This is a general specification leaflet; for specific applications not covered herein, contact Suntec.

The SUNTEC ALE oil pump incorporates a blocking solenoid valve fitted with a built-in return valve ensuring an in-line cut-off function and a nozzle line pressure relief. The integration of the return valve into the solenoid valve means that the ALE pump performance and dimensions are identical to the AL pump.

**APPLICATIONS**

- Light oil, B10 heating oil/biofuel blend (as defined in DIN V51603-6) and kerosene.
- One or two-pipe system

**PUMP OPERATING PRINCIPLE**

The gear set draws oil from the tank through the built-in filter and transfers it to the nozzle line via the cut-off solenoid valve. A pressure regulating valve is used to dump all oil which is not required at the nozzle. In two-pipe operation, the by-pass plug must be fitted in the return port, which ensures that the oil by-passed by the regulating valve is returned to the tank and the suction line flow is equal to the gear set capacity. In one-pipe operation, the oil which does not go through the nozzle line is returned directly to the gear inlet and the suction line flow is equal to the nozzle flow. In that case, the by-pass plug must be removed from the return port, and the return port sealed by steel plug and washer.

**Bleed**

Bleeding in two-pipe operation is automatic: it is assured by a bleed flat on the piston. In one-pipe operation, the plug of a pressure gauge port must be loosened until the air is evacuated from the system.

**Cut-off**

The solenoid valve of the ALE pump is of the "normally closed" type and is situated in the nozzle line. This design ensures extremely fast response and the switching can be selected according to the burner operating sequence and is independent of motor speed. When the solenoid is non-activated, the valve is closed and all oil pressurized by the gear set passes through the regulator to the suction or return line, depending upon pipe arrangement. As soon as the solenoid is activated, oil passes to the nozzle line at the pressure set by the pressure regulating valve.

**Nozzle line pressure relief**

The nozzle line pressure relief function operates only when the installation is fitted with a nozzle incorporating a cut-off function which opens at 4 bars or above. Any subsequent expansion of the oil due to residual heat from the preheater or the boiler is discharged through the relief valve in the pump which opens at a lower pressure than the nozzle opening pressure.

Note: For a boosted pump, the overpressure applies to the safety shut-off device and the relief valve.

**Diagram**

- **TWO PIPE INSTALLATION**
  - Pressure adjustment
  - Shaft seal
  - Gear set
  - By-pass plug inserted
  - Vacuum gauge port
  - Oil discharged from nozzle line
  - Oil under suction
  - Oil under pressure
  - By-passed oil returned to tank or to suction

- **ONE PIPE INSTALLATION**
  - Pressure gauge port
  - Back to suction
  - By-pass plug removed
  - Return plumbed
  - Relief valve closed
  - Relief valve open

- **Solenoid valve (NC)**
  - Open
  - Closed

**Revision number**

| 00 | no cable |
| 35 | 35 cm cable |
| 60 | 60 cm cable |
| 45 | 45 cm cable |
| 10 | 1 m cable |
TECHNICAL DATA

General

Mounting: Hub mounting according to EN 225
Connection threads: Cylindrical according to ISO 228/1
Inlet and return: G 1/4 (with facilities for conical sealing on revision 6 models)
Nozzle outlet: G 1/8
Pressure gauge port: G 1/8
Vacuum gauge port: G 1/8
Valve function: Pressure regulation
Strainer: Open area: 6 cm² - opening size: 150 µm
Shaft: Ø 8 mm according to EN 225
By-pass plug: Inserted in return port for two-pipe system; to be removed with a 4 mm Allen key for one pipe system.
Weight: 1,1 kg

Hydraulic Data

Gear size: Nozzle pressure range* Factory setting
35/55: 4 - 18 or 7-25 bars @ 5 cSt 9 or 12 bars
35K/55K: 8 - 15 bars @ 1,8 cSt 9 bars
*other ranges available on request, refer to the specified range of the particular fuel unit.
Viscosity range: 1,25 - 12 mm²/s (cSt) for ALE 35K/55K
2 - 12 mm²/s (cSt) for ALE 35/55
Oil temperature: 0 - 60°C in the pump
Inlet pressure: 2 bars max.
Return pressure: 2 bars max.
Suction height: 0,45 bars max. vacuum to prevent air separation from oil.
Rated speed: 3600 rpm max.
Torque (@ 45 rpm): 0,10 N.m

Solenoid valve characteristics

Voltage: 220 - 240 or 110-120 or 24 V; 50/60 Hz
Consumption: 9 W max.
Coil Code*: Ambient temperature
06/02/05: 0 - 60 °C
07: 0 - 80 °C
*Refer to "Pump identification - solenoid coil voltage".
Maximum pressure: 25 bars
Relief valve opening pressure: 3,5 bars max. (without booster)
Certified TÜV Nr. stamped on pump cover
Protection class: IP 54 according to EN 60529, when used with SUNTEC connector cable.

PUMP DIMENSIONS

Examples show "C" rotation and nozzle outlet.

We reserve the right to change specifications without prior notice.