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WIGGENS
THE MAGIC MOTION

Мебранные вакуумные насосы

CSC410/CSC510/CSC610

руководство по эксплуатации

V1.1_09122013

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Congratulations!

You have made an excellent choice.
WIGGENS wants to thank you for the trust you have placed in us.
This operating manual has been designed to help you gain an understanding of the operation and possible applications of our CSC series vacuum pumps. For optimal utilization of all functions, we recommend that you thoroughly study this manual prior to beginning any operation.

The WIGGENS Quality Management System

ISO 9001
Certificate Registration No. 01 100084841

Unpacking and Inspection

Unpack the pump and accessories and inspect them for possible transport damage. Damage should be reported to the responsible carrier, railway, or postal authority, and a damage report should be requested. These instructions must be followed fully for us to guarantee our full support of your claim for protecting against loss from concealed damage. The form required for filing such a claim will be provided by the carrier.

Printed in Germany

Important: Keep the operating manual for future use

Contest

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1. Important Notice

The vacuum pump is designed for laboratory use only. Before the setup and operation of the unit, please read these instructions carefully to familiarize you with all installation and operation process. Any individual should be well trained by reading the instructions or by technical people from the authorized distributors before operating the unit.

Do not modify or alter the unit in any way. Any modification or alteration will void the warranty and would result in potential hazards.

We won't be responsible for any injury or damage caused by using the unit in case of any non-intended purpose, or modifying the unit by any person who is not authorized.

2. Unpacking

Please notice if the unit is in good situation. In case of damage or lack of any part when unpacking then please contact our local distributor or contact us by e-mail: **info@chemvak.com** immediately for assistance.

3. Description

The Chemvak vacuum pump series was developed by Chemvak specifically to satisfy the exacting standards, reliability and ease of use demanded in todays laboratory applications.

Chemvak diaphragm pump technology has proved itself during recent decades and the Chemvak range is a logical continuation of this technology.

With eight vacuum pumps and facilities for modular expansion, a Chemvak pumping system can be optimized for any application.

Example of uses:

Vacuum filtration

Vacuum distillation

Vacuum drying

Impregnation

Rotary evaporation

Pumping and transferring of gases

Gel drying.

Characteristics of the Chemvak pumps and the Chemvak systems:

The vacuum pumps are gas-tight,100 % oil-free, maintenance-free and quiet.

All parts of the pump head in contact with gases being pumped are resistant against aggressive substances(materials : PTFE, FFKM,PVDF).

New valve system is very tolerant of water vapour and condensates.

Illuminated switch on pump.

Over-load protection by means of thermal switch.

Compact design with space saving dimensions.

Changing of the diaphragms and valves in the vacuum pumps is a simple procedure.

The entire unit is mounted on a sturdy baseplate which makes it safe and easy to transport.

Individual components are easily removed because they all have plug in connectors.

All models designated SC with separator, high performance condenser and Vacuum Controller have plug in electrical connections to the Electrical Supply Unit

Additional laboratory equipment can easily be mounted on the grooves holding the separator or on the support rods and horizontal bars.

Variable Options(ready to use)

Each of the designated pump systems types SR, SH and SC can be upgraded as required with modular components. The ultimate type is the SCC system which is capable of controlling two separate vacuum processes.

Note: Starting with the pump it is possible to build up to each of the systems.

Vacuum Pump with Separator, High Performance Condenser and one Vaccuum Controller (System CSC...)

Vacuuum pumps in conventional laboratory systems operate continuously even after they reach their final vacuum level. chemvak systems equipped with a Vacuum Controller enable the pump to be switched on and off between pre-set vacuum levels. Set- ting of the vacuum levels and differential pressure is effected via a keypad on the Vacuum Controller.

The Separator is made of a specially treated glass and features implosion protection.

Mounting the pump to the Baseplate.

