

G.P.V. 1500 / 1000

Instruction, Use and Maintenance Manual
- translation of the original instructions



InterPuls S.p.A.
Via F. Maritano, 11 - 42020 - Albinea (RE) – ITALY
Tel. +39 0522 347511
Fax. +39 0522 348516
sales@interpuls.com



MANUFACTURER	InterPuls S.p.A.
ADDRESS	Via: F. Maritano, 11 Postal code: 42020 - Albinea (RE) – ITALY Tel.: +39. 0522 347511 Fax.: +39. 0522 348516 Website: www.interpuls.com E-mail: sales@interpuls.com
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1. GENERAL INFORMATION AND SAFETY WARNINGS

Important warnings

To safeguard the operator and prevent any damage to the equipment, before carrying out any kind of operation it is important to have read and fully understood the instruction manual.

Symbols used in this manual

The following symbols are used in this manual to highlight indications and warnings which are of particular importance:



WARNING:

This symbol indicates health and safety regulations designed to protect operators and/or any exposed persons.



CAUTION:

This symbol indicates that there is a risk of causing damage to the equipment and/or its components.



NOTE:

This symbol is used to highlight useful information.

Rules and regulations for the user



WARNING

Any failure to observe the warnings provided in this manual may lead to equipment malfunctions or damage to the system.

Limitation of liability

InterPuls S.p.A. declines all liability for damage to persons, animals and/or things caused by incorrect use of the equipment.

2. PRIOR TO USING THE PRODUCT

Requirements and regulations for personnel



WARNING

Before using the device, the operator must read the manual carefully.

- The device may only be used by persons over the age of 18 who are physically and psychologically fit and have received adequate training and instructions with regards to its operation.
 - During the phases of assembly and activation of the device, it is necessary to follow the instructions provided in the manual as well as the standards and regulations in force concerning health and safety in the workplace.
-

3. DISPOSAL

General regulations

The appliances must be disposed of only and exclusively by specially authorized waste disposal companies in accordance with all relative legislation and prescriptions.

The packaging must be consigned to the relative authorized companies to be recycled.

4. FIRE PREVENTION

Foreword



NOTE

The machine is not equipped with fire extinguishers.

The operator must make sure that the place in which the appliance is installed is equipped with an adequate number of suitable fire extinguishers. The extinguishers must be positioned where they are clearly visible and protected from damage and improper use.

Safety regulations



WARNING

It is strictly prohibited to extinguish fires involving electrical equipment with water!

Characteristics of extinguishers

Use powder, foam or halogen extinguishers which must be positioned next to the device.

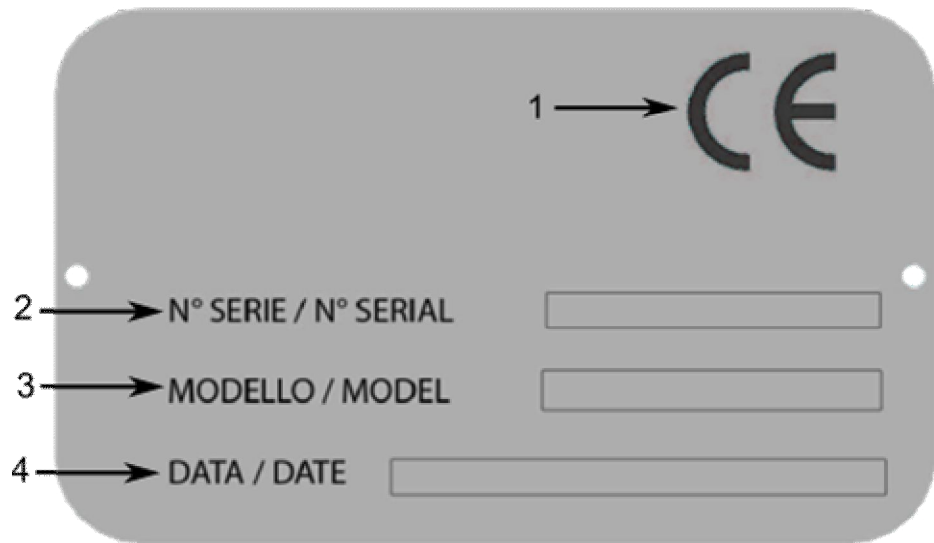
Operating personnel must receive adequate instructions on how to use the extinguishers.

5. NORMATIVE REFERENCES APPLIED

- Directive 2006/42/EC
- Directive 2004/108/EC

6. MARKING

Dataplates affixed to the machine



Key

1. CE Mark
 2. Serial number: 900AAXXX
900: InterPuls product series
AA: Last two digits of the year in which the machine was built in
XXXX: Progressive identification number of the machine (numbering starts from 0001 at the beginning of each year)
 3. Type of machine
 4. Year of machine construction
-










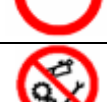


7. SAFETY DECALS

The following safety decals are found on the machine



WARNING

The removal or damaging of safety decals is strictly prohibited.

	Danger
	Read the manual carefully
	Risk of electrocution
	Risk of high temperature
	Do not hit with water jets
	Read the manual before using the machine
	Before any action on the machine to remove the power supply
	Keep hands away from pulleys and belts when they are in fuction
	Weekly check the oil level. if the pump should run without oil it would be exposed to risk of damage
	Check that the number speed and direction of rotation of the shaft match the information that there are on the machine
 	The maintenance, clearing, or other casual operations should be done when the machine is off. Protections must be temporarily removed and then again correctly reinstalled

8. MACHINE DESCRIPTION

General information

The vacuum pump is substantially composed by a stator which is mounted eccentrically inside a rotor supported by two bearings mounted on the pump flanges.

The bearings are lubricated by the oil that is sucked into the pump only when it is set in motion by an electric motor and then creates a vacuum internal to the pump.

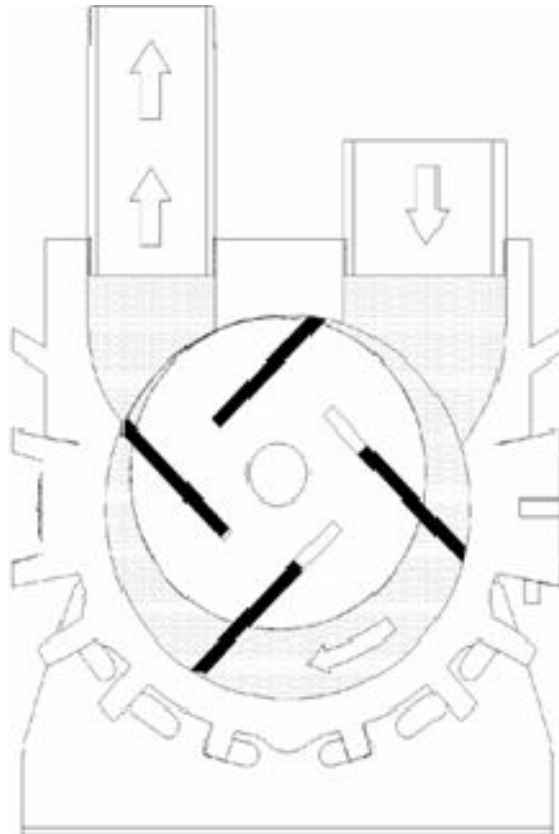
With the rotation of the rotor, these are pushed out and make sure that the air moves from the tank outside the plant forming a vacuum.

