



# Operating Instructions

Translation of original operating instructions

**Vacuum-Lifting-Device SH-1000-MINI**

**SH-1000-MINI-E**



Bitte beachten Sie, dass das Produkt ohne vorliegende Betriebsanleitung in Landessprache nicht eingesetzt / in Betrieb gesetzt werden darf. Sollten Sie mit der Lieferung des Produkts keine Betriebsanleitung in Ihrer Landessprache erhalten haben, kontaktieren Sie uns bitte. In Länder der EU / EFTA senden wir Ihnen diese kostenlos nach. Für Länder außerhalb der EU / EFTA erstellen wir Ihnen gerne ein Angebot für eine Betriebsanleitung in Landessprache, falls die Übersetzung nicht durch den Händler/Importeur organisiert werden kann.

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.

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## 1 EC-Declaration of Conformity

Description: **Vacuum-Lifting-Device SH-1000-MINI**  
Type: **SH-1000-MINI-E**  
Order number: **5240.0020**  
Manufacturer: Probst GmbH  
Gottlieb-Daimler-Straße 6  
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The machine described above complies with the relevant requirements of the following EU directives:

**EC-machinery directive 2006/42/EC**

**2014/30/EU** (Electromagnetic compatibility)

The following standards and technical specifications were used:

**DIN EN ISO 12100**

Safety of machinery - General principles for design - Risk assessment and risk reduction (ISO 12100:2010)

**DIN EN ISO 13857**

Safety of machinery - safety distances to prevent hazard zones being reached by upper and lower limbs (ISO 13857:2008)

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

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

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

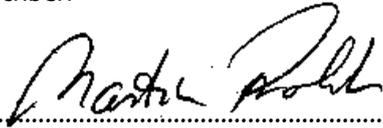
Safety of machinery, electrical equipment of industrial machines. Part 1: General requirements.

**Authorized person for EC-documentation:**

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

Signature, information to the subscriber:

Erdmannhausen, 20.03.2019.....  
(M. Probst, Managing director)

**EC-Declaration of Conformity / UKCA-Declaration of Conformity**

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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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Erdmannhausen, 02.08.2021.....  
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## 2 General

### 2.1 Authorized use



- The device is only designed for the use specified in this documentation.
- Every other use is not authorized and is forbidden!
- All relevant safety regulations, corresponding legal regulations, especially regulations of the declaration of conformity, and additional local health and safety regulations must be observed.



Prior to every operation the user **must** ensure that:

- The equipment is suited to the intended operation
- the functioning and the working condition of the equipment is examined
- the load is suitable to be handled.

Any doubts about instructions should be raised with the manufacturer prior to use.

- The device SH-1000-MINI is only suitable for lifting, transporting and laying of dense concrete elements such as natural stone, concrete, marble, granite slabs, steps, pipes, kerbstones, etc. with the corresponding suction plates.
- This device can be hung from any carrier/support frame (e.g. excavator) by means of load hook, chains, cables and such like.
- The load is additionally secured with the standard load securing chain.
- Various suction plates can be fitted to the device (SH-1000-MINI) via a quick release locating pin, enabling it to be used for many different purposes and with many different loads.
- **The carrying capacity/working load limit (WLL) of the device of 1000kg must not be exceeded!**

This device is equipped with the following safety devices:

- Safety vacuum storage tank (vacuum tank volume 12,5 l).
- Vacuum gauge.
- Pressure relieve valve.
- Acoustic warning device.
- Load securing chain with chain box.
- Optional traverse TRA (with load safety chain) for multiple attachment of suction plates to the vacuum attachment.

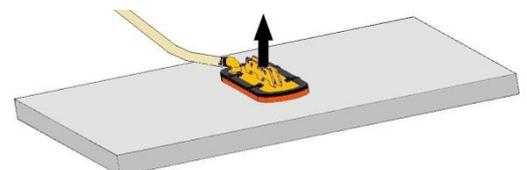
Optional retrofit:

- Retrofitting of a hydraulic rotary head (facilitation for the machine operator for exact positioning of the material to be laid)

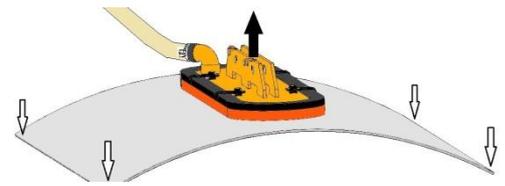


**ATTENTION:** The use of this device is only permitted in proximity to the ground (→ chapter “Safety at work”).

- The load (stone slabs) which is to be sucked and transported, must have sufficient inherent stability, otherwise there is **risk of breakage** when lifting!
- Stone slabs **must not** be bend when lifting - especially take care with thin and large-sized stone slabs!



- Generally, the load (stones slab) is only to be sucked in the **middle**, otherwise the load hangs diagonally under the device which may cause a breaking of the load - especially when lifting large stone slabs with a small suction plate.
- Standard suction plates are not suitable for the transport of glass plates!



**Only suction plates** of the manufacturer **PROBST** shall be used, which shows doubtless a **maximum load capacity** at a pressure of - **0.6 bar** at the *carrying capacity sticker*. In unclear circumstances the vacuum device and the suction plate may not be put into operation. The manufacturer must be contacted!



- Some suction plates which can be mounted to the device will reduce its carrying capacity. *The maximum load is indicated on each suction plate.*
- Use only suction plates which are **approved** for this device!
- **Do not exceed** the maximum carrying capacity of the suction plates!!!  
**Danger: Load (stone slabs) will fall down!**



#### NOT ALLOWED ACTIVITIES:

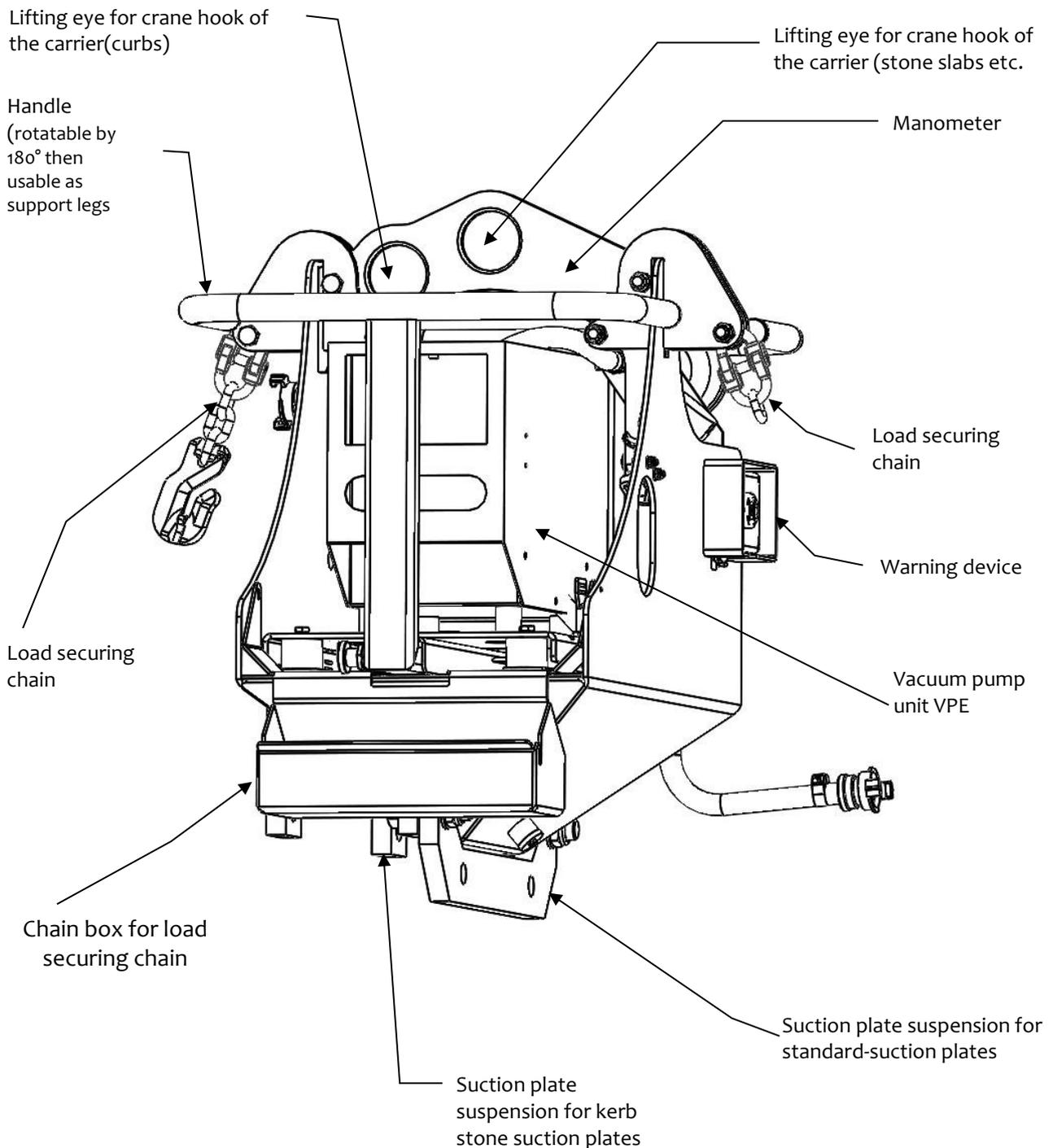
**Unauthorized alterations** of the device and the use of any self-made additional equipment could cause danger and are therefore **forbidden!**

Never exceed the **carrying capacity/working load limit (WLL)** and the **nominal width/nominal size** of the device.

#### All unauthorized transportations with the device are not allowed:

- Transportation of people and animals.
- Transportation of other loads and materials than described in this manual.
- Never suspend any goods with ropes, chains or similar at the device.

## 2.2 Survey and construction



## 2.3 Technical data

The exact technical data (carrying capacity (WLL), dead weight, etc.) are listed on the type plate/data sheet.

### 3 Safety

#### 3.1 Safety Symbols

	<b><u>Danger to life!</u></b> Identifies imminent hazard. If you do not avoid the hazard, death or severe injury will result.
	<b><u>Hazardous situation!</u></b> Identifies a potentially hazardous situation. If you do not avoid the situation, injury or damage to property can result.
	<b><u>Prohibition!</u></b> Identifies imminent a prohibition. If you do not avoid the prohibition, death and severe injury, or damage to property will result.
	Important informations or useful tips for use.

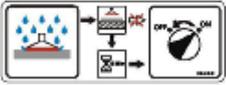
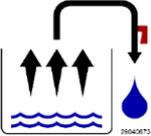
#### 3.2 Safety Marking

WARNING SIGN			
Symbol	Meaning	Order-No.:	
	It is not allowed to be under hanging loads. <b>Danger to life!</b>	2904.0210 2904.0209 2904.0204	30 mm 50 mm 80 mm
	The sucked load must never be lifted and transported without additional securing by the load-securing-chain.	2904.0765	100 x70 mm
	The sucked load must never be lifted and transported without additional securing by the load-securing-chain.	2904.0767	55 x 25 mm
	The load-securing-chains must fit tightly to the load. <b>Prohibition:</b> load-securing chains must never hang loose under the load!	2904.0689	70x41 mm

	<p>The device must never be placed on the suction plate when not in use, otherwise the suction plate will be damaged! Instead, turn the side handles 180° and use them as a stand.</p>	<p>29040446</p>	<p>139x39</p>
	<p>Do not lift any components off-centre (always in center of gravity).</p>	<p>2904.0383</p>	

	<p>It is not allowed to position suction plates off-centre, when using a spreader bar/travers on the vacuum lifting device.</p>	<p>29040337 (optional)</p>	<p>65x200 mm</p>
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	<p>Load securing with the use of a spreader bar (TRA) on the vacuum lifting device:</p> <ul style="list-style-type: none"> <li>- The load-securing-chains must fit tightly to the load</li> <li>- <b>Prohibition:</b> load-securing chains must never hang loose under the load!</li> </ul>	<p>29040688 (optional)</p>	<p>146x85 mm</p>
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WARNING SIGN			
Symbol	Meaning	Order-No.:	Size:
	Danger of squeezing the hands.	2904.0221 2904.0220 2904.0107	30 mm 50 mm 80 mm
	Warning of electric voltage.	2904.0397	31x37 mm
REGULATORY SIGN			
Symbol	Meaning	Order-No.:	Size:
	Each operator must have read and understood the operating instructions (and all safety instructions).	2904.0665 2904.0666	30 mm 50 mm
	Use ear protection	2904.0298	50 mm
	In case of wetness, 5 minutes dry running.	29040381	150x55 mm
	Daily drain off the condensation water on the device.	29040673	40x40 mm
	Daily battery test on the warning device.	29040444	30x60 mm

### 3.3 Function Control



- Before using the device check the functions and the working condition.
- Maintenance and lubrication are only permitted when device is shut down!



- Do not use the device, until all faults which can cause safety hazards are removed.
- If there are any cracks, splits or damaged parts on any parts of the device, immediately stop using it.



- The operating instructions must be available at the workplace every time.
- Do not remove the data-plates of the machine.
- Unrecognisable information signs must be replaced.

#### 3.3.1 Safety at work



- **The use of the vacuum lifting device is only permitted in proximity to the ground. In hoist operation:** The suctioned load must be lowered immediately after picking up (e.g. from a pallet or a truck) to just **above the ground** (approx. 20 - 30 cm).

The load must then be secured by the **load securing chain** and may only then be transported to the installation site. To transport the load, lift it only as high as necessary (recommended approx. 0.5 m above the ground).

