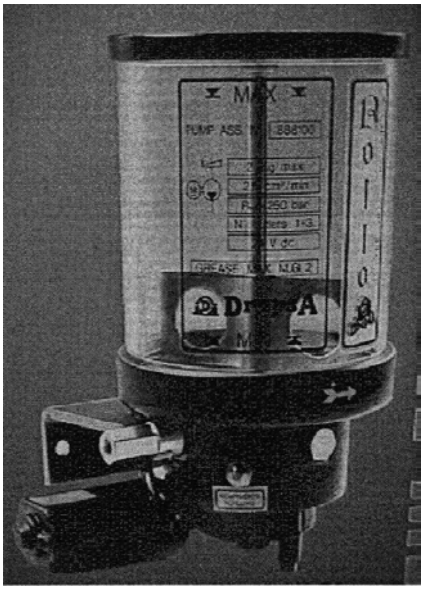
Pump 888 - Rollo
DROPSA SpA

In accordance with point 1.7.4, to I, Dir. 98/37 CE

Section:



Catalogue P/N C2020IE - Wk 23/02

Registered name	DROPSA SpA
Address	Via B. Croce 1, 20090 Vimodrone (MI), Italy
Model	**Pump 888 - Rollo**
Year of manufacture	1999
Marking	**CE**

0.0 INTRODUCTION

This user's and maintenance manual refers to the **pump 888 - Rollo**, for use in progressive type lubrication systems mounted on trucks, buses, refuse compactors and other types of machinery equipped with a 24 VDC electrical power supply.
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, mechanical 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.

The list of importers and instructions for ordering the required model are shown in Section 4.

1.0 DESCRIPTION OF THE PUMP

The Rollo is a range of motor driven pumps for mineral oil and grease.
The body of the Rollo is in aluminium coated with a special anticorrosion paint; the pump elements are in ground and lapped steel. The pump is supplied as standard with one pump element assembly and with a capacity to deliver 6 cm^3/min. On request it is possible to mount up to three pump element assemblies (note that the number of pump element assemblies required must be stated at the time of ordering).

CHARACTERISTICS	**PUMP 888 - Rollo** Electrical piston pump
Max. pressure-bar (psi)	250 (3625)
Flow rate	6 cm^3/min
Tank capacity Litres/Kg	2 or 4
Max. working time (min) for 50 W version	5 (min. pause time/work time (lubrication) ratio is 3:1)
Max. working time (minimum for 120 W version)	unlimited
Lubricant characteristics at temperature of use cSt	Oil Viscosity = min. 15 cSt Max. grease consistency NLGI 2
Temperature of use; for situations outside this range contact Dropsa Engineering Dept	- 5 °C - + 40 °C
Motor	24 VDC The motor can operate at voltages between 12 and 30 VDC
Absorbed power	50 W/120 W
Tank	In transparent technopolymer - capacity 2 Kg

1.1 **Auxiliary pump element** (Part N° 888042)

The pumps are supplied with one only pump element, but are pre-prepared for the mounting of another one or two pump elements.
This allows the feeding of more than one line independently or to combine the output of two or three pump elements to double or treble the flow rate.
Pump element characteristics:
Piston Ø 6 mm
Useful piston stroke: 6 mm
Body capacity: 0.17 cm^3 / stroke

1.2 **Minimum level indicator**

A permanent magnet located in a float (pump part N° 888120) or in the pressure disk (pump part N° 888110) actuate a “reed” contact inside the float guide rod or the pressure disk piston.
Maximum commutable power: 26 VA. Max. voltage: 120 VDC. Max. current: 0.8 A.

1.3 Operating control

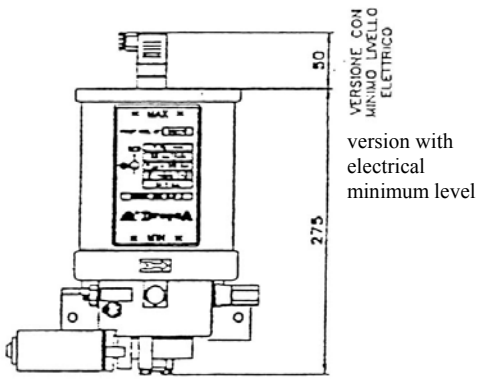
The control of the pump functioning must respect the technical characteristics of the motor:

Max. functioning time	5 minutes/Unlimited
Min. pause time	Three times the functioning time/Unlimited

