LARIUS®

SAMOA Group

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REV. 03 - 12/2020

Manuale Cod. 150089

OPERATING AND MAINTENANCE MANUAL

VEGA 34:1

Airless / Air assisted airless pneumatic pump

EN

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 programme, the factory reserves the right to modify technical details mentioned in this manual without prior notice.

VEGA 34:1

Pneumatic piston pump

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 **LARIUS S.R.L.** 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.

- Read this operator's manual carefully before using the equipment.
- An improper use of this machine can cause injuries to people or things.
- Do not use this machine when under the influence of drugs or alcohol.
- Do not modify the equipment under any circumstances.
- Use products and solvents that are compatible with the various parts of the equipment, and read the manufacturer's warnings carefully.
- See the Technical Details for the equipment given in the Manual.
- Check the equipment for worn parts once a day. If any worn parts are found, replace them using ONLY original spare parts.
- Keep children and animals away from work area.
- Comply with all safety standards.

- It indicates an accident risk or serious damage to equipment if this warning is not followed.

FIRE AND EXPLOSION HAZARD

- Solvent and paint fumes in work area can ignite or explode.
- **To help prevent fire and explosion:**
  - Use equipment ONLY in well ventilated area.
  - Eliminate all ignition sources, such as pilot lights, cigarettes and plastic drop cloths (potential static arc).
  - Ground equipment and conductive objects.
  - Use only grounded hoses.
  - 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.
  - Do not form connections or switch light switches on or off if the air contains inflammable fumes.
- If electrical shocks or discharges are encountered the operation being carried out using the equipment **must be stopped immediately**.
- Keep a fire extinguisher at hand in the immediate vicinity of the work area.

- It indicates wound and finger squashing risk due to movable parts in the equipment.
- Tenersi lontano dalle parti in movimento.
- Do not use the equipment without the proper protection.
- 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.

- Report any risk of chemical reaction or explosion if this warning has not been given.
- (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, IMMEDIATELY contact a doctor, indicating the type of product injected.
- (IF PROVIDED) Do not spray before the guard has been placed over the nozzle and the trigger on the spray gun.
- (IF PROVIDED) Do not put your fingers in the spray gun nozzle.
- Once work has been completed, before carrying out any maintenance, complete the decompression procedure.

- It indicates important recommendations about disposal and recycling process of products in accordance with the environmental regulations.

- Mark any clamps attached to earth cables.
- Use ONLY 3-wire extension cords and grounded electrical outlets.
- Before starting work make sure that the electrical system is grounded and that it complies with safety standards.
- High-pressure fluid from gun, hose leaks, or ruptured components will pierce skin.
- **To help prevent injection, always:**
  - (IF PROVIDED) Engage trigger lock when not spraying.
  - (IF PROVIDED) Do not put your hand over the spray tip. Do not stop or deflect leaks with your hand, body or other.
  - (IF PROVIDED) Do not point gun at anyone or at any part of the body.
  - (IF PROVIDED) Never spray without tip guard.
  - Do pressure relief if you stop spraying or being servicing sprayer and before any maintenance operations.
  - Do not use components rated less than sprayer Maximum Working Pressure.
  - Never allow children to use this unit
  - (IF PROVIDED) Brace yourself; gun may recoil when triggered.

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.

- It is obligatory to wear suitable clothing as gloves, goggles and face shield.
- Wear clothing that complies with the safety standards in force in the country in which the equipment is used.
- Do not wear bracelets, earrings, rings, chains, or anything else that may hinder the operator's work.
- 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.

B WORKING PRINCIPLE

VEGA 34:1 pump is a pneumatic pump without the use of compressed air (AIRLESS). The stainless steel version is particularly suitable for use with water-based paints.
The pump is essentially composed of an air motor and a structure known as "Product Pumping Unit", or simply the "Pumping Unit".
In the pneumatic motor, the compressed air causes the vertical reciprocating movement of the motor piston; this movement is transmitted through a connecting rod to the product pumping piston.
This allows the pump to suck the product and to feed it towards the outlet.

The ratio 34:1 means that the outlet pressure of the product is 34 times higher than the pump feed air pressure.
The unit comes complete with a transportation trolley, a high-pressure product filter, an air supply regulator for the pump, a product suction tube (*complete with filter*) and a recirculation tube.
Our spray guns are tested and controlled in our factory and are delivered to the customer in perfect working conditions.
For this reason, in order not to alter the characteristics of these units, it is advisable to carefully read these instructions and to follow them accordingly.

Fig. 1B

98140	Only pump version
98130	Airless on trolley version
98135	Air assisted airless on troley version

C TECHNICAL DATA

	VEGA 34:1
Max delivery	1,4 l/m
Max air pressure supply	7 bar
Max working pressure	240 bar
*Feed air inlet	3/8” GAS (F)
Material entry	3/4” GAS (M)
Material exit	3/8” GAS (F)
Air consumption	3 bar 180l/m
	5 bar 380l/m
	7 bar 550l/m
Sound pressure level	< 80dB (A)

	VEGA 34:1
Motor diameter	76 mm (3”)
Piston stroke	76 mm (3”)
c.c. Cycle	19
N° cycle/m	60
N° cycle/l	50
Gasket	PTFE + polyethylene
Weight	16 Kg
Height (A)	900 mm
Width (B)	450 mm
Depth (C)	470 mm

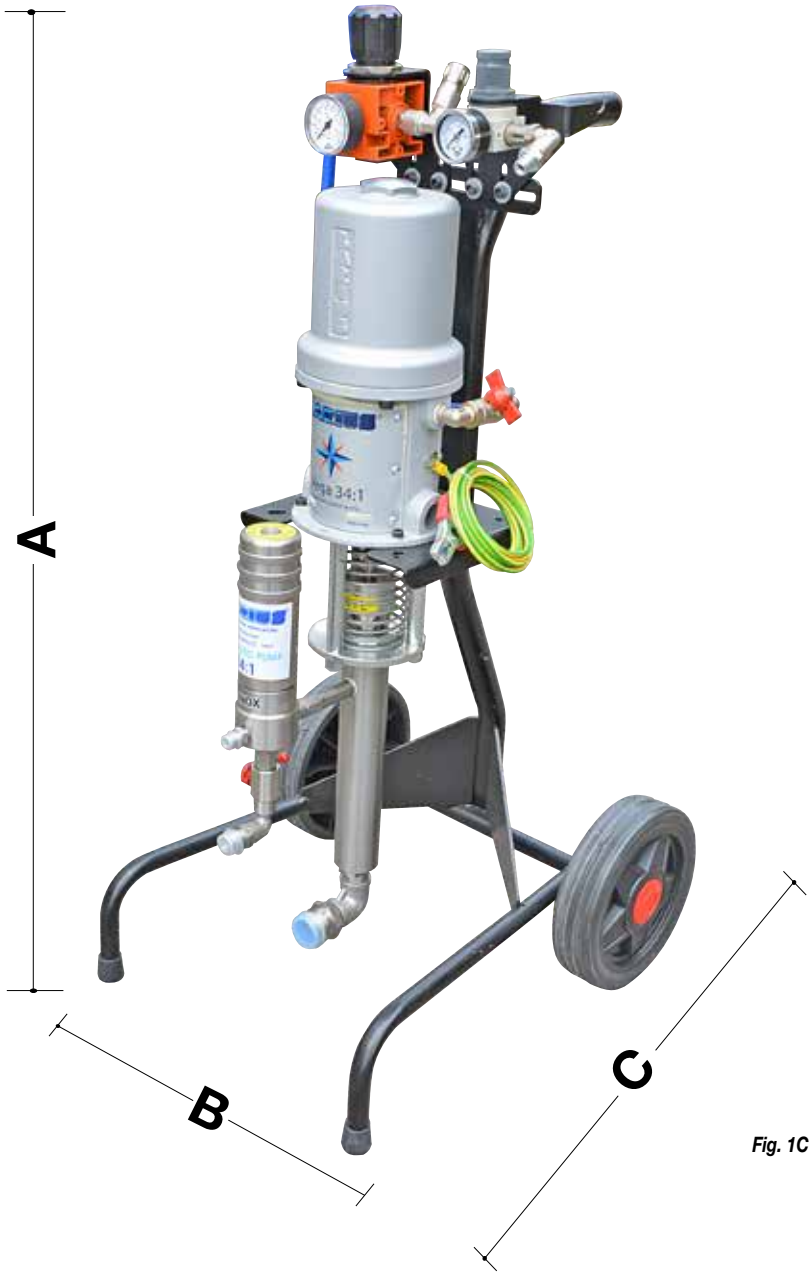
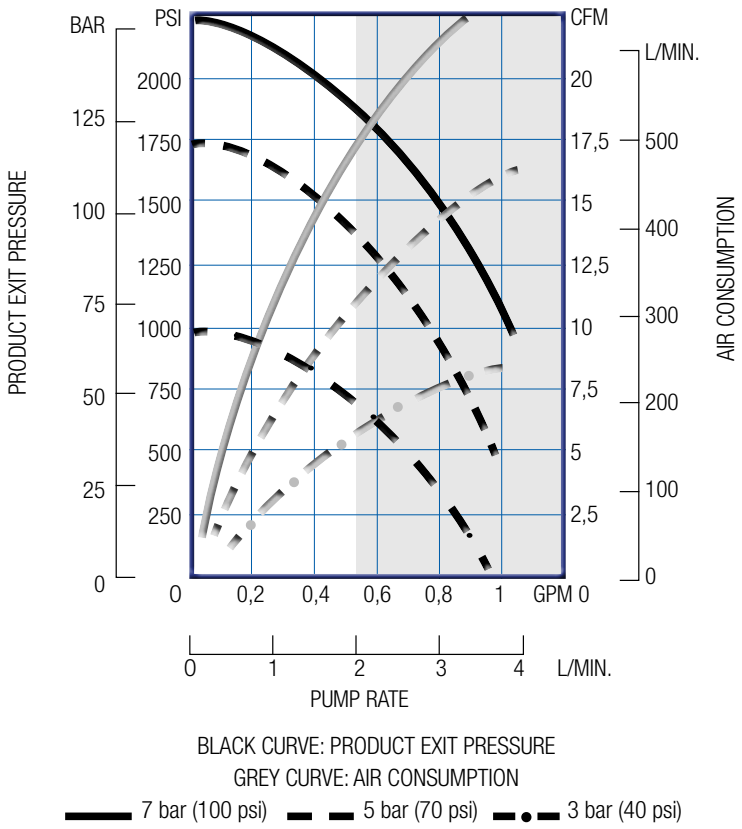


Fig. 1C

Parts of the pumpt in contact with the product:
Pumping group: galvanized steel and aluminium or stainless steel (according to versions)
Sealing balls: stainless steel AISI 420B
Gaskets: PTFE

Other parts of the pump:
Motor body and motor piston: aluminium
Pneumatic motor piston rod: stainless steel
Trolley frame: painted metal sheet

These notes shall be kept in consideration in case you need to evaluate the compatibility of a product to be used or when you need to dispose one or more components of the pump, in order to schedule a suitable reciclying of the single component according to environment standards.



BLACK CURVE: PRODUCT EXIT PRESSURE
GREY CURVE: AIR CONSUMPTION
7 bar (100 psi) 5 bar (70 psi) 3 bar (40 psi)

The pump can operate in continuous mode when the rate is limited to the white area. Outside this area, the speed shall be intermittent.

Utilization	Main materials	
Wood	Paints for wood in general	Degreasers
Carpentry	Very well ground enamels and rust preventers	Detergents
Handcraft	Primers	Oils
Small and medium industry	Polyurethan paints	etc...
for limited productions	Lakes	

D DESCRIPTION OF THE EQUIPMENT

Fig. 1D

Pos.	Description
1	Motor unit
2	Paint suction system
3	Air regulation unit
4	Pump feeding air pressure regulator
5	Compressed air inlet
6	Adjustment gun pressure
7	Pump feeding air pressure gauge

Pos.	Description
8	Manometer for gun air pressure
9	Feeding air gun
10	Open/close air pump valve
11	Grounding cable
12	Product pumping unit
13	Suction hose fitting

REV. 03 - 12/2020 - Cod. 150089

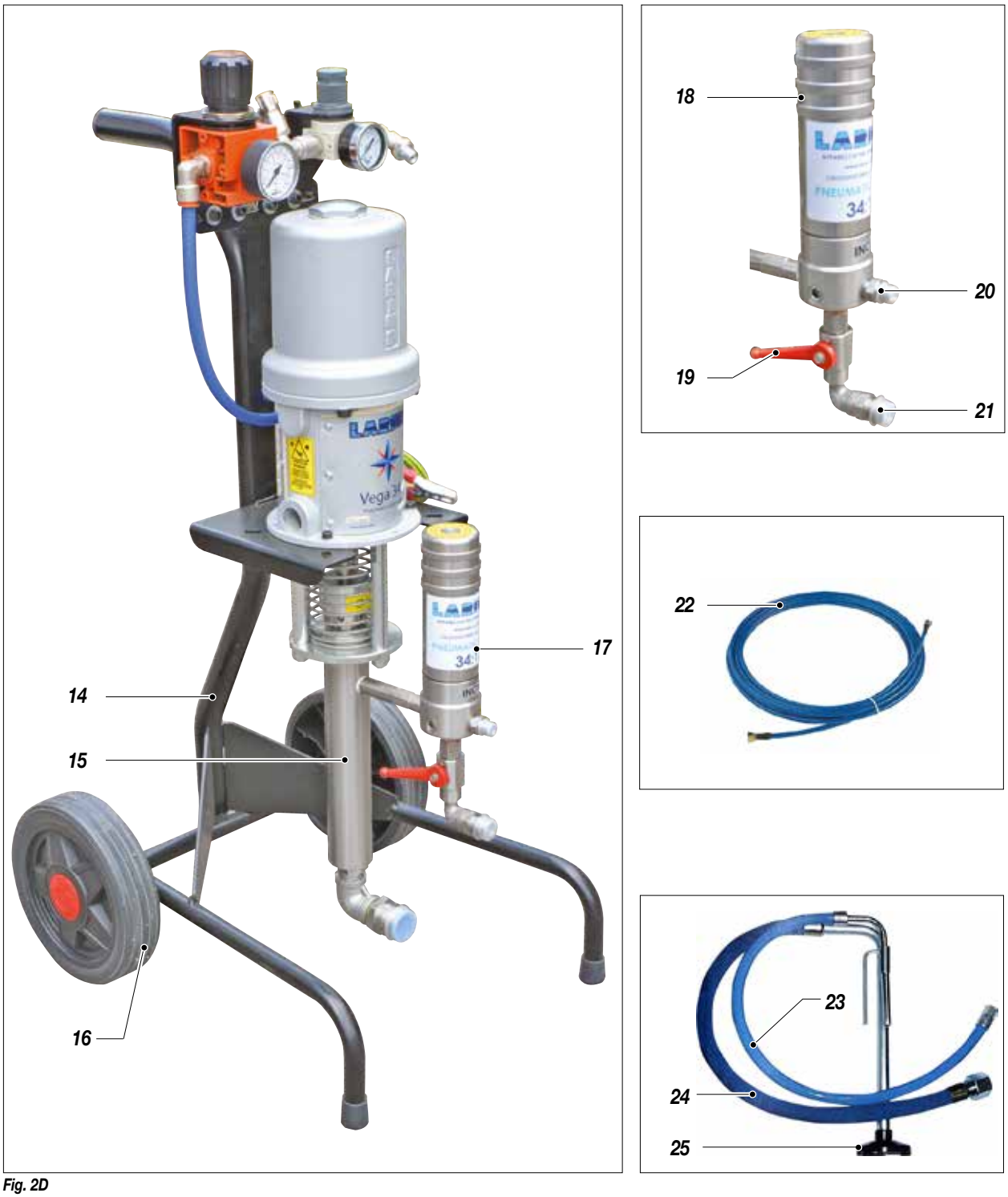


Fig. 2D

Pos.	Description
14	Equipment transport trolley
15	Pumping unit
16	Wheels
17	Filter unit
18	Product exit high pressure filter
19	Recirculation tap

Pos.	Description
20	Product exit fitting
21	Recirculation tube fitting
22	Flexible hose air-product
23	Recirculation tube
24	Suction hose
25	Product suction filter

E CARRIAGE AND UNPACKING

- Strictly respect the orientation of the package indicated externally by labels or symbols.
- Before installing the equipment, prepare an environment suitable in terms of space, proper lighting, clean and smooth floor.