**It is forbidden to swivel the device over persons. Danger to life!**



- The manual guiding of is only allowed for devices with handles.
- The operator is not allowed to leave the control unit as long as the vacuum lifting device loaded with load (stone slab). The load must always be in the range of vision of the operator.
- Always keep an eye on the vacuum gauge. Never lift loads when the vacuum is below the required under pressure (mbar). If the pointer of the pressure gauge moves into the red danger zone, **lower the load immediately! Danger! Load could fall down!**



- While using the vacuum lifting device is the stay of persons in the working area forbidden. Except it is indispensable. Caused of the way of using the vacuum lifting device , e.g. if the device must be leaded by hand.
- While using the vacuum lifting device be sure that there are no persons in the working area. **Danger to Life!!**



- The device must never be subjected to a force acting in a lateral direction due to diagonal pulling.
- Do not lift any components off-centre, because that could fall down. **Danger of tilting!**
- Release the load only when it is completely safely resting on the surface. **Keep fingers away from the load when you release it as they can be crushed!**
- The capacity and the nominal width the vacuum lifting device are not allowed to cross over.
- Do not use the vacuum lifting device to jerk seized set down load.



- **Jerking up or down** of the unit with or without load is **prohibited!** Unnecessary vibrations must be avoided. As well as **fast driving** with the carrier/ hoist over uneven terrain! Danger to life/accident: The load could fall or the load handling attachment could be damaged! As a general rule, **only** drive at **walking speed** with the lifted load!

## 1.1 Instructions for the Company

The lifting devices are manufactured according to current technical standards and are safe. However, they will present hazards

- if they are not operated by qualified or, at the least, trained staff,
- if they are used contrary to the approved applications.

Problems can arise

- for the health and life of operators and other persons,
- for the lifting device and other valuable goods.

## 3.4 Instructions for Installation, Maintenance and Operating Personnel



The device must be installed and maintained by qualified personnel, mechanics and electricians.

Each person in your company involved in the installation, start-up, operation, maintenance, and repair of the device must have read and understood the operating instructions and especially the chapter "Safety" therein.



Your company must ensure by internal measures

- that the operators of the lifting device are properly trained,
- that they have read and understood the operating instructions,
- that the operating instructions will be available to them at any time.

The responsibilities for the tasks carried out with the device must be clearly organized and observed. There must be no ambiguity regarding responsibilities.

## 3.5 Requirements for the Installation Location



- The lifting vacuum lifting device may not be used in explosion-risk rooms or areas.
- The ambient temperature must be in the range of +3°C to +40°C (if this temperature is exceeded, please consult the manufacturer before using the device).
- The vacuum lifting device must be connected to the electrical supply and the main switch of the crane from which it is suspended.  
Ensure, by means of internal instructions and regular inspections, that the area around the workplace is kept clean and tidy at all times.

### 3.7 Special Hazards



- The operating range has to be covered for unauthorized persons, especially children.

- The workplace has to be sufficiently illuminated.

- Take care when handling wet, dirty and not solidified components.

- **The working with the vacuum lifting device in case of atmospheric editions under 3° C ( 37,5° F) is forbidden! Because the goods could be fall down caused by dampness or freezing.**



- Take care in case of thunderstorm!

- Since the load is held on the suction plates of the unit by a vacuum, it will fall off as soon as this vacuum is lost (e.g. energy failure).

- This can happen if the vacuum generator fails. An integrated vacuum reservoir maintains the vacuum for a short safety period whose duration depends on the porosity of the work piece surface.

- If the vacuum generator fails, lower the load immediately if this is possible. Otherwise, leave the danger area below the load immediately.



- The unit draws in large amounts of air and hair and items of clothing can be drawn into the air inlet. **Do not** look into the air inlet when the unit is running; it is even possible for your **eyes to be drawn into the air inlet.**

### 3.8 Hydraulic excavator and other lifting equipment



- Hydraulic excavator and other lifting equipment have to be in good, safe working condition.

- Only authorized, certificated and qualified personnel is allowed to operate the excavator and other lifting equipment.

- The operator staff must have all the necessary qualifications.



- **Take care that the maximum capacity of the hydraulic excavator and other lifting equipment is not exceeded.**

### 3.9 Workplaces

- The workplace of the operator is in front of the operator handle.

- The operator must stand so that he can see the vacuum gauge at all times.

### 3.10 Inspecting the vacuum hoses and hose clamps

- Check that all vacuum hoses and hose clamps are securely seated. Tighten any loose connections.

#### 3.10.1 Testing the vacuum reservoir



- See the sub-section "Leak test" in the section "Maintenance"
- Rectify any detected faults before using the lifting device. If a fault becomes apparent during, switch off the lifting device and rectify the fault.

### 3.11 Damages of suction plate

#### Avoidance of damages:



- To avoid damages of the rubber seal on the suction plate (chinks, abrasion) take notice, that:
- during the operation (lifting, transporting and lowering) with the device, the suction plate does not brush or pump against other products or materials.
- Otherwise the rubber seal on the suction plate could be damaged (danger of pressure loss). Load could fall down. **Danger of accidents!**

### 3.12 Protective equipment

The protective equipment must consist, according to the safety regulations of the following parts:

- Protective clothing
- Safety gloves
- Safety shoes
- Hearing protector

### 3.13 Behaviour in Emergencies



An emergency situation exists when

- power suddenly fails (device switches off),
- the vacuum pressure drops below -0.6 bar to the red section on the scale of the vacuum gauge.

Lower the load immediately if possible. If this is not possible, immediately leave the dangerous area near the load, since it will be dropped from the device.

### 3.14 Checking the Safety Devices

The lifting device is equipped with following safety devices:

- vacuum gauge with red danger zone
- warning device, audible (optional)

Check these devices at the beginning of each shift (when operating in shifts) or once a week (when operating continually).

#### Checking the Vacuum Gauge and the Warning Device

**To ensure safe operation of the device, a battery test of the warning device must be carried out before each use of the device.**

#### Warning device monitors the operating vacuum and power failure

Switch on the lifting device.

Place the lifting device on a stone slab or similar material and apply vacuum.



**Caution:** Simply apply vacuum to attach the suction pads to the stone slab. Do not lift the stone slab, since it may be dropped during the test!

When the vacuum has built up, lift the edge of a suction pad to create a leak.

**The reading on the vacuum gauge decreases. When the vacuum drops below red danger zone, the warning device must sound.**

#### Checking the Vacuum Hoses and Hose Clamps:

Check all vacuum hoses and clamps for proper mounting and tighten the clamps if necessary.

#### Checking the Vacuum Reservoir

See "Testing for Leaks" in chapter "Maintenance"

**Correct any faults before using the device. If faults occur during operation, switch the device off and correct the faults before continuing work with the device.**

## 4 Installation

### 4.1 Mechanical connection

Use only original accessories, in case of doubt consult the manufacturer.



Take care that the **carrying capacity / working load** limit (WLL) of the lifting device/carrier is **not exceeded**, through the load of the device, the attaching devices (turning device, fork sleeves etc.) and the additional load of the gripping goods!

Gripping devices **always** have to be **gimballed**, so they can swing freely in any position.



In **no case** it is allowed to mount gripping devices with lifting devices/carriers in a **rigid way!**  
**Break of the suspension may occur within short time. Death, severe injuries and material damage can result!**

#### 4.1.1 Lifting eye / Suspension bolt

- The device is equipped with a lifting eye / suspension bolt and can be mounted on various carrier / lifting devices.



- Take care that the lifting eye / suspension bolt is safely joined with the lifting tackle (e.g. crane hook, belt) and cannot slide down.

#### 4.1.2 Load hooks and slings



The device is attached to the carrier/lifting device with a load hook or a suitable sling.

**Ensure that the single chains strands are not twisted or knotted.**

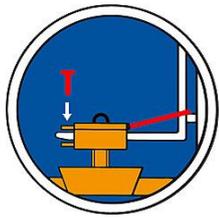
Attaching the device to the lifting device/carrier, take care that all local safety regulation is observed.

#### 4.1.3 Fork sleeves (optional)

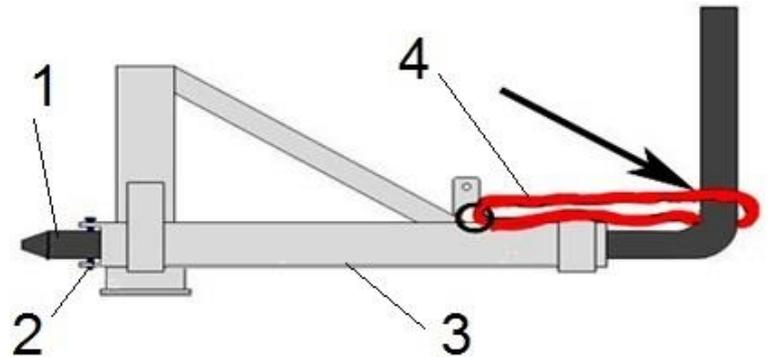
To establish a mechanical connection between the fork lift truck and the fork sleeves you have to put the forks into the fork sleeves and fix it with the locking bolt or with a chain/rope, connected to the eyelet on the fork sleeves and the lift frame.



It is definitely necessary to establish this connection. Otherwise the device could slide from the forks.  
**DANGER OF ACCIDENTS!**



- 1 Fork (of fork lift truck)
- 2 locking bolt
- 3 Fork sleeve
- 4 Chain/rope



## 4.2 Positioning of suction plates

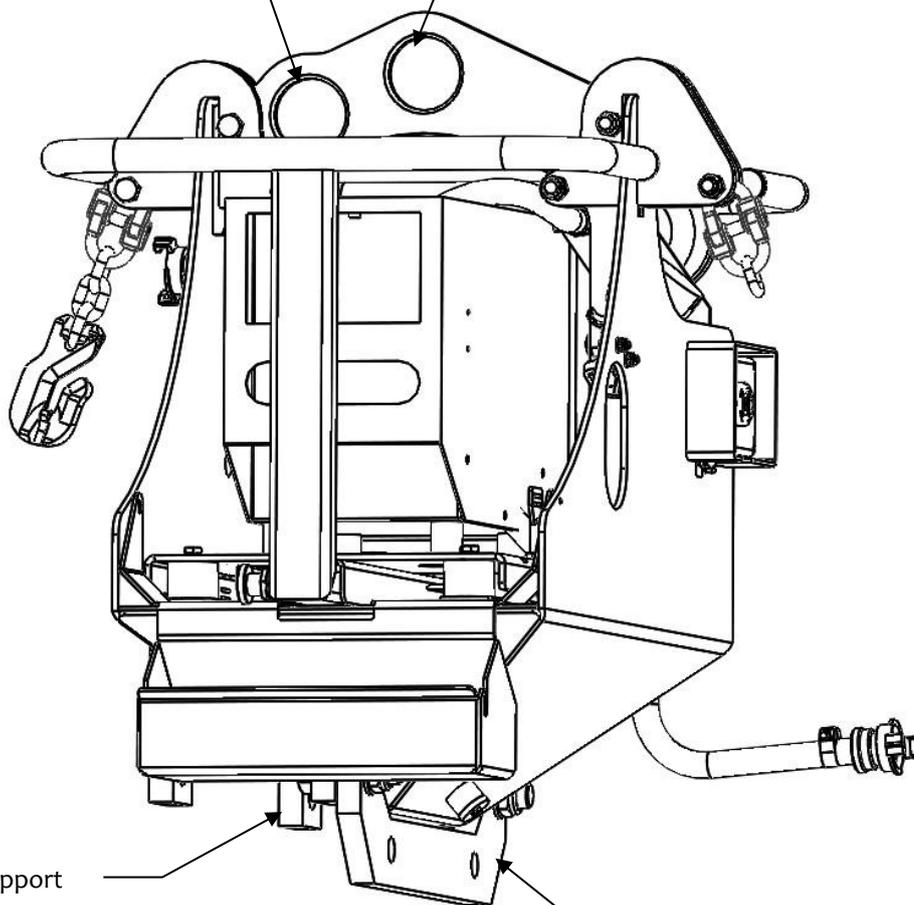
For each application of the device (SH 1000 mini b) the different suction plates must be fastened to the corresponding place to the device.



The device (SH 1000-MINI) with sucked in load (stone slab) must **always** hang on the carrier (e.g. excavator) vertical.

Suspension lug for crane hook on support frame with laying kerb stones

Suspension lug for crane hook on support frame with laying stone slabs, concrete elements and steps and so on.



