

# OmegaPUMP

Multiple output electric pump  
for grease

## Operation and Maintenance Manual

### Original Instructions

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Manual drafted in compliance with Machine Directive  
EC 06/42

C2276IE - WK 15/18

<http://www.dropsa.com>  
Via Benedetto Croce, 1  
Vimodrone, MILAN (IT)  
t. +39 02 250791

I Dropsa products can be purchased at Dropsa branches and authorised distributors. Go to [www.dropsa.com](http://www.dropsa.com) or write to [sales@dropsa.com](mailto:sales@dropsa.com)

## 1. INTRODUCTION

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This operation and maintenance manual refers to the **OMEGA pump** electric pump and contains important information for the health and safety of the personnel who uses this equipment.

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

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

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The centralized lubrication systems are designed for automatic lubrication of specifically positioned friction points. These systems significantly reduce the maintenance costs of the machinery on which they are installed, eliminating downtime for lubrication operations and extending the useful life of lubricated components. The lubrication systems also allow all the points that require lubrication to be reached, in particular those points that are difficult for an operator to reach.

The pump can be used to power different lubrication systems: centralized (progressive), direct to the point (multi-line) and single line (33V system).

### 2.1. CENTRALIZED LUBRICATION (*PROGRESSIVE*)

The simplest configuration, consisting of the following components:

- **Electric pump for supply with reservoir (OmegaPUMP)**
- Primary pipe
- Multi-way distributor
- Secondary pipe

The electric pump supplies a distributor via the primary pipe (from the pumping unit). The distributor is entrusted the task of distributing and metering the flow of lubricant between the various friction points.

The modular system of the progressive feeder has the advantage of providing flexibility for the system design engineers and the advantage of its low maintenance cost.

The progressive system is mainly used for grease lubrication in total-loss oiling systems or in oil recirculation systems. High pressure and operation with very long pipes are common requirements of demanding environmental conditions.

The progressive system can also be used subdivided into zones, when irregular cycle conditions are required for different parts of the machine. The design parameters of a progressive system include many variables, such as the volume and frequency of the grease required for each point, the number of points, the management conditions and the pressure of the pump.

### 2.2. DIRECT LUBRICATION TO THE POINT (*MULTI-LINE*)

The OmegaPUMP electric pump lubricates the friction point directly, without the need to use other flow metering devices. This means the product can provide economical, versatile and easy-to-use lubrication.

The OmegaPUMP is designed to feed single-point lubrication systems in vehicles, plants and various kinds of machines that use grease.

The pump is designed to be operated using a maximum of 8 pumping units, allowing the feeding of several independent lines.

It is supplied in series without pumping units, which must be ordered separately, selecting the desired flow rate from 5 models.

### 2.3. SINGLE-LINE LUBRICATION (*33V SYSTEM*)

Using the appropriate vent-valve kit, the pump feeds the metering valves incorporated in the system, pressurizing the circuit and injecting the lubricant at the friction point. Afterwards, when the pump is turned off, the circuit is depressurized, enabling the refilling of the metering chamber for the next cycle.




### 2.4. FUNCTIONALITY AND BENEFITS

- The OmegaPUMP electric pump is a piston pump activated by an eccentric spring-return system, designed to operate a maximum of 2 progressive pumping units and 8 multi-line pumping units, enabling the feeding of several independent lines. It is supplied as standard without pumping units, so they must be ordered separately.
- In all versions of the reservoir (with follower plate or cartridge), the pump is equipped with a minimum level sensor.
- The version of the reservoir with the follower plate is made of a transparent plastic material. The indication of the maximum level visible is guaranteed by a red indicator which once activated ensures the safety of the machine and personnel by releasing excess lubricant into the reservoir. It is possible to mount a sensor with a special conversion kit in order to indicate the maximum level.
- The reservoirs/bellows for the cartridge versions are interchangeable, both in terms of thread and size, with others commonly found on the market. The cartridge protection is made of a semi-transparent plastic material. Mounting and replacement of the cartridge is simple and requires no tools, owing to its latch with a bayonet connection.

- The electrical connection provides a DIN 43650 connector for power and two M12 connectors for input and output signals.
- The manual version does not include any electronic board, but simply a cross-reference of the minimum level and rev counter on the outgoing connection. There is also an extra cycle button that provides external cycle request enabling.
- Its size is greatly reduced, and support distances are interchangeable with several other models (our own and those of our competitors).

### 3. PRODUCT IDENTIFICATION

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

PRODUCT IDENTIFICATION TEST CERTIFICATE	
PART NUMBER	888580
VAR	
PACK QUANTITY	
GREASE E-PUMP "OMEGA"	
VOLT	12V DC
CURRENT	Max. 4 A
TANK	1,2 L
GREASE	NLGI 000 ÷ NLGI 2
RPM	17±4
PUMPING element	8M + 2P
WO: IT	0001
  Dropsa SpA, Milan Italy Year: 2017 MADE IN ITALY	
Scan for Info Scannen für Info Téléchargez-info Info Prodotto 扫描产品信息 Сканируйте штрих-код	
	
www.Dropsa.com	

### 4. TECHNICAL SPECIFICATIONS

GENERAL TECHNICAL CHARACTERISTICS		
Pumping system	Type	Cam with spring return
Flow rate *	Multi-line	cm <sup>3</sup> /rev [in <sup>3</sup> /rev]
	Progressive	cm <sup>3</sup> /min [in <sup>3</sup> /min]
	Progressive Reg.	
Operating pressure	Multi-line	bar
	Progressive	[psi]
Number of outputs (pumping)	Multi-line	N°
	Progressive	
Delivery connection (pumping output)	Multi-line	Type
	Progressive	
Operating temperature		°C [°F]
Storage temperature		°C [°F]
Net weight		Kg [lb]
Relative humidity		%
Reservoir capacity	Follower plate	l
	Cartridge	[gal US]
Lubricant	NLGI	Grease 000 ÷ 2
Protection degree	IP	65
Noise	dB	<70
Power supply voltage	VDC	12 - 24
Maximum absorption	A	4 @12V - 2 @24V
Speed	RPM	17±4
Minimum level	Type	NO contact (without fluid) Microswitch or Reed

MINIMUM LEVEL TECHNICAL CHARACTERISTICS					
Maximum load		3A @ 120V	FOLLOWER PLATE version - Manual		
		0,25A @ 120V	CARTRIDGE version - Manual		
ROTATION sensor TECHNICAL CHARACTERISTICS					
Maximum load		0,25A @ 120V	Manual Version		
CONNECTOR BASES TECHNICAL CHARACTERISTICS					
P/N Connector (type)	Nominal voltage	No. of Poles	Max section	IP	Max. A
0039975	DIN 43650	Supply	3+ $\frac{1}{2}$	1mm <sup>2</sup>	65
0039079	M12	Signal	4	0,5mm <sup>2</sup>	68



