EASYHAND PRO

60/80/100/120

Original instructions
2021-09-01

EN

CE

LIFT-O-FLEX

MOBI-Crane | Movomech | Voyager

Contents

Symbol legend

⚠ Warning!

Warning! This indicates a risk of serious injury or death if instructions are not followed. This includes a risk of serious damage to the machine or injury to third parties.

⚠ Caution!

Caution! This indicates a risk of minor injury and equipment damage if instructions are not followed.

⚠ Attention!

Attention! This indicates a risk of equipment damage or considerable reduction in equipment service life if instructions are not followed.

The equipment complies with EU Machinery Directive 2006/42/EG, Annex 21A, as well as EN ISO 12100:2010 and SS-EN 14238 2004+A1 2009.

Introduction

Easyhand Pro is a Swedish-manufactured lifting device (tube lifter) based on vacuum technology. See the Safety Instructions below for additional important information about how to evaluate objects before they are lifted to determine whether Easyhand Pro may be used safely. Additionally, while Easyhand Pro itself is capable of lifting many types of objects, the operator must also read and understand the specific manual for the equipment to which Easyhand Pro is attached for additional restrictions on what may be safely lifted by any given “System”. I.e. there may be additional limitations or requirements that may exist beyond those specifically listed in this manual. It is the operator’s responsibility to ensure that they are aware of and obey all such limitations, as well as all safety rules. For further information, contact your supplier.

Easyhand Pro is intended to facilitate lifting work with an emphasis on ergonomics, efficiency and safety. Movomech AB will assist with repair through authorised dealers and our support organisation.

This manual addresses standard use of safety, installation, use, maintenance and troubleshooting. Special Easyhand Pro versions are not covered. Information about special modifications to installations can be provided by your supplier. The equipment as supplied may only be used to lift objects for which it is intended according to specifications from the supplier. If you need to use the lifter for other purposes, please contact your supplier. The peripheral equipment into which Easyhand Pro is installed is not described in this manual. Refer to the separate descriptions of the equipment concerned for additional important information.

Movomech’s goal is to continually develop and improve the user-friendliness and design of our equipment. Accordingly, we reserve the right to make future design changes.

Description of symbols on control levers

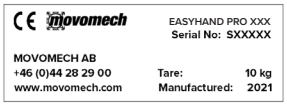
Users must read and understand the manuals before operating the machine.

Never stand or place any part of the body under a suspended load. Falling loads can cause serious injury or death.

Part no.: 670037-04

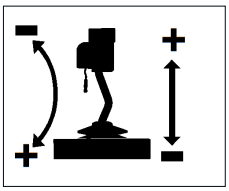
Always use soft, light controlled movements to avoid jerky operations.

Caution! Never let a load hang in the lifter for more than 60 seconds in each operation cycle.



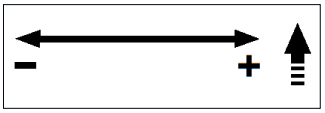
Part no.: 670037-01

CE plate with machinery model, serial number and year of manufacture.

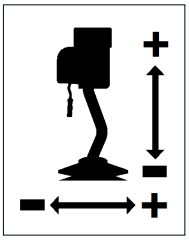


Part no.: 670037-02

Adjustment with load.
Turn clockwise - Raise the load.
Turn counterclockwise - Lower the load.

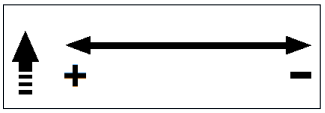


Part no.: 670037-06



Part no.: 670037-03

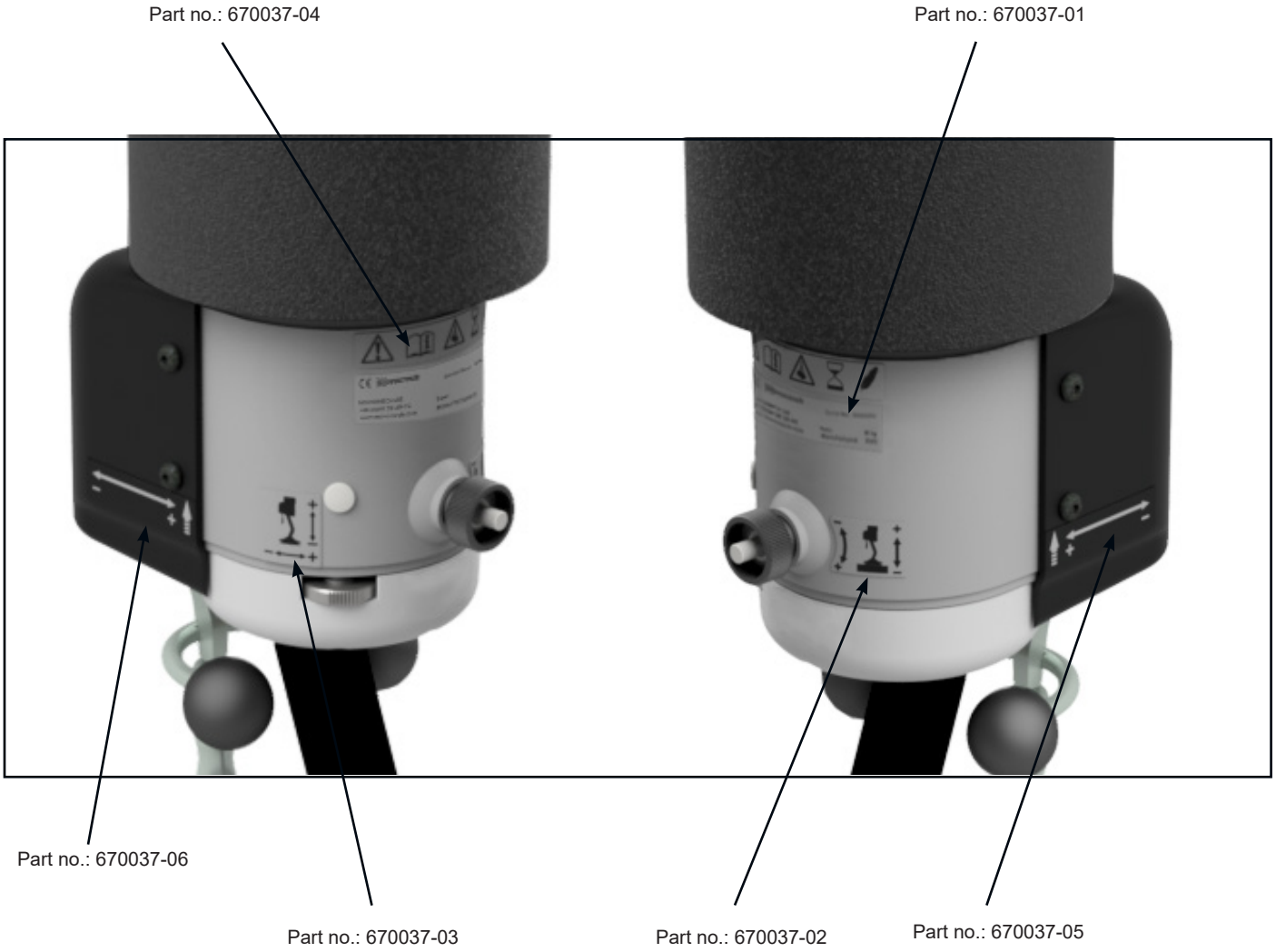
Adjustment without load.
Turn left - Lower the load.
Turn right - Raise the load.



Part no.: 670037-05

Operating: Up – Down – Release.
Always use soft, light controlled movements when operating the lift. When releasing the load, open the control bar fully and tilt the lifter a little to release the suction foot.

Placement of labels on the control unit.



Technical data

Easyhand M / Pro / Pro Rapid		Ejector A	Ejector B	Pump C	Pump D	Pump K	Pump I
Min work pressure	bar	6	6				
Flow	l_n/min	400	600	410	660	1000	1500
Work temperature	°C	5-40 (indoors)					
Noise level [1] excl. silencing hood	dB(A)	69	72	62	67	70	72
Noise level [1] incl. silencing hood	dB(A)			<52	<57	<60	<62
Motor output	kW			0,9	1,5	1,5	2,6
Voltage	V			400	400	400	400
Fuse	A			10	10	10	10
Weight pump	kg			26	39	66	69
Weight pump incl. silencing hood	kg			59	81	96	99
LxWxH pump excl. silencing hood	mm			505x260x290	572x280x290	702x353x328	702x353x328
LxWxH pump incl. silencing hood	mm			808x448x348	808x448x348	856x504x567	856x504x567
Min lifting height Z (hose L 2500 / 4000) [2]	mm	ca 1700 / 3000					

[1] It is recommended for operators and service personnel to wear hearing protection when the manipulator is used in a noisy environment or the emission sound pressure level at the operator position due to the manipulator exceeds 80 dB(A).

[2] The stroke generally constitutes 1/3 of the length of the lifting hose and varies slightly depending on the combination of pump, hose diameter, the weight of the accessories and the weight of the lifting object.

Safety precautions

Read through the safety instructions below as well as manual(s) for the equipment on which Easyhand Pro is mounted before using Easyhand Pro. Note that these other manuals may include instructions, warnings, or limitations for use of Easyhand Pro beyond those listed below.

Easyhand Pro may only be used by personnel and who have read and understood this manual, any manuals for related equipment as mentioned above, and any applicable standards and regulations. Movomech AB is not liable for any damage or injury caused by use or actions which are inconsistent with the training, manuals and any applicable standards and regulations. Such use is entirely at the user's risk.

General

⚠ Warning!

- Easyhand Pro generates very strong suction/negative pressure (vacuum). Do not attempt to seal the suction pad with any part of the body. Keep all body parts, clothing, and hair away from the suction pad and suction opening while the vacuum pump is operating.

⚠ Caution!

- Easyhand Pro may only be used as intended for the materials and application described in this manual as well as any relevant equipment manuals and in accordance with the relevant safety regulations.
  Any other use is not as intended and is prohibited!
- The condition and serviceability of Easyhand Pro must be inspected and tested prior to each use.
- Maintenance, servicing, lubrication and troubleshooting may only be performed by qualified persons who have read and understood all relevant manuals and who are trained and/or approved by Movomech AB or their authorised distributor.
- If a hazardous condition is identified during operation or servicing, Easyhand Pro must not be used until the hazardous condition has been corrected.
- In the event of crack formation or other damage to Easyhand Pro or its associated lifting tool(s), all use of the machine must immediately cease.
- Persons under the influence of drugs, alcohol or medications that affect their judgement and physical abilities must not be allowed to use, maintain nor repair Easyhand Pro.
- Appropriate personal protective equipment should be used when operating the vacuum lifter including steel toed boots, safety glasses and hearing protection as required by your employer and applicable regulations.
- The load is lifted and held using negative pressure. If there is a leak or power failure (interruption of power supply, blocked filter), the negative pressure is reduced and the load will be lowered to the ground. In the event of media outage, the operator should close the control handle and allow the load to be lowered in controlled fashion to the ground. Easyhand Pro must not be used before the fault/cause of the outage has been rectified.
- The vacuum pump is the heart of the equipment – handle it carefully as it is sensitive to shocks and bumps.
- Never test run the vacuum pump without a connected air filter.

Load

⚠ Caution!

- The maximum allowable loads may be dependent on the equipment on which Easyhand Pro is mounted. Never handle loads heavier than approved for the equipment. See the relevant manual(s).
- Lifting tools are to be selected as dictated by the shape and weight of the load.
- Only use Easyhand Pro to handle loads that are sufficiently solid to avoid the risk of them coming apart when lifted.
- Never attach the suction foot to surfaces that are loose or could come loose. Examples include but are not limited to address labels, taped objects, thin paper, etc.
- Never attach the suction foot to surfaces that are so slippery, oily, or wet that there is a risk of the load sliding in relation to the suction foot.
- Never lift objects that are sharp and that could damage the vacuum seal strip.
- Never lift hazardous or explosive materials without first ensuring that proper safety procedures, as designated by your employer, are in place.
- During operation of Easyhand Pro, the ambient temperature must be in the range of +37.5°F (3°C) to +104°F (40°C). Below +37.5°F (3°C) there is a danger of the load slipping due to ice formation.

Lifting

⚠ Warning!

- A suspended load must not be allowed above any part of a person's body.
- Easyhand Pro with loads may not be rangefinder such that a falling load would risk personal injury or material damage.
- Never try to lift people or animals.
- Never leave an electric Easyhand Pro with the last hanging, (max. 60 seconds) or the vacuum pump may overheat.
- The area of the suction foot must be at least 2.5 times greater than the cross-sectional area of the lifter tube to avoid unintentional release of the load.

⚠ Caution!

- Never leave a suspended load unattended.
- Never suspend a load for more than 60 seconds or the vacuum pump may overheat.
- Never try to manually assist the up or down movement of an Easyhand Pro when it has a load attached. All lift movement must take place using the control unit.
- Always adjust the balance height in relation to the load to allow for convenient and safe handling. A load which is fixed or jammed in position must not be pulled free with Easyhand Pro.
- Always use smooth controlled movements when working with Easyhand Pro. Jerky operation can result in the load working loose and is therefore prohibited.
- The CE plate attached to Easyhand Pro must not be removed.

⚠ Attention!

Important information

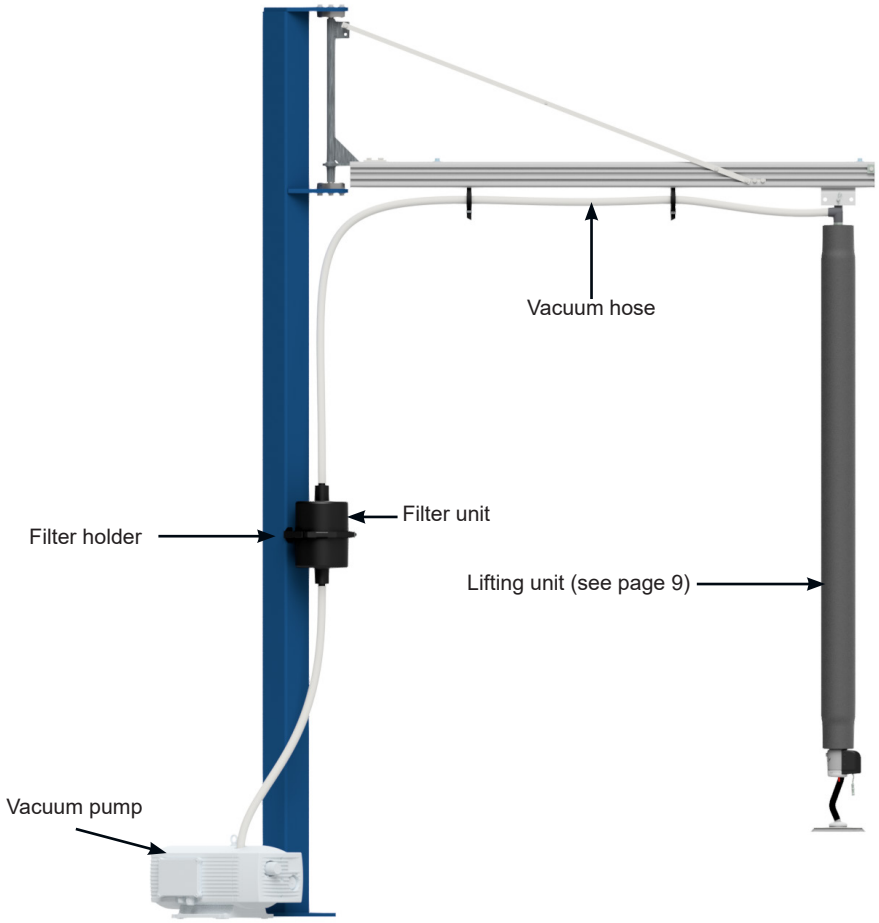
- Read through the entire manual and get to know the equipment before it is assembled and put to use.
- Operate Easyhand Pro gently and carefully using the control levers in order to avoid jerky movements when lifting.
- The area of the suction foot must be at least 2.5 times greater than the cross-sectional area of the lifter tube to avoid unintentional release of the load (see examples of calculation on page 9 and 10).
- The equipment must be switched off during maintenance and cleaning.
- The vacuum pump is the heart of the equipment – handle it carefully as it is sensitive to shocks and bumps. Never test run the vacuum pump without a connected air filter.
- Loads may not be raised before Easyhand Pro and its gantry or turntable crane are positioned vertically above the load.

Prohibited use

⚠ Warning!

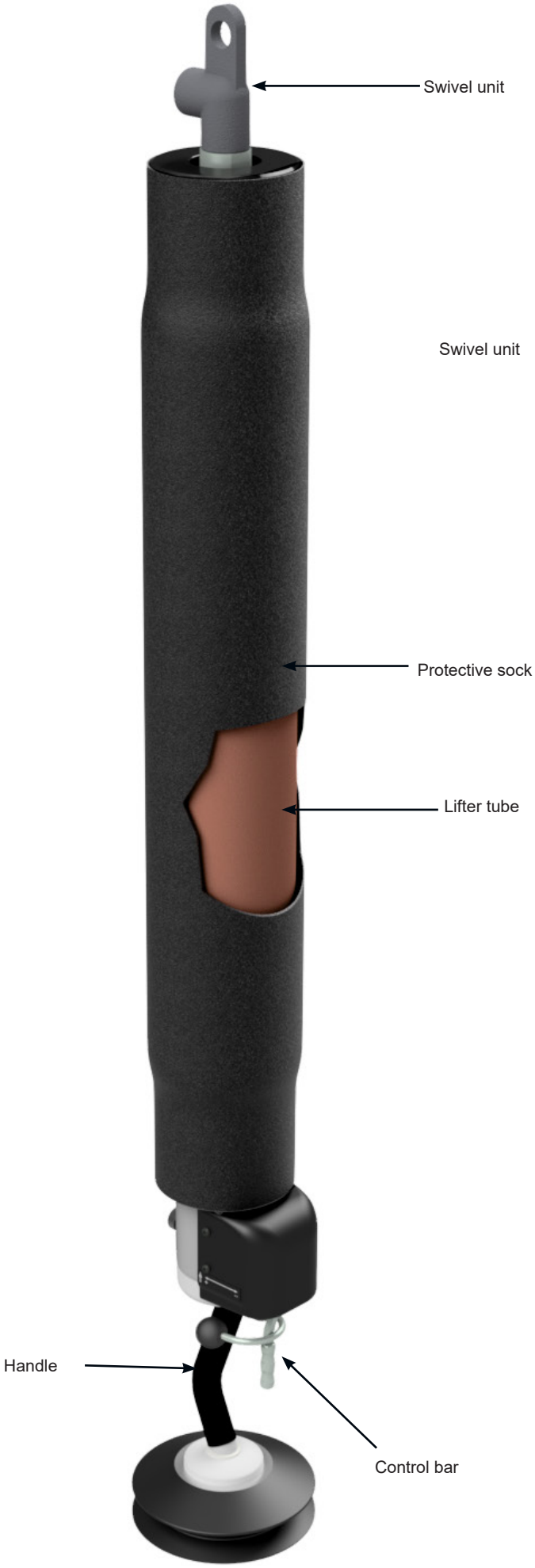
Under no circumstances may the tube lifter's design or structure be modified without permission from the manufacturer. Only ever use accessories or spare parts from Movomech AB. Modifications that are not approved by Movomech AB and/or the use of non-approved accessories or spare parts can cause serious injury during lifting operations. The maximum load may never be exceeded.

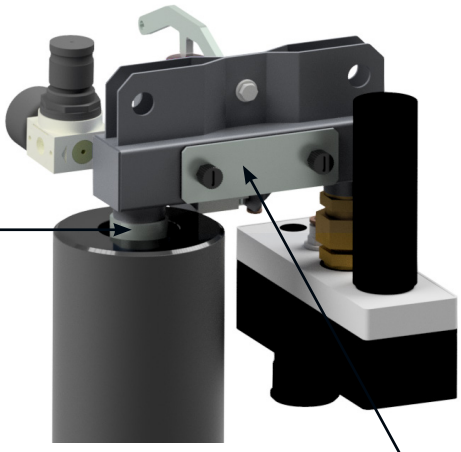
Product description

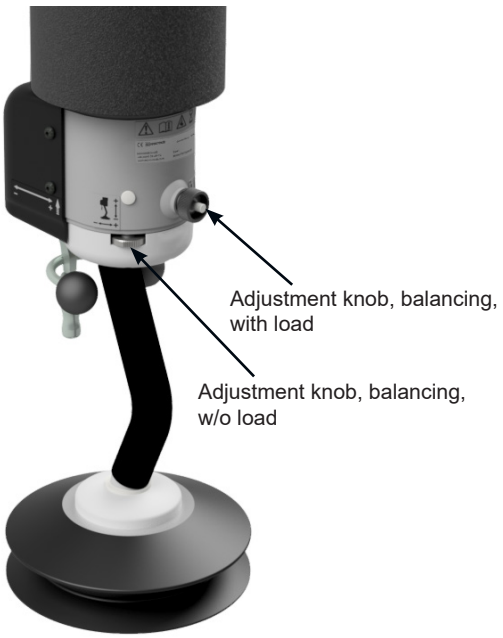


An example showing installation on a jib crane

An example showing gantry installation







Control unit

Installation

⚠ Caution!

Make sure the correct components have been delivered and that they correspond to the delivery note/shipping documentation. If anything is missing, contact your supplier.

⚠ Caution!

Read through the manual carefully before installation in order to avoid problems during assembly and commissioning.

⚠ Caution!

From a safety standpoint, it is necessary to have a good understanding of the equipment. Easyhand Pro is supplied with an electric or pneumatic vacuum pump. Carefully follow the directions and/or manual during installation.

Safety regulations for installation

- The person in charge of installation is responsible for making sure that the entire lifting system (e.g. gantry) is designed to safely handle the sum total of Easyhand Pro's own weight plus the maximum allowable load, including all necessary safety factors.
- Electrical installation must be carried out by an authorised electrician.
- In the case of jib crane installation, follow Movomech's installation instructions for cranes which are available from Movomech AB.
- In the case of crane system installation, follow the supplier's assembly instructions.
- The lifting unit is hung from a suspension lug. Make sure that other suspension devices are sufficiently dimensioned and that they are secured against falls where necessary.
- Once the lifting unit is suspended, the suction foot should be around 3.9 in (10 cm) above the floor. If the suction foot is closer to the floor, the tube must be cut (refer to Cutting the lifter tube) or the suspension system raised.
- If the suction foot is higher than 3.9 in (10 cm), it must be lowered by lowering the lifting unit or installing a longer lifter tube.

⚠ Warning!

Check that the suction foot to be used with the lifting unit concerned has a safety factor of at least 2.5. The area of the suction foot must be at least 2.5 times greater than the cross-sectional area of the lifter tube to avoid the load coming loose unintentionally.

Is the safety factor for the suction foot sufficient?

Sample calculation:

Lifter tube cross-section: Radius x Radius x 3.14 (π) = Area

Suction foot area, rectangular: Length x Width x Number of suction feet = Total area

Suction foot area, round: Radius x Radius x 3.14 (π) x Number of cups = Total area

Example 1

Single rectangular suction foot 200x140mm

Lifter tube: 100 mm 50 x 50 x 3.14 x 1 = 7,850 mm²

Suction foot: 200 x 140 = 28,000 mm²

28,000 / 7,850 = 3.57

In this case, the safety factor is approximately 3.57, which is sufficient by a good margin.

