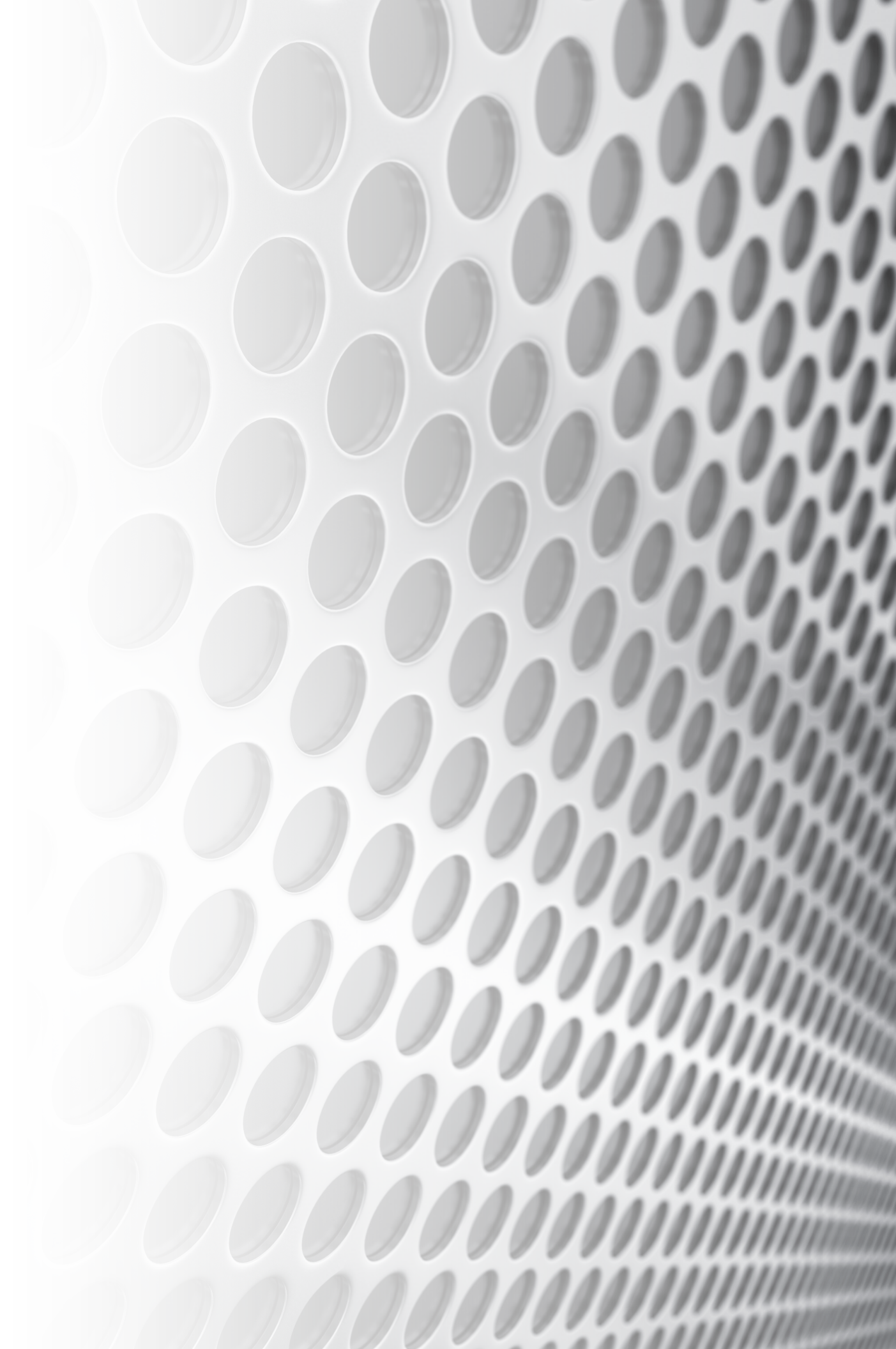


Section 3:

ON-BOARD DIESEL FILTRATION



On-Board Diesel Fuel Filtration

Why is On-Board Diesel Filtration Required?

