



Operating Instructions

VACUSPEED VXS Vakuum-Schlauchheber

VXS 35-P



*Original operating instructions
This document should be kept in a safe place for future reference.*





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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.

Note

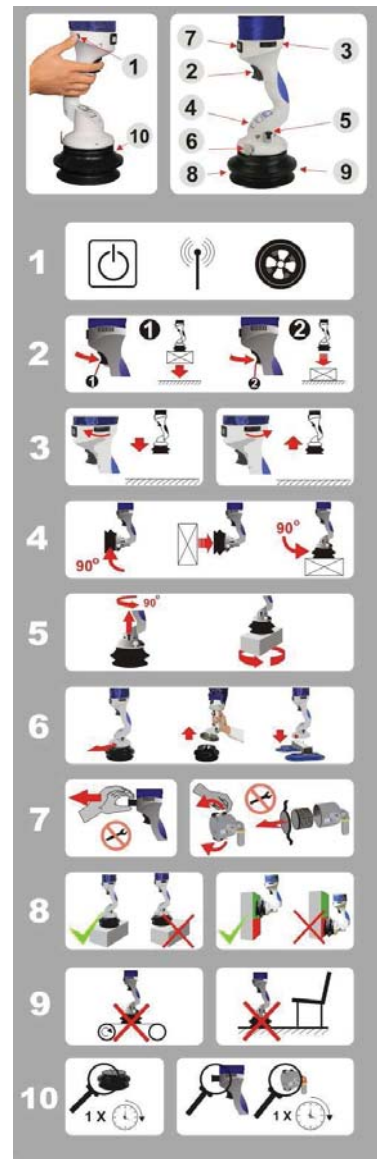
The scope of delivery also includes a multilingual, adhesive-backed **quick reference guide**.

This image-based guide provides the operator with an overview of the many functions integrated into 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 adhered to the **Probst crane column**, for example.

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



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BA 30.11.01.00075

Vacuum pump operating instructions

BA 30.10.03.00079

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BA 30.10.02.00067

CE conformity declaration

Special designs

The device includes the following special design feature(s):

(See appendix for special operating instructions or spare parts.)

If the special designs require different spare or wearing parts,
the standard spare and wearing parts list is not valid.

1 Safety

1.1 Instructions for the operating company The *JUMBO* tube lifter is state-of-the-art and operationally reliable. However, dangers may arise

- ⇒ if it is not used by trained or at least instructed staff,
- ⇒ if it is not used for its intended purpose (see 1.4)

In these circumstances, dangers can result to:

- ⇒ life and limb of the user and third parties,
- ⇒ the tube lifter and other property belonging the operator.

1.2 Instructions for the installation, maintenance and operating staff This device should only be installed and maintained by qualified specialist personnel, mechanics and electricians. Work on electrical equipment may only be carried out by qualified electrical specialists.

All persons in the company of the operator responsible for setting up, commissioning, operating, maintaining and repairing the device must have read and understood the operating instructions, in particular the “Safety” chapter.

The operator’s company must take internal measures to ensure the following:

- ⇒ The users of the tube lifter are trained.
- ⇒ They have read and understood the operating instructions.
- ⇒ The operating instructions are accessible to them at all times.

The responsibilities for the various tasks to be carried out on the device must be clearly specified and observed. Responsibilities must be clear. Protect the tube lifter from unauthorised use, e.g. with a key switch.

1.3 Safety instructions in this manual The safety instructions in this manual are identified as follows:



Identifies an immediate hazard. If it is not avoided, death and serious injuries may result.



Identifies a potentially dangerous situation. Can result in slight or minor injuries if disregarded.

1.4 Requirements for the installation location

The standard tube lifter may not be operated in rooms where there is a risk of explosion.

The system may fail if the tube lifter is operated in rooms with impure air (e.g. oils, grease, solvents, sugar, toxins, etc.). In such cases, please contact your system consultant.

The ambient temperature must lie within a range of +0°C to +40°C (please contact the manufacturer prior to operation if this temperature range is to be exceeded).

Provide internal instructions and make checks to ensure that the vicinity of the workplace is always clean and tidy.

Please consult the manufacturer before installing the device outside of closed rooms or halls.

1.5 Intended use

The tube lifters of the *JUMBO* series are built to support manual lifting and transportation of work pieces using a vacuum. The permissible load must not be exceeded. Observe the information on the type plate.

The loads must be stable enough to prevent them from being destroyed during the lifting process.



It is not permitted to carry people or animals using the tube lifter! For safety reasons, the tube lifter may not be modified or changed without approval.

1.6 Emissions

The continuous sound level output by the device is less than 65 dB(A).

1.7 Specific hazards

Negative pressure on the suction pad or mechanical grippers is used to hold the load. If the vacuum production fails, this decreases the negative pressure of the suction pad.

The lifting tube of the device relaxes and the load is lowered.

This can be caused by a sudden loss of power. If this should occur, an integrated non-return valve in the rotary connection ensures that negative pressure decreases gradually. However, this can occur only when the actuating lever is not pressed down.

If a power loss occurs, lower the load immediately if possible. If this is not possible, leave the danger zone immediately.

The device generates very high suction, which can suck in hair and items of clothing. Do not place small objects in front of the suction pad opening when the device is switched on. Do not look into the suction pad opening – eyes can be sucked in.

1.8 Workplaces



**The operator's workplace is at the operating lever.
Make sure that the JUMBO cannot be switched on or off without authorisation. The JUMBO can be secured, e.g. by means of a padlock on the main switch.
Never stand under the load.**

1.9 Instructions for the user of the tube lifter

Users must be trained before using the tube lifter for the first time. They must have read and understood the operating instructions, in particular the "Safety" chapter.

Ensure that only authorised personnel use the device.

You are responsible for third parties in the working area of the device.

The local safety regulations apply – in Germany, this includes BGR 500 and others.

Other safety instructions in this manual do not rescind these – they are to be considered as additional safety regulations.

1.10 Personal protection equipment

When operating the machine, always wear protective work shoes (with steel toe).

Make sure to put on the appropriate safety clothing before transporting dangerous goods.

1.11 What to do in an emergency

A sudden loss of power is considered an emergency situation (device switches off unexpectedly).

If a power loss occurs, release the actuating lever immediately so that the load does not fall. The remaining negative pressure allows the tube lifter and load to be lowered slowly.

1.12 Checking safety equipment

A non-return valve is built into the rotary connection of the tube lifter. It prevents the load from falling from the suction pad in the event of a power loss. Check these safety devices at the beginning of every shift (if the device is not run continuously) or once a week (if the device is operated continuously).

Procedure:

- ⇒ Switch on the tube lifter.
- ⇒ Lift up the load and finish adjusting the suspension.
- ⇒ Switch off the tube lifter. The tube lifter must lower slowly. The load must remain attached.

Rectify any faults before starting the unit. Should faults occur during operation, switch the device off and rectify the faults.

2 Technical Specifications

	FLEX 20	FLEX 35
Max. load capacity	20kg	35kg
Temperature range	0 - 40°C	
Max. lifting distance	1,500/1,800mm	
Max. lift speed	1 m/s *	1 m/s *

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

2.1 Vacuum generator

	FLEX 20	FLEX 35
Ejector vacuum production	SEM100-JU	SEM150-JU
Pump vacuum production (Operating vacuum max. 600 mbar)	EVE 25 D	
	EVE 40 D	
	EVE 50 D	

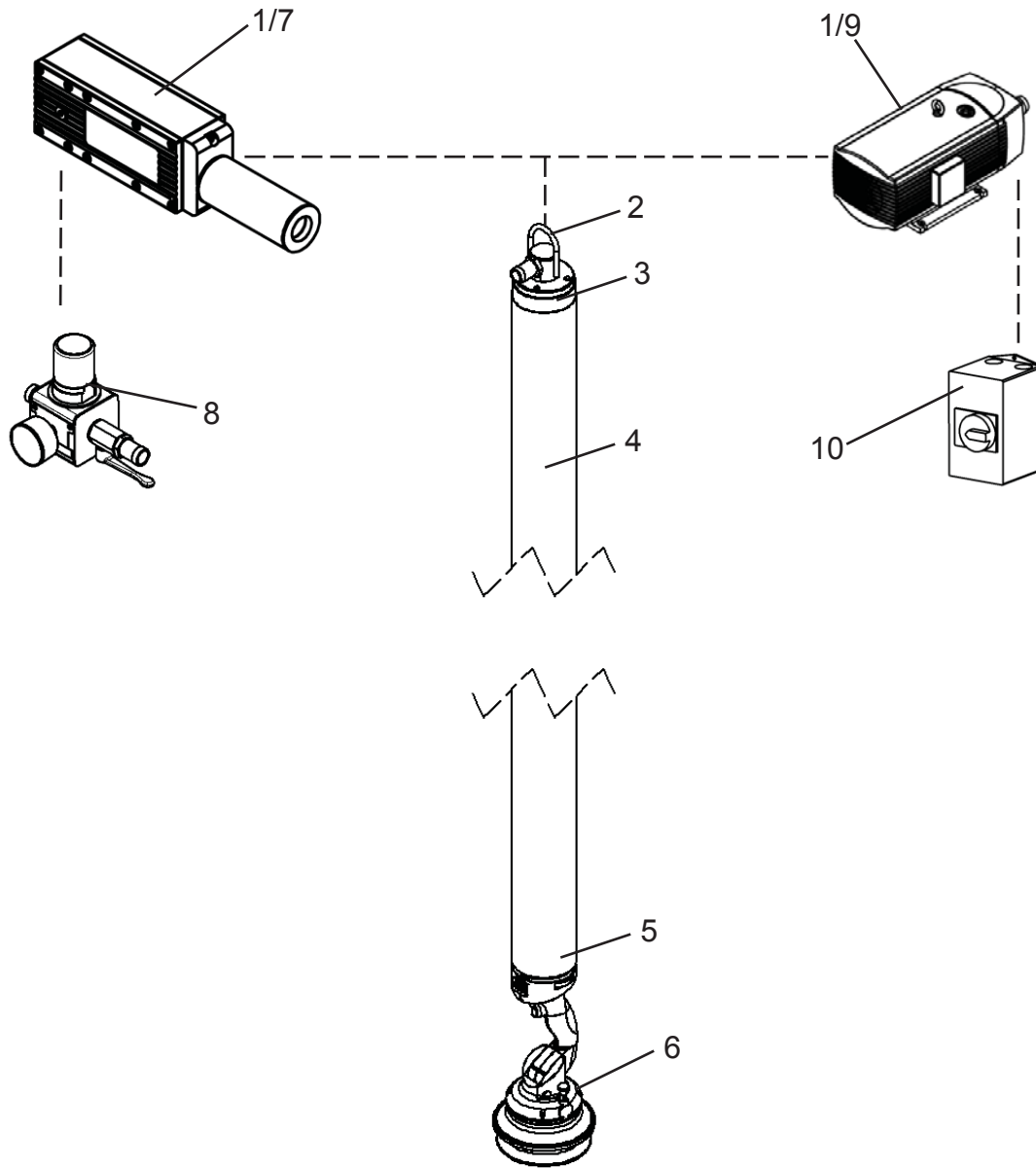
More detailed information about the vacuum pump is provided in the pump operating instructions (included in appendix).

2.2 Lifting and Operating Units

Lifting Units			
Capacity 20 kg		Capacity 35 kg	
HE-20-1500-F	HE-20-1800-F	HE-35-1500-F	HE-35-1800-F

Operating Units		
Capacity 20 kg		Capacity 35 kg
BE-20-F		BE-35-F BE-35-F-2/1

3 Description

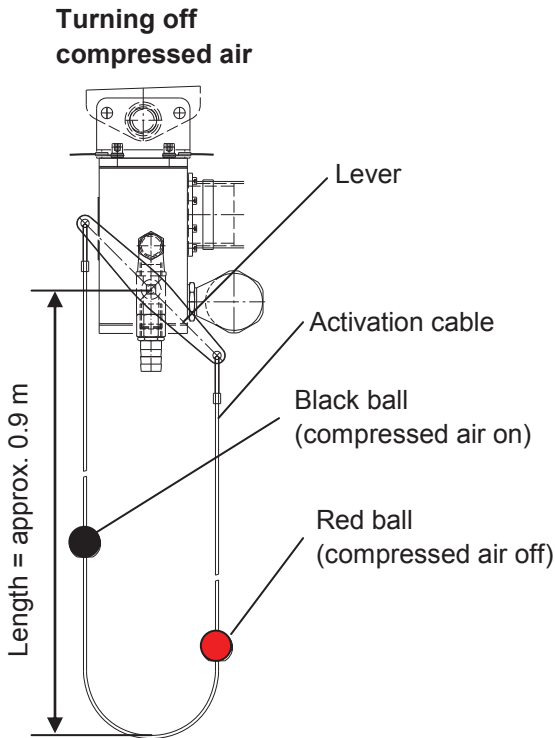


Item	Designation	Comment
1	Vacuum generator	Electrically operated vacuum pump / 3.2
2	Suspension eye	See 3.3
3	Rotary connection	See 3.3
4	Lifting tube	See 3.4
5	Operating unit	See 3.5
6	Suction pad	See 3.6
7	Ejector	Pneumatic vacuum generator / 3.2
8	Pressure reducer	See 3.9
9	Pump	Electrical vacuum generator / 3.2
10	Motor protection switch	See 3.9

3.1 Components

3.2 Vacuum generator

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).



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 activation cable attached to side of ejector. The activation cable is approx. 0.9m in length. The two balls located on the activation cable (red and black) 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.