Example 2

Lifting yoke with 4 pcs round Ø 75 mm (2.95 in) suction cups

Lifter tube: 80 mm 40 x 40 x 3.14 = 5,024 mm²

Suction cup round Ø 75 mm: 37.5 x 37.5 x 3.14 = 4,416 mm² 4,416 mm² x 4 pcs = 17,664 mm²

17,664 / 5,024 = 3.52

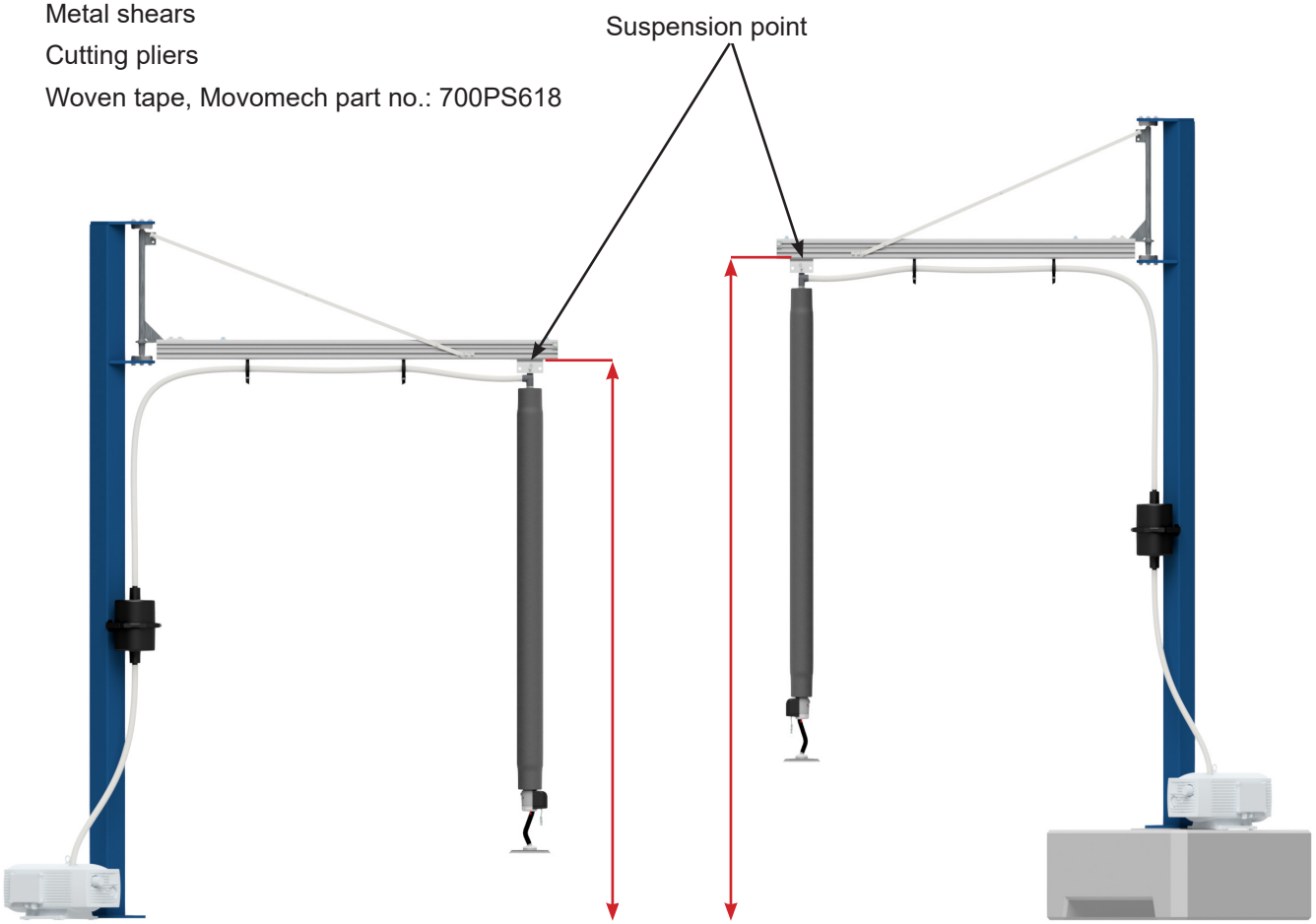
In this case, the safety factor is approximately 3.52, which is sufficient by a good margin.

Cutting the lifter tube

In some cases, the lifter tube must be cut if the suspension height (the measure between the ground till the suspension point (see figure below) is lower than 9.5 ft (2,9 m).

The following is required:

- Knife
- Scissors
- Metal shears
- Cutting pliers
- Woven tape, Movomech part no.: 700PS618



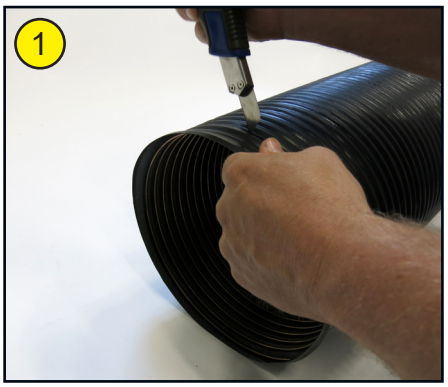
- Remove the protective sock, the woven tape and unscrew the lifter tube from the plastic adapter. Measure how much of the lifter tube must be removed to achieve the intended height above the floor.
- Cut the lifter tube (figure 1) and clip the steel wire (figure 2).
- Cut away the surplus fabric from the lifter tube (figure 3).
- Carefully bend in the end of the steel spiral so that it follows the external diameter of the tube (figure 4).

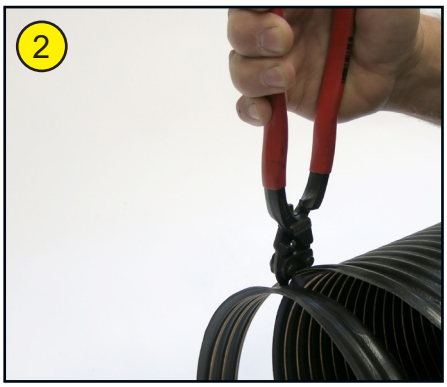
Installing/re-installing the lifter tube

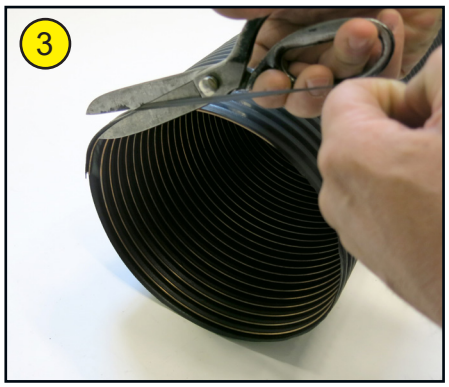
The installation instructions apply to both ends of the tube.

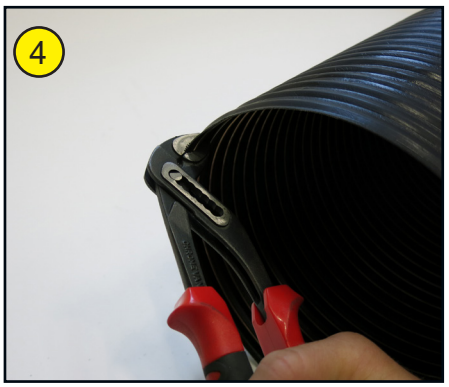
- Unscrew the lifter tube from the tube adapter. Leave 3/8 in. (1 cm) of the tube adapter visible (figure 5).
- **⚠ Attention!**

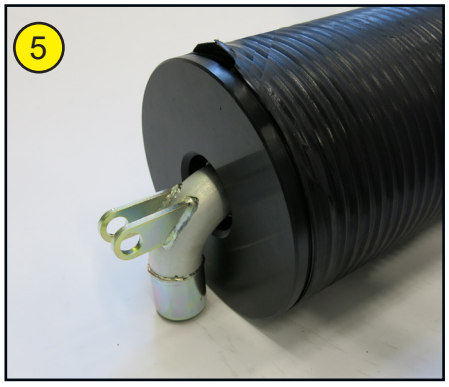
  Next, wind 3 or 4 turns of woven tape, Movomech part no. 700PS618, around the tube adapter and tube (figure 6). Do not use any other type of tape! Begin tape coverage around 3/16 in. (5 mm) above the edge of the tube adapter. The tape must be tightly wound.
- Fold down the tape and secure it against the tube adapter (figure 7).
- Fit the protective sock.











Installing the electric vacuum pump

To keep the vacuum tube short, always locate the vacuum pump as close to the lifting unit as possible.

In order to enjoy the highest possible Easyhand Pro speed during lifts, it is important that the vacuum tube between the vacuum pump and the lifting unit not be too long. A long vacuum tube reduces the ability of the lifting unit to use all of the vacuum pump's capacity. We recommend that the tube length between the vacuum pump and the lifting unit should not exceed 82 ft. (25 m). In the case of greater distances, contact the supplier.

⚠ Attention!

With regard to its heat generation, install the pump in a well-ventilated space. Make sure the pump is positioned such that it is surrounded by a free area of at least 11.8 in. (30cm) on all sides and that there is no risk of objects blocking the pump's ventilation holes.

⚠ Attention!

Make sure the pump stands firmly. If it is not placed on the floor, it must be secured so that it does not fall or tip over.

⚠ Caution!

Check that the belt guard is installed.

⚠ Caution!

Electrical installation must be performed by an authorized electrician.

⚠ Caution!

Always remove the protective plug from the pump suction pipe before start.

⚠ Caution!

Caution! Note! Never test run the pump without a connected air filter.

The electrician must check that air blows out of the silencer to confirm the correct direction of rotation for the electric vacuum pump motor. The pump can be damaged if it runs backwards.

If multiple Easyhand Pro's are installed, vacuum pumps must be marked to clearly indicate which Easyhand Pro they are connected to.

⚠ Warning!

The installation may not be put to use before an authorized electrician has installed suitable circuit breaker. Failure to install a circuit breaker is a fire risk!

Installing the vacuum tube and air filter for the electric vacuum pump

⚠ Attention!

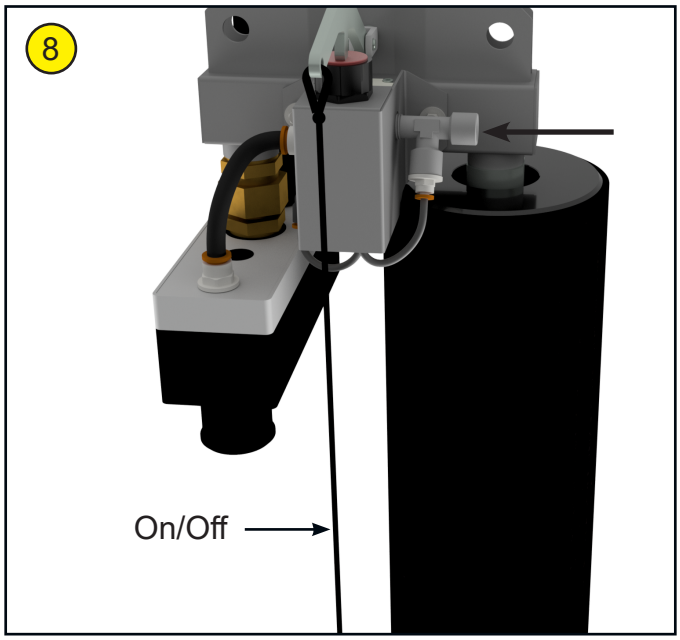
- The air filter must be located so that it is easy to access for replacement; it must be clear which lifting unit it is connected to. Begin by hanging the vacuum tube from the suspension system to which the lifting unit is attached (e.g. in a gantry, turntable crane, etc.). Connect the vacuum tube to the lifting unit's top swivel and to the air filter.
- Connect the other vacuum tube between the air filter and the vacuum pump.

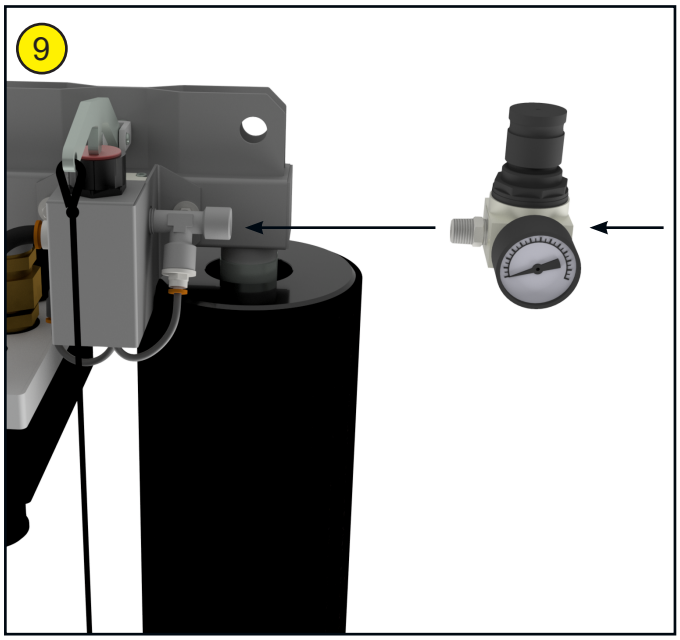
⚠ Attention!

- Caution! Note! The arrow on the air filter must point towards the tube that goes to the vacuum pump.
- Make sure the vacuum tube is not exposed to crush risk anywhere along its length or can come into contact with objects that might damage it.

Installation of compressed air-powered vacuum pump (ejector)

When selecting compressed air-powered vacuum pump, the pump unit is integrated on the lifting unit. All that is needed is a feed hose at least 10 mm (3/8 ” inside) for a hose feed of up to 25 m. For a longer hose feed, a 12.5 mm (1/2”) feed hose is recommended. The connected air must be free from oil, water and dirt. The supply hose is connected to the pump unit according to Fig. 8. The connection is a 1/4”R thread. As an option, there is also a regulator for adjusting the lifting speed (Fig. 9). The pump unit has an on / off function that works by pulling lightly on the cord attached to the shut-off lever, see figure 8. The cord should be cut to a length so that it cannot get caught in the lifting unit or things within the lifting area, preferably as short as possible. The cord activates an alternating on/off function. The lifting unit is started the first time and then stopped the next time.





Test runs

⚠ Warning!

- Lift a load with a completely smooth, non-porous surface. Let the load hang suspended in the lifter while listening for hissing sounds to make sure there are no leaks anywhere in the installation.
- Lift a load that weighs 22 lb (10 kg) and has a completely smooth, non-porous surface. Let the load hang suspended in the lifter and then switch off the vacuum pump. The load, together with the lifting unit, should now sink slowly to the floor. When the lifter tube is fully stretched, a greater vacuum is raised in the tube to provide an extra soft sink rate.
- Lift a completely smooth, non-porous load at the installation’s maximum permissible weight; refer to Troubleshooting (page 20) if the load is not raised.

⚠ Attention!

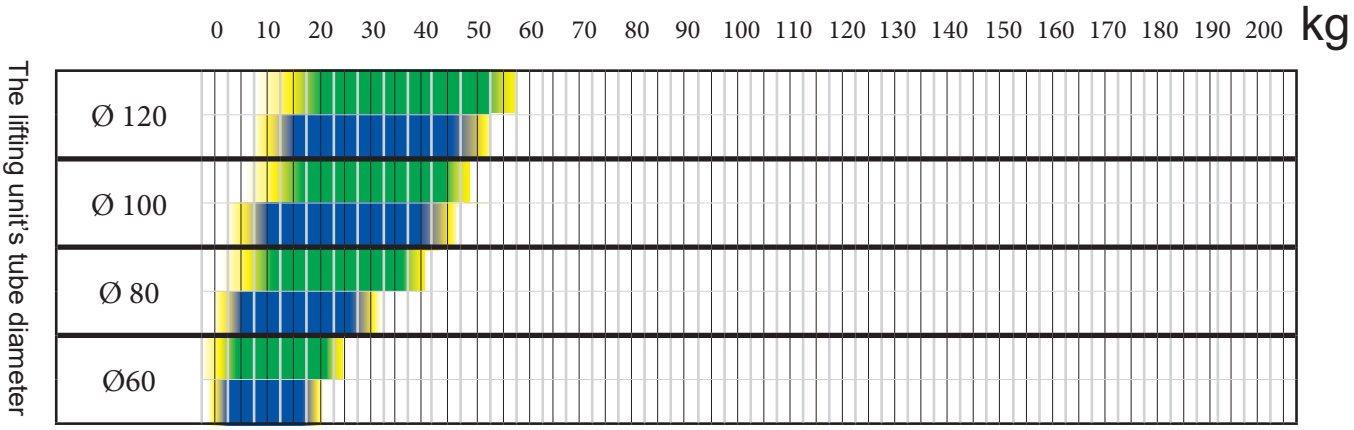
Maximum load label

Affix a maximum load label to the control unit following Easyhand Pro installation in a gantry system. The maximum load must correspond to Easyhand Pro’s maximum load together with the gantry system’s maximum load. **Note that Easyhand Pro is not marked with a maximum load label as standard.** Max. load marking labels can however be ordered for each respective installation. The next page provides information about Easyhand Pro’s maximum loads.

Lift capacity kg

= Green indicates recommended lifting capacity for loads of a smooth, non-porous material.
Yellow indicates possible lift range depending on the shape of suction feet etc.

= Blue indicates recommended lifting capacity for objects of porous material.
Yellow indicates possible lift range depending on the shape of suction feet etc.



The bars in the chart show the recommended load weight for smooth, non-porous/porous material that can be handled by a specific lifting unit. The recommendations are based on appropriate lifting speeds. Light loads are lifted more quickly than heavy loads. Solid material such as sheet-metal is lifted more quickly than porous material such as cardboard. Never use the lifting unit/pump combination for loads heavier than those recommended.

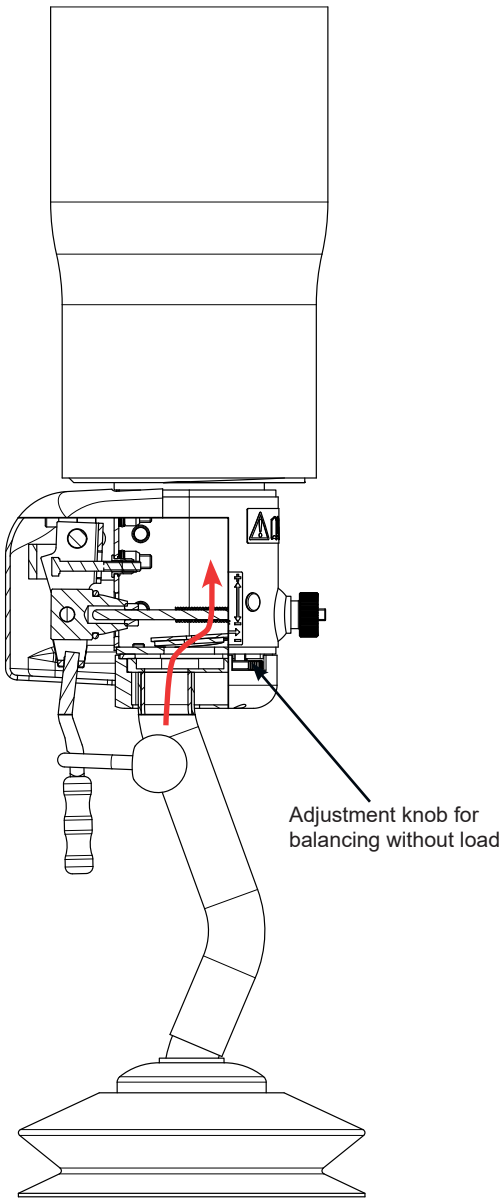
Generally speaking, always try to use the largest possible tube diameter to achieve the gentlest lifting movement.

How to interpret the chart:

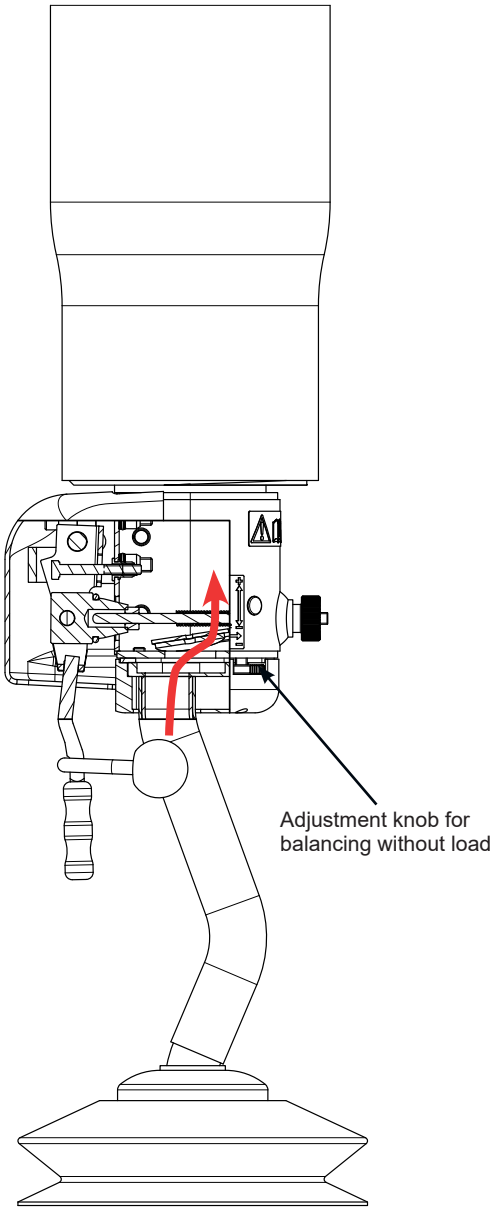
An Easyhand Pro 120/D (lifter tube diameter 4,72 in (120 mm), pump model D) is recommended for lifting solid loads with weights from around 33 lb (15 kg) up to around 110 lb (50 kg), and porous loads with weights from around 22 lb (15 kg) up to around 88 lb (40 kg).

Function

Balancing without load



Turning the adjustment knob to the right. The bottom valve opens. The lifter is lowered.



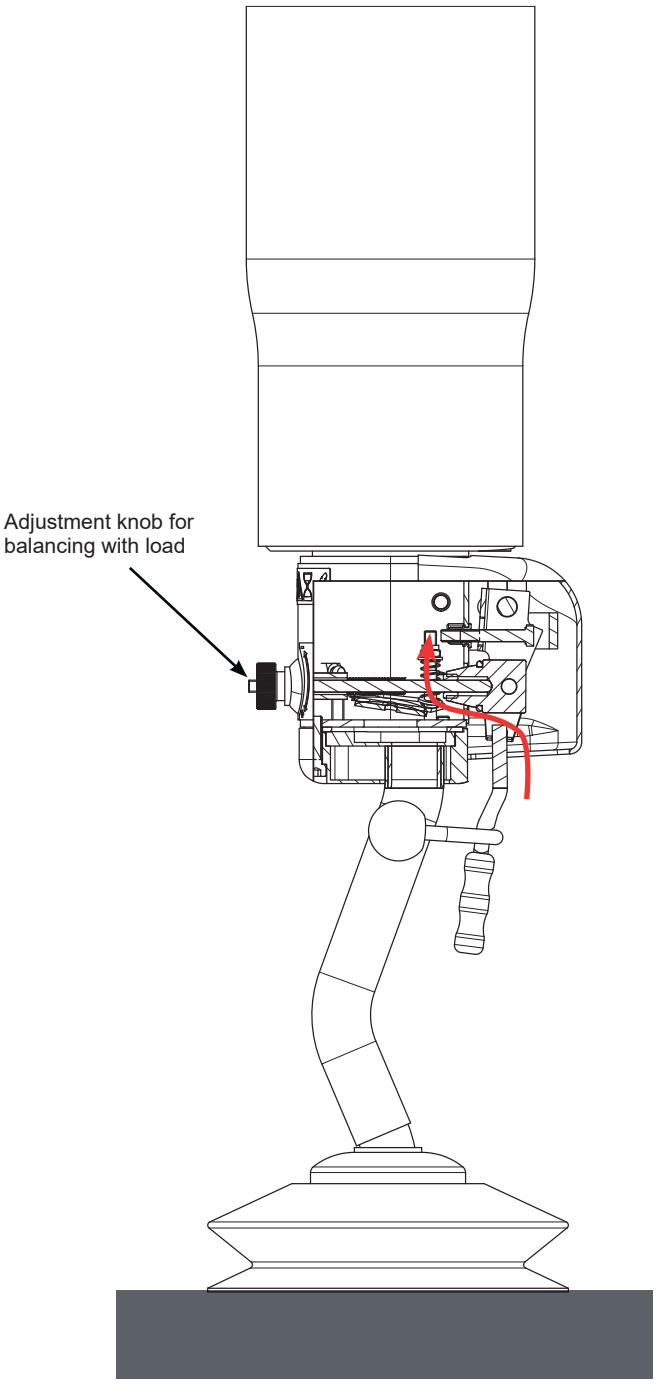
Turning the adjustment knob to the left. The bottom valve opens. The lifter is raised.

