

Section 1:

BULKY DIESEL FILTRATION

*Coalescing Elements Patent-Pending

16 gpm
60 L/min

150 psi
10 bar

Applications



Point of Use Fuel Dispensing



FLEET FILL / BULK FUEL TRANSFER



BULK FUEL UNLOADING



PROTECTION FOR HIGH-FLOW FUEL INJECTION SYSTEMS



BULK TANK KIDNEY LOOP / RECIRCULATION

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)



Model no. of filter in photograph is: ICFV516LEP



Model no. of filter in photograph is: ICFM

Markets



INDUSTRIAL



MOBILE VEHICLES



MARINE



MINING TECHNOLOGY



AGRICULTURE



POWER GENERATION



COMMON RAIL INJECTOR SYSTEMS



FLEET



RAILROAD



BULK FUEL FILTRATION

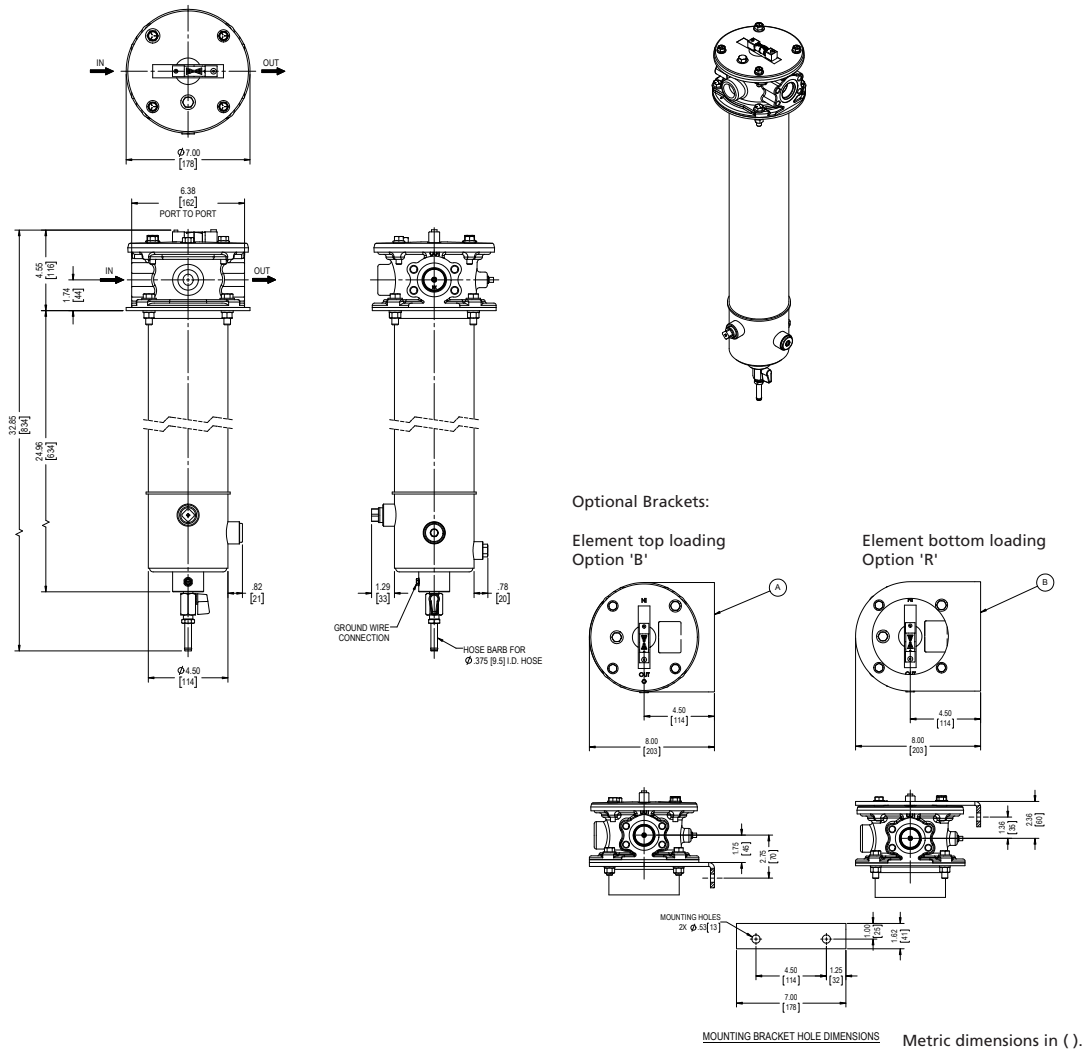
In-Line Bulk Fuel Coalescing Filter

ICF

*Coalescing Elements Patent-Pending

| | |
|---------------------------|--|
| Flow Rating: | Up to 16 gpm (60 L/min) for ULSD15 |
| Inlet/Outlet Connection: | 1 1/2" 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



Filter Housing Specifications

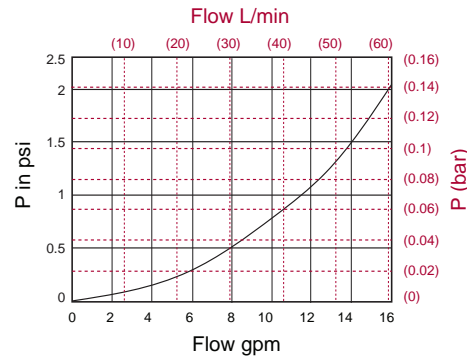
- ICF
- BDF
- BDA
- GHPF
- GHCF
- QCF
- BDS
- BDS2
- BDS3
- BDS4
- LVH-F
- LVH-C
- BDFC
- BDFP
- BDC
- HDP
- HDPD
- BCC

*Coalescing Elements Patent-Pending

Pressure Drop Information Based on Flow Rate and Viscosity

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

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



sp gr = specific gravity

Notes

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

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

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.

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

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

Exercise: Determine ΔP at 16 gpm (60 L/min) for ICFP24LEP

Solution:

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

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

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

Filter Element Selection Coalescing Element Performance Information
Elements Sold Separately

| Coalescing Element | Pressure Side Coalescing | |
|--------------------|--------------------------|--------------------------------------|
| | Recommended Flow | Single Pass Water Removal Efficiency |
| C184Z5V | 16 gpm | ≥ 99.5% |
| C184Z3V | 16 gpm | ≥ 99.5% |
| C184Z7VE | 16 gpm | Contact Factory for Element Data |

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

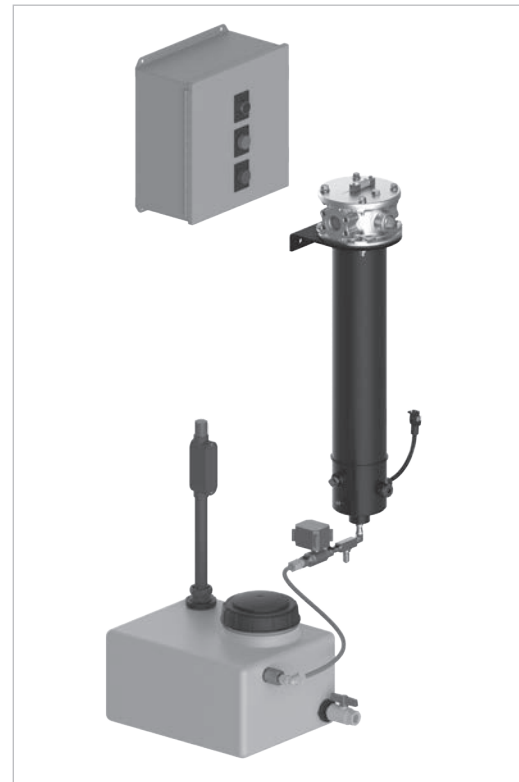
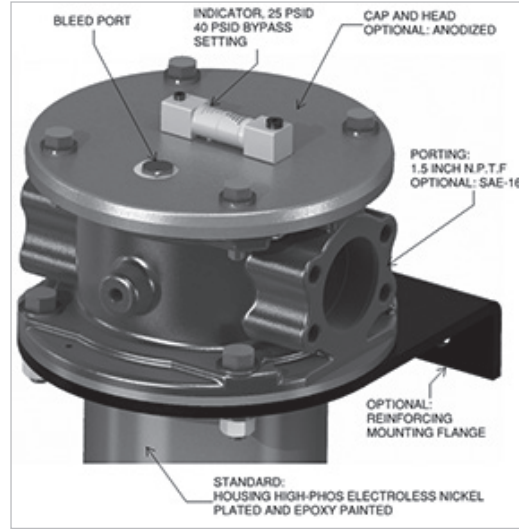
*NOTE: Efficiency based on ULSD15 with 27 Dynes/cm surface tension and 0.25% (2500 ppm) water injection. Discharge water concentration of <100 ppm free and emulsified water.

Highlighted product eligible for **QuickDelivery**

In-Line Fuel Coalescing Filter

*Coalescing Elements Patent-Pending

ICF



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 ().

ICF Options

Filter Cap Assembly BDF BDA

GHPF

GHCF

QCF

BDS

BDS2

BDS3

Available Options BDS4

LVH-F

LVH-C

BDFC

BDFP

Panel & Control for Automatic Drain with Safety Features BDC HDP HDPD BCC

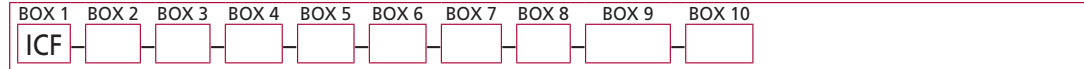
Shown w/ Automatic Sump (Manual Remote Sump is Optional but tank is the same)

*Coalescing Elements Patent-Pending

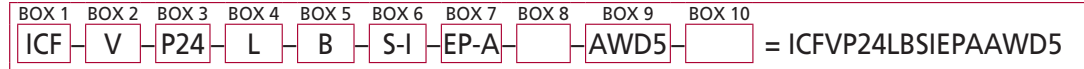
Filter Model Number Selection

Highlighted product eligible for QuickDelivery

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



Example: NOTE:



| BOX 1 | BOX 2 | BOX 3 | BOX 4 |
|----------------------|-------------------------|--|--|
| Filter Series | Sealing Material | Porting | Coalescing Element Change Indicator |
| ICF | V = Viton® | P24 = 1½" NPTF (standard) S16 = -16 (ORB) SAE J1926 | L = In cap bar indicator |

| BOX 5 | BOX 6 | BOX 7 |
|--|--|---|
| Mounting Option | Filter Housing Sump Level Indicator Option | Coating Option |
| B = Bracket (Element top loading) R = Bracket (Element bottom loading) Omit = None | 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 | EP = Epoxy paint and plating (standard) A = Anodized cap & head (optional) |

| BOX 8 | BOX 9 | BOX 10 |
|---------------------------------------|---|---|
| Heating Option | Automatic Drain & Remote Sump Options | Optional Manual Drain Remote Sump |
| H = Filter Sump Heater Omit = None | AWD5 = Auto water drain 5 gal tank w/ failsafe (only offered for applications above 32°F (0°C) and units ordered without heater) AWD20 = Auto water drain 20 gal tank w/ failsafe (only offered for applications above 32°F (0°C) and units ordered without heater) Omit = None | S5 = 5gal sump tank S20 = 20gal sump tank Omit = None |

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 (AWD5 or AWD20)
- Box 9. AWD fail safe is shown on page 25 (ICF)

Element Part Number Selection

Highlighted product eligible for QuickDelivery

| Element Part Number | Pressure Side Coalescing | |
|---------------------|--------------------------|--------------------------------------|
| | Max Flow | Single Pass Water Removal Efficiency |
| C184Z5V | 16 gpm | ≥ 99.5% |
| C184Z3V | 16 gpm | ≥ 99.5% |
| C184Z7VE | 16 gpm | Contact Factory for Element Data |

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.