**WARNING:** Do not power the machine with different voltage than what is indicated on the label.

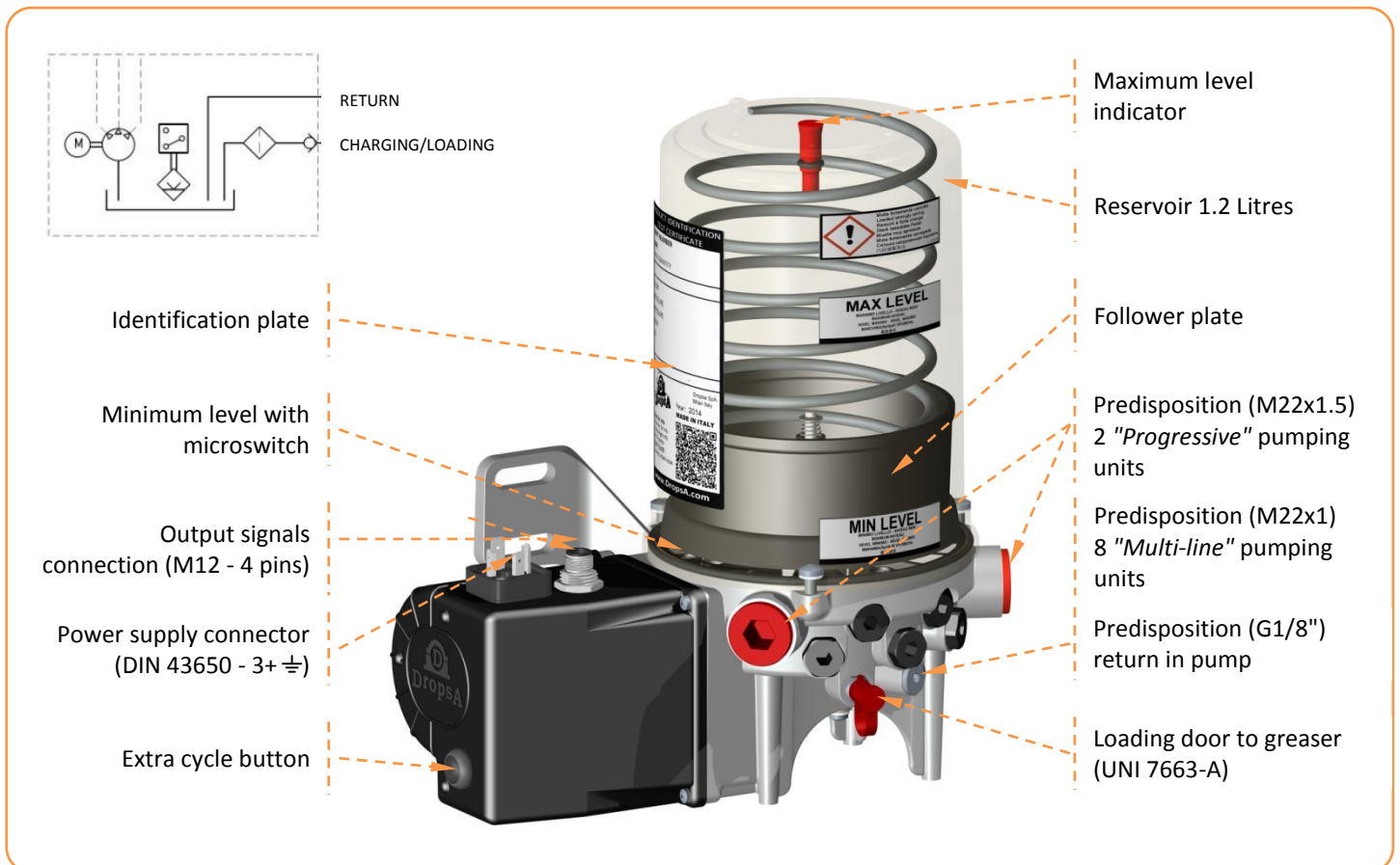


\* **NOTE:** The indicated flow rate value refers to the following test conditions: grease with NLGI 2 consistency class, standard environmental conditions (Temperature 20°C [68°F], pressure 1bar [14.5psi]), counter-pressure of 50bar [735psi] and nominal voltage 12VDC and 24VDC.