When the vacuum pump is running, a negative pressure is formed inside the lifting unit. In order to prevent the lifter tube from collapsing, air is bled in through a bottom valve. This air reduces the negative pressure in the lifter tube. The amount of bleed air is regulated by the knob for balancing without load.

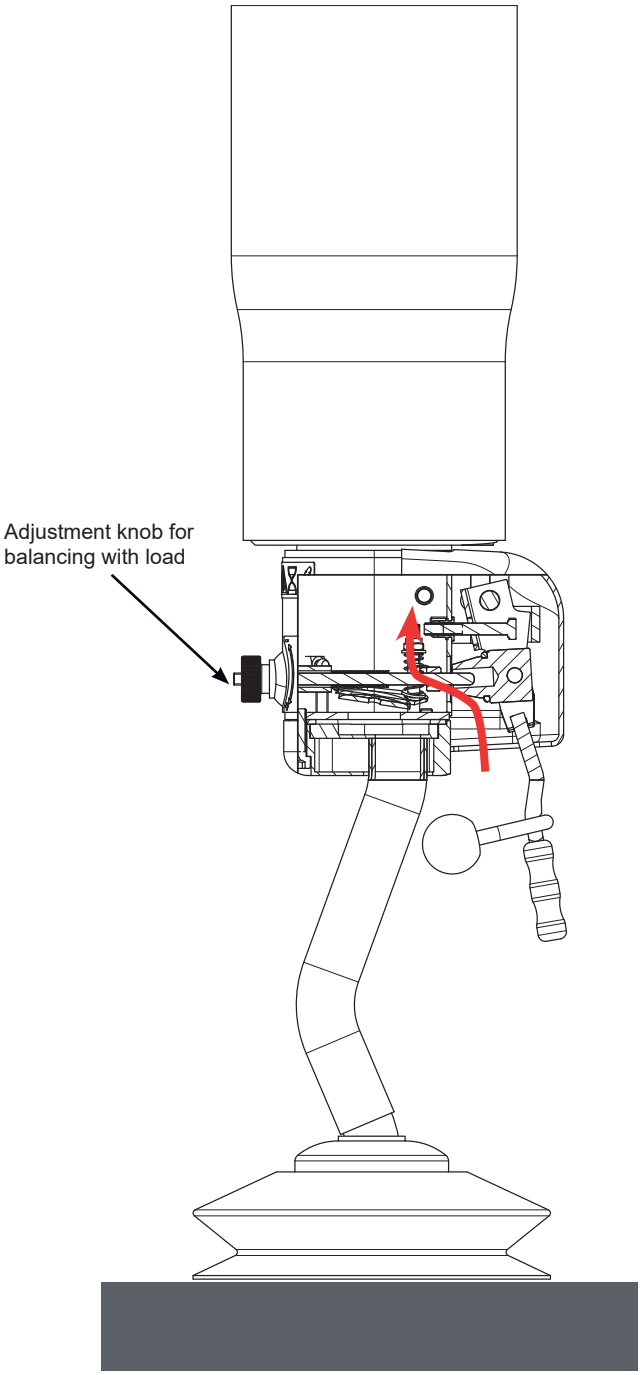
⚠ Warning!

Never fully close the bottom valve adjustment knob when lifting porous materials. This can cause insufficient flow in the suction foot and there is a risk of its dropping or not being able to grip the load.

Balancing with load



Turning the adjustment knob to the counterclockwise. The control bar is closed and thus the lift is raised and the load is suspended higher.



The adjusting knob is turned clockwise. The control bar opens and thus the lift drops and the load is suspended lower.

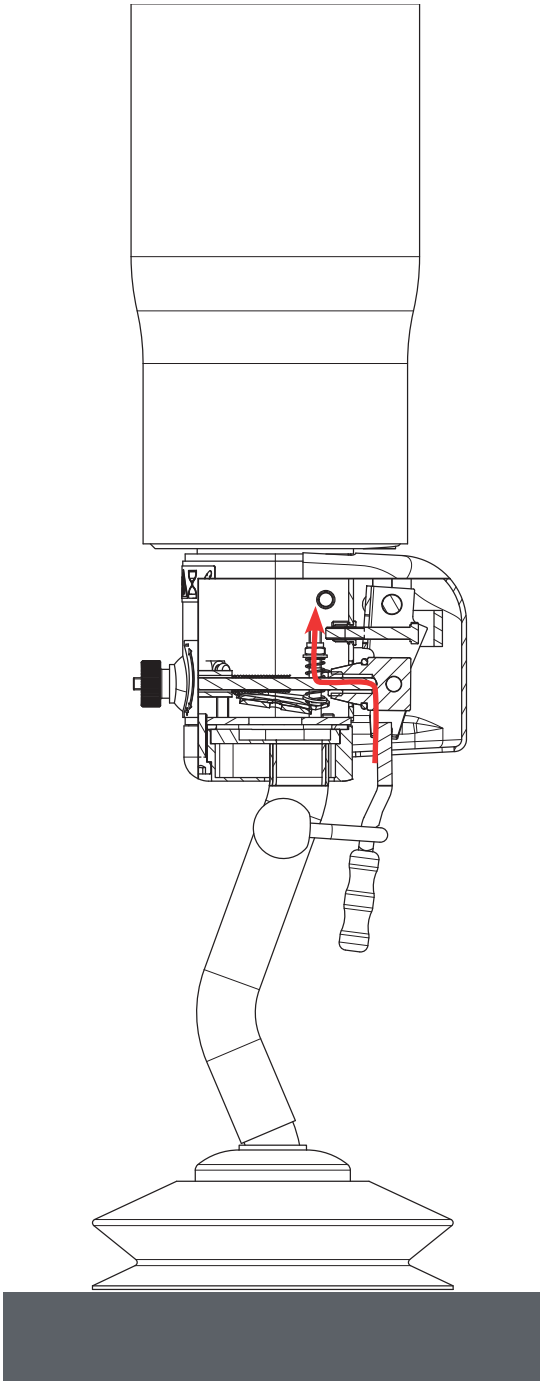
The load is adjusted to the preferred working height using the balance knob.

Correct set balancing also provides an opportunity to release the control handle and with both hands handle the load and Easyhand Pro sideways.

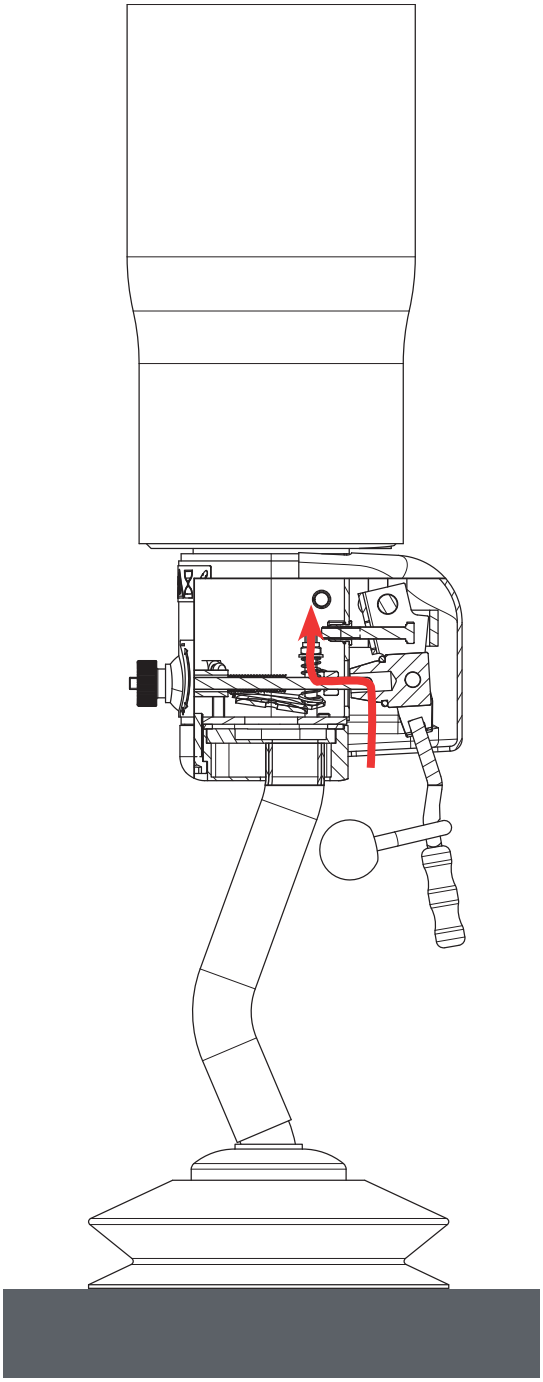
Set Easyhand Pro balance to the average weight when lifting loads of varying weights.

Operating with load

Positions 1 & 3



Position 2



When a load seals against the suction foot, air only enters Easyhand Pro via the control valve.

Control bar in position 1:

The handle valve is partially open and the amount of air allowed into the lifting tube is controlled by the load balancing adjustment knob as described previously.

Used when moving a suspended load. With the handle is in this position and the load balancing adjustment knob set properly the load should not move up and down on its own.

Note that the position of the control bar varies continuously between these three positions and small movements of the bar can be used to change the vacuum level to raise and lower the load in a controlled manner.

Control bar in position 2:

The handle valve is wide open. In this position, so much air flows in through the valve that the negative pressure is alleviated and a lowering movement takes place. Used to lower the suction foot to the object to begin a lift and to release the suction foot from the object after placement.

Control bar in position 3:

The handle valve is fully closed. The negative pressure in the lifter tube is intensified and the tube contracts causing a lifting motion to take place. Used to lift the object after proper placement of the suction foot.

Maintenance

⚠ Attention!

In order to ensure safe equipment function and to preserve lifting capacity, follow the maintenance instructions. Remedy any faults detected in Easyhand Pro immediately. Easyhand Pro may not be used until the defects are remedied.

⚠ Warning!

The equipment must be switched off prior to maintenance.

⚠ Caution!

Only use original Easyhand Pro parts for maintenance, repairs, or replacement.

Daily checks:

- Check the filter daily in dirty or dusty conditions. Shake out and vacuum clean the filter. Damaged filters or filters that cannot be cleaned must be replaced.
- Check that the sealing strip on the suction plate is in satisfactory condition. If necessary, clean the strip with water. Defective sealing strips must be replaced.
- Visually inspect various parts of the machine for damage, cracking, and corrosion.

⚠ Warning!

Damaged or extremely dirty filters can harm the pump. This may cause loads to be dropped and injure the operator and or others. If the air filter is not cleaned, lifting capacity will eventually be lost and there is a risk that the vacuum pump will run hot.

Weekly checks:

Test the check valve to ensure that loads do not drop quickly if the power supply is lost.

Test the check valve (located at the top of the lifter tube) to ensure that loads do not drop quickly if power to the vacuum pump is lost.

- Start the vacuum pump.
- Lift a smooth, non-porous load of around 22 lb (10 kg) and let it hang.
- Switch off the vacuum pump. The load should now sink slowly to the floor.

⚠ Warning!

Do not use Easyhand Pro when load drops rapidly. Contact your dealer!

- Inspect and make sure that the filter is not clogged or damaged.
- Inspect and make sure that the suction foot's rubber strip is not damaged.
- Inspect and assure that the lifter tube is not damaged.
- The lifter tube will stretch over time. Inspect and assure that the suction foot does not reach the floor. Shorten the lifter tube as necessary; refer to page 11, Cutting the lifter tube.

Quarterly checks:

- Inspect and assure that the suspension lug and the equipment Easyhand Pro is suspended from is not damaged.

⚠ Warning!

Do not use Easyhand Pro when there is damage to the lift. Contact your dealer!

- Inspect and make sure that the nuts and bolts in the suspension system are tightened and secured where applicable.
- Inspect and make sure that the vacuum tube and lifter tube are airtight and are not chafed or crushed.

Troubleshooting

Fault	Possible causes	Corrective action
Poor or no lifting power	The vacuum pump is not on?	Start the vacuum pump.
	The vacuum pump is not starting?	Check that that vacuum pump is not stuck. This can be caused by dirt, if the filter is not correctly cleaned. Contact your dealer for the manufacturer's recommended replacement component.
	The vacuum filter is clogged up?	Clean or replace the filter.
	Is the filter unit cover correctly installed?	Secure the cover correctly.
	The sealing strip of the suction plate is dirty/defective?	Clean or replace with a new sealing strip.
	Control handle damaged?	Contact your dealer for the manufacturer's recommended replacement component.
	Leak in the vacuum system? Vacuum hoses?	Check that all hose connections for vacuum hoses are tight. Check that the vacuum hose is intact and does not leak. Repair temporary with woven tape, part no. 700PS618. Order new hose and replace the old one as soon the part arrived.
	Leak in the vacuum system? Lifting tube? The load raised very slowly and speed up with increased height.	Check the lifting tube ends that there are no damages and the tube is not crushed. Repair with woven tape part no. 700PS618 in the case of a minor leak. Otherwise cut or replace lifting tube.
	Leak in the vacuum system? Quick-release connection, suction foot?	Check the quick-release coupling for tool changes is correctly fitted and the sealing and O-ring is not damaged. Always replace both parts if either of them are damaged.
	Rubbish in the suction foot?	Clean out and remove the rubbish from the suction foot.
	Is the load too heavy?	Check that the weight corresponds to Easyhand Pro´s lifting capacity.
	Is the load too porous?	Check the porosity on the load with the supplier.
	Still no lifting power?	Contact your dealer for the manufacturer's recommended action to solve the problem.

Fault	Possible causes	Corrective action
The load does not sink slowly in power outage test.	Check if the check valve is damaged or leaking?	Refer to Maintenance, Weekly checks (page 19)

Fault	Possible causes	Corrective action
Not possible to set desired balance level position for no load.	Check balancing knob without load?	Check for damage on knob or if its stuck. Contact your dealer for the manufacturer's recommended replacement component.
	Check that no rubbish is lodged in the balance valve.	Check in bottom of the control unit by lifting in the bottom valve to visually check whether there is any rubbish inside. If there is nothing visible, remove the control unit from the lifter tube (see, "Cutting the lifter tube" on page 11 and "Installing/ re-installing the lifter tube" on page 12) Clean and remove any rubbish.

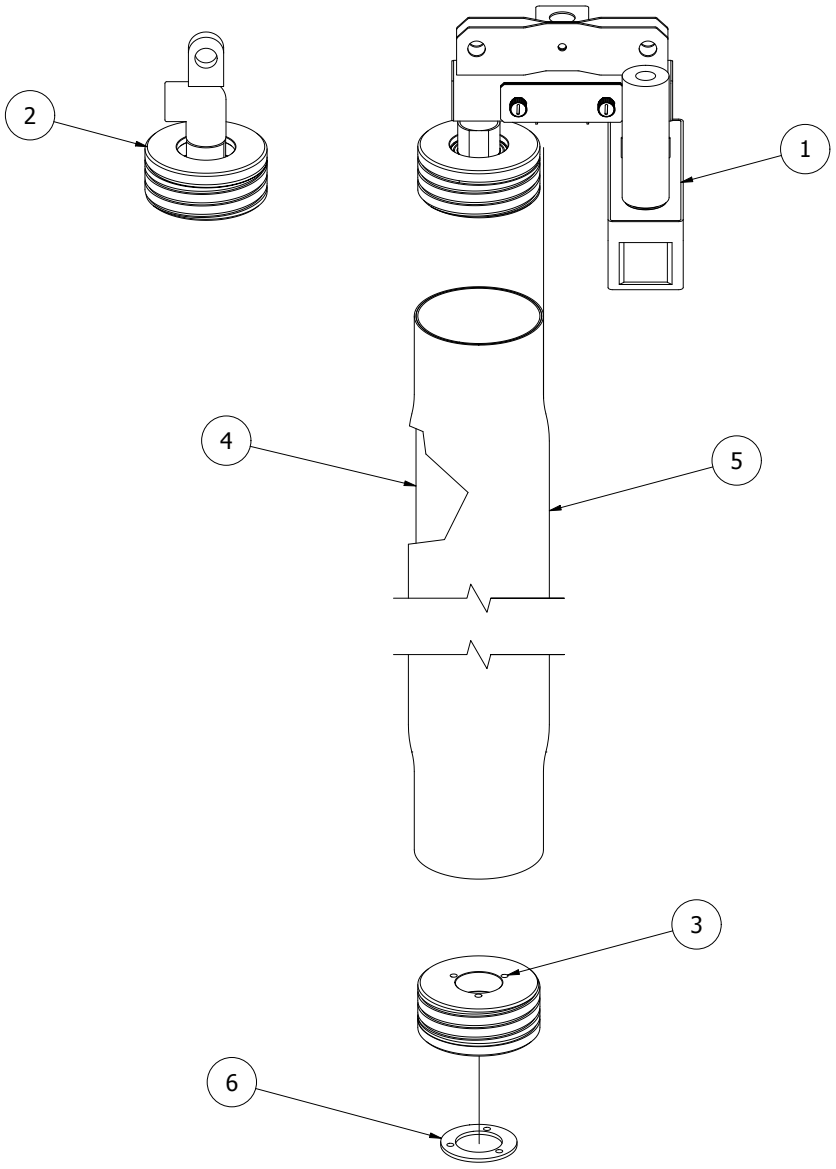
Fault	Possible causes	Corrective action
The vacuum pump will not start/rotate	Drive belt defective/incorrect belt tension.	Replace drive belt and/or adjust belt tension.
	Dirt/moisture in the vacuum pump.	Contact your dealer.

Fault	Possible causes	Corrective action
Abnormal sound from the vacuum pump during normal operation (a whining sound is normal during operation).	Incorrect belt tension.	Adjust the belt tension.

If the fault persists after going through the points above, contact your dealer.

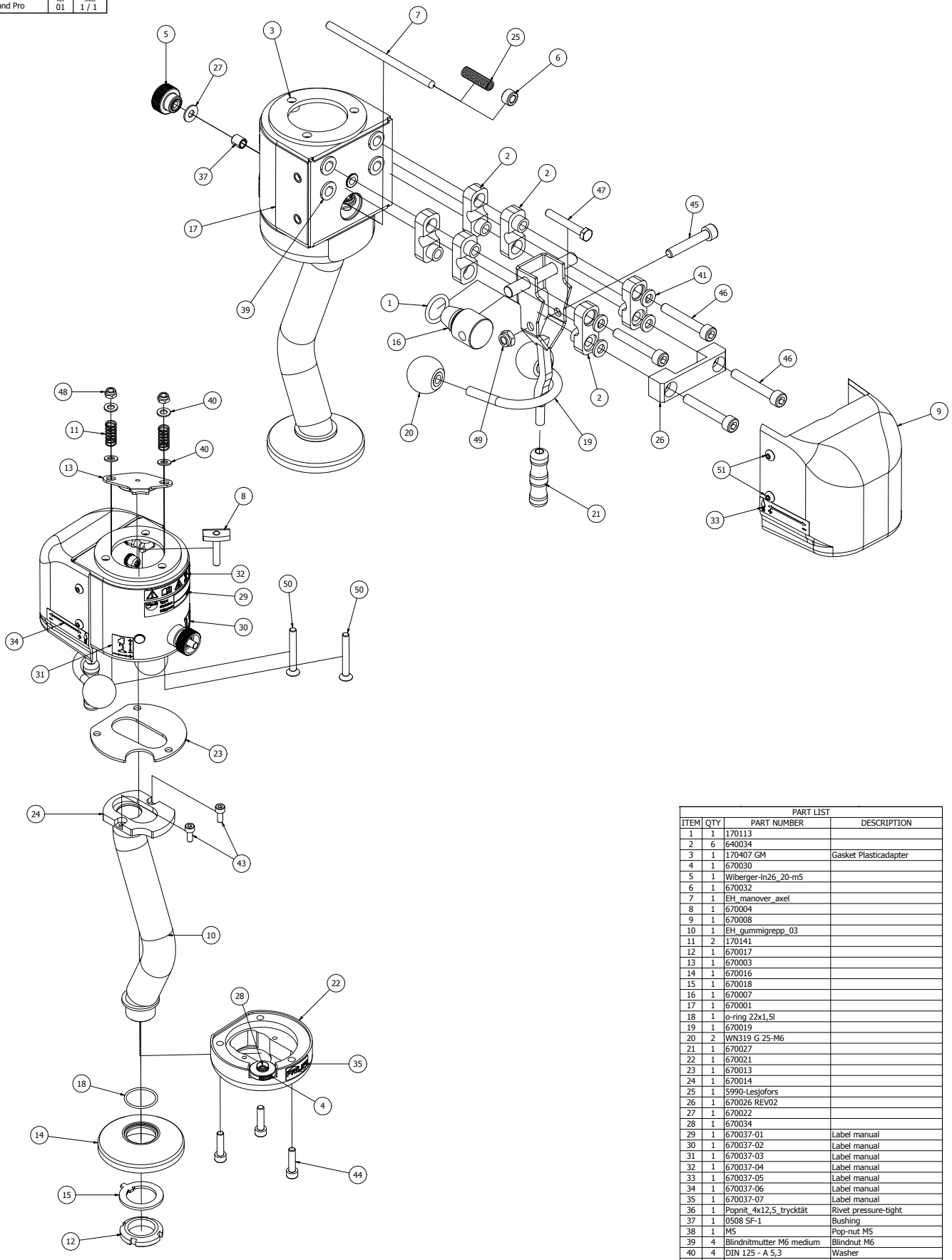
Drawings

Description		
Complete lifting unit with attachment options		
Part Number	Rev	Sheet
Lifting unit	01	1 / 1



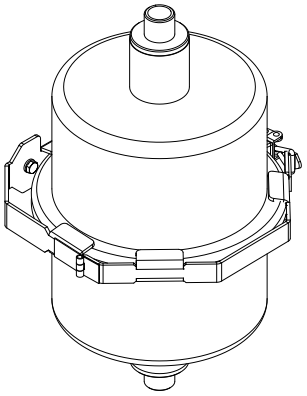
PART LIST		
ITEM	QTY	DESCRIPTION
1	1	Top Swivel with air pressure unit
2	1	Top Swivel complete, 2 lug, 1 lug
3	1	Plastic Adapter lower
4	1	Lifter tube
5	1	Protection sock
6	1	Gasket

