GRIP

Lubrication system

User and Maintenance Manual

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CE

Manual drawn up in accordance with
EC Directive 06/42

C2102IE - WK 19/07

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1. INTRODUCTION

This user's and maintenance manual refers to GRIP air/oil lubrication system.
This manual should be conserved in such a way that it remains undamaged over time and is readily available to personnel needing to consult it.
Further copies of this manual, updates or clarifications can be obtained by directly contacting the Technical Sales Office at Dropsa.
The manufacturer reserves the right to update the product and/or the user's and maintenance manual without the obligation to revise previous versions. It is however, possible to contact the Technical Sales Office for the latest revision in use, or to consult our web site at **http://www.dropsa.com**.
The use of the equipment referred to in this manual must be entrusted to qualified personnel with a basic knowledge of mechanics, hydraulics and electrical systems.
It is the responsibility of the installer to use tubing suitable for the system; the use of inadequate tubing can cause problems with the pump, injury to persons and create pollution.
Loosening of connections can cause serious safety problems; carry out a check before and after installation and, if necessary retighten them.
Never exceed the maximum working pressure values permitted for the panel and the components connected to it.
Before any maintenance or cleaning operation disconnect the power supply, close off the air supply and discharge the pressure from inside the equipment and the tubing connected to it.
Do not subject the panel, the connections, the tubing or parts under pressure to violent impacts; damaged tubing or connections are dangerous and should be immediately replaced.
After long periods of inactivity check air tightness of all parts subjected to pressure.
Personnel must use personal protection equipment, clothing and tools adequate for the location and the use of the panel both during its operation and during maintenance operations.
The panel, 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 SpA 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 authorization from Dropsa SpA will absolve the latter from any responsibility for injury to persons and/or damage to property and will release them from all obligations arising from the guarantee

2. GENERAL DESCRIPTION

The **GRIP** pump is to be utilized for tools with dry machining components, dry working on milling, drilling, tapping and sawing machines, plastic, woodworking machines, chain lubrication, presstool applications with the ability to apply the pump quickly to machine tools without the need for drilling. For the installation no drilling is required thanks to the magnet, which ensures rapid and secure application of the pump.
Grip is the ideal solution for small machines, optimisation workshop lubrication processes, flexible regulation of the amount of oil at each point (0 to 30 mm^3 per cycle), and it increases tool life.

3. IDENTIFICATION OF THE MACHINE

A yellow plate showing the product code and the basic characteristics is mounted on the front of the oil tank.

4.TECHNICAL SPECIFICATIONS

CHARACTERISTIC	GRIP lubrication panel
Air supply pressure	4 ÷ 6 bar (58,8 ÷ 88,2 psi)
Working temperature	-5 °C ÷ +55 °C (+23 °F ÷ +131 °F)
Working humidity	90% max
Permitted lubricants	Mineral - synthetic
Oil viscosity at working temperature	15 - 320 cSt (150 ÷ 1480 SUS)
Conservation temperature	-20 °C ÷ +65 °C (-4 °F ÷ 149 °F)

WARNING: ***DO NOT supply the machine with voltages or pressures other than those indicated on the specification plate.***

5. DESCRIPTION OF COMPONENTS

Central GRIP Unit

The central unit of the lubrication system is composed of the following items:

- a *Tank*, made of transparent plastic material, compatible with lubricants on the market.
- a *System* for the regulation of the mixer air
- a modular *base* (to add lubrication points)
- an adjustable *Mini-pump*
- *two magnets* for the installation on the machine tool (on iron surface)

Grip 0,5 litre (0.90pt) reservoir

Fig. A –Magnet installation on mounting bracket

6. INSTALLATION

6.1 UNPACKING

Once a suitable location has been identified for the installation, open the package and remove the equipment. Check that the GRIP has not sustained damage during transport and storage.

The packaging material does not require any special disposal precautions, not being in any way dangerous or polluting.

6.2 MOUNTING THE GRIP

Provide adequate space for the installation, leaving a minimum room of 100 mm around the panel. Mount the GRIP at shoulder height to avoid unnatural posture or the possibility of sustaining impacts. Do not install the GRIP in particularly aggressive or explosive/flammable environments or on components subject to vibration.

To install GRIP use the magnet at the base of the pump. For vertical installation dismount the magnet at base of the pump and replace it with the and mounting bracket you find in the package (1). On the long side of the bracket fix the magnet it was at the base and the second magnet you find in the package. (see fig. A)

NOTE: The surface where to place the magnet must be clean and flat. Be sure that the magnet adhere on iron surface. (Do not install on machine with strong vibrations or hard movements.)

