In-Line Bulk Fuel Coalescing Filter

Features and Benefits

- Patent-pending, three-phase, particulate and fuel/water separation media technology
- A revolutionary element designed for the highest single-pass water and particulate removal efficiencies in today’s ultra-low sulfur diesel (ULSD) fluids
- Protects expensive Tier III and Tier IV engine components against failures caused by particulate and water transferred from bulk fuel tanks to the vehicle
- Allows users to achieve or exceed the particulate and water removal specifications of the injection system OEMs
- Previously acceptable industry standard products no longer provide the high-efficiency separation needed in today’s ULSD fluids
- Housing design allows for field upgrade of any available option
- Schroeder Anti-Static Pleat® Media (ASP) is standard for all coalescing elements
- Pressure bypass indicator setting at 36 psi, with bypass valve cracking at 40 psi, allows for early indication before bypass of filter for advanced maintenance notice
- In applications >32°F (0°C) complete automation is achievable with fail-safe auto-drain feature using a remote 5 gallon (18L) or 20 gallon (75L) sump with alarm and auto shutdown
- Now available as a UL Certified, marine specific, fuel filter (ICFM)

Markets

- INDUSTRIAL
- MOBILE VEHICLES
- MARINE
- MINING TECHNOLOGY
- AGRICULTURE
- POWER GENERATION
- COMMON RAIL INJECTOR SYSTEMS
- FLEET
- RAILROAD
- BULK FUEL FILTRATION

*Coalescing Elements Patent-Pending

Model no. of filter in photograph is: ICFVS16LEP

Model no. of filter in photograph is: ICFM
Flow Rating: Up to 16 gpm (60 L/min) for ULSD15

Inlet/Outlet Connection: 1 ½" NPTF Standard, -16 (ORB) SAE J1926 Optional

Max. Operating Pressure: 150 psi (10 bar)

Min. Yield Pressure: 450 psi (31 bar)

Rated Fatigue Pressure: 90 psi (6 bar), per NFPA T2.6.1-2005

Temp. Range: 32°F to 165°F (0°C to 74°C) standard and AWD option
            -20°F to 165°F (-29°C to 74°C) H option

Bypass Indication: 36 psi (2.5 bar) (Lower indication options available)

Bypass Valve Cracking: 40 psi (2.8 bar)

Porting Head/Cap: Aluminum - Coating Option see Box 7
                  Element Bowl: Steel - Epoxy Paint w/ High-phos Electroless Nickel Plating (Standard)

Filter Housing Weight: 15 lbs (6.8 kg) - Base unit without options or element

Element Change Clearance: Access from top (remove cap) - 18" (457.2 mm)
                          Access from below (remove bowl) - 2.5" (63.5 mm)

Housing Sump: 32 oz. (0.95 L)

Optional: External water sump and non-immersion heater (power 120VAC, 235W),
          Sight glass, bracket, water in fuel sensor w/ or w/out remote mount light and
          6' lead

Note: For other electrical options, contact factory
      Element sold separately
**In-Line Bulk Fuel Coalescing Filter**

*Coalescing Elements Patent-Pending*

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**Pressure Drop Information**

Based on Flow Rate and Viscosity

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**ICF ΔP<sub>housing</sub> for fluids with sp gr = 0.86**

<table>
<thead>
<tr>
<th>Flow L/min</th>
<th>ΔP in psi</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>2</td>
<td>0.5</td>
</tr>
<tr>
<td>4</td>
<td>1</td>
</tr>
<tr>
<td>6</td>
<td>1.5</td>
</tr>
<tr>
<td>8</td>
<td>2</td>
</tr>
<tr>
<td>10</td>
<td>2.5</td>
</tr>
<tr>
<td>12</td>
<td>3</td>
</tr>
<tr>
<td>14</td>
<td>3.5</td>
</tr>
<tr>
<td>16</td>
<td>4</td>
</tr>
</tbody>
</table>

**ΔP<sub>element</sub>**

\[
\Delta P_{element} = \text{flow} \times \text{element} \times \Delta P \text{ factor} \times \text{viscosity factor}
\]

El. ΔP factors @ 37 SUS (3 cSt).

- C184Z3V = 0.2
- C184Z5V = 0.2
- C184Z7VE = 0.09

*If working in units of bars & L/min, divide above factor by 54.9.*

**Notes**

- \( \Delta P = \Delta P_{housing} + \Delta P_{element} \)

**Exercise:** Determine \( \Delta P \) at 16 gpm (60 L/min) for ICFVP24LEP

**Solution:**

\[
\Delta P_{housing} = 2.05 \text{ psi} = [0.14 \text{ bar}]
\]

\[
\Delta P_{coalescing element} = 16 \times 0.2 = 3.2 \text{ psi} = [0.22 \text{ bar}]
\]

\[
\Delta P_{total} = 2.05 + 3.2 = 5.25 \text{ psi} = [0.36 \text{ bar}]
\]

---

**Coalescing Element**

<table>
<thead>
<tr>
<th>Coalescing Element</th>
<th>Recommended Flow</th>
<th>Single Pass Water Removal Efficiency</th>
</tr>
</thead>
<tbody>
<tr>
<td>C184Z5V</td>
<td>16 gpm</td>
<td>≥ 99.5%</td>
</tr>
<tr>
<td>C184Z3V</td>
<td>16 gpm</td>
<td>≥ 99.5%</td>
</tr>
<tr>
<td>C184Z7VE</td>
<td>16 gpm</td>
<td>Contact Factory for Element Data</td>
</tr>
</tbody>
</table>

**Flow Direction:** Inside Out

**Element Nominal Dimensions:** 4.0” (102 mm) O.D. x 18.5” (470 mm) long

*Schroeder Anti-Static Pleat Media (ASP®) is standard

*NOTE: Efficiency based on ULSD15 with 27 Dynes/cm surface tension and 0.25% (2500 ppm) water injection. Discharge water concentration of <100 ppm free and emulsified water.*
NOTES: Water in fuel sensor (WIF) supplied w/ or w/out remote mount indicator light to show full filter housing sump
T Option = WIF sensor only w/out filter housing sump full indication light or control panel
I Option = WIF sensor w/ remote mount filter housing sump full indicator light and NEMA 4X control panel supplied

NOTES: Filter Sump Heater Control Panel dimension:
6.5" W x 5.5" H x 6.5" D
(165 W x 140 H x 165 D)
Automatic Water Drain Control Panel dimension:
10" W x 8" H x 12" D
(254 W x 203.20 H x 304.80 D)
*For use above 32°F (0°C) only
Electrical cable length (Control Panel to ICF): 4 ft.
(1.22m)
Hose length for Automatic Water Drain feature
(ICF to Tank): 6 ft. (1.83m)
All control panels "NEMA 4X" rated

Metric dimensions in ().

NOTES: Remote Tank dimension:
5 Gallon Tank: 22" W x 9.25" L x 7.125" H
(558.80 W x 234.95 L x 180.97 H)
20 Gallon Tank: 15" W x 11" L x 31" H
(381 W x 279.40 L x 787.40 H)
Power supply for tank high level LED light: 9 VDC
(battery included) Supplied w/ 9 VDC terminal for customer wiring provided.

Metric dimensions in ().
In-Line Fuel Coalescing Filter

*Coalescing Elements Patent-Pending

How to Build a Valid Model Number for a Schroeder ICF without element:

<table>
<thead>
<tr>
<th>BOX 1</th>
<th>BOX 2</th>
<th>BOX 3</th>
<th>BOX 4</th>
<th>BOX 5</th>
<th>BOX 6</th>
<th>BOX 7</th>
<th>BOX 8</th>
<th>BOX 9</th>
<th>BOX 10</th>
</tr>
</thead>
</table>

Example: NOTE:


Filter Series: ICF

Sealing Material: V = Viton®

Porting: L = In cap bar indicator

Coalescing Element Change Indicator: P24 = 1½” NPTF (standard)

Mounting Option:

- B = Bracket (Element top loading)
- R = Bracket (Element bottom loading)
- Omit = None

Coating Option:

- EP = Epoxy paint and plating (standard)
- A = Anodized cap & head (optional)

Filter Housing Sump Level Indicator Option:

- S = Sight Glass
- I = Water In Fuel sensor w/ remote mount light indicator and 6’ lead for use in factory supplied control panel
- T = Water In Fuel sensor w/out remote light for use in customer supplied control panel
- Omit = None

Automatic Drain & Remote Sump Options:

- AWDS = Auto water drain 5 gal tank w/ failsafe (only offered for applications above 32°F (0°C) and units ordered without heater)
- AWDD20 = Auto water drain 20 gal tank w/ failsafe (only offered for applications above 32°F (0°C) and units ordered without heater)
- Omit = None

Optional Manual Drain Remote Sump:

- S5 = 5gal sump tank
- S20 = 20gal sump tank
- Omit = None

Element Part Number Selection:

<table>
<thead>
<tr>
<th>Element Part Number</th>
<th>Flow Direction</th>
<th>Pressure Side Coalescing</th>
</tr>
</thead>
<tbody>
<tr>
<td>C184Z5V</td>
<td>Inside Out</td>
<td>16 gpm</td>
</tr>
<tr>
<td>C184Z23V</td>
<td>16 gpm</td>
<td>≥ 99.5%</td>
</tr>
<tr>
<td>C184Z7VE</td>
<td>16 gpm</td>
<td>≥ 99.5%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Contact Factory for Element Data</td>
</tr>
</tbody>
</table>

Fluid Compatibility:

- ULSD15, low sulfur diesel and high sulfur diesel
- Biodiesel blends
- Synthetic diesel and blends
- No. 2 fuel oil and heating oil

NOTES:

For details on how to order the UL Listed ICFM, Contact Factory

Unless automatic drain option is specified, ICF units will come standard with manual drain

Coalescing element sold separately and selected below

If ordering the collection of options (Box 5. B, Box 6. S, and Box 8. H) together, please contact factory

Box 2. Viton® is a registered trademark of DuPont Dow Elastomers

Box 6 and 7. Only two boxes that allow combination of options (S + I or EP + A)

Box 8. Filter sump heater option only available when ordered w/out automatic water drain (AWDS or AWDD20)

Box 9. AWD fail safe is shown on page 25 (ICF)

Element Nominal Dimensions: 4.0” (102 mm) O.D. x 18.5” (470 mm) long

* Schroeder Anti-Static Pleat Media (ASP®) is standard

Flow Direction: Inside Out

NOTE: Efficiency based on ULSD15 with 27 Dynes/cm surface tension and 0.25% (2500 ppm) water injection. Discharge water concentration of <100 ppm free and emulsified water.
Applications

- Bulk Diesel Filter
- BDF
- 25-50 gpm
- 95-189 L/min
- 150 psi
- 10 bar

Features and Benefits

- Fuel dispensing and transfer filtration solution with choice of integral or blocked bypass to suit application
- Allows users to achieve or exceed the manufacturer requirements for particulate and water content in diesel fuel
- Designed with integrated particulate removal pre-filtration for downstream coalescing filter protection and extended element life
- Routine element change only needed on particulate pre-filter, which saves time and money
- Updated BDF design incorporates GHPF and GHCF filter housings for a reduced cost, improved function, and increased capacity
- Patented GeoSeal® element sealing interface ensures quality element replacement
- Particulate filtration available at 1 or 3 microns utilizing synthetic Z-Media® element for better contamination control
- Patented, three-phase, particulate and fuel/water separation media technology
- Housing design allows for field upgrade of any available option
- Complete automation is achievable with a water and fuel sensor and fail-safe auto-drain feature using a remote 5 gallons (18L) or 20 gallons (75L) sump with alarm and auto shutdown in application >32°F (0°C)
- Easy mounting and element service