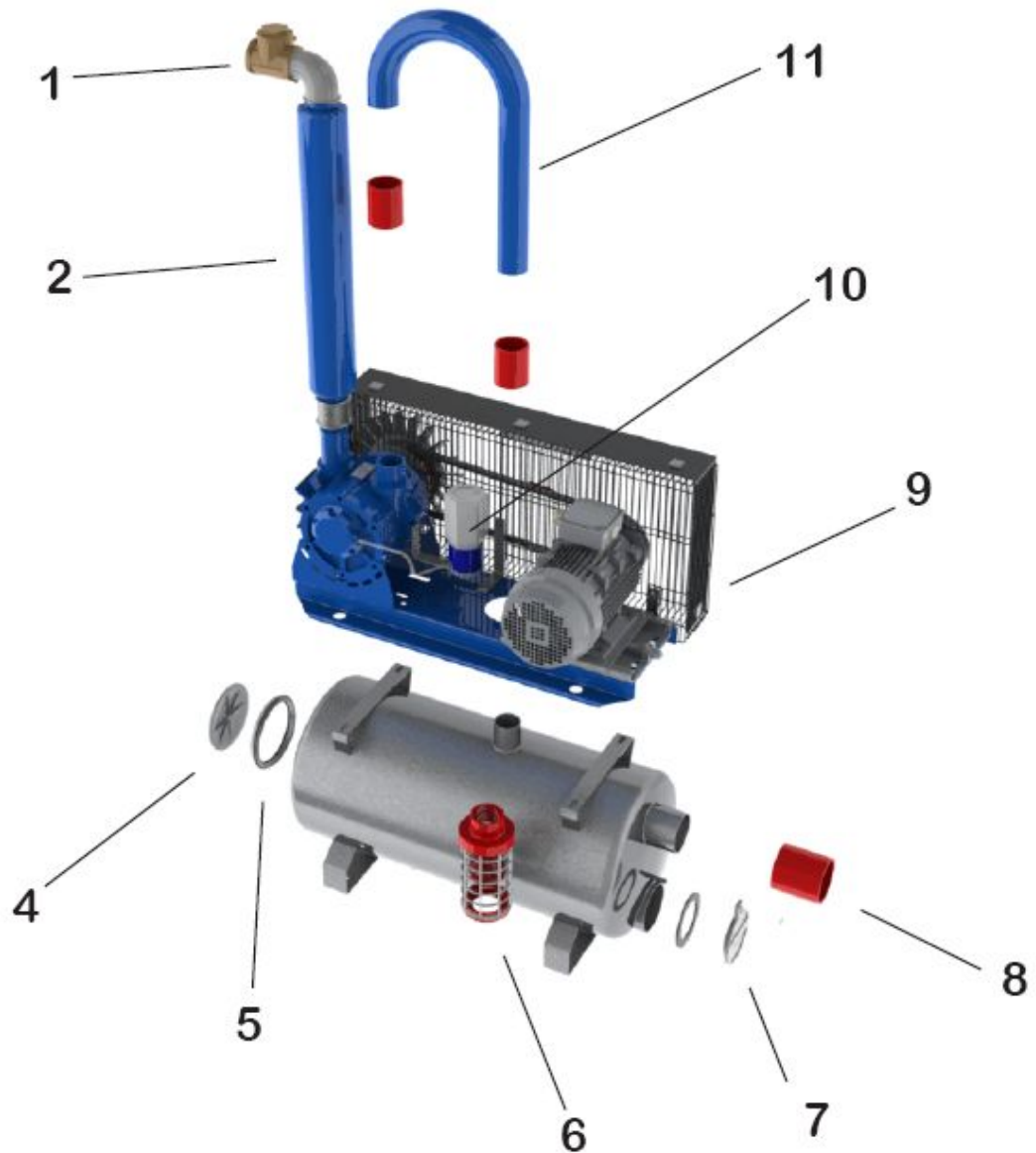
Varying the size of the pump pulley you can get a greater or lesser number pump revolutions, so you have more or less N.L / min.



WARNING

Strict adherence to the of-dimensions of the pulleys formed by the company.

