



**OIL LUBRICATION PUMPS**  
For Orifice and Injector Lubrication Systems (01 & 06).

**INSTRUCTION AND PRODUCT DATA SHEET**

3600100 3600200  
3600101 3600201  
3600102 3600202  
3600103 3600203

**ENGLISH**

**1. DESCRIPTION:**

The SMART range of oil lubrication pumps provide innovative pump packages for the Machine Tool Industry. All units are fitted as standard with built in Pressure Switch, New Low Level Switch and Pressure Gauge.

The SMART<sub>E</sub> Electromagnetic Pump is a low pressure pumping station for Orifice Lubrication Systems.

The SMART<sub>G</sub> Electric Gear Pump has been designed for systems with a working pressure of up to 30 Bar.

The pumps are available either with a built in controller card which controls the entire system or the manual version can be connected a separate control device.

The controlled version contains the Dropsa 'VIP' controller offering all the benefits of an advanced lubrication controller and infra-red programming.



**2. SPECIFICATION:**

**2.1 SMART<sub>G</sub> (Electric Gear Pump):**

**Pump ( for mineral oil)**

**Pump output :** 100 cc/min ( 6 cu.inch/min)  
**Max pressure:** 25 bar ( 362 psi)  
**Reservoir Size:** 3 Ltr. (0.79 US gallons)  
**Bypass with external regulating screw.:** Set to 25 bar (default).  
**Pressure Switch:** Diaphragm type, set to 18 bar.  
**Max. Operating time:** 2 minutes (corresponding to a minimum pause time of 15 minutes)  
**Lubricant:** Oil 100-250 cSt  
463 - 1157 SUS  
**Operating temperature:** -5° C to + 40°C

**Gear Pump Module:**

**Single phase motor:** 110V 50/60Hz  
or 230V 50/60Hz  
**Power Consumption:** 50 W  
**Insulation (Internal motor) :** Class F

**2.2 SMART<sub>E</sub> (Electromagnetic Pump):**

**Pump ( for mineral oil)**

**Pump output:** 90 cc/min ( 5.5 cu.inch/min)  
**Max pressure:** 15 bar ( 218 psi)  
**Reservoir Size:** 3 Ltr. (0.79 US gallons)  
**Bypass with external regulating screw.:** Set to 5 bar (default).  
**Pressure Switch:** Diaphragm type, set to 4 bar.  
**Max. Operating time:** 2 minutes (corresponding to a minimum pause time of 15 minutes)  
**Lubricant:** Oil 100-250 cSt  
**Operating temperature:** -5° C to + 40°C

**Electro Magnetic Pump Module:**

**Pump Module:** 110V 50/60Hz  
or 230V 50/60Hz  
**Power Consumption:** 90 W  
**Insulation (Internal motor) :** Class F

