Oil Motor Pump type BFPM 61

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 61 is designed with a pressure transducer, which makes it ideal for small, modulating oil burners.

BFPM 61 features:
- Light oil and kerosene
- 1- or 2-pipe operation
- 1-stage modulating
- Built-in pressure regulator
- Solenoid valve cut-off
- Cartridge filter
- Pressure transducer
- Variable set points and up to 3 set-back periods per day

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.
The pressure transducer (PT) reports the achieved pressure and the control, in conjunction with the oil/air ratio control, regulates the motor speed. The built-in pressure regulator prevents overpressure. Default setting is 30 bar.

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

BFPM 61 L 3 L
L: left hand nozzle outlet
3: capacity 24 l/h
L: left hand rotation
1: with one solenoid valve
6: pressure sensor

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

Technical Data

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oil types</td>
<td>Standard fuel gas oil and fuel gas oil acc. to DIN V 51603-6 EL A Bio-10 (max. 10% FAME)</td>
</tr>
<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>11/200 cm²/µm</td>
</tr>
<tr>
<td>Pressure range¹</td>
<td>5 to 28 bar</td>
</tr>
<tr>
<td>Adjustable pressure, safety limitation</td>
<td>30 bar</td>
</tr>
<tr>
<td>Max. pressure in suction inlet/return outlet</td>
<td>2 bar</td>
</tr>
<tr>
<td>Speed</td>
<td>300 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>
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<tr>
<td>Coil power consumption</td>
<td>9 W</td>
</tr>
<tr>
<td>Coil rated voltage (other voltages on request)</td>
<td>220/240 V, 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/50Hz power supply!

Nozzle capacity

[Graph showing nozzle capacity at 4.3 cSt. and 1.8 cSt.]

Modulation

[Graph showing modulation with pressure and duty cycle]

Power consumption

[Graph showing power consumption at various pressures]
**Connections**

- **P:** Pressure limiter
- **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
  1-pipe operation, without screw
- **O:** Constriction with filter

**Dimensions**
Additional documentation on burner components is available on [http://heating.danfoss.com/](http://heating.danfoss.com/)