6.3 MOUNTING OF THE KIT FOR ADDITIONAL MIXING BASE

The mini-pumps are mounted on the mixer bases utilizing two securing screws.
Particular attention should be paid to the correct positioning of the o-rings between the mini-pump and the mixer base (see diagram below).

To install a new unit proceed as follows:

1. Empty the tank of oil.
2. Disconnect the air supply and unscrew the connections on the base (codes: 323061-14071-19584-1655522-641709. (FIGURE 1)
3. Connect the new base (Part n. 3132861 ore Part N. 3133265) tightening the two securing screws supplied (cod. 14101), paying particular attention to the alignment and positioning of the seals (FIGURE 2). Note: every kit is independently controlled but air is connected to the first base.
4. Reattach the connections to the new base (FIGURE 3).

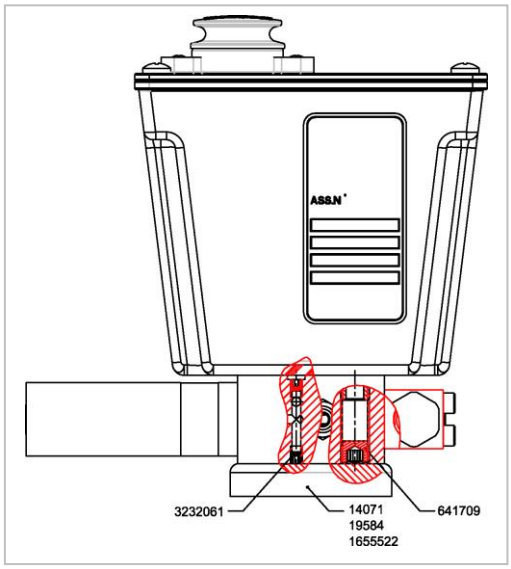


Fig. 1

Fig. 2

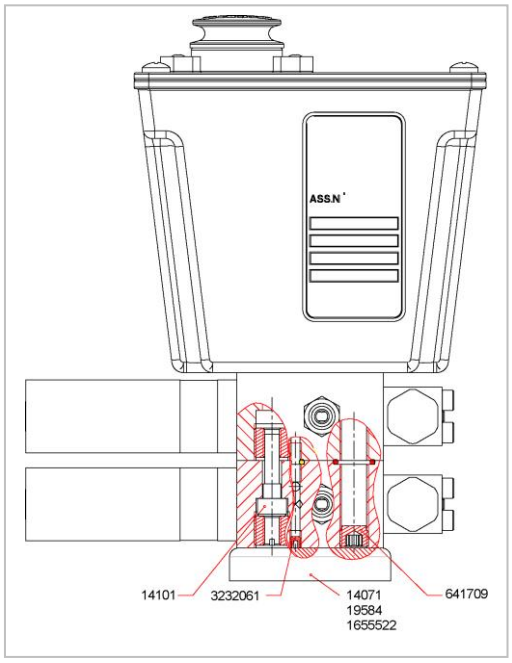


Fig. 3

NOTE: The two elements with code 641709 e 3232061 must be fastened using not-aerobic liquid sealant.

6.4 HYDRAULIC CONNECTIONS

The only connection to be undertaken is that of the individual pumps, provided with push-in connections, to the lubrication point. The tubing must be in Ø 4 mm (0.16 in.) nylon (obtainable from Dropsa).

6.5 PNEUMATIC CONNECTIONS

Connect the air input to the push-in connector utilizing Ø 6 mm (0.23 in.) nylon tubing both for the pump and the mixer, and provide a stop valve to permit shutting off the supply.

***NOTE*: After all connecting up has been completed ensure the tubing and cables are protected from impacts and are suitably secured.**

7. INSTRUCTIONS FOR USE

7.1 STARTING THE GRIP PANEL

Before using the GRIP panel, it is necessary to carry out some preliminary checks:

- check the integrity of the equipment
- check that the pneumatic connections have been effected correctly
- vent the residual air from the pump using the vent screw, located at the center of the securing screws, until lubricant exits (retighten the vent screw without using excessive force).
- to facilitate the venting, regulate the pumps to maximum flow and operate for some cycles.

7.3 REGULATING THE GRIP PANEL:

GRIP WITH TIMER:

Air Regulation:

Turn the screw **(1)** to regulate the air flow. Clockwise rotation reduces the air flow. Antilockwise rotation increases the air flow.

Only Oil working mode:

Turn the screw **(1)** rotating it completely clockwise to close the air flow. The pump works now only with oil.

