

VACUUM PUMP – VAC 30

Installation and Maintenance Manual

VO. 0

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1- Introduction:

BRPumpParts _thanks you for your preference in purchasing the VAC-30 vacuum pump, we are sure that all expectations and objectives will be achieved with the services of our product.

When your pump needs maintenance or repairs, count on our maintenance kits of original ***vacuum pump parts – VAC 30***, where the parts are of high quality and will guarantee a longer life of your equipment, contact us through the website **brpumpparts.com**. The kits are strategically separated to make it easier to request the set of parts.

The vacuum pump aims to eliminate gas molecules from a closed system to create a vacuum, thus creating an environment with pressure below the atmospheric.

The ***VAC 30 vacuum pump*** is very effective in the priming system in fluid handling lines and other applications. Any questions about the application or information contained in this manual, please consult us.

Purpose and scope of this manual:

The purpose of this manual is to instruct our customers and technicians in the installation and maintenance of the ***vacuum pump – VAC 30*** . We advise that the instructions and information be used by experienced technicians in the handling and use of the necessary tools so that installations and maintenance are done in the safest and most effective way.

2- Warnings:



Attention: The information contained in this manual is for the installation and maintenance of the ***vacuum pump – VAC 30*** keep technicians and operators aware and trained with the information contained herein, always demand a lot of attention and care in handling the equipment so that there is a safe and efficient work.



Attention: Always make sure that the parts used in maintenance and repairs are original **BrPumpParts**, we have all parts available and separated in strategic kits to meet all maintenance and repair demand.

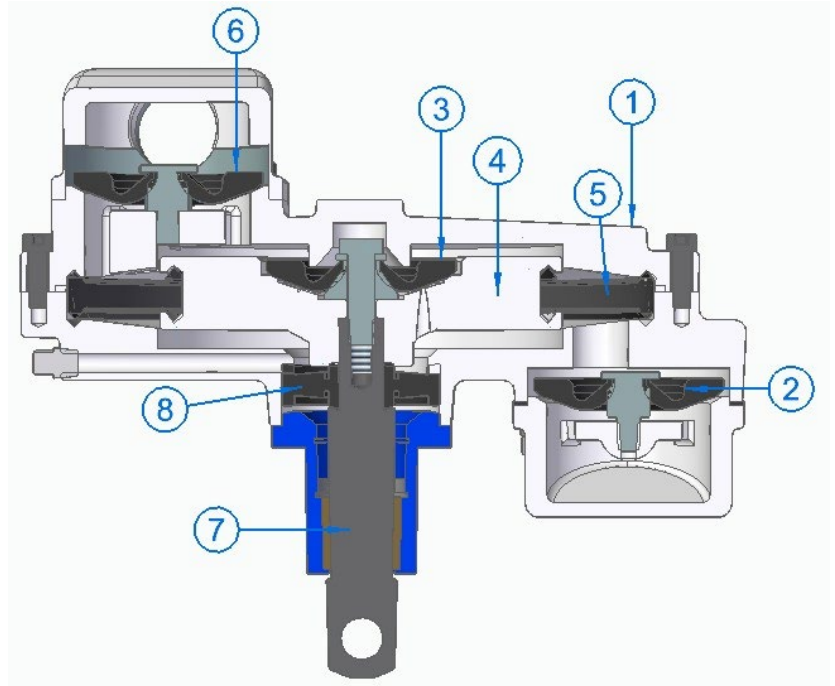


Attention: It is extremely important to take care of the handling of the equipment, both in installation, operation and maintenance so that there is no type of accident or damage to technicians and operators, **BrPumpParts** has as a principle the safety of all those involved with its products.

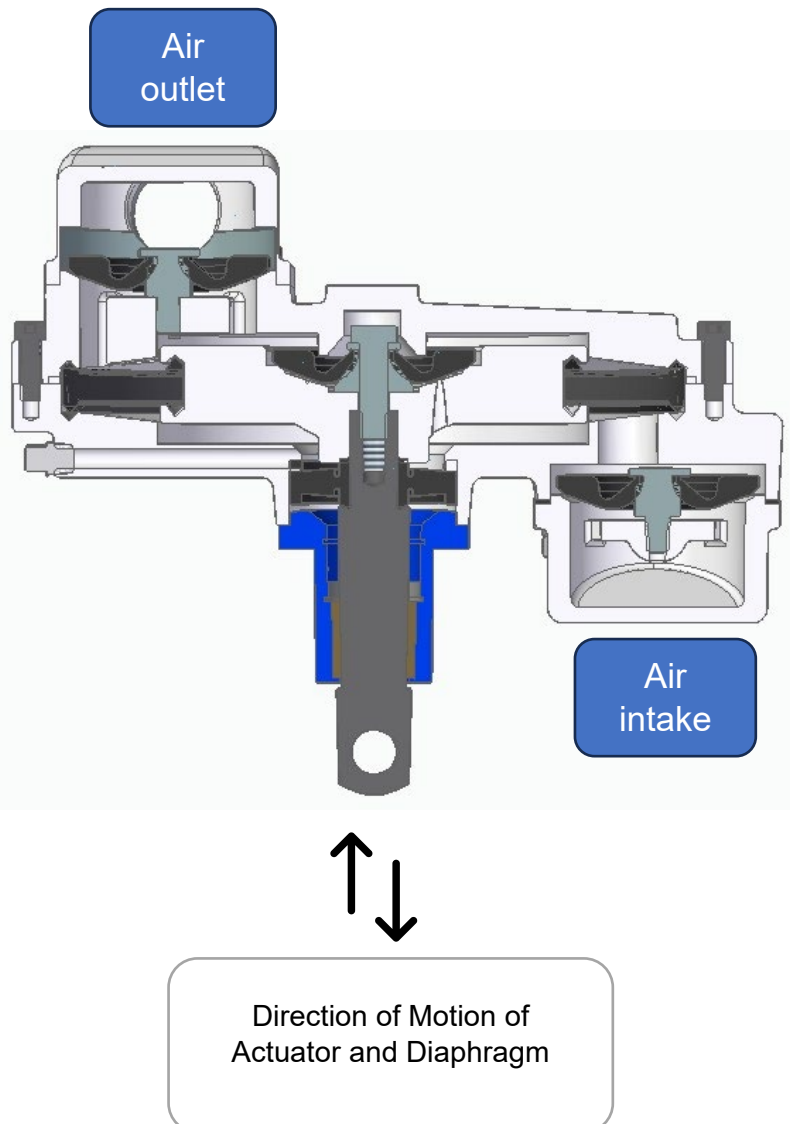
3- Vacuum Generator System:

Main items of the System:

- 1- Aluminum housing;
- 2- Inlet valve (rubber);
- 3- Central valve (rubber);
- 4- Actuator;
- 5- Diaphragm (rubber);
- 6- Outlet valve (rubber);
- 7- Actuator shaft assembly;