All unloading and handling operations of the equipment are at User's care who should pay the utmost attention in order to avoid any damage to people or things.
The unloading operations shall be carried out by skilled and trained personnel (truck, crane operators, etc..) with suitable hoisting means able to bear the weight of the package and to meet all safey standards.
The personnel must be equipped with suitable protective devices.

- The manufacturer declines any liability relevant to the unload and carriage of the equipment to the workplace.
- Check the integrity of the package upon receipt. Remove the equipment from the packaging and check that no damage has occured during transport.
  Should any damaged components be found, promptly contact LARIUS and the shipping agent. The maximum deadline to notify the damage is 8 days from the date of equipment receipt. The communication must be made by registered mail with acknowledgement addressed to LARIUS and to the carrier.

The disposal of packaging materials, at user's care, shall be performed in compliance with applicable regulations in force in the country where the equipment is installed.
It is however good practise to dispose the packaging materials in the most environment-friendly way.

F 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.

G SAFETY INSTRUCTIONS

- THE EMPLOYER SHALL PROVIDE TO DULY TRAIN THE PERSONNEL REGARDING THE RISKS OF ACCIDENTS, THE SAFETY DEVICES AND THE GENERAL ACCIDENT PREVENTION GUIDELINES PROVIDED BY THE INTERNATIONAL DIRECTIVES AND BY THE LAW IN FORCE IN THE COUNTRY WHERE THE UNIT IS INSTALLED, IN ADDITION TO THE STANDARDS RELEVANT TO ENVIRONMENTAL POLLUTION.
- PERSONNEL STAFF SHALL CAREFULLY RESPECT THE ACCIDENT PREVENTION STANDARDS IN FORCE IN THE COUNTRY WHERE THE UNIT IS INSTALLED, IN ADDITION TO THE RULES RELEVANT TO ENVIRONMENTAL POLLUTION.

Carefully read the following instructions before using the equipment.
Keep these instructions with care.

Tampering or unauthorized replacement of one or more parts composing the equipment, the use of accessories, tools, consumables other than those recommended by the manufacturer, might represent a risk of injury and raise the manufacturer from any liability and penalty.

- KEEP THE WORKING AREA IN GOOD ORDER. FAILURE IN RESPECTING THIS MAY CAUSE RISK OF ACCIDENTS.
- ALWAYS KEEP A GOOD BALANCE AVOIDING UNSAFE POSITIONS.
- BEFORE STARTING OPERATION, CAREFULLY CHECK THAT THERE ARE NO DAMAGED COMPONENTS AND THAT THE EQUIPMENT IS ABLE TO OPERATE CORRECTLY.
- ALWAYS FOLLOW THE SAFETY INSTRUCTIONS AND REGULATIONS IN FORCE.
- KEEP UNAUTHORIZED PERSONNEL AWAY FROM THE WORKING AREA.
- **NEVER** EXCEED THE MAXIMUM OPERATING PRESSURE
- **NEVER** DIRECT THE GUN TOWARDS YOURSELF OR ANYONE ELSE. GETTING IN TOUCH WITH THE JET MIGHT CAUSE SERIOUS WOUNDS. IN CASE OF WOUNDS DERIVED BY THE GUN JET, IMMEDIATELY PROVIDE FOR MEDICAL ASSISTANCE SPECIFYING THE PRODUCT YOU WERE USING. NEVER UNDERESTIMATE THE WOUND CAUSED BY THE INJECTION OF A FLUID.
- ALWAYS DISCONNECT THE POWER SUPPLY AND DISCHARGE THE PRESSURE IN THE CIRCUIT BEFORE PERFORMING ANY CONTROL OR REPLACEMENT OF EQUIPMENT COMPONENTS.

- NEVER MODIFY ANY EQUIPMENT COMPONENT. PERIODICALLY CHECK THE COMPONENTS OF THE SYSTEM. REPLACE DAMAGED OR WORN COMPONENTS, IF ANY.
- CHECK AND TIGHTEN ALL FITTINGS BETWEEN THE PUMP, THE FLEXIBLE HOSE AND THE GUN BEFORE USING THE EQUIPMENT.
- ALWAYS USE THE HOSE PROVIDED IN THE STANDARD KIT. USE OF EQUIPMENT OR ACCESSORIES OTHER THAN THOSE RECOMMENDED IN THIS MANUAL MAY CAUSE ACCIDENTS.
- THE FLUID CONTAINED IN THE FLEXIBLE HOSE CAN BE VERY DANGEROUS. HANDLE THE HOSE WITH CARE. DO NOT PULL THE HOSE TO MOVE THE EQUIPMENT. NEVER USE A DAMAGED OR REPAIRED HOSE.

The high speed of the product flowing in the flexible hose may cause statical electricity showing short sparks. It is recommended to provide a suitable grounding for the equipment. The pump is connected to the ground cable of the electric supply.

(IF PROVIDED)The gun is grounded by means of the high pressure flexible hose. Each conductive parts near the workplace shall be duly grounded.

- NEVER SPRAY FLAMMABLE PRODUCTS OR THINNERS IN CLOSED ROOMS.
- NEVER USE THE EQUIPMENT IN PRESENCE OF POTENTIALLY EXPLOSIVE GASES.

Always check 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 protective gloves, goggles and suitable face shields.

Adopt suitable hearing protection measures when working near the equipment.

- MAKE SURE YOU KNOW HOW TO STOP THE EQUIPMENT WHEN NEEDED. IT IS ALSO RECOMMENDED TO TRAIN THE USERS ON THE SAFE AND CORRECT USE OF THE EQUIPMENT BEFORE STARTING OPERATIONS.
- KEEP UNAUTHORIZED PERSONNEL FAR FROM THE EQUIPMENT, ESPECIALLY IF THE PRODUCT TO BE USED IS TOXIC .
- IF NECESSARY, USE WARNING SIGNALS TO KEEP ANY UNAUTHORIZED PERSON AT A SAFE DISTANCE.
- MAKE SURE THAT THERE IS SOMEONE HEARING YOU IN THE UNLIKELY EVENT OF AN ACCIDENT.

H CONNECTIONS

CONNECT THE SUCTION AND RECIRCULATION HOSES

- Connect the suction (**H1**) and the recirculation hoses (**H2**) to the pumping unit (**H3**) and to the filter (**H4**) as indicated in the picture.

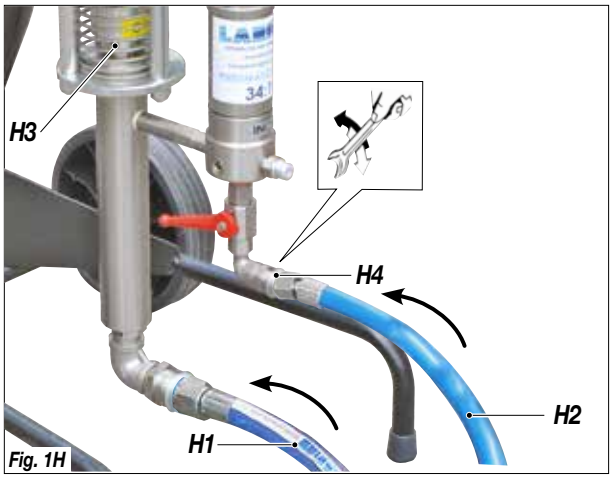


Fig. 1H

CONNECT THE GUN HOSE

- Connect the product feeding hose (**H5**) to the filter unit (**H6**).

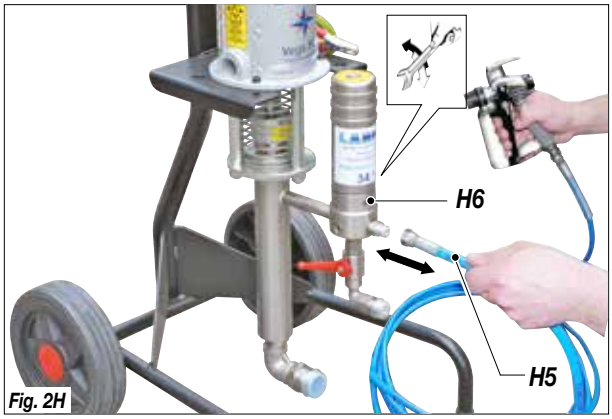


Fig. 2H

CONNECT THE FEEDING AIR HOSE

- Connect the adjustment group (**H7**) to the compressed air fitting (**H8**).

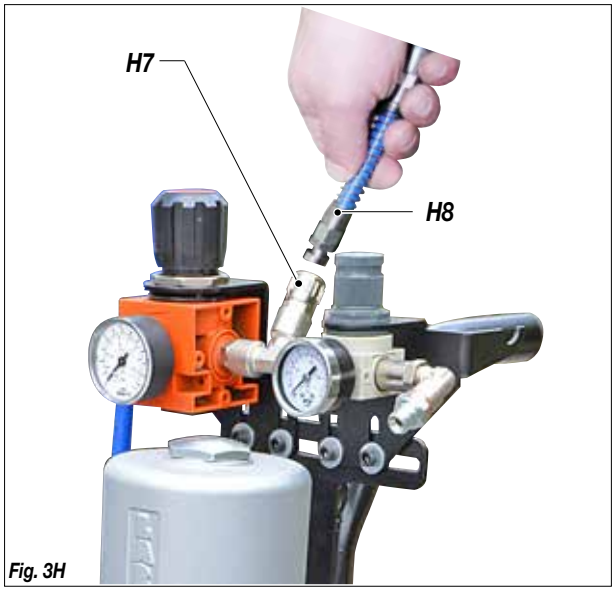


Fig. 3H

NEVER use thread adhesive products on the fittings.
We recommend the use of the hose included in the standard kit.
NEVER use a damaged or repaired flexible hose.

WASHING THE NEW EQUIPMENT

- Our equipment has been tested in our factory with a light mineral oil which is being left inside the unit for protection. Before sucking the product, it is necessary to duly wash with a thinner.
- Plunge the suction hose (**H1**) in the container of the washing thinner.
- Plunge the recirculation hose (**H2**) in a collector (*a metal container is recommended*).

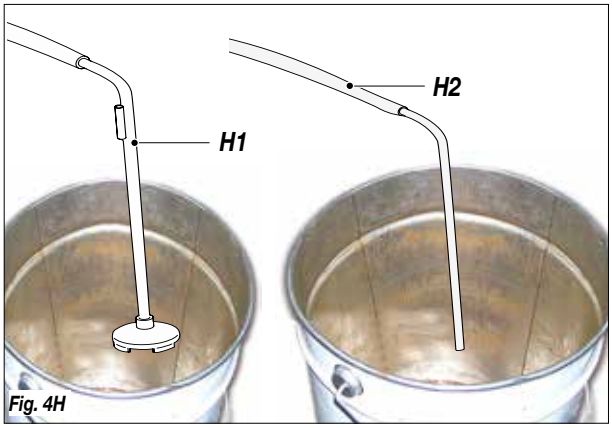


Fig. 4H

- Open the recirculation tap (**H9**).

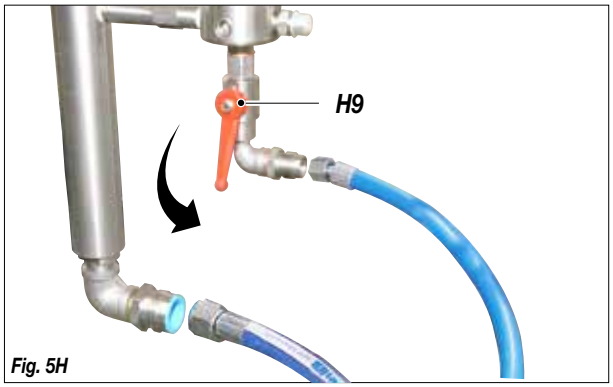


Fig. 5H

- Set the pump feeding pressure at about 3 bar and open the air valve.
- The pump will start and will discharge the oil for the recirculation hose. Close the recirculation tap as soon as the clean thinner begins to flow.
- Take the suction hose out of the product container.
- At this point place the gun against the collector (**H10**) and press the trigger in order to discharge the residual oil. Release the trigger as soon as the clean thinner begins to flow.
- Direct the gun against the thinner container and press the trigger in order to recover the clean thinner left inside the pump.
- As soon as the pump begins to work in an accelerated way ("*vacuum*") close the air valve.

Fig. 6H

Never operate the pump without the product, in order to prevent the gaskets to be damaged.

Never spray cleaning liquids in close rooms. It is also recommented to place yourself far from the pump in order to avoid the contact with the cleaning liquids vapours.

- At this point the unit is ready. Should water paints be used, it is advisable to wash with soap water and then with clean water, besides the washing with cleaning liquid.