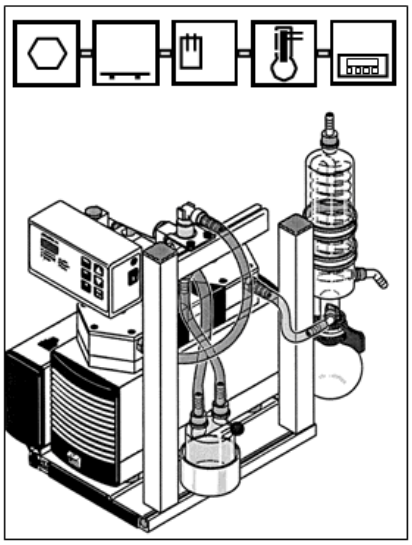


Figure 1:chemvak system CSC, for examplepump model CSC610(symbolic)

Features of the Vacuum Controller

Simple entry of the desired vacuum level and differential pressure.

Precise reproducibility of set values.

Facility to interrupt pumping program at any point.

The chemvak system with Vacuum Controller automatically vents to atmosphere when switched off. This prolongs the operating life of the pump.

Easy venting of the system at a touch of the key pad.

One touch resetting from controlled pumping to maximum vacuum.

In the event of power failure the last entered values are retained.

For chemvak System with vacu- um controller or vacuum control- lers:

The system must not be used if the entry of air or gas into the vacuum (e.g. system during venting could result in the creation of reactive, explosi- ve or otherwise hazardous mixtures with the medium).

4. General Safety Precautions

Observe all applicable accident prevention regulations as well as generally recognised Health & Safety rules.

Carefully study the operating instructions before using a Chemvak pump or system and observe at all times the relevant instructions to avoid dangerous situations.

Always keep the operating manual handy in the work area.

Ensure that the pump system and its components are used only for those applications for which they were intended.

Plug the machine only into properly installed grounded outlets.

All pump models are fitted with protective thermal switches. After operation of the thermal switch or after a power failure the unit must be disconnected from the mains to avoid uncontrolled restarting of the pump.

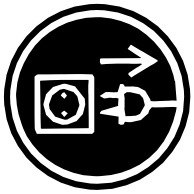
The pump/the Chemvak resistant system must not be used in areas where there is the danger of explosion.

For Chemvak resistant System with vacuum controller or vacuum controllers:

The system must not be used if the entry of air or gas into the vacuum system during venting could result in the creation of reactive, explosive or otherwise hazardous mixtures(e.g. with the medium).

Gas ballast (optional) must not be used if the entry of air into the pump could result in the creation of reactive, explosive or otherwise hazardous mixtures (e.g. with the medium).

Parts of the casing marked with the sign below are only allowed to be opened after pulling out the plug (disconnecting the power source).



Only authorized personnel should open those parts of the casing that contain live electrical parts.

When cleaning the unit make sure that no fluids come into contact with the inside of the casing .

Use only original KNF replacement parts.

Do not expose any part of your body to the vacuum.

Observe the specific safety precautions in section 4 Operating Instructions.

5. Assembling or Upgrading your System

5.1 Mounting the pump to the Baseplate (all systems)

Basic requirements for the assembly of a Chemvak system are a Chemvak pump and a Baseplate. The mounting-system allows interchange of pump types on the baseplate without difficulties.

For mounting a Chemvak pump to the baseplate the pump must be equipped with a mount (two elements).

Pumps ordered as part of a Chemvak system are already equipped with these mounts. Baseplates ordered seperately (see 8.3 Accessories for the Chemvak) will also contain the mounts. Installation of the mounts on the pump:

Mounting the pump to the Baseplate: Unscrew the pump`s rubber feet anti-clockwise. Install the mounts onto the pump according to figure 3.

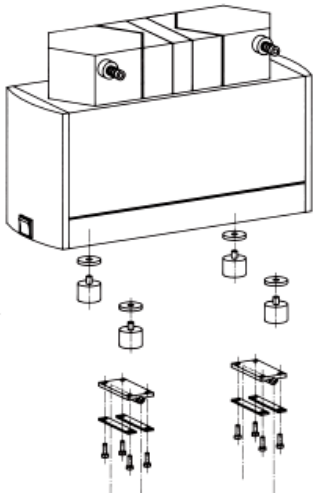


Figure 3: Installation of the mounts at the pump

Mounting the pump to the Baseplate:

Stand the pump (fitted with the mounts) onto the Baseplate and align the mounts on the pump and the Baseplate.

