



# Operating Instructions

Transalation of the original operating instructions



GB

## VACUSPEED VXS-50-P

5760.0041



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Please note that the product may not be used / put into operation without these operating instructions in the national language. If you did not receive operating instructions in your national language with the delivery of the product, please contact us. In countries of the EU / EFTA we will send them to you free of charge. For countries outside the EU / EFTA, we will be pleased to provide you with an offer for an operating manual in the national language if the translation cannot be organised by the dealer/importer.



## EC-Declaration of Conformity / UKCA-Declaration of Conformity

Manufacturer: Probst GmbH  
Gottlieb-Daimler-Straße 6  
71729 Erdmannhausen, Germany  
info@probst-handling.de  
www.probst-handling.com



Importer: Probst Ltd  
Unit 2 Fletcher House  
Stafford Park 17  
Telford Shropshire TF3 3DG, United Kingdom  
www.probst-handling.co.uk  
sales@probst-handling.co.uk



The machine described above complies with the relevant requirements of the following EU directives:  
The object of the declaration described above is in conformity with the relevant UK-Regulations and UK-Guidelines:

**EC-machinery directive 2006/42/EC** (Reference: OJ L 157, 09.06.2006)

UK-Regulation: Supply of Machinery (Safety) Regulations 2008 (SI 2008 No. 1597)

The following standards and technical specifications were used:

### **DIN EN ISO 12100**

Safety of machinery - General principles for design - Risk assessment and risk reduction

UK-Regulation: BS EN ISO 12100-1:2003+A1:2009

### **DIN EN ISO 13857**

Safety of machinery - safety distances to prevent hazard zones being reached by upper and lower limbs.

UK-Regulation: BS EN ISO 13857:2019

### **2014/30/EU (Electromagnetic compatibility)** / (Reference: OJ L 96, 29.03.2014)

UK-Regulation: Electromagnetic Compatibility Regulations 2016 (SI 2016 No. 1091)

### **DIN EN 60204-1 (IEC 60204-1)**

Safety of machinery, electrical equipment of industrial machines. Part 1: General requirements.

UK-Regulation: BS EN 60204-1:2018

### **DIN EN 1012-1 / DIN EN 1012-2**

Compressors and vacuum pumps; Safety requirements part 1 and 2.

UK-Regulation: BS EN 1012-1:2010

### **Authorized person for EC-documentation:**

Name: Jean Holderied

Address: Probst GmbH; Gottlieb-Daimler-Straße 6; 71729 Erdmannhausen, Germany

### **Authorized person for UK-documentation:**

Name: Nigel Hughes

Address: Probst Ltd ; Unit 2 Fletcher House; Stafford Park 17; Telford Shropshire TF3 3DG, United Kingdom

Signature, information to the subscriber:

Erdmannhausen, 02.08.2021.....  
(Eric Wilhelm, Managing director)

<b>1</b>	<b>Safety Instructions.....</b>	<b>5</b>
1.1	Classification of safety instructions .....	5
1.2	Warnings .....	6
1.3	Mandatory symbol .....	6
1.4	General safety instructions.....	7
1.5	Intended use.....	8
1.6	Requirements and instructions for installation, maintenance and operating staff.....	10
1.7	Installation location/workplace requirements .....	11
1.7.1	Installation location requirements.....	11
1.7.2	Workplace requirements .....	12
1.8	Definition of the danger zone .....	12
1.9	Emissions .....	13
1.10	Personal protective equipment.....	13
<b>2</b>	<b>Product Description .....</b>	<b>14</b>
2.1	Components of the vacuum tube lifter Jumbo.....	14
2.2	Type plate.....	15
2.3	Operator handles (BE) .....	16
2.4	Lift tube .....	16
2.5	Vacuum Generators .....	16
2.5.1	Compressed air deactivation when using an ejector:.....	17
2.6	Rotary union .....	17
2.7	Supply hose/compressed air hose .....	17
2.8	Load-bearing devices/suction pads.....	18
2.9	Mechanical grippers .....	19
2.10	Accessories .....	19
2.10.1	Dust filter (STF) .....	19
2.10.2	Motor-protection switch (MSS) .....	20
2.10.3	Pressure-reduction valve with shut-off valve.....	20
2.10.4	Radio remote control (SRC) .....	20
2.10.5	Blower console .....	20
2.10.6	Blower Box (SBB).....	21
2.10.7	Storage rack .....	21
2.10.8	Crane suspension .....	21
2.10.9	Vacuum regulation valve (VRV) .....	21
<b>3</b>	<b>Technical Data .....</b>	<b>22</b>
<b>4</b>	<b>Delivery, Packaging and Transport .....</b>	<b>23</b>
4.1	Delivery.....	23
4.1.1	Scope of delivery.....	23
4.1.2	Checking for completeness .....	23
4.1.3	Reporting damage.....	23
4.2	Packaging.....	23
4.3	Transport .....	23
4.4	Removing the vacuum tube lifter JUMBO from the transportation box.....	24
<b>5</b>	<b>Installation .....</b>	<b>25</b>
5.1	Connecting the vacuum tube lifter Jumbo, attaching the hoses .....	25
5.2	Mounting the suction pad .....	26
5.3	Installing the vacuum generator .....	27

5.3.1	Vacuum pump .....	27
5.3.2	Ejector .....	28
5.4	Shortening the lift tube .....	29
5.5	Test.....	30
<b>6</b>	<b>Operation .....</b>	<b>31</b>
6.1	General safety instructions regarding operation .....	31
6.2	What to do in an emergency .....	33
6.3	Description of operation .....	33
6.4	Switching the device on and off.....	34
6.4.1	With electrical vacuum generation .....	34
6.4.2	With pneumatic vacuum generation.....	34
6.5	Setting the dynamics of the tube lifter .....	35
6.6	Integrated quick-change adapter – replacing the suction pads .....	35
6.7	Setting the hovering position .....	36
6.8	Raising, lowering and depositing loads.....	36
6.8.1	Lifting loads .....	37
6.8.2	Lowering and setting down loads.....	37
6.8.3	Picking up vertically and depositing horizontally .....	38
6.9	Continuous rotatability.....	38
6.10	Parking the vacuum tube lifter Jumbo.....	38
6.11	Quick reference guide .....	39
<b>7</b>	<b>Storage of the vacuum tube lifter Jumbo.....</b>	<b>40</b>
<b>8</b>	<b>Troubleshooting .....</b>	<b>41</b>
<b>9</b>	<b>Maintenance.....</b>	<b>43</b>
9.1	General notes .....	43
9.2	Checking safety features .....	43
9.3	Service table.....	44
9.4	Cleaning .....	44
9.5	Vacuum pump .....	45
9.6	Ejector .....	45
9.7	Vacuum filter for JumboFlex 20/35.....	45
9.7.1	Filter in the operator handle .....	45
9.7.2	Filter in the vacuum pump .....	46
9.7.3	Filter on vacuum pump (optional dust filter).....	46
9.7.4	Filter in suction pad .....	46
9.8	Expert approval .....	46
<b>10</b>	<b>Decommissioning and disposal.....</b>	<b>47</b>
10.1	Decommissioning .....	47
10.2	Disposal.....	47

# 1 Safety Instructions

## 1.1 Classification of safety instructions

### Danger

This warning informs the user of a risk that will result in death or serious injury if it is not avoided.

 <b>DANGER</b>	
	<b>Type and source of danger</b>
	Consequence
	► Remedial action


### Warning

This warning informs the user of a risk that could result in death or serious injury if it is not avoided.

 <b>WARNING</b>	
	<b>Type and source of danger</b>
	Consequence
	► Remedial action

### Caution

This warning informs the user of a risk that could result in injury if it is not avoided.

 <b>CAUTION</b>	
	<b>Type and source of danger</b>
	Consequence
	► Remedial action













### Attention

This warning informs the user of a risk that could result in damage to property if it is not avoided.

<b>ATTENTION</b>	
	<b>Type and source of danger</b>
	Consequence
	► Remedial action







## 1.2 Warnings

Explanation of the warning symbols used in the operating instructions.




Warning symbol	Description	Warning symbol	Description
	General warning symbol		Explosive atmosphere
	Electrical voltage		Flying debris
	Hand injury		Crushing injury warning
	Suspended load		Fall hazard
	Vacuum		Hearing damage
	Falling parts		Hot surfaces



## 1.3 Mandatory symbol

Explanation of the mandatory symbols used in the operating instructions.

Mandatory symbol	Description	Mandatory symbol	Description
	Wear ear protectors		Wear protective work shoes
	Wear protective gloves		Disconnect mains plug
	Adhere to the operating instructions		Wear eye protection

## 1.4 General safety instructions

 <b>WARNING</b>	
 	<p><b>Ignoring the general safety guidelines</b> Personal injuries/damage to plants/systems</p> <ul style="list-style-type: none"> <li>▶ The operating instructions contain important information on using the system. Each user must have read and understood the operating instructions, and retain them for later reference.</li> <li>▶ The operating instructions are tailored to the scope of delivery from Probst. They do not take into account any modifications to the system made by the customer, which are strictly prohibited</li> <li>▶ The system may only be connected and operations started once the operating instructions have been read and understood.</li> <li>▶ Use only the connections, mounting holes and attachment materials that have been provided.</li> <li>▶ Carry out mounting or removal only when the device is in an idle, depressurized state.</li> <li>▶ Only qualified specialist personnel, mechanics and electricians may perform the installation. Qualified specialist personnel are persons who have received technical training and have the knowledge and experience – including knowledge of corresponding regulations – necessary to enable him or her to recognize possible dangers and implement the appropriate safety measures while performing tasks. The same applies to maintenance!</li> <li>▶ General safety regulations, European standards and VDE guidelines must be observed and complied with.</li> <li>▶ Personnel and animals are not permitted to sit or stand in the danger zone</li> <li>▶ The system should be used to lift and transport suitable workpieces only.</li> <li>▶ You are responsible for third parties in the working area of the system. In view of this, responsibilities for the various tasks to be carried out on the system must be clearly specified and adhered to. Responsibilities must be clear.</li> <li>▶ Never use the lifting device to apply suction to fluids or bulk materials.</li> <li>▶ Protect the components from damage of any kind.</li> </ul>

 <b>WARNING</b>	
	<p><b>Risk of injury due to exposed vacuum suction points and compressed air lines</b></p> <p>This can result in serious injury.</p> <ul style="list-style-type: none"> <li>▶ Never look into the openings of suction points or compressed air lines or place your ear or other body orifices in the vicinity of these openings.</li> </ul>



**All applicable laws and regulations must be adhered to at all times.**

When using the vacuum tube lifter Jumbo, the statutory regulations, safety regulations, standards and guidelines applicable at the location of use must be adhered to.

Check with the competent authorities for more information.

The safety instructions in these operating instructions do not replace these laws and regulations, but are to be regarded as a supplement to them.

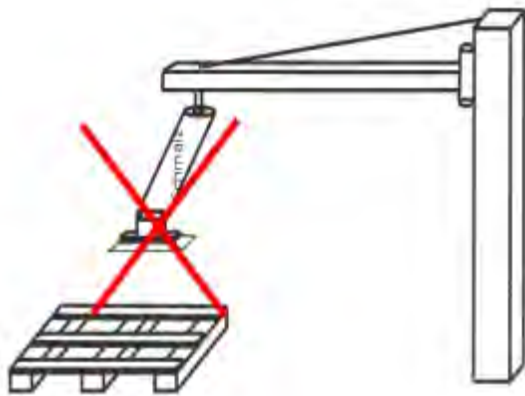
## 1.5 Intended use

The vacuum tube lifter **JUMBO** is used to lift and transport objects. The loads to be lifted have to be rigid to ensure they are not destroyed during lifting.

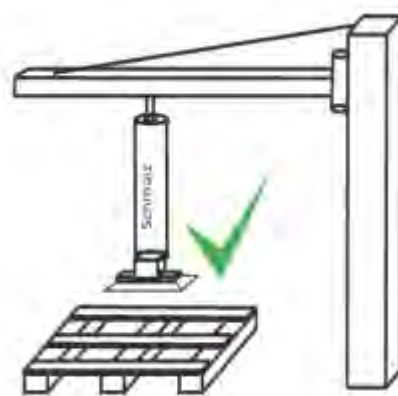
The permissible upper load limits are defined in section 3 (Technical Data) and must not be exceeded. For details of the maximum permissible load, also refer to the type plate of the respective lifting device!

The vacuum tube lifter **JUMBO** must not be converted or modified independently. It should only be operated in the original condition as delivered.

Using the vacuum tube lifter **JUMBO** for products that are not named in the order confirmation will be considered improper or unintended use; if products that are not specified in more detail are used, these must have the same physical properties as the products named in the order confirmation.



Avoid carrying loads at an angle!



Always pick up loads above the center of gravity



The vacuum tube lifter Jumbo is state of the art and operationally reliable provided full compliance with these instructions is assured. Incorrect handling of the tube lifter could result in danger.



## WARNING



### **Danger due to falling objects**

Unauthorized modifications or changes to the vacuum tube lifter JUMBO will compromise the integrity and function of the tube lifter.

There is a risk that the load or gripper may fall, crushing body parts or fatally injuring people in the vicinity.

- ▶ Do not make any on-site modifications to the system.
- ▶ Use only the original connections, mounting holes and attachment materials that have been provided.



## WARNING



### **Danger of death from falling if used as a means of transport for humans or animals, or as a climbing aid.**

This can result in broken bones, serious injury or even death.

- ▶ Use of the jib crane as a climbing aid or to transport humans or animals is prohibited!

## 1.6 Requirements and instructions for installation, maintenance and operating staff

The vacuum tube lifter **JUMBO** should only be installed and maintained by qualified specialist personnel, mechanics, and electricians. Work on electronic equipment must be carried out by qualified electrical specialists only.

A qualified employee is defined as an employee who has received technical training and has the knowledge and experience – including knowledge of corresponding regulations – necessary to enable him or her to recognize possible dangers and implement the appropriate safety measures while performing tasks. Qualified personnel must observe the pertinent industry-specific rules and regulations.



The user's company must ensure by means of internal measures that all persons commissioned with the task of setting up, starting up, operating, maintaining and repairing the crane system at the company only employ insured persons who:

- Are 18 years of age or older, physically and mentally capable
- Have been trained in operating and maintaining the tube lifter
- Have read and understood the operating instructions
- Who can be expected to reliably perform the tasks assigned to them.

The operating instructions must be accessible at all times.

The operator is obligated to perform a risk analysis based on the ambient conditions at the installation location



### DANGER



#### Electric shock resulting from incorrectly connected components

This can result in death or serious injury from electric shock and fire.

- ▶ All work on electrical equipment must be carried out by qualified electrical specialists only
- ▶ Suitable fire extinguishing equipment must be on hand!



### WARNING



#### Risk of injury due to misuse or non-observance of warning and safety notices



Persons could be harmed

- ▶ The equipment must be used by trained personnel only.
- ▶ Prevent unauthorized persons from switching the vacuum tube lifter JUMBO on and off with a padlock on the main or motor-protection switch.

## 1.7 Installation location/workplace requirements

### 1.7.1 Installation location requirements

The vacuum tube lifter **JUMBOFLEX** must not be used in potentially explosive atmospheres.



 <b>DANGER</b>	
	<p><b>Non explosion-proof switching components</b></p> <p>Risk of fire and explosion.</p> <ul style="list-style-type: none"> <li>▶ Product must not be used in potentially explosive atmospheres.</li> </ul>

The tube lifter Jumbo must not be used in areas with acidic or basic materials or in contaminated atmospheres.

With electrical vacuum generation, the vacuum tube lifter **JUMBO** can be operated in rooms with an ambient temperature of between +0°C and +40°C; with pneumatic vacuum generation, the room must have an ambient temperature of between +0°C and +50°C.

<b>ATTENTION</b>	
	<p><b>Damage to the tube lifter due to use outside of the permitted temperature range</b></p> <p>If the tube lifter is used outside of the permitted temperature range, it will become damaged and fail.</p> <ul style="list-style-type: none"> <li>▶ Only use the tube lifter at the permitted ambient temperature.</li> <li>▶ Before operating outside of the permitted temperature range, outside of closed rooms or in an environment with an aggressive atmosphere, consult with the manufacturer.</li> </ul>

It must be ensured that the vacuum tube lifter **JUMBO** is operated only with crane systems/hoists that are in perfect working order and have the necessary specifications for the particular load.

 <b>DANGER</b>	
	<p><b>Danger due to falling objects</b></p> <p>These can result in death or serious injury</p> <ul style="list-style-type: none"> <li>▶ If loads are lifted higher than 1.8 m at their center of gravity, special additional safeguards must be implemented in the surrounding area.</li> </ul>

### 1.7.2 Workplace requirements

The operator's workplace is in front of the control handle. It must be ensured that the operator can continuously monitor the entire workspace.

Provide internal instructions and conduct checks to ensure that the area around the workplace is always clean and tidy.

<b>ATTENTION</b>	
	<p><b>System failure due to small parts being sucked in</b></p> <p>Damage to or destruction of the vacuum generator</p> <p>► Keep the location of use and vicinity of the tube lifter free of small parts.</p>

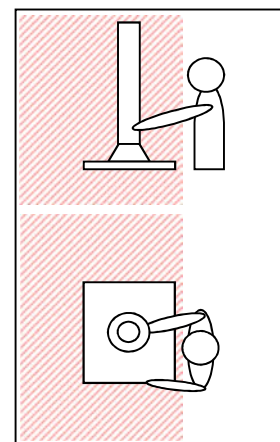
### 1.8 Definition of the danger zone



The danger zone is the area in the vicinity of working equipment which poses a hazard to the safety of persons located within it.

The danger zone of the vacuum tube lifter *JUMBO* (see red hatched area) is beneath the gripper and load and also directly above the gripper and operator handle.

When lifting or transporting the load, it is possible that the load and parts of the vacuum tube lifter *JUMBO* will fall or drop quickly or that the gripper will become detached from the load and spring upward.

In the event that the load falls, the danger zone greatly depends on the type of load and the transport height. Loads should therefore be carried as close to the ground as possible.







<b>WARNING</b>	
  	<p><b>Risk of injury from falling objects</b></p> <ul style="list-style-type: none"> <li>- In the event of vacuum failure</li> <li>- In the event of a collision, causing the load to break off</li> <li>- In the event of component failure resulting from overload or unauthorized modifications</li> </ul> <p><b>There is a risk that people in the vicinity could be hit, causing death or</b></p> <ul style="list-style-type: none"> <li>► No person may sit or stand in the danger zone of the system.</li> <li>► Only work when you have a good view of the entire working area.</li> <li>► Pay attention to other people in the working area.</li> <li>► Never transport the load above people.</li> <li>► The swiveling point of the load must always be located within the working area of the jib crane.</li> <li>► Never release the control handle of the tube lifter while lifting a load.</li> <li>► The working area must be secured by the operator. The persons/equipment necessary to secure this area must be present during the lifting/transportation process.</li> </ul>



## 1.9 Emissions

The vacuum tube lifter **JUMBO** emits noise and hot exhaust air.

The vacuum generator will atomize and disperse any media that is sucked in. It is therefore important that no polluted or contaminated ambient air (particle size max. 5 µm) is sucked in. If the ambient air is dusty, a dust filter must be used.

 <b>CAUTION</b>	
	<p><b>Noise pollution from the vacuum generator</b></p> <p>Noise pollution can cause hearing damage.</p> <p>▶ Wear ear protectors</p>

 <b>CAUTION</b>	
	<p><b>Hot air flows from the outlet side of the blower, heating up the blower and surrounding components</b></p> <p>This presents a burn hazard</p> <p>▶ Keep your distance from the blower!</p> <p>▶ Observe a cooling time of 60 minutes before working on the blower.</p>

 <b>CAUTION</b>	
	<p><b>Risk of eye injury</b></p> <p>All vacuum generators generate an exhaust air flow. Depending on the purity of the ambient air, this exhaust air can contain particles, which escape from the exhaust air outlet at high speed, potentially injuring people in the face and eye area.</p> <p>▶ Do not look into the exhaust air flow.</p> <p>▶ Wear protective glasses.</p>

## 1.10 Personal protective equipment

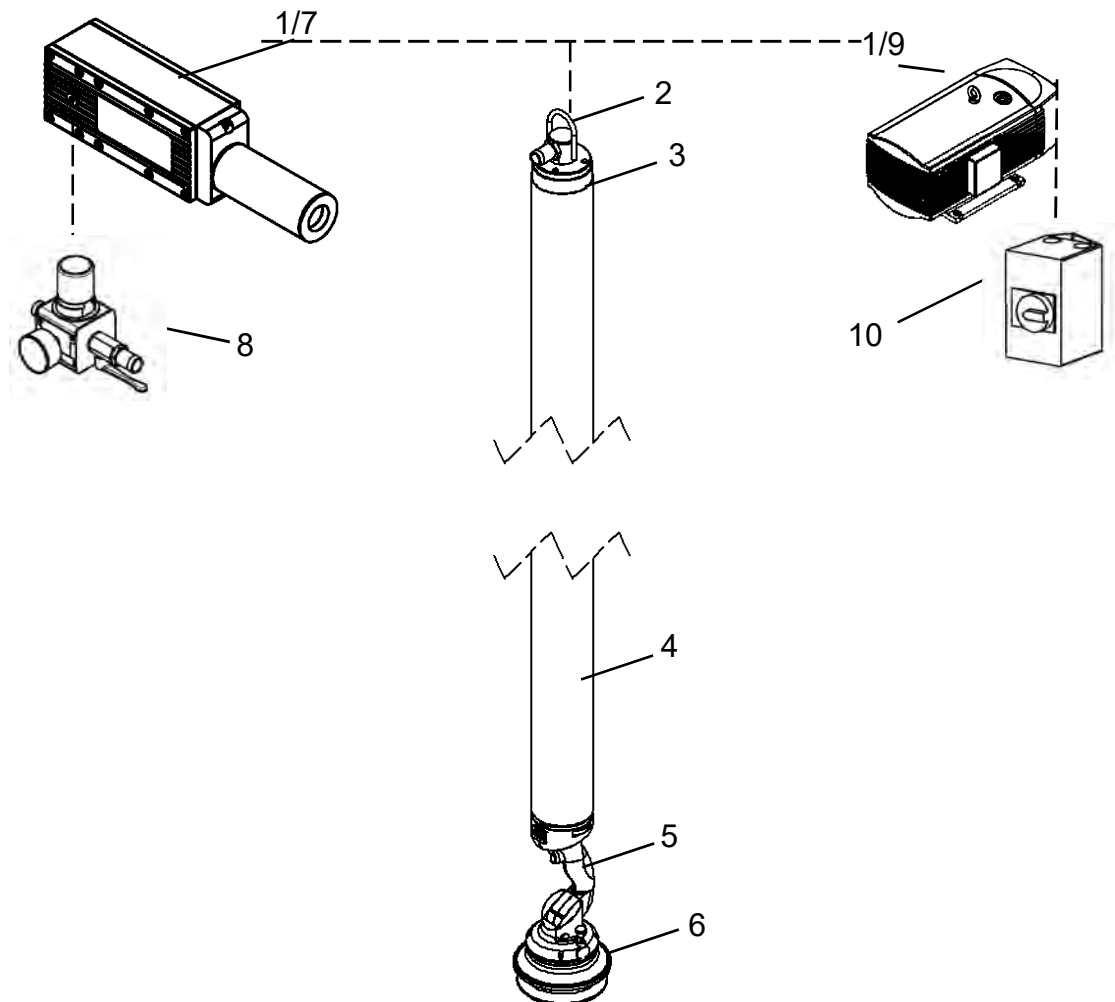
**When operating the vacuum tube lifter *JUMBO*, always wear suitable protective equipment:**

- Safety shoes (in accordance with EN 20345 safety class S1 or better)
- Sturdy work gloves (in accordance with EN 388 safety category 2133 or better)
- Industrial safety helmet (in accordance with EN 397)
- Protective glasses (class F)
- Other protective equipment as required by the situation or prescribed by national regulations.

## 2 Product Description

### 2.1 Components of the vacuum tube lifter Jumbo

The vacuum tube lifter **JUMBO** consists primarily of the following components:



Item	Name	Item	Name
1	Vacuum generator / depending on equipment	6	Suction pad
2	Suspension eye	7	Ejector
3	Rotary union	8	Pressure reduction valve
4	Lifting unit	9	Pump
5	Operator handle	10	Motor protection switch



The components of the system may not be opened or modified for the entire warranty period. Opening the components, or making modifications or mechanical changes to the components, voids the warranty.

## 2.2 Type plate



The device type, device number and year of manufacture are specified on the type plate. This information is important for identifying the device and must always be specified when ordering replacement parts, making warranty claims or other inquiries about the device.

The type plate is firmly attached to the exterior of the tube lifter.

**The type plate contains the following information:**

Type

Article Number

Order Number

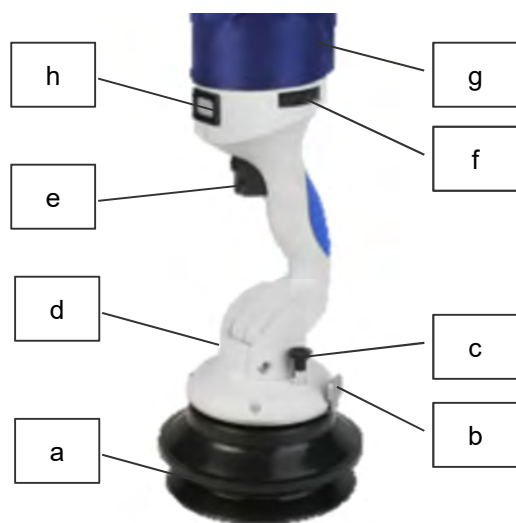
Construction Year

Carrying Capacity

Dead Weight

## 2.3 Operator handles (BE)

The operator handle is used to control the lifting and lowering of the vacuum tube lifter **Jumbo** as well as the gripping and releasing of the load, which is achieved by changing the vacuum in the lift tube.



Operator handle Jumbo Flex 20/35



Operator handle Jumbo Flex 50

Item	Name	Item	Name
a	Suction pad	e	Control button
b	Quick-change adapter	f	Suspension height adjustment (without load)
c	Rotation unit catch	g	Lifting unit with protective tube
d	Swiveling unit	h	Dust filter (Flex 20/35 only)

## 2.4 Lift tube

The lift tube transfers the vacuum to the suction pad, creating the lifting force for the vacuum tube lifter **JUMBO**.

## 2.5 Vacuum Generators

Two different versions of the vacuum generator are available:

- Vacuum generator with an electrically operated vacuum pump (item 9/10)
- Vacuum generator with an ejector operated using compressed air (item 7/8) (**not Flex 50**)



The body of the vacuum generator must not be opened during the warranty period. If the vacuum generator is opened, the warranty becomes void.

For more information, see the separate operating instructions supplied with the vacuum generator.

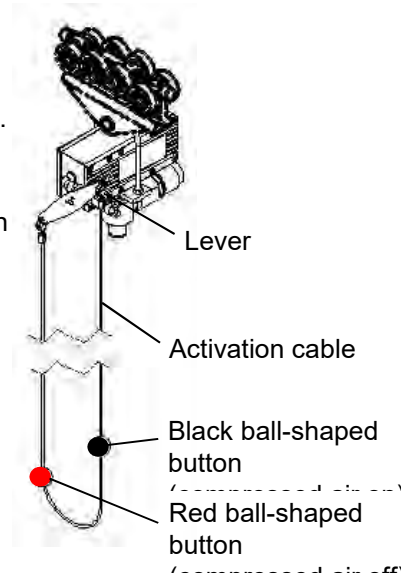
### 2.5.1 Compressed air deactivation when using an ejector:

The diagram opposite shows compressed air being turned off on SEM 100/SEM 150 (here with ball valve closed).

Compressed air is turned off by means of the activation cable attached to the side of the ejector. The activation cable is approx. 0.9 m in length. The two balls located on the activation cable (black and red) are used to open and close the valve.

To open the valve, pull on the black ball. To close it again, pull on the red ball.

Compressed air should be switched off at the pressure-reduction valve (item 8) at end of the shift.



## 2.6 Rotary union

The rotary union connects the vacuum supply hose (from the vacuum generator ) with the lift tube of the vacuum tube lifter. At the same time, the vacuum tube lifter **JUMBO** is connected to the crane system by the suspension eye on the rotary union.

The connection between the lift tube and rotary union is infinitely rotatable to enable the tube lifter to be continuously rotated.

The rotary union contains the tube lifter safety valve, which causes the tube lifter to be lowered slowly in the event of a vacuum supply failure.

The vacuum tube lifter **JUMBO** must only be attached to the rotary union via the eyelet!



## 2.7 Supply hose/compressed air hose

The supply hose transfers the vacuum generated by the vacuum pump to the rotary union of the tube lifter.

The necessary compressed air is supplied to the ejector via the compressed air hose.








The length of the supply hose is adapted to the application, but must not exceed 50 m as otherwise the correct function of the vacuum tube lifter JUMBO would no longer be guaranteed.

## 2.8 Load-bearing devices/suction pads

Different standard suction pads are available for the vacuum tube lifter **JUMBO**. There are also a large number of suction pads and mechanical grippers for individual applications. Probst also develops customer-specific grippers for special applications; please contact our Technical Sales service for further information.