Note:
 Compressed air should be switched off at the pressure reducer at end of the shift (Pos.8).

3.3 Rotary connection

The suspension bar (2) is used to suspend the device in the crane rail.



The rotary connection (3) contains the vacuum connection of the **JUMBO**. The rotary connection can be rotated continuously. In addition, for safety reasons, the rotary connection contains a non-return valve.

3.4 Lifting unit

The lifting tube (4) contracts when exposed to negative pressure. This lifts the load connected to the suction pad.

3.5 Operating unit



The operating unit (5) regulates the **JUMBO**'s supply of outside air in order to control the vacuum in the lifting tube.

3.6 Suction pad

The suction pad (6) conducts the vacuum to the load to be lifted and ensures that the load is securely connected during the lifting procedure.



Double suction pads: Clamped, glued, strapped or open cardboard boxes. Also for boxes, plates, etc The two suction pads are mounted to the crossbeam so that they are either in a fixed position or are fully adjustable.



Single suction pads: Glued cardboard boxes, plates, furniture bodies, barrels, buckets



Sack suction pads: Plastic sacks, raw and rubber balls, welded packages, and similar materials



Multiple suction gripper: Multiple suction gripper for handling unstable workpieces such as telescope boxes



Quadruple suction gripper: For clamped, glued, strapped or open cardboard boxes. Also for boxes, sheets, etc. The suction pads are mounted to the crossbeam in a fixed position.

3.7 Mechanical grippers

The workpieces are gripped mechanically.



Single-hook head: For mechanical suspension of buckets or cans, for example.



Sack clamp:

For holding paper or film sacks.



Box gripper:

For mechanical gripping of transportation and storage boxes from all commercial manufacturers (on request).

3.8 2in1-grippers



2-in-1 grippers:

Using the 2-in-1 grippers, you can lift workpieces mechanically as well as by using vacuum or mechanically.

3.9 Accessories

Dust filter



We strongly recommend that a dust filter be built into the suction line in order to protect the vacuum generator from all types of contamination (ambient dust, soiled transport materials).
Observe the included installation instructions.

Motor protection switch



The motor protection switch is used to switch the pump on and off. The switch comes with a built-in overcurrent protection unit to prevent damage to the electrical vacuum generator as a result of excessively high currents.

Wireless remote control



The radio control is used to switch the lifting device's pump on and off at the handle. This feature is integrated into the handle.

The power switch must be pushed down fully.

The power for switching the JumboFlex vacuum pump on and off is generated by an induction generator.

Observe the separate operating instructions.

The entire operating unit must be replaced if you wish to upgrade with a radio control.

This is not possible with a pneumatic vacuum generator.

Probst Blower Box



The Probst BlowerBox surrounds the vacuum pump and lowers the noise level to approx. 54 dB(A).

With no additional cooling devices, the Probst Blower Box can be operated at a max. ambient temperature of 40°C.

Pump console



For attaching the vacuum pump and the Probst BlowerBox horizontally, e.g. to crane posts.

Pressure reducer with shut-off valve



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

Rack JumboFlex

Using the JumboFlex rack, you can safely deposit the tube lifter and protect the suction pads of the tube lifter when doing so.



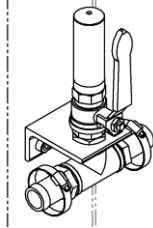
Crane suspension

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



Vacuum regulation valve

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



Compressed-air hose

Supply hose for compressed air

4 Installation

4.1 Start-up

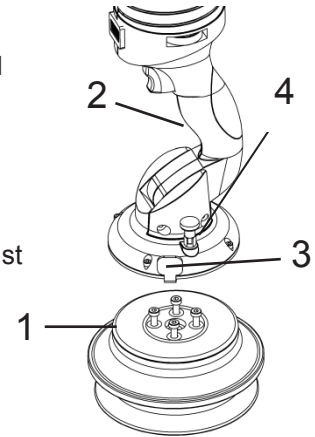
The tube lifter should only be installed and maintained by qualified specialist personnel, mechanics and electricians. Work on electrical equipment may only be carried out by qualified electrical specialists.

4.2 Suspending the function module

Suspend the function module on the suspension bar and secure it. The suspension height must be adjusted to working height.

4.3 Mounting the suction pad

Position the grip (2) in the centre of the gripper (1). Pull the bracket (3) and rotate the grip (2) clockwise until it stops. Release the bracket (3). The bracket must lock into place. The snap bolt (4) must lock into place so that the connection disc cannot be twisted out of position on the suction pad.



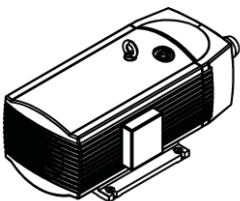
The tube lifter must hang freely. The attached suction pads must not drag on the ground. Otherwise, during operation, it could become attached to the floor.

Caution: Risk of implosion

Check to make sure that the tube lifter can be rotated freely.

4.4 Mounting and switching on the vacuum generator

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 bracket 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 (if necessary, it can be installed in the crane column).

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

- ⇒ When establishing the electrical connection of the pump, please observe VDE guidelines.
- ⇒ Observe the voltage specified on the type plate of the pump.
- ⇒ Make sure to install a disconnecter and the appropriate fuse.

Checking the direction of rotation of the motor

Valid only for versions with electrical vacuum generator:

Check the direction of rotation of the motor as follows:

- ⇒ Switch on the pump.
- ⇒ Observe the fan wings of the motor. It must turn in the direction shown by the arrow on the motor housing.
- ⇒ The device is delivered with a clockwise rotation field.
If the direction of rotation is incorrect, switch the motor off immediately and reverse the connection in the supply line.
- ⇒ Check the rotation direction again.

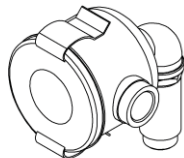


This work may be performed by a qualified electrician only.

Damage resulting from operation with the incorrect direction of rotation is not covered by the warranty.

Additional dust filter

When installing the dust filter, remove the suspension tackle of the pump to simplify installation.

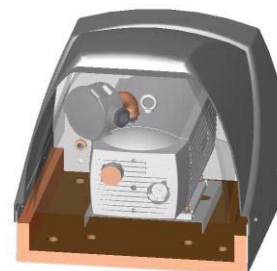


Install the additional filter with attachment parts to the vacuum connection of the pump.

Screw the hose nozzle (with seal) for the hose connection to the dust filter.

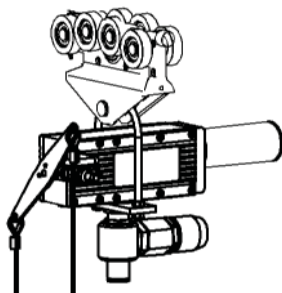


EVE 40



EVE 50

Ejector



Retrofitting an electrical pump onto a pneumatic ejector:

Remove the hose nozzle and the suspension eye on the rotary inlet. Screw the suction side of the ejector at the top, with the mounting plate and handle, into the rotary inlet (with seal). Attach the pressure limiter 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).

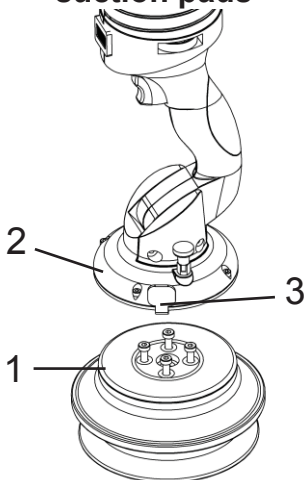
4.5 Installing the supply hose

Secure the supply hose to the hose nozzle on the vacuum generator using the hose clamp provided. The supply hose must not be allowed to bend, hang down or hook onto other objects.

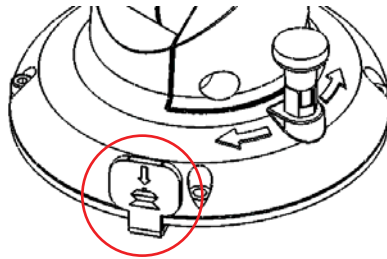


When attaching the supply hose, ensure that the hose is coiled as it is suspended (\varnothing at least 800 mm).

4.6 Replacing the suction pads



Depending on the task to be performed, different types of suction pads (1) may be required.
To replace the suction pads, screw them onto the vacuum connection (2).
When replacing a suction pad, make sure that the pad is secure and that the safety lever (3) locks into position. The safety lever (3) is identified with a symbol.



When replacing the grippers, the vacuum generator must always be switched off. When replacing the grippers, lock the snap bolt into place so the connection disc cannot be twisted out of position on the suction pad. Always use suction pads that are suitable for use with the device.

4.7 Switching the device on and off

With an electric vacuum generator

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



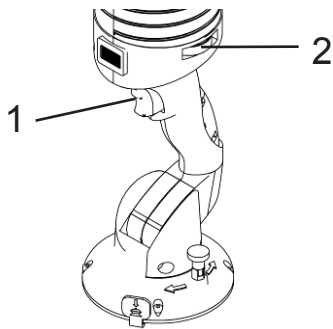
With a pneumatic vacuum generator

- ⇒ Switch the compressed air supply on and off using the ball valve on the ejector.
- ⇒ SRC wireless radio control not used.



Always make sure that the suction pad is hanging freely before switching the device on. After the device has been switched on, the tube lifter rises very quickly.

4.8 Setting the suspension



The working height of the operating unit – 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

Note: Turning the knurled nut (2) clockwise also reduces the volume flow to the suction pads. **If the volume flow is reduced too much, it will become difficult to lift porous loads.** When an EVE 50 vacuum pump is used, the adjustment range of the suspension is reduced.

An additional dust filter is built into the operating unit. It can be changed or cleaned without the use of tools.

4.9 Cleaning or Changing Filter without Tools



4.10 Shortening the lifting tube

The lifting tube can easily be shortened on location, i.e. if the lifting tube must be shortened because of low room heights.

Caution: When the tube is shortened, this shortens the lifting distance as well!

Caution: Do not shorten the tube to the point where the lifting tube cannot be extended

far enough to allow the load to rest on the ground. In this case, this safety function can no longer be guaranteed.

Note: Lift of the tube lifter = approx. 0.7 x length of the lifting tube (in unloaded state).

The hose lifter must be disconnected before the lifting hose can be shortened at the rotary connection. The following equipment is needed: a knife, a bolt cutter, adhesive tape (Coroplast) and multipurpose grease.

Shortening the lifting tube at the operating unit (bottom)

Procedure:

- ⇒ Tube lifter must be suspended (Figure 1).
- ⇒ Remove the adhesive tape from the lifting tube.
- ⇒ Twist the lifting tube off of the tube holder.
- ⇒ Cut the lifting tube at the desired position using a carpet cutter, remove the spiral wire using the bolt cutter.
- ⇒ To ease the mounting of the lifting tube, spread the multi-purpose grease on the inside of the operating unit (Figure 2).
- ⇒ Twist the lifting tube completely onto the winding of the operating unit. Twist the lifting tube far enough so that it completely covers the windings of the operating unit (Figure 3, 4).
- ⇒ Wrap the lifting tube using adhesive tape (Coroplast) so that the cover of the operating unit is sealed (wrap adhesive tape around the entire lifting tube approx. 2x) (Figure 5).



Figure 1



Figure 2



Figure 3

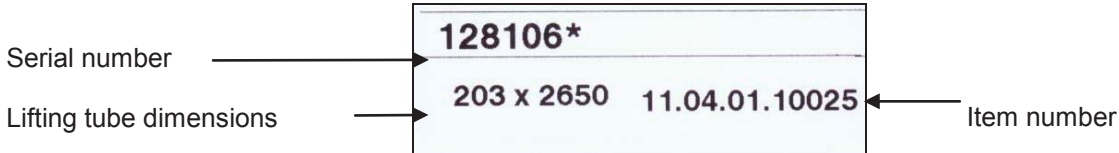


Figure 4



Figure 5

Item and serial number plate



5 Operation

5.1 Safety instructions

The local safety regulations apply – in Germany, this includes BGR 500 and others.

The following safety instructions do not rescind these – they are to be considered as additions:

- ⇒ Wear protective work shoes.
- ⇒ Make sure to put on the appropriate safety clothing before transporting dangerous goods.
- ⇒ Do not exceed the maximum load-bearing capacity of the device. Observe the type plate located on the operating lever.
- ⇒ Never stand under the load. Always remain outside the danger zone of the load.
- ⇒ Never transport people or animals with the load or the tube lifter!
- ⇒ Only work when you have a good view of the entire working area. Pay attention to other people in the working area.
- ⇒ Never transport the load over people.
- ⇒ Never bend over loads that are being lifted.
- ⇒ Before switching on the vacuum, make sure that the suction pad is not resting on any surface (work piece or any other stable supporting surface).
When the vacuum generator is switched on, the vacuum may cause the suction pad to become attached to a surface (work piece or any other stable supporting surface). If this happens, the tube lifter may jolt up suddenly.
- ⇒ Never leave the operating lever of the tube lifter while a load is being carried.
- ⇒ Never carry loads at an angle and never drag them.
- ⇒ Do not use the tube lifter to break stuck loads free.
- ⇒ If a power loss occurs, release the operating lever immediately so that the load does not fall. The remaining negative pressure allows the tube lifter and load to be lowered slowly.
- ⇒ Only pick up and lift suitable loads (check the intrinsic stability and porosity).
- ⇒ If the tube lifter is used in crane runways with end stops:
When encountering an end stop, strong horizontal forces could cause the work piece to be released in a horizontal direction.
- ⇒ Handling cardboard boxes and sacks:
If the contents of a cardboard box or sack fall out during lifting, this can cause the device to jolt up suddenly → risk of accidents. Keep your distance from the operating unit (keep arms outstretched).
- ⇒ The device generates very high suction, which can suck in hair and items of clothing. Do not place small objects in front of the suction pad opening when the device is switched on. Do not look into the suction pad opening – eyes can be sucked in.
- ⇒ When replacing the grippers, the vacuum generator must always be switched off. Always use suction pads that are suitable for use with the device.