Carefully slide the locating pin through the mount holes on the Baseplate and on the pump until they are fully engaged.

Check that the pump is securely fastened to the Baseplate via both shock mounts.

Before interchanging pumps the pump on the Baseplate must be unplugged from the electrical power.

5.2 Assembling a System with Baseplate and two Separators

Baseplate: see 5.1

Separator Required tool:

Philips-head screwdriver Nr. 3

Slide in the holders for the Separators into the Baseplate mounting slot.

Fix the holders by tighten the screws in the bottom of them. Place the glass Separators into the holders.

Tubing of two-headed pumps: see figure 4. For tubing of single headed pumps and pumps with aluminum heads (pump types including an „A“ in the type code), please contact chemvak. Choose tube material which is resistant against the media to be used.

The rubber hoses on the attachment nozzles can be freely exchanged.

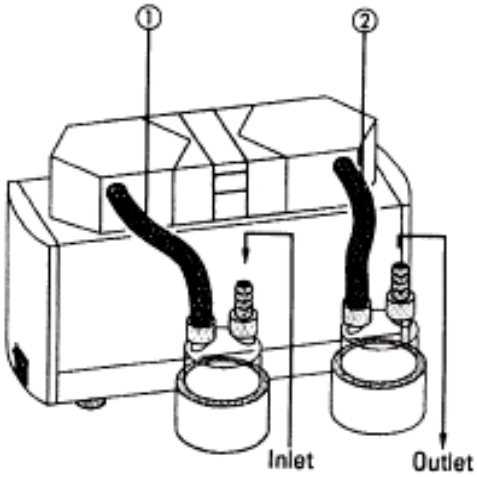


Figure 4: Tubing system CSR510 (two-headed pumps)

5.3 Assembling a System with Baseplate, Separator and High Performance Condenser

Baseplate: see 5.1

Separator: see 5.2

Condenser:

In order to operate properly the High Performance Condenser requires a cold water connection or recirculated cooling system.

The Condenser must be installed on the outlet side of the pump; if it is installed on the inlet side there is a danger of implosion. The condenser is already attached to the Support.

Required tool:

Allen key 5 mm

Slide the support (more exactly: its clamp assembly) into the end of the Baseplate Mounting Slot (positioning as shown in figure 1).

Fix the Support to the Baseplate by tightening the Allen screw on the Support.

Tubing of two-headed pumps see figure 8. For tubing of single headed pumps and pumps with aluminum heads (pump types including an „A“ in the type code), please contact KNF.

Choose tube material which is resistant against the media to be used.

Ensure that the vapour outlet on the top of the Condenser is not blocked e.g. due to kinks in the rubber tubing (danger of pressure build-up).

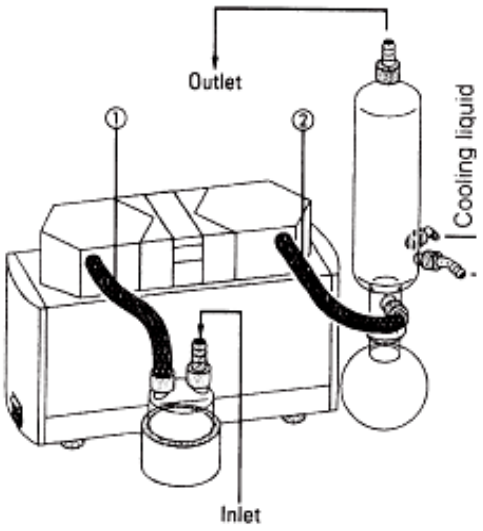


Figure 4: Tubing system CSH510...(two-headed pumps)

Observe the correct usage of the gas-and and cooling liquid-connections on the condenser(see figure 4). Inlet and outlet connections for the vapour side are not interchangeable.

