**Industrial Pro® FH234 Series Filter/Separator/Warmer Installation Instructions**

**Part** | **Description** | **Part Number**
--- | --- | ---
A | Collar | 3946706 S
B | Vent Cap | 3947502 S
C | O-Ring | 3946705 S
D | Cover | 3944441 S
E | Filter Spring | See page 6
F | Filter Element (includes Grommet and O-Rings) | 3944449 S
G | O-Ring Pack - included with each replacement element | 3950445 S
H | Industrial Pro® | See page 9
I | Bottom Seal | 3945125 S
J | Bottom Plate | 3956011 S
K | Drain Valve | 3954453 S
L | Bottom Bolts (6) | 3946704 S
M | Bottom Plate | 3947502 S
N | Bowl Assembly and Bowl Assembly Seal | 3960670 S
O | Primer Pump Kit (Pump, Hoses, Bracket, and Vibration isolators): Single unit only | 3961286 S
| Dual/Duplex/Triple/Triplex only | 3961287 S
P | Primer Pump Fitting Set: Single unit only | 3961283 S
| Dual/Duplex only | 3961284 S
| Triple/Triplex only | 3961285 S
Q | 12 VDC Combo Thermo/Heater | 3959754 S
| 24 VDC Combo Thermo/Heater | 3959755 S
R | SAE 3/4” Plug with M14 Diagnostic Port and O-Ring Seal | Not Service Replaceable
S | Check Valve Service Kit (Single unit only) | 3944447 S
T | Check Valve Body: Single unit only | 3957159 S
| Dual/Duplex/Triple/Triplex only | 3954139 S
U | SAE 1 1/4” Plug (3/4” Plug for Single unit only) with O-Ring Seal | 3957160 S
V | Water-In-Fuel (WIF) Sensor | 3957158 S
W | Collar/Vent Cap Wrench | 3944451 S
X | Heater/Thermoswitch Adapter | 3956582 S
Y | WIF Wiring Harness | 3950729 S
Z | WIF LED | 3946670 S
AA | 120 V AC Heater | 3945121 S

**Note:** The WIF sensor is not included, but can be purchased separately.

- **CAUTION:** These instructions are intended for use by professional mechanics who are trained in the proper use of power and hand tools, using appropriate safety precautions (including eye protection).
WARNING: When diesel fuel is circulated through an operating engine, it can become very hot. To prevent personal injury:

Scalding hazard! Do not allow heated liquid fuel to come in contact with eyes or unprotected skin. Always allow the engine and fuel to cool to ambient temperature before replacing the fuel filter or performing service operations which could result in the spillage of fuel from the fuel system. If this is not possible, protective clothing (face shield, insulated hat, gloves, apron) must be worn.

Heated diesel fuel can form combustible vapor mixtures in the area around the fuel source. To eliminate the potential for fire, keep open flames, sparks or other potential ignition sources away from the work area, and do not smoke during filter replacement or service operations which could result in the escape of diesel fuel or fuel vapors.

Always perform engine or vessel fuel system maintenance in a well ventilated area that is kept free of bystanders.

Service Kit Installation
This system must be installed between the fuel tank and the transfer fuel pump on the suction side of the fuel system. It can be used as the only fuel filter in the fuel system by removing the existing filter and heads, or remove the filters only and replace with special Diverter Caps (sold separately - see Table 1).

Note: If the Industrial Pro is used as the primary filter and a secondary filter is required, secondary filter life may be extended.