The suction sealing lips or sealing foams are made from a robust material and, like all sealings, are subject to wear. To prolong the life of the sealing elements, make sure the sealings are attached properly and not subjected to lateral loads. Check the resistance of foams and sealing lips to prevailing environmental conditions, such as ozone, acid, oil, grease, solvents etc.






Sealing lips can become aged and brittle due to a variety of environmental conditions. To ensure that the vacuum tube lifter **JUMBO** remains in an optimum condition at all times, it is important to check and, if necessary, replace the suction sealing lips at regular intervals (see service table 9.3).

Double suction pad	Round suction pad	Sack gripper
		
Multi-suction pad		Quadruple suction pad
		

## 2.9 Mechanical grippers

Different standard grippers (mechanical) are available for the vacuum tube lifter **JUMBOFLEX**. There are also a large number of mechanical grippers for individual applications.

The workpieces are gripped mechanically.

Sack gripper	Box gripper	2-in-1 gripper
		
Shaft gripper for small load carriers	Fork gripper for small load carriers	Suspension hooks
		

For more information, see the separate operating instructions supplied with the gripper.

## 2.10 Accessories

### 2.10.1 Dust filter (STF)

We strongly recommend that a dust filter be built into the vacuum line in order to protect the blower from all types of contamination (ambient dust, soiled transport materials etc.). The use of a dust filter prior to vacuum generation is mandatory if the transport materials or the environmental conditions are dusty.

See section 5.3 (Installing the dust filter) for installation instructions.



If no dust filter has been installed, the warranty shall become void if the system fails due to the ingress of a foreign body in the blower.

### 2.10.2 Motor-protection switch (MSS)

The motor-protection switch is used to switch the electrical vacuum generation on and off and provides overvoltage protection. It can be integrated into the Probst crane column without the need for complicated wiring and can be optionally locked.



### 2.10.3 Pressure-reduction valve with shut-off valve

The pressure-reduction valve is used to set optimum operating pressure for the ejector. It also has a shut-off valve for switching the customer-supplied compressed air off manually.



To set the optimum operating pressure, lift up the black cap and rotate in the “plus(+)” or “minus” (-) direction to increase or reduce the pressure

### 2.10.4 Radio remote control (SRC)

The radio remote control (SRC) can be used to switch the lifting device's pump on and off at the control handle. This feature is integrated into the control handle.

The power for switching the vacuum pump of the vacuum tube lifter **JUMBOFLEX** on and off is generated by an induction generator.

**This is not possible with pneumatic vacuum generation.  
Retrofitting radio remote control requires replacement of the entire operator handle.**

For more information, see the separate operating instructions supplied (radio remote control SRC).



### 2.10.5 Blower console

The blower console is used for the horizontal attachment of the blower and silencer box to crane columns or hall struts.



### 2.10.6 Blower Box (SBB)

The Blower Box surrounds the vacuum pump and uses sound-dampening material to reduce the noise level to approx. 65 db (A).

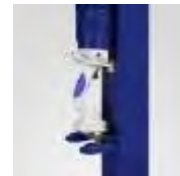
The silencer box SBB also protects the blower from exterior soiling.



<b>ATTENTION</b>	
	<p><b>Overheating risk</b></p> <p>If there is an insufficient supply of fresh air, the blower will overheat and become damaged.</p> <ul style="list-style-type: none"> <li>▶ Only use the blower or silencer box (SBB) without additional cooling up to an ambient temperature of max. 40°C.</li> <li>▶ It is important to ensure that the side opening has an unobstructed supply of fresh air (motor intake air). Recommended distance: 20 cm in all directions.</li> </ul>

### 2.10.7 Storage rack

Using the storage rack for the vacuum tube lifter **JUMBOFLEX**, you can safely deposit the tube lifter and protect the suction pads of the tube lifter when doing so.



### 2.10.8 Crane suspension

The crane suspension for the tube lifter can be adjusted for all lift capacity ranges. It allows you to suspend the tube lifter at exactly the height required.



### 2.10.9 Vacuum regulation valve (VRV)

Secondary air can be introduced into the system using the vacuum regulation valve, which lets you adjust the dynamic properties of the tube lifter.



### 3 Technical Data

	<b>FLEX 20</b>	<b>FLEX 35</b>	<b>FLEX 50</b>
Max. lift capacity	20 kg	35 kg	50 kg
Temperature range	0 - 40 °C		
Max. lifting distance	1500 / 1800 mm		
Max. lift speed	1 m/s*		
Ejector vacuum generation	SEM100-JU	SEM150-JU	-
Pump vacuum generation (working vacuum max. 600 mbar)	EVE 25 D		EVE 50 D
	EVE 40 D		EVE 80 D
	EVE 50 D		

\* Max. lift speed depends on the weight of the workpiece

More detailed information about the vacuum pump is provided in the pump operating instructions (included in appendix).

## 4 Delivery, Packaging and Transport

### 4.1 Delivery

#### 4.1.1 Scope of delivery

Refer to the order confirmation for specific details about the scope of delivery. The weights and dimensions will be listed in the delivery notes.



The operating instructions are an integral part of the vacuum tube lifter JUMBO and must accompany the device whenever it moves to a new location.

#### 4.1.2 Checking for completeness

Check the entire delivery against the delivery notes supplied to make sure nothing is missing.

#### 4.1.3 Reporting damage

Following delivery of the shipment, damage caused by defective packaging or in transit must be reported immediately to the carrier and Probst GmbH.



### 4.2 Packaging

The vacuum tube lifter **JUMBO** is transported in a cardboard box or wooden crate.



The packaging material must be disposed of in accordance with country-specific laws and guidelines. Labeled transport aids and safety mechanisms must be removed.

### 4.3 Transport

 <b>WARNING</b>	
	<p><b>Risk of injury due to improper transportation and unloading</b></p> <p>This can result in personal injury or material damage.</p> <ul style="list-style-type: none"> <li>▶ Unloading and transport must only be carried out by trained forklift truck drivers who have also completed all the necessary safety training</li> <li>▶ Hoists and slings must have the necessary specifications for the particular</li> <li>▶ Transport materials must be secured in accordance with country-specific regulations (BAG guidelines in Germany).</li> <li>▶ Personal protective equipment</li> </ul>



## 4.4 Removing the vacuum tube lifter JUMBO from the transportation box

Open the transportation box with care!

If using knives or blades to open the packaging, take care not to damage any of the components.

Start by opening the top cover to accurately assess the position of the vacuum tube lifter **JUMBO**. Now carefully remove the individual components, such as the operator handle, supply hose, blower etc.




 <b>CAUTION</b>	
	<p><b>Heavy components in the transportation box</b></p> <p>When opening the transportation box, parts can splinter or fall. This can cause crushing wounds and lacerations.</p> <p>► Wear protective footwear (S1), Work gloves (safety category 2133)</p>

<b>ATTENTION</b>	
	<p><b>Improper removal of system from the transportation box</b></p> <p>System damage</p> <p>► Do not apply force</p> <p>► Observe the instructions for removing the system from the transportation box</p>

When unpacking the lift tube, observe the affixed warning notice!

• Bitte öffnen Sie die Verpackung der Hubeinheit mittels Zange am Kabelbinder.  
Please open the packed lifting unit by using a pair of tongs to open the cable tie

• Achtung: Hubeinheit kann aufspringen  
Attention: Lifting unit can expand



# 5 Installation

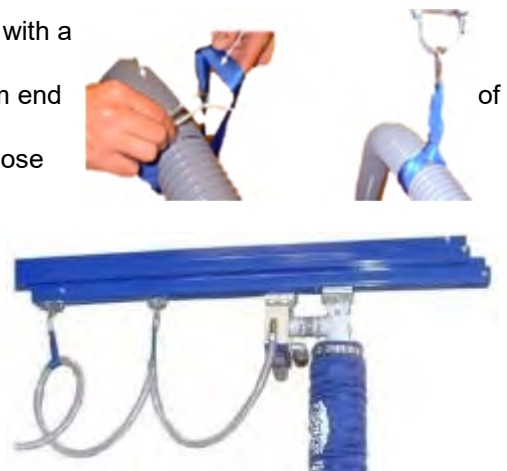


Please read section 1.6 (Requirements & instructions for installation, maintenance and operating staff) before starting installation.

## 5.1 Connecting the vacuum tube lifter Jumbo, attaching the hoses

### Procedure:

1. Lay out the compressed air hose/vacuum supply hose with a diameter of 500 mm.
2. Attach first suspension band in a loop about 1.2 m from end hose
3. Attach remaining bands after each complete circle of hose coil
4. Insert carrier unit for supply hose in crane rail
5. Fit snap hook in carrier unit or securing clamp.
6. Insert the carrier unit for vacuum tube lifter **JUMBOFLEX** into the crane jib.
7. Attach end buffer to end of crane jib.
8. Mount vacuum tube lifter **JUMBOFLEX** with rotary union in the carrier unit and secure using the retaining split pin.
9. Connect supply hose to the rotary union connection tube and secure using hose clamp.



### WARNING



#### Risk of load breaking off due to incorrect mounting

Falling parts could hit people in the vicinity, causing death or serious injury!

The vacuum tube lifter Jumbo must be attached to the suspension eye of the rotary union!

### ATTENTION

#### Damage to the supply hose or compressed air hose due to incorrect mounting

Hose lines become damaged eventually resulting in system failure.

- ▶ The supply hose or compressed air hose must hang freely. It must not touch, rub against or get caught up in other parts, or it can prematurely wear or tear.
- ▶ When attaching the hose lines, make sure they remain in a coil (ø at least 500 mm).



When routing the supply hose along a crane column, ceiling, wall or floor, note that the vacuum hose can contract by up to 15% when the vacuum is applied. It must therefore be laid loosely with length compensation. Longer, straight line stretches can also be bridged with plastic pipes. The total length should not exceed 50 m. Long supply hoses reduce the carrying capacity and the dynamics of the tube lifter.

## 5.2 Mounting the suction pad

Position the grip (2) in the center of the gripper (1).  
 Pull the bracket (3) and rotate the grip (2) clockwise until it stops;  
 release the bracket (3).  
 The latching bolt (4) must engage so that the connection disc cannot be twisted out of position on the suction pad.



## 5.3 Installing the vacuum generator



Make sure that no dirt particles enter the suction or compressed air line during mounting.

### 5.3.1 Vacuum pump

**Install the vacuum pump as described in the separate operating instructions. To ensure safe installation (with cranes), we recommend that you use a console for electrical vacuum generators.**

Position the motor-protection switch so that it can be easily reached in order to switch the unit on and off (it may be installed in the crane column).

After installation is completed, the system must be checked for leaks (see chapter on maintenance).



#### Procedure:

1. Establish the electrical connection of the pump according to VDE guidelines.
2. Observe the voltage specified on the type plate of the pump.
3. Make sure to install a disconnecting switch and the appropriate fuse.

### ATTENTION

#### Incorrectly connected operating voltage

Material damage to the blower



Only operate the blower with the operating voltages specified in the operating instructions supplied (for the blower).



Before the start of operations, it is crucial to check that the rotational direction of the blower corresponds to the direction stated in the separate operating instructions for the blower.

#### 5.3.1.1 Checking the direction of rotation

**Only applies to model with electrical vacuum generation – check the direction of rotation of the motor as follows:**

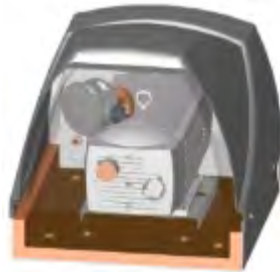
1. Switch on the pump.
2. Watch the motor's fan blade. It must turn in the direction shown by the arrow on the motor housing.
3. The device is delivered with a clockwise rotation field. If the direction of rotation is incorrect, switch it off immediately and reverse the connection in the supply line. Check the direction of rotation once again.

## 5.3.1.2 Additional dust filter

Install the additional filter in the vacuum connection of the pump using the attachment parts. Screw the hose nozzle (with sealing) for the hose connection to the dust filter.



EVE 40



EVE 50



EVE 80

## 5.3.1.3 Vacuum regulation valve

The dynamics of the vacuum tube lifter **JUMBOFLEX** can be set by installing a vacuum regulation valve (VRV).

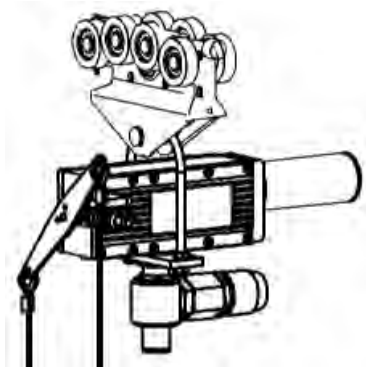


## 5.3.2 Ejector

Install the ejector as per the diagram (**JUMBOFLEX 20/35**).

Retrofitting an electrical pump onto a pneumatic ejector:  
Remove the hose nozzle and the suspension eye on the rotary union. Screw the suction side of the ejector at the top, with the mounting plate and handle, into the rotary union (with sealing). Attach the pressure-limiting valve (PLV) on the side connection. Secure the compressed air supply hose to the hose nozzle on the ejector using the hose clamp provided.

Make sure that the pressure generated is consistent with the requirements of the ejector (for air volume and operating pressure, see the documentation for the vacuum generator).



## 5.4 Shortening the lift tube

The lift tube can easily be shortened at the location of use. The lift tube must be shortened due to low ceiling heights or when using different grippers. The length of the lift tube has to be adjusted so that the vacuum tube lifter **JUMBO** cannot apply suction to the floor, but is able to safely deposit the load on the floor at any time.

### Tools required:

- Knife
- Bolt cutter
- Insulating tape (approx. 30 mm wide, not permeable to air)
- Size 13 open-ended wrench
- Multipurpose grease

### Procedure for shortening the lift tube:

Tube lifter must be suspended (Figure 1)

- ⇒ Remove the adhesive tape from the lift tube.
- ⇒ Twist the lift tube off of the tube holder.
- ⇒ Cut the lift tube at the desired position using a box cutter; cut off the wire spiral using the bolt cutter.
- ⇒ To facilitate the mounting of the lift tube, spread the multipurpose grease on the inside of the operator handle (Figure 2).
- ⇒ Twist the lift tube completely onto the winding of the operator handle. Twist on the lift tube until it completely covers the threads of the operator handle (Figure 3, 4)
- ⇒ Wrap the lift tube using adhesive tape (Coroplast) so that the cover of the operator handle is sealed (wrap adhesive tape around the entire lift tube approx. 2x) (Figure 5)



Figure 1  
Figure 2



Figure 3  
Figure 4



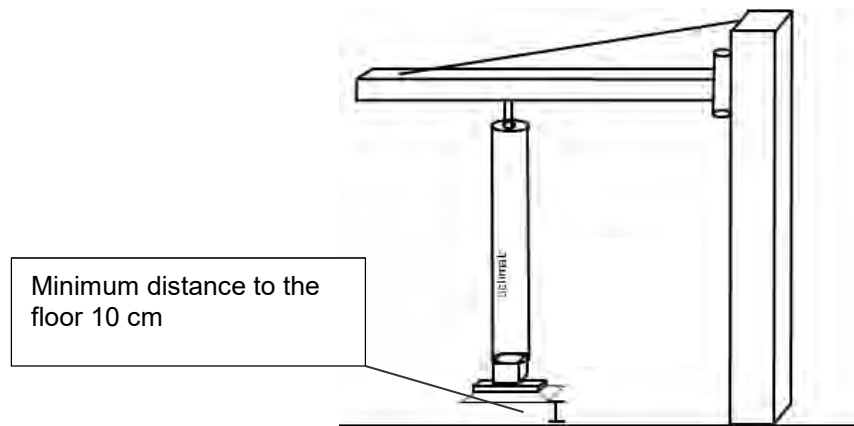
Figure 5



Due to the lift tube reinforcement on the underside of the lift tube, the lift tube may only be shortened at the rotary union (top).



Tube lifter stroke = approx.  $0.7 \times$  length of the lift tube (unloaded). The tube lifter must be disconnected before the lift tube can be shortened at the rotary union. Attention: When the lift tube is shortened, the lifting distance is also shortened.



## ATTENTION

### Entire system damage

The suction pad must never apply suction to the floor/supporting surface as this will cause damage to load-bearing parts of the entire system.

- ▶ A minimum distance of approx. 10 cm must be maintained between the suction pad and the supporting surface.
- ▶ Shorten the lift tube!

## 5.5 Test



Installation of the vacuum tube lifter Jumbo is complete following 3-4 successful test runs using a workpiece. The checks required in Europe before initial use in accordance with EN 14238 are covered by a type test.

## 6 Operation



The following operating steps must be checked by a qualified electrician before the initial start of operations and section 1.6 (Requirements and instructions for installation, maintenance and operating staff) must be read.



Tip: Switching off the blower during break times (by pressing the SRC radio remote control) can reduce power consumption by up to 40%.

### 6.1 General safety instructions regarding operation



#### WARNING



Non-observance of the general safety instructions regarding normal operation can result in personal injury or material damage.

- ▶ The system must only be operated by trained personnel who have read and understood the operating instructions.
- ▶ The operator must not leave the vacuum tube lifter Jumbo when a load is attached.
- ▶ Wear ear protectors to prevent hearing damage.



#### WARNING



##### **Risk of injury due to high vacuum and flow rate**

Hair, skin, body parts and items of clothing can be sucked in.

- ▶ Closely fitting clothing and a hairnet must be worn.
- ▶ Do not look into the opening of the suction connection.
- ▶ Do not reach into the opening of the suction connection.
- ▶ Do not position in the vicinity of body orifices.





#### WARNING





##### **Risk of injury due to falling parts and uncontrolled gripper movements**

If the tube lifter's maximum load is exceeded, parts can break off and fall while the tube lifter rises rapidly in an uncontrolled manner. People could be hit and injured.

- ▶ The operator must never use his or her physical strength to support the lifting
- ▶ Observe the tube lifter's lift capacity range.

 <b>WARNING</b>	
	<p><b>Danger due to falling objects</b></p> <ul style="list-style-type: none"> <li>- In the event of vacuum failure</li> <li>- In the event of a collision, causing the load to break off</li> <li>- In the event of component failure resulting from overload or unauthorized modifications</li> </ul> <p>There is a risk that people in the vicinity could be hit, causing death or serious injury!</p> <ul style="list-style-type: none"> <li>▶ No person may sit or stand in the danger zone of the load.</li> <li>▶ Suitable protective equipment must be worn prior to transport.</li> <li>▶ Do not work unless you have a clear view of the entire working area.</li> <li>▶ Pay attention to other people in the working area.</li> <li>▶ Never release the control handle of the vacuum tube lifter Jumbo while lifting a load.</li> <li>▶ Never lift loads at an angle and never drag or pull them.</li> <li>▶ Only pick up and lift suitable loads (test their intrinsic stability and porosity).</li> <li>▶ The working area must be secured by the user/operator. The persons/equipment necessary to secure this area must be present during the lifting/transportation process.</li> <li>▶ The maximum load must not be exceeded.</li> <li>▶ Do not set down any parts on the vacuum tube lifter Jumbo as they will fall off when working with the vacuum tube lifter Jumbo.</li> </ul>

 <b>CAUTION</b>	
	<p><b>Uncontrolled gripper movements</b></p> <p>Risk of injury from the gripper jolting upward when the device is switched on or the load becomes accidentally detached or dropped.</p> <ul style="list-style-type: none"> <li>▶ Never bend over the device.</li> <li>▶ Keep your distance from the device (with arms extended).</li> <li>▶ Do not use the vacuum tube lifter to free stuck loads!</li> <li>▶ The gripper must not rest on a workpiece prior to activation!</li> <li>▶ Always grip loads at their center of gravity!</li> <li>▶ Before switching on the device, move the control handle/lever to the "lower" position.</li> </ul>



## 6.2 What to do in an emergency

### The following cases constitute an emergency:

- Vacuum supply failure (e.g. power failure → vacuum generation switches off)
- Leakage (e.g.: detached hose)
- Forces arising during a collision

### The four-step emergency action plan:

1. If the vacuum supply fails, immediately release the control lever, thus setting it to the "Lift" position, so that the load does not fall. The residual vacuum allows the vacuum tube lifter **JUMBO** and load to be lowered slowly.
2. Set down the load in as controlled a manner as possible.
3. The operator must sound the alarm immediately in the event of danger.
4. All persons must leave the danger zone immediately.



 <b>WARNING</b>	
	<p><b>Risk of injury due to lowering of the tube lifter in the event of a power failure or vacuum generator failure</b></p> <p>This can result in a crushing injury.</p> <ul style="list-style-type: none"> <li>▶ If the vacuum in the lift tube collapses, move the control handle/lever to the lift position, immediately if possible, to cause the non-return valve to lower the tube lifter and the load slowly.</li> <li>▶ Stay clear of the danger zone at all times.</li> <li>▶ If possible, set down the load safely.</li> </ul>

## 6.3 Description of operation

The vacuum tube lifter **JUMBOFLEX** is used for fast and frequent lifting and moving of workpieces weighing up to 20, 35, or 50kg (observe lift capacity range).

The vacuum generator generates the vacuum, which is then directed to the suction pads via the supply hose and lift tube. The vacuum keeps the workpiece attached to the suction pad. Controlled leakage of the vacuum in the lift tube is used for lifting and lowering.

## 6.4 Switching the device on and off

 <b>WARNING</b>	
	<p><b>Risk of injury due to uncontrolled gripper movements</b></p> <p>If the suction pad is touching the floor or hanging in its storage rack upon activation, the pad can adhere to the floor or become trapped in the storage rack. The tube lifter may release in an uncontrolled manner and spring upwards or the lift tube may implode.</p> <ul style="list-style-type: none"> <li>▶ The tube lifter must hang freely but must not be able to adhere to any surface.</li> <li>▶ It must not be in its storage rack.</li> </ul>

### 6.4.1 With electrical vacuum generation

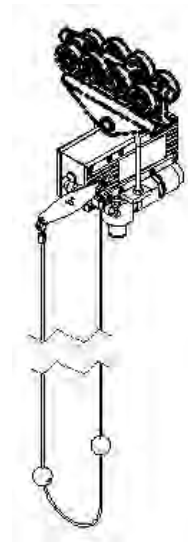
1. Switch the pump motor-protection switch on/off.
2. Using the optional radio remote control SRC, press the power switch on the operating element down fully to switch the vacuum generator on or off.



### 6.4.2 With pneumatic vacuum generation

Switch the compressed air supply on and off using the ball valve on the ejector. (See section 2.5.1)



**No radio remote control SRC is available for pneumatic vacuum generation.**



## 6.5 Setting the dynamics of the tube lifter

The dynamics of the tube lifter **Jumbo** can be set with the vacuum regulation valve (VRV). Secondary air can be introduced into the system by opening the VRV. This reduces the speed of the tube lifter's upward movement.

Opening the VRV throttles the flow rate in the tube lifter. If the flow rate is reduced too much, it will become difficult to lift porous loads.

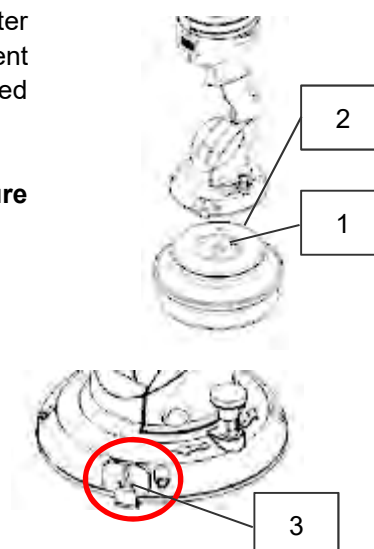
 <b>CAUTION</b>	
	<p><b>Danger due to unpredictable gripper behavior</b></p> <p>Adjusting the VRV alters the behavior of the tube lifter. The tube lifter can spring upwards when applying suction or may no longer be able to hold the load securely; people may be hit and could injure themselves.</p> <ul style="list-style-type: none"> <li>▶ Check settings before operation.</li> <li>▶ Avoid unintentional adjustments.</li> </ul>



## 6.6 Integrated quick-change adapter – replacing the suction pads

The quick-change adapter is integrated in the vacuum tube lifter **JUMBOFLEX** as standard. Depending on the task to be performed, different types of suction pads (1) may be required. These can simply be replaced on the vacuum connection (2).

**When replacing the suction pads, make sure that the pads are secure and that the safety lever (3) locks into position.**

The safety lever (3) is identified with a symbol.



 <b>CAUTION</b>	
	<p><b>Risk of injury! If the suction pad is not securely attached to the operator handle, it can become detached during operation and fall.</b></p> <p>Falling parts can hit people, crushing limbs or otherwise causing injury.</p> <ul style="list-style-type: none"> <li>▶ Rotate the suction pad in direction A (counter clockwise). The latching bolt must lock into place!</li> </ul>

## 6.7 Setting the hovering position

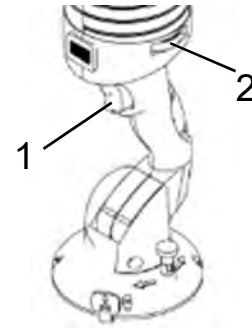
The working height of the operator handle – without load – can be adjusted to a more ergonomic height as desired. The working height is adjusted by rotating the knurled nuts (2) – this adjusts the idle position of the valve.

Rotate anti-clockwise:

→ **JUMBO** lowers

Rotate clockwise:

→ **JUMBO** rises



Flex 20/35

Flex 50



Turning the knurled nut (2) clockwise also reduces the flow rate to the suction pads. If the flow rate is reduced too much, it will become difficult to lift porous loads. The adjustment range of the hovering position depends on the vacuum pump employed.

## 6.8 Raising, lowering and depositing loads

Always carry the load in front of you, ensure you have a clear path, and avoid any trip hazards.

Always transport loads as close to the ground as possible and adapt the transport speed to the working conditions.

The hovering position without load must be set before start of operations (see section 6.6 “Setting the hovering position”).

The lifting operation is controlled using the actuating lever (1/2), which has 2 pressure points.

1. **Lowering the load**
2. **Releasing & removing/ejecting the load**

Pressing the actuating lever (1) towards the device opens the air escape valve and the JUMBO is lowered.

When the actuating lever (1) is released, the device returns to its initial position and the tube lifter returns to the suspension position. The initial position is always at the top.

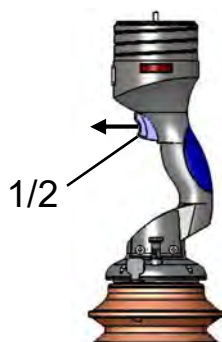
The device can be lowered below the set hovering position by pressing down lightly on the actuating lever (1) with your index finger until the pressure point (1/2) is reached.

Pressing down on the lever up to the pressure point (1/2) actuates the lift tube's lifting stroke.

Pressing beyond the pressure point (1/2), deposits/releases the load.

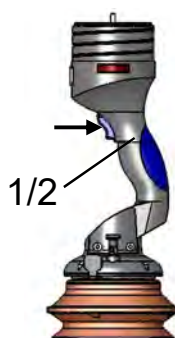


### 6.8.1 Lifting loads



1. Position the suction pad directly above the load. Do not lift the load at an angle.
2. Press the actuating lever (1/2) – put the actuating lever into the “Lower” position. The vacuum lifting tube of the device relaxes and the tube lifter is lowered.
3. Lower the suction pad onto the load. Ensure that the load is distributed evenly.
4. Slowly release the actuating lever (1/2). The load is picked up and begins to rise from the ground. Always maintain contact with the operating element or push-button.
5. The load reaches its highest point when the button has been released completely.

### 6.8.2 Lowering and setting down loads



1. Move the load to the desired location.
2. Slowly press the actuating lever (1/2) and move it into the “Lower” (1) position. The lift tube of the device relaxes and the suction pad lowers together with load.
3. When the load has reached the place where you wish to deposit it and is positioned securely, press the push-button (1/2) past the first pressure point until it locks into the “Lower” (2) position. The suction pad can now be released from the load.



## WARNING

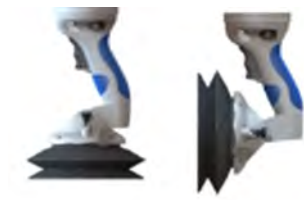


#### Risk of injury from falling load

If the actuating lever of the vacuum tube lifter JumboFlex is pressed down abruptly to the limit stop, the load and operator handle will drop suddenly since the vacuum has been completely removed.



- ▶ Never press the actuating lever abruptly down to the limit stop.
- ▶ Always press the actuating lever slowly and carefully to allow time to react to the response from the vacuum tube lifter Jumbo.

### 6.8.3 Picking up vertically and depositing horizontally



1. The 90° swiveling unit is designed for handling loads, picking up vertically and depositing horizontally.
2. Pick up the workpiece in the center or at the top so that the load swivels slowly to a horizontal position.



 <b>CAUTION</b>	
	<p><b>Risk of injury when swiveling the rotation unit</b></p> <p>When the rotation unit is swiveled by 90°, there is a risk of fingers becoming pinched in the shaft of the joint.</p> <ul style="list-style-type: none"> <li>▶ Always keep one hand on the operator handle.</li> <li>▶ Use the other hand to support the swiveling process (position your hand on the side of the workpiece).</li> </ul>

## 6.9 Continuous rotatability

The vacuum tube lifter **JUMBOFLEX** can be rotated continuously on the rotation unit (suspension point). Workpieces that have been picked up can also be rotated continuously below the operating element or locked in position at 90° intervals.