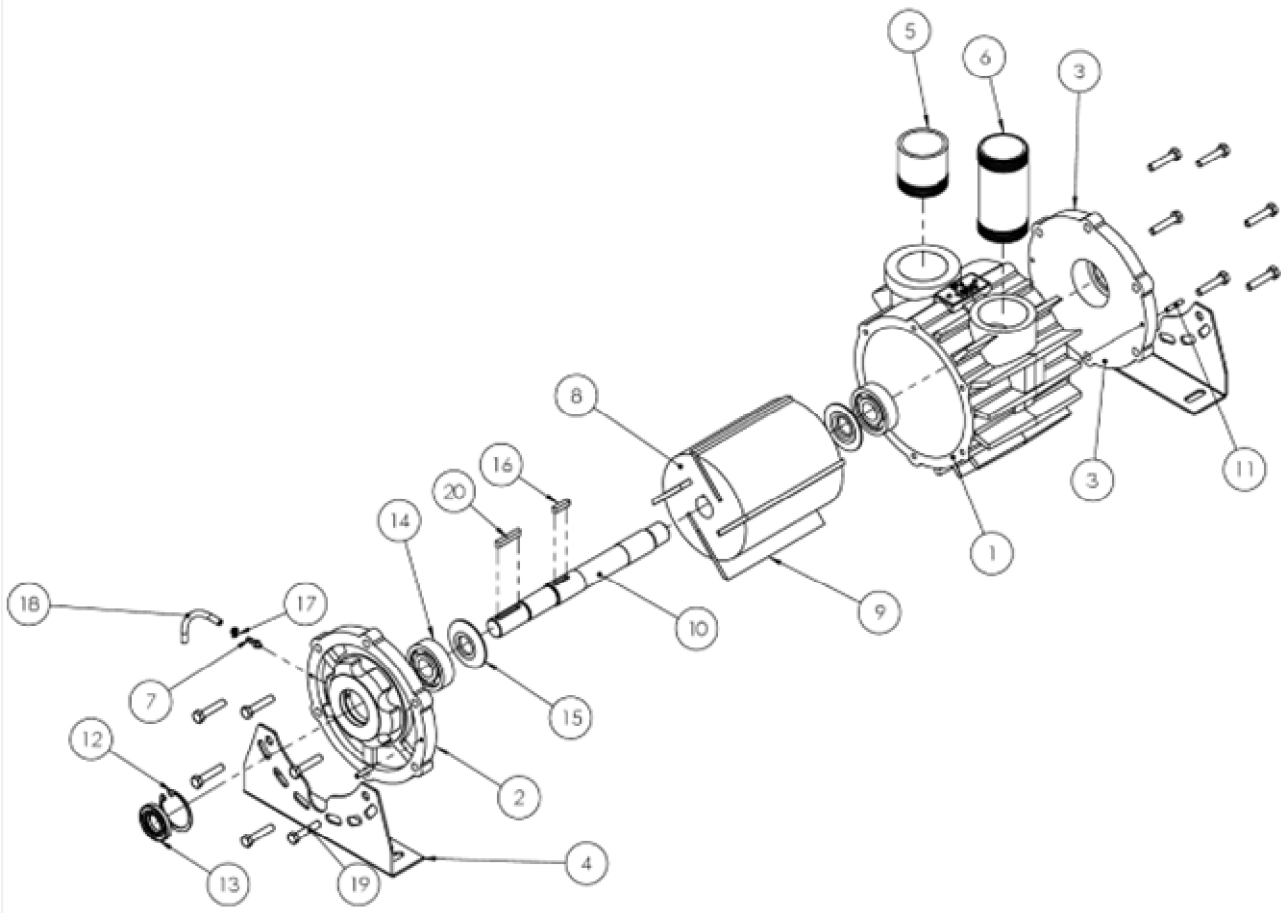




1	Non –return Valve	7	Seal Condensate discarage
2	Silencer	8	Sleeve Adp
3	Air-Oil Separator	9	Carter
4	Joint for the windoe's tank	10	Single oiler
5	Plastic seal gasket	11	Connecting Curve for Tank
6	Cartridge filter		