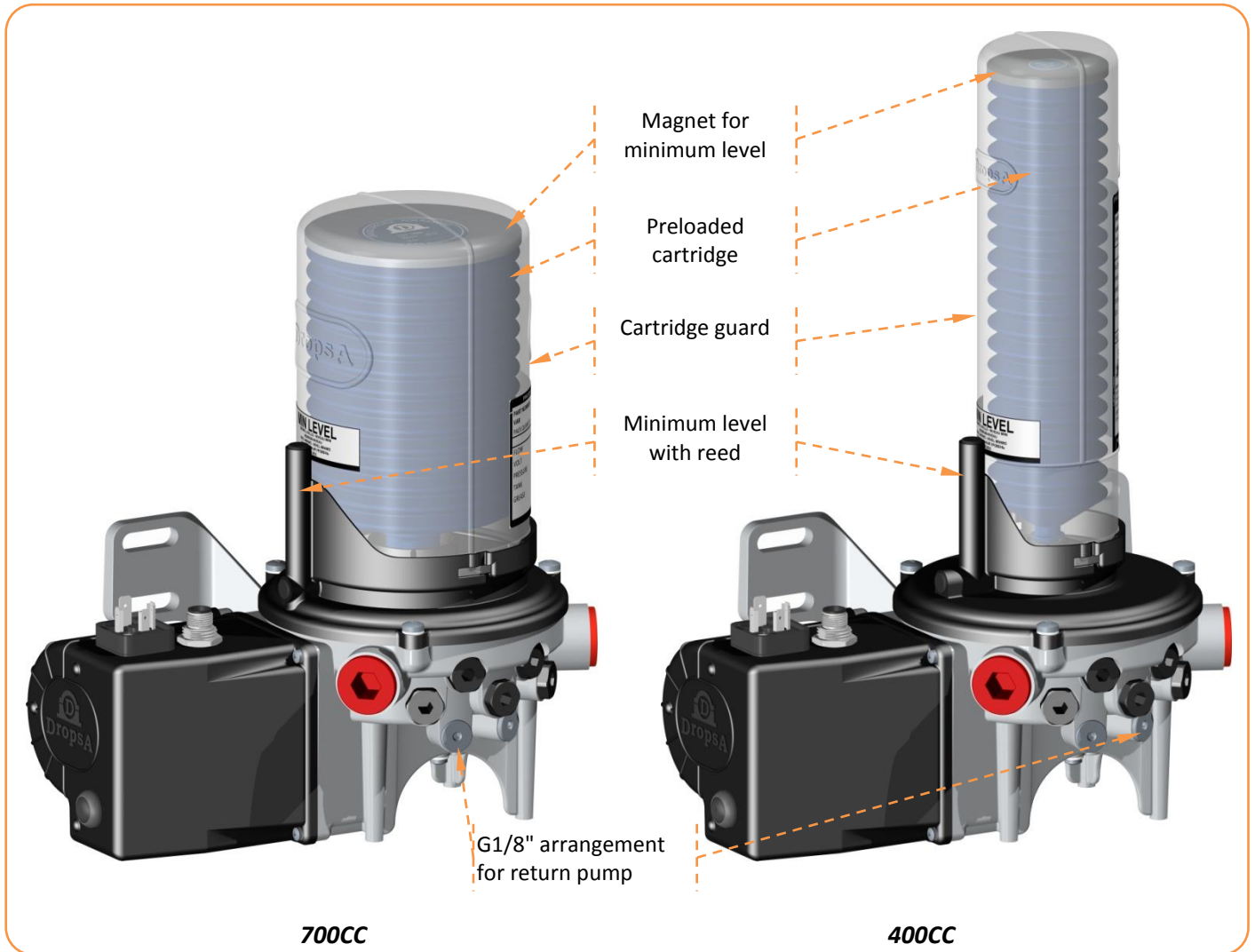
## 5. COMPONENTS

The main parts, accessories and optional equipment that make up the pump in the various versions are indicated below.

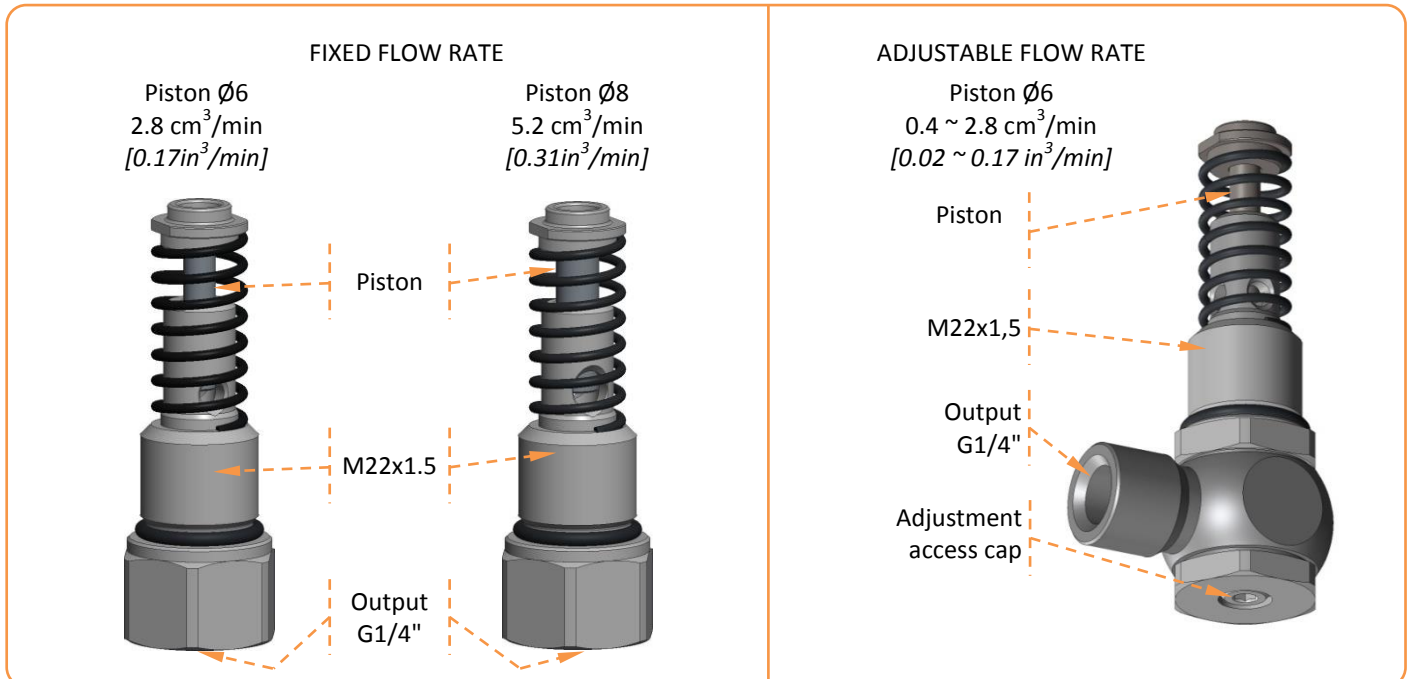
### 5.1. OMEGA PUMP WITH FOLLOWER PLATE



## 5.2. OMEGA PUMP WITH CARTRIDGE



## 5.3 "PROGRESSIVE" PUMPING UNIT



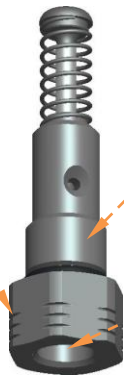
### 5.4. MULTI-LINE" PUMPING UNIT



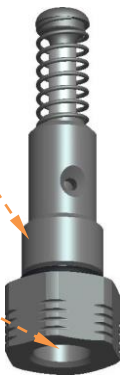
1 notches  
0,005 cm<sup>3</sup>/rev  
[0.0003 in<sup>3</sup>/rev]



2 notches  
0,01 cm<sup>3</sup>/rev  
[0.0006 in<sup>3</sup>/rev]



3 notches  
0,015 cm<sup>3</sup>/rev  
[0.0009 in<sup>3</sup>/rev]



4 notches  
0,025 cm<sup>3</sup>/rev  
[0.0015 in<sup>3</sup>/rev]



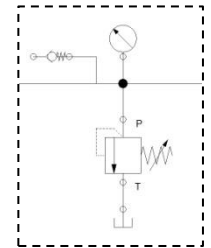
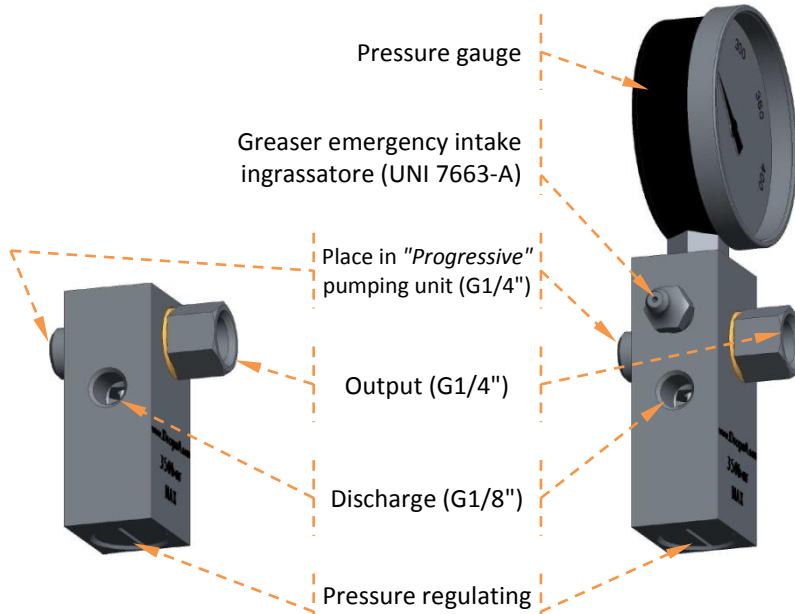
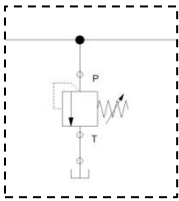
5 notches  
0,05 cm<sup>3</sup>/rev  
[0.003 in<sup>3</sup>/rev]

