

PICCOLA

Electromagnetic Oil Pump

User and Maintenance Manual

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1. INTRODUCTION

This manual refers to the **PICCOLA Electromagnetic Pump**. You can find additional copies and newer revisions of this document from our website <http://www.dropsa.com>. Alternatively contact one of our sales offices.

Please read this manual carefully, as it contains important information on health and safety issues. A copy of this manual should remain with the user of the product.

2. GENERAL DESCRIPTION

The Piccola electromagnetic oil lubrication pump is ideally suited for automatic oil lubrication of machine tool and machining centres in general. In particular, the pump is primarily designed to operate with the Dropsa 01 Orifice lubrication.

3. PRODUCT – MACHINE IDENTIFICATION

The pump identification label is located on the front side of the pump reservoir and contains details of the operating parameters of the pump including input voltage.



Fig.1 SYSTEM 01 VERSION and SYSTEM 33V VERSION

4. TECHNICAL CHARACTERISTICS

TECHNICAL CHARACTERISTICS		
Pump delivery	(See table below)	(See table below)
Maximum pressure	12 bar (176,4 psi)	13,5 bar (198,45 psi)
Compatible oil distribution system	01 Orifice System	33V System
Oil reservoir	1 or 3 lt.	1 or 3 lt.
Maximum pump cycle time	4 Times Standby cycle or a maximum 2 minutes	4 Times Standby cycle or a maximum 2 minutes
Compatible lubricants	Mineral Oil with viscosity 15 – 220 cSt (77.3 – 1018 SUS)	Mineral Oil with viscosity 32 ÷ 100 cSt at 20° C
Working temperature	- 5 °C ÷ + 60 °C (+23 °F ÷ +140°F)	- 5 °C ÷ +60 °C (+23 °F ÷ +140°F)
Storage temperature	- 20 °C ÷ + 60 °C (-4 °F ÷ +140 °F)	- 20 °C ÷ +60 °C (-4 °F ÷ +140 °F)
Permissible working humidity	90% max	90% max
IP Electrical protection grade	IP-44	IP-44
Noise	<70 dB (A)	<70 dB (A)
Power supply	Single Phase 24 -110-230 V AC 50 Hz	Single Phase 24 -110-230 V AC 50 Hz
Power consumption	90 W	90 W
Isolation Class	Class 1	Class 1
TECHNICAL CHARACTERISTICS OF THE TIMER (OPTIONAL)		
Working time	0 ÷ 99 seconds	0 ÷ 99 seconds
Pause time	0 seconds ÷ 99 minuts	0 seconds ÷ 99 minuts
Absorbed current	1A max.	1A max.
T Working temperature	Da -10 °C ÷ +50 °C (14°F ÷ +122 °F)	Da -10 °C ÷ +50 °C (14°F ÷ +122 °F)
Protection grade	IP 65 assembled	IP 65 assembled
Connection	DIN 43650 A/ISO 4400	DIN 43650 A/ISO 4400
Power supply	24-240 V AC 50/60 Hz	24-240 V AC 50/60 Hz
Indicators	Electronic Display + Led	Electronic Display + Led

The pump output values listed below have been measured at 20°C.

Oil Viscosity	0 bar pressure	5 bar pressure	8 bar pressure
32 cSt (149.9 SUS)	180 cm ³ /min (11 cu.in)	130 cm ³ /min (7.9 cu.in)	115 cm ³ /min (7 cu.in)
100 cSt (462.6 SUS)	110 cm ³ /min (6.7 cu.in)	75 cm ³ /min (4.6 cu.in)	65 cm ³ /min (4 cu.in)
220 cSt (1018 SUS)	80 cm ³ /min (4.9 cu.in)	55 cm ³ /min (3.4 cu.in)	45 cm ³ /min (2.7 cu.in)

