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# NOVA 10:1

Pneumatic piston transfer pump



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98140 NOVA 10:1 Satinless steel pump

**This manual is to be considered as an English language translation of the original manual in Italian. The manufacturer shall bear no responsibility for any damages or inconveniences that may arise due to the incorrect translation of the instructions contained within the original manual in Italian.**

**Due to a constant product improvement program, the factory reserves the right to modify technical details mentioned in this manual without prior notice.**

# NOVA 10:1

Pneumatic piston transfer pump

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**WE ADVISE THE USE OF THIS EQUIPMENT ONLY BY PROFESSIONAL OPERATORS.  
ONLY USE THIS MACHINE FOR USAGE SPECIFICALLY MENTIONED IN THIS MANUAL.**

**Thank you for choosing a SAMOA product.  
As well as the product purchased, you will receive a range of support services  
enabling you to achieve the results desired, quickly and professionally.**

## A WARNINGS

The table below provides the meaning of the symbols used in this manual in relation to using, earthing, operating, maintaining, and repairing of this equipment.

	<ul style="list-style-type: none"> <li>• Read this operator's manual carefully before using the equipment.</li> <li>• An improper use of this machine can cause injuries to people or things.</li> <li>• Do not use this machine when under the influence of drugs or alcohol.</li> <li>• Do not modify the equipment under any circumstances.</li> <li>• Use products and solvents that are compatible with the various parts of the equipment, and read the manufacturer's warnings carefully.</li> <li>• See the Technical Details for the equipment given in the Manual.</li> <li>• Check the equipment for worn parts once a day. If any worn parts are found, replace them using <b>ONLY</b> original spare parts.</li> <li>• Keep children and animals away from work area.</li> <li>• Comply with all safety standards.</li> </ul>
	<ul style="list-style-type: none"> <li>• It indicates an accident risk or serious damage to equipment if this warning is not followed.</li> </ul>
   	<p><b>FIRE AND EXPLOSION HAZARD</b></p> <ul style="list-style-type: none"> <li>• Solvent and paint fumes in work area can ignite or explode.</li> <li>• <b>To help prevent fire and explosion:</b> <ul style="list-style-type: none"> <li>- Use equipment <b>ONLY</b> in well ventilated area.</li> <li>- Eliminate all ignition sources, such as pilot lights, cigarettes and plastic drop cloths (potential static arc).</li> <li>- Ground equipment and conductive objects.</li> <li>- Use only grounded hoses.</li> <li>- Do not use trichloroethane, methylene chloride, other halogenated hydrocarbon solvents or fluids containing such solvents in pressurized aluminium equipment. Such use can cause serious chemical reaction and equipment rupture, and result in death, serious injury, and property damage.</li> <li>- Do not form connections or switch light switches on or off if the air contains inflammable fumes.</li> </ul> </li> <li>• If electrical shocks or discharges are encountered the operation being carried out using the equipment <b>must be stopped immediately</b>.</li> <li>• Keep a fire extinguisher at hand in the immediate vicinity of the work area.</li> </ul>
	<ul style="list-style-type: none"> <li>• It indicates wound and finger squashing risk due to movable parts in the equipment.</li> <li>• Tenersi lontano dalle parti in movimento.</li> <li>• Do not use the equipment without the proper protection.</li> <li>• Before any inspection or maintenance of the equipment, carry out the decompression procedure explained in this manual, and prevent any risk of the equipment starting unexpectedly.</li> </ul>
 	<ul style="list-style-type: none"> <li>• Report any risk of chemical reaction or explosion if this warning has not been given.</li> <li>• (IF PROVIDED) There is a risk of injury or serious lesion related to contact with the jet from the spray gun. If this should occur, <b>IMMEDIATELY</b> contact a doctor, indicating the type of product injected.</li> <li>• (IF PROVIDED) Do not spray before the guard has been placed over the nozzle and the trigger on the spray gun.</li> <li>• (IF PROVIDED) Do not put your fingers in the spray gun nozzle.</li> <li>• Once work has been completed, before carrying out any maintenance, complete the decompression procedure.</li> </ul>
	<ul style="list-style-type: none"> <li>• It indicates important recommendations about disposal and recycling process of products in accordance with the environmental regulations.</li> </ul>
    	<ul style="list-style-type: none"> <li>• Mark any clamps attached to earth cables.</li> <li>• Use <b>ONLY</b> 3-wire extension cords and grounded electrical outlets.</li> <li>• Before starting work make sure that the electrical system is grounded and that it complies with safety standards.</li> <li>• High-pressure fluid from gun, hose leaks, or ruptured components will pierce skin.</li> <li>• <b>To help prevent injection, always:</b> <ul style="list-style-type: none"> <li>- (IF PROVIDED) Engage trigger lock when not spraying.</li> <li>- (IF PROVIDED) Do not put your hand over the spray tip. Do not stop or deflect leaks with your hand, body or other.</li> <li>- (IF PROVIDED) Do not point gun at anyone or at any part of the body.</li> <li>- (IF PROVIDED) Never spray without tip guard.</li> <li>- Do pressure relief if you stop spraying or being servicing sprayer and before any maintenance operations.</li> <li>- Do not use components rated less than sprayer Maximum Working Pressure.</li> <li>- Never allow children to use this unit</li> <li>- (IF PROVIDED) Brace yourself; gun may recoil when triggered.</li> </ul> </li> <li>• <b>If high pressure fluid pierces your skin, the injury might look like "just a cut", but it is a serious wound! Get immediate medical attention.</b></li> </ul>
   	<ul style="list-style-type: none"> <li>• It is obligatory to wear suitable clothing as gloves, goggles and face shield.</li> <li>• Wear clothing that complies with the safety standards in force in the country in which the equipment is used.</li> <li>• Do not wear bracelets, earrings, rings, chains, or anything else that may hinder the operator's work.</li> <li>• Do not wear clothing with wide sleeves, scarves, ties, or any other piece of clothing that could get tangled up in moving parts of the equipment during the work, inspection, or maintenance cycles.</li> </ul>

## B PRINCIPLE OF OPERATION

The **NOVA 10:1** pump is a pneumatic piston pump; with its solid structure it is available in stainless steel material to reach a long-lasting performance.

The proven performance of self-priming piston transfer pump allows accurate handling and transfer of a wide range of fluids, guaranteeing efficient operation, maximum productivity and the possibility of supplying multiple workstations simultaneously.

**NOVA** is essentially constituted of an air motor and a structure defined as the “*material pumping unit*” or simply the “*pumping unit*”.

The compressed air in the pneumatic motor generates vertical alternative motor piston movement: this movement is transmitted through a connecting rod to the material pumping piston ending with a follower plate that allows for the suction of very viscous products.

The 10:1 ratio indicates that the material output pressure is 10 times the pump supply air pressure.

The **Nova 10:1** advantages:

- Atex certified Ex II 2 G c IIB T6
- Low starting pressure
- Fast priming product flow
- Adjustable material flow
- High quality material gaskets
- No product leakage
- Low noise level
- Less components and reduced maintenance

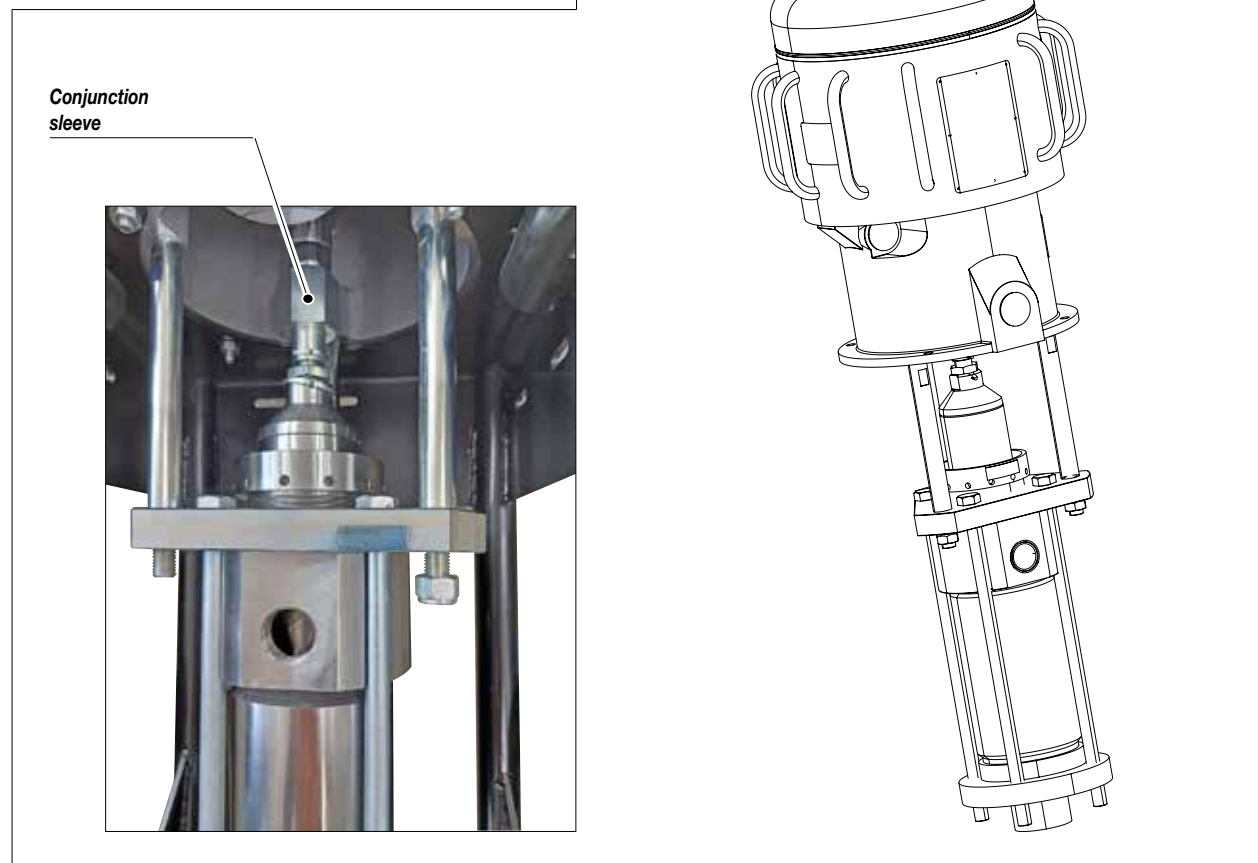



Fig. 1

## C TECHNICAL DATA

NOVA 10:1	
Pump pressure ratio	10:1
Air pressure range	3-8 bar 40-120 psi
Maximum fluid outlet pressure	80 bar 1,160 psi
Delivery per cycle	1,100 cm <sup>3</sup>
Delivery at 60 cycles per minute	66 l/min
Air inlet thread	3/4" BSPP (M)
Air consumption at 60 cycles/minute	3 bar 2,200 l/m 5 bar 3,600 l/m 7 bar 5,000 l/m
Fluid outlet thread	1" BSPP (F)
Fluid inlet thread	1 1/2" BSPP (F)
Pump cylinder tube material	AISI 303 stainless steel - Copper
Piston material	AISI 420B stainless steel
Seals material	PTFE + PE 1000
Air motor piston diameter and stroke	Ø 10" - 4 3/4" Ø 254 mm - 120 mm

 **Always observe these notes when assessing the compatibility of products to be used and when eliminating one or more pump components that are no longer usable in order to plan the recycling of individual components in an environmentally safe manner.**