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

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

Applications



Point of Use Fuel Dispensing



FLEET FILL / BULK FUEL TRANSFER



BULK FUEL UNLOADING



PROTECTION FOR HIGH-FLOW FUEL INJECTION SYSTEMS



BULK TANK KIDNEY LOOP / RECIRCULATION

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



Model no. of filter in photograph is: BDF111GGZ3CG5VD5



Model no. of filter in photograph is: BDF211GGZ3CG5VD5

Markets



INDUSTRIAL



MOBILE VEHICLES



MARINE



MINING TECHNOLOGY



AGRICULTURE



POWER GENERATION



COMMON RAIL INJECTOR SYSTEMS



FLEET



RAILROAD



BULK FUEL FILTRATION

25-50 gpm ICF

95-189 L/min BDF

150 psi BDA

10 bar

GHPF

GHCF

QCF

BDS

BDS2

BDS3

BDS4

LVH-F

LVH-C

BDFC

BDFP

BDC

HDP

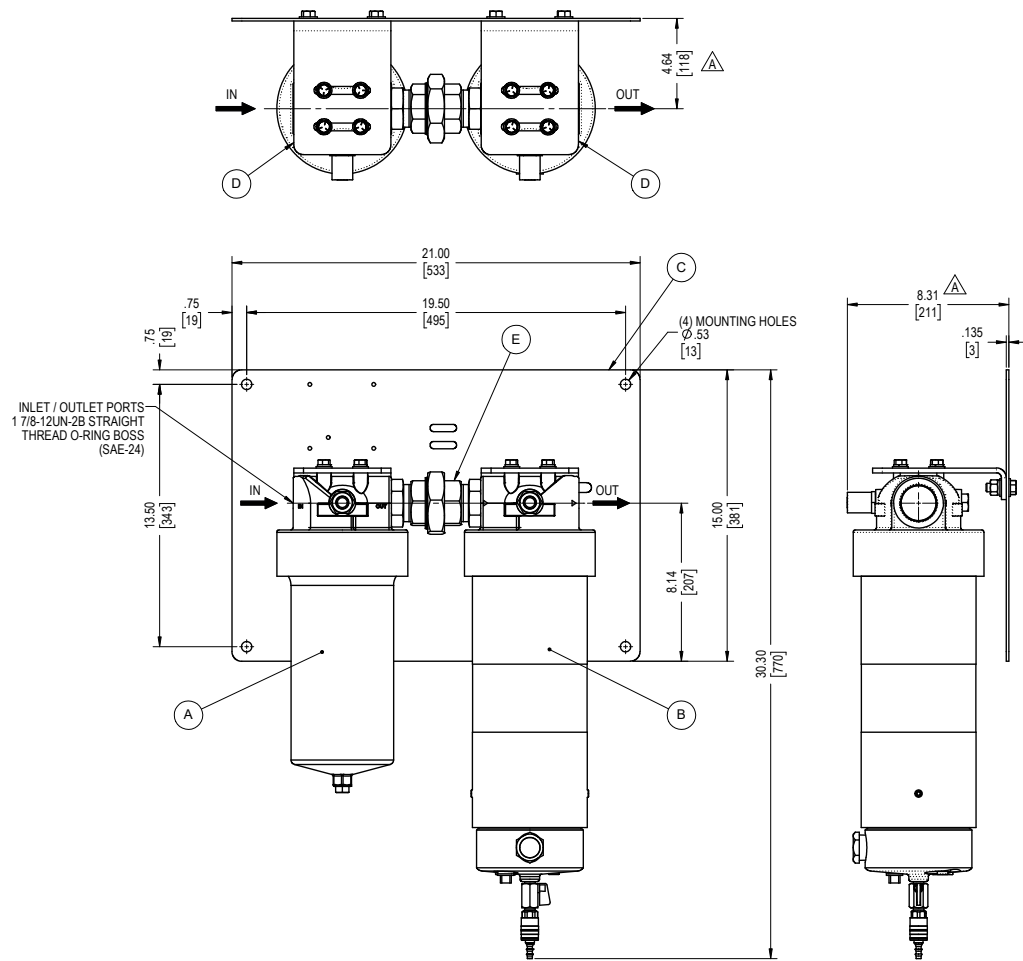
HDPD

BCC

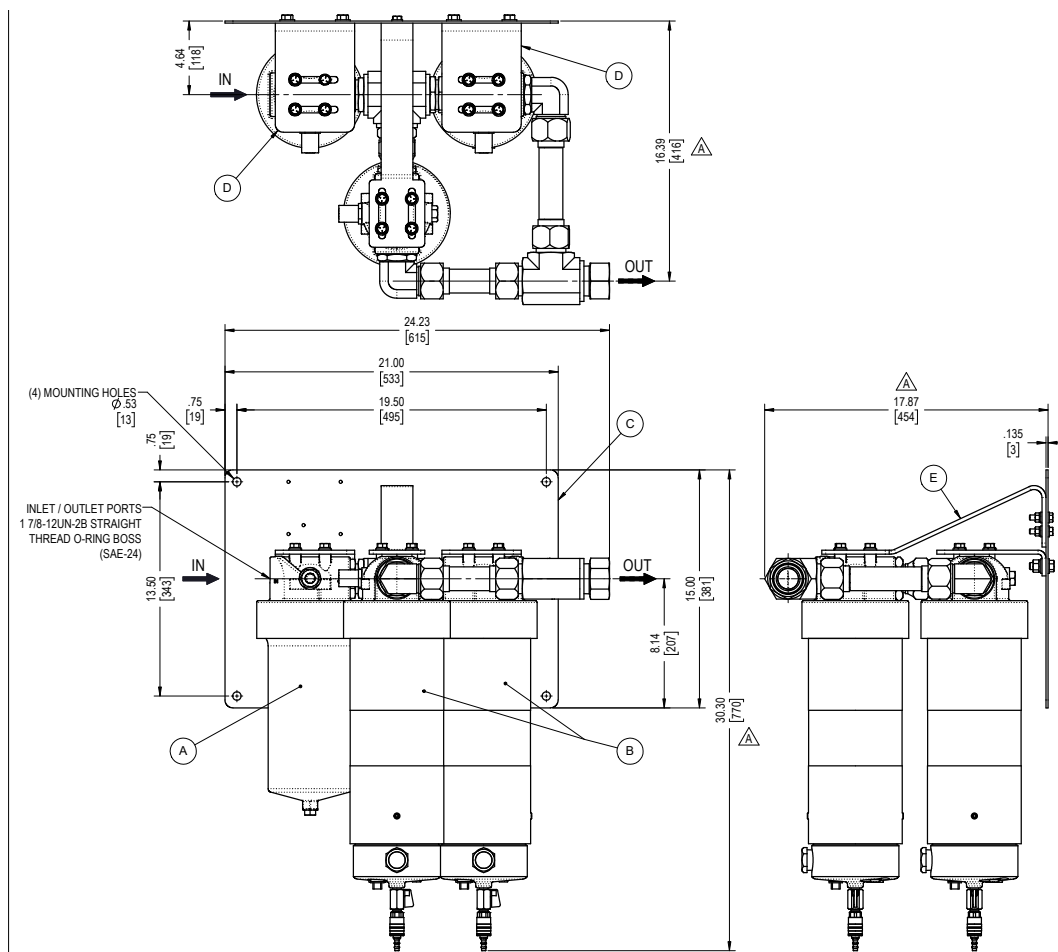
Filter Housing Specifications

| | | |
|-----------------------------------|--|---|
| 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



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.



Metric dimensions in (.).
 Dimensions shown are inches [millimeters] for general information and overall envelope size only.
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Filtration Ratio per ISO 16889 Using APC calibrated per ISO 11171

| Particulate Elements | DHC(g) | $\beta_x (c) \geq 200$ | $\beta_x (c) \geq 1000$ |
|----------------------|--------|------------------------|-------------------------|
| 11GGZ1V | 172 | <4.0 | 4.2 |
| 11GGZ3V | 148 | <4.0 | 4.8 |

| Coalescing Element | Pressure Side Coalescing | |
|--------------------|--------------------------|--------------------------------------|
| | Max Flow | Single Pass Water Removal Efficiency |
| C125GZ5V | 25 gpm | $\geq 95\%$ |

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 |

- BDF2
- ICF
- BDF**
- BDA
- GHPF
- GHCF
- QCF
- BDS
- BDS2
- BDS3
- BDS4
- LVH-F
- LVH-C
- BDFC
- BDFP
- BDC
- HDP

Element Particulate Performance Information

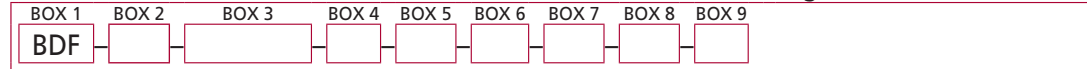
Element Water Coalescing Performance Information

Particulate and Coalescing Elements Sold with System

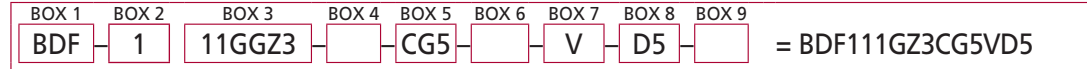
Highlighted product eligible for **QuickDelivery**

Filter Model Number Selection

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



Example: NOTE:



| BOX 1 | BOX 2 | BOX 3 | BOX 4 | BOX 5 |
|----------------------|--------------------------|--------------------------------|-------------------------------------|--------------------------------------|
| Filter Series | Flow Rate | Particulate Filtration | Particulate Bypass | Coalescing Filtration |
| BDF | 1 = 25 gpm 2 = 50 gpm | 11GGZ1 = 1 μm 11GGZ3 = 3 μm | Omit = 40 psi X = Blocked Bypass | CG5 = C125GZ5V Coalescing Element |

| BOX 6 | BOX 7 | BOX 8 | BOX 9 |
|-------------------------------------|----------------------|----------------------------------|---|
| Coalescing Bypass | Seal Material | Indicators | Options |
| Omit = 40 psi X = Blocked Bypass | V = Viton® | D5 = Visual Pop-up, Manual Reset | Omit = Included Sight Glass and Manual Water Drain Valves U = Downstream Test Point T = Water-In-Fuel (WIF) Sensor Only I = WIF Sensor w/ Remote Mount 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 |

Element Part Number Selection

Highlighted product eligible for **QuickDelivery**

Filtration Ratio per ISO 16889

Using APC calibrated per ISO 11171

| Particulate Elements | DHC(g) | $\beta_x (c) \geq 200$ | $\beta_x (c) \geq 1000$ |
|----------------------|--------|------------------------|-------------------------|
| 11GGZ1V | 172 | <4.0 | 4.2 |
| 11GGZ3V | 148 | <4.0 | 4.8 |

| Coalescing Element | Pressure Side Coalescing | |
|--------------------|--------------------------|--------------------------------------|
| | Max Flow | Single Pass Water Removal Efficiency |
| C125GZ5V | 25 gpm | ≥ 95% |

Note:

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

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

In-Line Water Absorbing Diesel Fuel Bag Filter

BDA

Applications



Point of Use Fuel Dispensing



FLEET FILL / BULK FUEL TRANSFER



BULK FUEL UNLOADING



BULK TANK KIDNEY LOOP / RECIRCULATION

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



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

Markets



INDUSTRIAL



MOBILE VEHICLES



MARINE



MINING TECHNOLOGY



AGRICULTURE



POWER GENERATION



COMMON RAIL INJECTOR SYSTEMS



FLEET



RAILROAD



BULK FUEL FILTRATION

35 or 70 gpm ICF

132 or 265 BDF

L/min

BDA

145 psi

10 bar GHPF

GHCF

QCF

BDS

BDS2

BDS3

BDS4

LVH-F

LVH-C

BDFC

BDFP

BDC

HDP

HDPD

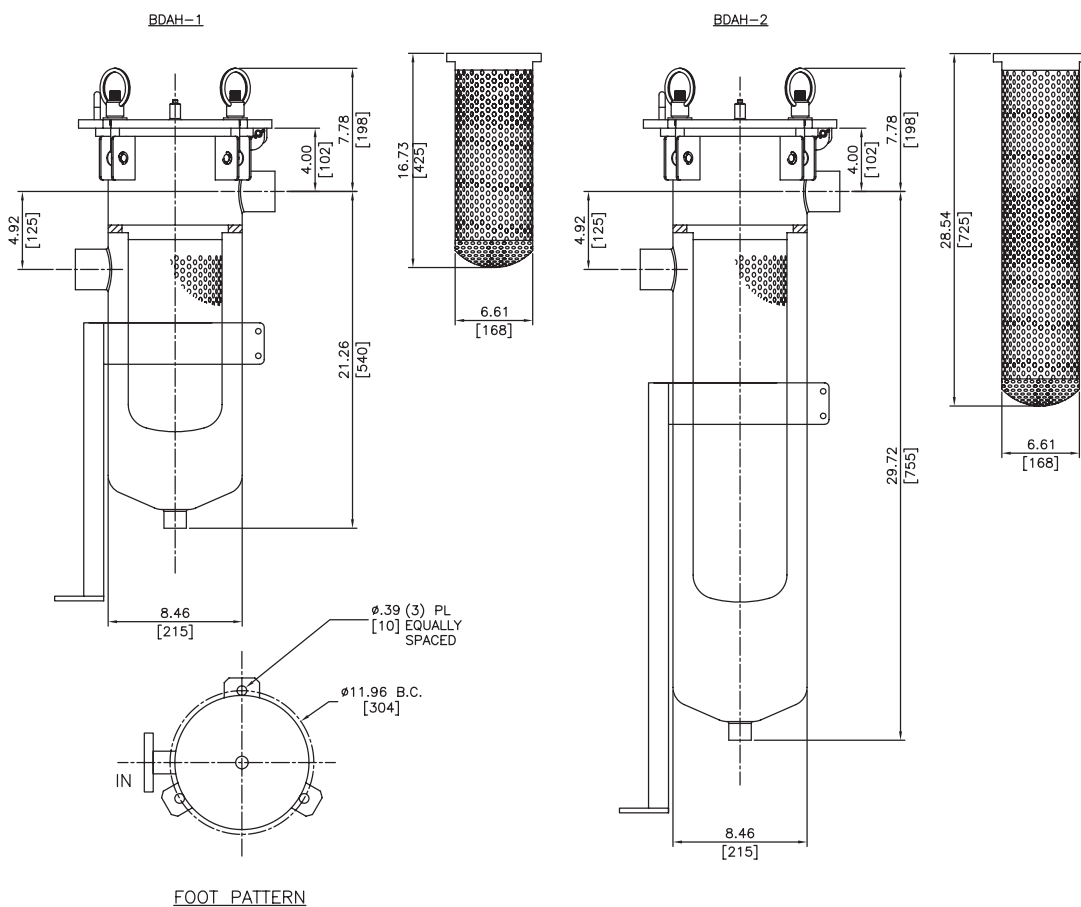
BCC

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

BDA-H



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

BDA

| Water Absorbing Bag Element | Bag Housing Size | Micron Rating | Bag Element Dimensions |
|-----------------------------|------------------|---------------|--------------------------------------|
| FA210P1PW | Size 1 | 10 μ m | 7" (178 mm) O.D. x 17" (432 mm) long |
| FA210P2PW | Size 2 | 10 μ m | 7" (178 mm) O.D. x 32" (813 mm) long |

