-638MMTB | 2 | SO-430V5 | 1000 (454) | 85 (322) |
| HV2838225 | 600 (2271) | 7 | I-638MMTB | 2 | SO-636V5 | 1175 (533) | 140 (530) |
| HV3456225 | 1200 (4542) | 10 | I-656MMTB | 3 | SO-648V5 | 2100 (953) | 335 (1268) |

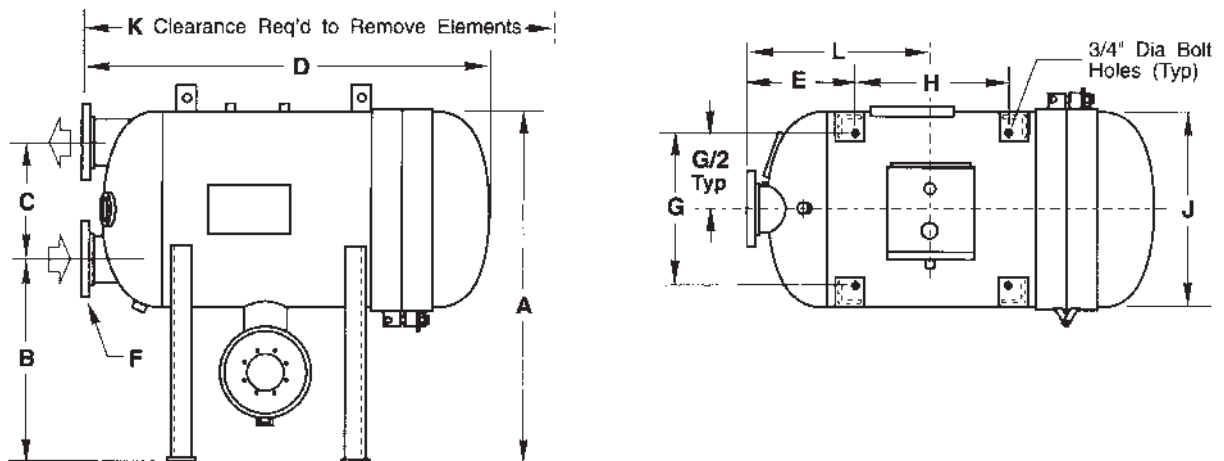
Note: (1) For Jet A, Jet A-1, Jet B, JP-4, JP-5, JP-8

DIMENSIONAL DATA

| Model ⁽²⁾ | Dimensions in (mm)* | | | | | | | | | | |
|----------------------|------------------------|--------------|--------------|---------------|--------------|------------------|-------------|--------------|-------------|---------------|--------------|
| | A | B | C | D | E | F ⁽³⁾ | G | H | J | K | L |
| HV2238225 | 53 (1346) | 38½ (978) | 10 (254) | 59⅛ (1502) | 14½ (370) | 4 (102) | 16 (406) | 30 (762) | 22 (559) | 93½ (2375) | 29 (737) |
| HV2838225 | 55¾ (1416) | 34¼ (870) | 16¾ (425) | 62½ (1588) | 15 (381) | 6 (152) | 22 (559) | 22 (559) | 28 (711) | 85 (2159) | 27 (686) |
| HV3456225 | 65⅝ (1661) | 37⅞ (949) | 22 (559) | 83½ (2121) | 19⅞ (494) | 8 (203) | 28 (711) | 38¼ (972) | 34 (864) | 94½ (2400) | 38½ (978) |

Notes (2) HV2238225 has a flat cover, while the HV2838225 and HV3456225 have domed covers.

(3) Flanges are raised face flanges complying with ANSI B16-5, Class 150.



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

Horizontal *Aquacon*[®] Vessels

HA Series

EI 1596 2nd Edition Monitor Specification Qualified
Horizontal *Aquacon* for Aircraft Fueling Trucks, Hydrant
Carts, and Cabinets

FEATURES

- Positive Protection Against Water and Dirt
- Compact Design
- ASME Code & EI 1596 Design
- Field Proven Performance

DESCRIPTION

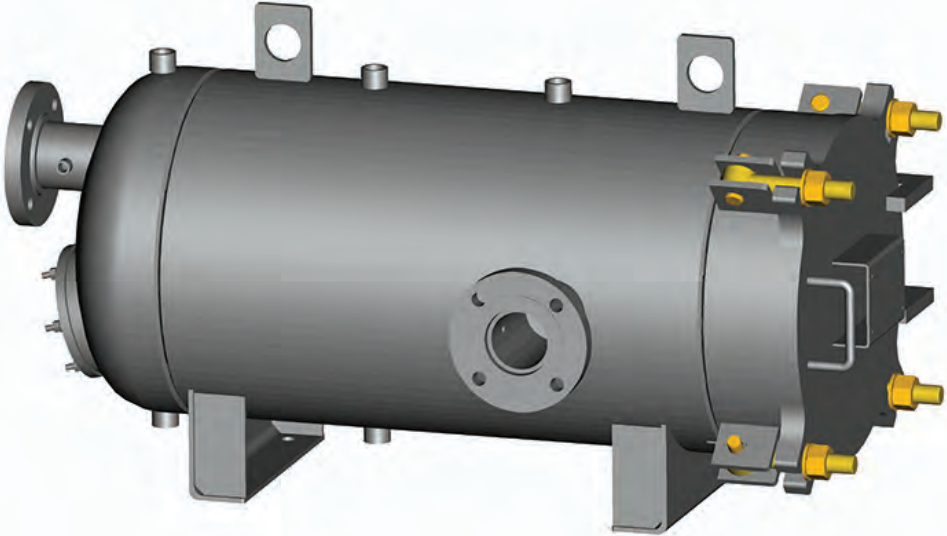
Compact HA Series *Aquacon* vessels are designed to utilize 6" outside-to-inside flow *Aquacon* elements meeting the latest edition of the EI 1583 for aviation fuel filter monitors with absorbent type elements.

SPECIFICATIONS

- 150 PSI ASME Code & EI 1596 Construction
- 220 psid (15 bar) Hydrotest Pressure for Deckplate
- Carbon Steel Construction
- RF Flanged or Victaulic Connections
- Swing Bolted Closure
- Buna-N O-Ring Cover Seal
- EI 1541 Epoxy Coated Interior, Primed Exterior

RECOMMENDED ACCESSORIES

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



*******CAUTION*******
DO NOT USE WITH PRE-MIXED FUEL
CONTAINING ANTI-ICING ADDITIVES.

| Model | Flow Rate | | Cartridges | | Weight w/ Skid | Volume (US- GAL) |
|---------|-----------|-------|------------|------|-------------------|---------------------|
| | USGPM | LPM | Model No. | Qty. | | |
| HA829M | 115 | 435 | ACO-62901 | 1 | 265 | 8 |
| HA844M | 173 | 654 | ACO-64401 | 1 | 300 | 12 |
| HA1814M | 232 | 878 | ACO-61401 | 4 | 550 | 29 |
| HA1829M | 460 | 1,741 | ACO-62901 | 4 | 600 | 44 |
| HA2229M | 805 | 2,611 | ACO-62901 | 7 | 720 | 56 |
| HA2244M | 1,211 | 3,928 | ACO-64401 | 7 | 800 | 75 |