When connecting the tubing, make sure that the pump`s exhaust nozzle is always higher than the Condenser's inlet connection. This prevents any condensate that might form in the tube from running back into the pump head in large quantities.

Cooling liquid supply of condenser see figure 4.

The condenser-connectors for the cooling liquid require connection tubing with an inside diameter of 8 mm.

5.4 Assembling a System with Base- plate, Separator, High Performance Condenser, Electrical Supply Unit and one Vacuum Controller

Baseplate: see 3.1

Separator: see 3.2.

Condenser: see 3.3.

Vacuum Controller/ Electrical Supply Unit See also figure 1.

Required tools:

Allen key 4 mm

Allen key 5 mm

Vacuum Controller, Controller Vent

Valve and Pump Vent Valve are already attached to the Vacuum Controller Support.

Mounting the Electrical Supply Unit to the Baseplate:

The Electrical Supply Unit consolidates all of the electrical connections for the system and also controls the pump.

Slide the Electrical Supply Unit (more exactly: its clamp assemblies) into the Baseplate Mounting Slot.

Fix the unit by tightening the two Allen screws at the bottom of the Electrical Supply Unit.

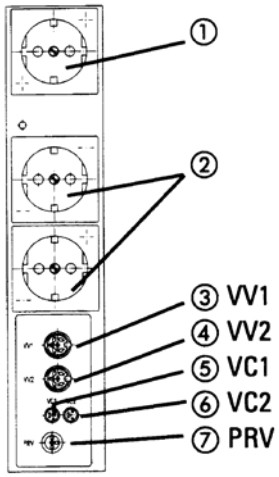


Fig. 10: Connections of the Electrical Supply Unit (Systems CSC..,)

switched safety socket for pump

two safety sockets for Vacuum Controller NC 800

Control-print

for Vacuum Valve 1

for Vacuum Valve 2(only if system is operated with two Vacuum Controllers)

for connecting wire of Vacuum Controller 1

for connecting wire of Vacuum Controller 2 (only if system is operated with two Vacuum Controllers)

for Pump Vent Valve

Mounting the Vacuum Controller and Valve Assembly

Slide the Support for the Vacuum Controller (more exactly: its clamp assembly) into the

Baseplate Mounting Slot (orientation: see figure 4).

Fix the Support to the Baseplate by tightening the Allen screw on the Support.

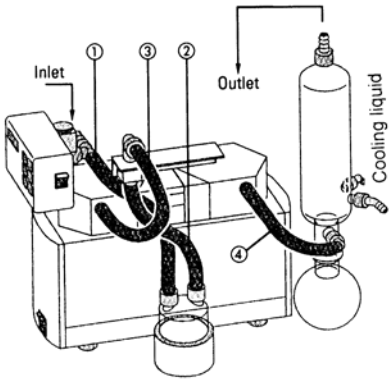


Fig. 11: Tubing System CSC...(two-headed pumps)

CSC-Tubing of two-headed pumps:

Approx. Tube length 220 mm

Approx. Tube length 150 mm

Approx. Tube length 300 mm

Approx. Tube length 220 mm

Tube-inside diameter 10 mm

Tubing of two-headed pumps: see figure 11. For tubing of single-headed pumps and pumps with aluminum heads (pump types including an „A“ in the type code), please contact chemvak. Choose tube material which is resistant against the media to be used.

lectrical Connection: See also and 12.

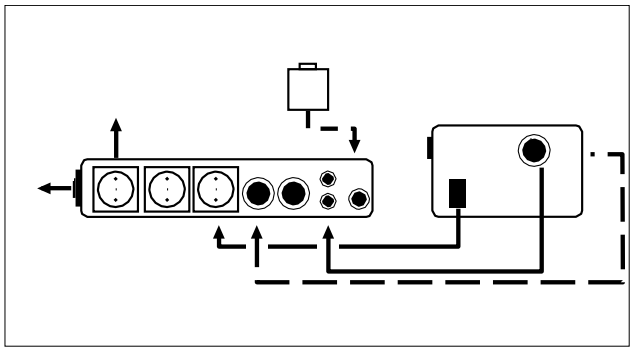


Fig. 12: Electrical Connections SC..

