MANUAL USE AND MAINTENANCE

CTA milk®

VACUUM PUMPS FOR MILKING MACHINES

Via Laghi di Avigliana, 91 - 12022 BUSCA (CN) - ITALY - Tel. +39 0171.946756 - E-mail: sales@ctamilk.com - www.ctamilk.com

GPV2200/3300

GENERAL INDEX

1. INTRODUCTION

1.1 This publication was developed with the aim of making sure the 'use and maintenance of the machine.

1.2 The images used are indicative only and may differ from reality.

1.3 Before each operation to read the signs in this publication. When in doubt contact the manufacturer.

.

1.4 The incorrect use and the improper maintenance reduce the life of the machine.

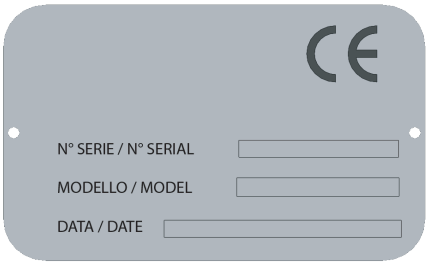
1.5 This manual is an integral part of the machine. must be available for consultation in the vicinity of the machine and stored in a protected and dry place.

1.6 In case of loss request a copy of the manual from the manufacturer indicating the model and serial number of the machine.

1.7 The manufacturer reserves the right to update products and manuals, without any obligation to update the previous products and manuals, except in exceptional cases.

1.8 Failure to comply safety standards are the cause of accidents.

2. MACHINE IDENTIFICATION

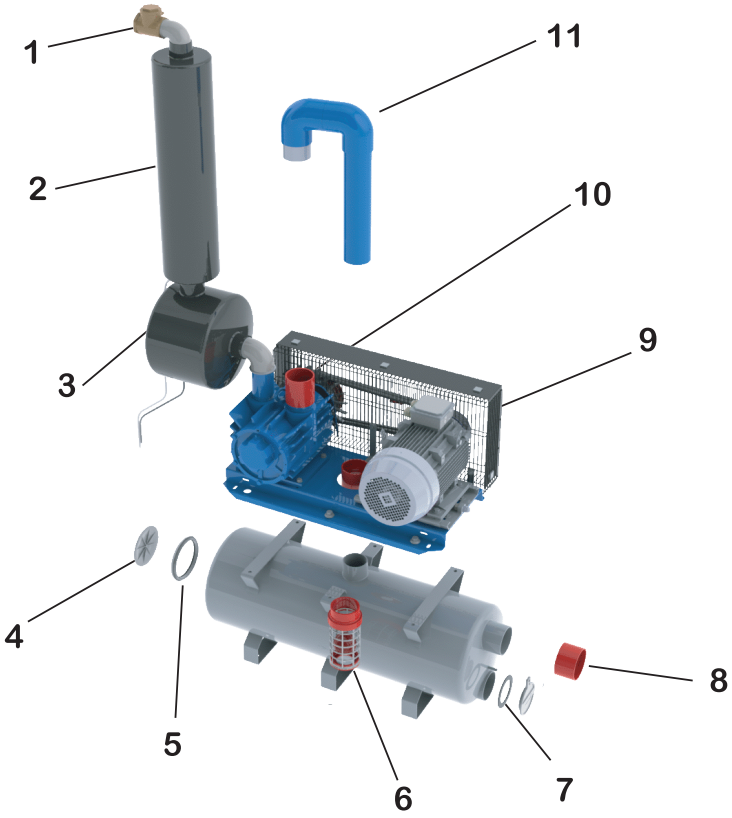


The CE mark above and the nameplate on the machine report the data manufacturer, the model, the serial number and the date of construction

The CE marking and declaration of conformity attached certifies that the machine is constructed in accordance with directives

- 2006/42/CE
- 2014/30/UE
- UNI EN ISO 12100 : 2010

3. DESCRIPTION OF THE MACHINE



N°	Description
1	Non-return valve
2	Silencer
3	Air-Oil Separator
4	Joint for the window's tank
5	Plastic seal gasket
6	Cartridge filter

N°	Description
7	Seal Condensate discharage
8	Sleeve Adp
9	Carter
10	Sleeve Adp
11	Connecting Curve for Tank

4. TECHNICAL SPECIFICATIONS

4.1 Utilization

The machine is designed to function as a vacuum pump for milking machines
There are no other conditions of use.