Figure 1

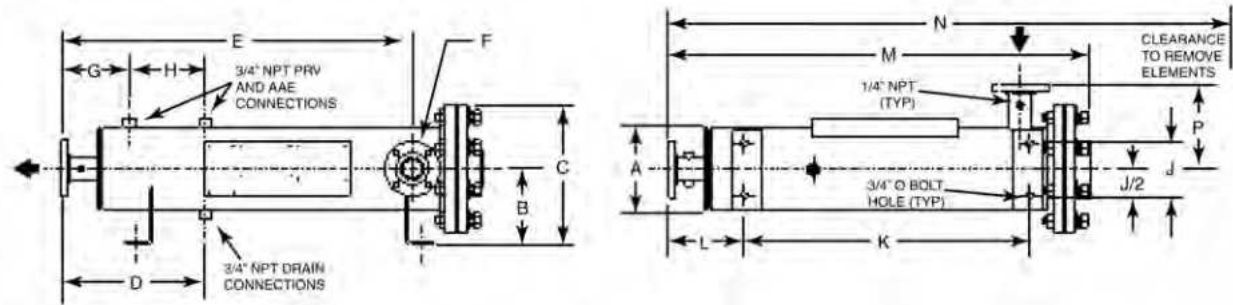
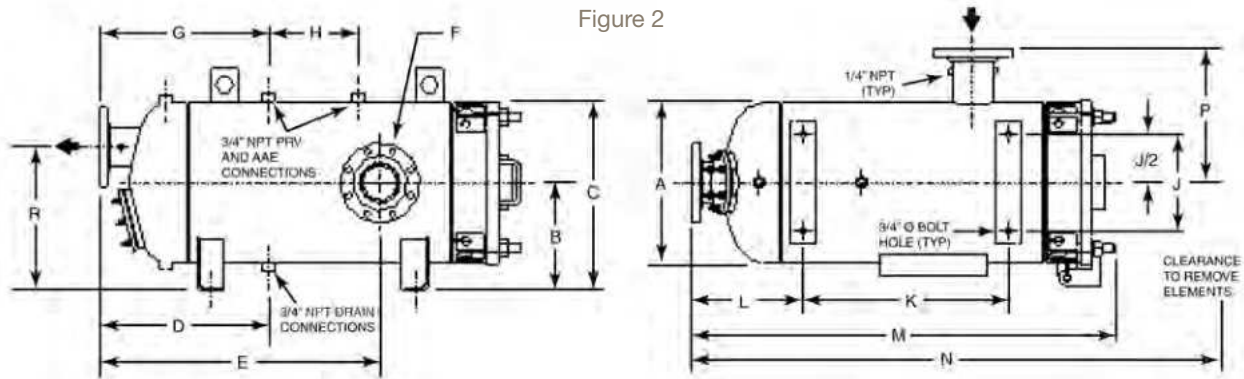


Figure 2



| MODEL | Fig. | DIMENSIONS IN INCHES | | | | | | | | | | | | | | |
|---------|------|----------------------|----|--------|--------|---------|---|----------|----|--------|----|--------|----------|-----|----|-----|
| | | A | B | C | D | E | F | G | H | J | K | L | M | N | P | R |
| HA829M | 1 | 8 5/8 | 8 | 14 3/4 | 15 1/4 | 37 | 2 | 7 1/4 | 8 | 5 1/2 | 30 | 8 | 44 3/8 | 74 | 9 | N/A |
| HA844M | 1 | 8 5/8 | 8 | 14 3/4 | 16 | 51 1/2 | 2 | 8 | 8 | 5 1/2 | 41 | 8 | 58 5/8 | 102 | 9 | N/A |
| HA1814M | 2 | 18 | 12 | 21 | 12 1/2 | 18 1/4 | 4 | 12 19/16 | 8 | 10 3/4 | 10 | 12 1/2 | 32 15/16 | 48 | 15 | 16 |
| HA1829M | 2 | 18 | 12 | 21 | 12 1/2 | 31 9/16 | 4 | 19 | 10 | 10 3/4 | 23 | 12 1/2 | 47 7/16 | 76 | 15 | 16 |
| HA2229M | 2 | 22 | 15 | 28 1/2 | 14 | 32 3/4 | 6 | 20 | 10 | 16 | 25 | 14 | 49 1/4 | 78 | 17 | 20 |
| HA2244M | 2 | 22 | 15 | 28 1/2 | 14 | 48 | 6 | 20 | 10 | 16 | 40 | 14 | 64 1/4 | 108 | 17 | 20 |

Horizontal Vessels for CDF® Monitor

HM Series

EI 1596 2nd Edition Monitor Specification Qualified

Compact Monitor Vessels Assure Clean, Dry Fuel Delivery

DESCRIPTION

The Parker Velcon CDF Monitor Vessels, equipped with the CDF Cartridges, provide superior performance and reliability for assuring clean, dry fuel. These vessels are for use downstream of filter/separators or on refueler trucks.

The presence of water and/or dirt in the influent fuel is indicated by an increase in the pressure differential (or a decrease in flow rate if the monitor housing is not equipped with a differential pressure gauge). These changes are the result of flow restriction caused by dirt filtration or water absorption in the media. The rapidity of these changes will depend on the quantity of water or contaminant present.

FEATURES

- Carbon Steel with construction with aluminum manifolds. Also available in lightweight aluminum.
- Compact size minimizes space requirements on mobile refueling equipment, in cabinets, and at loading racks.
- Qualified to the Energy Institute's specification for fuel monitors when fitted with CDF® Cartridges.
- Water-absorbing/Flow-restricting means that additional water defense equipment, such as an electronic water detecting probe or a float control and slug valve, is not needed.
- Rugged Construction allows the vessel deckplate to exceed the 220 psid hydrostatic test requirement.

SPECIFICATIONS

- 150 psi ASME Code Construction (higher pressures optional)
- 220 psid hydrotest pressure for deckplate
- Aluminum or Carbon Steel Construction
- Buna-N O-Ring cover seal
- Victaulic or flanged connections (specify one)
- Spider assembly for stabilizing cartridges
- Optional Monitor Interlock
- Meets EI1596 and EI1541 construction requirements

STANDARD FITTINGS FOR:

- Automatic Air Eliminator
- Pressure Relief Valve
- Manual Drain Valve(s)
- Differential Pressure Gauge
- Sampling Connections

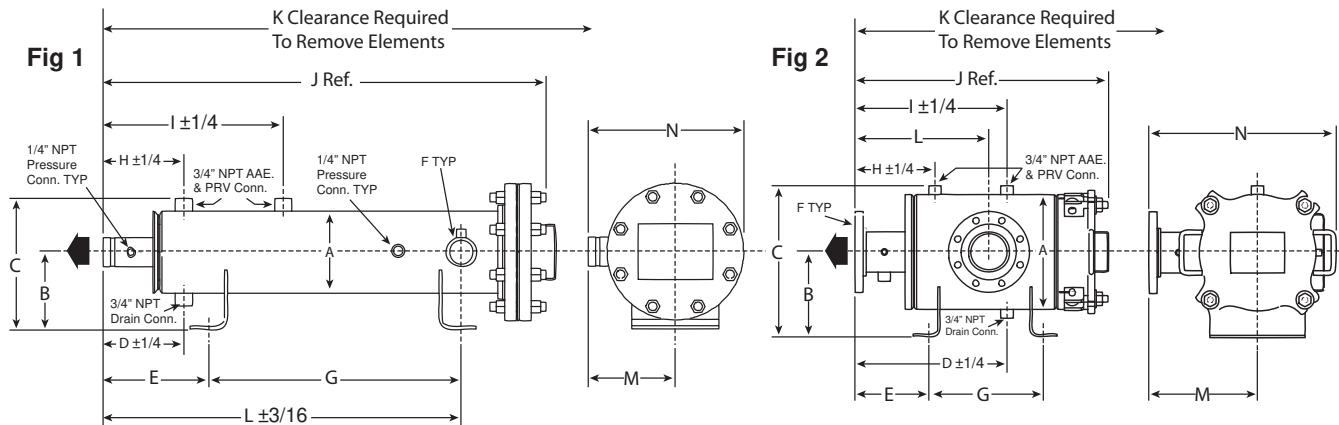


HM1030M150

*******CAUTION*******

DO NOT USE WITH PRE-MIXED FUEL
CONTAINING ANTI-ICING ADDITIVES.