## 6.10 Parking the vacuum tube lifter Jumbo

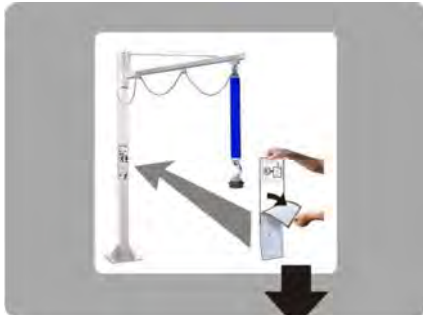
It is possible to park the vacuum tube lifter **JUMBO** for a brief period of time.

#### Procedure:

1. Stop the vacuum blower or ejector.
2. Leave the vacuum tube lifter **JUMBO** hanging on the crane system or position it in a holding device.

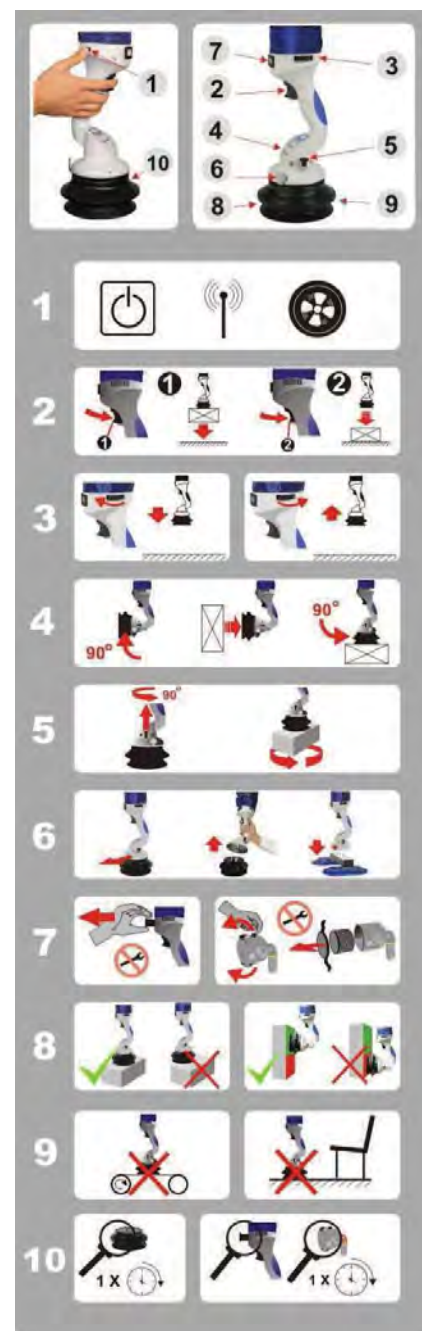
## 6.11 Quick reference guide

Included in the scope of delivery is a multilingual **quick reference guide**, which can be attached to the device and provides the operator with an overview of the many integrated functions of the JumboFlex tube lifter right at the machine.



The quick reference guide has been designed in a size that is easy to see and read and can be quickly affixed to the Probst **crane column**, for example.

Quick and precise **description of the functions** of the JumboFlex tube lifter for the operator (multilingual)



## 7 Storage of the vacuum tube lifter Jumbo

If the vacuum tube lifter **JUMBO** is not to be used for a prolonged period, it must be stored correctly to protect it from damage.

### Options for correct storage:

- Leave the lift tube attached to the operator handle.
- Use the optional retaining net to compress the vacuum tube lifter **JUMBO** and protect it from damage.
- Suspend the vacuum tube lifter **JUMBO** and store the lift tube with the operator handle. Take care not to damage the lift tube in any way when doing this.
- The suction pad must be detached and stored separately.

<b>ATTENTION</b>	
	<p><b>Suction pad damage</b></p> <p>Suction pads become deformed, age prematurely and fall out.</p> <p>► Store the suction pads in accordance with the storage recommendations for elastomer parts.</p>

### Recommended storage for elastomer parts

The effects of ozone, light (especially UV), heat, oxygen, humidity as well as mechanical influences can reduce the service life of rubber products. Rubber parts should therefore be stored in a cool place (0 °C to + 15 °C, max. 25 °C) that is dark, dry, low in dust and offers protection from the weather, ozone and drafts. They should also be free of tension (e.g. stacked appropriately to avoid deformation).

## 8 Troubleshooting

The vacuum tube lifter **JUMBO** must only be installed and maintained by qualified specialist personnel, mechanics and electricians. Work on electrical equipment must be carried out by qualified electrical specialists only.



After repair and maintenance work, always check the safety features as described in section 9.2 "Check safety features".

If the **load cannot be lifted**, work through the following list to identify and rectify the problem.

Problem	Solution	Preventive measures
Pump rotation direction reversed	Reverse the polarity of the pump phases	<ul style="list-style-type: none"> <li>- Use equipment to measure the rotating field</li> <li>- Use an automatic phase sequence indicator</li> </ul>
Pump does not run	Check the electrical connection: <ul style="list-style-type: none"> <li>- Check the power supply line</li> <li>- Check for voltage on all phases</li> </ul>	
Required vacuum not attained	<u>Vacuum tube lifter <b>JUMBO</b> with pump:</u> <ul style="list-style-type: none"> <li>- Examine the supply hose and tube lifter for cracks</li> <li>- Check gripping mechanism</li> <li>- Clean dust filter cartridge and filter of the operator handle (for Flex 20/35) and pump or replace if necessary</li> <li>- Check pump for faults. See separate pump instructions</li> </ul>	<u>Vacuum tube lifter <b>JUMBO</b> with pump:</u> <ul style="list-style-type: none"> <li>- Increase filter maintenance interval (see section 9.7)</li> <li>- Consult with the manufacturer</li> </ul>
	<u>Vacuum tube lifter <b>JUMBO</b> with ejector:</u> <ul style="list-style-type: none"> <li>- Examine the compressed air hose and tube lifter for cracks</li> <li>- Check gripping mechanism</li> <li>- Clean or replace the filter of the operator handle (for Flex 20/35)</li> <li>- Clean the silencer of the vacuum generator</li> </ul>	<u>Vacuum tube lifter <b>JUMBO</b> with ejector:</u> <ul style="list-style-type: none"> <li>- Increase filter maintenance interval (see section 9.7)</li> <li>- Increase maintenance interval for the filter in the ejector</li> </ul>
The load is too porous or non-rigid	<ul style="list-style-type: none"> <li>- The load cannot be lifted; use a different suction pad for non-rigid parts</li> </ul>	
The load is too heavy	<ul style="list-style-type: none"> <li>- Decrease the load, use a different lifting device</li> </ul>	<ul style="list-style-type: none"> <li>- Ensure that the workpiece to be lifted does not exceed the maximum load</li> </ul>

Problem	Solution	Preventive measures
Supply hose is damaged	Install a new hose or cut out the damaged section and connect the remaining sections using tube nipples and hose clamps	<ul style="list-style-type: none"> <li>Eliminate interference contours (see section 1.7)</li> <li>Correct the routing (see section 5.1)</li> </ul>
Compressed air hose is damaged	Fit new hose.	<ul style="list-style-type: none"> <li>Eliminate interference contours (see section 1.7)</li> <li>Correct the routing (see section 5.1)</li> </ul>
No compressed air supply	Check the supply line from the customer-provided compressed air generator	
Pressure in compressed air line too low	Adjust pressure to 4 to 6 bar	
Lift tube is damaged	Install a new lift tube	<ul style="list-style-type: none"> <li>Do not move to the end stop -&gt; set hovering position (see section 6.6)</li> <li>Do not lift the vacuum tube lifter <b>JUMBO</b> at an angle (see section 1.5)</li> <li>Increase maintenance interval for filter in operator handle (see section 9.7)</li> </ul>
Suction pad connection has a leak	Check the sealing rubber on the hose cylinder and replace if necessary	
The hose on the suction pad is damaged (double and quadruple suction gripper)	Check hose, replace if necessary	<ul style="list-style-type: none"> <li>Eliminate interference contours (see section 1.7)</li> </ul>
The load falls when lowering	Consult with the manufacturer	<ul style="list-style-type: none"> <li>Consult with the manufacturer</li> </ul>
Vacuum is attained but the <b>JUMBO</b> cannot lift porous loads	Consult with the manufacturer	<ul style="list-style-type: none"> <li>Consult with the manufacturer</li> </ul>
While the vacuum tube lifter <b>JUMBO</b> is in use, the operator handle of the tube lifter remains in the upper block position without load and cannot be lowered or can only be lowered slowly by pressing the actuating lever.	<ul style="list-style-type: none"> <li>Check the adjustment wheel for the hovering position without load (rotate right to lower the hovering position)</li> <li>Clean or replace the dust filter fleece of the operator handle (for Flex 20/35)</li> </ul>	<ul style="list-style-type: none"> <li>Set the hovering position (see section 6.6)</li> <li>Increase maintenance interval for filter in operator handle (see section 9.7)</li> </ul>
The vacuum pump cannot be switched on or off using the radio remote control (optional)	<ul style="list-style-type: none"> <li>Check the motor-protection switch or fuses in the control box of the radio remote control</li> <li>Contact your system consultant</li> </ul>	
Workpiece cannot be released from the gripper	Clean or replace the dust filter cartridge and filter at the operator handle to permit reliable venting	<ul style="list-style-type: none"> <li>Increase maintenance interval for filter in operator handle (see section 9.7)</li> </ul>

## 9 Maintenance

### 9.1 General notes



Please read section 1.6 (Requirements & instructions for installation, maintenance and operating staff) before starting maintenance.



#### WARNING



##### Risk of injury due to system maintenance by untrained personnel

This can result in serious injury.

- The system must only be maintained by trained personnel who have read and understood the operating instructions.



#### WARNING



##### Risk of injury from worn, unmaintained parts

Worn and unmaintained parts can cause damage, resulting in failure of the vacuum tube lifter and potentially causing severe injury.

- Observe the operating, maintenance and servicing requirements specified in these operating instructions.

### 9.2 Checking safety features

A non-return valve is built into the rotary union of the vacuum tube lifter **JUMBO**.

This prevents the working vacuum from falling too quickly in the event of a power failure.

Check this non-return valve at the start of every shift (if the unit is not operated continuously) or once a week (if operated continuously). Be sure to remain outside of the danger zone during the check.

Rectify any faults before starting operations with the vacuum tube lifter **JUMBO**. If faults occur during operation, switch off the vacuum tube lifter **JUMBO** immediately and rectify the faults.

	Interval				
	Daily	Weekly	Monthly	Every six months	Annual check
<b>Safety features</b>					
Is the non-return valve leaking?	X	X			X

#### Procedure:

1. Switch on the vacuum tube lifter **JUMBO**.
2. Raise the load and do not press the actuating lever, thus setting it to the "Lift" position.
3. Switch off the vacuum tube lifter **JUMBO**. The vacuum tube lifter **JUMBO** should lower slowly, the load cannot be released until it is close to the ground and must not fall suddenly.

### 9.3 Service table

This maintenance interval overview applies for one-shift operation. The inspection intervals may have to be shortened in the case of higher loads.

	Interval				
	Daily	Weekly	Monthly	Every six months	Annual check
<b>Vacuum generation</b>					
Checking the carbon vane and the integrated filter?					X
If additional filter is present, has it been cleaned?		X			X
Is the electrical installation OK? Are cable screw unions secure?					X
Is the supply hose in good condition (not brittle, not kinked, no worn sections, i.e. not leaking)? Does the hose need to be untwisted?			X		X
<b>Vacuum tube lifter Jumbo</b>					
Is the lift tube in good condition (not porous, no worn sections, no holes, i.e. not leaking)?			X		X
Is the lift tube attached properly? (correct position, correctly sealed)					X
Can the rotary union be moved easily?			X		X
Are all connections (hose clamps, etc.) secure?					X
Are the type plate and maximum load plate still attached to the device?					X
Are the operating instructions still present and are workers familiar with them?					X
Is the latching bolt secure?					X
Check all load-bearing parts (e.g. suspension of the Jumbo) for deformation, wear, rust or other damage.				X	X
Check whether the filter is soiled		X			X
<b>Grippers</b>					
Is the seal of the tube holder/gripper OK?		X			X
Does the suction pad still fit tightly; is it working properly? Are the sealing lips even? Replace as needed		X			X
Is the filter fleece in the suction pad clean?		X			X
<b>Function</b>					
Can the device be easily raised and lowered when not carrying a vacuum-gripped load?			X		X
Can the hovering position be set easily when the device is carrying a load? (by turning the adjusting screw on the operator handle)					X
Does the non-return valve work when there is a power failure?	X	X			X
Is the UVV (German Accident Prevention Regulations) test label current?					X
General condition of the device					X

## 9.4 Cleaning

Use cleaning solvents to clean the vacuum tube lifter **JUMBO** (not petroleum ether or corrosive liquids; the use of petroleum ether or corrosive liquids could cause leaks in the supply hose or lift tube). The suction plates can be cleaned using soap and warm water; do not use cleaning solvents on the suction sealing lips!

## 9.5 Vacuum pump

**Only for versions with electrical vacuum generator:**

See enclosed pump operating instructions

## 9.6 Ejector

**Only for versions with pneumatic vacuum generator:**



See enclosed pump operating instructions


## 9.7 Vacuum filter for JumboFlex 20/35

### 9.7.1 Filter in the operator handle

An additional dust filter is built into the operator handle. It can be changed or cleaned without the use of tools. Check, clean and, if necessary, replace the filter at least once a month. The filter must be cleaned and maintained regularly to guarantee that the tube lifter operates correctly.



 <b>WARNING</b>	
	<p><b>Risk of injury from falling workpieces</b></p> <p>If the filter screen in the suction pad is not cleaned regularly, the negative pressure at the suction pad is reduced and the load will fall.</p> <p>▶ Clean the filter screen at least once per week in order to ensure the safety of the device (see service table).</p>

	<p>The operator handle filters can be replaced without tools.</p>
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### 9.7.2 Filter in the vacuum pump

Refer to the enclosed pump operating instructions (see Appendix).

### 9.7.3 Filter on vacuum pump (optional dust filter)

Check the filters at least once a week and blow the filter cartridge clear (from the inside to the outside). Replace the filter cartridge if it is very dirty.

If the device is to be used in an extremely dirty environment, clean the filter daily.

When removing the filter cartridge, ensure that no dust enters the lines. Ensure that the filter is installed correctly!



### 9.7.4 Filter in suction pad

Check the filter at least once a week and clean as necessary (e.g. sack gripper).

## 9.8 Expert approval

Please observe the national accident prevention laws and regulations.

Make sure that inspections and tests are arranged for the required times and never operate equipment if it does not have the relevant official approval documents.

Within Germany, accident prevention regulations require the crane system and vacuum tube lifter **JUMBO** to be tested once a year by an expert.

As a special service within Germany, Probst GmbH offers an inspection contract for an annual test with a certificate from an expert.

#### Within Germany:

Please refer to the test seal affixed to the vacuum tube lifter **JUMBO** in this regard (see right).

We would be happy to provide you with a quotation for this service.

**Give us a call: Tel.: +49 (0)7443 / -2403-0**



# 10 Decommissioning and disposal

## 10.1 Decommissioning

The vacuum tube lifter **JUMBO** may only be decommissioned by qualified specialist personnel. The customer is responsible for disconnecting the lifting device from the lifting equipment used.

**Procedure:**

1. Switch off the vacuum supply, depressurizing the compressed air line if applicable, and secure to prevent it being switched back on.
2. The suction pad must be set down safely before it can be disassembled for safe storage (see section 6.9.4/6.9.5 Replacing the suction pads).
3. Detach the vacuum hose from the rotary union. To do this, loosen the hose clamp on the vacuum supply hose and release it from the rotary union.
4. For tube lifters with pneumatic vacuum generation and a compressed air line, loosen the quick-release coupling from the rotary union and detach the hose.
5. Secure the lift tube to prevent it from falling, then release the catches on the trolley connecting bolts.
6. Loosen the trolley connecting bolts and slowly suspend the lift tube.

## 10.2 Disposal

Only qualified specialist personal may prepare the vacuum tube lifter **JUMBO** for disposal.

**Procedure:**

1. Decommission the vacuum tube lifter **JUMBO**.
2. Detach the suction pad from the hose cylinder.
3. Loosen the hose clamps and remove the adhesive tape from the lift tube.
4. Unscrew the lift tube from the hose cylinder, do the same with the rotary union, and dispose of the materials in the appropriate manner.
5. Detach the hose cylinder, valve pipe, operator handle, and suction pad and again dispose of the respective materials in the appropriate manner.
6. Detach and dispose of the vacuum generator in accordance with the operating instructions supplied separately.

For proper disposal, please contact a company specializing in the disposal of technical goods and instruct it to observe the prevailing disposal and environmental regulations. The manufacturer of the device will be happy to assist you in finding a suitable company.

## Ersatz- und Verschleißteile ab 01.06.2014

Für die in dieser Ersatzteilliste enthaltenen Produkte übernehmen wir eine Gewährleistung gemäß unseren Allgemeinen Verkaufs- und Geschäftsbedingungen, sofern es sich um von uns gelieferte Originalteile handelt. Für Schäden, die durch die Verwendung von anderen als Originalersatzteilen oder Originalzubehör entstehen, ist jegliche Haftung unsererseits ausgeschlossen.

Ausgenommen von der Gewährleistung sind alle Verschleißteile.

Legende: E = Ersatzteil / V = Verschleißteil / VB = Verschleißteilbaugruppe, enthält Verschleißteile

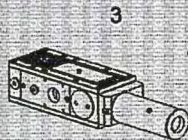
### JumboFlex

#### Elektrische Vakuumerzeuger JumboFlex



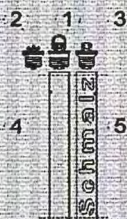
Pos.	Beschreibung	Artikelbezeichnung	ArtNr.	E / V	Einheit		
1	Vakuum-Pumpe EVE 25 400V	EVE-TR-25-AC3-VBV	11.01.41.00015	VB	Stück		
1	Vakuum-Pumpe EVE 25 575V	EVE-TR-25-AC3-VBV	11.01.41.00016	VB	Stück		
1	Vakuum-Pumpe EVE 40 400V	EVE-TR-40-AC3-VBV	11.01.40.00050	VB	Stück		
1	Vakuum-Pumpe EVE 40 575V	EVE-TR-40-AC3-VBV	11.01.40.00051	VB	Stück		
1	Vakuum-Pumpe EVE 50 400V	EVE-TR-50-AC3-VBV	11.01.40.00183	VB	Stück		
1	Vakuum-Pumpe EVE 50 575V	EVE-TR-50-AC3-VBV	11.01.40.00211	VB	Stück		
1	Vakuum-Pumpe EVE 80 400V	EVE-TR-80-AC3-VBV	11.01.43.00037	VB	Stück		
1	Vakuum-Pumpe EVE 80 575V	EVE-TR-80-AC3-VBV	11.01.43.00038	VB	Stück		
2	Vakuumbegrenzungsventil	VBV-V002-G1-AG-EVE-16-40	11.01.40.00058	E	Stück		
-	Verschleißteilsatz EVE 25	VST-EVE-TR-25	10.03.01.00134	V	Stück		
-	Verschleißteilsatz EVE 40/50	VST EVE-TR 40-50	10.03.01.00135	V	Stück		
-	Verschleißteilsatz EVE 60/80	VST EVE-TR 60/80	22.09.01.00031	V	Stück		

#### Pneumatische Vakuumerzeuger JumboFlex



Pos.	Beschreibung	Artikelbezeichnung	ArtNr.	E / V	Einheit		
3	Mehrstufigenejektor JumboFlex 20, SEM 100	SEM100-JU	10.02.01.00376	E	Stück		
3	Mehrstufigenejektor JumboFlex 35, SEM 150	SEM-150-SDA	11.02.04.10092	E	Stück		
4	Schalldämpfer für SEM 100	SD-140-SEM	10.02.01.00373	E	Stück		
4	Schalldämpfer für SEM 150	SD-M42X1.5-AG-120-SEM-150	10.02.01.00491	E	Stück		

#### Hubeinheit JumboFlex

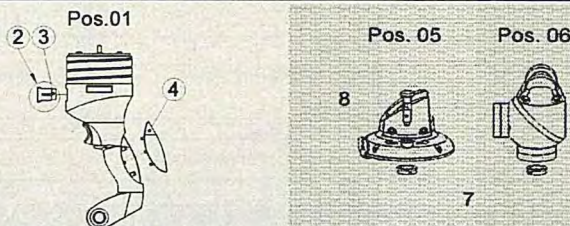


Pos.	Beschreibung	Artikelbezeichnung	ArtNr.	E / V	Einheit		
1	Dreheinführung JumboFlex 20, EVE	DEF-20-F	11.01.41.00004	E	Stück		
1	Dreheinführung JumboFlex 35, EVE	DEF-35-F	11.01.40.00010	E	Stück		
1	Dreheinführung JumboFlex 50, EVE	DEF-50-F	11.01.43.00001	E	Stück		
2	Dreheinführung JumboFlex 20, EVE für Knickarmausleger	DEF-20-F-K	11.01.41.00028	E	Stück		
2	Dreheinführung JumboFlex 35, EVE für Knickarmausleger	DEF-35-F-K	11.01.40.00177	E	Stück		
3	Dreheinführung JumboFlex 20, SEM	DEF-20-F	11.01.41.00040	E	Stück		
3	Dreheinführung JumboFlex 35, SEM	DEF-35-F	11.01.40.00221	E	Stück		
4	Hubschlauch JumboFlex 20, Hub 1500 mm	HUBS-20-80x2100-1500-JU-F	11.04.01.10195	V	Stück		
4	Hubschlauch JumboFlex 20, Hub 1800 mm	HUBS-20-80x2450-1800-JU-F	11.04.01.10196	V	Stück		
4	Hubschlauch JumboFlex 35, Hub 1500 mm	HUBS-35-102x2100-1500-JU-F	11.04.01.10197	V	Stück		
4	Hubschlauch JumboFlex 35, Hub 1800 mm	HUBS-35-102x2450-1800-JU-F	11.04.01.10198	V	Stück		
4	Hubschlauch JumboFlex 50, Hub 1500 mm	HUBS-50-120x2100-1500-JU-F	11.04.01.10253	V	Stück		
4	Hubschlauch JumboFlex 50, Hub 1500 mm, A2	HUBS-50-120x2100-1500-JU-F-A2	11.04.01.10256	V	Stück		
4	Hubschlauch JumboFlex 50, Hub 1800 mm	HUBS-50-120x2450-1800-JU-F	11.04.01.10254	V	Stück		
4	Hubschlauch JumboFlex 50, Hub 1800 mm, A2	HUBS-50-120x2450-1800-JU-F-A2	11.04.01.10255	V	Stück		
5	Schutzschlauch JumboFlex 20, Hub 1500 mm mit Logo	SCHU-SCHL-20-MOD-FK-1500-LOGO	11.04.01.10201	E	Stück		
5	Schutzschlauch JumboFlex 20, Hub 1800 mm mit Logo	SCHU-SCHL-20-MOD-FK-1800-LOGO	11.04.01.10199	E	Stück		

# Ersatz- und Verschleißteile ab 01.06.2014

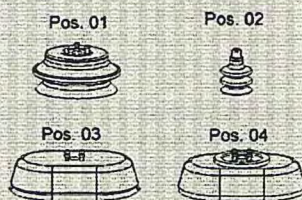
5	Schutzschlauch JumboFlex 35, Hub 1500 mm mit Logo	SCHU-SCHL-35-MOD-FK-1500-LOGO	11.04.01.10202	E	Stück		
5	Schutzschlauch JumboFlex 35, Hub 1800 mm mit Logo	SCHU-SCHL-35-MOD-FK-1800-LOGO	11.04.01.10200	E	Stück		
5	Schutzschlauch JumboFlex 50, Hub 1500 mm mit Logo	SCHU-SCHL-50-MOD-FK-1500-LOGO	11.04.01.10240	E	Stück		
5	Schutzschlauch JumboFlex 50, Hub 1800 mm mit Logo	SCHU-SCHL-50-MOD-FK-1800-LOGO	11.04.01.10241	E	Stück		

## Bedieneinheit JumboFlex



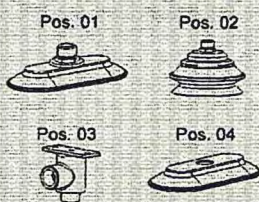
Pos.	Beschreibung	Artikelbezeichnung	ArtNr.	E / V	Einheit		
1	Bedieneinheit JumboFlex 20 (ohne Dreheinheit)	BE-20-0-F	11.01.41.00021	VB	Stück		
1	Bedieneinheit JumboFlex 35 (ohne Dreheinheit)	BE-35-0-F	11.01.40.00120	VB	Stück		
1	Bedieneinheit JumboFlex 50 (ohne Dreheinheit)	BE-50-0-F	11.01.43.00016	VB	Stück		
2	Filtereinheit inkl. Filterplatte Flex20/35	FILT-EINH-KU	11.01.40.00088	VB	Stück		
3	Filterplatte Flex20/35	FILT-PL 30x22x30 JU-F	11.01.40.00040	V	Stück		
4	Softtouch-Element blau Flex20/35	GK 88x32x30 JU-F	11.01.40.00007	E	Stück		
5	Dreheinheit für JumboFlex 20/35 komplett	DE-20/35-125-R-4x90	11.01.40.00012	E	Stück		
5	Dreheinheit für JumboFlex 50 komplett	DE-50-125x64-R-4x90	11.01.43.00026	E	Stück		
6	Anbaumodul für 2in1 Greifer Flex20/35	MOD-ANB 95x90x135 JU-F	11.01.40.00171	E	Stück		
7	V-Ring JumboFlex 20/35	V-RING 18x5.5 V-20 A NBR	10.07.08.00330	E	Stück		
7	V-Ring JumboFlex 50	V-RING 24x7.5 V-25 A NBR	10.07.08.00429	E	Stück		
8	Rastbolzen Flex20/35/50	BOLZ-6x6-M10-AG-R	20.05.06.00033	E	Stück		
-	Ventileinheit für JumboFlex 50 (Taster + Kolben) montiert	ERS-SET JU-F-50	11.01.43.00065	E	Stück		

## Einfachsauggreifer JumboFlex



Pos.	Beschreibung	Artikelbezeichnung	ArtNr.	E / V	Einheit		
1	Rundsauggreifer JumboFlex 20/35, NBR	RG-20/35-150-JU-F	11.01.40.00036	VB	Stück		
1	Rundsauggreifer JumboFlex 20/35, Silikon	RG-20/35-150-SI-50-FGA	11.01.40.00151	VB	Stück		
1	Rundsauggreifer JumboFlex 50, NBR	RG-50-200-JU-F-NBR	11.01.42.00426	VB	Stück		
1	Rundsauggreifer JumboFlex 50, Silikon	RG-50-200-SI-50-FGA	11.01.42.00498	VB	Stück		
-	Schürze für - RG-20/35-150-JU-F - RG-20/35-150-SI-50-FGA	SKIRT-250-60-NK-35	11.01.40.00363	V	Stück		
-	Schürze für - RG-50-200-JU-F-NBR - RG-50-200-SI-50-FGA	SKIRT-250-60-NK-35	11.01.42.00459	V	Stück		
2	Balgsauger für Multisauggreifer (15Stk pro Greifer erforderlich)	FSG-42-NBR-55-G1/4-AG	10.01.06.00031	V	Stück		
3	Sacksauggreifer JumboFlex 35, komplett, EPDM	SG-35-255x175-EPDM	11.03.14.10209	VB	Stück		
3	Sacksauggreifer JumboFlex 50, komplett, EPDM	SG-50-255x175-EPDM	11.01.42.00454	VB	Stück		
-	Dichtprofil für - SG-35-255x175-EPDM - SG-50-255x175-JU-F	DI-PROF 10x26x670 EPDM	11.03.14.10221	V	Stück		
4	Sacksauggreifer JumboFlex 35, komplett, Schwammgummi	SG-35-242x160-SWG-20	11.03.14.10231	VB	Stück		
4	Sacksauggreifer JumboFlex 35, komplett, Schwammgummi für 2in1 Greifer	SG-35-242x160-2/1-SWG-20	11.03.14.10227	VB	Stück		
-	Dichtprofil für - SG-35-242x160-SWG-20 - SG-35-242x160-2/1-SWG-20	DI-PROF-15x21.5x605	11.03.14.10229	V	Stück		
-	Dichtring für - EG-20/35-194x194-SWG-20-JU-F	DR-SPLS 194x194 2K-SWG-20	11.01.40.00247	V	Stück		

## Doppel- und Vierfachsauggreifer JumboFlex



Pos.	Beschreibung	Artikelbezeichnung	ArtNr.	E / V	Einheit		
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# Ersatz- und Verschleißteile ab 01.06.2014



1	Flachsauger (oval) für DG/VG starr - DG-20/35-JU-F-160-SAOF - DG-20/35-JU-F-400-SAOF - DG-20/35-JU-F-800-SAOF - DG-20/35-JU-F-1200-SAOF - TRAV-LANG-30x20-VAR - TRAV-30x20-VAR-JU-F-20/35 - TRAV-30x30-VAR-VG-50	SAOF 140x70 NBR-60 G1/2-AG	11.01.40.00116	V	Stück		
2	Balgsauger (rund) für DG/VG starr - TRAV-LANG-30x20-VAR - TRAV-30x20-VAR-JU-F-20/35 - TRAV-30x30-VAR-VG-50	FSGA-110-NBR-70-G1/2-AG	11.01.40.00123	V	Stück		
3	Saugerhalter für DG variabel	HTR-S 30x30 30x30	11.01.40.00206	E	Stück		
4	Flachsauger (oval) für DG Variabel - TRAV-LANG-30x30-VAR	SAOF-140X70-NBR-60-G1/2-IG	11.01.40.00115	V	Stück		