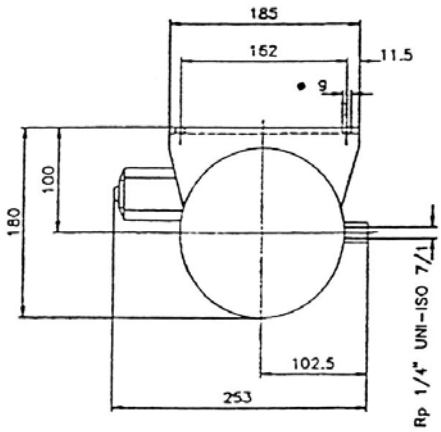
2.0 TECHNICAL SPECIFICATIONS

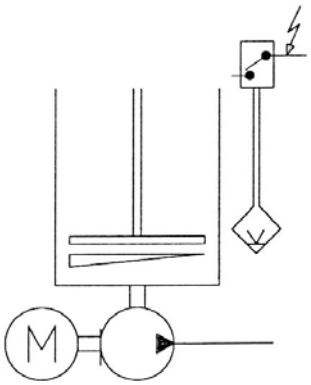
2.1 Fixing and overall dimensions

DIMENSIONI DIMENSIONS



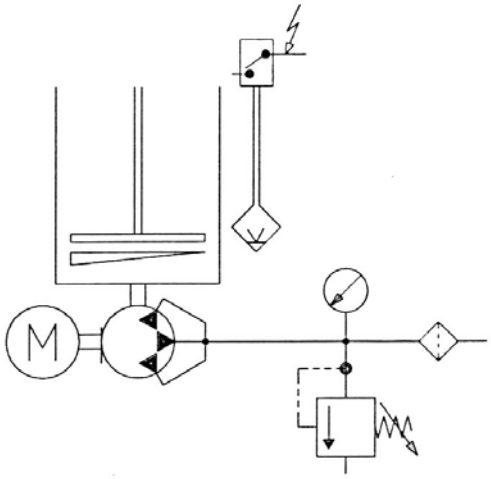
version with electrical minimum level





ESECUZIONE STANDARD

STANDARD CONFIGURATION



ESECUZIONE CON N.3 POMPANTI, BY PASS, MANOMETRO E FILTRO IN MANDATA

CONFIGURATION WITH QTY 3 PUMP ELEMENTS, BY-PASS, PRESSURE GAUGE AND DELIVERY FILTER

2.2 Electrical system – Technical data

Motor driven piston pump

Electrical power supply:	24 VDC
Absorbed power:	approx. 50 W – 120 W

2.3 Other technical data

Class of protection	F
Grade of mechanical protection	IP55
Working temperature	-5 - +40ºC
Working humidity	90 % relative humidity
Preservation temperature	-20 - +50ºC
Level of continuous sound pressure	< 70 dB(A)

3.0 CORRECT USE

3.1 Putting into service

- It is advisable to operate the pump while filling to facilitate the distribution of grease through the pumping area and to avoid the formation of air bubbles.
- The unit should be opened and repaired ONLY by qualified personnel.
- 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.
- 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.

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;
- On starting the pump, check the direction of rotation of the electric motor: If rotating in the wrong direction invert the cable connections.

☞ **WARNING**
For grease pumps it is essential that the paddle rotates in the direction of the arrow shown on the plate on the tank (anticlockwise). Where the direction is incorrect, invert the two electrical power cables to the motor.

3.2 Use

1. Verify the starting of the pump;
2. Check the rotation of the paddle (only for grease pumps);
3. 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 a cardboard package.
No particular precautions are required except as noted on the package itself.

Handling can be effected manually.

! *Lift the unit with taking account of the right way up indicated on the cardboard carton*

! *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.

During the disassembly phase ensure the tank is empty.
Disconnect the electrical 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.

3.4.1 Disassembling the cover

Pumps Part N° 888100 and 888120
Screw a 3 mm screw into the hole of the nylon tube which secures the cover to the tank and, taking the head of the screw with a pair of pliers, completely extract the nylon tube from its seating and remove the cover.

Pump Part N° 888110
This pump is equipped with a pressure disk with a seal which remains perfectly in contact with the internal surface of the tank. When the pressure disk, following the level of the grease being pumped, descends down the guide rod, an increase in pressure is created in the zone above the disk itself. After having removed the nylon tube as described above, it is necessary to raise the cover and at the same time tilt it until the passage of air is permitted eliminating the existing difference in pressure between the zones above and below the pressure disk.

3.4.2 Removing the tank

Where it is necessary to remove the tank to clean or replace the pump, remove the nylon tube which secures the tank to pump body as described for removing the cover.

3.5 Regulation

Pressure
It is possible to regulate the working pressure by inserting a regulating valve (Part No. 0888036) in the delivery line.
Pressure regulation: 0 - 25 MPa (0 - 250 bar).

3.6 Maintenance

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

Periodic inspection
Periodically it is necessary to check:

VERIFICATION	WORK CYCLE
The state of lubrication	1000
The oil level	2000
Cleanliness of the filling and intake filter (where fitted)	2500
Clean the tank of any deposits on the bottom	3000

The tank should only be filled with clean lubricant free from metallic particles or foreign bodies in order to ensure the long life of the pump and to avoid damage to the machine being lubricated.

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

3.7 Repairs

The following diagnostic table indicates the main anomalies which may be encountered, the probable causes and possible solutions.
The anomalies shown are:

- the pump fails to deliver lubricant;
- irregular pressure;
- irregular flow rate;
- the lubricant does not arrive at the points to be lubricated.