Markets

- Industrial
- Mobile Vehicles
- Marine
- Mining Technology
- Agriculture
- Power Generation
- Common Rail Injector Systems
- Fleet
- Railroad
- Bulk Fuel Filtration

Model no. of filter in photograph is: BDF111GGZ3CG5VDS

*Coalescing Elements Patent-Pending
**Bulk Diesel Filter**

**Filter Housing Specifications**

- **Flow Rating:**
  - BDF1: up to 25 gpm (95 L/min)
  - BDF2: up to 50 gpm (189 L/min)

- **Inlet/Outlet Connection:**
  - -24 (ORB) SAE J1926

- **Max. Operating Pressure:** 150 psi (10 bar)

- **Temp. Range:**
  - -20°F to 225°F (-29°C to 107°C) w/ optional water sump heater, 32°F to 225°F (0°C to 107°C) without heater, with standard features and AWD options

- **Bypass Indication:**
  - Particulate Filter: 35 psi (2.4 bar)
  - Coalescing Filter: 35 psi (2.4 bar)

- **Bypass Valve Cracking:**
  - Particulate Filter: 40 psi (2.8 bar)
  - Coalescing Filter: 40 psi (2.8 bar)

- **Materials of Construction:**
  - Particulate & Coalescing Filter
    - Porting Head: Cast Aluminum, Anodized
    - Element Case: Aluminum, Anodized
  - Coalescing Filter Only
    - Sump: Cast Aluminum, Anodized

- **Weight:**
  - BDF1: 46.5 lbs
  - BDF2: 89 lbs

- **Element Change Clearance:**
  - Particulate Filter: 2” (51 mm)
  - Coalescing Filter: 4.5” (114 mm)

- **Opt. Water Sump Heater:**
  - 120VAC, 1 x 74W (BDF1) / 2 x 74W (BDF2)

- **Opt. Visual Electrical Indicator:**
  - 120VAC

---

**BDF1**

**Dimensions:**

- **Flow Rating:** BDF1: up to 25 gpm (95 L/min)  
  BDF2: up to 50 gpm (189 L/min)

- **Inlet/Outlet Connection:** -24 (ORB) SAE J1926

- **Max. Operating Pressure:** 150 psi (10 bar)

- **Temp. Range:** -20°F to 225°F (-29°C to 107°C) w/ optional water sump heater, 32°F to 225°F (0°C to 107°C) without heater, with standard features and AWD options

- **Bypass Indication:** Particulate Filter: 35 psi (2.4 bar)  
  Coalescing Filter: 35 psi (2.4 bar)

- **Bypass Valve Cracking:** Particulate Filter: 40 psi (2.8 bar)  
  Coalescing Filter: 40 psi (2.8 bar)

- **Materials of Construction:** Particulate & Coalescing Filter
  - Porting Head: Cast Aluminum, Anodized
  - Element Case: Aluminum, Anodized

- **Weight:** BDF1: 46.5 lbs  
  BDF2: 89 lbs

- **Element Change Clearance:** Particulate Filter: 2” (51 mm)  
  Coalescing Filter: 4.5” (114 mm)

- **Opt. Water Sump Heater:** 120VAC, 1 x 74W (BDF1) / 2 x 74W (BDF2)

- **Opt. Visual Electrical Indicator:** 120VAC

---

**Metric dimensions in ( ).
Dimensions shown are inches [millimeters] for general information and overall envelope size only.
For complete dimensions please contact Schroeder Industries to request a certified print.**
Bulk Diesel Filter

**BDF2**

**BDF**

SCHROEDER INDUSTRIES | FUEL FILTRATION 29

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### BDF2 SERIES LIST

<table>
<thead>
<tr>
<th>PARTS</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>GHPF, PARTICULATE FILTER</td>
</tr>
<tr>
<td>A</td>
<td>GHCF, COALESCING FILTER</td>
</tr>
<tr>
<td>C</td>
<td>MOUNTING PLATE</td>
</tr>
<tr>
<td>D</td>
<td>MOUNTING BRACKET</td>
</tr>
<tr>
<td>E</td>
<td>SUPPORT BRACKET</td>
</tr>
<tr>
<td>F</td>
<td>VITON SEAL KIT</td>
</tr>
</tbody>
</table>

**NOTES:**

1) FOR SERIES “ORIGINAL” AND “A” PARTS LIST, SEE DRAWING 7639582.

2) FOR OPTIONAL PARTS, SEE DRAWING 7636864.

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### Dimensions

Metric dimensions in ( ).

Dimensions shown are inches [millimeters] for general information and overall envelope size only.

For complete dimensions please contact Schroeder Industries to request a certified print.

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### Filtration Ratio per ISO 16889

Using APC calibrated per ISO 11171

| Particulate Elements | DHJ(c) | \( \beta_{j} \geq 200 \) | \( \beta_{j} \geq 1000 \)
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>11GGZ1V</td>
<td>172</td>
<td>&lt;4.0</td>
<td>4.2</td>
</tr>
<tr>
<td>11GGZ3V</td>
<td>148</td>
<td>&lt;4.0</td>
<td>4.8</td>
</tr>
</tbody>
</table>

### Coalescing Element

<table>
<thead>
<tr>
<th>Coalescing Element</th>
<th>Pressure Side Coalescing</th>
</tr>
</thead>
<tbody>
<tr>
<td>C125GZSV</td>
<td>Max Flow: 25 gpm</td>
</tr>
<tr>
<td></td>
<td>Single Pass Water Removal Efficiency: ( \geq 95% )</td>
</tr>
</tbody>
</table>

**Note:**

Based on ULSD15 with 27 Dynes/cm surface tension and 0.25% (2500 ppm) water injection.

**Particulate Element**

- **Flow Direction:** Outside In
- **Element Nominal Dimensions:** 5.0” (27 mm) O.D. x 11” (279 mm) long

**Coalescing Element**

- **Flow Direction:** Inside Out
- **Element Nominal Dimensions:** 5.0” (27 mm) O.D. x 12” (305 mm) long
### How to Build a Valid Model Number for a Schroeder BDF housing without element:

<table>
<thead>
<tr>
<th>BOX 1</th>
<th>BOX 2</th>
<th>BOX 3</th>
<th>BOX 4</th>
<th>BOX 5</th>
<th>BOX 6</th>
<th>BOX 7</th>
<th>BOX 8</th>
<th>BOX 9</th>
</tr>
</thead>
<tbody>
<tr>
<td>BDF</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Example:**

```
BOX 1  BOX 2  BOX 3  BOX 4  BOX 5  BOX 6  BOX 7  BOX 8  BOX 9
BDF - 11GGZ3 - - - - - -
V  D5  -  -  -
```

= BDF111GZ3CG5VD5

### Filter Model Number Selection

#### Filter Series

<table>
<thead>
<tr>
<th>Flow Rate</th>
<th>Particulate Filtration</th>
<th>Particulate Bypass</th>
<th>Coalescing Filtration</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 = 25 gpm</td>
<td>11GGZ1 = 1 µm</td>
<td>Omit = 40 psi</td>
<td>CG5 = C125GZ5V</td>
</tr>
<tr>
<td>2 = 50 gpm</td>
<td>11GGZ3 = 3 µm</td>
<td>X = Blocked Bypass</td>
<td></td>
</tr>
</tbody>
</table>

### Coalescing Bypass

- Omit = 40 psi
- X = Blocked Bypass

### Seal Material

- V = Viton®

### Indicators

- D5 = Visual Pop-up, Manual Reset

### Options

- Omit = Included Sight Glass and Manual Water Drain Valves
- U = Downstream Test Point
- T = Water-In-Fuel (WIF) Sensor Only
- L = Light Indicator
- H = Coalescing Sump Heater
- S5 = 5 gal. Remote Tank
- S20 = 20 gal. Remote Tank
- AWD5 = Auto. Water Drain w/ 5 gal. Remote Tank
- AWD20 = Auto. Water Drain w/ 20 gal. Remote Tank

### Fluid Compatibility

- Fuel Oils
  - ULSD15, low sulfur diesel and high sulfur diesel
  - Biodiesel blends
  - Synthetic diesel and blends
  - No. 2 fuel oil and heating oil

### Filtration Ratio per ISO 16889

Using APC calibrated per ISO 11171

<table>
<thead>
<tr>
<th>Particulate Elements</th>
<th>DHC(g)</th>
<th>(\beta_x(c) \geq 200)</th>
<th>(\beta_x(c) \geq 1000)</th>
</tr>
</thead>
<tbody>
<tr>
<td>11GGZ1V</td>
<td>172</td>
<td>&lt;4.0</td>
<td>4.2</td>
</tr>
<tr>
<td>11GGZ3V</td>
<td>148</td>
<td>&lt;4.0</td>
<td>4.8</td>
</tr>
</tbody>
</table>

### Pressure Side Coalescing

- Max Flow: 25 gpm
- Single Pass Water Removal Efficiency: \(\geq 95\%\)

**Note:**

Based on ULSD15 with 27 Dynes/cm surface tension and 0.25% (2500) water injection
In-Line Water Absorbing Diesel Fuel Bag Filter

Application Introduction:

The BDA provides a high capacity water absorbing solution for diesel fuel in a familiar process filtration housing configuration. The BDA combines the high volume particulate filtration performance of a bag housing element with a high capacity water absorbent media to provide an economic solution for particulate and water removal in diesel fuel systems. The BDA can be used for dispensing or kidney-loop installations. The filter is designed for use with standard diesel fuel as well as bio-based blends.