Zuführschlauch VSL Jumbo Flex							
Pos.	Beschreibung	Artikelbezeichnung	ArtNr.	E / V	Einheit		
-	Zuführschlauch JumboFlex 20/35, (Pumpe), 9m	VSL 32-26 9 PVC-PS	11.04.03.10217	E	Stück		
-	Zuführschlauch JumboFlex 20/35, (Pumpe), 12m	VSL 32-26 12 PVC-PS	11.04.03.10218	E	Stück		
-	Zuführschlauch JumboFlex 20/35, (Pumpe), 15m	VSL 32-26 15 PVC-PS	11.04.03.10219	E	Stück		
-	Zuführschlauch JumboFlex 20/35, (Pumpe), 20m	VSL 32-26 20 PVC-PS	11.04.03.10220	E	Stück		
-	Zuführschlauch JumboFlex 20/35, (Pumpe), 25m	VSL 32-26 25 PVC-PS	11.04.03.10221	E	Stück		
####	Schlauchverbinder für JumboFlex	SCHL-VB 34-25	11.01.40.00270	E	Stück		
-	Schlauchschele SSB JumboFlex 20/35	SSB-27-33	10.07.10.00087	E	Stück		
-	Zuführschlauch JumboFlex 50, (Pumpe), 9m	VSL 38-32 9 PVC-PS	11.04.03.10205	E	Stück		
-	Zuführschlauch JumboFlex 50, (Pumpe), 12m	VSL 38-32 12 PVC-PS	11.04.03.10206	E	Stück		
-	Zuführschlauch JumboFlex 50, (Pumpe), 15m	VSL 38-32 15 PVC-PS	11.04.03.10207	E	Stück		
-	Zuführschlauch JumboFlex 50, (Pumpe), 20m	VSL 38-32 20 PVC-PS	11.04.03.10208	E	Stück		
-	Zuführschlauch JumboFlex 50, (Pumpe), 25m	VSL 38-32 25 PVC-PS	11.04.03.10209	E	Stück		
-	Zuführschlauch JumboFlex 50, (Pumpe), PU, VAR	VSL 42-32 VAR PU-DS	11.04.03.10216	E	Meter		
####	Schlauchverbinder für JumboFlex 50	SCHL-VB-38-32	11.01.43.00045	E	Stück		
-	Schlauchschele SSB JumboFlex 50	SSB-35-50	10.07.10.00004	E	Stück		
-	Zuführschlauch JumboFlex, (Ejektor)	VSL-15-9-PVC-G	10.07.09.00005	E	Meter		
-	Schlauchschele SSB JumboFlex (Ejektor)	SSB 10-16	10.07.10.00001	E	Stück		

## Zubehör

Funkfernsteuerung SRC JumboFlex							
Pos.	Beschreibung	Artikelbezeichnung	ArtNr.	E / V	Einheit		
-	Empfängerplatine SRC für EVE 868MHz	LEIT-PL-HAUP-PL-FZ	11.04.05.10196	E	Stück		
-	Empfängerplatine SRC für EVE 315MHz	LEIT-PL-HAUP-PL-FZ	11.04.05.10197	E	Stück		
-	Sendebaugruppe SRC (ohne Schale) für JumboFlex20/35, 868MHz	SENDER-868-JU-20/35-F	11.04.05.10202	E	Stück		
-	Sendebaugruppe SRC (ohne Schale) für JumboFlex20/35, 315MHz	SENDER-315-JU-20/35-F	11.04.05.10203	E	Stück		
-	Sendebaugruppe SRC (ohne Schale) für JumboFlex50, 868MHz	SENDER-868-JU-50-F	11.04.05.10219	E	Stück		
-	Sendebaugruppe SRC (ohne Schale) für JumboFlex50, 315MHz	SENDER-315-JU-50-F	11.04.05.10220	E	Stück		

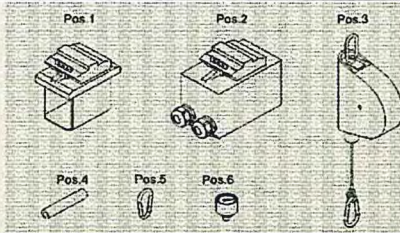
Staubfilter							
<div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;"> <b>Pos. 01</b>   </div> <div style="text-align: center;"> <b>Pos. 02</b>   </div> </div>							
Pos.	Beschreibung	Artikelbezeichnung	ArtNr.	E / V	Einheit		
1	Filtereinsatz für - STF G3/4-IG N EVE25/40	FILT-EINS-65-STF-3/4-IG	10.07.01.00017	V	Stück		
2	Filtereinsatz für - STF G1-IG N EVE50-90	FILT-EINS 98x70 PAP STF-1-1/4-IGN	10.07.01.00018	V	Stück		
-	Differenzdruckwächter	DDW-P032-250V-AC	21.01.06.00011	E	Stück		
-	Leuchte grün 230V (ab 06/2013)	WARN-LEU-70X65-230V-AC-GN	21.05.05.00071	V	Stück		
-	Leuchte rot 230V (ab 06/2013)	WARN-LEU-70X65-230V-AC-RT	21.05.05.00078	V	Stück		

Schalldämmbox SBB JumboFlex							
<div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;"> <b>Pos.1</b>   </div> <div style="text-align: center;"> <b>Pos.2</b>   </div> </div>							

## Ersatz- und Verschleißteile ab 01.06.2014

Pos.	Beschreibung	Artikelbezeichnung	ArtNr.	E / V	Einheit	
1	Abdeckung Schalldämmbox SBB	ABDK-660X585-SBB	11.04.03.10121	E	Stück	
-	Abluftschlauch Ø 60 mm	ABLU-SL-65-60-ALU-WM	11.04.05.10020	E	Stück	

### Sonstiges

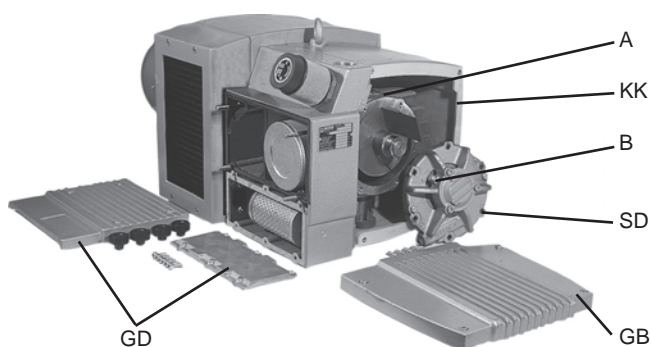
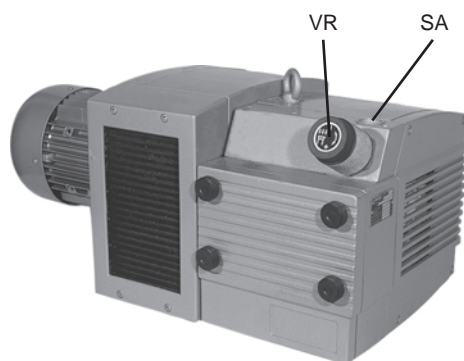


Pos.	Beschreibung	Artikelbezeichnung	ArtNr.	E / V	Einheit	
-	Motorschutzschalter	Siehe Auftragsbestätigung	s. Auftragsbest.	E	Stück	
1	Mechanische Verriegelung (Einbau-MSS)	MECH-RIEG-PKZM0-106-79-30	21.01.04.00005	E	Stück	
2	Mechanische Verriegelung (Aufputz-MSS)	MECH-RIEG-PKZM0-120-79-30	21.01.04.00006	E	Stück	
-	CEE-Stecker mit Phasenwender	CEE-STECH-400V-AC3-16-5	21.04.06.00009	E	Stück	
-	Leitung 5x2,5 mm²	LEIT-5X2,5-PVC	21.04.02.00026	E	Meter	
-	Isolierband weich-PVC E 91, 25 m-Rolle – Coroplast	DICHTBAND	27.03.02.00001	E	Stück	

### Serviceprodukte für Vakuumtechnik

Pos.	Beschreibung	Artikelbezeichnung	ArtNr.	E / V	Einheit	
-	Isolierband weich-PVC E 91, 25 m-Rolle – Coroplast	DICHTBAND	27.03.02.00001	E	Stück	
-	Lack-Spray RAL 7035, 400 ml Dose	SPRAY-FARBE7035	27.01.05.00002	E	Stück	
-	Kleber für Schwammgummimontage (125 ml)	KLEBER-RENIA-0.125	27.03.02.00069	E	Stück	
-	Leckage-Suchspray zum Auffinden von Leckagen in Vakuumsystemen, 400 ml	SPRAY	10.07.11.00023	E	Stück	
-	Vakuum Prüf-Kit – Messen des Vakuums am Sauggreifer	WART-SET-VAM63-VSL-NADEL	10.07.11.00024	E	Stück	
-	Schmierstoff für Vakuum-Technik	SCHMIERSTOFF	10.07.11.00022	E	Stück	
-	Spezial Kleber (Kleben von Dichtprofilen und Dichtschnüren)	SCHRAUBENSICHERUNG-401	10.07.08.00258	E	Stück	
-	Schraubensicherung 243 Mittelfest, 10 g	SCHRAUBENSICHERUNG-243	10.07.08.00256	E	Stück	
-	Schraubensicherung 221 Niedrigfest, 10 g	SCHRAUBENSICHERUNG-221	10.07.08.00255	E	Stück	

# 1 Operating Instructions for EVE-TR-(X) 60 – 140 AC3-F



## Safety Regulations

Please comply with safety standard DIN EN 1012-2 for vacuum pumps.



Alterations to the side channel compressors may be effected only after agreement by the factory.

## Application

The pumps are used for generating a vacuum. Their characteristics apply up to a height of 800 m above sea level. Inlet air must be standard dry atmospheric air. If humid air should be sucked in, the pump must run 5 minutes before switching the device off. This prevents corrosion within the pump.



The pumps are dry-running. The inlet air should not include any oil mist.

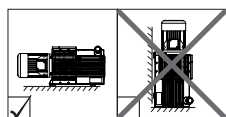
## Transport and storage

Store pump in a dry area. Prevent condensation caused by vapour.

Lift and transport only by using the ring screws.

## Installation

It is recommended to install the pumps with easy access for maintenance.



optimal improper

Clearance between compressors and adjacent walls should be no less than 10 cm of free space in order to ensure sufficient air flow for cooling.

Schmalz GmbH prior to installation under noise insulation canopies, contact.

Ambient temperatures must not exceed 45°C.

## Assembly

Ensure correct dimensions of and clean pipelines (no weld spatter, chips or similar contamination).

## Pipework:

EVE-TR 60: up to 2m - 1"; 2 up to 10m - 1 1/2"  
EVE-TR-(X) 80+90: up to 2m - 1"; 2 up to 10m - 1 1/2"  
EVE-TR-(X) 100: up to 2m - 1 1/2"; 2 up to 10m - 2"  
EVE-TR-(X) 140: up to 2m - 1 1/2"; 2 up to 10m - 2"

With pipelines exceeding 2m in length we recommend the installation of non-return valves.

Keep connections free from oil, grease, water and other contaminants.

• Remove end cap at **SA**. Do not connect to pipeline yet.

## Motor connection

• Connect the pump to the electricity supply observing all applicable safety regulations. Comply with EN 60204 T1.

• Connect motor based on connecting diagram (in terminal box) or ready-made plugs. This work should be carried out by an experienced electrician only. Check for connecting voltage and frequency.

• Install motor circuit-breaker with Main switch and set to nominal motor current. (For data see motor rating plate).

• On the optional motor (CSA/UL), the overtemperature is additionally monitored by thermal contacts. These need to be connected to an external monitoring unit for evaluation.

Avoid switching of more than 10 times per hour.



Briefly start motor and check rotation (arrow on casing). Exchange phases if rotation is incorrect.

## Commissioning

• Connect inlet line at **SA**.

• Option: Set vacuum control valve **VR** to operating values (standard model without valve).

## Maintenance

Maintain pump regularly to achieve the best operating results. Maintenance intervals will depend on the pump's use and ambient conditions.



• Before commencing maintenance, remove mains plug from socket to avoid unintentional restarting.



• Air compression will generate high temperatures at the compressors: Allow the pump parts to cool before disassembly.



• The **filter cartridges** are inserted behind the enclosure cover **GD**. In case of high dust levels in the ambient air and special operating conditions (e. g. multiple shift operation) we recommend a weekly filter check (initially twice a week).

Blow out dirty filters from inside to outside using compressed air.

Replace blocked, oily or greasy cartridges.

Additional filters are available for operation in very dusty environment.



• Blow out dirt in cooling air channels **KK** by compressed air.

The **vanes** are subject to wear due to abrasion from the walls of the enclosure.



• Check vane width every 3000/7500 operating hours (EVE-TR/EVE-TR-X) or annually.

### Width of vanes, min:

EVE-TR 60: 26mm  
EVE-TR-(X) 80: 26mm  
EVE-TR 90: 31mm  
EVE -TR-(X)100: 26mm  
EVE-TR-(X) 140: 31mm

Remove housing cover **GD** and side cover **SD** for this.



• On replacement blow out enclosure by dry compressed air.

EVE-TR-(X) 60–90: The roller bearings are pre-lubricated for life and will not require maintenance.

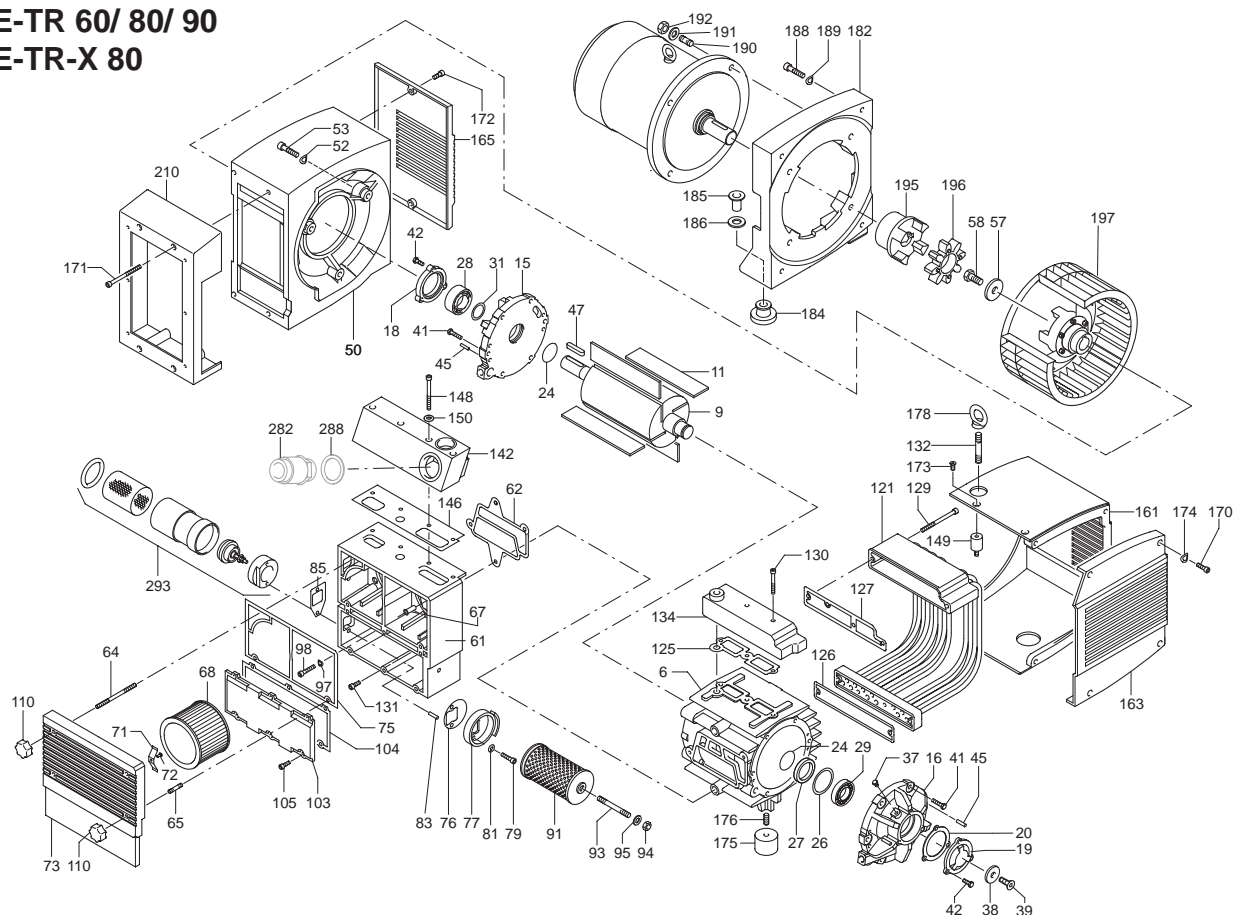
• Replace the grease loss in the rolling bearing (**SD**) due to disassembly - 2g 'Amblygon 15/2' grease in total. Grease is to be found behind **GB**.

EVE-TR-(X) 100–140: Grease **Roller bearings** at **A** and **B** after 2,000 hours of operation at both of the grease nipples while the compressor is running (EVE-TR-(X) 100: 5g and EVE-TR-(X) 140: 7g).

Use grease 'Amblygon 15/2' from the included grease gun.

Replace by original roller bearings only.

**EVE-TR 60/ 80/ 90**  
**EVE-TR-X 80**

[illegible]

Pos	Bestell-Nr. Ident No. No.Identification			V 1) E	Beschreibung	Description	Designation
	EVE-TR 60	EVE-TR 80 EVE-TR-X 80	EVE-TR 90				
6	000100 21600	000100 21100	000103 21100	E	GEHÄUSE	PUMP BODY	CORP DE POMPE
9	020004 21100	020004 21100	020004 21100	E	KOLBEN	ROTOR	PISTON
9	-	020000 50700	-	E	"	"	"
11	VS 1	VS 1	VS 1	V	SCHIEBER	CARBON VANES	PALETTE DE CHARBON
11	-	10.03.01.00227	-	V	"	"	"
15	000801 21100	000801 21100	000801 21100	E	SEITENDECKEL	LID	COUVERCLE
16	000701 21100	000701 21100	000701 21100	E	SEITENDECKEL	LID	COUVERCLE
18	001100 21100	001100 21100	001100 21100	E	LAGER-DECKEL, A-SEITE	BEARING COVER	COUVERCLE DE ROULEMENT
19	001000 21100	001000 21100	001000 21100	E	LAGER-DECKEL, B-SEITE	BEARING COVER	COUVERCLE DE ROULEMENT
20	10.07.12.00025	10.07.12.00025	10.07.12.00025	E	DICHTUNG	GASKET	JOINT
24	10.07.12.00026	10.07.12.00026	10.07.12.00026	E	DICHTUNGSSCHLAUCH	SEAL	JOINT
26	10.07.12.00027	10.07.12.00027	10.07.12.00027	E	AUSGLEICHSCHEIBE	COMPENSATING DISC	DISQUE DE COMPENSATION
27	10.07.12.00028	10.07.12.00028	10.07.12.00028	E	WELLENDICHTRING	SHAFT-SEALING RING	BAGUE D'ETANCHEITE P.L'AXE
28	10.07.12.00029	10.07.12.00029	10.07.12.00029	E	WÄLZLAGER	BALL BEARING	ROULEMENT A BILLES
29	10.07.12.00030	10.07.12.00030	10.07.12.00030	E	WÄLZLAGER	BALL BEARING	ROULEMENT A BILLES
31	10.07.12.00031	10.07.12.00031	10.07.12.00031	E	SATZ DISTANZSCHEIBEN	SET DISTANCE DISC	JEU DISQUE DE TOLERANCE
37	945217 00000	945217 00000	945217 00000	E	SECHSKANTSCHRAUBE	HEX HEAD SCREW	VIS HEXAGONALE
38	016801 21100	016801 21100	016801 21100	E	SPANNSCHEIBE	CLAMPING DISC	DISQUE DE SERRAGE
39	949807 00000	949807 00000	949807 00000	E	SENKSCHAUBE	SCREW	VIS
41	945224 00000	945224 00000	945224 00000	E	SECHSKANTSCHRAUBE	HEX-HEAD SCREW	VIS HEXAGONALE
42	945222 00000	945222 00000	945222 00000	E	SECHSKANTSCHRAUBE	HEX-HEAD SCREW	VIS HEXAGONALE
45	948742 00000	948742 00000	948742 00000	E	PASSKERBSTIFT	STRAIGHT PIN	GOUPILLE CYLINDRIQUE
47	947736 00000	947736 00000	947736 00000	E	PASSFEDER	KEY	CLAVETTE
50	053201 21105	053201 21105	053201 21105	E	LATERNE	CONNECTION FLANGE	BRIDE DE RACCORDEMENT
52	950308 00000	950308 00000	950308 00000	E	UNTERLEGSCHEIBE	WASHER	RONDELLE
53	945337 00000	945337 00000	945337 00000	E	INNENSECHSKANTSCHRAUBE	SOCKET HEAD SCREW	VIS HEXAGONALE INTERNE
57	949409 00000	949409 00000	949409 00000	E	UNTERLEGSCHEIBE	WASHER	RONDELLE
58	945270 00000	945270 00000	945270 00000	E	WELLENENDSCHRAUBE	SHAFT END BOLD	VIS BOUT D'ARBRE
61	040101 21100	040101 21100	040102 21100	E	FILTERGEHÄUSE	FILTER HOUSING	BOITE POUR FILTRE
62	025501 21100	025501 21100	025501 21100	E	DICHTUNG	GASKET	JOINT
64	946955 00000	946955 00000	946955 00000	E	STIFTSCHRAUBE	STUD	TOURILLON
65	951003 00000	951003 00000	951003 00000	E	STIFTSCHRAUBE	STUD	TOURILLON
67	964407 00000	964407 00000	964407 00000	E	SCHALLDÄMPFERROHR	SILENCER TUBE	TUBE SILENCIEUX
68	10.03.01.00032	10.03.01.00032	10.03.01.00032	V	FILTERPATRONE	FILTER CARTRIDGE	CARTOUCHE FILTRANTE
68	-	10.03.01.00231	-	V	"	"	"
71	009000 27000	009000 27000	009000 27000	E	ANPRESSFEDER	LEAF SPRING	RESSORT-JAME
73	040201 21100	040201 21100	040201 21100	E	FILTER-DECKEL	FILTER-COVER	COUVERCLE DU FILTRE
75	10.07.12.00007	10.07.12.00007	10.07.12.00007	E	DICHTUNG	GASKET	JOINT
76	025516 21100	025516 21100	025516 21100	E	DICHTUNG	GASKET	JOINT
77	022802 21100	022802 21100	022802 21100	E	FILTERTRÄGER	FILTER HOLDER	SUPPORT FILTRE
79	945320 00000	945320 00000	945320 00000	E	INNENSECHSKANTSCHRAUBE	SOCKET HEAD SCREW	VIS HEXAGONALE INTERNE
81	947504 00000	947504 00000	947504 00000	E	UNTERLEGSCHEIBE	WASHER	RONDELLE
83	952019 00000	952019 00000	952019 00000	E	SPANNHÜLSE	LOCATING PEG	DOUILLE DE ETRAGE
85	025514 21100	025514 21100	025514 21100	E	DICHTUNG	GASKET	JOINT
91	VS 1	VS 1	VS 1	V	FILTERPATRONE	FILTER CARTRIDGE	CARTOUCHE FILTRANTE
91	-	10.03.01.00232	-	V	"	"	"
93	946965 00000	946965 00000	946965 00000	E	STIFTSCHRAUBE	STUD	PRISONNIER
94	947105 00000	947105 00000	947105 00000	E	SECHSKANTMUTTER	HEX.NUT	ECROU A 6 PANS
95	949450 00000	949450 00000	949450 00000	E	U-SCHEIBE	WASHER	RONDELLE
97	950304 00000	950304 00000	950304 00000	E	U-SCHEIBE	WASHER	RONDELLE
98	945322 00000	945322 00000	945322 00000	E	INNENSECHSKANTSCHRAUBE	SOCKET HEAD SCREW	VIS HEXAGONALE INTERNE
103	068801 21100	068801 21100	068801 21100	E	DECKEL	COVER	COUVERCLE
104	10.07.12.00008	10.07.12.00008	10.07.12.00008	E	DICHTUNG	GASKET	JOINT
105	945319 00000	945319 00000	945319 00000	E	INNENSECHSKANTSCHRAUBE	SOCKET HEAD SCREW	VIS HEXAGONALE INTERNE
106	950304 00000	950304 00000	950304 00000	E	U-SCHEIBE	WASHER	RONDELLE
110	921500 50000	921500 50000	921500 50000	E	HANDGRIFF	HANDLE	POIGNEE
121	560204 21100	560204 21100	560204 21100	E	KÜHLER	COOLER	REFROIDISSEUR
125	025504 21100	025504 21100	025504 21100	E	DICHTUNG	GASKET	JOINT
126	025512 21100	025512 21100	025512 21100	E	DICHTUNG	GASKET	JOINT
127	025517 21100	025517 21100	025517 21100	E	DICHTUNG	GASKET	JOINT
129	945372 00000	945372 00000	945372 00000	E	INNENSECHSKANTSCHRAUBE	SOCKET HEAD SCREW	VIS HEXAGONALE INTERNE
130	945328 00000	945328 00000	945328 00000	E	INNENSECHSKANTSCHRAUBE	SOCKET HEAD SCREW	VIS HEXAGONALE INTERNE
131	945320 00000	945320 00000	945320 00000	E	INNENSECHSKANTSCHRAUBE	SOCKET HEAD SCREW	VIS HEXAGONALE INTERNE
132	946930 00000	946930 00000	946930 00000	E	STIFTSCHRAUBE	STUD	PRISONNIER
134	005602 21100	005602 21100	005602 21100	E	DECKEL	COVER	COUVERCLE
142	016605 21100	016605 21100	016605 21100	E	ANSCHLUSS-STÜCK	CONNECTING PIECE	PIECE RACCORD
146	025507 21100	025507 21100	025507 21100	E	DICHTUNG	GASKET	JOINT
148	945368 00000	945368 00000	945368 00000	E	INNENSECHSKANTSCHRAUBE	SOCKET HEAD SCREW	VIS HEXAGONALE INTERNE
149	741310 30000	741310 30000	741310 30000	E	GUMMIPUFFER	RUBBER BUFFER	AMORTISSEUR EN CAOUTCHOUC
150	950304 00000	950304 00000	950304 00000	E	U-SCHEIBE	WASHER	RONDELLE
161	918300 21100	918300 21100	918300 21100	E	ABDECKHAUBE	COVERING HOOD	CARTER
163	920800 21100	920800 21100	920800 21100	E	LUFTLEITRING	AIR GUIDE HOOD	CAPOT DE CANALISAT. DE L'AIR
165	960700 21100	960700 21100	960700 21100	E	LÜFTERHAUBE	VENTILATOR HOOD	CARTER DE VENTILATEUR
170	945321 00000	945321 00000	945321 00000	E	INNENSECHSKANTSCHRAUBE	SOCKET HEAD SCREW	VIS HEXAGONALE INTERNE
171	945371 00000	945371 00000	945371 00000	E	INNENSECHSKANTSCHRAUBE	SOCKET HEAD SCREW	VIS HEXAGONALE INTERNE
172	945319 00000	945319 00000	945319 00000	E	INNENSECHSKANTSCHRAUBE	SOCKET HEAD SCREW	VIS HEXAGONALE INTERNE
173	949806 00000	949806 00000	949806 00000	E	SENKSCHAUBE	SCREW	VIS A TÊTE NOYÉE
174	951703 00000	951703 00000	951703 00000	E	FEDERSCHEIBE	SPRING DISC	DISQUE DE RESSORT
175	741302 00000	741302 00000	741302 00000	E	GUMMIPUFFER	RUBBER BUFFER	AMORTISSEUR EN CAOUTCHOUC
176	945634 00000	945634 00000	945634 00000	E	GEWINDESTIFT	THREADED PIN	GOUPILLE FILETEE
178	951602 00000	951602 00000	951602 00000	E	RINGMUTTER	RING UNIT	ECROU A ANNEAU
182	014902 21105	014902 21105	014902 21105	E	ZWISCHENFLANSCH	FLANGES	BRIDES
184	951916 00000	951916 00000	951916 00000	E	KABELTÜLE	RUBBER BUSHING	PROTECTION EN CAOUTCHOUC
185	948772 00000	948772 00000	948772 00000	E	ROHRNIET	PIPE RIVET	RIVET TUBE
186	947508 00000	947508 00000	947508 00000	E	U-SCHEIBE	WASHER	RONDELLE
188	945333 00000	945333 00000	945333 00000	E	INNENSECHSKANTSCHRAUBE	SOCKET HEAD SCREW	VIS HEXAGONALE INTERNE
189	950308 00000	950308 00000	950308 00000	E	U-SCHEIBE	WASHER	RONDELLE
190	951018 00000	951018 00000	951018 00000	E	STIFTSCHRAUBE	STUD	PRISONNIER
191	947506 00000	947506 00000	947506 00000	E	U-SCHEIBE	WASHER	RONDELLE
192	947106 00000	947106 00000	947106 00000	E	SECHSKANTMUTTER	HEX.NUT	ECROU A 6 PANS
195	902108 00000	902108 00000	902108 00000	E	KUPPLUNGSHÄLFTE (MOT)	COUPLING	ACCOUPLEMENT
196	10.07.12.00032	10.07.12.00032	10.07.12.00032	E	KUPPLUNGSCHEIBE	COUPLING DISC	DISQUE D'ACCOUPLEMENT
197	544501 21100	544501 21100	544501 21100	E	GEBLÄSEKUPPL. MIT VENT.	COUPLING WITH FAN	ACCOUPL. AVEC VENTILATEUR
210	560700 21100	560700 21100	560700 21100	E	LÜFTERHAUBE, KOMPLETT	VENTILATOR HOOD.	CARTER DE VENTILAT., COMPL.
282	10.03.01.00153	10.03.01.00153	736001 99624	E	VAKUUMREGULIERVENTIL	VACUUM REGUL. VALVE	SOUPAPE REGULATEUR VIDE
288	948066 00000	948066 00000	948066 00000	E	DICHTUNG	SEALING RING	JOINT
293	10.07.12.00002	10.07.12.00002	10.07.12.00002	E	ABBLASEVENTIL	BLOW-OFF VALVE	SOUPAPE D'ÉCHAPPEMENT
VS 1	EVE-TR 60 EVE-TR 80 EVE-TR 90	22.09.01.00031	22.09.01.00031	V	VERSCHLEISSTEILSATZ (4x POS.11 + 1x POS.68 + 1x POS.91)	SET OF WEAR PARTS (4x POS.11 + 1x POS.68 + 1x POS.91)	KIT DE PIECES D'USURE (4x POS.11 + 1x POS.68 + 1x POS.91)

