PUMP

Pneumatic Pump
400000 series

User and Maintenance Manual

Original text translation

CONTENTS

CE

Manual drawn up in accordance with
EC Directive 06/42

WK 01/12 C2011IE

Dropsa products can be purchased from Dropsa branches and authorized distributors, visit **www.dropsa.com/contact** or contact us **sales@dropsa.com**

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1. INTRODUCTION

This operating and maintenance manual refers to the Pneumatic Pump 40000 series, use in oil and mineral grease lubricant systems.
It should be kept in a secure place in order that it may be referred to by the user. It is possible to obtain more copies of this manual or updated versions by contacting one of Dropsa's sales offices or via web site at **http://www.dropsa.com**
Dropsa reserves the right to update product specification or documentation without prior notice.
The use of the Pneumatic Pump and this manual requires personnel with only basic understanding of hydraulic and pneumatic systems.
Dropsa declines any responsibility for damage caused to persons or equipment in the event of non observance of the procedures and instructions outlined within this manual. Any changes or modifications to components must be carried out only with prior written authorization by Dropsa.
Note : This document does not contain parameters for calculating correct lubrication parameters for individual applications which should be carried out by a qualified Engineer. Varying lubrication parameters that have been set by your machine or bearing manufacturer may cause lubrication failure and void machine warranty.

2. MACHINE IDENTIFICATION

Located on the side of the pump, a yellow identification label indicates the device model, part number, and other basic characteristics.

3. GENERAL DESCRIPTION

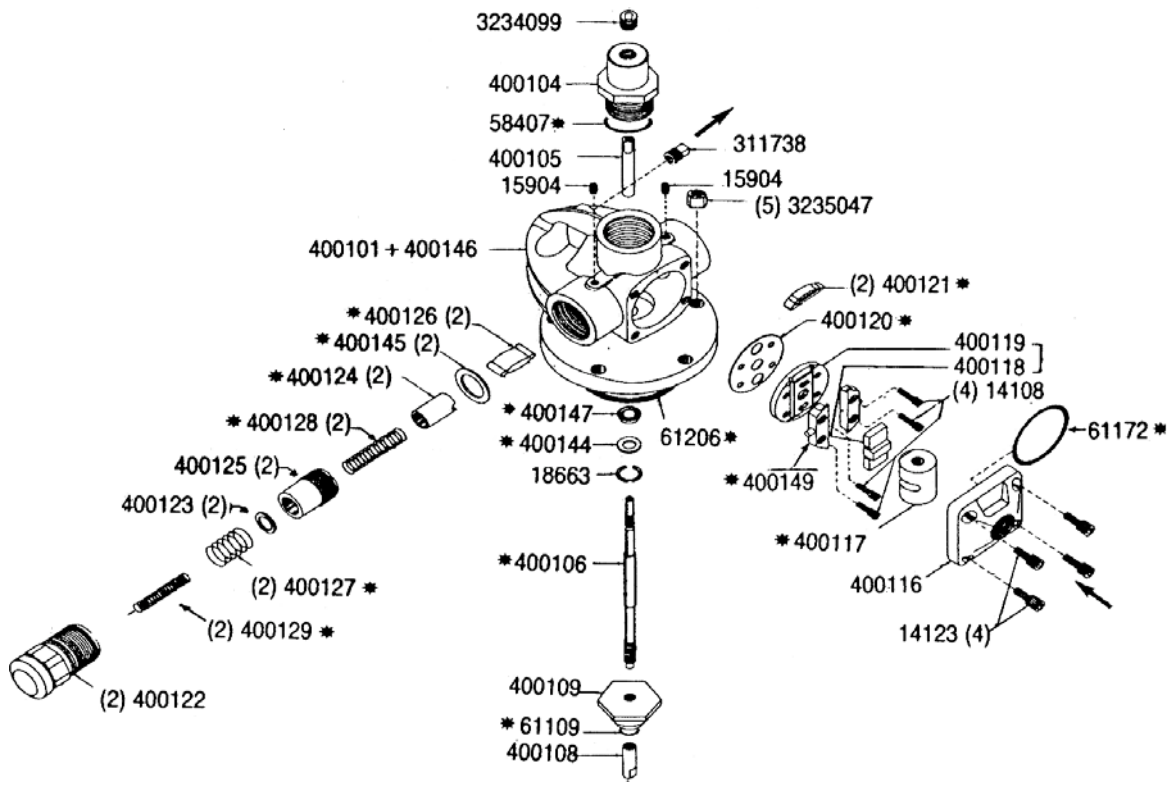
These powerful, robust and long lasting pumps, mounted on commercial drums, are used for transferring light greases, lubricants and other non-corrosive fluids or, fitted with a flexible hose and gun, for filling grease cups or small tanks in the industrial and automotive fields.
Another interesting application of this type of pump is in the lubrication field where its capacity to deliver large quantities at a high working pressure renders it particularly suitable for feeding centralised progressive systems.
The pump is made up of a motor assembly with a synthetic rubber piston, particularly resistant to abrasion, moved from top to bottom (and vice-versa) by a compressed air jet, and a pump rod with a chromed piston, connected to the motor piston.

