FUEL OIL FILTRATION SETS

Recommended by NFPA 110

Standard for Emergency/Standby Power Systems
The Model PF Automatic Fuel Oil Filtration Set is the most complete, efficient, and reliable engine protection system available. Self-contained and touchscreen enabled, these fully automatic systems filter unwanted material, such as water, suspended rust, dirt and other contaminants in order to maintain the quality and purity of stored diesel fuel.

Fuel straining and filtration, combined, will achieve about 99% particulate removal. Those particulates, if not removed, can clog vital components of the system, including the fuel line, pump, and generator fuel injector.

Furthermore, particulate contamination can also reduce reliability and service life of the diesel generator(s). Interchangeable filters can remove particles as small as 5 microns.

Sludge left in a system can cause tank, fuel line, strainer, pump and engine injectors to clog. Water induced corrosion (rusting) can reduce tank life expectancy and reliability of the emergency diesel generator or boiler.

The separated contaminants and water are monitored by an integral filter water level detector. Depending on the size of the system, this waste water is piped to an optional Waste Water Holding and Removal System or connected directly to the customer’s waste tank (by others).

<table>
<thead>
<tr>
<th>Storage Tank Size (Gallons)</th>
<th>1,000</th>
<th>2,000</th>
<th>4,000</th>
<th>8,000</th>
<th>16,000</th>
<th>20,000</th>
</tr>
</thead>
<tbody>
<tr>
<td>PF-501</td>
<td>6</td>
<td>11</td>
<td>22</td>
<td>44</td>
<td>89</td>
<td>111</td>
</tr>
<tr>
<td>PF-502</td>
<td>2</td>
<td>4</td>
<td>8</td>
<td>17</td>
<td>33</td>
<td>42</td>
</tr>
<tr>
<td>PF-503</td>
<td>2</td>
<td>3</td>
<td>7</td>
<td>13</td>
<td>27</td>
<td>33</td>
</tr>
<tr>
<td>PF-504</td>
<td>1</td>
<td>2</td>
<td>4</td>
<td>9</td>
<td>18</td>
<td>22</td>
</tr>
<tr>
<td>PF-505*</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>7</td>
<td>13</td>
<td>16</td>
</tr>
</tbody>
</table>

Note: Due to the mixing of filtered fuel with unfiltered fuel, a minimum of three tank turnovers are recommended to ensure fuel quality. Shaded hours are not recommended.

*Model PF-505 has been seismically shake tested, and approved, by a third-party certified testing facility, for compliance with OSHPD (Office of Statewide Health Planning and Development) Special Seismic Certification criteria.
The Model PF Automatic Fuel Oil Filtration Set combines microprocessor-based control and monitoring with a “three stage” fuel oil de-watering and cleaning process:

1. **Fuel Straining**: Large particulates are removed.
2. **Filtration**: Particulate filtration to 5 micron.
3. **Water Removal**: Removes water through special filter design.

A differential pressure switch/indicator is installed around the filter units to provide a visual indication of filter element condition. An alarm notifies plant personnel when the filter elements require replacement.

**Standard Equipment**
- Primary filter
- Secondary filter
- Simplex strainer
- Leak detector switch
- Pump and motor assembly
- Pump “Hand-Off-Auto” switch
- Control power “On-Off” switch
- Primary filter DP switch/gauge
- Color touch screen

**Key Benefits / Features**
- NEMA 4 cabinet (Standard)
- Available for Biodiesel applications
- Cleans and de-waters fuel with particulate removal, 99% water removal
- Standard flows from 180 to 1200 GPH
- Factory mounted and wired control cabinet
- Automatic cycling based on the time of day and the day of the week ensures continuous fuel maintenance
- OSHPD/OSP certified (PF-505)

**MICROORGANISMS**
Under normal circumstances, water is constantly being introduced to the fuel. Microorganism growth can then produce sludge.

Systems are available in standard sizes ranging from 180 to 1200 gallons per hour, to custom units for processing 50 gallon per minute or more.
Waste Water Holding & Removal System

A gear pump automatically pumps water from the secondary filter housing to the holding tank based on an integral filter water detector signal. Automatic isolating valves prevent water leakage into the fuel or fuel into the water holding tank when the system is idle. The holding tank is equipped with a high level switch to alarm and shutdown the fuel maintenance system until the tank is emptied. A hand pump is provided for periodic removal of waste water from the holding tank. Requires mounting skid. Specify P/N-WR-01.

U.L. Approved Oil Strainers

Our Duplex Oil Strainers are designed for applications where easy maintenance and large capacity straining are required.

OIT Color Touchscreens

All of the system control functions can be accessed through a standard 4” color touch screen display (10”, 15” optional). Supported communication protocols include; 10/100 Base Ethernet, Modbus TCP/IP, Modbus RTU, SCADA/BAS connection one RS-485 port.

Specifications

Power
120 VAC (external)

Fluid
No. 2 Fuel Oil (diesel fuel) is standard. Consult factory for other fuel types.

Pump
Positive displacement type with cast iron housings:
Model PF-501, 502 & 503 are Spur Gear;
Model PF-504 & 505 are internal gear

Motors
Base mounted, Totally Enclosed Fan Cooled (TEFC) construction

Strainer
Simplex 1”, or 1½” (according to inlet line size) complete with 100 mesh perforated basket

Automatic Controls
Adjustable run-time period (4, 8, 12, or 24 hour operation)

Indications/Alarms

Ordering Information

Select Catalog Number from the table below.

<table>
<thead>
<tr>
<th>Catalog Number</th>
<th>G.P.H. Oil #2</th>
<th>P.S.I</th>
<th>Motor</th>
<th>Dimension</th>
<th>Connection Size</th>
<th>Shipment</th>
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<tbody>
<tr>
<td>PF-501</td>
<td>180</td>
<td>15</td>
<td>1725</td>
<td>½</td>
<td>48” x 48” x 12”</td>
<td>¾” - 1½”</td>
</tr>
<tr>
<td>PF-502</td>
<td>480</td>
<td>15</td>
<td>3450</td>
<td>½</td>
<td>48” x 48” x 12”</td>
<td>¾” - 1½”</td>
</tr>
<tr>
<td>PF-503</td>
<td>600</td>
<td>30</td>
<td>1725</td>
<td>¾</td>
<td>48” x 48” x 12”</td>
<td>1½” - 1½”</td>
</tr>
<tr>
<td>PF-504</td>
<td>900</td>
<td>30</td>
<td>1725</td>
<td>¾</td>
<td>48” x 48” x 12”</td>
<td>1½” - 1½”</td>
</tr>
<tr>
<td>PF-505</td>
<td>1200</td>
<td>25</td>
<td>1725</td>
<td>¾</td>
<td>48” x 48” x 12”</td>
<td>1½” - 1½”</td>
</tr>
</tbody>
</table>

Note: All pumps are 115V 60 Hz 1 phase

Pump and Motor Assemblies

The Model LO, Light Oil Pump and Motor Assemblies are compact, direct drive units designed to meet the performance and reliability standards demanded in commercial, industrial and institutional applications. The pump and motor assemblies are for No. 2, No. 4, and diesel oils. Typical installations include diesel generators, oil burners, and day tanks.

Waste Water Holding & Removal System

A gear pump automatically pumps water from the secondary filter housing to the holding tank based on an integral filter water detector signal. Automatic isolating valves prevent water leakage into the fuel or fuel into the water holding tank when the system is idle. The holding tank is equipped with a high level switch to alarm and shutdown the fuel maintenance system until the tank is emptied. A hand pump is provided for periodic removal of waste water from the holding tank. Requires mounting skid. Specify P/N-WR-01.