Pos	Bestell-Nr. Ident No. No. Identification		V <sup>1)</sup> E	Beschreibung	Description	Designation
	EVE-TR 100 EVE-TR-(X) 100	EVE-TR 140 EVE-TR-(X) 140				
6	000101 21200	000101 21300	E	GEHÄUSE	PUMP BODY	CORP DE POMPE
9	020005 21200	020004 21300	E	KOLBEN	ROTOR	PISTON
9	020001 50800	020001 50900		"	"	"
11	VS 2	VS 3	V	SCHIEBER	CARBON VANES	PALETTE DE CHARBON
11	10.03.01.00233	10.03.01.00234	V	"	"	"
15	000803 21200	000801 21300	E	SEITENDECKEL LINKS	LID -LEFT	COUVERCLE A GAUCHE
16	000701 21200	000701 21300	E	SEITENDECKEL RECHTS	LID RIGHT	COUVERCLE A DROITE
17	025512 21200	025512 21300	E	DICHTUNG	GASKET	JOINT
18	001100 21200	001101 21300	E	LAGERDECKEL	BEARING COVER	COUVERCLE DE ROULEMENTE
19	001000 21200	001001 21300	E	LAGERDECKEL	BEARING COVER	COUVERCLE DE ROULEMENTE
20	10.07.12.00033	10.07.12.00041	E	DICHTUNG	GASKET	JOINT
24	10.07.12.00034	10.07.12.00042	E	DICHTUNGSSCHLAUCH	SEAL	JOINT
25	10.07.12.00035	10.07.12.00043	E	AUSGLEICHSCHEIBE	COMPENSATING DISC	DISQUE DE COMPENSATION
26	10.07.12.00036	10.07.12.00044	E	WELLENDICHTRING	SHAFT-SEALING RING	BAGUE D'ETANCHEITE P.L'AXE
27	10.07.12.00037	10.07.12.00045	E	WÄLZLAGER	BALL BEARING	ROULEMENT A BILLES
28	10.07.12.00038	10.07.12.00046	E	WÄLZLAGER	BALL BEARING	ROULEMENT A BILLES
31	10.07.12.00031	10.07.12.00031	E	SATZ DISTANZSCHEIBEN	SET DISTANCE DISC	JEU DISQUE DE TOLERANCE
38	016801 21100	016801 21300	E	SPANNSCHEIBE	CLAMPING DISC	DISQUE DE SERRAGE
39	949807 00000	949807 00000	E	SENKSCHRAUBE	SCREW	VIS
41	945224 00000	945224 00000	E	SECHSKANTSCHRAUBE	HEX-HEAD SCREW	VIS HEXAGONALE
42	945222 00000	945222 00000	E	SECHSKANTSCHRAUBE	HEX-HEAD SCREW	VIS HEXAGONALE
45	948742 00000	948742 00000	E	PASSKERBSTIFT	STRAIGHT PIN	GOUPILLE CYLINDRIQUE
47	947736 00000	947736 00000	E	PASSFEDER	KEY	CLAVETTE
50	053201 21305	053201 21305	E	LATERNE	CONNECTION FLANGE	BRIDE DE RACCORDEMENT
52	950308 00000	950308 00000	E	UNTERLEGSCHEIBE	WASHER	RONDELLE
53	945331 00000	945331 00000	E	INNENSECHSKANTSCHRAUBE	SOCKET HEAD SCREW	VIS HEXAGONALE INTERNE
55	011400 21200	-	E	DISTANZSCHEIBE	DISTANCE DISC	DISQUE AJUSTAGE
56	544500 21200	544500 21300	E	KUPPL. MIT VENTILATOR	COUPLING WITH FAN	ACCOUPL. AVEC VENTILATEUR
57	949409 00000	949409 00000	E	UNTERLEGSCHEIBE	WASHER	RONDELLE
58	945270 00000	945270 00000	E	WELLENENDSCHRAUBE	SHAFT END BOLD	VIS BOUT D'ARBRE
61	040102 21300	040102 21300	E	FILTERGEHÄUSE	FILTER HOUSING	BOÎTE POUR FILTRE
62	025501 21300	025501 21300	E	DICHTUNG	GASKET	JOINT
64	951009 00000	951009 00000	E	STIFTSCHRAUBE	STUD	PRISONNIER
65	951003 00000	951003 00000	E	STIFTSCHRAUBE	STUD	PRISONNIER
67	964407 00000	964407 00000	E	SCHALLDÄMPFERROHR	SILENCER TUBE	TUBE SILENCIEUX
68	10.03.01.00032	10.03.01.00032	V	FILTERPATRONE (2)	FILTER CARTRIDGE (2)	CARTOUCHE FILTRANTE (2)
68	10.03.01.00235	10.03.01.00236	V	"	"	"
71	009000 27000	009000 27000	E	ANPRESSFEDER	LEAF SPRING	RESSORT-JAME
72	948750 00000	948750 00000	E	BLINDNIET	BLIND RIVET	RIVET AVEUGLE
73	040201 21300	040201 21300	E	FILTERDECKEL	FILTER COVER	COUVERCLE DE FILTRE
75	10.07.12.00009	10.07.12.00009	E	DICHTUNG	GASKET	JOINT
76	025516 21100	025516 21100	E	DICHTUNG	GASKET	JOINT
77	022802 21100	022802 21100	E	FILTERTRÄGER	FILTER HOLDER	SUPPORT FILTRE
79	945320 00000	945320 00000	E	INNENSECHSKANTSCHRAUBE	SOCKET HEAD SCREW	VIS HEXAGONALE INTERNE
81	947504 00000	947504 00000	E	UNTERLEGSCHEIBE	WASHER	RONDELLE
83	952019 00000	952019 00000	E	SPANNHÜLSE	LOCATING PEG	DOUILLE DE ETRAGE
85	025514 21100	025514 21100	E	DICHTUNG	GASKET	JOINT
91	VS 2	VS 3	V	FILTERPATRONE	FILTER CARTRIDGE	CARTOUCHE FILTRANTE
91	10.03.01.00237	10.03.01.00238	V	"	"	"
93	903800 70000	903800 70000	E	STIFTSCHRAUBE	STUD	PRISONNIER
94	947105 00000	947105 00000	E	SECHSKANTMUTTER	HEX.NUT	ECROU A 6 PANS
95	949450 00000	949450 00000	E	UNTERLEGSCHEIBE	WASHER	RONDELLE
97	950304 00000	950304 00000	E	UNTERLEGSCHEIBE	WASHER	RONDELLE
98	945321 00000	945321 00000	E	INNENSECHSKANTSCHRAUBE	SOCKET HEAD SCREW	VIS HEXAGONALE INTERNE
103	068801 21300	068801 21300	E	STAUBABSCHIEDERDECKEL	DUST SEPARATOR COVER	COUVERCLE
104	10.07.12.00010	10.07.12.00010	E	DICHTUNG	GASKET	JOINT
110	921500 50000	921500 50000	E	HANDGRIFF	HANDLE	POIGNEE
121	560204 21300	560204 21300	E	KÜHLER	COOLER	REFROIDISSEUR
122	025506 21300	025506 21300	E	DICHTUNG	GASKET	JOINT
123	066801 21300	066801 21300	E	DRUCKANSCHLUSSKASTEN	PRESSURE CONNECTION BOX	BOITIER DE RACCORD
125	025504 21300	025504 21300	E	DICHTUNG	GASKET	JOINT
126	025514 21300	025514 21300	E	DICHTUNG	GASKET	JOINT
131	948021 00000	948021 00000	E	DICHTUNG	SEALING RING	JOINT
132	945374 00000	945374 00000	E	INNENSECHSKANTSCHRAUBE	SOCKET HEAD SCREW	VIS HEXAGONALE INTERNE
137	945322 00000	945322 00000	E	INNENSECHSKANTSCHRAUBE	SOCKET HEAD SCREW	VIS HEXAGONALE INTERNE
142	016605 21300	016605 21300	E	ANSCHLUSSLEISTE	CONNECTING PIECE	PIECE RACCORD
146	025507 21300	025507 21300	E	DICHTUNG	GASKET	JOINT
148	945364 00000	945364 00000	E	INNENSECHSKANTSCHRAUBE	SOCKET HEAD SCREW	VIS HEXAGONALE INTERNE
149	741310 30000	741310 30000	E	GUMMIPUFFER	RUBBER BUFFER	AMORTISSEUR EN CAOUTCHOUC
161	918300 21300	918300 21300	E	ABDECKHAUBE	COVERING HOOD	CARTER
163	920800 21300	920800 21300	E	LUFTLEITHAUBE	AIR GUIDE HOOD	CAPOT DE CANALISAT. DE L'AIR
165	960700 21300	960700 21300	E	LÜFTERHAUBE	VENTILATOR HOOD	CARTER DE VENTILATEUR
166	960701 21300	960701 21300	E	LÜFTERHAUBE	VENTILATOR HOOD	CARTER DE VENTILATEUR
171	945371 00000	945371 00000	E	INNENSECHSKANTSCHRAUBE	SOCKET HEAD SCREW	VIS HEXAGONALE INTERNE
172	945372 00000	945372 00000	E	INNENSECHSKANTSCHRAUBE	SOCKET HEAD SCREW	VIS HEXAGONALE INTERNE
173	949806 00000	949806 00000	E	SENKSCHRAUBE	SCREW	VIS A TÊTE NOYÉE
174	951703 00000	951703 00000	E	FEDERSCHNEIBE	SPRING DISC	DISQUE DE RESSORT
176	741302 00000	741302 00000	E	GUMMIPUFFER	RUBBER BUFFER	AMORTISSEUR EN CAOUTCHOUC
177	945634 00000	945634 00000	E	GEWINDESTIFT	THREADED PIN	GOUPILLE FILETEE
178	948802 00000	948802 00000	E	RINGSCHRAUBE	RING SCREW	PITON
181	014902 21305	014902 21305	E	ZWISCHENFLANSCH	FLANGE	BRIDE
184	951916 00000	951916 00000	E	KABELTÜLLE	RUBBER BUSHING	PROTECTION EN CAOUTCHOUC
185	948772 00000	948772 00000	E	ROHRNIETE	PIPE RIVET	RIVET TUBE
186	947508 00000	947508 00000	E	UNTERLEGSCHEIBE	WASHER	RONDELLE
188	945335 00000	945335 00000	E	INNENSECHSKANTSCHRAUBE	SOCKET HEAD SCREW	VIS HEXAGONALE INTERNE
190	951018 00000	951018 00000	E	STIFTSCHRAUBE	STUD	PRISONNIER
192	947506 00000	947506 00000	E	UNTERLEGSCHEIBE	WASHER	RONDELLE
193	947106 00000	947106 00000	E	SECHSKANTMUTTER	HEX.NUT	ECROU A 6 PANS
197	902108 00000	902108 00000	E	KUPPLUNGSHÄLFTE (MOT)	COUPLING	ACCOUPLEMENT
199	10.07.12.00040	10.07.12.00040	E	KUPPLUNGSSCHNEIBE	COUPLING DISC	DISQUE D'ACCOUPLEMENT
241	012200 21200	012200 21300	E	LEITUNG	OIL-PIPE	TUYEAU DE GRAISSAGE
244	912300 00000	912300 00000	E	ANSCHLUSSCHRAUBE	CONNECTING SCREW	VIS DE RACCORD
245	009400 19000	009400 19000	E	KUGELSTÜCKSCHRAUBE	HOLLOW HOLDING SCREW	VIS CREUSE DE FIXATION
247	948074 00000	948074 00000	E	DICHTUNG	SEALING RING	JOINT
250	949002 00000	949002 00000	E	TRICHTERSCHMIERNIPPEL	GREASE NIPPLE	GRAISSEUR
342	10.03.01.00153	10.03.01.00153	E	VAKUUMREGULIERVENTIL	VACUUM REGULATING VALVE	SOUPAPE REGULATE VIDE
356	10.07.12.00002	10.07.12.00002	E	ABBLASEVENTIL MIT SCHALLD.	SILENCER WITH ABSORBER	SILENCIEUX AVEC AMORTISSEUR
VS 2	EVE-TR 100	22.09.01.00033	V	VERSCHLEISSTEILSATZ	SET OF WEAR PARTS	KIT DE PIECES D'USURE
VS 3	EVE-TR 140	22.09.01.00035		(4x POS.11 + 2x POS.68 + 1x POS.91)	(4x POS.11 + 2x POS.68 + 1x POS.91)	(4x POS.11 + 2x POS.68 + 1x POS.91)

# Bedienungsanleitung / Operating Instructions / Instructions de service EVE-TR 60 -140 AC3

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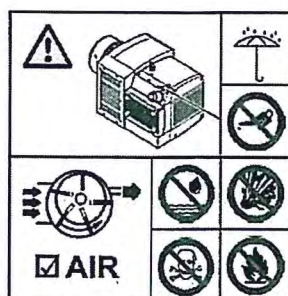
Index 01

Seite / Page 7/8

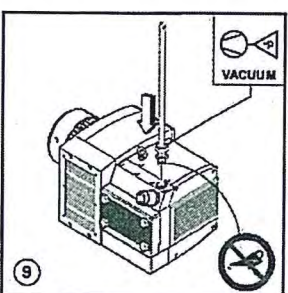
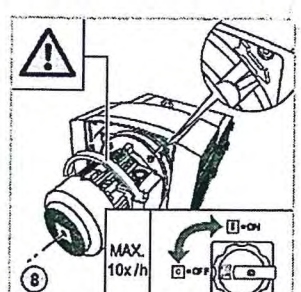
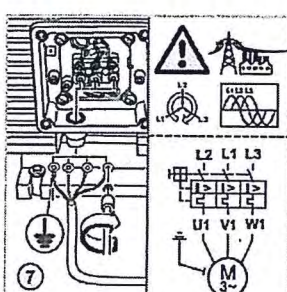
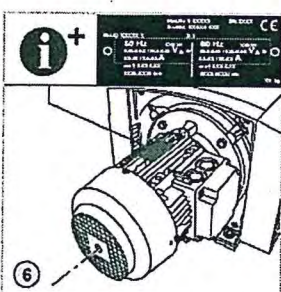
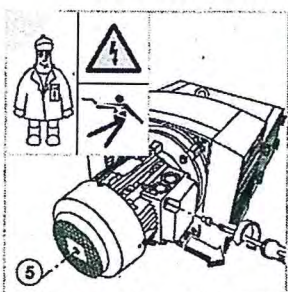
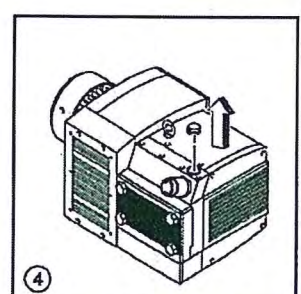
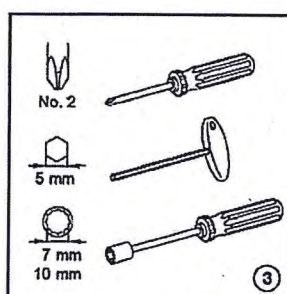
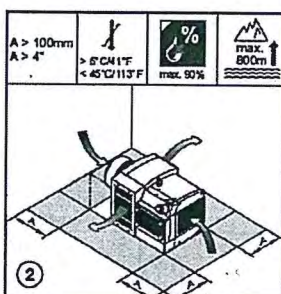
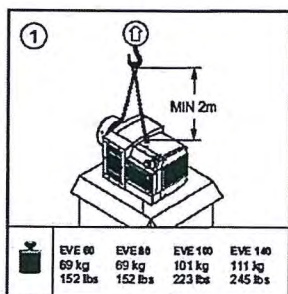
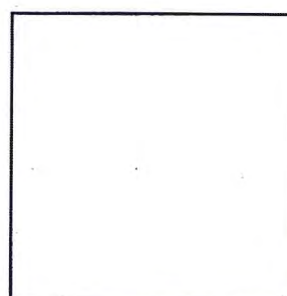
Status: 01.2014

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

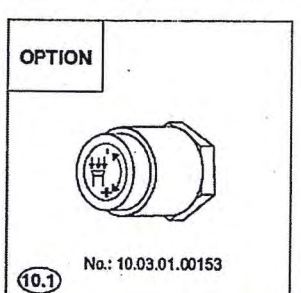
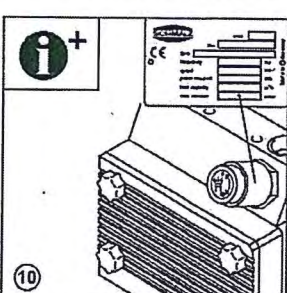
Driftsinstruks  
Driftsinstruktioner  
Käyttöohje  
Driftsvejledning  
Instrukcja obsługi  
Kezelési útmutató  
Návod k obsluze  
Navodilo za uporabo  
Návod na obsluhu  
El Kitabi  
Инструкция по  
эксплуатации  
使用说明书



MAX. VACUUM		mbar
MAX.		m³/h
DIN EN ISO 3744	50 Hz 60 Hz EVE 60 71 dB(A) 73 dB(A) EVE 80 72 dB(A) 75 dB(A) EVE 100 75 dB(A) 77 dB(A) EVE 140 76 dB(A) 79 dB(A)	



EVE 60	L < 2m	Ø1"
EVE 80	2m...5m	Ø1 1/2"
	> 5m...10m	Ø1 1/2" + -
EVE 100	L < 2m	Ø1 1/2"
EVE 140	2m...5m	Ø2"
	> 5m...10m	Ø2" + -



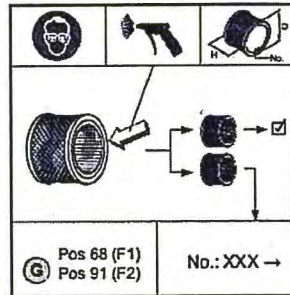
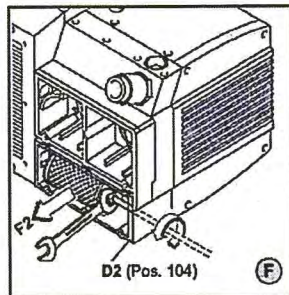
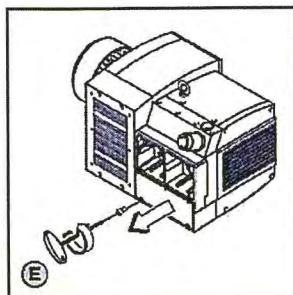
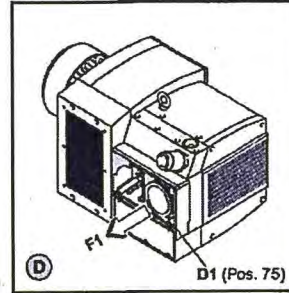
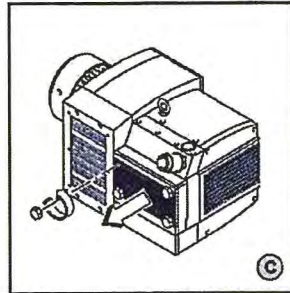
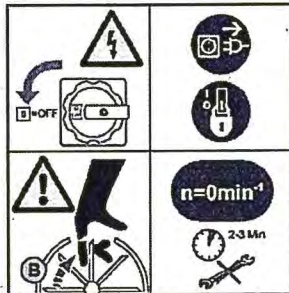
# Bedienungsanleitung / Operating Instructions / Instructions de service EVE-TR 60 -140 AC3

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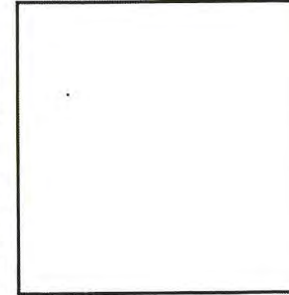
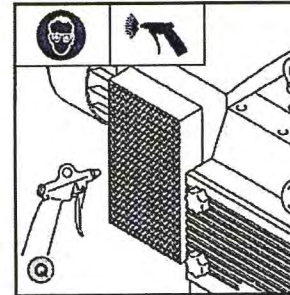
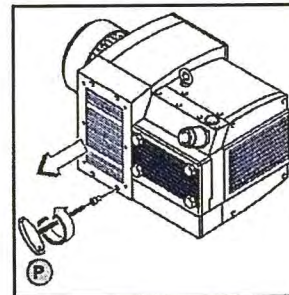
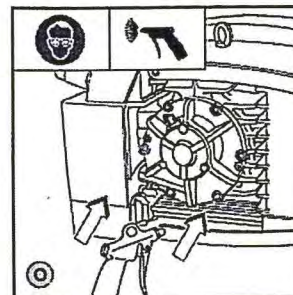
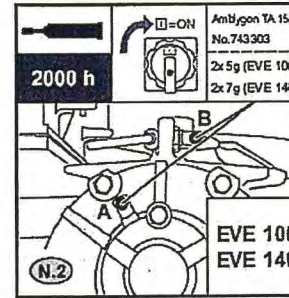
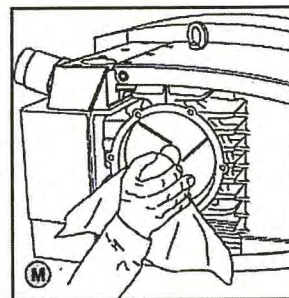
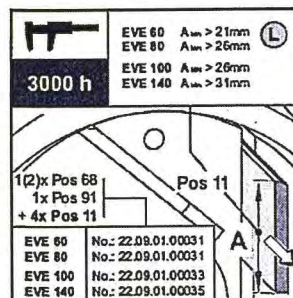
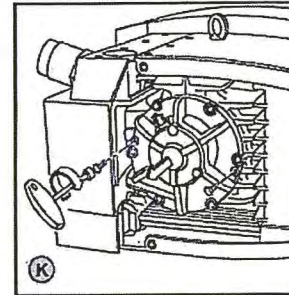
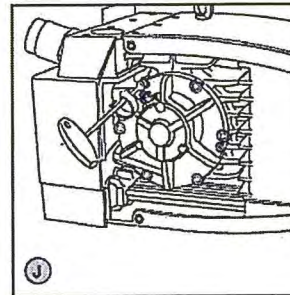
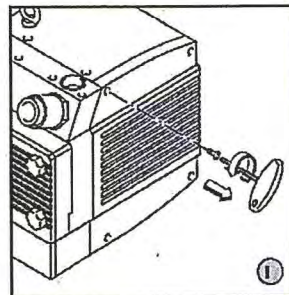
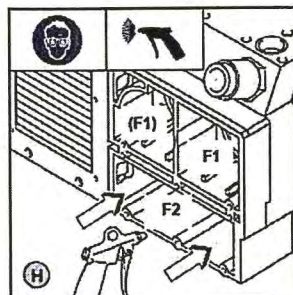
Index 01

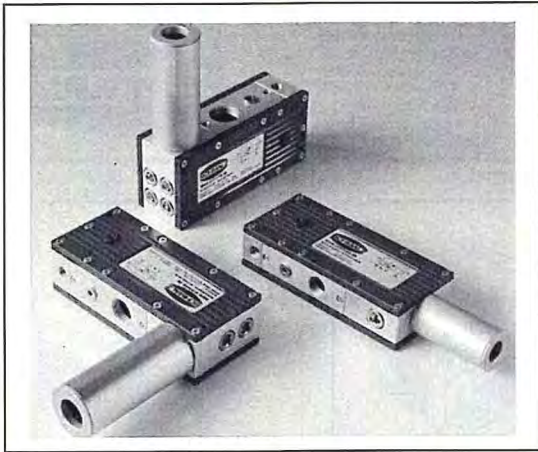
Seite / Page 8/8

Status: 01.2014



	F1 POS 68	F2 POS 91
EVE 60 EVE 80	10.03.01.00032	VS 1
EVE 100	10.03.01.00032 (2x)	VS 2
EVE 140	10.03.01.00032 (2x)	VS 3





## Bedienungsanleitung Operating Instructions

### Mehrstufigenejektor / Multi-Stage Ejector

SEM

DE

Originalbetriebsanleitung  
Für künftige Verwendung aufbewahren!

#### Sicherheit

- Diese Bedienungsanleitung enthält wichtige Informationen zum Umgang mit dem Vakuumerzeuger. Bitte lesen Sie die Bedienungsanleitung sorgfältig durch und bewahren Sie diese für spätere Zwecke auf
- Unter Druckluft stehende Geräte können Personen- und Sachschäden verursachen
- Abluft und eventuell angesaugte Medien und Teile treten mit hoher Geschwindigkeit aus dem Abluftanschluss aus. Es besteht dadurch Verletzungsgefahr - vor allem im Augenbereich! Nicht in den Luftstrom treten oder schauen.
- Anschlüsse unbedingt richtig anschließen und niemals verschließen – Berstgefahr!
- Schalten Sie vor Installations- und Wartungsarbeiten die Druckluftversorgung aus
- Das erzeugte Vakuum sollte überwacht werden um evtl. Störungen der Vakuumerzeugung zu erkennen
- Bei Betrieb ohne Schalldämpfer ist unbedingt ein Gehörschutz zu tragen
- Niemals in den Luftstrom sehen
- **Wartungen nur bei demontierter Druckluftversorgung vornehmen. Während des Betriebes keine Verschraubungen lösen, da Ejektor unter Druck steht.**
- **Mindestens einer der Abluftanschlüsse muss offen sein.**

#### Bestimmungsgemäße Verwendung

- Das Gerät dient zur Vakuumerzeugung das heißt zum Evakuieren von z. B. Sauggreifern zwecks Festhalten von Nutzlasten oder zum Evakuieren anderer Volumina. Als zu evakuierendes Medium sind Luft oder andere neutrale Gase gemäß ISO 8573-1 zugelassen.
- Das Gerät dient nicht zum Transport (Durchsaugen) von Flüssigkeiten, Gasen und oder Granulaten.
- **Mindestens einer der Abluftanschlüsse muss offen sein.** Mit geschlossenen Abluftanschlüssen steigt der Innendruck im Ejektor statisch über den maximal zulässigen Betriebsdruck. Beschädigung des Ejektors und sogar Verletzungsgefahr sind nicht auszuschließen.
- SEM Ejektoren wurden für einen maximalen Betriebsdruck von 6,0 bar ausgelegt und dürfen höchstens mit diesem Maximaldruck betrieben werden. Bei höherem Druck ist Gefahr nicht auszuschließen.
- Nur die vorgesehenen Anschlussmöglichkeiten, Befestigungsbohrungen und Befestigungsmittel verwenden.

EN

Translation of original operating instructions  
Please keep this manual for future use!

#### Safety

- These operating instructions contain important information on using the vacuum generator. Please read the operating instructions thoroughly and keep them for later reference.
- Devices with compressed air can cause harm to people and damage property.
- The exhaust air and any particles which may have been drawn into the ejector leave the exhaust-air outlet at high velocities. This may cause injuries, particularly to the eyes. Never stand in the stream of exhaust air and never look into the exhaust-air outlet when the ejector is connected to the compressed-air supply!
- Ensure that you make all connections correctly and never close them off – danger of bursting!
- Before installation and maintenance work, switch the supply of compressed air off.
- The vacuum created should be monitored to detect possible faults in vacuum generation.
- If run without a sound absorber, ear protection must be worn.
- Never look into the air flow.
- **Always disconnect the compressed-air supply before carrying out any maintenance work. Never loosen any screw connections during operation of the ejector, since it operates at high pressures.**
- **At least one of the exhaust-air connections must always be left open.**

#### Intended use

- The device is designed to generate a vacuum, i.e. to evacuate suction pads for holding payloads or to evacuate other volumes. Air or other neutral gases in accordance with ISO 8573-1 are approved as media for evacuation.
- The device is not suitable for transporting (through-suction) of liquids, gases and/or granulates.
- **At least one of the exhaust-air connections must always be left open.** If both are closed, the pressure within the ejector may rise above the maximum permissible operating pressure. This may result in damage to the ejector or even to injuries (if the ejector bursts).
- SEM ejectors are designed for a maximum operating pressure of 6.0 bar and may not be operated at pressures above this value. Higher pressures may endanger the user.
- Use only the connection facilities, mounting holes and mounting components provided for this purpose.