DIMENSIONS



HORIZONTAL (MOBILE) CDF® MONITOR VESSELS FIGURES 1 AND 2

| Model | Flow Rate | | Cartridges | | Fig | Dimensions (Inches) | | | | | | | | | | | | | |
|---------|-----------|------|------------|-----|-----|--------------------------------|--------------------------------|----------------------------------|---------------------------------|--------------------------------|---|--------------------------------|---------------------------------|---------------------------------|---------------------------------|----|---------------------------------|--------------------------------|----------------------------------|
| | US GPM | L/M | Model | Qty | | A | B | C | D | E | F | G | H | I | J | K | L | M | N |
| HM0610M | 50 | 185 | CDF-210 | 5 | 1 | 6 ⁵ / ₈ | 6 ³ / ₁₆ | 11 ¹¹ / ₁₆ | 6 ¹ / ₂ | 8 ¹ / ₂ | 2 | 10 | 6 ¹ / ₂ | 14 ¹ / ₂ | 25 ³ / ₈ | 35 | 18 ¹ / ₄ | 7 | 12 1/2 |
| HM0620M | 100 | 375 | CDF-220 | 5 | 1 | 6 ⁵ / ₈ | 6 ³ / ₁₆ | 11 ¹¹ / ₁₆ | 6 ¹ / ₂ | 8 ¹ / ₂ | 2 | 20 | 6 ¹ / ₂ | 14 ¹ / ₂ | 36 ³ / ₈ | 58 | 28 ⁵ / ₈ | 7 | 12 1/2 |
| HM0630M | 150 | 565 | CDF-230 | 5 | 1 | 6 ⁵ / ₈ | 6 ³ / ₁₆ | 11 ¹¹ / ₁₆ | 6 ¹ / ₂ | 8 ¹ / ₂ | 2 | 30 | 6 ¹ / ₂ | 14 ¹ / ₂ | 46 ⁵ / ₁₆ | 73 | 38 ³ / ₈ | 7 | 12 1/2 |
| HM1210M | 200 | 755 | CDF-210 | 20 | 2 | 12 ³ / ₄ | 9 ³ / ₈ | 16 ³ / ₄ | 17 | 8 | 4 | 13 | 9 | 17 | 28 ⁵ / ₁₆ | 36 | 15 | 12 | 20 5/8 |
| HM1020M | 200 | 755 | CDF-220 | 10 | 2 | 10 ³ / ₄ | 9 ³ / ₈ | 16 ³ / ₄ | 18 ³ / ₁₆ | 8 ⁷ / ₈ | 4 | 18 | 10 ³ / ₁₆ | 18 ³ / ₁₆ | 34 ¹ / ₈ | 53 | 18 ³ / ₁₆ | 10 | 19 5/8 |
| HM1215M | 300 | 1135 | CDF-215 | 20 | 2 | 12 ³ / ₄ | 9 ³ / ₈ | 16 ³ / ₄ | 18 | 8 | 4 | 18 | 10 | 18 | 33 ³ / ₁₆ | 46 | 18 | 12 | 20 5/8 |
| HM1030M | 300 | 1135 | CDF-230 | 10 | 2 | 10 ³ / ₄ | 9 ³ / ₈ | 16 ³ / ₄ | 18 ³ / ₁₆ | 8 ⁷ / ₈ | 4 | 28 | 10 ³ / ₁₆ | 18 ³ / ₁₆ | 44 ¹ / ₄ | 80 | 18 ³ / ₁₆ | 10 | 19 5/8 |
| HM1220M | 400 | 1510 | CDF-220 | 20 | 2 | 12 ³ / ₄ | 9 ³ / ₈ | 16 ³ / ₄ | 18 | 8 | 4 | 22 | 10 | 18 | 36 | 56 | 14 | 12 | 20 5/8 |
| HM1225M | 500 | 1890 | CDF-225 | 20 | 2 | 12 ³ / ₄ | 9 ³ / ₈ | 16 ³ / ₄ | 14 | 8 | 6 | 26 | 10 | 18 | 41 | 67 | 14 | 12 | 20 5/8 |
| HM1230M | 600 | 2270 | CDF-230 | 20 | 2 | 12 ³ / ₄ | 9 ³ / ₈ | 16 ³ / ₄ | 18 | 8 | 6 | 28 | 10 | 18 | 46 | 76 | 18 | 12 | 20 5/8 |
| HM1430M | 800 | 3025 | CDF-230 | 27 | 2 | 14 | 10 ¹ / ₂ | 18 ¹ / ₂ | 16 | 7 | 6 | 35 | 16 | 26 | 47 ⁹ / ₁₆ | 79 | 24 ⁷ / ₈ | 11 ³ / ₄ | 19 7/8 |
| HM1630M | 1000 | 3785 | CDF-230 | 34 | 2 | 16 | 11 ¹ / ₂ | 20 ¹ / ₂ | 13 ⁷ / ₁₆ | 6 | 6 | 33 | 13 ⁷ / ₁₆ | 23 ⁷ / ₁₆ | 46 ⁷ / ₈ | 85 | 24 ⁷ / ₈ | 12 | 22 3/16 |
| HM1830M | 1200 | 4540 | CDF-230 | 40 | 2 | 18 ¹ / ₄ | 15 ⁵ / ₈ | 24 ¹ / ₄ | 8 ³ / ₈ | 15 ⁷ / ₈ | 6 | 21 ¹ / ₂ | 17 ⁷ / ₈ | 32 | 49 ¹ / ₂ | 76 | 25 ⁵ / ₈ | 14 | 20 ¹³ / ₁₆ |

| Model | Wt w/Skid Lbs | Volume U.S. Gallons |
|---------|---------------|---------------------|
| HM0610M | 110 | 2 1/2 |
| HM0620M | 135 | 3 3/4 |
| HM0630M | 158 | 5 |
| HM1210M | 260 | 12 1/2 |
| HM1020M | 245 | 11 |
| HM1215M | 265 | 15 |
| HM1030M | 285 | 15 |

| Model | Wt. w/Skid (lbs.) | Volume (US Gal.) |
|---------|-------------------|------------------|
| HM1220M | 265 | 17 1/2 |
| HM1225M | 315 | 20 |
| HM1230M | 350 | 22 1/2 |
| HM1430M | 405 | 26 |
| HM1630M | 490 | 41 |
| HM1830M | 575 | 39 |

Vertical Vessels Available. Consult The Factory For More Information

Clay Vessels

VC Series - Parker Velcon Standard Canister Design Offers Many Advantages over Bag-Type Design

VC Series are for use with Parker Velcon clay cartridges in applications such as removing surfactants from jet fuel and acids or products of oxidation. The standard design is fitted for canister type cartridges with knife seal mounting hardware. Parker AFD recommends a standard canister design because it offers many advantages over the bag type.

