ICF In-Line Fuel Coalescing Filter

*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 3 and Tier 4 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
- 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 by-pass of filter for advanced time for maintenance
- In application >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

Model no. of filter in photograph is: ICFVP24LEP

Markets


INDUSTRIAL


MOBILE VEHICLES


MARINE


MINING TECHNOLOGY


AGRICULTURE


POWER GENERATION


COMMON RAIL INJECTOR SYSTEMS


FLEET


RAILROAD

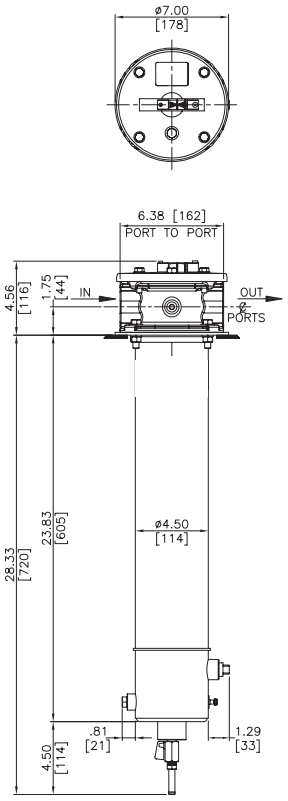

BULK FUEL FILTRATION

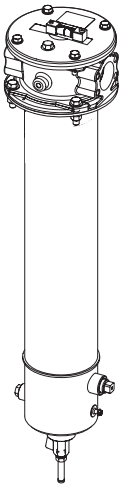
In-Line Fuel Coalescing Filter ICF

Filter Housing Specifications

Flow Rating:	Up to 16 gpm (60 L/min) for ULSD15
Inlet/Outlet Connection:	1 ½" NPTF Standard, SAE J1926 -16 (ORB) 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: Element Bowl:	Aluminum - Coating Option see Box 7 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

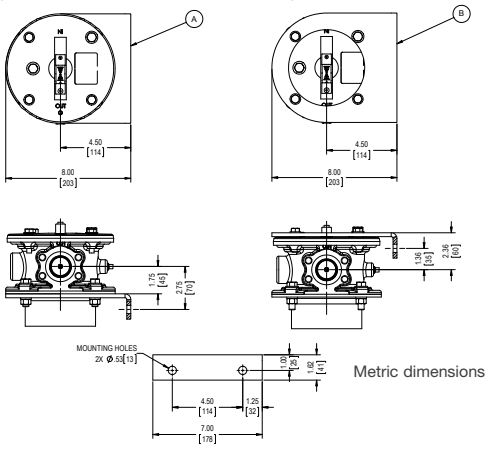




Optional Brackets:

Element top loading
Option 'B'

Element bottom loading
Option 'R'



Metric dimensions in ( ).

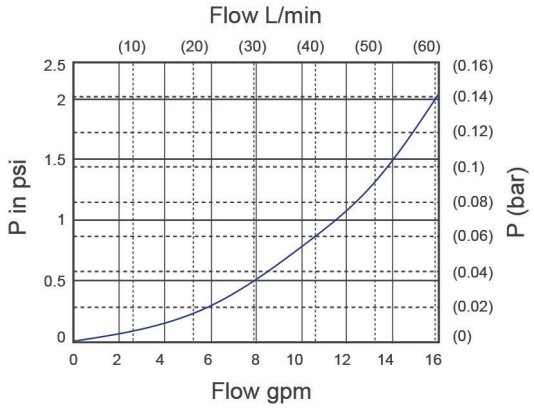
MOUNTING BRACKET HOLE DIMENSIONS

ICF In-Line Fuel Coalescing Filter

Pressure Drop Information
Based on Flow Rate and Viscosity

$\Delta P_{housing}$

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



$\Delta P_{element}$

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

Notes

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

Exercise: Determine ΔP at 16 gpm (60 L/min) for ICFVP24LEP

Solution:

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

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

ΔP_{total} = 2.05 + 3.2 = 5.25 psi [0.36 bar]

Filter Element Selection Coalescing Element Performance Information
Elements Sold Separately

Coalescing Element	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

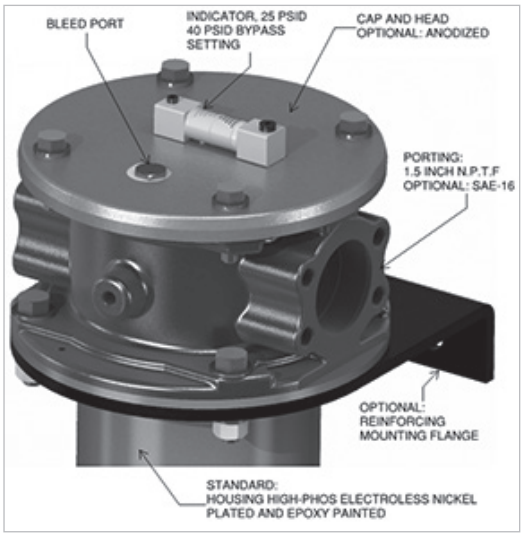
Flow Direction: Inside Out

Element Nominal Dimensions: 4.0” (102 mm) O.D. x 18.5” (470 mm) long
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.