CODE	DESCRIPTION
95704	NOVA 10:1
95704/1	NOVA 10:1 wash pump

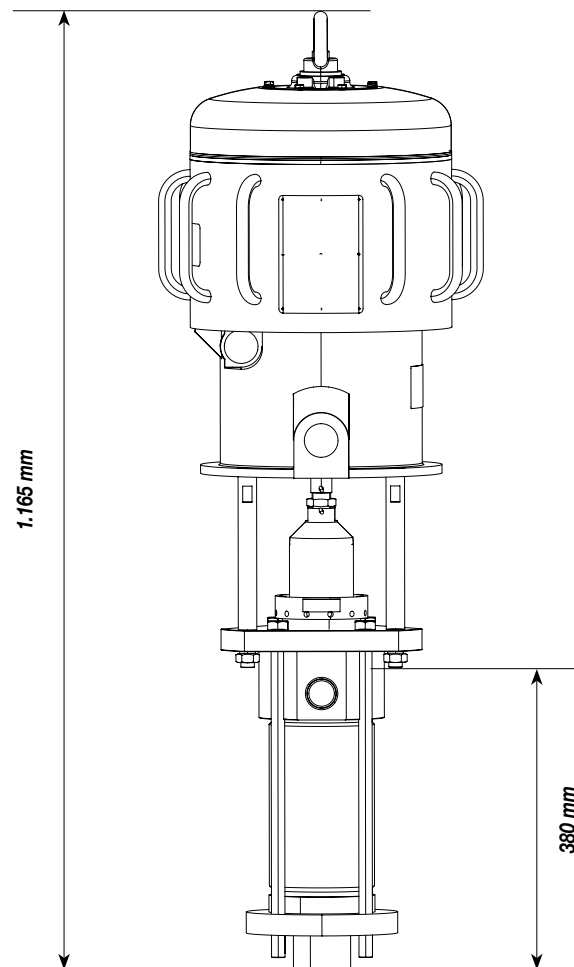


Fig. 1

## D DESCRIPTION OF THE MACHINE

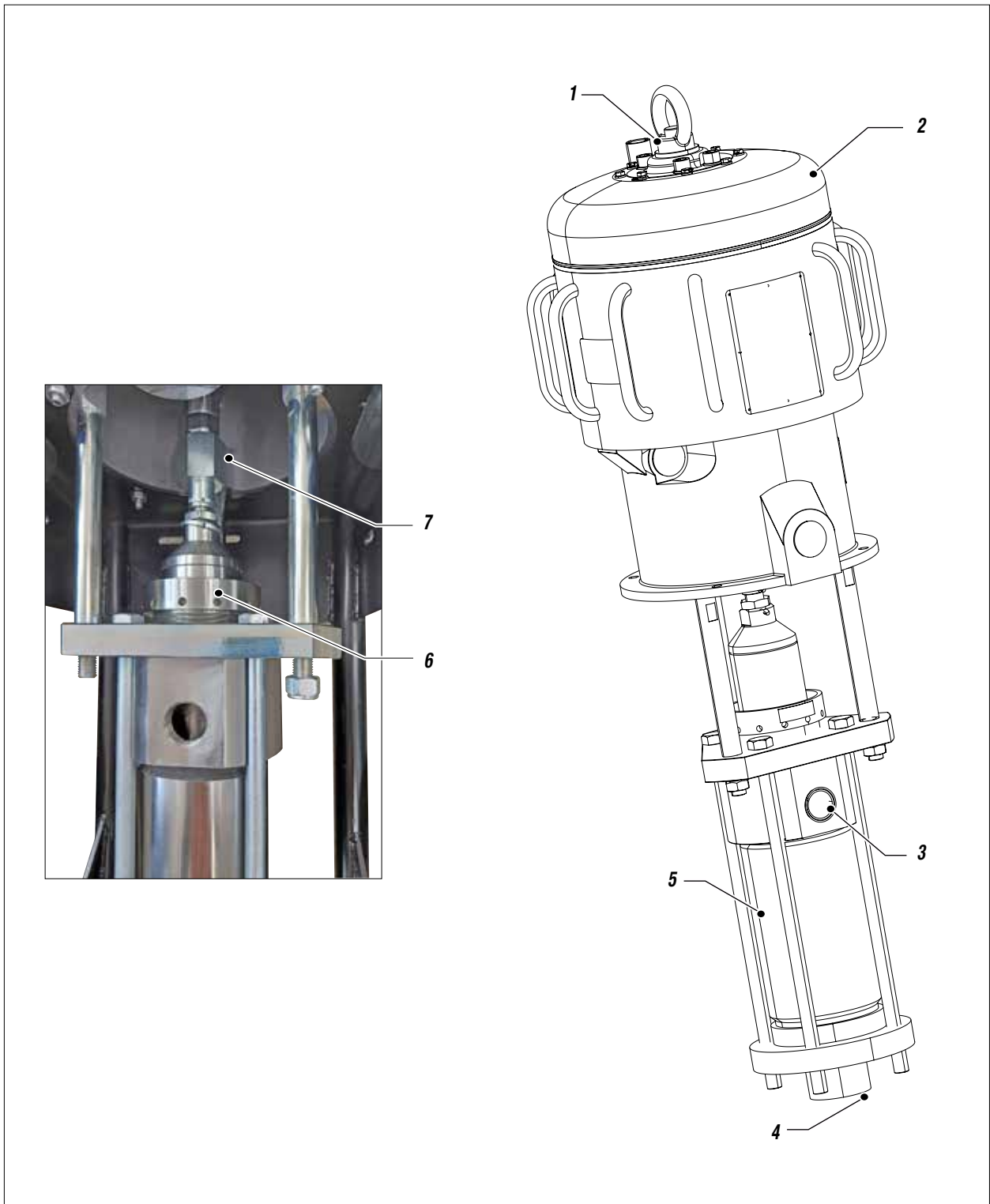


Fig. 1

Pos.	Description
1	Pump supply air inlet
2	Pneumatic motor
3	Material outlet
4	Material input

Pos.	Description
5	Material pumping unit
6	Gasket pressing ring nut
7	Conjunction sleeve

## E TRANSPORT AND UNPACKING

- Observe the orientation of the packaging indicated externally by inscriptions or symbols
- Before installing the equipment to prepare a suitable environment with the space that you need the proper lighting clean, smooth flooring
- All unloading and handling of the equipment are covered by the user must be very careful to avoid injury or damage to the equipment.

To perform the unloading operation, use only qualified and trained personnel (truck and crane operators, etc.) and also suitable hoisting equipment for the weight of the installation or its parts.

Follow carefully all the safety rules.

The personnel must be equipped with the necessary individual protection.

- The manufacturer declines any responsibility concerning the unloading and transport of the equipment at the workplace
- Verify the integrity of the package upon receipt, remove the unit from the packaging and check that it has not been damaged during transport

If any part is broken, contact the **MANUFACTURER** and shipping agency. The deadline for submissions is corruption of 8 days from the date of receipt of the equipment. The communication must be made by registered letter with return receipt up to **MANUFACTURER** and transport operator within.



**The customer is in charge of the disposal of packaging materials which must be performed in accordance with the regulations in force in the country where the plant is installed and used. It is nevertheless sound practice to recycle packaging materials in an environment-friendly manner as much as possible.**

## F SAFETY REGULATIONS



**Read carefully the following before using the product. Keep these instructions.**



**Unauthorized tampering or replacement of one or more parts composing the equipment, accessories, tools, materials other than those recommended by the manufacturer, may pose risk of injury and raise the manufacturer from civil and criminal liability.**



- THE EMPLOYER SHALL TRAIN ITS EMPLOYEES ABOUT ALL THOSE RISKS STEMMING FROM ACCIDENTS, ABOUT THE USE OF SAFETY DEVICES FOR THEIR OWN SAFETY AND ABOUT THE GENERAL RULES FOR ACCIDENT PREVENTION IN COMPLIANCE WITH INTERNATIONAL REGULATIONS AND WITH THE LAWS OF THE COUNTRY WHERE THE PLANT IS USED.
- THE BEHAVIOUR OF THE EMPLOYEES SHALL STRICTLY COMPLY WITH THE ACCIDENT PREVENTION AND ALSO ENVIRONMENTAL REGULATIONS IN FORCE IN THE COUNTRY WHERE THE PLANT IS INSTALLED AND USED.
- KEEP YOUR WORK PLACE CLEAN AND TIDY. DISORDER WHERE YOU ARE WORKING CREATES A POTENTIAL RISK OF ACCIDENTS.
- ALWAYS KEEP PROPER BALANCE AVOIDING UNUSUAL STANCE.
- BEFORE USING THE TOOL, ENSURE THERE ARE NOT DAMAGED PARTS AND THE MACHINE CAN WORK PROPERLY.
- ALWAYS FOLLOW THE INSTRUCTIONS ABOUT SAFETY AND THE REGULATIONS IN FORCE.
- KEEP THOSE WHO ARE NOT RESPONSIBLE FOR THE EQUIPMENT OUT OF THE WORK AREA.
- NEVER EXCEED THE MAXIMUM WORKING PRESSURE INDICATED.
- NEVER POINT THE SPRAY GUN AT YOURSELVES OR AT OTHER PEOPLE. THE CONTACT WITH THE CASTING CAN CAUSE SERIOUS INJURIES.
- IN CASE OF INJURIES CAUSED BY THE GUN CASTING, SEEK IMMEDIATE MEDICAL ADVICE SPECIFYING THE TYPE OF THE PRODUCT INJECTED. NEVER UNDERVALUE A WOUND CAUSED BY THE INJECTION OF A FLUID.
- ALWAYS DISCONNECT THE SUPPLY AND RELEASE THE PRESSURE IN THE CIRCUIT BEFORE PERFORMING ANY CHECK OR PART REPLACEMENT OF THE EQUIPMENT.



- NEVER MODIFY ANY PART IN THE EQUIPMENT. CHECK REGULARLY THE COMPONENTS OF THE SYSTEM.  
REPLACE THE PARTS DAMAGED OR WORN.
- TIGHTEN AND CHECK ALL THE FITTINGS FOR CONNECTION BETWEEN PUMP, FLEXIBLE HOSE AND SPRAY GUN BEFORE USING THE EQUIPMENT.
- ALWAYS USE THE FLEXIBLE HOSE SUPPLIED WITH STANDARD KIT.
- THE USE OF ANY ACCESSORIES OR TOOLING OTHER THAN THOSE RECOMMENDED IN THIS MANUAL, MAY CAUSE DAMAGE OR INJURE THE OPERATOR.
- THE FLUID CONTAINED IN THE FLEXIBLE HOSE CAN BE VERY DANGEROUS. HANDLE THE FLEXIBLE HOSE CAREFULLY. DO NOT PULL THE FLEXIBLE HOSE TO MOVE THE EQUIPMENT. NEVER USE A DAMAGED OR A REPAIRED FLEXIBLE HOSE.



The high speed of travel of the product in the hose can create static electricity through discharges and sparks. It is suggested to earth the equipment. The pump is earthed through the earth cable of the supply. The gun is earthed through the high pressure flexible hose. All the conductors near the work area must be earthed.



Never spray over flammable products or solvents in closed places.

Never use the tooling in presence of potentially explosive gas.

Always check that the product is compatible with the materials composing the equipment (pump, spray gun, flexible hose and accessories) with which it can come into contact. Never use paints or solvents containing Halogen Hydrocarbons (as the Methylene Chloride). If these products come into contact with aluminium parts can provoke dangerous chemical reactions with risk of corrosion and explosion.



Avoid approaching too much to the pump piston rod when the pump is working or under pressure. A sudden movement of the piston rod can cause wounds or finger squashing.



If the product to be used is toxic, avoid inhalation and contact by using protection gloves, goggles and proper face shields.

Take proper safety measures for the protection of hearing in case of work near the plant.


## G CONDITIONS OF GUARANTEE



The conditions of guarantee do not apply in the following situations:

- improper washing and cleaning of components causing malfunction, wear or damage to the equipment or any of its parts;
- improper use of the equipment;
- use that does not conform with applicable national legislation;
- incorrect or faulty installation;
- modifications, interventions and maintenance that have not been authorised by the manufacturer;
- use of non-original spare parts or parts that do not correspond to the specific model;
- total or partial non-compliance with the instructions provided.

# H ANTIFREEZE SYSTEM

 The machine is equipped with an anti-freeze system that allows it to work even at very low temperatures. However, after a few minutes of operation, the upper metal outer surface cools dramatically. Avoid touching the area indicated.


 Contact of the skin with the low-temperature area may cause frostbite. Common working clothes and leather gloves provide adequate protection.



Fig. 1

In cold weather conditions it is necessary to add antifreeze liquid (1) in the FRL group (2).

If 100% pure antifreeze liquid is used, it is recommended the dilution shown in the table.

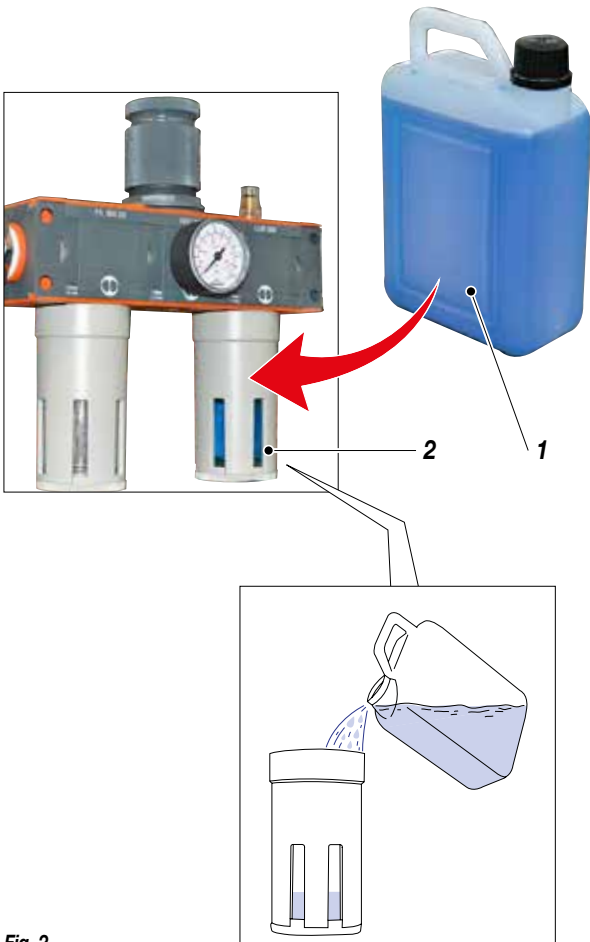


Fig. 2

DILUTION RECOMMENDED FOR PURE PRODUCT	
% water dilution	°C, environmental temperature
10%	-5
20%	-10
30%	-20
40%	-25
50%	-37
60%	-50

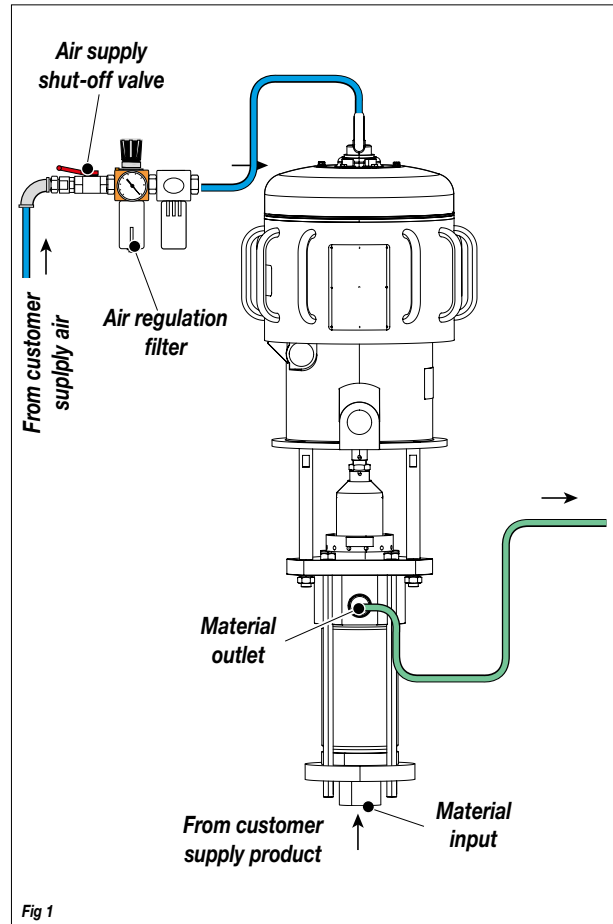
 **NOTE**

*When the pump is used in places with higher temperatures, the phenomenon indicated above may not occur and therefore it is not necessary to use antifreeze.*

## I TYPICAL INSTALLATION

The figure (1) shows a typical installation with all the recommended accessories for the pump to operate correctly.

It is recommended to install an air supply shut-off valve (to be closed at the end of the work).



## J GROUNDING

- When using volatile cleaning products, the equipment must be grounded thereby reducing the risk of static and electric shocks and providing an escape route for electrical current.
- For cleaning in closed areas, locate the pump away from any storage tanks and provide adequate ventilation.
- If flammable materials are placed in the cleaning area, take appropriate precautions to avoid sparks.