BENEFITS

- **Positive Cartridge End Seal**
prevents contaminated liquid bypass
- **Lower Purchase Price**
the canister design eliminates the need for costly cartridge standpipes
- **Easier, Faster Cartridge Changes** with simple hand tools

OTHER STANDARD DESIGN FEATURES

- 150 psi ASME Code construction
- RF flanged connections
- Swing bolt closure with Buna-N O-ring cover seal
- Hydraulic jack cover lift
- Inlet baffle to protect cartridges
- El 1541 specification epoxy coated interior, primed exterior.
- El1596 constructed

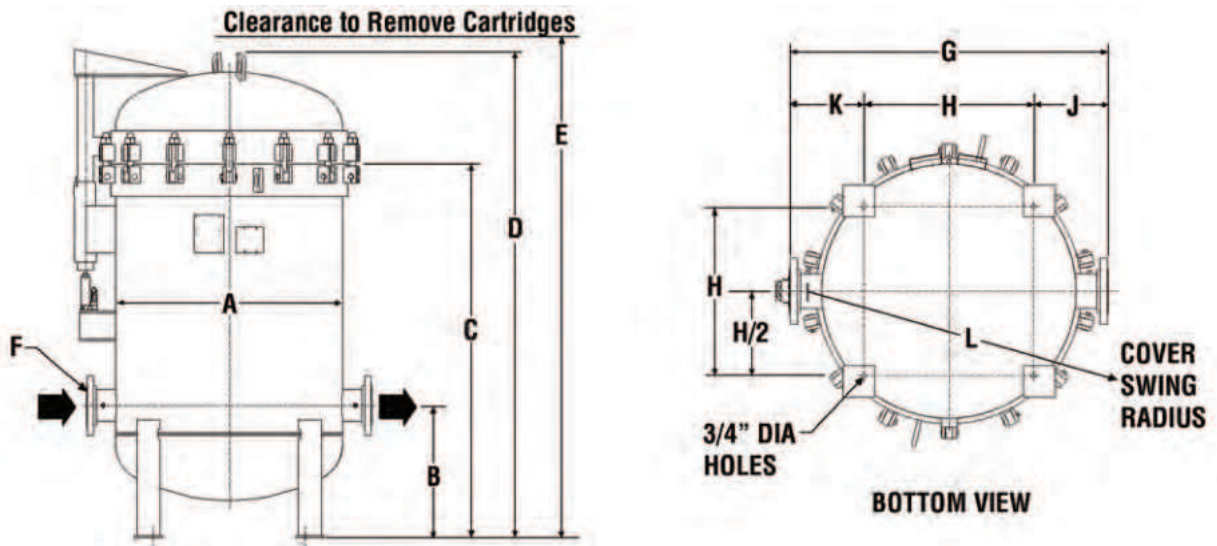
OPTIONAL ACCESSORIES

Parker AFD recommends automatic air vent, pressure relief valve, differential pressure gauge, and drain valves (2 per vessel). Also available are work platforms, sampling probes and ASME

Code Certification. Clay vessels can be designed with carriers to allow for removal of all canisters at once.



VC4854285



CLAY VESSELS

| Model | Flow Rate (Kerosene) USGPM | Cartridges | | Dimensions (inches)* | | | | | | | | | | | Weight (w/ skid (lbs.)) | Volume (US Gal.) |
|--------|----------------------------------|------------|------|--------------------------------|--------------------------------|--------------------------------|---------------------------------|-----|---|----|--------------------------------|--------------------------------|--------------------------------|----------------------------------|-------------------------------|---------------------|
| | | Model | Qty. | A | B | C | D | E | F | G | H | J | K | L | | |
| VC3636 | 230 | CO-718CE | 34 | 36 ⁵ / ₈ | 25 | 57 ³ / ₈ | 77 | 77 | 4 | 48 | 23 | 12 ¹ / ₂ | 12 ¹ / ₂ | 43 ¹³ / ₁₆ | 2125 | 251 |
| VC3654 | 340 | CO-718CE | 51 | 36 ⁵ / ₈ | 25 | 75 ³ / ₈ | 95 | 95 | 4 | 48 | 23 | 12 ¹ / ₂ | 12 ¹ / ₂ | 43 ¹³ / ₁₆ | 2375 | 331 |
| VC4254 | 465 | CO-718CE | 72 | 42 ³ / ₄ | 26 ¹ / ₂ | 77 ¹ / ₂ | 100 | 97 | 6 | 54 | 28 | 13 | 13 | 52 ⁹ / ₁₆ | 3000 | 468 |
| VC4854 | 600 | CO-718CE | 93 | 48 | 28 | 79 | 103 ¹ / ₈ | 98 | 6 | 60 | 32 | 14 | 14 | 57 ³ / ₈ | 3500 | 626 |
| VC5454 | 800 | CO-718CE | 120 | 54 ³ / ₄ | 29 | 80 | 107 ³ / ₄ | 99 | 6 | 66 | 36 ¹ / ₂ | 14 ³ / ₄ | 14 ³ / ₄ | 65 | 4100 | 813 |
| VC6054 | 1050 | CO-718CE | 150 | 60 ³ / ₄ | 31 | 81 ⁵ / ₈ | 112 ¹ / ₂ | 100 | 8 | 72 | 41 | 15 ¹ / ₂ | 15 ¹ / ₂ | 71 | 4750 | 1028 |
| VC6654 | 1200 | CO-718CE | 183 | 67 | 36 | 87 ¹ / ₈ | 118 ⁷ / ₈ | 108 | 8 | 78 | 45 ¹ / ₂ | 16 ¹ / ₄ | 16 ¹ / ₄ | 75 | 6500 | 1275 |

*Dimensions are shown for estimating purposes. For exact dimensional detail, obtain certified copy of Vessel Drawing.

Note: For tight spaces, clearance to remove clay cartridge is only 2 feet above flange break.

2500 GPM Bulk Fuel Filtration Skids

JFS2500



The JFS2500 skid is designed to be a portable, complete filtration system. They can be easily put into service with little more than upstream and downstream connections being made. Great for handling any bulk storage filtration application.

FEATURES

- Portable
- Each filter skid has two clay vessels, a pre-filter vessel and a filter separator vessel for optimum surfactant, water and solid removal.
- Prefilter is fitted with cartridges qualified to EI 1590
- Filter separator is fitted with cartridges qualified to EI 1581.
- Epoxy coated interior, finish coated exterior
- Complete with recommended accessories (automatic air eliminator, pressure relief valve,

differential pressure gauge, drain valves, sampling probes)

- Choice of filtration efficiency from 0.5 micron to 25 microns.

SPECIFICATIONS

- Swing bolted closures
- 150 PSI ASME code constructed
- Buna-N O-ring cover seals
- Hydraulic jack cover lift

DIMENSIONS

JFS2500

- 299 in. x 137 in. x 155 in. tall
- 43,000 lbs.
- 8" flanged connections



Function of Filter/Separator Accessories

1 Automatic Air Eliminator
Provides air vent to permit escape of trapped air during filling of vessel. When unit is completely filled with fuel, air eliminator automatically closes.