4.2 Models

G.P.V.3300

POWER MOTOR	Kpa	RPM PUMP	N.L.//MIN.	PULLEY PUMP	MOTOR PULLEY	ASSORB (A)	PRESSURE EXIT	RPM MOTOR
7,5 Kw / 10 Hp	50	1050	3300	180 2B	130 2B	12,7 A	0,11 bar	1400
5,5 Kw / 7,5 Hp	50	970	2950	180 2B	120 2B	10,8 A	0,10 bar	1400
5,5 Kw / 7,5 Hp	50	900	2700	180 2B	112 2B	8,9 A	0,08 bar	1400

MODELLO	Peso Kg	Lunghezza cm	Larghezza cm	Altezza cm	Serbatoio	Lubrificazione	Separatore olio / aria	Trasmissione
G.P.V. 3300	200	80	50	130	110 Lt	SI	SI	Cinghia

G.P.V.2200

POWER MOTOR	Kpa	RPM PUMP	N.L.//MIN.	PULLEY PUMP	MOTOR PULLEY	ASSORB (A)	PRESSURE EXIT	RPM MOTOR
5,5 Kw / 7,5 Hp	50	1325	2300	150 2B	140 2B	10,9 A	0,11 bar	1400
4 Kw / 5,5 Hp	50	1225	**2000**	150 2B	**125 2B**	8,9 A	0,10 bar	1400
4 Kw / 5,5 Hp	50	1150	**1800**	150 2B	**112 2B**	8,9 A	0,08 bar	1400

MODELLO	Peso Kg	Lunghezza cm	Larghezza cm	Altezza cm	Serbatoio	Lubrificazione	Separatore olio / aria	Trasmissione
G.P.V. 2200	200	80	50	130	85/110 Lt	SI	SI	Cinghia

NOTE:

- Height (with separator and silencer):
- The G.P.V. 2200 / 3300 are provided with double-oiler

5. GENERAL SAFETY PRECAUTIONS

- In order to ensure maximum reliability, the company has made a careful choice of materials and components to be used in the construction of the machine.
- It is forbidden to use the machine for other purposes than those indicated in the manual.
- The staff use and maintenance of the machine, as well as know the contents of this manual, must be appropriately educated and trained.
- Each operation that covers the supply must be performed by qualified personnel, able to meet the technical standards and laws in force, with permission of the installer.
- Dangerous conditions, and notices are identified by stickers on the machine. These labels must be replaced when worn or lost.
- Do not groped to change any product so as not to create conditions of insecurity and so do not miss all the guarantees.

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 FUNCTION

CAUTION HOT PARTS OF THE MACHINE. DANGER TO BURNS.

WEEKLY CHECK THE OIL LEVEL. IF THE PUMP SHOULD RUN WITHOUT 'OIL IT WOULD BE EXPOSED TO RISK OF DAMAGE.

CHECK THAT THE NUMBER OF SPEED AND DIRECTION OF ROTATION OF THE SHAFT MATCH THE INFORMATION THAT THERE ARE ON THE MACHINE.

THE MAINTENANCE, CLEANING, OR CASUAL OTHER OPERATIONS SHOULD BE DONE WITH THE MACHINE OFF. PROTECTIONS MUST BE TEMPORARILY REMOVED AND THEN AGAIN REINSTALLED CORRECTLY.

6. MOVEMENT AND PLACEMENT OF THE MACHINE

The movement and transport of machine can be made with standard lifting.

Never raise the machine using a single part of the base and always make sure that there is a proper weight distribution to avoid spills.

The installation must allow for appropriate ventilation for the cooling of engine and enough space for maintenance.

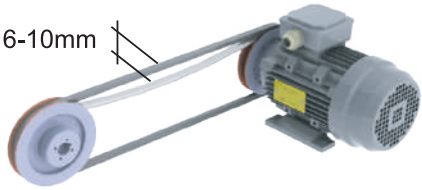
The machine at work could move for the vibrations ensure that it is properly secured on the base.

WARNING: The machine must not be shocks so as not to compromise the drive train.

7. BELT TENSION AND ASSEMBLY BELT PROTECTION

7.1 Each pump is tested and tested before delivery, so it's ready.

7.2 Verify that the voltage of Belt is between 6-10mm otherwise provide decreasing or increasing the voltage through the slide.



7.3 The pump should be installed in a suitable place, protected from weather extremes.

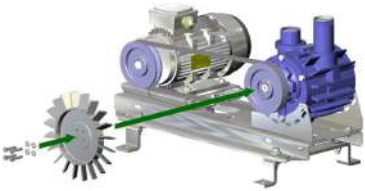
7.4 When the machine is installed in an enclosed area, the discharge of waste must be carried out with suitable piping.

7.5 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:

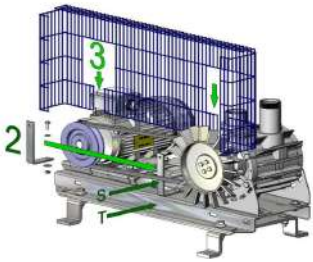
- Front and rear grille
- Locking plugs
- Directional arrow
- Protective casing

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

1° IInstalling the fan cooling kit screws "A".