### AIR AND FLUID HOSES

- use only electrically conductive hoses

### SPRAY GUN/DISPENSE VALVE

- Ground through connection to a properly grounded fluid hose and pump

### SOLVENT PAILS USED WHEN FLUSHING

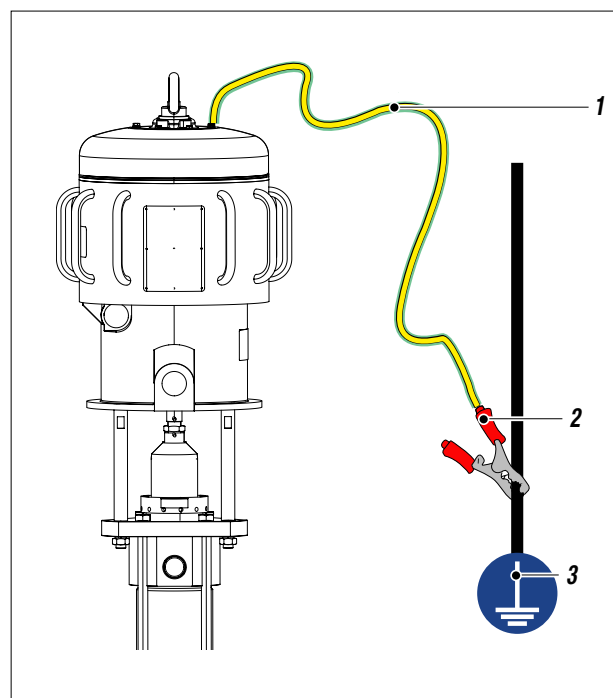
- Use only metal pails
- Place the pail only on grounded surface
- Don't place the pail on a non-conductive surface, such as paper or cardboard, which interrupts grounding continuity

### GROUNDING PUMP

- Use supplied grounding wire (1) and clamp (2)
- Connect the other end of the wire to a true earth ground (3)

### MAINTAINING GROUNDING CONTINUITY DURING FLUSHING OR PRESSURE RELIEF

- Firmly hold the metal part of the spray gun / dispense valve on the side of a grounded metal pail, then activate the spray gun / dispense valve



## **K** OPERATION



**Check all connection fittings on the different components (pump, flexible hose, etc.) before using the machine.**

- Immerse the material pumping hose in the product tank (*if the pump is secured on the pneumatic extrusion ram, follow the procedure described in the pneumatic extrusion ram use and maintenance manual*).
- The pump is switched on (*and subsequently switched off*) by means of the pneumatic valve. Have compressed air flow to the pump. Adjust air pressure to minimum value necessary for continuous operation.
- The pump will begin operation and will stop when the entire product chamber is full. The pump will re-start operation every time the dispensing valve opens.
- The pump has been tested at the factory with light mineral oil which may remain somewhat inside the pump. Direct the dispensing valve against a container and drain all product left inside the pump until the material to be used comes out.
- If long pauses during machine use are foreseen (*for example, all night at the end of a working day*), ensure that the product you are using and different hoses can be left inside the pump without drying.

If this risk does not exist, then simply cut off pump air supply and discharge circuit pressure on the dispensing valve or the pump bleed valve before an operating pause.



**Never operate the pump without a load. This could cause serious damage to the pneumatic motor and ruin sealing gaskets.**

## L END OF WORK CLEANING

End of work cleaning is intended as the cleaning to be carried out whenever you wish to use a different product or when a long period of machine inactivity is foreseen.

- Close the air supply to the pump.
- Immerse the material pumping hose in the washing solvent tank (*ascertain its chemical compatibility with the product you are using*).
- Have compressed air flow to the pump. Adjust air pressure to minimum value necessary for continuous operation.
- Direct the dispenser against a container and drain all product left inside the pump until the clean solvent comes out.
- At this point, close the air supply to the pump and discharge residual pressure.
- If a long period of machine inactivity is foreseen, suction and leave light mineral oil inside the pumping unit.



**Store possible dangerous fluids in suitable containers. They must be disposed of in accordance with regulations regarding the disposal of industrial waste.**

## M ROUTINE MAINTENANCE



**Always close the compressed air supply and discharge the pressure in the system before inspecting or carrying out any maintenance work on the pump.**

- Periodically check (*and check whenever re-starting the pump after a long period of inactivity*) that the gasket pressing ring nut (2) has not become loose, causing product to leak out. To tighten the ring nut, lift the lubricant bucket (1).  
The ring nut (2) must be tightened so as to avoid leaks but not excessively to cause the seizure of the pumping piston and gasket wear. If product leaking persists, replace gaskets.
- Keep the lubricant bucket (1) full (*compatible with the product being used*) in order to prevent the product from drying on the piston shaft.
- Periodically check the air supply line to the pump. Make sure that the air is always clean and lubricated- If a lubricator has been installed on the air supply line to the pump, it is recommended that its cup be kept full with a mixture of water and anti-freeze liquid (*dilution ratio 4:1*).

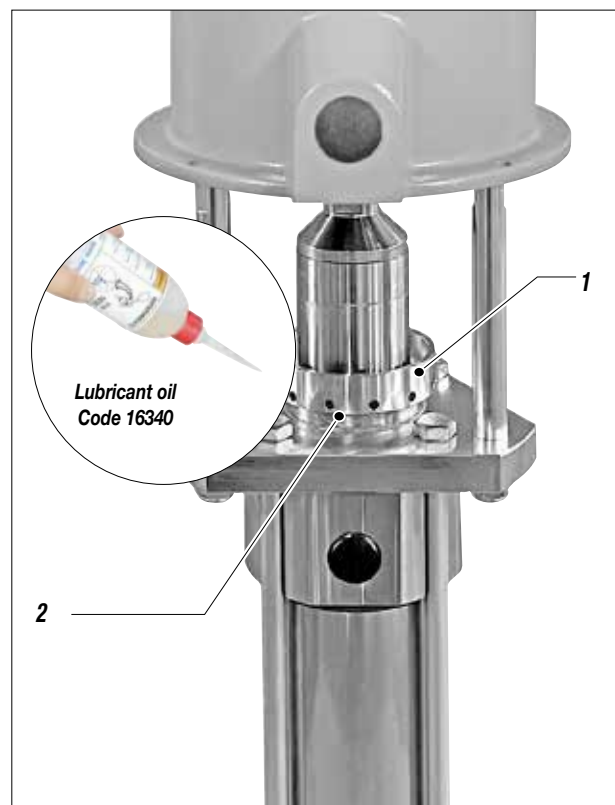


Fig. 1

## N TROUBLESHOOTING

Problem	Possible cause	Solution
<b>The pump does not start</b>	Feeding air is not enough;	Check the air supply. Increase the diameter of the feeding hose;
	Outlet product line clogged;	Clean. Disconnect the outlet product pipe. Feed pump at minimum pressure and check if the pump starts without the outlet pipe;
	Dried product inside the pumping element;	Disassemble the pumping group and clean;
	Pneumatic motor blocked in the cycle reversal position;	Turn the plug counterclockwise and push downwards the valve body. Use a metal rod and a mallet;
	Parts failure of the pneumatic motor;	Disassemble the motor and check;
<b>Accelerated working and no pressure of the pump</b>	There is no product;	Add product;
	The pump sucks air;	Open the exhausting valve. For the version on air hoist, follow the instructions in the relevant manual;
	Feeding air is not enough;	Increase the feeding air pressure;
	Suction valve worn or partially clogged;	Disassemble the suction valve. Clean and/or replace if necessary the worn parts;
	Outlet valve worn or partially clogged;	Disassemble the outlet valve. Clean and/or replace if necessary the worn parts;
<b>The pump works, but the product is not flowing enough</b>	Suction valve worn or partially clogged;	Disassemble the suction valve. Clean and/or replace the worn parts;
	Outlet product line clogged;	Clean. Disconnect the outlet product pipe. Feed pump at minimum pressure and check if delivery increases without the outlet pipe;
	The feed air pressure is too low;	Increase air pressure;
<b>Leakage of product from the lubricating cup</b>	Upper gaskets worn.	Tighten the packing nut. In case of persistent waste of product, replace the upper gaskets of the pumping unit.



**Always close the compressed air supply and release the pressure in the plant before performing any check or replacement of parts of the pump.**

## 0 DISASSEMBLY OF THE PNEUMATIC MOTOR



**Always close compressed air supply and discharge pressure before dismantling the pneumatic motor from the pump.**

- Unscrew the joint sleeve to remove the pumping unit from the motor.
- Disconnect the air supply hose from the pump.

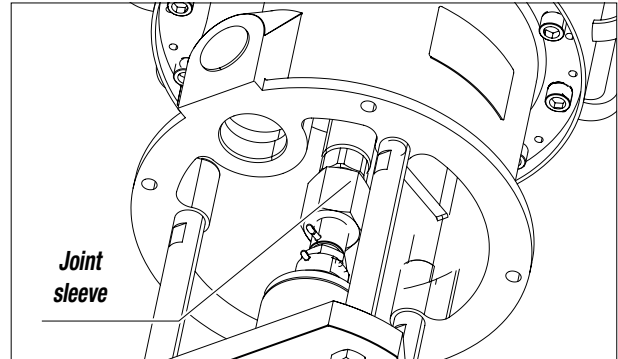


Fig. 1

- Unscrew the fitting (1) and the sleeve (2).

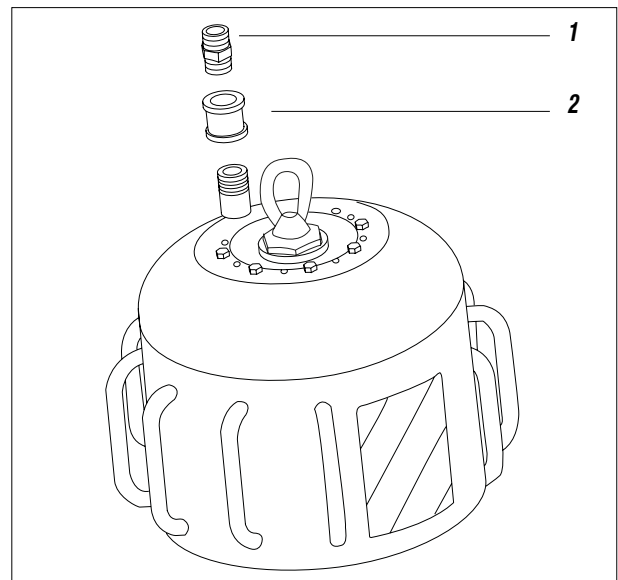


Fig. 2

- Unscrew the eyebolt plug (3) and pull it upwards together with the guide rod (4).
- Hold the guide rod and remove the eyebolt plug (using two wrenches).
- Replace immediately the eyebolt plug with a usual M8 nut (5) before the guide rod (4) slides into the cylinder.
- Turn counterclockwise the screws (6) taking care to the washers (7) and remove the covering (8).

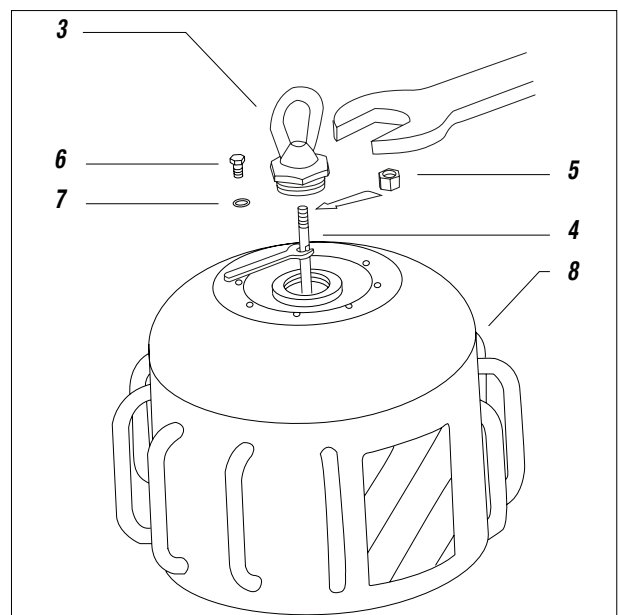


Fig. 3

- Unscrew the two ring nuts (9) from the support (10).

Turn counterclockwise the screws (11) take care to the washers (12) and remove the support (10) together with the rollers (13) and the pins (14).

- Extract the spring (15), the spring guide rod (16) and the roller pushing piston (17). Make sure the spring slides freely on the guide rod, the guide rod slides into the roller pushing piston, and the latter last slides into the mount hole.
- Check that roller (13) and the pin (14) are undamaged. Replace them if damaged.
- Remove and check the rubber pad (18) and the washer (19).

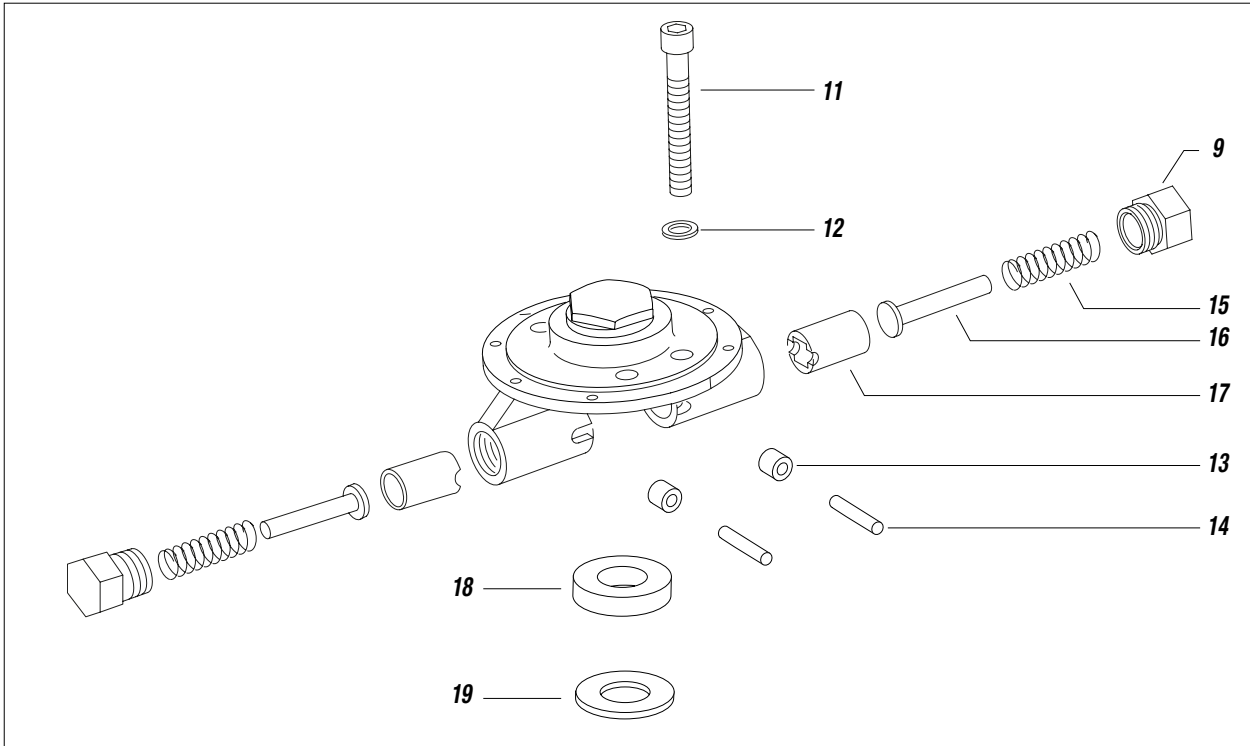


Fig. 4

- Pull housing upward (20) in order to remove valves (21), O-ring (22) and springs (23) (clean and/or replace worn components).