The following operating steps must be checked by a qualified mechanic before the initial startup of the device. Visible faults must be completely rectified before beginning work.

5.2 Raising, lowering and depositing loads

The suspension of the device without a load must be set before commissioning (see Chapter "Installation").

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.

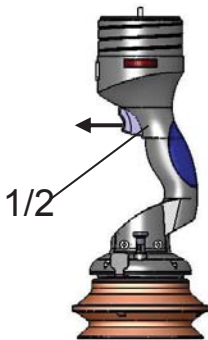
The initial position is always at the top. The device can be lowered below the suspension that has been set by pressing down lightly on the actuating lever (1) using the index finger until the pressure point (1/2) is reached.

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

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



Lifting



- ⇒ Position the suction pad directly above the load. Avoid lifting the load at an angle.
- ⇒ Press the actuating lever – put the actuating lever into the “Lower” position. The vacuum lifting tube of the device relaxes and the tube lifter is lowered.
- ⇒ Lower the suction pad onto the load. Ensure that the load is distributed evenly.
- ⇒ Release the actuating lever slowly (1/2). The load is picked up and begins to rise from the ground. Always maintain contact with the operating unit or push-button.
- ⇒ The load reaches its highest point when the button has been released completely.

Lowering, depositing

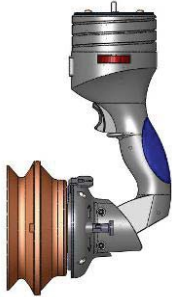


- ⇒ Move the load to the desired location.
- ⇒ Slowly press the actuating lever (1/2) and move it into the “Lower” position (1). The lifting tube of the device relaxes and the suction pad lowers together with load.
- ⇒ When the load has reached the place where you wish to deposit it and is positioned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



When carrying a load, do not press the actuating lever (1) abruptly to the end stop of the “Lower/Deposit” position while holding the operating unit at the same height. This cuts off the vacuum abruptly and the load will fall.

Picking up vertically and depositing horizontally



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



When the rotating unit is swiveled by 90°, there is a risk of fingers becoming pinched in the shaft of the joint.



Integrated quick-change adapter



- ⇒ Quick-change adapters are built into tube lifters as a standard component.
- ⇒ It lets you change the suction pads quickly and without tools.

Rotation without limits



- ⇒ The JumboFlex tube lifter can be rotated without limits on the rotating unit (suspension point).
- ⇒ Workpieces that have been picked up can also be rotated without limits below the operating unit or are lockable at 90° intervals.

6 Troubleshooting, Solutions

This device should only be installed and maintained by qualified specialist personnel, mechanics and electricians. Work on electrical equipment may only be carried out by qualified electrical specialists.

After carrying out repair and maintenance work, always check the safety equipment as outlined in the chapter on "Safety".

General

Problem	Cause	Solution
Load cannot be lifted	The load is too heavy	Decrease the load, use a different lifting device
	The load is too porous or bends too much when lifted	The load cannot be lifted, if necessary, use a different suction pad.
	Supply hose is damaged	Install a new hose or cut out the damaged section and connect the remaining section using hose connectors and hose clamps.
	Lifting tube is damaged	Install a new lifting tube.
	Suction pad connection is leaky	Check the seal on the bottom at the operating unit and replace if necessary.
	Suction pad is leaky	Check the sealing rubber on the suction pad and replace if necessary.
	Suspension is set incorrectly	Reset the suspension (4.6).
	It is difficult to reduce the vacuum	The filter fleece on the operating unit is soiled; clean or replace it.

For versions with electrical vacuum generator

Problem	Cause	Solution
Pump does not start	Elect. connection fault	Check connection, correct if necessary
	Motor protection switch triggered	Check electrical system
	Voltage only on two phases	Check connection/fuse
	Current consumption increased	Check motor for fault – overheated? (allow it to cool), clean vacuum filter
	Power supply interrupted	Check power supply line
	Vacuum pump fault	Check pump / call after-sales service team
	SRC radio control transmitter/receiver is malfunctioning	Contact your system consultant
	Carbon vane is worn out	Replace carbon vane, see separate operating instructions
Vacuum generator functioning but work piece is not picked up and/or operating vacuum is not reached	Incorrect pump rotation direction	Check connection, correct if necessary
	Filter soiled, additional and/or integrated filter	Clean or replace

For versions with pneumatic vacuum generator

Problem	Cause	Solution
Vacuum generator is not operational	No compressed air supply	Check supply system
	Pressure in compressed air supply system too low	Adjust pressure to 4 - 6 bar
Vacuum generator functioning but work-piece not picked up	Operating pressure too low	Adjust pressure to 4 - 6 bar
	Ejector or silencer is soiled	Clean (must be carried out by manufacturer)

7 Maintenance

7.1 General instructions

This device should only be installed and maintained by qualified specialist personnel, mechanics and electricians.

Vacuum generator and operating unit should under no circumstances be opened during the warranty period. If opened, the warranty becomes invalid.

After repair and maintenance work, always check safety equipment as set out in the "Safety" chapter.

7.2 Cleaning

Use our service table to find the maintenance procedures with the corresponding maintenance intervals.

Use cleaning solvents (not petroleum ether or corrosive liquids) to clean the device. The use of petroleum ether or corrosive liquids could cause leaks in the supply hose or lifting tube.

Clean stuck matter and dirt such as adhesive, glue, chips, dust etc. from the suction pad at least once a week. Use glycerine to clean them. Replace damaged or worn suction pads immediately (cracks, holes, corrugation).

7.3 Vacuum pump

Only for versions with electrical vacuum generator:

See enclosed pump operating instructions (appendix).

7.4 Ejector

Only for versions with pneumatic vacuum generator:

See enclosed ejector operating instructions (appendix).

7.5 Vacuum filter

Filter in the operating unit



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.

Filter in the vacuum pump

See enclosed pump operating instructions (see appendix).

Filter on the vacuum pump (optional)



Check the filter at least once a week and blow the filter cartridge clear (from the inside to the outside). Replace the filter cartridge if there is heavy soiling. If the device is to be used in an extremely dirty environment, clean the filter daily.

Do not beat the vacuum filter!

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

Filter in the suction pad (e.g. for sack suction pad)



Note: When the filter screen in the suction pad is dirty, the negative pressure at the suction pad is reduced. This could result in an accident.

Therefore, the filter screen must be cleaned and maintained regularly (at least monthly) to guarantee the safety of the device.

7.6 Expert approval



In compliance with the accident prevention regulations, the tube lifter and the crane unit must be tested once a year by an expert.

7.7 Service table

	Interval				
	Daily	Weekly	Monthly	1/2-yearly	Annually
Vacuum production					
Check the layers of the carbon vane and the integrated filter.					X
If additional filter is present, has it been cleaned?		X			X
Is the electrical installation OK? Cable screw connections 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
Tube lifter					
Is the lifting tube in good condition (not porous, no worn sections, no holes, i.e. not leaking)?			X		X
Is the lifting tube attached properly? (correct position, correctly sealed)					X
Can the rotary connection be moved easily?			X		X
Are all connections secure, hose clamps etc.?					X
Are rating plate and ultimate load plate still attached to the device?					X
Is the operating manual still available and are workers familiar with it?					X
Is the snap bolt secure?					X
Check all load-bearing parts (e.g. suspension of the Jumbo) for deformation, wear, rust or other damage.				X	X
Check the filter for soil.		X			
Grippers					
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 if necessary		X			X
Is the filter fleece in the suction pad free of soil?		x			X
Function					
Can the device be easily raised and lowered without carrying a load?			X		X
Can the suspension be set easily when the device is carrying a load? (By turning the adjusting screw on the handle – limited adjustment range when using an EVE 50 vacuum pump)					X
Does the non-return valve work when there is a power failure?			X		X
Has the test label for the accident prevention guideless been updated?					X
General condition of the device					X

8 Notes on the Type Plate

The type plate contains important information regarding the vacuum tube lifter.

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

The type plate contains the following data:

Device type
Article No.

Serial No.
Year of construction
Maximum load
Dead weight

The device type, device number and year of construction are important information for identifying the device. They must be specified when ordering replacement parts, making warranty claims or other queries on the device.

The maximum load bearing capacity indicates the maximum load for which the device is designed. This maximum load must not be exceeded.

9 Warranty, Spare and Wearing Parts

We accept liability for this device pursuant to our General Terms and Conditions of Sale and Delivery. The same applies for spare parts, provided that these are original parts supplied by us.

We fully exclude liability for any damages arising from use of spare parts or accessories that are not original parts or accessories.

Wearing parts are not covered by the warranty.

The following list contains the primary spare and wearing parts.

- Key:
- Spare part = **S**
 - Wearing part = **W**
 - Wearing part assembly, contains wearing parts = **WA**

Ersatz- und Verschleißteile / Spare and consumable parts / Pièces de rechange et d'usure

Vakuumschlauchheber / Vacuum Hose Lifter / Tube de Levage
VACUSPEED VXS 35.

1 Ersatz- und Verschleißteile / Spare and consumable parts / Pièces de rechange et d'usure

Für dieses Gerät übernehmen wir eine Gewährleistung gemäß unseren Allgemeinen Verkaufs- 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. Ausgenommen von der Gewährleistung sind alle Verschleißteile.

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.

Nous assumerons pour cet appareil une prestation de garantie conformément à nos Conditions Générales de Livraison et de Vente. Ceci s'applique également aux pièces de rechange dans la mesure où il s'agira de pièces d'origine que nous aurons livrées. Nous déclinons toute responsabilité pour les dommages qui résulteraient de l'utilisation de pièces de rechange ou d'accessoires qui ne sont pas d'origine. Toutes les pièces d'usure sont exclues de la garantie.

Legende / Abbreviations / Concernant la légende:

- Ersatzteil / Spare part / Pièce de rechange = E
- Verschleißteil / Consumable part / Pièce d'usure = V
- Verschleißteilbaugruppe, enthält Verschleißteile / Consumable-part assembly, contains consumable parts /
Sous-ensemble à pièces d'usure, contient des pièces d'usure = VB

1.1 Vakuumerzeugung / Vacuum generating / Génération du vide

Bezeichnung	Description	Designation	Abmessungen / Dimensions		Flex 20 Art. - No.	Flex 35 Art. - No.	Legende / caption
			50Hz	60Hz			
Vakuumpumpe EVE-TR-25-AC3	Vacuum pump EVE-TR-25-AC3	Pompe à vide EVE-TR-25-AC3	190-255V / 330-400V	190-290V / 330-500V	11.01.41.00015		VB
Vakuumpumpe EVE-TR-25-AC3	Vacuum pump EVE-TR-25-AC3	Pompe à vide EVE-TR-25-AC3	290V / 500V	300V / 575V			
Vakuumpumpe EVE-TR-40-AC3	Vacuum pump EVE-TR-40-AC3	Pompe à vide EVE-TR-40-AC3	190-255V / 330-400V	190-290V / 330-500V	11.01.40.00050		VB
Vakuumpumpe EVE-TR-40-AC3	Vacuum pump EVE-TR-40-AC3	Pompe à vide EVE-TR-40-AC3	290V / 500V	300V / 575V			
Vakuumpumpe EVE-TR-50-AC3	Vacuum pump EVE-TR-50-AC3	Pompe à vide EVE-TR-50-AC3	190-255V / 330-400V	190-290V / 330-500V	11.01.40.00183		VB
Vakuumpumpe EVE-TR-50-AC3	Vacuum pump EVE-TR-50-AC3	Pompe à vide EVE-TR-50-AC3	290V / 500V	300V / 575V			
Vakuumbegrenzungsventil	Vacuum valve	Vanne de limitation de pression	VBV V002 G1-AG EVE 16-40		11.01.40.00058		E
Vakuumregulierungsventil	Vacuum regulation valve	Vanne de réglage de vide	VRV 1xD25-KVZ-SD EVE 25/40		11.01.40.00068		E
Ejektor	Ejector	Ejecteur	SEM100-JU		11.01.40.00054		E
Ejektor	Ejector	Ejecteur	SEM150-JU			11.01.40.00113	E
Schalldämpfer für SEM 100	Silencer for SEM100	Silencieux pour SEM 100	SD-140-SEM		10.02.01.00373		E
Schalldämpfer für SEM 150	Silencer for SEM150	Silencieux pour SEM 150	SD M42x1.5-AG 120 SEM150		10.02.01.00491		E

