1788Lab INSTRUMENT

Vacuum Pump

MODEL: V-500

真空幫浦保養說明

Lab Online Exhibition
www.1788lab.com
E-mail: info@1788lab.com

目　　錄

V-500 真空幫浦的保養維護

1. 真空逆向閥

如果真空幫浦不能達成要求真空度時，經常是由真空逆向閥內有殘留樣品所引起，因此要定期清理真空逆向閥。

清理的步驟：

1）移除真空幫浦上的所有接管與消音器。

2）打開電源開關。

3）注射丙酮(一次 10 毫升)在真空幫浦抽氣口和放置一個廢液接收容器於出氣口處接收清洗完真空幫浦的丙酮(如圖所示)。

4）重複指出 3）清洗四到五個次。

5）完成上述清洗步驟後，檢查真空幫浦是否達成要求真空度。

6）如果在清潔完真空幫浦後扔不能達成要求真空度時，在使用下一章真空幫浦頭、真空逆向閥與膜片的拆解與組裝

之前再一次重複清洗步驟。如下圖所示：

2. 真空幫浦的外殼

1）在清潔之前，請切斷電源。

2）真空幫浦的外殼是用塑膠製成的。若有酸性物質滴在外殼上一定立刻用潮溼的抹布擦拭乾淨。用有機溶液清潔外殼(例如：乙醇）是會造成損害並且不被允許。

3）先將玻璃蓋用清潔劑(例如：稀釋肥皂溶液)清洗，再以清水沖洗乾淨並將水分擦乾。檢查玻璃蓋有無破裂或裂縫，因為在真空幫浦運轉時，若玻璃蓋有破裂或裂縫會影響真空度。

4）橡皮軟管和墊圈一定要檢查，如果有裂痕發生，或已經變得易碎，一定用更換新橡皮軟管。

3. 真空幫浦的散熱

1）真空幫浦會產生熱能，故使用真空幫浦環境最好在有空調或通風良好的地方。

2）真空幫浦內部前後各有一個風扇幫助散熱，用手靠近時會感覺有微風，若其中一邊無感覺有風吹出時，則可能內部風扇損壞需立即通知本公司維修人員進行檢修更換，否則可能造成真空幫浦更大損壞。

V-500 真空幫浦頭、真空逆向閥與膜片的拆解與組裝

1）在正常的用法情況之下，膜片和真空逆向閥是不需要更換的。

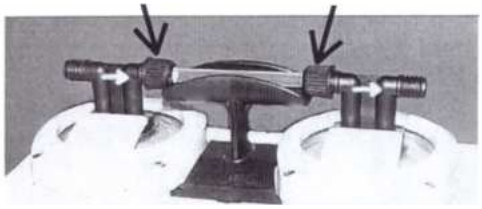
2）如果真空幫浦不能達成要求真空度時，真空幫浦、真空逆向閥與膜片是要清洗。

3）如果真空幫浦的真空度表現不良，***真空逆向閥(38025)*** 或者膜片可能要更換***(備用零件 38120)***。

4）注意：在更換膜片之前，請切斷電源。

5）真空幫浦頭是很精細在拆解結束時，注意玻璃蓋、真空逆向閥與膜片有無受到機械的損害。並在組裝之前檢查個零件是否有破裂、損壞與變形。

6）**建議：若有要拆卸更換玻璃蓋、真空逆向閥與膜片時，最好是通知本公司幫您更換，若您自行要更換時，請參照下一章節原廠原文說明逐步拆解與安裝。**



Removal and cleaning of valve head

1 . Release both of the black hose couplings GL-14 between The pump heads.

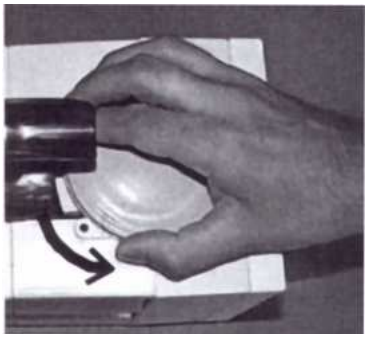
2. Using the allen wrench provided, loosen crosswise with a quarter-turn each and remove the 4 screws on the valve head top.

3. Carefully remove the valve head top with the valve head and glass head.

4. Place the entire pan on a soft surface. The glass head can now be removed by applying light pressure to the valve head.

The valve head, glass head, and diaphragms can now. be cleaned with a suitable cleansing agent (e.g., acetone). or defective parts can be replaced. The valves of the valve head can be cleaned by putting the whole valve head into an acetone bath. If they are still contaminated, use an ultrasonic bath.

Avoid hitting the sides and edges of the glass head. A glass. head which has been dropped may not suffer any apparent damage, but could break if used again!

