



# OIL PUMP TYPE AT2 GEAR SIZES 45-55-65-75-95

# AT2

AT2 - 11 - Ed 8 - June 2001

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

The SUNTEC AT2 oil pump features 2 mode pressure operation and incorporates a blocking solenoid valve with in-line cut-off function. Switching between low and high modes is assured by a 2nd integral solenoid valve.

## APPLICATIONS

- Light oil.
- Two firing rates (with a sole nozzle line).
- 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. Pressure regulation is assured by two spool valves, one for each pressure mode.

Switching between low and high pressure is assured by a "normally open" by-pass solenoid valve. When this solenoid is non-activated, a by-pass channel is open, allowing the normal functioning of the low pressure regulating valve which sets the nozzle pressure. When this solenoid is activated, the by-pass channel is closed, thus pressure will build up on both sides of the low pressure regulating valve eliminating its effect, and the high pressure regulating valve now determines the nozzle pressure.

The blocking solenoid valve of the nozzle line is of the "normally closed" type. This design ensures extremely fast response and the switching can be selected according to the burner operating sequence and is independant of motor speed. When this solenoid valve is non-activated, the valve is closed and all oil pressurised by the gear set passes through the regulators to suction or to the return line, depending upon pipe arrangement.

As soon as this solenoid is activated, oil passes to the nozzle line at the pressure set by the pressure regulating valves.

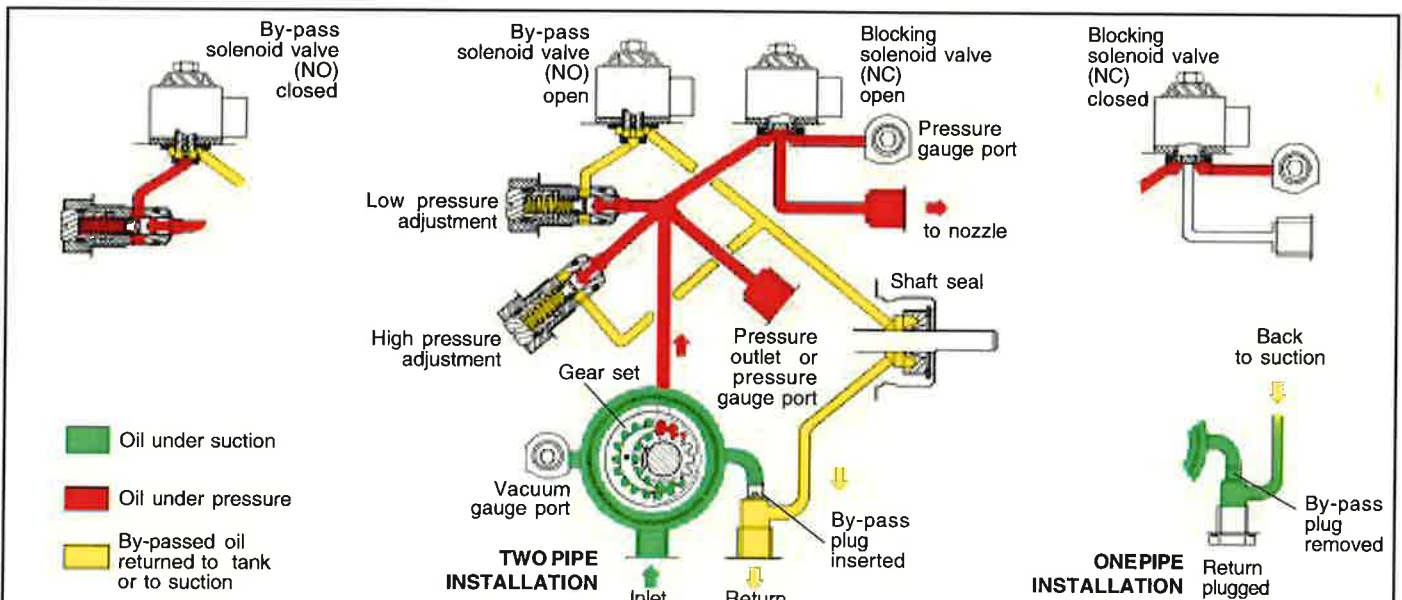
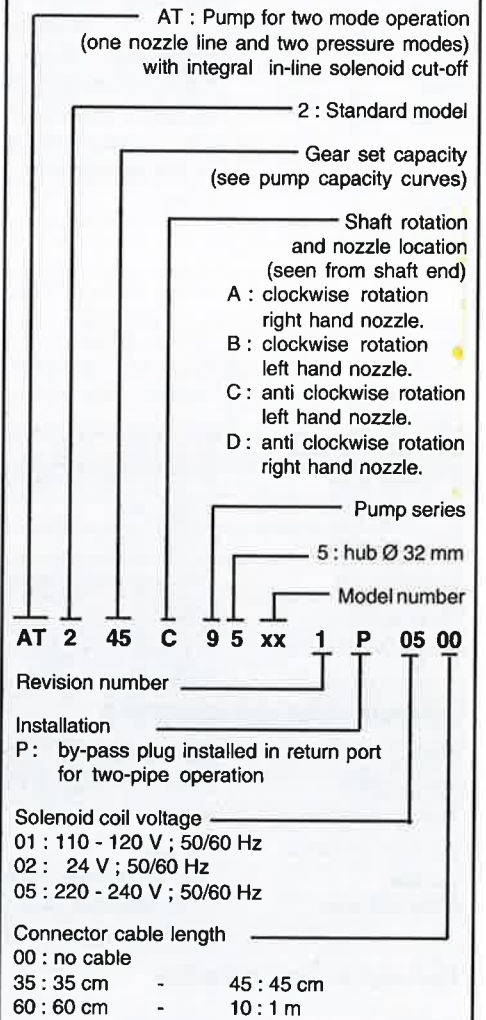
In two pipe operation, the by-pass plug must be fitted in the return port, which ensures that the oil dumped by the regulating valves is returned to the tank and the suction line flow is equal to the gear set capacity. Bleeding in two pipe operation is automatic (it is assured by a bleed flat on the pistons), but it may be accelerated by opening a pressure port.