Table 1 - Diverter Caps

<table>
<thead>
<tr>
<th>Diverter Cap Part Number</th>
<th>Required Filter Head Stud Size</th>
<th>Required Filter Head Seal ID</th>
<th>Required Filter Head Seal OD</th>
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<tr>
<td>3945182 S</td>
<td>1&quot;-14</td>
<td>2.475&quot;</td>
<td>2.895&quot;</td>
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<tr>
<td>3945183 S</td>
<td>1&quot;-14</td>
<td>3.225&quot;</td>
<td>3.435&quot;</td>
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<td>3945184 S</td>
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<td>2.895&quot;</td>
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<td>3945185 S</td>
<td>3/4&quot; x 16</td>
<td>2.475&quot;</td>
<td>2.895&quot;</td>
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<tr>
<td>3945186 S</td>
<td>7/8&quot; x 14</td>
<td>2.475&quot;</td>
<td>2.895&quot;</td>
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<tr>
<td>3945187 S</td>
<td>M18 x 1.5</td>
<td>2.475&quot;</td>
<td>2.895&quot;</td>
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<tr>
<td>3945188 S</td>
<td>13/16” x 12</td>
<td>3.225&quot;</td>
<td>3.235&quot;</td>
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</table>

Note: Diverter Caps for FS1216 and FS1006 not included.

Note: Effective March 2006, Fleetguard switched to a lower restriction design for the Industrial Pro series. These low restriction units have some dimension changes and a significant reduction in overall restriction of between 3.4 - 6.8 kPa (0.49 - 0.98 lb/in²), depending on the model. The low restriction units can be identified by the label located on the right side of the unit. The part number will contain “Rev. 2” if it is a low restriction unit. This revision number does not appear on the originally designed units. For detailed dimension information, refer to the Technical Bulletin for that model.

Indicates Unit Is a Low Restriction Model
For Dual, Duplex, Triple, or Triplex units, use part no. 3956561 S (which contains two M42 x 1.5 fittings) and install to inlet and outlet ports of assembly.

6. Route the fuel supply line from the fuel tank to the Industrial Pro inlet (see Figure 1). Route a fuel line from the Industrial Pro outlet to the fuel pump inlet.

![Figure 1 - Industrial Pro Connections](image)

**CAUTION:** To avoid fuel line water traps that can freeze in cold conditions and restrict, or block, the flow of fuel to the engine, be certain that there are no low spots in the hoses when routing them in the engine compartment.

For Dual/Duplex and Triple/Triplex systems, if a check valve is required, part no. 3954139 S must be purchased and installed at or near the inlet of the Industrial Pro assembly (see Figure 2).

**Note:** When the engine is shut off, fuel levels may drop until the engine is restarted.

![Figure 2 - Check Valve](image)

**Note:** Check valve will add an additional 2” Hg (0.98 lb/in² or 0.067 bar). Make sure the system can handle the additional restriction.
7. To minimize restrictions, observe the following guidelines when plumbing the system.
   a. Keep the fuel line routing as smooth as possible with no low hanging loops which can trap water.
   b. Use 90° elbows only when necessary.
   c. If the fuel hoses are made up to length on the job, be sure that the inner liner of the fuel hose is not cut by the fitting, creating potential check valve effects. Also make sure hoses are clean and free of debris before installing.

   CAUTION: To avoid damaging the aluminum fuel housing, do not overtighten fuel lines or fuel line fittings.

8. Apply Teflon® pipe sealant to the inlet and outlet hose threads and connect the hoses to the unit.

Installing a WIF (Water In Fuel) Probe

1. Install the WIF Probe (3957158 S) into the side of the Industrial Pro® (see Figure 3). Torque to 20-25 in-lbs (2.3-2.8 N.m).

   *Note: Depending on the model (Single, Dual, Duplex, Triple or Triplex), the WIF port can be located on the bottom left or the bottom right side of the unit.*

   ![Figure 3 - WIF Probe Installation](image)

2. Install the WIF wiring harness (3950729 S) on WIF Probe. The harness has the following connections: 12" (304.8 mm) black ground lead with a 3/8" (9.53 mm) diameter loop end and a 72" (1828.80 mm) green WIF wire.

3. Drill 1/2" (12.70 mm) hole in the control panel where the WIF LED (3946670 S) is to be located.
   a. Installation must have 1.5" (38.10 mm) of clearance behind dash or control panel.
   b. Use caution not to damage nearby components when drilling.