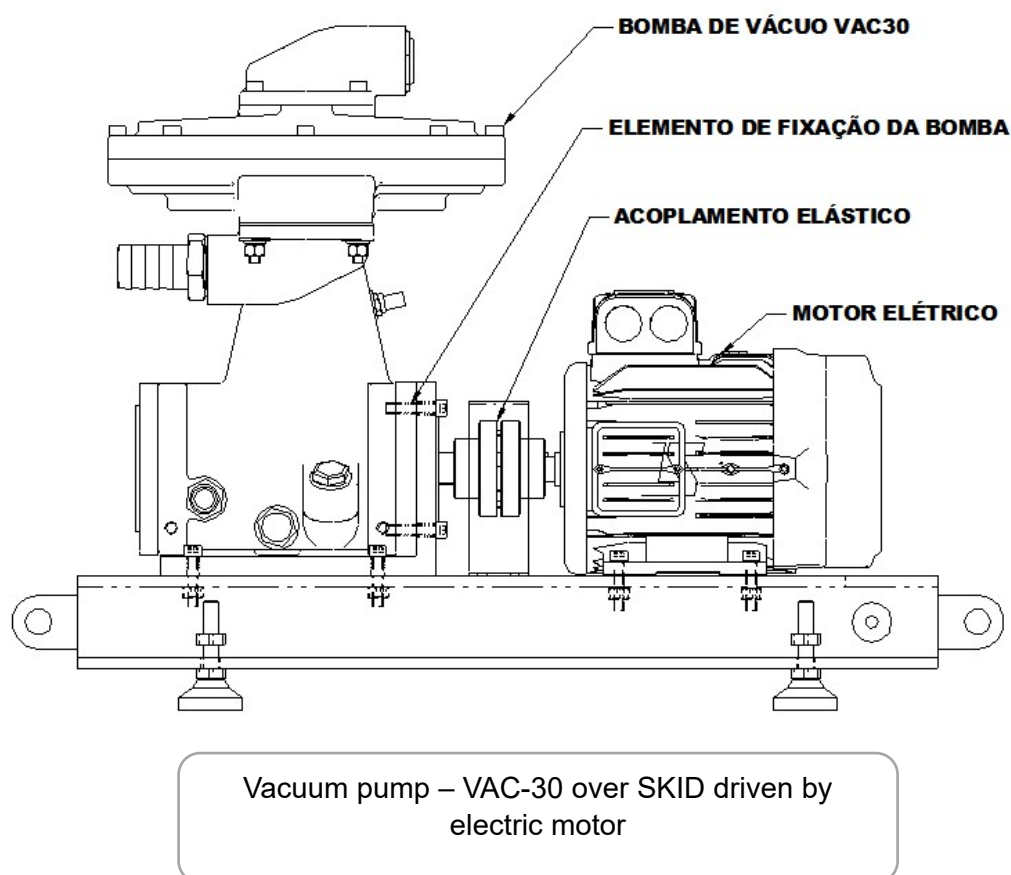
The VAC-30 pump is of the DIAPHRAGM type. It is a 2-chamber positive displacement pump (upper and lower) isolated by flexible rubber valves. At each cycle of vertical oscillation of the actuator + diaphragm assembly, the air is propelled from the lower chamber to the upper chamber, with the opening of the central valve in the downward and sealing in the upward movement, successively and continuously. Flexible valves allow for intermittent air passage by drawing out and reducing the air content and pressure of an isolated volume.



4. Installation:

The installation of the VAC-30 vacuum pump can be done in various equipment, which are suitable to receive the VAC-30, in view of the necessary holes for the insertion of bolts and nuts or an already threaded base, respecting the fixing measures of the vacuum pump base.

4.1- Vacuum pump assembly – VAC-30 with elastic coupling:



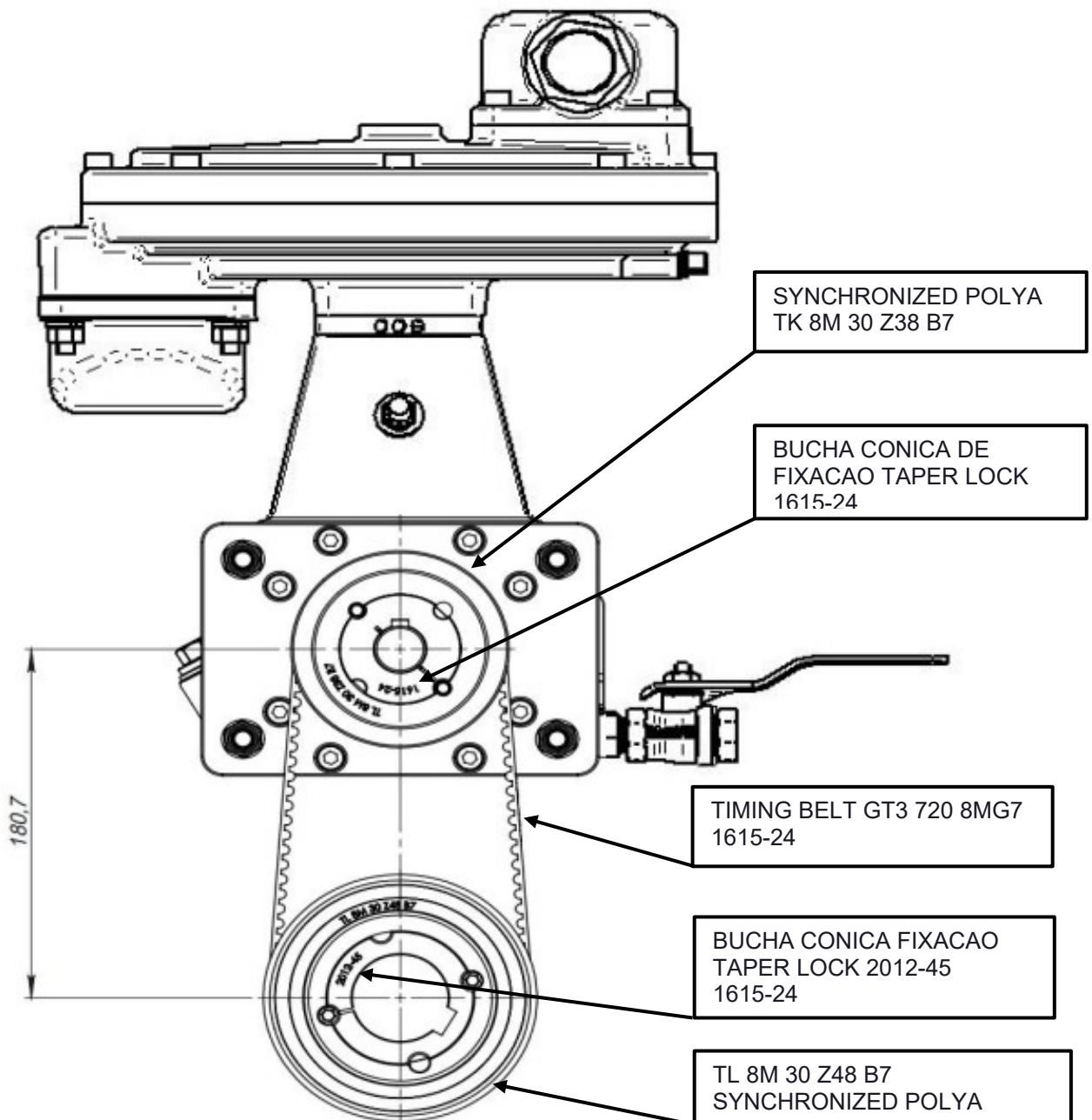
Instructions:

- 1- When assembling the vacuum pump with elastic coupling, maintaining the alignment of the VAC/MOTOR shafts, this will ensure a longer service life for the equipment and its perfect operation, insert the locking keys and screws.
- 2- Fix the vacuum pump – VAC-30 by means of screws, nuts and washers, if there is a base with threads, use a screw and pressure washer.
- 3- Respect the tolerances of the shafts and couplings, always use protection for the rotating parts, avoiding possible accidents and physical and material damage.



**WARNING – CHECK THE OIL LEVEL
BEFORE THE START OF OPERATION**

4.2- Vacuum pump assembly – VAC-30 with pulley:



Instructions:

- 1- When installing the vacuum pump with pulley, maintain the alignment of the MOVIDA/MOTIVE pulleys, this will ensure a longer useful life for the equipment and its perfect operation, insert the locking keys and screws;
- 2- Fix the vacuum pump – VAC-30 by means of screws, nuts and washers, if there is a base with threads, use a screw and pressure washer;
- 3- The belt must be properly sized for the system, and the diameters of the pulleys as well, where the correct rotation of the vacuum pump input shaft is guaranteed.