## Variantenübersicht / Variants overview

Kurzbezeichnung / short designation	Baugröße / Size	Ausführung / Version
SEM	25 50 100 150 300	... ohne Schalldämpfer / without silencer SDA ... mit axialem Schalldämpfer / with axial silencer SDS ... mit seitlichem Schalldämpfer / with side silencer

## Installation und Inbetriebnahme

### Befestigung

#### SEM 25...150

Befestigen Sie das Gerät mit zwei M5-Schrauben (empfohlene Länge siehe unten) und Unterlegscheiben. Anzugsmoment max. 5 Nm!

#### SEM 300

Befestigen Sie das Gerät mit vier M8x16-Schrauben (siehe unten).

### Anschluss

Verwenden sie die empfohlenen Schlauchdurchmesser.

Ein zu klein gewählter Innendurchmesser druckluftseitig bewirkt, dass dem Gerät nicht genügend Druckluft für die optimale Leistung zugeführt wird.

Ein zu klein gewählter Innendurchmesser vakuumseitig bewirkt einen zu hohen Strömungswiderstand entlang der Schlauchwandung, was sich negativ auf die Saugleistung und damit auf die Ansaugzeiten auswirkt. Allerdings sollten die Schlauchdurchmesser nicht beliebig groß gewählt werden um bedingt durch das vergrößerte Volumen, die Ansaugzeiten nicht zu verlängern.

Schlauchleitungen sollten möglichst kurz verlegt werden, um die Reaktionszeiten möglichst klein zu halten. Schlauchleitungen knick- und quetschfrei verlegen.

Anschluss Druckluft je nach Einbaulage an P1 oder P2.

Anschluss Vakuumabfrage (z.B. Vakuumschalter oder Manometer) je nach Einbaulage an VM1 oder VM2.

Nicht verwendete Anschlüsse sind zu verschließen!

### Achtung!

Das Gerät darf nicht mit verschlossenen Abluftanschlüssen R1 / R2 betrieben werden (entweder R1 oder R2 muss offen sein)

Nach dem Herstellen aller pneumatischen Verbindungen kann das Gerät mit Druckluft beaufschlagt werden.

### Befestigung Ejektor SEM 25 ... 150

Befestigen Sie das Gerät mit zwei M5-Schrauben und Unterlegscheiben über die zwei Befestigungslöcher Ø5,5. Anzugsmoment max. 5 Nm!

## Installation and commissioning

### Mounting

#### SEM 25...150

Secure the device using two M5 screws (see below for recommended length) and washers. Maximum torque 5 Nm!

#### SEM 300

Secure the unit with four M8x16 screws (see below).

### Connection

Use hoses of the recommended diameters.

A hose with insufficient internal diameter on the pressure side will prevent the unit from receiving the amount of compressed air necessary for optimum performance.

A hose with insufficient internal diameter on the vacuum side will cause excessive flow resistance along the wall of the hose, with negative effects on the suction capacity and thus on the evacuation times. On the other hand, a hose whose internal diameter is too large will have a large internal volume and will thus also result in longer evacuation times.

Hoses should be kept as short as possible in order to reduce the reaction times to a minimum. Take care that the hoses are not kinked or pinched.

The compressed air is connected to P1 or P2, depending on the installation orientation.

The vacuum sensor (such as a vacuum switch or manometer) is connected to VM1 or VM2, depending on the installation orientation.

Unused connectors must be sealed!

### Caution!

The unit may never be operated with both exhaust-air connectors R1/R2 sealed (either R1 or R2 must be open).

After all pneumatic connections have been made, the compressed-air supply can be turned on.

### Mounting the Ejector SEM 25 ... 150

Secure the device using two M5 screws and washers via the two Ø5.5 fastening holes. Maximum torque 5 Nm!

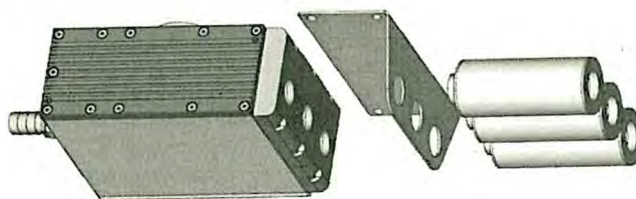
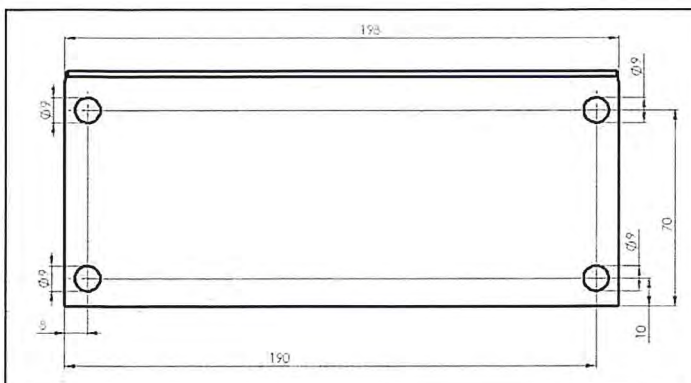
Typbezeichnung / Type designations	Mindestlänge Befestigungsschrauben M5 / Minimum length of M5 mounting screws
SEM 25...	M5 x 60 mm
SEM 50...	M5 x 70 mm
SEM 100... / 150...	M5 x 80 mm

### Befestigung Ejektor SEM 300

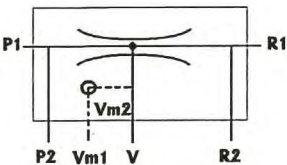
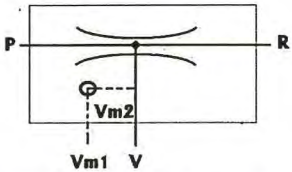
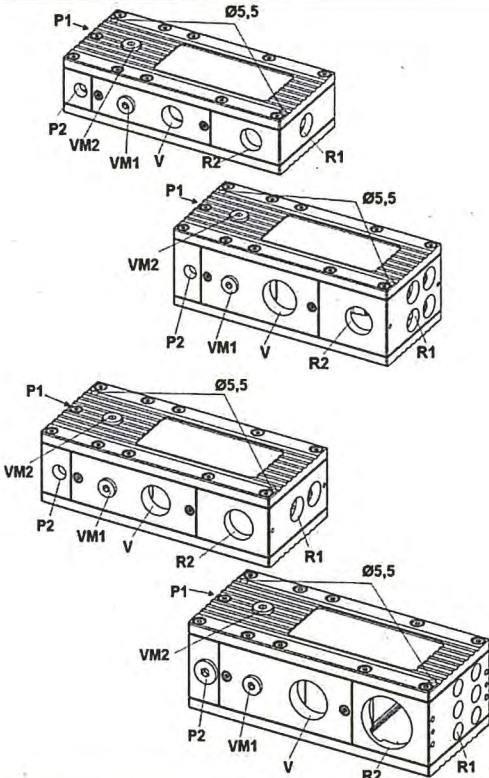
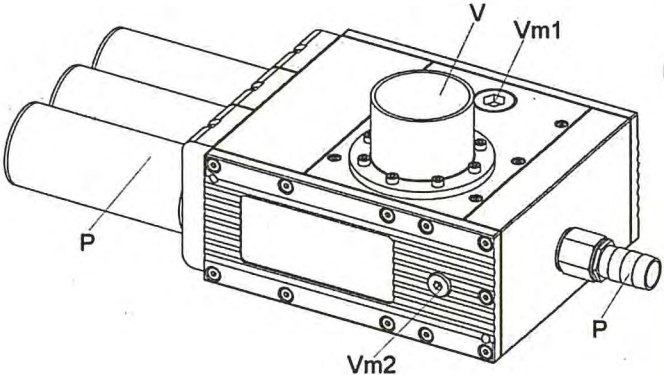
1. Befestigungsbohrungen entsprechend folgendem Bohrbild anbringen
2. Befestigungsblech mit vier M8x16-Schrauben und Unterlegscheiben befestigen
3. 3x Schalldämpfer aus Ejektor herausdrehen
4. Ejektor mittels 3x Schalldämpfer an Befestigungsblech anbringen

### Mounting the Ejector SEM 300

1. Mark and drill the mounting holes with the drilling template below
2. Mount the mounting plate with four M8 x16 screws and washers
3. Unscrew the three silencers from the ejector
4. Secure the ejector to the mounting plate with the three silencers



## Anschlüsse / Connections

Pneumatischer Anschluss SEM 25 ... 150 / Pneumatic connections SEM 25 ... 150		Pneumatischer Anschluss SEM 300 / Pneumatic connections SEM 300	
 <p>P1 / P2: Druckluftanschluss / Compressed-air connector Vm1 / Vm2: Vakuumabfrage / Vacuum sensor V: Vakuumanschluss / Vacuum connector R1 / R2: Abluftanschluss / Exhaust-air connector</p>		 <p>P: Druckluftanschluss / Compressed-air connector Vm1 / Vm2: Vakuumabfrage / Vacuum sensor V: Vakuumanschluss / Vacuum connector R: Abluftanschluss / Exhaust-air connector</p>	
SEM 25 ... 150		SEM 300	
			

Typ	P / P1 / P2 <sup>1</sup> Anschluss Druckluft / Compressed air	V Anschluss Vakuum / Vacuum	VM1 / VM2 <sup>2</sup> Anschluss Vakuumabfrage / Vacuum sensor	Schlauchdurchmesser Innen (empfohlen) / Internal diameter of hose (recommended)		R1 <sup>3</sup> Anschluss Abluft axial / Exhaust air (axial)	R / R2 <sup>3</sup> Anschluss Abluft seitlich / Exhaust air (on side)
				Druckluftseitig (mindestens) / Compressed air (minimum)	Vakuumseitig (mindestens) / Vacuum (minimum)		
SEM 25	G 1/4"	G 1/2"	G 1/8"	Ø 4 mm	Ø 20 mm	G 1/2"	G 1/2"
SEM 25-SDA	G 1/4"	G 1/2"	G 1/8"	Ø 4 mm	Ø 20 mm	G 1/2"	G 1/2"
SEM 25-SDS	G 1/4"	G 1/2"	G 1/8"	Ø 4 mm	Ø 20 mm	G 1/2"	G 1/2"
SEM 50	G 1/4"	G 3/4"	G 1/8"	Ø 6 mm	Ø 25 mm	2x G 1/2"	G 3/4"
SEM 50-SDA	G 1/4"	G 3/4"	G 1/8"	Ø 6 mm	Ø 25 mm	G 3/4"	G 3/4"
SEM 50-SDS	G 1/4"	G 3/4"	G 1/8"	Ø 6 mm	Ø 25 mm	2x G 1/2"	G 3/4"
SEM 100	G 1/4"	G 1"	G 1/8"	Ø 9 mm	Ø 32 mm	4x G 1/2"	G 3/4"
SEM 100-SDA	G 1/4"	G 1"	G 1/8"	Ø 9 mm	Ø 32 mm	G 3/4"	G 3/4"
SEM 100-SDS	G 1/4"	G 1"	G 1/8"	Ø 9 mm	Ø 32 mm	4x G 1/2"	G 3/4"
SEM 150	G 1/4"	G 1"	G 1/8"	Ø 9 mm	Ø 38 mm	6x 12,5 mm	M42x 1,5 mm
SEM 150-SDA	G 1/4"	G 1"	G 1/8"	Ø 9 mm	Ø 38 mm	6x 12,5 mm	M42x 1,5 mm
SEM 150-SDS	G 1/4"	G 1"	G 1/8"	Ø 9 mm	Ø 38 mm	6x 12,5 mm	M42x 1,5 mm
SEM 300	Ø 19 mm	Ø 60 mm	G 1/8" / G 1/2"	Ø 19 mm	Ø 60 mm	-	3x G 3/4"

<sup>1</sup> Der nicht benötigte Druckluftanschluss muss verschlossen werden!  
<sup>2</sup> Anschlüsse für Vakuumabfrage sind standardmäßig verschlossen!  
<sup>3</sup> Bei Einsatz von Schalldämpfern sind die nicht verwendeten Abluftanschlüsse verschlossen! Wenn Abluft z.B. über Verschlauchung abgeführt wird, sind alle nicht verwendeten Abluftanschlüsse (R1) mit beiliegenden Stopfen zu verschließen

<sup>1</sup> The unused compressed-air connector must be sealed!  
<sup>2</sup> The vacuum-sensor connectors are sealed when the unit leaves the factory!  
<sup>3</sup> If a silencer is fitted, the unused exhaust-air connectors are sealed! If exhaust air is dissipated via hoses, all unused exhaust air connections (R1) must be sealed using the enclosed plugs.

## Technische Daten / Technical data

Max. Vakuum / max. vacuum	[%]	85
Opt. Betriebsdruck / Opt. operating pressure	[bar]	5 ... 6
Betriebsdruck / Operating pressure	[bar]	4 ... 6
Einbaulage / Installation position		Beliebig / Any
Temperaturbereich / Temperature range	[°C]	0...+50
Betriebsmedium Druckluftseitig / Operating medium on pressure side		Gefilterte (max. 40 µm) und geölte oder nicht geölte Druckluft oder neutrale Gase gemäss EN 983. / Filtered (max. 40 µm), oily or oil-free compressed air or neutral gases in accordance with EN 983.
Betriebsmedium Vakuumseitig / Operating medium on vacuum side		trockene und nicht aggressive Gase / dry, non-aggressive gas

<sup>1</sup> Bei max. 2 m Länge

<sup>1</sup> At maximum 2 m length

Typ / Type	Max. Saugvermögen / Max. suction capacity [l/min]	Luftverbrauch / Air consumption <sup>1</sup> [l/min]	Gesamtgewicht / Total weight [kg]	Schallpegel frei / Noise level free [dB(A)]	Schallpegel angesaugt / Noise level load gripped [dB(A)]
SEM 25	402	101	1,1	90	72
SEM 25-SDA	393	101	1,2	77	64
SEM 25-SDS	332	101	1,2	75	62
SEM 50	706	197	1,2	90	75
SEM 50-SDA	704	197	1,5	80	66
SEM 50-SDS	642	197	1,4	78	64
SEM 100	1071	376	1,5	90	74
SEM 100-SDA	976	376	1,8	81	60
SEM 100-SDS	909	376	1,7	80	65
SEM 150	1400	590	1,6	95	79
SEM 150-SDA	1290	590	1,8	81	71
SEM 150-SDS	1190	590	1,7	80	71
SEM 300	2370	935	5,7	82	62

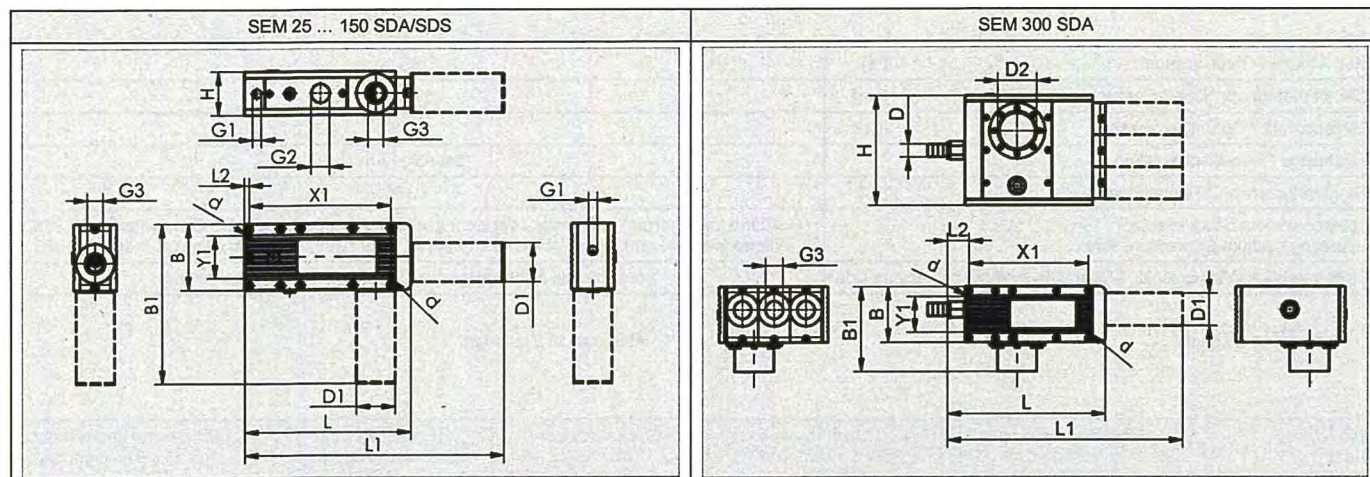
<sup>1</sup> Bei optimalem Betriebsdruck

<sup>1</sup> At opt. operating pressure

## Verwendete Werkstoffe / Materials

Bauteil / Part	Material / Material
Grundkörper und Anschlussplatte / Body and connection plate	Aluminiumlegierung eloxiert / Aluminium alloy, anodised
Deckel / Cover	Aluminiumlegierung, pulverbeschichtet / Aluminium alloy, powder-coated
Innenteile / Internal parts	Aluminiumlegierung, NBR / Aluminium alloy, NBR
Dichtungen / Gaskets	NBR
Schrauben / Screws	Stahl / Steel
Befestigungsblech / Mounting plate	Stahl pulverbeschichtet / Steel powder-coated

## Abmessungen / Dimensions



Type	B	B1	d	D	D1	D2	G1	G2	G3	H	L	L1	L2	X1	Y1
SEM 25	85	-	5,5	-	-	-	G1/4"-IG	G1/2"-IG	G1/2"-IG	48	195	-	6	183	55
SEM 25-SDA	85	-	5,5	-	40	-	G1/4"-IG	G1/2"-IG	G1/2"-IG	48	195	275	6	183	55
SEM 25-SDS	85	165	5,5	-	40	-	G1/4"-IG	G1/2"-IG	G1/2"-IG	48	195	-	6	183	55
SEM 50	85	-	5,5	-	-	-	G1/4"-IG	G3/4"-IG	G3/4"-IG	58	195	-	6	183	55
SEM 50-SDA	85	-	5,5	-	50	-	G1/4"-IG	G3/4"-IG	G3/4"-IG	58	215	335	6	183	55
SEM 50-SDS	85	205	5,5	-	50	-	G1/4"-IG	G3/4"-IG	G3/4"-IG	58	195	-	6	183	55
SEM 100	85	-	5,5	-	-	-	G1/4"-IG	G1"-IG	G3/4"-IG	68	195	-	6	183	55
SEM 100-SDA	85	-	5,5	-	50	-	G1/4"-IG	G1"-IG	G3/4"-IG	68	215	335	6	183	55
SEM 100-SDS	85	205	5,5	-	50	-	G1/4"-IG	G1"-IG	G3/4"-IG	68	195	-	6	183	55
SEM 150	85	-	5,5	-	-	-	G1/4"-IG	G1"-IG	M42x1.5-IG	68	195	-	6	183	55
SEM 150-SDA	85	-	5,5	-	50	-	G1/4"-IG	G1"-IG	M42x1.5-IG	68	215	335	6	183	55
SEM 150 SDS	85	205	5,5	-	50	-	G1/4"-IG	G1"-IG	M42x1.5-IG	68	195	-	6	183	55
SEM 300 SDA	85	130	5,5	19	50	60	G1/2"-IG	G3/4"-IG	G3/4"-IG	168	243	363	34	183	55

Längenmaße in mm

Dimensions of length mm

## Zubehör / Accessories

Benennung	Designation	Art.-No.
Vakuummanometer Ø 40 mm, Anschluss hinten <sup>1</sup>	Vacuum gauge Ø 40 mm, connection in the rear <sup>1</sup>	10.07.02.00035
Vakuumschalter VS-V-PNP <sup>1</sup>	Vacuum switch VS-V-PNP <sup>1</sup>	10.06.02.00191
Vakuumschalter VS-V-W-D-PNP <sup>1</sup>	Vacuum switch VS-V-W-D-PNP <sup>1</sup>	10.06.02.00192
Anschlusskabel für Vakuumschalter, 5m, gerade	Connecting cable for vacuum switch, 5 m, straight	10.06.02.00031
Anschlusskabel für Vakuumschalter, 5m, 90°	Connecting cable for vacuum switch, 5 m, 90°	10.06.02.00032
Elektromagnetventil <sup>2</sup> „Saugen Ein/Aus“, 24VDC, NO	"Pick up ON/OFF" solenoid valve <sup>2</sup> , DC 24 V, NO	10.05.01.00156
Elektromagnetventil <sup>2</sup> „Saugen Ein/Aus“, 24VDC, NC	"Pick up ON/OFF" solenoid valve <sup>2</sup> , DC 24 V, NC	10.05.01.00161

- <sup>1</sup> Die Vakuumschalter / Manometer werden separat verpackt mit komplettem Montagezubehör geliefert. Aus Sicherheitsgründen soll der Vakuumschalter / Manometer mit handelsüblicher, mittelfester Schraubensicherung eingeklebt werden.
- <sup>2</sup> Bei Verwendung eines Magnetventils ist der Eingangsdruck um ca. 0,5 bar zu erhöhen.

- <sup>1</sup> The vacuum switches/manometers are delivered separately packed with all installation accessories. For safety reasons, the vacuum switch/manometer should be fastened with a standard, medium-strength screw locking device.
- <sup>2</sup> The input pressure is to be raised by approx. 0.5 bar when a solenoid valve is used.

## Ersatz- und Verschleißteile

Für dieses Gerät übernehmen wir eine Gewährleistung gemäß unseren Allgemeinen erkaufs- und Lieferbedingungen.

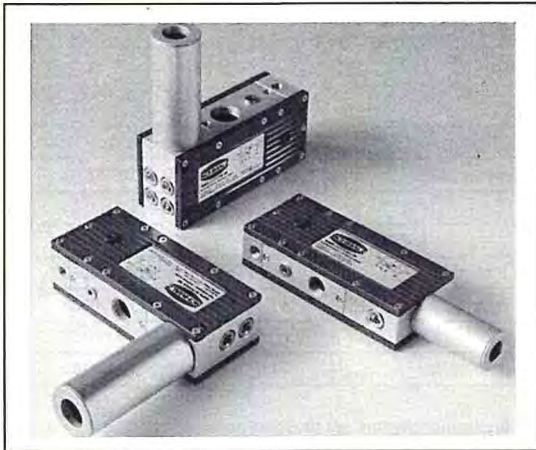
Das gleiche gilt für Ersatzteile, sofern es sich um von uns gelieferte Originalteile handelt. Für Schäden, die durch die Verwendung von anderen als Originalersatzteilen oder Originalzubehör entstehen, ist jegliche Haftung unsererseits ausgeschlossen.

## Spare and consumable parts

This equipment is guaranteed in accordance with our General Conditions of Business.

This also applies to spare parts where these are original parts supplied by us. We will assume no liability for damage caused by the use of non-original spare parts and accessories. Wear and consumable parts are not covered by the guarantee.

Benennung	Designation	Für Ejektor / For Ejector	Art.-No.
Schalldämpfer G 1/2	Silencer G 1/2	SEM 25	10.02.01.00309
Schalldämpfer G 3/4	Silencer G 3/4	SEM 50/100, SEM 300 (3x)	10.02.01.00312
Schalldämpfer M42x1,5	Silencer M42x1,5	SEM 150	10.02.01.00491



## Instructions de service Instrucciones de manejo

### Ejecteur à plusieurs étages / Eyector multietapa

**SEM**

## FR

Instructions de service d'origine.  
Veuillez conserver ces instructions pour toute utilisation ultérieure.

### ! Sécurité

- Ces instructions de service contiennent des informations importantes concernant l'utilisation du générateur de vide. Veuillez les lire attentivement et les conserver en lieu sûr pour toute consultation ultérieure.
- Les appareils sous air comprimé sont susceptibles d'entraîner des dommages corporels et matériels.
- L'air évacué et les matériaux et éléments éventuellement aspirés sont expulsés à grande vitesse. Cela représente un risque important de blessure, en particulier au niveau des yeux ! Ne regardez pas dans la direction des courants d'air et éloignez-vous en.
- Contrôlez impérativement les raccords et veillez à ce qu'aucune conduite ne soit obstruée – risque d'éclatement.
- Avant de commencer les travaux d'installation ou d'entretien, désactivez l'alimentation d'air comprimé.
- Le vide généré doit être contrôlé afin de détecter des pannes éventuelles de la génération du vide.
- Portez impérativement une protection auditive lorsque l'appareil est utilisé sans silencieux.
- Ne regardez en aucun cas dans le courant d'air.
- Effectuez les travaux d'entretien uniquement lorsque l'alimentation en air comprimé est démontée. Ne desserrez en aucun cas les raccords filetés en cours de fonctionnement, car l'éjecteur est sous pression.
- Au moins une des ouvertures d'évacuation doit être ouverte.

### Utilisation conforme

- L'appareil sert à générer le vide, c'est à dire à évacuer l'air de ventouses, par exemple, afin de tenir des charges ou à l'évacuer d'autres volumes. L'élément autorisé pour l'évacuation est l'air ou des gaz neutres conformément à la directive ISO 8573-1.
- L'appareil ne sert pas au transport (à pomper) des liquides, des gaz ou des granulés.
- Au moins une des ouvertures d'évacuation doit être ouverte. Les ouvertures d'évacuation obturées font augmenter la pression à l'intérieur de l'éjecteur jusqu'à des valeurs supérieures à celle de la pression de service admise. Un endommagement de l'éjecteur, voire des risques de blessure seraient alors probables.
- Les éjecteurs SEM ont été conçus pour une pression maximum de service de 6 bars et ne doivent pas être utilisés à une pression supérieure. Les risques ne sont pas exclus en cas de pression plus importante.
- Utilisez uniquement les possibilités de raccordement et les alésages de fixation prévus, ainsi que les fixations fournies.

## ES

Instrucciones de servicio originales  
Guárdense para uso futuro.

### ! Seguridad

- Estas instrucciones de manejo contienen importantes informaciones relativas al trabajo con el generador de vacío. Léase estas instrucciones cuidadosamente y guárdelas para su uso posterior.
- Los aparatos con aire comprimido pueden causar daños personales y materiales.
- El aire de salida y los medios y partículas salen a gran velocidad por la conexión del aire de salida. Existe peligro de sufrir lesiones, especialmente en los ojos. No se exponga a la corriente de aire ni la mire.
- Conecte sin falta correctamente las conexiones y no las cierre nunca – ¡peligro de reventón!
- Desconecte la alimentación de aire comprimido antes de efectuar trabajos de instalación y mantenimiento.
- El vacío generado deberá vigilarse para detectar posibles fallos en la generación de vacío.
- En caso del funcionamiento sin silenciador se debe llevar imprescindible protección auditiva.
- No mire nunca hacia la corriente de aire.
- Realice los trabajos de mantenimiento sólo con el suministro de aire comprimido desmontado. No intente soltar ninguna atornilladura durante el funcionamiento del eyector, ya que éste se encuentra bajo presión.
- Al menos una de las conexiones de aire de salida debe estar abierta.

### Uso apropiado

- El aparato sirve para la generación de vacío, es decir, para evacuar, por ejemplo, ventosas con el objeto de que puedan sujetar cargas útiles o para evacuar otros volúmenes. Los medios a evacuar permitidos en conformidad con ISO 8573-1 son aire u otros gases neutros.
- El aparato no sirve para transportar (mediante aspiración) líquidos, gases o granulados.
- Al menos una de las conexiones de aire de salida debe estar abierta. Si las conexiones de aire de salida están cerradas, la presión interior del eyector sube estáticamente por encima de la máxima presión de servicio permitida. En este caso, pueden producirse deterioros en el eyector y existe peligro de sufrir lesiones.
- Los eyectores SEM están dimensionados para una presión de servicio máxima de 6,0 bar y no se deben operar a una presión superior. Presiones más altas pueden suponer un peligro.
- Utilice sólo las posibilidades de conexión, agujeros y medios de fijación previstos.

## Aperçu des variantes / Resumen de Variantes

Désignation courte / Designación breve	Dimensions / Tamaño	Modèle / Modelo
SEM	25 50 100 150 300	... sans silencieux / Sin silenciador SDA ... avec silencieux axial / Con silenciador axial SDS ... avec silencieux latéral / Con silenciador lateral

## Installation et mise en service

### Fixation

#### SEM 25... 150

Fixez l'appareil à l'aide de deux vis M5 (voir plus bas pour la longueur recommandée) et deux rondelles. Couple de serrage maximum : 5 Nm !

#### SEM 300

Fixez l'appareil avec quatre vis M8x16 (voir ci-dessous).

### Raccord

Utilisez des flexibles de diamètre recommandé.

Un diamètre intérieur trop faible diminuerait l'alimentation de l'appareil en air comprimé et vous empêcherait d'obtenir les meilleures performances.

Un diamètre intérieur trop faible côté vide produit une résistance au flux trop importante contre la paroi des flexibles, ce qui a une influence néfaste sur la capacité et donc sur les temps d'aspiration. Les diamètres ne peuvent toutefois pas être de taille indifférente, afin de ne pas prolonger les temps d'aspiration à cause de l'augmentation du volume.

il est recommandé de poser des flexibles les plus courts possibles afin de maintenir des temps de réaction les plus courts possibles. Posez les flexibles sans pliure et sans écrasement.