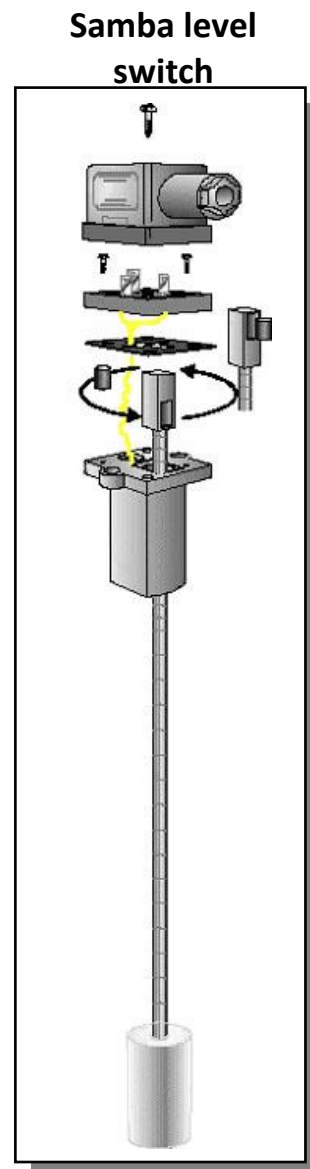
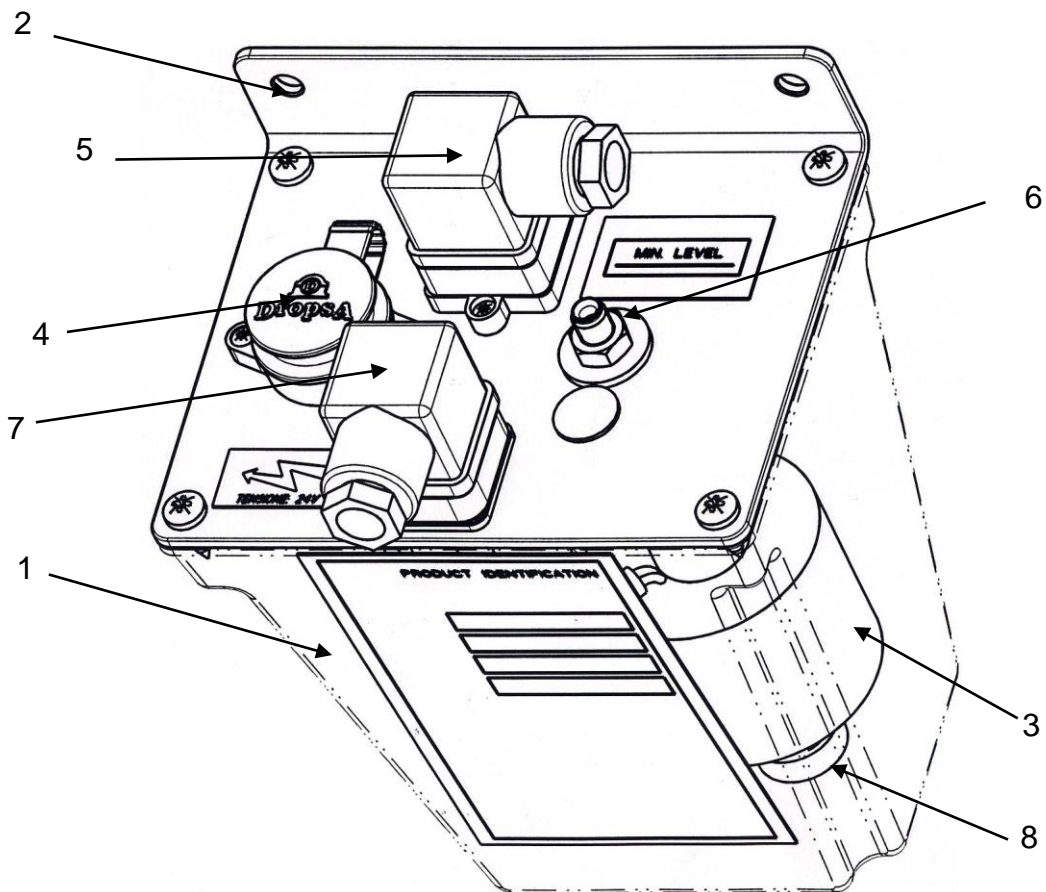


CAUTION: Operate the pump only with the voltage indicated on the product label and within the specific operating parameters.