WARNING – CHECK THE OIL LEVEL BEFORE STARTING OPERATION

4.3- Installation of vacuum pump and Priming Chamber:



Instructions:

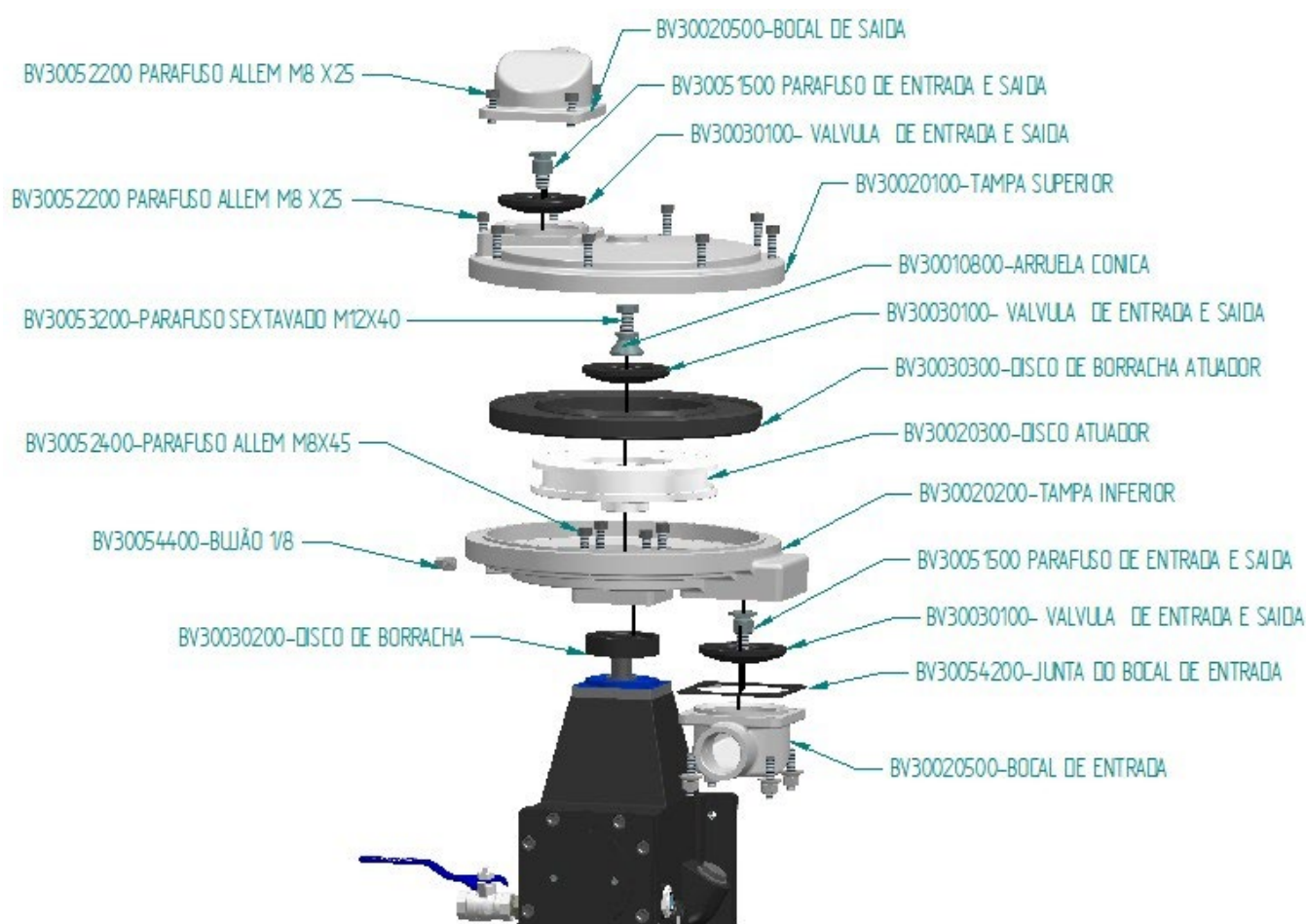
- 1- Fit the clamp at both ends of the hose, then attach the hose to the vacuum pump inlet nozzle spigot and the priming chamber spigot.
- 2- Tighten the cable ties making sure there are no leaks.
- 3- Open the valve at the outlet of the priming chamber for operation.

5- Maintenance:

5.1- Disassembly:

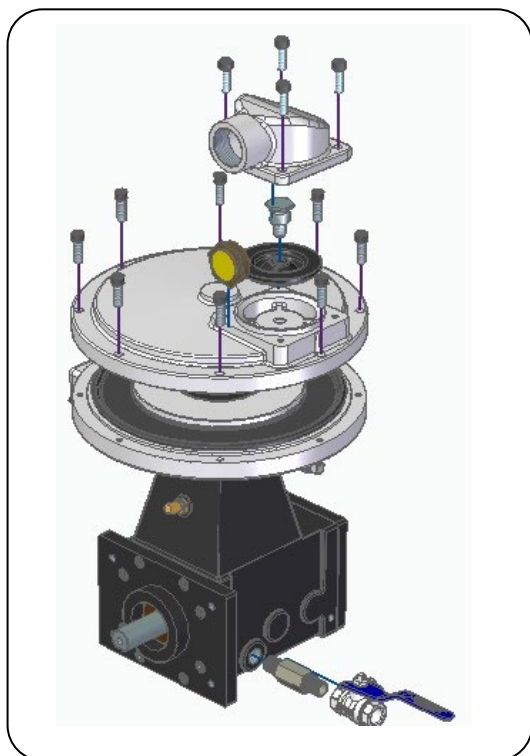
The disassembly of the vacuum pump is done in two parts, first from the top and then from the bottom.

5.1.1- Top:

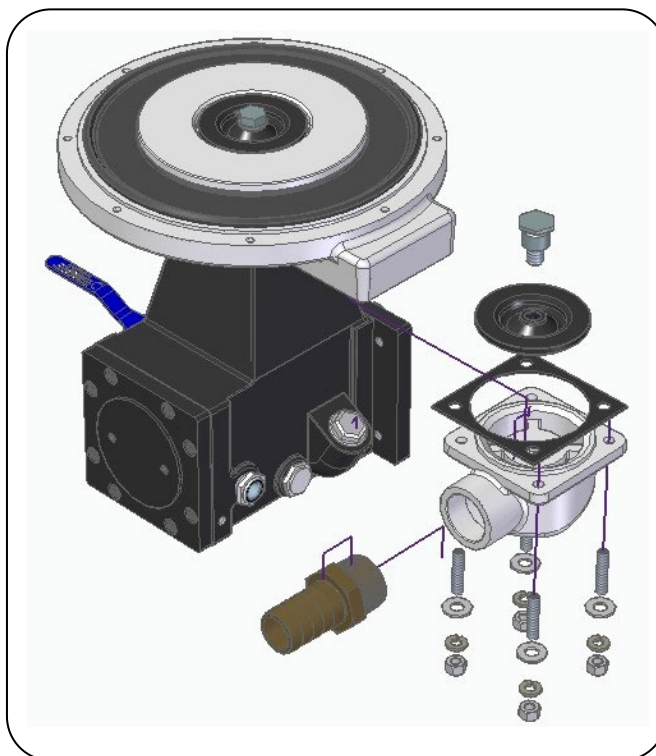


Disassembly Top

5.1.1.1- Disassembly of the inlet and outlet nozzle:



1- Disassembly of the outlet nozzle and top cover.

