Pump 242
DROPSA SpA

In accordance with point 1.7.4, to I, Dir CEE 89/392

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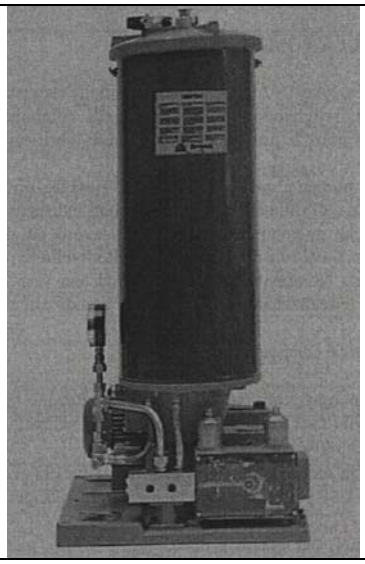
DECLARATION OF CONFORMITY



Catalogue **P/N C2022IE – Wk 17/99**

Registered name	DROPSA SpA
Address	via Croce 1, 20090 Vimodrone (MI), Italy
Model	**Pump 242**
Year of manufacture	1999
Marking	**CE**

0.0 INTRODUCTION

This user's and maintenance manual refers to a **pump 242**, for use in oil and grease lubrication systems with pressures up to 150 bar.
The pump permits the distribution of oil and grease in lubrication systems.
It is recommended that this manual is carefully kept in good condition and is always available to persons requiring to consult it.
To request further copies, updates or clarifications with respect to this manual contact the Engineering Department at Dropsa SpA.
The use of the pump referred to in this manual must be entrusted to qualified personnel with a knowledge of hydraulics and electrical systems.
The manufacturer reserves the right to update the product and/or the user's manual without the obligation to revise previous versions. It is however, possible to contact the Engineering Department for the latest revision in use.
The pump, and any accessories mounted on it, should be carefully checked immediately on receipt and in the event of any discrepancy or complaint the Dropsa SpA Sales Department should be contacted without delay.

DROPSA S.p.A. declines to accept any responsibility for injuries to persons or damage to property in the event of the non-observance of the information presented in this manual.
Any modification to component parts of the system or the different destination of use of this system or its parts without prior written authorisation from DROPSA S.p.A. will absolve the latter from any responsibility for injury or

damage to persons and/or property and will release them from all obligations arising from the guarantee.
Instructions for the correct ordering of the required model, and a list of importers, is shown in Section 4.

1.0 DESCRIPTION OF THE PUMP

The 242 series lubrication pumps can be utilised to meet many needs without mechanical modifications, even after installation. By selecting from a range of perfectly compatible and easily assembled components it is possible to vary the pressure, the quantity of lubricant delivered, the type of lubricant or the type of distribution.
This pump is particularly suited to the heavy industrial sector, with its features of long life, safe and constant functioning and reduced maintenance being indispensable for ensuring a perfect and efficient lubrication of machinery working under heavy and demanding conditions, and in particular where continuous operating is required to ensure a high level of production.
The complete machine, mounted on a base, can be considered a true central lubrication unit with its high performance permitting an extensive layout and a high number of lubrication points.

This lubrication unit is made up of:

- a pump assembly with a robust cast aluminium pump body housing a pump element assembly with hardened, ground and lapped steel pistons.
- Three phase electric motor: 220/380V – 50 Hz-0.75 kW.
- Reduction gearbox in light alloy with a bronze helical gear wheel and a hardened and ground steel shaft. Available in three versions, with 1:10 ratio for a capacity of 450 cm^3/min; 1:20 for a capacity of 225 cm^3/min and 1:40 for a capacity of 110 cm^3/min.
- A tank of 65 Kg (65 daN) for grease and 65 litres for oil, mounted on a support flange equipped with a lubricant reserve and minimum level signalling device and a tank filling valve (only for grease tanks).
- Electromechanical inverter to control the inversion of the lubrication lines (*24V – 50 Hz solenoids standard, other voltages and frequencies on request).*
- Non-return valve assembly, delivery filter and pressure regulator, mounted on the pump element assembly outlet.

The regular functioning of the pump is controlled by electrical equipment which commands the electromechanical inverter and allows the regulation, through timers, of the pause and work times of the lubrication cycle.

In addition, the electrical equipment, by means of suitable lamps, signals the correct functioning of the system, actuates a visible alarm system and, on request, an acoustic alarm, when the lubricant level falls to the reserve and minimum levels.