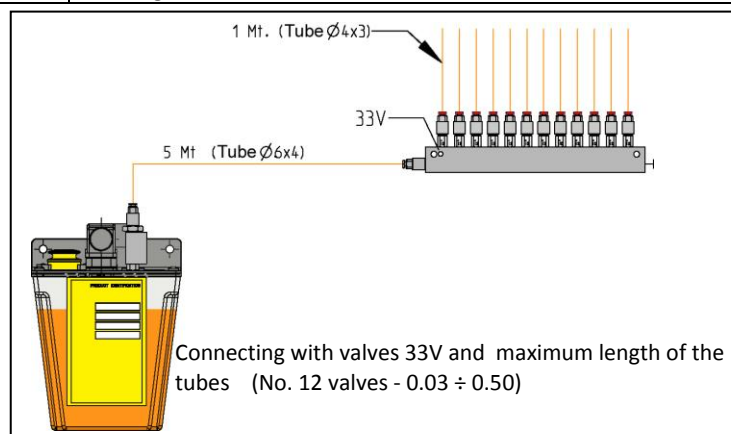
5. PUMP COMPONENTS

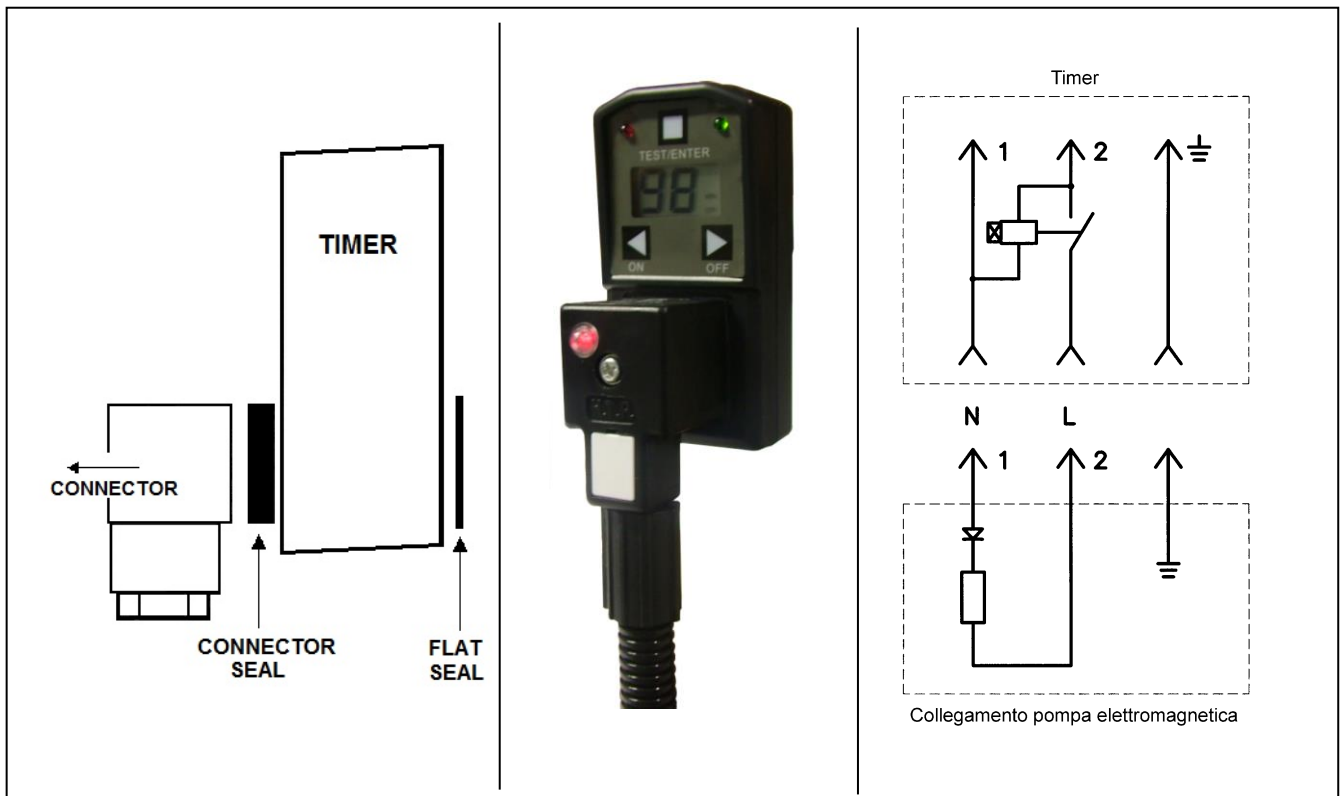
All the main pump components are fixed to the mounting bracket.