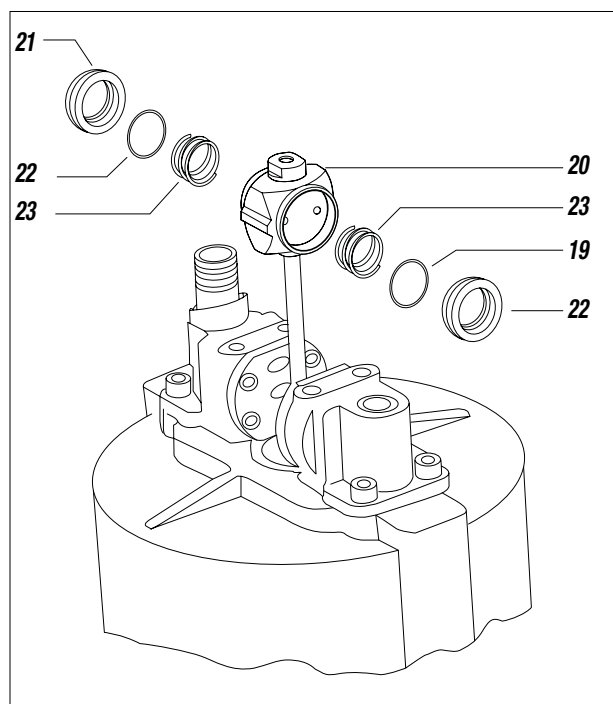


Fig. 5



- Unscrew the counter-nut (24) [being careful of the washer (25)] and keeping the bush locked with a wrench (26).
- Remove the housing (20) from the rod (27).
- Unscrew the bush (26) (if necessary, keep the rod (27) locked on the threaded part with pliers whose grippers are wrapped in a rag to avoid damaging threading).

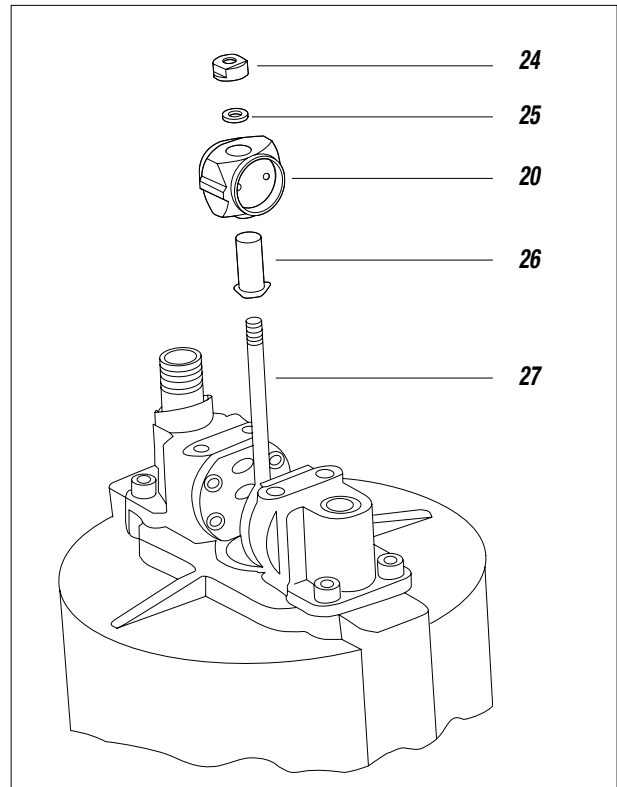


Fig. 6

- Remove screws (28) [careful of washers (29)] and remove the collector (30) and the gasket (31).



**Handle the collector with care. The edges of the plate secured to it are very sharp. Important: do not remove the other collector unless strictly necessary (this will facilitate subsequent securing of the removed collector).**

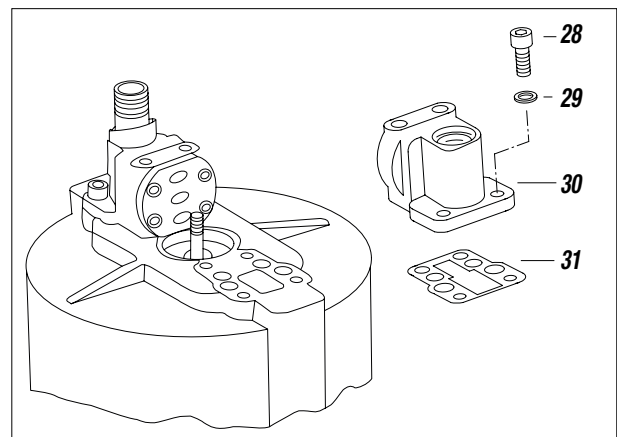


Fig. 7

- With the help of a screwdriver, remove the washer (32) and the shock absorber (33).

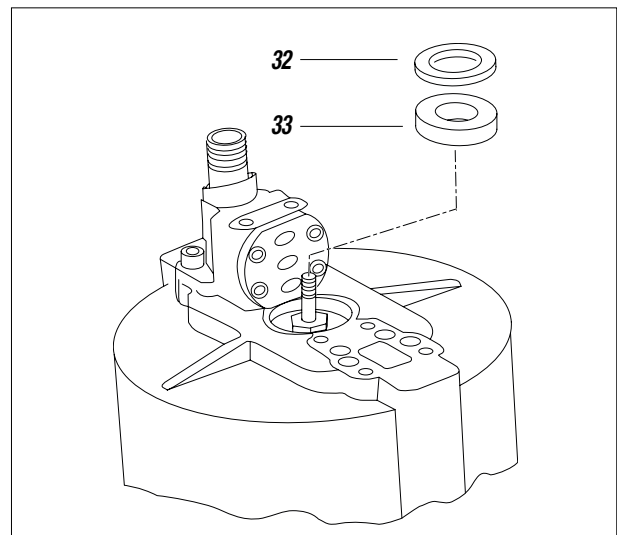


Fig. 8

- Unscrew the rod guide screw (34) [pay attention to the washer (35)] and make sure that the sealing gasket inside the screw (34) has not become ruined.
- Remove the screws (36) [careful of the washers (37)] and carefully remove the cylinder (38) (do not tilt it excessively during extraction to avoid the motor piston from damaging the internal surface of the cylinder).

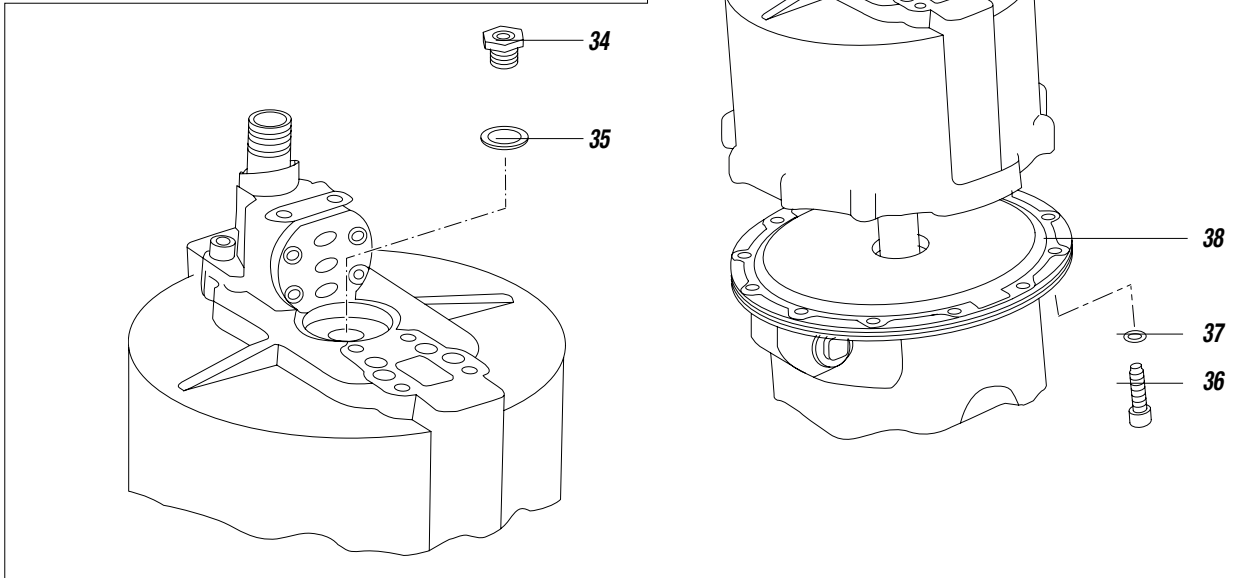


Fig. 9

- Remove the piston from the motor support (39).
- Check O-ring conditions (40).
- Use pliers to tighten the lower edge of the piston rod and use a wrench to loosen the fittings (41).
- Remove the motor rod (42) and make sure it is not damaged.
- Spread Vaseline grease on the motor rod (42) before inserting it in the piston rod cavity.
- Use pliers to re-tighten the lower edge of the piston rod and tighten the fitting (41) (apply a liquid sealant on the threads).

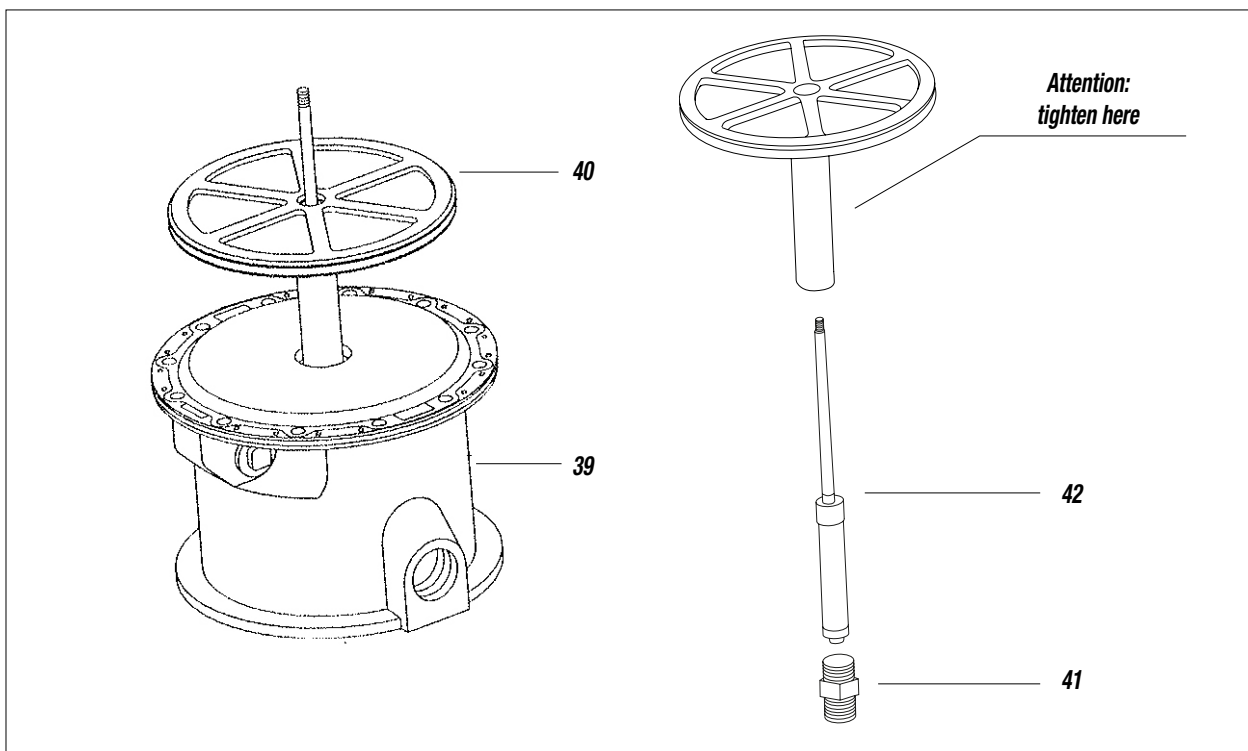


Fig. 10

- Check the conditions of the sealing ring inside the motor support (39).
- Verify the conditions and exact position of the gasket (40).
- Spread a thin layer of Vaseline grease on the inner walls of the cylinder (38).
- Very carefully insert the piston rod (42) in the cylinder (38).
- Fasten the cylinder (38) on the support (39) (*comply with positioning*) and simultaneously insert the motor rod in the support.
- Position the washers (37) and tighten the screws (36).

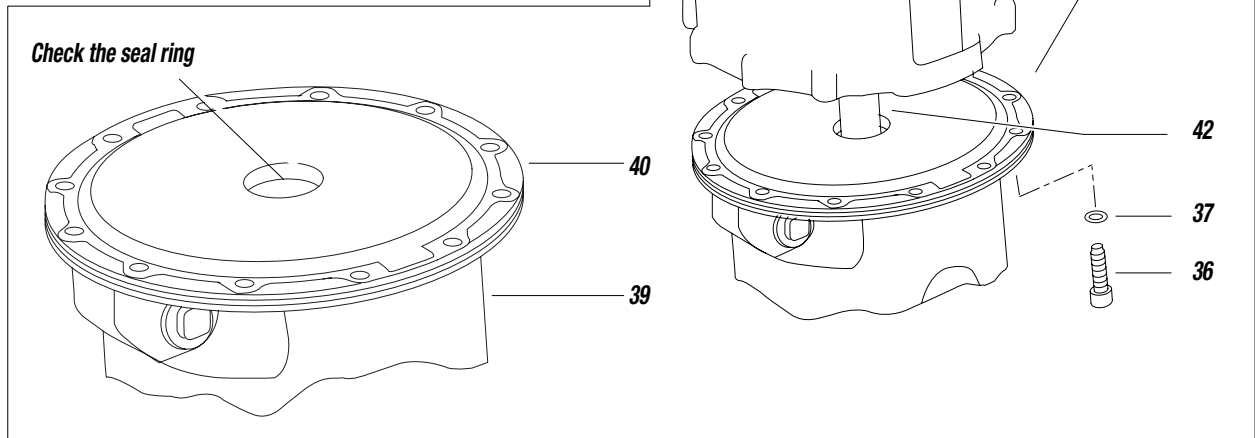


Fig. 11

- Insert the washer (35) on the motor rod (42).
- Very carefully insert the rod guide screw on the motor rod (34) (*having it slowly turn following the direction of the rod threading*) and tighten it.
- Insert the shock absorber (33) and the washer (32).
- Tighten the bush (26) on the motor rod (42), insert the housing (20), the washer (25) and tighten the counter-nut (24).