Two separate lubrication outlets are provided from the pump assembly.
Two types of tanks, for oil or grease, and level indicators can be fitted on the same structure.

Control of the pump is by use of normal electrical equipment which provides for the inversion of the direction of rotation and the execution of the programmed cycles.

The electrical motor driven pump 242 is totally protected from the outside environment and can operate without difficulties even under the most severe environmental conditions.

The pump is made up of a series of components:

CHARACTERISTICS	**PUMP 242**
Pump capacity cc/min	Max 450
Max. pressure Bar	150
Tank capacity Litre/Kg	65/65
By-pass setting (with internal setting system)	120 bar
Min. work time (sec)	24 (min. pause time 96 sec)
Characteristics of the mineral lubricant at working temperature	cSt 15 ÷ 1500 (oil) max NLGI 2 (grease)
Operating temperature	- 5 °C - + 40 °C
Motor	3 Phase 220 – 380 50 Hz -1500 rpm
Absorbed power	750 W Others on request
Grade of protection	IP 55
Insulation	Class F
Max. weight Kg	140

1.1 Electrically driven pump

This automatic electrically driven pump employed for the lubrication of heavy duty machinery with particularly needs, and is particularly suitable for those industries where it is essential to ensure continuous operation and so a high level of production.
The complete machine, mounted on a base, can be considered a true central lubrication unit with its high performance permitting an extensive layout and a high number of lubrication points.
Care has been taken to ensure each individual component is of a very high degree of reliability.
The regular functioning of the pump is controlled by electrical equipment fitted with acoustic and visual alarm devices.
The electrical equipment controls the pause times and the lubrication cycles, the line end pressure and the lubricant level by signalling the reserve and the minimum level.

1.2 Valve, filter and pressure regulator assembly

This assembly, fitted on the pump element outlet, is composed of three sub-assemblies:

- **double return valve** (10); internal cleaning is achieved by unscrewing the two plugs (12).
- **filter** (4) (one piece, different depending on whether for oil or grease), cleaning is effected by removing the plug (7).
- **pressure regulator valve** (20); this valve is set at the factory at a pressure of 120 Kg/cm^3 and can be adjusted between 50 and 150 Kg/cm^3.

This adjustment is carried out by loosening the lock-nut (27) and turning the regulating nut (28). Clockwise rotation of the nut increases the pressure and anticlockwise rotation decreases the pressure.
On the double valve (10) there is a connection with an air vent plug (18 – 19) which must be used when the pump

fails to operate due to a lack of lubricant.
This valve assembly does not require any particular maintenance but, periodically, it should be carefully inspected and cleaned to ensure that the pump tank has not been filled with dirty lubricant.
The only parts which can be damaged are the spheres, which should be checked and replaced if necessary.

1.3 Reduction gearbox

The reduction gearboxes are available in three versions with, respectively, ratios of 1/10 1/20 1/40.
The choice of the ratio is made in function of the type of system by consulting the table in the motor-driven pump instruction sheet.
These reduction gearboxes consist of a primary shaft (7) for the endless screw (6) and a helical gear wheel (37).
The shafts are of hardened and ground steel.
The input shaft rotates on ball bearings while the slow shaft is mounted on bronze bushes.
The helical wheel is made of bronze.
The housing is made of cast light alloy.
Lubrication of the parts is by oil bath of the same type employed on the pump con rod assembly, with a viscosity between 16 - 18° E at 50°C.
Filling must be effected closed hole with plug (3), and the oil level must reach the plug hole marked “S”.
The reduction gearbox oil, as with that of the pump, must be changed every 1000 operating hours.