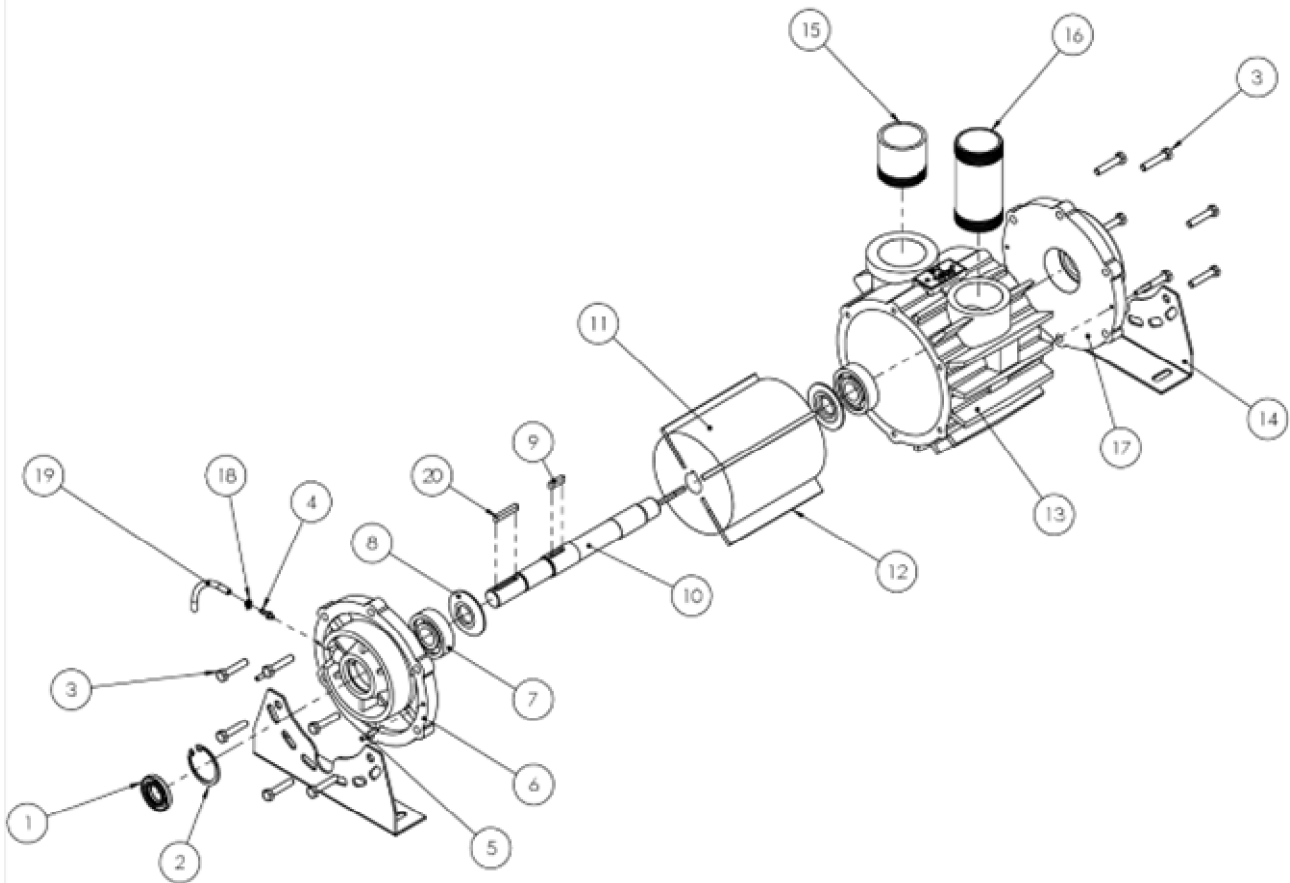
9. VACUUM PUMP TYPE

9.1. P.V. 1500 Naked



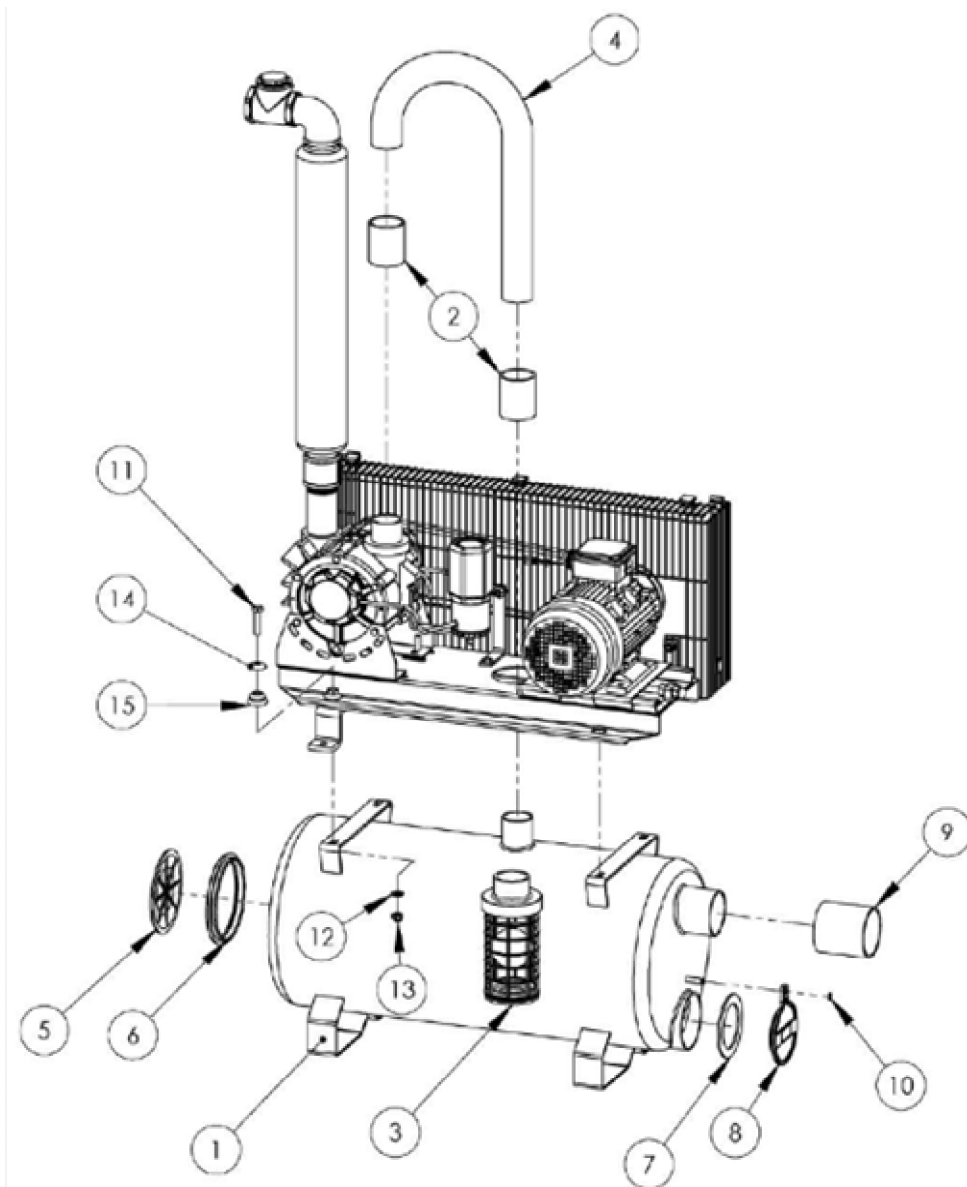
1	Cylinder 1000/1500	11	Spring pin 5 x 26
2	Hole flange 2200/1500/750	12	Seeger d.47
3	Blind flange 2200/1500/750	13	Oil seal 25 – 47 – 7
4	Bracket feet 1500	14	Open bearing SKF 6305
5	Galvan. Socket 2" x 75mm	15	Brass spacer for 1500
6	Galvan. Barrel 2" x 150mm	16	Key 6 x 6 x 25
7	Normal Oiler P.V. 1000	17	Hose clamp d.4 x 7
8	Rotor P.V. 1500	18	PVC Trasparent tube 4 x 7
9	Vanes for G.P.V. 1500	19	Screw TE R.80 10 x 35 TF GG
10	Shaft P.V. 1000/1500	20	Key 6 x 6 x 40

9.2. P.V. 1000 Naked



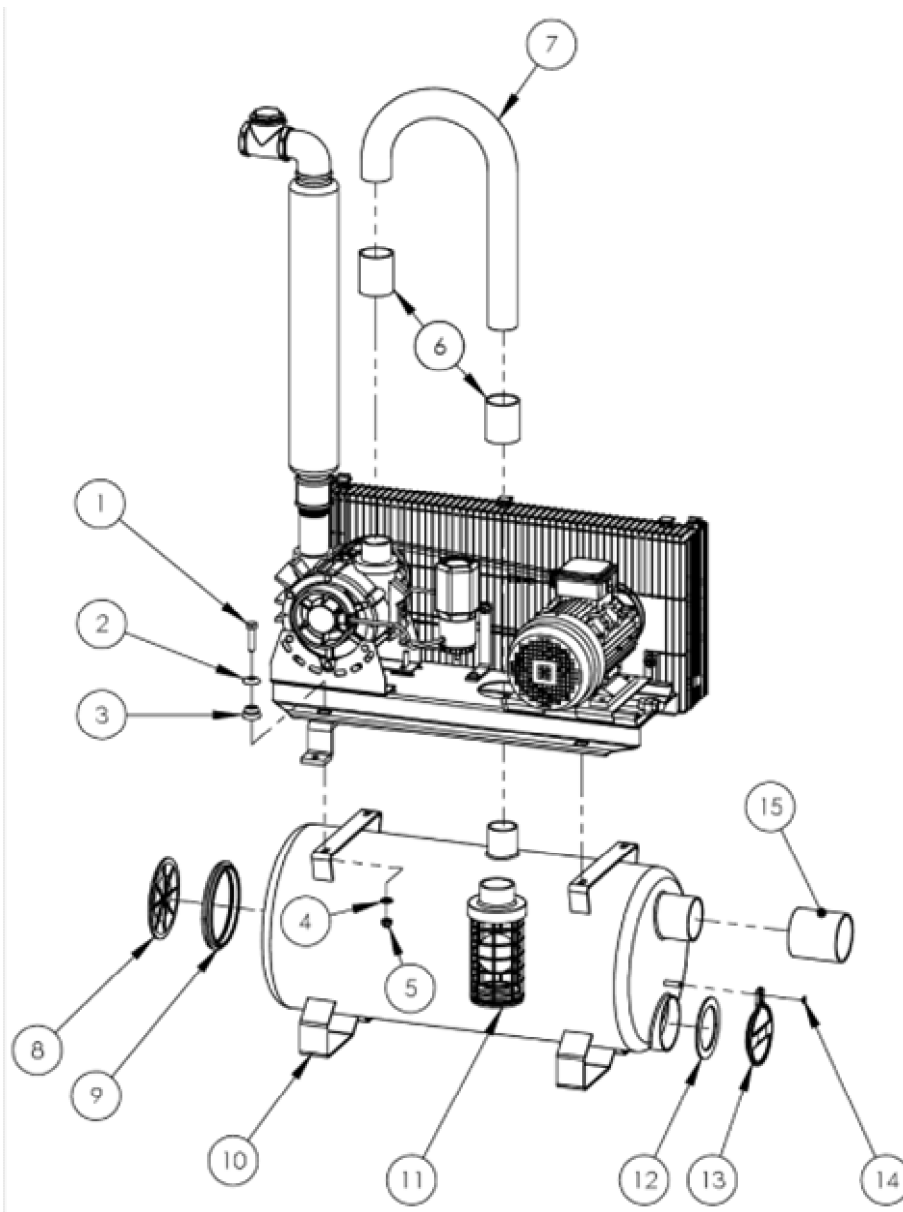
1	Seal d.47	11	Rotor P.V. 1000
2	Seeger d. 47	12	Vanes for G.P.V. 1000
3	TE M10 x 35	13	Cylinder 1000
4	Oiler normal capillary P.V. 1000	14	Bracket feet 1000
5	Spring pin 5 x 26	15	Galvan. Socket 2" x 75mm
6	Flange 1000/500 hole	16	Galvan. Barrel 2" x 150mm
7	Bearing SKF 6305	17	Blind flange 2200/1500/750
8	Spacer 1000	18	Hose clamp d.4 x 7
9	Tab 6 x 6 x 25	19	PVC Trasparent tube 4 x 7
10	Shaft P.V. 1000	20	Key 6 x 6 x 40