PREPARATION OF THE PAINT

- Make sure that the product is suitable to be sprayed.
- Duly mix and filter the product before use. We recommend the use of LARIUS METEX filters with fine-mesh (*Rif. 214*) or large mesh (*Rif. 215*).

Make sure that the product is suitable to be used with the materials employed for the unit manufacturing. For this purpose, refer to the product supplier.

- Rotate clockwise the pressure adjustment knob (**H11**) so that the pump starts to work.

Fig. 7H

- When the product has been duly mixed, the product will flow from the recirculation hose. (**H2**)
  If the product does not flow, this means it is too thick and it is necessary to dilute it again until a correct flow is achieved. Let the product flow for a short time. At this point, the machine is ready to work.

I OPERATION

PRODUCT PREPARATION

- Make sure that the product and the thinner are suitable to be sprayed. Make sure that the thinner is suitable to be used with the product to be sprayed. Make sure that the product has been duly filtered and mixed.

NOZZLE AND FILTERS

- The nozzle and the filter shall be suitable for the gun, according to the product to be sprayed and to the operation to be carried out (refer to the assembly tables and instructions).

NOZZLE SIZE ACCORDING TO THE PRODUCT	
Nozzle Ø	**Product**
mm 0,18 ÷ 0,28 inch 0,007” ÷ 0,011”	Paints and products without pigments and charges. Very fine and with low viscosity paints and lakes, enamels, primers, polyesters, oils, degreasers amd detergents, polyurethan paints.
mm 0,33 ÷ 0,62 inch 0,013” ÷ 0,025”	Normal lakes or having higher viscosity, fillers, produts with a coarse grinding, rust preventers, vinyl produts for coverings, etc.
mm 0,68 ÷ 0,94 inch 0,027” ÷ 0,037”	Same products with a high yield, epossidic resins, dispersion for the building industry, applications with high thickness.

- This table is for indication only. The adapatability of a certain product to a determined nozzle changes according to different aspects. If previous experiences are lacking, a practical test is always necessary. A nozzle, which has been duly chosen, will give as result a neat jet without pulsations and gives a perfect praying of the product.

- An inconstant spray, slightly marked on the sides, might indicate a too low pressure. If the maximum pressure has already been reached, it is then necessary to choose a smaller nozzle. With the exclusion of some products, which can be atomized at high pressures only, it is advisable not to exceed the value of 140-170 Atm (high pressure could cause mist).

- **Considering an equal speed of application, a nozzle with a spraying angle of 20° lays down a film having a thickness which is averagely double in respect to the one which can be obtained with the same nozzle with an angle of 60°.**
- **An excessive diameter of the angle could result in an anomalous pressure drop.**
- **When ordering a nozzle, choose accurately the reference number on the list of the nozzles.**

START SPRAYING OPERATIONS

- Use the equipment only after having completed all the adjustment operations described in the previous paragraph.

Before using the equipment, check all the connection fittings on the various components (*pump, flexible hose, gun, etc.*)

- Use the provided lubricant (**I1**) (*rif. 16325*) in order to make the sliding of the piston easier inside the sealing pack and interpose oil to air.

Fig. 1I

- Fix the spraying nozzle on the gun, choosing the suitable nozzle according to the characteristics of the product to be used and the kind of operation to be performed.

Daily check that the ring nut is covered with hydraulic oil (*rif. 16325*); the oil improves the sliding of the piston and prevent the product, coming out from sealing gaskets, to dry once the equipment is stopped.

Plunge the suction hose (I2) and the recirculation hose (I3) in the product container (I4).

Fig. 2I

- Open the recirculation tap.
- When the air tap (**I5**) is closed, make the air flow from the compressed air supply.
  Check on the pressure gauge (**I6**) that the pressure does not exceed 2-3 Atm *[adjust it with the knob* (**I7**) *of the regulator]*.

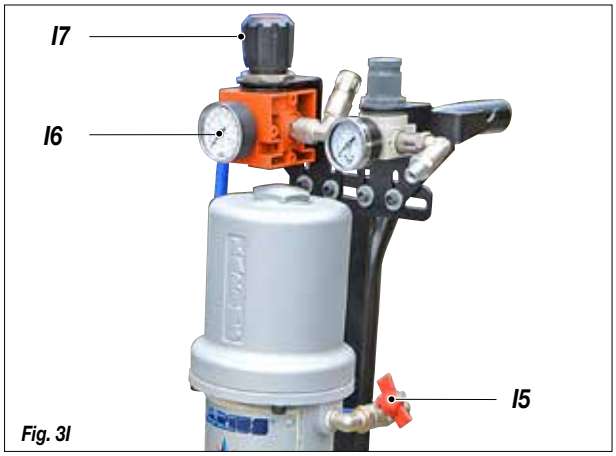


Fig. 3I

With an empty pump, a higher pressure might cause a quick and violent movement of the piston, which could be dangerous. Beside this, starting with the max pressure (6-8 bar) the pump will not be able to fill the chamber considering the high speed of the cycle.

- Open the air tap (**I5**).

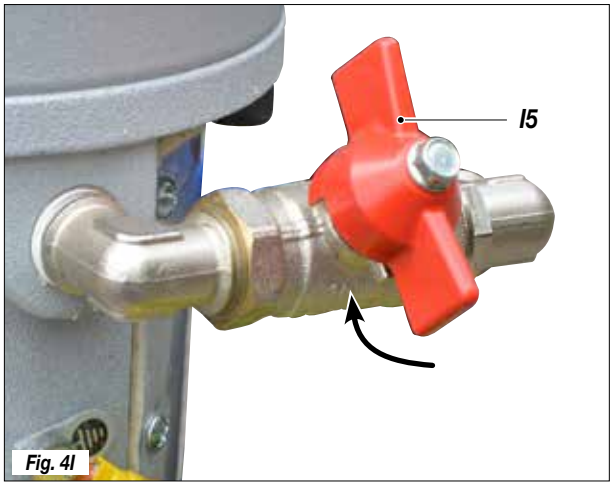


Fig. 4I

- Let the product flow for a few seconds. Then close the recirculation tap. The pump will continue to work until the product will fill the high pressure flexible hose up to the gun, then it will stop.
- Should the cycle speed be too high, decrease the feeding pressure or slightly close the air tap (**I5**). Set the minimum pressure necessary for the operation.

At the end of the work, stop the pump in the lower position in order to prevent the product to dry on the piston and to damage the gaskets.

ADJUSTING THE SPRAYING JET

- Slowly turn clockwise the pressure adjustment knob until the suitable value able to grant a proper atomization of the product is reached.
- An inconstant spray, slightly marked on the sides, might indicate a too low pressure. On the contrary a too high pressure might cause mist *(overspray)* and product dispersion.
- Do not spray without the contemporaneous advancement of the gun *(right-left)* in order to avoid an anomalous thickness of the paint.
- Always proceed with regular and parallel passages.
- Keep a constant distance (25/30 cm) between the nozzle and the support to be sprayed and keep yourself perpendicular to it.
- Avoid to work with maximum pressure.

NEVER direct the gun towards yourself or anyone else.
Getting in touch with the jet might cause serious wounds. In case of wounds derived by the gun jet, immediatly provide for medical assistance specifying the product you were using.

Recirculation-safety valve: during the operation at the maximum pressure availble, when releasing the gun trigger, you can assist to brisk pressure increasings. In this case the recirculation-safety valve automatically opens, discharging part of the product from the recirculation hose. It then closes in oder to set the previous working conditions.

J CLEANING AT THE END OF THE WORK

- Remove the suction (**J1**) and the recirculation hoses (**J2**) from the product container (**J3**) by going on spraying (**J4**), until the pump is completely empty.

Fig. 1J

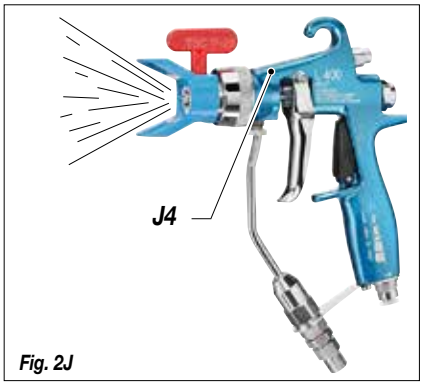


Fig. 2J

- Plunge the suction (**J1**) and the recirculation hoses (**J2**) in the thinner container (**J3**). Set pressure to the mimimum and by keeping the nozzle below the thinner level in the container, spray until the thinner has been recycled during three or five minutes.

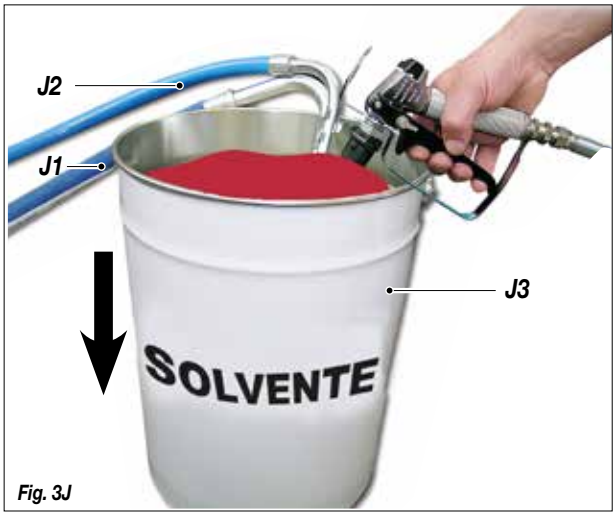


Fig. 3J

- By going on spraying, lift the suction (**J1**) and the recirculation hoses (**J2**), in order to drain out all the thinner. Then stop the pump, by closing the air tap.

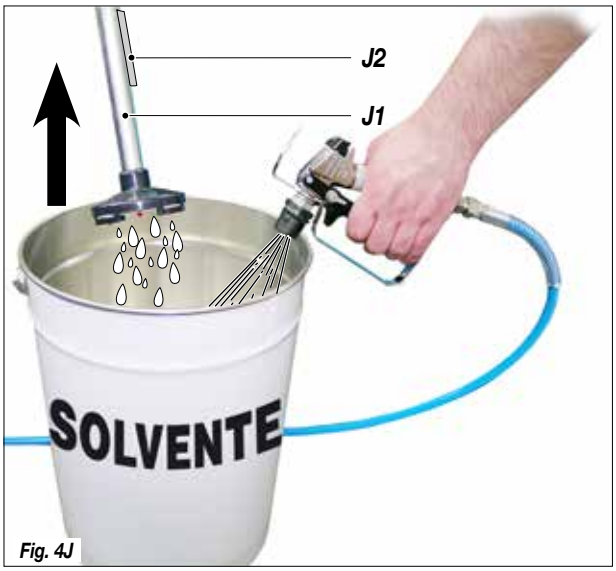


Fig. 4J

- After washing, in case a long period of downtime is foreseen or if a water-based product has been used, it is advisable to lubricate the inner parts (pumping group), by sucking the hydraulic oil with the pump, without discharging it.

Before using the equipment, make sure to follow the cleaning procedure.

K ROUTINE MAINTENANCE

Periodically check the air supply line to the pump. Make sure that the air is always clean and lubricated.

Before carrying out any control or maintenance operation on the pump, always close the compressed air supply and discharge the pressure in the circuit.

LUBRICATING THE GASKETS RING NUT

- Periodically check (and in any case each time the pump is started after a long period of downtime) that the gaskets ring nut is tight in order to avoid any product leak.
- Weekly check that the gaskets ring nut (**K1**) is tight. To tighten the gaskets ring nut (**K1**) use the provided wrench (**K2**). The ring nut shall be duly tightened so that to prevent any leak but this shall not be excessive in order to avoid the blocking of the pumping piston and the wear of the sealing gaskets. Should the product leak, provide to replace the upper gaskets. This adjustment shall be carried out after having removed the air feeding tube and having discharged the pressure.

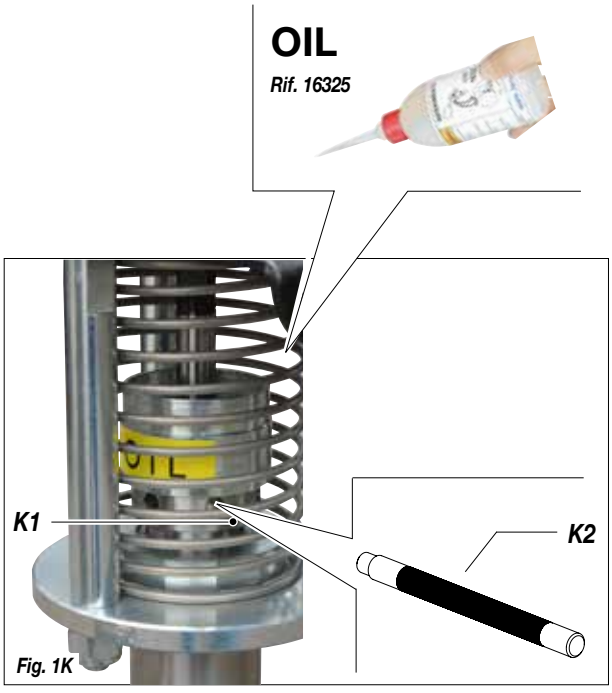


Fig. 1K

Daily check that the ring nut is covered with hydraulic oil (*rif. 16325*); the oil improves the sliding of the piston and prevent the product, coming out from sealing gaskets, to dry once the equipment is stopped.

CLEANING THE SUCTION FILTER

- Disassemble and clean the product suction filter (**K3**).

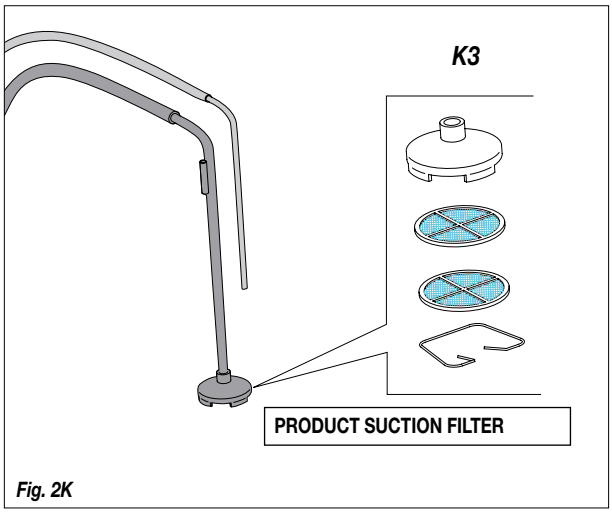


Fig. 2K

CLEANING THE PRODUCT SUCTION FILTER

- Disassemble and clean the high pressure filter for product output (**K4**).