**Adjust the bush and the counter-nut so that the rod (42) pushes out about 1 mm from the counter-nut (*see figure*).**

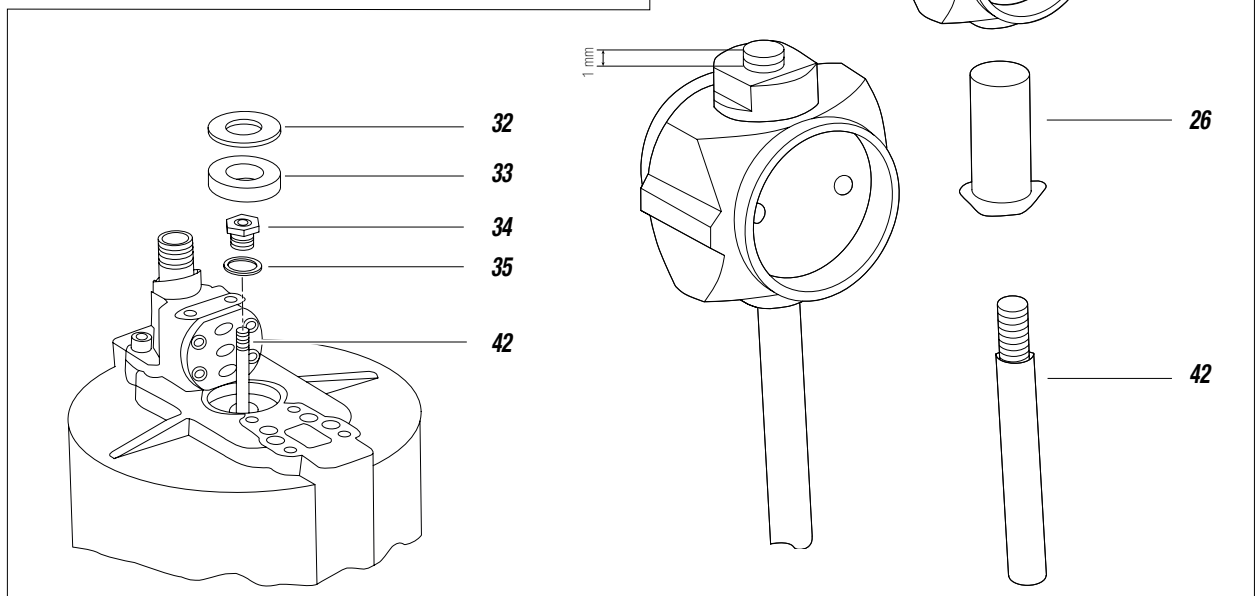


Fig. 12

- Insert the springs (15) and the valves (21) in the housing (20), position the housing on the pump support and rest the collector against the housing (30) [remember the gasket (31)].
- Fasten the collector (30) with screws (28) (do not tighten for now) ensuring it is perfectly parallel to the other collector and that the distance between the two collectors is 46 mm (see figure).  
The distance between the collector walls and the edge of the housing must be about 0.8 mm.

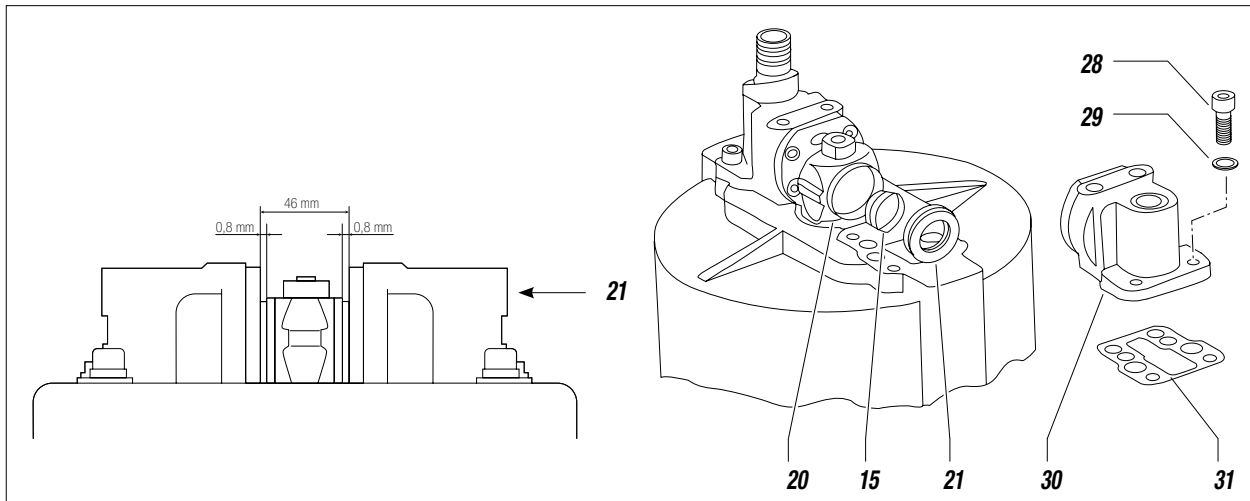


Fig. 13

- Spread Vaseline grease on the rollers (13) and pins (14) and insert them in the support (10).
- Spread Vaseline grease on the shock absorber (18) and on the washer (19) and insert them in the support (10).
- Grease the roller pushing pistons (17), the spring guide (16) and the spring (15) and insert them in the support (10).
- Fasten the ring nuts without tightening them (9) on the support (10).
- Fasten the support (10) on the collectors and tighten the screws (11) [remember the washers (12)].
- Tighten the ring nuts (9) and the screws (28).
- Replace the cover and the various air supply line fittings.

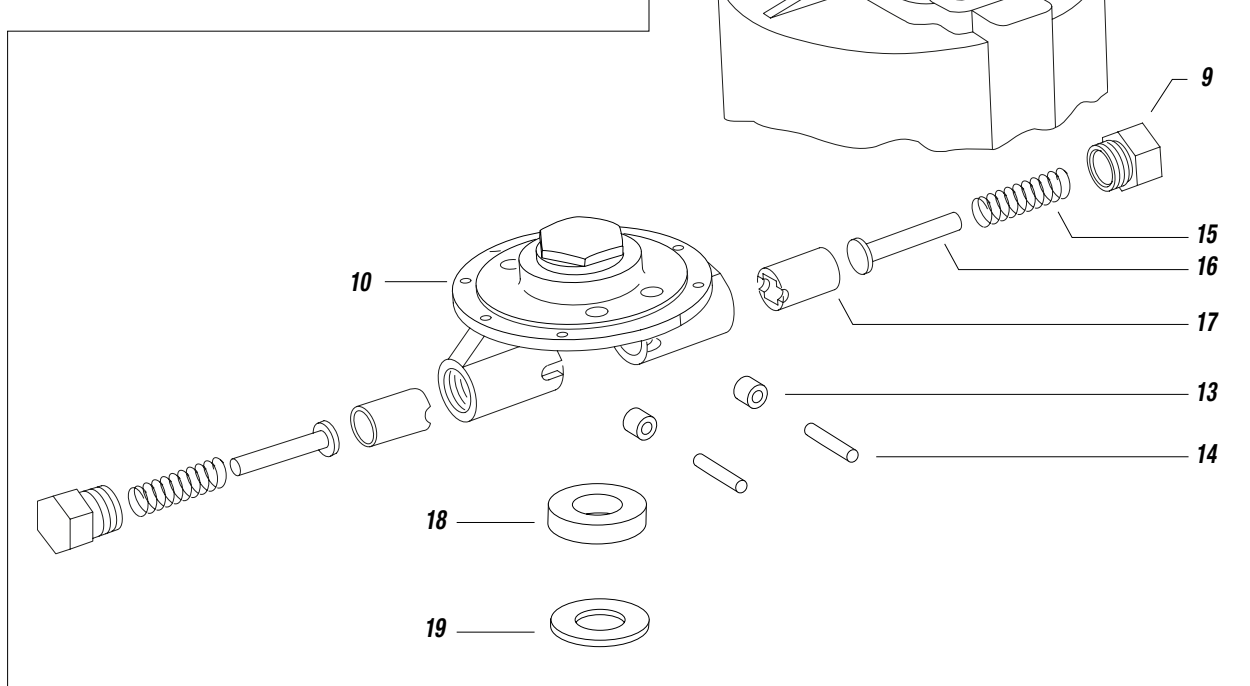


Fig. 14

## P DISASSEMBLY OF THE PUMPING GROUP

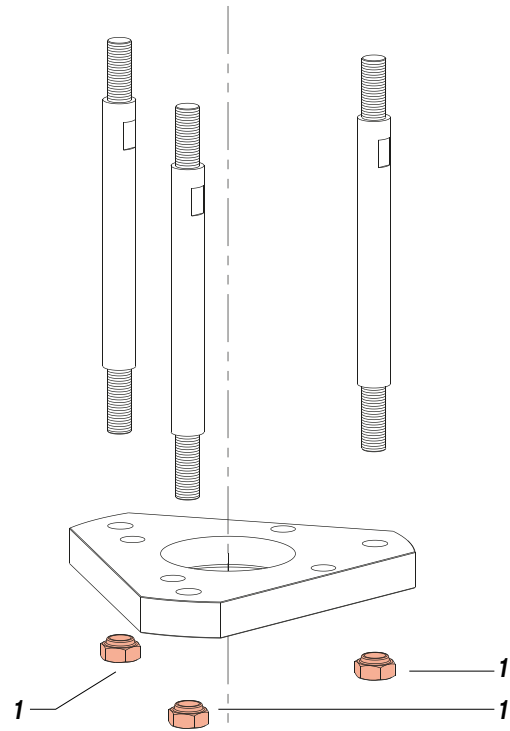


**Always close the compressed air supply and release the pressure in the plant before disassembling the pumping group.**

- Unscrew the 3 nuts M16 (1).



Fig. 1



- Unscrew the sleeve (2) holding the nut (3) with a counter wrench (4). The pneumatic motor is separated from the pumping group.
- Verify that the disassembled parts are clean and intact. If necessary, replace them.

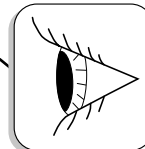
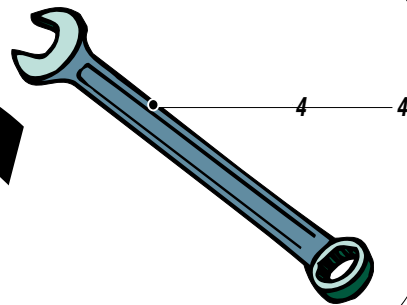
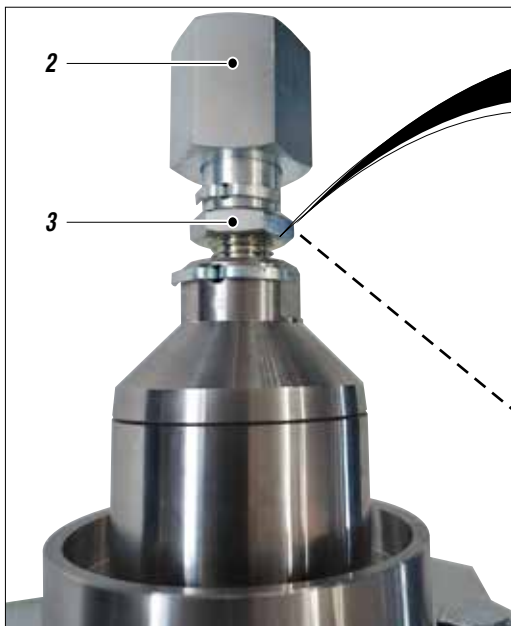


Fig. 2

- Remove the sleeve (2) from the rest of the pump.
- Remove the ring nut (5).



Fig. 3

- Loosen the four tie rods (6) with a wrench and remove them.
- Check the integrity and clean the disassembled elements. In case of wear, it is necessary to replace them.

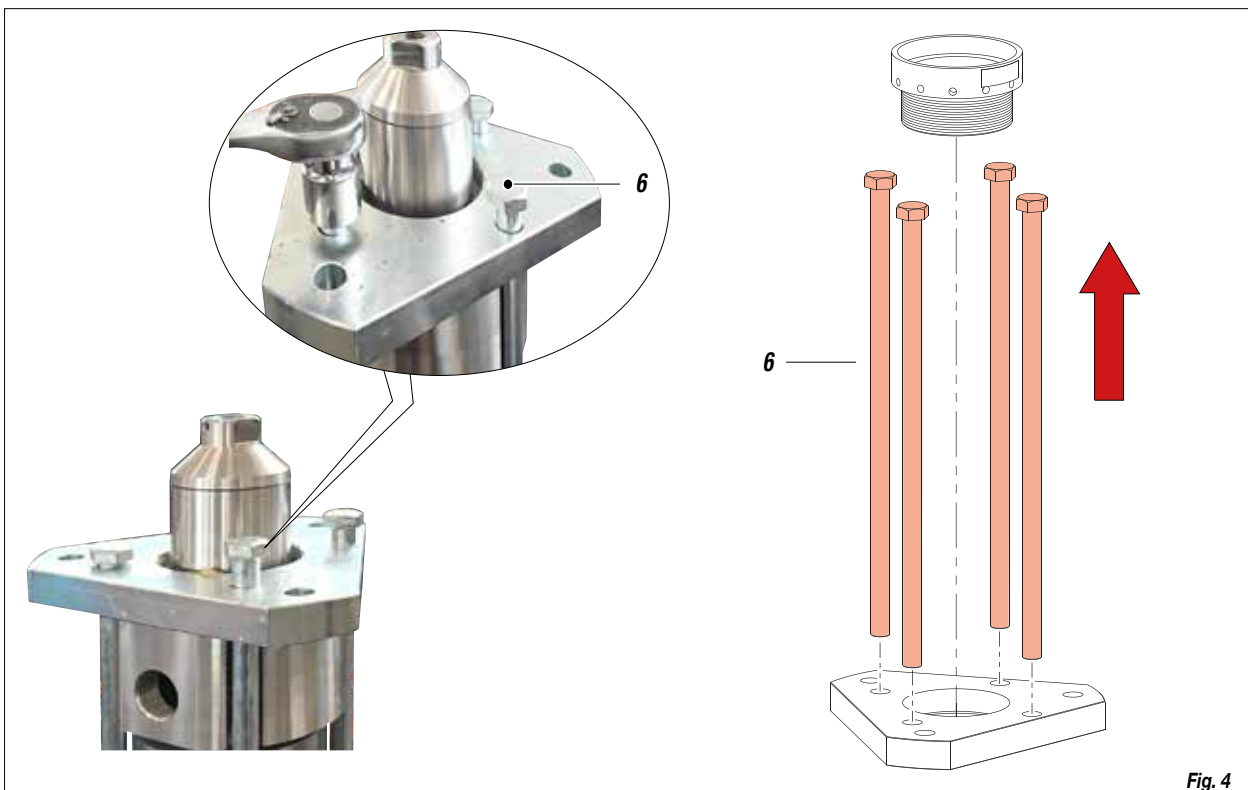


Fig. 4

- Remove the upper flange (7) from the rest of the pump.
- Remove the gasket housing (8).
- Remove the cylinder (9).
- Remove the piston (10).