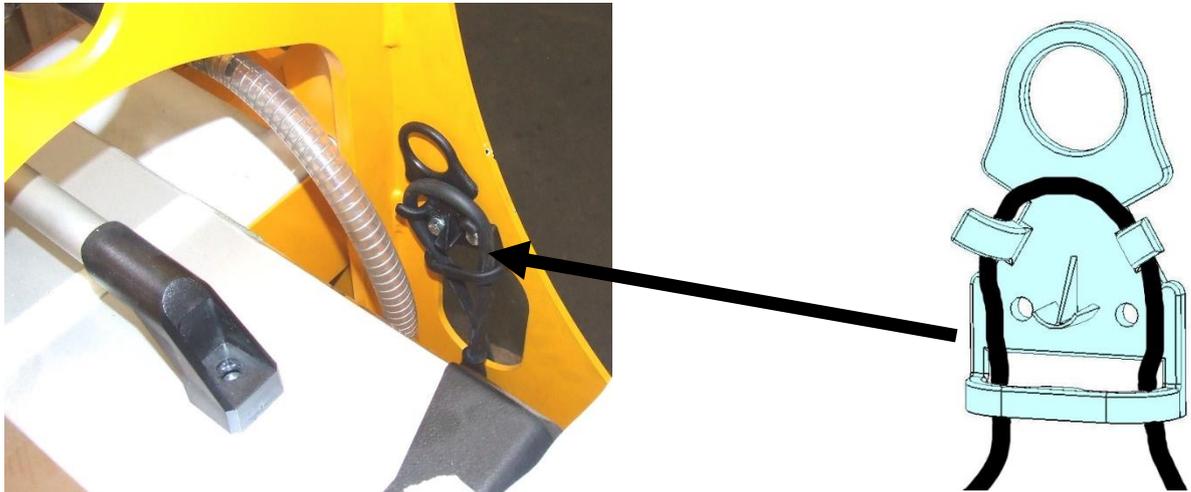
Suction plate support for kerb stones

Suction plate support for stone slabs, concrete elements and steps

### 4.3 Electrical Installation



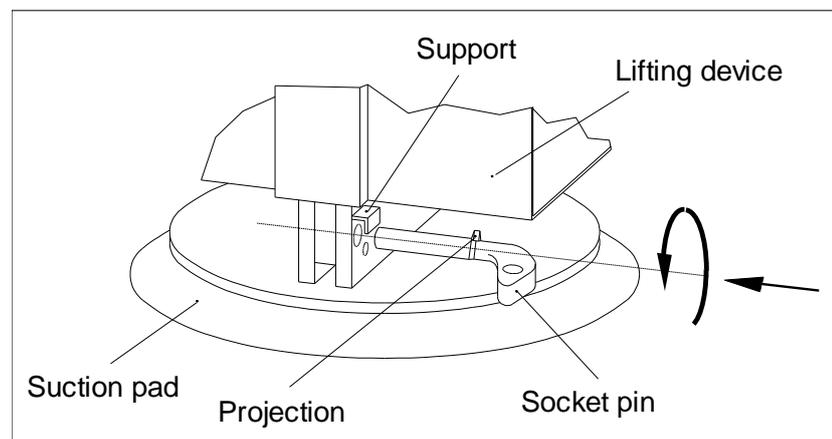
- The electrical installation and connection of the device to the power supply may only be carried out by qualified personnel.



### 4.4 Initiation

The device must be installed and maintained by qualified personnel, mechanics and electricians.

### 4.5 Mounting the suction pad to the lifting device



- Suspend the lifting device from the suspension eye bolt on the crane or hoist used. Secure it safely!



**Take the weight of the lifting device and the maximum carrying capacity into consideration!**

- Insert the suction pad into the support of the lifting device.
- Feed the socket pin into the boring until the projection of the socket pin is at the shoulder of the suction pad. Turn the socket pin downward until the projection is secure under the support. Check whether the socket pin firmly secured. The socket pin must not be able to be pulled out without turning.
- Connect the vacuum hose to the suction pad and lock it with the integrated lock nut.
- Before lifting loads check the safety equipment as described in section 1.12.

#### 4.6 Refueling the engine



- Gasoline is highly flammable. Always keep the fuel tank closed.
- Do not smoke or allow flames when using gasoline. Do not inhale the fumes.
- To refuel the engine, switch off the device and engine.
- Only refuel the engine when it is switched off and cooled down.
- After refueling, tightly close the tank.
- Do not fill the fuel tank completely; fill up to approx. 4cm under the brim of the fill neck, so the fuel has room to expand.
- Starting the engine
- Stopping the engine

#### 4.7 Use of the spreader bar with 2 (3) suction plates

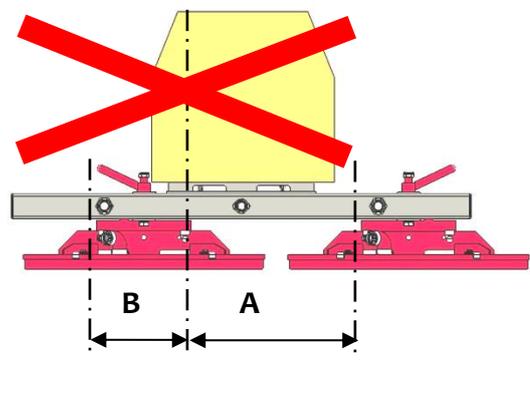
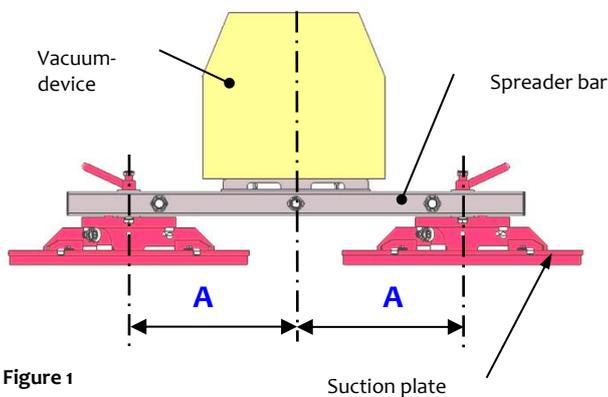
When using the spreader bar/travers with 2 suction plates only suction plates of the same design (carrying capacity/WLL, dimensions and form) may be used!

The suction plates must always have the same distance (A) to the vertical centre axis of the spreader bar/traverse (see figure 1).

Unequal positioning of the suction plates is not permitted (see figure 2)!

Take care that the load (stone slab) hangs always *horizontal*.

For special spreader bars/traverses where 3 suction plates are permitted, they must be positioned in the same way (see Fig. 3).



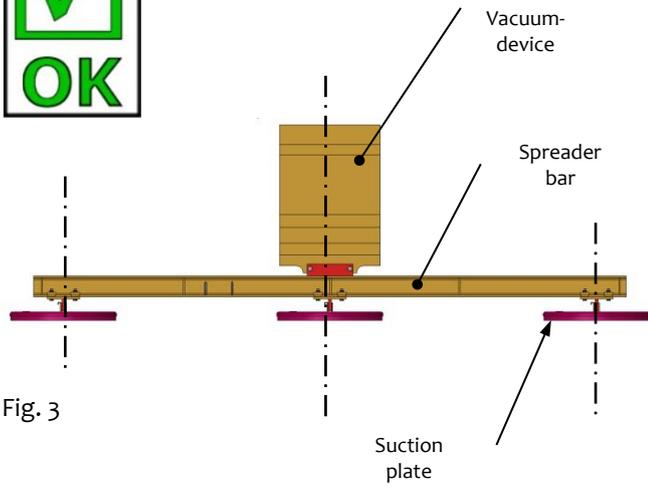
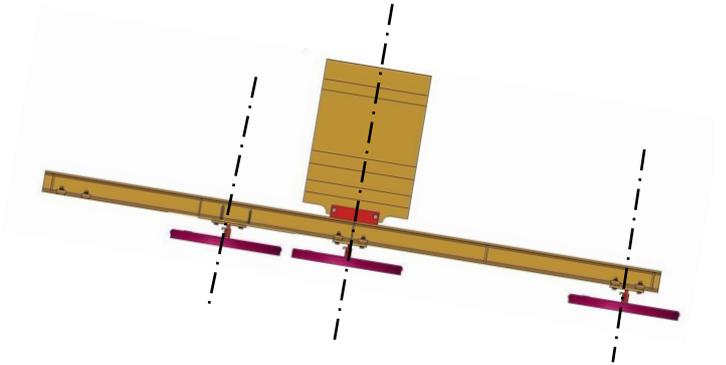
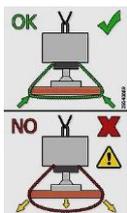


Fig. 3



4.7.1 Attaching the safety chain (of the optional spreader bar)

- Lift the device with the sucked load just a little (approx. 20 cm)
- Then remove both safety chains from the chain cases of the spreader bar (TRA).
- Throw the safety chains underneath the load (concrete slab).
- **Never grip with the hands under load. - Caution: Danger of squeezing hands!!!**



- Suspend and tighten both safety chains as shown in picture 1. Place the end of the chains into the chain cases.
- The safety chains must fit tightly to the load, in that way that the load is held in case of a vacuum failure (Fig. 1)
- **The safety chains must never hang loose under the load, otherwise the load may fall down, in case of a vacuum failure (Fig. 2).**
- Now the device with sucked load be transported to the place of destination.
- Lower the load carefully (distance to the ground approx. 0,5 m), then remove safety chains and throw it under the load.



- **Never grip with the hands under load (stone slab)! Danger of squeezing!!!**
- Safety chains should be returned to chain cases.
- Put the device with the sucked load completely down on the floor.

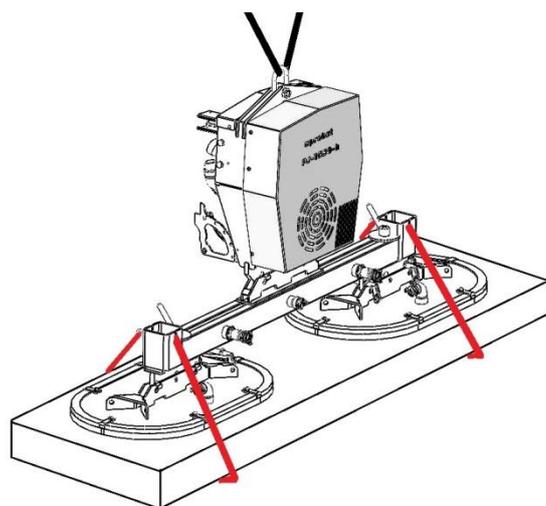


Fig. 1

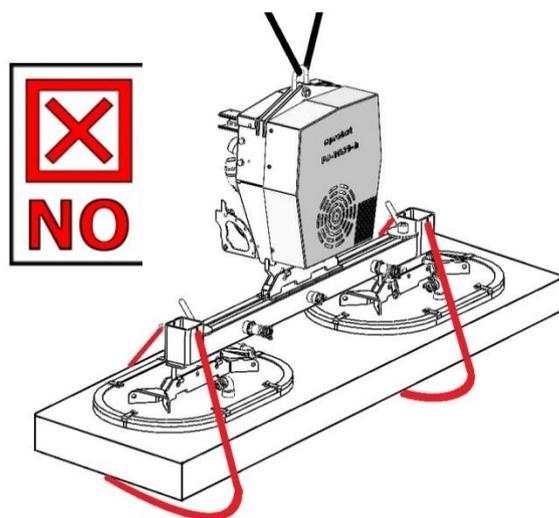


Fig. 2

## 5 Operating

### 5.1 Safety Instructions

- Wear safety shoes and gloves.
- Never exceed the maximum lifting capacity of the device or of the crane or hoist used. Include the weight of the lifting device. Observe the name plate.
- Some suction pads which can be mounted to the device will reduce its carrying capacity. The maximum load is indicated on each suction pad. Never exceed the load indicated!
- Only lift and transport the load when the load securing chain is in use!
- Always lower the load before taking longer breaks!
- Operate the device only when the warning device is switched on.
- If the warning device sounds, reduce the load immediately if possible.
- Do not stand below the load. Always keep clear of the load.
- Never transport people or animals with the load or the lifting device itself!
- Operate only when you can view the entire working area. Look out for other persons in the working area. Never maneuver loads above people.
- Do not let go of the handle while lifting a load.
- Do not pull loads to the side or drag them along with the lifting device.
- Do not tear off loads that have become stuck.
- If a power failure occurs, put the load down immediately if possible. Immediately leave the danger area near the load.
- Apply suction to and lift appropriate loads only (check for stability and porosity).
- Always monitor the pressure gauge. Never lift loads when the vacuum is below **-0.6 bar**.
- **When the pointer of the pressure gauge moves into the red danger zone below -0.6 bar, replace the load immediately.**
- Set work pieces down on free, level surfaces only, as they could otherwise slip.
- Release the load only when it is completely safely resting on the surface.  
**Keep fingers away from the load when you release it as they can be crushed!**
- Always distribute load evenly on the suction surfaces.
- **Work with this device may only be done in areas close to the ground.**  
Immediately after picking up the load (e.g. from a pallet or a truck), it must be **lowered** to just above the ground (approx. 0.5 m). The load must then **be secured by the load securing chain** and **only then may** it be transported to the installation site.  
Lift the load for transport only as high as necessary (recommendation approx. 0.5 m above the ground).  
**It is forbidden to swing the unit over people. Danger to life!**

### 5.2 Lifting and Landing Loads



The following operating steps must be checked by a qualified mechanic before the operating staff can use the device. Correct faults before start-up.