Mobile machines and commercial vehicles are subject to the toughest working conditions all over the world. To ensure smooth running vehicles and to protect both the engine and the whole drive system from damage, optimum diesel fuel conditioning is particularly important. With its HDP On-Board diesel coalescing/particulate filter, Schroeder offers a modern system for diesel filtration which protects vehicle manufacturers and operators from failures, breakdowns and expensive service interventions. Our solution "Schroeder HDP On-Board Filter," is a cartridge filter system available in two versions: automatic drain (HDP-HT) and manual drain (HDP-BC).

Schroeder's HDP on-board Diesel Coalescing Filters provide the industry's best engine fuel filtration to ensure that your injectors never see poor quality fuel, and you never see the bill for expensive engine failures. All of Schroeder's fuel filters are compatible up to B100.

In addition, all Tier 4 diesel engines (on- or off-road) now require a fuel cleanliness level of 12/9/6 at injector or better. This equates to a 3-micron filtration level or smaller, with a beta rating of >1000. Today's typical Spin-on type, on-board fuel filters were not designed to filter to this level. Schroeder Fuel Filtration On-board diesel coalescing/particulate filters provide this level of filtration.

With all of the various additives and biodiesel now added to ULSD 15 diesel fuel to regain lubricity, compensate for seasonal differences, minimize microbial growth, and prevent gelling, additional filter clogging problems have arisen compared to fuels used in the past.

Filter clogging leads to reduced power or complete breakdown due to filters being run in bypass mode (no filtration). This can lead to common-rail fuel injector failure which will cost in the thousands of dollars to fix. The use of Schroeder's HDP filters is imperative to remove all of the clogging elements.

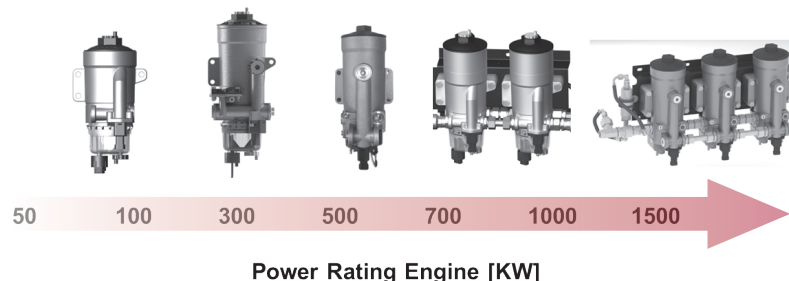
The Schroeder HDP On-Board Filter's product benefits are:

- Low investment costs due to cost-optimized design.
- Small installation space required, since lower section of filter does not have to be accessible
- Great flexibility with regard to installation position since inlet and outlet can be in either direction
- Consistent dewatering over the entire life of the filter element since water is separated on the clean side
- Robust design thanks to aluminum housing.
- Economical and technically reliable operation as a result of long element service life
- High Tech design: Reliable dewatering thanks to automatic water discharge, even during suction side operation
- Simple adaptation to the on-board power supply through the use of independently controlled water discharge
- Low residues of diesel left in the filter element in the event of service
- Reliable radial seal with captive seal design
- Visual analysis of the contamination possible (Rust, metallic swarf, unusual deposits, which require further investigation)
- Water sensor and fuel preheating available as options

The Schroeder HDP On-Board Filter results in reliable machine availability:

- From first-class contamination retention
- Due to highly effective and stable water separation on the clean-side for the entire life of the filter element
- Life-long efficiency, because at element change, the water separation stage is also replaced at the same time
- Due to the excellent water separation (achieved by using first class materials) of >95 % to ISO/CD 16332

Engine Sizes vs. HDP On-Board Filter Solutions



Applications



INDUSTRIAL



MOBILE VEHICLES



MARINE



AGRICULTURE



BULK FUEL FILTRATION

Application Introduction:

The Reason for Better Engine Filtration

Mobile machines and commercial vehicles are subject to the toughest working conditions. To ensure smooth operation of vehicles, and to protect both the engine and exhaust aftertreatment from damage, optimum diesel fuel conditioning is particularly important. The new HDP 240 BC expands the Schroeder Industries product portfolio in the field of fuel filtration on modern diesel engines. While formerly a flow volume from 90 to 476 gph (340 to 1800 lph) has been covered, this new product complements the lower engine power range with fuel system flow rates up to 63 gph (240 lph).