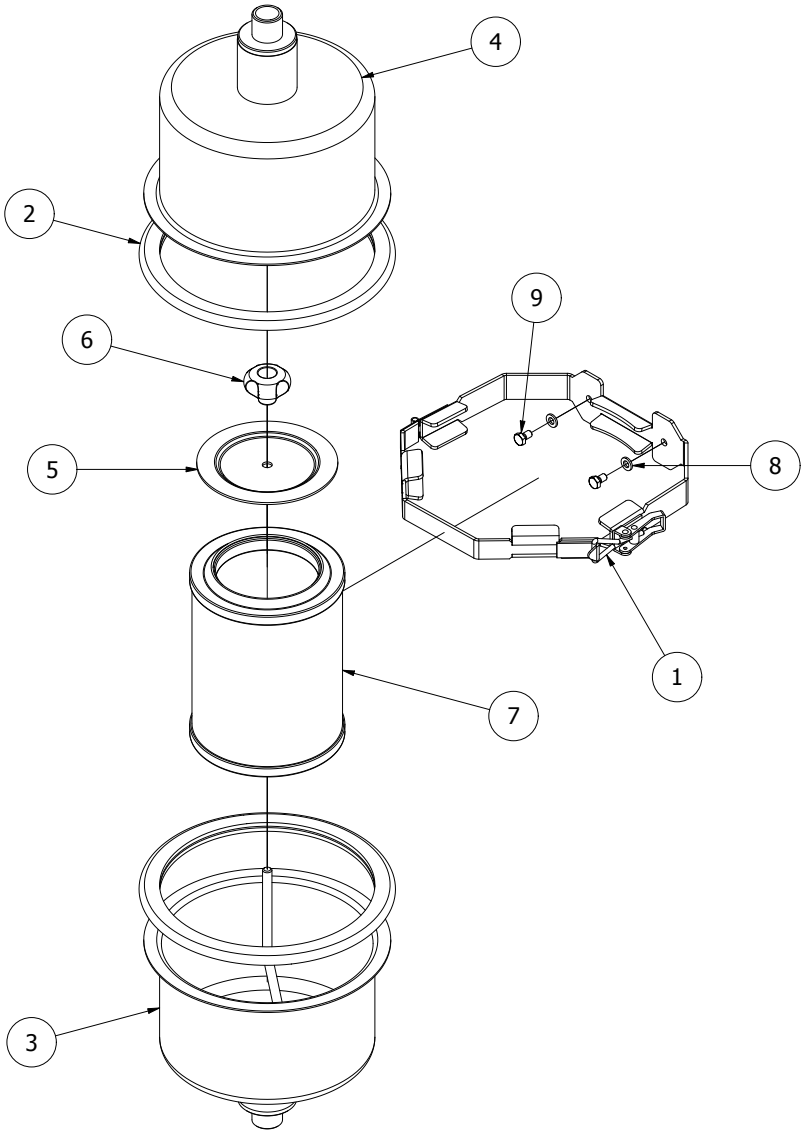
Description		
Easyhand Pro manouvre handle		
Part Number	Rev	Sheet
EasyHand Pro	01	1 / 1



PART LIST			
ITEM	QTY	PART NUMBER	DESCRIPTION
1	1	170113	
2	6	640034	
3	1	170407 GM	Gasket Plasticadapter
4	1	670030	
5	1	Wiberger-ln26_20-m5	
6	1	670032	
7	1	EH_manover_axel	
8	1	670004	
9	1	670008	
10	1	EH_gummigrepp_03	
11	2	170141	
12	1	670017	
13	1	670003	
14	1	670016	
15	1	670018	
16	1	670007	
17	1	670001	
18	1	o-ring 22x1,5l	
19	1	670019	
20	2	WN319 G 25-M6	
21	1	670027	
22	1	670021	
23	1	670013	
24	1	670014	
25	1	5990-Lesjofors	
26	1	670026 REV02	
27	1	670022	
28	1	670034	
29	1	670037-01	Label manual
30	1	670037-02	Label manual
31	1	670037-03	Label manual
32	1	670037-04	Label manual
33	1	670037-05	Label manual
34	1	670037-06	Label manual
35	1	670037-07	Label manual
36	1	Popnit_4x12,5_trycktät	Rivet pressure-tight
37	1	0508 SF-1	Bushing
38	1	M5	Pop-nut M5
39	4	Blindnitmutter M6 medium	Blindnut M6
40	4	DIN 125 - A 5,3	Washer
41	4	DIN 125 - A 6,4	Washer
42	1	DIN 557 - M5	Weld nut
43	2	DIN 912 - M4 x 10	Socket-head bolt
44	3	DIN 912 - M5 x 20	Socket-head bolt
45	1	DIN 912 - M6 x 35	Socket-head bolt
46	4	DIN 912 - M6 x 40	Socket-head bolt
47	1	DIN 931-1 - M5 x 35	Hex-head bolt
48	2	DIN 985 - M5	Lock nut
49	1	DIN 985 - M6	Lock nut
50	2	DIN 7991 - M5x40	Countersunk Socket-head bolt
51	4	ISO 7380-1 - M4 x 10	Round Socket-head bolt

Description			
Filter unit compl. for 25mm hose			
Part Number		Rev	Sheet
644002		01	1 / 1

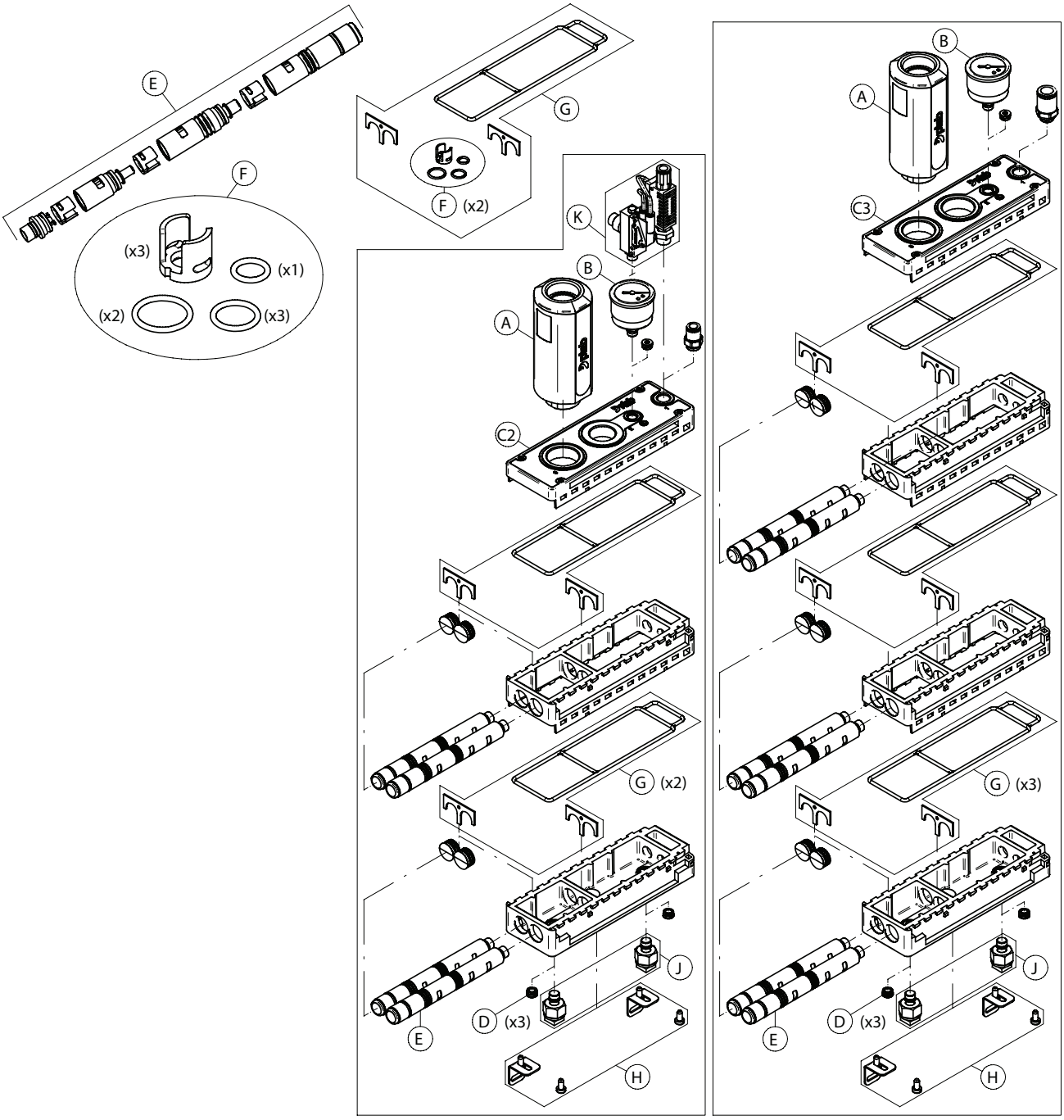




PART LIST			
ITEM	QTY	PART NUMBER	DESCRIPTION
1	1	644001-03	Locking mechanism filter unit
2	2	644001-04	Sealing strip
3	1	644002-02	Filter unit bottom - Ø25-adapter
4	1	644002-03	Filter unit top - Ø25-adapter
5	1	841132	Inner-lid filter
6	1	841416	Starknob for filter lid
7	1	WA6419	Air filter
8	2	DIN 125 - A 6,4	Washer
9	2	DIN 933 - M6 x 10	Hex-head bolt

Pump A & B

Ejector



Pump A **Pump B**

Pump C

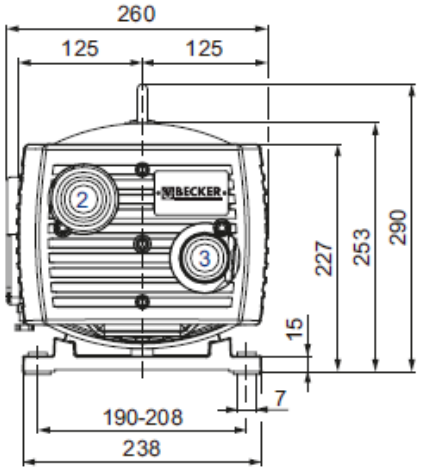
Rotary vane vacuum pumps
- oil-free and air-cooled
- incl. integrated suction filter, vacuum regulating valve and blow off valve

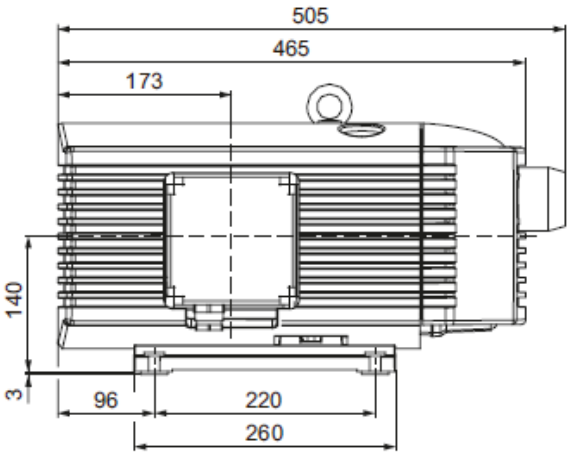
Drehschieber-Vakuumpumpen
- trockenlaufend und luftgekühlt
- inkl. integriertem Ansaugfilter, Vakuumregulierventil und Abblaseventil

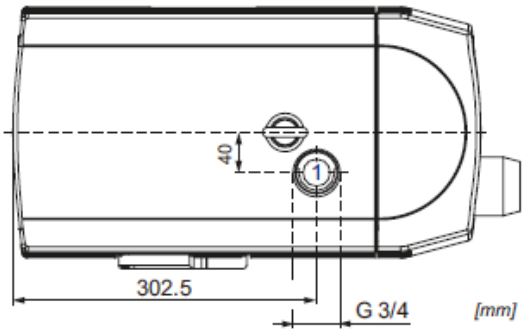
Pompes à vide à palettes
- fonctionnant à sec et refroidies par air
- incl. filtre d'aspiration intégré, soupape de réglage vide et soupape d'échappement

Pompe per vuoto a palette
- funzionanti a secco e raffreddate ad aria
- incl. filtro di aspirazione integrato, valvola regolazione vuoto e valvola di sfiato

Bombas de vacío de paletas
- sin aceite y refrigerado por aire
- incl. filtro de aspiración integrado, válvula reguladora de vacío y válvula de escape







1 Vacuum connection
Sauganschluss
Raccord vide
Raccordo aspirazione
Conexión de vacío

2 Vacuum regulating valve
Vakuumregulierventil
Soupape de regulage vide
Valvola regolazione vuoto
Válvula reguladora de vacío

3 Blow-off valve
Abblaseventil
Soupape d'échappement
Valvola di sfiato
Válvula de escape

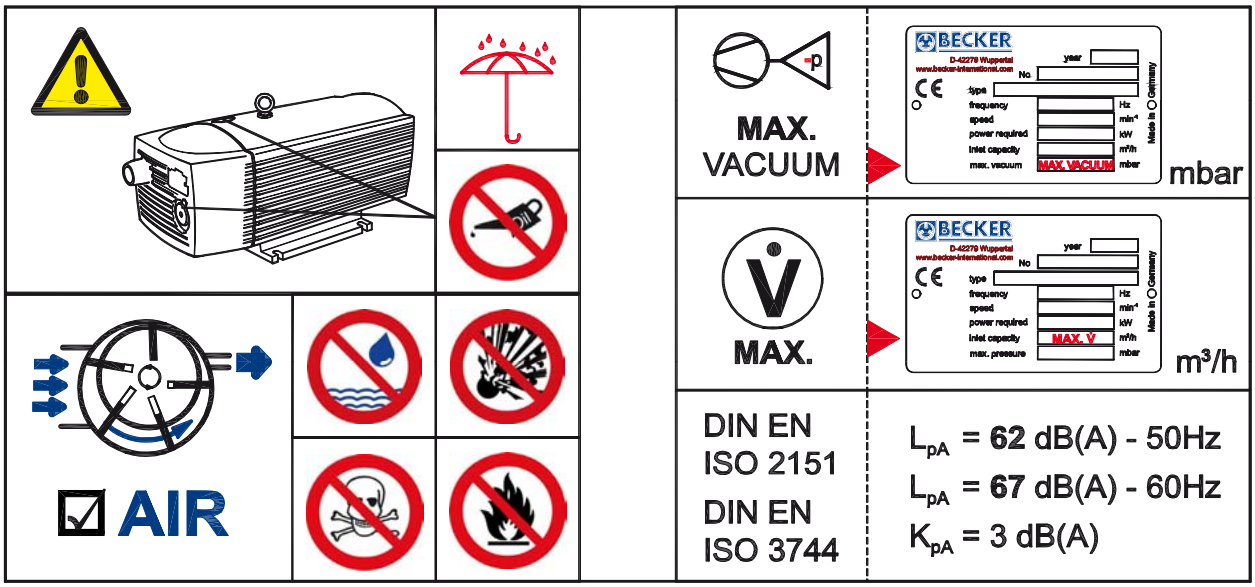
Pump C

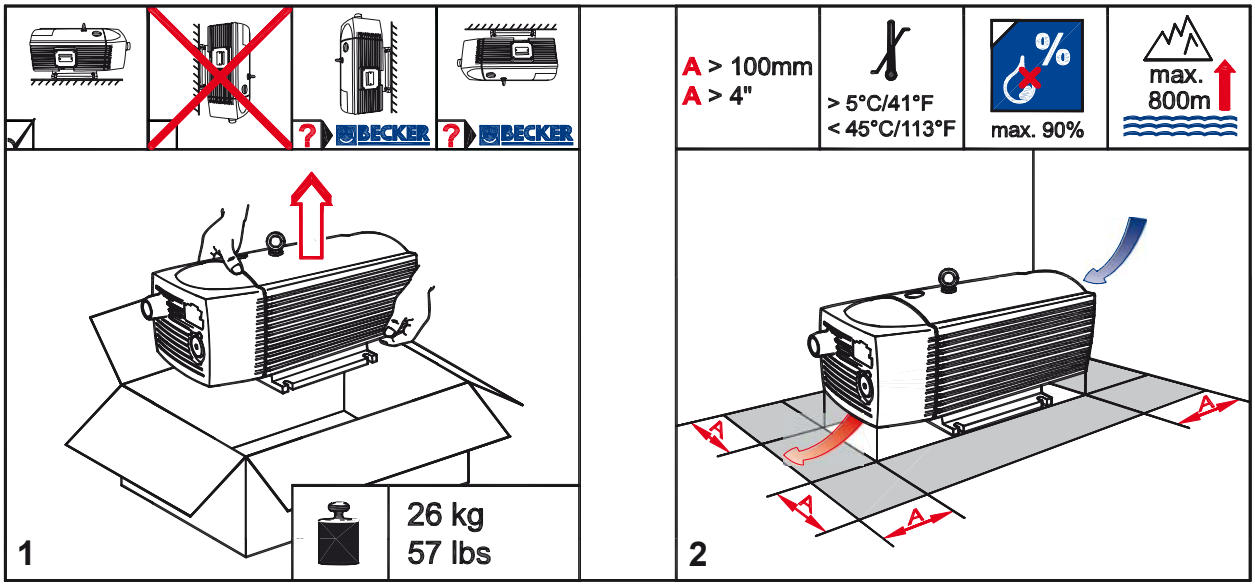
Betriebsanleitung
Operating Instructions
Instructions de service
Istruzioni d'uso
Handleiding
Instrucciones para el manejo
Manual de instruções
Naudojimosi instrukcija
Kasutusjuhend
Lietošanas instrukcija
Οδηγίες χρήσης
取扱説明書
사용설명서

Driftsinstruks
Driftsinstruktioner
Käyttöohje
Driftsvejledning
Instrukcja obsługi
Kezelési útmutató
Návod k obsluze
Navodilo za uporabo
Návod na obsluhu
El Kitabi
Инструкция по эксплуатации
使用说明书

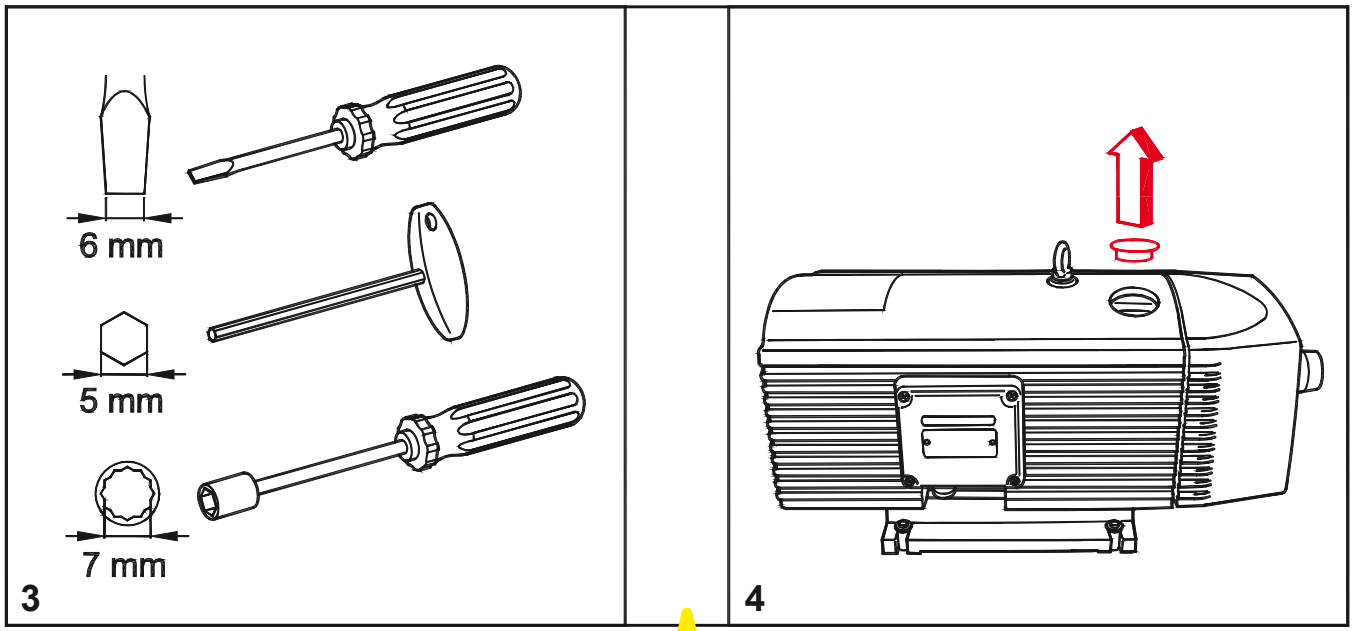
98/37 EG
73/23 EWG

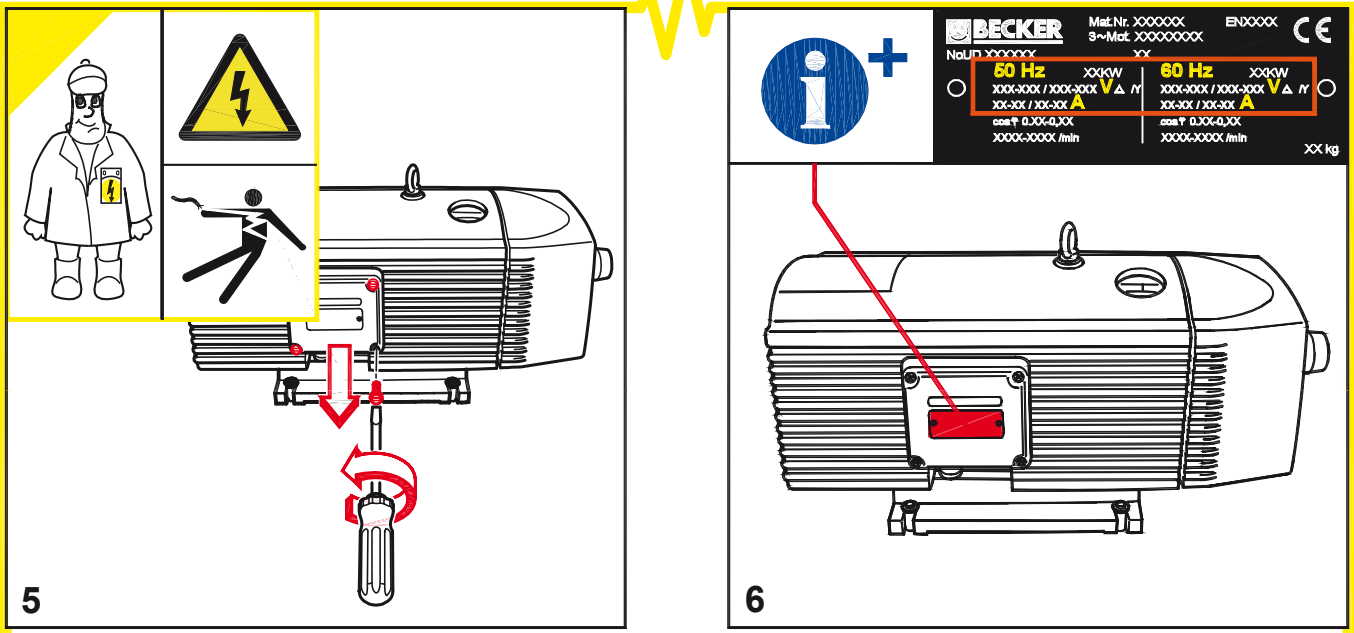
DIN EN ISO 14001:2005
DIN EN ISO 9001
001929 QM