1.4 Electromechanical inverter

This inverter assembly consists of a box containing electromagnets for controlling the inversion and an inverter body with a piston valve for the inversion of the lubricant delivery into one or the other line.
The piston valve (36), is operated through a con rod (33) actuated by an eccentric shaft (44).
This eccentric has two positions separated by 180°.
The positioning of the eccentric occurs through a pair of lever devices controlled by two electromagnets (8).
The two electromagnets are in turn actuated by the end of line pressure switch, Part N° 1124400.
The eccentric drive shaft (50) is connected to the pump assembly (assembly N° 242050), so the electromechanical inverter is actuated exclusively by the rotation of the pump.
However, the eccentric will operate only when one of the two electromagnets actuate levers 92 or lever 99.
The eccentric, having a movement of 180°, will be blocked by the opposing lever.
At every complete 360° rotation, the eccentric, by means of the pin located on the con rod, actuates the microswitch (13), in this way signalling the completion of one lubrication cycle.
The electromechanical inverter assembly is designed in every detail to offer maximum reliability in use.
In fact, all the levers are rearmed with safety devices.
To avoid the electromagnet rods impeding the impact of the electromagnet armature, on the end of the rod (59) there is located a pin (62) under pressure of a spring (63), which is sufficient to actuate levers 99 and 92.
The electromagnets can be operated manually by means of the button (76).
It returns to its original position, in accordance with standard 75.
Maintenance and replacement parts.
Where the lubrication system is installed on continuously operating machinery, in addition to having a complete reserve unit, it would be advisable to have on hand one inversion valve assembly and two electromagnets.

1.5 Tank for grease

The cylindrical grease tank, with a capacity of approx. 65 kg, is manufactured from welded sheet steel and fitted with a rapid opening cover (4), and a pressure piston (10) guided by a central rod (13).
The tank is protected externally with oil resistant synthetic paint.
During the filling of the tank, the pressure piston rises and, when it reaches its highest point, it displaces the pin (2) making the red end of the rod (X) visible externally (visible maximum level signal) at the same time pushing the stem of the electric indicator to the maximum level.
In the upper part of the tank wall there is a small hole for the venting of air.
By removing the cover it is possible to extract, using a manual or pneumatic lifting device hooked onto ring (3), the rod – guide and the pressure piston.
The filling of the tank is effected from the bottom, through a valve located on the tank connecting flange (see assembly N° 242055) utilising the 4:1 ratio pneumatic pump – Part N° 2036702, and having the filter Part N°

234281 on the pump suction tube to avoid introducing impure lubricant into the tank and, as accessories the reducer connector Part N° 242064, the flexible air tubing Part N° 10100 and the flexible lubricant tubing Part N° 101779.
It is absolutely inadvisable to fill the tank without filtering the lubricant as, even if supplied in original sealed containers, the lubricant can still contain some impurities.
It is recommended to only use good quality lubricants, without corrosive or solid substances, with good pumpability characteristics.
For the type of lubricant to use, contact your local reliable supplier or consult the attached table "Recommended lubricants" (Sheet N° 7173910).

1.6 Tank for oil

The cylindrical oil tank, with a useful capacity of 65 litres, is manufactured from welded sheet steel and fitted with a rapid opening cover (5).
The tank is protected externally with oil resistant synthetic paint.
The cover is fitted with a filling plug (4), a magnetic filter (2) and a maximum level magnetic contact (7).
Filling, in addition to being possible by pouring from above, can be effected utilising the 1:1 ratio pneumatic pump Part N° 72161, complete with flexible lubricant hose, which requires for its operation the flexible air hose Part N° 101100.
It is recommended to only use good quality lubricants, without corrosive or solid substances, with good pumpability characteristics.
For the types of lubricant to use contact your local reliable supplier.

1.7 Minimum reserve level and maximum level indicator

Type electromechanical

Indicator maximum switchable power 15 A; maximum switchable voltage 250 VAC, maximum current:
- 15 AA. 125 – 250 – 480 VAC.
- 0.4 AA. 125 VDC.
- 0.2 AA. 250 VDC.

The reserve actuates a luminous signal on the pump and on the electrical cabinet and, where fitted, also starts the tank refilling pump (which is switched off by action of the maximum level). The minimum level provokes the stopping of the pump.

