

## 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:  
BDS239QPMLZ3VD5

## Markets



INDUSTRIAL



MOBILE  
VEHICLES



MARINE



MINING  
TECHNOLOGY



AGRICULTURE



POWER  
GENERATION



COMMON RAIL  
INJECTOR SYSTEMS



FLEET



RAILROAD



BULK FUEL  
FILTRATION

**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

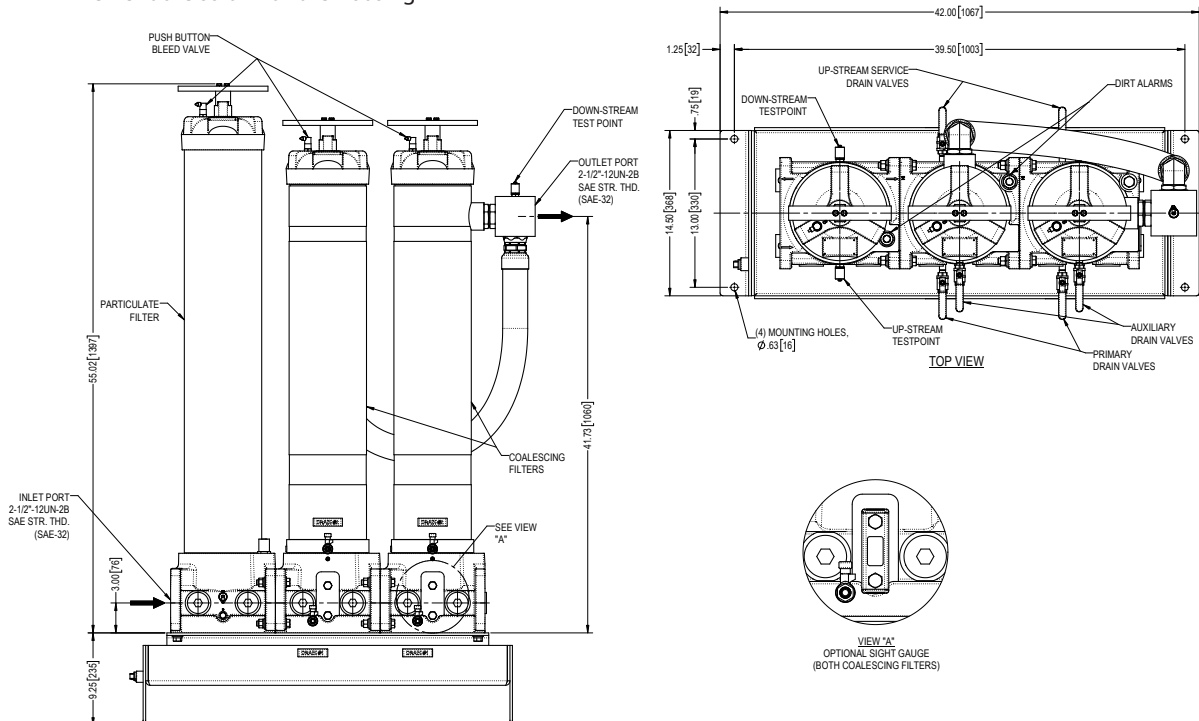
BCC

# 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: (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  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

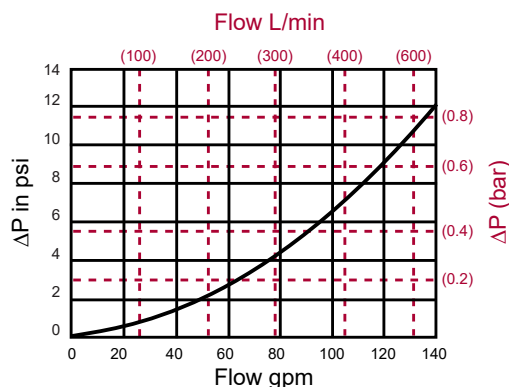
Flow Direction: Outside In  
Element Nominal Dimensions: 6.0" (150 mm) O.D. x 37.80" (960 mm) long

#### Coalescing Element

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

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

BDS  $\Delta P_{\text{housing}}$  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.  $\Delta P$  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  $\Delta P$  at 140 gpm (530 L/min) for BDS239QPMLZ3VD5

#### Solution:

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

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

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

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

## Element Particulate Performance Information

## Element Coalescing Performance Information

Highlighted product eligible for **QuickDelivery** **BDS2**

## 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:

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

Example: NOTE: One option per box

BOX 1	BOX 2	BOX 3	BOX 4	BOX 5	BOX 6
BDS	2	39QPMLZ3	V	D5	

= BDS239QPMLZ3VD5

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 &gt;32° F (0°C)

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

Element  
Part Number  
SelectionHighlighted  
product eligible for  
**QuickDelivery**

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	≥ 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