9.3. G.P.V. 1500 On Tank



1	Tank Lt.85 / release 3"	9	Sleeve Adp 3" x 3"
2	Sleeve Adp 2" x 2"	10	Seeger d.8
3	Filter cartridge 2" + sphere	11	TE M12 x 50
4	Curve 1500	12	Washer Ø 12
5	Window plastic tank	13	Nut M12 self-locking
6	Window seal tank	14	Washer Ø 12 x 36
7	Condensate drain pan gasket	15	Open plug vibration
8	Plastic drain pan		

9.4. G.P.V. 1000 On Tank



1	TE M12 x 50	9	Window seal tank
2	Washer Ø 12 x 36	10	Tank Lt.85 / release 3"
3	Open plug vibration	11	Filter cartridge 2" + sphere
4	Washer Ø 12	12	Condensate drain pan gasket
5	Nut M12 self-locking	13	Plastic drain pan
6	Sleeve Adp 2" x 2"	14	Seeger d.8
7	Curve 1500	15	Sleeve Adp 3" x 3"
8	Window plastic tank		

10. TECHNICAL SPECIFICATIONS

G.P.V. 1500

Power Motor	Kpa	RPM Pump	N.L./min.	Pulley Pump	Motor Pulley	Assorb. (A)	Pressure Exit	RPM Motor
5.5Kw/7,5Hp	50	1325	2300	150 2B	140 2B	10,9 A	0.11 bar	1400
4Kw/5,5Hp	50	1225	2070	150 2B	130 2B	8,9 A	0.10 bar	1400
4Kw/5,5Hp	50	1150	1880	150 2B	120 2B	8.9 A	0.08 bar	1400

Model	Weight kg	Length cm	Width cm	High cm	Tank	Lubrication	Separator oil / air	trasmission
G.P.V. 1500	105	95	50	85	85/65 Lt	Si	Si	Belt

G.P.V. 1000

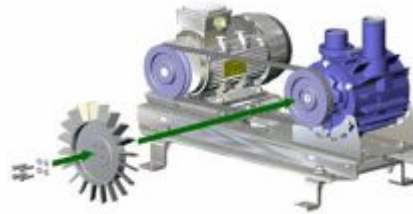
Power Motor	Kpa	RPM Pump	N.L./min.	Pulley Pump	Motor Pulley	Assorb. (A)	Pressure Exit	RPM Motor
3Kw/4Hp	50	1250	1000	150 1B	130 1B	5.2 A	0.10 bar	1400
5.5Kw/10Hp	50	1100	900	150 1B	120 1B	4.7 A	0.10 bar	1400

Model	Weight kg	Length cm	Width cm	High cm	Tank	Lubrication	Separator oil / air	trasmission
G.P.V. 1000	105	95	50	85	85/65 Lt	Si	NO (optional)	Belt

11. INSTALLATION

Installation procedure

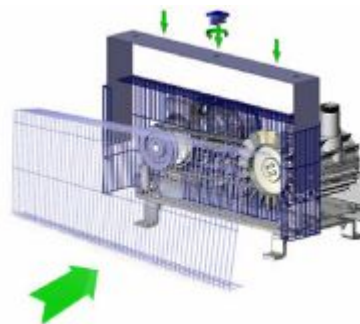
- 1) Installing the fan cooling kit screws "A".



- 2) Installation kit center bracket "B" Surfaces "T" and "S" must be aligned.
- 3) Install rear grille.



- 4) Horizontal and vertical adjustment of the rear grille; the grid must be aligned approximately with the bracket, keeping a distance 20mm between the fan and the same grid.
- 5) Install side brackets kit "C".
- 6) Installation of the cover to internal rear grille and subsequent installation the front grille.



- 7) Attaching the front grille with locking plugs.

