

# Oil Pump Type BFP 21 LE Size 3



## General Data Sheet

For specific information on this product, please contact Danfoss Burner Components

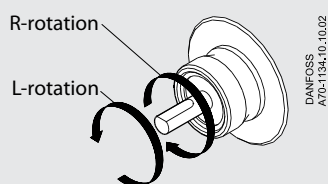
### Identification

#### BFP 21 L3 L LE (Example)

- L** Left hand nozzle outlet
- R** Right hand nozzle outlet
- 3** Capacity, see page 2
- R** Clockwise rotation
- L** Counterclockwise rotation
- 1** With one solenoid valve
- 2** Cartridge filter, pressure adjustment on front

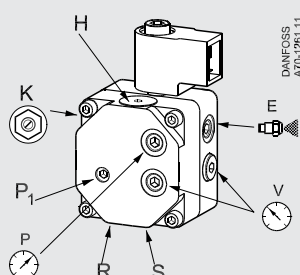
### Note!

Shaft rotation, location of nozzle outlet and other connections are seen from shaft end.



### Connections

Example shows BFP 21 L3L LE.

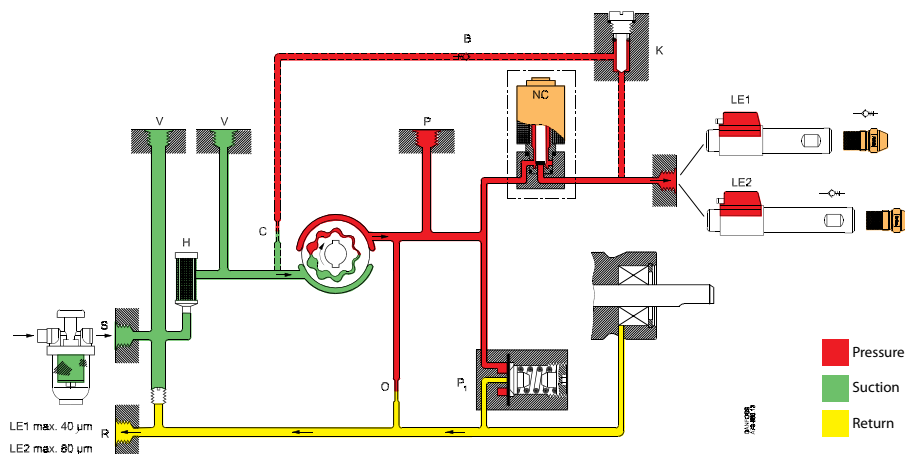


- P<sub>1</sub>** Pressure adjustment
- S** Suction inlet G 1/4
- R** Return outlet G 1/4
- E** Nozzle outlet G 1/8
- K** LE changeover screw
- P** Pressure gauge port G 1/8
- V** Vacuum gauge port G 1/8
- H** Filter

BFP21 LE is a special version of the BFP 21 pump. The pump has a connection from the nozzle line back to the suction side. This connection can be turned off by means of the screw K. The BFP21LE is designed for domestic burners with limited capacity featuring reduced start-stop emission. Please notice the capacity/pressure diagram

### Application and features

- Light oil domestic oil burners
- Low emission at start and stop
- 1-stage oil burners
- 1- or 2-pipe operation
- Build in solenoid valve cut-off
- Cartridge filter
- Build in pressure regulator

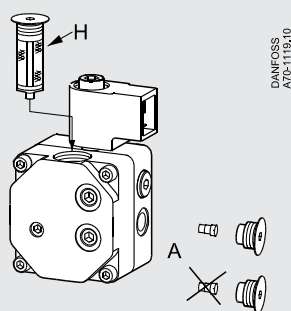


### Function

The LE pump is used with either an LE nozzle (System 1) or an LE preheater (System 2). Before burner start the preheater heats up the oil in the nozzle line. The expanding oil is prevented from dripping out of the nozzle because of the connection back to the suction side. The non return valve B inside the pump has an opening pressure of less than 2 bar whereas the LE valve in the nozzle opens at a pressure of  $5 \pm 1$  bar. (The valve in the pre-heater opens at min. 6 bar.) When the burner starts, the pump build up pressure and the solenoid valve NC opens.