Connect signal socket of the Vacuum Controller (on the rear) with the electrical Supply Unit socket mar- ked VC 1 using the connection cable.

Insert the Vacuum Controller power cord plug into the design a ted Electrical Supply Unit socket.

Insert the Pump Vent Valve plug into the Electrical Supply Unit socket marked PRV.

Insert the vacuum pump power cord plug into the designated Electrical Supply Unit socket.

To ensure the correct function of the system the mains connection of the pump must be plugged into this designated socket.

Neatly tuck all of the wires into the Electrical Supply Unit and secure the cover.

Be sure all power switches (on the pump and on the Vacuum Controllers) are switched off.

Insert the Electrical Supply Unit`s system power cord plug into a suitably installed safety socket.

Option:

Cooling Liquid Valve

If the regulation mode of the chemvak is interrupted or brought to an end by pressing the "Start/Stop" key, normally the cooling liquid for the condenser does not stop running. By using a cooling liquid valve the liquid is stopped.

Mounting the cooling liquid valve:

Install the cooling liquid valve at the liquid supply.

The cooling liquid valve must on no account be installed in the liquid drain line, or behind the condenser (danger of pressure build-up in Condenser).

Insert the connecting cable plug of the cooling liquid valve into the Vacuum Controller socket marked VV 1.

5.4 Mounting of Gas Ballast (option for two-headed pumps)

Shut down the system (pull out the pump power plug and the Electrical Sup- ply Unit power plug).

Disconnect the tubes from the inlet and the outlet of the pump.

Remove the pump from the Baseplate.

Open the connection of the pump heads (see figure 5).

Screw out the connecting piece of the vacuum side head(see figure 5).

Screw the Gas Ballast into the pump head (the connecting piece of the gas ballast is sealed with Teflon-tape).

Remount the connection between the both pump heads

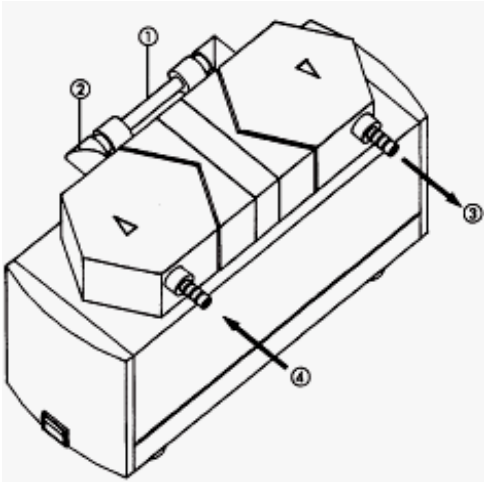


Fig. 5: Mounting the Gas Ballast

6. Operating Instructions

6.1 General Notes

Before using the vacuum pump or the Chemvak system please observe the following points:

Choose a safe location(flat surface) for the equipment. Ensure that the vacuum pump is securely fastened to the Baseplate. The two locating pins underneath the pump must be locked in position.

Laboratory equipment or additional components connected to a Chemvak pump or a Chemvak system have to be suitable for use with the pneumatic capabilities of the pump.

When using the High Performance Condenser the system must be connected to a cold water supply or a recirculating cooler.

The High Performance Condenser is designed for coolants with pressure up to 3 bar g and temperatures between - 15 ... + 20 °C.

The pump/the Chemvak system must not be used in areas where there is the danger of explosion.

Before getting started:

Specific safety instructions for the media being handled must be observed.

For Chemvak System with vacuum controller or vacuum controllers:

The system must not be used if the entry of air or gas into the vacuum system during venting could result in the creation of reactive, explosive or otherwise hazardous mixtures(e.g. with the

medium).

Prior to any use of the vacuum system, ensure that the creation of reactive, explosive or otherwise hazardous mixtures during the sup- ply of air is prevented.