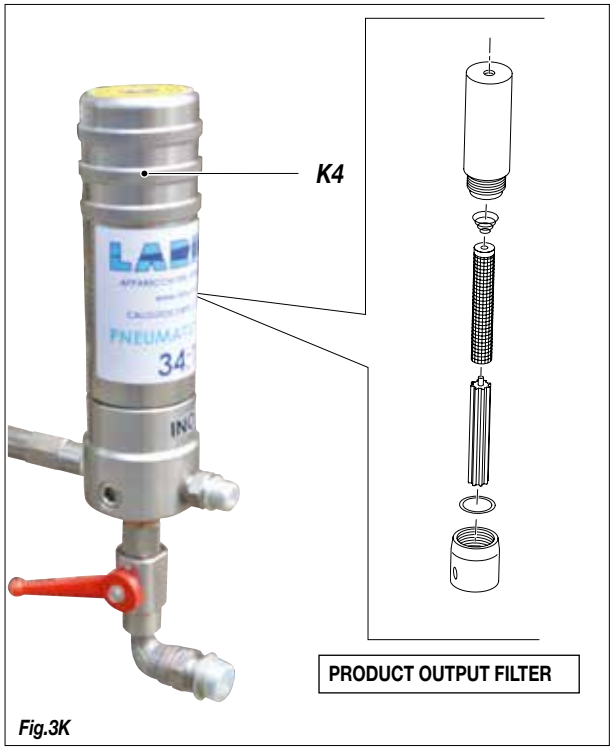


Fig.3K

L REPLACEMENT OF THE PUMPING UNIT GASKETS

- Unscrew the filter group (**L1**) from the pump housing (**L2**).

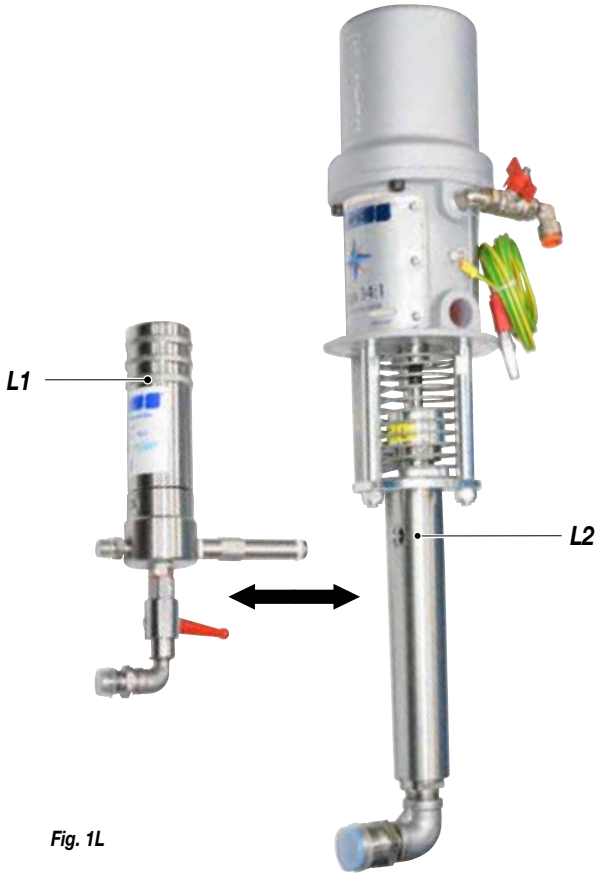


Fig. 1L

- Unscrew the three self-locking nuts (**L3**) and remove the pumping unit (**L4**), by unscrewing it from the motor piston rod.

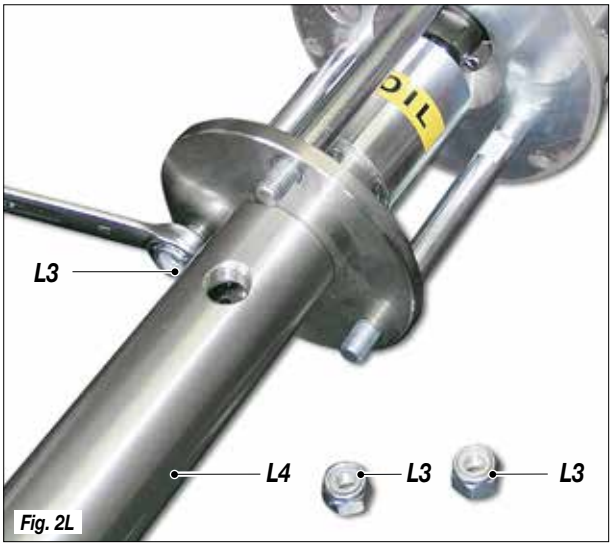


Fig. 2L

- Remove the split pin (**L5**).

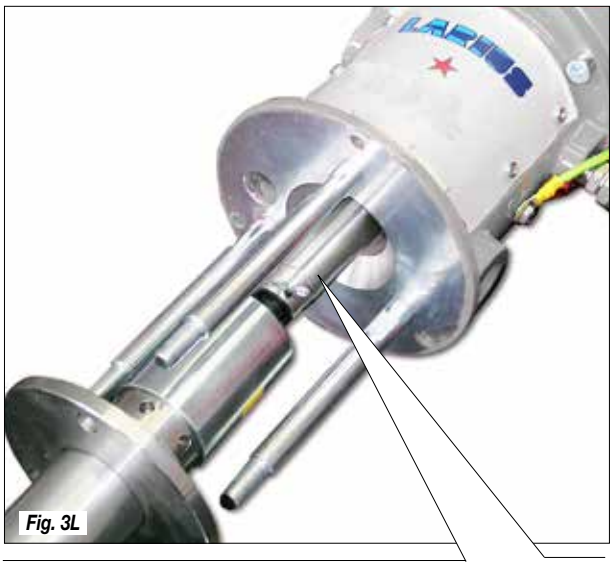


Fig. 3L

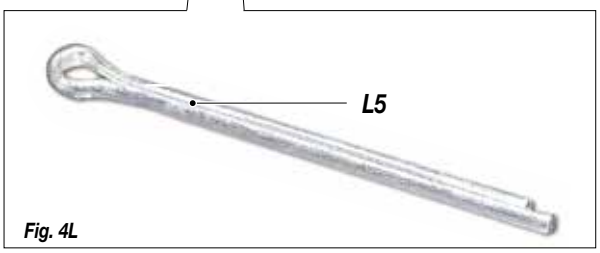


Fig. 4L

- Unscrew the gaskets ring nut (**L6**) form the pump housing. Unscrew the group of the suction valve (**L7**) .

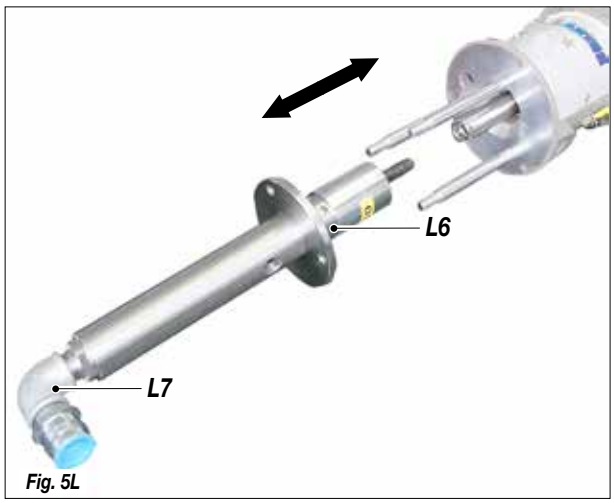


Fig. 5L

- Remove the piston (**L8**) from the pump housing and replace the gaskets, upper set (**L9**) or lower set (**L10**), respecting the assembly order of the same.

When reassembling the seat of the valve (L11) in the piston (L8) the thread shall be covered with threads braking adhesive.

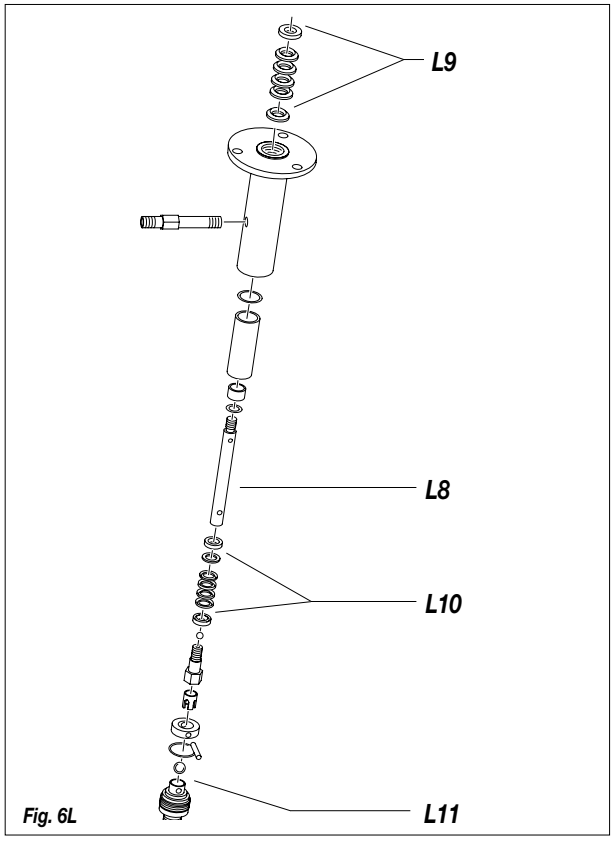


Fig. 6L

M CLEANING AND REPAIRING THE SUCTION VALVE

- If the suction valve is seized in the housing of the pump, inject oil around the thread and knock slightly around the body of the pump by means of a wooden mallet. Unscrew the valve from the pump body.

  Remove the pin (**M1**) holding the ball, as well as the ring stop (**M2**), the O-ring (**M3**), the ball (**M4**). Clean all the parts, inspect them and reassemble all the parts in the same order, by screwing the valve in its seat.

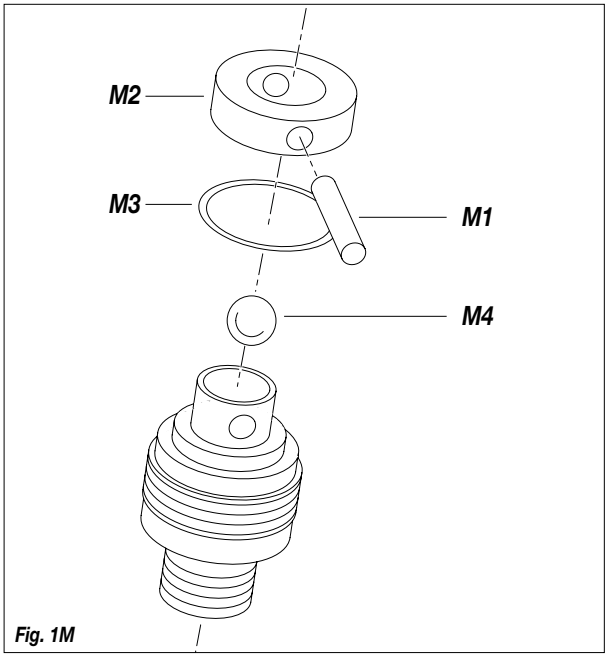


Fig. 1M

N MANUAL SERVICING OF THE PNEUMATIC MOTOR

- The pump feeding air pressure shall never be higher than the maximum value provided by the technical data sheet. Failure in respecting this value could cause the blocking of the valves of the pneumatic motor in the cycle inversion position.
- In order to restart a blocked motor, close the air feeding valve and release the air pressure in the circuit. This should allow the return of the valves in the correct position.
- Should the motor be blocked, proceed as follows:

  - close the air supply to the pump and discharge the residual pressure in the circuit;

  - unsprew the plug (**N1**) and pull it upwards together with the guide rod (**N2**), by making thus manually trig the run inversion group.

  - screw the plug.

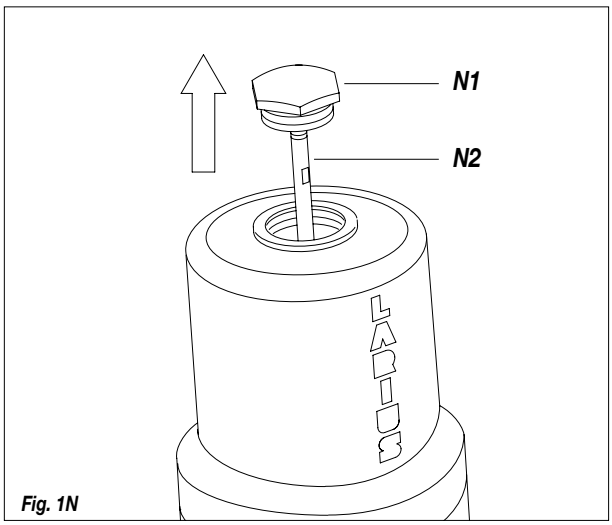


Fig. 1N

O DISASSEMBLING THE UNIT MOTOR

- Place the piston to the upper point of its run and unscrew the plug (**O1**). Block the guide rod (**O2**) with clamping pliers and replace the plug (**O1**) with a M8 nut (**O3**).

Fig. 10

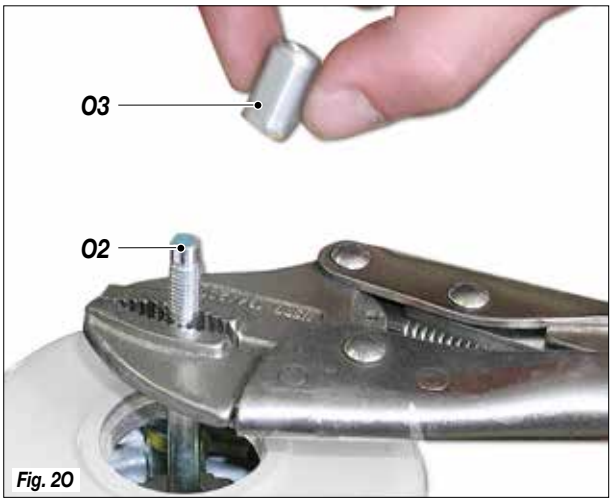


Fig. 20

- Remove the screws (**O4**).