4. TECHNICAL CHARACTERISTICS

CHARACTERISTICS	
Maximum pressure (bar)	560 versions 75:1 and 40:1 280 version 25:1 63 version 6:1
Maximum delivery	5 Kg/min version 75:1 8 Kg/min version 40:1 16 liter/min version 25:1 28 liter/min version 6:1
Air driven maximum pressure (bar)	7 version 75:1 14 versions 40:1, 25:1, 6:1
Lubricant characteristics at temperature of use	Max NLGI 2 (see table)
Temperature of use(°C)	+5°C - +80°C
Air connection	G 3/4" UNI ISO 228/1 (3/4" BSP)
Lubricant outlet	G 1/2" UNI ISO 228/1 (1/2" BSP)
Working humidity	90% relative humidity
Level of continuous sound pressure	>85 dB (A)
Weight (kg)	28

5. PUMP COMPONENTS

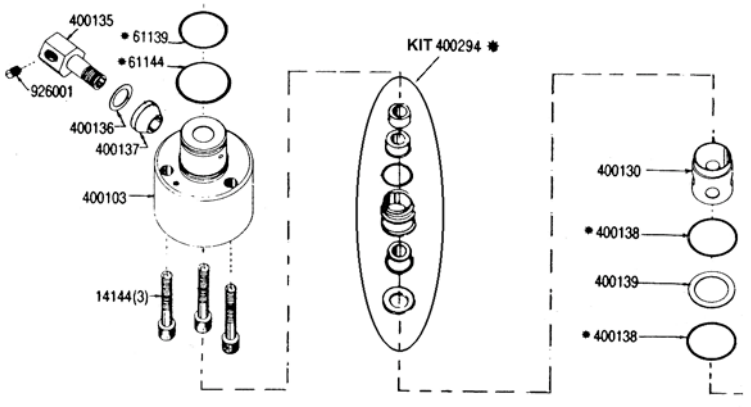
AIR MOTOR PART NO. 400100
(FIG. A)



