

Loco - Oil

3 litre reservoir - Oil

Operation and Maintenance Manual

Original instructions

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Dropsa products can be purchased at Dropsa branches and authorised distributors. Go to www.dropsa.com/contact or write to dropsa@sales.com

1. INTRODUCTION

This operating and maintenance manual refers to the “Loco - Oil” lubrication system.

The most recent version can be obtained by requesting it from the Sales Technical Office or online at <http://www.dropsa.com>.

This operation and maintenance manual contains important information for the health and safety protection of the personnel who intends to use this equipment.

This manual must be read carefully and kept so that it is always available to the operators who want to consult it.

2. GENERAL DESCRIPTION

The “Loco - Oil” pneumatic pump is suitable for feeding lubrication systems installed on machines already fitted with a compressed air system. It is a single acting pneumatic pump which uses compressed air to control lubricant dispensation.

In the standard version, the pump is fitted with a 3-litre reservoir and it can be used with 32÷1000 cSt oil. The transparent reservoir allows the remaining quantity of oil to be clearly seen. It is fitted with a filter that guarantees the intake of clean lubricant into the reservoir. There is also a minimum level sensor.

3. IDENTIFYING THE MACHINE

A label is located on the front part of the pump reservoir that indicates the product code, the pressures/power supply voltages and the basic characteristics.

4. TECHNICAL SPECIFICATIONS

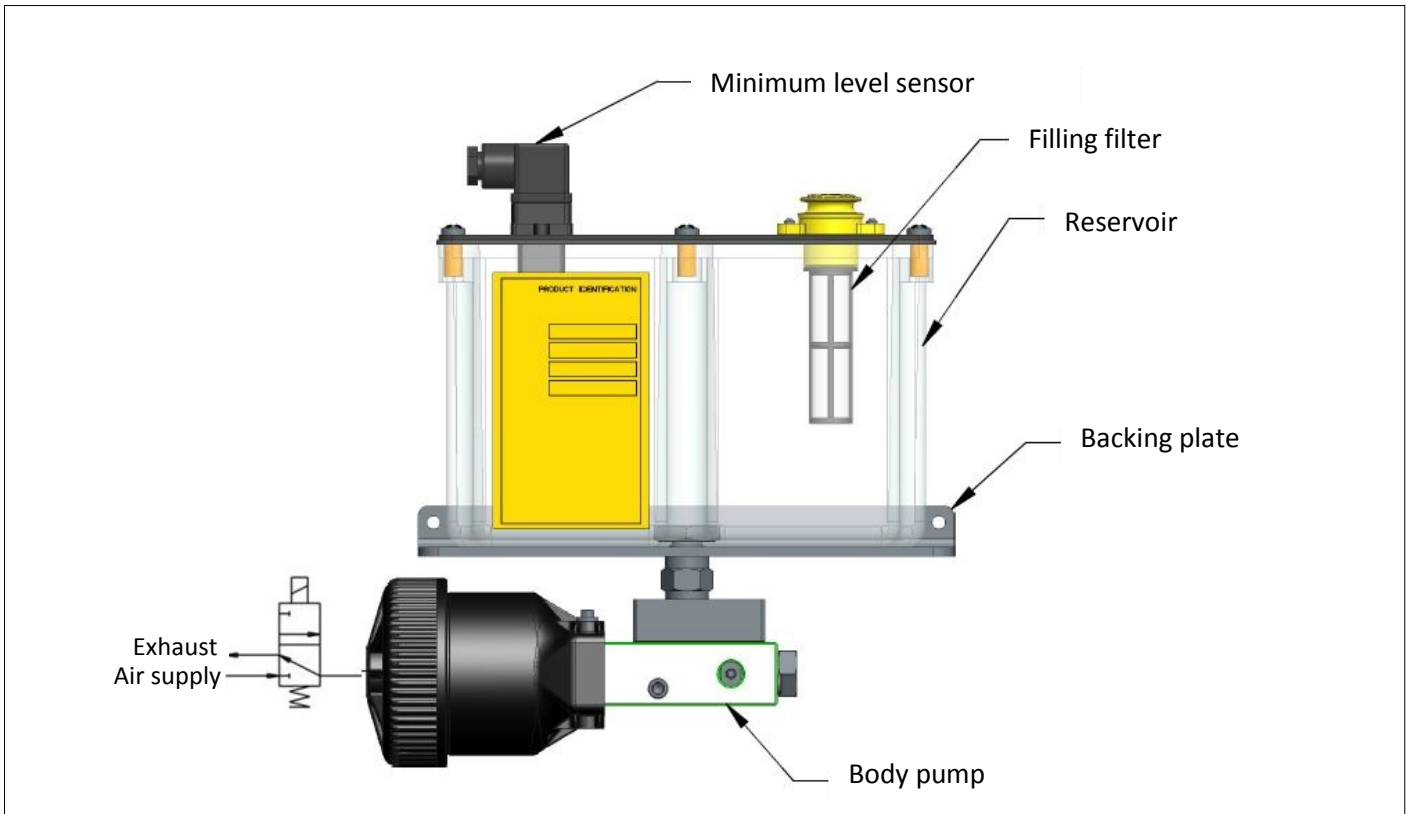
GENERAL TECHNICAL CHARACTERISTICS	
Pumping system	Single acting pneumatic piston
Compressed air supply pressure	3~6 bar
Air supply connection	G 1/8 UNI - ISO 228/1
Pumping outlet connection	G ¼ UNI – ISO 228/1
Compression ratio	50:1
Flow rate	2 cm ³ /stroke
Permitted lubricants*	32÷1000 cSt oil
Total piston stroke	36.5 mm
Piston working stroke	29.2 mm
Minimum level contact	V max.= 220 Vac I max.= 1 A P max.= 50 W
Operating temperature	+5 ~ +50°C
Storage temperature	+5 ~ +50°C
Max. relative humidity without operating condensation	90%
Sound pressure level	< 70 db (A)
Net weight	5 Kg