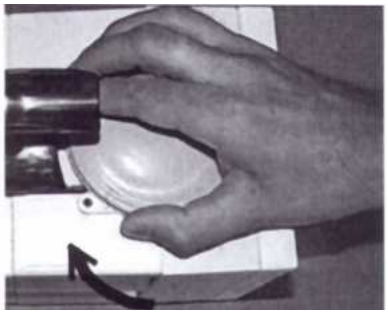


Removal of the diaphragms

Only remove the diaphragms if they are broken or can not be cleaned in a mounted way. They can be released by turning them counterclockwise.

Replacement of the diaphragms

Before you replace the diaphragm make sure, that the diaphragm holder fits tight on the lower side of the diaphragm. There must be **no gap** between holder and diaphragm

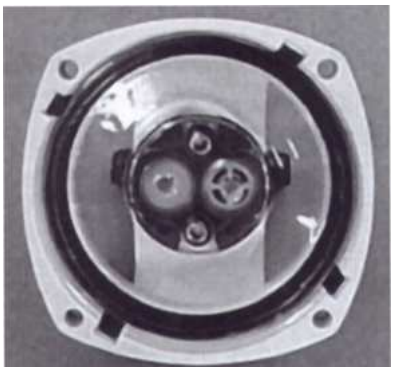


The diaphragm and the diaphragm holder can then carefully be screwed on and tightened by hand with the same force as your have needed to detache it before! Check again if there is **no gap** between diaphragm and holder after replacing the diaphragm.

Replacement of the pump head and assembling

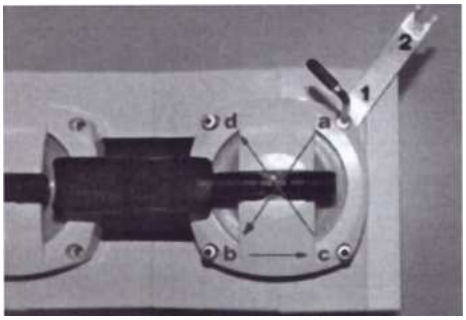
1.Before replacing the valve head check if the valves are not stuck together by holding the head between two fingers.

You should hear a soft clicking while shaking it carefully.

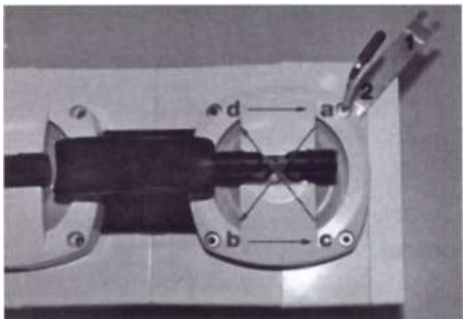


2. Place the valve head into the valve head top. Check if the rubber sealing is symmetrical placed in the metal part of the valve head top. Then snap the glass head into the top so that the knobs on the glass head fit into the spaces on the valve head. Place the assembled pump head on the diaphragms.

Pay careful attention to the arrows on the upper part of the valve heads. They must point in the same direction on both pump heads.



3. Place the setting gauge side number 1 between the metal top and thread and screw the first screw (a) in so that the setting gauge can be removed without force. After the first screw do the same procedure with the screw (b) and then with the screw (c) and last but not least again with the screw (d) (Crosswise).



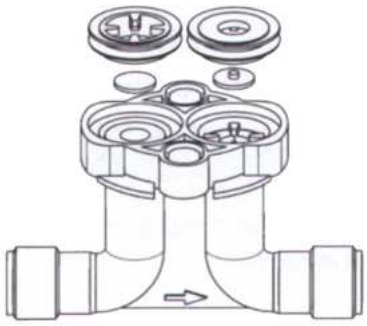
4. If all screws are on the level 1 change to the side 2 of the setting gauge. Place this side between metal top and thread and screw the first screw (a) one quarter-turn in. After this change the setting gauge to screw (b) and screw this one also a quarter -turn in. Go on with the screw (c) and (d) in the same way and repeat this procedure till you can't remove the setting gauge without force. Loosen the screw a little bit to take out the setting gauge and leave the screw on this position.

Hold the short red pan of the allen wrench to tighten the screws, which will provide for the correct tightness.
You should only use screws with a blue spot on the thread. The blue spot is a Tufloc coating which prevents the screw from loosening during operation or transportation of the pump. If you are using a new screw it could be possible that you need a slightly higher force to screw this in. This doesn't matter and doesn't influence the result of your work.

5. Now connect the connecting hose, tighten the hose connections, and then assemble the second pump head the same way as the first one.