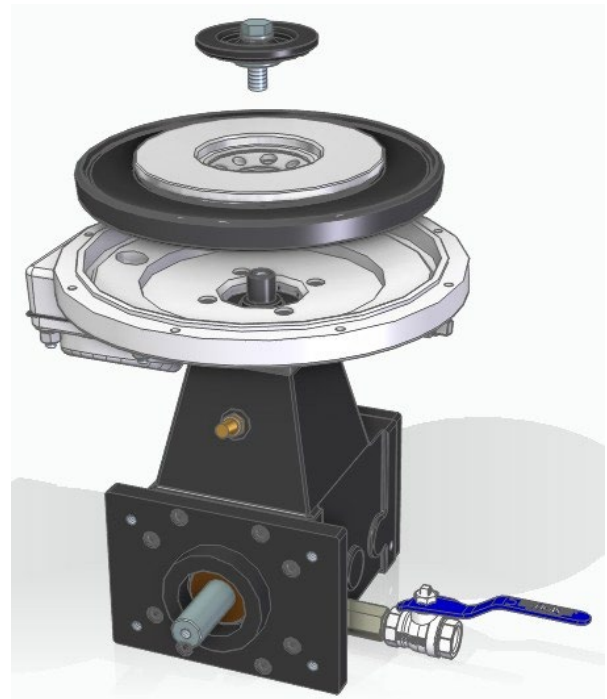
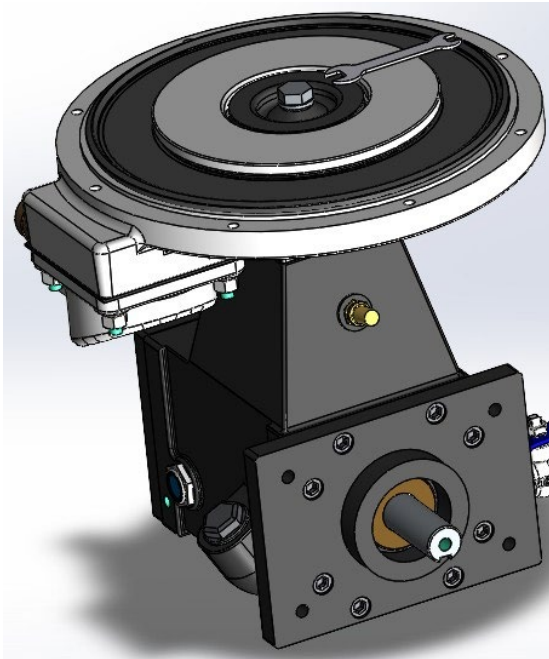


2- Disassembly of the inlet nozzle.

Instructions:

- 1- Remove the fixing screws from the outlet nozzle **[BV30020500]** and the top cover, remove the vacuum pump inlet and outlet screw **[BV30051500]**, then remove the inlet/outlet valve **[BV30030100]**.
- 2- Remove the inlet nozzle attachment nuts **[BV30020500]** remove the vacuum pump inlet and outlet bolt **[BV30051500]**, then remove the inlet/outlet valve **[BV30030100]**.

5.1.1.2- Disassembly of the actuator and valve:



3- Disassembly of the valve.

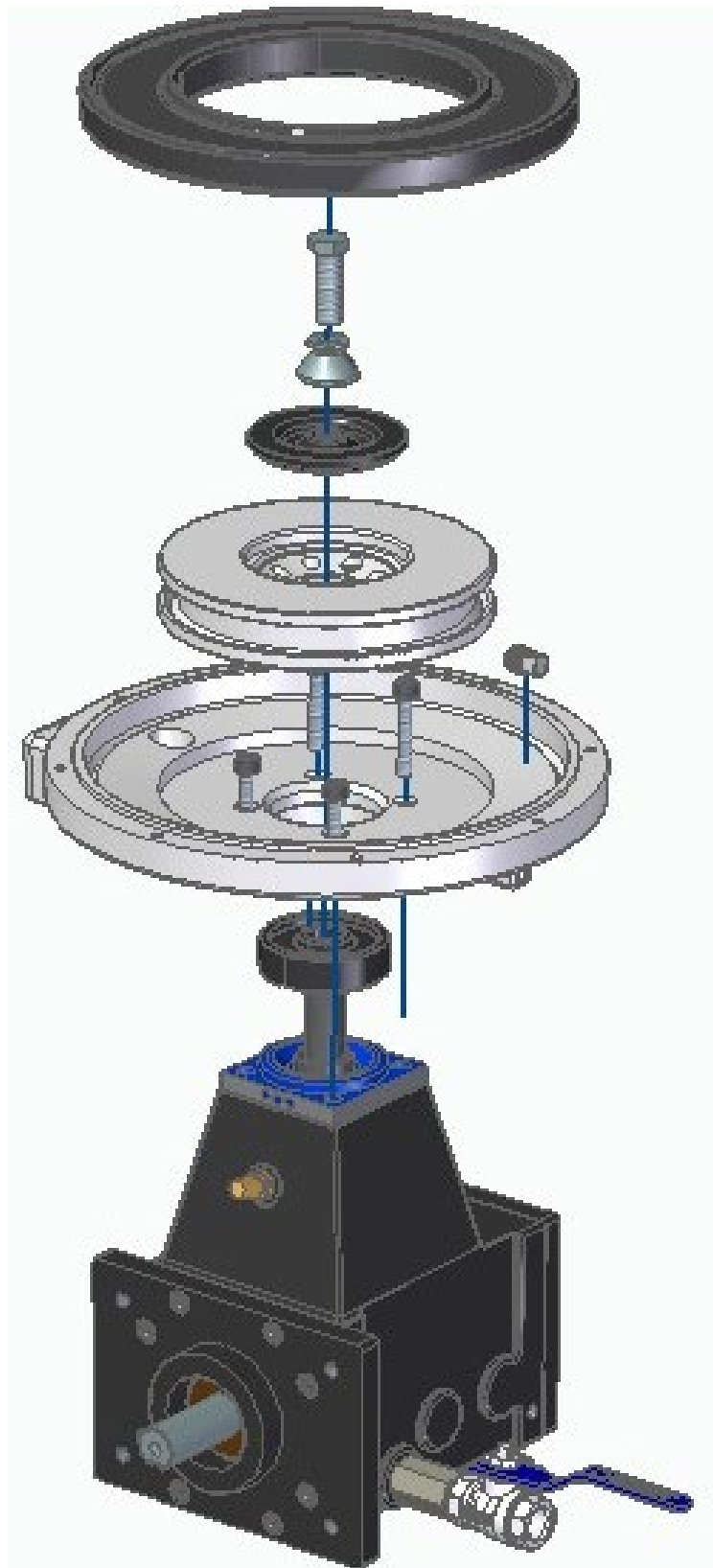
4- Disassembly of the actuator.

5- Disassembly of the bottom cover.