Replacement Element Information
 Elements Sold Separately

BDA

GHPF

GHCF

QCF

BDS

BDS2

BDS3

BDS4

LVH-F

LVH-C

BDFC

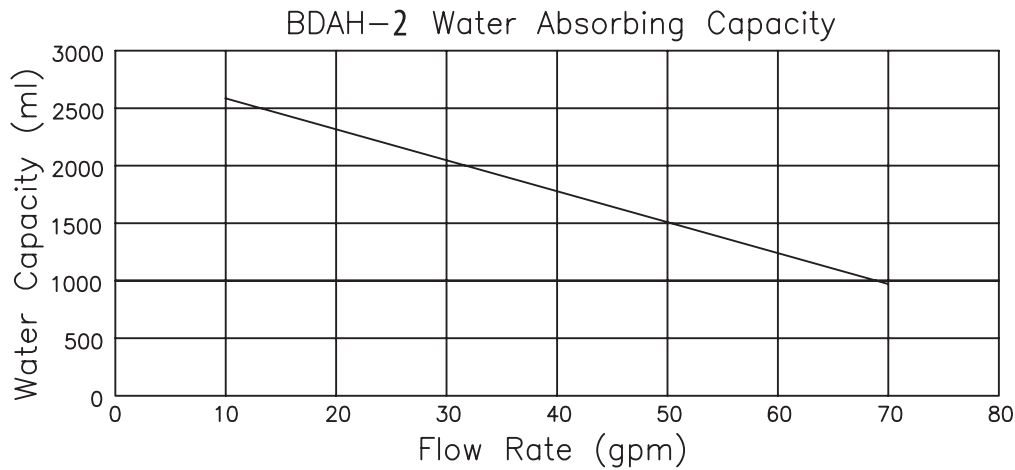
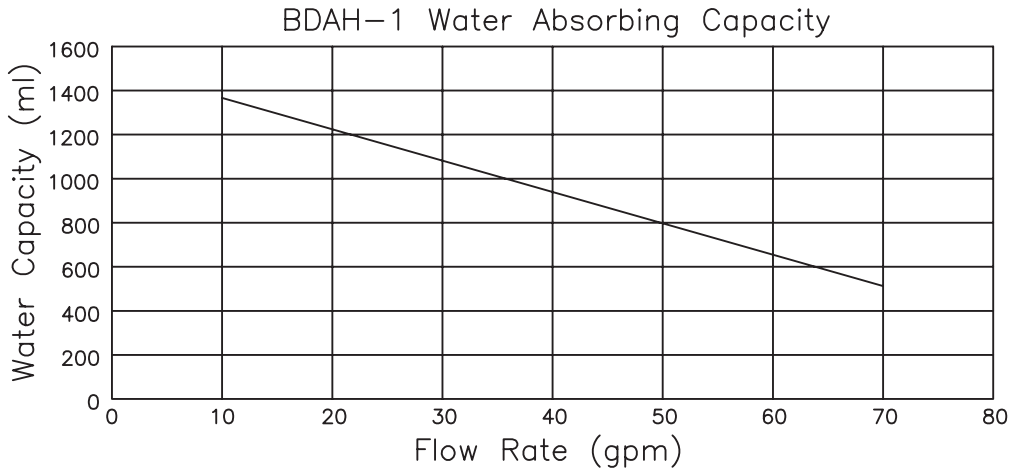
BDFP

BDC

HDP

HDPD

BCC



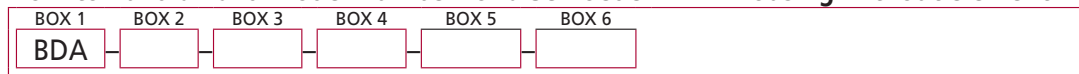
Pressure Drop Information: $\Delta P_{\text{housing}} < 0.5 \text{ psi}$

Pressure Drop Information Based on Flow Rate and Viscosity

| |
|-------|
| Notes |
| |
| |
| |

Filter Model Number Selection

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



Example: NOTE: One option per box



| BOX 1 | BOX 2 | BOX 3 | BOX 4 |
|----------------------|------------------------------|--------------------------|------------------------------|
| Filter Series | Product Configuration | Bag Element Size | Housing Seal Material |
| BDA | H = Housing | 1 = Size 1 2 = Size 2 | V = Viton® |

| BOX 5 | BOX 6 |
|---|--|
| Porting | Filter Indicator |
| P32 = 2" NPTF F32 = 2" SAE 4-Bolt Flange, Code 61 B32 = 2" BSPF | Omit = None DPG = Differential Pressure Gauge |

NOTES:

Bag Filters sold separately and are listed below

Element Part Number Selection

| Water Absorbing Element | Bag Housing Size | Max Flow Rate gpm (L/min) | Micron Rating | Bag Element Dimensions |
|-------------------------|------------------|---------------------------|---------------|--------------------------------------|
| FA210P1PW | Size 1 | 35 (132) | 10 µm | 7" (178 mm) O.D. x 17" (432 mm) long |
| FA210P2PW | Size 2 | 70 (265) | 10 µm | 7" (178 mm) O.D. x 32" (813 mm) long |

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

Applications



FLEET FILL / BULK FUEL TRANSFER



BULK FUEL UNLOADING



PROTECTION FOR HIGH-FLOW FUEL INJECTION SYSTEMS



BULK TANK KIDNEY LOOP / RECIRCULATION

Features and Benefits

- 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



Model No. of filter in photograph is: GHPF11GGZ3VS24D5R

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

Markets



INDUSTRIAL



MOBILE VEHICLES



MARINE



MINING TECHNOLOGY



AGRICULTURE



POWER GENERATION



COMMON RAIL INJECTOR SYSTEMS



FLEET



RAILROAD



BULK FUEL FILTRATION

100 gpm ICF
380 L/min BDF

150 psi BDA
10.3 bar GHPF

GHCF

QCF

BDS

BDS2

BDS3

BDS4

LVH-F

LVH-C

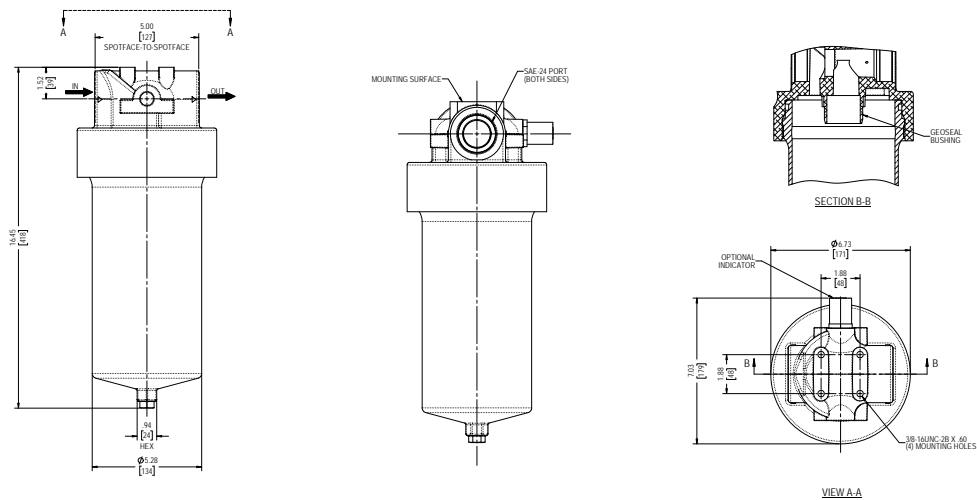
BDFC

Filter Housing Specifications
BDFP

HDP

HDPD

BCC



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.

Element Performance Information

| Media Type | Element | Filtration Ratio per ISO 16889 | |
|--------------|----------|--------------------------------|------------------------|
| | | $\beta_x(c) \geq 200$ | $\beta_x(c) \geq 1000$ |
| Traditional | 11GGZ1V | <4.0 | 4.5 |
| | 11GGZ3V | 4.6 | 5.8 |
| Excellement® | 11GGZ5V | 5.9 | 7.8 |
| | 11GGZ10V | 11.4 | 13.2 |
| Z-Media® | 11GGZ25V | 15.8 | 17.5 |

Using APC calibrated per ISO 11171

Dirt Holding Capacity

| Media Type | Element | DHC (gm) |
|--------------|----------|----------|
| Traditional | 11GGZ1V | 172 |
| | 11GGZ3V | 148 |
| Excellement® | 11GGZ5V | 174 |
| | 11GGZ10V | 165 |
| Z-Media® | 11GGZ25V | 164 |

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

GeoSeal® High-Flow Particulate Filter

GHPF

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

Fluid Compatibility ICF
DF

BDA

Element Selection

GHPF

Based on Flow Rate

GHCF

QCF

BDS

BDS2

BDS3

BDS4

Pressure Drop Information

Based on Flow Rate and Viscosity

LVH-F

LVH-C

BDFC

BDFP

BDC

HDP

HDPD

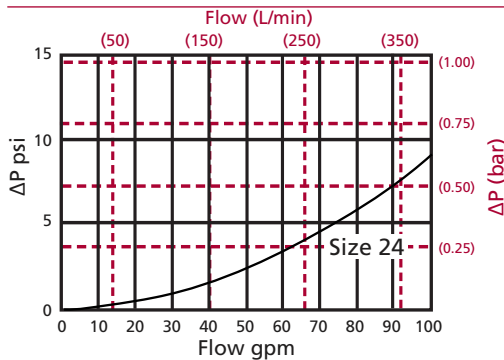
BCC

| Pressure | Series | Element Part No. | 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. | | | | | |
|----------|----------|------------------|---|----|-----|-----|-----|-----|
| | Z-Media® | 11GGZ1V | 11GGZ1V | | | | | |
| | | 11GGZ3V | 11GGZ3V | | | | | |
| | | 11GGZ5V | 11GGZ5V | | | | | |
| | | 11GGZ10V | 11GGZ10V | | | | | |
| | | 11GGZ25V | 11GGZ25V | | | | | |
| Flow | | gpm | 0 | 20 | 40 | 60 | 80 | 100 |
| | | (L/min) | 0 | 50 | 150 | 250 | 380 | |

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:



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

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

El. ΔP factors @ 37 SUS (3 cSt):

11GGZ1V 0.07 11GGZ3V 0.05
11GGZ5V 0.05 11GGZ10V 0.05
11GGZ25V 0.04

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

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

CF = Contact factory.

sp gr = specific gravity

Sizing of elements should be based on element flow information provided in the Element Selection chart above.

| |
|-------|
| Notes |
| |
| |
| |
| |
| |

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

Exercise:

Determine ΔP at 80 gpm (303 L/min) for GHPF11GGZ3VS24D5R using 37 SUS (3 cSt) fluid.

Solution:

$$\Delta P_{\text{housing}} = 6.0 \text{ psi [0.41 bar]}$$

$$\Delta P_{\text{element}} = 80 \times 0.05 \times (37 \div 37) = 4.0 \text{ psi}$$

or

$$= [303 \times (0.05 \div 54.9) \times (3 \div 3) = 0.28 \text{ bar}]$$

$$\Delta P_{\text{total}} = 6.0 + 4.0 = 10.0 \text{ psi}$$

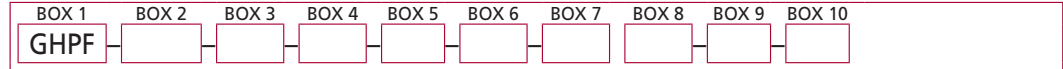
or

$$= [0.41 + 0.28 = 0.69 \text{ bar}]$$

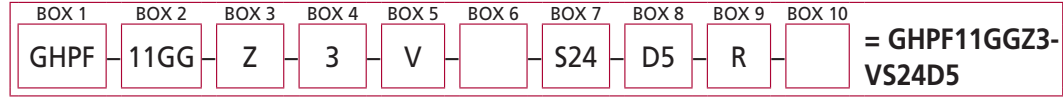
Filter Model Number Selection

Highlighted product eligible for **QuickDelivery**

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



Example: NOTE: One option per box



| BOX 1 | BOX 2 | BOX 3 | BOX 4 | BOX 5 |
|----------------------|------------------------------------|---------------------------------------|---|------------------------------|
| Filter Series | Element Length & Series | Element Media | Micron Rating | Element Seal Material |
| GHPF | 11GG | Z = Excellement® Z-Media® (synthetic) | 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) | V = Viton® |

| BOX 6 | BOX 7 | BOX 8 |
|-----------------------|---------------------------------|--|
| Bypass Setting | Inlet Port | Dirt Alarm® Options |
| Omit = 40 psid | S24 = SAE-24 P24 = 1.5" NPTF | Visual D5 = Visual pop-up w/manual reset |

| BOX 9 | BOX 10 |
|---------------------------------|--|
| Indicator Orientation | Options |
| R = Right Side L = Left Side | Omit = None U = Downstream Test Point |

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.