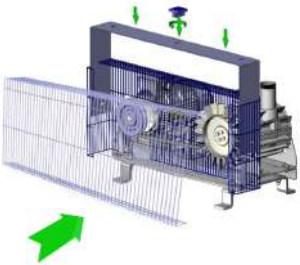
2° Installation kit center bracket "B" Surfaces "T" and "S" must be aligned.
3° IInstall 3 ° rear grille.



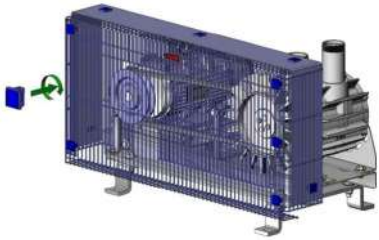
4° Horizontal and vertical adjustment of the rear grille;
the grid must be aligned approximately with the bracket, keeping a distance 20mm between the fan and the same grid.

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.



8. SILENCER and SEPARATOR ASSEMBLY

1) To avoid the dispersion of residues of the lubricating oil of the vacuum pump - image 2 - we ask to the installer of:
· to install a tube B2 joined to the valve of exit V by a union elbow B1,
· to put a drain tank B3 under the tube B2,
· to insert the flexible tubes A1 and A2 in a drain tank A3,
· to make a hole of bleed F on both the tanks.

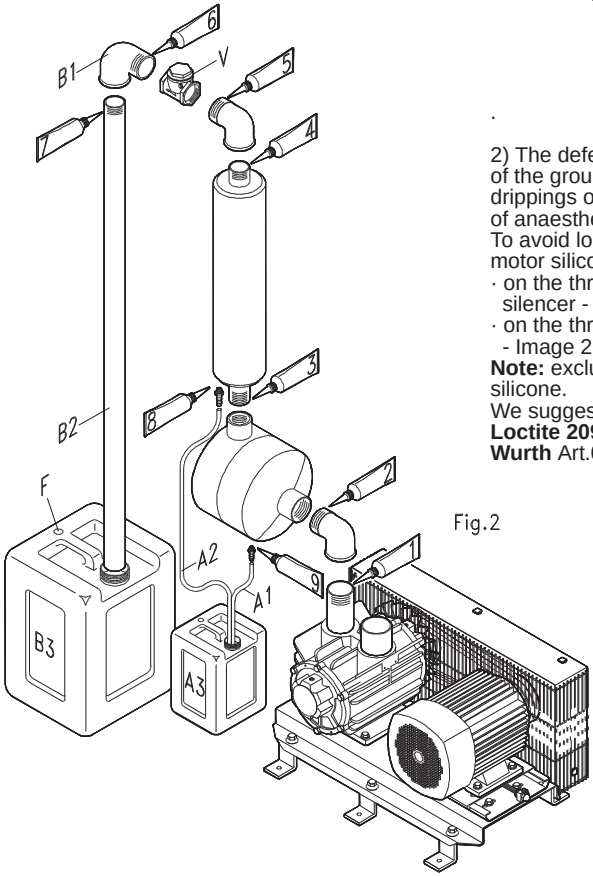


Fig.2

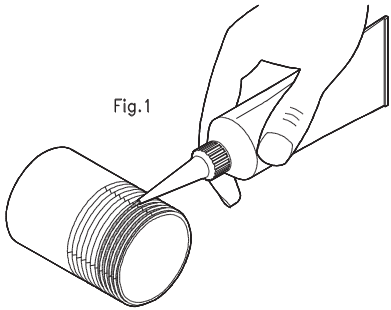


Fig.1

.

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

9. THE USING MACHINE

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

9.1 The machine is moved by an electric motor. Must install the contactor (TERMLD) to save the engine from possible anomalies in the lines of electric current.

9.2 The pump must be fitted correctly to prevent excessive vibration.

9.3 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.

9.4 The air/oil separatorr to make it to work properly, it 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.

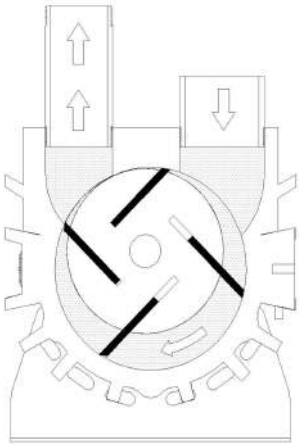
FIG.1

FIG.2

10.VACUUM PUMP: COMPONENTS and FUNCTIONS

The vacuum pump is formed substantially from 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 pumponly when it is set in motion by a electric motor and then creates a vacuum to internal 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.

11. MAINTENANCE

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.

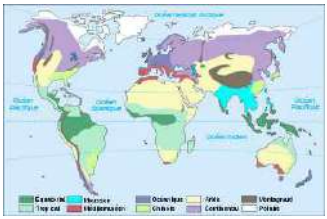
12. CHOICE OF OIL

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



13. CAPILLARY SYSTEM LUBRICATION

13.1 Optimal use of oil pump
Ml / 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 3300, two oilers => 11 + 11 = 22 ml / h
- GPV 3300, three oilers => 11 + 11 + 3 = 25 ml / h
- GPV 2200, two oilers => 9 + 9 = 18 ml / h

WARNING: The consumption of oil is influenced by Seasonal temperature variations.