Notches

M12x1

Output  
G1/8"

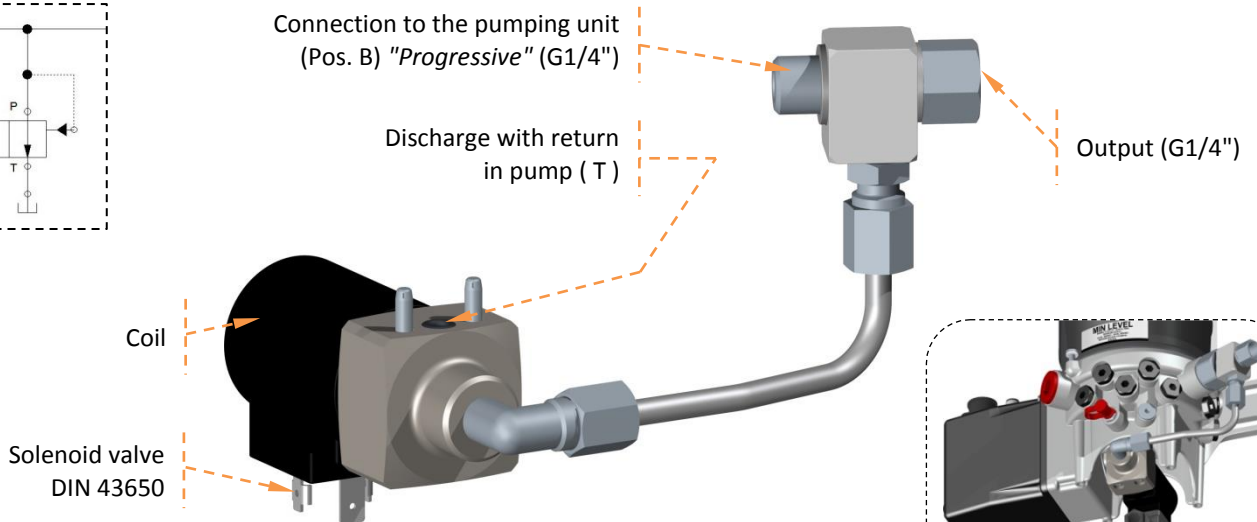
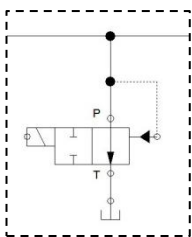
### 5.5. KIT BY-PASS (OPTIONAL)



**WITHOUT** pressure gauge

**WITH** pressure gauge

### 5.6. KIT VENT-VALVE (OPTIONAL)



Connection to the pumping unit  
(Pos. B) "Progressive" (G1/4")

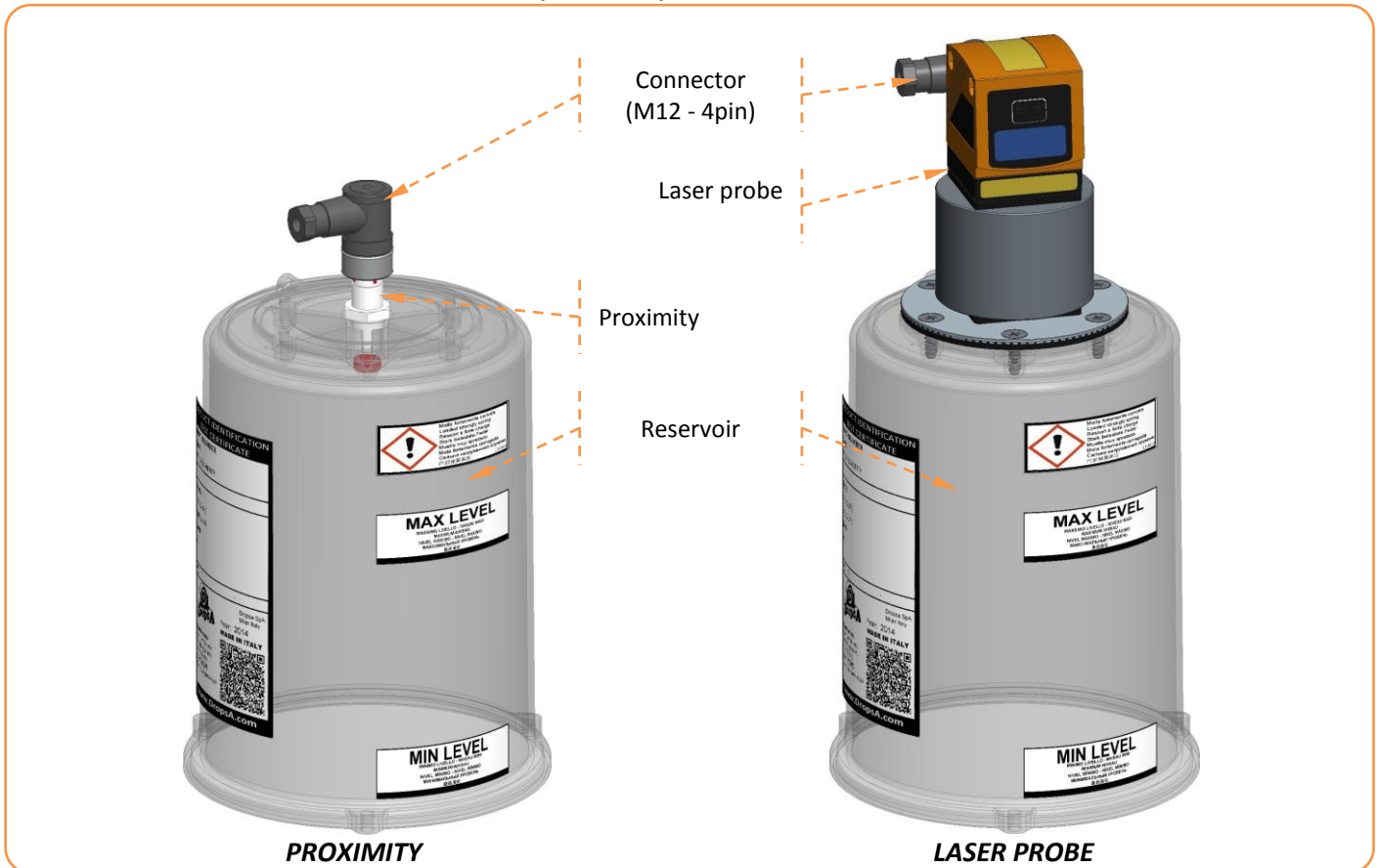
Discharge with return  
in pump ( T )