- **Oil Reservoir:** constructed in a lubricant compatible transparent plastic.
- **Electromagnetic Pump module** is located inside the reservoir and submerged in the lubricant.
- **Samba Level Switch:** Provides remote low level sensing. The switch can be set to either operate normally open (NO) or normally closed (NC). Standard configuration is NC.
- **Timer (optional):** suitable top control the ump on time and pause cycle times automatically.



Item	PART NUMBER	DESCRIPTION
1	3044333	Transparent Oil Reservoir 1000 cc
	6770033	Transparent Oil Reservoir 3000 cc
2	3050270	Supporting and Fixing Bracket.
3	3099156	Electromagnetic Pump Module 230 V
	3099155	Electromagnetic Pump Module 110 V
	3099148	Electromagnetic Pump Module 24 V
4	6770070	Filler Cap
5	1655583	SAMBA Low level switch NO, no connector
6	3084295	Outlet fitting G 1/8" x M 8x1
7	0039976	Connector MPM 183-9-N DIN 43650
8	3130071	Pump Suction Filter
9	3130101	Re-filling Filter





TIMER PROGRAMMING:

- **SETTING THE OPERATION TIME:**
 - Press the **ON** button for three seconds
 - On the display, "sec" blinks;
 - The previous ON time setting is displayed with the relative RED LED illuminating.
 - Press the **ON** button on the left to increase the time or press the **OFF** button on the right to decrease the time.
 - Press the button **TEST/ENTER** to confirm the programming performed.

- **SETTING THE PAUSE TIME:**
 - Press the **OFF** button for three seconds
 - On the display, "min" flashes;
 - The previous OFF time setting is displayed with the relative GREEN LED illuminating.
 - Press the **ON** button on the left to increase the time or press the **OFF** button on the right to decrease the time.
 - Press the button **TEST/ENTER** to confirm the programming performed.

6. UNPACKING AND INSTALLING THE PUMP



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

6.1 UNPACKING

Once a suitable location has been found to install the unit remove the pump from the packaging. No particular disposal procedures are necessary, however packing should be disposed of in accordance with regulations that may be in force in your area or state.

6.2 INSTALLING THE PUMP

Allow sufficient space around the pump for ease of maintenance. Install at a suitable level for refilling the oil reservoir. Do not install in aggressive environments. Fix the pump using the two fixing holes and 6mm screws.

Do not install the unit in aggressive or explosive/inflammable environments or on vibrating surfaces.

To install the pump, use only the supplied bracket provided with two holes for $\varnothing 6$ mm ($\varnothing 0.2$ in.) screws

6.3 ELECTRICAL WIRING

Before carrying out any wiring, ensure that the correct power supply is available. Refer to the identification label on the Pump. In order to avoid dangers of electric shock it is important to remove all power before installation or maintenance. Electrical connections must be carried out in accordance with prevailing standards and must guarantee adequate power and protection to the pump unit.