**Ersatz- und Verschleißteile / Spare and consumable parts /
Pièces de rechange et d'usure**

Vakuum-Schlauchheber / Vacuum Hose Lifter / Tube de Levage
VACUSPEED VXS 35

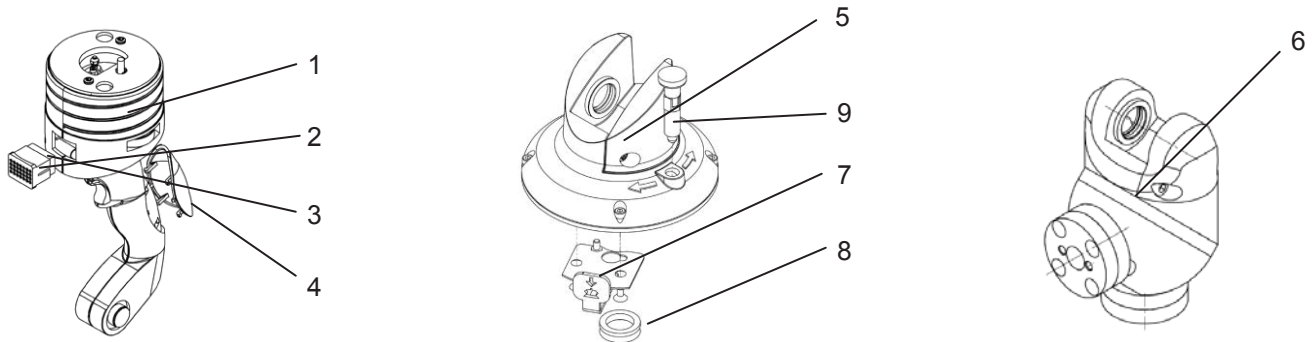
1.2 Hubschlauch / Lifting hose / tube de levage

Bezeichnung	Description	Designation	Abmessungen / Dimensions	Flex 20 Art. - No.	Flex 35 Art. - No.	Legende / caption
Hubschlauch	Lifting tube	Tube de levage	Ø 80mm, L=2100mm	11.04.01.10195	-	V
			Ø 80mm, L=2450mm	11.04.01.10196	-	V
			Ø 100mm, L=2100mm	-	11.04.01.10197	V
			Ø 100mm, L=2450mm	-	11.04.01.10198	V
Schlauchschelle	Hose clamp	Collier de serrage	SSB 35-50	10.07.10.00004		E
Dichtband für Hubschlauch	Support rod for lifting tube	Bande d'étanchéité pour le tube de levage	~ 25 m	27.03.02.00001		E
Schutzschlauch	Protecting tube	Tuyau flexible protecteur	Ø 100mm, L=2250mm	11.04.01.10201	-	E
			Ø 100mm, L=2600mm	11.04.01.10199	-	E
			Ø 120mm, L=2250mm	-	11.04.01.10202	E
			Ø 120mm, L=2600mm	-	11.04.01.10200	E

**Ersatz- und Verschleißteile / Spare and consumable parts /
Pièces de rechange et d'usure**

Vakuum-Schlauchheber / Vacuum Hose Lifter / Tube de Levage
VACUSPEED VXS 35

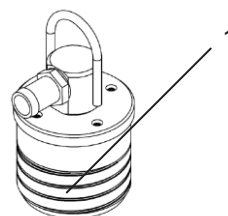
1.3 Bedieneinheit und Dreheinheit / Operating unit and rotation unit / Unité de commande et de rotation



Pos	Anzahl / Amount / Quantité.	Bezeichnung	Description	Designation	Beschreibung / Description	Flex 20 Art.-No.	Flex 35 Art.-No.	Legende / caption
1	1	Bedieneinheit	Operating unit	Unité de commande	Flex 20	11.01.41.00021		E*
1	1	Bedieneinheit	Operating unit	Unité de commande	Flex 35		11.01.40.00120	E*
2	1	Filtereinheit	Filter Unit	Unité de filtrage	FILT-EINH KU	4761.0033		VB
3	2	Filterplatte	Filter plate	Plaque du filtre	FILT-PL 30x22x30 JU-F	4761.0034		V
4	1	Grundkörper	Basic body	Corps de base	GK 88x32x30 JU-F	11.01.40.00007		E
5	1	Dreheinheit	Rotation unit	Unité de rotation	DE-20/35-125-R- 4x90	11.01.40.00012		E
6	1	Anbaumodul	Add-on module	Module d'extension	MOD-ANB 95x90x135 JU-F	11.01.40.00171		E
7	1	Mechanische Verriegelung	Mechanical locking system	Verrou mécanique		11.01.40.00265		E
8	1	V-ring	V-ring	Joint en V	V-RING 18x5.5 V- 20 A NBR	5159.0078		E
9	1	Rastbolzen	Snap bolt	Boulon d'arrêt	BOLZ-6x6-M10-AG-R	20.05.06.00026		E

* Bei einer Ersatzteillieferung für eine Bedieneinheit muss der vorhandene Vakuum-Erzeuger angegeben werden (EVE25, EVE40, EVE50, SEM100, SEM150) / Please specify the vacuum generator being used (EVE25, EVE40, EVE50, SEM100, or SEM150) when placing a spare parts order for an operating unit / Veuillez mentionner le générateur de vide (EVE25, EVE40, EVE50, SEM100, SEM150) en cas de livraison de pièces de rechange pour une unité de commande

Dreheinführung / Rotary suction fitting / Unité de rotation



Pos	Anzahl / Amount / Quantité	Bezeichnung	Description	Designation	Abmessung / Dimension	Flex 20 Art.-No.	Flex 35 Art.-No.	Legende / caption
1	1	Dreheinführung	Rotarx inlet	Dispositif de rotation	Flex 20	11.01.41.00004		E
1	1	Dreheinführung	Rotarx inlet	Dispositif de rotation	Flex 35		11.01.40.00010	E

**Ersatz- und Verschleißteile / Spare and consumable parts /
Pièces de rechange et d'usure**

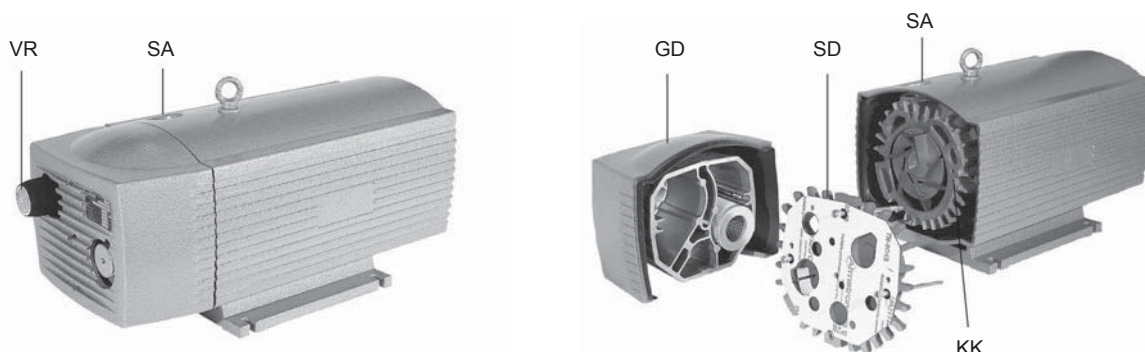
Vakuump-Schlauchheber / Vacuum Hose Lifter / Tube de Levage

VACUSPEED VXS 35

1.4 Sauggreifer und Zubehör / Suction grippers and accessories / Ventouse et accessoires

Anzahl / Amount / Quantité	Bezeichnung	Description	Designation	Beschreibung / Description	Flex 20 Art.-No	Flex 35 Art.-No	Legende
1	Rundsauggreifer	Round suction gripper	Ventouse de levage ronde	RG-20/35-150	11.01.40.00036		VB
1	Doppelsauggreifer	Double vacuum gripper	Ventouse double	DG-20/35-160-SAOF	11.01.40.00059		VB
1	Doppelsauggreifer (Var)	Double vacuum gripper (Var)	Ventouse double (Var)	DG-20/35-400-SAOF140x70-NBR	11.01.40.00252		VB
1	Doppelsauggreifer (Var)	Double vacuum gripper (Var)	Ventouse double (Var)	DG-20/35-800-SAOF140x70-NBR	11.01.40.00254		VB
1	Doppelsauggreifer (Var)	Double vacuum gripper (Var)	Ventouse double (Var)	DG-20/35-1200-SAOF140x70-NBR	11.01.40.00255		VB
1	Traverse	Main-beam	Traverse principale	TRAV-LANG-30X20-VAR-JU-F-20/35	11.01.40.00060		E
1	Traverse	Main-beam	Traverse principale	TRAV-LANG-30x30-VAR-JU-F-20/35	11.01.40.00256		E
1	Flachsauggreifer	Flat suction pad	Ventouse plate	SAOF 140x70 NBR-60 G1/2-AG	11.01.40.00116		V
1	Balgsauggreifer	Bellows suction pad	Ventouse à soufflets	FSGA 110 NBR-70 G1/2-AG	11.01.40.00123		V
1	Traverse	Main-beam	Traverse principale	TRAV-30x20-VAR für VG JU-F/35	11.01.40.00124		E
1	Flachsauggreifer	Flat suction pad	Ventouse plate	SAOF 120x60 NBR-60 G1/2-AG JU-F-20	11.01.41.00024		V
1	Balgsauggreifer	Bellows suction pad	Ventouse à soufflets	FSGA 78 NBR-55 G1/2-AG	11.01.41.00026		V
1	Sacksauggreifer	Sack suction gripper	Ventouse pour sacs	SG-35-255x175-EPDM JU-F		11.03.14.10209	VB
1	Sacksauggreifer	Sack suction gripper	Ventouse pour sacs	SG-35-242x160-JU-F		11.03.14.10231	VB
1	Sacksauggreifer	Sack suction gripper	Ventouse pour sacs	SG-35-242x160-2/1		11.03.14.10227	VB
1	Dichtprofil	sealing section	Profilé d'étanchéité	DI-PROF-15x21.5x605		11.03.14.10229	V
1	Dichtprofil	sealing section	Profilé d'étanchéité	Dichtprofil DI-PROF 10x26x670 EPDM		11.03.14.10221	V
1	Mehrfachsauggreifer	Multiple suction gripper	Ventouse de préhension multiple	MFG 20/35 15 FSG 43	11.01.40.00133		VB
1	Einhängehaken	Suspension hook	Crochet de suspension	EH-20/35 JU-F	11.01.40.00146		E
1	Einhängehaken	Suspension hook	Crochet de suspension	EH-20/35-24x45-2/1	11.01.40.00214		E
1	Sackzange	Sack clamp	pinza pour sacs	SZ-20/35-JU-F-20	11.01.40.00134		E
1	Ablage	Desponing	Table de dépose	AB-JU-20/35-F	11.01.40.00156		E
1	Schalldämmbox	Silencer box	Caisson d'insonorisation	SBB-EVE-650x575x567-ST-VZ	11.04.05.10133		E
1	Abhängung	Suspension	Suspension	SUS-JU-VAR-24x24-JU-F	14.02.01.11055		E
1	Abhängung	Suspension	Suspension	SUS-JU-47x50-JU35-300	14.01.02.00071		E
1	Staubfilter	Dust filter	Filtre à poussière	STF G3/4-IG N ABT	11.01.40.00052		VB
1	Staubfilter	Dust filter	Filtre à poussière	STF G1-IG N EVE50	11.01.40.00190		VB
1	Filtereinsatz	Filter insert	Elément filtrant	FILT-EINS 65x70 PAP STF-3/4-IG	10.07.01.00017		V
1	Druckminderer	Pressure-reduction valve	Réducteur de pression	DM 0.5...10.0 ST-D9 MAN/KVZ	11.01.11.10161		E
1	Zuführschlauch (Pumpe)	Suction hose (pump)	Tuyau flexible d'alimentation	VSL-34-25-PVC-DS	11.04.01.10153		E
1	Zuführschlauch (Ejektor)	Suction hose (Ejector)	Tuyau flexible d'alimentation	VSL-15-9-PVC-G	10.07.09.00005		E

1 Bedienungsanleitung EVE-TR 10 – 50 AC/AC3



Sicherheitsbestimmungen

Bitte beachten Sie die Unfallverhütungsvorschriften VBG 16 Verdichter, insbesondere Abschnitt IIIc „Aufstellung“ und IV „Betrieb“ sowie VBG 4 „Elektrische Anlagen und Betriebsmittel“.



Umbauten oder Veränderungen an den Pumpen können nur mit Zustimmung des Werkes erfolgen.

Verwendungszweck

Die Pumpe wird zur Erzeugung von Vakuum eingesetzt. Die Kenndaten gelten bis zu einer Höhe von 800 m über NN. Es kann nur normale, atmosphärische Luft angesaugt werden. Wird feuchte Luft mit angesaugt, muss die Pumpe vor dem Abschalten 5 Minuten nachlaufen, um die Bildung von Korrosion im Innern der Pumpe zu verhindern.



Die Pumpen arbeiten ölfrei und sollten keinen Ölnebel ansaugen.

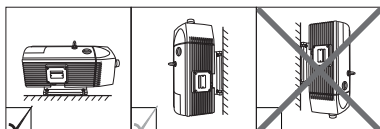
Transport und Lagerung

Die Pumpe unbedingt trocken lagern und Kondensat durch Wasserdämpfe vermeiden.

Heben und transportieren mit Kränen nur an den vorhandenen Ringschrauben.

Aufstellung

Bedenken Sie bei der Aufstellung den leichten Zugang für spätere Wartungsarbeiten.



optimal zugelassen unzulässig

Die Abstände zu benachbarten Wänden betragen im freien Raum mindestens 10 cm, um die Luftströmung für die Kühlung nicht zu behindern.

Beim Einbau in Schallschluckhauben fragen Sie beim Hersteller nach.

Die Umgebungstemperatur darf 45°C nicht überschreiten.

Montage

Auf richtige Dimensionierung und saubere Rohrleitungen achten (keine Schweißperlen, Späne oder ähnliche Verschmutzungen).