13.2 **OIL RECHARGE INTO OILER**

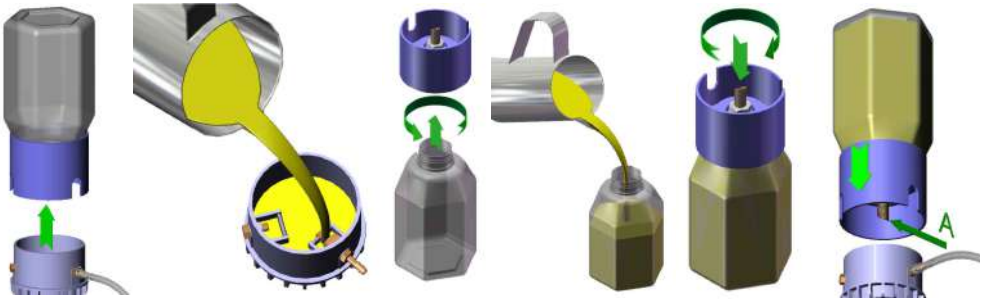
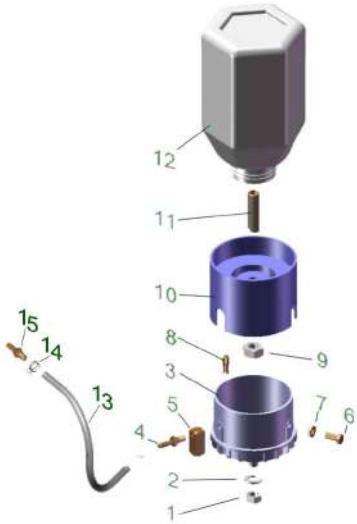


fig. 1 **fig. 2** **fig. 3** **fig. 4** **fig. 5** **fig. 6**

- (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

13.4 **ARTICLES AND CODES**

1)	Fixing nut for oil fedeer	5000112
2)	Washer d.8	5000111
3)	Lower plastic body	5000110
4)	Brass nipples	5000107
5)	Brass support board 10 x 24	5000108
6)	Screw normal oiler	5000821
7)	Bolt normal oiler	5000809
8)	Suction tongue: 4 mm	5000109
	6 mm	5001109
9)	Fixing nut for set screw	5000105
10)	Upper plastic body	5000104
11)	Set screw	5000106
12)	Plastic trasparente container	5000101
13)	PVC trasparent tubing d.7 x 4	3000250
14)	clips	5000117
15)	Brass nipples	5000107.00
	Brass nipples	5000107.03



14. DROP SYSTEM LUBRICATION

14.1 Optimal use of oil pump
ml / hour (ml / h) under the conditions tested:
- Used oil MIN = 46;
- Suction pressure = 50 KPascal;
- Temperate environment = 18 C°
- Altitude above sea level =500 m

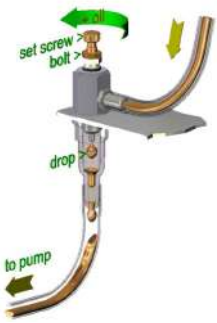
- GPV 3300 two oilers = 15 drops / minute
- GPV three oilers 3300:
  - 1 ° and 2 ° oiler = 14 drops / minute
  - 3 ° Oiler = 4 drops / minute
- GPV 2200 two oilers = 12 drops / minute

WARNING: The consumption of oil is influenced by Seasonal temperature variations.

14.2 ADJUSTING THE FLOW OF LUBRICATION

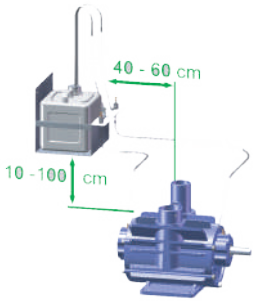
- Loosen the nut (bolt);
- Turn the adjusting screw (set screw);
- Clockwise to increase the flow,
- Clockwise to decrease the flow;
-Tighten the nut;

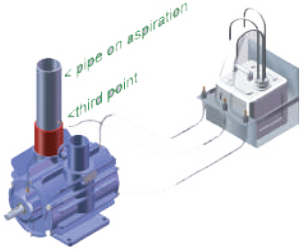
The flow of oil are visible in the tubes of the 'oil can indicate the pump is operating properly.
If not check them for oyster
the passage of the car oil and that all components are in good condition.