Gas ballast (optional) must not be used if the entry of air into the pump could result in the creation of reactive, explosive or otherwise hazardous mixtures (e.g. with the medium).

Prior to any use of the pump with gas ballast, ensure that the creation of reactive, explosive or other- wise hazardous mixtures during the supply of air is prevented.

Ensure the pump outlet is not closed or restricted.

If using a Condenser: Make sure that the vapour outlet on the top of the Condenser is never blocked (a kink in the exhaust hose could cause pressure build up).

Check:

All clamping connections for tightness.

Tubing for correct connection. Electrical connections for correct connection.

Be sure to connect the pump to the correct electrical power supply as specified on the vacuum pump.

6.2 Operating conditions

General operating conditions of the pump and system:

Permissible ambient temperature: + 5... + 40 °C.

The pump/the Chemvak system must not be used in areas where there is the danger of explosion.

Protect pump and system against humidity.

Additional operating conditions of the pump:

Liquids must not be pumped. Permissible temperature of gas to be pumped: + 5...+ 40 °C.

Do not start the pump with excess pressure on the exhaust side.

If the pump stops e.g. due to power failure the pump has to be vented manually. Pump systems using a Vacuum Controller will automatically vent through the Pump Vent Valve.

Gas ballast (optional) must not be used if the entry of air into the pump could result in the creation of reactive, explosive or otherwise hazardous mixtures (e.g. with the medium).

Prior to any use of the pump with gas ballast, ensure that the creation of reactive, explosive

or otherwise hazardous mixtures during the supply of air is prevented.

The quantity of air or gas should be controlled or throttled only on the suction side of the pump. If control is needed on the exhaust side, do not exceed the designated maximum pressure of the respective pump.

The ventilation openings on the pump must not be obstructed to ensure sufficient cooling for the motor.

The pump can operate continuously even after final vacuum level is attained.

Additional operating conditions for Chemvak systems with High Performance Condencers:

The High Performance Condenser is designed for coolants with pressure up to 3 bar g and temperatures between - 15 ... + 20 °C.

Additional operating conditions for Chemvak systems with vacuum controller or vacuum controllers:

The system must not be used if the entry of air or gas into the vacuum system during venting could result in the creation of reactive, explosive or otherwise hazardous mixtures (e.g. with the medium).

Prior to any use of the vacuum system, ensure that the creation of reactive, explosive or otherwise hazardous mixtures during the supply of air is prevented.

6.3 Operation of the Pump System

The vacuum pump can be switched on and off using the power switch located below the ventilation inlet (see figure 1, item 2).

LABOPORT®-systems with Vacuum Controller(s): Controller(s) can be switched on and off using the power switch.

6.3.1 Operation with Baseplate and two Separators

The Separator

The holders which hold the Separators can be repositioned if necessary by loosening the screw and sliding them along the groove.

Emptying and cleaning of the Separator

Unscrew the two connecting nozzles.

Remove the Separator from the holder, empty and rinse.

Replace Separator into the holder. Screw the attachment nozzles back on.

6.3.2 Operation with Baseplate, Separator and High Performance Condenser

Separator: see section 6.3.1

High performance Condenser

The Condenser must be installed on the outlet side of the pump; if it is installed on the inlet side there is a danger of implosion.

Ensure that the vapour outlet on the top of the condenser is not restricted. e.g. due to kinks in the tubing.

Emptying and cleaning the condenser

Carefully remove the spring clamp while supporting the flask.

Empty and clean the flask - observing safety precautions. Reconnect the flask to the condenser and replace the spring clamp.

Adjustment of the Condenser altitude level

Required tool:

Allen key 5 mm

Loosen the both Allen screws at the foot of the Condenser. Remove the Condenser clamp assembly in the Support Mounting Slot.

Retighten the Allen screws.

6.3.3 Operation with Baseplate, Separator, High Performance Condenser, Electrical Supply Unit and one Vacuum Controller

Seperator: see section 4.3.1

High performance Condenser: see section 4.3.2

Electrical Supply Unit

The disconnection of the Electrical Supply Unit from the power source is achieved by pulling out the plug.