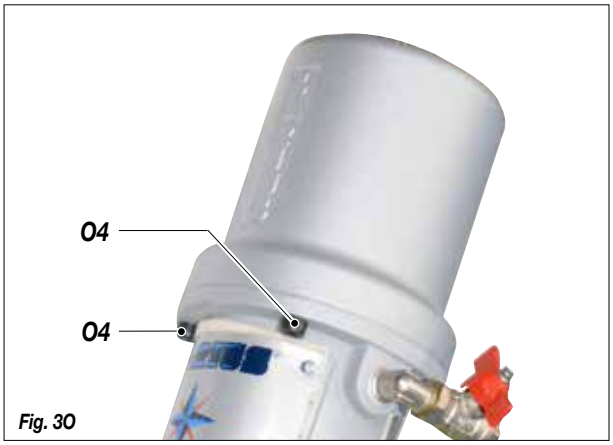


Fig. 30

- Take out the cylinder (**O5**) with the utmost care from the piston, without inclining it in order to avoid damages to the inner walls of the same.

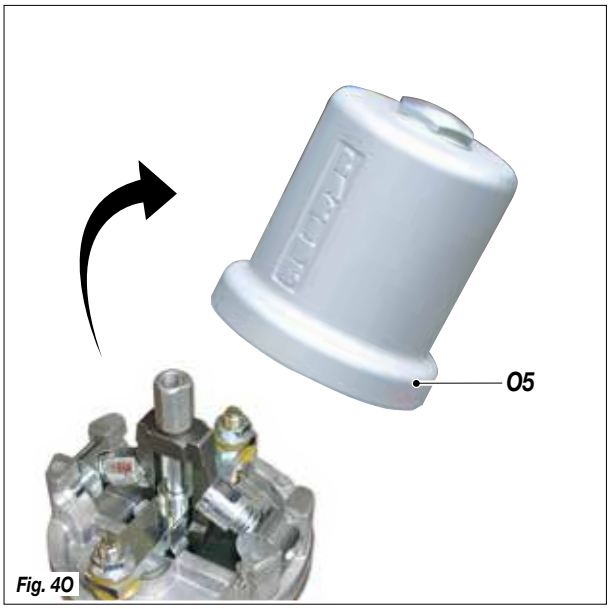


Fig. 40

- By keeping the hands far from the cross piece (**O6**), press on the rocker arm (**O7**) so that the cross piece (**O6**) trigs downwards *(drain valves closed)*.

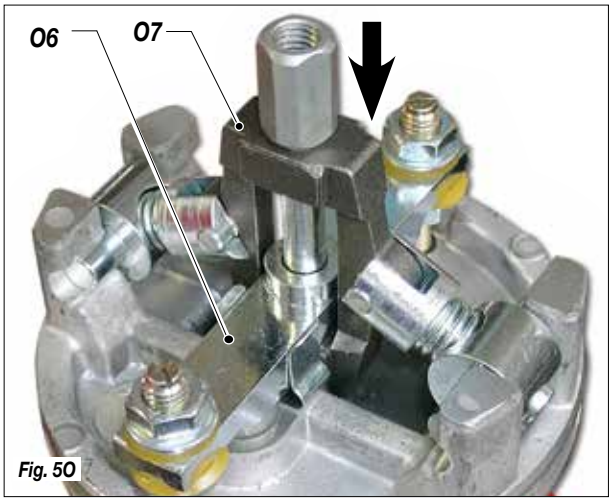


Fig. 50

- Unscrew the two counternuts (**O8**) which block the valve screws.

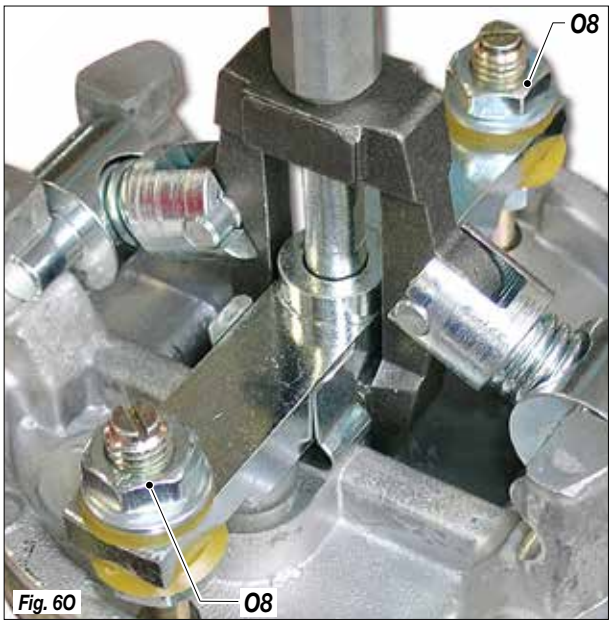


Fig. 60

- Remove the valve screws (**O9**) and check the wear condition of the gaskets (**O10**).

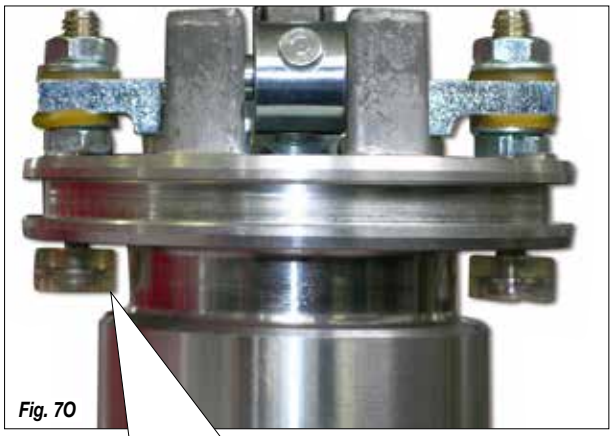


Fig. 70

Fig. 80

- Block the roller (**O11**) with the pliers and by pressing on the spring (**O12**), remove it from its seat. In this way, it will be possible to remove all the run inversion group.

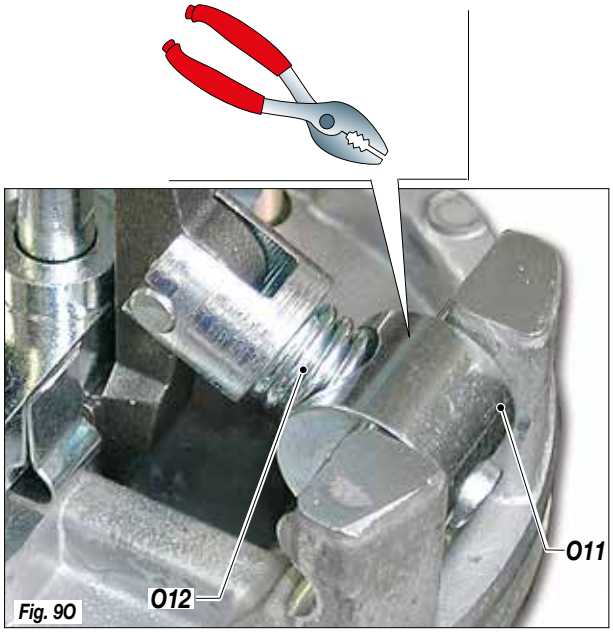


Fig. 90

- Check the condition of each piece, in particular of the gaskets (**O10**) and the O-ring (**O13**), (**O14**) and (**O15**).
  Control that the inner walls of the cylinder are not scratched.
  Before reassembling all parts, lubricate them with light and water proof grease.

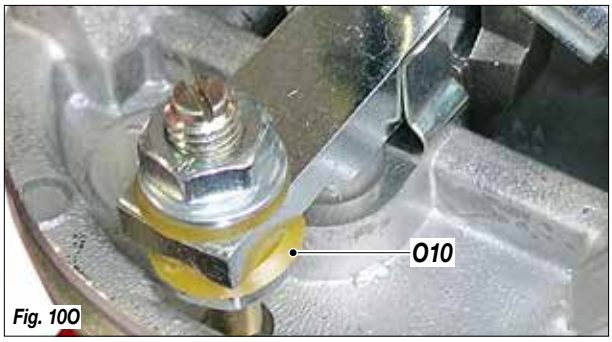


Fig. 100

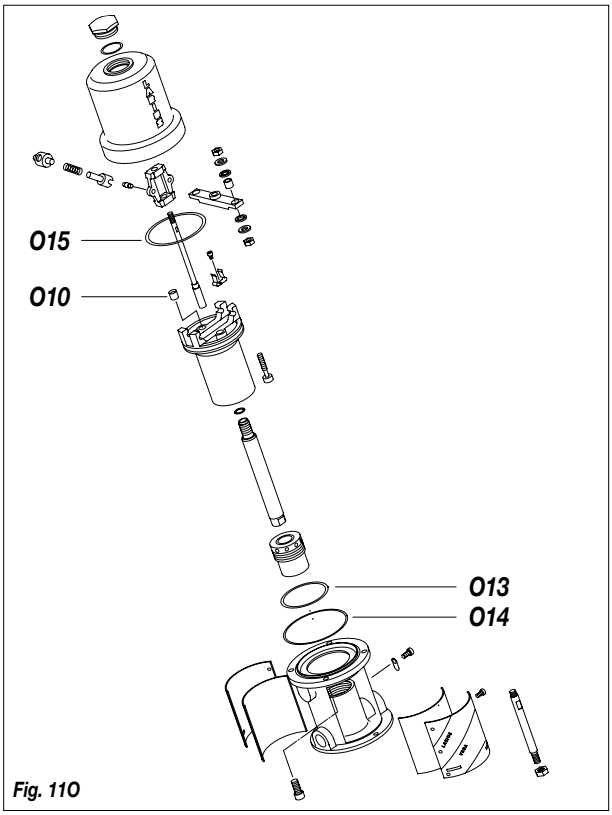


Fig. 110

- Adjust then the distance (**A**) between the gaskets and the surface of the piston. This adjustment shall be done with the cross piece (**O6**) down and it can be better done by using our special metering device.
  After having reassembled all parts, before connecting the group to the pump, test it by feeding a small quantity of air (3-4 bar).

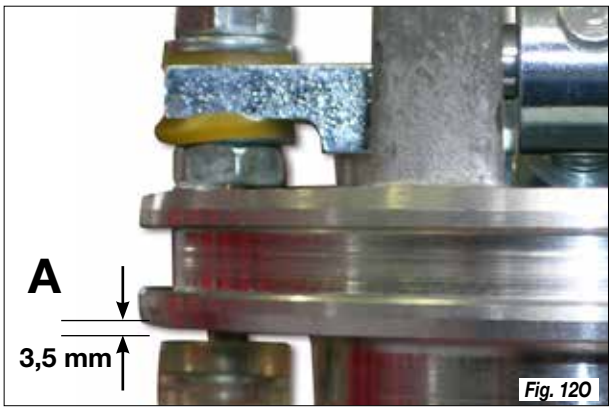


Fig. 120

- For a correct reassembly, refer to the pumping group detailed drawing, by following the disassembly instructions in reverse order.

P TROUBLESHOOTING

Faults	Possible cause	Solution
The pump does not work	Feeding air is not sufficient.	Check the air supply line. Increase the diameter of the feeding air pipe;
	Product outlet line is clogged;	Open the recirculation nozzle and check that the pump starts. Unscrew the high pressure filter and clean and/or replace the filter sieve. Clean and/or replace the gun filter;
	Product inlet line is clogged;	Clean the suction filter;
	Pneumatic motor is blocked in the position of cycle inversion;	Decrease the feeding pressure;
	Some components of the pneumatic motor are damaged ;	Manually service the pneumatic motor;
	The product is lacking;	Disassemble the motor and inspect it;
	The pump is sucking air;	Add product;
The operation of the pump is accelerated and without pressure	The gaskets of the pumping rod are worn;	Check the flexible suction hose;
	The suction valve is worn or partially clogged;	Replace the lower gaskets;
	The suction filter is clogged;	Disassemble the suction valve. Clean and/or replace any worn component.
	The suction filter is too thin;	Clean and/or replace the two discs of the suction filter;
The pump works but it does not stop when the chamber is full (the pumping unit slowly moves up and/or down)	The gaskets of the pumping shaft are worn;	Remove the fine-mesh filter disc and leave only the large-mesh filter disc.
	The suction valve is worn or partially clogged;	Replace the lower gaskets
	The feeding valve is worn or partially clogged;	Disassemble the suction valve and clean and/or replace any worn detail
	Upper gaskets are worn;	Disassemble the feeding valve and clean and/or replace any worn detail
By pressing the gun trigger, the pressure of the product highly decreases	Gun nozzle is too big or worn	Tighten the gaskets ring nut
	Gun filter and the filter sieve for product outlet are too thin	Replace it with a smaller one
		Replace them with larger-mesh filters

Before performing any inspection or replacement of the pump components, make always sure to close the compressed air supply and discharge the residual pressure in the circuit.