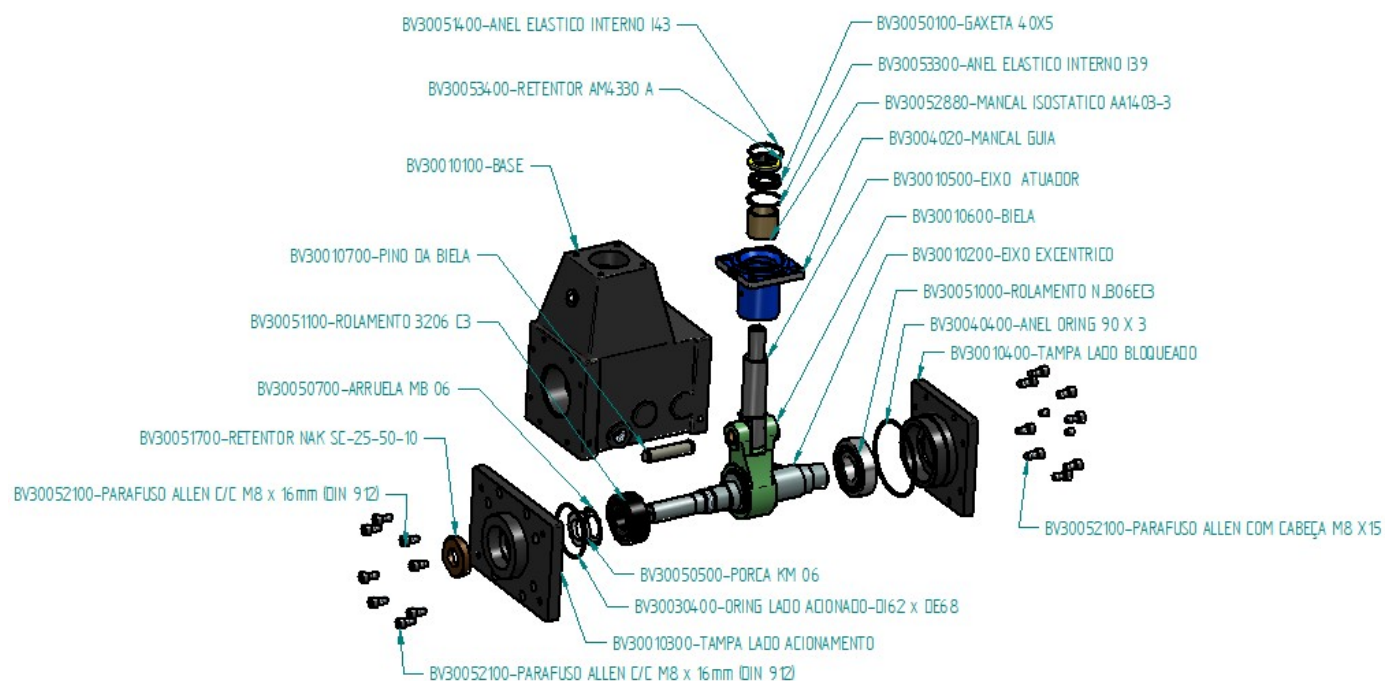
Instructions:

- 3- Remove the hex bolt that secures the valve **[BV30053200]** to the actuator shaft.
- 4- Remove the valve, and the tapered washer, remove the actuator mounted with the diaphragm **[BV30030300]**.
- 5- Remove the four screws that lock the bottom cover**[BV30030200]** to the guide bearing.
- 6- Remove the rubber disc **[BV30030200]** from the bottom of the bottom cover.

5.1.1.3 Disassembly Detail:



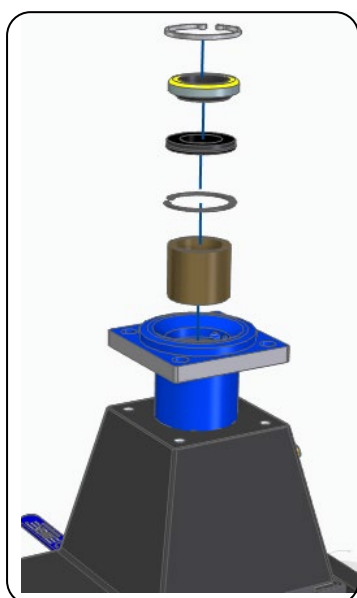
5.1.2- Bottom:



Bottom Disassembly

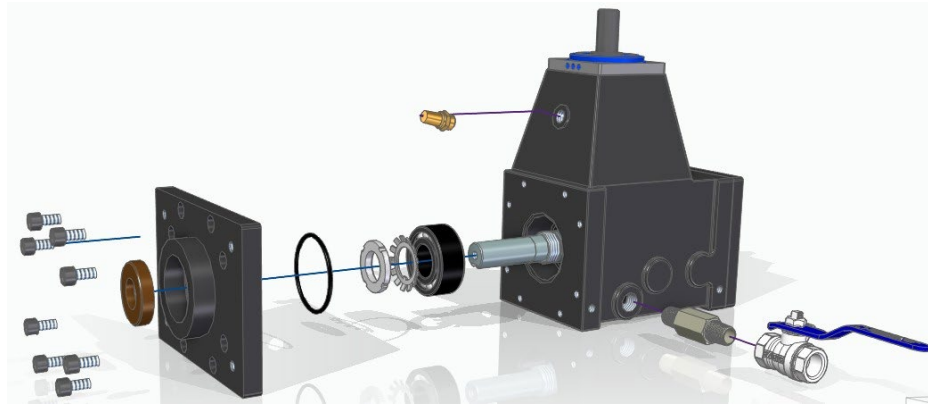
Instructions:

5.1.2.1- Bottom disassembly:



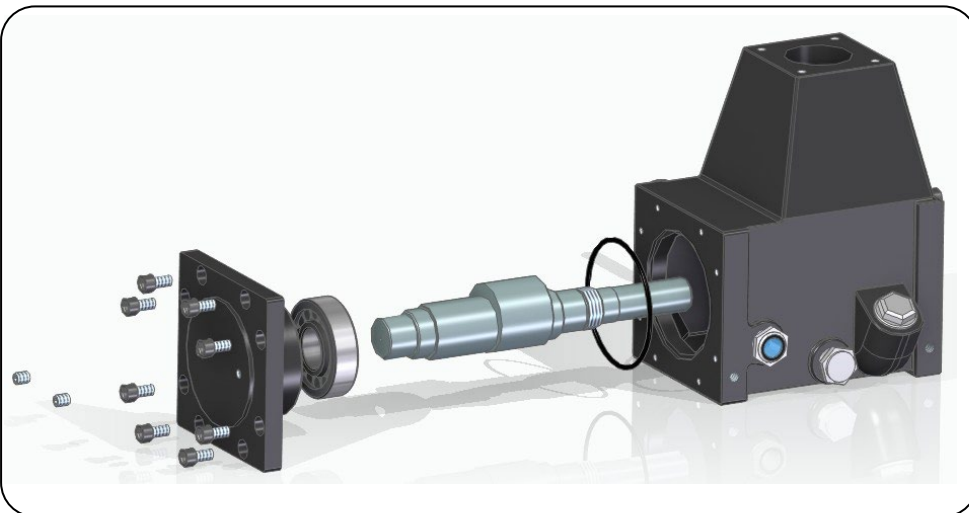
7- Detach the guide bearing from the base of the vacuum pump and with elastic ring pliers remove the elastic ring **[BV30053300]**, to remove the isostatic bearing **[BV30052880]** it is necessary to use a hydraulic press or thermal blower.

7-Removing Bearing Guide



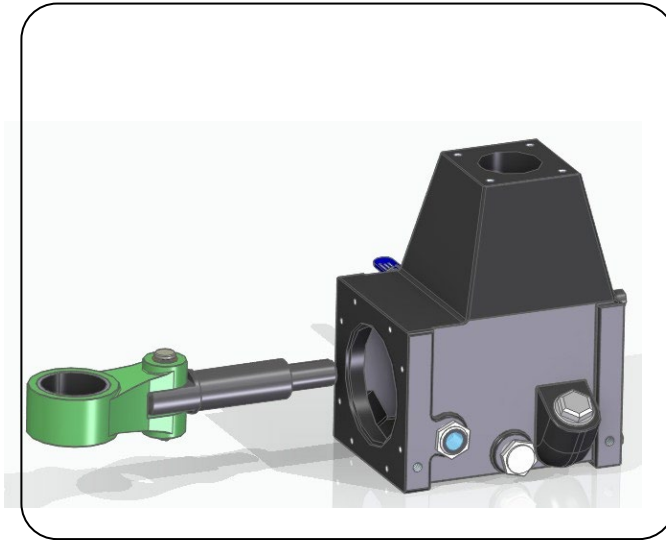
8-Side Cover Removal Driven

8- Remove the screws from the cover on the driven side, then remove the O-ring **[BV30030400]**, Remove the KM nut **[BV30050500]** from the eccentric shaft, then the KM washer **[BV30050700]**, the bearing **[BV30051100]**.