Anschlussleitung:

- EVE-TR 10: bis 2m - 1/2"; 2 bis 10m - 3/4"
- EVE-TR 16: bis 2m - 1/2"; 2 bis 10m - 3/4"
- EVE-TR 25: bis 2m - 3/4"; 2 bis 10m - 1"
- EVE-TR 40: bis 2m - 3/4"; 2 bis 10m - 1"
- EVE-TR 50: bis 10m - 1"

Bei Rohrleitungen über 5m Länge empfehlen wir den Einbau von Rückschlagklappen.

Anschlüsse von Öl, Fett, Wasser oder sonstigen Verschmutzungen freihalten.

- Schutzkappen bei SA entfernen. Noch nicht an das Rohrnetz anschließen.

Motoranschluß

• Pumpe so in die Energieversorgung einbinden, dass alle einschlägigen Vorschriften eingehalten werden. EN 60204 T1 beachten.

- Motor nach Schaltplan (im Klemmenkasten) oder fertig vorbereitete Steckerausführungen sind nur durch eine Elektrofachkraft anzuschließen: auf Anschlußspannung und Frequenz achten.

• Motorschutzschalter vorsehen und auf Nennstrom des Motors einstellen (Daten stehen auf dem Motortypenschild).

Mehr als 10 Schaltungen pro Stunde vermeiden.



• Motor kurz anlaufen lassen und Drehrichtung (Pfeil auf dem Gehäuse) kontrollieren. Bei falscher Drehrichtung Phase tauschen.

- Bei **Einphasen-Wechselstrommotoren** mit Temperaturwächter ist nach einer Überlastung der automatische Wiederanlauf nach der Abkühlung zu beachten.

Inbetriebnahme

- Die Saugleitung bei SA anschließen.
- Option: Vakuumreguliertventil VR auf Betriebswerte einstellen (Standardausführung ohne Ventil).

Wartung

Durch eine regelmäßige Wartung Ihrer Pumpe erzielen Sie die besten Arbeitsergebnisse. Die Intervalle sind vom Einsatz und den Umgebungsbedingungen abhängig.



- Vor Beginn der Wartungsarbeiten den Motor stromlos schalten und einen unbeabsichtigten Wiederanlauf zuverlässig verhindern.



- Die **Filterpatronen** sind hinter dem Gehäusedeckel GD montiert und sind je nach Staubanfall zu reinigen. Hierzu den Filter von innen nach außen mit Druckluft durchblasen.



- Verstopfte oder ölige und fettige Patronen unbedingt erneuern.

Für besonders starken Staubanfall sind Zusatzfilter erhältlich.



- Verschmutzungen in den Kühlluftkanälen KK mit Druckluft ausblasen.

Durch Abrieb an der Gehäusewand unterliegen die **Schieber** einem Verschleiß.



- Nach 3000 Betriebsstunden oder mindestens jährlich Schieberbreite kontrollieren.

Mindestbreite:

- EVE-TR 10: 18mm
- EVE-TR 16: 21mm
- EVE-TR 25: 28mm
- EVE-TR 40: 28mm
- EVE-TR 50: 33mm

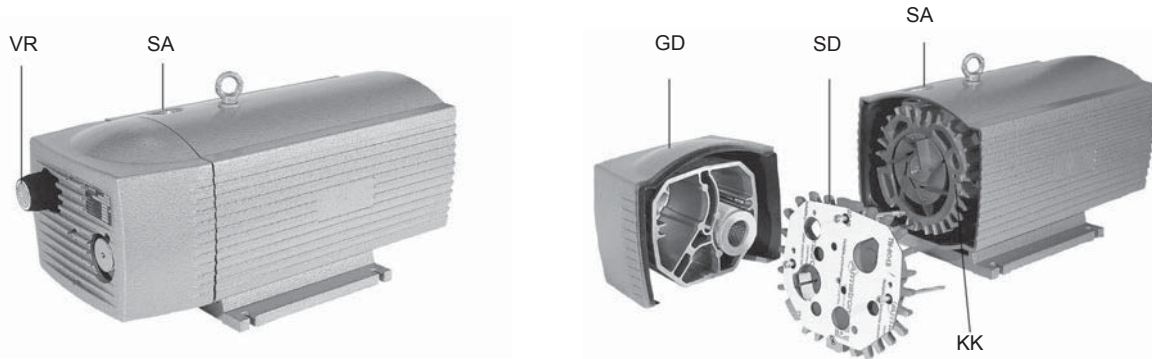
Dabei Gehäusedeckel GD und Seitendeckel SD demontieren.



- Beim Austausch Gehäuse mit trockener Druckluft ausblasen.

- Die **Wälzlager** sind lebensdauer geschmiert und daher wartungsfrei. Ersatz nur durch Original Wälzlager.

1 Operating Instructions for EVE-TR 10 – 50 AC/AC3



Safety Regulations

Please comply with Accident Prevention Regulations VBG 16 Compressors, in particular Section IIIc "Installation" and IV "Operation" and VBG 4 "Electrical Installations and Equipment".



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.

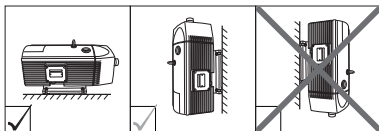
Transport and storage

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 allowed 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 10: up to 2m - 1/2"; 2 to 10m - 3/4"
- EVE-TR 16: up to 2m - 1/2"; 2 to 10m - 3/4"
- EVE-TR 25: up to 2m - 3/4"; 2 to 10m - 1"
- EVE-TR 40: up to 2m - 3/4"; 2 to 10m - 1"
- EVE-TR 50: up to 10m - 1"

With pipelines exceeding 5 m in length we recommend the installation of non-return valves.

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

- Remove end caps 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 and set to nominal motor current. (For data see motor rating plate).

Avoid switching of more than 10 times per hour.



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

- For **single-phase a.c. motors** including a temperature monitor check automatic restart after cooling in case of overtemperature.

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.



- The **filter cartridges** are inserted behind the enclosure cover GD. Clean depending on dust accumulation. Blow out filter from inside to outside.



- Replace blocked, oily or greasy cartridges.

Additional filters are available for operation in very dusty environments.



- 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 operating hours or annually.

Width of vanes, min:

- EVE-TR 10: 18mm
- EVE-TR 16: 21mm
- EVE-TR 25: 28mm
- EVE-TR 40: 28mm
- EVE-TR 50: 33mm

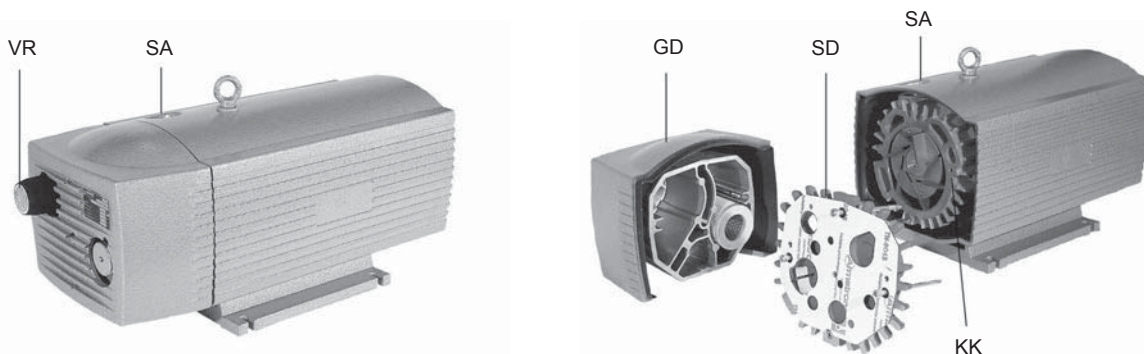
Remove housing cover GD and side cover SD for this.



- On replacement blow out enclosure by dry compressed air.

The **roller bearings** are prelubricated for life and will thus not require maintenance. Replace by original roller bearings only.

1 Instructions de service EVE-TR 10 – 50 AC/AC3



Instructions de sécurité

Veillez respecter les instructions de prévention contre les accidents VBG 16 compresseurs, en particulier les paragraphes IIIc „Mise en place“ et IV „Fonctionnement“, ainsi que VBG 4 „Installations électriques et moyens d'exploitation“.



Toutes transformations ou modifications des pompes ne sont possibles qu'avec l'accord de l'usine.

Application

Le compresseur à piston sec est utilisé pour générer du vide. Les données caractéristiques sont valables jusqu'à une altitude de 800 m au-dessus du niveau de la mer. Seul de l'air atmosphérique normal et sec peut être aspiré. Faire marcher la pompe 5 minutes sur son erre avant de la mettre hors circuit en cas d'aspiration simultanée d'air humide, afin de prévenir toute formation de corrosion dans le corps de pompe.



Les pompes fonctionnent sans huile et ne devraient pas aspirer de brouillard d'huile.

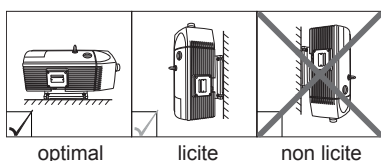
Transport et stockage

Stocker absolument la pompe au sec et éviter le condensat dû à des vapeurs d'eau.

Soulever et transporter la pompe avec des grues uniquement en utilisant les anneaux de levage en place.

Mise en place

Nous recommandons de mettre l'appareil en place de manière à ce que les travaux de maintenance puissent être ultérieurement facilement effectués.



L'espace libre par rapport aux parois voisines devra être d'au moins 10 cm, afin de ne pas gêner le flux d'air de refroidissement.

En cas de montage dans des enveloppes insonorisantes, adressez-vous à l'entreprise Schmalz GmbH.

La température ambiante ne doit pas dépasser 45°C.

Montage

Veiller à ce que le dimensionnement soit correct et à ce que les conduites soient propres (pas de perles de soudure, copeaux ou autres impuretés).

Tuyauterie:

EVE-TR 10: à 2m - 1/2"; 2 à 10m - 3/4"
 EVE-TR 16: à 2m - 1/2"; 2 à 10m - 3/4"
 EVE-TR 25: à 2m - 3/4"; 2 à 10m - 1"
 EVE-TR 40: à 2m - 3/4"; 2 à 10m - 1"
 EVE-TR 50: à 10m - 1"

Si l'on utilise des conduites de plus de 5 m de long, nous recommandons d'installer des clapets anti-retour.

Veiller à ce que les raccords soient exempts d'huile, de graisse, d'eau ou de toutes autres impuretés.

- Enlever les capuchons de protection en SA. Ne pas encore raccorder au réseau de tuyauterie.

Raccordement du moteur

Relier la pompe au système d'alimentation en énergie de façon à respecter toutes les prescriptions applicables. Observer EN 60204 T1.

Faire raccorder le moteur suivant le schéma de montage (dans la boîte à bornes) ou les connexions à fiches prééquipées uniquement par un électricien qualifié; tenir compte de la tension de raccordement et de la fréquence.

- Prévoir un disjoncteur-protecteur et régler au courant nominal du moteur (les données sont indiquées sur la plaque de type du moteur).

Eviter de faire plus de 10 commutations par heure.



- Faire démarrer brièvement le moteur et contrôler le sens de rotation (flèche sur le corps). Si le sens de rotation est incorrect, intervertir la phase.

- Chez les moteurs à courant alternatif monophasé équipés d'un contrôleur de température, attention au redémarrage automatique après le refroidissement à la suite d'une surcharge.

Mise en service

- Raccorder la conduite d'aspiration à SA.
- Option: Régler la soupape de régulation du vide VR sur les valeurs de service (modèle standard sans soupape).

Maintenance

Une maintenance régulière de votre pompe vous permet d'obtenir les meilleurs résultats de travail. Les intervalles sont fonction de l'utilisation et des conditions ambiantes.



- Avant le début des travaux de maintenance, enlever la prise de secteur et empêcher de manière fiable un redémarrage non intentionnel.

- Les **cartouches filtrantes** sont situées derrière les couvercles du corps GD et doivent être nettoyées en fonction de l'encrassement. Pour cela, purger le filtre avec de l'air comprimé de l'intérieur vers l'extérieur.

- Remplacer impérativement les cartouches obturées ou huileuses.

En cas d'encrassement important, des filtres supplémentaires sont disponibles.

- Eliminer les impuretés qui se trouvent dans les canaux d'air de refroidissement KK avec de l'air comprimé.

Les **palettes** subissent une usure due au frottement sur la paroi du corps.

- Contrôler la largeur de la palette au bout de 3000 heures de service ou d'un an.