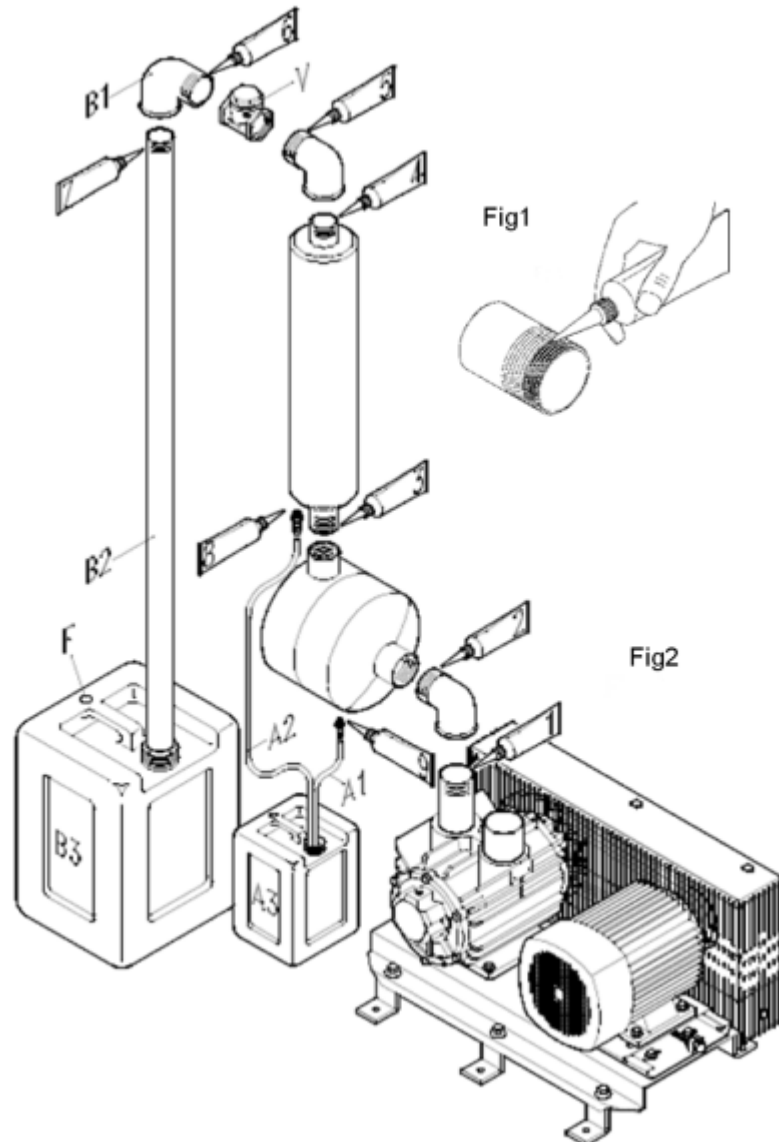


Silencer and separator assembly

- 1) To avoid dispersion of lubricating oil residues of the vacuum pump (image 2). You have to:
 - install a tube B2 joined to the valve of exit V by a union elbow B1;
 - put a drain tank B3 under the tube B2;
 - insert the flexible tubes A1 and A2 in a drain tank A3;
 - make a hole of bleed F on both the tanks.
- 2) The defective tightness of the threaded junctions of the group separator-silencer is source of drippings of lubricating oil with consequent formation of anaesthetic and ant hygienic sludges. To avoid losses we ask to the installer to apply a motor silicone gasket - fig. 1:
 - on the threaded junctions of the group separator silencer - Image 2, pos. from 1 to 7,
 - on the threads of the nipples of recovery oil - Image 2, pos. 8 and 9.

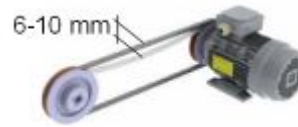


NOTE: use exclusively plastic gaskets based on silicone. We suggest the following makers: Loctite 209079 Art.26807, Arexons Art.motorsil D, Würth Art.0893 260 100 – S, Angst+Pfister.



Getting started

Verify that the transmission belt tightening is between 6-10 mm otherwise provide decreasing or increasing of the tightening through the slide.

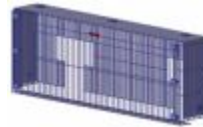


Warnings positioning

- The pump should be installed in a suitable place, protected from weather extremes.
- When the machine is installed in an enclosed area, the discharge of waste must be carried out with suitable piping.
- Before using the machine check that guards are securely fixed and correctly.
- For G.P.V. 3300 / 2200 without engine use the following guide for the installation kit of protective casing with cooling fan:

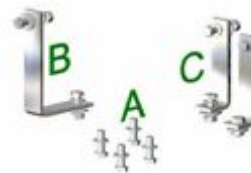
1.

- Front and rear grille
- Locking plugs
- Directional arrow
- Protective casing



2.

- kit A = screw fan kit
- kit B = kit center
- kit C = kit side bracket



The using machine



WARNING

Before performing any work on the machine, disconnect the electric current of the motor which drives pump.

For milking, the vacuum pump reaches the required vacuum.
The maximum level when the vacuum pump can work is 50 kPa.
The operating temperature is about 70/80°C.

- 1) The machine is moved by an electric motor. The contactor (TERMLD) must be installed to save the engine from possible anomalies in the lines of electric current.
- 2) The pump must be fitted correctly to prevent excessive vibration.
- 3) Connect the suction and discharge through the rubber joint. Make sure that the pipes are adequately supported and not a burden on the body of the pump.
- 4) To work properly the air/oil separator must be screwed over the output of the vacuum pump. (Fig.1)
Fig.2 shows the WRONG positioning! The oil, when the pump stops, returning would flow into the pump compromising the operation.

Fig. 1

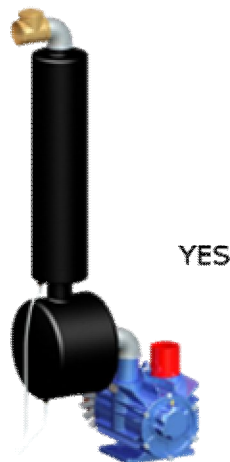
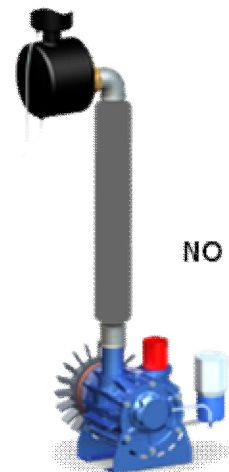


Fig. 2



12. MAINTENANCE

Control

Since the machine is not complicated, it just needs a few tips:

- Keep clean rotating parts prepared for processing.

When the wash water or milk intake proceed as follows:

- Remove the exhaust;
 - Fill the pump with 0.25 lt. of diesel fuel;
 - Rotate the hand pump for about 3 minutes;
 - Allow the liquid in the pump for about 4 minutes;
 - Disconnect the pump tubes of lubricant and to work the pump for about 5 minutes;
 - Repeat the operation in case of loss;
 - Replace the caps worn;
 - Adjust the tension of drive belts loosening screws securing the support of the sled motor turning the screw adjustment at the side of the substrate;
 - Pressing with the thumb drive belt, the intermediate zone of the two pulleys, its decline should not exceed 1.5 cm when a replacing the belt is worn throughout the series
-

13. LUBRICATION SYSTEM

Choice of oil

- Use only oil for vacuum pumps for milking;
- Do not use oils containing dyes, paraffin or other solvents;
- Do not reuse oil already used or exhausted;

The viscosity of oil varies according to climate:

- Hot -> 68 MIN 68/ISO
- Temperate -> 46 MIN 46/ISO
- Cold -> 32 MIN 32/ISO

Capillary System lubrication

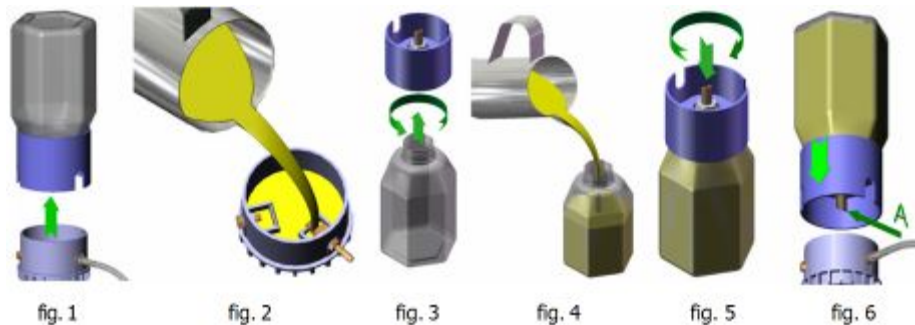
- Optimal use of oil MI / hour (ml / h) under the conditions tested:
- Oil used MIN = 46;
- Suction pressure = 50 KPascal;
- Ambient temperature = 18 C°;
- Altitude above sea level = 500 m;
- GPV 1500, singler oiler -> 5 + 5 = 10 ml/h
- GPV 1000, singler oiler -> 4 + 4 = 8 ml/h



WARNING

The consumption of oil is influenced by seasonal temperature variations.