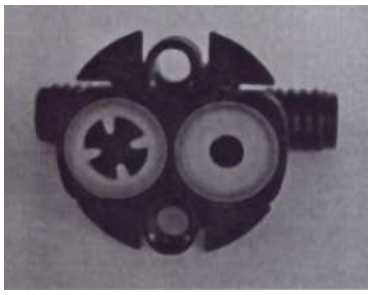
Valve head without valves

6. If the vacuum is not achieved, it may be necessary to replace or clean the valve head seals. To do this, remove the valve heads as indicated in 6.2. 1-4.



Insert the valves

Carefully take the white sealing rings out of the retainer using the valve reed and place them in an ultrasonic bath (if possible).



Valves head with Insert valves

Refit the cleaned individual parts or replacement pans as shown in the diagram.

Function control

The function control should be done each year according this instruction :

- Cleaning (see page2 and 4)
- Visual control of the device, connection cable, glass parts and tube connection .

Deviations：

Suction time of a volume of 3 It on end vacuum of 20 mbar is longer than 60 seconds.

Customer Service

Work on or in the apparatus may be carried out only by authorized service personnel. These are people with sound technical vocational training and knowledge of the risks which result when safety measures are disregarded. BUCHI customer service offices have service manuals specific to the various apparatus; these manuals can be obtained only by authorized personnel .

The addresses of the official BUCHI customer service offices are listed on the last cover page of these operating instructions. If malfunctions arise or if you have technical questions or problems in operating the apparatus, please turn to these offices.

BUCHI's customer service provides the following services:

- Spare pans service
- Repair service
- Maintenance service
- Technical consulting.

Working with strong acids / bases en Buchi VAC V-500 - 513

If strong acids or bases are removed with a Vacuum pump, protecting clothing such as goggles and laboratory coats must be worn during operation of the device.

If strong acids or bases are distillated we highly recommend to rinse the pump after the application to increase the lifetime of the instrument.

That means 5-10 ml of water should be sucked in trough the pump inlet and collected directly after the pump outlet. This process should be repeated as long as the pH of the liquids coming out of the pump outlet, is between 3-9.

After that the pump is been dried, by sucking air through the pump for2-3 min.

Putting out of order

Before the device can be moved, the power cable must be disconnected and all hoses taken off.

Storage / Transport

Clean the device thoroughly (see 6.1). Any chemicals remaining in the device must be removed completely and the glass pans must be washed. Return the device to the original packaging for storage and transport

Disposal

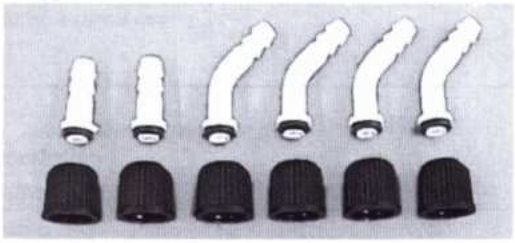
Chapter 8, Appendix, contains a list of the materials used in manufacturing the device so that it can be disposed of in accordance with environmental regulations. This ensures that the various parts can be separated and recycled properly.

Please observe the valid regional and local statutes in disposing of the device.

Spare parts

Only original spare parts and accessories from BUCHI guarantee that the device will function properly and safely. Spare pans and accessories from other manufacturers may be used only with the express permission of BUCHI AG. General safety regulations and page 10 must be observed when assembling or dismantling the device. Before putting the device into operation, please check that it is fully functional as described in page 4. Production according to this manual is forbidden.

Spare parts



1 Spare pans set with 2 valve heads and 2 diaphragms	**38120**
1 Glass head set (with 1 glass head)	**37966**
1 Valve head set (with 2 valve heads)	**38025**
1 Diaphragm set (with 1 diaphragm) 38020	
1 Set of hose connections (2 × bent /2 ×straight / 6 ×screw caps)	**37999**
2 Sealing caps 1 PTFE hose	
1 Set of hose connections (4 × bent / 2 ×straight / 6 ×screw caps)	**38000**
1 Control cable Vacuum Controller V-800 toV-500, or B-721 zu 721	**38010**
1Secondary condenser	**37775**
1 Holder for secondary condenser and collecting tank	**38086**
1 Collecting tank for secondary condenser	**37949**
1 Spring lock washer	**37872**
1 Gasket for secondary condenser or valve unit	**37873**
1 Collecting beaker for valve unit	**38005**
1 Signal cable for KNF vacuum controller	**38015**
1 Signal cable for Vacuubrand vacuum controller	**38014**
1 Sound absorber	**37947**
1 Rubber vacuum hose, 2 m	**17622**
1 PVC vacuum hose, 2 m	**04133**
1 Cooling water hose, 2 m	**05133**
1 Stand with holder for valve unit / secondary condenser	**38021**

保 養 維 護 紀 錄 表

日 期	儀器名稱	維 護 情 形	保養人	備 註