Excluding lubricant delivery from an individual pump:

Unscrew (anticlockwise) the red cap **(2)** at the end of the pump to its stop, so completely blocking off the delivery.

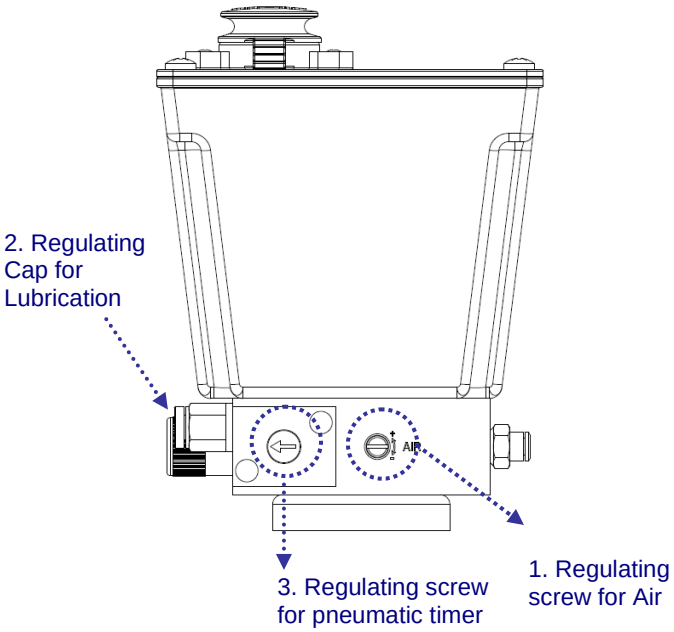
Regulating Pneumatic timer:

Turn clockwise the screw **(3)** to increase pause between lubrication cicles. Turn it anticlockwise to reduce the pause time.

Regulating lubrication delivery flow :

Use the red cap **(2)** to determine the nominal flow of the individual pump.

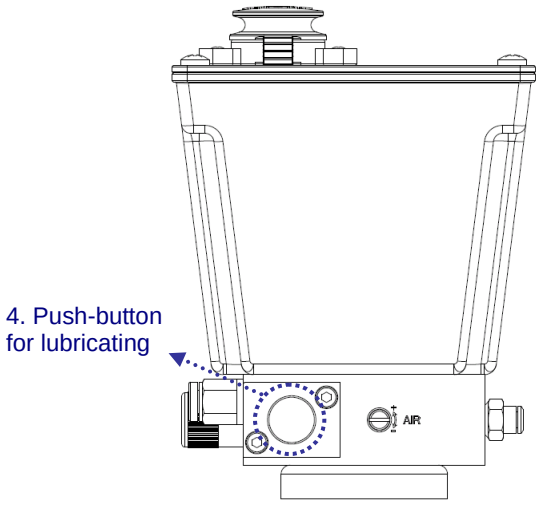
Completely unscrew the pump red regulating cap (0 mm^3 flow) turn clockwise for 1.5 turns (min. flow 5 mm^3) after which every turn corresponds to an increase in flow of 5 mm^3 until reaching 30 mm^3 at the 7^{th} turn. **(see table on the next page)**



GRIP MANUAL:

Manual Regulation:

Press and release the push-button (4) to lubricate.