**2.3 ALL MODELS:**

**Minimum oil level switch**

**Reversible Operation**

**Max. Commutable power :** 50W - 50VA  
**Max. Voltage:** 220V a.c. - 150V d.c.  
**Max current:** 1 A

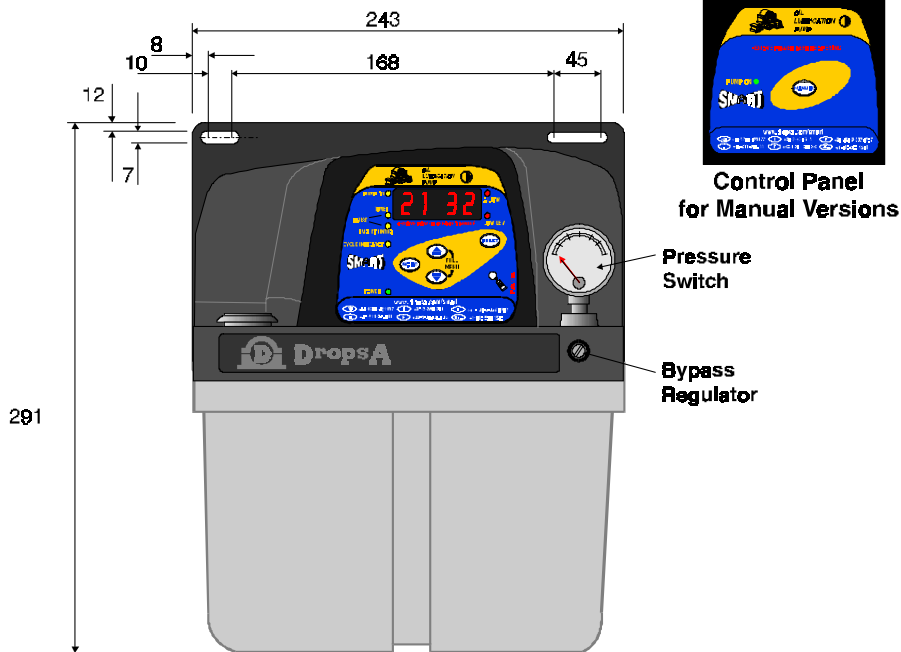
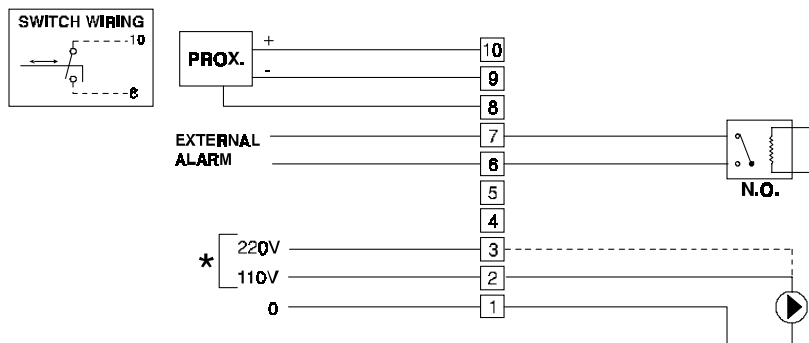
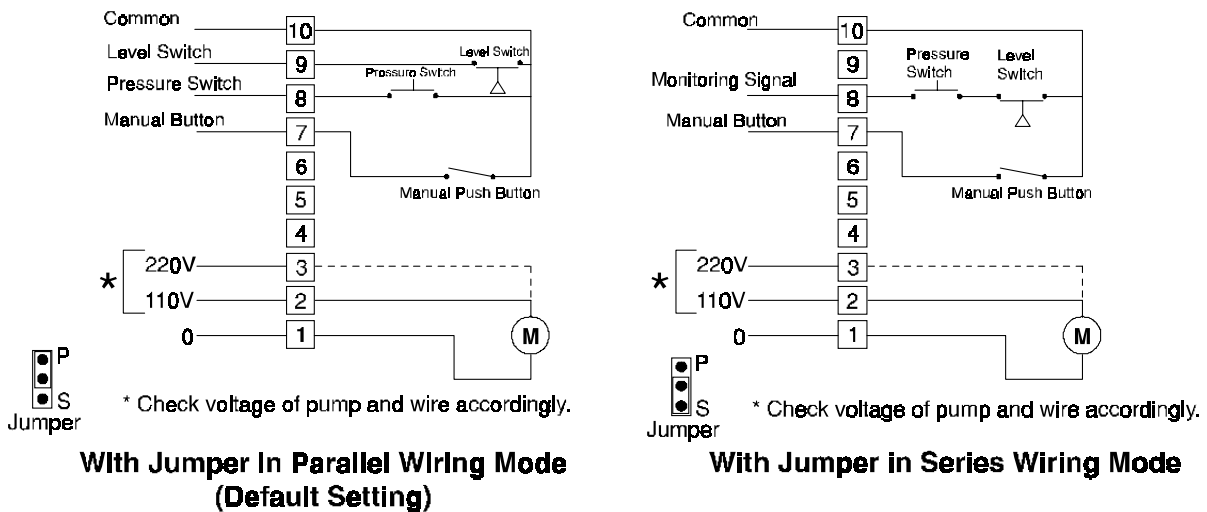


Fig. 1. Fixing Details.



\* Check voltage of pump and wire accordingly.

Fig. 2. Wiring for models with integral VIP Controller



With Jumper In Parallel Wiring Mode (Default Setting)

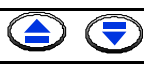






With Jumper in Series Wiring Mode

Fig. 3. Wiring for manual models.



**TABLE 1. MENU OPERATION:**

**System Menu:** The System Menu is used to configure pump and the Lubrication System.






\* = Default setting.

Parameter	Screen Display	Description	Operation	
To access the <i>System Menu</i> press the <b>UP</b> and <b>DOWN</b> buttons together and hold for two seconds.  				
Alarm Contact.	<b>ALNC</b> <b>ALCA</b>	Alarm Contact will close on alarm Alarm Contact will open on alarm		Press the <b>UP</b> button to change between the two options.
Lubrication System Type	<b>SEP</b>	Progressive System - Monitors switch on progressive divider. Contact has to change state twice to complete cycle and switch off the pump.		(Note: SMART <sub>E</sub> Electromagnetic Pumps are not suitable for progressive systems.)  Press the <b>UP</b> button to switch between the three options.
	* <b>PSI</b>	Monitors a pressure switch on Single Line Systems.		
	<b>CLOC</b>	No monitoring, just timer.		
Press the <b>MODE</b> button to go to the next option.  				
Pause Interval Selection	* <b>TI</b>	The Pause between the <i>Pump ON</i> cycle is determined by a timer.		Press the <b>UP</b> button to switch between the three options.
	<b>CYCL</b>	The Pause between Pump cycles is determined by the cycle switch input connected to pulse		

**Operator Menu:**

The *Operator Menu* is used to adjust the *Pump ON* cycle and the (timer/impulse) pause interval.  