Features and Benefits

- Our new 63 gph fuel filter is designed with compact off-highway equipment in mind
- Our high performance, dual function diesel filtration and water separation uses the same two-stage element design found in our larger filters
- Dual function: Diesel filtration and water separation through the two-stage element designs
- High performance stability due to an efficient water separation on clean side over the entire service life
- Simple and fast element replacement makes servicing the HDP 240 easy
- Easy installation and flexibility due to various porting configurations options
- Guaranteed quality as the filter can only be operated with use of quality replacement elements
- Modular porting, priming pump, and heater options make for easy installation and servicing in tight spaces



Part of the Schroeder Industries 2030 Initiative



Model No.: HDP KF1 240 BC1 xx W
1.1 /-AS16-H3L-PH4R-DLO-TR



Model No.: HDP KF1 240 BC1 xx W
1.1 /-AS16-PH4L-DOO

Options Available

- Transparent or black bowl
- Fuel pre-heater
- Water-in-fuel sensor (necessary with black bowl)
- Hand priming pump
- Various Inlet/Outlet port configuration options (consult factory for special requests)

up to **63 gph**^{ICF}
up to **240 lph**^{IDF}

<14.5 psia^{BDA}

<1 bar absolute^{GHFF}

Suction Side Application

GHCF

QCF

BDS

BDS2

BDS3

BDS4

LVH-F

LVH-C

BDFC

BDFP

BDC

HDP 240

HDP 240

HDPD

BCC

Filter Housing Specifications

Flow Rating: up to 63 gph (up to 240 lph)

Operating Pressure: <14.5 psia, (<1 bar absolute) suction side application

Temperature Range: -40°F to 194°F (-40°C to 90°C)

Nominal Voltage: WIF: 12/24VDC
Heater: 12VDC

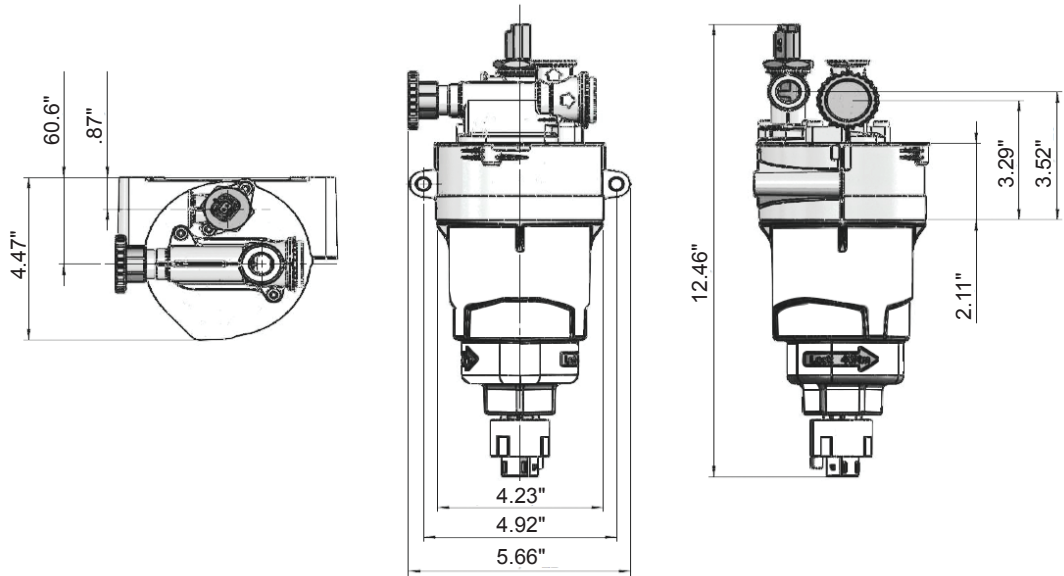
Fuel Preheater Rated Power: 175W

Weight of incl. Element: 240 BC: approx. 2.7 lbs (1.2 kg.)