Features and Benefits

- One housing and bag filter provides both high capacity particulate and water removal performance
- A particulate filtration rating of 10 µm is standard
- Housings are high quality stainless steel, CE Marked vessels
- A positive bag seating mechanism helps to minimize the risk of seal bypass
- Fixed legs with height and 360° rotational adjustment allow for various mounting options

Markets

- Industrial
- Mobile Vehicles
- Marine
- Mining Technology
- Agriculture
- Power Generation
- Common Rail Injector Systems
- Fleet
- Railroad
- Bulk Fuel Filtration

Model no. of filter in photograph is: BDA-H-2-V-P32

35 or 70 gpm
132 or 265 L/min
145 psi
10 bar
In-Line Water Absorbing Diesel Fuel Filter

**Filter Housing Specifications**

Max Flow Rating:  
- **BDAH1:** 35 gpm (132 L/min)  
- **BDAH2:** 70 gpm (265 L/min)

Inlet/Outlet Connection:  
- 2” NPTF  
- 2” SAE 4-Bolt Flange Code 61  
- 2” BSPF

Max. Operating Pressure: 145 psi (10.3 bar)

Recommended Element Change Differential Pressure: 22 psi (1.5 bar)

Max. Element Differential Pressure: 55 psi (4 bar)

Temp. Range: -20°F to 176°F (-29°C to 80°C)

Available Gauge Porting: (2) ¼” BSP

Materials of Construction: 304 Stainless Steel

Weight:  
- **BDAH1:** 66 lbs. (30 kg)  
- **BDAH2:** 84 lbs. (38 kg)

Element Change Clearance: Min. required 14” (356 mm)

*Note: Elements sold separately*

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**Foot Pattern**

Metric dimensions in ( ).
Dimensions shown are inches [millimeters] for general information and overall envelope size only.
For complete dimensions please contact Schroeder Industries to request a certified print.
# In-Line Water Absorbing Diesel Fuel Filter

<table>
<thead>
<tr>
<th>Water Absorbing Bag Element</th>
<th>Bag Housing Size</th>
<th>Micron Rating</th>
<th>Bag Element Dimensions</th>
</tr>
</thead>
<tbody>
<tr>
<td>FA210P1PW</td>
<td>Size 1</td>
<td>10 µm</td>
<td>7” (178 mm) O.D. x 17” (432 mm) long</td>
</tr>
<tr>
<td>FA210P2PW</td>
<td>Size 2</td>
<td>10 µm</td>
<td>7” (178 mm) O.D. x 32” (813 mm) long</td>
</tr>
</tbody>
</table>

## Pressure Drop Information
- **Pressure Drop Information:** $\Delta P_{\text{housing}} < 0.5$ psi

## Notes

- Replacement Element Information: Elements Sold Separately

### BDAH-1 Water Absorbing Capacity

**Flow Rate (gpm)** vs. **Water Capacity (ml)**

### BDAH-2 Water Absorbing Capacity

**Flow Rate (gpm)** vs. **Water Capacity (ml)**
## Fuel Oils
- ULSD15, low sulfur diesel and high sulfur diesel
- Biodiesel blends
- Synthetic diesel and blends
- No. 2 fuel oil and heating oil

### Fluid Compatibility

### How to Build a Valid Model Number for a Schroeder BDFA housing without element:

<table>
<thead>
<tr>
<th>BOX 1</th>
<th>BOX 2</th>
<th>BOX 3</th>
<th>BOX 4</th>
<th>BOX 5</th>
<th>BOX 6</th>
</tr>
</thead>
<tbody>
<tr>
<td>BDA</td>
<td>H</td>
<td>1</td>
<td>V</td>
<td>P32</td>
<td>DPG</td>
</tr>
</tbody>
</table>

**Example: NOTE: One option per box**

- **BOX 1**: BDA
- **BOX 2**: H
- **BOX 3**: 1
- **BOX 4**: V
- **BOX 5**: P32
- **BOX 6**: DPG

**Model Number**: BDAH1VP32DPG

### Element Part Number Selection

<table>
<thead>
<tr>
<th>Filter Series</th>
<th>Product Configuration</th>
<th>Bag Element Size</th>
<th>Housing Seal Material</th>
</tr>
</thead>
<tbody>
<tr>
<td>BDA</td>
<td>H = Housing</td>
<td>1 = Size 1, 2 = Size 2</td>
<td>V = Viton®</td>
</tr>
</tbody>
</table>

### Filter Model Number Selection

<table>
<thead>
<tr>
<th>Filter Model Number</th>
<th>Number</th>
<th>Selection</th>
</tr>
</thead>
<tbody>
<tr>
<td>BOX 1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>BOX 2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>BOX 3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>BOX 4</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Element Water Absorbing Diesel Fuel Filter

<table>
<thead>
<tr>
<th>Water Absorbing Element</th>
<th>Bag Housing Size</th>
<th>Max Flow Rate gpm (L/min)</th>
<th>Micron Rating</th>
<th>Bag Element Dimensions</th>
</tr>
</thead>
<tbody>
<tr>
<td>FA210P1PW</td>
<td>Size 1</td>
<td>35 (132)</td>
<td>10 µm</td>
<td>7” (178 mm) O.D. x 17” (432 mm) long</td>
</tr>
<tr>
<td>FA210P2PW</td>
<td>Size 2</td>
<td>70 (265)</td>
<td>10 µm</td>
<td>7” (178 mm) O.D. x 32” (813 mm) long</td>
</tr>
</tbody>
</table>

### Notes:
- Bag Filters sold separately and are listed below
- **PORTING**
  - P32 = 2” NPTF
  - F32 = 2” SAE 4-Bolt Flange, Code 61
  - B32 = 2” BSPF

### Filter Indicator
- **Omit = None**
- **DPG = Differential Pressure Gauge**

**NOTE:**
- One option per box
GeoSeal® High-Flow Particulate Filter

Applications

■ Diesel fuel particulate filter for dispensing, transfer or polishing filtration applications
■ Uses patented GeoSeal® elements
■ All-aluminum filter housing is fully compatible with diesel and biodiesel
■ Minimal clearance needed for element service, ideal for enclosure installations
■ Cartridge style element improves performance and reduces waste compared to spin-on solutions
■ Port to port and mounting pattern dimensions match standard spin-on assembly

Features and Benefits

Model No. of filter in photograph is: GHPF11GGZ3S24D3R

<table>
<thead>
<tr>
<th>Flow Rating: Up to 100 gpm (380 L/min)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Max. Operating Pressure: 150 psi (10.3 bar)</td>
</tr>
<tr>
<td>Min. Yield: 2600 psi (179 bar)</td>
</tr>
<tr>
<td>Temp. Range: -20°F to 225°F (-29°C to 107°C)</td>
</tr>
<tr>
<td>Bypass Setting: Cracking: 40 psi (2.8 bar)</td>
</tr>
<tr>
<td>Porting Head: Cast Aluminum, Anodized</td>
</tr>
<tr>
<td>Element Case: Aluminum, Anodized</td>
</tr>
<tr>
<td>Weight of GHPF: 7.64 lbs. (3.47 kg)</td>
</tr>
<tr>
<td>Element Change Clearance: 2&quot; (51 mm)</td>
</tr>
</tbody>
</table>

Markets

■ INDUSTRIAL
■ MOBILE VEHICLES
■ MARINE
■ MINING TECHNOLOGY
■ AGRICULTURE
■ POWER GENERATION
■ COMMON RAIL INJECTOR SYSTEMS
■ FLEET
■ RAILROAD
■ BULK FUEL FILTRATION

Filter Housing Specifications

100 gpm
380 L/min
150 psi
10.3 bar

ICF
BDF
BDA
GHPF
GHCF
QCF
BDS
BDS2
BDS3
BDS4
LVH-F
LVH-C
BDFC
BDFP
HDP
HDPD
BCC
Element Performance Information

**Filtration Ratio per ISO 16889**

Using APC calibrated per ISO 11171

<table>
<thead>
<tr>
<th>Media Type</th>
<th>Element</th>
<th>$\beta_{50}(\text{c}) \geq 200$</th>
<th>$\beta_{50}(\text{c}) \geq 1000$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Traditional</td>
<td>11GGZ1V</td>
<td>&lt;4.0</td>
<td>4.5</td>
</tr>
<tr>
<td>Excellement®</td>
<td>11GGZ3V</td>
<td>4.6</td>
<td>5.8</td>
</tr>
<tr>
<td>Z-Media®</td>
<td>11GGZ5V</td>
<td>5.9</td>
<td>7.8</td>
</tr>
<tr>
<td></td>
<td>11GGZ10V</td>
<td>11.4</td>
<td>13.2</td>
</tr>
<tr>
<td></td>
<td>11GGZ25V</td>
<td>15.8</td>
<td>17.5</td>
</tr>
</tbody>
</table>

Dirt Holding Capacity

**Element Collapse Rating:** 150 psid (10.3 bar) for standard and non-bypassing elements

**Flow Direction:** Outside In

**Element Nominal Dimensions:** 11GG: 5” (127 mm) O.D. x 11” (305 mm) long

Dimensions shown are inches (millimeters) for general information and overall envelope size only. For complete dimensions please contact Schroeder Industries to request a certified print.
GeoSeal® High-Flow Particulate Filter

Diesel Fuel and Biodiesel (B100).
For other Distillate Petroleum, Contact Factory.

<table>
<thead>
<tr>
<th>Pressure</th>
<th>Series</th>
<th>Element Part No.</th>
<th>Element selections are predicated on the use of 37 SUS (3 cSt) Diesel Fuel and Biodiesel (B100), SAE-24 porting, and a 40 psi (2.8 bar) bypass valve.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Z-</td>
<td>11GGZ1V</td>
<td>11GGZ1V</td>
</tr>
<tr>
<td></td>
<td>Media</td>
<td>11GGZ3V</td>
<td>11GGZ3V</td>
</tr>
<tr>
<td></td>
<td></td>
<td>11GGZ5V</td>
<td>11GGZ5V</td>
</tr>
<tr>
<td></td>
<td></td>
<td>11GGZ10V</td>
<td>11GGZ10V</td>
</tr>
<tr>
<td></td>
<td></td>
<td>11GGZ25V</td>
<td>11GGZ25V</td>
</tr>
<tr>
<td>Flow</td>
<td>gpm</td>
<td>0</td>
<td>20</td>
</tr>
<tr>
<td></td>
<td>(L/min)</td>
<td>0</td>
<td>50</td>
</tr>
</tbody>
</table>

Shown above are the elements most commonly used in this housing.

\[\Delta P_{\text{housing}} \]

GH \( \Delta P_{\text{housing}} \) for fluids with sp gr = 0.86:

\[ \Delta P_{\text{element}} = \text{flow x element } \Delta P \text{ factor x viscosity factor} \]

<table>
<thead>
<tr>
<th>Flow (L/min)</th>
<th>( \Delta P ) psi</th>
<th>( \Delta P ) bar</th>
</tr>
</thead>
<tbody>
<tr>
<td>(50)</td>
<td>(1.00)</td>
<td>(0.07)</td>
</tr>
<tr>
<td>(150)</td>
<td>(0.75)</td>
<td>(0.05)</td>
</tr>
<tr>
<td>(250)</td>
<td>(0.50)</td>
<td>(0.04)</td>
</tr>
<tr>
<td>(350)</td>
<td>(0.25)</td>
<td></td>
</tr>
</tbody>
</table>

sp gr = specific gravity
Sizing of elements should be based on element flow information provided in the Element Selection chart above.

\[ \Delta P_{\text{total}} = \Delta P_{\text{housing}} + \Delta P_{\text{element}} \]

Exercise:
Determine \( \Delta P \) at 80 gpm (303 L/min) for GHPF11GGZ3VS24D5R using 37 SUS (3 cSt) fluid.