9-Eccentric shaft removal.

9 Remove the bearing cover bolts, then remove the O-ring **[BV30040400]**, pull the eccentric shaft assembly



10- Removal of connecting rod and actuator

10-Remove the screws from the cover on the locked side, then pull the actuator shaft assembly.

6- General warnings for reassembly:



Attention: When starting the reassembly of the ***vacuum pump – VAC 30***, make sure that all components are in their proper places and positioned correctly.



Warning: Make sure all the flat and lock washers are attached to the bolts and studs, tighten the bolts and nuts correctly, to ensure that the bolt does not loosen due to the vibration of the vacuum pump.



Warning: Make sure that all cable ties or any items that connect to other equipment connected to the vacuum pump inlet nozzle are tightened, so that there is no leakage and partial or total loss of efficiency of the ***vacuum pump – VAC 30***.



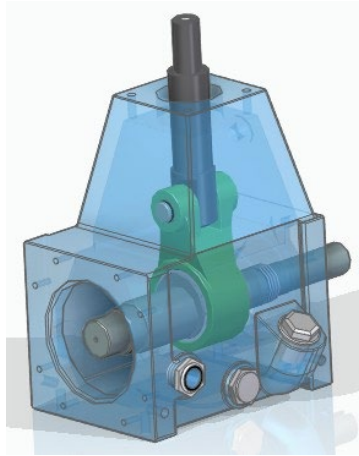
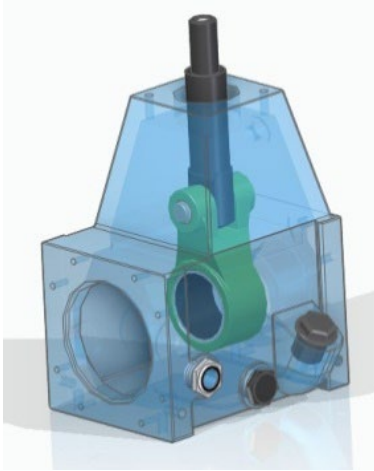
Attention: Make sure that all gaskets, O-RING'S and rubber valves are assembled, paying attention to the correct positions of these items.



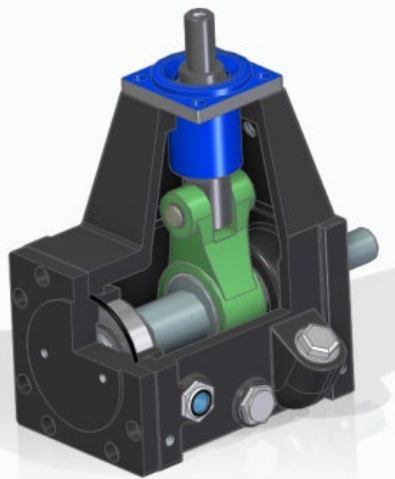
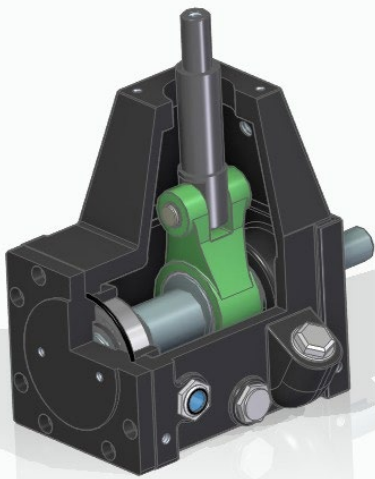
Attention: Make sure that the oil level is correct on the display at the base of the vacuum pump, the lubrication of the components is essential for the correct operation and efficiency of the equipment.

Instructions:

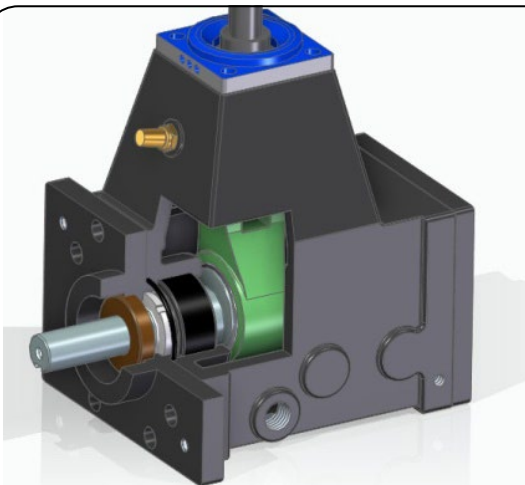
6.1- Reassembly of the vacuum pump base:



1- Reassembly of the connecting rod, actuator shaft and eccentric shaft assembly.



2- Reassembly of the cover on the blocked side, bearing of the cover and guide bearing.



3- Reassembly of the bearing, km nut and cover on the activated side.

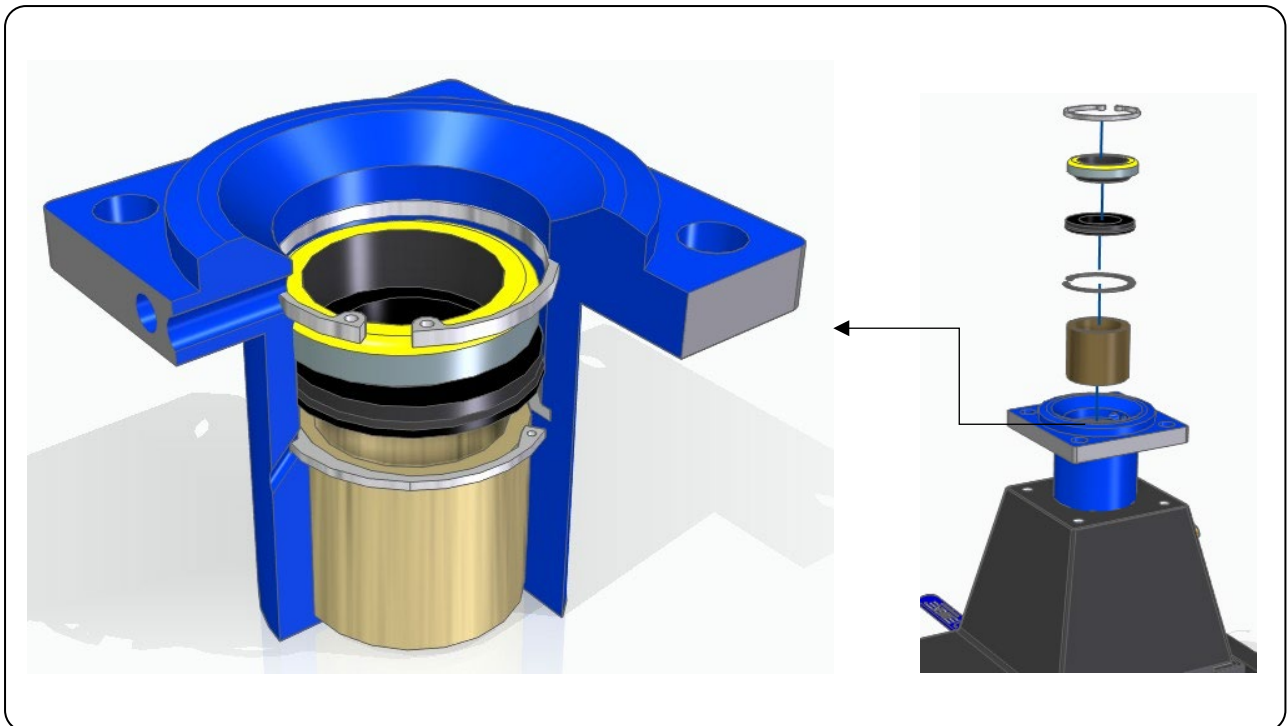
Instructions:

1-Install the connecting rod and actuator shaft assembly on the base guiding the actuator shaft in the upper hole of the base, then install the eccentric shaft guiding the eccentric neck on the connecting rod.