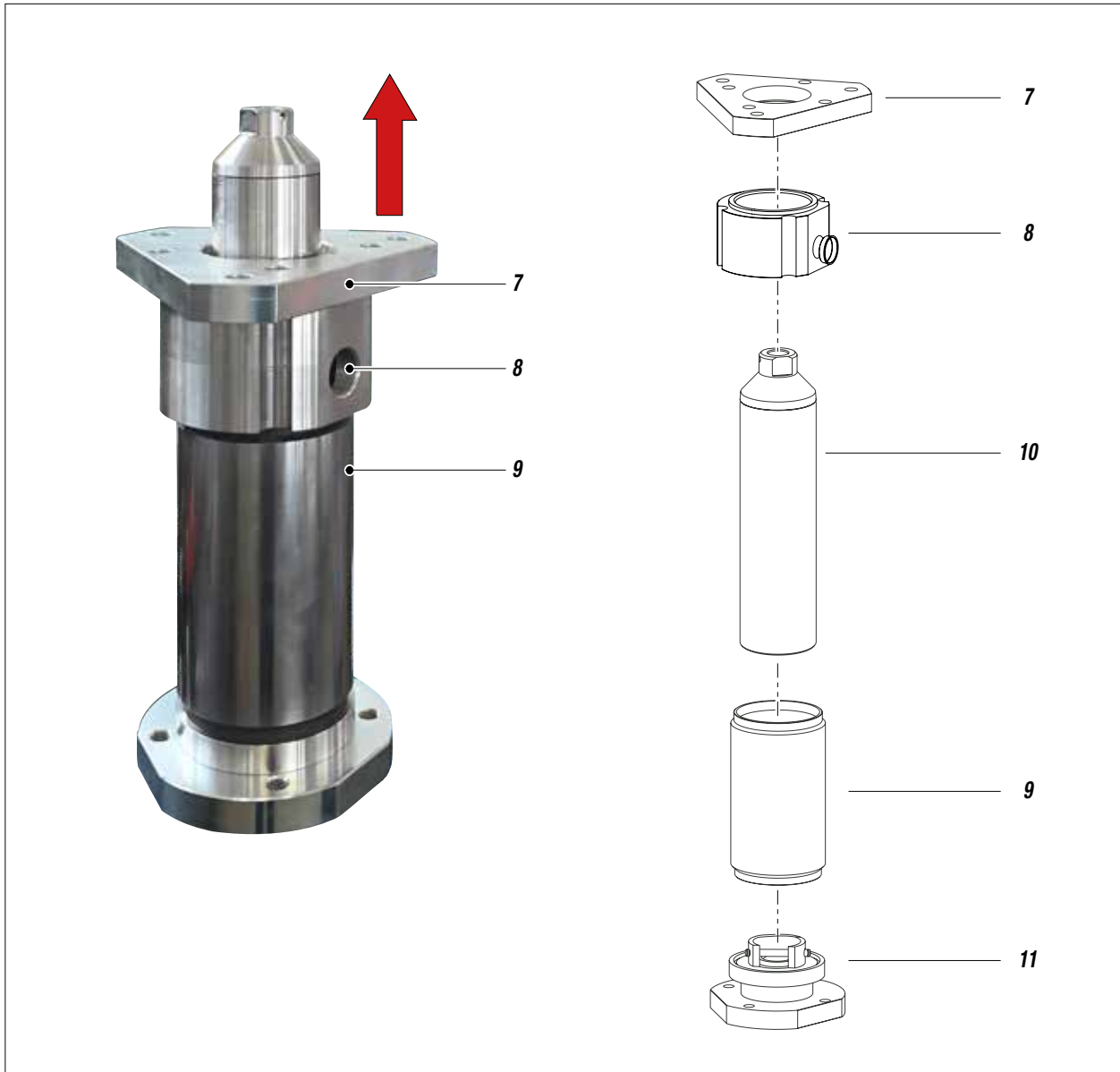


Fig. 5

The disassembled pumping group is now composed of the following components:

- the upper flange (7)
- the gasket housing (8)
- the cylinder (9)
- the complete piston (10)
- the foot valve (11)



**UPPER GASKETS REPLACEMENTS**

- Using a screwdriver, extract the gaskets (12), (13), (14) and (15) from the upper gasket housing (8) and replace them with new ones.
- Check and clean the gasket housing (8). In case of wear, it is necessary to replace it.

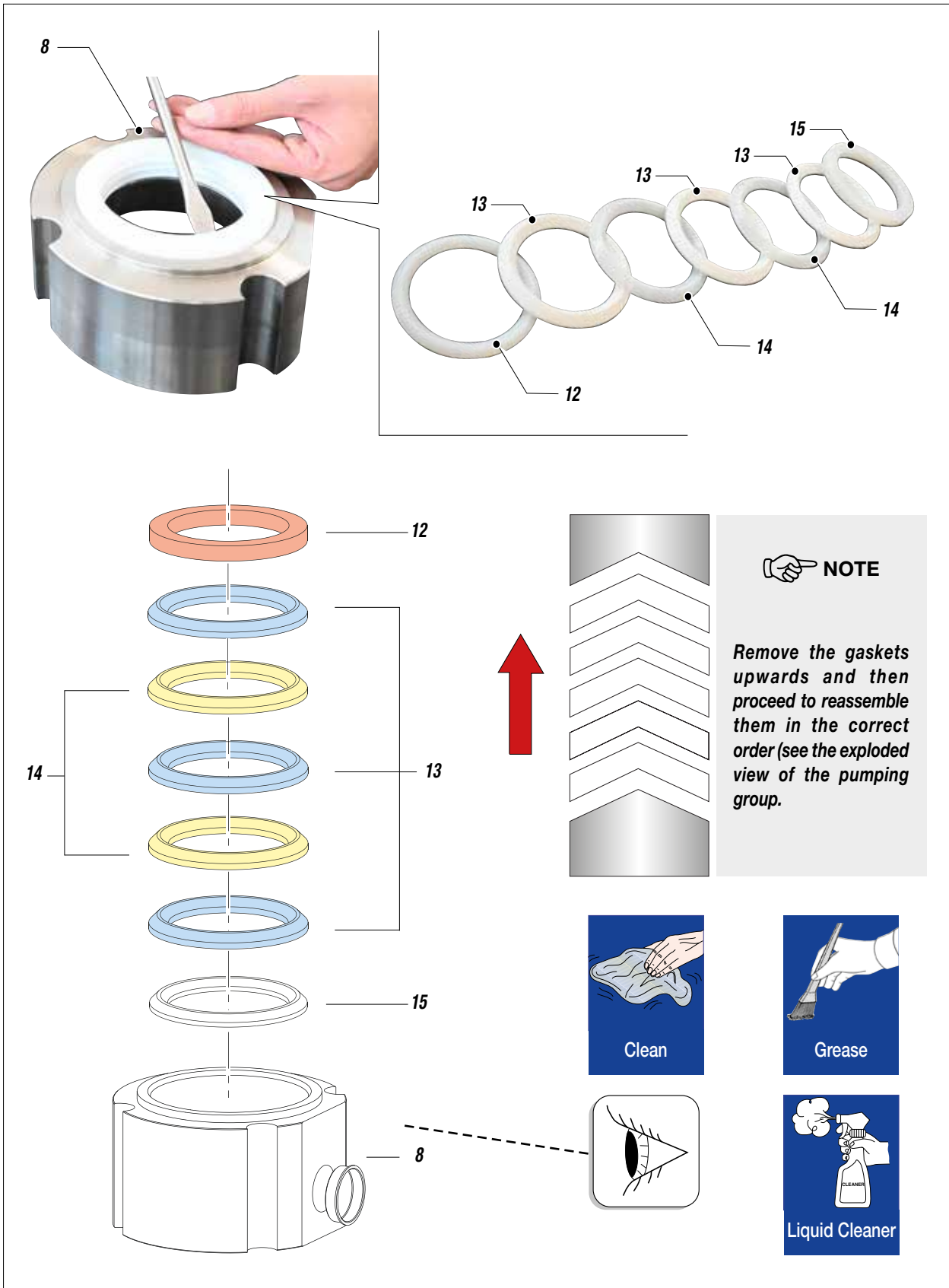


Fig. 6



**LOWER GASKETS REPLACEMENTS**

- Unscrew the four nuts (16).
- Remove the two lower piston gaskets (17) and replace them with new ones.

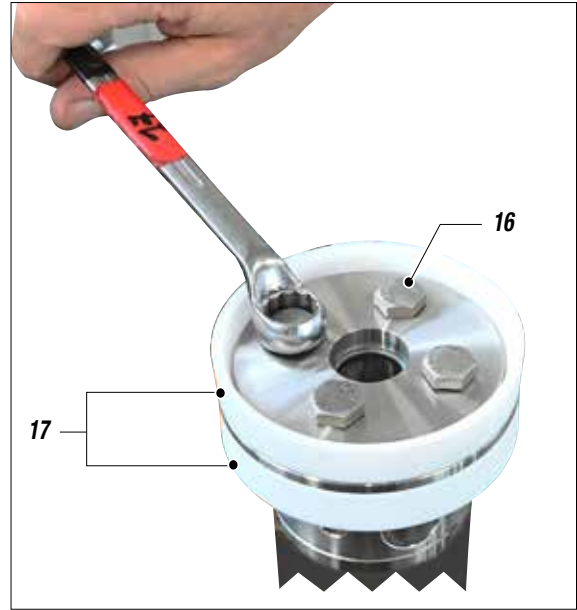


Fig.7

- Remove the two copper gasket (18) and (19) and replace them with new ones.
- Check the integrity and clean the disassembled elements. In case of wear, it is necessary to replace them.

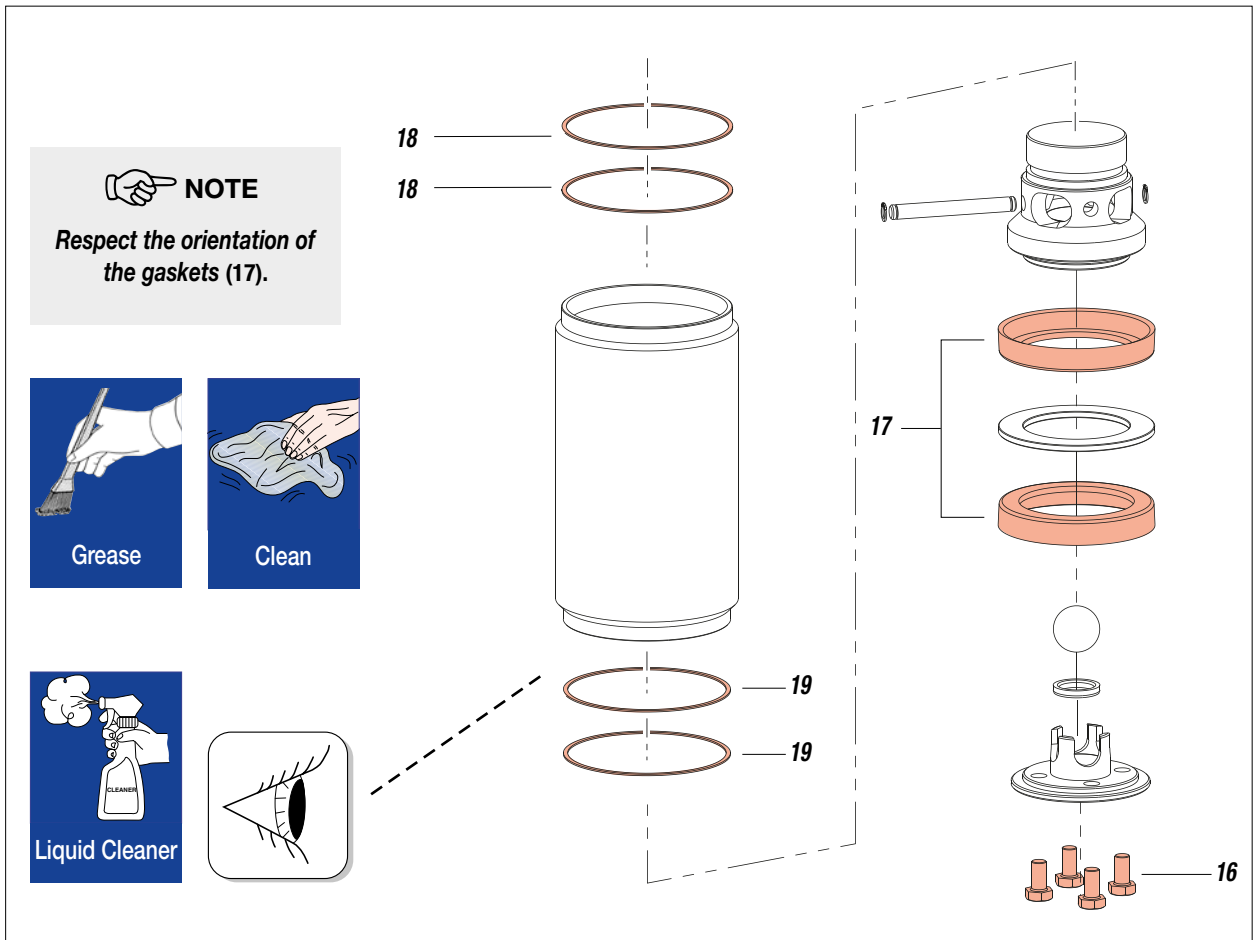


Fig.8

- For correct reassembly, see the exploded view of the pumping group, reversing the order of the disassembly phases.