4. Install WIF LED by pressing firmly into the drilled hole.

5. Connect the 4" (101.60 mm) black ground wire on WIF LED to a ground source. Attach additional black wire as needed.

6. Connect the 12" (304.8 mm) black ground lead with a 3/8" (9.53 mm) diameter loop end on the WIF wiring harness to ground source near Fuel Processor (if applicable).

7. Connect 72" (1828.80 mm) green signal wire on WIF wiring harness to 4" (101.60 mm) green signal wire on WIF LED. Use additional green wire as needed.

8. Locate 12 VDC or 24 VDC power source. Run red wire from power source to 4" (101.60 mm) red wire on WIF LED. Add a 10 A in-line fuse (not included). (See Figure 4.)

   ![Figure 4 - WIF Wiring](image)

   Note: Use appropriate connectors to attach the wires. To test the WIF indicator, pour water into the body of the fuel processor until it covers the WIF probe. The WIF LED should illuminate. The volume of fluid necessary to turn the WIF indicator on is 34.92 oz ± 0.33 oz (1033 mL ± 10 mL).

Installing an Optional Electric Heater

All units come with pre-drilled ports to allow for Combo Thermo/Heaters. Dual/Duplex and Triple/Triplex units will require two or three heaters respectively.

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>3959754 S</td>
<td>12 VDC Combo Thermo/Heater</td>
</tr>
<tr>
<td>3959755 S</td>
<td>24 VDC Combo Thermo/Heater</td>
</tr>
</tbody>
</table>

   ![Figure 5 - Single Combo Thermo/Heater Installation](image)
To install, follow the wiring diagram in Figure 6. Refer to equipment owner's manual for more specific information related to wiring diagrams of the equipment to which the unit will be applied.

**Note:** When wiring the Electric Preheater, use a fuse NOT a circuit breaker.

2. If a 120 VAC Heater is not already installed, remove the 1/2" NPT plug from the side of the Industrial Pro and install the 120 VAC Heater. Torque to 15-30 ft-lbs (20.3-40.7 N∙m). (See Figure 8.)

**Figure 8 – 120 VAC Heater Installation**

3. Two types of cordsets are available for the 120 VAC/75 W heater(s) (see Figure 9).
4. Plug the power cord into a 120 V receptacle.

**Figure 9 – Electric Heater Cordsets**

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**Table 3 - 120 VAC Heaters**

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>3945121 S</td>
<td>120 VAC/75 W Heater</td>
</tr>
<tr>
<td>3945126 S</td>
<td>Single Cordset</td>
</tr>
<tr>
<td>3946716 S</td>
<td>Y Cordset (Y cord to processor and block heater w/ locking ring)</td>
</tr>
</tbody>
</table>
Installing a Heater Spacer

A heater spacer (part no. 3956562 S) is required for the Triple/Triplex center unit only (see Figure 10). The left and right units of the Dual/Duplex or Triple/Triplex units have ports available for the heaters.

1. Turn off the engine. Drain all the fuel from the Industrial Pro®.
2. Remove the six 1/4"-20 cap screws holding the bottom plate to the unit. Discard the cap screws.
3. Clean any dirt or debris off the bottom plate and seal.
4. Install the o-ring on the heater adapter.
5. Line up the bottom plate and the heater space with the body.
6. Install six 1/4"-20 cap screws in the bottom plate and finger tighten.
7. Tighten bolts in a star pattern to 14 in-lbs.
8. Install the Combo Thermo/Heater.

Filter Change Procedure

Changing the Filter in a Single Industrial Pro

1. Turn off the engine. Loosen the vent cap to break the air lock in the filter.
2. Open the drain valve and drain the fuel level below the collar, then close the drain valve. Dispose of the fuel in an environmentally responsible manner, according to state and/or federal (EPA) or national recommendations.
3. Using the Collar/Vent Cap Wrench (part number 3944451 S), remove the clear cover from the fuel processor by removing the collar. Discard the o-ring from the base of the cover. (A new o-ring seal is supplied with the new filter.) Remove the filter element from the Industrial Pro by pulling upward and twisting slightly. Be sure the sealing grommet is removed from the center stud.

