



OPERATION INSTRUCTION MOULDET SEAT UPHOLSTERY

Order.-Nr. 11200

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THE PRINCIPLE VAKUFORM

VAKUFORM products incorporate a unique combination of vacuum technology and highly flexible, biocompatible neoprene material making it possible to adjust the support for optimum positioning with smooth, flowing curves, even for extreme postural asymmetry. Initially air is added to support to allow a accurate accommodation of the users posture. After vacuuming, a strong cushion shape is created, which is a perfect negative image of the body shape. The adjustment of the cushion to the anatomic surface of the human body changes ratio between weight and surface area and reduces the pressure load. In this way an optimum distribution of pressure is achieved. In the vacuumed state the support creates a strong seat, which can reshaped to suit postural changes quickly and easily, without drastic alterations.

In case of suspected or existing decubitus and pressure problems, endangered parts of the body can be protected, by pushing the cushion in the respective areas with the fingers. This leads to additional relief or pressure. In contrast to conventional adjustable methods of inflexible materials, the highly flexible **VAKUFORM** products guarantee consistent, fast and problem free adjustments of support to be altered to suit positional or anatomic changes. The 3,5 mm neoprene skin has the advantage of feeling like upholstery, even when the vacuum is produced, increasing comfort and reducing pressure.

MATERIAL

Each **VAKUFORM** product consists of a filling of extreme fine polystyrene grains, enclosed in a 3,5 mm eudermic nylon-jersey coated neoprene. The product cover and the lining are manufactured from elastic spacer fabric material that provides an optimum microclimate. The entire product can be disinfected.

PRODUCTION

We are manufacturing our products in our own workshop. Especially during the making of special design this enables us to be responsive to the customer's most individual requests. Our main task is to manufacture the ideal aid for you exactly according to your guidelines or detailed discussion of the required supply. Sometimes even new products might arise. We are firmly convinced that in the use of air and vacuum technique in combination with synthetic foil and neoprene lies an enormous potential to solve the challenges in rehabilitation and orthopaedic technique. On this matter we look forward to each new challenge.

Our products have been used in Europe in a variety of formats:

- Complete seating systems
- Partial solutions i.e. back support or cushion systems
- Sleeping/lying positioning systems
- Smaller solutions, such as headrest's and arm/leg supports

VAKUFORM products have been used successfully in hospitals, institutions for disabled people, therapeutic centres, geriatric institutes and at home, providing the prescriber a new level of flexibility within their provision, whilst ensuring that the requirements of the user are met promptly and without compromise.



OPERATION INSTRUCTION MOULDET SEAT UPHOLSTERY

ADAPTION

Before positioning the patient please adjust the cushion in such a way that the granules inside the cushion cannot slip. This takes place by using the provided pump to supply or evacuate air until a soft ductile consistency is achieved. If possible already model the cushion in advance.

In case of strong Scoliosis for example you might already push the granules inside the back cushion to the required spots, build a hollow for the ischial tuberosities et cetera.

Set the patient into the premodulated cushion.

If possible tilt the mouldet seat upholstery to distribute the patient's weight equally onto seat cushion and back cushion.

If during the adjustment you prefer to work onto the back or the seat first, close the valve of the momentarily not used cushion part before you insert air into the cushion to be worked on.

Then decide whether the patient can sink sufficiently into the cushion or not.

If not ventilate by means of the pump that far that this is made possible without problems.

Please take care that the cushion will not be blown up as in that case the wadding might distribute itself inappropriately.

Usually the ideal sinking depth is reached if underneath the deepest part of the body there are still about 2 cm of granules.

If required, the cushion's content can be adjusted by discharging redundant granules, using a transfer bag at the refilling valve.

APPLICATION

If the adjustment is successfully terminated, evacuate both cushions simultaneously due to the pump's power to -300 till -400 mbar negative pressure. This negative pressure only can be reached by using an electronic pump. The stop valves remain opened thereafter.

Since the granules still need to settle down during the first application, within hours the negative pressure relatively fast drops down below -200 mbar. Therefore we recommend to repeat the evacuation of air (not the adjustment) approx. 3 times within the first two days.

Afterwards for at least one or two weeks the vacuum should not sink below -180 till -200 mbar. This air pressure value is adequate enough for the moulder seat system to keep a sufficient firm consistency of stable shape.

If the interval should be substantially shorter, please inform us.

Please take notice that parts like side pads and lateral guidance depending on the diseases might need a hard shell for support!

Because of the very high processing standard the negative pressure in our upholsteries lasts for long.

Nevertheless during time a low quantum of air soaks in every cushion.

To keep the form of the adjustment constant it is very important to control firmness of the cushion regular and if necessary to exhaust the air. We propose this kind of control once or twice a week



VACUMETER WITH ANALOGUE PRESSURE GAUGE AND CONTROLLING SYSTEM

For a simple and long-term control of the negative pressure inside the cushion you can use a Vacuumeter with an analogue pressure gauge or an electronic control system with batteries.