In case of doubts and/or problems which cannot be resolved do not attempt to disassemble parts of the machine but contact the Engineering Department of DROPSA S.p.A..

DIAGNOSTIC TABLE

INDICATION	CAUSE	REMEDY
The pump fails to deliver lubricant	The tank is empty	Refill the tank with clean lubricant, following the procedure in the section on Maintenance. Warning: if the tank has emptied without the electrical contact having signalled the minimum level, check the minimum level contact.
	The tank for grease has been filled from the top and not by using the appropriate side connection	Remove the connector cap for the supplementary pump element to purge the air by running the pump until grease exits free from air bubbles. Replace cap B and continue running the pump until grease exits between the threads and the cap body, then fully tighten the cap.
	The pump element piston is seized or the piston return spring is broken	Replace the pump element.
	The pump is unable to operate as the grease consistency exceeds NLGI 2 (max. recommended consistency).	Remove the tank from the pump, remove the unsuitable grease and wash the tank and filter with petrol.
	The pump does not operate because it has been running with the tank empty creating an air bubble within the pump itself.	Disassemble the pump and wash with petrol. Reassemble and refill the tank (using the side connector equipped with a filter) with suitable grease and run the pump, ensuring that the grease exits free from air bubbles. If necessary remove the air vent cap B (See fig. on page 6) and purge as in the previous point.
Irregular pressure	Pressure regulating valve (by-pass) dirty.	Disassemble the parts shown in diagram A (see fig. on page 6) and wash them with petrol. Also clean the valve seating. Check the condition of the components and replace where necessary. Before reassembling the valve, check that sealing ring 18818 is not damaged.
Irregular flow rate	The flow is irregular due to dirt in the system.	Remove the pump element from the pump body and completely disassemble it. Check and clean all the pieces and reassemble. Hold the pump element in wooden jaws to protect the lapped finish.
The lubricant does not arrive at the points to be lubricated.	The lubricant has saponified in the tubing and in the dosers.	Detach the feed tubing to determine that this is the problem.; where necessary, use a high pressure (500 – 600 bar) hydraulic pump to purge the bearings of saponified grease; the same operation must be carried out on all the connecting tubing in the affected zone, then purge the dosers and, to finish, disconnect the input tube to the dosers and, with the pump running, ensure that lubricant exits from the tubing; where it does not, purge the tubing between the doser and the pump and between the master doser and the secondary dosers. At the end of the operation, check the working pressure of the system and set the maximum pressure valve to 150 bar.

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 two types:

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

INADMISSIBLE FLUIDS	
Fluid	**Danger**
Lubricants with abrasive additives	High wear rate of contacted parts
Lubricants with silicone based additives	Seizure of the pump
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

VERSIONS

MOTOR	TANK CAPACITY	FLOW RATE (cc/min) at 40 rpm	PART N°	DESCRIPTION
50W	2 kg	6	888100	Lubricant: grease – with paddle and agitator
50W	2 kg	6	888110	Lubricant: grease – with paddle, pres. disk, min. level.
50W	2 l	6	888120	Lubricant: oil – with min. level
120W	4 kg	6	888130	Lubricant: grease – with paddle and agitator
120W	4 kg	6	888140	Lubricant: grease – with paddle
120W	2 kg	6	888150	Lubricant: grease – with paddle and agitator
120W	2 kg	6	888170	Lubricant: grease – con paddle, press. disk, min. level

PRESSURE REGULATING VALVE
Pressure regulating valve, for mounting in the delivery line.
Valve Part N°: 299450
Pressure regulation: 0 - 25 MPa (0 - 250 bar)
It is recommended that this valve be fitted to ensure the correct functioning of the pump and to avoid any excess pressure in the circuit.

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 888 - Rollo

* is manufactured in conformity with the DIRECTIVE OF THE COUNCIL OF THE EUROPEAN COMMUNITY concerning the harmonisation of member states legislation relative to machines (98/37 CE + 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, EN 1050.**

Technical Manager	Ing. Walter Divisi
Product Manager	**Name**
DROPSA SpA - Vimodrone (MI) - Italy	
Company	
	January 1999
Signature	**Date**

DROPSA

ITALY
Dropsa SpA
t.(+39) 02-250791
f.(+39) 02-25079767

U.S.A.
Dropsa Corporation
t.(+1) 586-566-1540
f.(+1) 586-566-1541

BRAZIL
Dropsa
t.(+55) 011-563-10007
f.(+55) 011-563-19408

AUSTRALIA
Dropsa Australia Ltd.
t.(+61) 02-9938-6644
f.(+61) 02-9938-6611

SPAIN
Polydrop, S.A.
t.(+34) 93-260-22-50
f.(+34) 93-260-22-51

U.K.
Dropsa (UK) Ltd
t.(+44) 01784-431177
f.(+44) 01784-438598

GERMANY
Dropsa Gmbh
t.(+49) 0211-394-011
f.(+49) 0211-394-013

FRANCE
Dropsa Ame
t.(+33) 01-3993-0033
f.(+33) 01-3986-2636