Water Separation Efficiency: >95% to ISO CD 16332

Porting Thread: M16 x 1.5
SAE-06 J1926 ORB

HDP KF1
240 BC1



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 Model Number Selection

Highlighted product eligible for **QuickDelivery**

How to Build a Valid Model Number for a Schroeder HDP Housing Supplied w/ Element:

BOX 1	BOX 2	BOX 3	BOX 4	BOX 5	BOX 6	BOX 7	BOX 8	BOX 9	BOX 10	BOX 11	BOX 12		
HDP							.	/-					= HDP KF1 240 BC1 7 W 1.X /-DLO-TR

Example: NOTE: Only box 9 may contain more than one option

BOX 1	BOX 2	BOX 3	BOX 4	BOX 5	BOX 6	BOX 7	BOX 8	BOX 9	BOX 10	BOX 11	BOX 12		
HDP	KF1	240	BC1	7	W	1	.	X	/-	DLO	-	TR	= HDP KF1 240 BC1 7 W 1.X /-DLO-TR

BOX 1 Filter Series HDP	BOX 2 Filter Material KF1 = Dieselmicon®	BOX 3 Size 240 = 63 gph	BOX 4 Evolution Stage BC1 = Manual Drain Configuration	BOX 5 Filtration Rating 7 = 7 µm
BOX 6 Type of Clogging Indicator W = No clogging indicator	BOX 7 Type Code 1	BOX 8 Modification Number X = Latest version number always supplied	BOX 9 Options AS16 = WIF sensor w/ integral drain Cummins-Ready w/ sensor WIF w/ integral drain AS17 = sensor WIF w/ integral drain PH4R = Hand priming pump, right handed operation H3L = Integrated fuel pre-heater (12 VDC) Left inlet port orientation	
BOX 10 Port Orientation DOO = Inlet top, outlet top DLO = Inlet left, outlet top	BOX 11 Bowl Option Omit = Black TR = Transparent	BOX 12 Port Size Omit = M16 x 1.5 6 = SAE-06 J1926 ORB		

NOTES:

For other options, including the ones listed below, contact factory:

- Porting orientation not listed in model code builder
- SAE J1926 ORB or SAE J2044 Quick Connect Porting
- Cummins® ready Water-in-Fuel (WIF) sensor options
- Other OEM-ready Water-in-Fuel (WIF) sensor options

On-Board Diesel Fuel Coalescing Filter

HDP

Applications



INDUSTRIAL



MOBILE VEHICLES



MARINE



AGRICULTURE



BULK FUEL FILTRATION

up to **476 gph**^{CF}
up to **1800 lph**^F

14.5 psia BDA
1 bar absolute GHFF
Suction Side Application

GHCF

QCF

BDS

BDS2

BDS3

BDS4

LVH-F

LVH-C

BDFC

BDFP

BDC

HDP 240

HDP

HDPD

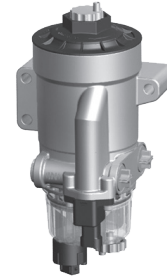
BCC

Filter Housing Specifications

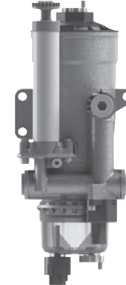
Application Introduction:

The Reason for Better Engine Filtration

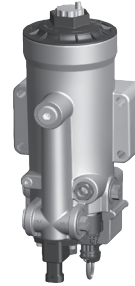
Mobile machines and commercial vehicles are subject to the toughest working conditions. To ensure smooth running of vehicles, and to protect both the engine and the drive system from damage, optimum diesel fuel conditioning is particularly important. Schroeder Fuel Filtration On-Board Diesel Coalescing filter offers a modern cartridge filter system design available in two configurations, in order to protect equipment operators from failures, breakdowns and expensive service interventions



Model No. of filter in photograph is:
HDP KF1 340 BC1 XX W 1.1 /-AS1-H2



Model No. of filter in photograph is:
HDP KF1 600 BC1 XX W 1.1 /-AS1-H2



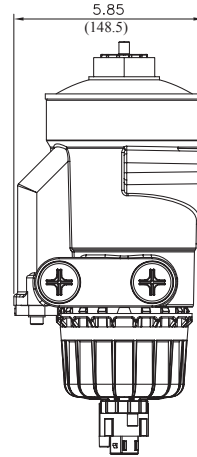
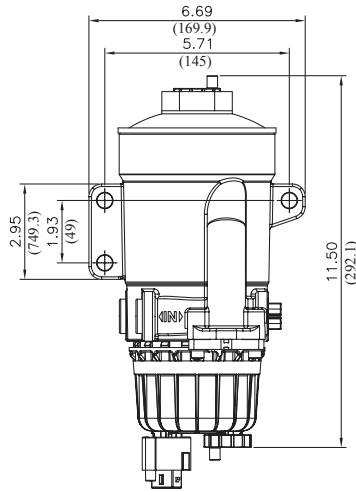
Model No. of filter in photograph is:
HDP KF1 600 HT1 XX A 1.1 /-AS1-H2