Solution:
\( \Delta P_{\text{housing}} = 6.0 \text{ psi [0.41 bar]} \)
\( \Delta P_{\text{element}} = 80 \times 0.05 \times (37+37) = 4.0 \text{ psi} \)
or
\[ = [303 \times (0.05 \div 54.9) \times (3+3) = 0.28 \text{ bar}] \]
\( \Delta P_{\text{total}} = 6.0 + 4.0 = 10.0 \text{ psi} \)
or
\[ = [0.41 + 0.28 = 0.69 \text{ bar}] \]

Notes
## How to Build a Valid Model Number for a Schroeder GHPF:

<table>
<thead>
<tr>
<th>Box 1</th>
<th>Box 2</th>
<th>Box 3</th>
<th>Box 4</th>
<th>Box 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Filter Series</td>
<td>Element Length &amp; Series</td>
<td>Element Media</td>
<td>Micron Rating</td>
<td>Element Seal Material</td>
</tr>
<tr>
<td>GHPF</td>
<td>11GG</td>
<td>Z</td>
<td>3</td>
<td>V</td>
</tr>
</tbody>
</table>

### Micron Rating

- 1 = (1 µm, Z media)
- 3 = (3 µm, Z media)
- 5 = (5 µm, Z media)
- 10 = (10 µm, Z media)
- 25 = (25 µm, Z media)

### Element Seal Material

- V = Viton®

### Example Model Number

GHPF11GGZ3-VS24D5

---

### NOTES:

- **Box 2.** Replacement element part numbers are a combination of Boxes 2, 3, 4 and 5.
- **Box 9.** As viewed in the direction of the fluid flow from inlet to outlet.
GeoSeal® High-Flow Coalescing Filter

**Applications**

- DATA CENTER
- GENERATOR

**Features and Benefits**

- Versatile diesel fuel coalescing filter suitable for both pressure and suction side applications, including:
  - Large engine primary fuel filtration
  - Bulk fuel dispensing
  - Transfer filtration
  - Tank polishing

- Uses patented GeoSeal® elements

- All-aluminum filter housing is fully compatible with diesel and biodiesel blends

- Minimal clearance needed for element service, ideal for enclosure installations

- Cartridge style element improves performance and reduces waste compared to spin-on solutions

- A compact design with reduced dimensions compared to similar cartridge filter and spin-on solutions on the market

**Model No. of filter in photograph is:**

GHCFS5V524D5R

**Flow Rating:**

- For Pressure Installations - Up to 25 gpm (95 L/min)
- For Suction Installations - Up to 900 gph (3410 L/hr [57 L/min])

**Max. Operating Pressure:** 150 psi (10.3 bar)

**Min. Yield:** 1189 psi (82 bar)

**Temp. Range:** 32°F to 225°F (0°C to 107°C) Standard; -20°F to 225°F (-29°C to 107°C) Heater Option

**Bypass Setting:**

- For Pressure Installations - 40 psi (2.8 bar)
- For Suction Installations - Blocked Bypass

**Porting Head:**

- Cast Aluminum, Anodized

**Element Case:**

- Aluminum, Anodized

**Sump:**

- Cast Aluminum, Anodized

**Weight of GHCF:** 19.45 lbs. (8.82 kg)

**Element Change Clearance:** 4.5" (114 mm)
GeoSeal® High-Flow Coalescing Filter

**Compatibility**

**Fluid Compatibility**

- Ultra-Low Sulfur Diesel (ULSD15)
- Low Sulfur Diesel (LSD500)
- Biodiesel Blends of Up to 20% (B20)
- Synthetic (GTL) and Renewable Diesel Fuel (HVO)
- Other Light Distillate Petroleum with a Flash Point of >125°F (52°C)

*For other fluids, contact factory.*
GeoSeal® High-Flow Coalescing Filter

$\Delta P_{\text{housing}}$, for fluids with sp gr = 0.86

$\Delta P_{\text{housing}} = \text{flow} \times \text{element } \Delta P \text{ factor} \times \text{viscosity factor}$

Element $\Delta P$ factors @ 37 SUS (3 cSt).

C125GZ5V = 0.098

Pressure Drop Information Based on Flow Rate and Viscosity

$\Delta P_{\text{total}} = \Delta P_{\text{housing}} + \Delta P_{\text{element}}$

Exercise: Determine $\Delta P$ at 25 gpm (95 L/min) for GHCFCG5V

Solution:

$\Delta P_{\text{housing}} = 1.6 \text{ psi} = [0.11 \text{ bar}]$

$\Delta P_{\text{coalescing element}} = 25 \times 0.098 = 2.5 \text{ psi} [0.17 \text{ bar}]$

$\Delta P_{\text{total}} = 1.6 + 2.5 = 4.1 \text{ psi} [0.28 \text{ bar}]$
How to Build a Valid Model Number for a Schroeder GHCF:

<table>
<thead>
<tr>
<th>BOX 1</th>
<th>BOX 2</th>
<th>BOX 3</th>
<th>BOX 4</th>
<th>BOX 5</th>
<th>BOX 6</th>
<th>BOX 7</th>
<th>BOX 8</th>
</tr>
</thead>
<tbody>
<tr>
<td>GHCF</td>
<td>CG5</td>
<td>V</td>
<td>S24</td>
<td>DS</td>
<td>R</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Example: NOTE: One option per box

<table>
<thead>
<tr>
<th>BOX 1</th>
<th>BOX 2</th>
<th>BOX 3</th>
<th>BOX 4</th>
<th>BOX 5</th>
<th>BOX 6</th>
<th>BOX 7</th>
<th>BOX 8</th>
</tr>
</thead>
<tbody>
<tr>
<td>GHCF</td>
<td>CG5</td>
<td>V</td>
<td>S24</td>
<td>DS</td>
<td>R</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

= GHFCG5VS24DSR

**Filter Series**

- GHCF

**Coalescing Filtration**

- CG5 = C125GZ5V Coalescing Element

**Element Seal Material**

- V = Viton®

**Bypass Setting**

- Omit = 40 psid
- X = Blocked Bypass

**Inlet Port**

- S24 = SAE-24
- P24 = 1.5" NPTF

**Dirt Alarm® Options**

- DS = Visual pop-up w/manual reset
- Omit = Blocked Indicator Ports (both)

**Indicator Orientation**

- R = Right Side
- L = Left Side
- Omit = None (Blocked Indicator Ports)

**Options**

- Omit = Sump Sight Glass (standard)
- UU = Upstream & Downstream Test Point
- T = WIF Sensor Only (-AS16 Active Sensor)
- I = WIF Sensor w/ Indicator Lamp
- H = Sump Heat (74W)
- S5 = 5 gal. Water Collection Tank
- S20 = 20 gal. Water Collection Tank
- AWDS = Auto Water Drain w/ 5 gal. Collection Tank
- AWD20 = Auto Water Drain w/ 20 gal. Collection Tank

*Contact factory for other options not listed in the model code builder

**NOTES:**

- Box 4. A blocked bypass requires the user to ensure a pressure relief is integrated into the system to prevent overpressuring the filter housings when used in pressure installations.
- Box 7. As viewed in the direction of the fluid flow from inlet to outlet.
- Box 8. Test point adapter replaces the blanking plug installed opposite the element indicator.

---

Advanced Fluid Conditioning Solutions®

Highlighted product eligible for quickDelivery
Features and Benefits

- Patent-pending, three-phase, particulate and fuel/water separation media technology
- A revolutionary element designed for the highest single-pass water and particulate removal efficiencies in today’s ultra-low sulfur diesel (ULSD) fluids
- Protects expensive Tier 3 and Tier 4 engine components against failures caused by particulate and water transferred from the bulk fuels tanks to the vehicle
- Allows users to achieve or exceed the particulate and water removal specifications of the injection system OEMs
- Previously acceptable industry standard products no longer provide the high-efficiency separation needed in today’s ULSD fluids
- Complete automation is achievable with fail-safe auto-drain feature using a remote 5 gallon (18L) or 20 gallon (75L) sump with alarm and auto shutdown in application above 32°F (0°C)

Markets

- Industrial
- Mobile Vehicles
- Marine
- Mining Technology
- Agriculture
- Power Generation
- Common Rail Injector Systems
- Fleet
- Railroad
- Bulk Fuel Filtration

Application Introduction:
The Reason for Better Bulk Fuel Filtration

Advances in diesel engine fuel injection systems have been instrumental in complying with future emission standards. Higher pressure fuel injectors produce a finer mist of fuel, which burns cleaner. Common rail injection systems run at higher pressures and allow more injections per combustion cycle improving fuel economy, engine performance with lower noise. Higher pressure fuel injector systems have tighter tolerances and require the highest efficiency, single-pass particulate and water removal to minimize wear related failures.
**Bulk Diesel Fuel Coalescing Filter**

<table>
<thead>
<tr>
<th>Specifications</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Flow Rating:</strong> Up to 70 gpm (265 L/min) for ULSD15</td>
</tr>
<tr>
<td><strong>Inlet/Outlet Connection:</strong> -24 (ORB) SAE J1926</td>
</tr>
<tr>
<td><strong>Drain Connection Upper:</strong> 1/4&quot; NPT Ball Valve</td>
</tr>
<tr>
<td><strong>Drain Connection Lower:</strong> 1/4&quot; NPT Ball Valve</td>
</tr>
<tr>
<td><strong>Max. Operating Pressure:</strong> 100 psi (7 bar)</td>
</tr>
<tr>
<td><strong>Min. Yield Pressure:</strong> 400 psi (27.6 bar) without sight gauge</td>
</tr>
<tr>
<td><strong>Rated Fatigue Pressure:</strong> Contact Factory</td>
</tr>
<tr>
<td><strong>Temperature range:</strong> -20°F to 165°F (-29°C to 74°C) Standard</td>
</tr>
<tr>
<td><strong>Bypass Indication:</strong> 25 psi (1.7 bar) (Lower indication options available)</td>
</tr>
<tr>
<td><strong>Bypass Valve Cracking:</strong> 30 psi (2 bar)</td>
</tr>
<tr>
<td><strong>Materials of Construction:</strong></td>
</tr>
<tr>
<td>Porting Base: Anodized Aluminum</td>
</tr>
<tr>
<td>Element Bowl: Epoxy Paint w/ High-phos Electroless Nickel Plating (Standard)</td>
</tr>
<tr>
<td>Cap: Nickel Coated Ductile Iron</td>
</tr>
<tr>
<td><strong>Weight:</strong> 155 Lbs. (77 kg)</td>
</tr>
<tr>
<td><strong>Element Change Clearance:</strong> 33.8&quot; (858 mm)</td>
</tr>
</tbody>
</table>

**NOTES:**
Element is sold with housing

---

Metric dimensions in ( ).
Dimensions shown are inches [millimeters] for general information and overall envelope size only.
For complete dimensions please contact Schroeder Industries to request a certified print.
Bulk Diesel Fuel Coalescing Filter

Coalescing Element | Pressure Side Coalescing
--- | ---
C396Z5V | Max Flow: 70 gpm, Single Pass Water Removal Efficiency: ≥ 99.5%

**Note:** Based on ULSD15 with 27 Dynes/cm surface tension and 0.25% (2500 ppm) water injection

**Flow Direction:** Inside Out

**Element Nominal Dimensions:** 6.4” (163 mm) O.D. x 39.4” (1001 mm) long

---

**QCF**

QCF \( \Delta P_{\text{housing}} \) for fluids with \( \text{sp gr} = 0.86 \)

\[
\begin{array}{c|c}
\text{Flow L/min} & \Delta P_{\text{in psi}} \\
\hline
0 & 0 \\
10 & (0.22) \\
20 & (0.45) \\
30 & (0.68) \\
40 & \\
50 & \\
60 & \\
70 & \\
\end{array}
\]

**Flow Rate and Viscosity**

**Notes**

**Exercise:** Determine \( \Delta P \) at 70 gpm (265 L/min) for QCF5V24VM

**Solution:**

\( \Delta P_{\text{housing}} = 9.2 \text{ psi} = 0.63 \text{ bar} \)

\( \Delta P_{\text{element}} = 70 \times 0.17 = 11.9 \text{ psi} = 0.82 \text{ bar} \)

\( \Delta P_{\text{total}} = 9.2 + 11.9 = 21.1 \text{ psi} = 1.46 \text{ bar} \)
How to Build a Valid Model Number for a Schroeder QCF Housing with Element:

QCF

Example: NOTE: One option per box

QCFC5VS24D5

BOX 1 BOX 2 BOX 3 BOX 4 BOX 5 BOX 6 BOX 7
QCF C 5 V S24 D5

BOX 1 BOX 2 BOX 3 BOX 4
Filter Series Coalescing Element Series Element Media Type
QCF C = C396Z5V 5 = 5 μm Coalescing V = Viton®

BOX 5 BOX 6 BOX 7
Porting Bypass Indicator Series Additional Options
S24 = -24 (ORB) SAE J1926 D5 = Visual Pop-Up w/ Manual Reset

NOTES:
Optional sight gauge and AWD’s for use only >32°F (0°C)
Box 4. Viton® is a registered trademark of DuPont Dow Elastomers
Box 7. For automatic drain option, contact factory

Coalescing Element Pressure Side Coalescing
C396Z5V Max Flow Single Pass Water Removal Efficiency
70 gpm 99.5%

Flow Direction: Inside Out
Element Nominal Dimensions: 6.4” (163 mm) O.D. x 39.4” (1001 mm) long

Fuel Oils
- ULSD15, low sulfur diesel and high sulfur diesel
- Biodiesel blends
- Synthetic diesel and blends
- No. 2 fuel oil and heating oil
Features and Benefits

- Designed with integrated particulate removal pre-filtration for maximum coalescing filter element life in the downstream housing
- Sized for high flow or highly contaminated fluid applications
- Routine element change is only needed on Pre-filter (the particulate filter) which saves time and money
- Patent-pending, three-phase, particulate and fuel/water separation media technology
- A revolutionary element designed for the highest single-pass water and particulate removal efficiencies in today’s ultra-low sulfur diesel (ULSD) fluids
- Protects expensive Tier 3 and Tier 4 engine components against failures caused by particulate and water transferred from the bulk fuel tank to the vehicle
- Allows users to achieve or exceed the particulate and water removal specifications of the injection system OEMs
- Previously acceptable industry standard products no longer provide the high-efficiency separation needed in today’s ULSD fluids
- In applications >32°F (0°C) complete automation is achievable with a water in fuel sensor and fail-safe auto-drain feature using a remote 5 gallons (18L) or 20 gallons (75L) sump with alarm and auto shutdown
- Schroeder Anti-Static Pleat Media (ASP®) is standard for all coalescing elements

Markets

- INDUSTRIAL
- MOBILE VEHICLES
- MARINE
- MINING TECHNOLOGY
- AGRICULTURE
- POWER GENERATION
- COMMON RAIL INJECTOR SYSTEMS
- FLEET
- RAILROAD
- BULK FUEL FILTRATION
# Filter Housing Specifications

**Flow Rating:** Up to 70 gpm (265 L/min) for ULSD15

**Inlet/Outlet Connection:** -24 (ORB) SAE J1926

**Drain Connection Upper:** 1/4" NPT Ball Valve

**Drain Connection Lower:** 1/4" NPT Ball Valve

**Max. Operating Pressure:** 100 psi (7 bar)

**Min. Yield Pressure:** 400 psi (27.6 bar) without sight gauge

**Rated Fatigue Pressure:** Contact Factory

**Temperature range:** -20°F to 165°F (-29°C to 74°C) sump heater option

32°F to 165°F (0°C to 74°C) standard or AWD option

**Bypass Indication:** Particulate Filter Coalescing Filter

(Particulate Filter: 15 psi (1.03 bar) Coalescing: 25 psi (1.7 bar))

**Bypass Valve Cracking:** Particulate Filter: 20 psi (1.37 bar) Coalescing: 30 psi (2 bar)

**Materials of Construction:** Particulate Filter Coalescing Filter

Porting Base: Anodized Aluminum Element Bowl: Epoxy Paint w/ High-phos Electroless Nickel Plating (Standard) Cap: Plated Steel

Coalescing Filter

Porting Base: Anodized Aluminum Element Bowl: Epoxy Paint w/ High-phos Electroless Nickel Plating (Standard) Cap: Plated Steel

**Weight:** 441 Lbs. (200 kg)

**Element Change Clearance:** 33.8" (858 mm)

**NOTES:**

Elements are sold with the housing

Dimensions shown are inches [millimeters] for general information and overall envelope size only. For complete dimensions please contact Schroeder Industries to request a certified print.
Filtration Ratio per ISO 16889

Using APC calibrated per ISO 11171

<table>
<thead>
<tr>
<th>Particulate Elements</th>
<th>DHC</th>
<th>$\beta_x (c) \geq 200$</th>
</tr>
</thead>
<tbody>
<tr>
<td>39QPMLZ1V</td>
<td>1485 grams</td>
<td>&lt;4.0</td>
</tr>
<tr>
<td>39QPMLZ3V</td>
<td>1525 grams</td>
<td>&lt;4.0</td>
</tr>
</tbody>
</table>

Coalescing Element

<table>
<thead>
<tr>
<th>Pressure Side Coalescing</th>
</tr>
</thead>
<tbody>
<tr>
<td>C396Z5V</td>
</tr>
</tbody>
</table>

Note:
Based on ULSD15 with 27 Dynes/cm surface tension and 0.25% (2500 ppm) water injection

Particulate Element
Flow Direction: Outside In
Element Nominal Dimensions: 6.0” (150 mm) O.D. x 37.80” (960 mm) long

Coalescing Element
Flow Direction: Inside Out
Element Nominal Dimensions: 6.4” (163 mm) O.D. x 39.4” (1001 mm) long

$\Delta P$ housing

BDS $\Delta P_{\text{housing}}$ for fluids with sp gr= 0.86

<table>
<thead>
<tr>
<th>Flow gpm</th>
<th>Flow L/min</th>
</tr>
</thead>
<tbody>
<tr>
<td>10</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td></td>
</tr>
<tr>
<td>0</td>
<td></td>
</tr>
</tbody>
</table>

$\Delta P$ in psi

$\Delta P$ in bar

Flow gpm

Notes

Exercise: Determine $\Delta P$ at 70 gpm (265 L/min) for BDS39QPMLZ3VV

Solution:

$\Delta P_{\text{housing}} = 0.69$ bar

$\Delta P_{\text{element (39QPMLZ1V)}} = 0.01 \times 70 = 0.7$ psi [0.05 bar]

$\Delta P_{\text{element (C396)}} = 0.17 \times 70 = 11.9$ psi [0.82 bar]

$\Delta P_{\text{total}} = 0.69 + 0.7 + 11.9 = 13.2$ psi [0.92 bar]
How to Build a Valid Model Number for a Schroeder BDS supplied with coalescing element:

<table>
<thead>
<tr>
<th>BOX 1</th>
<th>BOX 2</th>
<th>BOX 3</th>
<th>BOX 4</th>
<th>BOX 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>BDS</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
</tr>
</tbody>
</table>

Example:

<table>
<thead>
<tr>
<th>BOX 1</th>
<th>BOX 2</th>
<th>BOX 3</th>
<th>BOX 4</th>
<th>BOX 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>BDS</td>
<td>39QPMLZ3</td>
<td>V</td>
<td>VM</td>
<td>–</td>
</tr>
</tbody>
</table>

= BDS39QPMLZ3VVM

**Box 1**
- Filter Series
  - BDS

**Box 2**
- Particulate Filter Micron Rating
  - 39QPMLZ1 = 1μm
  - 39QPMLZ3 = 3μm

**Box 3**
- Housing Seal Material
  - V = Viton®

**Box 4**
- Dirt Alarm®
  - VM = Visual Pop-Up w/ Manual Reset

**Box 5**
- Additional Options
  - Omit = None (standard)
  - H = Sump Heater
  - S = Sight Gauge
  - AWDS = Auto water drain 5 gal tank w/ failsafe
  - AWDS20 = Auto water drain 20 gal tank w/ failsafe
  - C = Cla-Val® Flow Control Valve (2” ANSI 150# flange)

**NOTES:**
- Optional AWD for use only >32° F (0°C)
- Box 4. Viton® is a registered trademark of DuPont Dow Elastomers

**Fluid Compatibility**

- **Fuel Oils**
  - ULSD15, low sulfur diesel and high sulfur diesel
  - Biodiesel blends
  - Synthetic diesel and blends
  - No. 2 fuel oil and heating oil

**Filtration Ratio per ISO 16889**

<table>
<thead>
<tr>
<th>Particulate Elements</th>
<th>DHC</th>
<th>β₁ (c) ≥ 200</th>
<th>β₁ (c) ≥ 1000</th>
</tr>
</thead>
<tbody>
<tr>
<td>39QPMLZ1V</td>
<td>1485 grams</td>
<td>&lt;4.0</td>
<td>4.2</td>
</tr>
<tr>
<td>39QPMLZ3V</td>
<td>1525 grams</td>
<td>&lt;4.0</td>
<td>4.8</td>
</tr>
</tbody>
</table>

**Coalescing Element**

- Max Flow: 70 gpm
- Single Pass Water Removal Efficiency: ≥ 99.5%

**Notable Features:**
- Particulate Element Flow Direction: Outside In
- Element Nominal Dimensions: 6.0” (150 mm) O.D. x 37.80” (960 mm) long
- Coalescing Element Flow Direction: Inside Out
- Element Nominal Dimensions: 6.4” (163 mm) O.D. x 39.4” (1001 mm) long

*Note: Based on ULSD15 with 27 Dynes/cm surface tension and 0.25% (2500 ppm) water injection*
Features and Benefits

- Designed with integrated particulate removal pre-filtration for maximum coalescing filter element life in the downstream housing.
- Sized for higher flows or highly contaminated fluid applications.
- Routine element change is only needed on pre-filter (the particulate filter) which saves time and money.
- Patent-pending, three-phase, particulate and fuel/water separation media technology.
- A revolutionary element designed for the highest single-pass water and particulate removal efficiencies in today's ultra-low sulfur diesel (ULSD) fluids.
- Protects expensive Tier 3 and Tier 4 engine components against failures caused by particulate and water transferred from the bulk fuel tank to the vehicle.
- Allows users to achieve or exceed the particulate and water removal specifications of the injection system OEMs.
- Previously acceptable industry standard products no longer provide the high-efficiency separation needed in today's ULSD fluids.
- In applications >32°F (0°C) complete automation is achievable with a water in fuel sensor fail-safe auto-drain feature using a remote 5 gallon (18L) or 20 gallon (75L) sump with alarm and auto shutdown.
- Schroeder Anti-Static Pleat Media (ASP®) is standard for all coalescing elements.