4. Install the new filter element (supplied with a Sealing Grommet already inserted into the element) on the processor center stud by pushing down and twisting slightly. After checking to make sure the new o-ring seal (supplied with the filter) at the base of the cover is in place, install the cover and collar. Hand tighten the collar until seated. Do not use tools to tighten.

5. Remove the vent cap from the top of the clear cover by turning the vent cap counterclockwise. Fill the clear cover with enough clean fuel to cover the bottom half of the filter element. Make sure the new o-ring (supplied with the filter) is installed on the vent cap. Reinstall the vent cap and tighten by hand only.

6. Start the engine. When the lubrication system reaches its normal operating pressure, increase engine RPM for one minute.

Note: The clear filter cover will not fill completely during engine operation. It will gradually fill over time as the filter becomes clogged. The filter element does not need to be changed until the fuel level has risen to the top of the filter element.
Changing the Right or Left Filter in a Duplex or Triplex Unit (see Figure 12)

⚠️ CAUTION: If the full flow capability of all units is utilized in a prime power generation application, external filtration must be provided while the Industrial Pro® unit is being serviced. Also, in prime power generation applications, units may occasionally need to be isolated to drain the water although the filter may not need changing.

1. Leave the engine running.

- **Original Model:** To change the right filter in an original model, rotate the valve handle until the arrow on the valve points to Left Only. To change the left filter in an original model, rotate the valve handle until the arrow on the valve points to Right Only.

- **Low Restriction REV2 Model:** To change the right filter in a low restriction model, swing the handle to the OFF position on the right side filter. To change the left filter in a low restriction model, swing the handle to the OFF position on the left side filter.

**Note:** On the original model, be certain that the valve handle points directly at the arrow for the desired selection (Both in Operation, Both Off, Right Only or Left Only).

2. Place a drain pan or other appropriate container under the filter to be replaced.

3. Loosen the vent cap on the filter to be replaced to break the air lock in the filter.

4. Open the drain valve and drain the fuel level below the collar, then close the drain valve.

5. Using the Collar/Vent Cap Wrench (part number 3944451 S), remove the clear cover from the fuel processor by removing the collar. Discard the o-ring from the base of the cover. (A new o-ring seal is supplied with the new filter.) Remove the filter element from the Industrial Pro by pulling upward and twisting slightly. Be sure the sealing grommet is removed from the center stud. Dispose of the filter in an environmentally responsible manner, according to state, federal (EPA), national, and/or global environmental recommendations.

6. Install the new filter and grommet on center stud.

7. Place the new cover o-ring, cover and collar over the filter.

8. Press down on cover, holding it in place, while hand tightening the collar until seated. Do not use tools to tighten.

9. Fill the clear cover with enough clean fuel to cover the bottom half of the filter element. Make sure the new o-ring (supplied with the filter) is installed on the vent cap.

10. Install the vent cap. **Tighten by hand only.**

11. **Original Unit:** Rotate the valve handle (see Figure 9) until the arrow points to Both in Operation or to the Single unit to be in operation. **Low Restriction REV2 Unit:** Swing the valve handle of the serviced unit to the ON position.

12. Raise the RPM for one minute to purge the air from the system.
Changing the Center Filter in a Triplex Unit

1. Leave the engine running. For the original model, rotate the valve handle on the right hand unit until the arrow on the valve points to Right Only, then rotate the valve handle on the left hand unit until the arrow on the valve points to Left Only. For Low Restriction REV2 models, swing both the right and left valve handles to the ON position and the center unit valve handle to the OFF position.

2. Follow steps 2 - 10 in the previous section.

3. Original Unit: Rotate either the left or the right valve to "Both in Operation.”
Low Restriction REV2 Unit: Swing the center valve to the ON position.