* If a different product is used, you must ask Dropsa S.p.A. if it is suitable for use.

5. COMPONENTS

The main parts of the pump are:

- **The reservoir** is made of transparent plastic material compatible with lubricants that are readily available on the market.
- **The pump body** is made of steel and able to dispense up to 2 cm³ (0.12 cu.in) per stroke at a pressure of 300 bar (4351 psi). A check valve is mounted inside it.
- **The level sensor** uses an electrical contact to indicate that the minimum level has been reached. The contact can be set as “NC” or “NO” (see codes).



CODE	DESCRIPTION
6770072	3-litre perforated reservoir
3050402	Support plate
3413502	Pump body
1655582 NO (for 3414067)	Minimum level sensor
1655583 NC (for 3414066)	Minimum level sensor
3130101	Filling filter

6. UNPACKING AND INSTALLATION



WARNING: The unit can be opened and repaired only by specialized personnel.

6.1 UNPACKING

Once the suitable location for installation has been identified, open the packing and remove the pump.

Ensure that no damage occurred during transport and storage.

The packing material does not require special disposal precautions as it is in no way dangerous or pollutant. For disposal, refer to local regulations.

6.2 PUMP ASSEMBLY

Provide adequate space for installation, leaving a minimum perimeter space of 150 mm.

Mount the pump at “labourer height” in order to prevent abnormal posture or possible impact.

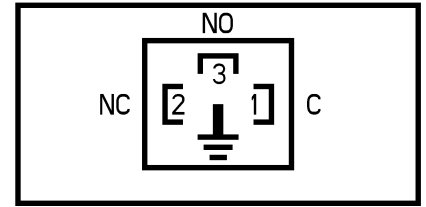
Do not install the pump in aggressive and/or explosive/flammable environments or on parts subject to vibration.

Use only the mounting plate with 2 holes for M6 mm screws. Apply flat and lock washers under the screws. For correct fixing, check the spacing dimensions shown on the figures in chapter 12.

6.3 ELECTRICAL CONNECTIONS

Before any operation, connect the minimum level as illustrated in the adjacent diagram.

Max. supply voltage 24 V.



6.4 DELIVERY CONNECTION

The hydraulic connection that must be made to connect the pump to the system is located on the front part of the pump body. The thread is standard 1/4" BSP (see the figures in chapter 12).

6.5 AIR SUPPLY CONNECTION

Connect with a 1/8" BSP fitting.

Provide a shut-off valve that allows the air supply to be stopped.

7. OPERATING INSTRUCTIONS

7.1. Start-up

- The unit can be used, opened and repaired only by specialized personnel.
- Using the pump submerged in fluids or in a particularly aggressive or explosive/flammable environment is prohibited unless it has been prepared ahead of time by the supplier for this purpose.
- Use gloves and eye protection as required by the lubricant safety data sheet.
- DO NOT use lubricants that are aggressive to NBR gaskets. If you are unsure, contact the Dropsa SpA technical office for a detailed list of recommended lubricants.
- Never ignore health hazards and always follow sanitary regulations.
- Always use suitable piping for the operating pressure.

7.1.1. Operations to carry out before start-up

- Check the integrity of the pump.
- Fill the reservoir with suitable lubricant.
- Ensure that the pump is at operating temperature and that the piping is free of any air bubbles.
- Check that the electrical connection on the level has been carried out correctly (CEI 64/8, IEC 364).
- Check the connection of the level to the control panel and operation of the same.