Features and Benefits

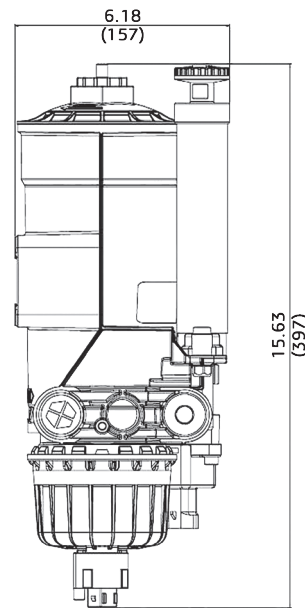
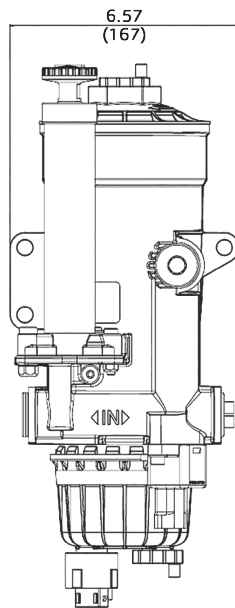
- Manual or Fully Automatic water drain
- Optional fuel pre-heater and Water-In-Fuel (WIF) sensor
- Small envelope size offers greater flexibility in mounting locations
- Low investment cost due to the economical design
- Long service life of the element yields low operating costs
- Easy installation due to various porting configurations
- Easy adaption to the on-board power supply
- Unsurpassed water removal for ULSD

Flow Rating:	up to 476 gph (up to 1800 lph)
Operating Pressure:	<14.5 psia, (<1 bar absolute) suction side application
Temperature Range:	BC: -40°F to 194°F (-40°C to 90°C) HT: -4°F to 194°F (-20°C to 90°C) *for extended ranges, contact factory
Nominal Voltage:	24V DC (12V DC is optional for heater or water sensor)
Rated Power Fuel Preheating:	300W
Weight of incl. Element:	340 BC: 5.1 lbs (2.3 kg) 600 BC: 6.8 lbs (3.1 kg) 600 HT: 9.4 lbs (4.25 kg) *other models available upon request
Water Separation Efficiency:	>95% to ISO CD 16332
Porting Thread:	340 BC: M22x1.5 600 BC: M27x2.0, SAE -12 ORB (optional) 600 HT: G 3/4" (BSPP)

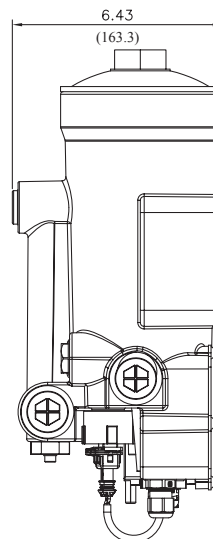
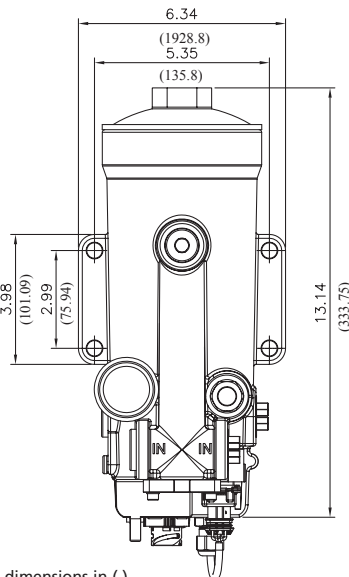
HDP KF1 340 BC1 - Manual Water Drain Version



HDP KF1 600 BC1 - Manual Water Drain Version



HDP KF1 600 HT1 - Automatic Water Drain Version



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.