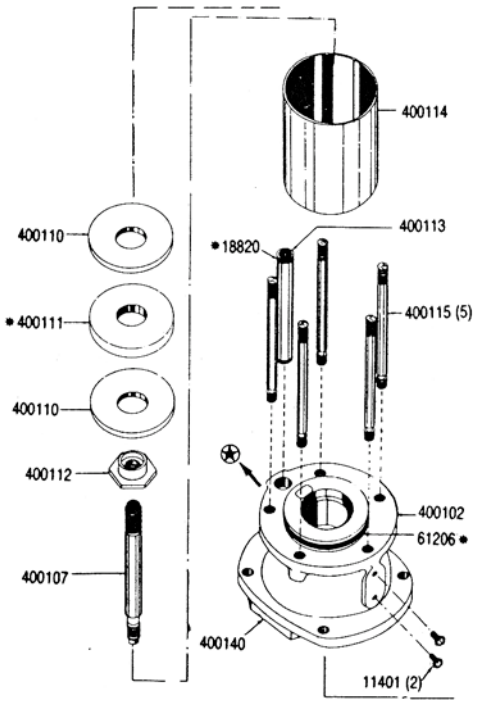
Air in and out: G. 3/4" UNI ISO 228/1

Lubricant out: G. 1/2" UNI ISO 228/1

AIR MOTOR PART NO. 400100 (FIG. B)

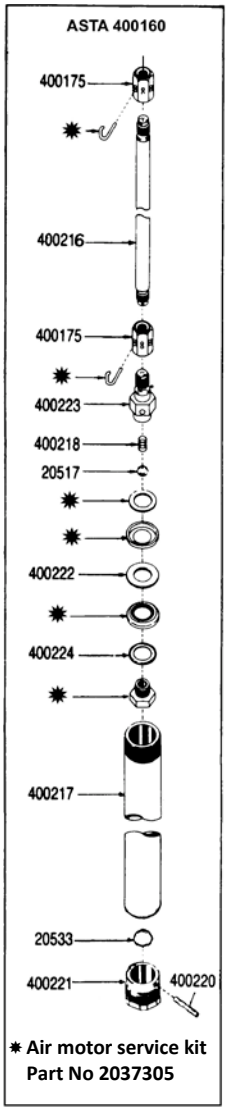


AIR MOTOR PART NO. 40100 (FIG. C)