1.8 Pressure gauge

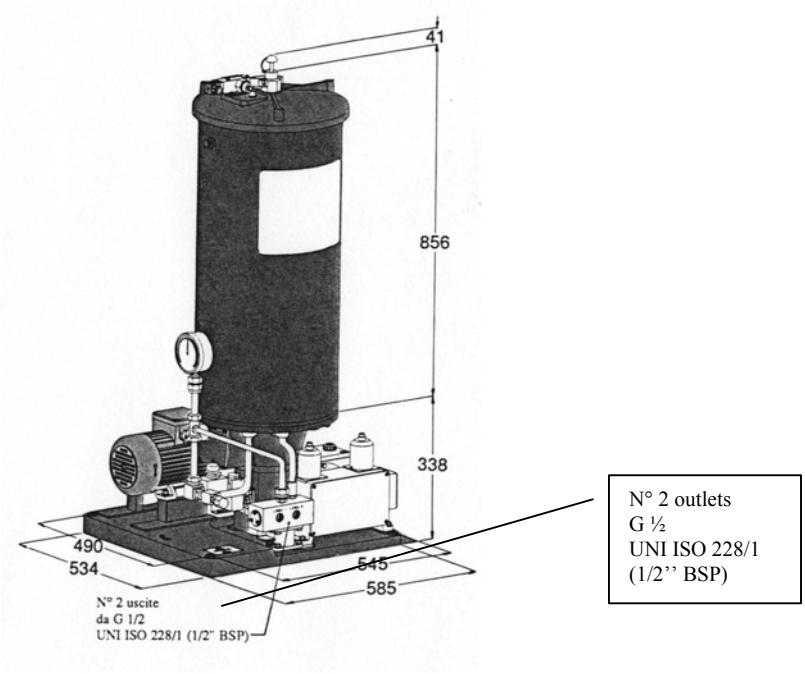
DESCRIPTION	Part N°
Only one version is provided	20554 300 bar

1.9 Control of functioning

The 242 pump can be supplied with an electrical control cabinet fitted with indicators for on/off, lubricant minimum level, reserve and maximum level, pressurisation of the two lines, alarms, incomplete/incorrect lubrication cycle and power on.
In addition there is a selector for the continuous operation or timed operation of the lubrication system and two timers to regulate the pause and lubrication times.

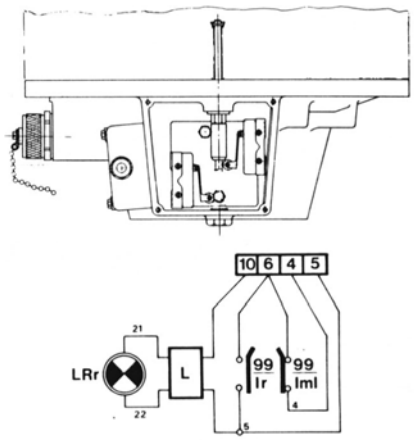
2.0 TECHNICAL SPECIFICATIONS

2.1 Fixing and overall dimensions



2.2 Electrical system – Technical Data

Electrical power supply:	220 - 380 V 50 Hz
Absorbed power:	Approx. 0.75 kW



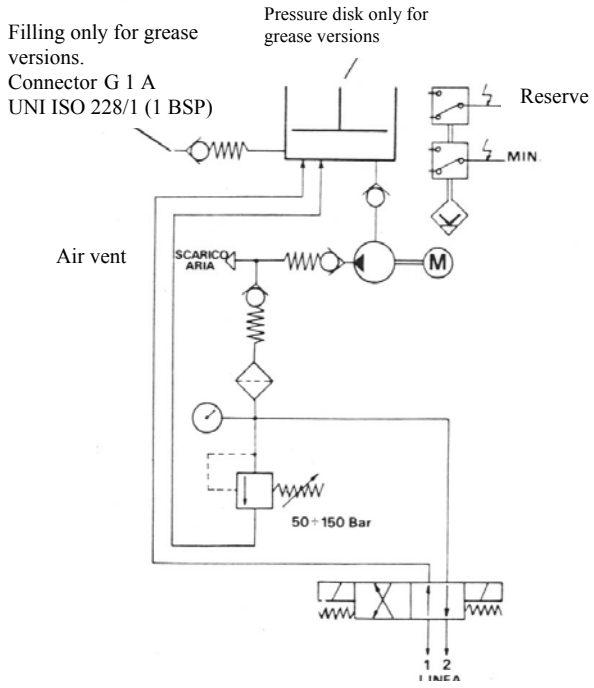
Electrical connections diagram
Red luminous signal
Blinker
Reserve switch
Minimum level switch

Schema connessioni elettriche.
LRr - Segnale luminoso rosso.
L - Lampeggiatore.
99/Ir - Interruttore riserva.
99/Iml - Interruttore minimo livello.