2 Check Valve
Prevents air from siphoning into the vessel through the air eliminator.

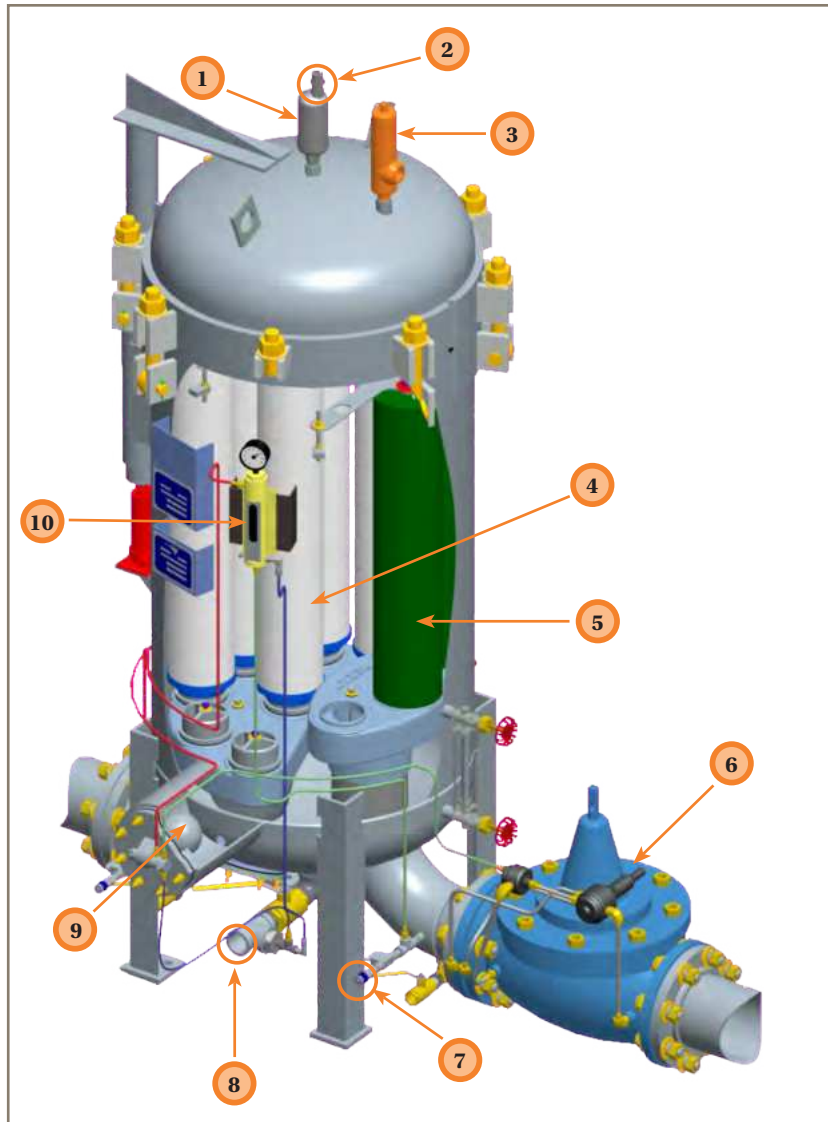
3 Pressure Relief Valve
This valve can be set to open at a desired pressure to exhaust excess pressure built up in the system, due to thermal expansion in a non-flow condition.

4 Coalescer Element
Designed to remove solid contaminants, to break the emulsion of water in the product into droplets, and to enlarge these droplets so that they will drop out of the product. The flow is from the inside to the outside of the coalescer.

5 Separator Element
Repels coalesced water droplets and prevents them from going downstream. The flow is from the outside to the inside.

6 Slug Valve
In the event of excessive water build-up, the slug valve, on signal from the float control, will shut down all flow through the system until excess water can be drained off. The slug valve can be provided with a rate-of-flow control which will prevent excessive flow rates through the filter/separator.

7 Sampling Probe
The purpose of the probe is to insure that fuel samples are representative of the fuel in the pipe. The probe penetrates through the pipe coupling that is welded to the pipe. There is



no possibility of rust and dirt that usually collects in stagnant pockets reaching the filter membrane test capsule.

8 Manual Drain
Opened daily to remove any accumulated water and to sample the fuel in the sump. This also helps to evaluate the condition of the coalescer. It is also opened to completely drain the vessel when changing elements.

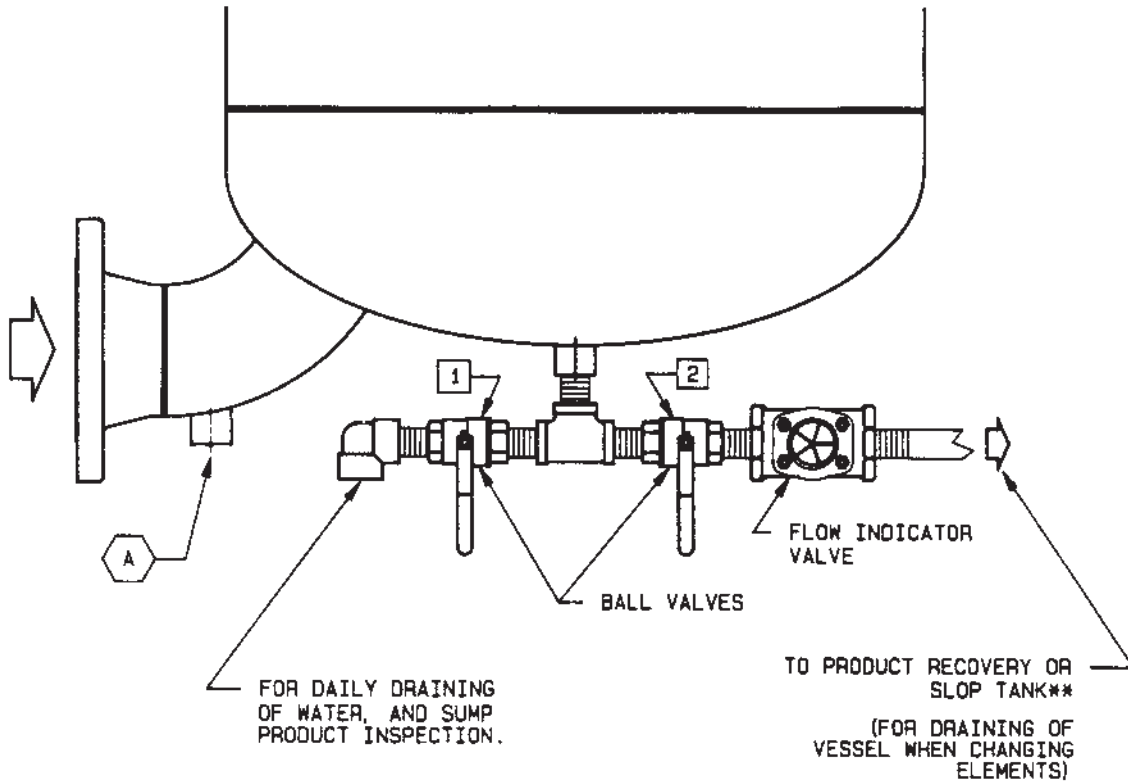
9 Float Control
Rides the interface between fuel and water, and by its

up and down movement, opens and closes ports to generate hydraulic signals to automatic valves. Parker AFD recommends the "ballast" type float control for easier checking of the integrity of the float ball.

10 Pressure Gauge
The direct reading differential pressure gauge is used to measure the pressure difference between the inlet and outlet of a filter/separator, thus providing an indication of element condition.

Recommended Manual Drain Hookup

Filter/Separator Vessels



** WHEN DRAINING VESSEL TO CHANGE CARTRIDGES:

1. Drain vessel completely through ball valve #2 above.
2. Drain a few gallons out of manual drain valve "A" (or plug) located at the bottom of the inlet elbow.

