AT3

OIL PUMP TYPE AT3
GEAR SIZES 45-55-65

AT3 - 11 - Ed 11 - January 2019

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

The SUNTEC **AT3** oil pump offers 2 mode pressure operation, in-line cut-off function, plus a special hydraulic outlet on the cover featuring nozzle pressure during high mode and dumping during low mode.

APPLICATIONS

- Light oil and B10 heating oil/biofuel blend (as defined in DIN V51603-6).
- Two firing rates (with a sole nozzle line).
- Hydraulic requirement in high mode only.
- 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 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 valve eliminating its effect, and the high pressure 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 independent of motor speed. When this solenoid is non-activated, the valve is closed and all oil pressurized 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.

SPECIAL FEATURE

Cover pressure port only gives pressure in high mode.

PUMP IDENTIFICATION

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

AT : Pump for two stage operation (one nozzle line and two pressure modes) with integral in-line solenoid cut-off

3 : Special pressure outlet on cover

V : B10 applications

Gear set capacity (see pump capacity curves)

Shaft rotation and nozzle location (seen from shaft end)
A : clockwise rotation right hand nozzle.
B : clockwise rotation left hand nozzle.
C : anti clockwise rotation left hand nozzle.
D : anti clockwise rotation right hand nozzle.

Pump series

5 : hub Ø 32 mm

Model number

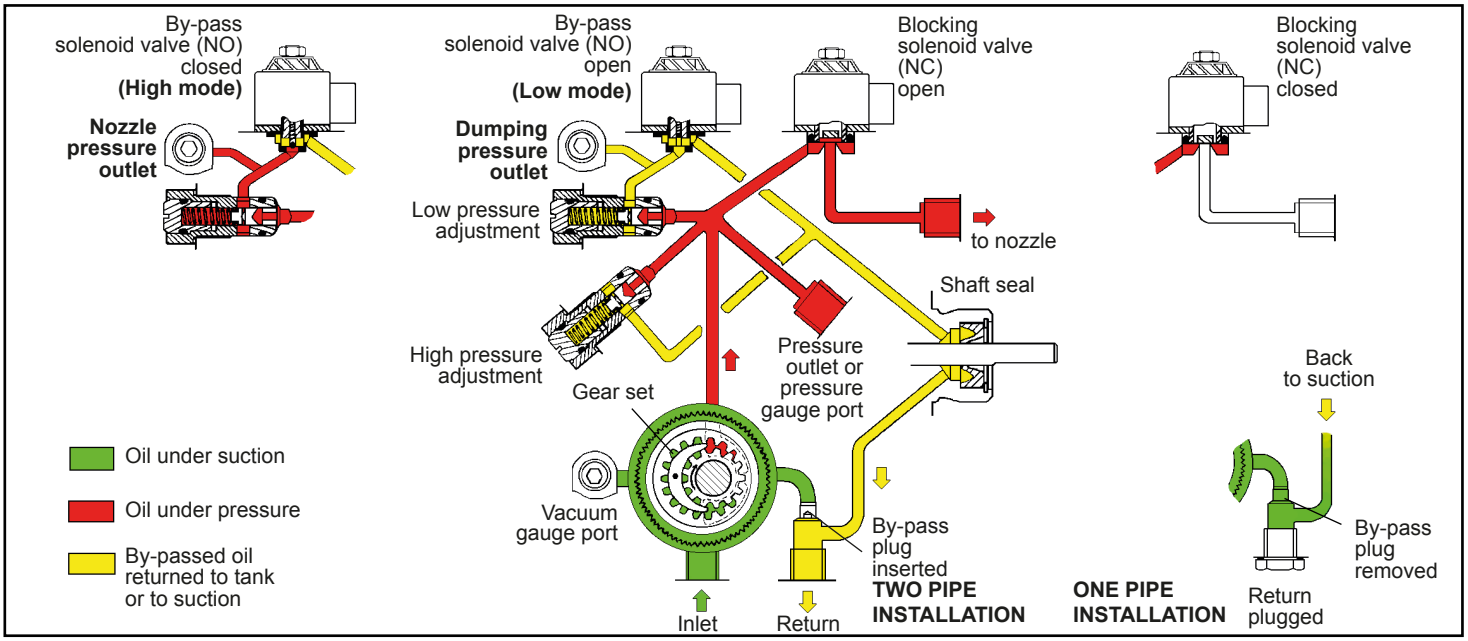
AT	3	V	45	C	9	5	xx	4	P	07	00

Revision number

Installation
P : by-pass plug installed for two-pipe operation
M : without by-pass plug, return plugged for one-pipe operation