Priming the System

Note: It is not necessary to prime the Single, Dual and Triple units equipped with a primer pump.

1. Check to make sure the drain valve at the base of the Industrial Pro® is closed. Close the fuel shutoff valve (if equipped).

2. Remove the vent cap from the top of the clear cover. Fill the Industrial Pro full of clean fuel. Reinstall the vent cap and tighten by hand only.

3. Open the fuel shutoff valve (if equipped). Start the engine. When the lubrication system reaches its normal operating pressure, increase engine speed to high idle for one to two minutes. After the air is purged, loosen the vent cap until the fuel level lowers to just above the collar. Tighten the vent cap by hand only.

Note: The clear filter cover will not fill completely during engine operation. It will gradually fill over time and the fuel level will rise as the filter becomes clogged.

4. Hand tighten the collar again while the engine is running. To avoid damage, do not use tools to tighten the collar.

⚠️ CAUTION: To avoid damaging the aluminum fuel processor body, do not overtighten fuel lines or fuel line fittings.

Emergency Temporary Filter Replacement

In the event of an emergency, the Industrial Pro accepts a standard spin-on filter.

1. Depending on the unit (Single, Duplex or Triplex), follow the filter change instructions until the filter and grommet have been removed.

2. Install an engine spin-on filter (part number FF105, for example) on the threaded stud.

3. Install the cover, spring, seal and collar over the filter for later reuse and to guard against loss.

4. Start the engine. Raise the RPM for one minute to purge the air from the system.

Draining Contaminants

1. Turn off the engine and open the filter vent.

2. Place a cup under the drain valve at the base of the Industrial Pro and open the drain valve.

3. Water will flow into the cup. When fuel begins to flow out of the drain, close the drain valve. (Drain the minimum amount of fuel possible.)

4. Close the filter vent.

5. Start the engine. Raise the RPM for one minute to purge the air from the system.

Suggested Preventive Maintenance

Weekly – Drain water.

Every Filter Change – Change o-rings and grommet (included with new filter). For biodiesel applications, order gasket kit part no. 3950445 S (or part no. 3957345 S for units with a clear bowl).

Every 12 Months – Check all electrical connections for corrosion. Check all fuel fittings for leaks.

Extreme winter or salt corrosion environments may require lubrication of the top collar threads with Loctite® 76747 antiseize every 180 days.
## Ordering Information

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<th>Housing Part Number</th>
<th>Filter Element</th>
<th>Filter Element Type</th>
<th>Micron Rating&lt;sup&gt;1&lt;/sup&gt;</th>
<th>Fuel Flow gal/hr (L/hr)</th>
<th>Primer Pump</th>
<th>DP&lt;sup&gt;2&lt;/sup&gt; Gauge</th>
<th>WIFI&lt;sup&gt;3&lt;/sup&gt;</th>
<th>Drain</th>
<th>Check Valve</th>
<th>Heat</th>
<th>Fuel In &amp; Fuel Out Port Size</th>
<th>Fuel In &amp; Out Port Size&lt;sup&gt;4&lt;/sup&gt; (metric)</th>
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<td>M42 x 2</td>
<td></td>
</tr>
<tr>
<td><strong>Industrial Pro Triple with Primer Pump (Includes shutoff valve)</strong></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>FH23459 FS19763 Cartridge</td>
<td>7</td>
<td>600 (2271)</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Ports Available</td>
<td>In Right/Out Left</td>
<td>1-1/4&quot; NPT</td>
<td>M42 x 2</td>
<td></td>
</tr>
<tr>
<td><strong>Industrial Pro Triplex (Includes shutoff valve)</strong></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>FH23438 FS19763 Cartridge</td>
<td>7</td>
<td>600 (2271)</td>
<td>No</td>
<td>No</td>
<td>Optional</td>
<td>Yes</td>
<td>No</td>
<td>Ports Available</td>
<td>Left or Right</td>
<td>1-1/4&quot; NPT</td>
<td>M42 x 2</td>
<td></td>
</tr>
<tr>
<td><strong>Industrial Pro Triplex with Primer Pump (Includes shutoff valve)</strong></td>
<td></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>FH23468 FS19763 Cartridge</td>
<td>7</td>
<td>600 (2271)</td>
<td>Yes</td>
<td>No</td>
<td>Optional</td>
<td>Yes</td>
<td>No</td>
<td>Ports Available</td>
<td>Left or Right</td>
<td>1-1/4&quot;-11.5 NPT</td>
<td>M42 x 2</td>
<td></td>
</tr>
</tbody>
</table>