Oil recharge into oiler:



- - (Fig. 1) Remove the empty container with the lid up
- - (Fig. 2) Fill the tank with oil and support the two vacuum chambers. The level should reach the slats placed in the slot inlet.



NOTE:

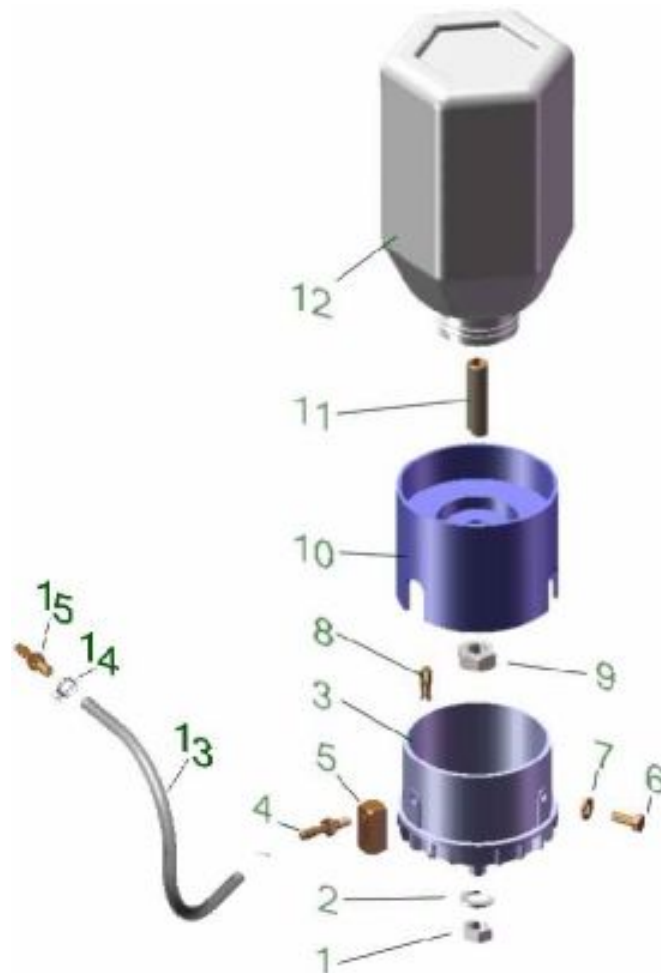
This operation must be done only for the first time.

- - (Fig. 3) Unscrew the lid of the container
- - (Fig. 4) Fill the container with oil
- - (Fig. 5) Replace the lid of the container
- - (Fig. 6) Place the container in his tank into the tube closed with a finger to discharge

Capillary System lubrication

Articles and Codes

1	Fixing nut for oil feeder
2	Washer d.8
3	Lower plastic body
4	Brass nipples
5	Brass support board 10x24
6	Screw normal oiler
7	Bolt normal oiler
8	Suction tongue: 4mm – 6mm
9	Fixing nut for set screw
10	Upper plastic body
11	Set screw
12	Plastic transparent container
13	PVC transparent tubing d.7x4
14	Clips
15	Brass nipples



Drop system lubrication

- Optimal use of oil MI / hour (ml / h) under the conditions tested:
- Oil used MIN = 46;
- Suction pressure = 50 KPascal;
- Ambient temperature = 18 C°;
- Altitude above sea level = 500 m;
- GPV 1500, singler oiler -> 8 drops/minute
- GPV 1000, singler oiler -> 8 drops/minute

**WARNING**

The consumption of oil is influenced by Seasonal temperature variations.

Adjusting the flow of lubrication:

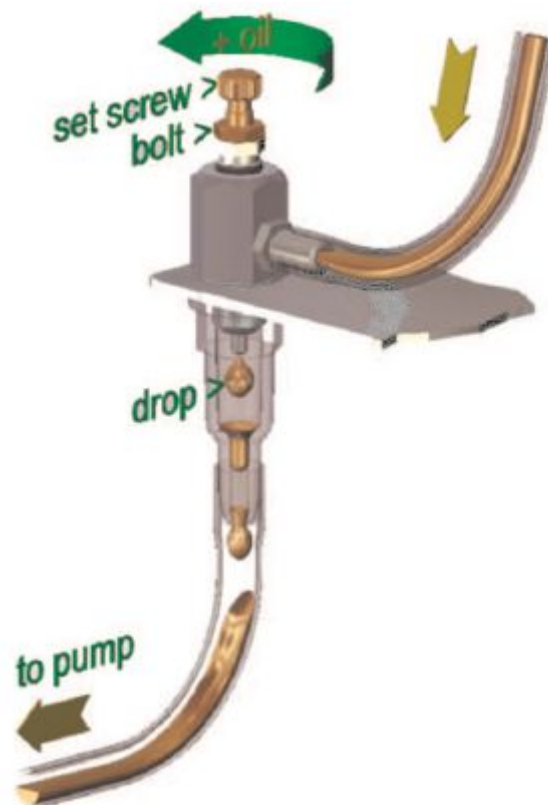
- Loosen the nut (bolt);
- Turn the adjusting screw (set screw);
- Clockwise to increase the flow,
- Clockwise to decrease the flow;
- Tighten the nut;

The flow of oil are visible in the tubes of the 'oil can indicate the pumps operating properly.

If not check them for oyster the passage of the car oil and that all components are in good condition.

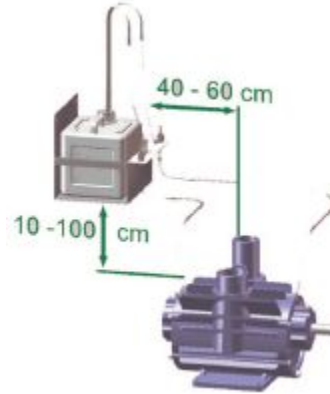
**WARNING:**

Do not disrupting the adjustment screw

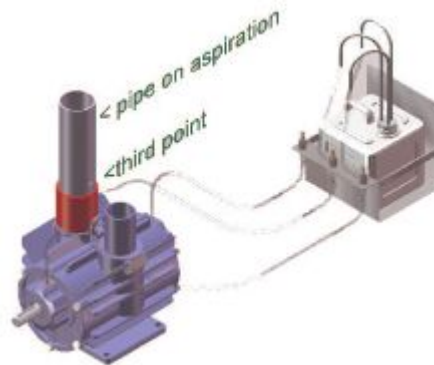


Installation

- Do not install the wall mount directly on the pump;
- The ideal measurements are shown the figure.