2.3 Hydraulic system – Technical Data

Connection between the pump and the valve block by steel tubing with connectors (see attachment 7);

HYDRAULICS DIAGRAM



Line

2.4 Other data

Class of protection	F
Grade of mechanical protection	IP 55
Operating temperature	- 5 - + 40 °C
Operating humidity	90 % relative humidity
Preservation temperature	- 20 - + 50 °C
Level of continuous sound pressure	< 70 dB(A)

3.0 CORRECT USE

3.1 Putting into service

Damage to the power supply cable and housing could result in contact with high voltage live parts and hence be a danger to:

- carefully check the integrity of the power supply cable and the unit before use;
- In the event of there being damage to the power supply cable or the unit, DO NOT put the system into service!;
- Replace the damaged power supply cable with a new one;
- The unit can be opened and repaired ONLY by qualified personnel;
- In order to prevent dangers of electric shock due to direct or indirect contact with live parts it is necessary that the electrical power supply line is adequately protected by a suitable differential magneto-thermal circuit breaker with an intervention threshold of 0.03 Ampere and a max. operating time of 1 second.
  The breaking capacity of the circuit breaker must be ≤ 10 kA and the nominal current In = 6 A.
- The pump MUST NOT be submersed in fluids or utilised in environments which are particularly aggressive or explosive/inflammable if not prepared for this purpose beforehand by the supplier.

- For correct fixing verify the distance between centres shown in the diagram in Section 2
- Use gloves and safety glasses as required in the lubrication oil safety chart;
- DO NOT use aggressive lubricants with NBR gaskets and seals; if in doubt consult the Engineering Department of Dropsa SpA, who will provide a chart with the details of recommended oils;
- DO NOT ignore dangers to health and observe all hygiene standards;
- WARNING! All electrical components must be grounded. This refers to both electrical components and control devices. In this regard ensure that the ground cable is correctly connected. For reasons of safety the ground cable must be approx. 100 mm longer than the phase cables. In the event of accidental detachment of the cable, the ground terminal must be the last to be removed.

Action to be taken prior to start up

- Verify the integrity of the pump;
- Fill the tank with suitable lubricant;
- Verify that the pump is at operating temperature and the tubing free from air bubbles;
- Check that the electrical connections have been effected correctly (UNI 64/8, IEC …);

The pump is supplied with a minimum level and reserve switch (maximum level on request)

3.2 Use

1. Verify the settings made;
2. Press the start button of the machine to which the 242 series pump is connected;
3. Verify the starting of the pump;
4. Verify the adequate lubrication of the machine (if doubt exists as to the correct functioning consult the Engineering Department of Dropsa SpA to request test procedures).

3.3 Transport and storage

Transport and storage is effected in wooden packing.
No particular precautions are required except as noted on the packing itself.
Handling must be effected utilising suitable lifting equipment.

- *After having removed the packing, lift the pump utilising the brackets provided on the sides of the base.*
- *The machine components can withstand temperatures, during storage, from -20 to +50°C; however, in order to avoid damage, starting of the machine should occur at a minimum temperature of -5°C*

3.4 Assembly/Disassembly

No pump assembly operations are envisaged.
For fixing utilise the holes provided on the external of the base. Ensure adequate space is available (as shown in the installation diagram) to avoid abnormal postures and possible impacts (see section 2).
Subsequently it will be necessary, as previously described, to connect the pump to the machine hydraulically and then to connect the control panel.
During the disassembly phase ensure the tank is empty.
Disconnect the electrical and hydraulic parts.
Where the machine is to be scrapped, do not dispose of potentially polluting parts in the environment, following local regulations for their correct disposal.
At the time of the machine being scrapped it is necessary to remove and destroy the identification plate and all other relative documents.

3.5 Regulation

Pressure
The working pressure can be regulated by rotating the by-pass screw in a clockwise direction to increase it and anticlockwise direction to decrease it.

3.6 Maintenance

- *Locate the machine in conditions which facilitate easy access.*
  Utilise individual protection to avoid contact with mineral oil and grease.

Periodic inspections
Periodically it is necessary to check:

VERIFICATION	WORK CYCLE
The state of lubrication	1000
Cleanliness of the filling and intake filter	4000

The machine does not require any special tools to carry out checks or maintenance tasks, However, it is recommended that only tools suitable for the tasks and in good condition should be utilised (DPR 547/55) to avoid injury to persons or damage to machine parts.
Take due care when cleaning the tank (machine switched off and not able to restart inadvertently).