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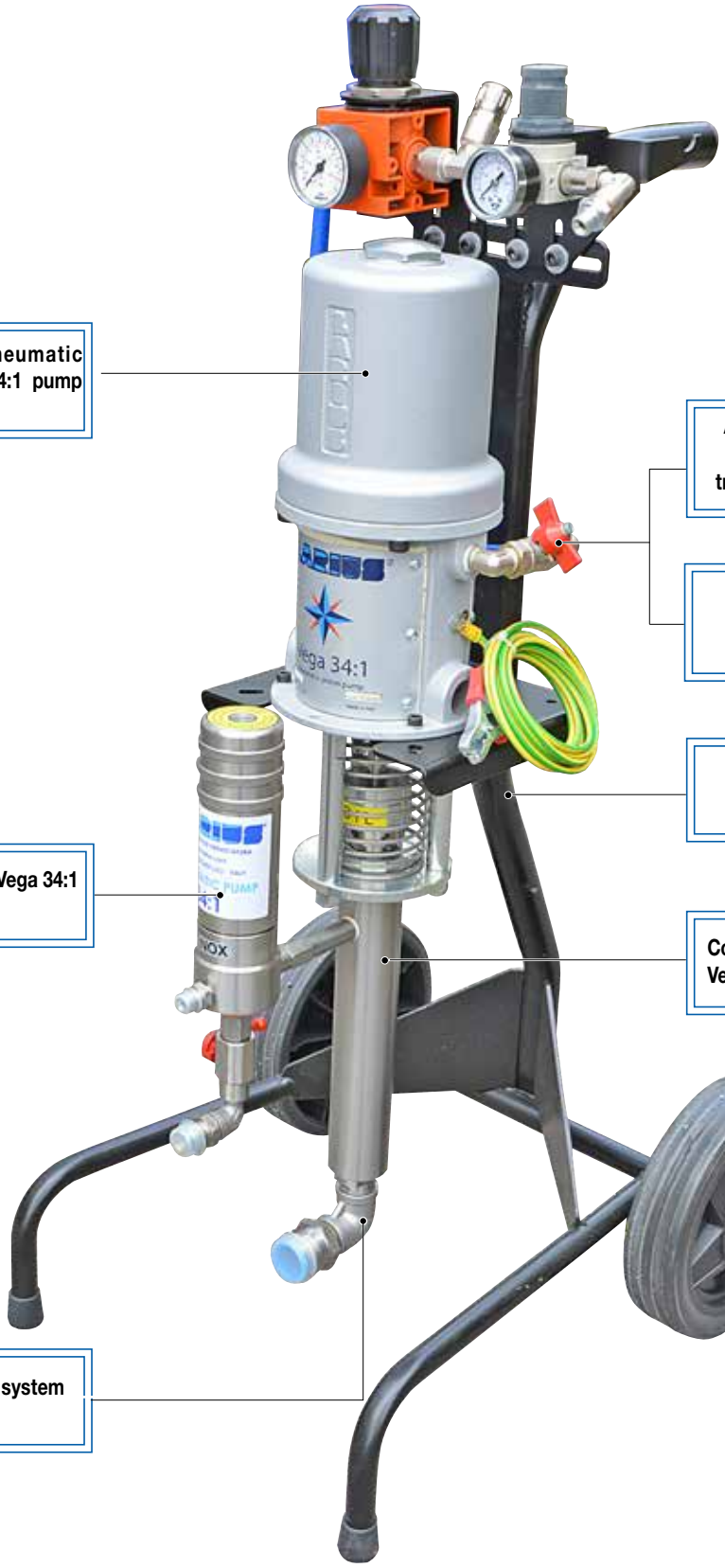
SPARE PARTS



Q Complete pneumatic motor Vega 34:1 pump

U Air regolation unit air assisted airless for trolley version *pag. 28*

T Air regolation unit airless for trolley version *pag. 29*

W Complete trolley *pag. 31*

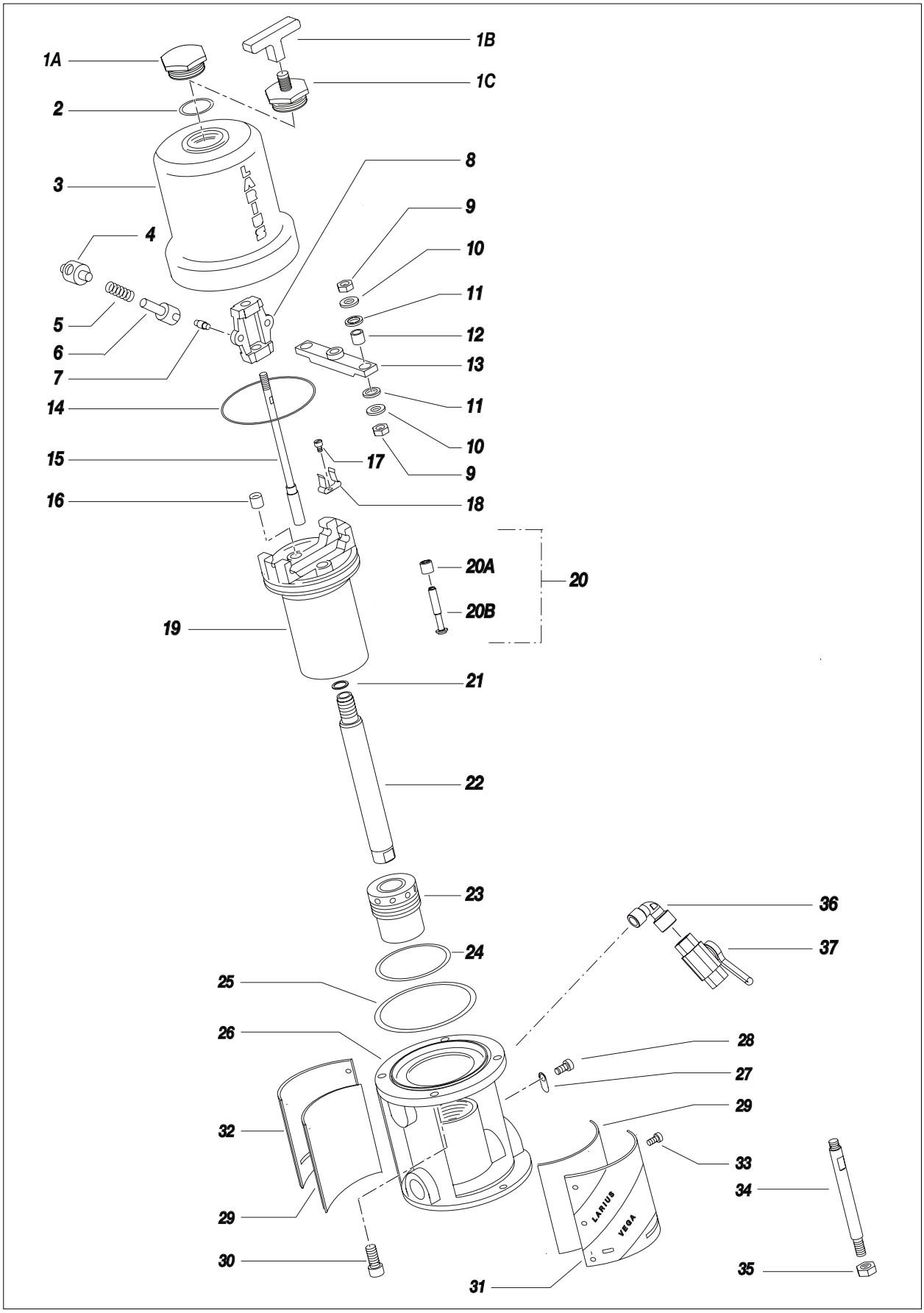
S Complete filter Vega 34:1 pump *pag. 28*

R Complete pumping unit Vega pump 34:1 *pag. 26*

V Paint suction system *pag. 32*

Q VEGA 34:1 PUMP COMPLETE PNEUMATIC MOTOR

ATTENTION: always indicate code and quantity of each requested detail



REV. 03 - 12/2020 - Cod. 150089

Pos.	Code	Description	Q. ty
	98145	**Complete pneumatic motor pump 34:1 for base version**	-
	98144	**Complete pneumatic motor pump 34:1 for trolley version**	-
1A	96001	Handle cap trolley version	1
1B	91602	Handle base version	1
1C	91603	Plug base version	1
2	95075	O-Ring	1
3	91028	Cylinder motor	1
4	96005	Roller	2
5	96006	Spring	2
6	96007	Fork	2
7	96024	Fork gudgeon	2
8	96008	Rocker lever	1
9	4108	M8 Nut	4
10	32024	Washer	4
11	96111	Gasket	4
12	96112	Bushing	2
13	91029	Cross piece	1
14	91034	O-Ring	1
15	91033	Guide	1
16	96009	Rubber valve	2
17	91030	M3 screw	2
18	91032	Cross piece guide spring	2

Pos.	Code	Description	Q. ty
19	91035	Motor piston	1
20	96027	Complete valve screw	2
20A	96014	Rubber valve	1
20B	96015	Valve screw	1
21	91036	Washer	1
22	91043	Piston rod	1
23	96017	Complete washer	1
24	91037	O-ring	1
25	91038	O-ring	1
26	91042	Motor support	1
27	96210	Grounding plate	1
28	96211	M6 screw	1
29	96340	Felt gasket	2
30	34008	M8 screw	4
31	91039	Front label	1
32	98666	Upper label	1
33	56444	M4 screw	12
34	96072	Tie rod	3
35	96080	M10 Nut	3
36	96214	Elbow 3/8”	1
37	91101	Ball valve	1
38	5010	Grounding cable	1
39	19557	Atex plate	1
40	8045	‘Cut warning’ plate	1

MOTOR GASKET KIT - CODE 40040

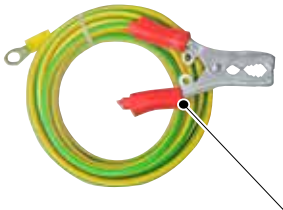
Pos.	Description	Q. ty
2	O-Ring	1
11	Gasket	4
14	O-Ring	1
16	Rubber valve	2
20	Complete valve screw	2
24	O-Ring	1
25	O-Ring	1

MOTOR MOVEMENT INVERSION DEVICE VEGA-GHIBLI - CODE 40401

Pos.	Description	Q. ty
5	Spring	2
6	Fork	2
7	Fork gudgeon	2

FELT GASKET KIT - CODE 40042

Pos.	Description	Q. ty
29	Felt gasket	2



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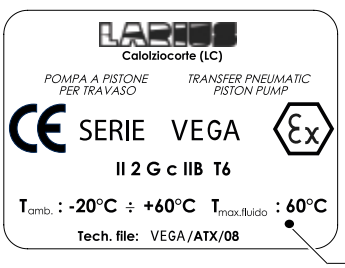

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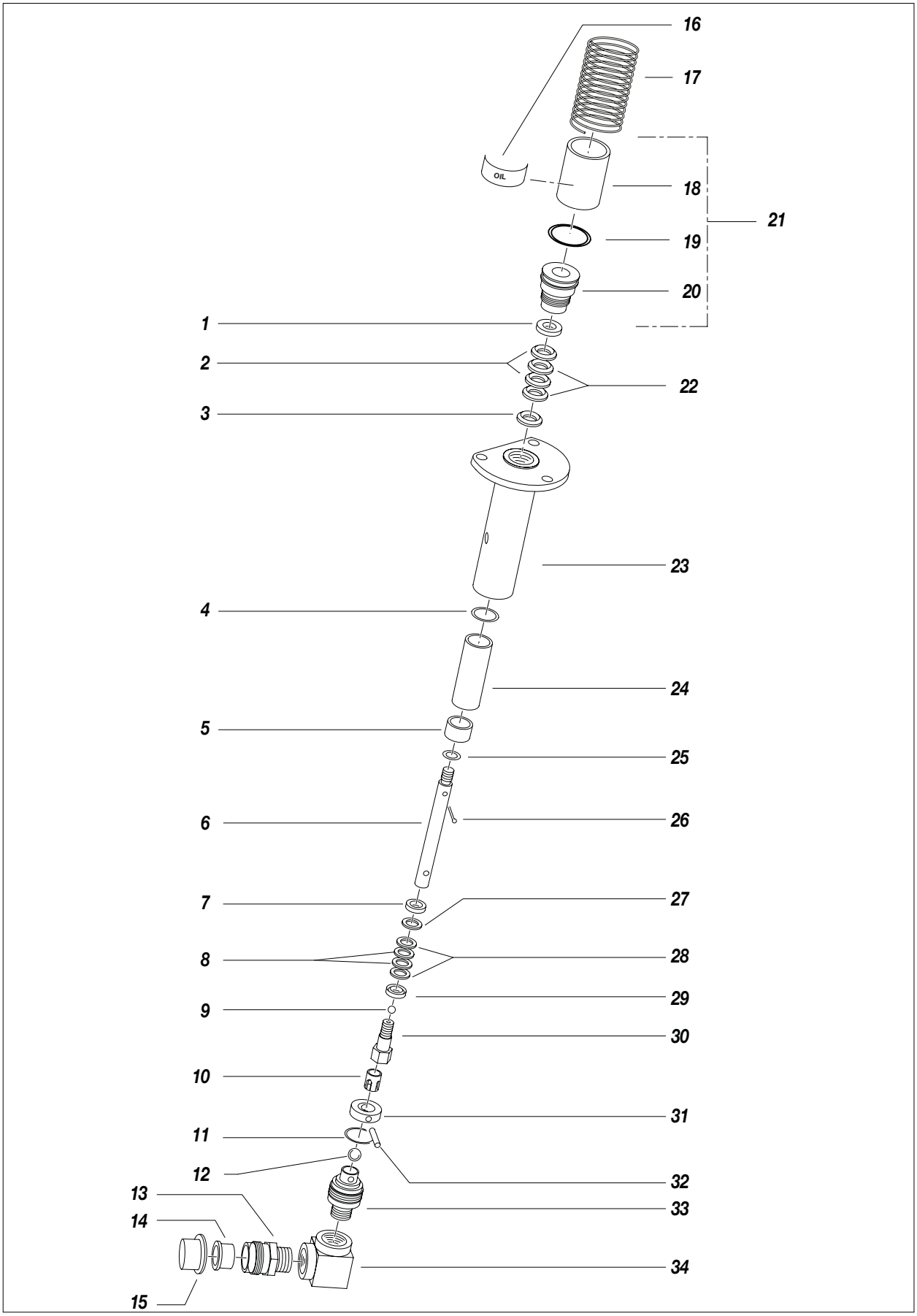
R VEGA 34:1 PUMP COMPLETE PUMPING UNIT

ATTENTION: always indicate code and quantity of each requested detail.