The oil pressure will open the LE valve and the nozzle will function as normal. If the LE nozzle is used the pump pressure must be adjusted 1,6 bars above the required nozzle pressure as the valve has a pressure drop of 1,6 bar. If the LE valve in the preheater is used there is no need for pressure correction as this valve has no pressure drop. During operation there will be a loss of oil back to the suction side. This loss is minimized by the restriction C that allows 14 l/h loss at 10 bar. The pump is therefore limited in its capacity compared with a standard pump. When the burner stops the solenoid valve NC is closed and cuts off the flow to the nozzle. The LE valve secures a fast and tight shut off at the nozzle. If the nozzle line is heated due to radiation from the combustion chamber the LE function will secure that the expanding oil is released back to the suction side and does not drip out the nozzle.

### Change-over between 1 and 2-pipe operation. Filter replacement



2-pipe operation:  
screw fitted

1-pipe operation:  
without screw

### 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

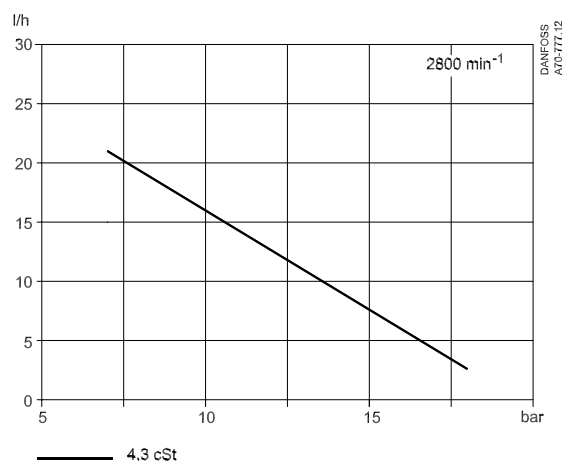
For pumps used outside the stated technical data and used with oil containing abrasive particles Danfoss cannot give any warranty.

**Please note** that the solenoid valve and the LE valve must be replaced after 250.000 operations or 10 years (approved life expectancy).

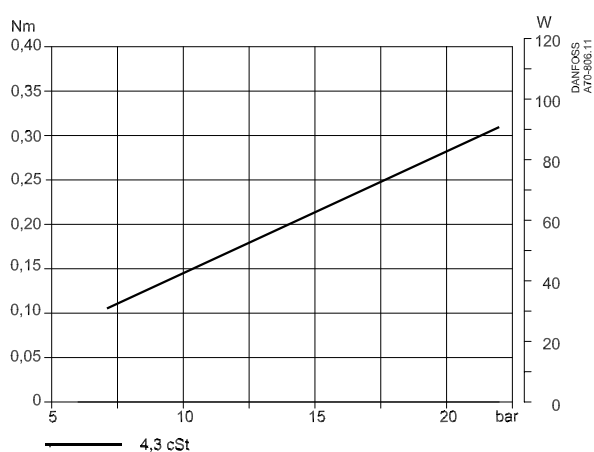
## Technical Data

BFP 21 LE	Size	3
Oil types:		Standard fuel gas oil and fuel gas oil acc. to DIN V 51603-6 EL A Bio-5 (Max. 5% FAME)
Viscosity range (measured in suction inlet)	cSt. (mm <sup>2</sup> /s)	1.8 - 12.0
Filter area/mesh	cm <sup>2</sup> /μm	11/200
Pressure range	bar	7-16.5
Factory setting	bar	10 ±1
Max. pressure in suction inlet/return outlet	bar	1.5
Speed	min <sup>-1</sup>	2400-3450
Max. starting torque	Nm	0.1
Ambient/transport temperature	°C	-20 to +70
Temperature of medium	°C	-10 to +70
Coil power consumption	W	9
Rated voltage (other voltages on request)		220/240V, 50/60 Hz
Coil enclosure		IP 40
Shaft/neck		EN 225

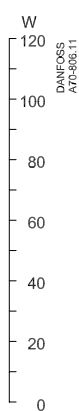
### Nozzle capacity



### Operating torque



### Power consumption



## Dimensions