In order to prevent dangers of electric shocks due to direct or indirect contact with the energized parts, electrical power supply line must be protected by a suitable magneto-thermal circuit breaker with an intervention threshold of 30mA and 1 millisecond minimum operating time.

Circuit breaker power must be = 10 kV and nominal power in In = 6 A.

6.4 HYDRAULIC CONNECTIONS

The pump is fitted as standard with a M8x1 fitting, to take 4mm tube to connect the lubrication system.

Note: When all the connections have been carried made, make sure that tubes and cables are protected from any impact and that they are correctly fixed in place.

7. PUMP OPERATION

7.1 COMMISSIONING THE PUMP

Before using the pump, it is necessary to perform some preliminary checks:

- Check the integrity of the pump; ensure there is no physical damage;
- Check electrical and hydraulic connections have been carried out correctly;
- Fill the Oil reservoir with suitable lubricant;
- Ensure that the pump is within the specified ambient temperature.

The Samba low-level switch is supplied as standard with a Normally Closed (NC) Contact (fig.3). The contact will break on low level. It is possible to invert this function please call your nearest Dropsa supplier.

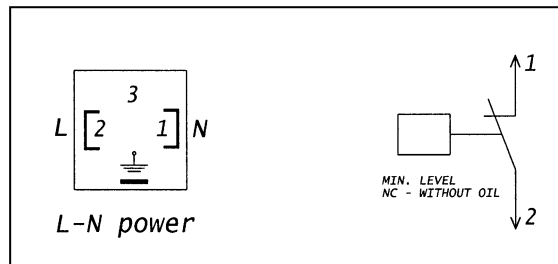


Fig.1

7.2 FILLING THE OIL RESERVOIR

Use only compatible mineral oils and fill the reservoir only through the refilling cap.

7.3 REMOVING AIR FROM THE PUMP AND HYDRAULIC CIRCUIT

Air in the pump or hydraulic circuit may cause erratic performance of the pump or lubrication system. To remove trapped air, operate the pump with an open hydraulic circuit until all the air is bled from the circuit. Avoid operating the pump in the absence of oil in the reservoir.

8. TROUBLESHOOTING

The following table highlights some of the most common problems encountered when using the Piccola Electromagnetic pump and how to resolve them.

In the event of doubts or problems not listen, do not dismantle the pump but contact a DropsA technical centre for assistance.

PROBLEM	PROBABLE CAUSE	SOLUTION
The pump starts but does not deliver lubricant or delivers only small discharge.	<ul style="list-style-type: none"> ○ Air is being introduced into the system because the reservoir has insufficient oil. ○ Fittings may have become loose ○ Suction Filter is clogged 	<ul style="list-style-type: none"> ○ Fill the oil reservoir. ○ Tighten any loose fittings on the pump or the lubrication system. ○ Clean or change the suction filter.
The pump does not reach maximum pressure.	<ul style="list-style-type: none"> ○ The lubrication system absorbs a large part of the output volume of the pump. ○ Pump has deteriorated. 	<ul style="list-style-type: none"> ○ This is normal in a lubrication system. No action needed. ○ Replace Pump

9. MAINTENANCE PROCEDURE

The Piccola Electromagnetic pump requires only minimal maintenance. To facilitate maintenance it is suggested that the pump be installed in an easily accessible location.

Periodically check that the pump is intact and does not present leaks.

As required, or at least once a year, clean or substitute the refilling (3130101) and suction filter (3130071).

The following routine operations should be performed:

Operation	Interval (in hours)
Check correct lubrication function of the pump	1.000
Clean the suction and refilling filters	4.000
Clean the bottom of the oil reservoir from any dirt or particle deposits	6.000

The unit does not require any special tooling to operate or maintain it. It is recommended that suitable protective clothing (including gloves and safety glasses) in ref. to leg. decree 81/2008, are worn when maintaining the unit in order to avoid hazards to equipment or persons.