Output (G1/4")

Coil

Solenoid valve  
DIN 43650

## 5.7. RESERVOIR MAXIMUM LEVEL SENSOR KIT (OPTIONAL)



## 6. UNPACKING AND INSTALLATION

### 6.1. UNPACKING

Once the suitable installation location has been identified, open the packaging, remove the pump and ensure that it has not been damaged 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. INSTALLATION OF THE PUMP

- Position the electric pump and secure it to its support using the specific  $\varnothing 9\text{mm}$  (0.354in) slots with 4 suitable screws.
- Mount the pump so that the greaser for filling the reservoir and the control panel are easily accessible.
- Leave at least 100 mm (3.94 in) perimeter distance from other equipment or obstacles that prevent access to the pump.
- Mount the pump at "labourer height" in order to prevent abnormal posture or possible impact.
- Do not install the pump submerged in liquids and/or in particularly aggressive environments.
- Do not install the pump in environments where there are explosive or flammable mixtures.
- Do not install the pump near heat sources or electrical equipment that may disrupt correct operation of the electronics.
- Ensure that pipes and cables are appropriately secured and protected from any impact.
- Ensure that the lubricant used is suitable for the operating temperature, especially below 0°C. For the correct choice of lubricant, contact our Sales Technical Office.

### 6.3. PLUMBING CONNECTIONS

The plumbing connection point to install the pump to the system is located on the pumping body with G1/4" thread for "Progressive" pumping units and G1/8" for "Multi-line" pumping units. The possibility of having the return in pump with G1/8" thread is provided.



**WARNING:** The piping must reach the point to be lubricated by the shortest possible route.

### 6.4. ELECTRICAL CONNECTION

The electrical connection is the responsibility of the user who must provide unequivocal identification of the power supply connection, inlet and output signals.

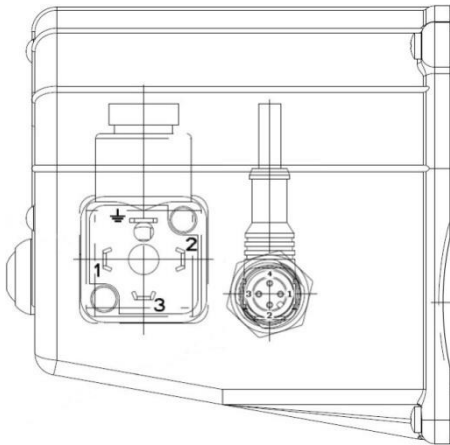
Connect the machine to the electrical line as indicated in this manual.

The power supply cable must be a suitable gauge for the absorption of the machine and it must be a type compliant with the prevailing regulations. This can be ordered separately (See [11.ORDER INFORMATION](#))



**ATTENTION:** Ensure that the pump electrical power supply corresponds with that of the machine (label applied to the side of the reservoir).

#### 6.4.1. CONNECTION DIAGRAM



Power supply		Output Signals	
1	VDC +	1 - Brown	Common
2	VDC -	2 - White	Rotation
3	Not tested	3 - Blue	Level
	Earth	4 - Black	Button

#### 6.5. INSTALLATION OF PUMPING UNITS / PLUGS

The pumping units are not included in the pump and must be selected and purchased separately. The plugs are included in the pump and already mounted in the pumping holes.

To mount the pumping units, proceed as indicated below:

- Identify the most correct position, distributing them evenly on the holes.
- Remove the plugs from the holes using a 16-mm fixed wrench or a 6 mm Allen wrench for Multi-line systems and 12 mm Allen wrench for progressive systems.
- Screw in the pumping units and tighten to a torque of 12Nm (Multi-line) and 20 Nm (Progressive) using a 16 mm (Multi-line) and 27 mm (Progressive) fixed wrench.



**WARNING:** Introduce the pumping unit into the pre-established output, taking particular care for correct engagement in the threading.

## 7. INSTRUCTIONS FOR USE

### 7.1. OPERATIONS TO CARRY OUT BEFORE START-UP

- The unit can be started up only by specialized personnel.
- Using the pump submerged in fluids or in particularly aggressive or explosive/flammable elements 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 S.p.A. technical office for a detailed list of recommended lubricants.
- Never ignore health hazards and follow sanitary regulations.
- Always use suitable piping for the operating pressure.
- Check the integrity of the pump.
- Check the lubricant level in the reservoir (min/max indication on the reservoir). If the level is low, proceed as described in section [7.2.1. Filling the reservoir](#).
- Ensure that the pump operates at the operating temperature and that the piping is free of any air bubbles.
- Check for proper connection of the electrical devices.

To determine the maximum operating pressure, you must know the pressure drop for the piping connected to the pumping units based on the length, operating temperature and type of lubricant.

Based on these variables for correct distribution to the point, you must always ensure that the piping pressure loss, summed with the pressure required on the point to be lubricated, is not higher than the maximum potential pressure at the pump delivery.

### 7.2. LOADING LUBRICANT

Ensure that all the pumping unit / plug lodging holes have been occupied.



**WARNING:** In order to prevent any malfunctions and voiding of the warranty, we recommend topping up the lubricant without impurities exclusively from the dedicated loading system.