<sup>1</sup> Other filter options at different micron ratings are available.
<sup>2</sup> DP = Differential Pressure
<sup>3</sup> WIFI = Water-In-Fuel sensor, part number 3957158 S, available separately.
<sup>4</sup> Metric connections require metric adapter fittings. For M26 x 1.5 fittings, use part no. 3954136 S (which includes an outlet M26 x 1.5 outlet fitting, M26 x 1.5 inlet fitting with check valve body, check valve ball, check valve retainer, and check valve spring) and install to inlet and outlet ports of housing. For M42 x 2 fittings, use part no. 3956561 S (which contains two M42 x 2 fittings) and install to inlet and outlet ports of assembly.
## Specifications

<table>
<thead>
<tr>
<th>Specification</th>
<th>Single</th>
<th>Dual/Duplex</th>
<th>Triple/Triplex</th>
</tr>
</thead>
<tbody>
<tr>
<td>Height Overall</td>
<td>19.02&quot; (483.1 mm)</td>
<td>18.81&quot; (477.9 mm)</td>
<td>18.79&quot; (477.2 mm)</td>
</tr>
<tr>
<td>Depth Overall</td>
<td>7.27&quot; (187.2 mm)</td>
<td>10.47&quot; (265.8 mm)/11.04 (280.4)</td>
<td>10.46&quot; (265.8 mm)/11.04 (280.4)</td>
</tr>
<tr>
<td>Width, max</td>
<td>6.30&quot; (160.0 mm)</td>
<td>18.75&quot; (476.3 mm)</td>
<td>22.24&quot; (564.9 mm)</td>
</tr>
<tr>
<td>Mt. Brkt. Centers (Vert.)</td>
<td>4.25&quot; (108.0 mm)</td>
<td>6.60&quot; (167.6 mm)</td>
<td>6.60&quot; (167.6 mm)</td>
</tr>
<tr>
<td>Mt. Brkt. Centers (Horiz.)</td>
<td>5.20&quot; (132.0 mm)</td>
<td>6.75&quot; (171.5 mm)</td>
<td>6.75&quot; (171.5 mm)</td>
</tr>
<tr>
<td>Weight (Dry)</td>
<td>17 lbs (7.7 kg)</td>
<td>51 lbs (23.1 kg)</td>
<td>70 lbs (31.75 kg)</td>
</tr>
<tr>
<td>Fuel Capacity (w/o filter)</td>
<td>0.37 gal (1.4 L)</td>
<td>0.74 gal (2.8 L)</td>
<td>1.11 gal (4.2 L)</td>
</tr>
<tr>
<td>Fuel Connections</td>
<td>3/4&quot; NPT (M26 x 1.5)</td>
<td>1 1/4&quot; NPT (M42 x 2)</td>
<td>1 1/4&quot; NPT (M42 x 2)</td>
</tr>
<tr>
<td>Fuel Flow Rate</td>
<td>200 gal/hr (757 L/hr)</td>
<td>400 gal/hr (1515 L/hr)</td>
<td>600 gal/hr (2272 L/hr)</td>
</tr>
<tr>
<td>Recommended Applications</td>
<td>Heavy Duty Engines</td>
<td>Heavy Duty Engines</td>
<td>Heavy Duty Engines</td>
</tr>
<tr>
<td>Water Trap Capacity</td>
<td>20.3 fl oz (600 ml)</td>
<td>40.6 fl oz (1200 ml)</td>
<td>60.9 fl oz (1800 ml)</td>
</tr>
<tr>
<td>Filter Service Clearance</td>
<td>Min. 3.5&quot; (88.9 mm)</td>
<td>Min. 3.5&quot; (88.9 mm)</td>
<td>Min. 3.5&quot; (88.9 mm)</td>
</tr>
<tr>
<td>Electrical Heater</td>
<td>One Heater Required: 12 VDC, 250 W, 21 A ± 3 A  24 VDC, 250 W, 10 A ± 2 A</td>
<td>Two Heaters Required: 12 VDC, 250 W, 21 A ± 3 A  24 VDC, 250 W, 10 A ± 2 A</td>
<td>Three Heaters Required: 12 VDC, 250 W, 21 A ± 3 A  24 VDC, 250 W, 10 A ± 2 A</td>
</tr>
</tbody>
</table>