In one pipe operation, the by-pass plug must be removed, and the return plugged. Oil which is not required at the nozzle is returned directly to the gear inlet via the pressure regulating valves, and the suction line flow is equal to the nozzle flow.

A pressure port must be opened to bleed the system.

## PUMP IDENTIFICATION

(Not all model combinations are available  
Consult your Suntec representative)



## TECHNICAL DATA

### General

|                     |   |
|---------------------|---|
| Mounting            | Hub mounting according to EN 225  |
| Connection threads  | cylindrical according to ISO 228/1  |
| Inlet and return    | G 1/4   |
| Nozzle outlet       | G 1/8   |
| Pressure gauge port | G 1/8   |
| Vacuum gauge port   | G 1/8   |
| Valve function      | Pressure regulation   |
| Strainer            | open area : 14 cm <sup>2</sup> (AT2 45/55/65)<br>20 cm <sup>2</sup> (AT2 75/95)<br>opening size : 150 µm                      |
| Shaft               | Ø 8 mm according to EN 225  |
| By-pass plug        | inserted in return port for two-pipe system ;<br>to be removed from return port with a 4 mm Allen key<br>for one pipe system. |
| Weight              | 1,3 kg  |

### Hydraulic Data

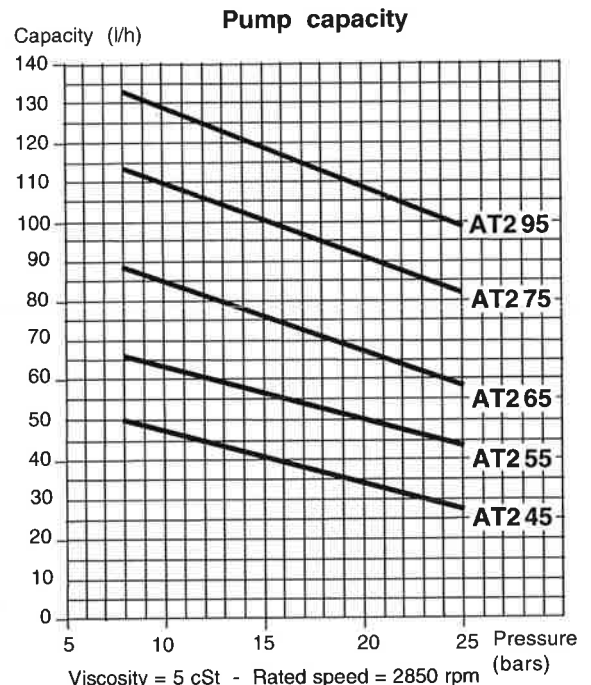
|   | Nozzle pressure range*  | Delivery pressure settings* |
|---|---|-----------------------------|
| Low mode :  | 8 - 15 bars   | 9 bars                      |
| High mode :   | 12 - 25 bars  | 22 bars                     |
| * AT2 75/95 : pressure obtained with a 10,5 GPH open nozzle.<br>Other ranges available on request , refer to the specified range of the particular fuel unit. |   |                             |
| Operating viscosity   | 2 - 12 cSt  |                             |
| Oil temperature   | 0 - 60°C max. 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 (AT2 45/55) - 0,12 N.m (AT2 65)<br>0,14 N.m (AT2 75) - 0,20 N.m (AT2 95) |                             |