Raccordez l'air comprimé soit à P1, soit à P2 selon la configuration.

Raccord d'interrogation du vide (interrupteur à vide ou manomètre) sur VM1 ou VM2, selon la configuration.

Obturez les raccords inutilisés !

### Attention !

Ne faites pas fonctionner l'appareil si les raccords d'évacuation R1 / R2 sont obturés (ou R1 ou R2 doit être ouvert)

L'appareil peut être alimenté en air comprimé une fois que toutes les connexions pneumatiques ont été établies.

### Fixation de l'éjecteur SEM 25 ... 150

Fixez l'appareil à l'aide de deux vis M5 et de rondelles par les orifices de fixation Ø 5,5. Couple de serrage maxi : 5 Nm !

## Instalación y puesta en servicio

### Fijación

#### SEM 25... 150

Fije el aparato con dos tornillos M5 (longitud recomendada, véase más abajo) y arandelas. Par máx. de apriete: 5 Nm.

#### SEM 300

Fije el aparato con cuatro tornillos M8x16 (longitud recomendada, véase más abajo).

### Conexión

Utilice el diámetro de tubo flexible recomendado.

Si el diámetro interior en el lado del aire comprimido es demasiado pequeño, en el aparato no entrará el suficiente aire comprimido para lograr el rendimiento óptimo.

Si el diámetro interior en el lado de vacío es demasiado pequeño, la resistencia al flujo a lo largo del tubo flexible será demasiado grande, lo que influirá negativamente en la potencia de la aspiración y en los tiempos de aspiración. Sin embargo, los diámetros de los tubos flexibles no se deben elegir demasiado grandes para, como consecuencia del aumento de volumen, no prolongar los tiempos de aspiración.

Los tubos flexibles deben ser tan cortos como sea posible para mantener los tiempos de reacción tan reducidos como sea posible. Los tubos flexibles se deben tender sin pliegues ni aplastamientos.

Dependiendo de la posición del montaje, conecte el aire comprimido a P1 ó P2.

La conexión para la consulta de vacío (p. ej., interruptor de vacío o manómetro) se debe conectar a VM1 ó VM2, dependiendo de la posición del montaje.

Las conexiones que no se utilicen deben cerrarse.

### ¡Atención!

No se debe operar el aparato con las conexiones de aire de salida R1 / R2 cerradas (R1 ó R2 debe estar abierta).

Una vez establecidas todas las conexiones neumáticas, se puede cargar el aparato con aire comprimido.

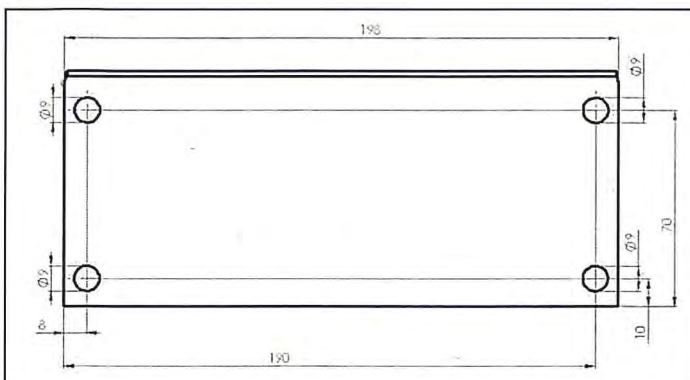
### Fijación del eyector SEM 25 ... 150

Fije el aparato con dos tornillos M5 y arandelas a través de los dos agujeros de fijación de Ø 5,5. Par máx. de apriete: 5 Nm.

Désignation du modèle / Nombre del tipo	Longueur minimum des vis de fixation M5 / Longitud mínima de los tornillos de fijación M5
SEM 25...	M5 x 60 mm
SEM 50...	M5 x 70 mm
SEM 100... / 150...	M5 x 80 mm

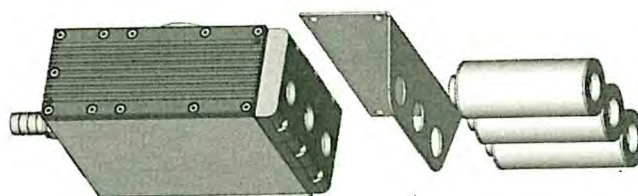
### Fixation de l'éjecteur SEM 300

1. Percez les trous de fixation conformément au schéma de perçage ci-dessous
2. Fixez la tôle à l'aide de quatre vis M8x16 et de rondelles
3. Dévissez (3 tours) le silencieux hors de l'éjecteur
4. Posez l'éjecteur sur la tôle de fixation à l'aide des trois silencieux

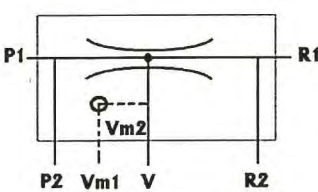
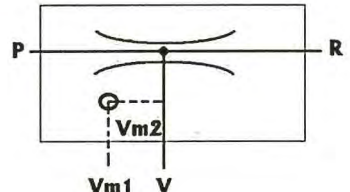
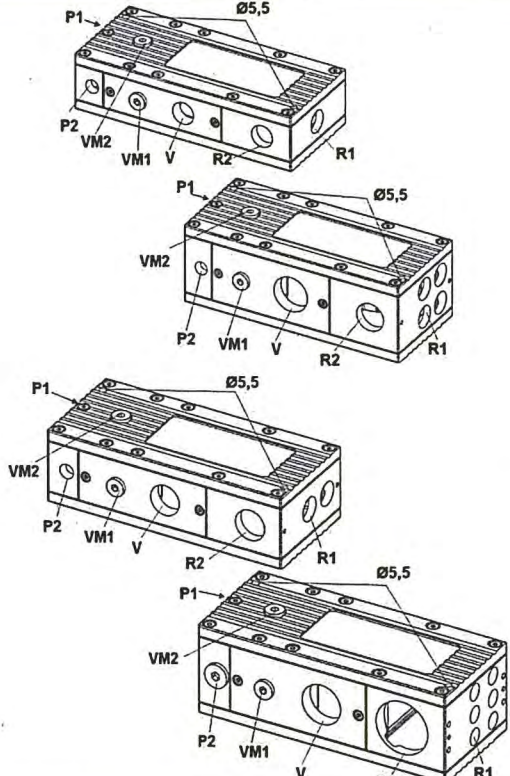
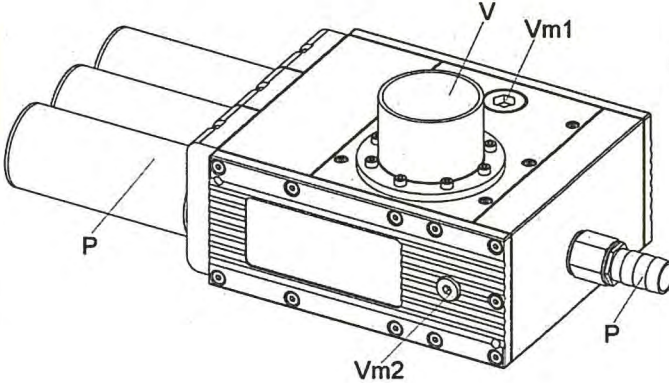


### Fijación del eyector SEM 300

1. Taladre los agujeros de fijación conforme a la siguiente plantilla
2. Fije la placa de fijación con cuatro tornillos M8x16 y arandelas
3. Desenrosque los 3 silenciadores del eyector
4. Instale el eyector en la placa de fijación mediante los tres silenciadores



## Raccords / Conexiones

Raccordement pneumatique SEM 25 ... 150 / Pneumatic connections SEM 25 ... 150		SEM 25	
 <p>P1 / P2: raccord air comprimé / Conexión de aire comprimido Vm1 / Vm2: interrogation air comprimé / Consulta de vacío V: raccord air comprimé / Conexión de vacío R1 / R2: raccord air d'évacuation / Conexión de aire de salida</p>		 <p>P: raccord air comprimé / Conexión de aire comprimido Vm1 / Vm2: interrogation du vide / Consulta de vacío V: raccord air comprimé / Conexión de vacío R: raccord air d'évacuation / Conexión de aire de salida</p>	
SEM 25 ... 150		SEM 300	
			

Type / Modelo	P / P1 / P2 <sup>1</sup>	V	VM1 / VM2 <sup>2</sup>	Diamètre intérieur (recommandé) / Diámetro interior del tubo (recomendado)		R1 <sup>3</sup>	R / R2 <sup>3</sup>
	Raccord air comprimé / Conexiones de aire comprimido	Raccord / Conexión de vacío	Raccord interrogation du vide / Conexión ce consulta de vacío	côté air comprimé (minimum) / Lado de aire comprimido (mínimo)	côté vide (minimum) / Lado de vacío (mínimo)	Raccord air évac. axial / Conexión de aire de salida axial	Raccord air évac. latéral / Conexión de aire de salida latéral
SEM 25	G 1/4"	G 1/2"	G 1/8"	Ø 4 mm	Ø 20 mm	G 1/2"	G 1/2"
SEM 25-SDA	G 1/4"	G 1/2"	G 1/8"	Ø 4 mm	Ø 20 mm	G 1/2"	G 1/2"
SEM 25-SDS	G 1/4"	G 1/2"	G 1/8"	Ø 4 mm	Ø 20 mm	G 1/2"	G 1/2"
SEM 50	G 1/4"	G 3/4"	G 1/8"	Ø 6 mm	Ø 25 mm	2x G 1/2"	G 3/4"
SEM 50-SDA	G 1/4"	G 3/4"	G 1/8"	Ø 6 mm	Ø 25 mm	G 3/4"	G 3/4"
SEM 50-SDS	G 1/4"	G 3/4"	G 1/8"	Ø 6 mm	Ø 25 mm	2x G 1/2"	G 3/4"
SEM 100	G 1/4"	G 1"	G 1/8"	Ø 9 mm	Ø 32 mm	4x G 1/2"	G 3/4"
SEM 100-SDA	G 1/4"	G 1"	G 1/8"	Ø 9 mm	Ø 32 mm	G 3/4"	G 3/4"
SEM 100-SDS	G 1/4"	G 1"	G 1/8"	Ø 9 mm	Ø 32 mm	4x G 1/2"	G 3/4"
SEM 150	G 1/4"	G 1"	G 1/8"	Ø 9 mm	Ø 38 mm	6x 12,5 mm	M42x 1,5 mm
SEM 150-SDA	G 1/4"	G 1"	G 1/8"	Ø 9 mm	Ø 38 mm	6x 12,5 mm	M42x 1,5 mm
SEM 150-SDS	G 1/4"	G 1"	G 1/8"	Ø 9 mm	Ø 38 mm	6x 12,5 mm	M42x 1,5 mm
SEM 300	Ø 19 mm	Ø 60 mm	G 1/8" / G 1/2"	Ø 19 mm	Ø 60 mm	-	3x G 3/4"

<sup>1</sup> Le raccord d'air comprimé inutilisé doit être obturé !  
<sup>2</sup> Les raccords destinés à l'interrogation du vide sont obturés dans la version standard !  
<sup>3</sup> Lorsqu'un silencieux est utilisé, les raccords d'air d'évacuation inutilisés sont obturés ! Tous les raccords d'air d'échappement (R1) non utilisés doivent être fermés à l'aide des bouchons fournis lorsque l'air d'échappement est évacué, par exemple, via une tuyauterie

<sup>1</sup> Las conexiones de aire comprimido que no se necesitan deben cerrarse.  
<sup>2</sup> Las conexiones de consulta de vacío están cerradas de forma estándar.  
<sup>3</sup> Si se utilizan silenciadores, se deben cerrar las conexiones de aire de salida que no se vayan a utilizar. Si se va a extraer aire de salida, p. ej., a través de los tubos flexibles, todas las conexiones de aire de salida (R1) no utilizadas se deberán cerrar con los tapones suministrados

## Caractéristiques techniques / Datos técnicos

Vide maxi. / Vacío máx.	[%]	85
Pression de service optimale / Presión de servicio opc.	[bar]	5 ... 6
Pression de service / Presión de servicio	[bar]	4 ... 6
Position d'installation / Posición de montaje		Indifférente / Cualquiera
Rango de temperatura / Rango de temperatura	[°C]	0...+50
Elément de fonctionnement côté air comprimé / Medio de servicio en el lado de aire comprimido		Air comprimé filtré (40 µm maxi) et huilé ou non, ou gaz neutres conformément à EN 983. / Aire comprimido filtrado y aceitado o no aceitado (máx. 40 µm) o gas neutro según EN 983.
Elément de fonctionnement côté vide / Medio de servicio en el lado de vacío		Gases non agressivos y secs / Gases no agresivos y secos

<sup>1</sup> Pour une longueur maxi de 2 m

<sup>1</sup> Para máx. 2 m longitud

Type / Modelo	Débit maxi. d'aspiration / Capacidad de aspiración máx. [l/min]	Consommation d'air / Consumo de aire <sup>1</sup> [l/min]	Poids total / Peso total [kg]	Niveau sonore / Nivel acústico [db (A)]	Niveau sonore (aspiration) / Nivel acústico (aspiración) [db (A)]
SEM 25	402	101	1,1	90	72
SEM 25-SDA	393	101	1,2	77	64
SEM 25-SDS	332	101	1,2	75	62
SEM 50	706	197	1,2	90	75
SEM 50-SDA	704	197	1,5	80	66
SEM 50-SDS	642	197	1,4	78	64
SEM 100	1071	376	1,5	90	74
SEM 100-SDA	976	376	1,8	81	60
SEM 100-SDS	909	376	1,7	80	65
SEM 150	1400	590	1,6	95	79
SEM 150-SDA	1290	590	1,8	81	71
SEM 150-SDS	1190	590	1,7	80	71
SEM 300	2370	935	5,7	82	62

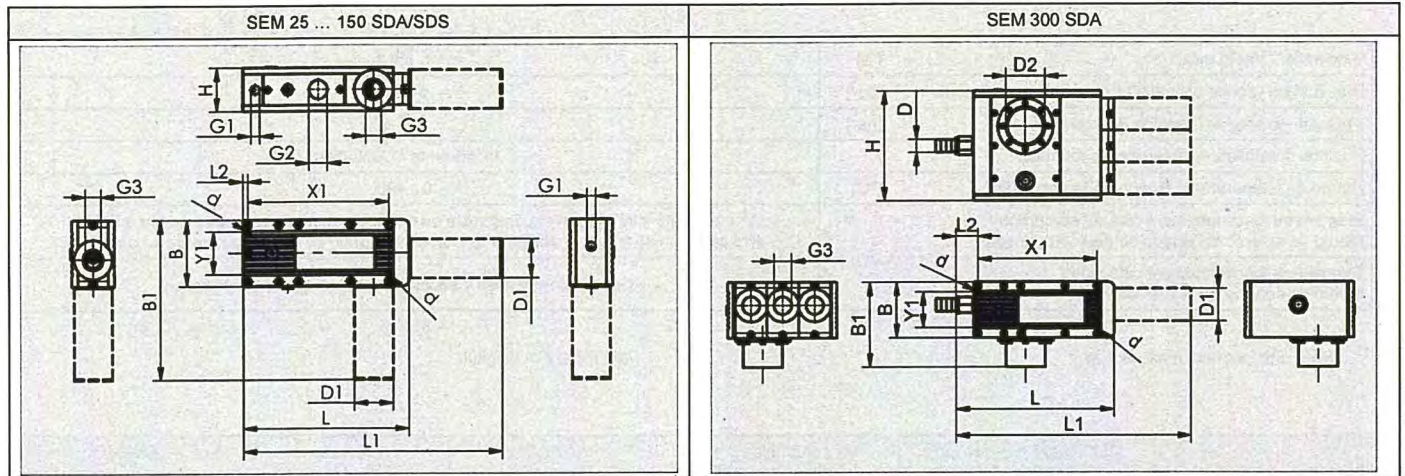
<sup>1</sup> Pour une pression de service optimale

<sup>1</sup> A una presión de servicio óptima

## Matériaux utilisés / Materiales utilizados

Composant / Componente	Matériau / Material
Corps et plaque de raccordement / Cuerpo base y placa de conexión	Alliage d'aluminium, anodisé / Aleación de aluminio, anodizado
Couvercle / Tapa	Alliage d'aluminium, revêtement de poudre / Aleación de aluminio, con recubrimiento de polvo
Composants intérieurs / Piezas interiores	Alliage d'aluminium, NBR / Aleación de aluminio, NBR
Joints d'étanchéité / Juntas	NBR
Vis / Tornillos	Acier / Acero
Tôle de fixation / Chapa de fijación	Acier revêtement de poudre / Acero con recubrimiento de polvo

## Dimensions / Dimensiones



Type / Modelo	B	B1	d	D	D1	D2	G1	G2	G3	H	L	L1	L2	X1	Y1
SEM 25	85	-	5,5	-	-	-	G1/4"-IG	G1/2"-IG	G1/2"-IG	48	195	-	6	183	55
SEM 25-SDA	85	-	5,5	-	40	-	G1/4"-IG	G1/2"-IG	G1/2"-IG	48	195	275	6	183	55
SEM 25-SDS	85	165	5,5	-	40	-	G1/4"-IG	G1/2"-IG	G1/2"-IG	48	195	-	6	183	55
SEM 50	85	-	5,5	-	-	-	G1/4"-IG	G3/4"-IG	G3/4"-IG	58	195	-	6	183	55
SEM 50-SDA	85	-	5,5	-	50	-	G1/4"-IG	G3/4"-IG	G3/4"-IG	58	215	335	6	183	55
SEM 50-SDS	85	205	5,5	-	50	-	G1/4"-IG	G3/4"-IG	G3/4"-IG	58	195	-	6	183	55
SEM 100	85	-	5,5	-	-	-	G1/4"-IG	G1"-IG	G3/4"-IG	68	195	-	6	183	55
SEM 100-SDA	85	-	5,5	-	50	-	G1/4"-IG	G1"-IG	G3/4"-IG	68	215	335	6	183	55
SEM 100-SDS	85	205	5,5	-	50	-	G1/4"-IG	G1"-IG	G3/4"-IG	68	195	-	6	183	55
SEM 150	85	-	5,5	-	-	-	G1/4"-IG	G1"-IG	M42x1.5-IG	68	195	-	6	183	55
SEM 150-SDA	85	-	5,5	-	50	-	G1/4"-IG	G1"-IG	M42x1.5-IG	68	215	335	6	183	55
SEM 150-SDS	85	205	5,5	-	50	-	G1/4"-IG	G1"-IG	M42x1.5-IG	68	195	-	6	183	55
SEM 300 SDA	85	130	5,5	19	50	60	G1/2"-IG	G3/4"-IG	G3/4"-IG	168	243	363	34	183	55

Indications de longueur en mm

Longitudes en mm

## Accessoires / Accessories

Désignation	Designación	N° de réf. / Art. n°.
Vacuomètre Ø 40 mm, raccord arrière <sup>1</sup>	Manómetro de vacío Ø 40 mm, conexión detrás <sup>1</sup>	10.07.02.00035
Vacuostat VS-V-PNP <sup>1</sup>	Interruptor de vacío VS-V-PNP <sup>1</sup>	10.06.02.00191
Vacuostat VS-V-W-D-PNP <sup>1</sup>	Interruptor de vacío VS-V-W-D-PNP <sup>1</sup>	10.06.02.00192
Câble de branchement pour vacuostat, 5 m, droit	Cable de conexión para interruptor de vacío, 5 m, recto	10.06.02.00031
Câble de branchement pour vacuostat, 5 m, 90°	Cable de conexión para interruptor de vacío, 5 m, 90°	10.06.02.00032
Electrovanne <sup>2</sup> « aspiration marche/arrêt », 24 V CC, NO	Válvula electromagnética <sup>2</sup> "Aspirar on/off", 24 VCC, NO	10.05.01.00156
Electrovanne <sup>2</sup> « aspiration marche/arrêt », 24 V CC, NC	Válvula electromagnética <sup>2</sup> "Aspirar on/off", 24 VCC, NC	10.05.01.00161

<sup>1</sup> Les vacuostats/manomètres sont livrés emballés séparément avec accessoires de montage complets. Pour des raisons de sécurité, le vacuostat/manomètre doit être collé avec de la colle de blocage moyenne.

<sup>2</sup> La pression d'entrée doit être augmentée d'env. 0,5 bar lors de l'utilisation d'une électrovanne.

<sup>1</sup> Los interruptores de vacío/manómetros se embalan por separado y se suministran con los accesorios de montaje completos. Por razones de seguridad, recomendamos pegar el interruptor de vacío con masilla de seguridad de firmeza media comercial.

<sup>2</sup> Si se utiliza una válvula electromagnética, se debe elevar la presión de entrada en aprox. 0,5 bares.

## Pièces de rechange et d'usure

Nous assurons la garantie de cet appareil conformément à nos conditions générales de vente et de livraison.

Ceci s'applique également aux pièces de rechange dans la mesure où il s'agit de pièces d'origine livrées par notre entreprise. Nous déclinons toute responsabilité pour des dommages résultant de l'utilisation de pièces de rechange ou d'accessoires non d'origine.

## Piezas de repuesto y piezas sometidas al desgaste

Por este aparato concedemos una garantía conforme a nuestras condiciones generales de venta.

Lo mismo tiene validez para piezas de repuesto, siempre que sean piezas de repuesto originales suministradas por nosotros. Queda excluido cualquier tipo de responsabilidad de nuestra parte por los daños surgidos por la utilización de piezas de repuesto o accesorios no originales.

Désignation	Designation	Pour éjecteur / Para eyector	N° de réf. / Art. n°.
Silencieux G 1/2	Silencer G 1/2	SEM 25	10.02.01.00309
Silencieux G ¾	Silencer G 3/4	SEM 50/100, SEM 300 (3x)	10.02.01.00312
Silencieux M42x1,5	Silencer M42x1,5	SEM 150	10.02.01.00491

Sous réserve de modifications techniques, d'erreurs ou de fautes d'impression.

Reservado el derecho a realizar modificaciones por causas técnicas. No nos responsabilizamos por fallos en la impresión u otros errores.



## Istruzioni per l'uso Handleiding

### Eiettore multistadio / Meertrapsejector

**SEM**

## IT

Istruzioni per l'uso originali  
Conservare per un futuro utilizzo!

### ! Sicurezza

- Queste istruzioni per l'uso contengono informazioni importanti per l'utilizzo del produttore di vuoto. Leggere attentamente le presenti istruzioni e conservarle per un utilizzo futuro.
- Gli apparecchi ad aria compressa possono causare danni a persone e cose.
- L'aria di scarico ed eventuali sostanze e oggetti risucchiati escono dal raccordo di scarico ad alta velocità. Sussiste il rischio di lesioni – soprattutto agli occhi. Non attraversare o guardare il flusso d'aria.
- Collegare correttamente gli attacchi e non chiuderli mai – pericolo di scoppio!
- Prima di effettuare i lavori di installazione e manutenzione, disinserire la produzione di vuoto.
- Il vuoto prodotto dovrebbe essere sorvegliato per riconoscere eventuali disturbi della produzione di vuoto
- In caso di esercizio senza silenziatore, indossare le apposite cuffie di protezione
- Non guardare mai il flusso d'aria
- **Eseguire lavori di manutenzione soltanto con l'alimentazione dell'aria smontata. Non allentare le viti durante il funzionamento, poiché l'eiettore si trova sotto pressione.**
- **È necessario che almeno uno dei raccordi di scarico dell'aria sia aperto.**

### Utilizzo conforme alle istruzioni

- L'apparecchio serve per la produzione di vuoto, ovvero per l'evacuazione, ad es. di ventose, al fine di tenere fermi carichi di servizio o per l'evacuazione di altri volumi. Come mezzo di evacuazione sono ammessi l'aria o altri gas neutri secondo ISO 8573-1.
- L'apparecchio non serve per il trasporto (aspirazione) di liquidi, gas e/o granulati.
- **È necessario che almeno uno dei raccordi di scarico dell'aria sia aperto.** Con i raccordi di scarico chiusi, la pressione interna all'eiettore aumenta fino a superare la pressione massima ammessa durante il funzionamento. Possono quindi verificarsi danni all'eiettore e sussiste anche il pericolo di lesioni per l'operatore.
- Gli eiettori SEM sono stati concepiti per una pressione massima di esercizio di 6,0 bar e devono essere fatti funzionare ad una pressione massima uguale o inferiore a questo valore. Con una pressione maggiore possono verificarsi situazioni pericolose.
- Utilizzare soltanto i collegamenti, i fori e i metodi di fissaggio previsti dal costruttore.

## NL

Originele handleiding  
Bewaren voor toekomstig gebruik!

### ! Veiligheid

- Deze handleiding bevat belangrijke informatie voor het gebruik van de vacuümgenerator. Lees de handleiding zorgvuldig door en bewaar haar voor later
- Toestellen die onder druk staan kunnen letselschade en materiële schade veroorzaken
- Uitlaatlucht en eventueel aangezogen stoffen en voorwerpen schieten met hoge snelheid uit de uitlaatluchtaansluiting. Hierdoor bestaat er gevaar van letsel – vooral de ogen lopen gevaar! Blijf uit de buurt van de luchtstroom en kijk er niet in.
- Aansluitingen goed aansluiten en nooit afsluiten – gevaar van barsten!
- Schakel voor installatie- en onderhoudswerkzaamheden de persluchttoevoer uit
- Het opgebouwde vacuüm moet bewaakt worden om evt. storingen in de vacuümpomp te herkennen
- Als er geen geluiddemper wordt gebruikt, dient er altijd gehoorbescherming gedragen te worden
- Kijk nooit in de luchtstroom
- **Voer onderhoud uitsluitend uit als de persluchttoevoer gedemonteerd is. Draai tijdens het bedrijf geen schroefverbindingen los, aangezien de ejector onder druk staat.**
- **Er moet minstens één van de uitlaatluchtaansluitingen open zijn.**

### Reglementair gebruik

- Het toestel is bestemd voor vacuümpompwerking, d.w.z. voor het evacueren van bijv. vacuümgrijpers met als doel het vasthouden van lasten of het evacueren van andere elementen. Het toestel mag worden toegepast om lucht en andere neutrale gasen conform ISO 8573-1 te evacueren.
- Het toestel mag niet worden gebruikt voor het transport (pompen) van vloeistoffen, gasen of granulaat.
- **Er moet minstens één van de uitlaatluchtaansluitingen open zijn.** Als de uitlaatluchtaansluitingen gesloten zijn, stijgt de druk in de ejector boven de maximaal toegestane bedrijfsdruk. Dit kan leiden tot schade aan de ejector en tot lichamelijk letsel.
- SEM-ejectors zijn berekend op een maximale bedrijfsdruk van 6,0 bar en mogen hoogstens met deze maximale druk werken. Als de druk hoger is, kunnen risico's niet uitgesloten worden.
- Gebruik uitsluitend de reeds aanwezige aansluitmogelijkheden en bevestigingsgaten en de meegeleverde bevestigingsmiddelen.

## Schema delle varianti / Variantenoverzicht

Denominazione in breve / Korte aanduiding	Dimensioni / Formaat	Versione / Uitvoering
SEM	25	... senza silenziatore / zonder geluiddemper SDA ... con silenziatore assiale / met axiale geluiddemper SDS ... con silenziatore laterale / met zijdelingse geluiddemper
	50	
	100	
	150	
	300	

## Installazione e messa in esercizio

### Fissaggio

#### SEM 25...150

Fissare l'apparecchio con due viti M5 (per la lunghezza consigliata, vedi sotto) e le rondelle. Coppia di serraggio max. 5 Nm!

#### SEM 300

Fissare l'apparecchio con quattro viti M8x16 (vedi sotto).

### Attacco

Utilizzare i tubi flessibili dei diametri indicati:

Un diametro interno troppo ridotto comporta un afflusso d'aria compressa non sufficiente per il buon funzionamento dell'apparecchio.

Sul lato del vuoto, un tubo con diametro interno troppo piccolo provoca una resistenza idrodinamica troppo elevata lungo la parete interna del tubo. Ciò ha effetti negativi sulla potenza e sui tempi di aspirazione. I diametri dei tubi flessibili non devono nemmeno essere troppo grandi, dal momento che un aumento di volume aumenta anche i tempi di aspirazione.

Le condutture con tubi flessibili devono essere più corte possibile, in modo da ridurre al minimo i tempi di reazione. Posare i tubi flessibili evitando pieghe e schiacciamenti.

Attacco aria compressa su P1 o P2, a seconda della posizione di montaggio.

Attacco richiesta vuoto (ad es. vacuostato o manometro), a seconda della posizione di montaggio su VM1 o VM2.

Gli attacchi non utilizzati non devono essere chiusi!

### Attenzione!

L'apparecchio non deve essere fatto funzionare con gli attacchi di scarico dell'aria R1 / R2 chiusi (R1 o R2 deve restare aperto)

Dopo aver stabilito tutti i collegamenti pneumatici l'apparecchio può essere alimentato con aria compressa.

### Fissaggio eiettoe SEM 25...150

Fissare l'apparecchio con due viti M5 da infilare nei due fori di fissaggio Ø5,5. Coppia di serraggio max. 5 Nm!