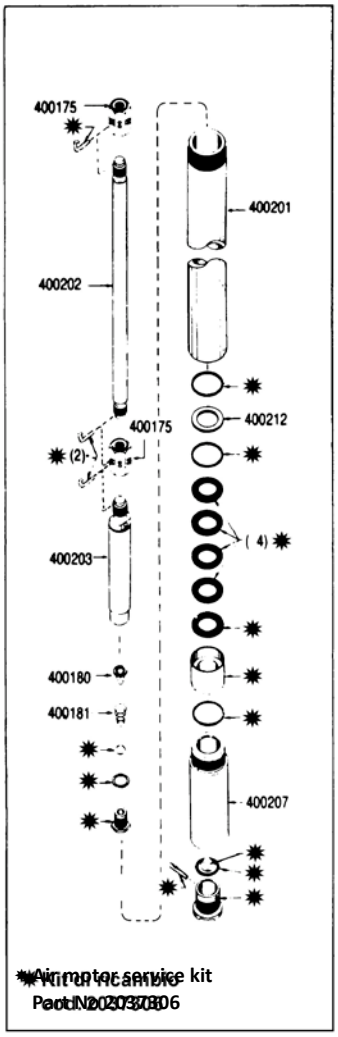
TUBE ASSEMBLY

Part No. 400160



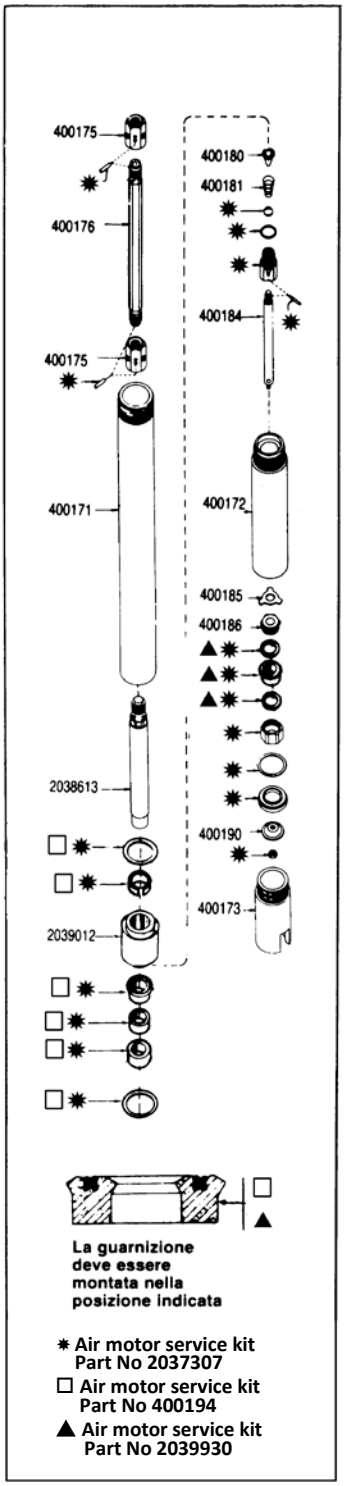
✷ Air motor service kit
Part No 2037305

Part No. 400165



✷ Air motor service kit
Part No 2037306

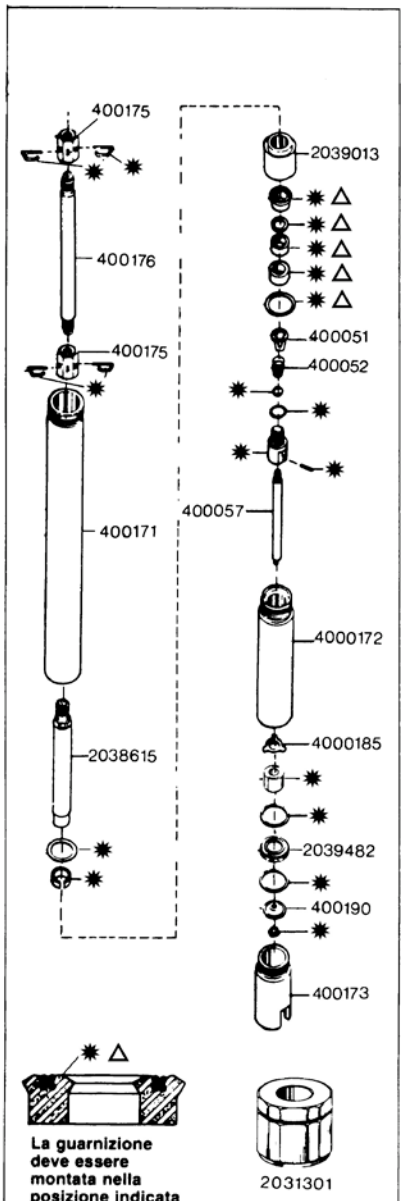
Part No. 400170



La guarnizione
deve essere
montata nella
posizione indicata

✷ Air motor service kit
Part No 2037307
☐ Air motor service kit
Part No 400194
▲ Air motor service kit
Part No 2039930

Part No. 400155



La guarnizione
deve essere
montata nella
posizione indicata

✷ Air motor service kit
Part No 2037307
△ Air motor service kit
Part No 2037307

6. UNPACKING AND INSTALLATION

6.1 UNPACKING

The unit should be removed from its packaging and inspected for damage in transit.
Do not attempt to operate the unit if you are in any doubt that it has been damage.
The unit is designed to be applied to industrial machine tools in an indoor production environment. Packaging material does not require special disposal. Check your local regulation or legal requirements.

6.2 FIXING THE UNIT

Identify a suitable space for installing the unit on the machine which is easily accessible. Do not install the unit in particularly harsh or explosive/inflammable environments.
Always use the mounting bracket supplier by Dropsa.

7. INSTRUCTIONS FOR USE

7.1 PUTTING INTO SERVICE

Carefully check the integrity of the drum, any dents could impend the movement of the pressure disc.
Open the lid of the drum and level the surface of the grease, clamp the pump to the appropriate the drum lid.
Place the lid with the pump on the drum taking care to secure it with the clamping screws.
Connect the flexible hose to the delivery outlet of the pump; check that it is suitable for the operating pressure and flow rate.
Connect the pump to the compressed air supply.