Applications



Point of Use Fuel Dispensing



FLEET FILL / BULK FUEL TRANSFER



BULK FUEL UNLOADING



DATA CENTER GENERATOR



BULK TANK KIDNEY LOOP / RECIRCULATION

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: GHCFCG5VS24D5R

| | |
|----------------------------------|--|
| Flow Rating: | For Pressure Installations - Up to 25 gpm (95 L/min) For Suction Installations - Up to 900 gph (Up to 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) |

Markets



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POWER GENERATION



COMMON RAIL INJECTOR SYSTEMS



FLEET



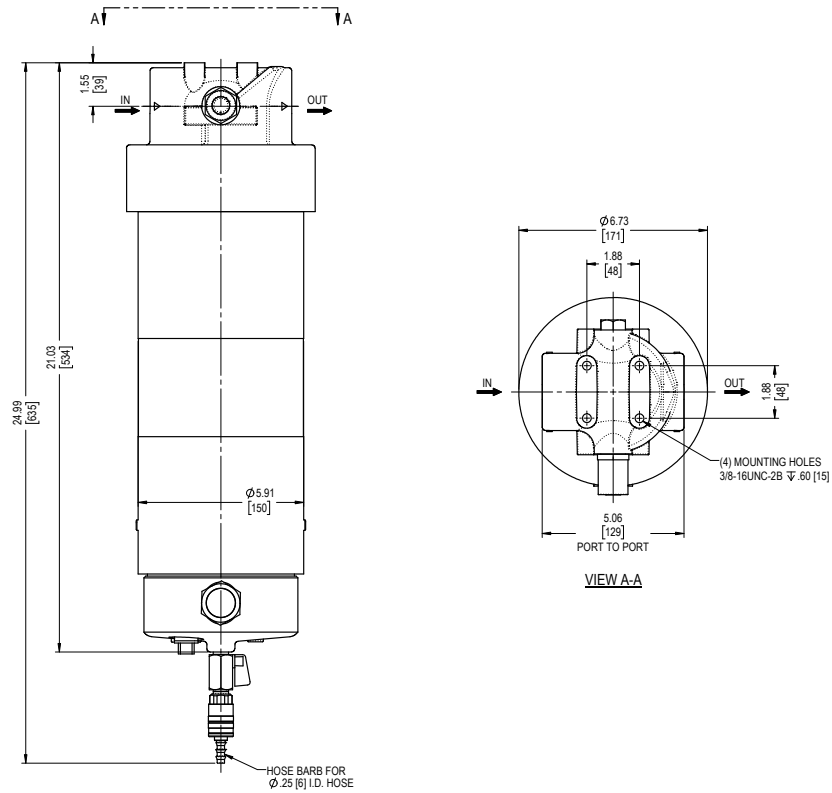
RAILROAD



BULK FUEL FILTRATION

25 gpm ICF
95 L/min BDF
for pressure installations
15 gpm BDA
(900 gph)
3410 L/hr GHPF
(57 L/min) for suction installations
150 psi GHCF
10.3 bar

Filter Housing Specifications
QCF
BDS
BDS2
BDS3
BDS4
LVH-F
LVH-C
BDFC
BDFP
HDP
HDPD
BCC



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
 Element
 Selection
 Coalescing
 Element
 Performance
 Information**
 Elements Sold
 Separately

| Coalescing Element | Performance | |
|--------------------|------------------|--------------------------------------|
| | Recommended Flow | Single Pass Water Removal Efficiency |
| C125GZ5V | 25 gpm | > 95% |

Flow Direction: Inside Out

Element Nominal Dimensions: 5" (127 mm) O.D. x 12" (305 mm) long

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

*NOTE: Efficiency based on ULSD15 with 15-19 mN/m IFT (interfacial tension) and 2500 ppm water injection. Discharge water concentration of <200 ppm undissolved water.

**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.

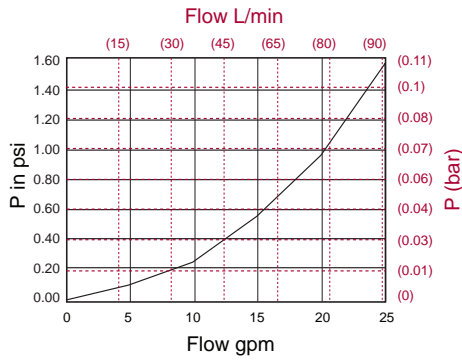
GeoSeal® High-Flow Coalescing Filter

GHCF

*Coalescing Elements Patent-Pending

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

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



sp gr = specific gravity

Notes

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

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

Element ΔP factors @ 37 SUS (3 cSt).

C125GZ5V = 0.098

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

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

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

Exercise: Determine ΔP at 25 gpm (95 L/min) for GHCF5G5V

Solution:

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

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

$\Delta P_{\text{total}} = 1.6 + 2.5 = 4.1 \text{ psi} [0.28 \text{ bar}]$

Pressure Drop Information Based on Flow Rate and Viscosity

- ICF
- BDF
- BDA
- GHPF
- GHCF**

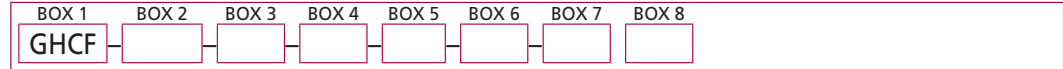
- QCF
- BDS
- BDS2
- BDS3
- BDS4
- LVH-F
- LVH-C
- BDFC
- BDFP
- BDC
- HDP
- HDPD
- BCC

Highlighted product eligible for **QuickDelivery**

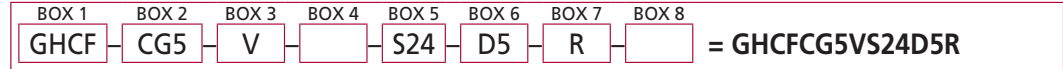
Filter Model Number Selection

Highlighted product eligible for **QuickDelivery**

How to Build a Valid Model Number for a Schroeder GHCF:



Example: NOTE: One option per box



| BOX 1 | BOX 2 | BOX 3 | BOX 4 | BOX 5 |
|----------------------|-----------------------------------|------------------------------|--------------------------------------|---------------------------------|
| Filter Series | Coalescing Filtration | Element Seal Material | Bypass Setting | Inlet Port |
| GHCF | CG5 = C125GZ5V Coalescing Element | V = Viton® | Omit = 40 psid X = Blocked Bypass | S24 = SAE-24 P24 = 1.5" NPTF |

| BOX 6 |
|--|
| Dirt Alarm® Options |
| D5 = Visual pop-up w/manual reset Omit = Blocked Indicator Ports (both) |

| BOX 7 |
|--|
| Indicator Orientation |
| R = Right Side L = Left Side Omit = None (Blocked Indicator Ports) |

| BOX 8 |
|---|
| 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 AWD5 = 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 over-pressuring 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.

Bulk Diesel Fuel Coalescing Filter

QCF

*Coalescing Elements Patent-Pending

Applications



Point of Use Fuel Dispensing



FLEET FILL / BULK FUEL TRANSFER



BULK FUEL UNLOADING



PROTECTION FOR HIGH-FLOW FUEL INJECTION SYSTEMS



BULK TANK KIDNEY LOOP / RECIRCULATION

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.

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)



Model no. of filter in photograph is: QCF5VS24VM

Markets



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POWER GENERATION



COMMON RAIL INJECTOR SYSTEMS



FLEET



RAILROAD



BULK FUEL FILTRATION

70 gpm
265 L/min
100 psi
7 bar

ICF

BDF

BDA

GHPF

GHCF

QCF

BDS

BDS2

BDS3

BDS4

LVH-F

LVH-C

BDFC

BDFP

BDC

HDP

HDPD

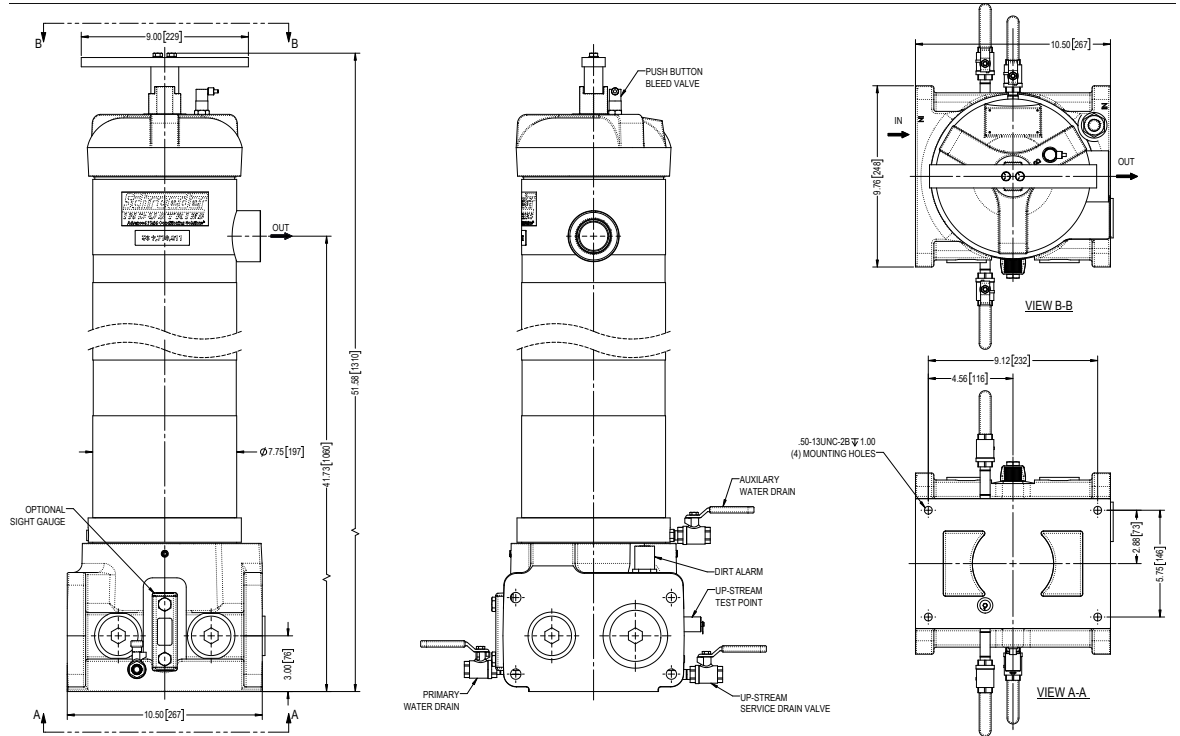
BCC

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) Standard 32°F to 165°F (0°C to 74°C) with optional sight gauge |
| Bypass Indication: | 25 psi (1.7 bar) (Lower indication options available) |
| Bypass Valve Cracking: | 30 psi (2 bar) |
| Materials of Construction: | Porting Base: Anodized Aluminum Element Bowl: Epoxy Paint w/ High-phos Electroless Nickel Plating (Standard) Cap: Nickel Coated Ductile Iron |
| Weight: | 155 Lbs. (77 kg) |
| Element Change Clearance: | 33.8" (858 mm) |

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 | |
|--------------------|--------------------------|--------------------------------------|
| | Max Flow | Single Pass Water Removal Efficiency |
| C396Z5V | 70 gpm | ≥ 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

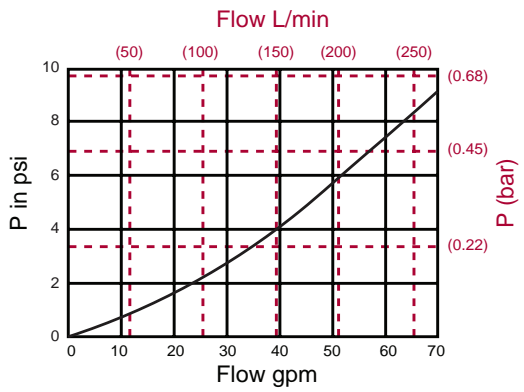
Element Coalescing Performance Information
Element Sold with Housing

Highlighted product eligible for QuickDelivery

ICF
BDF
BDA
GHPF
GHCF
QCF

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

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



sp gr = specific gravity

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

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

El. ΔP factors @ 37 SUS (3 cSt).
C396Z5V = .17

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

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

Pressure Drop Information Based on Flow Rate and Viscosity

BDS
BDS2
BDS3
BDS4
LVH-F
LVH-C
BDFC
BDFP
BDC
HDP
HDPD
BCC

Notes

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

Exercise: Determine ΔP at 70 gpm (265 L/min) for QCFC5V24VM

Solution:

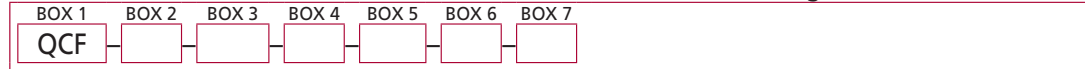
$\Delta P_{\text{housing}} = 9.2 \text{ psi} = [0.63 \text{ bar}]$

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

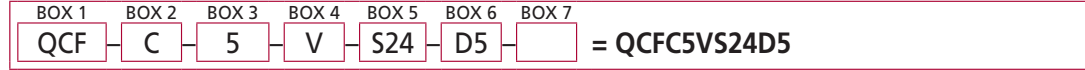
$\Delta P_{\text{total}} = 9.2 + 11.9 = 21.1 \text{ psi} [1.46 \text{ bar}]$

Filter Model Number Selection

How to Build a Valid Model Number for a Schroeder QCF Housing with Element:



Example: NOTE: One option per box



| | | | |
|----------------------|----------------------------------|---------------------------|---------------------------------|
| BOX 1 | BOX 2 | BOX 3 | BOX 4 |
| Filter Series | Coalescing Element Series | Element Media Type | Housing Sealing Material |
| 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 | 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 |