In case of using a Vacuumeter with analogue pressure gauge, please take care that the negative pressure never comes less than -180 mbar.

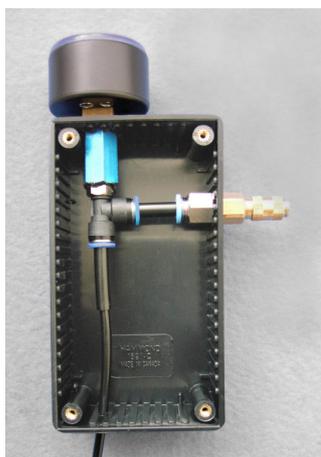
In case of using an electronic control system the negative pressure inside the cushion will be regulated automatic with an integrated exhausting pump. You only have to change batteries once or twice a year.

CONNECTING THE INLET TO THE VACUMETER.

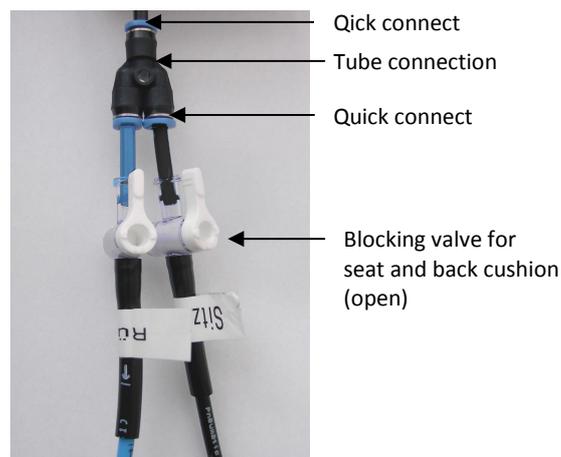
- Fasten the **Vacuum Box** to the back of the hard frame / shell (using screws or velcro) in such a way that the **Vacuometer** (Fig. 1) can be read well.
To prevent the tubes from tearing off by accidental tensile loads these should be laid as briefly as possible and close to the hard frame/shell.
- For the better distinction of seat and back parts the cushion's tubes are coloured differently. The colour of the back cushion is blue, the one of the seat cushion is black.
The hoses can be shortened at the quick-coupling of the hose connector.



(Fig. 1) Vacuum Box with pressure gauge, top view



(Fig. 2) Vacuum Box, interior view



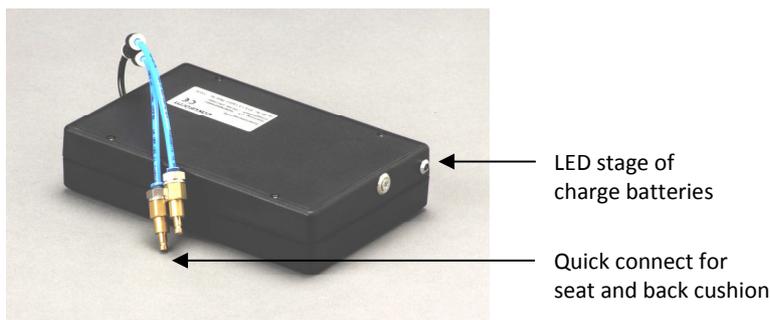
(Fig. 3) Tubes

- If the length of the tubes is optimally made consistent, please insert them into the quick connect of the tube connection.
- Pulling the tubes out of the quick-connection will only succeed if you press the blue ring of the quick connection backward and simultaneously pull the tube.
On no account this connection may be stuck together!
- Please make sure that the passages in the outer cover are large enough to allow the stop valves to be put through easily in closed condition (valve lever put into transverse direction). (This is important if the covers need to be removed for washing). The valves should only be opened if both tubes are connected.

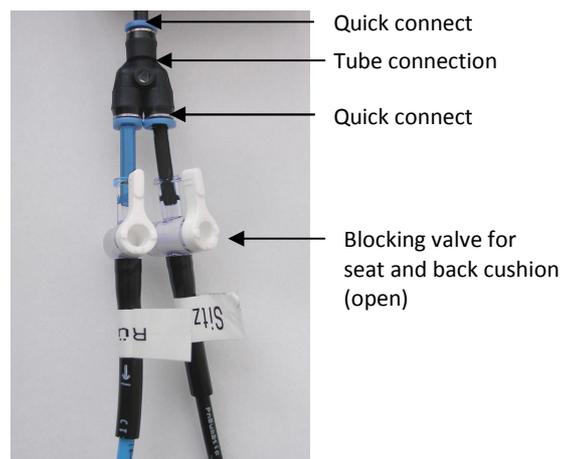


CONNECTING THE CONTROL SYSTEM

- Fasten the Control System at the backside of the hard frame / shell. (using screws or velcro). To prevent the tubes from tearing off by accidental tensile loads these should be laid as briefly as possible and close to the hard frame/shell.
- For the better distinction of seat and back parts the cushion's tubes are coloured differently. The colour of the back cushion is blue, the one of the seat cushion is black.
The hoses can be shortened at the quick-coupling of the hose connector.