Solenoid coil voltage
06 : 110-120 V ; 50/60 Hz
02 : 24 V ; 50/60 Hz
05/07 : 220-240 V ; 50/60 Hz

Connector cable length
00 : no cable
35 : 35 cm - 45 : 45 cm
60 : 60 cm - 10 : 1 m



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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 outlet	G 1/8
Pressure gauge port	G 1/8
Vacuum gauge port	G 1/8
Valve function	Pressure regulation
Strainer	open area : 6 cm^2 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 from return port with a 4 mm Allen key 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

(other ranges available on request, refer to the specified range of the particular fuel unit).

Operating viscosity	2 - 12 mm^2/s (cSt)
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 (AT3 45/55) 0,12 N.m (AT3 65)

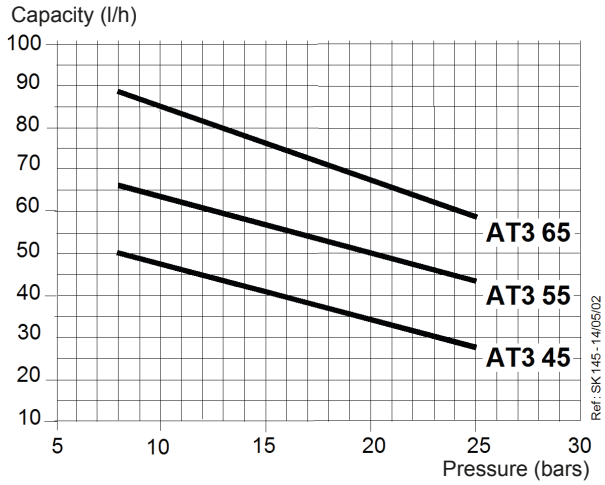
Solenoid valve characteristics

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
Certified	TÜV Nr stamped on pump cover
Protection class	IP 54 according to EN 60529, when used with SUNTEC connector cable.

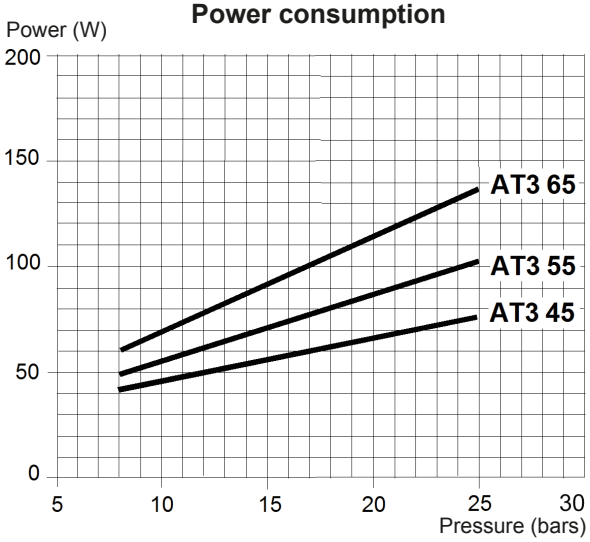
Pump capacity



Viscosity = 5 cSt - Rated speed = 2850 rpm

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



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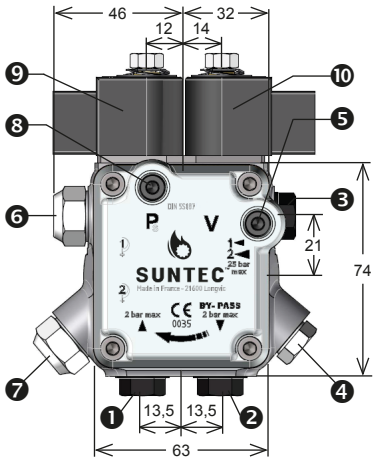
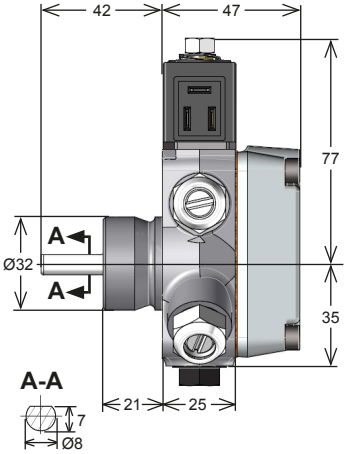
DIMENSIONS

Examples show "C" rotation and nozzle outlet.

Pumps revision 4





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