**To ensure safe operation of the unit, a battery test of the warning device must be done before each use of the unit. See chapter "Checking the safety devices"**

5.2.1 Lifting load:

- Start the gasoline engine (further details → see **HONDA** operating instructions). and switch on the warning device
- Position the lifting device directly above the load. Do not pull to the side. Distribute load evenly.
- Place the lifting device on the load.
- Shift the bushing on the slide valve. Suction is applied to the load.
- Watch the pressure gauge. As soon as a vacuum pressure of **-0.6 bar** has been reached you can lift the load. **Do not under any circumstances lift the load before the manometer has reached this level as the load would fall off.**
- When lifting be sure to lift only one piece at a time. Use a screwdriver to carefully remove any pieces attached to the one you are lifting before proceeding. **Do not separate them with your hands as they could be crushed**



5.2.1.1 Fastening the load securing chain

- Lift the device slightly with the load sucked in (approx. 20-30 cm). Remove the load securing chain (8) from the chain box (9).
- Throw the load securing chain under the lifted load.
- **Never touch the load (stone slab) with your hands! Danger of crushing!**
- Hook the load securing chain **tightly** onto the other side of the device (stow the end of the chain in the chain box (9)).
- The load securing chain (8) must be tightly attached to the load (fig. A) so that in case of vacuum failure/loss (e.g. due to power failure) the load is held by the load securing chain. **The load securing chain must never hang loosely under the load (fig. A), otherwise the load may fall down in case of vacuum failure/loss. Danger to life!!!**
- Now the device can be transported to its destination with the attached load.
- Carefully lower the load (approx. 0.5 m from the ground), unhook the load securing chain and pull it out from under the load. **Never reach under the load (stone slab) with your hands! Danger of squeezing!**
- Put the load securing chain back into the chain box (9).
- As soon as the load has been caught by the load securing chain, the load securing chain must be checked professionally and replaced if necessary.
- **Damaged load securing chains must not be used any longer!**

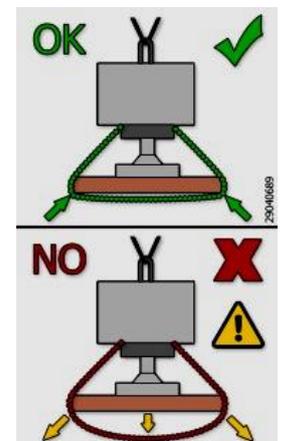
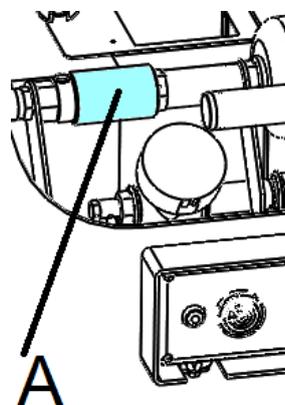
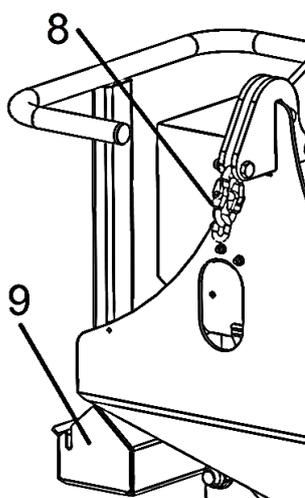
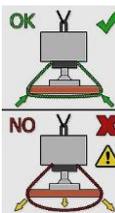
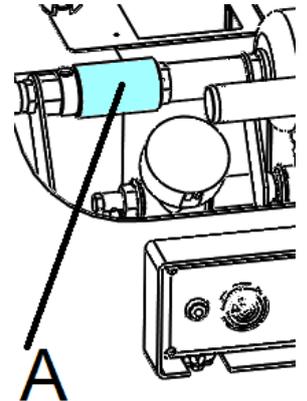


Abb. A

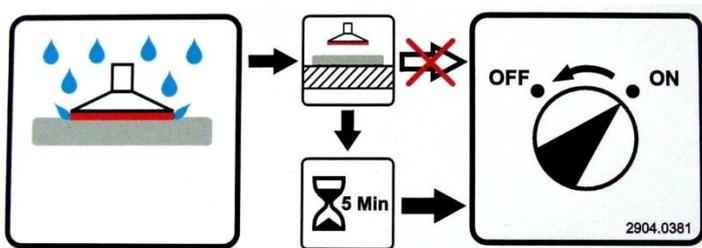
### 5.2.2 Releasing the load:

- Lower the load to a safe and clear, level surface, to ensure that the load cannot slip or tip over.
- Shift the bushing on the slide valve (A) back. The load is released.

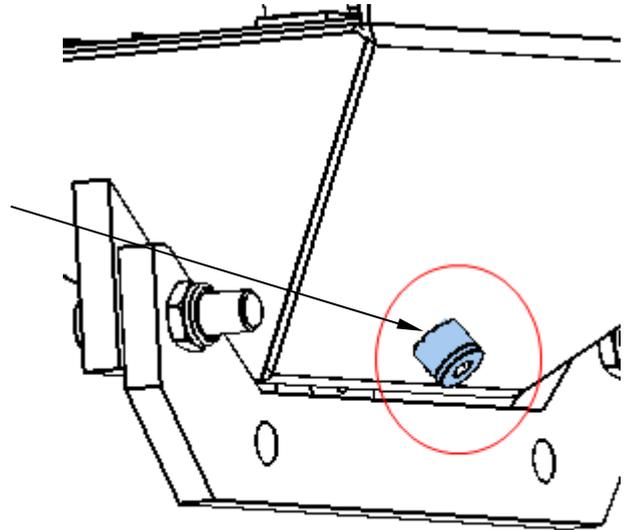
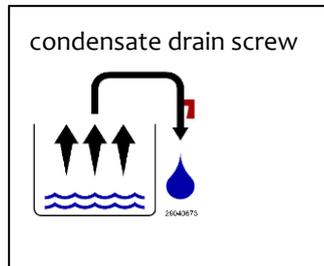


### 5.2.3 Lifting wet loads

- The lifting device is not intended for picking up wet stone slabs. When picking up wet stone slabs, please observe the following:
- Remove water from the suction surface.
- Carry out the following points after working with damp parts:
- Lift up the lifting device. Make sure that the area around the suction plate is clear and that no items or water can be drawn in.
- Let the pump idle to run dry for at least 5 minutes.
- Then switch off the device.
- Open the condensate drain screw on the bottom of the storage container. Drain the water completely and tighten the drain screw securely.



- Open the condensate drain screw on the bottom of the storage container.  
Drain the water completely and tighten the drain screw securely again.



5.2.4 Downtime

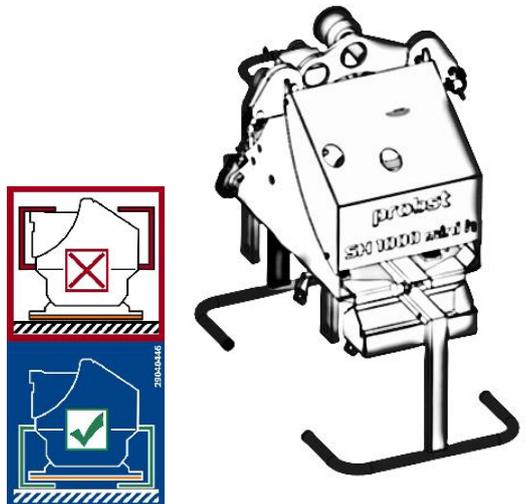
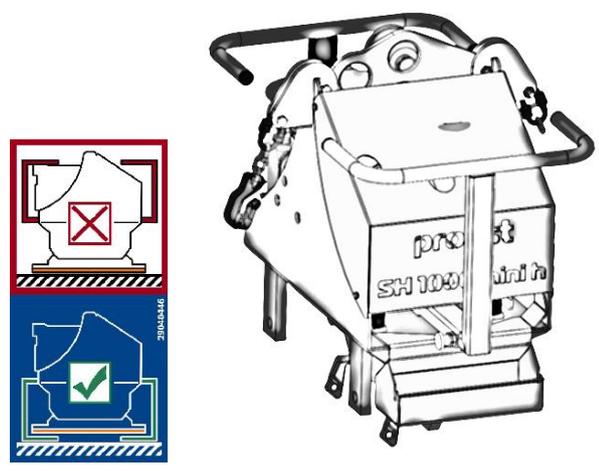
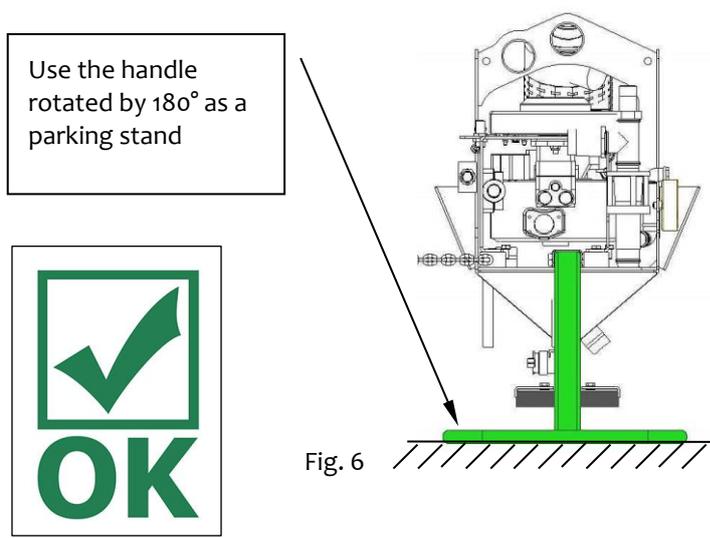
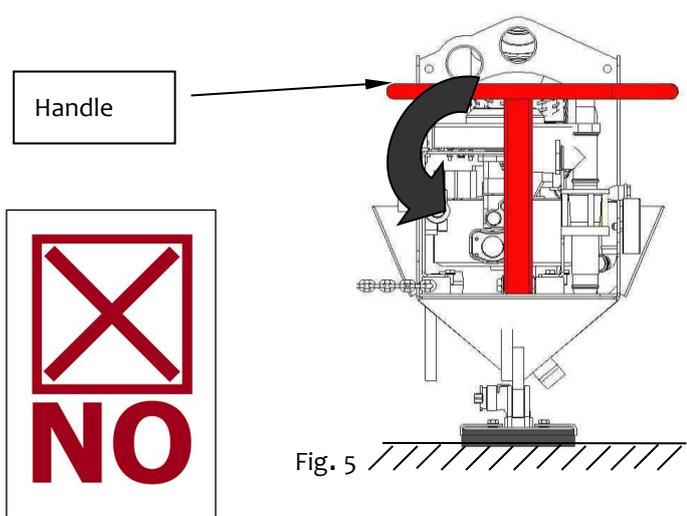
Store the device in a closed and frost-free room (not uncovered outdoors).

5.2.5 Downtime



Store the device in a closed and frost-free room (not uncovered outdoors).

**Never** position the device (in downtime) direct on the suction plate, otherwise the suction plate could be damaged! But reconnect (around 180° see → Fig. 5) the sideways handles and use them as support legs → Fig. 6



## 6 Troubleshooting

The device must be installed and maintained by qualified personnel such as mechanics and electricians only. After each repair or maintenance job check the safety equipment.

Error	Cause	Remedy
Pump does not run	Engine is defective	Check the engine/call customer service
	V-belt is broken/too loose	Replace/restretch the V-belt
Pump runs, but does not produce suction	Slide valve is closed	Open it
	Vacuum hose is defective, connectors are not tight	Check, replace vacuum hose
Vacuum pressure does not reach -0.6 bar	Workpiece has cracks, openings or is porous	Workpiece is not suitable for suction
	Seal is damaged	Replace the seal
	Pressure gauge is defective	Replace the pressure gauge
	V-belt is loose	Restretch the V-belt
Engine does not run	Fuel tank is empty	Refuel the tank
	Fuel valve is closed	Open the fuel valve
	Engine is defective	Check the engine/call customer service
Petrol engine goes out and immediate re-starting is not possible	Gasoline supply interrupted	Check gasoline lines and fuel level in tank
	Ignition coil is defective	Check ignition coil and if necessary exchange
Warning device does not function	See engine operating instructions (appendix)	
Load cannot be sucked. Prescribed negative pressure cannot be achieved no more. Negative pressure diminishes itself too fast, when switching the device off.	Leakage at vacuum plate by deposited dirt between rubber seal and suction plate. Rubber seal wore or porously (aging after effect of UV radiation)	Remove rubber seal from suction plate. Clean suction plate and slot in rubber seal. Draw up and fasten rubber seal on suction plate again. If necessary exchange rubber seal.

## 7 Maintenance and care

### 7.1 Maintenance



To ensure the correct function, safety and service life of the device the following points must be executed in the maintenance interval.

Used **only original spare parts**, otherwise the warranty expires.



**All operations may only be made in unpressurised, electro less and closed state of the device!**

The device must be installed and maintained by qualified personnel such as mechanics and electricians only. After each repair or maintenance job check the safety equipment as described in the "Safety" chapter.

#### MECHANICAL

SERVICE INTERVAL	Maintenance work
<b>First inspection after 25 operating hours</b>	<ul style="list-style-type: none"> <li>Control and tighten all screws and connections. (The implementation is only allowed by an expert).</li> </ul>
<b>After 50 operating hours</b>	<ul style="list-style-type: none"> <li>Tighten all screws and connections (take care that the tightening torques according to the property class of the screws are observed).</li> <li>Check all joints, bolts, guidance's and gears for correct function, if necessary adjust or replace it.</li> </ul>
<b>Minimum 1x per year</b> (at rough conditions shorten the interval)	<ul style="list-style-type: none"> <li>Check of all the suspension parts, bolts and straps. Check for corrosion and safety by an expert.</li> </ul>

#### 7.1.1 Electrics

Service interval	Maintenance work
<b>After 25 operating hours</b>	<ul style="list-style-type: none"> <li>Control all electrical connections and/or retighten (the implementation is only allowed by an expert)</li> </ul>
<b>All 50 operating hours</b>	<ul style="list-style-type: none"> <li>Check all fuses (if existing)</li> <li>Check the electric cabling for breaks and abrasion, if necessary replace it (only qualified personal)</li> </ul>

## 7.2 Maintenance plan



The yearly inspection must be carried out by a qualified person.