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

Element Part Number Selection

Highlighted product eligible for **QuickDelivery**

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

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

Applications



Point of Use Fuel Dispensing



FLEET FILL / BULK FUEL TRANSFER



BULK FUEL UNLOADING



PROTECTION FOR HIGH-FLOW FUEL INJECTION SYSTEMS



BULK TANK KIDNEY LOOP / RECIRCULATION

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



Model no. of filter in photograph is: BDS39QPMLZ3VD5

Markets



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POWER GENERATION



COMMON RAIL INJECTOR SYSTEMS



FLEET



RAILROAD



BULK FUEL FILTRATION

70 gpm ICF
265 L/min BDF

150 psi BDA
10.3 bar

GHPF

GHCF

QCF

BDS

BDS2

BDS3

BDS4

LVH-F

LVH-C

BDFC

BDFP

BDC

HDP

HDPD

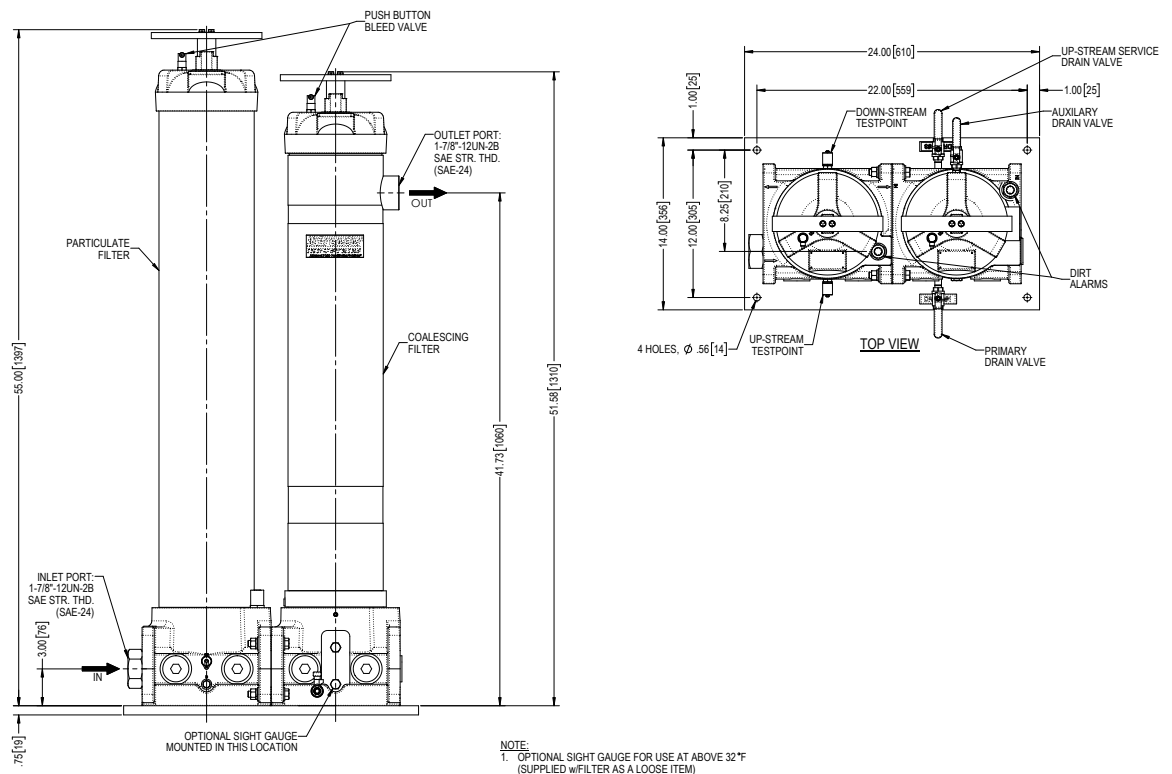
BCC

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: | 150 psi (10.3 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: (Lower indication options available) | <u>Particulate Filter</u> Particulate: 15 psi (1.03 bar) | <u>Coalescing Filter</u> Coalescing: 25 psi (1.7 bar) |
| Bypass Valve Cracking: | <u>Particulate Filter</u> Particulate: 20 psi (1.37 bar) | <u>Coalescing Filter</u> Coalescing: 30 psi (2 bar) |
| Materials of Construction: | <u>Particulate Filter</u> Porting Base: Anodized Aluminum | <u>Coalescing Filter</u> Porting Base: Anodized Aluminum |
| | Element Bowl: Epoxy Paint w/ High-phos Electroless Nickel Plating (Standard) | Element Bowl: Epoxy Paint w/ High-phos Electroless Nickel Plating (Standard) |
| | Cap: Plated Steel | Cap: Plated Steel |
| | | |
| Weight: | 441 Lbs. (200 kg) | |
| Element Change Clearance: | 33.8" (858 mm) | |

NOTES:

Elements are sold with the 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.

Filtration Ratio per ISO 16889
Using APC calibrated per ISO 11171

| Particulate Elements | DHC | $\beta_x (c) \geq 200$ | $\beta_x (c) \geq 1000$ |
|----------------------|------------|------------------------|-------------------------|
| 39QPMLZ1V | 1485 grams | <4.0 | 4.2 |
| 39QPMLZ3V | 1525 grams | <4.0 | 4.8 |

| Coalescing Element | Pressure Side Coalescing | |
|--------------------|--------------------------|--------------------------------------|
| | Max Flow | Single Pass Water Removal Efficiency |
| C396Z5V | 70 gpm | $\geq 99.5\%$ |

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

Element
Particulate
Performance
Information

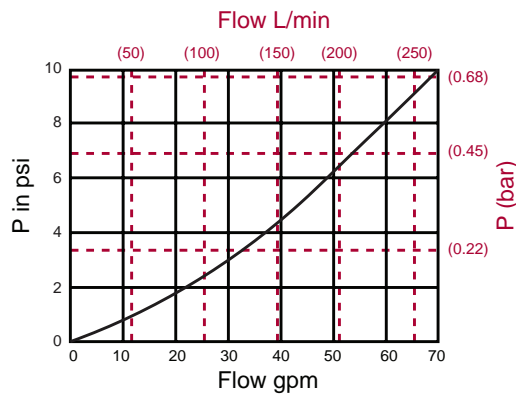
Element
Coalescing
Performance
Information
Elements Sold
with Housing

Highlighted
product eligible for
QuickDelivery

ICF
BDF
BDA
GHPF
GHCF
QCF
BDS
BDS2

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

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



sp gr = specific gravity

| Notes |
|-------|
| |
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$\Delta P_{\text{element}}$

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

El. ΔP factors @ 37 SUS (3 cSt).

C396Z5V = 0.17

39QPMLZ1V = 0.01

39QPMLZ3V = 0.01

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

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

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

Exercise: Determine ΔP at 70 gpm (265 L/min) for BDS39QPMLZ3VD5

Solution:

$$\Delta P_{\text{housing}} = 10 \text{ psi} = [0.69 \text{ bar}]$$

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

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

$$\Delta P_{\text{total}} = 10 + 0.7 + 11.9 = 22.6 \text{ psi} [1.56 \text{ bar}]$$

Pressure
Drop
Information
Based on
Flow Rate
and
Viscosity

BDS3
BDS4
LVH-F
LVH-C
BDFC
BDFP
BDC
HDP
HDPD
BCC

Filter Model Number Selection

How to Build a Valid Model Number for a Schroeder BDS supplied with coalescing element:



Example: NOTE: One option per box



| BOX 1 | BOX 2 | BOX 3 | BOX 4 |
|----------------------|---|------------------------------|------------------------------------|
| Filter Series | Particulate Filter Micron Rating | Housing Seal Material | Dirt Alarm® |
| BDS | 39QPMLZ1 = 1µm 39QPMLZ3 = 3µm | V = Viton® | D5 = Visual Pop-Up w/ Manual Reset |

| BOX 5 |
|--|
| Additional 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 |

NOTES:

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

Element Part Number Selection

Filtration Ratio per ISO 16889
 Using APC calibrated per ISO 11171

| Particulate Elements | DHC | $\beta_x (c) \geq 200$ | $\beta_x (c) \geq 1000$ |
|----------------------|------------|------------------------|-------------------------|
| 39QPMLZ1V | 1485 grams | <4.0 | 4.2 |
| 39QPMLZ3V | 1525 grams | <4.0 | 4.8 |

Highlighted product eligible for **QuickDelivery**

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

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

Applications



Point of Use Fuel Dispensing



FLEET FILL / BULK FUEL TRANSFER



BULK FUEL UNLOADING



PROTECTION FOR HIGH-FLOW FUEL INJECTION SYSTEMS



BULK TANK KIDNEY LOOP / RECIRCULATION

70-140 gpm ICF

248-530 L/min BDF

150 psi BDA

10.3 bar

GHPF

GHCF

QCF

BDS

BDS2

BDS3

BDS4

LVH-F

LVH-C

BDFC

BDFP

BDC

HDP

HDPD

BCC

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



Model no. of filter in photograph is: BDS239QPMLZ3VD5

Markets



INDUSTRIAL



MOBILE VEHICLES



MARINE



MINING TECHNOLOGY



AGRICULTURE



POWER GENERATION



COMMON RAIL INJECTOR SYSTEMS



FLEET



RAILROAD



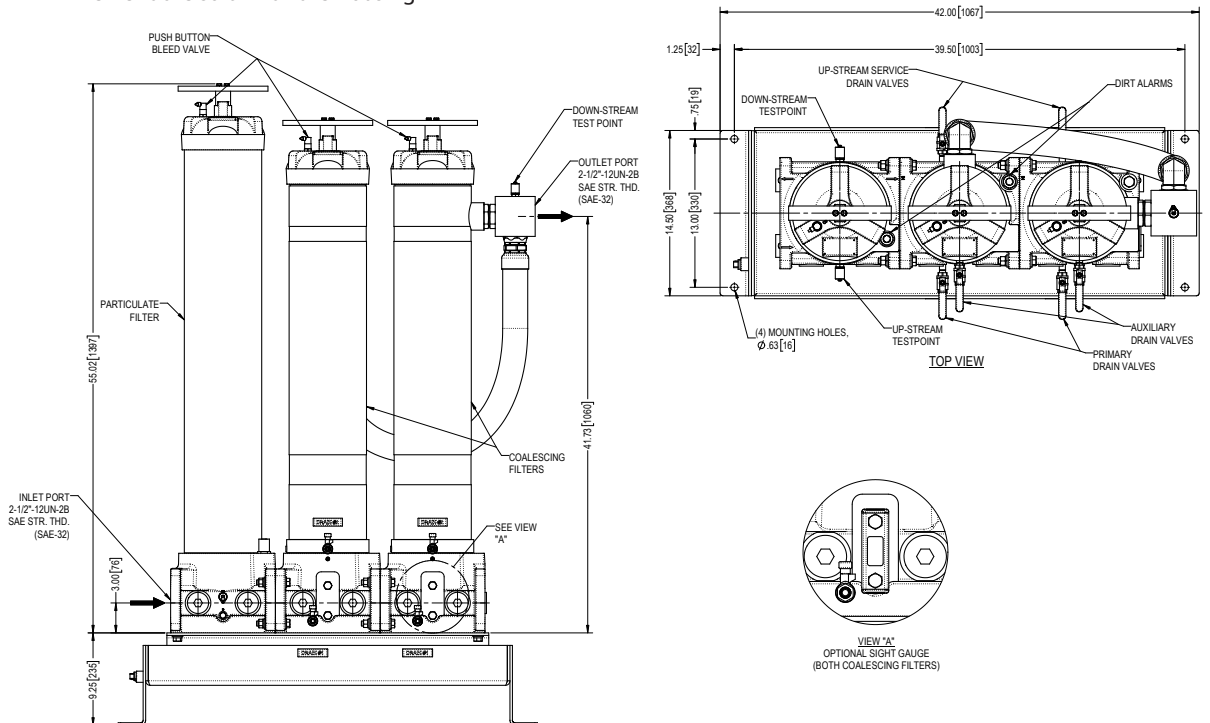
BULK FUEL FILTRATION

Filter Housing Specifications

| | | |
|----------------------------|---|--|
| Flow Rating: | Up to 140 gpm (530 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: | 150 psi (10.3 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: | <u>Particulate Filter</u> (Lower indication options available) Particulate: 15 psi (1.03 bar) | <u>Coalescing Filter</u> Coalescing: 25 psi (1.7 bar) |
| Bypass Valve Cracking: | <u>Particulate Filter</u> Particulate: 20 psi (1.37 bar) | <u>Coalescing Filter</u> Coalescing: 30 psi (2 bar) |
| Materials of Construction: | <u>Particulate Filter</u> Porting Base: Anodized Aluminum Element Bowl: Epoxy Paint w/ High-phos Electroless Nickel Plating (Standard) Cap: Plated Steel | <u>Coalescing Filter</u> 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:

Element are sold with the 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.

Filtration Ratio per ISO 16889
Using APC calibrated per ISO 11171

| Particulate Elements | DHC | $\beta_x (c) \geq 200$ | $\beta_x (c) \geq 1000$ |
|----------------------|------------|------------------------|-------------------------|
| 39QPMLZ1V | 1485 grams | <4.0 | 4.2 |
| 39QPMLZ3V | 1525 grams | <4.0 | 4.8 |

| Coalescing Element | Pressure Side Coalescing | |
|--------------------|--------------------------|--------------------------------------|
| | Max Flow | Single Pass Water Removal Efficiency |
| C396Z5V | 70 gpm | $\geq 99.5\%$ |

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

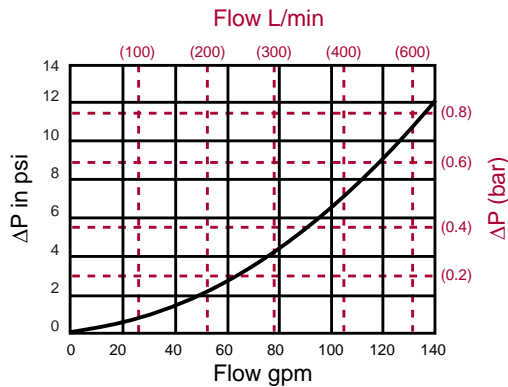
Element Particulate Performance Information ICF
BDF
BDA

Element Coalescing Performance Information Elements Sold with Housing GHPF
GHCF
QCF

Highlighted product eligible for QuickDelivery BDS
BDS2

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

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



sp gr = specific gravity

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

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

El. ΔP factors @ 37 SUS (3 cSt).

