Bulk Diesel Multi-Skid

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
Bulk Diesel Multi-Skid

**Flow Rating:**
From 210 gpm to 280 gpm (795 to 1060 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: 15 psi (1.03 bar)
Coalescing Filter: 25 psi (1.7 bar)

**Bypass Valve Cracking:**
Particulate: 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
  - Cap: Plated Steel

- **Coalescing Filter**
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**Weight:**
904 Lbs. (410 kg)

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

**NOTES:**
Elements are sold with the housing
### Bulk Diesel Multi-Skid

#### Particulate Elements

<table>
<thead>
<tr>
<th>Particulate Elements</th>
<th>DHC</th>
<th>βₙ (c) ≥ 200</th>
<th>βₙ (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>
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#### Coalescing Element

<table>
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<tr>
<th>Element Nominal Dimensions:</th>
<th>Inside Out</th>
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<tr>
<td>6.4” (163 mm) O.D. x 39.4” (1001 mm) long</td>
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### Pressure Drop Information

- **Pressure Side Coalescing**
  - 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

**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

### Exercise:

Determine ΔP at 70 gpm (265 L/min) for BDS239QPMLZ3VVM

**Solution:**

- ΔP_{housing} = 3.0 psi [0.21 bar]
- ΔP_{element (39QPMLZ1V)} = 70 x 0.01 = 0.7 psi [0.05 bar]
- ΔP_{element (39QPMLZ3V)} = 70 x 0.17 = 11.9 psi [0.82 bar]
- ΔP_{total} = 3.0 + 0.7 + 11.9 = 15.6 psi [1.07 bar]

### Viscosity Factor

- Divided by 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).

### Notes

- **Pressure Drop Information**
  - Based on Flow Rate and Viscosity
  - Elements Sold with Housing

- **Particulate Performance Information**
  - Using APC calibrated per ISO 11171
  - DHC
  - βₓ (c) ≥ 200
  - βₓ (c) ≥ 1000

- **Coalescing Performance Information**
  - Single Pass Water Removal Efficiency ≥ 99.5%

- **Pressure Drop Information**
  - Based on Flow Rate and Viscosity

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- **Coalescing Performance Information**
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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>
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<tbody>
<tr>
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<td></td>
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Example: NOTE: One option per box

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<td>BDS</td>
<td>4</td>
<td>39QPMLZ3</td>
<td>V</td>
<td>VM</td>
<td>= BDS439QPMLZ3VVM</td>
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### BOX 1
- **Filter Series:** BDS

### BOX 2
- **No. of Coalescing Filters:**
  - 4 = 280gpm

### BOX 3
- **Particulate Filter Micron Rating:**
  - 39QPMLZ21 = 1μm
  - 39QPMLZ33 = 3μm

### BOX 4
- **Housing Seal Material:**
  - V = Viton®

### BOX 5
- **Dirt Alarm**
  - VM = Visual Pop-Up w/ Manual Reset

### BOX 6
- **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

### Filtration Ratio per ISO 16889
Using APC calibrated per ISO 11171

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### Coalescing Element
- **Pressure Side Coalescing**
  - Max Flow: 70 gpm
  - Single Pass Water Removal Efficiency: ≥ 99.5%

### 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