**Primer Pump (Single, Dual and Triple Units Only)**

- Supply Voltage: 24 VDC
- Temperature Range: -20 °F (-29 °C) - 250 °F (120 °C)

**Fuel Types**

- Compatible for use with Diesel #1, Diesel #2, Kerosene, Biodiesel, and JP8

Specifications subject to change without notice.

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### Cummins Tier 3 HHP (High Horsepower) System

- **5 Bar Electric Priming and Starting Assist Pump**
- **Water-in-Fuel Sensor**
- **Inlet Check Valve**
- **Fuel Tank**
- **IMV**
- **5 Bar Air Bleed Valve**
- **Customer Drain (to Tank)**
- **Temperature Sensor**
- **Vibration Isolation**
- **Gerotor**
- **Pressure Sensor**
- **Stage 1: 7µm (η = 98.7%)**
- **Stage 2: 3µm (η = 98.7%)**

### Engine Specifications

<table>
<thead>
<tr>
<th>Engine</th>
<th>Number of Stage 1 Units</th>
<th>Number of Stage 2 Canisters</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q19</td>
<td>1 (4964097)</td>
<td>2 (FF5607)</td>
</tr>
<tr>
<td>Q38</td>
<td>2 (4964098)</td>
<td>3 (FF5607)</td>
</tr>
<tr>
<td>Q50</td>
<td>3 (4964099)</td>
<td>3 (FF5607)</td>
</tr>
<tr>
<td>Q60</td>
<td>3 (4964099)</td>
<td>3 (FF5607)</td>
</tr>
</tbody>
</table>
**Dimensions**

**Industrial Pro® Single**

Note: Only one Fuel Inlet and one Fuel Outlet port can be utilized. The unused ports must be plugged before use.

All dimensions are in inches (millimeters).

**Industrial Pro Single with Pump**

Note: The FH23466 has reversed Pump and Inlet/Outlet as shown below.

All dimensions are in inches (millimeters).

**Industrial Pro Dual**

Note: Only one Fuel Inlet and one Fuel Outlet port can be utilized. The unused ports must be plugged before use.

All dimensions are in inches (millimeters).
### Dimensions

#### Industrial Pro® Dual with Pump

**Note:** Only one Fuel Inlet and one Fuel Outlet port can be utilized. The unused ports must be plugged before use.

- **Service Height:** 3.50 (88.9)
- 1 1/4" NPTF (M42 x 2) Fuel Inlet
- 1 1/4" NPTF (M42 x 2) Fuel Outlet
- 1 1/4" NPTF (M42 x 2) Fuel Inlet
- R.203 (R5.2) Thru Slot (12X)
- M14 Diagnostic Port
- 2.20 (55.9)
- 6.76 (171.7)
- 6.75 (171.5)
- 3.49 (88.8)
- 2.20 (55.9)
- 0.35 (8.9)
- 0.55 (14.5)
- 2.20 (55.9)
- 6.75 (171.5)
- 18.81 (477.9) Max.
- 10.64 (270.3)
- 0.70 (17.8)
- 11.04 (280.4)
- 6.75 (171.5)
- 3.49 (88.8)
- 0.70 (17.8)
- 4.15 (105.4)
- 9.40 (238.6)
- 6.60 (167.6)
- 6.60 (167.6)
- 6.60 (167.6)
- 6.60 (167.6)
- 6.60 (167.6)
- 6.60 (167.6)
- 6.60 (167.6)
- All dimensions are in inches (millimeters)