7.2 Use

- Check the data set on the control panel (if present).
- Press the start button on the machine where the pump is connected.
- Ensure that the pump starts.
- Ensure the adequate lubrication of the machine (if there are doubts on correct operation, contact the Dropsa Technical Office and ask for the testing procedure).

8. PROBLEMS AND SOLUTIONS

Below is a troubleshooting table where the main faults, probable causes and possible solutions are indicated. **In the event of doubts and/or irresolvable problems, do not search for the fault disassembling parts of the pump, but rather contact the Dropsa Technical Office.**

TROUBLESHOOTING TABLE		
PROBLEMS	PROBABLE CAUSES	OPERATIONS
The pump does not dispense the exact prescribed quantity	The lubricant in the reservoir is below the minimum	Add lubricant to the reservoir.
	The pump control valve does not vent	Ensure that the pump three-way pressure vent control valve vents the compressed air regularly. Vent the pump cylinder with the valve de-energised.
The pump does not dispense lubricant at the prescribed pressure or does not maintain the operating pressure.	The fittings are loose	Carefully close all the fittings, ensuring that there are no leaks
	Adjustment of the incoming air supply pressure.	Appropriately adjust the air pressure within the field of pressures indicated in the general characteristics, bearing in mind the compression ratio.
	Check valve ruined or dirty	Clean or replace the valve.

9. MAINTENANCE PROCEDURES

We have subjected the pump to strict commissioning; therefore it does not require any maintenance. **Always use lubricants free of impurities in addition to carefully cleaning the pump components periodically.**

Disassembly can be carried out as follows:

1. Disassemble the reservoir. It must be completely emptied of its content.
2. Release the supply pressure.
3. Disconnect the lines connected to the pump.
4. Unscrew the fastening screws and disassemble the reservoir.
5. Remove the pump and any filters.

This way the all the components can be cleaned. All the pieces must be washed with petroleum and lubricated before assembly.

The following must be checked periodically:

CHECK	WORKING CYCLE
The lubrication condition	100
The lubricant level	200
The cleaning of the filling filter	400
Clean the reservoir on the bottom if there are deposits	600

The machine does not require special tools for any check and/or maintenance operations. However, we recommend using tools and personal protection equipment suitable for use with reference to Legislative Decree 81/2008, and in good condition (in accordance with the prevailing regulation) in order to prevent damage to personnel or parts of the machine.

Ensure that the electrical power supply and hydraulic power are disconnected before carrying out any maintenance operations.

10. DISPOSAL

During maintenance on the machine, or in the event of its demolition, do not dispose of contaminated parts into the environment. See local regulations for their correct disposal. Upon demolition of the machine, the identification label and any other document must be destroyed.