**Q MOTOR GROUP SPARE PARTS**

**WARNING:** always indicate code and quantity for each part required.

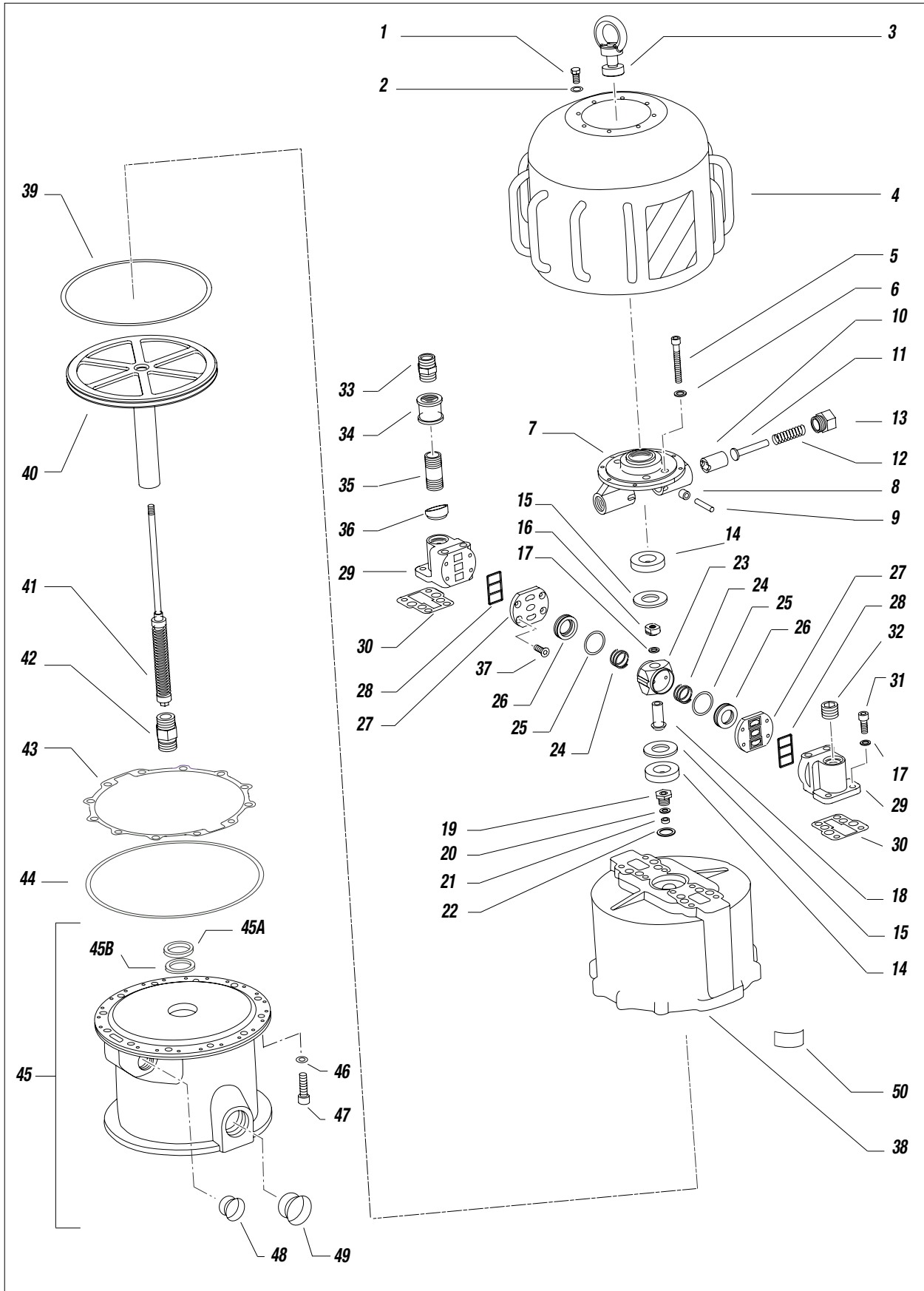
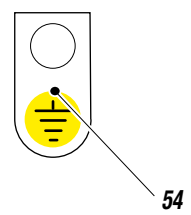


Fig. 1

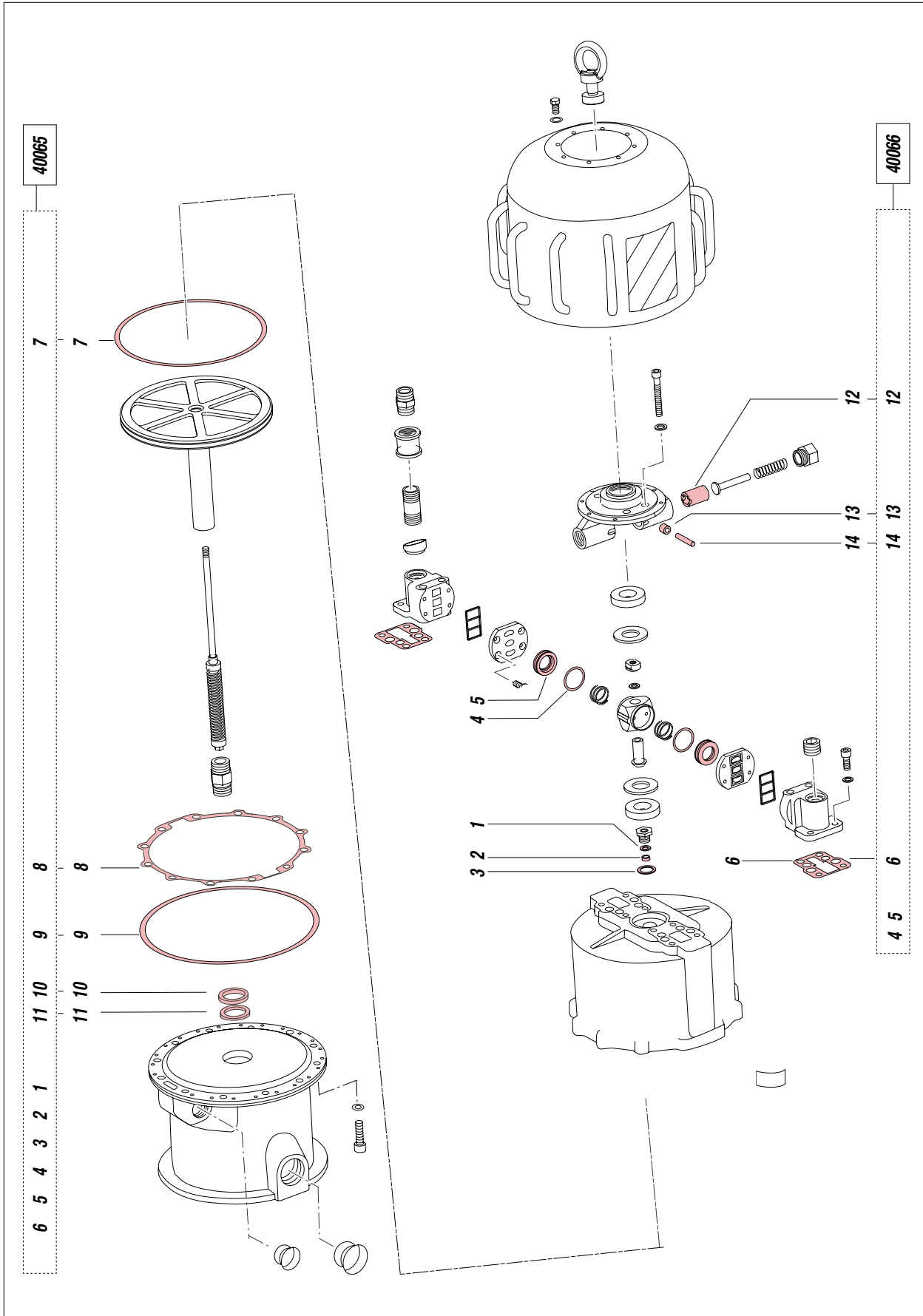
Pos.	Code	Description	Q.ty
1	95062	Screw	8
2	95063	Washer	8
3	95061	Eyebolt	1
4	95064	Cover	1
5	95065	Screw	4
6	95066	Washer	4
7	95109	Support	1
8	95092	Roller	2
9	95091	Pin	2
10	95084	Roller pushing piston	2
11	95085	Spring guide	2
12	95086	Spring	2
13	95087	Ring nut	2
14	95093	Shock absorber	2
15	95094	Washer	2
16	95095	Counter-nut	1
17	95096	Washer	5
18	95098	Bush	1
19	95078	Rod guide screw	1
20	95079	Leather ring	1
21	95080	Sealing gasket	1
22	33031	Copper washer	1
23	95097	Valve housing	1
24	95077	Spring	2
25	95075	O-ring	2
26	95076	Stroke inversion valve	2
27	95073	Plate on collector	2
28	95071	Gasket on plate	2

Pos.	Code	Description	Q.ty
29	95070	Collector	2
30	95072	Collector gasket	2
31	95068	Screw	4
32	95067	Cap 3/4"	1
33	95094	Nipple	1
34	95944	Sleeve 3/4"	1
35	95088	Extension	1
36	95099	Seal ring	1
37	95074	Screw	8
38	95100	Motor cylinder	1
39	95101	O-ring	1
40	95102	Motor piston	1
41	95103	Motor rod	1
42	95104	Fitting	1
43	95105	Gasket	1
44	95106	O-ring	1
45	95107	Complete motor support	1
45A	3314	Seal ring	1
45B	95082	Leather ring	2
46	95114	Washer	12
47	95083	Screw	12
48	95159	Plug	1
49	95229	Plug	1
50	96259	Technical data plate	1
51	95658	Warning plate	1
52	95136	Adhesive tape	1
53	5010	Grounding cable	1
54	96210	Grounding plate	1



# R MOTOR GROUP SPARE PARTS KIT

**WARNING:** always indicate code and quantity for each part required.

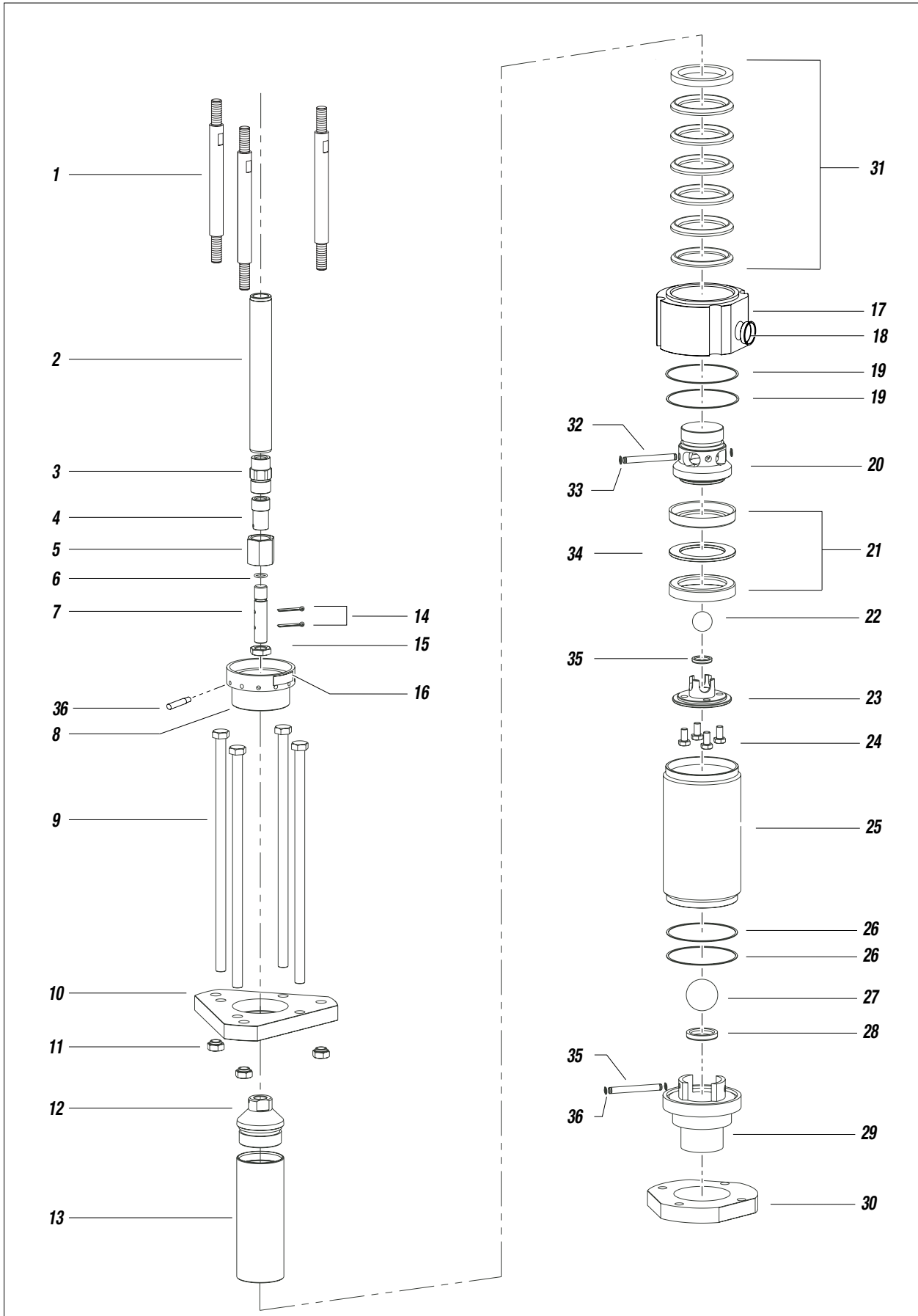


Code	Position x (q.ty)	Description
40065	1; 2; 3; 4 x (2); 5 x (2); 6 x (2); 7; 8; 9; 10; 11	Motor gaskets kit

Code	Position x (q.ty)	Description
40066	4 x (2); 5 x (2); 6 x (2); 12 x (2); 13 x (2); 14 x (2)	Motor movement inversion device