### Solenoid valve characteristics

|                     |  |
|---------------------|--|
| Voltage             | 220 - 240 or 110 - 120 or 24 V; 50/60 Hz                             |
| Consumption         | 9 V.A (@ voltage = 230 or 110 or 24 V)                               |
| Ambient temperature | 0 - 60°C   |
| Maximum pressure    | 25 bars  |
| Certified           | TÜV Nr stamped on pump body  |
| Protection class    | IP 41 according to IEC 529, when used with<br>SUNTEC connector cable |

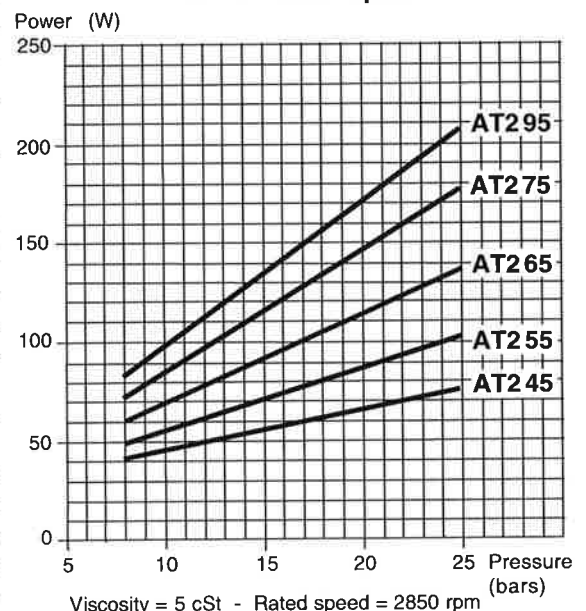
### Connector characteristics

|                    |                                     |
|--------------------|-------------------------------------|
| Material           | Polyamide                           |
| Cable type         | H03 VV-F                            |
| Cross section area | 0,5 mm <sup>2</sup> per conductor   |
| Wire end terminals | in accordance with DIN 46228 D1-7Ms |



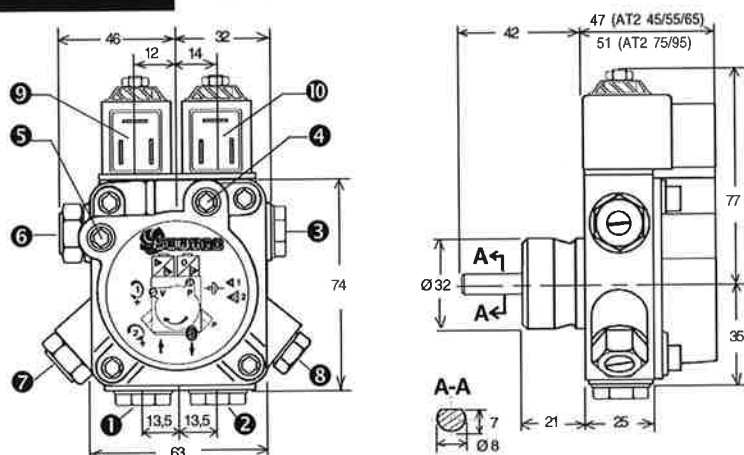
Data shown take into account a wear margin.  
Do not oversize the pump when selecting the gear capacity to ensure the optimum operation of the (NO) solenoid valve (switching low/high mode).

### Power consumption

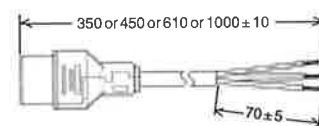


## DIMENSIONS

PUMP (Example shows "C" rotation and nozzle outlet)



## CONNECTOR



- |                                    |   |
|------------------------------------|---|
| ① Suction                          | ⑥ Low pressure adjustment                     |
| ② Return and internal by-pass plug | ⑦ High pressure adjustment                    |
| ③ Nozzle outlet                    | ⑧ Pressure outlet or pressure gauge port      |
| ④ Pressure gauge port              | ⑨ Solenoid valve for switching low/high modes |
| ⑤ Vacuum gauge port                | ⑩ Blocking solenoid valve                     |