Largeur palettes, min:

EVE-TR 10: 18mm
 EVE-TR 16: 21mm
 EVE-TR 25: 28mm
 EVE-TR 40: 28mm
 EVE-TR 50: 33mm

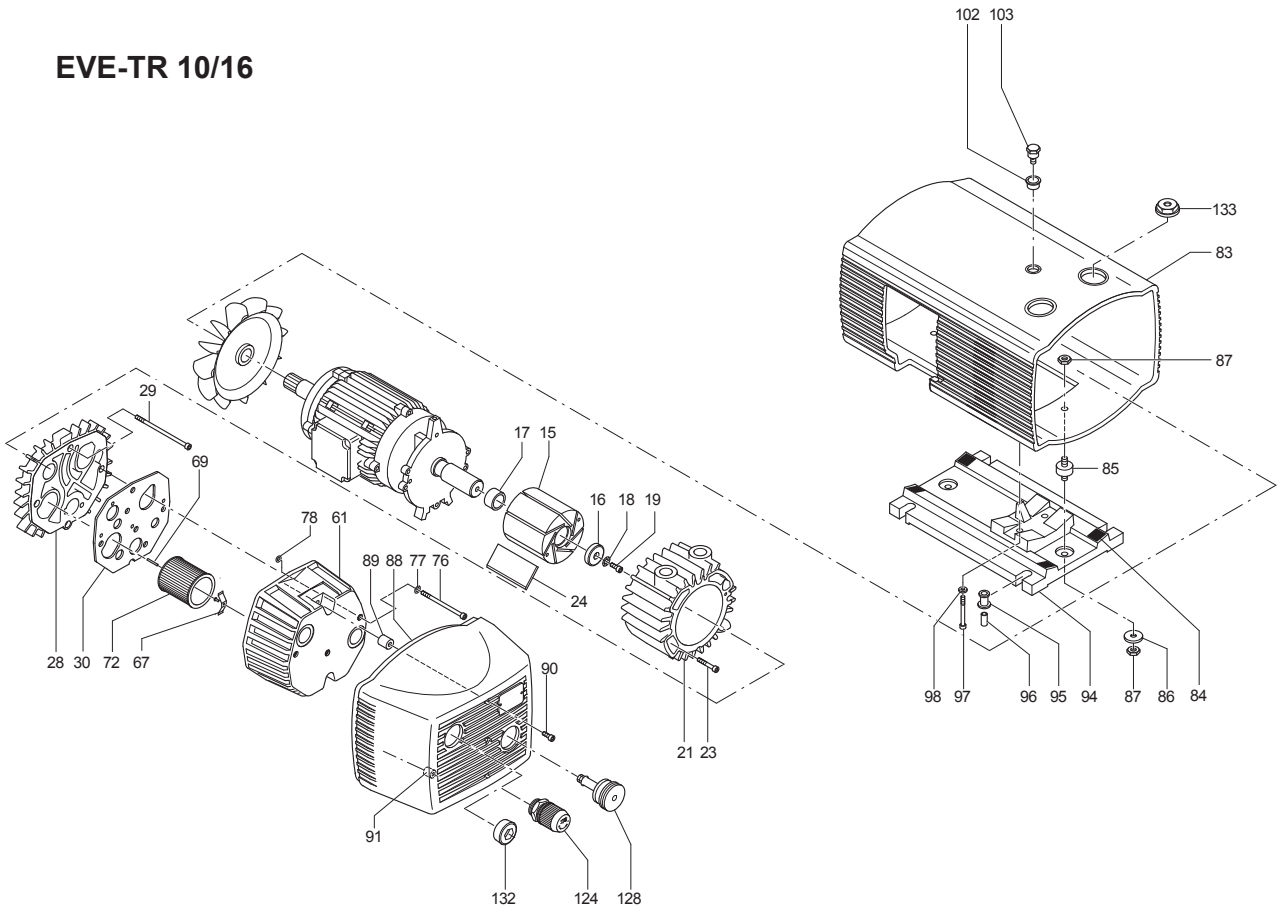
Pour cela, démonter le couvercle du corps GD et le couvercle latéral SD.

- Lors du remplacement, purger le corps avec de l'air comprimé sec.

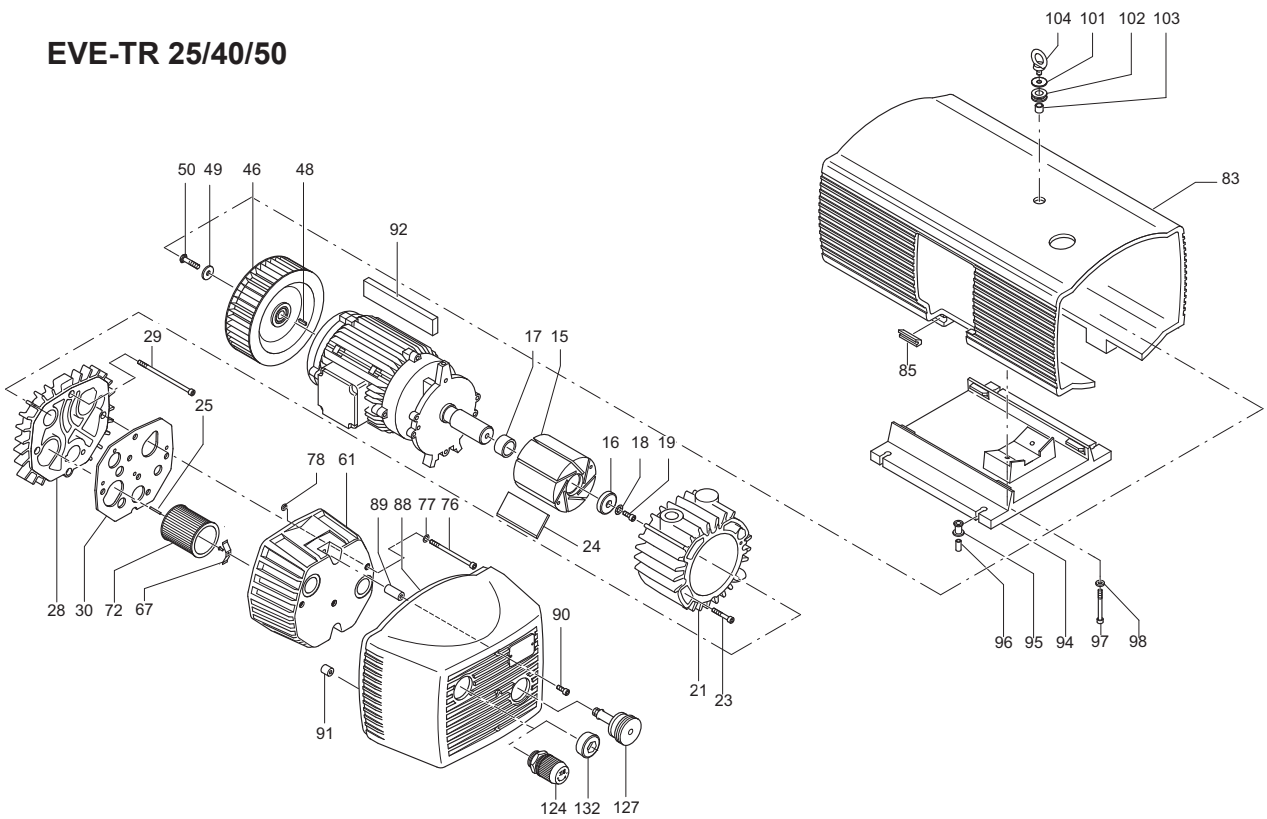
- Les **roulements** sont lubrifiés à vie et ne nécessitent donc aucun entretien. Ne les remplacer que par des roulements à billes d'origine.

2 Ersatzteile / Spare parts / Pièces de rechange

EVE-TR 10/16



EVE-TR 25/40/50



Operating Instructions for EVE-TR 10 – 50 AC/AC3

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Pos	Typ	Bestell-Nr. Ident No. No. Identification	V ¹⁾ E	Beschreibung	Description	Designation
15	EVE-TR 10	020000 16200	E	KOLBEN	ROTOR	PISTON
	EVE-TR 16	020000 16300	E			
16	EVE-TR 10	016800 05000	E	SPANNSCHEIBE	CLAMPING DISC	DISQUE DE SERRAGE
	EVE-TR 16	016800 16300	E			
17	EVE-TR 10	911001 00000	E	STAR-TOLERANZRING	STAR-TOLERANCE-RING	BAGUE STAR
	EVE-TR 16	911009 00000	E			
18		949203 00000	E	ZAHNSCHEIBE	TOOTHED SPRING WASHER	DENT DISQUE
19		945320 00000	E	INNENSECHSKANTSCHRAUBE	SOCKET HEAD SCREW	VIS HEXAGONALE INTERNE
21		000100 16200	E	GEHÄUSE	PUMP BODY	CORP DE POMPE
23	EVE-TR 10	945319 00000	E	INNENSECHSKANTSCHRAUBE	SOCKET HEAD SCREW	VIS HEXAGONALE INTERNE
	EVE-TR 16	945321 00000	E			
24	EVE-TR 10	VS1	V	SCHIEBER-KOHELE	CARBON VANES	PALETTE DE CHARBON
	EVE-TR 16	VS2	V			
28	EVE-TR 10	000700 16200	E	SEITENDECKEL	LID	COUVERCLE
	EVE-TR 16	000705 16300	E			
29	EVE-TR 10	945364 00000	E	INNENSECHSKANTSCHRAUBE	SOCKET HEAD SCREW	VIS HEXAGONALE INTERNE
	EVE-TR 16	945372 00000	E			
30	EVE-TR 10	008901 16200	E	DICHTUNG	GASKET	JOINT
	EVE-TR 16	008901 16300	E			
61	EVE-TR 10	004800 27300	E	FILTERDECKEL	FILTER COVER	COUVERCLE DU FILTRE
	EVE-TR 16	004800 27400	E			
67		009000 16300	E	ANPRESSFEDER	BLADE SPRING	RESSORT-JAME
69		952009 00000	E	SPANNHÜLSE	LOCATING PIN	DOVILLE DE ETRAGE
72	EVE-TR 10	10.03.01.00021	V	FILTERPATRONE	FILTER CARTRIDGE	CARTOUCHE FILTRANTE
	EVE-TR 16	10.03.01.00022	V			
76	EVE-TR 10	945364 00000	E	INNENSECHSKANTSCHRAUBE	SOCKET HEAD SCREW	VIS HEXAGONALE INTERNE
	EVE-TR 16	945325 00000	E			
77		948021 00000	E	DICHTRING	SEALING RING	JOINT
78		913161 00000	E	O-RING	O-RING	ANNEAU-O
83	EVE-TR 10	006800 27300	E	GERÄTEHAUBE	PROTECTING HOOD	CARTER PROTECTEUR
	²⁾	006802 27300	E			
	EVE-TR 16	006800 27400	E			
	²⁾	006802 27400	E			
84		060901 16300	E	DÄMPFUNGSSTREIFEN	ELASTIC PAD	AMORTISSEUR
85		741310 50000	E	GUMMIPUFFER	RUBBER BUFFER	AMORTISSEUR
86		949402 00000	E	UNTERLEGSCHLEIBE	WASHER	RONDELLE
87		947001 00000	E	SECHSKANTMUTTER	HEX.NUT	ECROU A 6PANS
88	EVE-TR 10	006801 27300	E	FRONTHAUBE	PROTECTING HOOD	CARTER PROTECTEUR
	EVE-TR 16	006801 27400	E			
89		741310 40000	E	GUMMIPUFFER	RUBBER BUFFER	AMORTISSEUR
90		945318 00000	E	INNENSECHSKANTSCHRAUBE	SOCKET HEAD SCREW	VIS HEXAGONALE INTERNE
91		951922 00000	E	GUMMIFORMTEIL	RUBBER ELEMENT	ELEMENT EN CAOUTCHOUC
94	EVE-TR 10	015100 27300	E	MOTORFUSS	FOOT	PIED
	EVE-TR 16	015100 27400	E			
95		951921 00000	E	GUMMIFORMTEIL	RUBBER ELEMENT	ELEMENT EN CAOUTCHOUC
96		068000 27600	E	DISTANZSTÜCK	SPACING COLLAR	DONILLE D'ECARMENT
97	EVE-TR 10	945363 00000	E	INNENSECHSKANTSCHRAUBE	SOCKET HEAD SCREW	VIS HEXAGONALE INTERNE
	EVE-TR 16	945323 00000	E			
98		949451 00000	E	UNTERLEGSCHLEIBE	WASHER	RONDELLE
102		968104 00000	E	GUMMI-DISTANZSTÜCK	RUBBER SLEEVE	PIECE D'ECARTEMENT
103		029600 16300	E	BOLZEN	BOLT	BOULON
124		10.03.01.00136	E	VAKUUMREGULIERVENTIL	VACUUM REG. VALVE	SOUPAPE REGLAGE VIDE
128		727502 06000	E	ABBLASEVENTIL	BLOW-OFF VALVE	SILENCIEUX
132		951232 00000	E	VERSCHLUSS-SCHRAUBE	SCREW PLUG	BOUCHON
133		951224 00000	E	VERSCHLUSS-SCHRAUBE	SCREW PLUG	BOUCHON
VS1	EVE-TR 10	10.03.01.00132	V	VERSCHLEISSTEILSATZ (7x POS.24 + 1x POS.72)	SET OF WEAR PARTS (7x POS.24 + 1x POS.72)	KIT DE PIECES D'USURE (7x POS.24 + 1x POS.72)
VS2	EVE-TR 16	10.03.01.00133	V	VERSCHLEISSTEILSATZ (7x POS.24 + 1x POS.72)	SET OF WEAR PARTS (7x POS.24 + 1x POS.72)	KIT DE PIECES D'USURE (7x POS.24 + 1x POS.72)

¹⁾ V - Verschleissteil / wear part / pièce d' usure

E - Ersatzteil / spare part / pièce de rechange

²⁾ Ausführung - Einphasenwechselstrom / Design - single-phase AC / Fabrication - AC monophasé