WARNING: Do not disrupting the adjustment screw

14.3 INSTALLATION





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

Only in the case of application of three oilers
- Drilling and threading (8 x 1M) the suction
- Apply the sealant and screw the fitting
- Making connections

14.4 CONTROLS

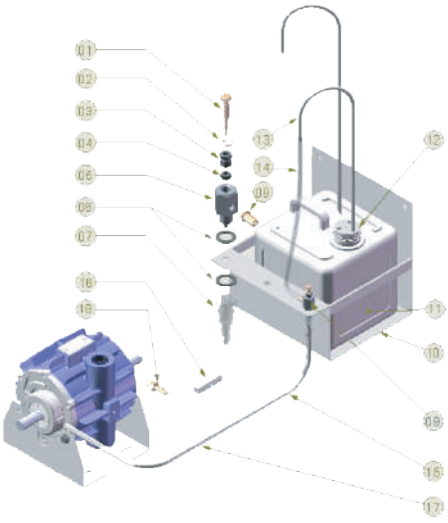
In the case of two oilers make sure that:
- The third hole on the rubber stopper is clear (Fig. 7)

In the case of three oilers make sure that:
- The central hole (venting) is free (Fig. 8)

fig. 7

fig. 8

14.5 NAME AND CODES



1.	Set screw	5000808
2.	Locknut	5000809
3.	Ring nut 8x7mm	5000810
4.	OR	2000551
5.	Body oiler	5000811
6.	Flat gascket	5000812
7.	Pls body trasparent	5000813
8.	Nipples	5000814
9.	Drip feed lubricator	5000802
10.	Wall bracket	5000801
11.	Oil jerry can 10Lt	5000815
12.	Plug for jerry can Ø42 - 48mm	5000803
13.	S/S suction-pipes "U" bend 62 cm	5000816
14.	PVC trasparent tubing (0,70 mt)	5000805
15.	S/S suction pipes 30 mm	5000818
16.	PVC trasparent tubing (2,70 mt)	5000805
17.	Pump nipples 14x27 mm Ø8	5000820

14.6 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 oliatoree in all its parts:
  - clean with a diesel
  - blowing with compressed air
- Replace every 2 years:
  - the transparent container
  - all transparent pipes