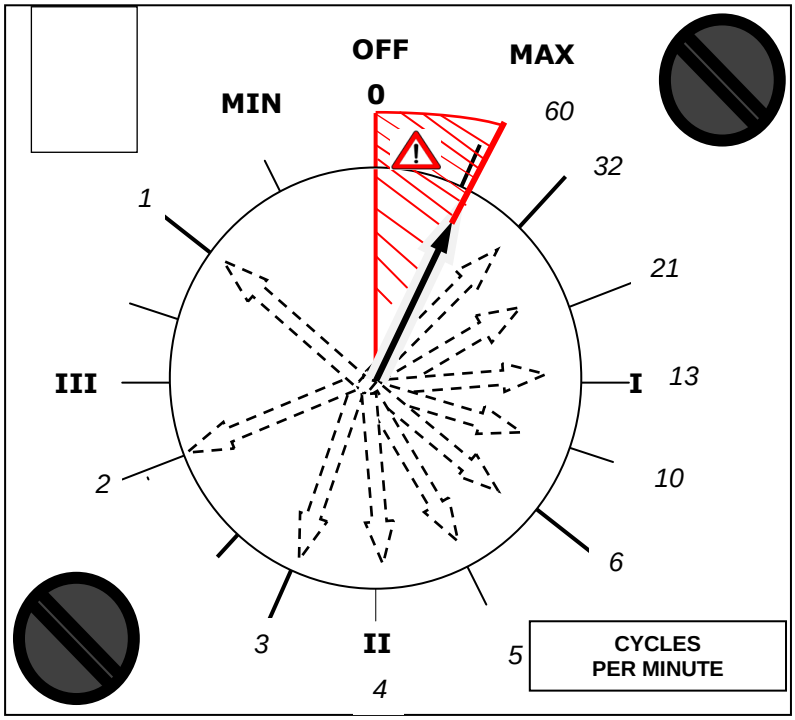


FLOW (mm^3 / stroke)	TURNS
30	6.5
25	5.5
20	4.5
15	3.5
10	2.5
5	1.5
0 = no pump delivery	Completely unscrewed

7.4 ADJUSTING THE PNEUMATIC TIMER (PN. 1524845)

The illustration below shows how to adjust the frequency of lubrication cycles when using models that contain the Pneumatic Timer.

Above Cycle frequency is based on 6 bar (90 PSI) inlet pressure.



- If inlet pressure is 8 BAR (120 PSI) reduce the values by 8%
- If inlet pressure is 7 BAR (105 PSI) reduce the values by 4%
- If inlet pressure is 5 BAR (75 PSI) increase the values by 7%

Do not set a cycle frequency rate of less than a second.
MAX CYCLE RATE OF MICROPUMP = 1 second

8. MAINTENANCE

The pump has been designed and constructed so as to reduce maintenance to a minimum.

To simplify maintenance it is recommended that the equipment be mounted in an easily reached location **(see paragraph 6.2)**.

Periodically check the tubing connections for leaks. Always maintain the equipment in a clean condition in order that any leaks will be immediately evident.

When necessary replace the oil filling filter P/N 3130139.

The machine does not require any special tools for carrying out checks and/or maintenance tasks. It is recommended that suitable tools and personal protection clothing (gloves) are used in accordance with Legislative Decree 626/94 (Safety at Work legislation), and that they are in good condition (DPR 547/55) in order to avoid injury to persons and damage to the machine.

WARNING: Ensure that pneumatic and hydraulic supplies are disconnected before undertaking any maintenance tasks.

9. DISPOSAL

During the maintenance of the machine, or in the event of its being scrapped, do not discard polluting components in the environment. Refer to local regulations for their correct disposal. At the time of final disposal of the machine it is necessary to destroy the identification plate and all other documentation.

10. ORDER INFORMATIONS

VERSIONS

Versions	Reservoir 0,5 Litre
Standard with timer	**3135212**
Standard manual	**3135215**

COMPONENTS

PART NUMBER	DESCRIPTION
3130139	Filter, oil filling
1524845	Timer (Frequency regulator)
3103116C	Mini-pump, pneumatic adjustable + 2 screws 14067
5717300	Tube, flexible Ø4 (0.16 in.)
3044403	Tank, 0,5 lt.

ACCESSORIES

PART NO.	DESCRIPTION
3132583	A/O magnetic block kit L=180 mm (7.08 in)
3132714	A/O magnetic block kit L=400 mm (15.74 in
1524486	Lubrication nozzle 32 mm (1.3 in.)
1524487	Lubrication nozzle 48 mm (1.9 in.)
5717242	Nylon tube 4 x 1.5 Black
1524548 (*)	Air/Oil Nozzle
3132861	Extension pneumatic kit (additional doser max 3) **
3133265	Extension maual kit (additional doser max 3) **
3226661	LRT 30 Oil in 1L bottle

(*) For these part. num. please insert in your order also: cod. 92004 – fitting - quantity 1; cod. 93004 – cone - quantity 1

(**) Note: every kit is independently controlled but air is connected to the first base.