Pos.	Code	Description	Q. ty
	98650	**Complete pumping unit**	-
1	98655	Female V ring	1
2	98657	Polyethylene gasket	2
3	98658	Male V ring	1
4	96083	Gasket	1
5	91513	Thickness	1
6	98652/1	Piston rod	1
7	98654	Washer	1
8	98660	PTFE gasket	2
9	96090	Ø5/16* Ball	1
10	98466	Ball guide	1
11	96093	O-ring	1
12	96094	Ø1/2* Ball	1
13	98376	Suction hose fitting	1
14	96099	Bushing	1
15	100	Plug	1
16	98455	'OIL' label	1
17	96023	Spring	1

Pos.	Code	Description	Q. ty
18	91001/1	Oil cup	1
19	3429	O-ring	1
20	98506	Gaskets ring nut	1
21	91001	Complete cup	1
22	98656	PTFE gasket	2
23	98651	Pumping unit housing	1
24	91008	Liner	1
25	3323	O-ring	1
26	98662	Split pin	1
27	98661	Male V ring	1
28	98659	Polyethilene gasket	2
29	98663	Female V ring	1
30	98368	Valve steam	1
31	98370	Ring	1
32	98373	Ball locking pin	1
33	98374	Suction valve	1
34	96233	Elbow	1

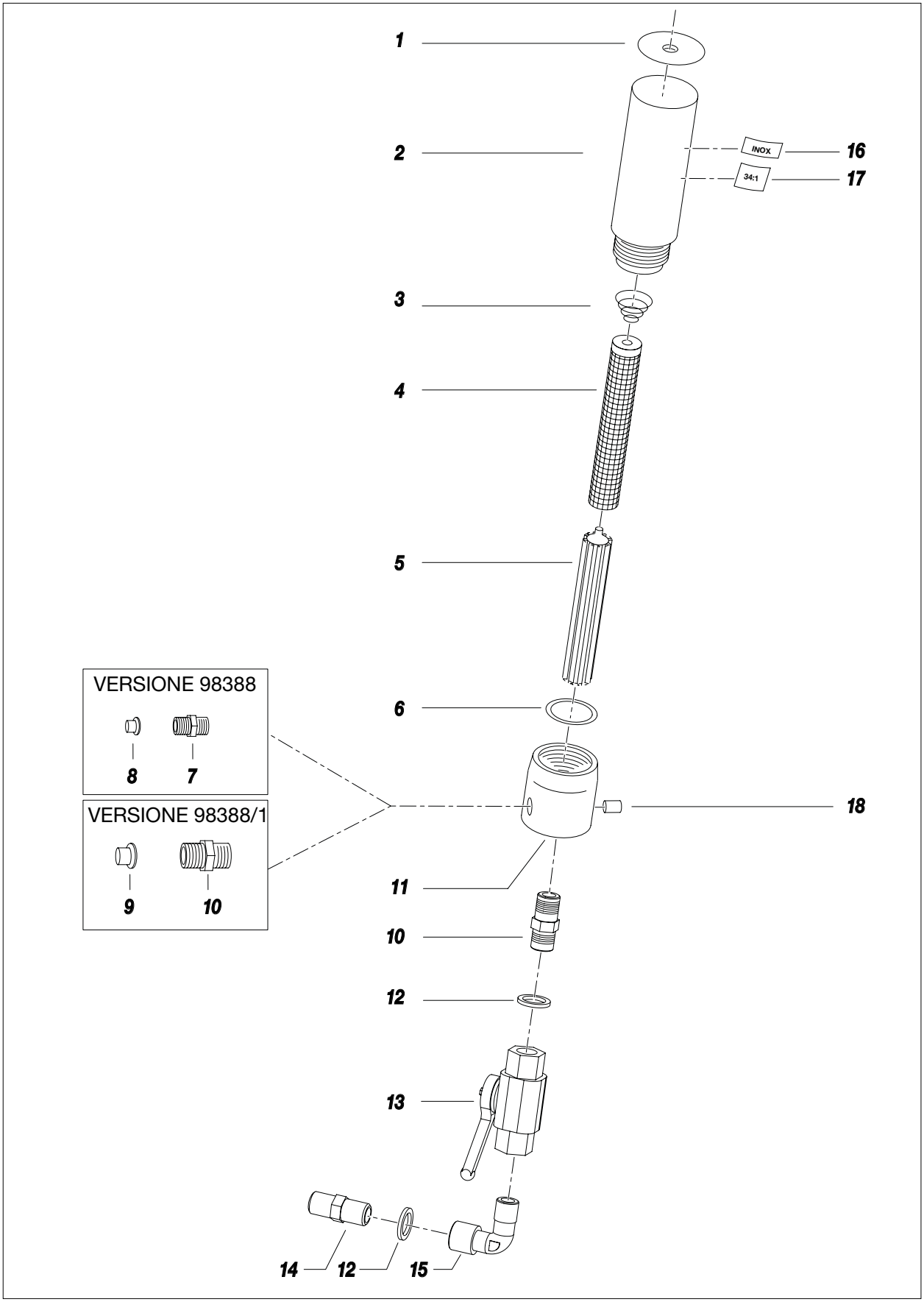
SPARE KIT - CODE 400046

Pos.	Description
1	Female V ring
2	Polyethylene gasket
3	Male V ring
10	PTFE gasket
11	Ø5/16* Ball
13	O-ring

Pos.	Description
14	Ø1/2* Ball
24	PTFE gasket
28	Split pin
29	Male V ring
30	Polyethilene gasket
31	Female V ring

S VEGA 34:1 PUMP COMPLETE FILTER

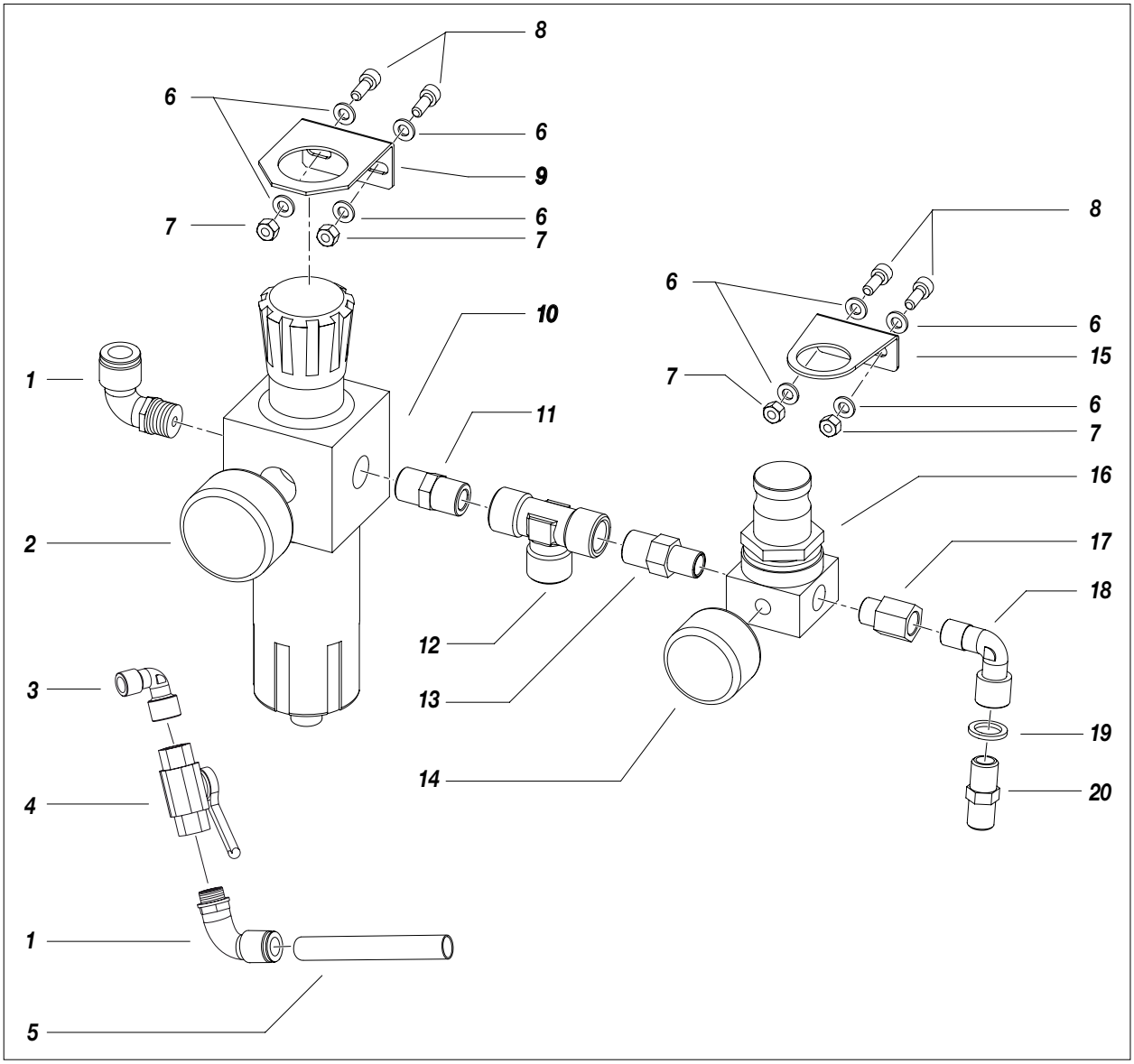
ATTENTION: always indicate code and quantity of each requested detail.



Pos.	Code	Description	Q. ty
	98388	**Complete line filter outlet M16x1,5 Airless version**	**-**
	98388/1	**Complete line filter outlet Gj 1/4 Air assisted airless version**	-
1	10107	Etichetta avvertenze	1
2	98384	Filter tank	1
3	96202	Sieve spring	1
	95221	Filter sieve 200m	1
4	95220	Filter sieve 100m	1
	95219	Filter sieve 60m	1
5	96207	Sieve support	1
6	96203	O-ring	1
7	98383	1/4” gas-16x1,5 nipple	1
8	110	M16x1,5 plug	1
9	104	Gj 1/4” plug	1
10	3110	Adapter 1/4” con-cil Air assited airless version	1
11	98380	Filter base	1
12	33012	Copper gasket 1/4”	2
13	98325	Ball valve 1/4”	1
14	96065	Adapter 1/4” - M20x2	1
15	98377	Elbow MF 1/4”	1
16	10112	‘INOX’ label	1
17	65325	‘34:1’ label	1
18	98386	Plug	1

T AIR REGULATION UNIT AIR ASSISTED AIRLESS FOR TROLLEY VERSION Ref. 91055/1

ATTENTION: always indicate code and quantity of each requested detail.

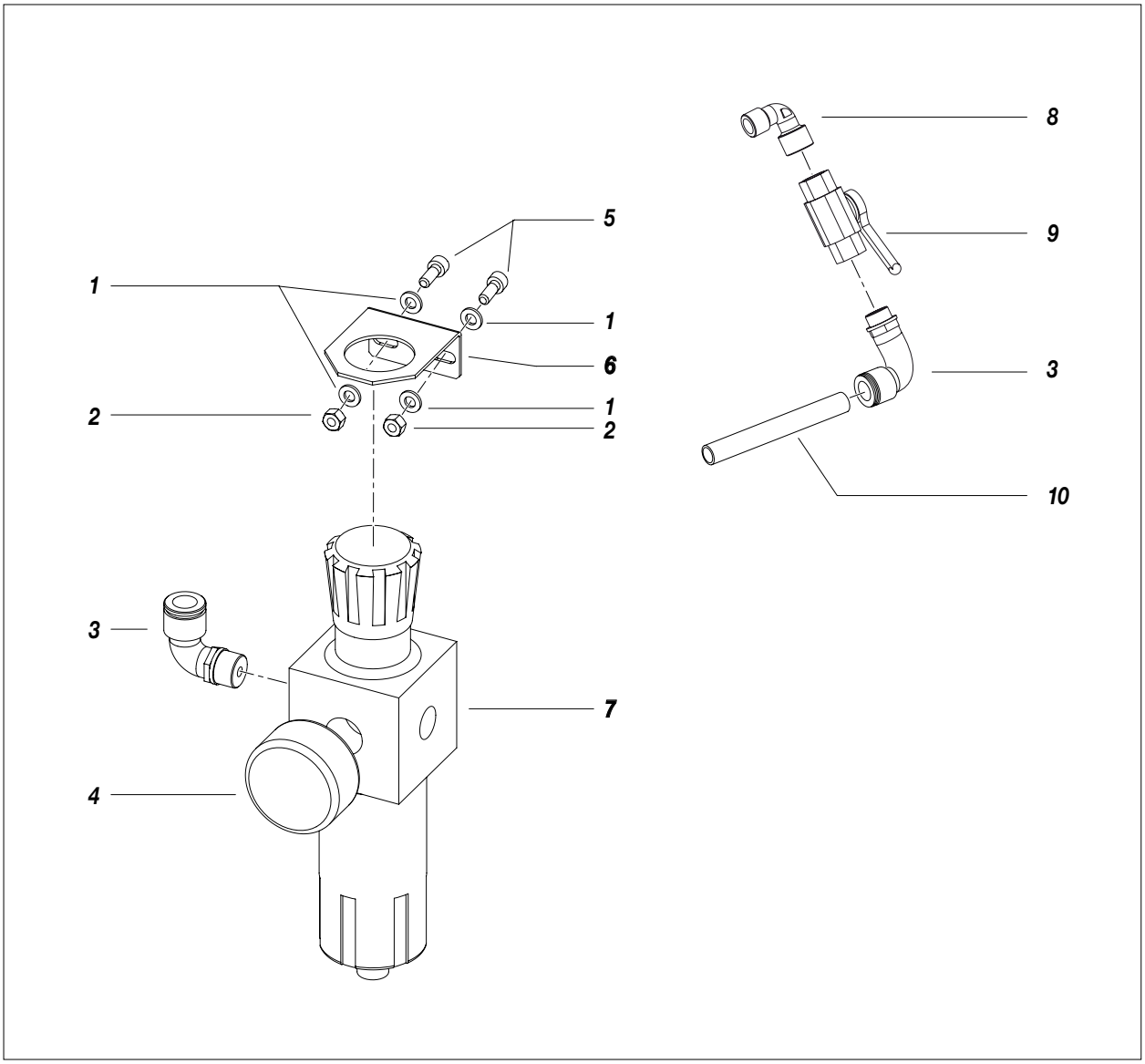


Pos.	Code	Description	Q. ty
	91055/1	**Complete unit**	-
1	96216	3/8 tube Ø 12 quick coupling	2
2	96259	Manometer	1
3	96214	Elbow 3/8”	1
4	91101	Ball valve	1
5	96217	Tube	1
6	510068	Ø 6 washer	8
7	91026	UNI 5588 M6 nut	4
8	91062	TCE UNI5931 M6x22 screw	4
9	98664	Bracket	1
10	91736	Pressure regulator	1

Pos.	Code	Description	Q. ty
11	91020	3/8 mm conic adapter	1
12	3379	3/8 “T” female fitting	1
13	3560	3/8 1/4 mm CON-CON adapter	1
14	8167	Manometer	1
15	98665	Pressure gauge bracket	1
16	3344	Air regulator	1
17	8055/1	1/4 MF adapter	1
18	5255	MF 1/4 elbow	1
19	33012	1/4 cupper gasket	1
20	3289	1/4 mm adapter	1

U AIR REGULATION UNIT AIRLESS FOR TROLLEY VERSION Ref. 91019/1

ATTENZIONE : per ogni particolare richiesto indicare sempre il codice e la quantità.