Markets

- INDUSTRIAL
- MOBILE VEHICLES
- MARINE
- MINING TECHNOLOGY
- AGRICULTURE
- POWER GENERATION
- COMMON RAIL INJECTOR SYSTEMS
- FLEET
- RAILROAD
- BULK FUEL FILTRATION
### Specifications

#### Inlet/Outlet Connection:
-32 (ORB) SAE J1926

#### Drain Connection Upper:
1/4" NPT Ball Valve

#### Drain Connection Lower:
1/4" NPT Ball Valve

#### Max. Operating Pressure:
100 psi (7 bar)

#### Min. Yield Pressure:
400 psi (27.6 bar) without sight gauge

Contact factory for yield pressure rating with sight gauge

#### Rated Fatigue Pressure:
Contact Factory

#### Temperature range:
-20°F to 165°F (-29°C to 74°C) sump heater option
32°F to 165°F (0°C to 74°C) standard or AWD option

#### Bypass Indication:
(Participate Filter: 15 psi (1.03 bar)
Coalescing Filter: 25 psi (1.7 bar)
(Participate Filter: 20 psi (1.37 bar)
Coalescing Filter: 30 psi (2 bar)

#### Bypass Valve Cracking:
Participate Filter: 30 psi (2 bar)
Coalescing Filter: 30 psi (2 bar)

#### Materials of Construction:
- Particulate Filter: Porting Base: Anodized Aluminum
- Coalescing Filter: Element Bowl: Epoxy Paint w/ High-phos Electroless Nickel Plating
  (Standard)
- Cap: Plated Steel

#### Weight:
596 Lbs. (270 kg)

#### Element Change Clearance:
33.8” (858 mm)

---

**NOTES:**

Element are sold with the housing
### Bulk Diesel Multi-Skid

**Particulate Element**
- **Flow Direction:** Outside In
- **Element Nominal Dimensions:** 6.0” (150 mm) O.D. x 37.80” (960 mm) long

**Coalescing Element**
- **Flow Direction:** Inside Out
- **Element Nominal Dimensions:** 6.4” (163 mm) O.D. x 39.4” (1001 mm) long

---

### Pressure Drop Information

**Particulate Element**

<table>
<thead>
<tr>
<th>Element</th>
<th>Flow Rate</th>
<th>Efficiency</th>
</tr>
</thead>
<tbody>
<tr>
<td>C396Z5V</td>
<td>70 gpm</td>
<td>≥ 99.5%</td>
</tr>
</tbody>
</table>

**Coalescing Element**

<table>
<thead>
<tr>
<th>Element</th>
<th>Single Pass Water Removal Efficiency</th>
</tr>
</thead>
<tbody>
<tr>
<td>C396Z5V</td>
<td>≥ 99.5%</td>
</tr>
</tbody>
</table>

---

### El. ∆P factors @ 37 SUS (3 cSt).

**C396Z5V** = 0.17

**39QPMLZ1V** = 0.01

**39QPMLZ3V** = 0.01

---

### Notes

- Based on ULSD15 with 27 Dynes/cm surface tension and 0.25% (2500 ppm) water injection

---

### Exercise: Determine ∆P at 70 gpm (265 L/min) for BDS239QPMLZ3VVM

**Solution:**

- ∆P$_{housing} =$ 3.0 psi = [0.21 bar]
- ∆P$_{element (39QPML)} =$ 70 x 0.01 = 0.7 psi [0.05 bar]
- ∆P$_{element (C396)} =$ 70 x 0.17 = 11.9 psi [0.82 bar]
- ∆P$_{filter} =$ 3.0 + 0.7 + 11.9 = 15.6 psi [1.07 bar]
How to Build a Valid Model Number for a Schroeder BDS Housing Supplied with Element:

**Example:**

<table>
<thead>
<tr>
<th>BOX 1</th>
<th>BOX 2</th>
<th>BOX 3</th>
<th>BOX 4</th>
<th>BOX 5</th>
<th>BOX 6</th>
</tr>
</thead>
<tbody>
<tr>
<td>BDS</td>
<td>2</td>
<td>39QPMLZ3</td>
<td>V</td>
<td>VM</td>
<td>= BDS239QPMLZ3VVM</td>
</tr>
</tbody>
</table>

**Notes:**

- One option per box

**Filter Series**

- BDS

**No. of Coalescing Filters**

- 2 = 140gpm

**Particulate Filter Micron Rating**

- 39QPMLZ1 = 1μm
- 39QPMLZ3 = 3μm

**Housing Seal Material**

- V = Viton®

**Dirt Alarm®**

- VM = Visual Pop-Up w/ Manual Reset

**Sump Options**

- Omitt = None (standard)
- H = Sump Heater
- S = Sight Gauge
- AWDS = Auto water drain 5 gal tank w/ failsafe
- AWDD20 = Auto water drain 20 gal tank w/ failsafe
- C = Cla-Val® Flow Control Valve (2” ANSI 150# flange)

**Fluid Compatibility**

- Fuel Oils
  - ULSD15, low sulfur diesel and high sulfur diesel
  - Biodiesel blends
  - Synthetic diesel and blends
  - No. 2 fuel oil and heating oil

**Filtration Ratio per ISO 16889**

Using APC calibrated per ISO 11171

**Particulate Elements**

<table>
<thead>
<tr>
<th>Particulate Element</th>
<th>DHC</th>
<th>β (c) ≥ 200</th>
<th>β (c) ≥ 1000</th>
</tr>
</thead>
<tbody>
<tr>
<td>39QPMLZ1V</td>
<td>1485 grams</td>
<td>&lt;4.0</td>
<td>4.2</td>
</tr>
<tr>
<td>39QPMLZ3V</td>
<td>1525 grams</td>
<td>&lt;4.0</td>
<td>4.8</td>
</tr>
</tbody>
</table>

**Coalescing Element**

- Pressure Side Coalescing

<table>
<thead>
<tr>
<th>Coalescing Element</th>
<th>Max Flow</th>
<th>Single Pass Water Removal Efficiency</th>
</tr>
</thead>
<tbody>
<tr>
<td>C39625V</td>
<td>70 gpm</td>
<td>≥ 99.5%</td>
</tr>
</tbody>
</table>

**Note:**

Based on ULSD15 with 27 Dynes/cm surface tension and 0.25% (2500 ppm) water injection

- Particulate Element Flow Direction: Outside In
- Element Nominal Dimensions: 6.0” (150 mm) O.D. x 37.80” (960 mm) long

- Coalescing Element Flow Direction: Inside Out
- Element Nominal Dimensions: 6.4” (163 mm) O.D. x 39.4” (1001 mm) long

**NOTES:**

- Optional AWD for use only >32° F (0°C)
- Box 4. Viton® is a registered trademark of DuPont Dow Elastomers

- **Filtration Ratio per ISO 16889**
  - Using APC calibrated per ISO 11171

- **Particulate Elements DHC**
  - β (c) ≥ 200
  - β (c) ≥ 1000

- **Coalescing Element**
  - Max Flow
  - Single Pass Water Removal Efficiency

- **Note:**
  - Based on ULSD15 with 27 Dynes/cm surface tension and 0.25% (2500 ppm) water injection

- **Particulate Element Flow Direction:**
  - Outside In
- **Element Nominal Dimensions:**
  - 6.0” (150 mm) O.D. x 37.80” (960 mm) long

- **Coalescing Element Flow Direction:**
  - Inside Out
- **Element Nominal Dimensions:**
  - 6.4” (163 mm) O.D. x 39.4” (1001 mm) long

- **Fuel Oils**
  - ULSD15, low sulfur diesel and high sulfur diesel
  - Biodiesel blends
  - Synthetic diesel and blends
  - No. 2 fuel oil and heating oil
**Features and Benefits**

- Designed with integrated particulate removal pre-filtration for maximum coalescing filter element life in the downstream housing
- Sized for higher flows or highly contaminated fluid applications
- Routine element change is only needed on pre-filter (the particulate filter) which saves time and money
- Patent-pending, three-phase, particulate and fuel/water separation media technology
- A revolutionary element designed for the highest single-pass water and particulate removal efficiencies in today's ultra-low sulfur diesel (ULSD) fluids
- Protects expensive Tier 3 and Tier 4 engine components against failures caused by particulate and water transferred from the bulk fuel tank to the vehicle
- Allows users to achieve or exceed the particulate and water removal specifications of the injection system OEMs
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- In applications >32°F (0°C) complete automation is achievable with a water in fuel sensor fail-safe auto-drain feature using a remote 5 gallon (18L) or 20 gallon (75L) sump with alarm and auto shutdown
- Schroeder Anti-Static Pleat Media (ASP®) is standard for all coalescing elements

**Markets**

- INDUSTRIAL
- MOBILE VEHICLES
- MARINE
- MINING TECHNOLOGY
- AGRICULTURE
- POWER GENERATION
- COMMON RAIL INJECTOR SYSTEMS
- FLEET
- RAILROAD
- BULK FUEL FILTRATION
**Bulk Diesel Multi-Skid**

**Flow Rating:** Up to 140 gpm to 210 gpm (530 to 795 L/min) for ULSD15

**Inlet/Outlet Connection:** -32 (ORB) SAE J1926

**Drain Connection Upper:** 1/4” NPT Ball Valve

**Drain Connection Lower:** 1/4” NPT Ball Valve

**Max. Operating Pressure:** 100 psi (7 bar)

**Min. Yield Pressure:** 400 psi (27.6 bar) without sight gauge

**Contact factory for yield pressure rating with sight gauge**

**Rated Fatigue Pressure:** Contact Factory

**Temperature range:**
-20°F to 165°F (-29°C to 74°C) sump heater option
32°F to 165°F (0°C to 74°C) standard or AWD option

**Bypass Indication:**
- Particulate Filter (Lower indication options available)
  - Coalescing Filter
- Bypass Valve Cracking:
  - Particulate Filter: 20 psi (1.37 bar)
  - Coalescing: 30 psi (2 bar)

**Materials of Construction:**
- Particulate Filter
  - Porting Base: Anodized Aluminum
  - Element Bowl: Epoxy Paint w/ High-phos Electroless Nickel Plating (Standard)
  - Cap: Plated Steel
- Coalescing Filter
  - Porting Base: Anodized Aluminum
  - Element Bowl: Epoxy Paint w/ High-phos Electroless Nickel Plating (Standard)
  - Cap: Plated Steel

**Weight:** 596 Lbs. (270 kg)

**Element Change Clearance:** 33.8” (858 mm)

**NOTES:**

Elements are sold with the housing

---

**Diagram:**

Dimensions shown are inches for general information and overall envelope size only.
For complete dimensions please contact Schroeder Industries to request a certified print.
Bulk Diesel Multi-Skid

Filtration Ratio per ISO 16889
Using APC calibrated per ISO 11171

<table>
<thead>
<tr>
<th>Particulate Elements</th>
<th>DHC</th>
<th>βₐ (c) ≥ 200</th>
<th>βₐ (c) ≥ 1000</th>
</tr>
</thead>
<tbody>
<tr>
<td>39QPMLZ1V</td>
<td>1485 grams</td>
<td>&lt;4.0</td>
<td>4.2</td>
</tr>
<tr>
<td>39QPMLZ3V</td>
<td>1525 grams</td>
<td>&lt;4.0</td>
<td>4.8</td>
</tr>
</tbody>
</table>

Coalescing Element

Pressure Side Coalescing

<table>
<thead>
<tr>
<th>Element</th>
<th>Flow Direction</th>
<th>Element Nominal Dimensions</th>
</tr>
</thead>
<tbody>
<tr>
<td>C396Z5V</td>
<td>Max Flow</td>
<td>6.0” (150 mm) O.D. x 37.80” (960 mm) long</td>
</tr>
</tbody>
</table>

Note: Contact Factory for deltaP housing data

ΔPhousing

BDS ΔPhousing for fluids with sp gr= 0.86

Note: Contact Factory for deltaP housing data

ΔPelement

ΔPelement = flow x element ΔP factor x viscosity factor

El. ΔP factors @ 37 SUS (3 cSt).