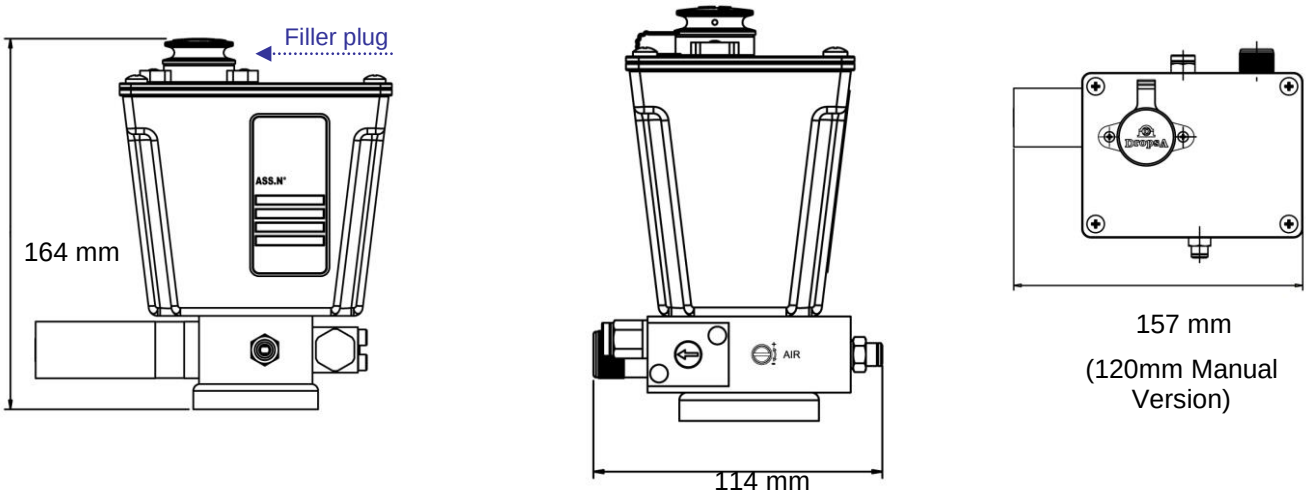
APPROXIMATE CONSUMPTION FOR LRT OILS (3226661) USAGE

Grams per lubrication nozzle in 8 hours operating time

	ALUMINIUM LEADED BRASS	LEADED STEEL SOFT STEEL	ALLOY STEEL STAINLESS STEEL	REFRACTORY AND TITANIUM ALLOYS
Saw cutting Turning Shearing Cutting off	35-40	50	50	50-60
Boring Drilling Milling Slotting	40-50	50	60	70
Threading Tapping Planing Shaving	60	70	80	90
Threading blind tapping	60	70	80	90-100
Moulding and standard drawing	60	70	80-90	90-100
Broaching Toothing Bending	70	80	90	100/110

11. DIMENSIONS

11.1 GRIP 0,5 LITRE



12. HANDLING AND TRANSPORT

Prior to dispatch GRIP lubrication panels are carefully packed in a cardboard carton. During transportation and storage maintain the equipment the right way up as indicated on the carton.
On receipt, check that the packaging is not damaged and store the equipment in a dry place.

13. PRECAUTIONS IN USE

It is necessary to carefully read the warnings and the risks involved in using the lubrication panel. The operator must understand the functioning of the unit by studying the user's manual.

Flammability
The oil employed in the lubrication circuit is not normally flammable. It is nonetheless indispensable to take every precaution against the oil coming into contact with very hot parts or open flames.
Pressure
Prior to any intervention on the equipment ensure that pressure is released from all branches of the lubrication circuit. Failure to do this could result in oil being discharged under pressure where connections or components are disassembled **(see paragraph 6.6).**
Noise
The GRIP lubrication panel does not emit excessive noise, remaining below 70 dB(A).

WARNING: **before carrying out the replacement of the mini-pumps, empty the tank of lubricant.**

AIR CHARACTERISTICS

Characteristic	Requirement
Pressure at point of connection	Min. 6 Bar (88.2 psi)
Max. quantity of particles in suspension	15 mg/Nmc
Max. diameter of particles	0.05
Dew point	2° C (35.6 °F)
Max. quantity of oil in suspension	5 mg/Nmc

Whenever not utilizing natural base oils compatible with existing health regulations, it is necessary to adjust the mixer pressure so as to avoid the formation and dispersion of oil mist into the environment.
The mixing pressure is indicatively between 1 bar (14.7 psi) and 2.5 bar (36.7 psi).

14. CONTRAINDICATIONS

The GRIP panel does not have any particular contraindications except for the following points:

- The operator coming into contact with fluid due to breakage/opening of supply tubing.
- The operator must be furnished with suitable personal protection clothing/equipment (part VIII – 626 [Safety at Work legislation]).
- Abnormal posture.
- Take note of the indications shown in **paragraph 6.2.**
- Contact with oil during filling/maintenance.
- The operator must be furnished with suitable personal protection clothing/equipment (part VIII – 626 [Safety at Work legislation]).
- Use of unsuitable lubricants.
- Positioning on dirty surface or with poor magnetic adherence.

Main inadmissible fluids.

Fluid	Danger
Lubricants with abrasive additives	High wear rate of contacted parts
Lubricants with silicon based additives	Seizure of the pump
Petrol – solvents – flammable 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