7.2 PRESSURE REGOLATION

The only parameter which can be modified is the pressure; to modify the value increase or decrease the pressure of the command air supply.

7.3 DISASSEMBLE THE PUMP

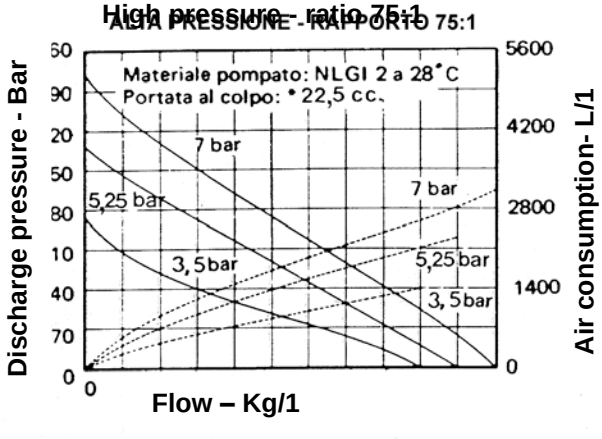
The pump has been designed and constructed to require the minimum of maintenance.
The pump is dismantled as follows:

1. Disconnect the air supply and the lubricant delivery hose from the pump;
2. if required the pump rod can be emptied by operating the pump with the rod uppermost.

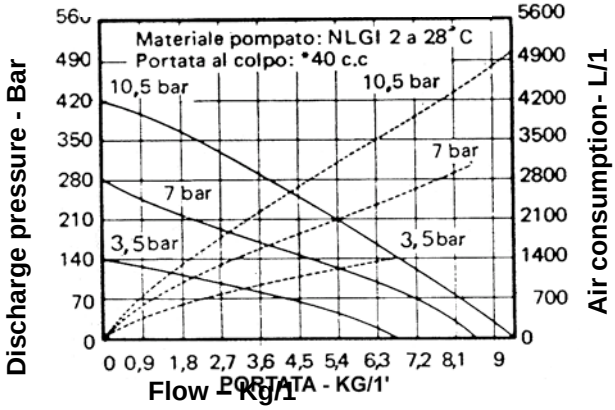
DANGER! (ensure hands are not near the suction inlet during the pump operation).