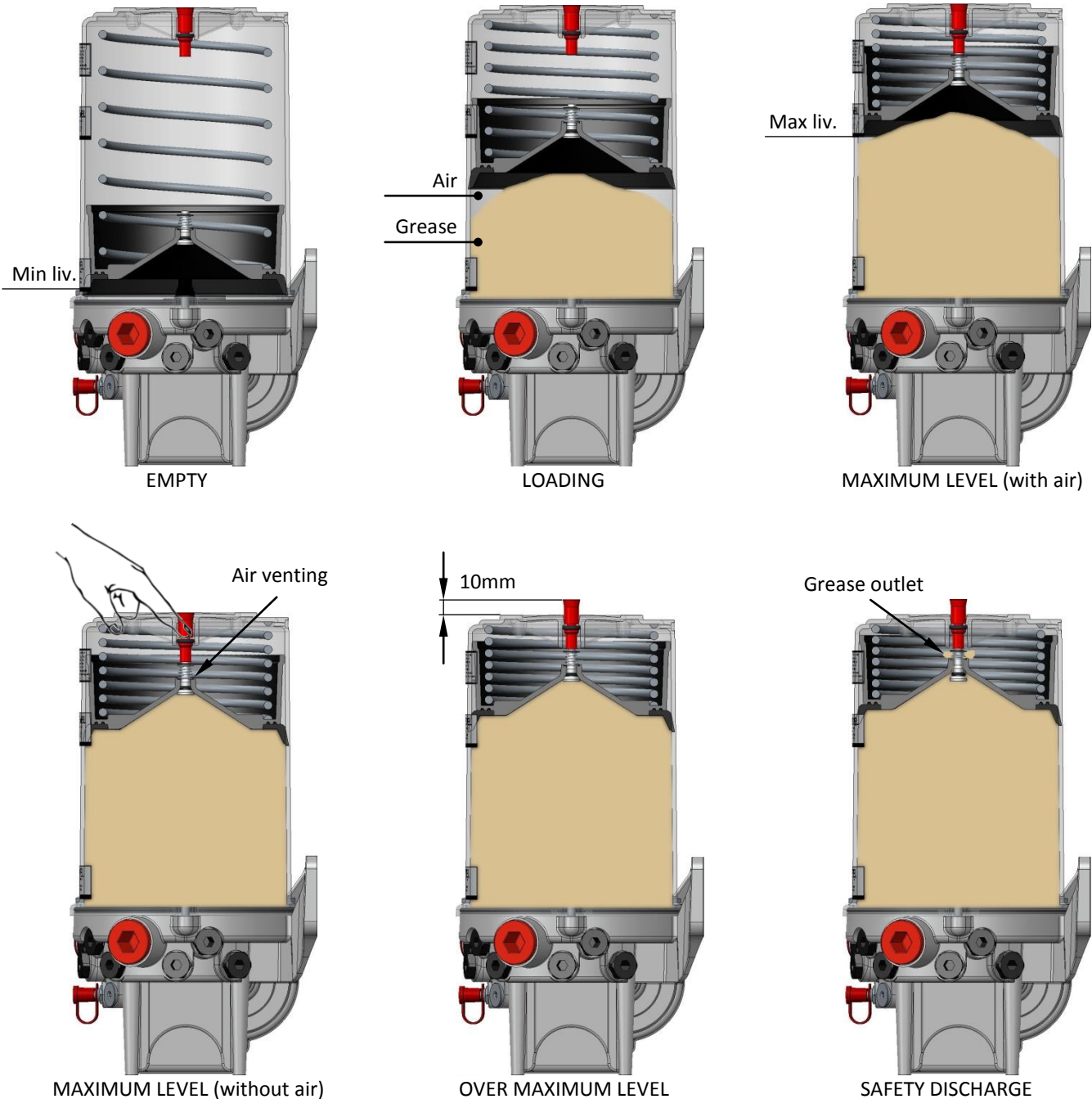


**7.2.1. FILLING THE RESERVOIR (FOLLOWER PLATE VERSION)**

The feeder is filled using a dedicated device complete with a filter.

In case it is necessary to perform the initial filling (with the pump completely empty and no remaining grease from the previous load), the pump must be positioned vertically to remove the air in the reservoir until the vent point corresponding to the red maximum level indicator is reached (the lubricant is supplied from the base). To speed up the air bleeding operation, we recommend pressing the indicator until all the air is evacuated, releasing it at the same time as interrupting the filling of the reservoir.

Subsequently, filling can be performed based on different guidelines, checking that the maximum level line is not exceeded. If the line is exceeded, lifting of the maximum level will be indicated up to a maximum of 10mm (0.39"). After that, if filling is not interrupted, a leakage of lubricant will be noticed from the central part of the follower plate (air vent). This will not cause a problem or malfunctioning, but grease may leak from the drain hole of the reservoir if there is an excessive amount.



**7.2.2. FIRST FILLING/REPLACEMENT OF PRELOADED CARTRIDGE (CARTRIDGE VERSION)**

The pump is supplied without a cartridge and completely empty. When the pump is ordered, the cartridges that will be used must also be ordered based on the type of grease foreseen. Provide an extra cartridge which will be used for the first filling.

For the first filling (with pump completely empty), you must proceed as follows:

- Remove the cartridge guard with bayonet fastening.
- Remove the cartridge plug
- Screw the cartridge onto the pump all the way, tightening it moderately.
- Unscrew and remove the plug or the pumping unit if present in position "C" (see [11. ORDER INFORMATION](#)).

- Keep the pump horizontal.
- Press the cartridge manually and gradually, sending the grease into the pump and evacuating the air.
- As soon as you notice grease coming out of the hole where the previously removed plug was, stop pushing on the cartridge.
- Screw on and tighten the previously removed plug.

For replacement, you must proceed as follows:

- Remove the cartridge guard with bayonet fastening.
- Recover the magnet from the empty cartridge (used to signal the minimum level).
- Unscrew and remove the empty cartridge.
- Remove the cartridge plug and remove the protection film (if present).
- Press the cartridge slightly so that a small quantity of grease comes out, ensuring that you evacuate all the air in the mouth.
- Taking care not to allow the air to come back in, screw the cartridge onto the pump all the way, tightening it moderately.
- Insert the magnet in the new cartridge.
- Refit the guard with bayonet fastening.

### **7.3. SETTING OF ADJUSTABLE PUMPING UNIT**

To set the progressive pumping unit with adjustable flow, proceed as follows:

- Ensure there is no residual pressure in the pressure line.
- Remove the adjustment access cap using a 4mm Allen wrench (see [5.3. "Progressive" PUMPING UNIT](#)).
- Rotate the jacket of the pumping unit using a 4 mm Allen wrench inserted in the internal grub screw.
- Each complete rotation of the Allen wrench is approximately 0.6cc/min. Setting range from 0.4 to 2.8 cc/min. for a total of 4 rotations.
- Check the presence and conformity of the copper gasket (replace if necessary).
- Replace the cap using a 4 mm Allen wrench.

### **7.4. VENT VALVE KIT INSTALLATION (OPTIONAL)**

The optional vent-valve (release valve) kit is designed for use with the fixed-flow pumping unit in position B. However, in case of a new pipe for the installer, it can be used with different solutions (see [5.6.VENT-VALVE KIT](#)).

For assembly and use, proceed as follows:

- Remove the screw with a gasket on the lower part of the pump.
- Screw the two self-tapping screws into the holes provided, ensuring the presence of the central gasket.
- Tighten the union on the pump in position B.
- Connect the power (DIN 43650) to the system, so that it is turned on/off at the same time as the pump.
- The free connector and the power cord must be of an adequate size and type, in compliance with applicable provisions. This can be ordered separately (see [11. ORDER INFORMATION](#)).

### **7.5. USE**

- Check the tightening 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 S.p.A. Technical Office and ask for the testing procedure).

### **7.6. MODE OF USE**



No adjustments are required. The pump is electrically powered by a system that controls activation and manages the minimum level contact and the revolution counter. There is also an extra cycle button that provides external cycle request enabling.

For operation of the lubrication system, see the management and control instructions for the machinery where the pump is installed.

## 8. PROBLEMS AND SOLUTIONS

A diagnostics table is illustrated below, where the main faults, probable causes and possible solutions to be immediately activated are indicated (contact Dropsa).