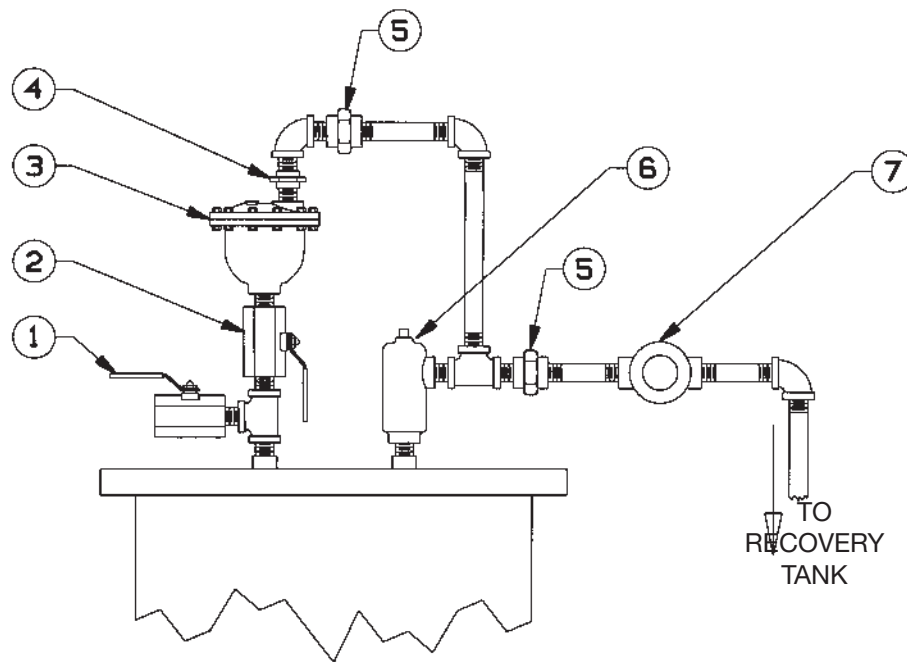
This insures no fuel remains trapped inside coalescers. (Otherwise unfiltered fuel from inside the coalescers could make clean-up of the sump more tedious.)

NOTE:

A flow indicator valve (not provided by Parker AFD) is recommended so that operator will remember to close valve #2 when filling the vessel. It also shows operator when the vessel is completely drained.

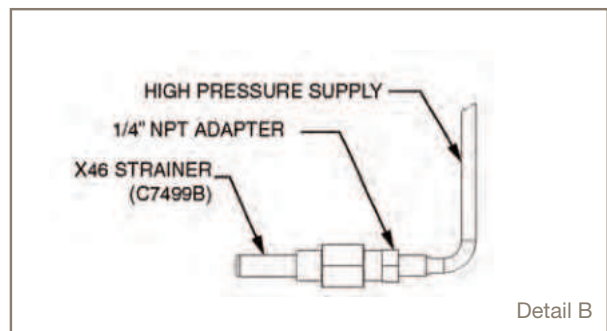
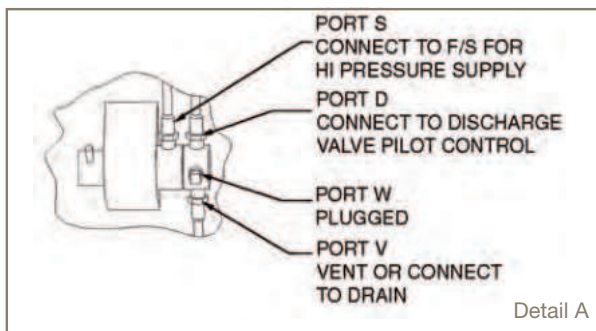
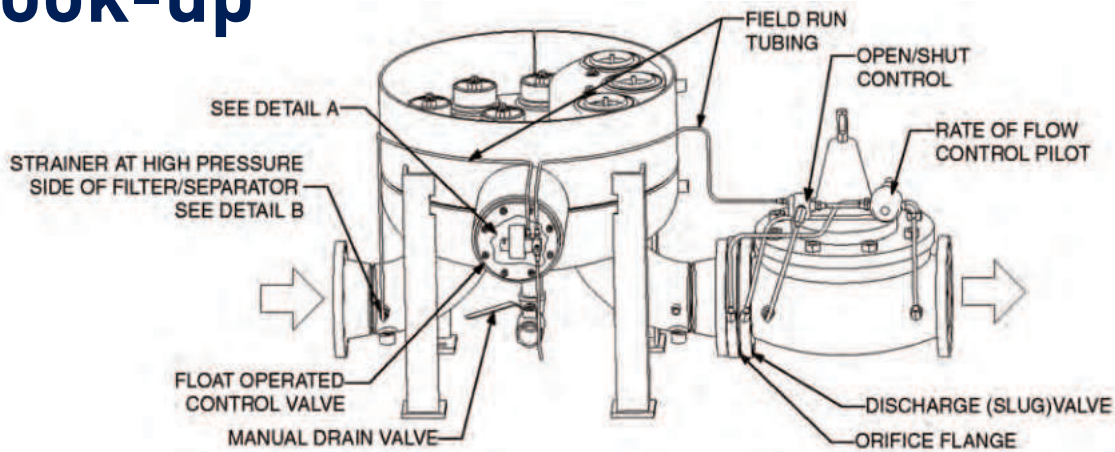
Auto Air Eliminator & Relief Valve Hook-Up

Typical Arrangement for Filter/Separator



1. Ball Valve – Close for normal operation. Open when filling or draining the vessel.
2. Ball Valve – (Optional) Open for normal operation. Close when air eliminator is to be removed for service.
3. Automatic Air Eliminator
4. Check Valve – Prevents air from siphoning into vessel
5. Pipe Unions
6. Pressure Relief Valve – Set at maximum working pressure (design pressure) of vessel or lower
7. Flow Indicator (Optional)

Typical Float Control & Slug Valve Hook-up



INSTRUCTIONS

1. Float operated pilot valve is normally installed at the factory. If installed in the field, ensure it is installed right side up.
2. Supply port on the float valve (S) is plumbed to a fitting on the vessel downstream of coalescers to ensure supply line is free of solid contamination.
3. The float valve water drain port (W) is plugged (see Note 2).
4. The float valve discharge (slug) valve port (D) is connected to the open/shut control pilot (X) on the discharge (slug) valve. (If no discharge (slug) valve is installed, the port is plugged.)
5. Rate of flow control, (ROFC) orifice is located on inlet flange of Cla-Val, Watts ACV, & OCV slug valves. The ROFC valve is available with optional check valve feature. The float pilot is available with optional internal ballast to check the integrity of the float ball. We strongly recommend the ballast type float controls!!
6. Remove the plastic cap plug from the vent port (V). (The vent port can be left open or optionally connected to downstream of the manual water drain valve. If connected be sure that there is no line pressure acting against the vent.)

FLOAT FLANGE TORQUE REQUIREMENTS

- Hand tighten all nuts evenly to hold float control in place. (Flat gasket should be dry.)
- Apply 30% of required torque in a cross-torquing process to all nuts.
- Follow above procedure to 60% of required torque and then again to 100%.

| Vessel Design | Torque Requirements |
|---------------|---------------------|
| 150 psi | 25 ft/lb |
| 275 psi | 40 ft/lb |

NOTES

1. The Watts ACV and OCV float systems use supply pressure to open the automatic drain valve and to keep the discharge (slug) valve open.