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

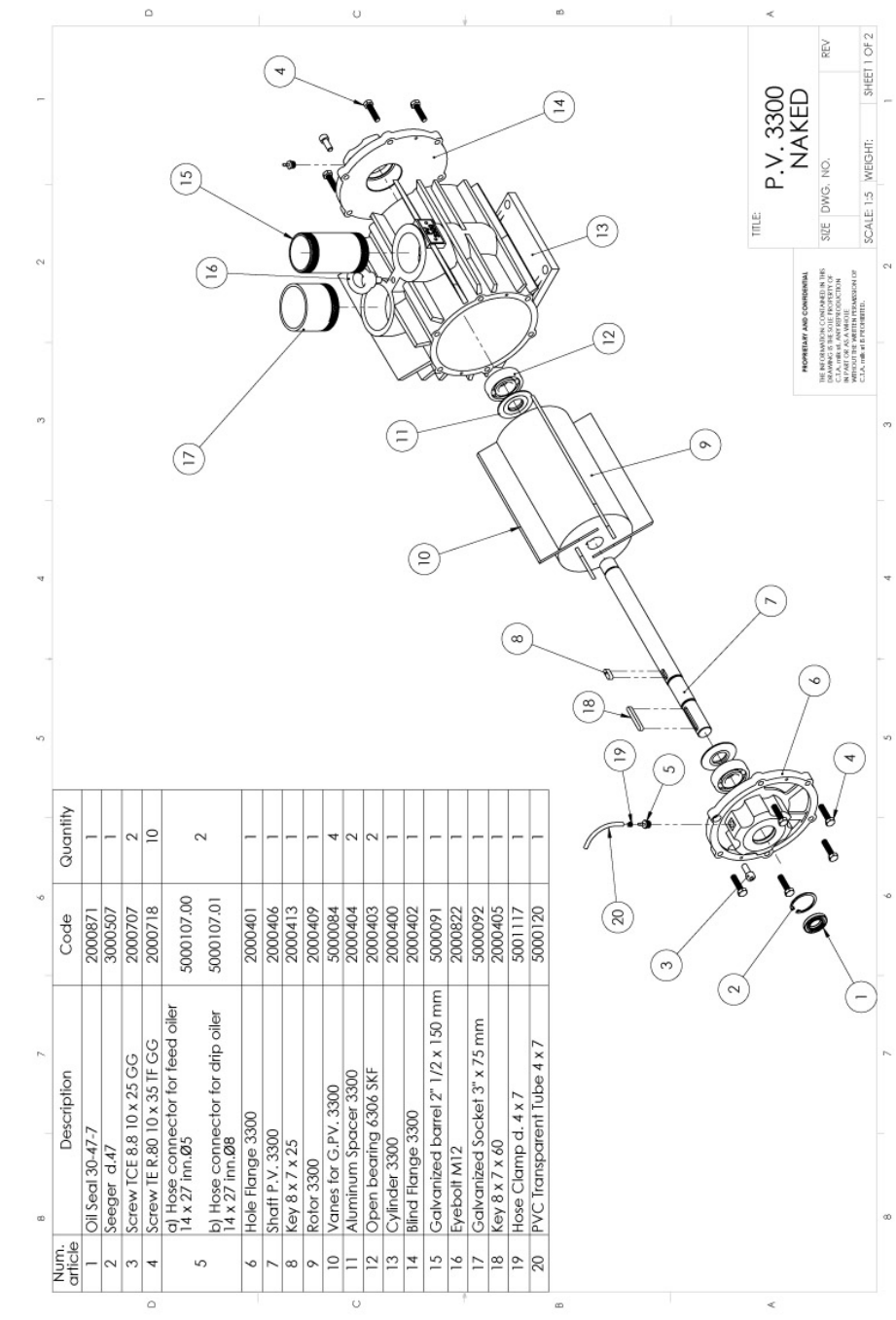
15. TROUBLESHOOTING

P R O B L E M	C A U S E	R E M E D Y
- Abnormal absorption power	- Bad connection - Loose straps - The motor shaft is deformed or deteriorated - Obstruction of the pump body - Obstruction in piping	- 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	- Loose straps - Impediments in the rotor - Rotation in the opposite direction	- Adjust the straps - Clean the rotor - Reverse the direction of rotation engine
- Squeak of the rotor	- Insufficiently lubricated	- Lubricate
- Audible vibrations	- Bearing failures, rotor unbalanced - Clamped no silencer	- Replace bearings, replace rotor - Put a silencer bracket
- Pump overheating	- High oil consumption - Control valve does not works well	- Clean the lubricator/oiler adjusting - Check valve adjustment

WARNING!

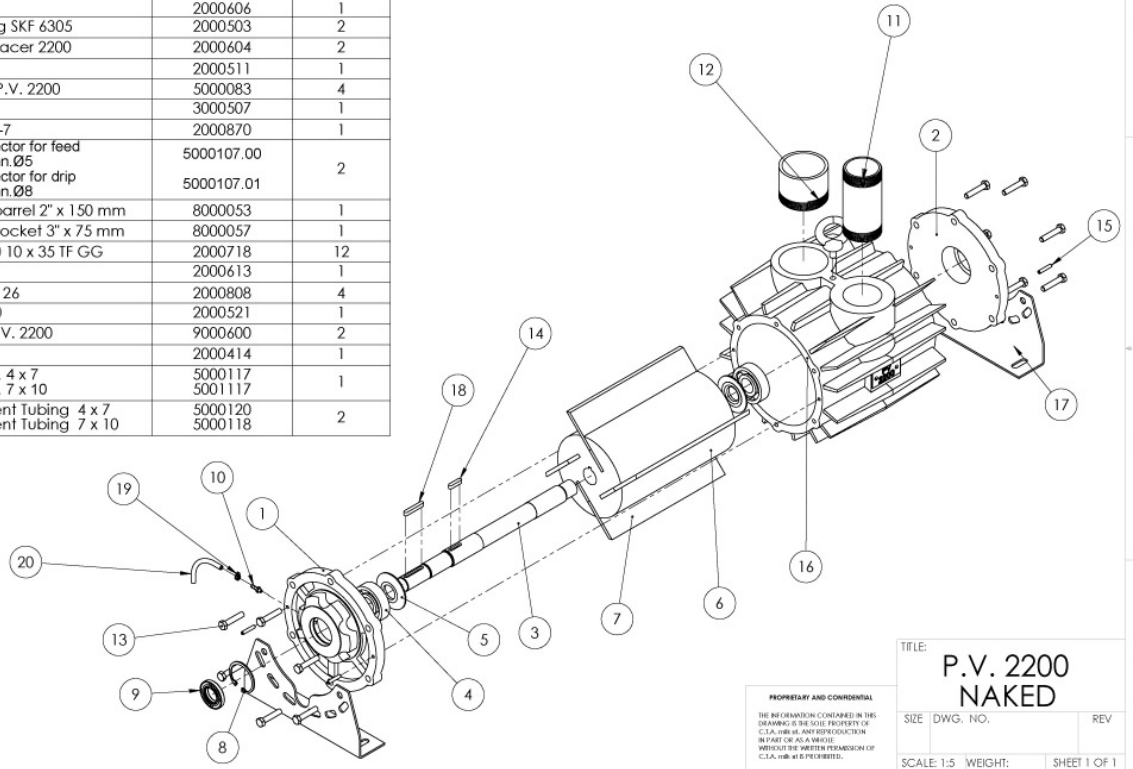
When you turn off the system, make sure the valve is working properly!
If the pump should rotate in the opposite direction would cause the breaking of the vanes!