C396Z5V = .17
39QPMLZ1V = .01
39QPMLZ3V = .01

If working in units of bars & L/min, divide above factor by 54.9

Viscosity factor: Divide viscosity by 37 SUS (3 cSt)

ΔPfilter = ΔPhousing + ΔPelement

Exercise: Determine ΔP at 70 gpm (265 L/min) for BDS239QPMLZ3VM

Solution:

ΔPhousing = 3.0 psi = [0.21 bar]
ΔPelement (39QPMLZ1V) = 70 x 0.01 = 0.7 psi = [0.05 bar]
ΔPelement (C396) = 70 x 0.17 = 11.9 psi = [0.82 bar]

ΔPtotal = 3.0 + 0.7 + 11.9 = 15.6 psi = [1.07 bar]
How to Build a Valid Model Number for a Schroeder BDS Housing Supplied with Element:

Example: NOTE: One option per box

BOX 1 BOX 2 BOX 3 BOX 4 BOX 5 BOX 6

BDS – – – – –

Example:

BOX 1 BOX 2 BOX 3 BOX 4 BOX 5 BOX 6

BDS 3 39QPMLZ3 V VM = BDS339QPMLZ3VVM

Filter Series

BOX 1

No. of Coalescing Filters

BOX 2

Particulate Filter Micron Rating

BOX 3

Housing Seal Material

BOX 4

Dirt Alarm®

BOX 5

Sump Options

BOX 6

VM = Visual Pop-Up w/ Manual Reset

Optional AWD for use only >32° F (0°C)

Box 4. Viton® is a registered trademark of DuPont Dow Elastomers

NOTE:

Filtration Ratio per ISO 16889

Using APC calibrated per ISO 11171

Particulate Elements DHC $\beta_x^c (\geq 200)$ $\beta_x^c (\geq 1000)$

<table>
<thead>
<tr>
<th>Particulate Element</th>
<th>DHC</th>
<th>$\beta_x^c (\geq 200)$</th>
<th>$\beta_x^c (\geq 1000)$</th>
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</thead>
<tbody>
<tr>
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</tr>
<tr>
<td>39QPMLZ3V</td>
<td>1525 grams</td>
<td>&lt;4.0</td>
<td>4.8</td>
</tr>
</tbody>
</table>

Coalescing Element

Pressure Side Coalescing

<table>
<thead>
<tr>
<th>Coalescing Element</th>
<th>Max Flow</th>
<th>Single Pass Water Removal Efficiency</th>
</tr>
</thead>
<tbody>
<tr>
<td>C396Z5V</td>
<td>70 gpm</td>
<td>≥ 99.5%</td>
</tr>
</tbody>
</table>

Note:

Based on ULSD15 with 27 Dynes/cm surface tension and 0.25% (2500 ppm) water injection

Particulate Element

Flow Direction: Outside In
Element Nominal Dimensions: 6.0” (150 mm) O.D. x 37.80” (960 mm) long

Coalescing Element

Flow Direction: Inside Out
Element Nominal Dimensions: 6.4” (163 mm) O.D. x 39.4” (1001 mm) long

Fuel Oils

- ULSD15, low sulfur diesel and high sulfur diesel
- Biodiesel blends
- Synthetic diesel and blends
- No. 2 fuel oil and heating oil
Features and Benefits

- Designed with integrated particulate removal pre-filtration for maximum coalescing filter element life in the downstream housing.
- Sized for higher flows or highly contaminated fluid applications.
- Routine element change is only needed on pre-filter (the particulate filter) which saves time and money.
- Patent-pending, three-phase, particulate and fuel/water separation media technology.
- A revolutionary element designed for the highest single-pass water and particulate removal efficiencies in today’s ultra-low sulfur diesel (ULSD) fluids.
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- Schroeder Anti-Static Pleat Media (ASP®) is standard for all coalescing elements.

Markets

- INDUSTRIAL
- MOBILE VEHICLES
- MARINE
- MINING TECHNOLOGY
- AGRICULTURE
- POWER GENERATION
- COMMON RAIL INJECTOR SYSTEMS
- FLEET
- RAILROAD
- BULK FUEL FILTRATION

Model no. of filter in photograph is: BDS490PMLZ3MM
# BDS4 Bulk Diesel Multi-Skid

<table>
<thead>
<tr>
<th>Specification</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Flow Rating:</strong></td>
<td>From 210 gpm to 280 gpm (795 to 1060 L/min) for ULSD15</td>
</tr>
<tr>
<td><strong>Inlet/Outlet Connection:</strong></td>
<td>-32 (ORB) SAE J1926</td>
</tr>
<tr>
<td><strong>Drain Connection Upper:</strong></td>
<td>1/4&quot; NPT Ball Valve</td>
</tr>
<tr>
<td><strong>Drain Connection Lower:</strong></td>
<td>1/4&quot; NPT Ball Valve</td>
</tr>
<tr>
<td><strong>Max. Operating Pressure:</strong></td>
<td>100 psi (7 bar)</td>
</tr>
<tr>
<td><strong>Min. Yield Pressure:</strong></td>
<td>400 psi (27.6 bar) without sight gauge</td>
</tr>
<tr>
<td></td>
<td>Contact factory for yield pressure rating with sight gauge</td>
</tr>
<tr>
<td><strong>Rated Fatigue Pressure:</strong></td>
<td>Contact Factory</td>
</tr>
<tr>
<td><strong>Temperature range:</strong></td>
<td>-20°F to 165°F (-29°C to 74°C) sump heater option</td>
</tr>
<tr>
<td></td>
<td>32°F to 165°F (0°C to 74°C) standard or AWD option</td>
</tr>
<tr>
<td><strong>Bypass Indication:</strong></td>
<td>Particulate Filter</td>
</tr>
<tr>
<td></td>
<td>Coalescing Filter</td>
</tr>
<tr>
<td>(Lower indication options available)</td>
<td>Particulate: 15 psi (1.03 bar)</td>
</tr>
<tr>
<td></td>
<td>Coalescing: 25 psi (1.7 bar)</td>
</tr>
<tr>
<td><strong>Bypass Valve Cracking:</strong></td>
<td>Particulate: 20 psi (1.37 bar)</td>
</tr>
<tr>
<td></td>
<td>Coalescing: 30 psi (2 bar)</td>
</tr>
<tr>
<td><strong>Materials of Construction:</strong></td>
<td>Particulate Filter</td>
</tr>
<tr>
<td></td>
<td>Coalescing Filter</td>
</tr>
<tr>
<td></td>
<td>Porting Base: Anodized Aluminum</td>
</tr>
<tr>
<td></td>
<td>Element Bowl: Epoxy Paint w/ High-phos Electroless Nickel Plating (Standard)</td>
</tr>
<tr>
<td></td>
<td>Cap: Plated Steel</td>
</tr>
<tr>
<td><strong>Weight:</strong></td>
<td>904 Lbs. (410 kg)</td>
</tr>
<tr>
<td><strong>Element Change Clearance:</strong></td>
<td>33.8&quot; (858 mm)</td>
</tr>
</tbody>
</table>

**NOTES:**

Elements are sold with the housing

---

Metric dimensions in ( ).
Dimensions shown are inches for general information and overall envelope size only.
For complete dimensions please contact Schroeder Industries to request a certified print.
Bulk Diesel Multi-Skid

Filtration Ratio per ISO 16889
Using APC calibrated per ISO 11171

<table>
<thead>
<tr>
<th>Particulate Elements</th>
<th>DHC</th>
<th>$\beta_x (c) \geq 200$</th>
<th>$\beta_x (c) \geq 1000$</th>
</tr>
</thead>
<tbody>
<tr>
<td>39QPMLZ1V</td>
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<td>1525 grams</td>
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</tbody>
</table>

Coalescing Element

<table>
<thead>
<tr>
<th>Pressure Side Coalescing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Element Nominal Dimensions:</td>
</tr>
<tr>
<td>6.4” (163 mm) O.D. x 39.4” (1001 mm) long</td>
</tr>
</tbody>
</table>

Particulate Element

<table>
<thead>
<tr>
<th>Flow Direction:</th>
<th>Outside In</th>
</tr>
</thead>
</table>

Coalescing Element

<table>
<thead>
<tr>
<th>Flow Direction:</th>
<th>Inside Out</th>
</tr>
</thead>
</table>

$\Delta P_{\text{housing}}$

$BDS \Delta P_{\text{housing}}$ for fluids with sp gr= 0.86

$\Delta P_{\text{element}}$

$\Delta P_{\text{element}} = \text{flow x element} \times \Delta P \text{ factor x viscosity factor}$

Note: Contact Factory for deltaP housing data

Notes

<table>
<thead>
<tr>
<th>Exercise: Determine $\Delta P$ at 70 gpm (265 L/min) for BDS239QPMLZ3VM</th>
</tr>
</thead>
<tbody>
<tr>
<td>$\Delta P_{\text{housing}} = 3.0 \text{ psi} = [0.21 \text{ bar}]$</td>
</tr>
<tr>
<td>$\Delta P_{\text{element (39QPML)}} = 70 \times 0.01 = 0.7 \text{ psi} = [0.05 \text{ bar}]$</td>
</tr>
<tr>
<td>$\Delta P_{\text{element (C396)}} = 70 \times 0.17 = 11.9 \text{ psi} = [0.82 \text{ bar}]$</td>
</tr>
<tr>
<td>$\Delta P_{\text{total}} = 3.0 + 0.7 + 11.9 = 15.6 \text{ psi} = [1.07 \text{ bar}]$</td>
</tr>
</tbody>
</table>
### How to Build a Valid Model Number for a Schroeder BDS Housing Supplied with Element:

<table>
<thead>
<tr>
<th>BOX 1</th>
<th>BOX 2</th>
<th>BOX 3</th>
<th>BOX 4</th>
<th>BOX 5</th>
<th>BOX 6</th>
</tr>
</thead>
<tbody>
<tr>
<td>BDS</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Example:**

![BDS439QPMLZ3VVM]

**NOTE:** One option per box

<table>
<thead>
<tr>
<th>BOX 1</th>
<th>BOX 2</th>
<th>BOX 3</th>
<th>BOX 4</th>
<th>BOX 5</th>
<th>BOX 6</th>
</tr>
</thead>
<tbody>
<tr>
<td>BDS</td>
<td>4</td>
<td>39QPMLZ3</td>
<td>V</td>
<td>VM</td>
<td></td>
</tr>
</tbody>
</table>

= BDS439QPMLZ3VVM

### Element Part Number Selection

**Filter Series**

- BDS 4 = 280gpm

**No. of Coalescing Filters**

- 4 = 280gpm

**Particulate Filter Micron Rating**

- 39QPMLZ1 = 1μm
- 39QPMLZ3 = 3μm

**Housing Seal Material**

- V = Viton®

**Dirt Alarm®**

- VM = Visual Pop-Up w/ Manual Reset

**Sump Options**

- Omit = None (standard)
- H = Sump Heater
- S = Sight Gauge
- AWD5 = Auto water drain 5 gal tank w/ failsafe
- AWD20 = Auto water drain 20 gal tank w/ failsafe
- C = Cla-Val® Flow Control Valve (2” ANSI 150# flange)

### NOTES:

Optional AWD for use only >32° F (0°C)

Box 4. Viton® is a registered trademark of DuPont Dow Elastomers

### Fluid Compatibility

**Fuel Oils**

- ULSD15, low sulfur diesel and high sulfur diesel
- Biodiesel blends
- Synthetic diesel and blends
- No. 2 fuel oil and heating oil

