Bulk Diesel Multi-Skid

BDS2

**Coalescing Elements Patent-Pending*

70-140 gpm
248-530 L/min
100 psi
7 bar

Applications


POINT OF USE FUEL DISPENSING


FLEET FILL / BULK FUEL TRANSFER

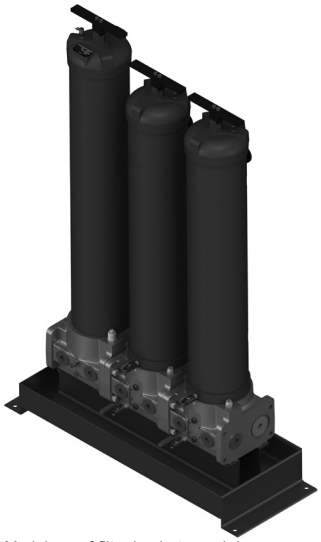

BULK FUEL UNLOADING


PROTECTION FOR HIGH-FLOW FUEL INJECTION SYSTEMS


BULK TANK KIDNEY LOOP / RECIRCULATION

Features and Benefits

- 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:
BDS239QPMLZ3VVM

Markets


INDUSTRIAL


MOBILE VEHICLES


MARINE


MINING TECHNOLOGY


AGRICULTURE


POWER GENERATION


COMMON RAIL INJECTOR SYSTEMS


FLEET


RAILROAD


BULK FUEL FILTRATION

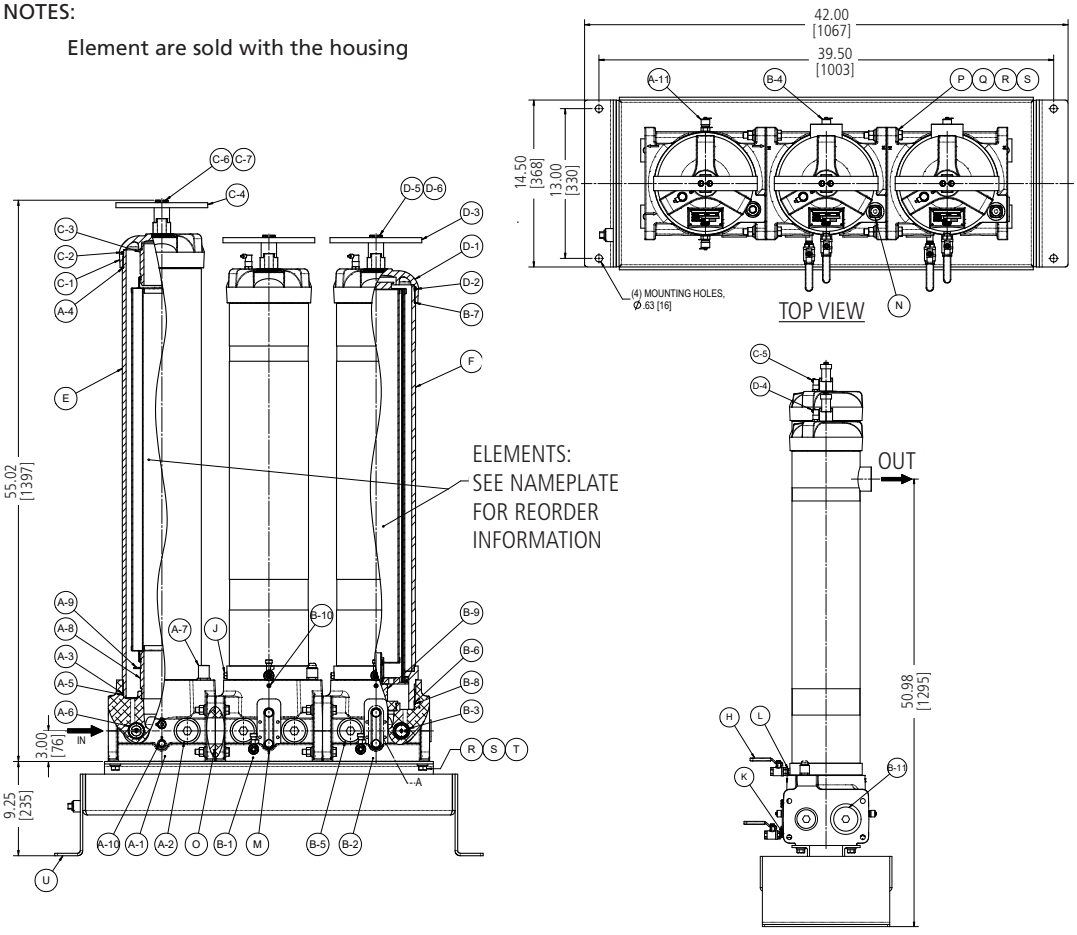
BDS2 Bulk Diesel Multi-Skid

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:	100 psi (7 bar)	
Min. Yield Pressure:	400 psi (27.6 bar) without sight gauge Contact factory for yield pressure rating with sight gauge	
Rated Fatigue Pressure:	Contact Factory	
Temperature range:	-20°F to 165°F (-29°C to 74°C) sump heater option 32°F to 165°F (0°C to 74°C) standard or AWD option	
Bypass Indication: (Lower indication options available)	Particulate Filter Particulate: 15 psi (1.03 bar)	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:	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.

Element Particulate Performance Information

Filtration Ratio per ISO 16889
Using APC calibrated per ISO 11171

Particulate Elements	DHC	β_x (c) ≥ 200	β_x (c) ≥ 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

Element Coalescing Performance Information
Elements Sold with Housing

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

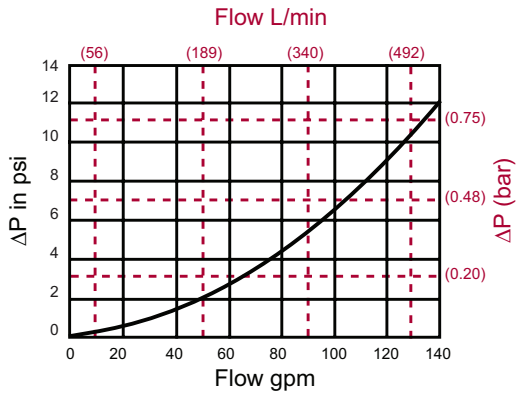
Coalescing Element
Flow Direction: Inside Out