2-Install the bearing **[BV30051000]** on the cover on the locked side **[BV30010400]**, install the oring **[BV30040400]** ring on the cover and screw the cover on the blocked side on the base, guiding the bearing on the eccentric shaft, then install the guide bearing on the base.

3-Install the bearing **[BV30051100]** on the eccentric shaft, MB06 washer **[BV30050700]** and KM6 nut **[BV30050500]** locking the bearing on the shaft, then install the oring ring **[BV30030400]** and retainer **[BV30051700]** on the cover of the driven side, screw the cover on the base

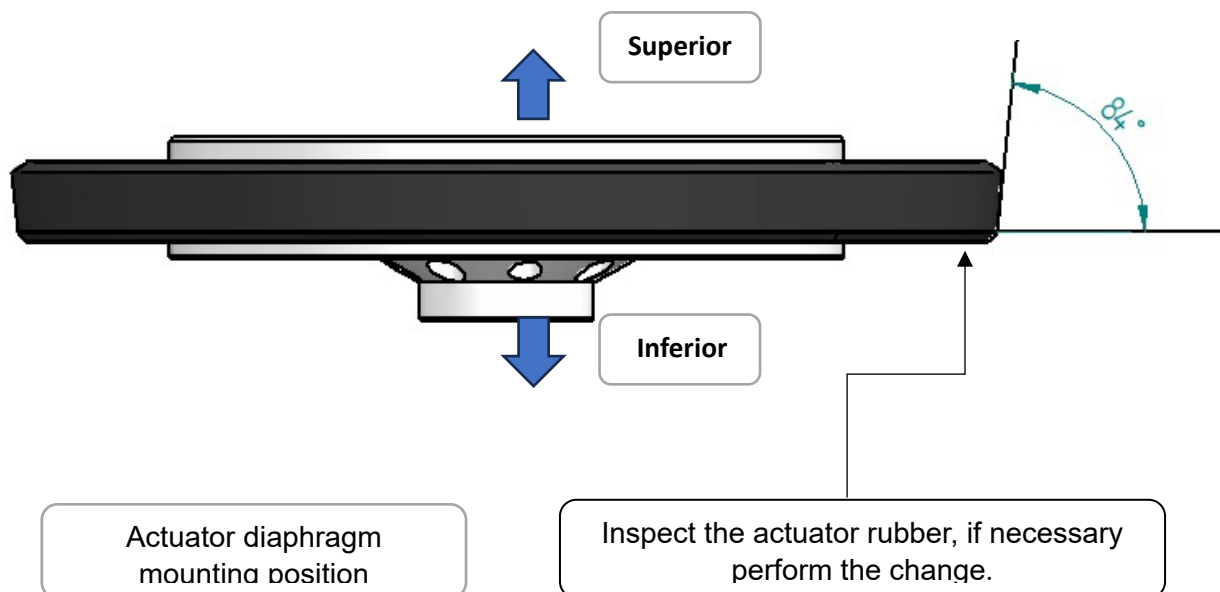
6.2- Reassembly of the guide bearing:



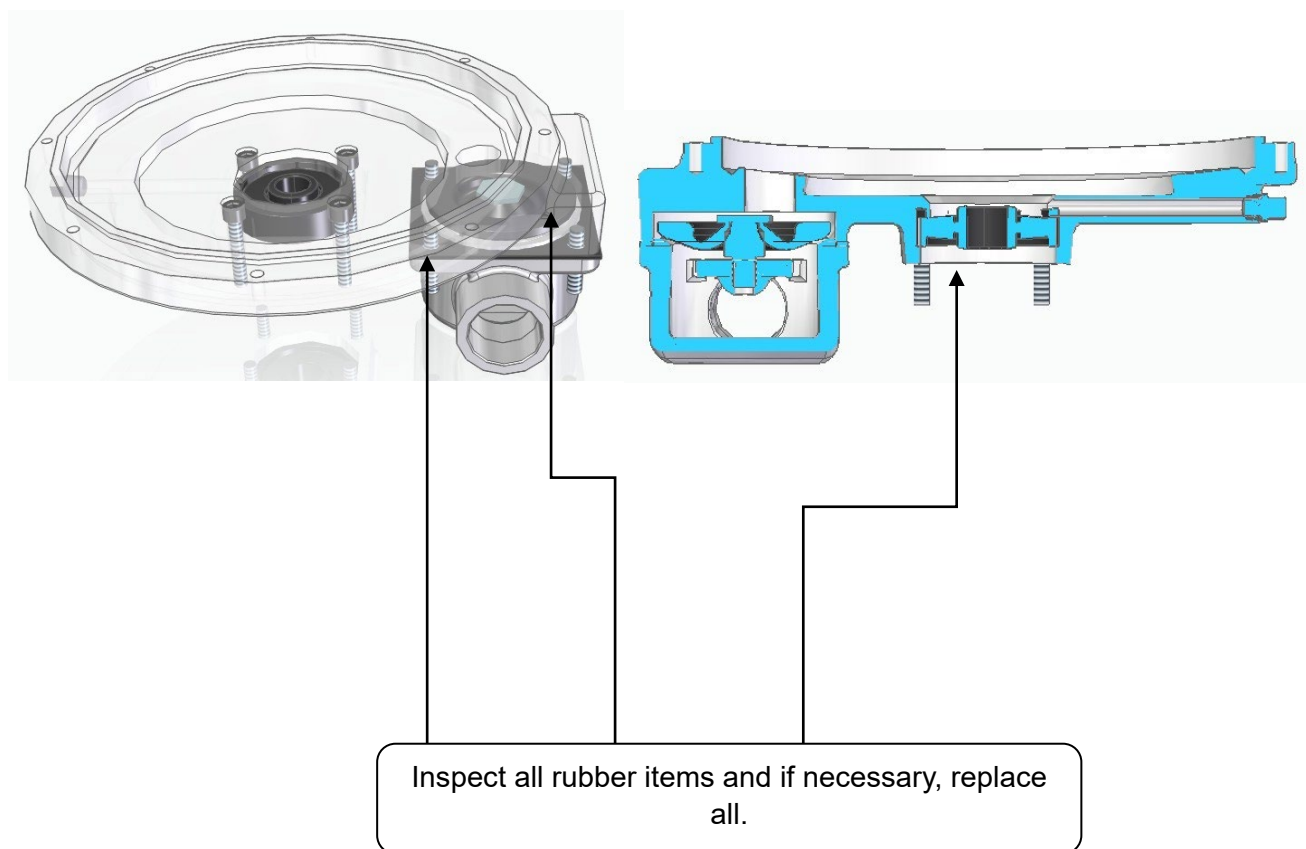
Inspect the bearing bushing, if necessary, make the change.