16. EXPLODED DRAWING



Num. article	Description	Code	Quantity
1	Oil Seal 30-47-7	2000871	1
2	Seeger d.47	3000507	1
3	Screw TCE 8.8 10 x 25 GG	2000707	2
4	Screw TE R.80 10 x 35 TF GG	2000718	10
5	a) Hose connector for feed oiler 14 x 27 inn.Ø5 b) Hose connector for drip oiler 14 x 27 inn.Ø8	5000107.00 5000107.01	2
6	Hole Flange 3300	2000401	1
7	Shaft P.V. 3300	2000406	1
8	Key 8 x 7 x 25	2000413	1
9	Rotor 3300	2000409	1
10	Vanes for G.PV. 3300	5000084	4
11	Aluminium Spacer 3300	2000404	2
12	Open bearing 6306 SKF	2000403	2
13	Cylinder 3300	2000400	1
14	Blind Flange 3300	2000402	1
15	Galvanized barrel 2" 1/2 x 150 mm	5000091	1
16	Eyebolt M12	2000822	1
17	Galvanized Socket 3" x 75 mm	5000092	1
18	Key 8 x 7 x 60	2000405	1
19	Hose Clamp d. 4 x 7	5001117	1
20	PVC Transparent Tube 4 x 7	5000120	1

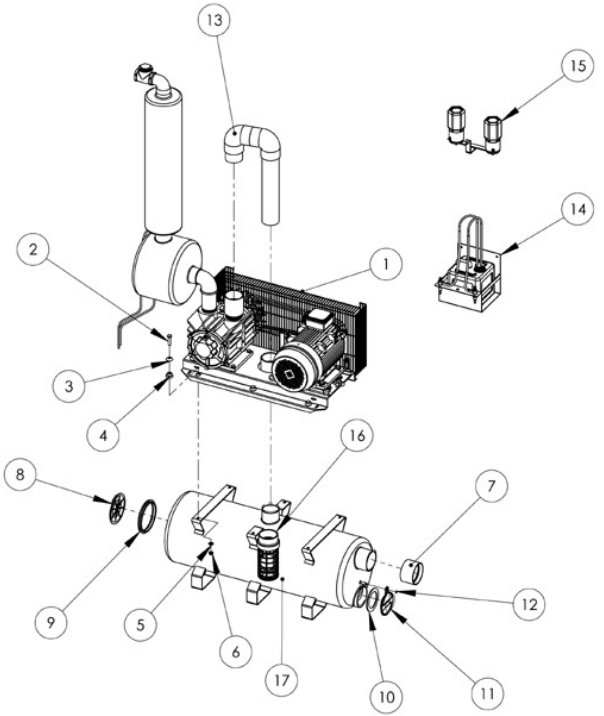
Num. article	Description	Code	Quantity
1	Hole Flange 2200/1500/750	2000619	1
2	Blind Flange 2200/1500/750	2000618	1
3	Shaft 2200	2000606	1
4	Open Bearing SKF 6305	2000503	2
5	Aluminum Spacer 2200	2000604	2
6	Rotor 2200	2000511	1
7	Vanes for G.P.V. 2200	5000083	4
8	Seeger d.47	3000507	1
9	Oil Seal 25-47-7	2000870	1
10	a) Hose connector for feed oiler 14 x 27 inn.Ø5 b) Hose connector for drip oiler 14 x 27 inn.Ø8	5000107.00 5000107.01	2
11	Galvanized barrel 2" x 150 mm	8000053	1
12	Galvanized Socket 3" x 75 mm	8000057	1
13	Screw TE R.80 10 x 35 TF GG	2000718	12
14	Key 6 x 6 x 25	2000613	1
15	Elastic Pin 5 x 26	2000808	4
16	Cylinder 2200	2000521	1
17	Feet Pump P.V. 2200	9000600	2
18	Key 6 x 6 x 40	2000414	1
19	Hose Clamp d. 4 x 7 Hose Clamp d. 7 x 10	5000117 5001117	1
20	PVC Trasparent Tubing 4 x 7 PVC Trasparent Tubing 7 x 10	5000120 5000118	2