(Fig. 4) Control System



(Fig. 5) Tubes

- If the length of the tubes is optimally made consistent, please insert them into the quick connect of the tube connection.
- Pulling the tubes out of the quick-connection will only succeed if you press the blue ring of the quick connection backward and simultaneously pull the tube.
On no account this connection may be stuck together!
- Please make sure that the passages in the outer cover are large enough to allow the stop valves to be put through easily in closed condition (valve lever put into transverse direction). (This is important if the covers need to be removed for washing). The valves should only be opened if both tubes are connected



DROP OF NEGATIVE PRESSURE AND LEAKAGES

To avoid a premature drop of negative pressure or to locate an occurred leakage proceed as follows:

1. If the low pressure indicator of the Vacuometer drops down within a few hours and the cushions become soft, this might have the following significance:
 - a.) The tube connections between cushions and Vacuometer are not hermetically joined. In this case disconnect all pin connections and plug them firmly together again. Repeat the procedure (see: connection inlet to the Vacuometer).
 - b.) If afterwards the Vvacuometer's pressure indicator still drops down at closed stop valves, probably the Vacuometer is defective or the cushion material is leaky.

2. If the Vacuometer holds the negative pressure with closed stop valves and the cushions become soft within a short time, this is an indication for a leakage of the cushion material. In order to determine which one of the two cushions of the moulded seat upholstery is leaky, please proceed as follows:
 - a. Maximize the vacuum with opened stop valves, then close both stop valves. Now back and seat cushion unit are separated from each other.
 - b. First open the stop valve for the seating unit in regular intervals of 1 to 2 hours and check the vacuometer's indicator.
 - c. Then repeat the same procedure with the back cushion unit.
 - d. Compare the indicated low pressure values with each other. If for one cushion the pressure clearly is below the other cushion's value, it is probably leaky.

3. If the completed examination has proved the Vacuometer to be defective or the cushion material to be leaky, please get into contact with us. We will immediately take care for repair or exchange of the defective material.



DISCHARGING THE GRANULES

1. Hold the system that way that the white filling transfer pipe is positioned in the highest place of the system.
2. Add so much air to the system till the granules slip downward and the pipe lies free.
3. The catch is in a 3 cm round and 8 mm thick rubber washer. If you grasp the edge of the filler pipe closely with both thumbs, you will be able to squeeze the catch with your fingertips from the bottom through the neoprene hole about 2 mm out of the washer.

When removing the catch please make sure that the granules do not escape out of the system together with the air



(Fig. 6) Removing the filling transfer pipe



(Fig. 7) Discharging the granules with opened turning valve (blue)

4. Put the valve of the transfer bag deeply into the rubber washer so it cannot slip out by mistake during the transfer.
5. Now give plenty of air to the system (the valve of the transfer bag still remains closed).
6. Only if you put pressure on the system (with your hands or even better with the arm) you open the transfer valve. The transfer bag then should be placed beneath the cushion to be discharged.
7. With the air flow the granules now are pressed into the transfer bag. Make sure that this flow runs strongly and continuously. If the air flow slows down or is interrupted the flow of the granules might come to a hold and the valve might block. In this case you must briefly press air back from the transfer bag into the neoprene cushion. Thereby the blockage should be quickly repaired.
If most of the air is flown from the neoprene cushion into the transfer bag and the procedure is not yet terminated you can transfer air back into the cushion by putting pressure on the transfer bag. Afterwards you can continue the transfer procedure as described before.
8. After completing the transfer, take the valve carefully out of the rubber band.
9. Put in the catch again. Take care that there are no granules in the opening any more as otherwise the tightness of the system might be impaired.

The refill of the granules takes place similarly to the procedure described above in reverse handling.



CARE INSTRUCTIONS FOR VAKUFORM PRODUCTS

Concerning the care of our products we recommend the following:

1. The products can be washed by hand up to 60°C.
2. The products can be disinfected with standard business disinfectants.
3. After laundry let the products dry by air.

PLEASE NOTE

The surface material of our **VAKUFORM** products can be damaged by fire or pointed articles which will cause loss in the tightness of the material. For such damage we will not take over liability.

Please do not expose the products to the load of machine laundry, spin-drying or extensive heat.

We point out that – due to its physical nature - the influence of extensive heat might cause softening of the moulded seat inlet (e.g. in high summer by storage in the closed car for some time or direct long lasting exposure to the sun). In extreme cases this might cause the loss of inherent stability. Such a loss of form does not refer to fatigue or damage of the material. A strong increase of temperature causes the wadding as well as the air remaining in the system to expand. Thereby softening of material might happen. As soon as the temperature drops down again however the system pulls together to the original consistency.

To avoid an undesirable change in form we recommend not to expose the system to extreme heat during a longer period of time. Nevertheless, if changes in the pressure ratios of the system happen as described above, these can easily be readjusted by using the pump to evacuate air.

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