- Only in case of application of three oilers:
 1. Drill and threading (8 x 1M) the suction
 2. Apply the sealant and screw the fitting
 3. Make connections



Controls

In the case of two oilers make sure that:

- The third hole on the rubber stopper is clear (Fig. 7)

In the case of three oilers make sure that:

- The central hole (venting) is free (Fig. 8)



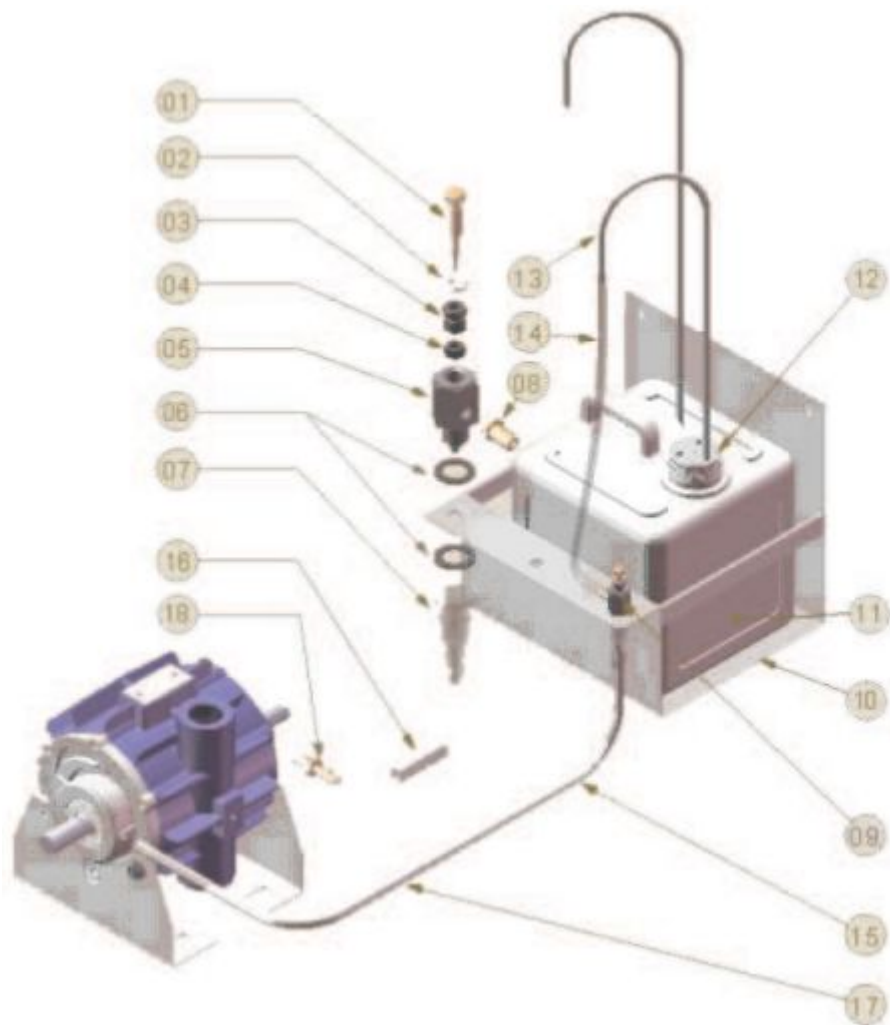
fig. 7



fig. 8

Capillar lubrification

1	Set screw
2	Locknut
3	Ring nut 8x7mm
4	OR
5	Body oiler
6	Flat gasket
7	Pls body trasparent
8	Nipples
9	Drip feed lubricator
10	Wall bracket
11	Oil jerry can 10 Lt
12	Plug for jerry can Ø42 – 48mm
13	S/S suction-pipes "U" bend 62cm
14	PVC trasparent tubing (0.70mt)
15	S/S suction pipes 30mm
16	PVC trasparent tubing (2.70 mt)
17	Pump nipples 14x27 mm Ø8



Overhaul for capillary oiler and for drop oiler

- To check the oil level every start-up;
- Check the weekly oil consumption;
- Every six months completely disassemble the oiler in all its parts:
 1. Clean with a diesel;
 2. Blowing with compressed air.
- Replace every 2 years:
 1. The transparent container;
 2. All transparent pipes.



NOTE:

Empty the oil recovery "and collect the used oil into a container (not re-use and release to the environment)

14. TROUBLESHOOTING

PROBLEM	CAUSE	REMEDY
Abnormal absorption power	<ul style="list-style-type: none"> - Bad connection - Loose straps - The motor shaft is deformed or deteriorated - Obstruction of the pump body - Obstruction in piping 	<ul style="list-style-type: none"> - Connect the electric motor adequately - Adjust the straps - Replace the 'tree - Clean the pump house - Clean the 'entry of' in the air system
The machine hangs, tries or not pump uniformly	<ul style="list-style-type: none"> - Loose straps - Impediments in the rotor - Rotation in the opposite direction 	<ul style="list-style-type: none"> - Adjust the straps - Clean the rotor - Reverse the direction of rotation engine
Squeak of the rotor	<ul style="list-style-type: none"> - Insufficiently lubricated 	<ul style="list-style-type: none"> - Lubricate
Audible vibrations	<ul style="list-style-type: none"> - Bearing failures, rotor unbalanced - Clamped no silencer 	<ul style="list-style-type: none"> - Replace bearings, replace rotor - Put a silencer bracket
Pump overheating	<ul style="list-style-type: none"> - High oil consumption - Control valve does not works well 	<ul style="list-style-type: none"> - Clean the lubricator/oiler adjusting - Check valve adjustment



WARNING:

When you turn off the system, make sure the valve is working properly!
If the pump should rotate in the opposite direction would cause the breaking of the vanes!



Innovative milking components



03 May 2011

DECLARATION OF CONFORMITY

Name of Manufacturer: Interpuls S.p.a.

Address of Manufacturer: Via Maritano, 11
42020 Albinea (RE)
Italy

Declares that the Machine:

Name of product: Pump / Electrical vacuum pump

Function: Cow, goat and sheep milking

Type/Model:

P.V.	250 – 350 – 500 – 750 – 1000 – 1500 – 2200 – 3300
G.P.V.	250 – 350 – 500 – 750 – 1000 – 1500 – 2200 – 3300
E.P.V.	200 – 250 – 280
G.E.P.V.	200 – 280

Serial Number Please refer to the number indicated on the data plate.

The machine are conforming to the essential safety requirements indicated in Directive:

- 2006/42/EC
- 2004/108/EC

Date and Place 02/05/11

Signature of the person in charge
(complete name and qualification)