In-Line Fuel Coalescing Filter ICF

Filter Cap Assembly

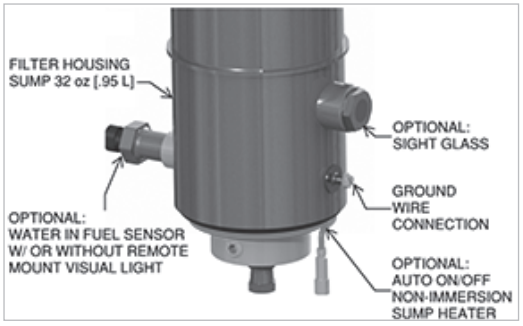


Available Options

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



Panel & Control for Automatic Drain with Safety Features

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)

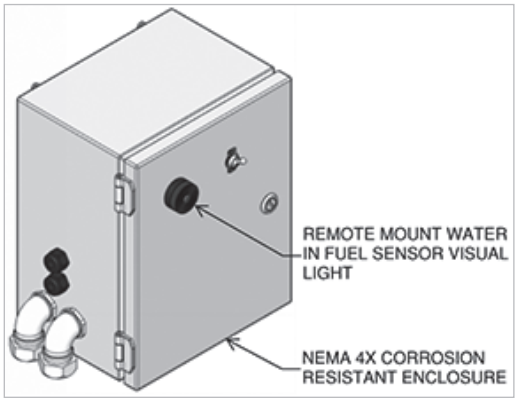
Automatic Water Drain Control Panel dimension:
10" W x 8" H x 12" D
(254 W x 203.20 H x 304.80 D)
*For use above 32°F (0°C) only

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

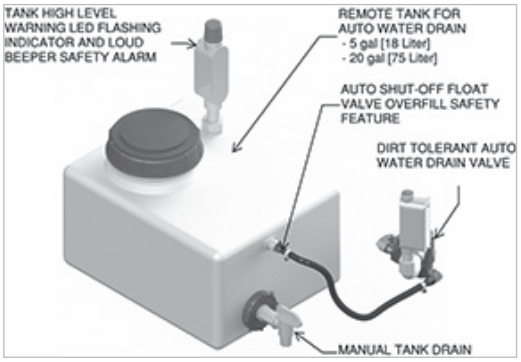
Metric dimensions in ( ).



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

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 In-Line Fuel Coalescing Filter

Filter Model Number Selection

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

BOX 1	BOX 2	BOX 3	BOX 4	BOX 5	BOX 6	BOX 7	BOX 8	BOX 9	BOX 10
ICF									

Example: NOTE:

BOX 1	BOX 2	BOX 3	BOX 4	BOX 5	BOX 6	BOX 7	BOX 8	BOX 9	BOX 10	
ICF	V	P24	L	B	S-I	EP-A		AWD5		= ICFVP24LBSIEPAAWD5

BOX 1 — Filter Series

ICF

BOX 2 — Sealing Material

V = Viton®

BOX 3 — Porting

P24 =	1½" NPTF (standard)
S16 =	SAE J1926 -16 (ORB)

BOX 4 — Coalescing Element Change Indicator

L = In cap bar indicator

BOX 5 — Mounting Option

B =	Bracket (Element top loading)
R =	Bracket (Element bottom loading)
Omit =	None

BOX 6 — Filter Housing Sump Level Indicator Option

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

BOX 7 — Coating Option

EP =	Epoxy paint and plating (standard)
A =	Anodized cap & head (optional)

BOX 8 — Heating Option

H =	Filter Sump Heater
Omit =	None

BOX 9 — Automatic Drain & Remote Sump Options

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

BOX 10 — Optional Manual Drain Remote Sump

S5 =	5gal sump tank
S20 =	20gal sump tank
Omit =	None

NOTES:

- Unless automatic drain option is specified, ICF units will come standard with manual drain
- Coalescing element sold separately and selected below
- 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

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
Anti-Static Pleat Media (ASP®) is standard

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

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