Operating Instructions for EVE-TR 10 – 50 AC/AC3

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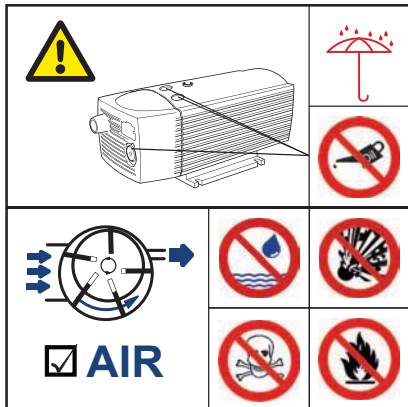
Pos	Typ	Bestell-Nr. Ident No.	V ¹⁾ E	Beschreibung	Description	Designation
15	EVE-TR 25 EVE-TR 40/50	020000 16400 020000 16500	E E	KOLBEN	ROTOR	PISTON
16		016800 16500	E	SPANNSCHEIBE	CLAMPING DISC	DISQUE DE SERRAGE
17	EVE-TR 25 EVE-TR 40/50	911012 00000 911008 00000	E E	STAR-TOLERANZRING	STAR-TOLERANCE-RING	BAGUE STAR
18		949203 00000	E	ZAHNSCHEIBE	TOOTHED SPRING WASHER	DENT DISQUE
19		945320 00000	E	INNENSECHSKANTSCHRAUBE	SOCKET HEAD SCREW	VIS HEXAGONALE INTERNE
21	EVE-TR 25 EVE-TR 40 EVE-TR 50	000101 16400 000102 16500 000106 16500	E E E	GEHÄUSE	PUMP BODY	CORP DE POMPE
23	EVE-TR 25 EVE-TR 40/50	945320 00000 945322 00000	E E	INNENSECHSKANTSCHRAUBE	SOCKET HEAD SCREW	VIS HEXAGONALE INTERNE
24	EVE-TR 25 EVE-TR 40/50	VS3 VS4	V V	SCHIEBER, KOHLE	CARBON VANES	PALETTE DE CHARBON
25		952009 00000	E	SPANNHÜLSE	LOCATING PIN	DOVILLE DE ETRAGE
28		000710 16500	E	SEITENDECKEL	LID	COUVERCLE
29	EVE-TR 25 EVE-TR 40/50	945373 00000 945374 00000	E E	INNENSECHSKANTSCHRAUBE	SOCKET HEAD SCREW	VIS HEXAGONALE INTERNE
30		008900 16500	E	DICHTUNG	GASKET	JOINT
46	EVE-TR 25 EVE-TR 40/50	502301 16400 902300 26200	E E	VENTILATOR MIT NABE	FAN	VENTILATEUR
48		947713 00000	E	PASSFEDER	KEY	CLAVETTE
49		949454 00000	E	U-SCHEIBE	WASHER	RONDELLE
50		901804 00000	E	WELLENENDSCHRAUBE	SHAFT END BOLT	VIS BOUT D'ARBRE
61		004803 27600	E	FILTERDECKEL	FILTER COVER	COUVERCLE DU FILTRE
67		009000 16300	E	ANPRESSFEDER	BLADE SPRING	RESSORT-JAME
72		10.03.01.00023 VS3 + VS4	V	FILTERPATRONE	FILTER CARTRIDGE	CARTOUCHE FILTRANTE
76		945373 00000	E	INNENSECHSKANTSCHRAUBE	SOCKET HEAD SCREW	VIS HEXAGONALE INTERNE
77		948021 00000	E	DICHTRING	SEALING RING	JOINT
78		913161 00000	E	O-RING	O-RING	ANNEAU-O
83	EVE-TR 25 EVE-TR 40/50	006805 27500 006801 27600	E E	GERÄTEHAUBE	PROTECTING HOOD	CARTER PROTECTEUR
85		951920 00000	E	GUMMIFORMTEIL	RUBBER ELEMENT	ELEMENT EN CAOUTCHOUC
88		006802 27600	E	GERÄTEHAUBE	PROTECTING HOOD (FRONT)	CARTER PROTECTEUR
89		741365 00000	E	GUMMIPUFFER	RUBBER BUFFER	AMORTISSEUR
90		945318 00000	E	INNENSECHSKANTSCHRAUBE	SOCKET HEAD SCREW	VIS HEXAGONALE INTERNE
91		951922 00000	E	GUMMIFORMTEIL	RUBBER ELEMENT	ELEMENT EN CAOUTCHOUC
92	EVE-TR 25 EVE-TR 40/50	964110 00000 964109 00000	E E	KANTENSCHUTZ	EDGE PROTECTION	PROTECTION D'ARETE
94		015100 27600	E	FUSS	FOOT	PIED
95		951921 00000	E	GUMMIFORMTEIL	RUBBER ELEMENT	ELEMENT EN CAOUTCHOUC
96		068000 27600	E	DISTANZSTÜCK	SPACING COLLAR	DONILLE D'ECARMENT
97		945328 00000	E	INNENSECHSKANTSCHRAUBE	SOCKET HEAD SCREW	VIS HEXAGONALE INTERNE
98		949451 00000	E	UNTERLEGSCHNEIBE	WASHER	RONDELLE
101		833903 99597	E	VENTILTÄLLER	DISC	PLATEAU DE SOUPAPE
102		951906 00000	E	KABELTÜLLE	RUBBER BUSHING	PROTECTION
103		068002 16500	E	DISTANZROHR	SPACER TUBE	TUBE D'ECARTEMENT
104		548800 16300	E	RINGSCHRAUBE	EYE SCREW	PITON
124		10.03.01.00136	E	VAKUUMREGULIERVENTIL	VACUUM REGULATING VALVE	SOUPAPE REGLAGE VIDE
127		727502 06000	E	ABBLASEVENTIL	BLOW-OFF VALVE	SILENCIEUX
VS3	EVE-TR 25	10.03.01.00134	V	VERSCHLEISSTEILSATZ (7x POS.24 + 1x POS.72)	SET OF WEAR PARTS (7x POS.24 + 1x POS.72)	KIT DE PIECES D'USURE (7x POS.24 + 1x POS.72)
VS4	EVE-TR 40/50	10.03.01.00135	V	VERSCHLEISSTEILSATZ (7x POS.24 + 1x POS.72)	SET OF WEAR PARTS (7x POS.24 + 1x POS.72)	KIT DE PIECES D'USURE (7x POS.24 + 1x POS.72)

¹⁾ **V** - Verschleissteil / wear part / pièce d' usure
E - Ersatzteil / spare part / pièce de rechange

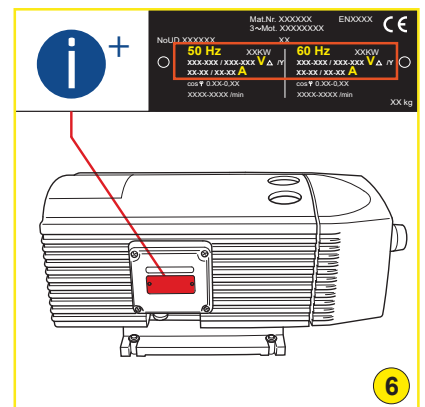
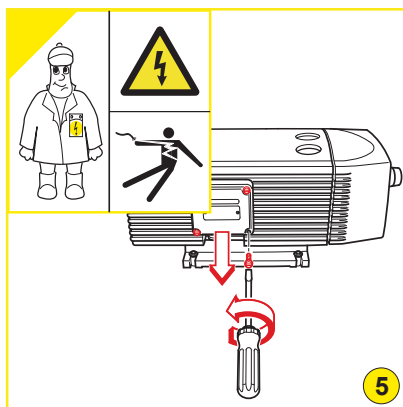
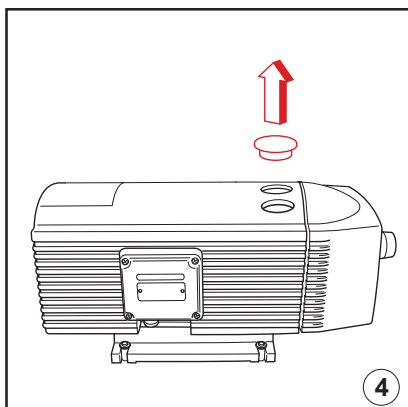
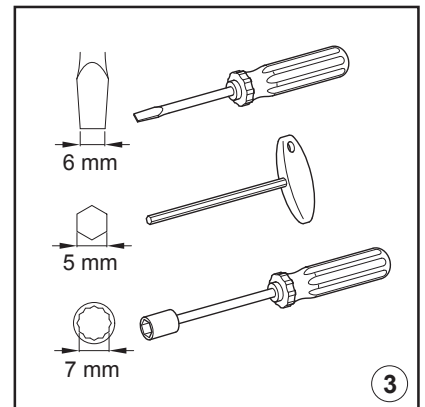
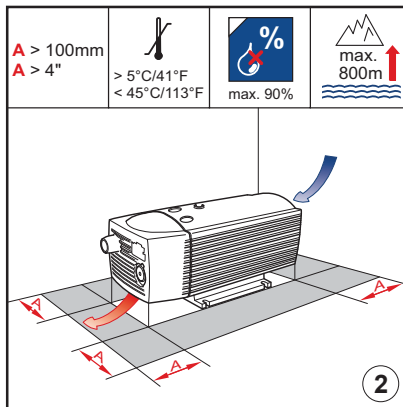
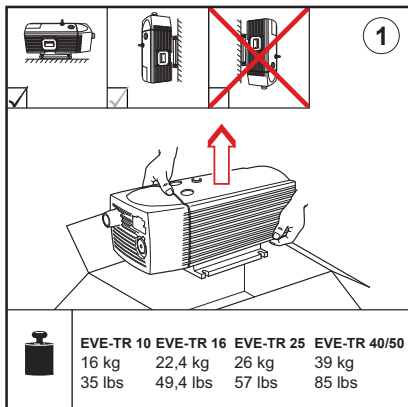
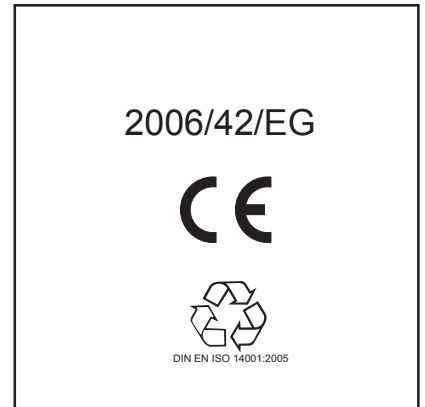
Operating Instructions for EVE-TR 10 – 50 AC/AC3

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

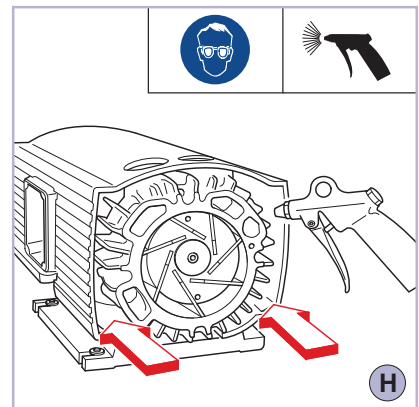
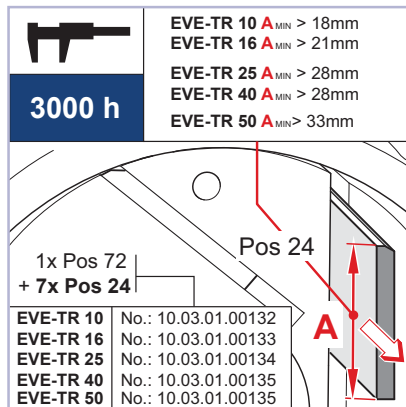
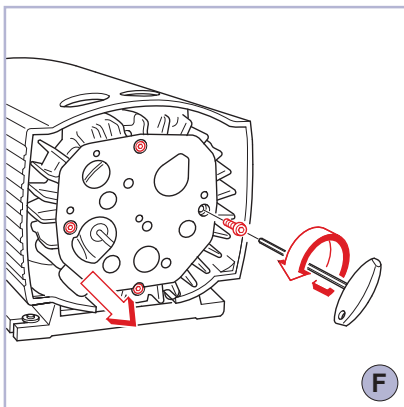
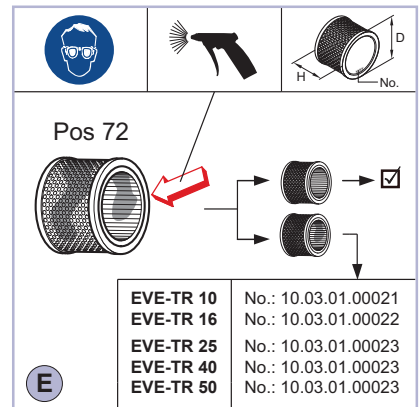
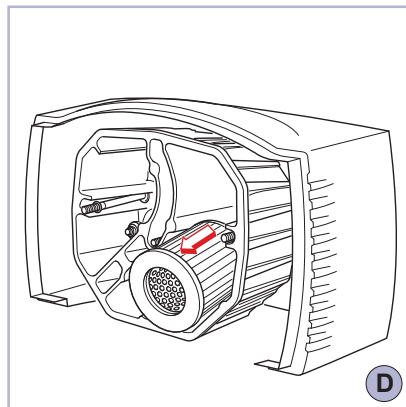
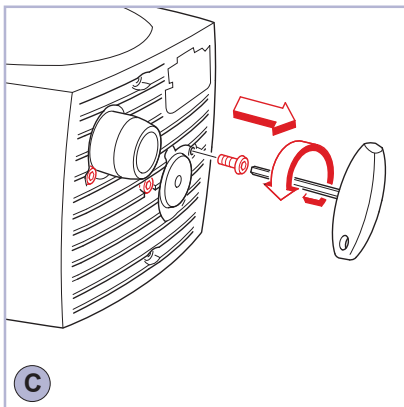
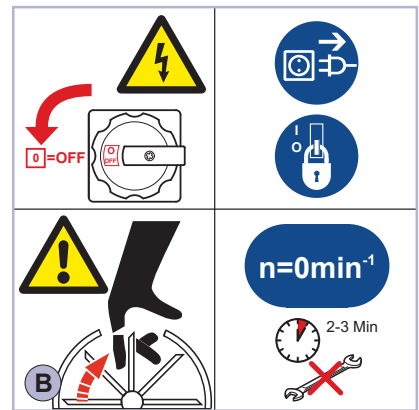
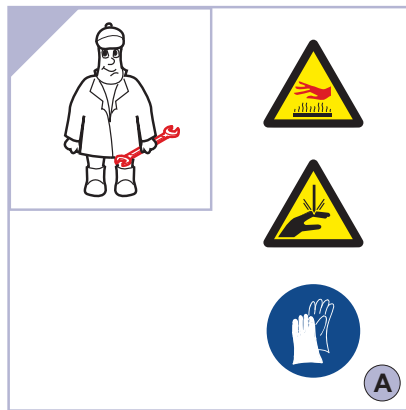
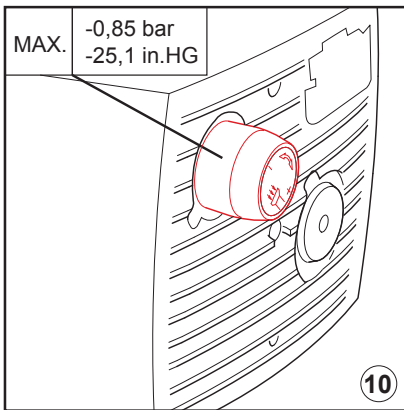
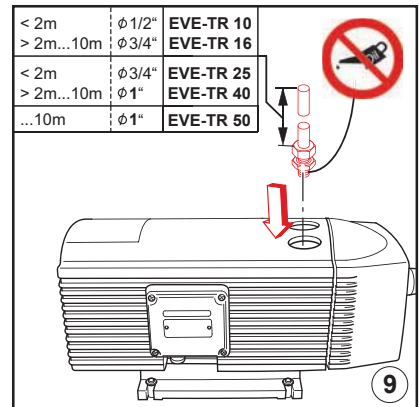
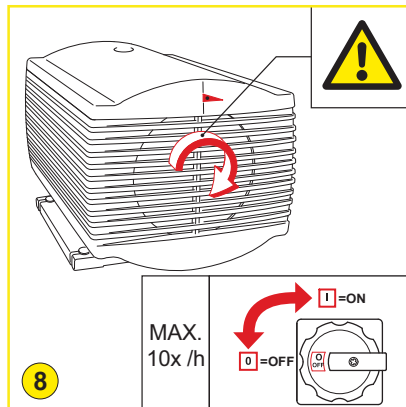
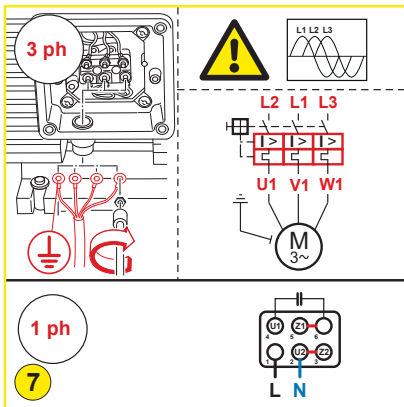
Driftsinstruks
Driftsinstruktioner
Käyttöohje
Driftsvejledning
Instrukcja obsługi
Kezelési útmutató
Návod k obsluze
Navodilo za uporabo
Návod na obsluhu
El Kitabi
Инструкция по эксплуатации
使用说明书