To access the *Operator Menu* press and hold the **MODE** button for two seconds.

Parameters	Screen Display	Description	Operation	
<i>Pump On</i> Time	<b>MMSS</b>	Indicates the Minimum <i>Pump ON</i> time in minutes and seconds		Use the <b>UP</b> and <b>DOWN</b> buttons to adjust the setting.
		Exit and go the next option.		Press the <b>MODE</b> button and hold for two seconds.
Pause Timer or Impulse Counter	<b>HH:MM</b>	Indicates <i>Pause Interval</i> in hours and minutes.		Use the <b>UP</b> and <b>DOWN</b> buttons to adjust the setting. 
	<b>1320</b>	Indicates number of impulses between cycles. If set to 0 will cycle every time an impulse is received.		
Press the <b>MODE</b> button and hold for two seconds.		Return to normal operating mode		

**DEFAULT ON TIME 30 SECONDS / PAUSE TIME 10 MINUTES.**

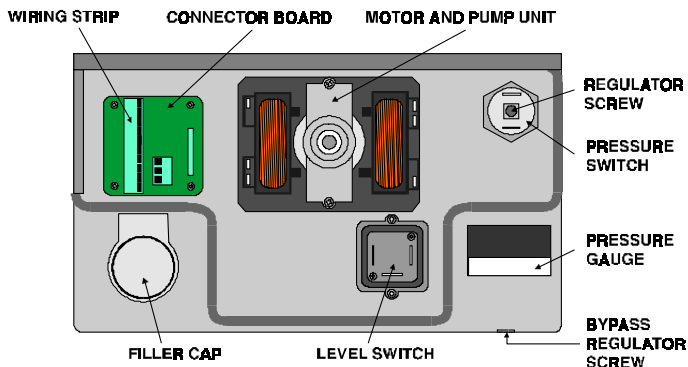


Fig. 4. View of pump with cover removed.

## Control Board Options:

### Manual Control

#### Manual override button. Pump on indicator.

The wiring of the Level and Pressure Switches can be in series or parallel as shown in Fig. 3. The Jumper is located under the pump cover.

### Integrated 'VIP' controller

#### Max On Time:

2 minutes (1 second increments)

#### Max Pause Time:

99 hours 56 minutes (1 minute increments)

#### Max Pause Counter:

Up to 1 - 2500 impulses (10 impulse increments)

#### Monitoring:

Pressure switch (standard), Proximity switch for progressive systems (NPN/PNP) or disabled.

#### Suspend function:

Allows user to suspend operation of controller.

#### Infra-red receiver:

For remote programming of settings.

## 3. INSTALLATION/OPERATION:

### Installing the pump

a) Unpack and inspect the pump for damage. Do not attempt to operate the pump if it has been damaged.

b) The pump must be fixed into place using the two fixing slots indicated in Fig. 2. Wire the pump as indicated in Fig. 3.

c) Fill the reservoir with a suitable oil. Never run the pump dry; this may cause damage to the pump.

d) Connect the output of the pump to the lubrication system using an appropriate fitting.

If you do not have a pump with a VIP Controller you are ready to run the system.

If you have a VIP controller in your pump you must proceed to the programming section.

**Follow the usual priming instruction for your system.**

### Adjust the Working Pressure

You may adjust the working pressure by turning the Bypass Screw clockwise to increase or anti-clockwise to decrease. If pressure is set to below 20 bar you will need to reset the pressure switch externally to an appropriate (lower) setting.

### Setting the control parameters from the front panel (Models containing 'VIP' controller only).

To set all parameters apply power to the pump unit and press + for 2 seconds. Then follow the instructions in Table 1.

To modify the Pump ON and Pause value only, press the button for 2 seconds.

### Setting the control parameters from the remote programmer

To download the control parameters via infra-red you should:

- 1.) Apply power to the pump
- 2.) Press reset button on the pump
- 3.) Point the programmer at the symbol and press transmit on the programmer.

The pump controller will flash lights sequentially for approx. 5 seconds to confirm that the data has been received correctly.

## 4. TEST PROCEDURES:

### Pump test procedures

Connect a tube to the outlet and check that oil is coming out when the pump light is ON

Block the pump outlet and check that the pump is achieving the desired pressure.

If the above is successful then the pump is in a proper working condition.