	Interval				
	Daily	Weekly	Monthly	1/2-year	yearly
Inspect safety features: <ul style="list-style-type: none"> <li>• Vacuum gauge</li> <li>• Check that warning (battery test) at correct underpressure/overpressure values</li> <li>- Visual inspection of load securing chain <b>1)</b></li> </ul>	X				X
Inspect vacuum filter and replace if necessary		X			X
Gasoline motor (see also separate operating instructions)					
- Inspect V-belt, replace if necessary			X		
- Replace V-belt					X
- Check oil fill level (oil dipstick)	X				
- Change oil				X	
- Inspect air filter		X			
- Replace air filter (more frequently in dusty environments)					X
- Inspect spark plug				X	
- Replace spark plug					X
Vacuum pump (see also separate operating instructions)					

Check oil fill level (level indicator)				X	
Are the vacuum hoses in good condition (not brittle, not kinked, no worn sections and no leaks)?			X		X
Are all connections (hose clamps, etc.) tight?				X	X
Are type, load capacity and warning signs in a complete and legible condition?					X
Are the operating and maintenance instructions available and are operators familiar with them?					X
Check all load-bearing parts (e.g. suspension) for deformation, wear or other damage.					X
Clean suction plate / Inspect for cracks, evenness of sealing lip, etc. Replace if necessary		X			X
Has the test label been updated?					X
General condition of the device					X
Leak test			X		X
Draining the condensation water		X			X
Condition of load securing chain 1)					X

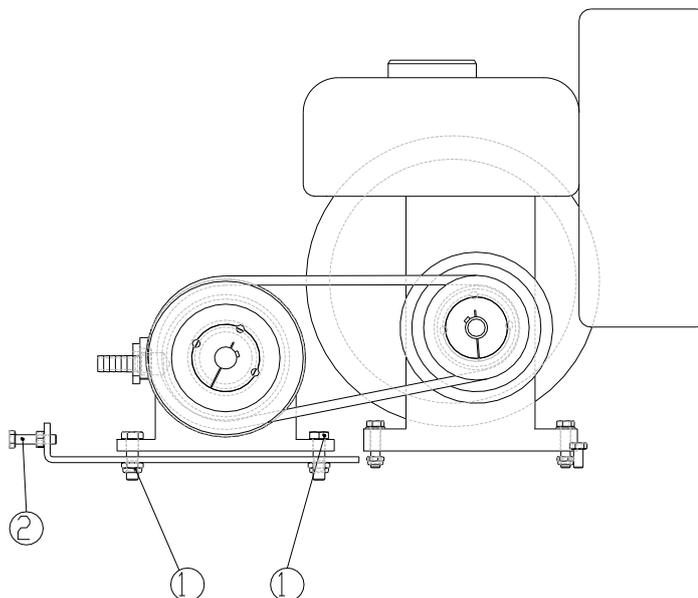
1) Once the load has been held by the load securing chain, the load securing chain must be properly tested and replaced if necessary. Damaged load-secrcks must not be used any further!!

### 7.3 Vacuum pump (TFK 12)

See vacuum pump operating instructions (in appendix)

### 7.4 V-Belt

- Check the V-belt tension monthly.
- The V-belt must not protrude more than 1cm or it will need to be rest retched.
- Procedure:
- Replace the protective cover



- Release the 4 hex bolts (1)
- Release the locknuts of the hex bolts (2)
- Tighten the hex bolts (2) until the correct V-belt tension is reached. When tightening be sure that the V-belt wheels are aligned.
- Tighten the locknuts of the hex bolts (2)
- Replace the protective cover

#### 7.5 Suction pads/ seals

- Remove items and contaminations such as adhesives, glue, saw dust, dust etc. from the seals at least once a week. Use glycerin to clean the seals.
- Immediately replace damaged seals (those with tears, holes, ripples).
- Do not use petrol (gasoline) to clean the device. It is highly flammable and its fumes are hazardous. Use cold-cleaning solvent. Do not smoke while cleaning.  
Do not use aggressive or corrosive fluids to clean the device. The vacuum hose will otherwise become leaky or be destroyed.

#### 7.6 Vacuum filter

- Check the filter at least once a week, blow the filter cartridge out (from the inside to the outside).  
**Do not knock the filter!**  
When it is contaminated heavily, replace the filter cartridge.
- Do not allow dust to enter into the suction opening when removing the filter cartridge.

#### 7.7 Warning device (audible)

See the warning device operating instructions (appendix)



## 7.10 Hints to the type plate



Type, serial-number and production year are very important for the identification of your device. If you need information to spare-parts, warranty or other specific details please refer to this information's.

The maximum carrying capacity/working load limit (WLL) is the maximum load which can be handled with the device. **Do not exceed** this carrying capacity/working load limit (WLL).

If you use the device in combination with other lifting equipment (Crane, chain hoist, forklift truck, excavator) consider the deadweight of the device.

Example:



## 7.11 Hints to the renting/leasing of PROBST devices



With every renting/leasing of PROBST devices the original operating instructions must be included unconditionally (in deviation of the user's country's language, the respective translations of the original operating instructions must be delivered additionally)!



### 1. Safety

#### Instructions for installation, maintenance and operating staff

This unit should only be installed and maintained by qualified specialist personnel.

All persons commissioned with the task of setting up, starting up, operating, maintaining and repairing the device at the company of the user must have read and understood the operating instructions, in particular the "Safety" section.

The company of the user must take internal measures to ensure that:

- ⇒ The users of the device 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 unit must be clearly specified and adhered to.



**Do not cover the opening for the alarm generator sound.  
Do not close the reference pressure hole.**

#### Installation location requirements

The unit may not be operated in rooms where there is a risk of explosion.

The ambient temperature may not exceed 50 °C.

#### Intended use

The unit is designed to monitor the operating vacuum.

For safety reasons, the unit may not be modified or changed without approval.

- ⇒ The operating, maintenance and servicing conditions prescribed in these operating instructions must be observed.
- ⇒ Rectify any faults before starting up the device. Should faults occur during operation, they must be rectified immediately.

### 2. Technical Specifications

Power supply	2 x D batteries 1.5 V, 18,000 mAh
Frequency range of alarm generator	Approx. 3,000 Hz
Noise level of alarm generator	> 95 dB(A)
Dimensions	120x80x70 mm

### 3. Description

The warning device is designed for lifting units that require a self-powered warning device.

The warning device creates an audible warning signal as soon as the vacuum falls below approx. 600 mbar. It also monitors vacuum drops and increases.

No warning signal occurs when the vacuum drops very quickly (lowering the workpiece) or increases very quickly (picking up dense work pieces with a small suction plate). Nor does a warning signal occur if the vacuum is lower than approx. 70 mbar.

# Operating Instructions

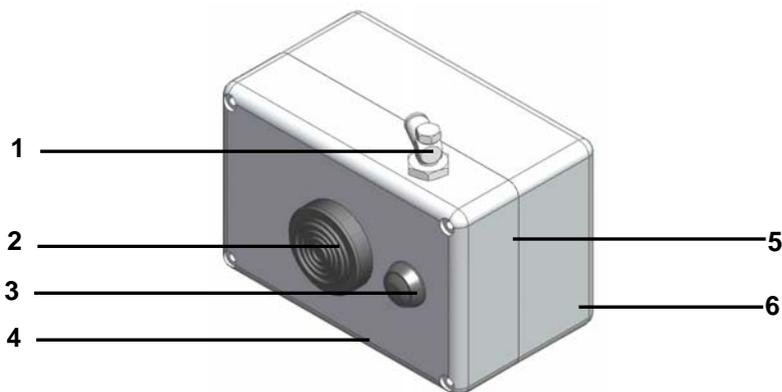
## Warning Device (audible, battery-operated)



To ensure that the warning device operates safely, always test the device for function before each use.



While working, always watch the manometer attached to the lifting unit to aid the warning device in recognizing vacuum drops.



No.	Product name
1	Vacuum connection
2	Alarm generator
3	Button for the function test
4	Reference pressure hole
5	Housing cover
6	Housing lower section

Product name	Item No.
D battery 1.5 V (2 required)	21.07.01.00019

### 4. Function Test



To ensure that the warning device operates safely, always test the device for function before each use.

During the function test, all of the electronics including the alarm generator and sensor are tested and the state of the batteries is checked.

### Performing the Function Test

1. The function test is performed at ambient temperature without an attached workpiece (manometer shows 0 mbar).
2. Press button for approx. 1 second
3. Evaluate the signal tone:

### Meaning of function test signal tone:

Signal tone	Meaning
😊 Signal tone approx. 2 sec.	<b>Function test successful. → Warning device ready for operation.</b>
😞 Very short signal tone (10 ms)	Battery voltage too low → Replace the batteries
	Vacuum or pressure applied → Perform test at ambient temperature Sensor faulty → Replace entire warning device
😞 No signal tone at all	Batteries dead → Replace the batteries
	Electronics faulty → Replace entire warning device

**Note:** A short signal tone of 10 ms is necessary for technical reasons to test the voltage of the batteries.

**5. Maintenance**

**In order to maintain the device, perform the prescribed function test daily or before starting work. Remove the batteries from the device if it is to be idle for an extended period. The vacuum hoses must be checked for leaks and damage on a monthly basis.**



**The batteries must be replaced if the function test fails or cannot be performed, or if the alarm generator becomes quieter. Replacing the batteries does not mean that the function test does not have to be performed.**

The replacement interval depends on use conditions and the frequency of alarms.

**Note on accident prevention inspections:**

It is recommended to replace the batteries of the warning device during the yearly accident prevention inspection of the entire lifting unit.

Additionally, a complete lifting procedure with simulation of a leakage should be carried out during the yearly accident prevention inspection.

Replacing the batteries

1. Unscrew the housing cover.
2. Replace the D batteries with new ones of the same type. Observe the polarity.  
Do not use lithium-ion or rechargeable batteries.
3. Dispose of batteries in accordance with the existing regulations.
4. Screw the housing cover shut.
5. Perform the function test. The device is now ready for operation.

**6. Troubleshooting**

<b>Problem</b>	<b>Cause</b>	<b>Solution</b>
Alarm generator does not sound when button is pressed (see function test for procedure)	Button was not held long enough	Press button for approx. 1 second
	Button is pressed continuously (e.g. jammed, stuck in place)	Free the button and press it again
	Batteries dead	Replace batteries
	Battery contacts are corroded or dirty	Clean the battery contacts and the contact surfaces of the battery holder
Alarm generator does not sound on vacuum drop	Electronics fault	Replace entire warning device
	Vacuum hose plugged, kinked or ruptured	Replace hose
	Batteries dead	Replace batteries
	Battery contacts are corroded or dirty	Clean the battery contacts and the contact surfaces of the battery holder
Alarm generator is quiet	Electronics fault	Replace entire warning device
	Battery voltage too low	Replace batteries immediately.





**VPE 12E 230V/50Hz**  
**VPE 12E 115V/60Hz**

english

technical subject to change  
without prior notice

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## Operating instruction MWV250.230 / MWV250.1150

### The conventional use of the vacuum pump

Consider the national industrial safety regulation for the conventional use.  
(f.ex. the technical means of work act – machine safety code).

We allow the regulations of the act serving protection for life and physical health for the technical means for work introduced by us.

**The vacuum pump is constructed to generate negativ pressure.**

### Technical data

Operational voltage MWV250.230: MWV250.1150:	230V, 50Hz alternating current 115V, 60Hz alternating current	Resulting vacuum:	-900 mbar
Current consumption:	3,3 A	Protection class:	IP 44
Connected rating:	520 watt	Free circulatory ca.:	11 m3/h
revolution:	1400 UPM	Weight ca.:	19 kg

### Before placing into operating

Read the instructions carefully! Check safety references!

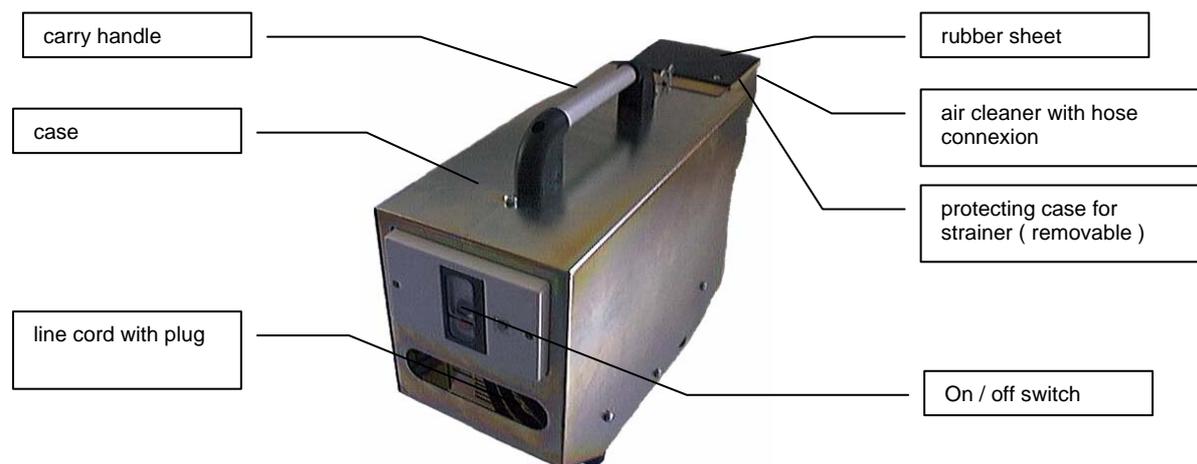
Before connecting the appliance ensure that the voltage corresponds with the voltage indications on the rating plate of the vacuum pump!

The vacuum pump is supposed to be operated only with wall outlets according to the instructions.

It is not allowed to rip up the connecting line of the push socket!

Check the damages to the connecting line if necessary the extension line for on a regular basis!

Check damages to the hose line!



### Putting into operation:

**Notice:** Before or after putting into operation let the pump drain empty!

Consider the relevant national regulations for the prevention of industrial accidents when putting into operation, maintenance and operation of the vacuum pump.

Constructions, implements as well as components are supposed to be equipped for a negativ pressure of  $-900$  mbar ( $-0,9$  bar).

- Place the vacuum pump in a manner allowing the circulation of intake and outlet air.  
It is necessary to keep the ventilation slots free and clean.
- Connect the siphon pipe.
- Connect the power plug of the cable and switch it with the power switch on.