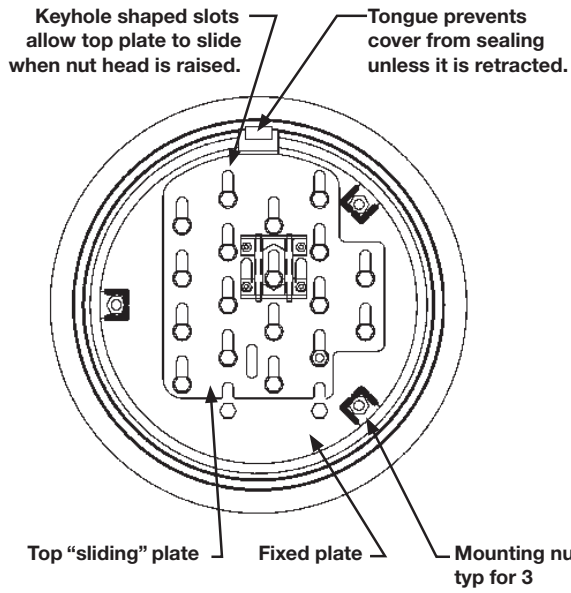
The Cla-Val float system uses supply pressure to keep the automatic water drain valve closed and to close the discharge (slug) valve.

2. Parker AFD DOES NOT RECOMMEND, WARRANT, OR SELL AUTOMATIC DRAIN VALVES. They do not completely drain the water from the sump and they malfunction too often resulting in costly fuel spills and subsequent environmental problems.

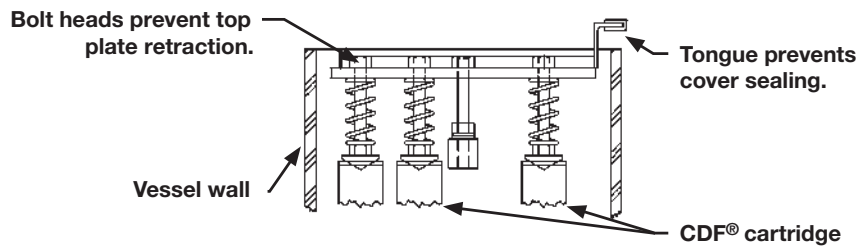
| Float Valve Port Function | Vendor Identification | | |
|---------------------------|-----------------------|---------|-----|
| | Carter/Watts* ACV | CLA-VAL | OCV |
| S = Pressure Supply | P | S | P |
| W = Water Drain Valve | DV | W | W |
| D = Discharge | SV | F | A |
| V = Vent | E | D | E |

Monitor Interlock Operating Principle

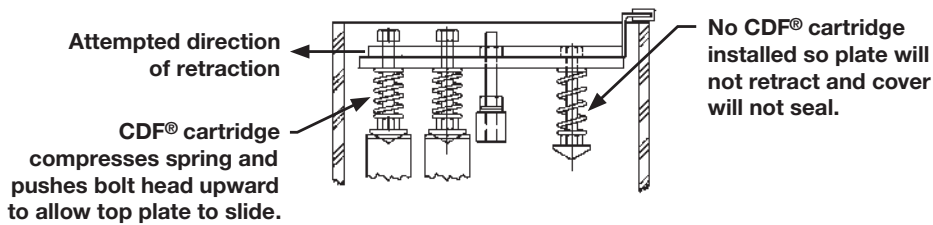
Plan View - Interlock Assembly



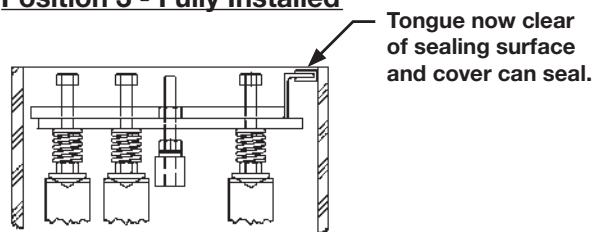
Position 1 - Before Tightening



Position 2 - Tightened Down to Retract



Position 3 - Fully Installed



The Importance of Spiders

CAUTION: FAILURE TO INSTALL SPIDERS CAN RESULT IN POOR VESSEL PERFORMANCE AND INTERNAL FIRE OR EXPLOSION FROM STATIC DISCHARGE

Spider plates (spiders) are an important part of a filter separator vessel. Spiders are usually made of aluminum or stainless steel, and may be rigid or open-mesh design. Spiders are fitted over the ends of various types of filter cartridges within the filter vessel.

There are five purposes for spiders in vessels:

1. To keep the cartridges separated in order to equalize flow around the cartridges, and to provide paths for the coalesced water drops to fall to the sump
2. To give support to the “free” ends of the cartridges (the ends not rigid against the deckplate)
3. To prevent microbial growth
4. To meet EI 1581 5th Edition requirements
5. To prevent static discharge and internal fires

Keeping the coalescers (first stage cartridges) from touching each other enhances the coalescing process by giving room between the coalescers for the water to fully form into drops 1/8 to 1/4 inch in diameter, and then having room to fall by gravity to the sump at the bottom of the vessel.

It is very important to support the free ends of cartridges, particularly the heavy coalescers in horizontal vessels. Without a spider supporting the free ends, and without the spider being rigidly clamped or clipped to the vessel interior, the free ends can be exposed to heavy vibration

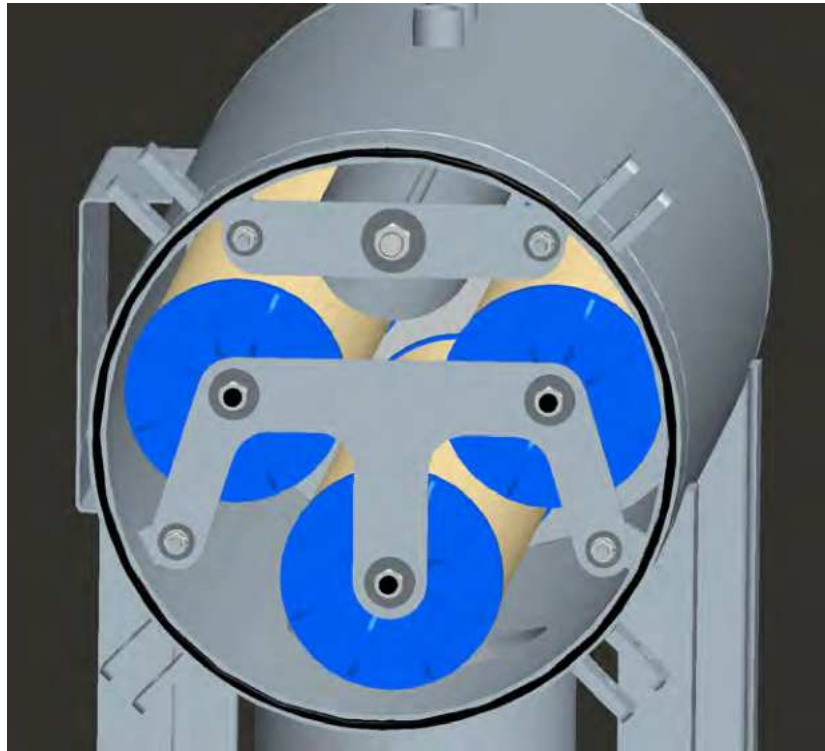


Figure 1. Two spiders in horizontal filter/separator bonded by clips to vessel.

which could eventually loosen the mounting ends leading to bypass, or even rupture the mounting.

Another reason to keep the coalescer socks from touching each other is to reduce the microbial growth area. Have you ever seen a light or dark grayish or blackish line running vertically down a coalescer? This is microbial growth.

EI 1581 5th Edition Specification requires the use of spiders for cartridges longer than 18 inches (3.2.2.13) as well as certain minimum spacings between coalescers, separators (second stage cartridges), and between coalescer and separator within qualified vessels (3.2.2.15). To maintain such spacing a spider is required.