### VIP test procedures

The integrated 'VIP' performs a self-test on power-up. No testing is required. If an alarm condition occurs you should check the Diagnostic Table 9.2

## 5. ORDERING INFORMATION:

### SMART<sub>E</sub> (Electromagnetic Pump):

Part No.	Description
3600100	SMART <sub>E</sub> Pump 110V No control
3600101	SMART <sub>E</sub> Pump 230V No Control
3600102	SMART <sub>E</sub> Pump 110V with integrated 'VIP' controller
3600103	SMART <sub>E</sub> Pump 230V with integrated 'VIP' controller

### SMART<sub>G</sub> (Electric Gear Pump):

Part No.	Description
3600200	SMART <sub>G</sub> Pump 110V No control
3600201	SMART <sub>G</sub> Pump 230V No Control
3600202	SMART <sub>G</sub> Pump 110V with integrated 'VIP' controller
3600203	SMART <sub>G</sub> Pump 230V with integrated 'VIP' controller

## 6. SPARES

Pressure Switch: **Part No. 3291022**

Level switch: **Part No. T.B.A.**

Pressure Gauge: **Part No. 3292053**

Generally it is advisable to replace the whole unit and return failed unit for investigation.

## 7. SAFETY REQUIREMENTS

SMART<sub>G</sub> Electric Gear Pumps must be installed and operated in accordance with the requirements of this Instruction Sheet and should not be used for any purpose other than that specified without the agreement of the suppliers.

In addition to the need to observe general safety requirements the following specific hazards apply:

Before installing or removing SMART<sub>G</sub> Electric Gear Pumps from the system disconnect and isolate all power supplies and ensure all pressure is removed from the system.

## 8. OPERATING ENVIRONMENT

SMART<sub>G</sub> Electric Gear Pumps must not be operated in excessively corrosive or aggressive environments.

They have been designed for use on normal indoor light and medium industrial machining applications.

If in doubt, please contact our Technical Office.

## 9. DIAGNOSTIC TABLES:

### 9.1 Pump Diagnostic

FAILURES	PROBABLE CAUSE	REMEDY
Pump discharges little or no lubricant	Lubricant in the reservoir below the minimum level.	Re-fill the reservoir.
	Loose fittings inside the system.	Check fittings for leakages.
	Pump damaged	Replace the pump.
Wrong operating pressure	Wrong setting of pressure adjustment valve (by-pass)	Fit pressure gauge and set the pressure adjustment valve to the correct pressure.
No pressure relief in the line at the end of lubrication cycle	Relief valve damaged.	Inspect the relief valve and replace if necessary.
	Irregular operation of relief valve	Inspect the relief valve and replace if necessary.

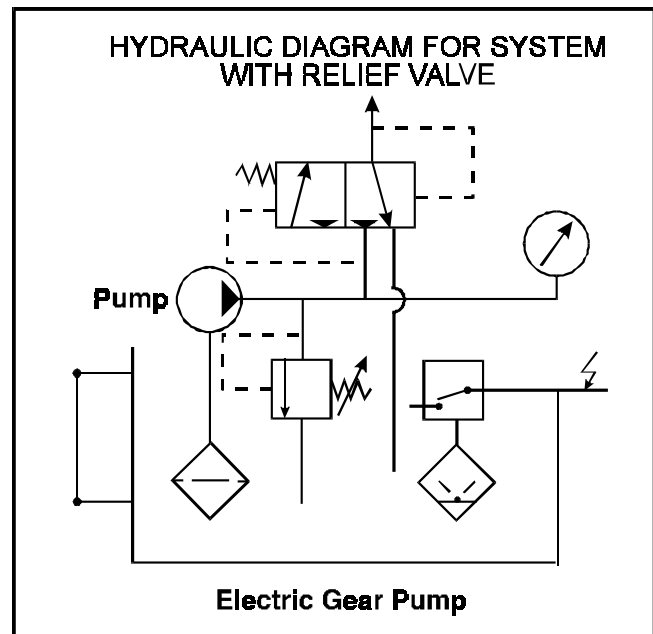
### 9.2 'Vip' diagnostics

ALARM CODES	DESCRIPTION OF FAULT	ACTION
AO1	No parameters set.	Set parameters.
AO2	Low Level alarm.	Add lubricant to the system
AO3	The change-over contact (in <b>SEP</b> mode) has not cycled within the specified 'Pump ON' times.	Check for loose fittings and blockages in progressive system and rectify.
AO4	<b>PS</b> Mode: Pressure was already high before the start of the cycle.	Check pressure switch and replace if necessary.
AO5	<b>PS</b> Mode: The system did not achieve pressure during the specified cycle times.	Check for leakage from loose fitting and rectify.

## 10. Related Products.

Dropsa Lubrication Systems 01 and 06

VIP Remote Programmer Module.



**AN ISO 9001 APPROVED COMPANY**

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