Element Nominal Dimensions: 6.4" (163 mm) O.D. x 39.4" (1001 mm) long

Highlighted product eligible for QuickDelivery BDS2

Pressure Drop Information
Based on Flow Rate and Viscosity

$\Delta P_{housing}$

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



sp gr = specific gravity

$\Delta P_{element}$

$\Delta P_{element}$ = flow x element ΔP factor x viscosity factor

El. ΔP factors @ 37 SUS (3 cSt).

C396Z5V = .17

39QPMLZ1V = .01

39QPMLZ3V = .01

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

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

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

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

Solution:

$\Delta P_{housing}$ = 3.0 psi = [0.21 bar]

$\Delta P_{element\ (39QPML)}$ = 70 x 0.01 = 0.7 psi [.05 bar]

$\Delta P_{element\ (C396)}$ = 70 x 0.17 = 11.9 psi [.82 bar]

ΔP_{total} = 3.0 + 0.7 + 11.9 = 15.6 psi [1.07 bar]

Notes

BDS2 Bulk Diesel Multi-Skid

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	VM		**= BDS239QPMLZ3VVM**

BOX 1

Filter Series
BDS

BOX 2

No. of Coalescing Filters
2 = 140gpm

BOX 3

Particulate Filter Micron Rating
39QPMLZ1 = 1µm
39QPMLZ3 = 3µm

BOX 4

Housing Seal Material
V = Viton®

BOX 5

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

BOX 6

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

NOTES:

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

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

Element Part Number Selection

Highlighted product eligible for QuickDelivery

Particulate Elements	DHC	Filtration Ratio per ISO 16889 Using APC calibrated per ISO 11171 β_x (c) ≥ 200	β_x (c) ≥ 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