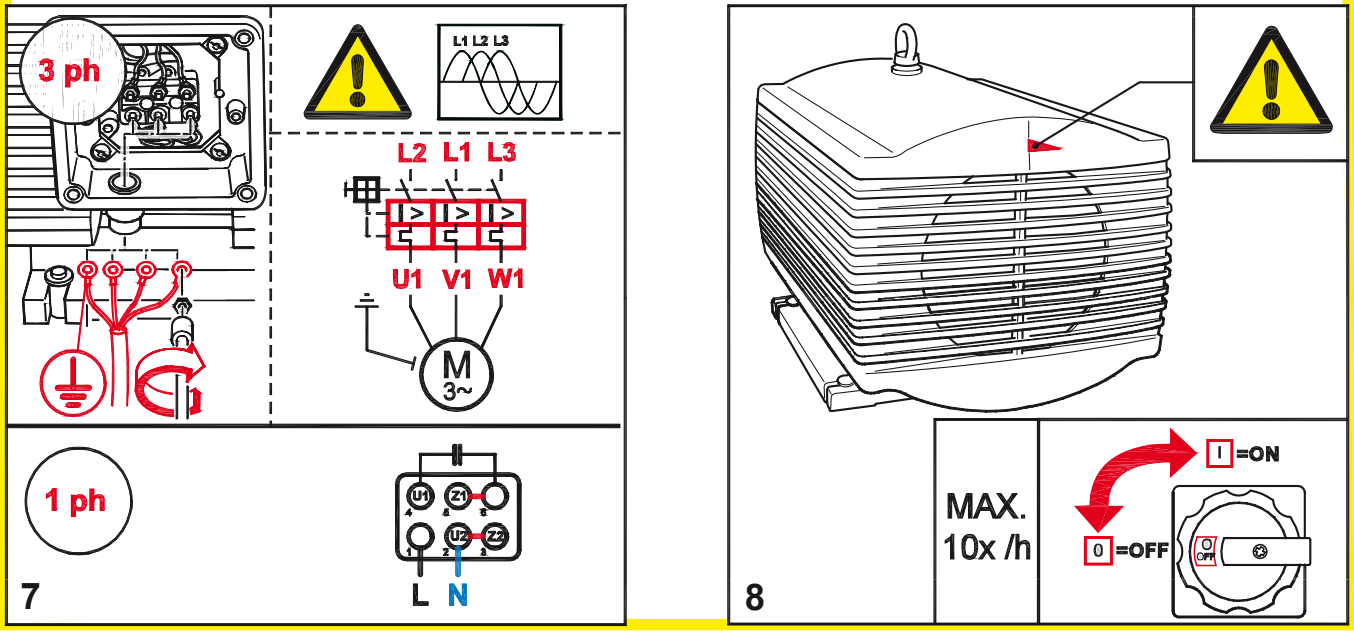


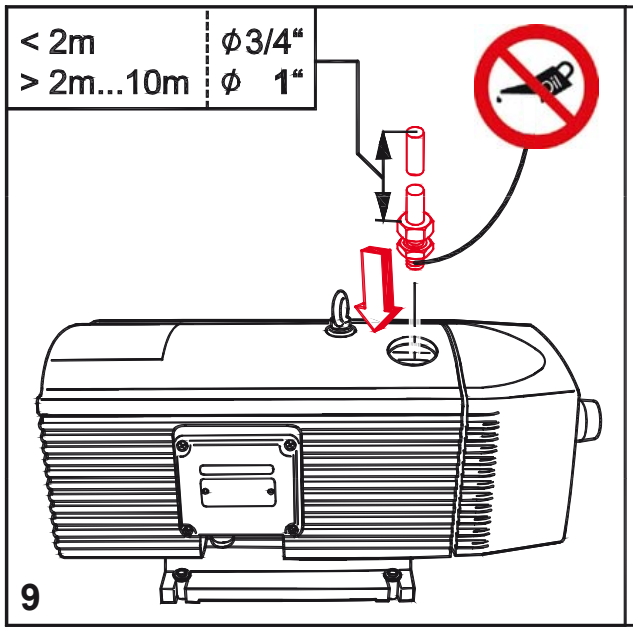


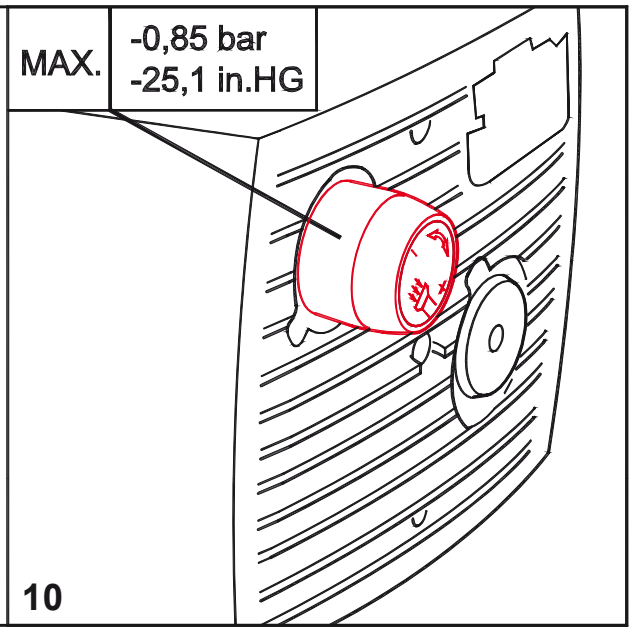
28100027502 07/07

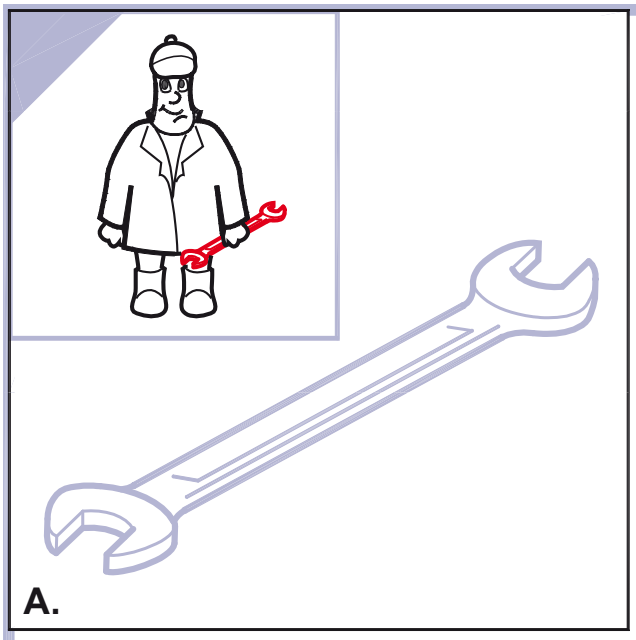

6 mm
5 mm
7 mm
3
4

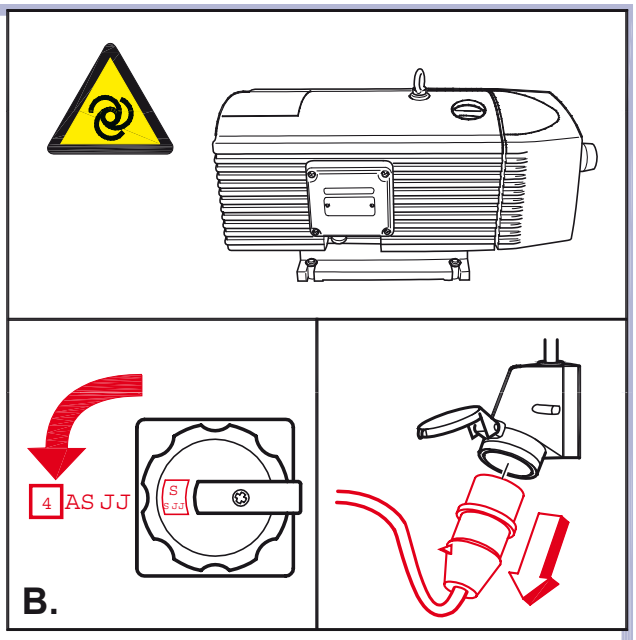

5
BECKER
60 Hz
60 Hz
6

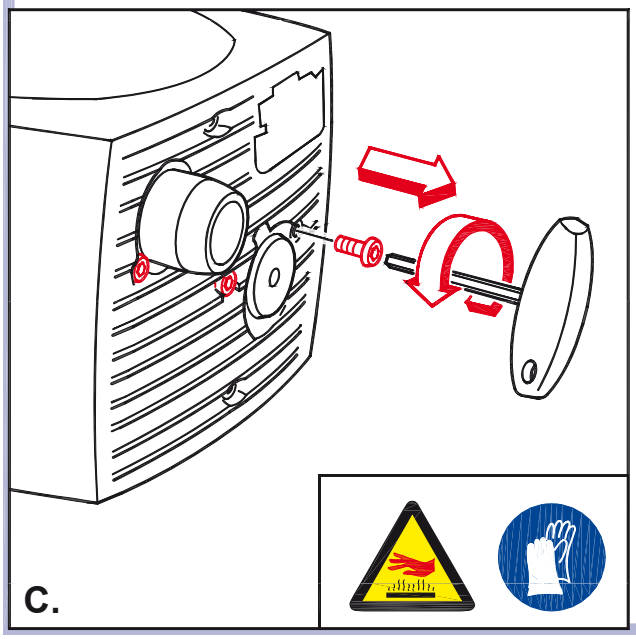

3 ph
L1 L2 L3
L2 L1 L3
U1 V1 W1
M
3~
1 ph
L N
7
MAX.
10x /h
I =ON
0 =OFF
8

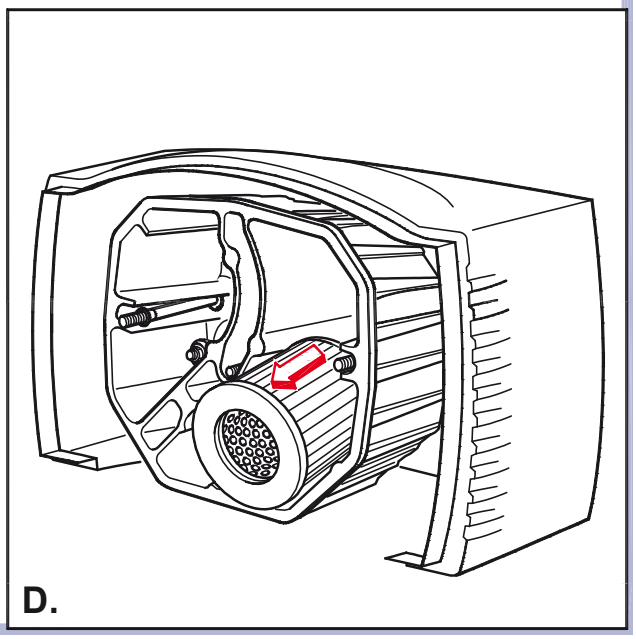

< 2m
> 2m...10m
ϕ3/4“
ϕ 1“
9

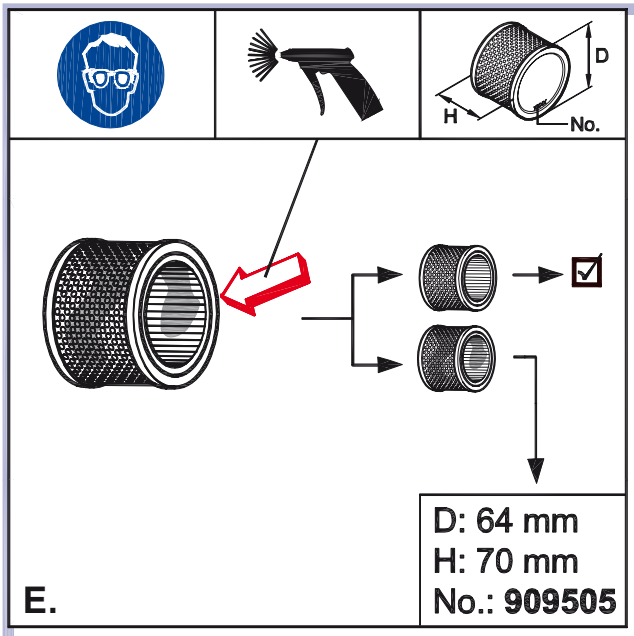

MAX.
-0,85 bar
-25,1 in.HG
10

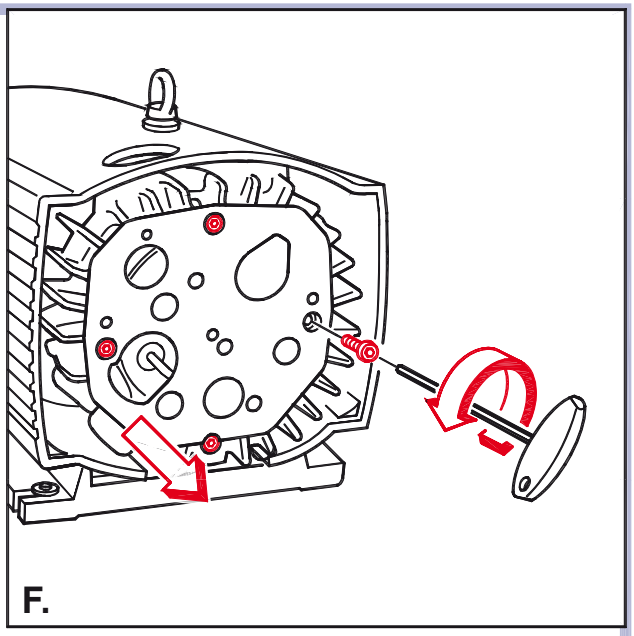

A.

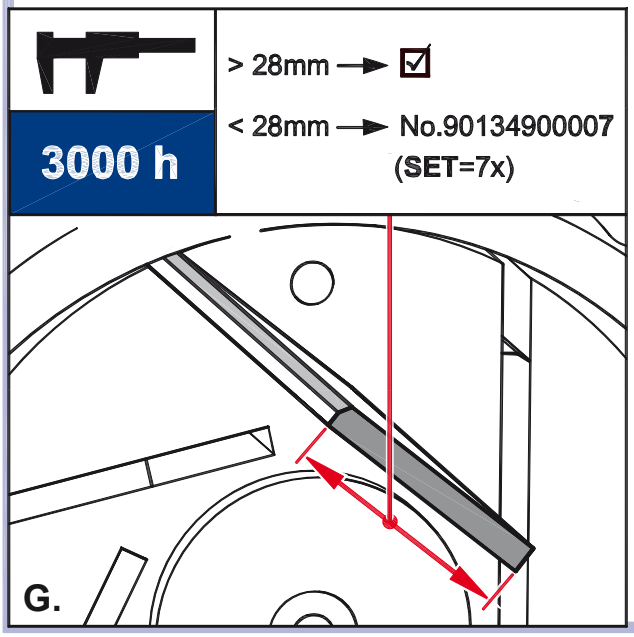

4 AS JJ
B.

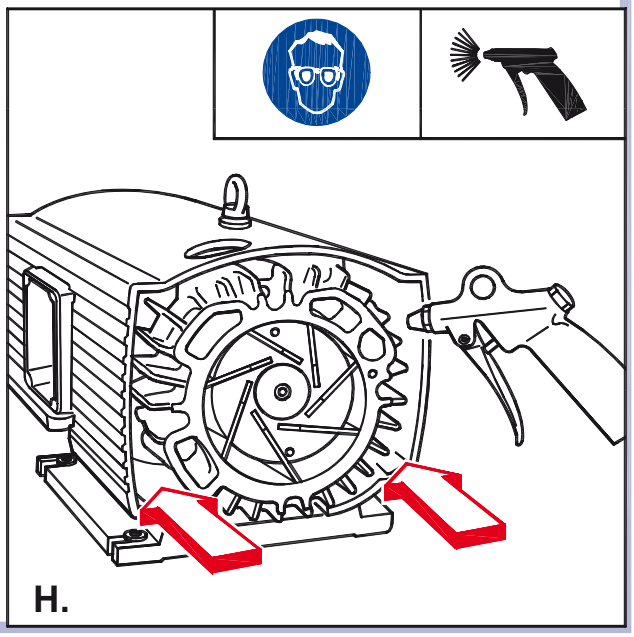

C.


D.


D
H
No.
D: 64 mm
H: 70 mm
No.: 909505
E.


F.


3000 h
> 28mm
< 28mm
No.90134900007
(SET=7x)
G.


H.

Pump D

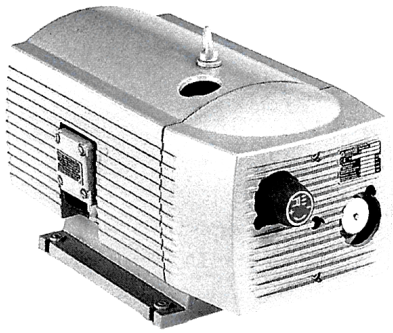
Rotary vane vacuum pumps
- oil-free and air-cooled
- incl. integrated suction filter, vacuum regulating valve and blow off valve

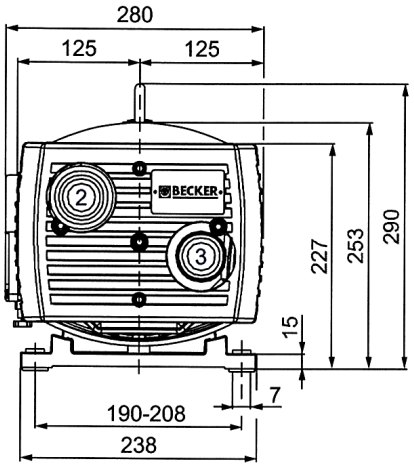
Drehschieber-Vakuumpumpen
- trockenlaufend und luftgekühlt
- inkl. integriertem Ansaugfilter, Vakuumregulierventil und Abblaseventil

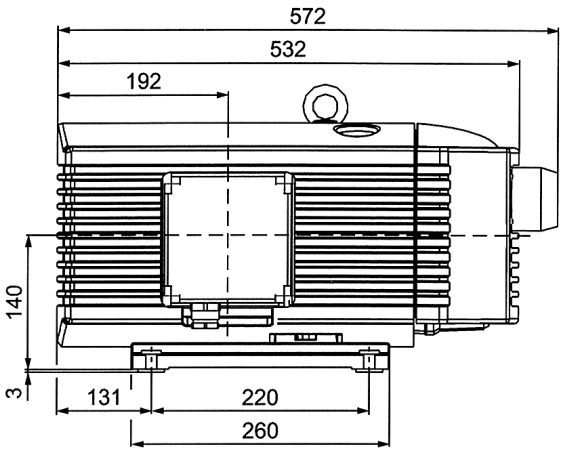
Pompes à vide à palettes
- fonctionnant à sec et refroidies par air
- incl. filtre d'aspiration intégré, soupape de réglage vide et soupape d'échappement

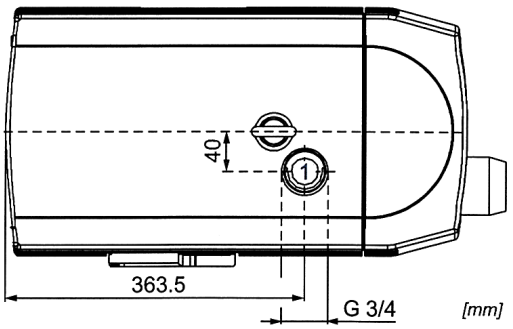
Pompe per vuoto a palette
- funzionanti a secco e raffreddate ad aria
- incl. filtro di aspirazione integrato, valvola regolazione vuoto e valvola di sfiato

Bombas de vacío de paletas
- sin aceite y refrigerado por aire
- incl. filtro de aspiración integrado, válvula reguladora de vacío y válvula de escape









1 Vacuum connection
Sauganschluss
Raccord vide
Raccordo aspirazione
Conexión de vacío

2 Vacuum regulating valve
Vakuumregulierventil
Soupape de regulage vide
Valvola regolazione vuoto
Válvula reguladora de vacío

3 Blow-off valve
Abblaseventil
Soupape d'échappement
Valvola di sfiato
Válvula de escape

[mm]

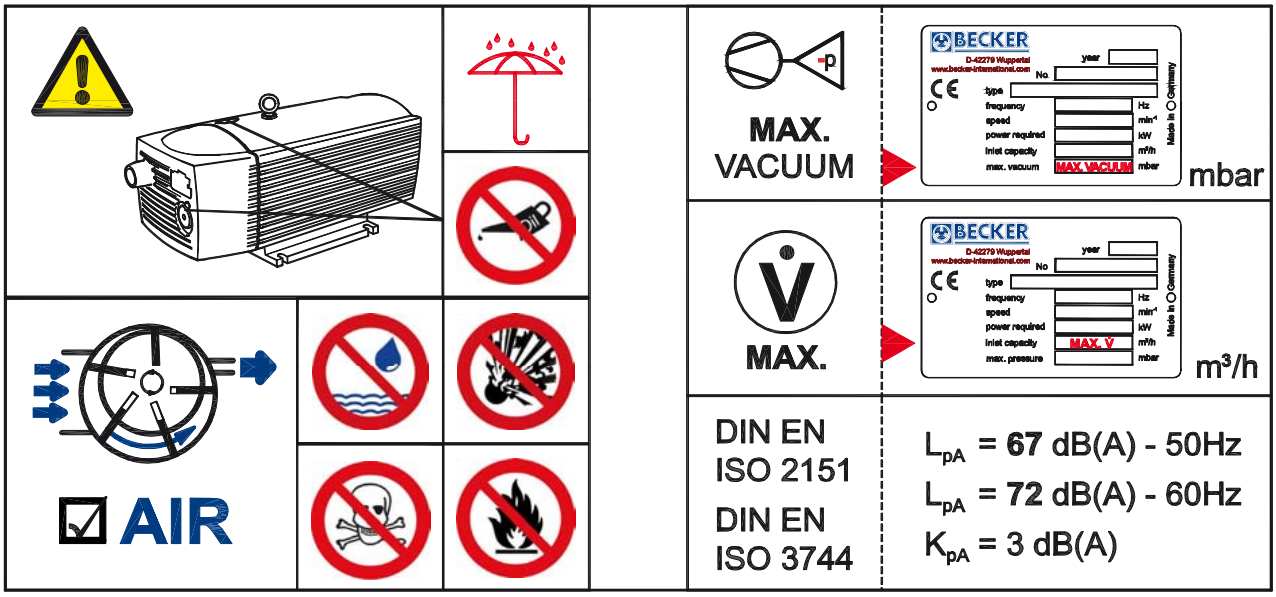
Pump D

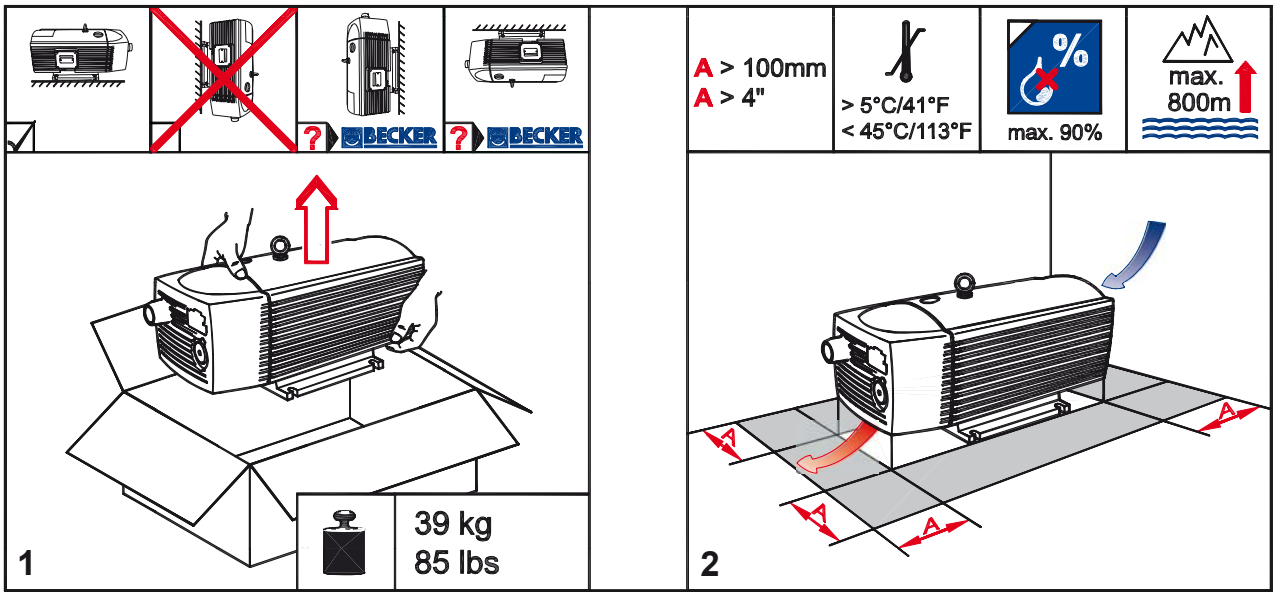
Betriebsanleitung
Operating Instructions
Instructions de service
Istruzioni d'uso
Handleiding
Instrucciones para el manejo
Manual de instruções
Naudojimosi instrukcija
Kasutusjuhend
Lietošanas instrukcija
Οδηγίες χρήσης
取扱説明書
사용설명서