**When sucking building materials with wet surface let the pump before and after start-up, as well as during start-up (with strong humidity) run absolutely empty, since otherwise humidity could acquire into the pump.**

**Basically the suction of flammable, liquid and explosive media respectively or other dangerous materials is strictly forbidden!**

## Operating instruction MWV250.230 / MWV250.1150

### Details for general use

After using it is essential to carry out the following operations :

- Switch off the power switch.
- Pull out the power plug.
- Discharge the vacuum by dismantling the siphon pipe at the appliance, thereby the accrued condensation water can flow out over the quick coupler. (hold the pump a little inclined)

### Cleaning and care

- First pull the connector out of the power outlet.
- Check damage to the connecting line on a regular basis.
- Keep the openings of the cooling air free and clean.
- Check damage to the siphon pipe.
- Keep oil or corrosion means away from the air route of the vacuum pump.

The filter pad of the outtake cooling air of the engine has to be cleaned every now and then (blow out the compressed air).

If the degree of fouling is too much the filter element has to be replaced.

Damages caused by faulty treatment, capacity overload or usual abrasion are excluded from the warranty.

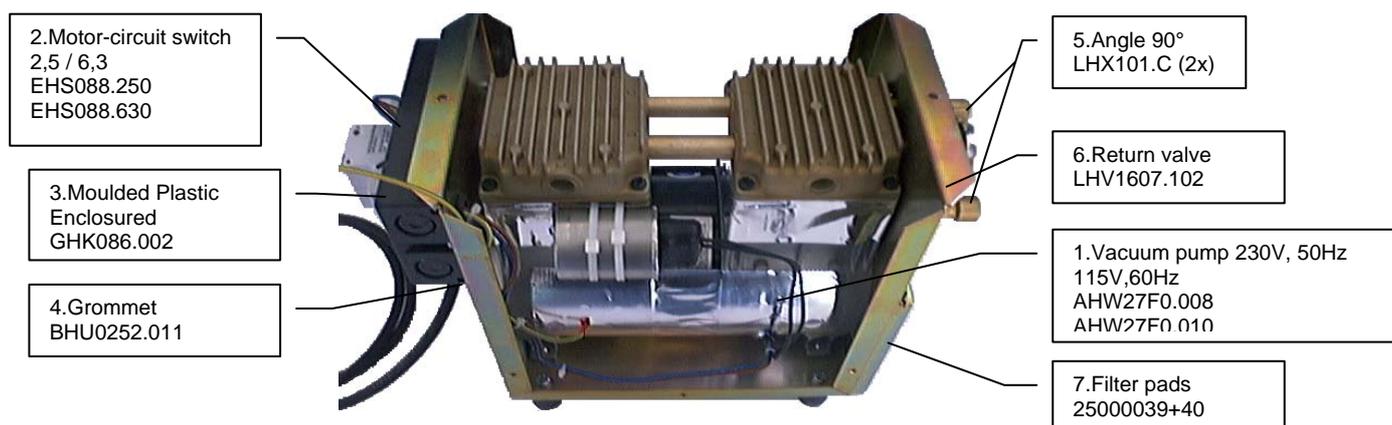
We assume liability to damages caused by material defects or defects due to manufacturing .

### Maintenance and repair

Please consider that repair, maintenance and inspection of electrical appliances are to be carried out by specialists according to the national regulations (i.e. VBG 4) because improper repairs may result in major damages for the user.

Maintenance work and repair work are carried out only by our service department.

### Spare-parts list



Pos	description	ME	Order-No.:
1.	Vacuum pump 230V, 50Hz	1	AHW27F0.008
	Vacuum pump 115V, 60Hz	1	AHW27F0.010
2.	Motor-circuit switch	1	EHS088.250
	Motor-circuit switch	1	EHS088.630
3.	Moulded Plastic Enclosure	1	GHK086.002
4.	Grommet	1	BHU0252.011
5.	Angle 90°	2	LHX101.C
6.	Return valve	1	LHV1607.102
7.	Filter pads	2	25000039+40

### CE – declaration of conformity

We declare in sole responsibility that this product is according to the following norms or normativ documents :

EN 50 099, EN 292/1, VDE 0530, EN 55 104, EN 55 014, EN 61 000-3-2/-3-3 subject to the regulations: 73/23/EEC, 89/392/EEC und 89/336/EEC.

In case of any alteration which is not coordinated with us, this declaration loses its validity and the warantee lapsed.

**Operating instruction**  
**MWV250.230 / MWV250.1150**

**Searching for trouble**

Searching for trouble		
defect	possible causes	remedy
Pump does not start	plug is not connected Power line is damaged Feed cable without electricity (fuse damaged)	Connect the plug Replace line cord Clear faults in the feed cable
Pump shuts down after a long term	Pump gets too hot Suction filter / silencer is blocked Piston jams	Check intake and outtake air of the engine Replace components (both) Refurbish the pump
Air power too low	Suction filter contaminated Suction hose is broken Close bushing/ piston liner	Replace suction filter (both filter) Renew the hose Refurbish the pump
Engine does not work anymore, makes noise	Engine damaged	Renew the pumping set completely

## Technische Daten /Ersatzteile

### Vakuumpumpe 27F0 zu VPE 12E 230/50

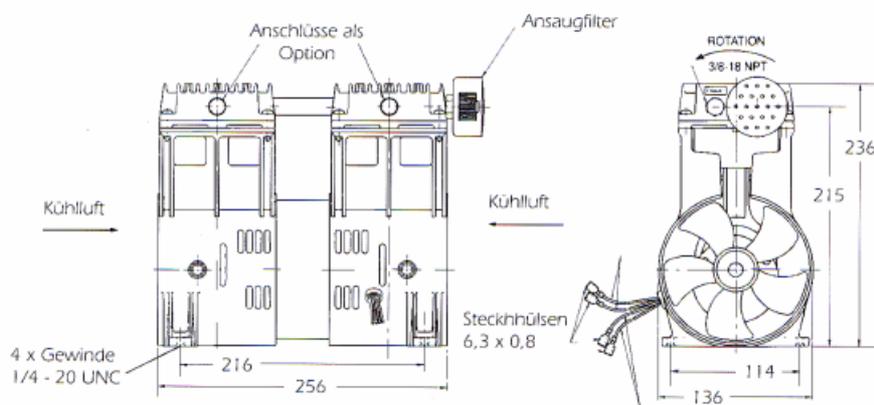
Vakuumpumpe Typ 27F0 trockenlaufend, öl- und wartungsfrei



Typ 27F0

#### Einsatzbereich:

- ◆ Industrie
- ◆ Handwerk
- ◆ Labor
- ◆ Baumaschinen



#### Technische Daten:

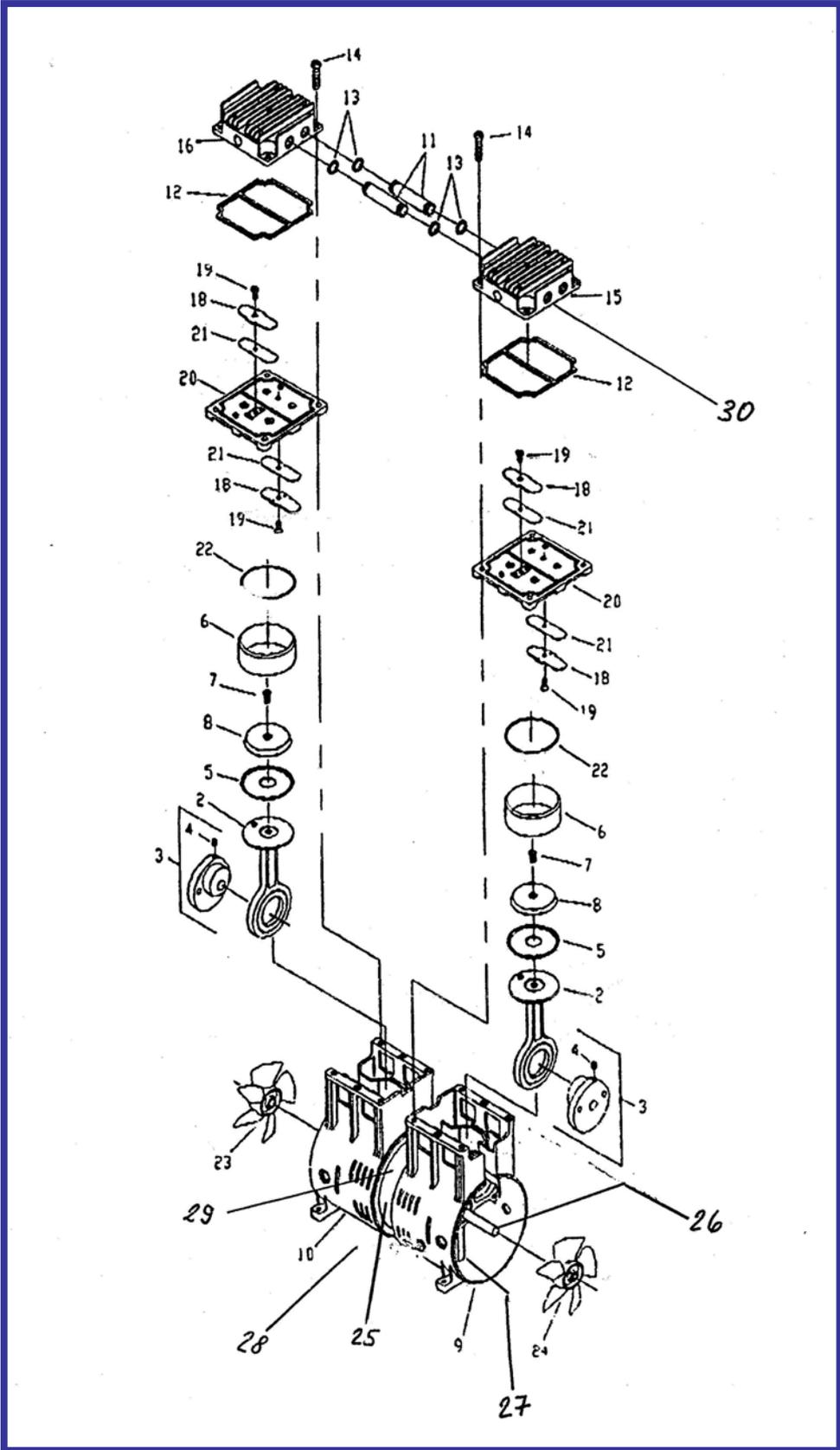
Pumpen Typ	27F0 CQ 75	27F0 BQ 75
Einsatzbereich	Vakuum/Druck	Vakuum
Betriebsspannung	400V,50Hz	200V, 50/60Hz
Leistung	550 W	400W
Stromaufnahme	1,70	Ca. 5,0
Schutzart	IP 00	IP 00
Motortyp	Drehstrom	Drehstrom
Druck max	<b>0 bar</b>	<b>0</b>
Luftleistung (bar)	L/ min.	l/min.
0		
0,5		
1,0		
1,5		
2,0		
3,0		
5,0		
6,0		
Endvakuum max	<b>mbar</b>	<b>&gt; -900 mbar</b>
Luftleistung (mbar)	L/ min.	l/min.
0		
100		172
200		148
400		97
600		60
800		19
900		-