## Installatie en inbedrijfstelling

### Montage

#### SEM 25...150

Bevestig het toestel met twee M5-bouten (aanbevolen lengte, zie onder) en plaatjes. Aandraaimoment max. 5 Nm!

#### SEM 300

Bevestig het toestel met vier M8x16-bouten (zie onder).

### Aansluiting

Gebruik slangen met de aanbevolen slangdiameter.

Als de binnendiameter aan de persluchtzijde te klein is, krijgt het toestel te weinig perslucht voor een optimale prestatie.

Als de binnendiameter aan de vacuümzijde te klein is, wordt de stromingweerstand langs de binnenkant van de leiding te hoog; dit heeft een negatieve invloed op het zuigvermogen en op de aanzuigtijden. De slangdiameters mogen echter ook niet te groot zijn; dit zou leiden tot een groter volume en daardoor tot langere aanzuigtijden.

Gebruik zo kort mogelijke slangleidingen, hoe korter de leidingen, des te sneller de reactietijden. De slangleidingen mogen niet geknikt of platgedrukt geïnstalleerd worden.

De perslucht wordt, afhankelijk van de montagepositie, aangesloten op P1 of P2.

De vacuümsensor (bijv. vacuümschakelaar of manometer) wordt, afhankelijk van de montagepositie, aangesloten op VM1 of VM2.

De aansluitingen die niet gebruikt worden, dienen afgesloten te worden.

### Attentie!

Het toestel mag niet gebruikt worden als beide uitlaatluchtaansluitingen R1/R2 afgesloten zijn; een van beide, R1 of R2, moet open zijn.

Nadat alle pneumatische verbindingen tot stand zijn gebracht, kunt u het toestel van perslucht voorzien.

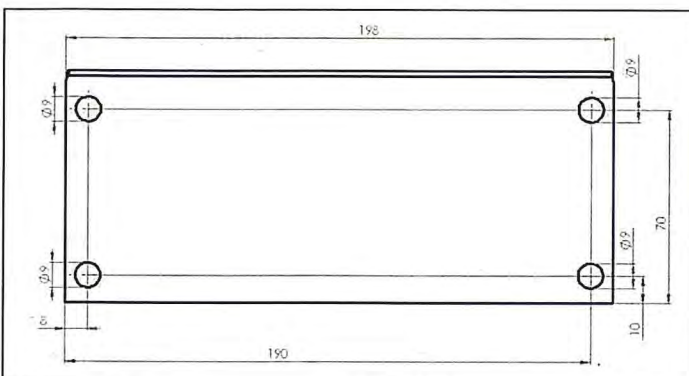
### Bevestiging ejector SEM 25 ... 150

Bevestig het toestel met twee M5-bouten en plaatjes over de twee bevestigingsgaten Ø5,5. Aandraaimoment max. 5 Nm!

Denominazione / Type-aanduiding	Lunghezza minima viti di fissaggio M5 / Minumlengte bevestigingsschroeven M5
SEM 25...	M5 x 60 mm
SEM 50...	M5 x 70 mm
SEM 100... / 150...	M5 x 80 mm

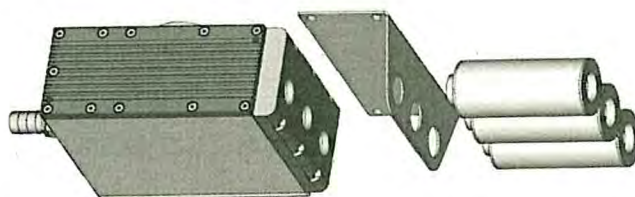
### Fissaggio eiettoe SEM 300

- Praticare i fori di fissaggio in base al seguente schema di foratura
- Fissare la piastra di fissaggio con quattro viti M8x16 e rondelle
- Svitare i 3 silenziatori dall'eiettoe
- Applicare l'eiettoe mediante i 3 silenziatori sulla piastra di fissaggio

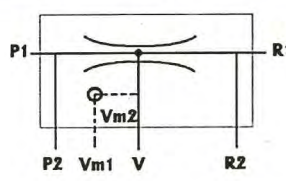
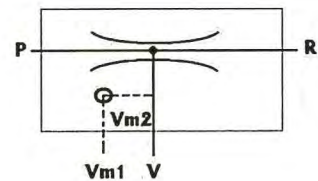
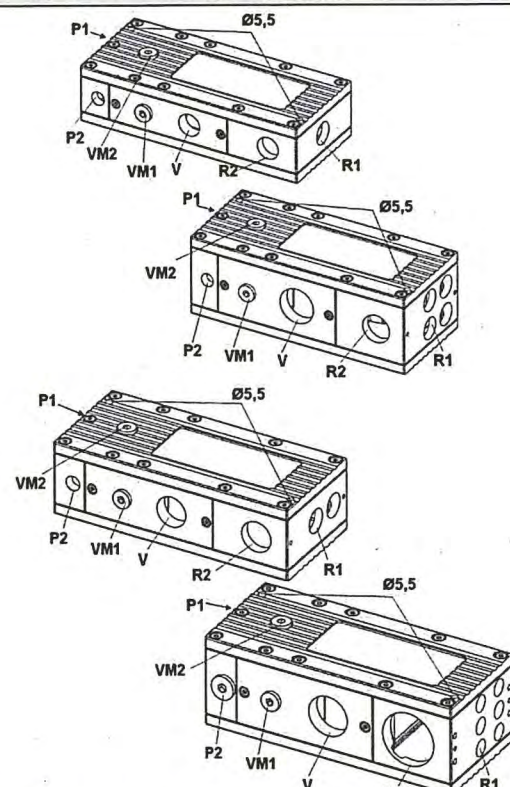
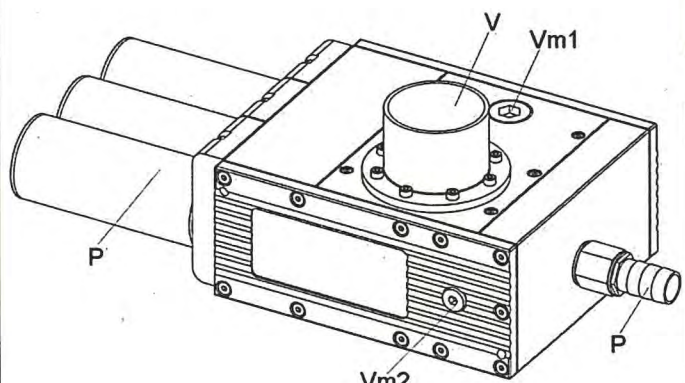


### Bevestiging ejector SEM 300

- Breng de montagegaten overeenkomstig het volgende boorsjabloon aan
- Bevestig de bevestigingsplaat met vier M8x16-bouten en plaatjes
- Draai 3x de geluiddemper uit de ejector
- Breng de ejector met 3x geluiddempers op de bevestigingsplaat aan



## Attacchi / Aansluitingen

Attacco pneumatico SEM 25 ... 150 / Pneumatische aansluiting SEM 25 ... 150		SEM 25	
 <p>P1 / P2: Attacco aria compressa / Persluchtaansluiting Vm1 / Vm2: Richiesta vuoto / Vacuümsensor V: Attacco vuoto / Vacuümaansluiting R1 / R2: Attacco aria di scarico / Uitlaatluchtaansluiting</p>		 <p>P: Attacco aria compressa / Persluchtaansluiting Vm1 / Vm2: Richiesta vuoto / Vacuümsensor V: Attacco vuoto / Vacuümaansluiting R: Attacco aria di scarico / U</p>	
SEM 25 ... 150		SEM 300	
			

Tipo / Type	P / P1 / P2 <sup>1</sup>	V	VM1 / VM2 <sup>2</sup>	Diametro interno tubo flessibile (consigliato) / Binnendiameter slang (aanbevolen)		R1 <sup>3</sup>	R / R2 <sup>3</sup>
	Attacco aria compressa / Aansluiting perslucht	Attacco vuoto / Vacuümaansluiting	Attacco richiesta vuoto / Aansluiting vacuümsensor	Lato aria compressa (minimo) / Persluchtzijde (minimum)	Lato vuoto (minimo) / Vacuümszijde (minimum)	Attacco aria di scarico assiale / Aansluiting afzuiglucht axiaal	Attacco aria di scarico laterale / Aansluiting uitlaatlucht zijkant
SEM 25	G 1/4"	G 1/2"	G 1/8"	Ø 4 mm	Ø 20 mm	G 1/2"	G 1/2"
SEM 25-SDA	G 1/4"	G 1/2"	G 1/8"	Ø 4 mm	Ø 20 mm	G 1/2"	G 1/2"
SEM 25-SDS	G 1/4"	G 1/2"	G 1/8"	Ø 4 mm	Ø 20 mm	G 1/2"	G 1/2"
SEM 50	G 1/4"	G 3/4"	G 1/8"	Ø 6 mm	Ø 25 mm	2x G 1/2"	G 3/4"
SEM 50-SDA	G 1/4"	G 3/4"	G 1/8"	Ø 6 mm	Ø 25 mm	G 3/4"	G 3/4"
SEM 50-SDS	G 1/4"	G 3/4"	G 1/8"	Ø 6 mm	Ø 25 mm	2x G 1/2"	G 3/4"
SEM 100	G 1/4"	G 1"	G 1/8"	Ø 9 mm	Ø 32 mm	4x G 1/2"	G 3/4"
SEM 100-SDA	G 1/4"	G 1"	G 1/8"	Ø 9 mm	Ø 32 mm	G 3/4"	G 3/4"
SEM 100-SDS	G 1/4"	G 1"	G 1/8"	Ø 9 mm	Ø 32 mm	4x G 1/2"	G 3/4"
SEM 150	G 1/4"	G 1"	G 1/8"	Ø 9 mm	Ø 38 mm	6x 12,5 mm	M42x 1,5 mm
SEM 150-SDA	G 1/4"	G 1"	G 1/8"	Ø 9 mm	Ø 38 mm	6x 12,5 mm	M42x 1,5 mm
SEM 150-SDS	G 1/4"	G 1"	G 1/8"	Ø 9 mm	Ø 38 mm	6x 12,5 mm	M42x 1,5 mm
SEM 300	Ø 19 mm	Ø 60 mm	G 1/8" / G 1/2"	Ø 19 mm	Ø 60 mm	-	3x G 3/4"

<sup>1</sup> L'attacco aria compressa non utilizzato deve essere chiuso!

<sup>2</sup> Gli attacchi per la richiesta vuoto sono chiusi nell'assetto standard!

<sup>3</sup> Se si impiegano silenzianti o raccordi per l'aria di scarico non utilizzati restano chiusi! Se l'aria di scarico viene condotta ad es. attraverso la tubazione, chiudere tutti gli attacchi di scarico non utilizzati con i tappi in dotazione (R1)

<sup>1</sup> De persluchtaansluiting die niet gebruikt wordt, dient afgesloten te worden!

<sup>2</sup> De aansluitingen voor de vacuümsensors zijn standaard afgesloten!

<sup>3</sup> Als er geluiddempers geïnstalleerd zijn, zijn de uitlaatluchtaansluitingen die niet gebruikt worden afgesloten! Als er uitlaatlucht bijv. via de slangen afgevoerd wordt, hoeven niet alle uitlaatluchtaansluitingen (R1) met de meegeleverde stop afgesloten te worden

## Dati tecnici / Technische specificaties

Vuoto max. / Max. vacuüm	[%]	85
Pressione di esercizio ott. / Opt. bedrijfsdruk	[bar]	5 ... 6
Pressione di esercizio / Bedrijfsdruk	[bar]	4 ... 6
Posizione di montaggio / Montagepositie		A scelta / Any
Campo di temperatura / Temperatuurbereik	[°C]	0...+50
Mezzo di esercizio lato pressione / Bedrijfsmiddel persluchtzijde	Aria compressa filtrata (max. 40 µm), con o senza olio, oppure gas neutri secondo la norma EN 983. Gefilterde (max. 40 µm) perslucht (oliehoudend of olievrij) of neutrale gassen conform EN 983.	
Mezzo di esercizio lato vuoto / Bedrijfsmiddel vacuümzijde	gas secchi e non aggressivi / Droge en niet-agressieve gassen	

<sup>1</sup> Per lunghezza max. 2 m

<sup>1</sup> At maximum 2 m length

Tipo / Type	Capacità di aspirazione max. / Max. Zuigvermogen [l/min]	Consumo d'aria / Luchtverbruik <sup>1</sup> [l/min]	Peso complessivo / Totaal gewicht [kg]	Livello sonoro libero / Geluidsdrukniveau vrij [db (A)]	Livello sonoro aspirato / Geluidsdrukniveau aangezogen [db (A)]
SEM 25	402	101	1,1	90	72
SEM 25-SDA	393	101	1,2	77	64
SEM 25-SDS	332	101	1,2	75	62
SEM 50	706	197	1,2	90	75
SEM 50-SDA	704	197	1,5	80	66
SEM 50-SDS	642	197	1,4	78	64
SEM 100	1071	376	1,5	90	74
SEM 100-SDA	976	376	1,8	81	60
SEM 100-SDS	909	376	1,7	80	65
SEM 150	1400	590	1,6	95	79
SEM 150-SDA	1290	590	1,8	81	71
SEM 150-SDS	1190	590	1,7	80	71
SEM 300	2370	935	5,7	82	62

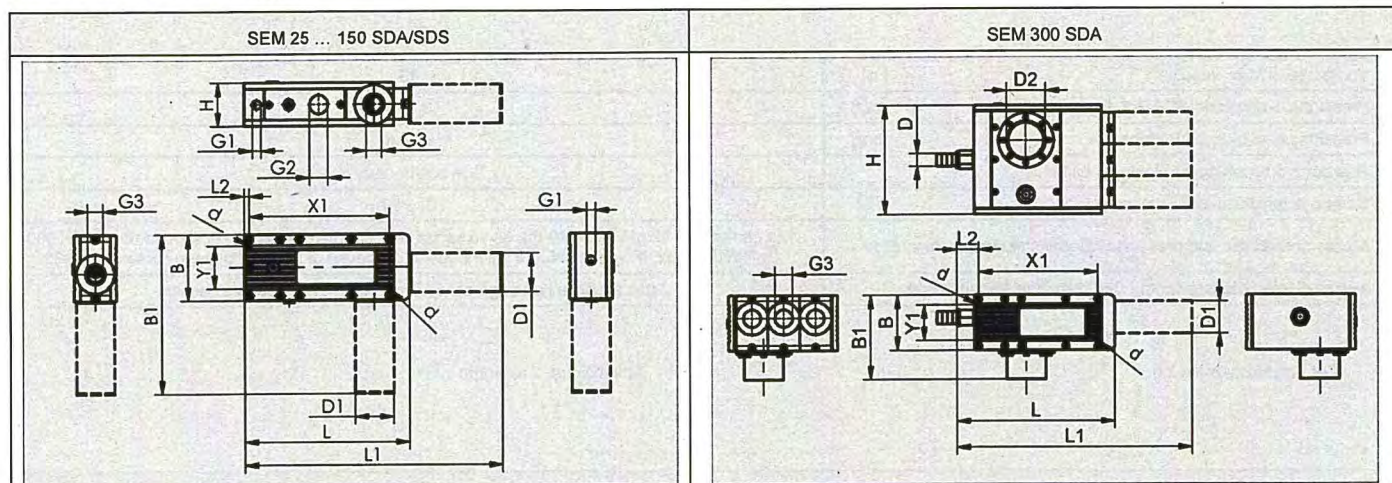
<sup>1</sup> Con pressione di esercizio ottimale

<sup>1</sup> Bij optimale bedrijfsdruk

## Materiali impiegati / Toegepaste materialen

Componente / Onderdeel	Materiale / Materiaal
Corpo di base e piastra di raccordo / Basislichaam en aansluitplaat	Aluminiumlegierung, eloxiert / Aluminiumlegering, geëloxeerd
Coperchio / Deksel	Lega di alluminio verniciata / Aluminiumlegering met poedercoating
Parti interne / Inwendige onderdelen	Lega di alluminio, NBR / Aluminiumlegering, NBR
Guarnizioni / Pakkingen	NBR
Viti / Schroeven	Acciaio / staal
Piastra di fissaggio / Montageplaat	Acciaio verniciato a polvere / staal met poedercoating

## Dimensioni / Afmetingen



Tipo / Type	B	B1	d	D	D1	D2	G1	G2	G3	H	L	L1	L2	X1	Y1
SEM 25	85	-	5,5	-	-	-	G1/4"-IG	G1/2"-IG	G1/2"-IG	48	195	-	6	183	51
SEM 25-SDA	85	-	5,5	-	40	-	G1/4"-IG	G1/2"-IG	G1/2"-IG	48	195	275	6	183	55
SEM 25-SDS	85	165	5,5	-	40	-	G1/4"-IG	G1/2"-IG	G1/2"-IG	48	195	-	6	183	55
SEM 50	85	-	5,5	-	-	-	G1/4"-IG	G3/4"-IG	G3/4"-IG	58	195	-	6	183	55
SEM 50-SDA	85	-	5,5	-	50	-	G1/4"-IG	G3/4"-IG	G3/4"-IG	58	215	335	6	183	55
SEM 50-SDS	85	205	5,5	-	50	-	G1/4"-IG	G3/4"-IG	G3/4"-IG	58	195	-	6	183	55
SEM 100	85	-	5,5	-	-	-	G1/4"-IG	G1"-IG	G3/4"-IG	68	195	-	6	183	55
SEM 100-SDA	85	-	5,5	-	50	-	G1/4"-IG	G1"-IG	G3/4"-IG	68	215	335	6	183	55
SEM 100-SDS	85	205	5,5	-	50	-	G1/4"-IG	G1"-IG	G3/4"-IG	68	195	-	6	183	55
SEM 150	85	-	5,5	-	-	-	G1/4"-IG	G1"-IG	M42x1.5-IG	68	195	-	6	183	55
SEM 150-SDA	85	-	5,5	-	50	-	G1/4"-IG	G1"-IG	M42x1.5-IG	68	215	335	6	183	55
SEM 150 SDS	85	205	5,5	-	50	-	G1/4"-IG	G1"-IG	M42x1.5-IG	68	195	-	6	183	55
SEM 300 SDA	85	130	5,5	19	50	60	G1/2"-IG	G3/4"-IG	G3/4"-IG	168	243	363	34	183	55

Lunghezze in mm

Lengtematen in mm

## Accessori / Toebehoren

Denominazione	Benaming	Art.-No. / Art.-nr.
Manometro vuoto Ø 40 mm, attacco dietro <sup>1</sup>	Vacuümmanometer Ø 40 mm, aansluiting achter <sup>1</sup>	10.07.02.00035
Vacuostato VS-V-PNP <sup>1</sup>	Vacuümschakelaar VS-V-PNP <sup>1</sup>	10.06.02.00191
Vacuostato VS-V-W-D-PNP <sup>1</sup>	Vacuümschakelaar VS-V-W-D-PNP <sup>1</sup>	10.06.02.00192
Cavo di allacciamento per vacuostato, 5m, diritto	Aansluitkabel voor vacuümschakelaar, 5m, recht	10.06.02.00031
Cavo di allacciamento per vacuostato, 5m, 90°	Aansluitkabel voor vacuümschakelaar, 5m, 90°	10.06.02.00032
Valvola elettromagnetica <sup>2</sup> "Aspirazione on/off", 24VDC, NO	Elektromagnetische klep <sup>2</sup> "Zuigen aan/uit", 24VDC, NO	10.05.01.00156
Valvola elettromagnetica <sup>2</sup> "Aspirazione on/off", 24VDC, NC	Elektromagnetische klep <sup>2</sup> "Zuigen aan/uit", 24VDC, NC	10.05.01.00161

<sup>1</sup> I vacuostati / manometri vengono forniti in imballaggi separati e completi di tutti gli accessori di montaggio. Per ragioni di sicurezza il vacuostato / manometro devono essere fissati con le comuni viti di sicurezza a tenuta media disponibili in commercio.

<sup>2</sup> Se si utilizza una valvole magnetica, la pressione d'ingresso deve essere aumentata di ca. 0,5 bar.

<sup>1</sup> De vacuümschakelaars/manometers worden apart verpakt en met compleet montage toebehoren geleverd. Uit veiligheidsoverwegingen moet de vacuümschakelaar/manometer met een gangbare, middelvaste schroefborging ingeplakt worden.

<sup>2</sup> Bij gebruik van een elektromagnetische klep moet de ingangsdruk met ca. 0,5 bar verhoogd worden.

## Pezzi di ricambio e parti soggette ad usura

Per il presente apparecchio concediamo una garanzia secondo quanto stabilito nelle condizioni generali di vendita e di consegna.

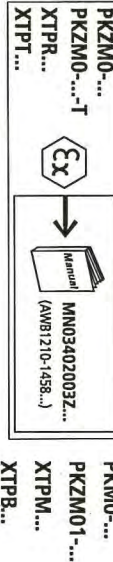
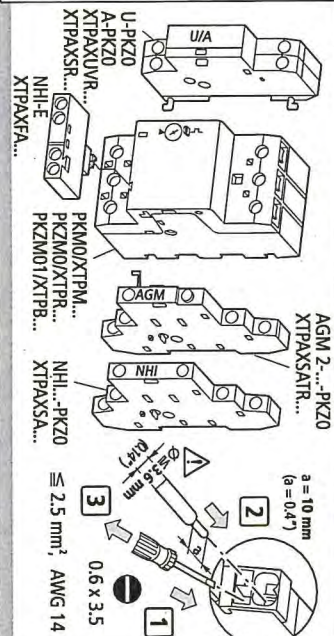
Lo stesso vale per i pezzi di ricambio, purché si tratti di ricambi originali forniti da noi. Non ci assumiamo nessuna responsabilità per eventuali danni causati dall'impiego di ricambi o accessori diversi da quelli originali.

## Reserveonderdelen en slijtdelen

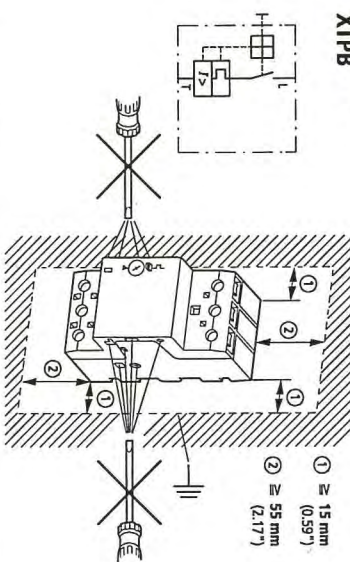
Op dit toestel verlenen wij garantie conform onze algemene verkoop- en leveringsvoorwaarden.

Dat geldt tevens voor reserveonderdelen, voor zover deze origineel en door ons geleverd zijn. Voor schade die ontstaat door het gebruik van niet-originele reserveonderdelen of niet-originele accessoires zijn wij niet aansprakelijk.

Denominazione	Benaming	Per eiettore Voor ejector	N° art. / Art.-nr.
Silenziatore G 1/2	Geluiddemper G 1/2	SEM 25	10.02.01.00309
Silenziatore G 3/4	Geluiddemper G 3/4	SEM 50/100, SEM 300 (3x)	10.02.01.00312
Silenziatore M42x1,5	Geluiddemper M42x1,5	SEM 150	10.02.01.00491



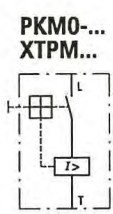
PKZMO-...  
XTPR-...  
PKZMO-...-T  
XTPM-...  
XTPB-...



**EATON**  
Powering Business Worldwide

08/10 IL03407010Z  
(AWA1210-2138, Pub51173)

Instruction Leaflet  
Montageanweisung  
Notice d'installation  
Instrucciones de montaje  
Istruzioni per il montaggio  
安裝說明  
Инструкция по монтажу



The PKMO-.../XTPM... is only a short-circuit protective device. It does not protect against thermal overload, neither the switch itself nor system components connected downstream. Provide external protective devices to protect against thermal overload. In starter combinations the overload protection is provided by the overload relay.

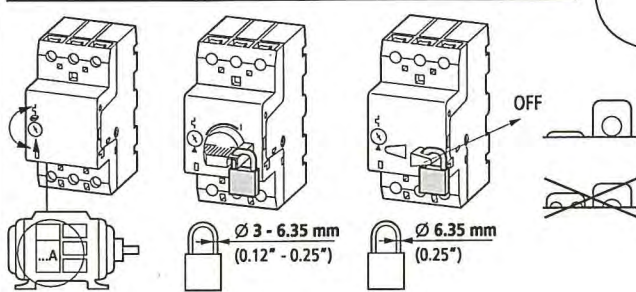
Der PKMO-.../XTPM... ist ein reines Kurzschlussschutzorgan. Er schützt nicht vor thermischer Überlastung, weder sich selbst, noch nachfolgende Anlagenteile. Für den Schutz vor thermischer Überlastung sind externe Schutzorgane vorzusehen. In Starterkombination wird der Überlastschutz durch das zugeordnete Motorschutzrelais gewährleistet.

Le PKMO-.../XTPM... est un organe de protection contre les courts-circuits. Quant aux surcharges thermiques, il n'est pas autoprotégé et ne protège pas les installations. Il faut donc prévoir des organes de protection externes contre les surcharges thermiques. Avec les ensembles démarreurs, la protection contre les surcharges est assurée par l'association d'un relais thermique.

El PKMO-.../XTPM... sólo es un dispositivo de protección contra cortocircuitos. No protege contra sobrecargas térmicas: no protege al interruptor en sí, ni a los componentes del sistema instalados aguas abajo. Es preciso contar con dispositivos externos para garantizar la protección contra sobrecarga térmica. En las combinaciones de arrancadores es el relé térmico el que se encarga de la protección contra sobrecarga.

Il PKMO-.../XTPM... è esclusivamente un organo di protezione contro il cortocircuito. Non protegge dal sovraccarico termico né se stesso né parti dell'impianto ad esso collegate. Per la protezione contro il sovraccarico bisogna prevedere degli organi di protezione esterni. Nelle combinazioni di partenza motore la protezione contro il sovraccarico è garantita dall'interruttore protettore in coordinamento.

PKMO-.../XTPM... 是纯粹的短路保护装置。在热负荷时，它即不对自己又不对它后面的设备起保护作用。在热负荷时要用外来的保护装置做保护。



Выключатель PKMO-.../XTPM... применяется исключительно для защиты от короткого замыкания. Он не защищает ни себя ни последующие части оборудования термической перегрузки. Для защиты от термической перегрузки необходимо предусмотреть внешние устройства защиты. В устройствах запуска от перегрузки обеспечивается соответствующим реле защиты двигателя.

1 - 6 mm	1.7 Nm (15 lb-in)
1 - 4 mm	1.7 Nm (15 lb-in)
UL AWG18 - 8	1.8 Nm (16 lb-in)
Cu 75 °C	WIRE

for/für/pour Canada:  
PKZMO-AK-PKZO/  
XTPR... with XTPAXLBN for use  
as self protected combination  
motor controller!

PKZMO-AK-PKZO/  
XTPR... avec XTPAXLBN peut être  
employé comme contrôleur de  
combinaison à moteur  
auto-protégé.

PKZMO-AK-PKZO/  
XTPR... mit XTPAXLBN für den  
Einsatz als Self protected  
Combination Motor Controller!

# Proof of maintenance

Warranty claim for this machine only apply for performance of the mandatory maintenance works (by an authorised specialist workshop)! After each completed performance of a maintenance interval the included form must be fill out, stamped, signed and send back to us immediately <sup>1)</sup>.

1) via e-mail to service@probst-handling.de / via fax or post

Operator: \_\_\_\_\_

Device type: \_\_\_\_\_

Device-No.: \_\_\_\_\_

Article -No.: \_\_\_\_\_

Year of make: \_\_\_\_\_

## First inspection after 25 operating hours

Date:	Maintenance work:	Inspection by company:
		Company stamp
		.....
		Name Signature

## All 50 operating hours

Date:	Maintenance work:	Inspection by company:
		Company stamp
		.....
		Name Signature
		Company stamp
		.....
		Name Signature
		Company stamp
		.....
		Name Signature

## Minimum 1x per year

Date:	Maintenance work:	Inspection by company:
		Company stamp
		.....
		Name Signature
		Company stamp
		.....
		Name Signature

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Article -No.: \_\_\_\_\_

Year of make: \_\_\_\_\_

## First inspection after 25 operating hours

Date:	Maintenance work:	Inspection by company:
		Company stamp
		.....
		Name Signature

## All 50 operating hours

Date:	Maintenance work:	Inspection by company:
		Company stamp
		.....
		Name Signature
		Company stamp
		.....
		Name Signature
		Company stamp
		.....
		Name Signature

## Minimum 1x per year

Date:	Maintenance work:	Inspection by company:
		Company stamp
		.....
		Name Signature
		Company stamp
		.....
		Name Signature

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Operator: \_\_\_\_\_

Device type: \_\_\_\_\_

Device-No.: \_\_\_\_\_

Article -No.: \_\_\_\_\_

Year of make: \_\_\_\_\_

## First inspection after 25 operating hours

Date:	Maintenance work:	Inspection by company:
		Company stamp
		.....
		Name Signature

## All 50 operating hours

Date:	Maintenance work:	Inspection by company:
		Company stamp
		.....
		Name Signature
		Company stamp
		.....
		Name Signature
		Company stamp
		.....
		Name Signature

## Minimum 1x per year

Date:	Maintenance work:	Inspection by company:
		Company stamp
		.....
		Name Signature
		Company stamp
		.....
		Name Signature