Vacuum Controller NC 800

See Operating Manual of Vacuum Controller.

7. System Shutdown

Clean the containers.

Purge the complete pump system including the connecting hoses with air for about 5 minutes.

Shut down the system power. Disconnect the power source to the Electrical Supply Unit.

8. Troubleshooting the System

Troubleshooting System with one Vacuum Controller

Sufficient vacuum is not reached Possible reasons:

As for system without Vacuum Controller (see under section 6.1).

Additional possible reason: solid particles in the Pump Vent Valve

If condensation occurs in the pump head, let the pumpe run to the ultimate vacuum (Drying Mode, see Operating Manual of Vacuum Controller).

Vacuum Controller is switched on and set on "Regulation Mode", the desired vacuum level is not rea- ched, pump does not run, the on/off-switch on the pump is not lit

Possible reasons:

Pump is not switched on

Incorrect electrical connection

Fuse in the pump is defective (see "System without Vacuum Control- ler", section 6.1).

Vacuum Controller is switched on and set on "Regulation Mode", the desired vacum level is not rea- ched, pump does not run, the on/off-switch on the pump is lit

Possible reason:

The thermal switch has opened due to overheating (disconnect the pump from the power source, let the pump cool down, investigate the reason for the overheating and irradicate it).

Vacuum Controller is switched on, no LED-indication

Possible reasons:

In the Electrical Supply Unit the Vacuum Controller plug is plugged into the socket for the pump.

The fuse in the Vacuum Controller is defective (the fuse is located above the on/off-switch of the Vacuum Controller. Dimension of the fuse: see section 9).

The fuse in the Electrical Supply Unit is defect (the fuse is located at the end of Electrical Supply Unit below the mains connection. Dimension of the fuse see section 9).

Vacuum Controller shows unrealistic values

Possible reasons:

The Vacuum Controller requires recalibrating (contact chemvak).

The sensor is defective(contact chemvak).

9. Changing the Pump Diaphragms and the Valve Plates/Sealings

Structured diaphragm and valve plates/sealings are the only parts subject to wear. It is easy to change them.

In the case of two-headed pumps the structured diaphragms in both pump heads should be changed at the same time. When the structured diaphragms are changed, valve plates/sealings should also be replaced. If the structured diaphragms are not changed in both heads at the same time or the structured diaphragms and valve plates/sealings are not changed at the same time the

nominal performance of the pump is not guaranteed after the service.

If a pump has been used for aggressive or toxic substances or other types of substances which are hazardous, hazardous to health, or injurious, the following points must be observed:

1.) Clean the pump and its components before servicing.

2.) Ensure that the service personnel is not subject to a health hazard. Apply the safety and protection measures that are necessary for the medium that has been handled by the pump (example: the use of protective gloves).

3.) Ensure that discarded parts and materials are safely and correctly disposed of.

Use only original chemvak replacement parts.

Two-headed pumps: Pump types

CSC610

Required tools and material:

Service Set (see section 10.2); Philips-head screwdriver No. 2.

Change the structured diaphragms and valve plates/sealings in the following sequence:

a.) Preparatory steps b.) Remove pump head

c.) Change structured diaphragm d.) Change valve plates/sealings

e.) Refit pump head f.) Final steps

a.) Preparatory Steps

Shut down system (see section 5) including disconnecting the pump from the power source (pull out plug of electrical supply unit or of socket).

Remove tubing from the inlet and outlet connectors of the pump.

If the pump is integrated in a vacuum system: Remove pump from the Baseplate

b.) Removing the pump head

On the pneumatic head connections, loosen one of the union nuts by hand. Then slightly loosen the angle-fitting in the pump head by turning it anticlockwise, so that the connecting tube can be pulled out.

Loosen the outer screws on each pump head.

Carefully remove both pump heads(top plate, head plate and intermediate plate).

c.) Change structured

Push down one structured diaphragm until other structured diaphragm is pushed upwards to its highest position.