In case of any issues and/or problems that cannot be resolved, contact the Dropsa Engineering Department rather than searching for the fault by disassembling components of the pump.

TROUBLESHOOTING TABLE		
FAULT	FAULT	FAULT
The pump motor does not work	No current arrives.	Check the electrical power supply system.
	The motor does not work.	Replace the motor  .
The pump works but lubrication does not arrive at the lubrication points.	Lines disconnected.	Check the condition of the lines and the relative connections to the fittings. Replace worn lines.
	Progressive distributor blocked	Clean or replace the distributor
The lubricant is distributed to the lubrication points in irregular doses.	The distributor is not connected correctly to the lubrication points.	Check the dosages against the system diagram.
The pump begins the greasing phase but ends it immediately.	Defective motor or high output absorption.	Allow to cool for a few minutes and try again. If the problem persists, replace the motor  .
The pump does not dispense lubricant.	The reservoir is empty.	Fill the reservoir with clean lubricant.
	The cartridge is empty.	Replace the cartridge and if necessary remove as indicated for the 1 <sup>st</sup> filling.
	Air bubbles in the lubricant.	Disconnect the primary line from the pump connection fitting. Activate the pump according to the manual operating cycle until lubricant comes out of the fitting without any air bubbles. For the cartridge versions, you can manually press the cartridge itself in order to favour priming of the pumping unit.
	Use of unsuitable lubricant.	Empty the reservoir and refill it with suitable lubricant.
	Pumping suction clogged.	Disassemble the pumping unit and clean the suction inlets.
	The pumping unit piston is worn.	Replace the pumping unit.
	The pumping unit lubricant pump outlet is blocked.	Replace the pumping unit.



Operations that can be carried out only be specialized Dropsa personnel.

## 9. MAINTENANCE PROCEDURES

The pump does not require special tools for any check and/or maintenance operations. In any case, we recommend using tools and personal protective equipment suitable for the use (gloves, eye protection, etc.) and in good condition in accordance with prevailing regulations in order to prevent damage to people or parts of the pump.

The unit was designed and built in a way to require minimum maintenance operations. In any case, we recommend always keeping the body of the equipment clean and periodically checking the line joints in order to promptly detect any leaks.



**ATTENTION:** Before any maintenance or cleaning operation, ensure that the hydraulic and electrical supplies are disconnected.

### 9.1. SCHEDULED MAINTENANCE

The periodic checks are listed on the table below, as well as the frequency and the operation that maintenance personnel must carry out in order to guarantee the efficiency of the system over time.

CHECK	FREQUENCY	OPERATION
Fixing of the lines	After the first 500 hours Every 1500 hours	Check the fitting connection. Check fixing to the parts of the machine.
Reservoir level	As required	Restore the lubricant level in the reservoir.
Filling filter	As required	Check and replace if necessary.

## 10. DISPOSAL

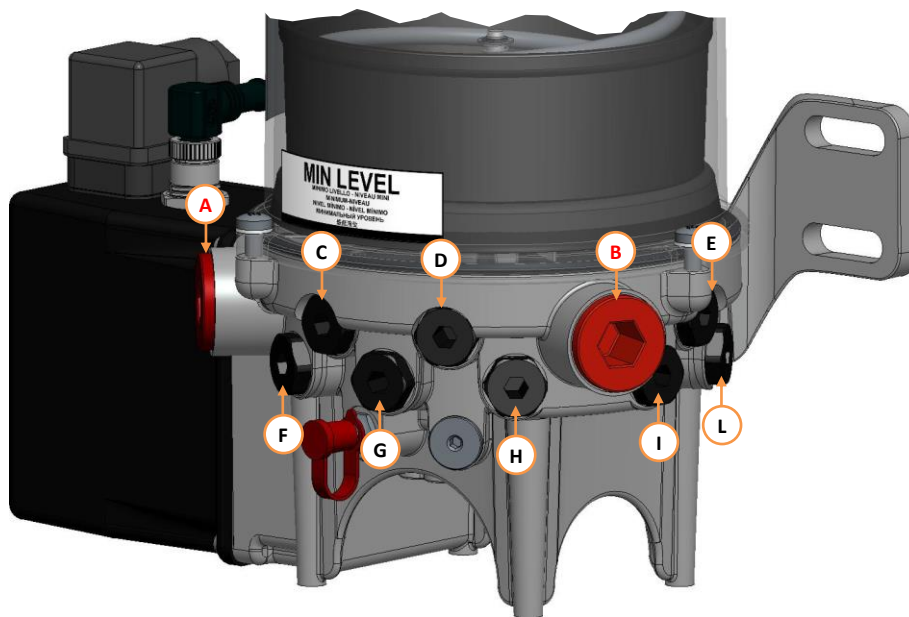
During maintenance on the pump, or in the event of its demolition, do not dispose of contaminated parts into the environment. See local regulations for their correct disposal. Upon demolition of the pump, the identification label and any other document must be destroyed.

## 11. ORDERING INFORMATION

STANDARD PUMPS			PUMPING ELEMENTS				
PART. No.	RESERVOIR	POWER SUPPLY	PART. No.	TYPE	FLOW RATE	NOTES	ID
0888580	FOLLOWER PLATE	12VDC	0888058C	PROGRESSIVE	2,8cm <sup>3</sup> /min	Int. BY-PASS	1
0888581		24VDC	0888156		2,8cm <sup>3</sup> /min	WITHOUT	2
0888582	CARTRIDGE 400CC	12VDC	0888391		5,2cm <sup>3</sup> /min	BY-PASS	3
0888583		24VDC	0888555		0,4 ÷ 2,8cm <sup>3</sup> /min	Adjustable	4
0888584	CARTRIDGE 700CC	12VDC	0888550	MULTI-LINE	0,005cm <sup>3</sup> /giro	1 TACCA	1
0888585		24VDC	0888551		0,010cm <sup>3</sup> /giro	2 TACCA	2
			0888552		0,015cm <sup>3</sup> /giro	3 TACCA	3
			0888553		0,025cm <sup>3</sup> /giro	4 TACCA	4
			0888554		0,050cm <sup>3</sup> /giro	5 TACCA	5

In order to better identify the type of pump with the pumping unit, simply indicate the position of the hole followed by the pumping unit ID (see PUMPING UNIT table).