Diagram

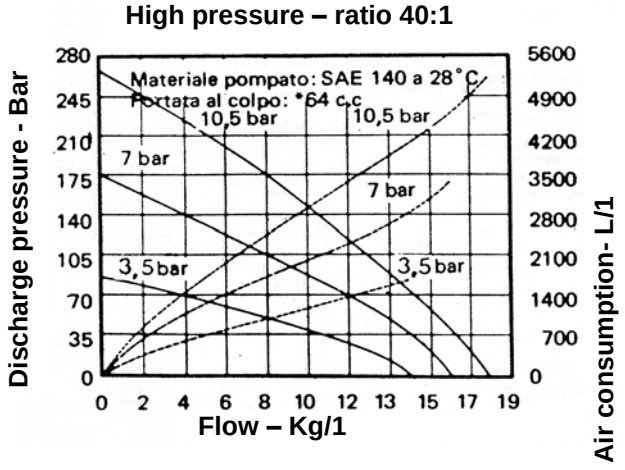
High pressure – ratio 75:1



High pressure – ratio 40:1



High pressure – ratio 40:1



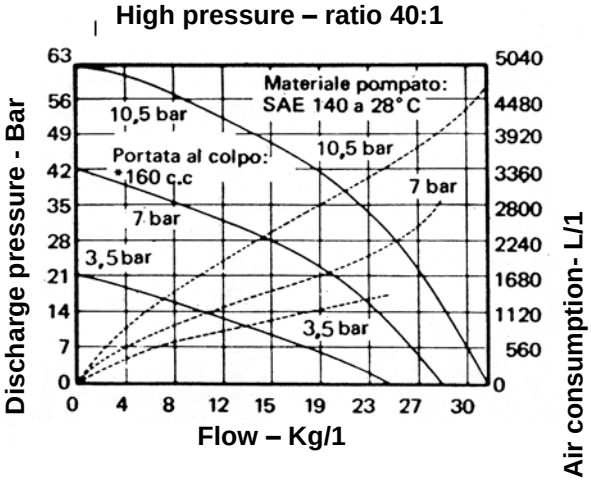
Example

This an example to determine the discharge pressure at delivery and the air consumption.
5 Kg/min desired from 40:1 pump, air 100 psi house air pressure (Material NLGI 2)

a. To determine discharge pressure at delivery:
   a. Select delivery per minute desired from bottom scale (5 Kg/min).
   b. Read upward to find point of intersection on 100 psi air pressure curve (solid line).
   c. Read left from this point on discharge pressure scale witch is approximately 2000 psi.

b. To determine air consumption:
   a. Use same delivery per minute point on bottom scale (5 Kg/min).
   b. Read upward to find point of intersection on 1000 psi air pressure curve (dotted line).
   c. Read right from this point on air consumption scale witch is approximately 2000 liters/minute.

High pressure – ratio 40:1



8. TROUBLESHOOTING

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

TABELLA DIAGNOSTICA DELLA POMPA PNEUMATICA SERIE 400000		
ANOMALY	**CAUSE**	**RESOLUTION**
The pneumatic motor fails to function.	○ Problems with the supplì line. ○ Pump rod blocked ○ Internal damage	○ Check the air supply connections. Check the air treatment assembly. ○ Remove the rod and check that it slides freely. Dissemble and clean if necessary. ○ Disconnect the rod and check that the motor functions; if necessary disassemble, clean and replace any damaged parts.
The pneumatic motor functions but fails to deliver product	○ lack of lubricant in the drum ○ The suction is impeded by impurities ○ Valve or seals worn.	○ Refill or replace the drum ○ Disassemble the rod and clean internally. ○ Disassemble the rod, clean internally and replace any worn components.
The pump fails to maintain pressure.	○ Valve or seals worn.	○ Smontare l'asta, pulirla internamente e sostituire eventuali componenti usurati.

9. MAINTENANCE

The pump undergoes severe factory testing therefore it 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.
Nel caso di pulizia del motore pneumatico, prima di richiudere riempire la scatola invertitore con circa 0.5 Kg di grasso tipo "BP GREASE LT2" part no. 3225014.

10. DISPOSAL

During Maintenance or disposal of the unit, do not dispose of substances as normal waste. This applies particularly to lubricants which need to be removed from unit. It is important to refer to your local regulations or legislative requirements when disposing of such substances. When the unit is destroyed or taken out of service, the identification label must be destroyed or voided also.

11. INFORMATION ABOUT ORDERING

VERSIONS

Ratio	Pump assembly Part no.	Air motor only Part No.	Piston rod only Part No.	Lubricant	Delivery (at 100 psi)
40:1	400200	400100	400170	Grease NLGI 2	8 Kg / min
75:1	400300	400100	400155	Grease NLGI 2	5 Kg / min
25:1	400205	400100	400165	Grease / oil 1000 cSt	16 liters / min
6:1	400210	400100	400160	Olio 1000 cSt	28 liters / min