### Filtration Ratio per ISO 16889

Using APC calibrated per ISO 11171

- **Particulate Elements**
  - 39QPMLZ1V: 1485 grams
  - 39QPMLZ3V: 1525 grams

- **β_x (%) ≥ 200**
  - 39QPMLZ1V: <4.0
  - 39QPMLZ3V: <4.0

- **β_x (%) ≥ 1000**
  - 39QPMLZ1V: 4.2
  - 39QPMLZ3V: 4.8

**Coalescing Element**

- C39625V: 70 gpm

- **Pressure Side Coalescing**
  - Max Flow: Single Pass Water Removal Efficiency
  - ≥ 99.5%

**Note:**

Based on ULSD15 with 27 Dynes/cm surface tension and 0.25% (2500 ppm) water injection

**Particulate Element**

- Flow Direction: Outside In
- Element Nominal Dimensions: 6.0” (150 mm) O.D. x 37.80” (960 mm) long

**Coalescing Element**

- Flow Direction: Inside Out
- Element Nominal Dimensions: 6.4” (163 mm) O.D. x 39.4” (1001 mm) long
High Flow | Low Viscosity Housing Filter

*Coalescing Elements Patent-Pending

Applications

- POINT OF FUEL FUEL DISPENSING
- Kettle Fuel BULK FUEL TRANSFER
- BULK FUEL UNLOADING
- PROTECTION FOR HIGH-LOW FUEL INJECTION SYSTEMS
- BLUE TANK KoReCyCULATION

Features and Benefits

- Excellent filtration performance in a single pass
- Low pressure loss due to innovative element technology
- Easy to service thanks to intelligent element design
- Easy to adapt to filter housings for the removal of the fine particles in diesel
- The Low Viscosity-Housing Filter LVH-F is mainly used to filter low-viscosity fluids. It is especially suitable for applications with large amounts of dirt that need to be removed in just a single pass
- The Optimicron® filter elements used here ensure that both the required cleanliness and a long service life are achieved.
- Available in various sizes, the filters can be optimally integrated into new or existing systems.
- The filters are designed according to ASME Code Section VIII rules and regulations for pressure vessels as well as the ability to certify to other global standards upon request.

Markets

- INDUSTRIAL
- BULK FUEL FILTRATION
- MARINE
- MINING TECHNOLOGY
- AGRICULTURE
- POWER GENERATION

Model no. of filter in photograph is: LVHF340NRFZ

211-951 gpm
799-3600 L/min
150 psi
10 bar

Standard
High Flow | Low Viscosity Housing Filter

**Filter Housing Specifications**

**Dimensions LVH-F1**

- **Flow Rating:** 211-951 gpm (799-3600 L/min)
- **Inlet/Outlet Connection:** ANSI 150#: 2”-12”
  - DIN: DN50-DN300
- **Max. Operating Pressure:** 150 psi (10 bar)
- **Max. Ambient Temperature:** 122°F (50°C)
- **Max. Operating Temperature:** 158°F (70°C)
- **Material Housing:** Stainless Steel or Carbon Steel

**Dimensions LVH-F8**

Metric dimensions in ().

Dimensions shown are inches (millimeters) for general information and overall envelope size only. For complete dimensions please contact Schroeder Industries to request a certified print.
The lower curve applies to diesel at 20°C (the upper curve is for mineral oil with viscosity to 30 cSt for comparison).

**Filter Element Selection**
Filter elements must be ordered separately and installed before initial operation on-site.

**Filter Size (Model)**
- LVH-F-1 40
- LVH-F-3 40
- LVH-F-4 40
- LVH-F-5 40
- LVH-F-8 40

**Maximum Flow Rate**
- LVH-F-1 40: 211 gpm
- LVH-F-3 40: 317 gpm
- LVH-F-4 40: 476 gpm
- LVH-F-5 40: 632 gpm
- LVH-F-8 40: 951 gpm

**Number of Filter Elements**
- 1 pc.
- 3 pcs.
- 4 pcs.
- 5 pcs.
- 8 pcs.

**Filter Element**
- Filter Element 40*

**Part No.**
- N42ON-DF003-FA40F: 3965085
- N42ON-DF005-FA40F: 3916691
- N42ON-DF010-FA40F: 4055947

* Contact Factory for More Details
### How to Build a Valid Model Number for a Schroeder LVH-F Supplied with Element:

**BOX 1** | **BOX 2** | **BOX 3** | **BOX 4** | **BOX 5**
--- | --- | --- | --- | ---
LVH | | | | |

**BOX 6** | **BOX 7** | **BOX 8** | **BOX 9** | **BOX 10** | **BOX 11**
--- | --- | --- | --- | --- | ---
| | | | | |

**Filter Series Functions Filter Size Filter Element Length Housing Material**

<table>
<thead>
<tr>
<th>Box 2</th>
<th>Box 3</th>
<th>Box 4</th>
<th>Box 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>F = Filter</td>
<td>1 = 1 filter element</td>
<td>40 = 40&quot;</td>
<td>E = Stainless Steel</td>
</tr>
<tr>
<td>3 = 3 filter elements</td>
<td>5 = 5 filter elements</td>
<td>N = Carbon Steel</td>
<td></td>
</tr>
<tr>
<td>4 = 4 filter elements</td>
<td>8 = 8 filter elements</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Mounting Pressure Range Hydraulic Connection Sealing**

<table>
<thead>
<tr>
<th>Box 6</th>
<th>Box 7</th>
<th>Box 8</th>
<th>Box 9</th>
</tr>
</thead>
<tbody>
<tr>
<td>V = Vertical</td>
<td>B = 150 psi (10 bar)</td>
<td>A2 = 2” ANSI 150# SORF</td>
<td></td>
</tr>
<tr>
<td>H = Horizontal</td>
<td>C = 232 psi (16 bar)</td>
<td>A3 = 3” ANSI 150# SORF</td>
<td></td>
</tr>
</tbody>
</table>

**Hydraulic Connection**

- A2 = 2” ANSI 150# SORF
- A3 = 3” ANSI 150# SORF
- A4 = 4” ANSI 150# SORF
- A6 = 6” ANSI 150# SORF
- A8 = 8” ANSI 150# SORF
- L = DIN DN 50
- R = DIN DN 100
- V = DIN DN 150
- W = DIN DN 200
- Y = DIN DN 300

**Mounting Pressure Range**

- B = 150 psi (10 bar)
- C = 232 psi (16 bar)

**Sealing**

- F = Viton®

**Clogging Indicator Available Certification**

- C12 = Differential pressure indicator, electrical
- D17 = Differential pressure indicator, visual/electrical (230V)
- D18 = Differential pressure indicator, visual/electrical (240V)
- D32 = Differential pressure indicator, visual/electrical (PVL2GW.O/V-113)
- D33 = Differential pressure indicator, visual/electrical (PVL2GW.O/111-16)
- Z = Without clogging indicator

**Available Certification**

- ZA = ASME Certification

**NOTES:**

Filter elements must be ordered separately and installed before initial operation on site.

**Fluid Compatibility**

- ULSD15, low sulfur diesel and high sulfur diesel
- Biodiesel blends
- Synthetic diesel and blends
- No. 2 fuel oil and heating oil
Applications

Features and Benefits

- Excellent filtration performance in a single pass
- Low pressure loss due to innovative element technology
- Easy to service thanks to intelligent element design
- The Low Viscosity-Housing Coalescer LVH-C is mainly used for dewatering of diesel, making it especially suitable for applications with large amounts of water that need to be removed in just a single pass
- The Optimicron® filter elements used ensure that both the required cleanliness and long service life are achieved.
- Available in various sizes, the filters can be optimally integrated into new or existing systems.
- The filters are designed according to the ASME Code Section VIII rules and regulations for pressure vessels as well as the ability to certify to other global standards upon request.

Model no. of filter in photograph is: LVHCD440NVBTFZ

Markets

- INDUSTRIAL
- BULK FUEL FILTRATION
- MARINE
- MINING TECHNOLOGY
- AGRICULTURE
- POWER GENERATION
### LVHC High Flow | Low Viscosity Housing Coalescer

**Flow Rating:** 211-476 gpm (799-1802 L/min)

**Inlet/Outlet Connection:**
- ANSI 150#: 2”-12”
- DIN: DN50-DN300

**Max. Operating Pressure:** 150 psi (10 bar)

**Max. Ambient Temperature:** 122°F (50°C)

**Max. Operating Temperature:** 122°F (50°C)

**Material Housing:** Stainless Steel or Carbon Steel

---

**Dimensions LVH-C-D-4-40**

- **Flow Rating:** 211-476 gpm (799-1802 L/min)
- **Inlet/Outlet Connection:** ANSI 150#: 2”-12”
- **Max. Operating Pressure:** 150 psi (10 bar)
- **Max. Ambient Temperature:** 122°F (50°C)
- **Max. Operating Temperature:** 122°F (50°C)
- **Material Housing:** Stainless Steel or Carbon Steel

---

**Dimensions LVH-C-D-6-40**

- **Flow Rating:** 211-476 gpm (799-1802 L/min)
- **Inlet/Outlet Connection:** ANSI 150#: 2”-12”
- **Max. Operating Pressure:** 150 psi (10 bar)
- **Max. Ambient Temperature:** 122°F (50°C)
- **Max. Operating Temperature:** 122°F (50°C)
- **Material Housing:** Stainless Steel or Carbon Steel

---

Metric dimensions in ( ).

Dimensions shown are inches (millimeters) for general information and overall envelope size only. For complete dimensions please contact Schroeder Industries to request a certified print.
## Filter Size (Model) | Maximum Flow Rate | Number of Coalescing Elements | Number of Separator Elements
--- | --- | --- | ---
LVH-CD-4 40 | 211 gpm | 4 pcs. | 3 pcs.
LVH-CD-6 40 | 317 gpm | 6 pcs. | 4 pcs.
LVH-CD-9 40 | 476 gpm | 9 pcs. | 6 pcs.

### Filter Element Selection
Filter elements must be ordered separately and installed before initial operation on-site.

<table>
<thead>
<tr>
<th>Element</th>
<th>Model Code</th>
<th>Part No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Separation Element 30&quot;</td>
<td>N32ON-DSZ-SA80F</td>
<td>3910259</td>
</tr>
<tr>
<td>Coalescing Element 40&quot;</td>
<td>N42ON-DCZ-CA60F</td>
<td>3910257</td>
</tr>
</tbody>
</table>
**How to Build a Valid Model Number for a Schroeder LVH-C Supplied with Element:**

<table>
<thead>
<tr>
<th>BOX 1</th>
<th>BOX 2</th>
<th>BOX 3</th>
<th>BOX 4</th>
<th>BOX 5</th>
<th>BOX 6</th>
<th>BOX 7</th>
<th>BOX 8</th>
<th>BOX 9</th>
<th>BOX 10</th>
<th>BOX 11</th>
</tr>
</thead>
<tbody>
<tr>
<td>LVH</td>
<td>CD</td>
<td>40</td>
<td>E</td>
<td>V</td>
<td>B</td>
<td>V</td>
<td>F</td>
<td>D32</td>
<td>ZA</td>
<td></td>
</tr>
</tbody>
</table>

Example: NOTE:  

Filter elements must be ordered separately and installed before initial operation on site.

### Fluid Compatibility

**Fuel Oils**

- ULSD15, low sulfur diesel and high sulfur diesel
- Biodiesel blends
- Synthetic diesel and blends
- No. 2 fuel oil and heating oil

### NOTES:

For flanges not listed, contact factory.