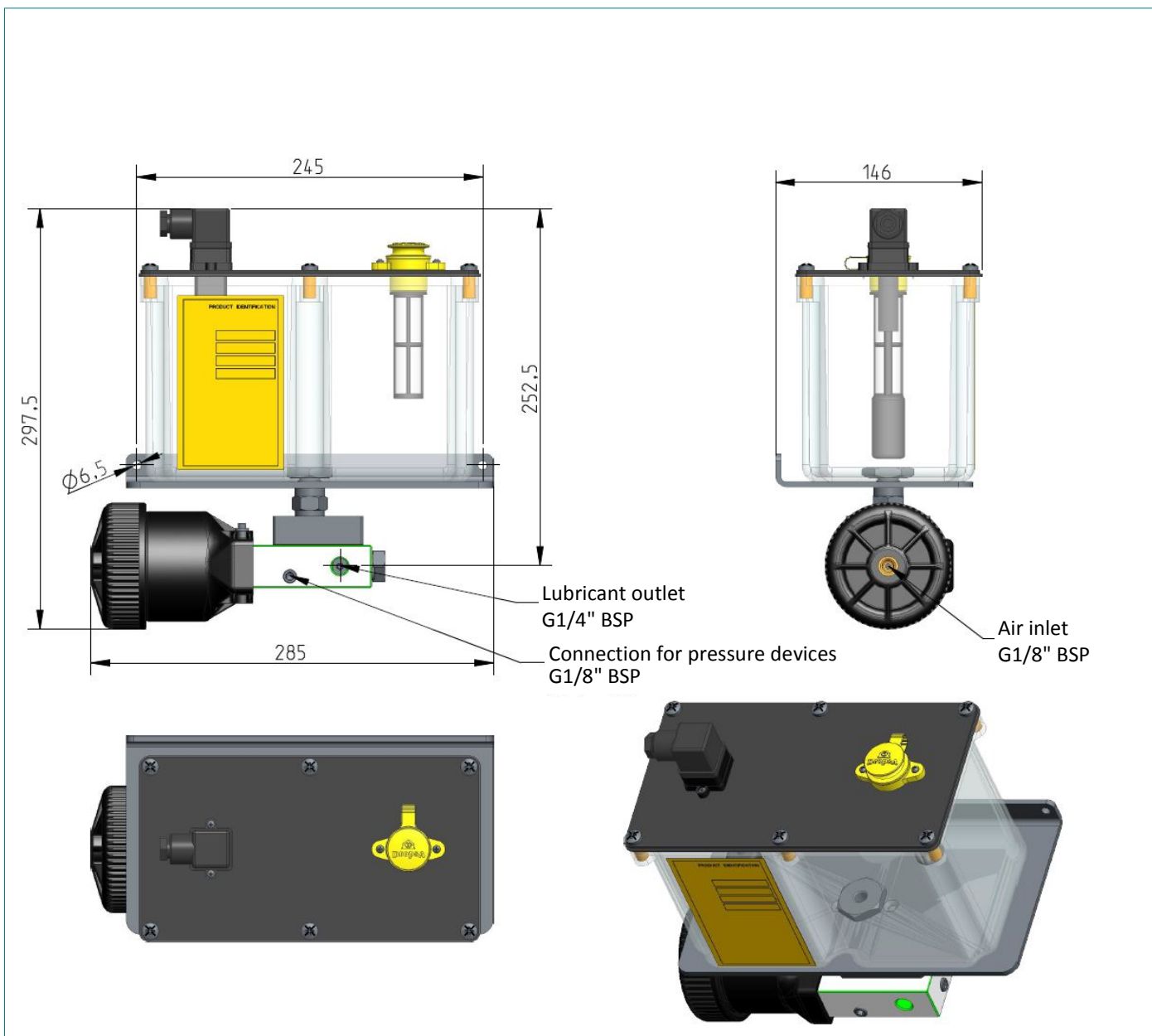
11. ORDER INFORMATION

ORDERING INSTRUCTIONS

CODE	CHARACTERISTICS
3414066	Oil pump R=50:1 Reservoir: 3 litres NC Level
3414067	Oil pump R=50:1 Reservoir: 3 litres NO Level

12. DIMENSIONS

In order to facilitate future maintenance operations, increase the required spaces by at least 100 mm.



13. HANDLING AND TRANSPORT

Before shipment, the pumps are carefully packed inside a cardboard box. During transport and storage of the equipment, pay attention to the direction indicated on the box. Upon receipt, check that the packaging is not damaged and store the pump in a dry place.

14. PRECAUTIONS FOR USE

The warnings and risks using a lubricant pump implies must be carefully read. The operator must be familiar with the functionality and clearly understand what the dangers are through the operating manual.

Electrical current: Do not carry out any operations on the machine before disconnecting the same from the electrical power supply and ascertaining that no-one can reconnect it during the operation.

All of the installed, electrical, electronic equipment, reservoirs and base structures must be connected to the ground line.

Flammability: The lubricant used in the circuits is not normally flammable. In any case, all possible measures must be taken to prevent it coming into contact with very hot parts or naked flames.

It is advisable to place fire extinguishers in proximity to the lubrication system for quick operation in the case of fire.

Pressure: Before any operation, check for the absence of any residual pressure in all branches of the lubrication circuit, that could cause spurts of lubricant in the event that fittings or components are disassembled.

Noise: The “Loco - Oil” pump does not emit excessive noise, remaining below 70 dB (A).

15. OPERATING INDICATIONS

Compliance with the essential safety requirements and machine directive provisions has been checked through the completion of check lists already drafted and contained in the *technical file*.

Two types of lists were used:

- List of hazards (taken from UNI EN ISO 14121-1 in reference to UNI EN ISO 12100)
- Application of essential safety requirements (Machine Dir - Ann. 1, part 1)

The hazards that have not been entirely eliminated, but that have been deemed acceptable, are listed below:

- During the maintenance phase, low pressure spurts of lubricant are possible -> therefore, this operation must be carried out wearing appropriate PPE.
- Contact with lubricant -> see requirements for use of appropriate PPE.
- Use of an unsuitable lubricant -> the fluid characteristics are indicated both on the pump and in the manual (**in case of doubt, contact the Dropsa Spa Technical Office**).
- Protection against direct and indirect contact must be provided by the user.
- In the pump operating logic, it must always operate, therefore you must pay attention to the electrical connection. In the event of a power outage, the customer's machinery is restarted by means of a reset, whereas the lubricant pump can restart automatically.
- Do not use alcohol to clean the machine.

PROHIBITED FLUIDS	
Fluids	Hazards
Lubricants with abrasive additives	High wear of the contaminated parts
Lubricants with silicon additives	Seizing of the pump
Petrol – solvents – flammable liquids	Fire – explosion – damage to the gaskets
Corrosive products	Corrosion of the pump – damage to personnel
Water	Oxidation of the pump
Food substances	Contamination of the same