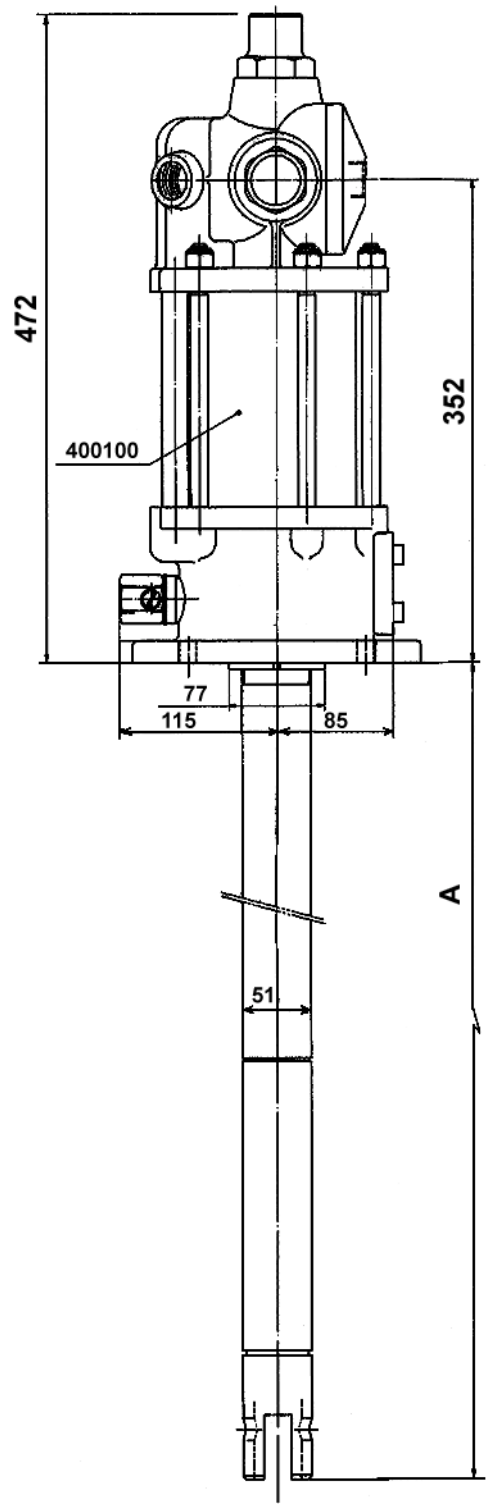
The high pressure pumps, with compression ration 75:1 and 40:1, are used to pump hard, stubborn and fibrous greases with NLGI 2 consistency.
The medium pressure pumps, with compression ratio 25:1, are particularly suited both for pumping soft greases (NLGI 0) and very viscous fluids (max 140 SAE).
The low pressure pumps, with compression ratio of 6:1, are particularly suited both for pumping very viscous greases (max 140 SAE).
The capacity of the high pressure pumps to dispense lubricants at high pressure makes them particularly suitable for feeding grease lubrication systems operating in low temperature conditions.

ACCESSORIES

Part. No.	Description
2034950	Air supply exhaust silencer
0400040	Cover for 180 Kg drums
1141617	Follower plate for 180 Kg drums

Because the pump is very noisy (>85 db), we recommend using the specific silencer (part number 2034950).

12. DIMENSIONS



Part No.	A	
	mm	inch.
400200	872	34.33
400300	872	34,33
400205	866	34,09
400210	865	34,05

13. HANDLING AND TRANSPORT

Ensure that there is no damage before proceeding with the installation. Store the product in a dry environment.
No special handling equipment is necessary for this product.

14. PRECAUTIONS FOR USE

WARNING: It is necessary to carefully read about the instructions and the risks involved in the use of lubrication machines. The operator must know the machine functioning through the user manual.

Power supply
Any type of intervention must not be carried out before the unplugging of the machine from the power supply. Make sure that no one can start it up again during the intervention.
All the installed electric and electronic equipment, reservoirs and basic components must be grounded.

Flammability
The lubricant generally used in lubrication systems is not normally flammable. However, it is advised to avoid contact with extremely hot substances or naked flames.

Pressure
Prior to any intervention, check the absence of residual pressure in any branch of the lubricant circuit as it may cause oil sprays when disassembling components or fittings.

Noise
These pumps are generally very noisy, despite the varius measures adepte.

15. CONTRAINDICATIONS FOR USE

Fluids	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