C396Z5V = 0.17
39QPMLZ1V = 0.01
39QPMLZ3V = 0.01

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

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

Pressure Drop Information Based on Flow Rate and Viscosity BDS3
BDS4
LVH-F
LVH-C
BDFC
BDFP
BDC
HDP
HDPD
BCC

Notes

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

Exercise: Determine ΔP at 140 gpm (530 L/min) for BDS239QPMLZ3VD5

Solution:

$$\Delta P_{\text{housing}} = 12.0 \text{ psi} = [0.83 \text{ bar}]$$

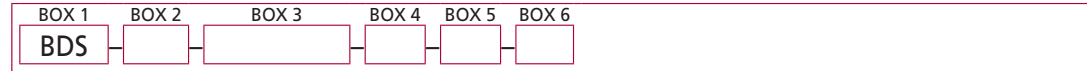
$$\Delta P_{\text{element (39QPML)}} = 140 \text{ gpm} \times 0.01 = 1.4 \text{ psi} [0.097 \text{ bar}]$$

$$\Delta P_{\text{element (C396)}} = 140/2 \text{ gpm} \times 0.17 = 11.9 \text{ psi} [0.82 \text{ bar}]$$

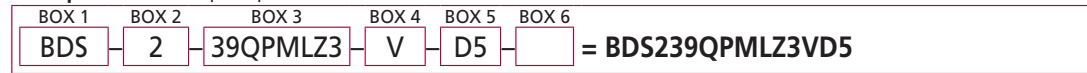
$$\Delta P_{\text{total}} = 12.0 \text{ psi} + 1.4 \text{ psi} + 11.9 \text{ psi} = 25.3 \text{ psi} [1.74 \text{ bar}]$$

Filter Model Number Selection

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 |
|----------------------|----------------------------------|---|------------------------------|
| Filter Series | No. of Coalescing Filters | Particulate Filter Micron Rating | Housing Seal Material |
| BDS | 2 = 140gpm | 39QPMLZ1 = 1µm 39QPMLZ3 = 3µm | V = Viton® |

| BOX 5 | BOX 6 |
|------------------------------------|--|
| Dirt Alarm® | Sump Options |
| D5 = Visual Pop-Up w/ Manual Reset | 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 |

NOTES:

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

Element Part Number Selection

Highlighted product eligible for **QuickDelivery**

| Particulate Elements | DHC | Filtration Ratio per ISO 16889 Using APC calibrated per ISO 11171 | |
|----------------------|------------|--|-------------------------|
| | | $\beta_x (c) \geq 200$ | $\beta_x (c) \geq 1000$ |
| 39QPMLZ1V | 1485 grams | <4.0 | 4.2 |
| 39QPMLZ3V | 1525 grams | <4.0 | 4.8 |

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

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

Applications



Point of Use Fuel Dispensing



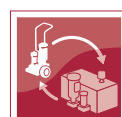
FLEET FILL / BULK FUEL TRANSFER



BULK FUEL UNLOADING



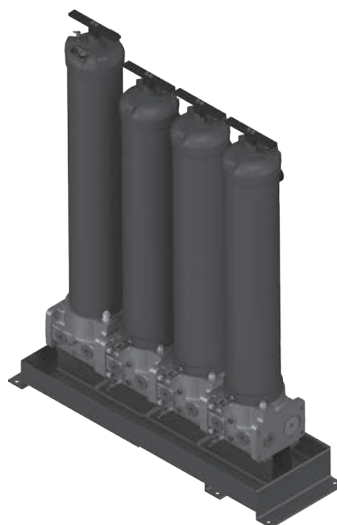
PROTECTION FOR HIGH-FLOW FUEL INJECTION SYSTEMS



BULK TANK KIDNEY LOOP / RECIRCULATION

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



Model no. of filter in photograph is: BDS339QPMLZ3VD5

Markets



INDUSTRIAL



MOBILE VEHICLES



MARINE



MINING TECHNOLOGY



AGRICULTURE



POWER GENERATION



COMMON RAIL INJECTOR SYSTEMS



FLEET



RAILROAD



BULK FUEL FILTRATION

140-210 gpm^{ICF}

530-795 L/min^{BDF}

150 psi^{BDA}

10.3 bar

GHPF

GHCF

QCF

BDS

BDS2

BDS3

BDS4

LVH-F

LVH-C

BDFC

BDFP

BDC

HDP

HDPD

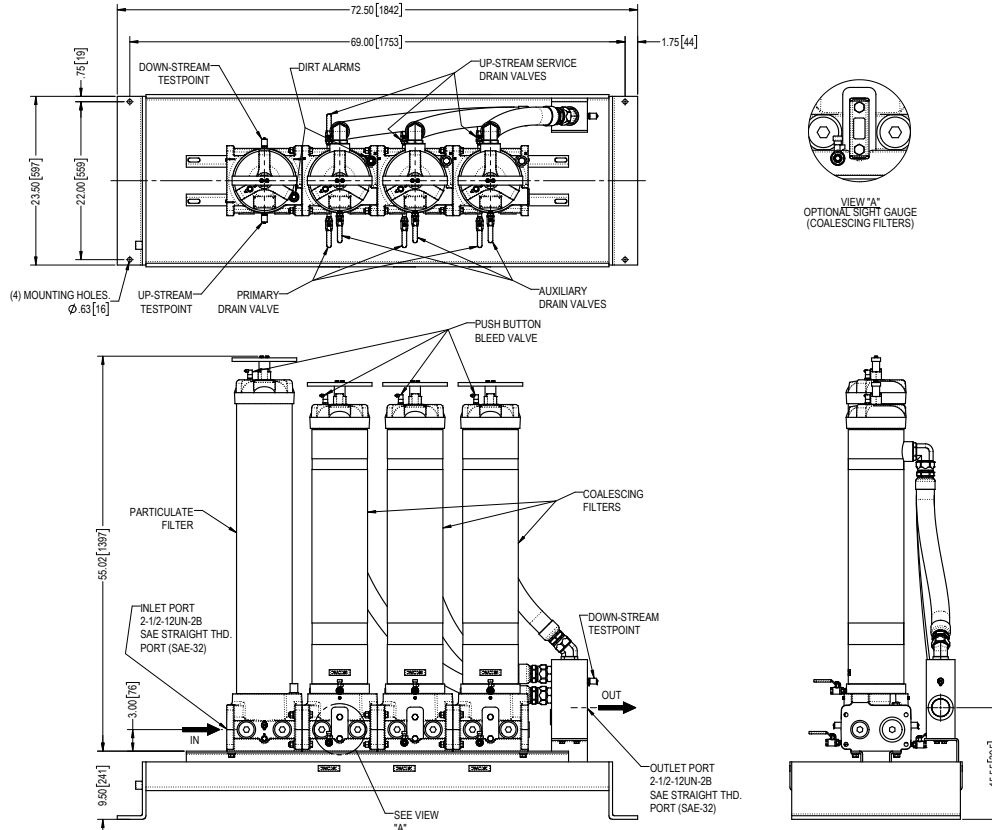
BCC

Filter Housing Specifications

| | | |
|----------------------------|---|--|
| 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: | 150 psi (10.3 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: | <u>Particulate Filter</u> (Lower indication options available) Particulate: 15 psi (1.03 bar) | <u>Coalescing Filter</u> Coalescing: 25 psi (1.7 bar) |
| Bypass Valve Cracking: | <u>Particulate Filter</u> Particulate: 20 psi (1.37 bar) | <u>Coalescing Filter</u> Coalescing: 30 psi (2 bar) |
| Materials of Construction: | <u>Particulate Filter</u> Porting Base: Anodized Aluminum Element Bowl: Epoxy Paint w/ High-phos Electroless Nickel Plating (Standard) Cap: Plated Steel | <u>Coalescing Filter</u> 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



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.

Filtration Ratio per ISO 16889
Using APC calibrated per ISO 11171

| Particulate Elements | DHC | $\beta_x (c) \geq 200$ | $\beta_x (c) \geq 1000$ |
|----------------------|------------|------------------------|-------------------------|
| 39QPMLZ1V | 1485 grams | <4.0 | 4.2 |
| 39QPMLZ3V | 1525 grams | <4.0 | 4.8 |

| Coalescing Element | Pressure Side Coalescing | |
|--------------------|--------------------------|--------------------------------------|
| | Max Flow | Single Pass Water Removal Efficiency |
| C396Z5V | 70 gpm | $\geq 99.5\%$ |

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

Element Particulate Performance Information

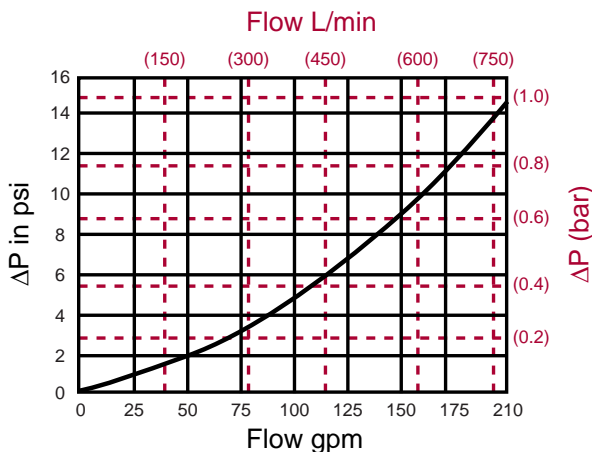
Element Coalescing Performance Information
Elements Sold with Housing

Highlighted product eligible for QuickDelivery

BDS3

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

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



Notes

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

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

El. ΔP factors @ 37 SUS (3 cSt).

C396Z5V = 0.17
39QPMLZ1V = 0.01
39QPMLZ3V = 0.01

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

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

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

Exercise: Determine ΔP at 210 gpm (795 L/min) for BDS239QPMLZ3VD5

Solution:

$$\Delta P_{\text{housing}} = 15 \text{ psi} = [1.03 \text{ bar}]$$

$$\Delta P_{\text{element (39QPML)}} = 210 \text{ gpm} \times 0.01 = 2.1 \text{ psi} [0.14 \text{ bar}]$$

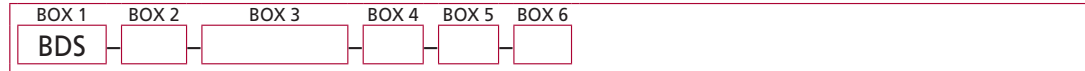
$$\Delta P_{\text{element (C396)}} = 210/3 \text{ gpm} \times 0.17 = 11.9 \text{ psi} [0.82 \text{ bar}]$$

$$\Delta P_{\text{total}} = 15 \text{ psi} + 2.1 \text{ psi} + 11.9 \text{ psi} = 29 \text{ psi} [2 \text{ bar}]$$

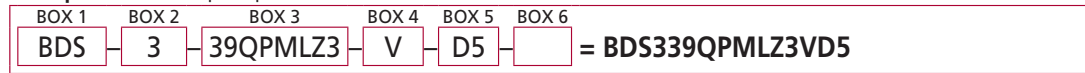
Pressure Drop Information Based on Flow Rate and Viscosity

Filter Model Number Selection

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 |
|--|--|---|--|
| Filter Series BDS | No. of Coalescing Filters 3 = 210gpm | Particulate Filter Micron Rating 39QPMLZ1 = 1µm 39QPMLZ3 = 3µm | Housing Seal Material V = Viton® |
| BOX 5 Dirt Alarm® D5 = 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 | |

NOTES:

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

Element Part Number Selection

Highlighted product eligible for **QuickDelivery**

| Particulate Elements | DHC | Filtration Ratio per ISO 16889 Using APC calibrated per ISO 11171 | |
|----------------------|------------|--|-------------------------|
| | | $\beta_x (c) \geq 200$ | $\beta_x (c) \geq 1000$ |
| 39QPMLZ1V | 1485 grams | <4.0 | 4.2 |
| 39QPMLZ3V | 1525 grams | <4.0 | 4.8 |

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

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

Applications



Point of Use Fuel Dispensing



FLEET FILL / BULK FUEL TRANSFER



BULK FUEL UNLOADING



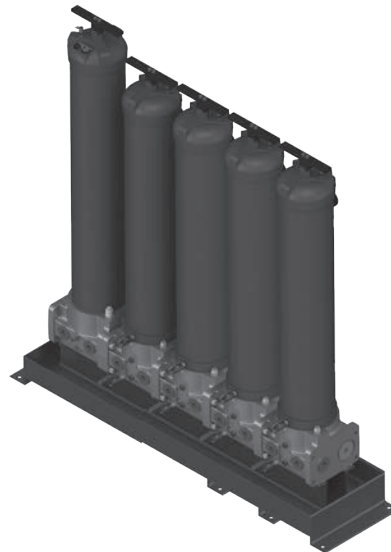
PROTECTION FOR HIGH-FLOW FUEL INJECTION SYSTEMS