 MAX. VACUUM	 No year type: _____ frequency: _____ Hz speed: _____ rpm power required: _____ kW inlet capacity: _____ m³/h max. vacuum: MAX VACUUM mbar Made in _____	
	 MAX.	
DIN EN ISO 2151 DIN EN ISO 3744	50 Hz EVE-TR 10 60 dB(A) EVE-TR 16 61 dB(A) EVE-TR 25 62 dB(A) EVE-TR 40 67 dB(A)	60 Hz 62 dB(A) 64 dB(A) 67 dB(A) 72 dB(A)
	m³/h	
	mbar	
	mbar	



Operating Instructions for EVE-TR 10 – 50 AC/AC3





Bedienungsanleitung Operating Instructions

Mehrstufenejektor /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.

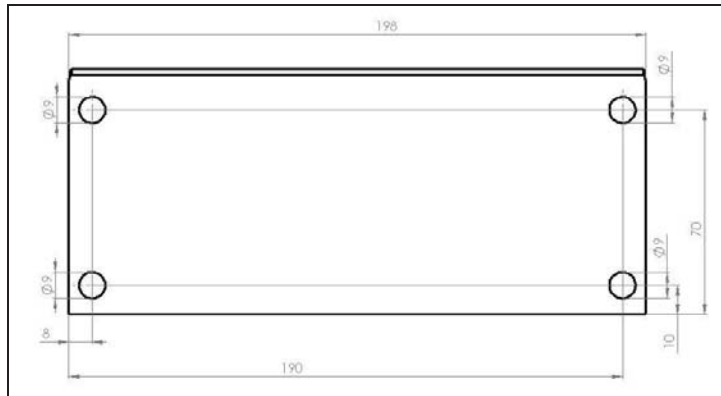
Mounting the Ejector SEM 25 ... 150

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

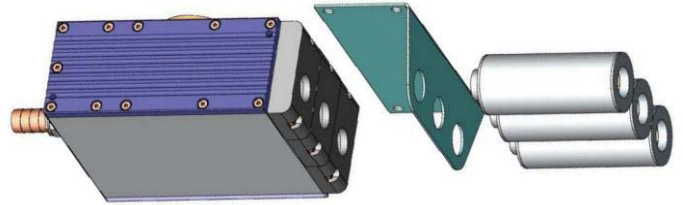
Befestigung Ejektor SEM 300

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

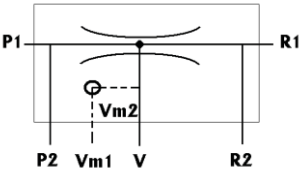
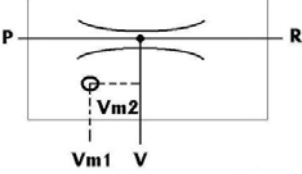
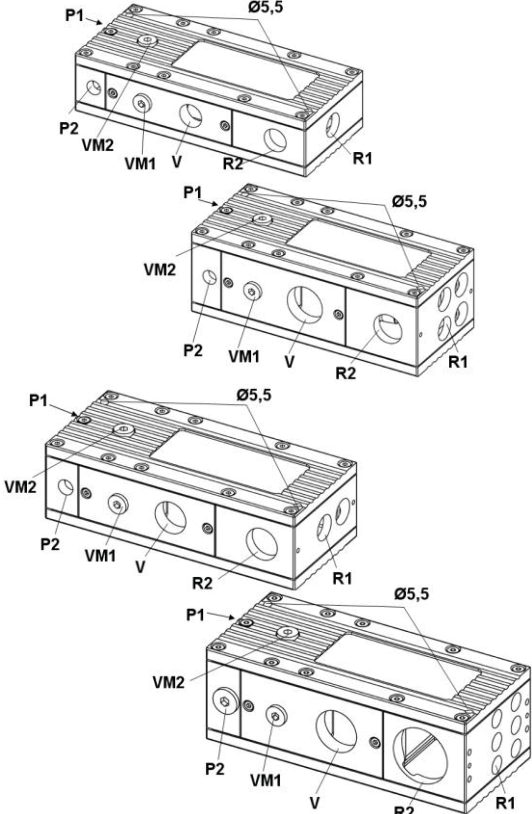
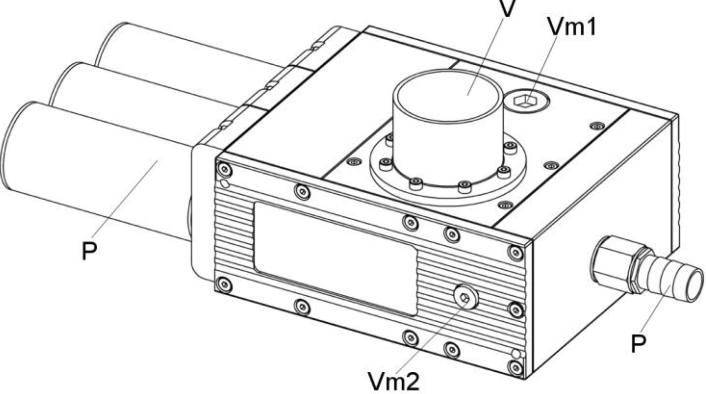


Mounting the Ejector SEM 300

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 ¹ Anschluss Druckluft / Compressed air	V Anschluss Vakuum / Vacuum	VM1 / VM2 ² Anschluss Vakuumbefragung / Vacuum sensor	Schlauchdurchmesser Innen (empfohlen) / Internal diameter of hose (recommended)		R1 ³ Anschluss Abluft axial / Exhaust air (axial)	R / R2 ³ Anschluss Abluft seitlich / Exhaust air (on side)
				Druckluftseitig (mindestens) / Compressed air (minimum)	Vakuumbefragung (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	G1/4"	G 1"	G 1/8"	Ø 9 mm	Ø 38 mm	6x 12,5 mm	M42x 1,5 mm
SEM 150- SDA	G1/4"	G 1"	G 1/8"	Ø 9 mm	Ø 38 mm	6x 12,5 mm	M42x 1,5 mm
SEM 150- SDS	G1/4"	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"

¹ Der nicht benötigte Druckluftanschluss muss verschlossen werden!
² Anschlüsse für Vakuumbefragung sind standardmäßig verschlossen!
³ 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

¹ The unused compressed-air connector must be sealed!
² The vacuum-sensor connectors are sealed when the unit leaves the factory!
³ 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

¹ Bei max. 2 m Länge

¹ At maximum 2 m length

Typ / Type	Max. Saugvermögen / Max. suction capacity [l/min]	Luftverbrauch / Air consumption ¹ [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

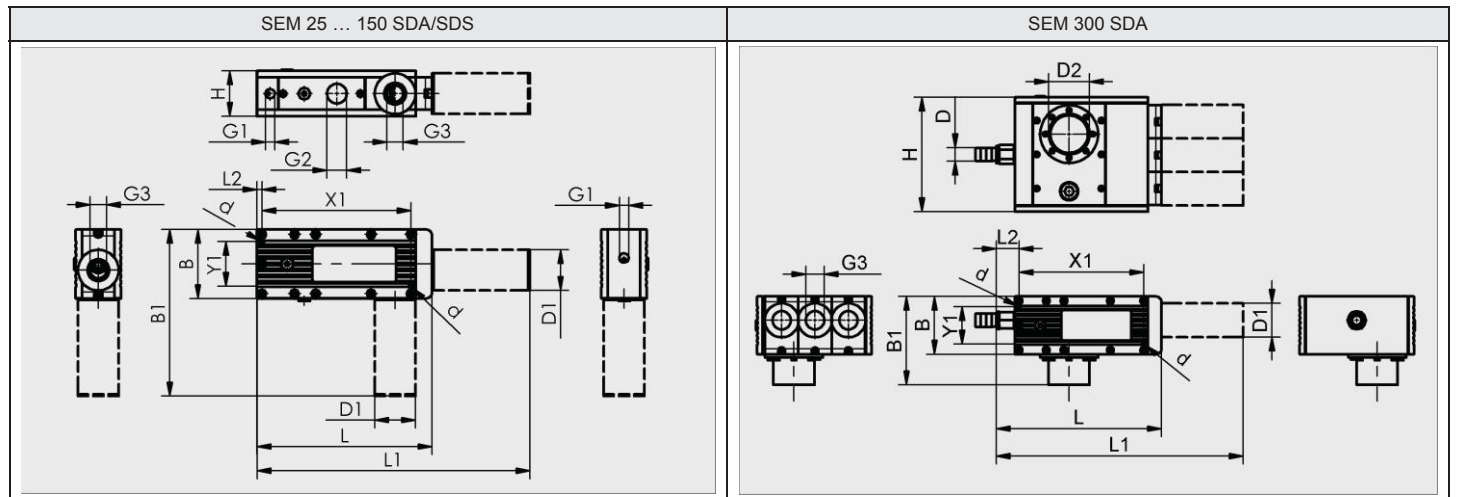
¹ Bei optimalem Betriebsdruck

¹ 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 ¹	Vacuum gauge Ø 40 mm, connection in the rear ¹	10.07.02.00035
Vakuumschalter VS-V-PNP ¹	Vacuum switch VS-V-PNP ¹	10.06.02.00191
Vakuumschalter VS-V-W-D-PNP ¹	Vacuum switch VS-V-W-D-PNP ¹	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 ² „Saugen Ein/Aus“, 24VDC, NO	“Pick up ON/OFF” solenoid valve ² , DC 24 V, NO	10.05.01.00156
Elektromagnetventil ² „Saugen Ein/Aus“, 24VDC, NC	“Pick up ON/OFF” solenoid valve ² , DC 24 V, NC	10.05.01.00161

¹ Die Vakuumschalter / Manometer werden separat verpackt mit komplettem Montagezubehör geliefert. Aus Sicherheitsgründen soll der

Vakuumschalter / Manometer mit handelsüblicher, mittelfester Schraubensicherung eingeklebt werden.

² Bei Verwendung eines Magnetventils ist der Eingangsdruck um ca. 0,5 bar zu erhöhen.

¹ 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.

² 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 Verkaufs- 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 Ejektor	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

Technische Änderungen, Druckfehler und Irrtümer vorbehalten!

We reserve the right to make technical changes. No responsibility is taken for printing or other types of errors

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


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