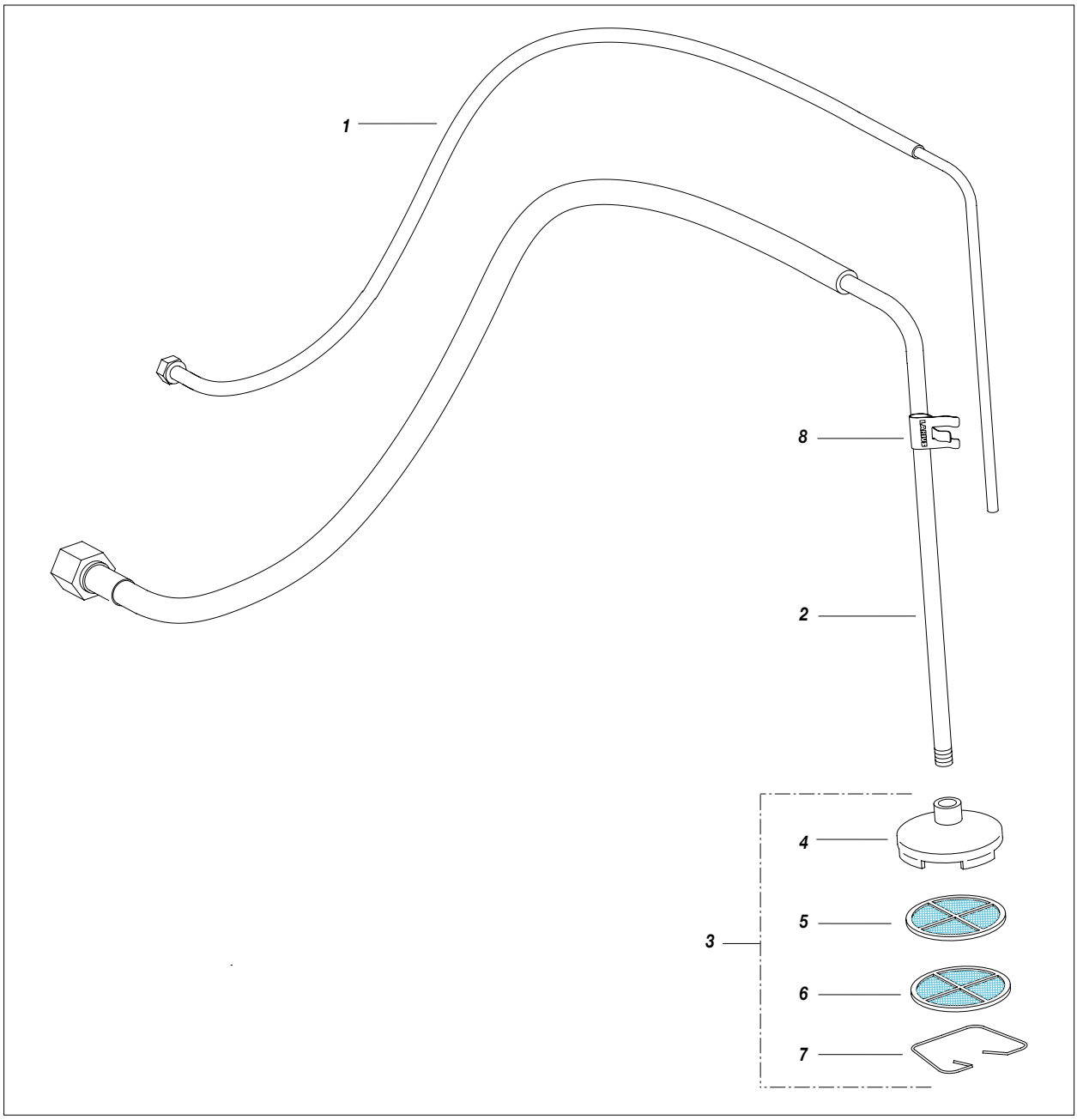


Pos.	Code	Description	Q. ty
	91019/1	**Complete unit**	-
1	510068	Ø 6 washer	4
2	91026	UNI 5588 M6 nut	2
3	96216	3/8 tube Ø 12 quick coupling	2
4	96259	Manometer	1
5	91062	TCE UNI5931 M6x22 screw	2

Pos.	Code	Description	Q. ty
6	98664	Bracket	1
7	91736	Group RL 3/8 + bracket	1
8	96214	Elbow 3/8”	1
9	91101	Ball valve	1
10	96217	Tube	1

V PAINTS SUCTION SYSTEM Ref. 16611

ATTENTION: always indicate code and quantity of each requested detail.

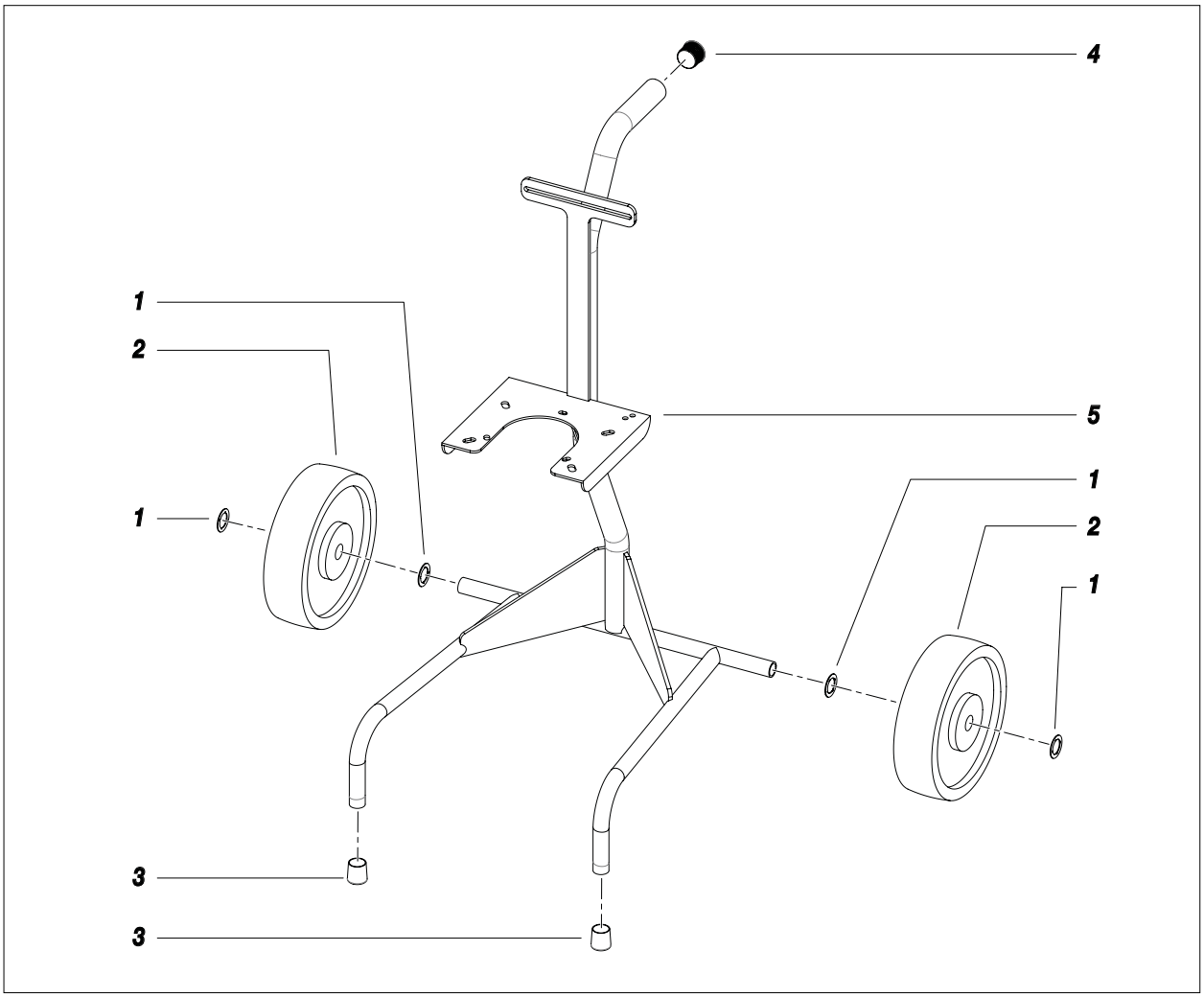


Pos.	Code	Description	Q. ty
	16611	**Paints suction system with stainless steel suction tubes**	-
1	16613	Split recirculation tube	1
2	16612	Suction hose complete with filter with split suction unit	1
3	35020	Together foot filter	1

Pos.	Code	Description	Q. ty
4	35005/1	Filter tank	1
5	35006	Thin filter disc (80 mesh)	1
6	35007/1	Thick filter disc (25 mesh)	1
7	35008	Spring	1
8	18095	Clip-spring	1

W COMPLETE TROLLEY Ref. 96320/1

ATTENTION: always indicate code and quantity of each requested detail.



Pos.	Code	Description	Q. ty
	96320/1	**Complete trolley**	-
1	91047	Washer	4
2	91023	Wheel	2

Pos.	Code	Description	Q. ty
3	21653	Feet	2
4	95159	Stopper	1
5	8018	Trolley	1

ATEX CERTIFICATION

**SAFETEY INSTRUCTIONS FOR THE USE OF
PISTON PNEUMATIC TRANSFER PUMPS VEGA SERIES
IN POTENTIALLY EXPLOSIVE ENVIRONMENTS
IN PRESENCE OF GAS OR VAPOURS.**

X DESCRIPTION

This safety instructions refer to the installation, use and maintenance of *LARIUS* piston pneumatic transfer pumps **VEGA** series for the use in potentially explosive areas in presence of gas or vapours.

***LARIUS* piston pneumatic transfer pumps VEGA series are mechanical equipment belonging to group II, for the use in areas in presence of gas which are classified as IIB *(category 2 G)*. They have been designed and manufactured in compliance with the directive ATEX 94/9/CE, according to european standards EN 1127-1, EN 13463-1ed EN 13463-5.**

These instructions should be followed in addition to the instructions provided in the use and maintenance manual.

Y TECHNICAL FEATURES

The main characteristics of piston pneumatic transfer pumps **VEGA** serie are indicated in the table below:

Type		Ratio	Supplied pressure	Ø Air inlet	Ø Product feeding	Ø Product outlet	Max operation pressure	MAx rate
Standard	St. steel							
91360	91362	5:1	3 ÷ 8 bar	GC 3/8"	Ball valve	GC 3/4”	40 bar	10 l/min
91365	91361	5:1	3 ÷ 8 bar	GC 3/8"	Ball valve	GC 3/4”	40 bar	10 l/min
91368	91363	5:1	3 ÷ 8 bar	GC 3/8"	Ball valve	GC 3/4”	40 bar	10 l/min
91501	91503	23:1	3 ÷ 8 bar	GC 3/8"	Ball valve	GC 3/8"	184 bar	2,6 l/min
91910	-	45:1	3 ÷ 8 bar	GC 3/8"	Washer	GC 3/8"	360 bar	1 l/min
91911	-	45:1	3 ÷ 8 bar	GC 3/8"	Washer	GC 3/8"	360 bar	1 l/min
91912	-	45:1	3 ÷ 8 bar	GC 3/8"	Washer	GC 3/8"	360 bar	1 l/min

Max number of cycles per minute: 60
Room temperature: -20°C÷ +60°C
Fluid max temperature: [°C]: 60°C

Z MARKING

CE ⟨Ex⟩ II 2 G c IIB T6 T_{amb}: -20°C ÷ + 60°C $T_{max.}$ fluid: 60°C Tech. File: VEGA/ATX/08

II	Group II (surface)
2	Grade 2 (zone 1)
G	Explosive environment with gas, vapour or mist
c	Constructive safety "c"
T6	Class of temperature T6
- 20°C ÷ + 60°C	Room temperature
60°C	Max temperature of process fluid
xxxxx/AA	Series number or lot number (xxxxx = PROGRESSIVE / year = AA)

Correspondence between dangerous areas, substances and grade

DANGEROUS AREA		GRADE ACCORDING TO DIRECTIVE 94/9/CE
Gas, vapour or mist	Area 0	1G
Gas, vapour or mist	Area 1	2G or 1G
Gas, vapori o ,ist	Area 2	3G, 2G or 1G

AA SAFETY INSTRUCTIONS FOR THE INSTALLATION IN DANGEROUS AREAS

Before installation please read carefully the use and maintenance manual. All maintenance operations must be carried out as reported in the manual.

- The grounding cable of these pumps must be connected by means of suitable electrical connector.
- The feeding and suction hoses should be metal pipes, or plastic pipes with metal braid or plastic pipes with textile braid equipped with a suitable grounding conductor.
- Pumps must be installed on containers made of metal or antistatic material,duly grounded.
- Gas or vapour rising from flammable liquids shall belong to the group IIB.
- The user must periodically control the presence of foulings, the cleaning and wear conditions and the proper operation of the pump, according to the type and use of the product
- The user should periodically clean the suction filter in order to prevent foreign matters entering into the pump. The air used to supply power to the pump must be filtered and come from a safe area *(SAFE AREA)*.

The pneumatic piston pumps VEGA series must not run dry.

All installation and maintenance operations must be performed by qualified personnel.

INERIS

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 VEGA**

Marquage/ Marking / Marcatura : Ex II 2G

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 chapiter 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 : VEGA/ATX/08 dated 2008-12-15
est consignée sous le numéro d'enregistrement :
n° INERIS-EQEN 021760/19.
Dans le cadre de cet enregistrement, l'INERIS n'a pas examiné le contenu de la documentation technique.

The technical documentation referenced : VEGA/ATX/08 dated 2008-12-15
is consigned under the reference :
no INERIS-EQEN 021760/19.
Within the scope of the recording, INERIS did not examine the contain of the technical documentation.

La documentazione tecnica di riferimento : VEGA/ATX/08 dated 2008-12-15
è depositata con il numero di registrazione :
n° INERIS-EQEN 021760/19.
Nel quadro di questa registrazione, INERIS non ha examinato 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

ATMOSPHERES EXPLOSIVES ORGANISME NOTIFIE INERIS NOTIFIED BODY EXPLOSIVE ATMOSPHERES

Le Directeur Général de l'INERIS, Par délégation,
Thierry HOUEIX
Délégué Certification ATEX
Ex Certification Officer

The Chief Executive Officer of INERIS, By delegation,

Il Direttore generale dell' INERIS, Per Delega,

MA-142148 - Mise en application : 20/04/2016

Parc Technologique Alata BP 2 F-60550 Verneuil-en-Halatte
tél. +33(0)3 44 55 66 77 fax +33(0)3 44 55 66 99 internet www.ineris.fr
Institut national de l'environnement industriel et des risques
Etablissement public à caractère industriel et commercial - RCS Compiègne B 381 984 924 - Siret 381 984 921 00019 - APE 7120B - TVA intracom FR 73 381 984 921

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 resonsibility that the product:

VEGA 34:1
Airless/Air assisted airless pneumatic pump

complies with the directives:	**- EC Directive 2006/42 Machinery Directive**
furthermore to the harmonized standards:	**- UNI ENI ISO 12100-1/-2** **Machinery safety, basic concepts, general principles of design. Basic terminology, methodology. Technical principles.**

This declaration relates exclusevely 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

Calolziocorte, 15 June 2020
Location / Date

Pierangelo Castagna
Managing Director

LARIUS srl
Via Antonio Stoppani 21 - 23801 Calolziocorte (LC) ITALY
TEL. +39 0341 621152 - Fax +39 0341 621243 - larius@larius.com

www.larius.com