Carefully unscrew the higher structured diaphragm anti-clock- wise using both hands.

Replace all spacers/onto the red diaphragm(same number and order)Screw in the new structured diaphragm and tighten it by hand; you do not need any tool.

Change the second structured diaphragm as described above (step to) for the first.

Changing the two structured diaphragms one after the other ensures that the same number of diaphragm spacers are refitted as were removed. This is essential to maintain the pneumatic performance of the pump.

d.) Change valve plates/ sealing rings

For one pump head: Unscrew the single screw in the top plate.

Carefully remove top plate and head plate from intermediate plate; exposing the valve plates/sealings.

Remove old valve plate/sealings.

If there should be deposits in the recesses in the intermediate plate, clean them until the deposits have been complexly removed.

Insert new valve plates/sealings in the recesses in the intermediate plate (upper and lower sides of the valve plates/sealings are identical).

Carry out the steps to for the second pump head.

e.) Refitting the pump head

For one pump head:

Press the lip on the edge of the structured diaphragm into the groove in the housing.

Place the intermediate plate, with the valve plates/sealings on the adapter, in the position indicated by the guide pin .

Place the head plate on the intermediate plate in the position indicated by the guide pin.

Place the top plate on the head plate in the right position.

Gently tighten screws in diagonal order.

Screw in the single screw in the centre of the pump top plate until it is flush with the top plate (they are flush with the top plate); then screw one final half turn to tighten.

Carry out steps to % for the second pump head.

Refit the pneumatic head connection:

Place tube onto the connecting part of the angle fitting, turn angle fitting to a straight position and tighten the union nut.

f.) Final steps

Remount the pump to the base- plate.

Reconnect system tubing. Reconnect the pump to the electricity supply.

If the pump does not reach the desired vacuum after changing diaphragms and valve plates:/sealings:

Check whether the spacers have been replaced onto the structured diaphragm screw thread.

Check the interconnecting pipe- work connection between both pump heads as well as the tubing for leaks.

Possibly the screws on one of the pump heads (or both heads) are insufficiently tightened (carefully tighten them again crosswise).

If you have any questions about servicing call our technical adviser(see last page for contact telephone number).

10.Specifications

	CSC610	CSC510	CSC410
Maximum capacity:	34 l/min	34 l/min	25 l/min
Ultimate vacuum:	≤2mbar abs	≤ 8mbar abs	≤ 13mbar abs
Maximum continuous pressure	1 bar (14.7 psi)	1 bar (14.7 psi)	1 bar (14.7 psi)
Weight of pump:	20.1 kg	19.3 kg	16 kg
Permissible ambient temperature:	+ 5... + 40 °C	+ 5... + 40 °C	+ 5... + 40 °C
Permissible temperature of gas to be pumped:	+ 5... + 40 °C	+ 5... + 40 °C	+ 5... +40 °C
Voltage [V]	230	230	230
Frequency [Hz]	50	50	50
Power Consumption Pump[W]	245	245	95
Fuse Pump(je 2) T [A]:	3.15	3.15	1.60
Order No.	900524	900523	900522

11.Warranty

We guarantee the perfect functioning of this instrument against defects in material, design, and workmanship, when use under appropriate conditions and in accordance with the instruction manual for a period of **TWO YEARS** from the date of initial shipment.
This warranty covers all parts and components of the instrument except those normally requiring frequent replacement, such as tubing, gasket, O-rings, etc. We will not be liable for any personal injury, improper maintenance, or negligence of accident.

Контактная информация сервисных центров

Сервисный центр Диаэм в Москве:
Адрес: 129345, г. Москва, ул. Магаданская, д.7, стр.3
Тел.: +7 (495) 745-05-08 (многоканальный)
E-mail: service@dia-m.ru
www.dia-m.ru

Сервисный центр Диаэм в Новосибирске:
Адрес: 630090, Новосибирск, Академгородок, пр. Ак. Лаврентьева, 6/1, офис 100А
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Сервисный центр Диаэм в Санкт-Петербурге:
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