## S PUMPING GROUP SPARE PARTS

**WARNING:** always indicate code and quantity for each part required.



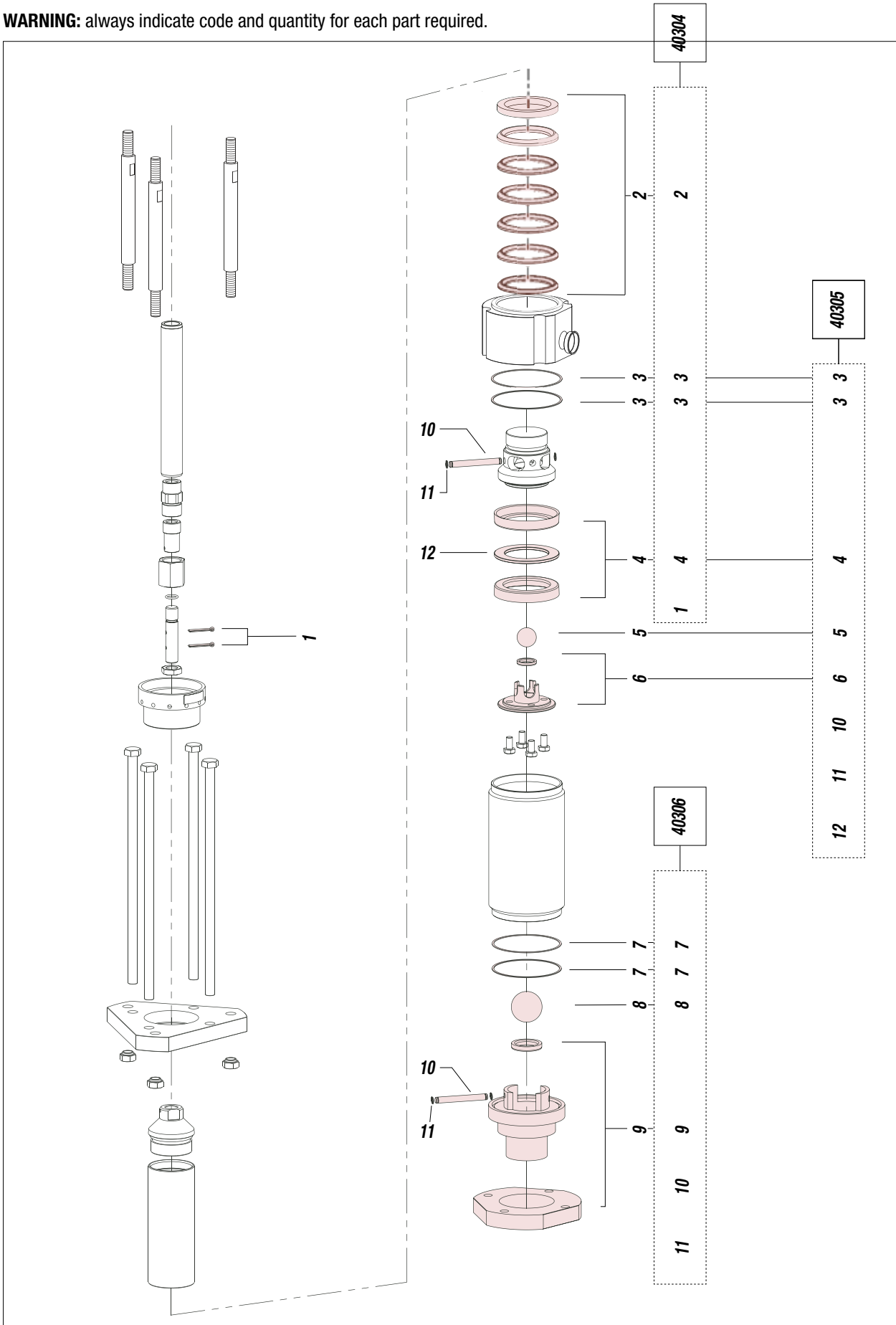
Pos.	Code	Description	Q. ty	Pos.	Code	Description	Q. ty
	<b>98100</b>	<b>Nova 10:1 pumping group</b>		19	95654	Copper gasket	2
	<b>98100/1</b>	<b>Nova 10:1 wash pump pumping group</b>		20	98118	Lower piston plug	1
1	95621	Tie rod - not included in pumping assembly	3	21	95650	Gasket PTFE	2
2	95102/2	Piston tube	1	22	95027	Ball 1" 1/4	1
3	95104/1	Fitting	1	23	98113	Fitting	1
4	95003	Bush	1	24	98109	Screw	4
5	95004	Sleeve	1	25	98110	Cylinder	1
6	95005	O-ring	1	26	95653	Copper gasket	2
7	95006	Tie rod	1	27	95642	Ball 2"	1
8	98121	Ring nut	1	28	95643/2	Housing seat bal	1
9	95622/1	Tie rod	4	29	98112	Foot valve	1
10	95624	Upper flange	1	30	98112/1	Flange	1
11	95013	Nut	3	31	200257	Upper assembly package PTFE - PE	1
12	98117	Piston top plug	1		200276	Upper assembly package - Wash pump	1
13	98119	Piston rod	1	32	98106	Split pin	2
14	95015	Split pin	2	33	98105	Seeger	4
15	95007	Nut	1	34	98107	Washer	1
16	96233	Oil label	1	35	95639/2	Housing seat bal	1
17	98103	Upper gasket housing	1	36	16135	Locking pin	1
18	100	Plug	1				

**NOTE**

***IN CASE OF USE AS WASH PUMP, PUMPING SPARE PARTS CODE IS 200276. IT DIFFERS IN THE GASKETS CODES.***

# T PUMPING GROUP SPARE PARTS KIT

**WARNING:** always indicate code and quantity for each part required.





Code	Position x (q.ty)	Description
40304	1 X (2); 2; 3 X (2); 4 X (2)	Pump gaskets kit

Code	Position x (q.ty)	Description
40305	3 x (2); 4 x (2); 5; 6; 10; 11 x (2); 12	Valve kit

Code	Position x (q.ty)	Description
40306	7 x (2); 8; 9; 10; 11 x (2)	Foot valve kit

## **U** WALL MUNTING BRACKET Ref. LA65085

**WARNING:** always indicate code and quantity for each part required.

Code	Description	Q.ty
LA65085	Wall mounting bracket	1

**V HANDTRUCK COD. 65380**

**WARNING:** always indicate code and quantity for each part required.



## W ATEX CERTIFICATE

### DESCRIPTION

These safety instructions refer to the installation, use and maintenance of **NOVA** series pneumatic piston transfer pumps in high risk environments where potentially explosive gasses or vapours are present.



These instructions, along with the indications provided in the user and maintenance manual, must be fully respected.



**NOVA series pneumatic piston pumps are group II mechanical devices for use in areas where gasses classified AS IIB (category 2 g) are present. They are designed and built in accordance with the 94/9/Ec ATEX Directive, based on the following european standards: EN 1127-1, EN 13463-1 and EN 13463-5.**

### TECHNICAL CHARACTERISTICS

The main characteristics of the NOVA series pneumatic piston pumps are provided in the table below:

Rapport	Pressure alimention	Ø Air Inlet	Input material	Ø Output material	Max. working pressure	Max. flow
10:1	3 ÷ 8 bar	3/4"BSPP (M)	Ball	1" BSPP (F)	80 bar	66 l/min
20:1	3 ÷ 8 bar	3/4"BSPP (M)	Ball	3/4"BSPP (F)	160 bar	32 l/min
45:1	3 ÷ 8 bar	3/4"BSPP (M)	Ball	3/4"BSPP (F)	360 bar	14 l/min
55:1	3 ÷ 7 bar	3/4"BSPP (M)	shovel plate	1" BSPP (F)	380 bar	12 l/min
60:1	3 ÷ 8 bar	3/4"BSPP (M)	Ball	3/4"BSPP (F)	480 bar	12 l/min
68:1	3 ÷ 7 bar	3/4"BSPP (M)	Ball	3/4"BSPP (F)	476 bar	11 l/min

**Maximum number of cycles per minute:** 66

**Room temperature:** -20°C to +60°C

**Maximum fluid temperature [°C]:** 60°C

### MARKINGS

**II 2 G c IIB T6** • T<sub>amb</sub>: -20°C ÷ + 60°C • T<sub>max. fluido</sub>: 60°C • Tech. File: NOVA/ATX/08

<b>II =</b>	Group II (surfaces)
<b>2 =</b>	Category 2 (zone 1)
<b>G =</b>	Explosive atmosphere containing gasses, vapours or mists
<b>c =</b>	Design safety "c"
<b>T6 =</b>	Temperature class T6
<b>- 20°C ÷ + 60°C</b>	Room temperature
<b>60°C</b>	Maximum process fluid temperature
<b>xxxx/AA</b>	Serial number or lot number (xxxxx = PROGRESSIVE / year = AA)

Correspondence between hazardous areas, substances and categories

HAZARDOUS AREAS		CATEGORIES ACCORDING TO THE 94/9/CE DIRECTIVE
Gasses, vapours or mists	Zone 0	1G
Gasses, vapours or mists	Zone 1	2G or 1G
Gasses, vapours or mists	Zone 2	3G, 2G or 1G

## SAFETY INSTRUCTIONS FOR INSTALLATION IN HAZARDOUS AREAS



Read the indications provided in the user and maintenance manual carefully prior to installation. All of the maintenance operations must be performed according to the indications provided in the manual.

- The grounding wire for the pumps indicated above must be grounded using an appropriate anti-loosening connection.
- The tubes used to connect the delivery and suction lines must be either metallic, plastic with metallic braid, or plastic with fabric braid and a suitable grounding conductor.
- The pumps must be installed on properly grounded metallic or antistatic drums.
- The gases or vapours of any flammable liquids present must belong to group IIB.
- Based on the type of use and the substances employed, the user must periodically check for any encrustations and must verify the cleanliness, the wear status and the correct functionality of the pump on a regular basis.
- The user must periodically clean the suction filter in order to prevent any solid materials from entering the pump. The air used to power the pump must be filtered and must come from a SAFE AREA.



NOVA series pneumatic piston transfer pump cannot work without material. All of the installation and maintenance operations must be performed by qualified personnel.

We **Larius S.r.l.**  
**Via Stoppani, 21**  
**23801 Calolziocorte (LC)**

declare under our sole responsibility that the product:

**NOVA series pneumatic piston transfer pump.**

to which this declaration relates complies with the following directives:

**- Directive 94/9/EC (ATEX)**

The conformity are under observance of the following standards

or standards documents:

- EN 1127-1      - EN 13463-5  
 - EN 13463-1

Markings

**CE**  **II 2 G c IIB T6**    **Tamb.: - 20°C ÷ 60°C**

**Tmax. fluid: 60°C**

Tech. File: **NOVA/ATX/08**

Technical dossier kept on file c/o: **INERIS (0080)**

Calolziocorte- LC, 15/12/2008

**Signature**  
**(LARIUS)**





**Appareil non électrique destiné à être utilisé en atmosphères explosibles**  
*Non electrical equipment intended for use in potentially explosive atmospheres*  
**Apparecchi destinati ad essere utilizzati in atmosfera potenzialmente esplosiva**

**Directive 2014/34/UE**  
*Directive 2014/34/EU / Direttiva 2014/34/UE*

**ACCUSÉ DE RECEPTION D'UN DOSSIER TECHNIQUE**  
*ACKNOWLEDGE RECEIPT OF TECHNICAL DOCUMENTATION*  
**AVVISO DI RICEVIMENTO DEL FASCICOLO TECNICO**

Appareil / Equipment / Apparecchiatura :

**PNEUMATIC TRANSFER & EXTRUSION PUMPS**

Type(s) / Type(s) / Tipo(i) : **Series NOVA**

Marquage / Marking / Marcatura :



Dépositaire / Applicant / Richiedente :

**LARIUS S.r.l.**  
Via Stoppani, 21

I- 23801 Calolziocorte (LC)

L'INERIS, organisme notifié et identifié sous le numéro 0080, conformément aux articles 17 et 21 de la Directive du Conseil 2014/34/UE du 26 février 2014, accuse réception du dossier conformément à la procédure décrite au chapitre 3, article 13 1) b) ii) de la Directive.

INERIS, notified body and identified under number 0080, in accordance with articles 17 and 21 of Council Directive 2014/34/EU of the 26 february 2014, acknowledges receipt of file according to the procedure described chapter 3, article 13 1) b) ii) of the Directive.

L'INERIS, organismo notificato e identificato con il n.0080 conformemente agli articoli 17 e 21 della Direttiva 2014/34/UE del Consiglio dell'Unione Europea del 26 febbraio 2014, conferma il ricevimento del fascicolo in conformita alla procedura prevista nella rubrica 3, articolo 13 1) b) ii) della Direttiva.

La documentation technique référencée : NOVA/ATX/08 dated 2008-12-15

The technical documentation referenced : NOVA/ATX/08 dated 2008-12-15

La documentazione tecnica di riferimento : NOVA/ATX/08 dated 2008-12-15

est consignée sous le numéro d'enregistrement :

is consigned under the reference :

è depositata con il numero di registrazione :

n° INERIS-EQEN 021759/19.

no INERIS-EQEN 021759/19.

n° INERIS-EQEN 021759/19.

Dans le cadre de cet enregistrement, l'INERIS n'a pas examiné le contenu de la documentation technique.

Within the scope of the recording, INERIS did not examine the content of the technical documentation.

Nel quadro di questa registrazione, INERIS non ha esaminato il contenuto della documentazione tecnica.

Date de fin de validité :  
**2029.03.11**

Validity completion date :  
**2029.03.11**

Data di fine di validità :  
**2029.03.11**

Verneuil-en-Halatte, le 2019.03.11



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The Chief Executive Officer of  
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IM-142348 - Mise en application : 20/04/2016

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## CE DECLARATION OF CONFORMITY



### Company



**LARIUS srl**  
Via Antonio Stoppani 21 - 23801 Calolziocorte (LC) ITALY  
**Tel:** +39 0341 621152  
**Fax:** +39 0341 621243  
**E-mail:** larius@larius.com

Declares under his owns responsibility that the product:

## NOVA 10:1 Pneumatic piston transfer pump

complies with the directives:

- EC Directive 2006/42 Machinery Directive
- Directive 2014/34/EU
- Directive ATEX

furthermore to the  
harmonized standards:

- EN 13463-1
- UNI EN ISO 12100-1/-2  
Machinery safety, basic concepts, general principles of design. Basic terminology, methodology. Technical principles.
- UNE EN ISO 80079-36:2017
- EN 809:1999+A1
- EN 1127+1

This declaration relates exclusively to the product in the state in which it was placed on the market, and excludes components or modifications which are added or carried out subsequently by end user.

*Signature*

**Pierangelo Castagna**  
Managing Director

Calolziocorte, 07 February 2024  
*Location / Date*



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	<b>EN</b>	<a href="https://cdn.larius.com/wp-content/uploads/NOVA_10_1_EN.pdf">https://cdn.larius.com/wp-content/uploads/NOVA_10_1_EN.pdf</a>