BULK TANK KIDNEY LOOP / RECIRCULATION

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



Model no. of filter in photograph is: BDS439QPMLZ3VD5

Markets



INDUSTRIAL



MOBILE VEHICLES



MARINE



MINING TECHNOLOGY



AGRICULTURE



POWER GENERATION



COMMON RAIL INJECTOR SYSTEMS



FLEET



RAILROAD



BULK FUEL FILTRATION

210-280 gpm^{ICF}

795-1060 L/min^{BDF}

150 psi^{BDA}

10.3 bar^{GHPF}

GHCF

QCF

BDS

BDS2

BDS3

BDS4

LVH-F

LVH-C

BDFC

BDFP

BDC

HDP

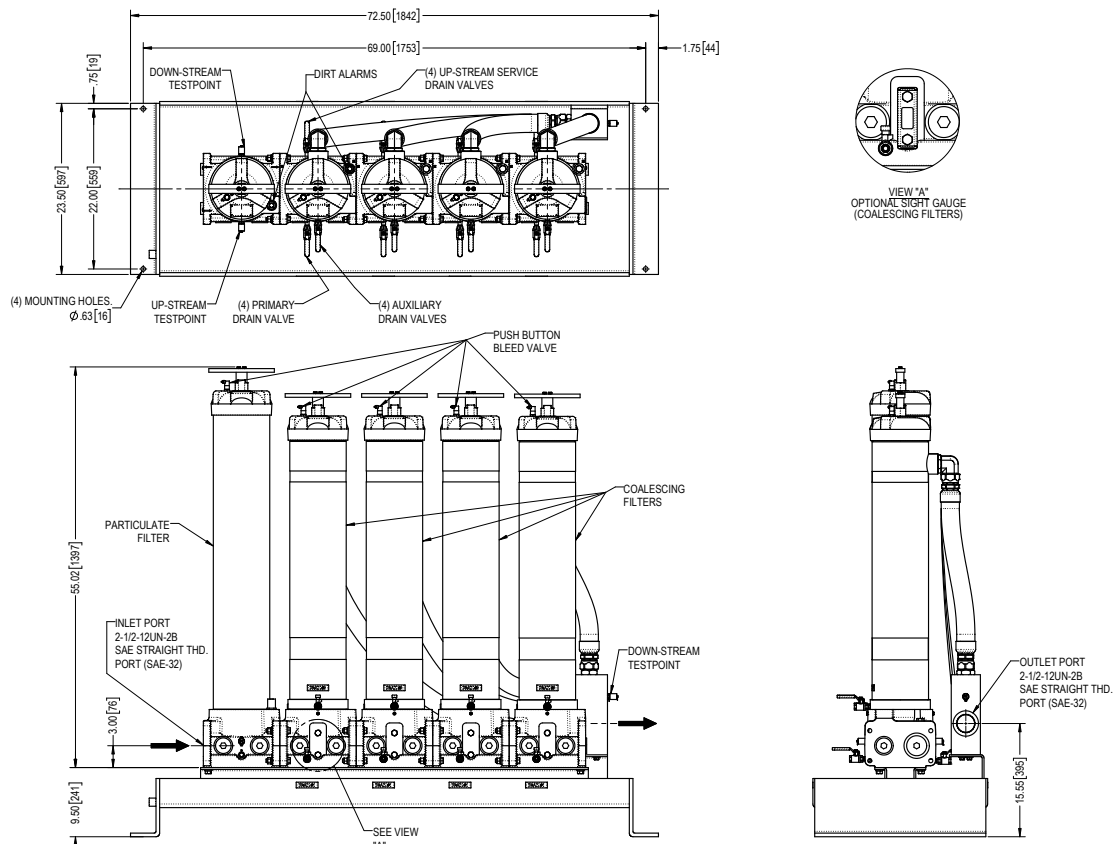
HDPD

BCC

| | | |
|----------------------------|--|---|
| 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: | 150 psi (10.3 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 Coalescing: 25 psi (1.7 bar) |
| Bypass Valve Cracking: | Particulate Filter Particulate: 20 psi (1.37 bar) | Coalescing Filter 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: | 904 Lbs. (410 kg) | |
| Element Change Clearance: | 33.8" (858 mm) | |

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.

Filtration Ratio per ISO 16889
Using APC calibrated per ISO 11171

| Particulate Elements | DHC | $\beta_x (c) \geq 200$ | $\beta_x (c) \geq 1000$ |
|----------------------|------------|------------------------|-------------------------|
| 39QPMLZ1V | 1485 grams | <4.0 | 4.2 |
| 39QPMLZ3V | 1525 grams | <4.0 | 4.8 |

| Coalescing Element | Pressure Side Coalescing | |
|--------------------|--------------------------|--------------------------------------|
| | Max Flow | Single Pass Water Removal Efficiency |
| C396Z5V | 70 gpm | $\geq 99.5\%$ |

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

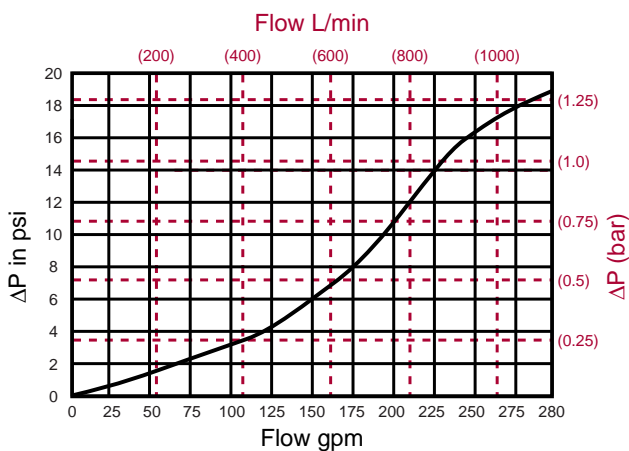
Element Particulate Performance Information

Element Coalescing Performance Information Elements Sold with Housing

Highlighted product eligible for QuickDelivery

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

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



Notes

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

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

El. ΔP factors @ 37 SUS (3 cSt).

C396Z5V = 0.17

39QPMLZ1V = 0.01

39QPMLZ3V = 0.01

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

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

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

Exercise: Determine ΔP at 280 gpm (1060 L/min) for BDS239QPMLZ3VD5

Solution:

$$\Delta P_{\text{housing}} = 19 \text{ psi [1.03 bar]}$$

$$\Delta P_{\text{element (39QPML)}} = 280 \text{ gpm} \times 0.01 = 2.8 \text{ psi [0.19 bar]}$$

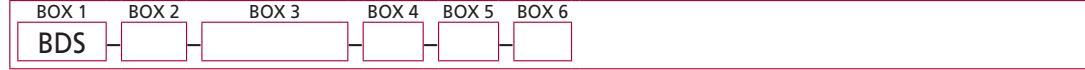
$$\Delta P_{\text{element (C396)}} = 280/4 \text{ gpm} \times 0.17 = 11.9 \text{ psi [0.82 bar]}$$

$$\Delta P_{\text{total}} = 19 \text{ psi} + 2.8 \text{ psi} + 11.9 \text{ psi} = 33.7 \text{ psi [2.32 bar]}$$

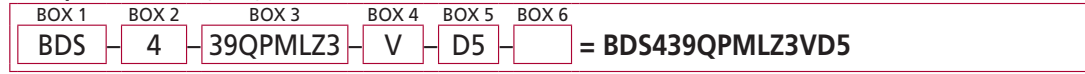
Pressure Drop Information Based on Flow Rate and Viscosity

Filter Model Number Selection

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 |
|-----------------------------|--|---|--|--|---|
| Filter Series BDS | No. of Coalescing Filters 4 = 280gpm | Particulate Filter Micron Rating 39QFMLZ1 = 1µm 39QFMLZ3 = 3µm | Housing Seal Material V = Viton® | Dirt Alarm® D5 = 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 |

NOTES:

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

Element Part Number Selection

Highlighted product eligible for **QuickDelivery**

| Particulate Elements | DHC | Filtration Ratio per ISO 16889 Using APC calibrated per ISO 11171 | |
|----------------------|------------|--|-------------------------|
| | | $\beta_x (c) \geq 200$ | $\beta_x (c) \geq 1000$ |
| 39QFMLZ1V | 1485 grams | <4.0 | 4.2 |
| 39QFMLZ3V | 1525 grams | <4.0 | 4.8 |

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

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

High Flow | Low Viscosity Housing Filter

LVHF

*Coalescing Elements Patent-Pending

Applications



Point of Use Fuel Dispensing



FLEET FILL / BULK FUEL TRANSFER



BULK FUEL UNLOADING



PROTECTION FOR HIGH-FLOW FUEL INJECTION SYSTEMS



BULK TANK KIDNEY LOOP / RECIRCULATION

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.



Model no. of filter in photograph is: LVHF340NBRFZ

211- 951 gpm ICF
799-3600 L/min BDF
150 psi BDA
10 bar GHPF
Standard

GHCF

QCF

BDS

BDS2

BDS3

BDS4

LVH-F

LVH-C

BDFC

BDFP

BDC

HDP

HDPD

BCC

Markets



INDUSTRIAL



BULK FUEL FILTRATION



MARINE



MINING TECHNOLOGY



AGRICULTURE



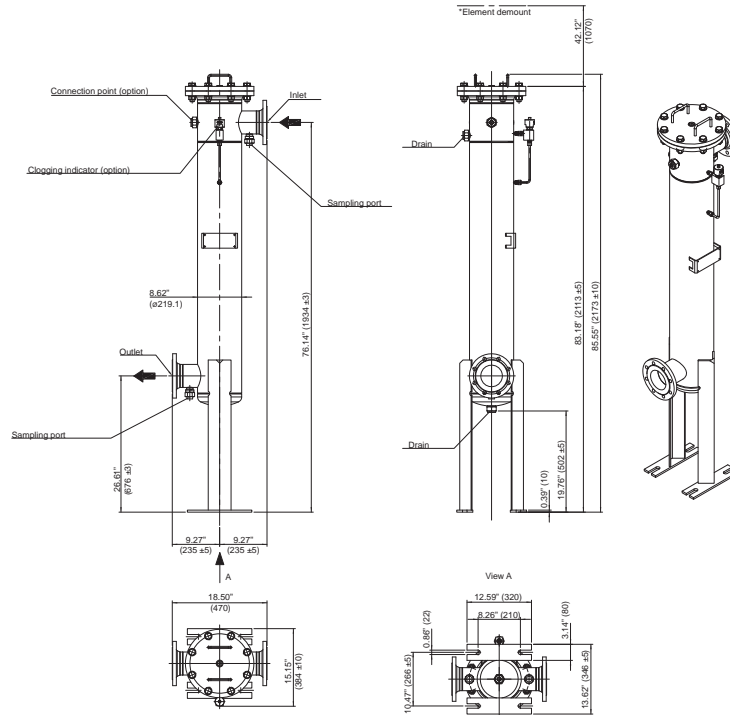
POWER GENERATION

Filter Housing Specifications

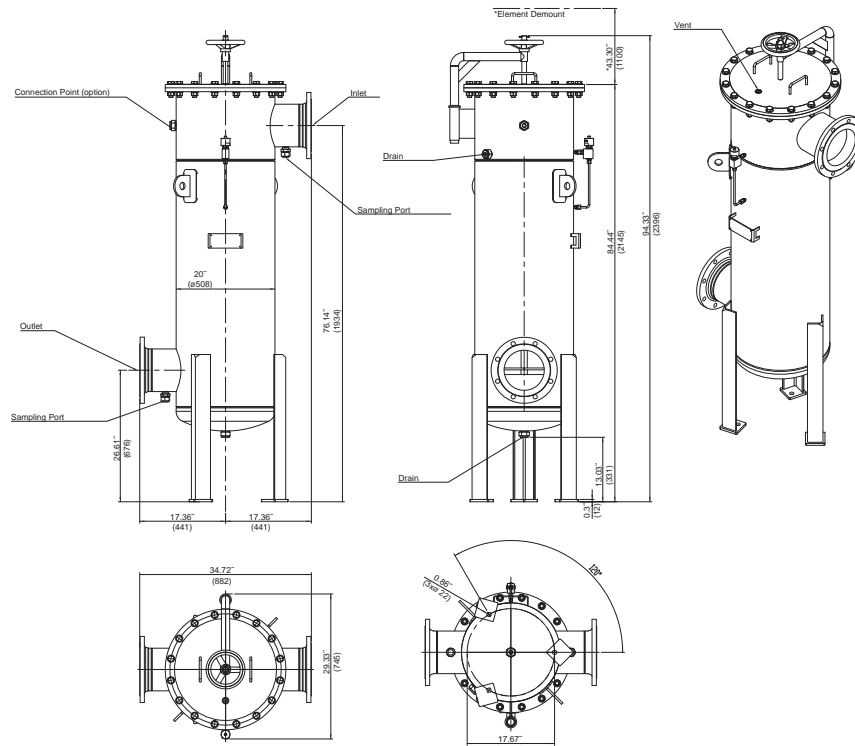
| | |
|-----------------------------|--|
| Flow Rating: | 211-951 gpm (799-3600 L/min) |
| Inlet/Outlet Connection: | ANSI 150#: 2" - 12" DIN: DN50-DN300 |
| Max. Operating Pressure: | 150 psi (10 bar) |
| Max. Ambient Temperature: | 122°F (50°C) |
| Max. Operating Temperature: | 158°F (70°C) |

Material Housing: Stainless Steel or Carbon Steel

Dimensions LVH-F1



Dimensions LVH-F8

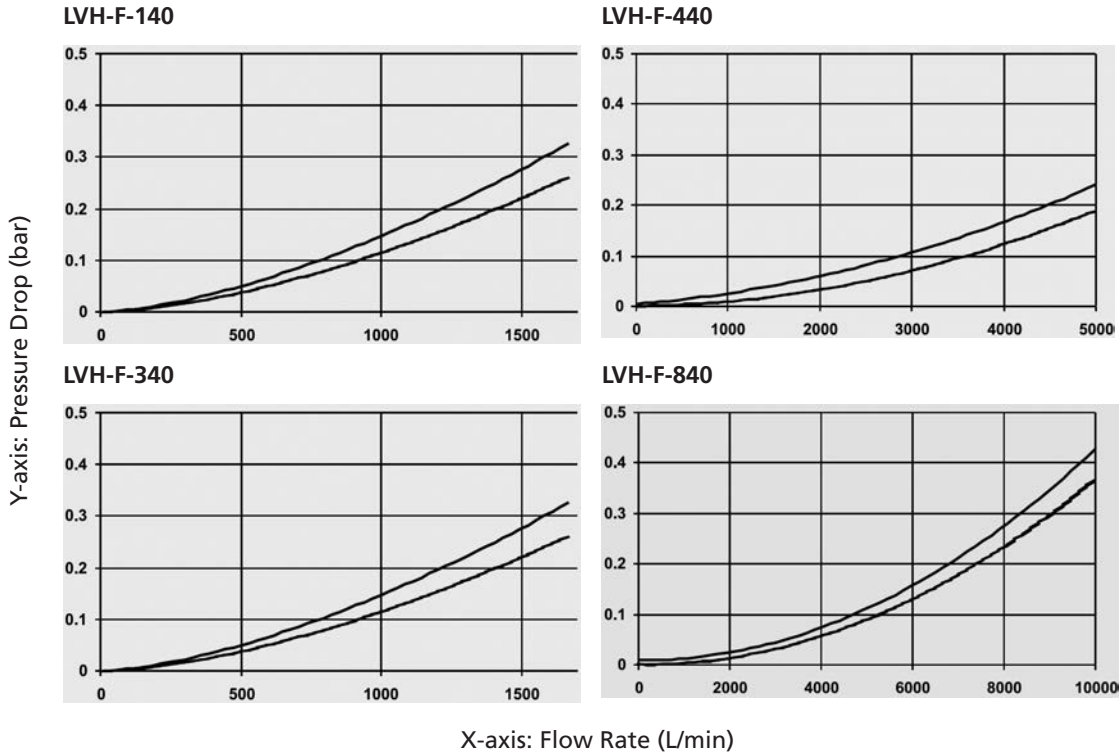


Metric dimensions in ().
Dimensions shown are inches (millimeters) for general information and overall envelope size only.
For complete dimensions please contact Schroeder Industries to request a certified print.