TITLE: P.V. 2200 NAKED

SIZE | DWG. NO. | REV

SCALE: 1:5 | WEIGHT: | SHEET 1 OF 1

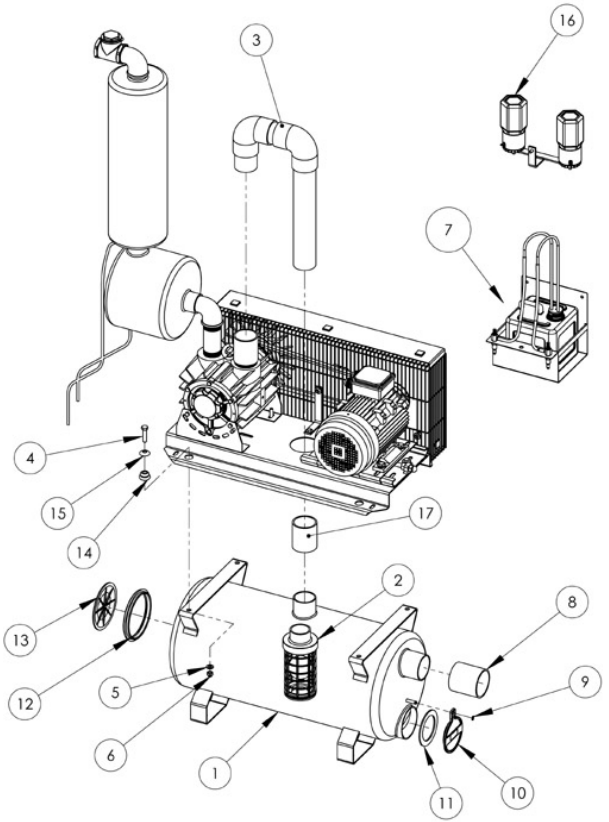


Num. article	Description	Code	Quantity
1	G.P.V. 3300 on bracket	1000301 1000302 1000303 1000311 1000312 1000313	1
2	Screw TE R.80 12 x 50 TF ZN	2000711	6
3	Washer ∅ 12 x 36	2000861	6
4	Rubber Vibration Damper Open for Bracket	3000151	6
5	Flat Washer ZN M12	2000863	6
6	Locknut M12	5000097	6
7	Sleeve 4" x 4" (110-110mm)	3001048	1
8	Sheet for tanks window in pls	6001010	1
9	Joint for the window's tank	3000034	1
10	Seal Gasket condensate discharage	3001037	1
11	Seal condensate discharage in pls	3000501	1
12	Seeger d.8	3000506	1
13	Plastic Bend 90° for 3300	3000349	1
14	a) Complete drip oiler Lt. 5 with 2 regulators b) Complete drip oiler Lt. 5 with 3 regulators	5003800 5004800	1
15	Double Oiler for 2200/3300	5002100	1
16	Cartridge Filter 3"	2000162	1
17	Tank Lt.110 / exit 4" for G.P.V.3300	6100001	1

TITLE: G.P.V. 3300 ON TANK

SIZE | DWG. NO. | REV

SCALE: 1:20 | WEIGHT: | SHEET 1 OF 1



Num. article	Description	Code	Quantity
1	Tank Lt. 110 / exit 4"	6100001	1
2	Cartridge Filter 2" 1/2 + ball adapted 4"	2000161	1
3	Plastic Bend 90° for 2200	3000348	1
4	Screw TE R.80 12 x 50 TF ZN	2000711	4
5	Washer ∅ 12 x 36 ZN	2000861	8
6	Locknut M12	5000097	8
7	a) Complete drip oiler Lt. 5 with 2 regulators b) Complete drip oiler Lt. 5 with 3 regulators	5003800 5004800	1
8	Adp Sleeve 3"x3"	3000038	1
9	Seeger d.8	3000506	1
10	Seal condensate discharage in pls	3000501	1
11	Seal Gasket condensate discharage	3001037	1
12	Joint for the window's tank	3000034	1
13	Sheet for tanks window in pls	6001010	1
14	Rubber Vibration Damper Open for Bracket	3000151	4
15	Washer ∅ 12 x 36 ZN	2000861	4
16	Double Oiler for 2200/3300	5002100	1
17	Adp Sleeve 2" 1/2 x 2" 1/2	3000060	1
123	PVC trasparent tubing	3000251	1

TITLE:
G.P.V. 2200
ON TANK Lt.110

SIZE | DWG. NO. | REV

SCALE: 1:10 | WEIGHT: | SHEET 1 OF 1

17. WARRANTY

The company guarantees its equipment against defects in material and construction and agrees to replace ex-works defective components, provided they meet the following conditions:

- The defect must occur within 12 months from the date of commissioning of the machine;
- The machine must not have been modified, damaged and improperly used;
- The machine must be used following the instructions in the user 'user and maintenance;
- The guarantee does not apply to shares that are not original;
- The components that are not original manufacturing, such as engines and electrical parts are covered by warranty provided by the respective manufacturers;
- The above warranties are invalid if they are recognized defects due to regular wear and tear or a lack of maintenance, or accidents resulting from negligent use.

18. DECLARATION OF CONFORMITY CE

CTA milk®

VACUUM PUMPS FOR MILKING MACHINES

Manufacturer's name: **CTA milk srl**
Manufacturer's Address: **Via Laghi di Avigliana, 91**
12022 Busca (CN) Italy

Declares the partly completed machinery / equipment:

Model

- P.V. 3300 / G.P.V. 3300
- P.V. 2200 / G.P.V. 2200

Serial Number: .....

The machines are conform with the essential safety requirements of the directives:
- 2006/42/CE
- 2014/30/UE
- UNI EN ISO 12100 : 2010

Depositary of the technical documentation: CTA milksrl .

Busca, /

Stamp of the retail