On-Board Diesel Fuel Coalescing Filter



Particulate Element	Filtration Ratio Per ISO 19438	Dirt Retention Per ISO 19438
	n > 10 µm (c)	to DP
10 µm	> 99%	300 mbar m > 42g

Coalescing Element	Suction Side Coalescing Per ISO CD 16332	
	Max Flow	Single Pass Water Removal Efficiency
10 µm	158 gal/h	> 95%

Flow Direction: Outside In
 Element Nominal Dimensions: 3.8" (95.6 mm) O.D. x 7.0" (177.2 mm) long - 340 Size
 3.8" (95.6 mm) O.D. x 9.4" (238.2 mm) long - 600 Size

Note: For additional HDP performance information, please contact the factory

Fuel Oils

- ULSD15 and similar petroleum diesels
- Biodiesel blends
- Synthetic diesel and blends

Note: For Flow and Pressure information, please contact the factory

Size	Evolution Stage	Filtration Rating	Filter Material
0340	BC1	7 = 7 µm	KF1
0600	HT1	10 = 10 µm	
		30 = 30 µm	

Element Performance Information

Element Water Coalescing Performance Information

Note: Based on Diesel Fuel Type A, Water Concentration: 1500 ppm

Fluid Compatibility

Replacement Elements

Highlighted product eligible for QuickDelivery

Filter Model Number Selection

Highlighted product eligible for **QuickDelivery**

How to Build a Valid Model Number for a Schroeder HDP Housing Supplied w/ Element:

BOX 1	BOX 2	BOX 3	BOX 4	BOX 5	BOX 6	BOX 7	BOX 8	BOX 9
HDP								/-

Example: NOTE: Only box 9 may contain more than one option

BOX 1	BOX 2	BOX 3	BOX 4	BOX 5	BOX 6	BOX 7	BOX 8	BOX 9
HDP	KF1	600	BC1	10	W	1	X	/-

= HDP KF1 600 BC1 10 W 1.X

BOX 1	BOX 2	BOX 3	BOX 4	BOX 5
Filter Series	Filter Material	Size	Evolution Stage	Filtration Rating
HDP	KF1 = Dieselmicon®	340 = 90 gph 600 = 160 gph 1200 = 317 gph 1800 = 476 gph	BC1 = Manual Drain Configuration HT1 = Auto Drain Configuration	7 = 7 µm 10 = 10 µm 30 = 30 µm

BOX 6	BOX 7	BOX 8	BOX 9
Type of Clogging Indicator	Type Code	Modification Number	Options
W = no clogging indicator (340 & 600 BC only) A = blanking plug in indicator port (600 HT only) UED = vacuum gauge (600 HT only)	1	X = latest version number always supplied	Omit = None AS1 = w/ integrated water sensor (12/24 VDC) *standard on 600 HT H1 = w/integrated fuel pre-heating (12 VDC) H2 = w/ integrated fuel pre-heating (24 VDC) PH3 = Hand priming pump (600 BC only) PE1 = Integral Electric Pump 12 VDC (600 BC only) PE2 = Integral Electric Pump 24 VDC (600 BC only)

NOTES:

For other options or configurations not listed, please contact factory

Heavy-Duty Diesel PreCare Duplex Filter

HDPD

Applications



INDUSTRIAL



MOBILE VEHICLES



MARINE



AGRICULTURE

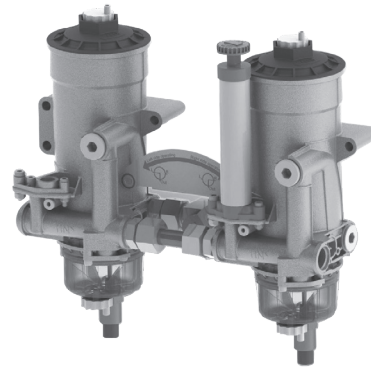


BULK FUEL FILTRATION

Application Introduction:

The Reason for Better Engine Filtration

The Heavy-Duty Diesel PreCare Duplex Filter is an advanced system for diesel pre-filtration which protects equipment OEMs and operators from costly service calls and downtime. The duplex configuration consists of an assembly with multiple filter housings, which are connected by a change-over ball valve with a simple, single lever operation. The HDPD is available in the familiar BC (manual drain) or HT (auto drain) version.



