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Data sheet

Oil Motor Pump type BFPM 21

Application

The BFPM range is a series of Danfoss oil pumps in combination with a highly efficient permanent magnet motor.
The BFPM Electronic Controller must be used for controlling BFPM motor pumps (see separate data sheet for BFPM Electronic Controller).

BFPM 21 is designed for small domestic oil burners up to 24 l/h.

Function

From the suction inlet (S) oil is drawn through the filter (H) to the gear set, where the pressure is increased. When voltage is applied to the NC-valve, it opens and releases oil to the nozzle outlet.

By means of the diaphragm (D) in the pressure regulator (T), the pressure is kept constant at the value set on adjustment screw (P1).

In 2-pipe systems the excess oil is led back to the return outlet (R) and the tank.

In 1-pipe systems with plugged return outlet (R) and screw (A) removed, the oil is returned internally to the gear set (see figure).

Cut-off function, solenoid valve

When the burner stops, the voltage to the NC-valve is cut off and the oil flow to the nozzle outlet is cut off immediately.

Bleeding

In 2-pipe systems the pump is self-priming, i.e. bleeding is performed via the constriction (O) to the return outlet (R).

In 1-pipe systems with plugged return outlet (R), bleeding must be performed through the nozzle outlet (E) or the pressure gauge port (P).

Warranty

For pumps used outside the stated technical data and used with oil containing abrasive particles Danfoss cannot give any warranty.

Note! The solenoid valve must be replaced after 250,000 operations or 10 years (approved life expectancy).
**Identification**

<table>
<thead>
<tr>
<th>BFPM</th>
<th>2</th>
<th>1</th>
<th>L</th>
<th>3</th>
<th>L</th>
</tr>
</thead>
<tbody>
<tr>
<td>L:</td>
<td>left hand nozzle outlet</td>
<td>3:</td>
<td>capacity 24 l/h</td>
<td>1:</td>
<td>with one solenoid valve</td>
</tr>
<tr>
<td>L:</td>
<td>left hand rotation</td>
<td>2:</td>
<td>cartridge filter, pressure adjustment on front</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Nozzle capacity at 4.3 cSt., 10 bar, 2800 min⁻¹

**Technical Data**

<table>
<thead>
<tr>
<th>Oil types</th>
<th>Standard fuel gas oil and fuel gas oil acc. to DIN V 51603-6 EL A Bio-10 (Max. 10% FAME)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Viscosity range (measured in suction inlet)</td>
<td>(1.3) 1.8 to 12.0 cSt. (mm²/s)</td>
</tr>
<tr>
<td>Filter area/mesh</td>
<td>11 cm²/200 µm</td>
</tr>
<tr>
<td>Pressure range¹</td>
<td>7 to 20 bar</td>
</tr>
<tr>
<td>Default setting</td>
<td>10 ±1 bar</td>
</tr>
<tr>
<td>Max. pressure in suction inlet/return outlet</td>
<td>2 bar</td>
</tr>
<tr>
<td>Speed</td>
<td>400 to 3400 min⁻¹</td>
</tr>
<tr>
<td>Ambient/transport temperature</td>
<td>-20 to +70° C</td>
</tr>
<tr>
<td>Temperature of medium</td>
<td>0 to +70° C</td>
</tr>
<tr>
<td>Power supply/drive BFPM motor²</td>
<td>230 V switched from controller</td>
</tr>
<tr>
<td>Coil power consumption</td>
<td>9 W</td>
</tr>
<tr>
<td>Coil rated voltage (other voltages on request)</td>
<td>220/240V, 50/60 Hz</td>
</tr>
<tr>
<td>Coil enclosure</td>
<td>IP 40</td>
</tr>
</tbody>
</table>

¹ Max. 12 bar at 1.3 cSt., max. 15 bar at 1.8 cSt.
² Warning: Do not connect BFPM motor directly to 230 V/50 Hz power supply!

**Power consumption**

![Power consumption graph](image)

**Nozzle capacity**

![Nozzle capacity graph](image)
Connections

- **P**: Pressure adjustment
- **S**: Suction inlet G1/4
- **R**: Return outlet G1/4
- **E**: Nozzle outlet G1/8
- **P**: Pressure gauge port G1/8
- **V**: Vacuum gauge port G1/8
- **H**: Filter

Change-over and Filter Replacement

- **H**: Filter
- **A**: 2-pipe operation, with screw
- **B**: 1-pipe operation, without screw

Dimensions
Mounting

Additional documentation on burner components is available on http://heating.danfoss.com/