Driftsinstruks
Driftsinstruktioner
Käyttöohje
Driftsvejledning
Instrukcja obsługi
Kezelési útmutató
Návod k obsluze
Navodilo za uporabo
Návod na obsluhu
El Kitabi
Инструкция по эксплуатации
使用说明书

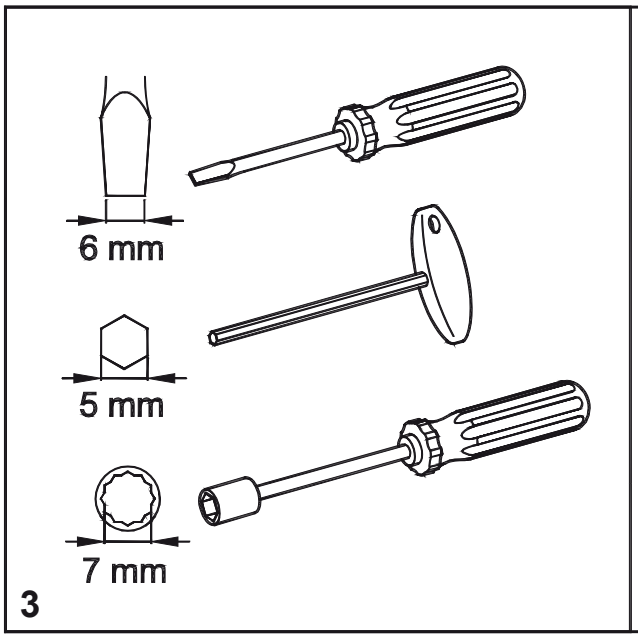
98/37 EG
73/23 EWG

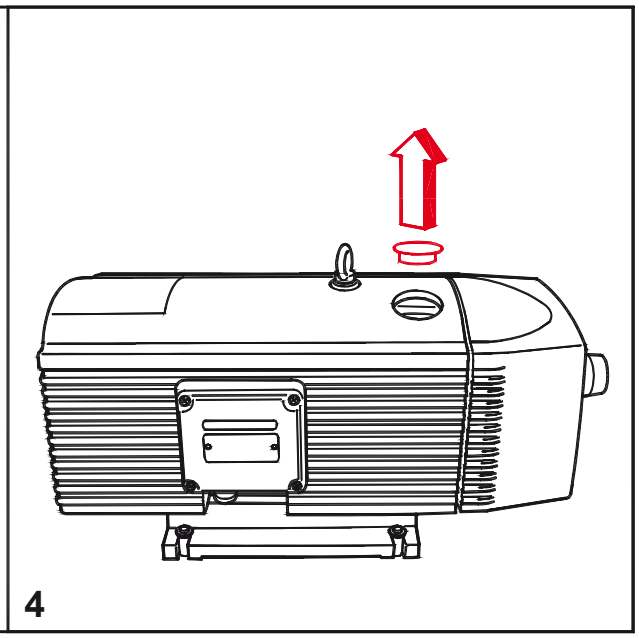
DIN EN ISO 14001:2005
DIN EN ISO 9001
001929 QM

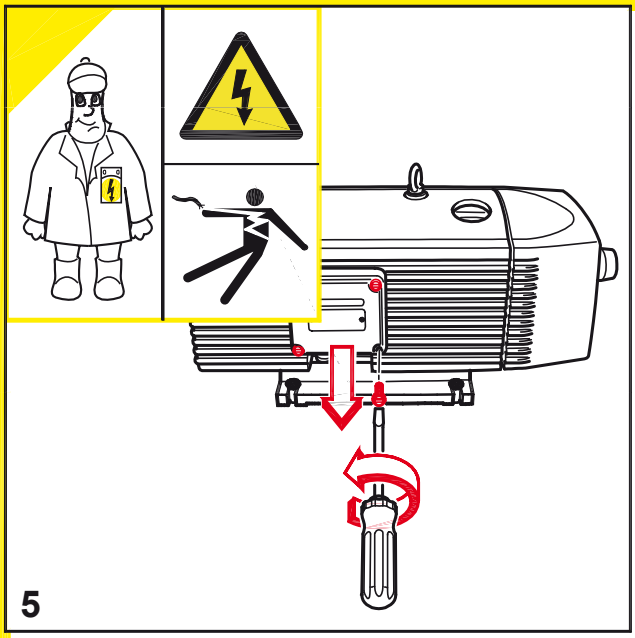


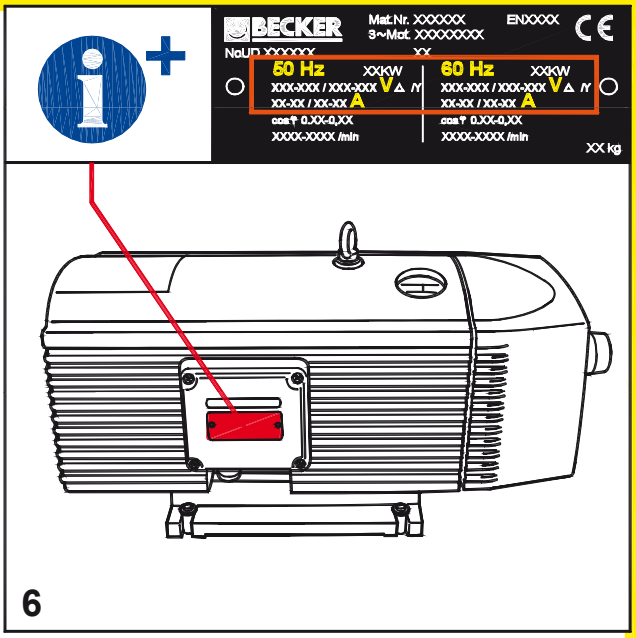


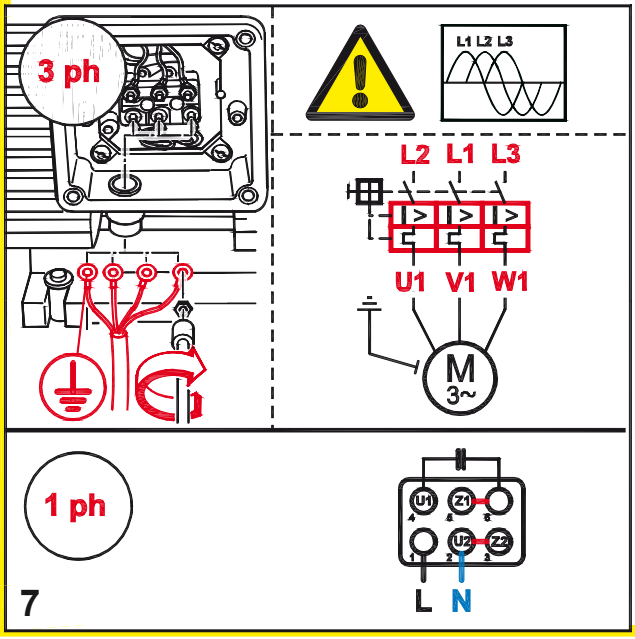
28100027602 07/07

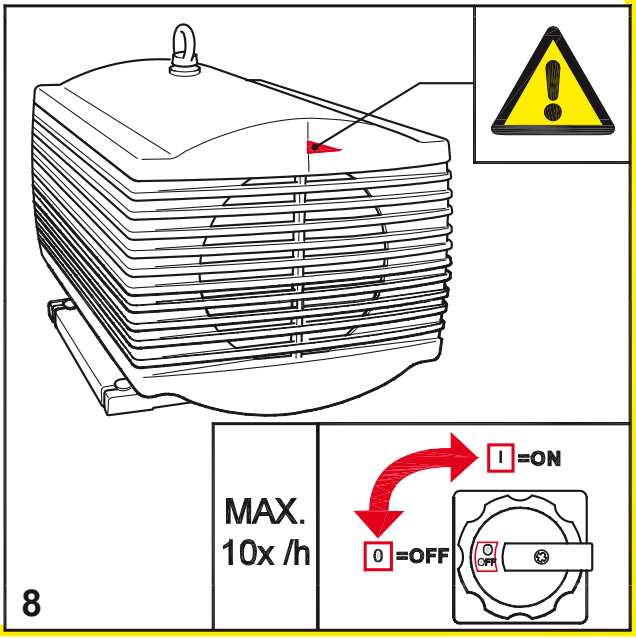

6 mm
5 mm
7 mm
3

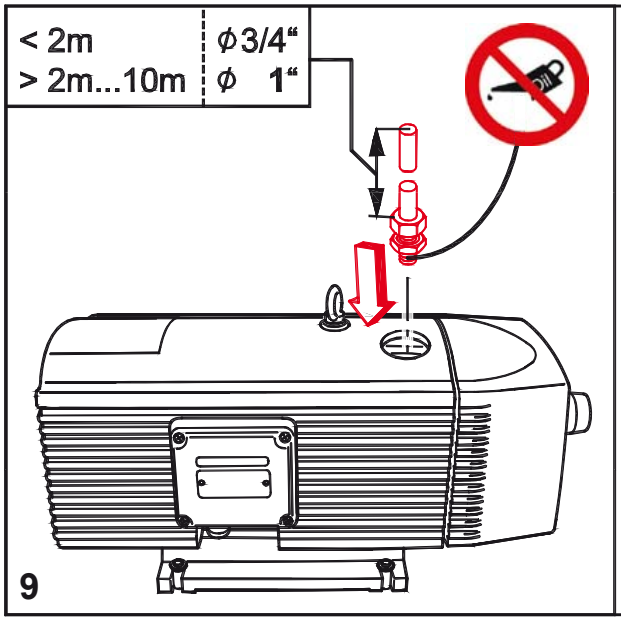

4

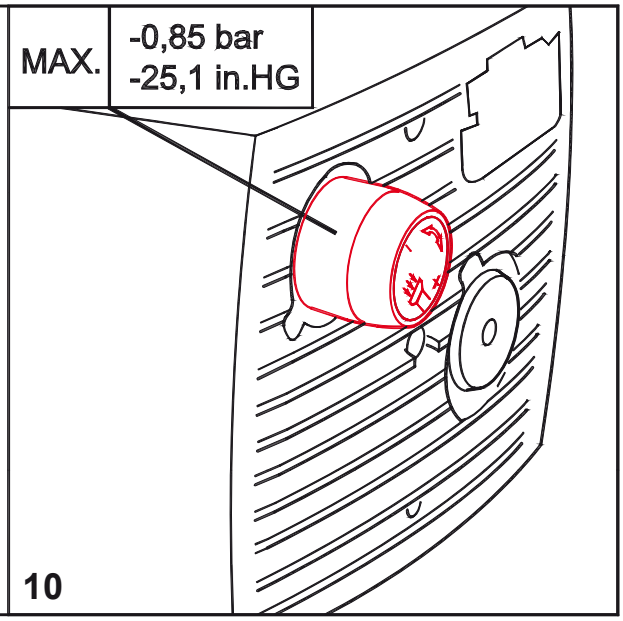

5

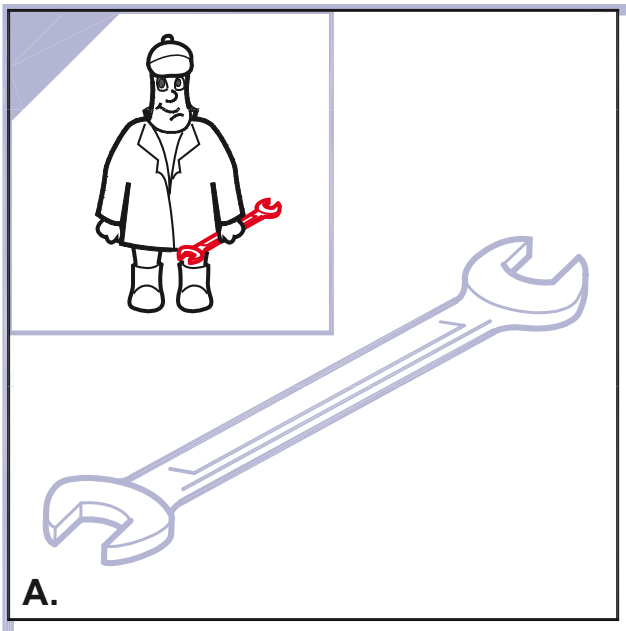

BECKER
50 Hz
60 Hz
6

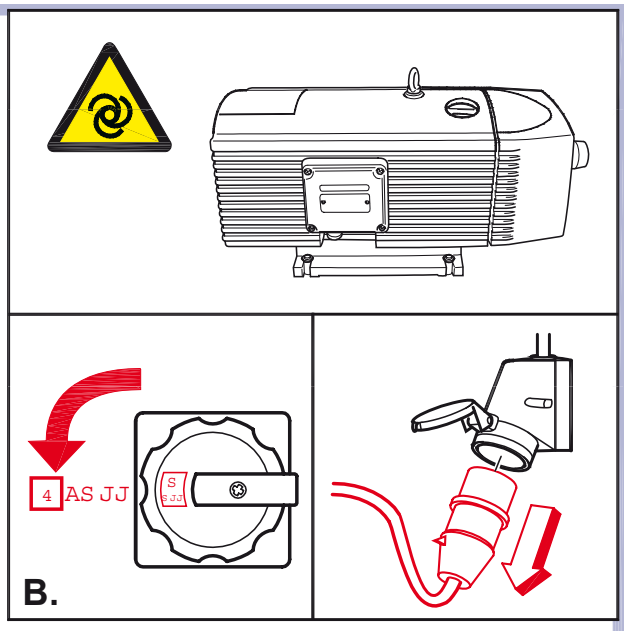

3 ph
L1 L2 L3
L2 L1 L3
U1 V1 W1
M
3~
1 ph
L N
7

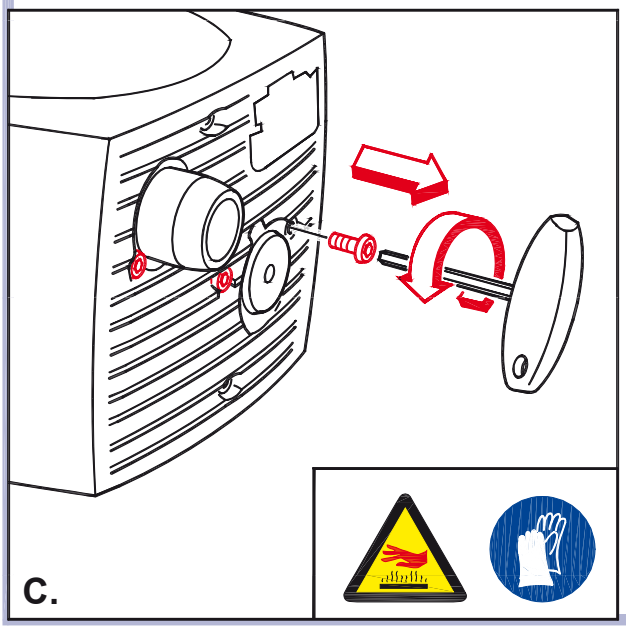

MAX.
10x /h
I =ON
0 =OFF
8

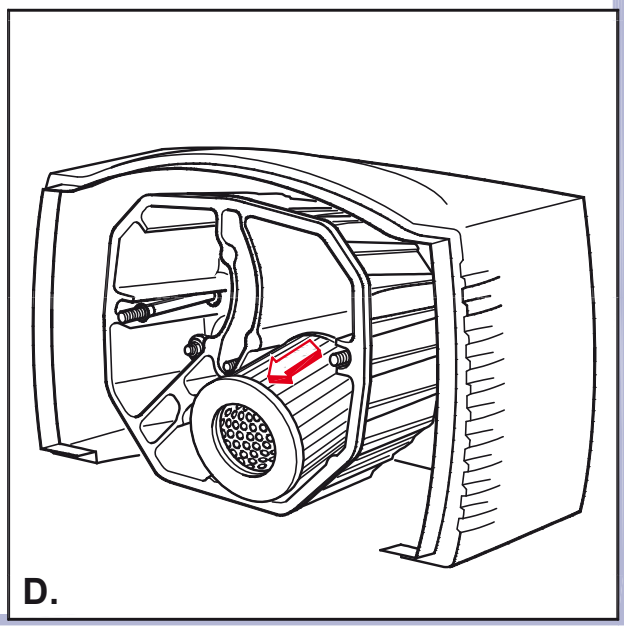

< 2m
> 2m...10m
ϕ3/4“
ϕ 1“
9

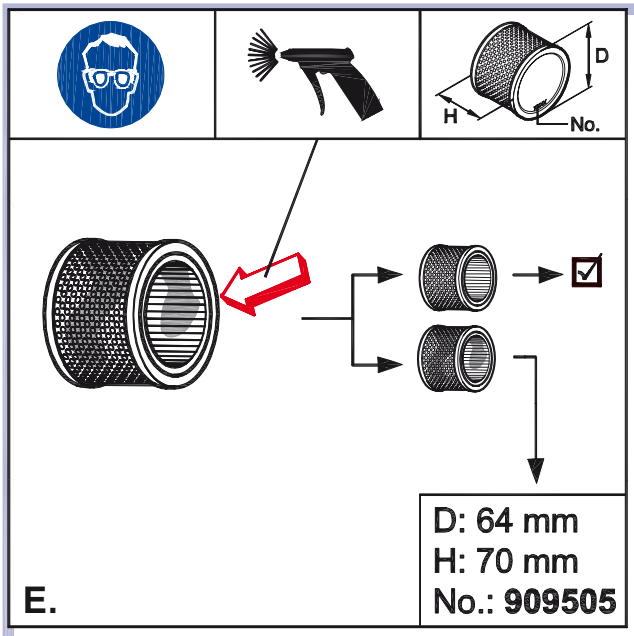

MAX.
-0,85 bar
-25,1 in.HG
10

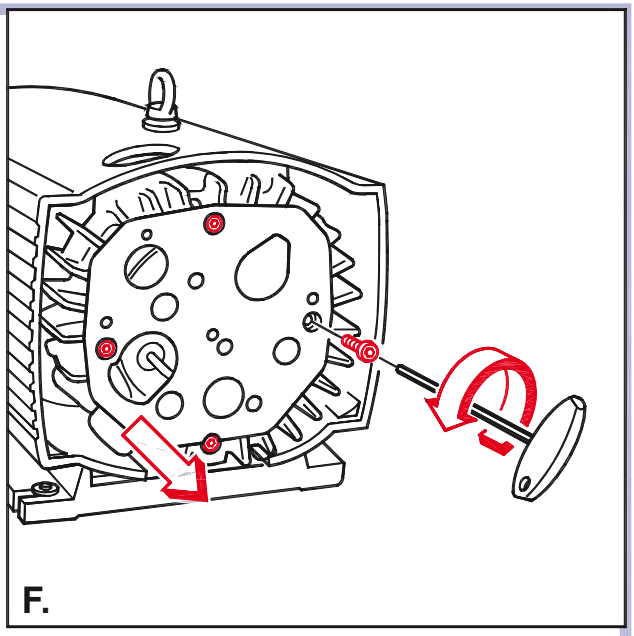

A.

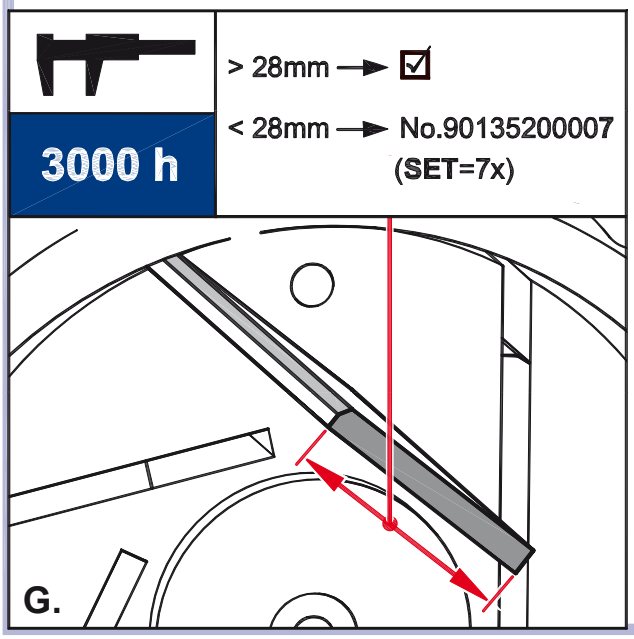

4 AS JJ
B.

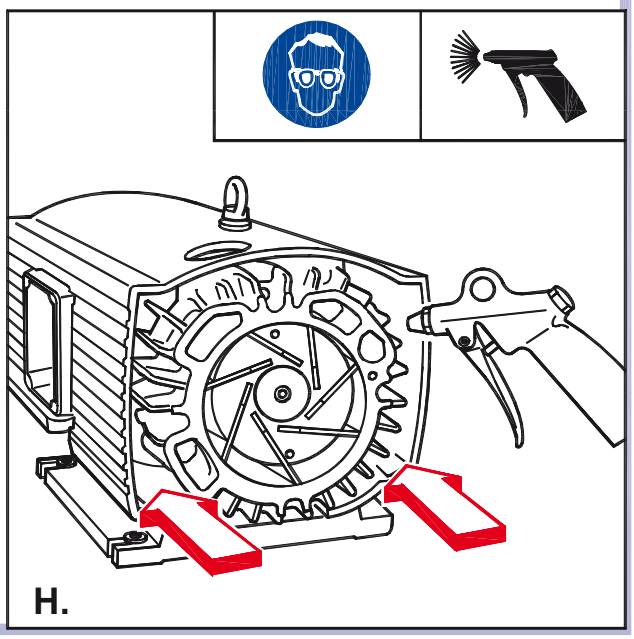

C.


D.


D
H
No.
D: 64 mm
H: 70 mm
No.: 909505
E.


F.


3000 h
> 28mm
< 28mm
No.90135200007
(SET=7x)
G.