Model No. of filter in photograph is:
HDPD KF1 600 BC1 xx W 1.1 /-AS1-PH3

Features and Benefits

- Simple, single-lever change-over ball valve for seamless operation and service
- Manual or fully automatic Water-In-Fuel (WIF) sensor
- Optional fuel pre-heater and water sensor
- Small envelope size offers greater flexibility in mounting locations
- Low investment cost due to the economical design
- Long service life of the element yields low operating costs
- Easy installation due to various porting configurations
- Easy adaption to the on-board power supply
- Unsurpassed water removal for ULSD

Flow Rating: up to 476 gph (up to 1800 lph)

Operating Pressure: 14.5 psia, (<1 bar absolute) suction side application

Temperature Range: BC: -40°F to 194°F (-40°C to 90°C)
HT: -4°F to 194°F (-20°C to 90°C)
*for extended ranges, contact factory

Nominal Voltage: 24V DC (12V DC is optional for heater or water sensor)

Rated Power Fuel Preheating: 300W

Weight: contact factory for your specific model code weight

Water Separation Efficiency: >95% to ISO CD 16332

Porting Thread: 340 BC: M22x1.5
600 BC: M27x2.0, SAE - 12 ORB (optional)
600 HT: G 3/4" (BSPP)

up to **476 gph**
up to **1800 lph**

14.5 psia BDA
1 bar absolute GHFF
Suction Side Application

GHCF

QCF

BDS

BDS2

BDS3

BDS4

LVH-F

LVH-C

BDFC

BDFP

BDC

HDP 240

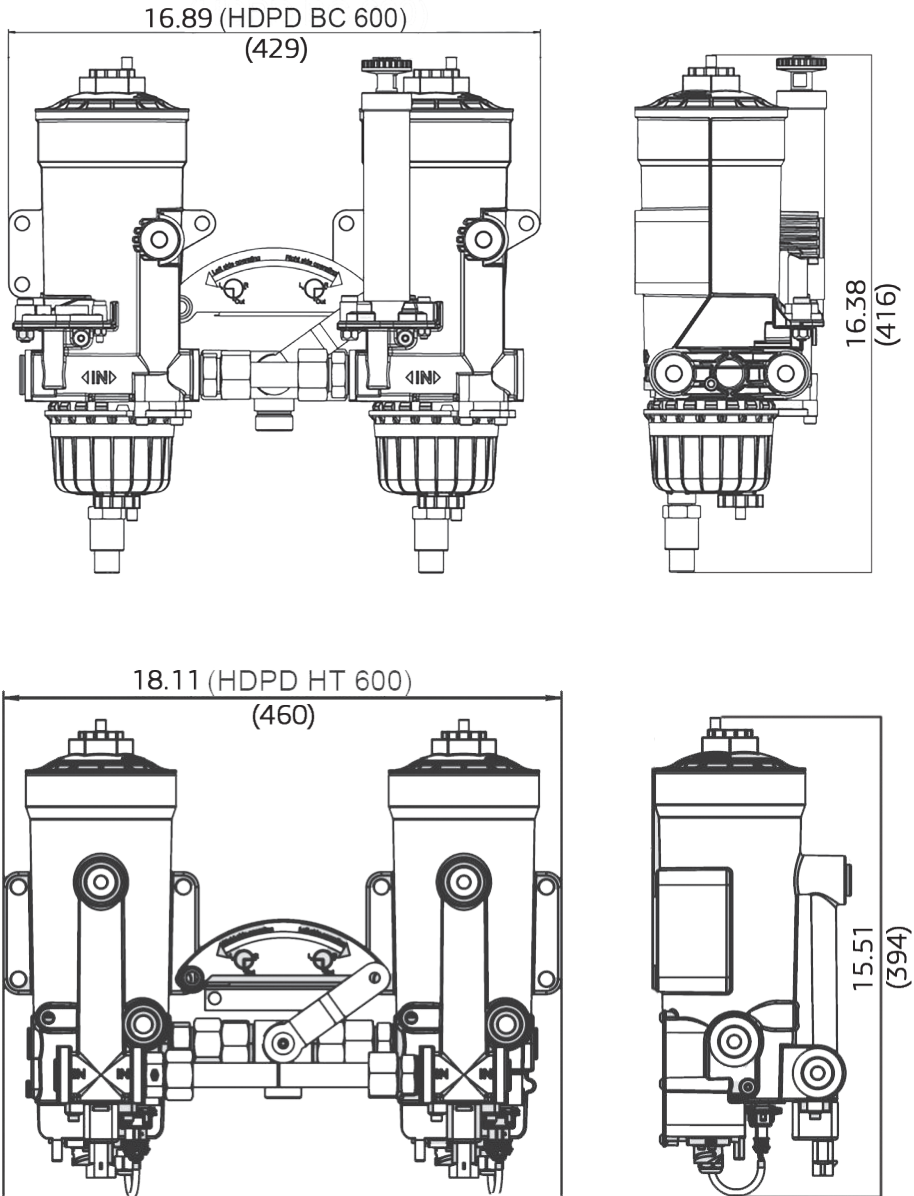
HDP

HDPD

BCC

Filter Housing Specifications

Heavy Duty Diesel PreCare Duplex Filter



Metric dimensions in (). Installation instructions included on element
 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.

Note: for dimensions of other configurations, please contact the factory

Note: for marine applications requiring filter housings constructed of ductile iron, please contact the factory

Heavy-Duty Diesel PreCare Duplex Filter

HDPD

Particulate Element	Filtration Ratio Per ISO 19438	
	n > 10 µm (c)	Dirt Retention Per ISO 19438 to DP
10 µm	> 99%	300 mbar m > 42g

Coalescing Element	Suction Side Coalescing Per ISO CD 16332	
	Max Flow	Single Pass Water Removal Efficiency
10 µm	158 gal/h	> 95%