3.7 Repairs

Anomaly	Cause	Remedy
The pump does not deliver lubricant	Electric motor does not function	Check connections between the motor and the power supply. Check motor windings. Check the connecting links of the motor terminals are correctly positioned according to the power supply voltage (Star or delta connection)
	The motor rotates in the opposite direction	Remove the coupling cover (see pos. 23 on page 3 of Technical Manual 242000) and check that the coupling rotates in the direction indicated by the arrow and, if not, invert two of the three motor phases.
	Tank is empty	Fill the tank. Warning: if the tank has emptied without the minimum level electrical contact having signalled the minimum level, check the contact (see further on)
	The pump does not start. Cause of pump failing to start: 1. The motor rotates in the opposite direction 2. The lubricant being used is of a viscosity higher than that indicated in the pump specifications 3. Presence of air bubbles in the lubricant	 See above Replace the lubricant Disconnect the pump delivery tube and allow the lubricant to vent until all air is eliminated.
	The pressure regulating valve (by-pass) has been set too low. Presence of dirt in the non-return valve. Mechanical defect of the pump.	Regulate the valve. (See Technical Manual 242000, page 6 – Pos. 20). Clean or replace the valve (See Technical Manual 242000, page 6 – Pos. 10). Remove the pump and carry out the checks detailed in Technical Manual 242000.

Anomaly	Cause	Remedy
On start up (first lubrication cycle) of the plant the pump supplies lubricant, but on reaching pressure in line 1 no inversion takes place and the line remains under pressure	Incorrect electrical connections of the electromechanical inverter solenoids with the command and control panel. Incorrect connections to the control pressure switch	Invert the connections of the two solenoids and check that the pump delivers lubricant. Invert the electrical connections to the control panel
Failure to signal minimum level when no lubricant in tank	Incorrect adjustment of minimum level	Remove the level cover and move vertically in both directions the shaft which operates the microswitch (See Technical Manual 242000 Pages 13, 14).
failure to signal maximum level when tank full	Incorrect connection of the float to the microswitch	Remove the cover and move the rod Pos. 18 upwards until it actuates the microswitch (See Technical Manual 242000, Page 16). One of these two cases will be presented: 1. The lamp on the control panel illuminates: check that the rod is not impeded and that it slides freely. Eliminate the reason for lack of free movement of the rod. 2. The lamp on the control panel does not illuminate: check that, by moving the rod Pos. 18 upwards, the microswitch is actuated. If not, move the microswitch by means of the fixing screws. Check the electrical connections and, if necessary replace the microswitch.
Maximum level indicator lamp illuminates when tank is not full	Incorrect connection of the float to the microswitch	Remove the cover and move the rod Pos. 18 downwards until it actuates the microswitch (See Technical Manual 242000, Page 16). One of these two cases will be presented: 1. The control panel lamp switches off: check that the rod is not impeded and that it slides freely. Eliminate the reason for lack of free movement of the rod.. 2. The lamp on the control panel does not switch off: check that, by moving the rod Pos. 18 downwards, the microswitch is actuated. If not, move the microswitch by means of the fixing screws. Check the electrical connections and, if necessary replace the microswitch.

Anomaly	Cause	Remedy
End of line pressure switch		
Pressure switch does not send signal to the electrical control panel	Incorrect electrical connection	Check the electrical connections.
The pressure switch sends the signal before the end of the lubrication cycle	Incorrect adjustment of the pressure switch. The set pressure is too high and the regulator valve (by-pass) intervenes before the pressure switch is actuated	Reduce the setting pressure of the pressure switch until obtaining an electrical contact (See Technical Sheet 1124415)
	Incorrect adjustment of the control pressure switch. The set pressure value is too low	Increase the pressure setting of the pressure switch. The optimum setting value is that which permits a pressure at the end of the lubrication line of between 50 – 70 bar.
Double line metering valve		
Alarm signalled with lack of lubricant delivery. The rods visible inside the caps of the metering valves must move sequentially up and down when the pump is functioning. If this is not the case the two outlets or the single outlet of that metering valve is not delivering lubricant.	Metering valve piston seized.	replace the valve with one of the same specification. In all cases ensure that the valve is correctly assembled, particularly in regard to the fixing. Excessive tightening of the fixing screws can damage the metering valve and provoke the seizing of the piston.
	Tubing between the metering valve outlet and the point of lubrication obstructed.	Detach tubing and verify.
	Pressure in line too low (lubricant does not exit from the outlets or only from a few)	Adjust the pressure value of the pressure control regulator valve (by-pass) or the control pressure switch (end of line).
	Metering valve fitted for two outlets but used for only one	Check that, when used for one outlet, the correct pad is assembled and the other outlet is capped. (See instruction sheet 671200).