H.

Pump I

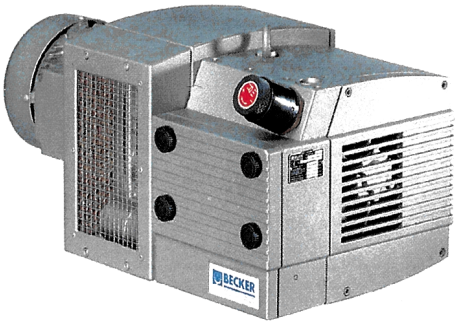
Rotary vane vacuum pumps
- oil-free and air-cooled
- incl. integrated suction filter, vacuum regulating valve and integrated blow off valve

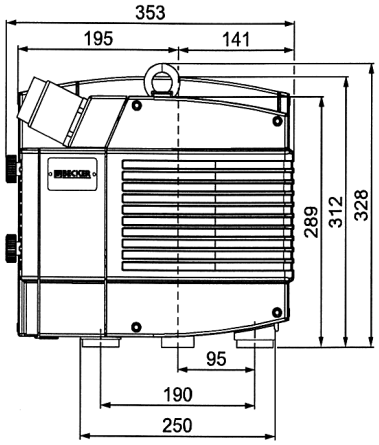
Drehschieber-Vakuumpumpen
- trockenlaufend und luftgekühlt
- inkl. integriertem Ansaugfilter, Vakuumregulierventil und integriertem Abblaseventil

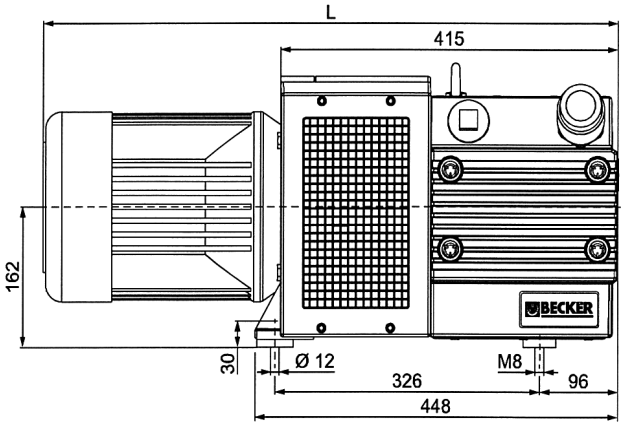
Pompes à vide à palettes
- fonctionnant à sec et refroidies par air
- incl. filtre d'aspiration intégré, soupape de regulage vide et soupape d'échappement intégré

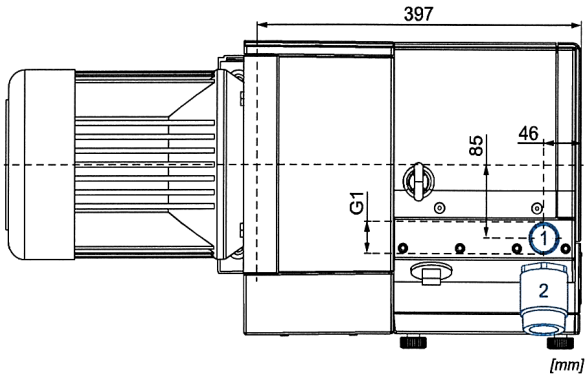
Pompe per vuoto a palette
- funzionanti a secco e raffreddate ad aria
- incl. filtro di aspirazione integrato, valvola regolazione vuoto e valvola di sfiato integrato

Bombas de vacío de paletas
- sin aceite y refrigerado por aire
- incl. filtro de aspiración integrado, válvula reguladora de vacío y válvula de escape integrado









1 Vacuum connection
Sauganschluss
Raccord vide
Raccordo aspirazione
Conexión de vacío

2 Vacuum regulating valve
Vakuumregulierventil
Soupape de regulage vide
Valvola regolazione vuoto
Válvula reguladora de vacío

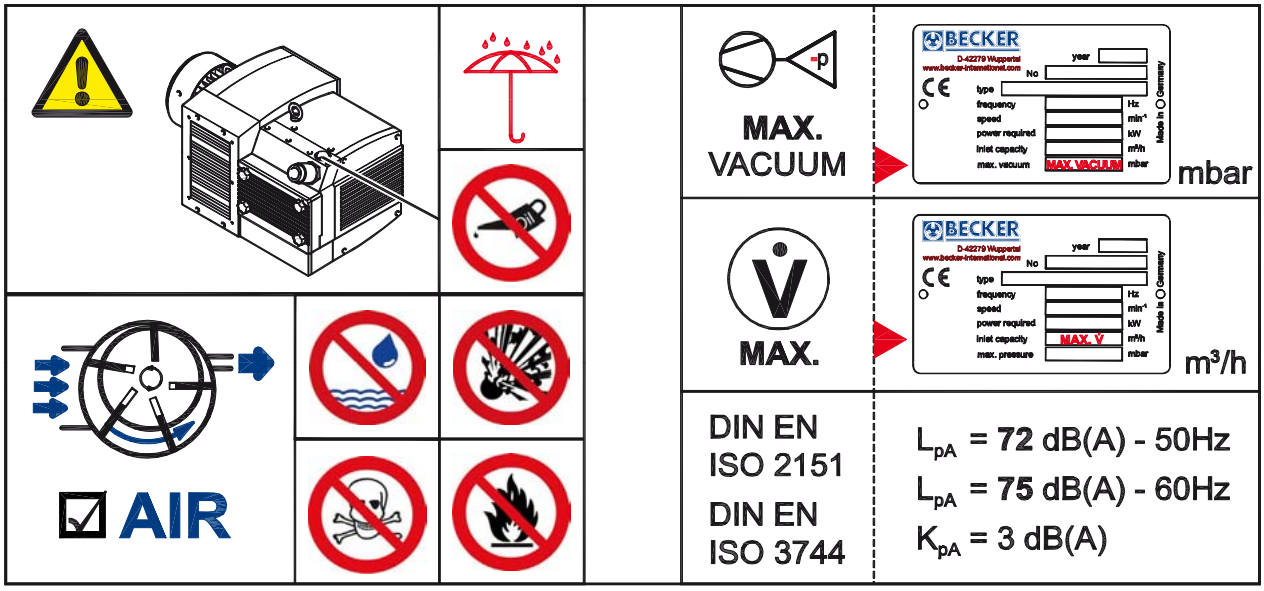
[mm]

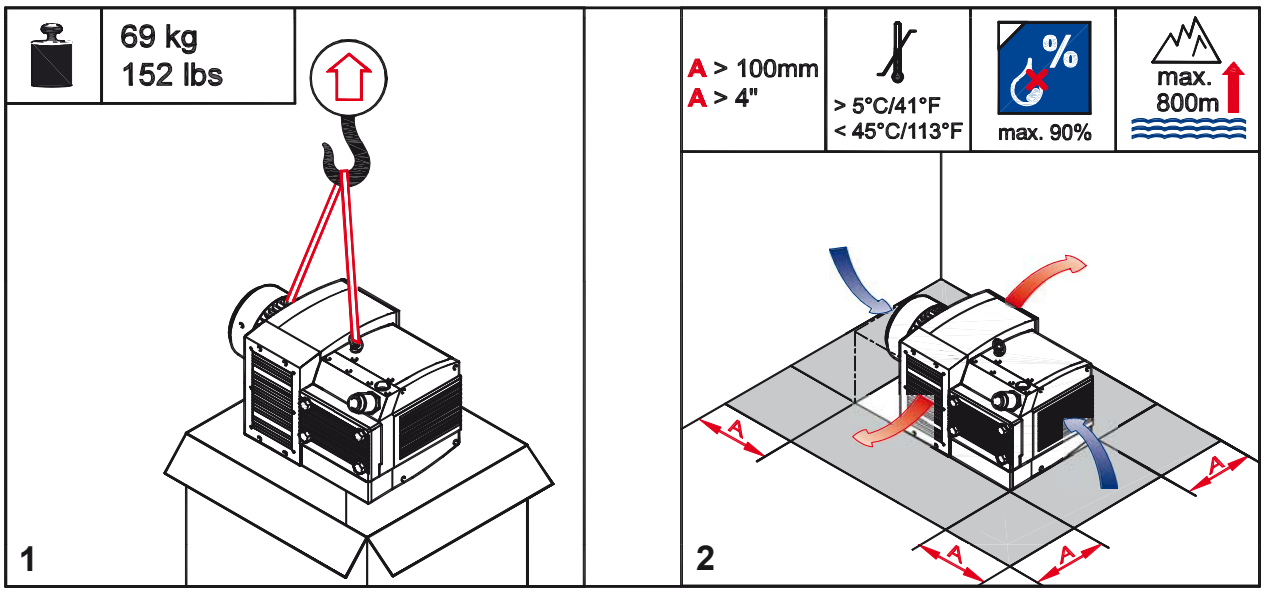
Betriebsanleitung
Operating Instructions
Instructions de service
Istruzioni d'uso
Handleiding
Instrucciones para el manejo
Manual de instruções
Naudojimosi instrukcija
Kasutusjuhend
Lietošanas instrukcija
Οδηγίες χρήσης
取扱説明書
사용설명서

Driftsinstruks
Driftsinstruktioner
Käyttöohje
Driftsvejledning
Instrukcja obsługi
Kezelési útmutató
Návod k obsluze
Navodilo za uporabo
Návod na obsluhu
El Kitabi
Инструкция по эксплуатации
使用说明书

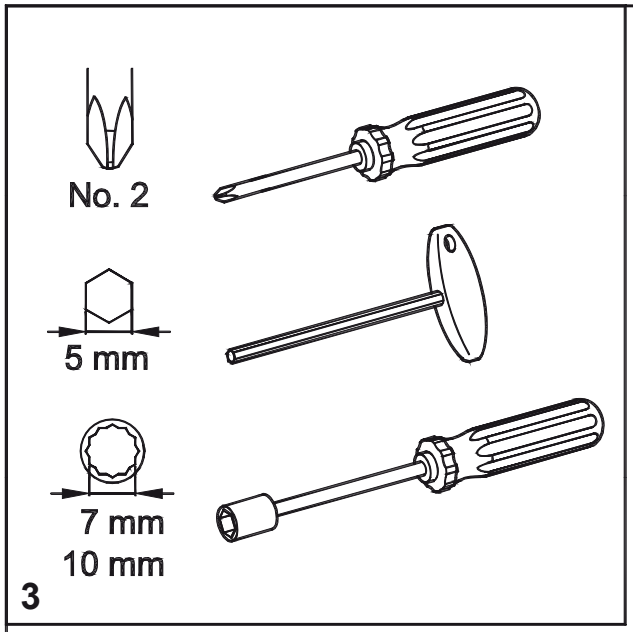
98/37 EG
2006/95 EG

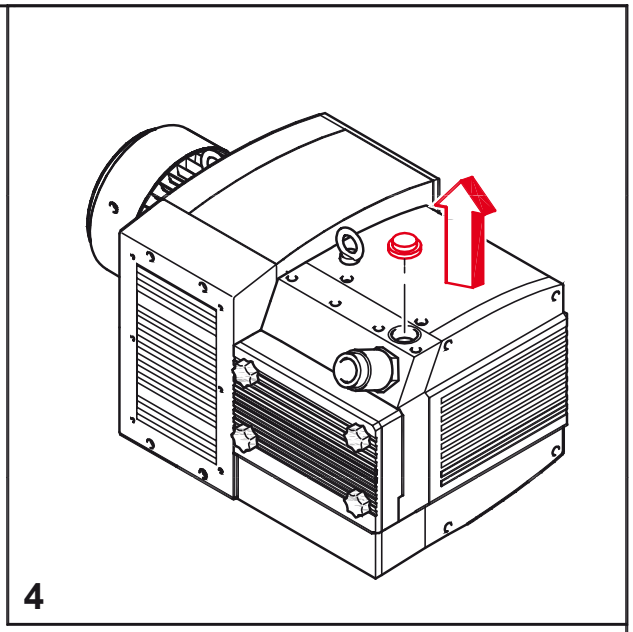
DIN EN ISO 14001:2005
DIN EN ISO 9001
001929 QM

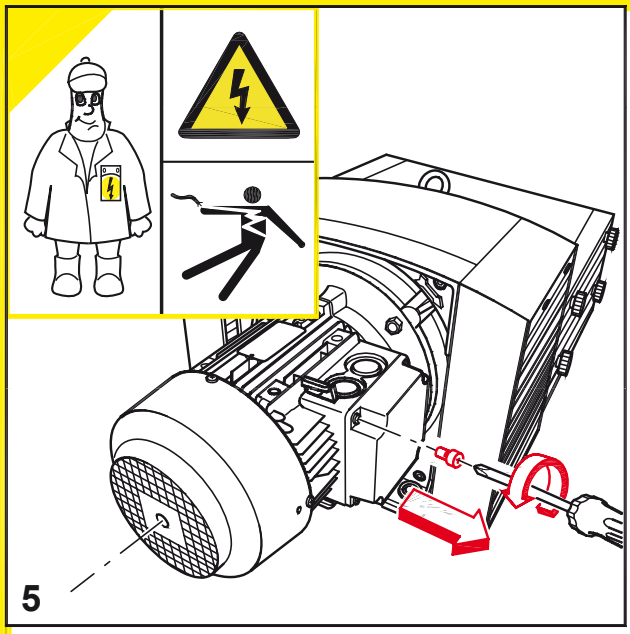


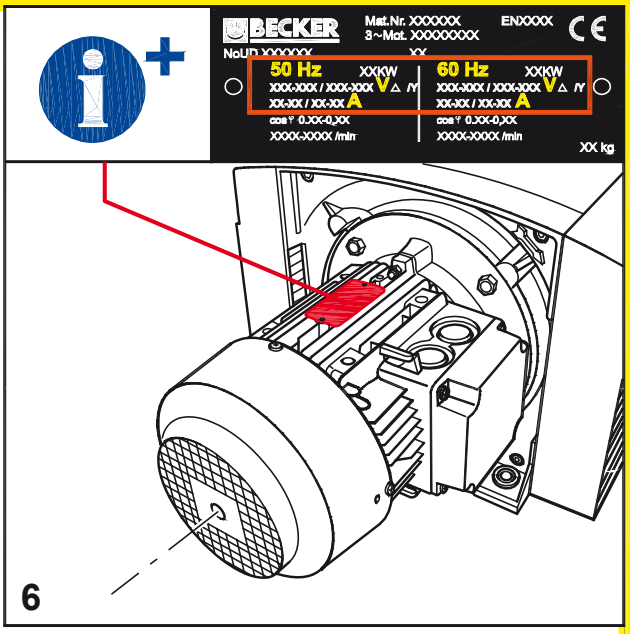


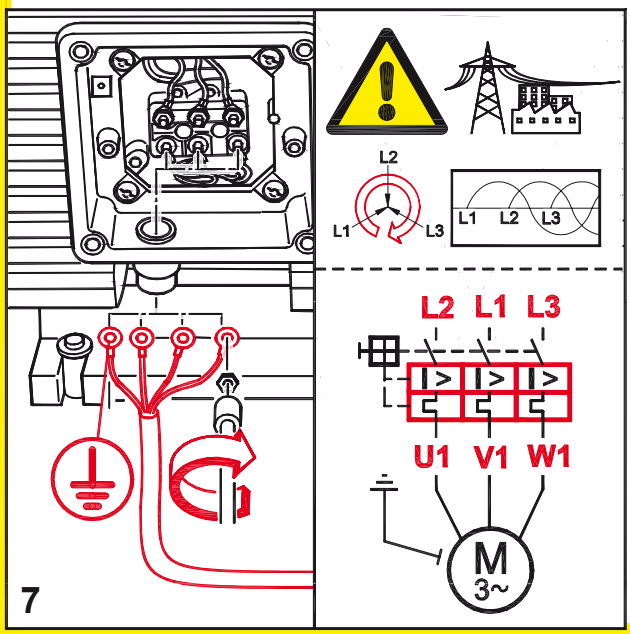
28100021102 03/08

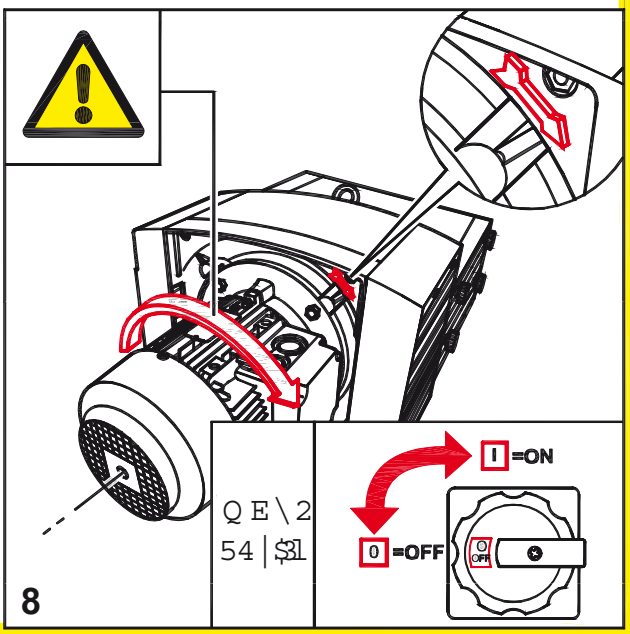

No. 2
5 mm
7 mm
10 mm
3

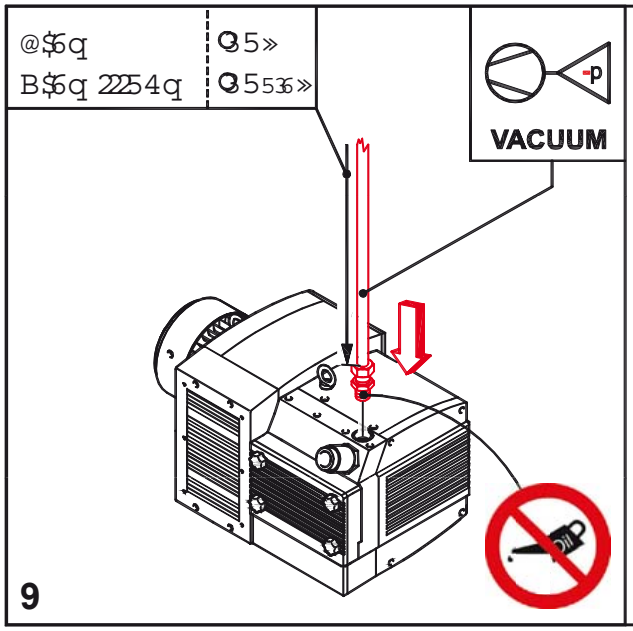

4

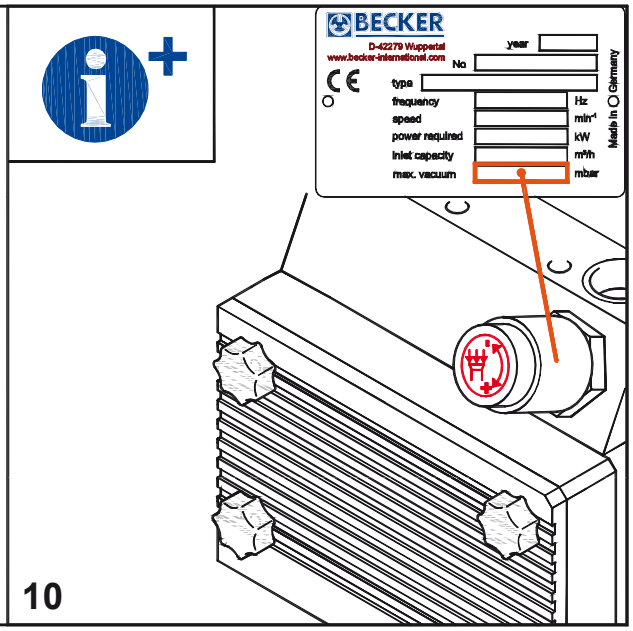

5

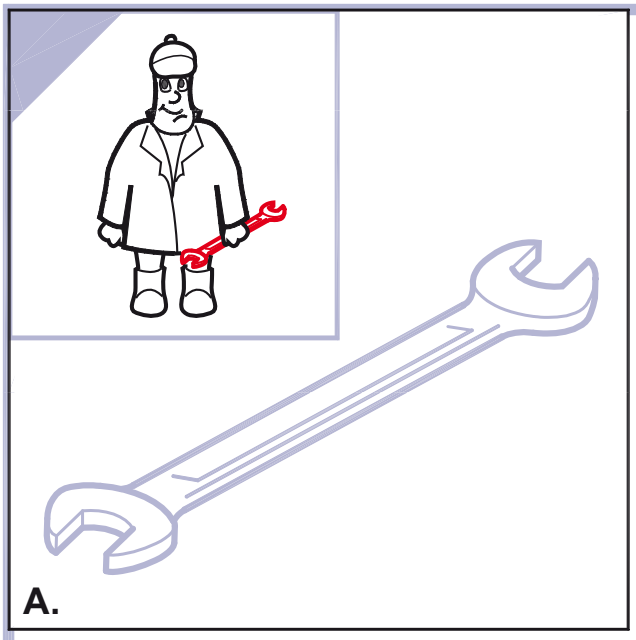

BECKER
50 Hz
60 Hz
6

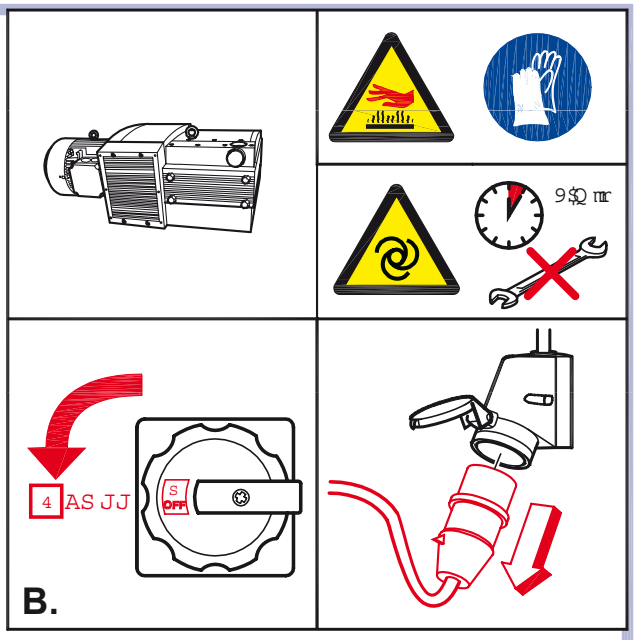

L2
L1
L3
L1 L2 L3
L2 L1 L3
U1 V1 W1
M
3~
7

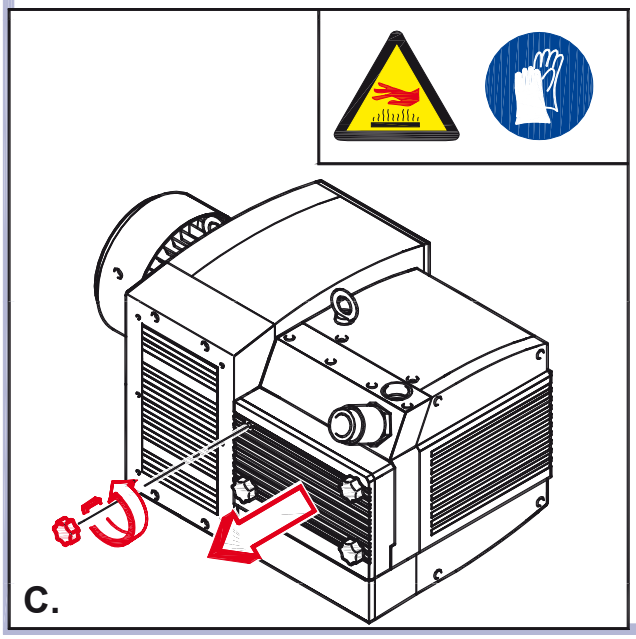

I =ON
0 =OFF
8

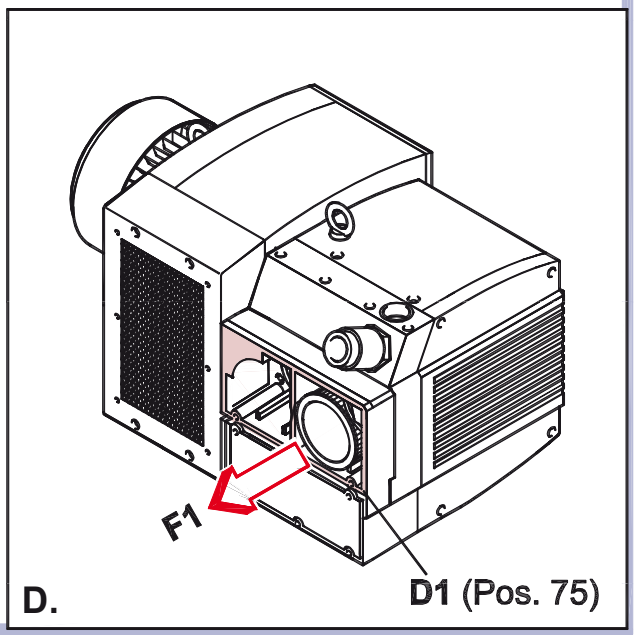

VACUUM
9

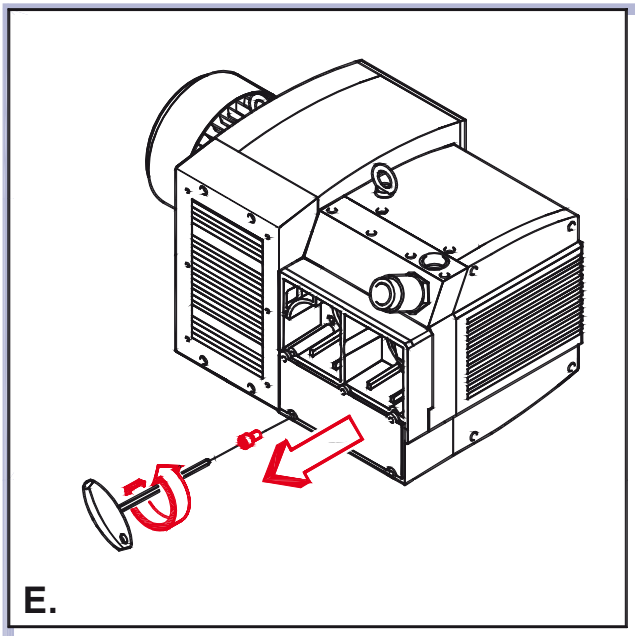

BECKER
year
No
type
frequency
speed
power required
inlet capacity
max. vacuum
Hz
kW
mbar
Made in Germany
10


A.