**PUMPING UNIT HOLE POSITIONS**



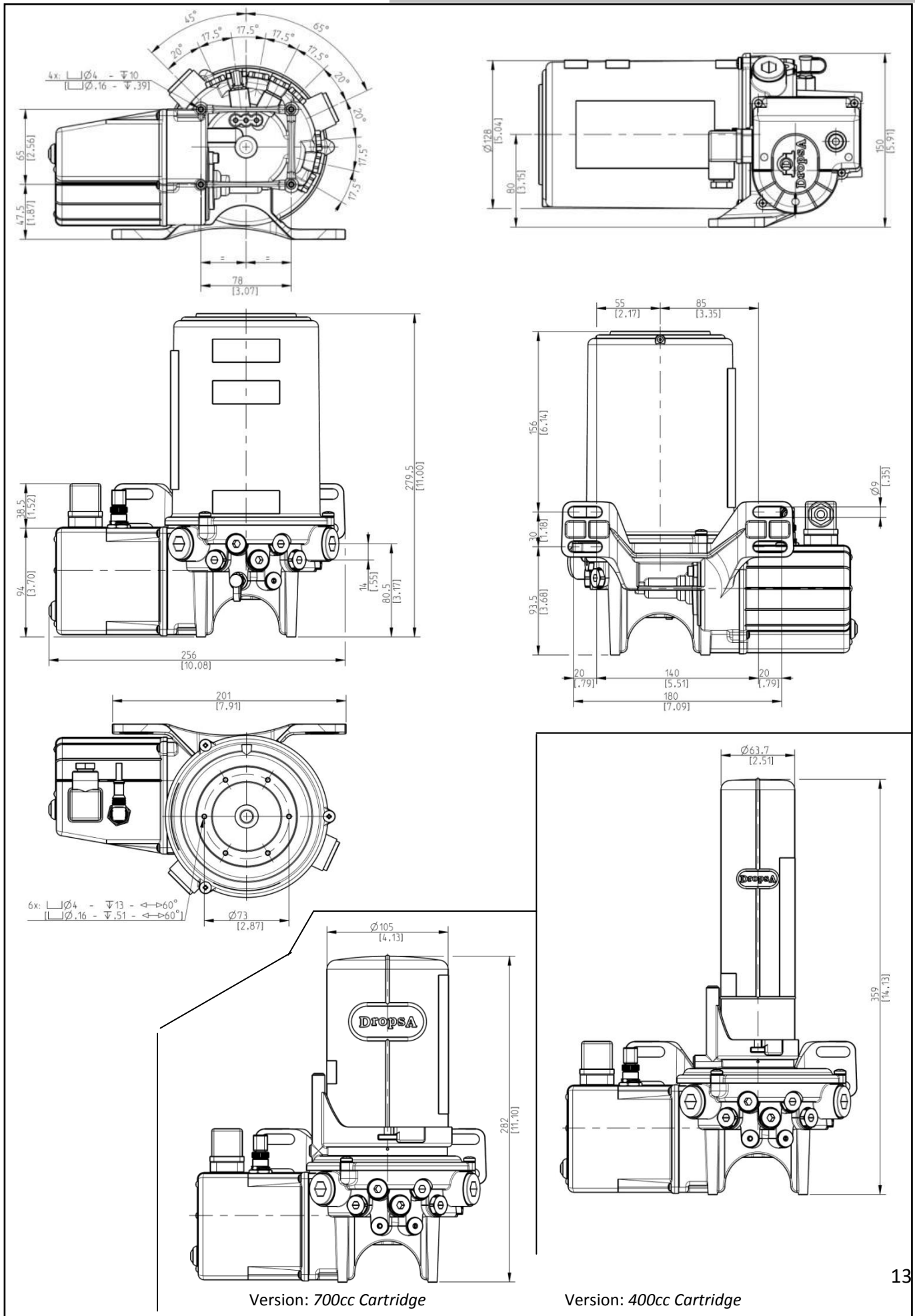
Example of a 12VDC OMEGA pump with follower plate, complete with a 2.8cm<sup>3</sup>/min Progressive pumping unit with built-in By-pass, mounted in hole (B) and 2 0.025cm<sup>3</sup>/revolution Multi-line pumping units mounted in holes (F) and (L); the reference string will be: **0888580 - B1-F4-L4**

OPTIONAL KITS and ACCESSORIES	
PART. No.	DESCRIPTION
0888573	400cc Cartridge NLGI 0 grease
0888576	700cc Cartridge NLGI 0 grease
0888572	External by-pass with pressure gauge
0888163	External by-pass without pressure gauge
3133644	Reservoir maximum level sensor kit
3133645	Laser probe reservoir kit
3133646	Venting-valve kit (24 VDC)
0039830	M12 connector - 90° 2m cable
0039999	M12 connector - 90° without cable
0039169	M12 connector - manage without cable
0039976	DIN 43650 connector without cable

SPARE PARTS	
PART. No.	DESCRIPTION
3130022	Filling filter
0888183	Tank for follower plate
3133643	Follower plate kit with valve and gasket
0888185	Pumping unit replacement plug (Multi-line)
3234300	Pumping unit replacement plug (Progressive)
0039976	Power supply connector
0039830	4 pin signals connector
0888520	700cc cartridge guard
0888519	400cc cartridge guard
0888527	Magnet for min. level 700cc cartridge
0888526	Magnet for min. level 400cc cartridge

		3133642	Gaskets kit version with follower plate
		3133641	Gaskets kit version with cartridge

## 12. DIMENSIONS



### 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

**Electric power supply**

No operations must be carried out on the machine before disconnecting it from the electrical power supply and ascertaining that no-one can reconnect it during the operation. All the installed equipment (electrical and electronic) must be connected to the ground line.

**Flammability**


The lubricant generally used in the lubrication circuits is not a flammable fluid. In any case, all appropriate measures must be taken to prevent it coming into contact with very hot parts or naked flames.

**Pressure**

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

**Noise**

The equipment does not emit noise levels in excess of 70 dB (A).




**WARNING:** The warnings on risks using a lubricant pump implies must be carefully read. The user must be familiar with operation through the Operation and Maintenance Manual.

#### 14.1. LUBRICANTS

A table is shown that compares the NLGI (National Lubricating Grease Institute) and ASTM (American Society for Testing and Materials) categories for greases, limitedly to the values that involve the OMEGA pump.

NLGI	ASTM
000	445 - 475
00	400 – 430
0	355 – 385
1	310 – 340
2	265 – 295

For further information on the technical characteristics and the safety measures to adopt, see the Product Safety Data Sheet (Directive 93/112/EEC) related to the type of lubricant selected and supplied by the manufacturer.



**NOTE:** The pump is designed to work with maximum NLGI 2 grade lubricants. Use NBR gasket compatible lubricants. Any residual lubricant inside that was used for assembly and testing is NLGI 2 grade.

### 15. CONTRAINDICATIONS OF USE

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.

Three types of lists were used:

- Compliance with essential safety requirements (Machine Dir.).
- Risk assessment (EN ISO 12100).
- Electrical safety requirements (EN 60204-1).

**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. → For this reason, maintenance operations must be carried out using suitable PPE.
- Contact with lubricant during maintenance or filling of the reservoir. → Protection against direct or indirect contact with lubricant must be prepared by the machine user. (See the requirements on the use of suitable PPE in accordance with prevailing regulations).
- Use of unsuitable lubricant → The characteristics of the lubricant are indicated both on the pump and in this operation and maintenance manual (in the event of any doubt, contact the Dropsa S.p.A. Technical Office):

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