#### Industrial Pro Duplex

- **Service Height:** 3.50 (88.9)
- 1 1/4" NPTF (M42 x 2) Fuel Inlet
- 1 1/4" NPTF (M42 x 2) Fuel Outlet
- 1 1/4" NPTF (M42 x 2) Fuel Inlet
- R.203 (R5.2) Thru Slot (8X)
- M14 Diagnostic Port (Optional Fuel Inlet)
- 2.20 (55.9)
- 6.76 (171.7)
- 6.75 (171.5)
- 3.49 (88.8)
- 2.20 (55.9)
- 0.35 (8.9)
- 0.55 (14.5)
- 2.20 (55.9)
- 6.75 (171.5)
- 18.81 (477.9) Max.
- 7.70 (195.6)
- 11.04 (280.4)
- 6.75 (171.5)
- 3.49 (88.8)
- 0.70 (17.8)
- 4.15 (105.4)
- 9.40 (238.6)
- 6.60 (167.6)
- 6.60 (167.6)
- 6.60 (167.6)
- 6.60 (167.6)
- 6.60 (167.6)
- 6.60 (167.6)
- 6.60 (167.6)
- All dimensions are in inches (millimeters)

#### Industrial Pro Duplex with Pump

- **Service Height:** 3.50 (88.9)
- 1 1/4”-11.5 NPTF (M42 x 2) Fuel Inlet
- 1 1/4”-11.5 NPTF (M42 x 2) Fuel Outlet
- 1 1/4”-11.5 NPTF (M42 x 2) Fuel Inlet
- R.20 (R6.2) Thru Slot (12X)
- M14 Diagnostic Port (Optional Fuel Inlet)
- 2.20 (55.9)
- 6.76 (171.7)
- 6.76 (171.7)
- 3.49 (88.8)
- 2.20 (55.9)
- 0.35 (8.9)
- 0.55 (14.5)
- 2.20 (55.9)
- 6.75 (171.7)
- 11.48 (291.6)
- 25.25 (641.4)
- 22.75 (577.9)
- 9.40 (238.6)
- 3.50 (88.9)
- 6.75 (171.5)
- 18.75 (476.3)
- 7.70 (195.6)
- 10.64 (270.3)
- 0.70 (17.8)
- 4.15 (105.4)
- 9.40 (238.6)
- 6.60 (167.6)
- 6.60 (167.6)
- 6.60 (167.6)
- 6.60 (167.6)
- 6.60 (167.6)
- 6.60 (167.6)
- 6.60 (167.6)
- All dimensions are in inches (millimeters)
**Dimensions**

**Industrial Pro® Triple**

Note: Only one Fuel Inlet and one Fuel Outlet port can be utilized. The unused ports must be plugged before use.

All dimensions are in inches (millimeters)

**Industrial Pro Triple with Pump**

Note: Only one Fuel Inlet and one Fuel Outlet port can be utilized. The unused ports must be plugged before use.

All dimensions are in inches (millimeters)

**Industrial Pro Triplex**

All dimensions are in inches (millimeters)
Dimensions

Industrial Pro® Triplex with Pump

Note: Only one Fuel Inlet and one Fuel Outlet port can be utilized. The unused ports must be plugged before use.

All dimensions are in inches (millimeters)

Primer Pump

1 1/4" NPTF (M42 x 2) Fuel Outlet

1 1/4" NPTF (M42 x 2) Fuel Inlet

Service Height

3.50 (88.9)

Heater/Thermostat Ports Both Sides of Body

All dimensions are in inches (millimeters)