Anomaly	Cause	Remedy
Filling filter With the filling pump functioning, the tank is not filled or fills very slowly.	Filling filter clogged.	Remove the filter and clean or replace the cartridge.
Rigid and flexible tubing Lubricant leaks	Failure of the tubing due to excessive pressure or wearing of the material	Replace the damaged section.
Insufficient lubricant delivery	Loosening of joints due to incorrect assembly or vibration	Correctly tighten all joints utilising Teflon tape on the threads where necessary.
	Tubing crushed	Replace the damaged section and, where necessary, fit external protection.
	Dimension of the tubing bore reduced due to excessive bending.	Replace the damaged section and assemble correctly without excessive bending.

3.8 Dangers present in use

The verification of conformity with the essential safety requirements and regulations of the Machine Directive is effected by means of the compilation of a check list which has been pre-prepared and is contained in the *technical file.*

The lists which are utilised are of three types:

- list of dangers (as in EN 414 referring to EN 292)
- application of essential safety requirements (Machine Dir. - att. 1, part 1)
- electrical safety requirements (EN 60204-1).

The following is a list of dangers which have not been fully eliminated but which are considered acceptable:

- in the version of the pump without a release it is possible to encounter squirts of oil (for this reason appropriate protective clothing must be worn);
- contact with oil -> see the requirements for the use of suitable personal protective clothing;
- use of unsuitable lubricant -> the characteristics of the fluid are shown on the pump and in the manual (**in case of doubt contact the Eng. Dept of Dropsa Spa**);
- protection against direct and indirect contact must be provided by the user;
- given the purpose of the pump it must always be functioning; for this reason it is necessary to pay attention to the electrical connections which, in the case of a power failure, the customer's machine is restarted only by means of a reset, while the lubrication pump is able to restart automatically.

INADMISSIBLE FLUIDS	
Fluid	**Danger**
Lubricants with abrasive additives	High wear rate of contacted parts
Petrol – solvents – inflammable liquids	Fire – explosion – damage to seals
Corrosive products	Corrosion of the pump– injury to persons
Water	Oxidation of the pump
Food substances	Contamination of the substances themselves

4.0 INSTRUCTIONS FOR ORDERING AND LIST OF DISTRIBUTORS

VERSIONS

MOTOR-DRIVEN PUMP		CAPACITY (cc/min)	REDUCTION GEARBOX	RATIO	MOTOR	
OIL	**GREASE**				**RPM**	**HP**
242521	242501	450	242210	1/10	1500	1
242522	242502	225	242220	1/20	1500	1
242523	242503	110	242240	1/40	1500	1
242531	242511	450	242210	1/10	1500	1
242532	242512	225	242220	1/20	1500	1
242533	242513	110	242240	1/40	1500	1

REPLACEMENT PARTS

ELECTRIC MOTOR	3301129
COUPLING, UNIDIRECTIONAL	242142
REDUCTION GEARBOX:	
1/10	242210
1/20	242220
1/40	242240
COUPLING, FLEXIBLE	230002
PUMP ASSEMBLY	242050
ASSEMBLY, VALVE/FILTER/PRESSURE REGULATOR GREASE	242030
ASSEMBLY, VALVE/FILTER/PRESSURE REGULATOR OIL	242045
INVERTER, ELECTROMECHANICAL	85180

CE Declaration Of Conformity

Manufacturer:

DROPSA SpA
Company
Via Croce, 1 - 20090 Vimodrone (MI), Italy
Address
+39 02 250791
Telephone

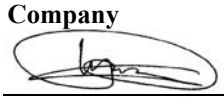
It is certified that:

The machine: Pump 242 Ver. 50 – 51 – 52 – 53

* is manufactured in conformity with the DIRECTIVE OF THE COUNCIL OF THE EUROPEAN COMMUNITY concerning the harmonisation of member states legislation relative to machines (89/392/CEE + 91/368/CEE), EMC (89/336/CEE) and BT (73/23/CEE) and relative amendments.
* is manufactured in accordance with the following standards and harmonised technical specifications:
EN 292/1, EN 292/2, EN 50081-2, EN 50082-2, CEI EN 60204-1, EN 1050.

Technical Manager — Ing. Walter Divisi
Product Manager — **Name**

DROPSA SpA - Vimodrone (MI) - Italy
Company



January 1999
Signature — **Date**

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