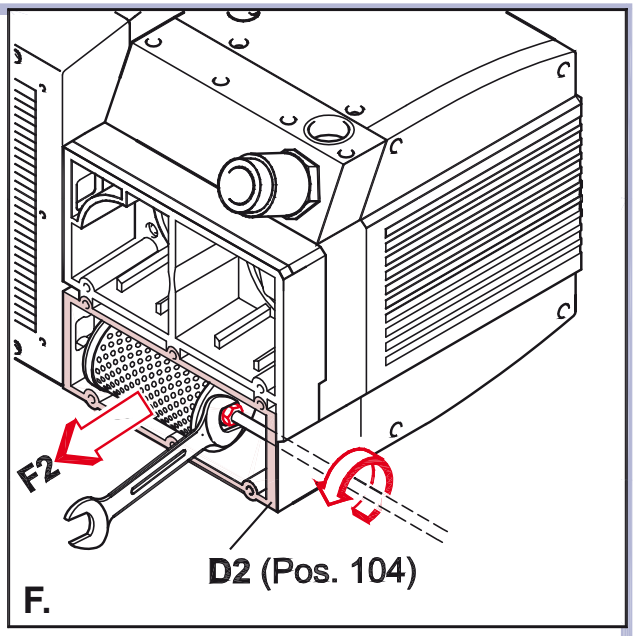

AS JJ
OFF
B.


C.

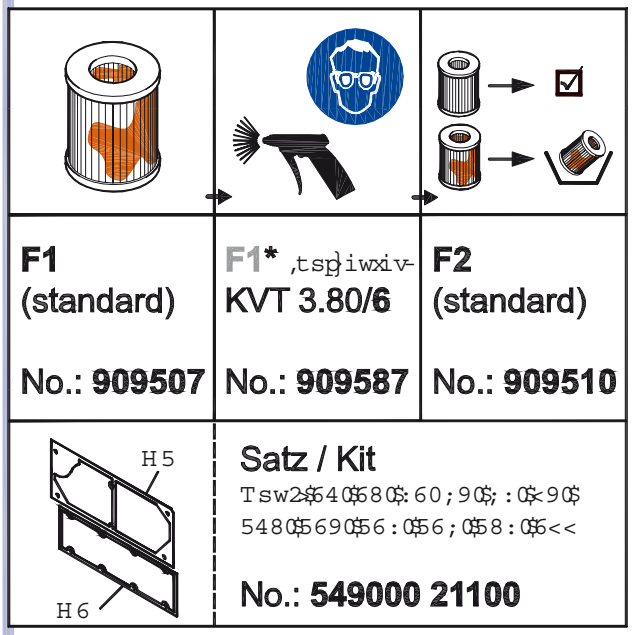

F1
D1 (Pos. 75)
D.

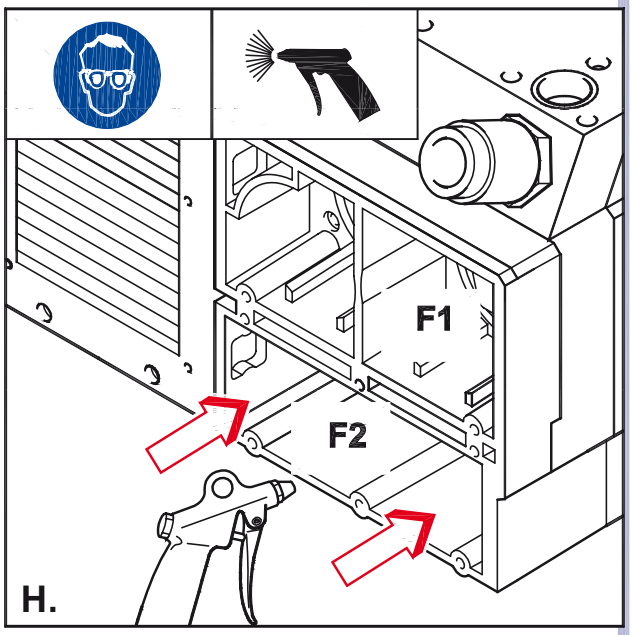


E.

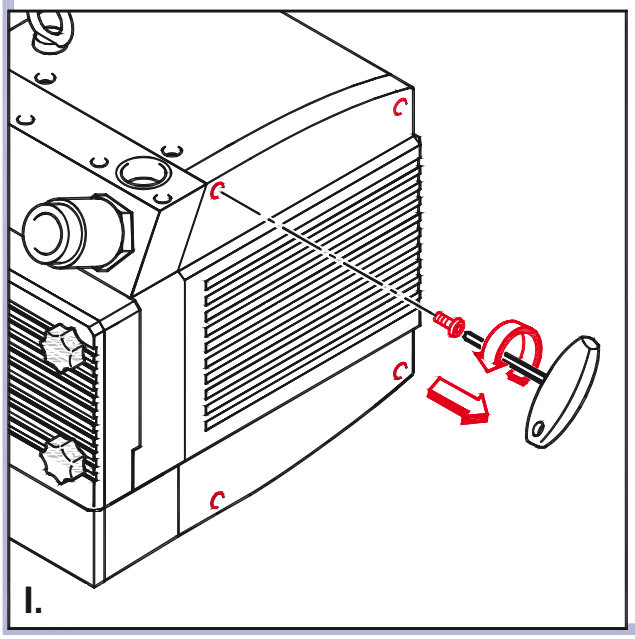

F2
D2 (Pos. 104)

F.

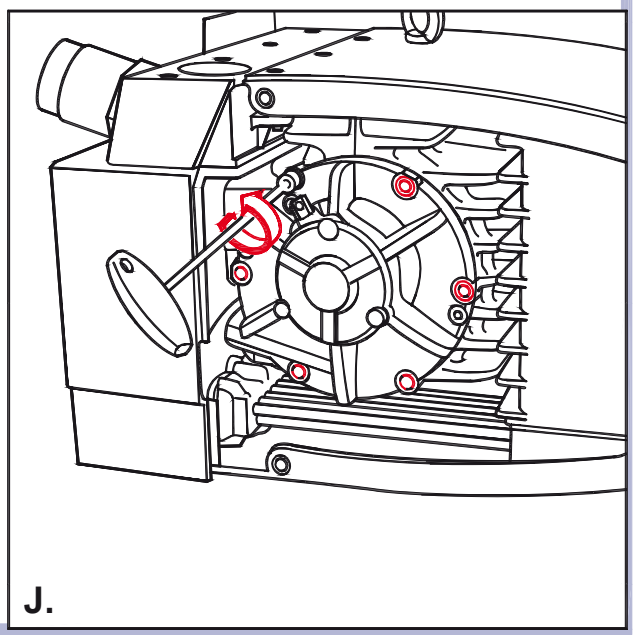

F1
(standard)
No.: 909507
F1* ,tsp}iwxiv-
KVT 3.80/6
No.: 909587
F2
(standard)
No.: 909510
H5
H6
Satz / Kit
Tsw2$540$680$:60;90$;:0<90
5480$5690$56:056;058:06<<
No.: 549000 21100


F1
F2

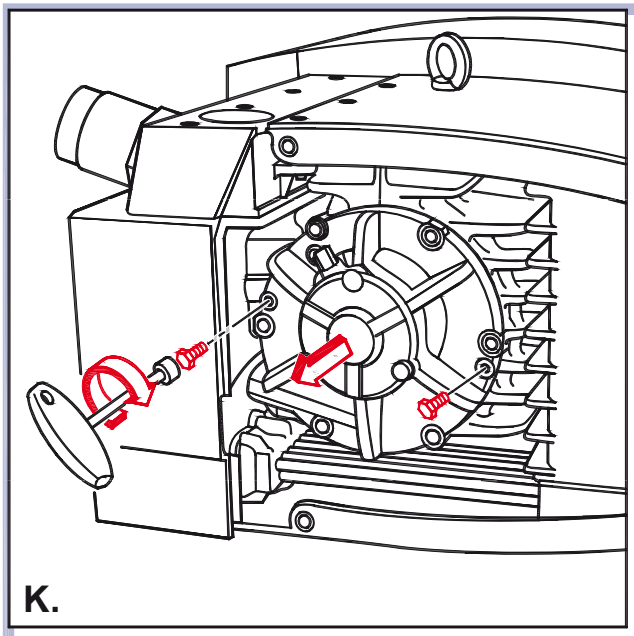
H.

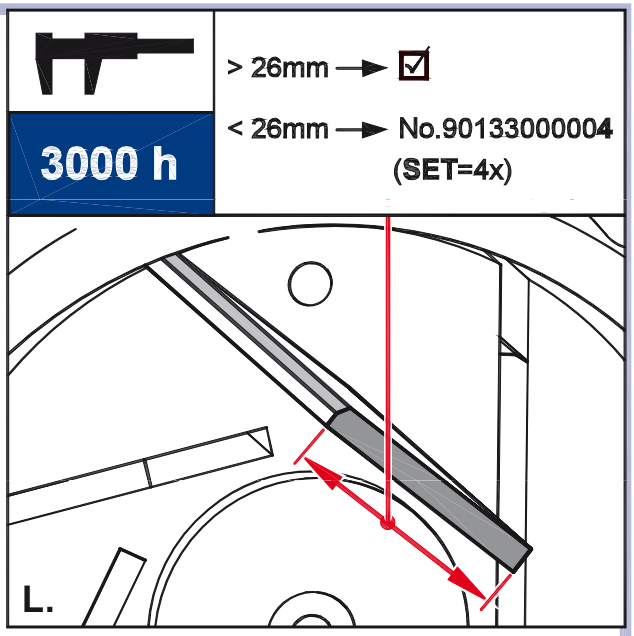


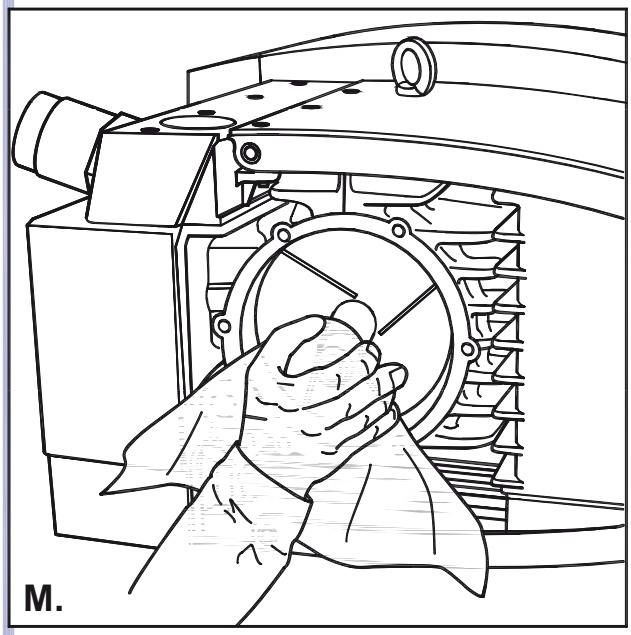
I.

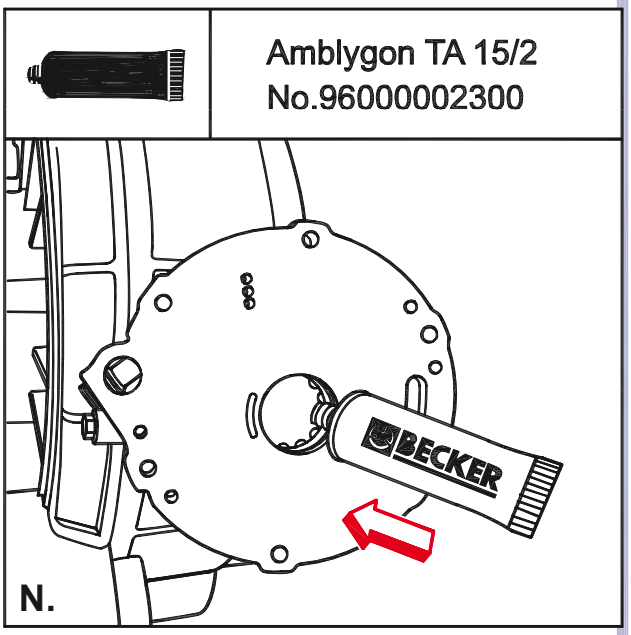


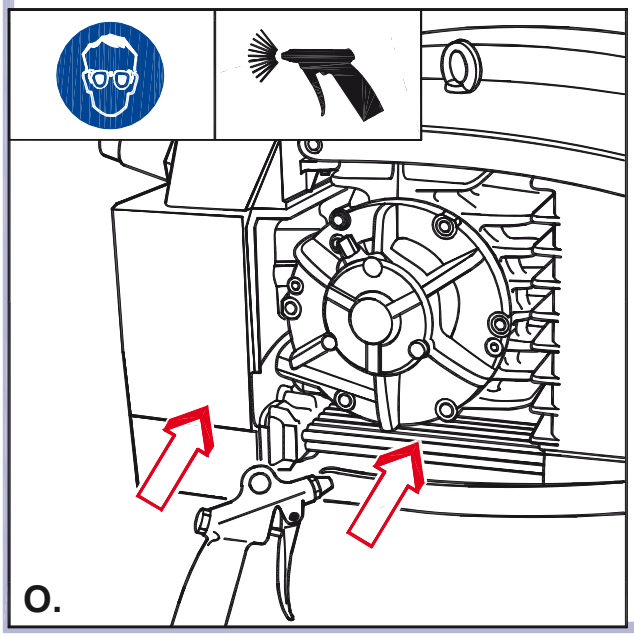
J.

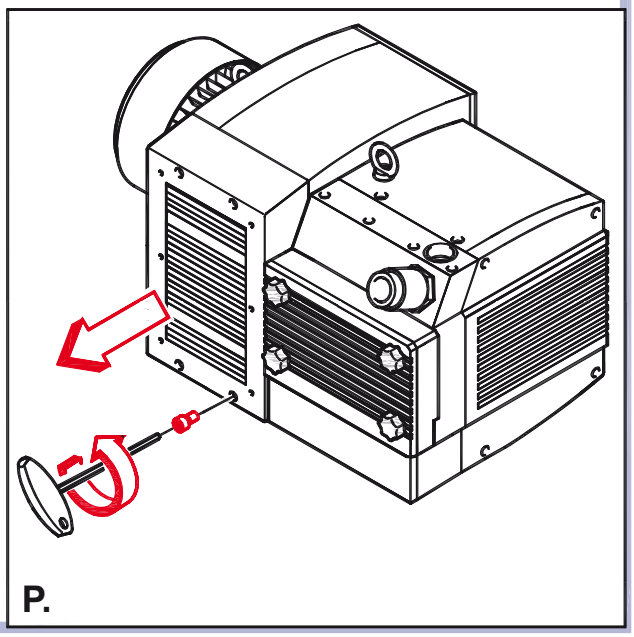

K.

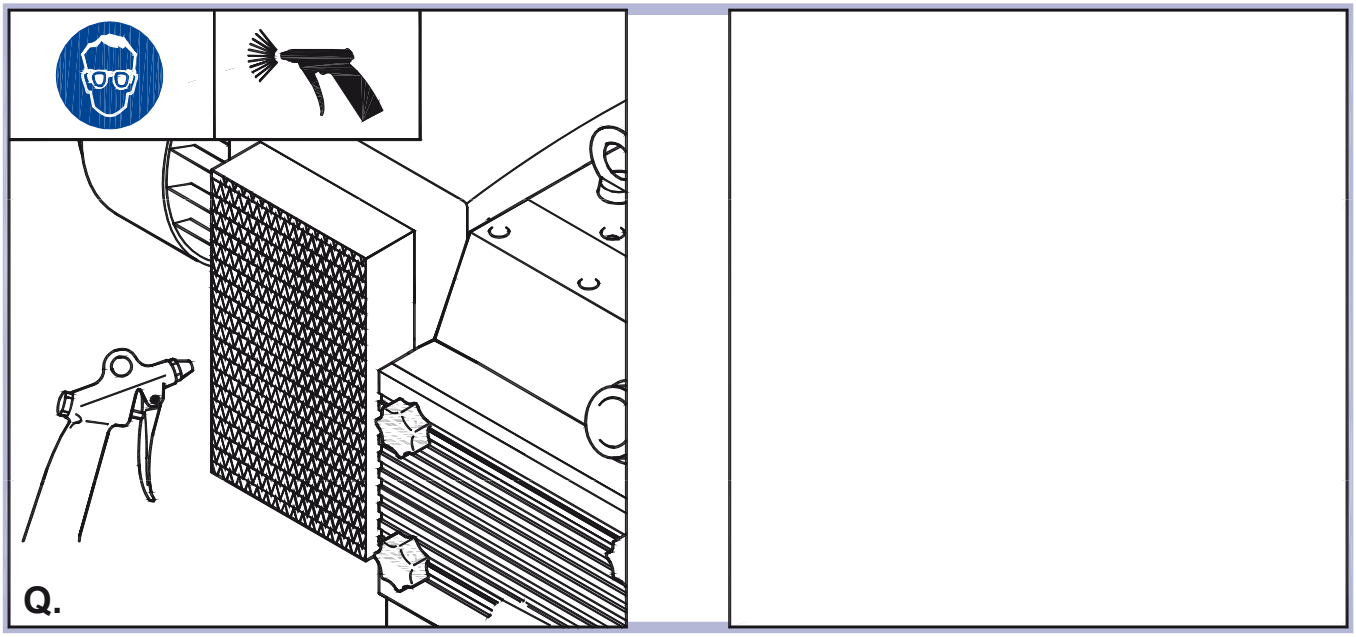

3000 h
> 26mm
< 26mm
No.90133000004
(SET=4x)
L.


M.


Amblygon TA 15/2
No.96000002300
BECKER
N.


O.


P.


Q.

EC declaration of conformity of the machinery

TRANSLATION
(according to 2006/42/EG, annex 2A)

Manufacturer
RonI
8001 Tower Point Drive
Charlotte, NC 28227
USA

Tel: 866-543-8635
Fax: 866-543-9532
E-mail: Info@RonI.com
Web: www.RonI.com

Representative for documentation
Krister Johnsson
Movomech AB

hereby declares that the machinery

Designation
Easyhand Pro

Machine type
Vacuum lifter

Version
60/80/100/120 (A) Pneumatic ejector
60/80/100/120 (B) Pneumatic ejector

and that standards and/or technical specifications as described below are applied

☒ **Machinery Directive 2006/42/EC**

☐ **EMC Directive 2014/30/EU**

☐ **Low Voltage Directive 2014/35/EU**

and that standards and/or technical specifications as described below are applied.

☒ **Machinery Directive**
SS-EN-ISO 12100:2010
SS-EN 14238:2004 + A1:2009

☐ **EMC Directive**

☐ **Low Voltage Directive**

Place: Kristianstad **Date:** 2021-02-01

Krister Johnsson, Managing Director
Movomech AB

LIFT-O-FLEX
MOBI-Crane | Movomech | Voyager

EC declaration of conformity of the machinery

TRANSLATION
(according to 2006/42/EG, annex 2A)

Manufacturer
RonI
8001 Tower Point Drive
Charlotte, NC 28227
USA

Tel: 866-543-8635
Fax: 866-543-9532
E-mail: Info@RonI.com
Web: www.RonI.com

Representative for documentation
Krister Johnsson
Movomech AB

hereby declares that the machinery

Designation
Easyhand Pro

Machine type
Vacuum lifter

Version
60/80/100/120 (C) Pump BE 25 vanes
60/80/100/120 (D) Pump BE 40 vanes
60/80/100/120 (K) Pump BE 60 vanes
60/80/100/120 (I) Pump BE 90 vanes

and that standards and/or technical specifications as described below are applied

☒ **Machinery Directive 2006/42/EC**

☒ **EMC Directive 2014/30/EU**

☒ **Low Voltage Directive 2014/35/EU**

and that standards and/or technical specifications as described below are applied.

☒ **Machinery Directive**
SS-EN-ISO 12100:2010
SS-EN 14238:2004 + A1:2009

☒ **EMC Directive**

☒ **Low Voltage Directive**
IEC 60204-32
IEC 60204-1

Place: Kristianstad **Date:** 2021-09-01

Krister Johnsson, Managing Director
Movomech AB

RonI
8001 Tower Point Drive
Charlotte, NC 28227
USA

Telephone	866-543-8635
E-mail	Info@RonI.com
Web	www.RonI.com

LIFT-O-FLEX
MOBI-Crane | Movomech | Voyager