technische Änderungen vorbehalten

Technische Daten /Ersatzteile

Vakuumpumpe 27F0 zu VPE 12E 230/50

Stückliste E Pumpe 230V, 50Hz Stand 26.01.98



## Technische Daten /Ersatzteile

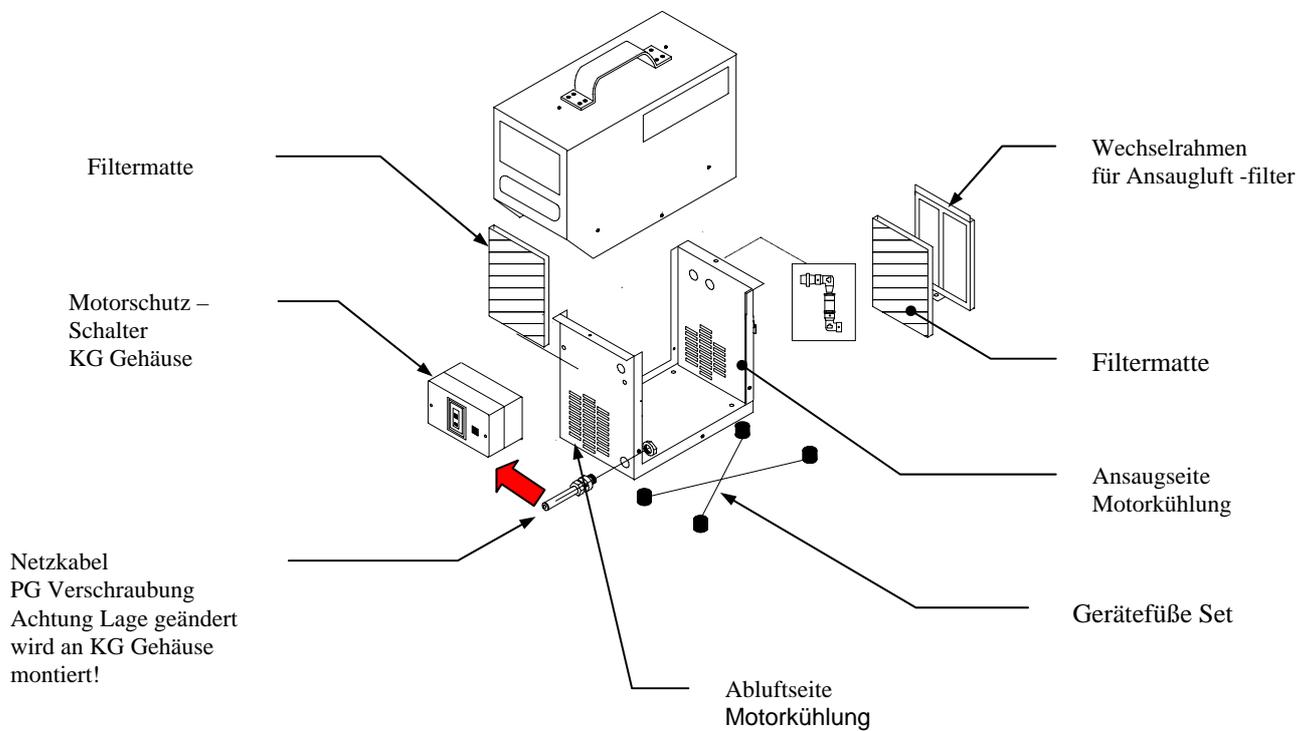
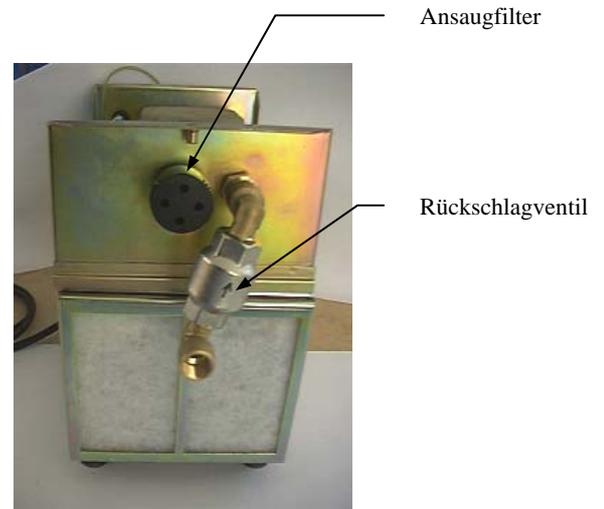
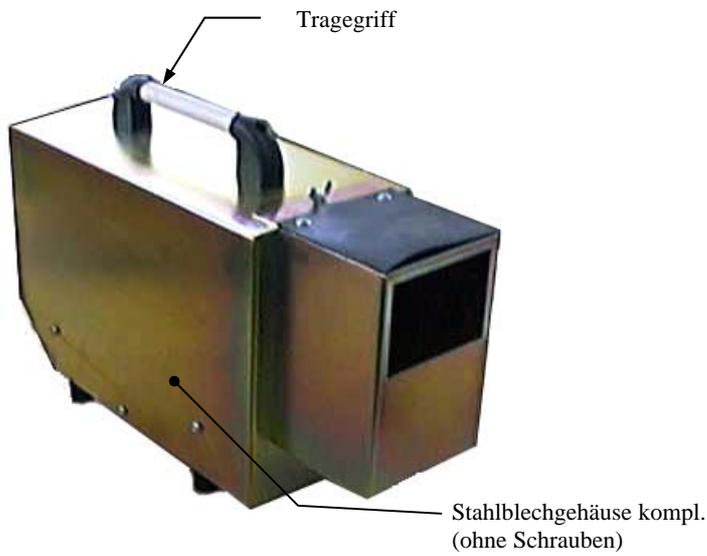
### Vakuumpumpe 27F0 zu VPE 12E 230/50

Pos	Menge	Art.Nr.	Bezeichnung / Ident. Nr.
1	2x	AHQ2750.075	Set besteht aus Nr.2c/3/4/5/6/7/8
2	2x		Pleuel H0,75
3	2x		Excenter
4	2x		Excenter - Inbusschraube
5	2x	AHQ2750.005	Kolbendichtung
6	2x	AHQ2750.006	Zylinderbüchse
7	2x	AHQ2750.007	Schraube (Kolbenplatte)
8	2x		Kolbenplatte
12	2x	AHQ2750.012	Kopfdichtung
13	4x	AHQ2750.013	Dichtung Ansaug-/Druckstutzen
14	8x	AHQ2750.014	Schraube (Kopf)
17	2x	AHQ2750.017	Set besteht aus Nr.18/19/20/21
18	4x		Ventilhalter
19	4x	AHQ2750.019	Schraube (Ventilplättchen)
20	2x		Ventilplatten
21	4x	AHQ27F0.021	Ventilplättchen
22	2x	AHQ27F0.022	Zylinderdichtung
24	2x	UHQ2750.424	Lüfter Ansaug- /Abluft weiß
<b>Reparatur-Set Art.Nr.UHQ2750R001</b>			
5	2x	AHQ27F0.005	Kolbendichtung
6	2x	AHQ27F0.006	Zylinderbüchse
7	2x	AHQ27F0.007	Schraube (Kolbenplatte)
12	2x	AHQ27F0.012	Kopfdichtung
14	8x	AHQ27F0.014	Schraube (Kopf)
19	4x	AHQ27F0.019	Schraube (Ventilplättchen)
21	4x	AHQ27F0.021	Ventilplättchen
22	2x	AHQ27F0.022	Zylinderdichtung

Pos	Art.Nr.	Bezeichnung
<b>Bauteile gleich für MWV250.230 und MWV250.1150</b>		
1	GFB27F0.1370	Stahlblechgehäuse ZN V2750/75
2	UHQ2750.230	Ansaugfilter schwarz G ¼"
3	UHQ2750.040	Gehäusefüße – Set (incl. Schrauben)
4	GYK086.002 BHU0101.011 BHU0201.011	KG Gehäuse bearbeitet inkl.: PG 11 Verschraubung PG 11 Gegenmutter
5	LHV1608.001	Rückschlagventil 2xIG 3/8"
6	UHQ2750.180	Aluklebe-Set 2750 komplett für Aggregat
7	BHT3271.001	Tragegriff
8	LHF3536.002	Filtermatte
<b>Bauteile für MWV250.230</b>		
1	AHW27F0.008	Aggregat
2	EHU0500.040	Netzleitung mit Stecker
3	EHS088.250	Motorschutzschalter 2,5
<b>Bauteile für MWV250.1150</b>		
1	AHW27F0.010	Aggregat
2	EHU0500.035	Netzleitung 2m +AEH ohne Stecker
3	EHS088.630	Motorschutzschalter 6,3

# Technische Daten /Ersatzteile

## Vakuumpumpe 27F0 zu VPE 12E 230/50



# SH und VPE

25000012 Filtereinsatz für Stromgenerator Robin Robin EY20 Fa.Mit  
Filter mat for Robion EY20  
Filter mat for Robin EY20



25000021 Filtereinsatz für Stromgenerator Yamaha Typ304YA/A-En  
Filter mat for Yamaha 304YA  
Filter mat for Yamaha 304YA



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## SH 1000 eW und SH 1500eW

42500120 Filterpatrone C 75 für Luftfilter SH 1000  
Filter Cartridge for Airfilter SH 1000  
Filter cartridge for airfilter SH 1000

Einzelteil von 42500012



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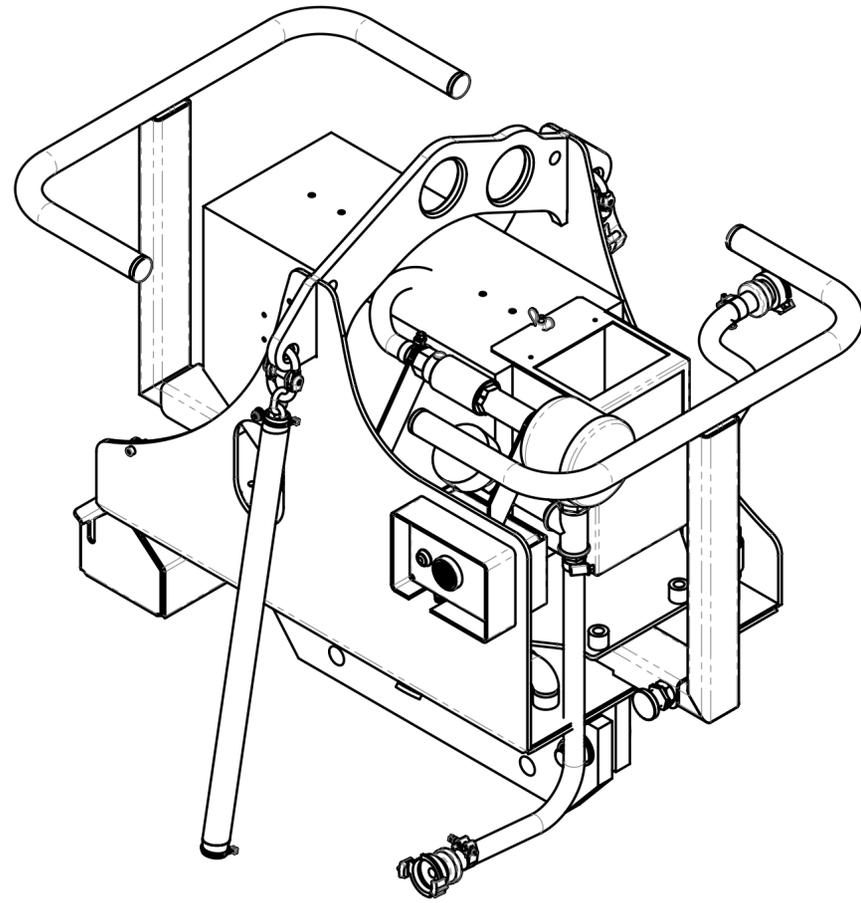
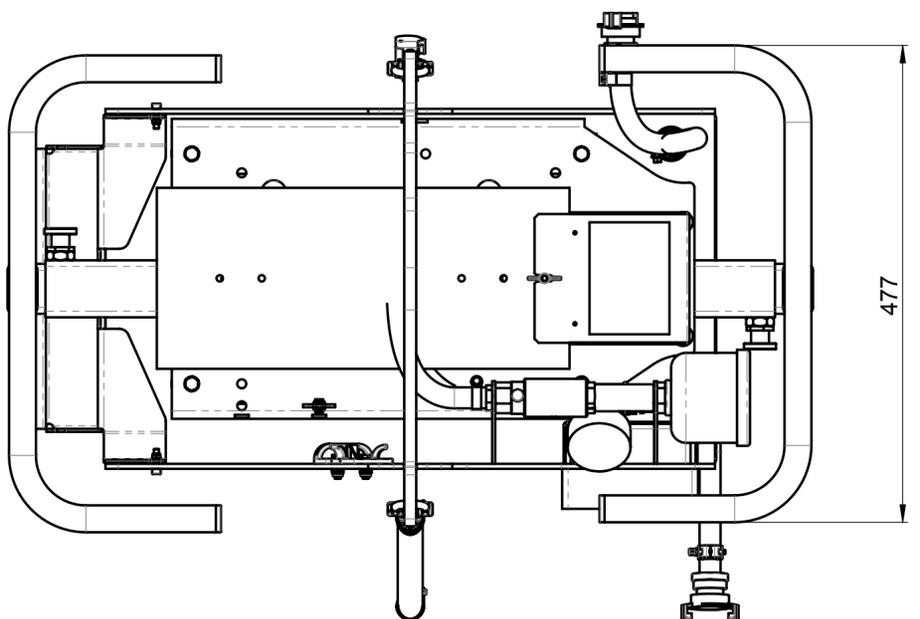
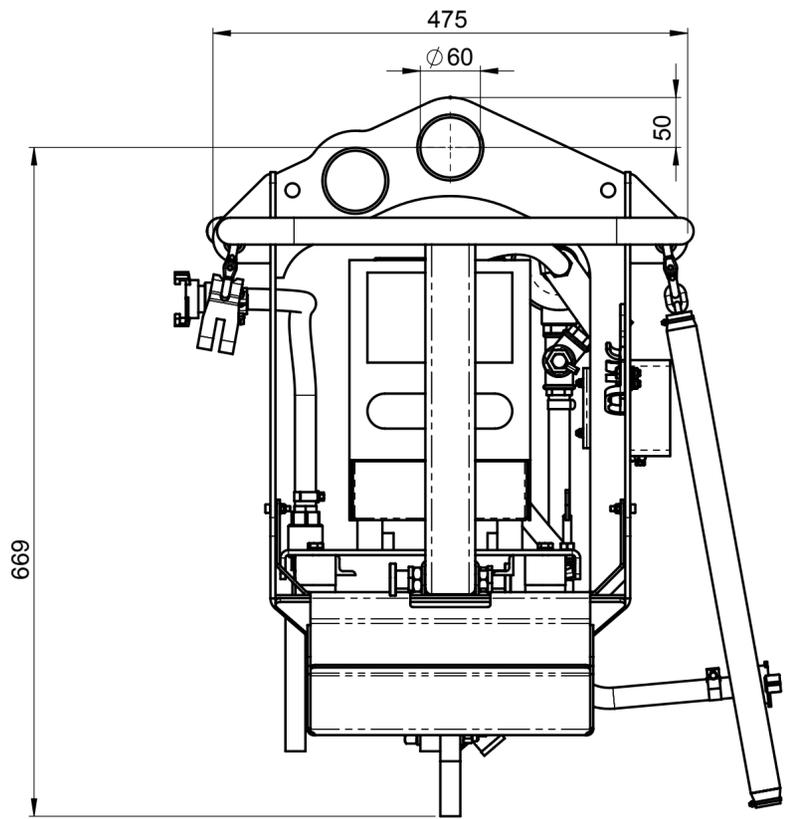
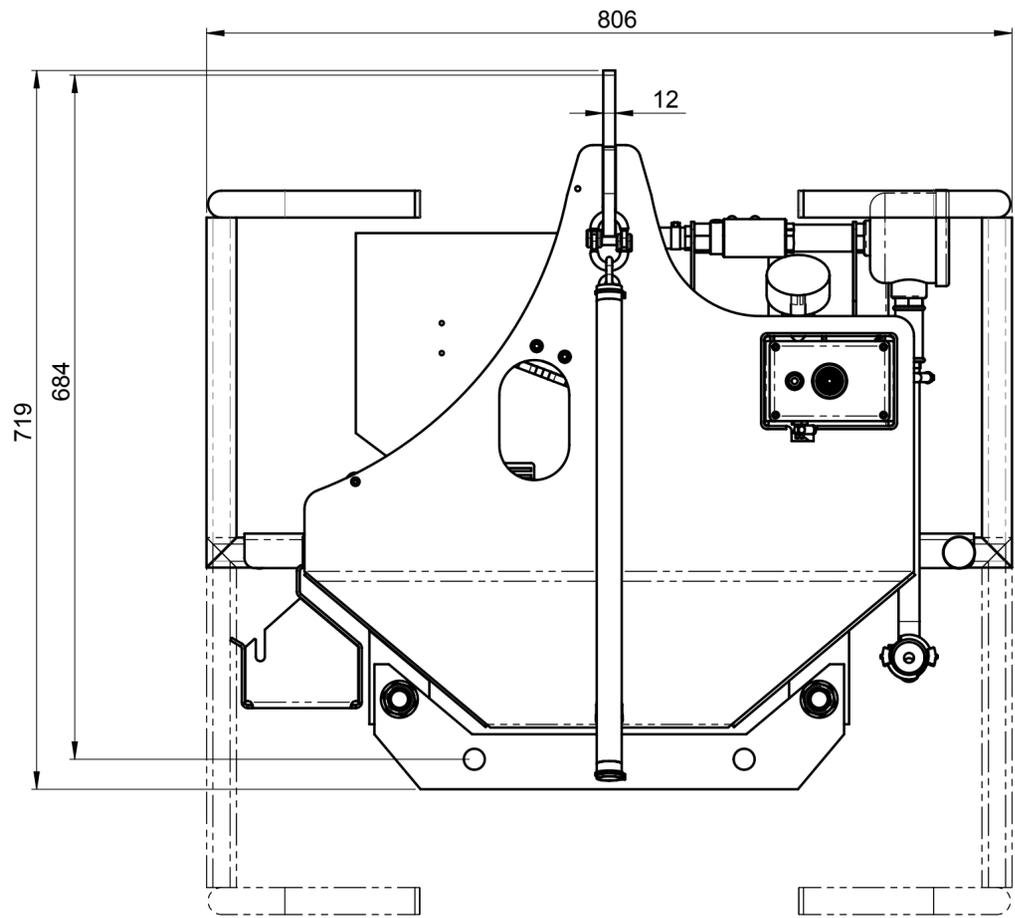
## SH 1000eW