High Flow | Low Viscosity Housing Filter

LVHF

The lower curve applies to diesel at 20°C (the upper curve is for mineral oil with viscosity to 30 cSt for comparison).



| Filter Size (Model) | Maximum Flow Rate | Number of Filter Elements |
|---------------------|-------------------|---------------------------|
| LVH-F-1 40 | 211 gpm | 1 pc. |
| LVH-F-3 40 | 317 gpm | 3 pcs. |
| LVH-F-4 40 | 476 gpm | 4 pcs. |
| LVH-F-5 40 | 632 gpm | 5 pcs. |
| LVH-F-8 40 | 951 gpm | 8 pcs. |

| Element | Designation | Part No. |
|--------------------|-------------------|----------|
| Filter Element 40" | N42ON-DF003-FA40F | 3965085 |
| | N42ON-DF005-FA40F | 3916691 |
| | N42ON-DF010-FA40F | 4055947 |

* Contact Factory for More Details

Housing Pressure Drop Graphs (Housing ΔP)

- ICF
- BDF
- BDA
- GHPF
- GHCF
- QCF
- BDS
- BDS2
- BDS3
- BDS4
- LVH-F**

- LVH-C
- BDFC
- BDFP
- BDC
- HDP
- HDPD
- BCC

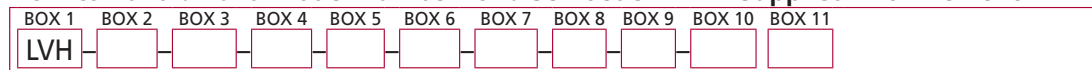
Filter Calculation

Filter Element Selection

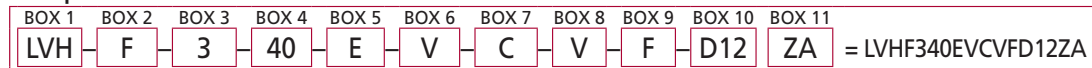
Filter elements must be ordered separately and installed before initial operation on-site

Filter Model Number Selection

How to Build a Valid Model Number for a Schroeder LVH-F Supplied with Element:



Example: NOTE:



| BOX 1 | BOX 2 | BOX 3 | BOX 4 | BOX 5 |
|----------------------|------------------|--|------------------------------|---|
| Filter Series | Functions | Filter Size | Filter Element Length | Housing Material |
| LVH | F = Filter | 1 = 1 filter element 3 = 3 filter elements 4 = 4 filter elements 5 = 5 filter elements 8 = 8 filter elements | 40 = 40" | E = Stainless Steel N = Carbon Steel |

| BOX 6 | BOX 7 | BOX 8 | BOX 9 |
|--------------------------------|--|---|----------------|
| Mounting | Pressure Range | Hydraulic Connection | Sealing |
| V = Vertical H = Horizontal | B = 150 psi (10 bar) C = 232 psi (16 bar) | 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 | F = Viton® |

For flanges not listed, contact

| BOX 10 | BOX 11 |
|--|--------------------------------|
| 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.0/ V-113) D33 = Differential pressure indicator, visual/electrical (PVL2GW.0/ 111-16) Z = Without clogging indicator | ZA = ASME Certification |

NOTES:

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

High Flow | Low Viscosity Housing Coalescer

LVHC

*Coalescing Elements Patent-Pending

Applications



Point of Use Fuel Dispensing



FLEET FILL / BULK FUEL TRANSFER



BULK FUEL UNLOADING



PROTECTION FOR HIGH-FLOW FUEL INJECTION SYSTEMS



BULK TANK KIDNEY LOOP / RECIRCULATION

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: LVHCD440NV8TFZ

Markets



INDUSTRIAL



BULK FUEL FILTRATION



MARINE



MINING TECHNOLOGY



AGRICULTURE



POWER GENERATION

211- 476 gpm ICF

799-1802 L/min BDF

150 psi BDA

10 bar GHPF
Standard

GHCF

QCF

BDS

BDS2

BDS3

BDS4

LVH-F

LVH-C

BDFC

BDFP

BDC

HDP

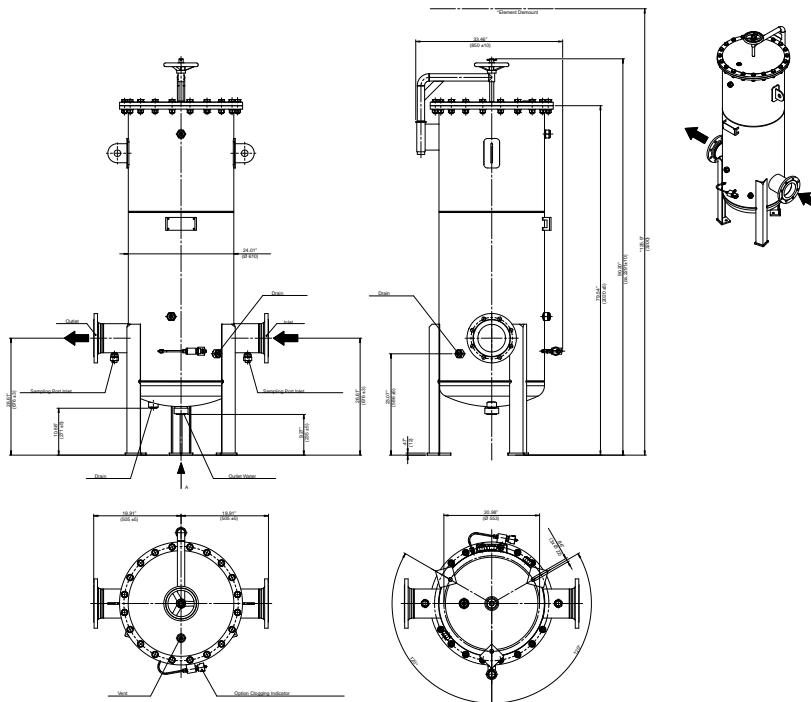
HDPD

BCC

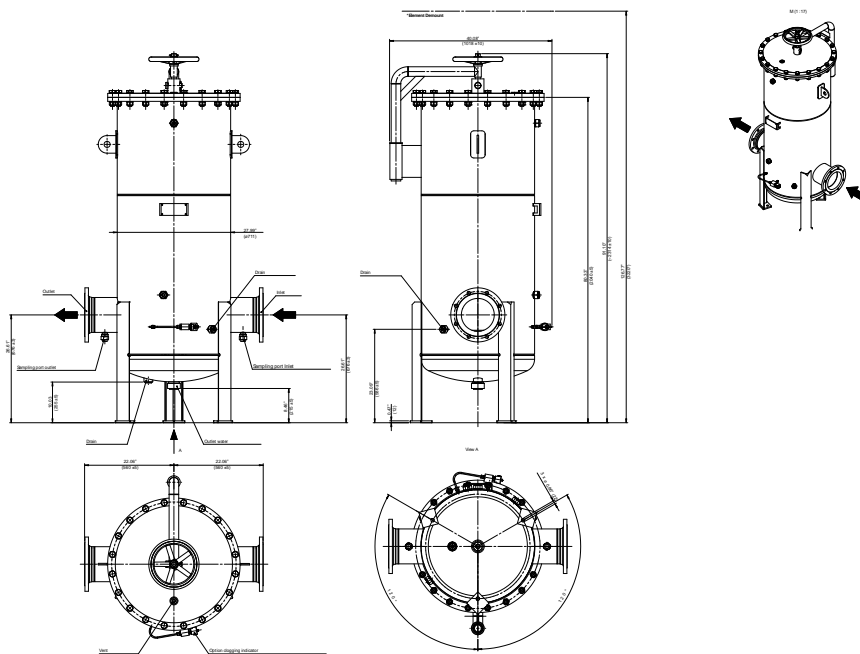
Filter Housing Specifications

| | |
|-----------------------------|--|
| 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



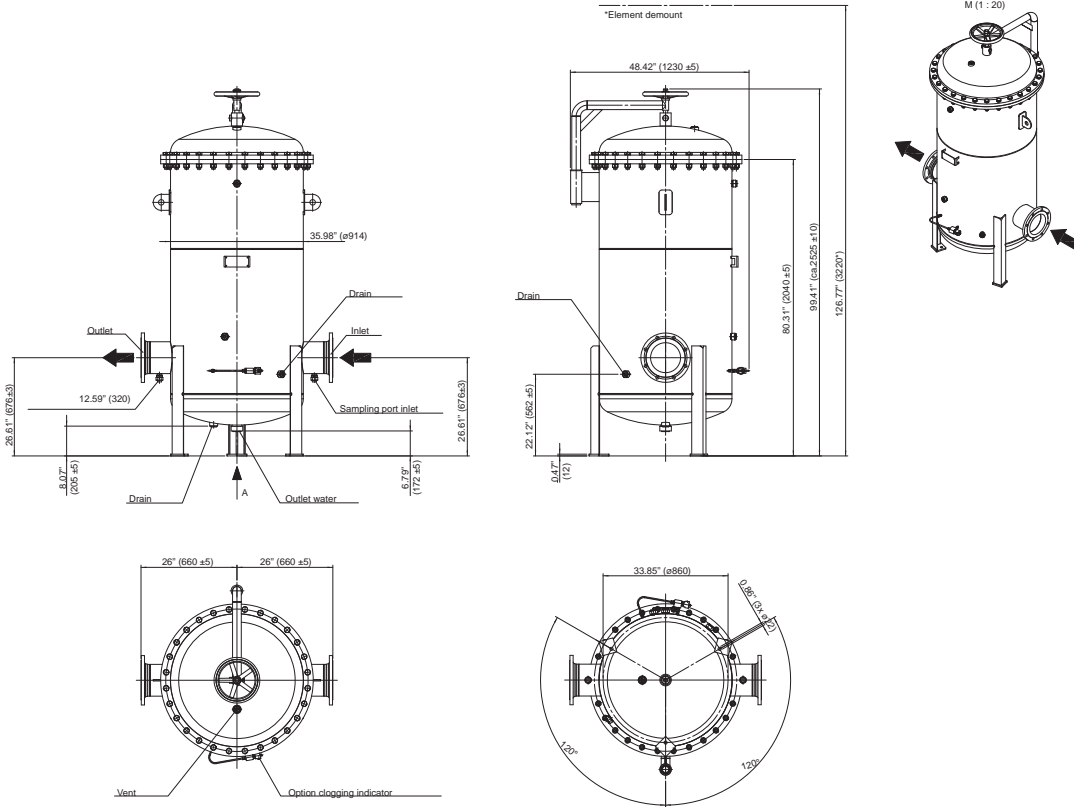
Dimensions LVH-C-D-6-40



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.

High Flow | Low Viscosity Housing Coalescer

LVHC



Dimensions
LVH-C-D-9-40

- GHPF
- GHCF
- ICF
- BDF
- BDFA
- BDA
- QCF
- BDS
- BDS2
- BDS3
- BDS4
- LVH-C**

| 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 Calculation

- BDFP
- BDFC
- BDC
- HDP
- HDPD

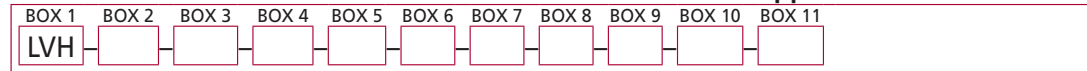
| Element | Model Code | Part No. |
|------------------------|-----------------|----------|
| Separation Element 30" | N32ON-DSZ-SA80F | 3910259 |
| Coalescing Element 40" | N42ON-DCZ-CA60F | 3910257 |

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

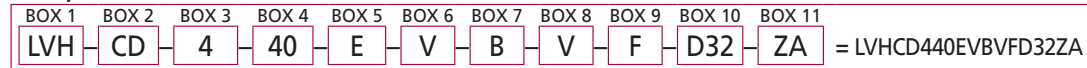
- EPM
- EPTT
- EWU
- BCC

Filter Model Number Selection

How to Build a Valid Model Number for a Schroeder LVH-C Supplied with Element:



Example: NOTE:



| | | | | |
|--|------------------------------|---|------------------------------|---|
| BOX 1 | BOX 2 | BOX 3 | BOX 4 | BOX 5 |
| Filter Series | Functions | Filter Size & Number of Elements per Housing | Filter Element Length | Housing Material |
| LVH | CD = Coalescing, Diesel Fuel | 4 = 4 coalescing & 3 separator elements 6 = 6 coalescing & 4 separator elements 9 = 9 coalescing & 6 separator elements | 40 = 40" | E = Stainless Steel N = Carbon Steel |
| BOX 6 | BOX 7 | BOX 8 | BOX 9 | |
| Mounting | Pressure Range | Hydraulic Connection | Sealing | |
| V = Vertical | B = 150 psi (10 bar) | 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 T = DIN DN 100 V = DIN DN 150 W = DIN DN 200 Y = DIN DN 300 | F = Viton® | |
| For flanges not listed, contact | | | | |
| BOX 10 | | | | BOX 11 |
| 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.0/ V-113) D33 = Differential pressure indicator, visual/electrical (PVL2GW.0/ 111-16) Z = Without clogging indicator | | | | ZA = ASME Certification |

NOTES:

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