Flow Direction: Outside In
 Element Nominal Dimensions: 3.8" (95.6 mm) O.D. x 7.0" (177.2 mm) long - 340 Size
 3.8" (95.6 mm) O.D. x 9.4" (238.2 mm) long - 600 Size

Note: For additional HDP performance information, please contact the factory

Fuel Oils

- ULSD15 and similar petroleum diesels
- Biodiesel blends
- Synthetic diesel and blends

Note: For Flow and Pressure information, please contact the factory

Size	Evolution Stage	Filtration Rating	Filter Material
0340	BC1	7 = 7 µm	KF1
0600	HT1	10 = 10 µm	
		30 = 30 µm	

Element Particulate Performance Information

Element Water Coalescing Performance Information

Note: Based on Diesel Fuel Type A, Water Concentration: 1500 ppm

Fluid Compatibility

Replacement Elements

Highlighted product eligible for **QuickDelivery**

Heavy Duty Diesel PreCare Duplex Filter

Filter Model Number Selection

How to Build a Valid Model Number for a Schroeder HDPD Housing Supplied w/ Element:

BOX 1	BOX 2	BOX 3	BOX 4	BOX 5	BOX 6	BOX 7	BOX 8	BOX 9
HDPD							.	/-

Example: NOTE: Only box 9 may contain more than one option

BOX 1	BOX 2	BOX 3	BOX 4	BOX 5	BOX 6	BOX 7	BOX 8	BOX 9	
HDPD	KF1	600	HT1	10	A	1	.	X	/-
									= HDPD KF1 600 HT1 10 A 1.X /-AS1

BOX 1	BOX 2	BOX 3	BOX 4	BOX 5
Filter Series	Filter Material	Size	Evolution Stage	Filtration Rating
HDPD	KF1 = Dieselmicron®	340 = 90 gph 600 = 160 gph 1200 = 317 gph 1800 = 476 gph	BC1 = Manual Drain Configuration HT1 = Auto Drain Configuration	7 = 7 µm 10 = 10 µm 30 = 30 µm

BOX 6	BOX 7	BOX 8	BOX 9
Type of Clogging Indicator	Type Code	Modification Number	Options
W = no clogging indicator (340 & 600 BC only) A = blanking plug in indicator port (600 HT only) UED = vacuum gauge (600 HT only)	1	X = latest version number always supplied	AS1 = w/ integrated water sensor (12/24 VDC) *standard on 600 HT H1 = w/integrated fuel pre-heating (12 VDC) H2 = w/ integrated fuel pre-heating (24 VDC) PH3 = Hand priming pump (600 BC only) Omit = None

NOTES:

The HDPD will have the number of housings needed to support the flow rate specified on each side (ex. HDPD 1200 = 2x HDP 600 left side & 2x HDP 600 right side)