Spiders in the various vessels should not be allowed to become “unbonded charge collectors.” A solid electrical path from the spider to the vessel shell is essential. This can be accomplished through the tie rods that make solid contact with the spider, or by contact with a metal clip attached to the side of the vessel. (Some filter/separator vessels have two spiders as shown in Fig. 1).

The spider for the separators is electrically bonded to the tie rods that are bonded to the vessel. However, the other spider on the screw-base coalescers might not be bonded to anything (it thus becomes an “unbonded charge collector” which could lead to fires in the vessel).

Insure that these spiders are bonded electrically to the vessel by attaching to a metal clip, or by a braided stainless steel wire to the separator spider (see Fig. 2).

When converting a pre-filter (micronic) vessel from open-ended cartridges with tie rods to screw-base cartridges, ensure the spider is somehow bonded to the vessel either by support clips on the vessel interior or by the braided stainless steel wire to the baffle plate (see Fig. 3).

A prefilter vessel with no internal baffle plate is a problem. The purpose of the baffle plate or angle iron is to divert flow to the top of the vessel so the full flow does not all work against the nearest cartridges. Without the baffle plate, the nearest cartridges to the inlet can be torn apart. This vessel had been converted to screw-base filter cartridges, and had an unbonded spider at the top. There was visual and audio evidence of internal electrical discharge. Spiders, properly bonded, are important components of filter vessels!






Figure 2. Two spiders in vertical filter/separator bonded together with braided stainless steel wire, bonded to vessel via separator tie-rods.





Figure 3. Spider on pre-filter bonded to baffle with braided stainless steel wire.

Adapters/Hardware

| Element ID: | 2" | 2 ¼" | 2 ½" | 3 ½"* | | 4 ½"* |
|--|----------------------------|----------------------------|----------------------------|--|---|---|
| APPLICATION: | SO-3xxV SO-3xxV5 | CO-718CE LA-71801B | FO-718PL FO-6xxFGA | I-6xxxx FO-6xxPL FO-6xxFG SO-6xxC SO-6xxPL | SO-4xxC SO-4xxV SO-4xxV5 SO-6xxCA SO-6xxVA SO-6xxVA5 | SO-6xxCM SO-6xxV SO-6xxV5 |
| Mounting Adapter (includes glued-on gasket)  | 12-02S (Gasket: G-0131) | 12-02S (Gasket: G-0131) | 12-02G (Gasket: G-1041) | 12-02I (Gasket: G-0126) 12-02W(1) | 12-02I (Gasket: G-0126) 12-02W(1) | 12-02U (Gasket: G-0129A) 12-02Z (1) |
| Spacer (centerplate)  | N/A | 12-02F | 12-02A | 12-02K (12-02T) | N/A | N/A |
| End Cap  | N/A | 12-02M | 12-02M | 12-02C (12-02X) | N/A | N/A |

*Note: Adapter part numbers shown have holes drilled for 3/8" diameter tie rods. Part numbers in parantheses have holes drilled for 1/2" diameter tie rods (Facet vessels).

| | Element OD (in.) 6 |
|---|--|
| | Applicable Element I-6xxxxTB |
|  | Threaded Base Adapter 6000T |
|  | Blind Cap Assembly (For use on any element) 60464 |

For additional adapter information contact Parker AFD at +1 719 531 5855 or vfsales@parker.com.

Nut & Washers

| Size: | Diagram | 3/8" (16NC) | 1/2" (13NC) | 5/8" (11NC) |
|--------------------------------------|---|-------------|-------------|-------------|
| Hex Nut |  | K07 | K02 | K19 |
| Lock Washer |  | K05 | K59 | N/A |
| Flat Washer |  | K06 | 07-035 | N/A |
| Tie Rod Gasket |  | G-0305 | G-0313 | N/A |
| Spider: Flat Washer (Large OD) |  | K87 | K08 | K18 |

Date: _____
To: 719.535.0585 Fax / velconquotes@parker.com
 Parker Hannifin
 Aerospace Filtration Division
ATTN: Vessel Sales Coordinator

From
Name: _____
Company: _____
Fax No.: _____
Phone No.: _____
Email : _____

Please send all written customers specifications.
Fill out and send this sheet whenever written specifications are lacking or incomplete.

Customer: _____ **Destination:** _____

Equipment Required:

Filter/Separator Clay Micronic Filter **Aquacon**[®] Cartridge Housing CDF[®] Monitor

Micron Rating for Microfilter or Aquacon[®] Cartridge: _____ **Product (Fuel):** _____

Qty. Required: _____ **Flow Rate:** _____ **USGPM** **Design Pressure:** 150 psi Other: _____

Vertical Horizontal End Open Side Opening Fixed Mobile

Specification Requirements

EI 1581 5th Edition*: Category C M M100 | Type S Type S-LW Type S-LD

Other: _____

* Also known as "API 1581", "API/IP 1581" and "API/EI 1581"

ACCESSORIES

| | Standard | Options | | |
|------------------------------|--|---|--|--|
| Auto. Air Eliminator | <input type="checkbox"/> St. Steel | <input type="checkbox"/> Steel | <input type="checkbox"/> Cast Iron | <input type="checkbox"/> Alum. |
| Auto. Air Check Valve | <input type="checkbox"/> St. Steel | | | |
| Pressure Relief Valve | <input type="checkbox"/> Steel | <input type="checkbox"/> Bronze | <input type="checkbox"/> Iron w/St. Steel Wetted Parts | |
| Pressure Gauge | <input type="checkbox"/> GTP 0-30 Alum | <input type="checkbox"/> GTP 0-30 St. Steel | | |
| Float Control | <input type="checkbox"/> Alum. | <input type="checkbox"/> St. Steel | <input type="checkbox"/> Man. Test (Std.) | <input type="checkbox"/> Ballast Type Test |
| Slug Valve | <input type="checkbox"/> Ductile Iron | <input type="checkbox"/> Cast Alum | <input type="checkbox"/> St. Steel | <input type="checkbox"/> Carbon Steel |
| <i>Rate of Flow Control</i> | <input type="checkbox"/> Yes <input type="checkbox"/> No | <input type="checkbox"/> Solenoid Operated | | |
| Manual Drain | <input type="checkbox"/> Steel | <input type="checkbox"/> Alum. | <input type="checkbox"/> Bronze/ Brass | <input type="checkbox"/> St. Steel |
| Water Probe | <input type="checkbox"/> Single Stage | <input type="checkbox"/> Two Stage | <input type="checkbox"/> 220/240V | <input type="checkbox"/> 120V |
| Sample Probes | <input type="checkbox"/> GTP Kit #5 | <input type="checkbox"/> GTP Kit #7 | <input type="checkbox"/> Other: | |
| Heater | <input type="checkbox"/> 240V | <input type="checkbox"/> 480V | <input type="checkbox"/> 120V | |
| Sight Glass | <input type="checkbox"/> St. Steel | | | |

Special Fittings For Accessories Not Included in Quote: Float Flange Water Probe Boss

ASME Code Cert. & Stamp EI Plate Export Packing

Budget Quote Firm Requirement **Date Quote is Required:** _____

Probability of Converting: % _____ **Est. Win Date:** _____

Other Requirements: _____

Mission

Parker AFD is committed to being the world's preferred source for the expert aviation filtration solutions we deliver to our customers.

Values

Superior customer service

Profitable growth

Meet or exceed customer expectations

Accountability

Integrity