Be sure that all electrical and pressurized hydraulic components are disconnected prior to any maintenance.

10. DISPOSAL

During maintenance or disposal of the machine care should be taken to properly dispose of environmentally sensitive items such as oils or other lubricants. Refer to local regulations in force in your area.

When disposing of this unit, it is important to ensure that the identification label is also destroyed.

11. ORDERING INFORMATION

PICCOLA Electromagnetic Pump

01 System			33V System		
Description	Cod. 1 lt	Cod. 3 lt	Description	Cod. 1 lt	Cod. 3 lt
PICCOLA 24 V AC	3600300	3600303	PICCOLA 24 V AC	3600310	3600313
PICCOLA 110 V AC	3600301	3600304	PICCOLA 110 V AC	3600311	3600314

PICCOLA 220 V AC	3600302	3600305	PICCOLA 220 V AC	3600312	3600315
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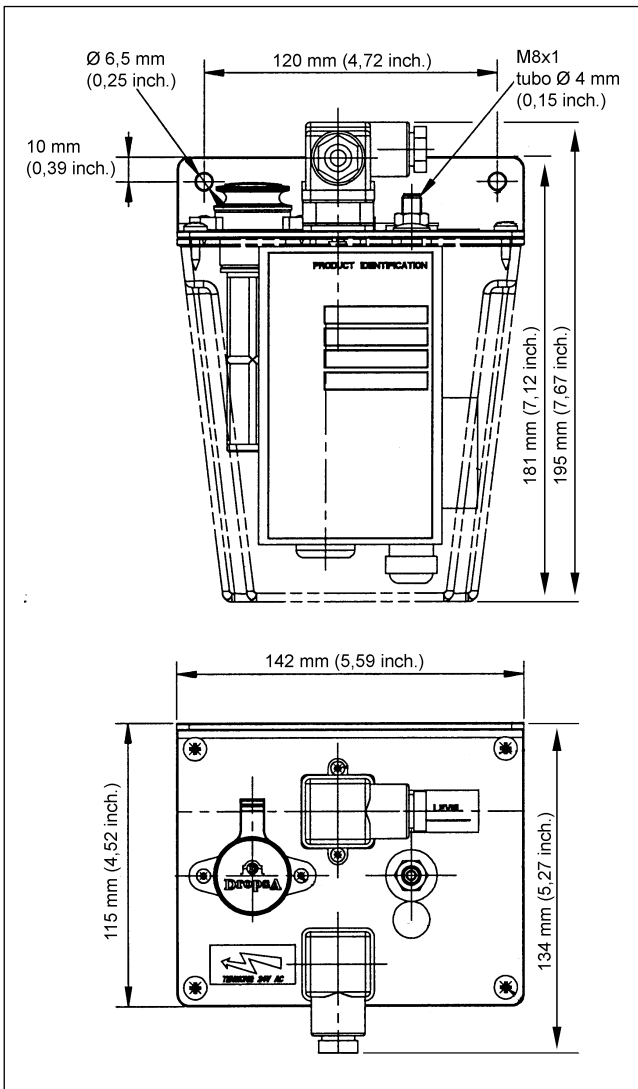
ACCESSORIES	
1524492	Timer kit for 110-220 V AC
1524500	By pass for setting working pressure

SPARE PARTS	
1524510	Releasing valve for using the pump with the 33 valves (up to 12 points)