Inspect the retainer, if necessary, make the

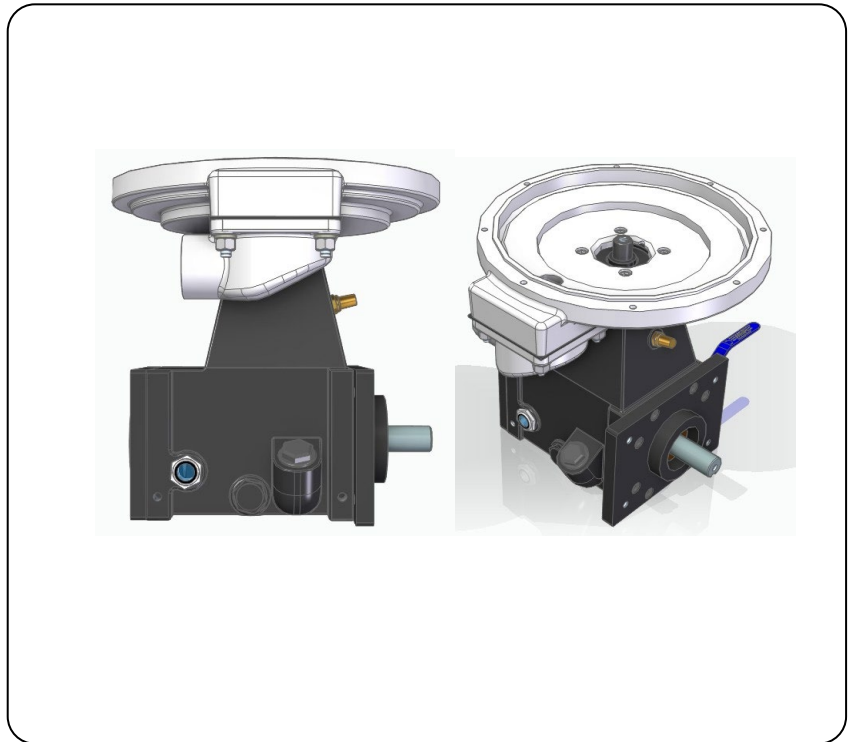
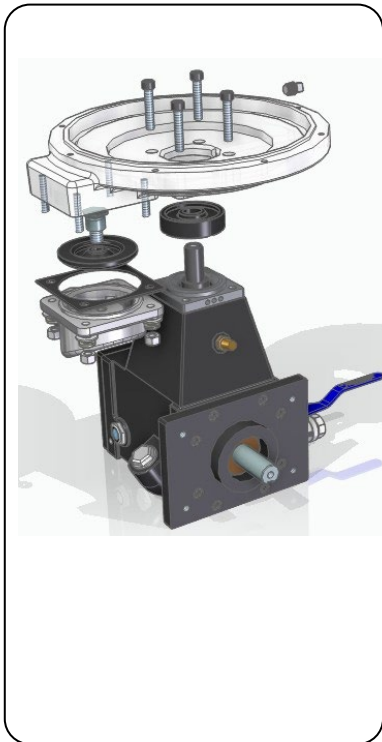
6.3- Detail of the actuator mounting position:



6.4- Detail of the mounting position of the bottom cover:



6.5- Reassembly of the lower cover assembly:



Reassembly of the
bottom cover assembly

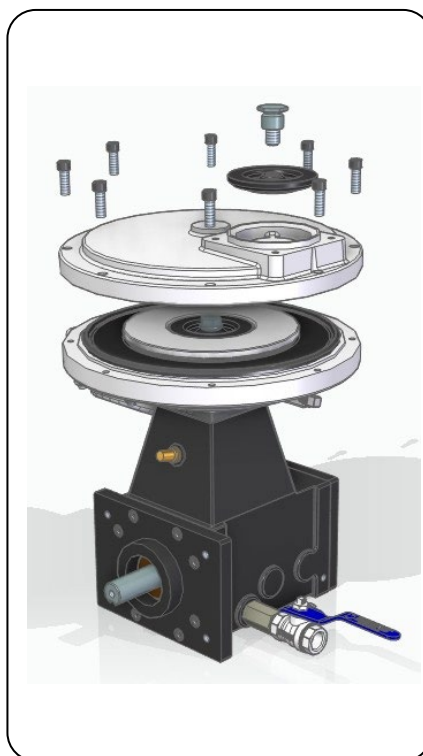
Instructions:

- 1-Position the bottom cover assembly by guiding the rubber disc **[BV30030200]** on the actuator shaft
- Tighten the four Allen screws **[BV30052400]** by locking the bottom cover assembly to the base.

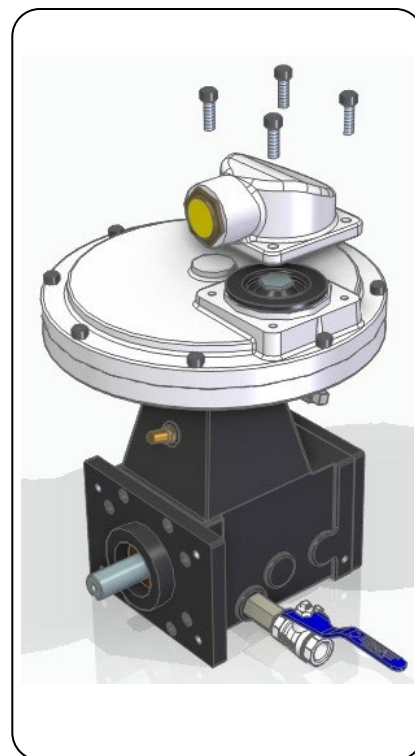
6.6- Reassembly of the actuator disc valve top cover :



1- Reassembly of the actuator disc and central valve.



2- Reassembly of the top cover.



3- Reassembly of the outlet nozzle.

Instructions:

1- insert the actuator disc assembly at the end of the actuator shaft, then house the conical washer, with the valve already mounted on the conical washer, thread the M12 hex bolt onto the shaft.

2- Reassemble the top cover by screwing into the bottom cover, tighten the screws properly.

3-Reassemble the inlet/outlet valve on the I/O valve screw, position on the top cover and screw on the cover. To finish, reassemble the outlet nozzle on the top cover and tighten the screws.

7- Periodic maintenance:



Attention: Change the oil every 500 hours, use 800ml of 10W40 oil;



Attention: Inspect the rubbers every 2000 hours.



Attention: Check seals and bearings in all maintenance.



Attention: Check the O-rings seal.



Attention: Make sure that all bolts and nuts are properly tightened, so that there is leakage and loss of efficiency of the equipment.

8- Specifications:

MODEL VAC-30 DIAPHRAGM PUMP

- Nominal Capacity: (29CFM) or 50 m³/h
- Maximum Vacuum = 85% of the local atmosphere, oil-free.
- Recommended rotation according to operating regime:
 - Continuous: from 1500 to 2200 rpm
 - Flashing: up to 2200 rpm
- Maximum power consumed: 2.2 KW (3hp)
- No-load consumption: < 0.5 KW
- Building materials:
 - Vacuum chamber: Corrosion-resistant aluminum and nitrile rubber elastomers.
 - Rotating assembly: Nodular iron, carbon steel, oil-lubricated stainless steel.
- Inlet and outlet connection: 1 1/4" BSP internal thread or hose with clamp 2"
- Weight: 30 kg
- Recommended oil: SAE15W40
- Oil volume: 650ml
- Oil Change: Every 500 Hours

Screw torque ft-lb (Nm)				
Size	Key	Stainless steel Stainless Steel 304	Grade 5 Steel	Aluminium Gray 5
1/4"	7/16"	3 (4)	9 (12)	6 (8)
5/16"	1/2"	7 (9)	19 (26)	12 (16)
3/8"	9/16"	13 (17)	34 (46)	20 (25)
7/16"	5/8"	20 (27)	54 (73)	35 (45)
1/2"	3/4"	31 (42)	83 (113)	55 (75)
9/16"	13/16"	45 (61)	120 (163)	80 (110)
5/8"	15/16"	63 (85)	165 (224)	110 (150)
3/4"	1.1/8"	112 (152)	293 (397)	190 (255)
7/8"	1.5/16"	180 (244)	474 (643)	280 (380)
1"	1.1/2"	270 (366)	710 (963)	420 (570)
1.1/4"	1.7/8"	540 (732)	1421 (1927)	-