25000010 Luftfilterpatrone MicroTop C64-3 für Pumpe SH 1000 eW  
Air Filter MicroTop C64-3 for pump SH 1000 eW  
Air filter MicroTop C64-3 for pump SH 1000 eW

Einzelteil von 42500012



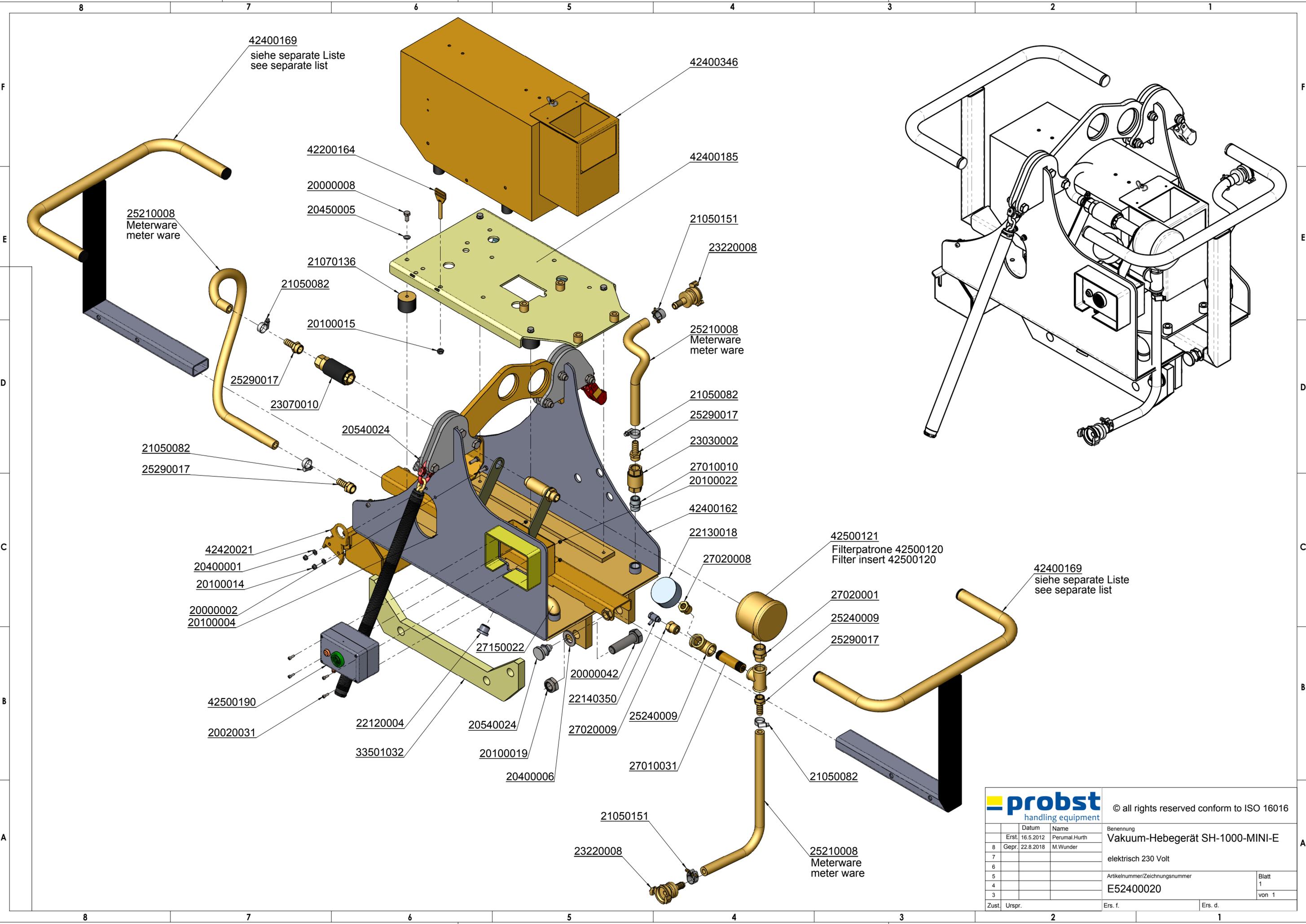




Tragfähigkeit: 1000 [kg]  
 Carrying Capacity: 1000 [kg] / (2200 [lbs.])

Vacuum Lifting Device SH-1000-MINI-E,  
 with electrical motor 230 volt

		© all rights reserved conform to ISO 16016	
	Datum	Name	Benennung
	Erst. 23.8.2006	Perumal.Hurth	Vakuum-Hebegerät SH-1000-MINI-E
8	Gepr. 22.8.2018	M.Wunder	
7			elektrisch 230 Volt
6			
5			Artikelnummer/Zeichnungsnummer
4			D52400020
3			Blatt 1 von 1
Zust.	Urspr.	Ers. f.	Ers. d.



42400169  
siehe separate Liste  
see separate list

25210008  
Meterware  
meter ware

21050082  
25290017

42420021  
20400001  
20100014  
20000002  
20100004

42500190  
20020031

42200164  
20000008  
20450005

21070136  
21050082  
20100015

20540024

22120004  
33501032

27150022

20540024  
20100019  
20400006

20000042  
22140350  
27020009

21050151  
23220008

42400346  
42400185

21050151  
23220008

25210008  
Meterware  
meter ware

21050082  
25290017  
23030002  
27010010  
20100022

42400162  
22130018

27020008

27010031

42500121  
Filterpatrone 42500120  
Filter insert 42500120

27020001  
25240009  
25290017

21050082

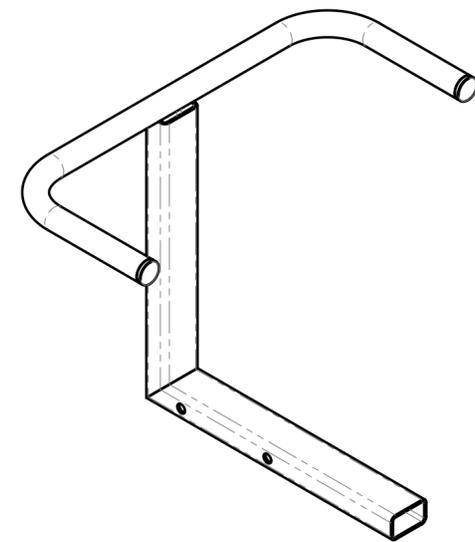
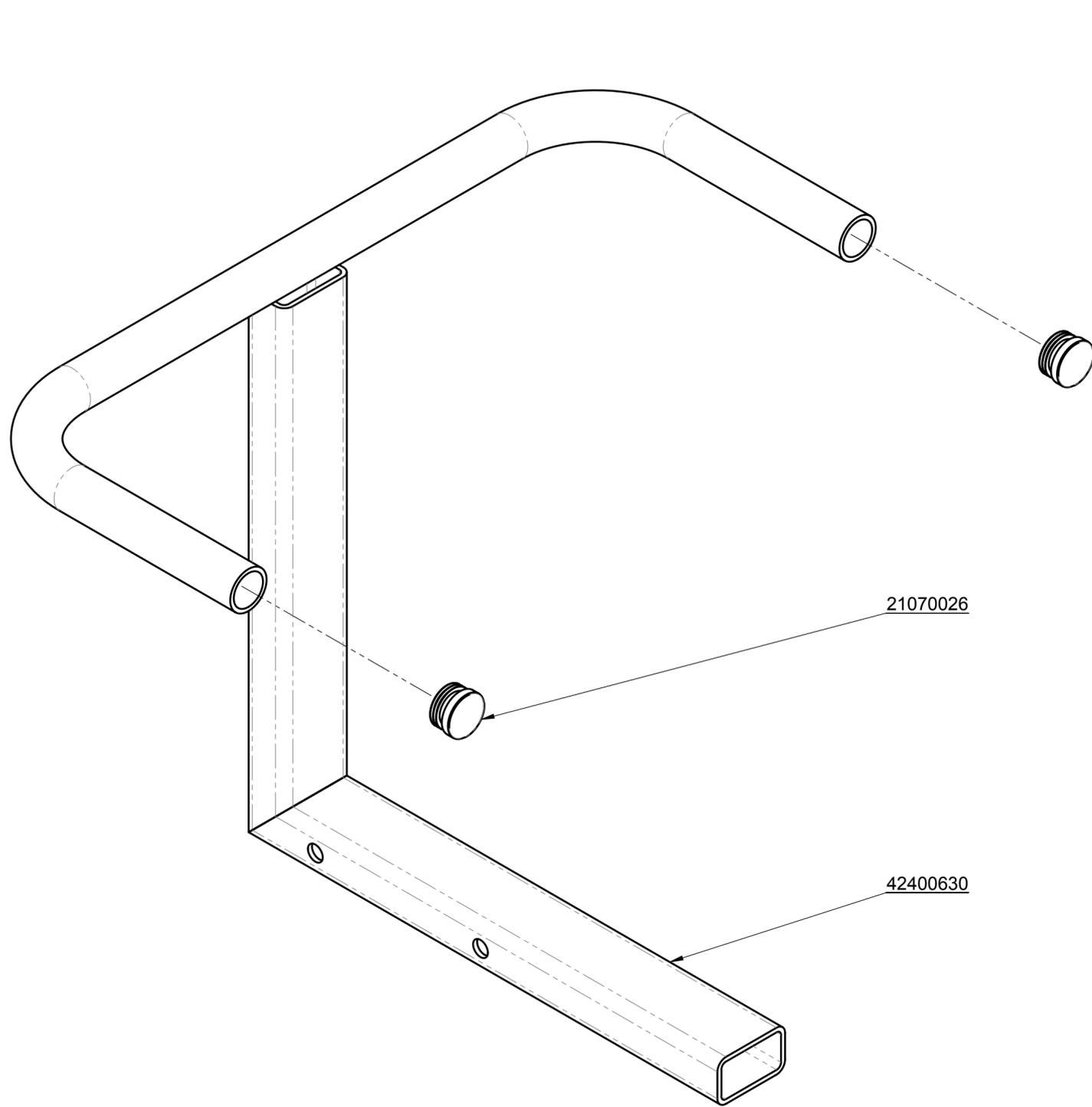
25210008  
Meterware  
meter ware

42400169  
siehe separate Liste  
see separate list

**probst**  
handling equipment

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Datum		Name		Benennung	
Erst.	16.5.2012	Perumal.Hurth		Vakuum-Hebegerät SH-100-MINI-E	
8	Gepr.	22.8.2018	M.Wunder	elektrisch 230 Volt	
7				Artikelnummer/Zeichnungsnummer	
6				E52400020	
5				Blatt	
4				1	
3				von 1	
Zust.	Urspr.	Ers. f.	Ers. d.		



21070026

42400630

**probst**  
handling equipment

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	Datum	Name
Erst.	18.10.2018	M.Wunder
Gepr.	18.10.2018	M.Wunder
1		
Zust.	Urspr.	

Benennung  
Handgriff kompl. SH-1000-MINI

Artikelnummer/Zeichnungsnummer  
E42400169

Blatt  
1  
von 1

Ers. f.	Ers. d.
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