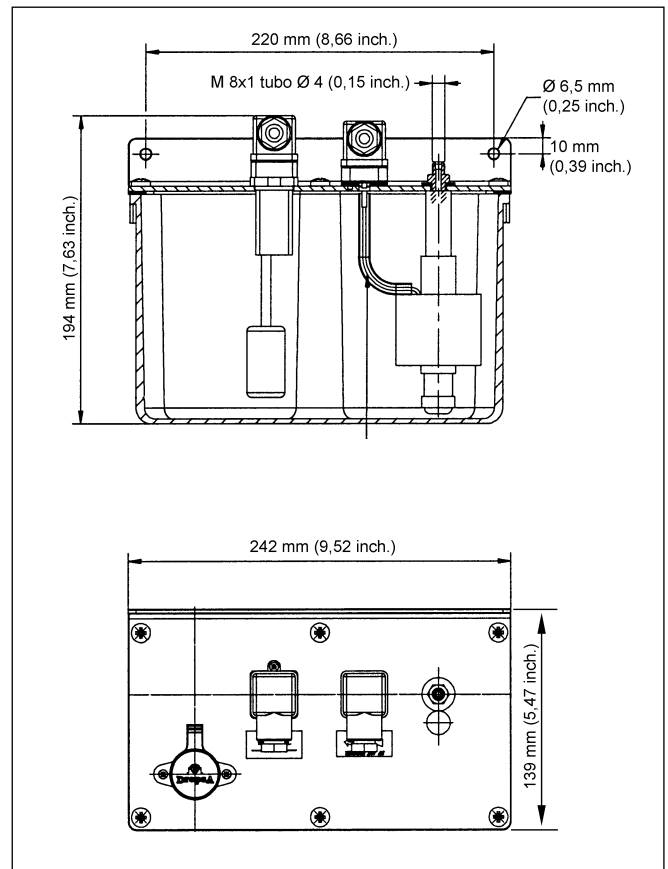
12. DIMENSIONS

To facilitate maintenance allow 100 mm (3,9 in.) of access on all sides.

1 litre version



3 litre version



Piccola 1 litre ≡ Kg 1,5 (3,30 pound)

Piccola 3 litre ≡ Kg 2,2 (4,85 pound)

13. HANDLING AND TRANSPORTATION

Piccola Pumps are packed and dispatched in cardboard containers. During transportation and storage always maintain the pump the right way up as indicated on the box.

On receipt check that the packaging has not been damaged and store the pump in a dry place.

- ! Store pump components considering that components bear temperature from -20°C to $+60^{\circ}\text{C}$ (-4°F to 140°F).
- ! Pump components shall be stored within -20°C and $+60^{\circ}\text{C}$ (-4°F ÷ 140°F). However, in order to avoid possible damages, start the pump only when the machine has reached the temperature of at least $+5^{\circ}\text{C}$ (41°F).

14. OPERATING HAZARDS

It is necessary to read and understand the possible hazards and risks involved when using a lubrication pump. The operator must fully understand the hazards explained in this manual.

Electrical Power

No maintenance must be performed on the unit without having detached and isolated the power supply and ensuring that it cannot be reconnected for the duration of the maintenance task. Always remember to ensure that equipment is properly earthed.

Flammable substances.

Mineral oils generally used in lubrication systems are not normally flammable. However, it is desirable to avoid contact with extremely hot substances or naked flames. Ensure that the machine that the lubrication system is installed onto contains the necessary fire extinguishing devices.

Pneumatic & Hydraulic Pressure

Before any maintenance or connection task, ensure that all pressure has been properly bled from the system. Residual pneumatic or hydraulic pressure can cause the release of undesired spurts of liquid, which may hit the operator. Always wear safety glasses and glove when working with pneumatic and hydraulic systems.

Noise and Vibration

The Pump does not produce excessive vibration or noise (less than 70 dB(A)).

15. PRECAUTIONS

The pump has no contraindications except for the following specific points:

- Contact with oil while topping up / maintenance.
- The operator must be equipped with appropriate PPE.
- Using the wrong lubricants.

Examples of incompatible/non-permissible Fluids.

Fluid	Danger
Lubricants containing abrasive components	Premature wear of pump
Lubricants containing silicon	Pump failure
Petrol, Solvents, flammable liquids	Fire, explosion, seal damage.
Corrosive products	Pump damage, danger to persons
Water	Pump oxidization
Food Products	Contamination of product