

# Operating and maintenance instructions

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## *FIPALIFT* **pro**

SH.PRO.100-DT  
SH.PRO.120-DT  
SH.PRO.120-SK  
SH.PRO.160-SK



## EC declaration of conformity

**Company:**

FIPA GmbH  
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declares under its sole responsibility that the FIPALIFTpro:

SH.PRO.100-DT  
SH.PRO.120-DT  
SH.PRO.120-SK  
SH.PRO.160-SK

areferred to in this declaration are being produced according to the following regulations:

2006/42/EG (Machinery Directive)  
2006/95/EG (Low Voltage Directive)  
2004/108/EG (EMC-Guideline)



Ismaning, March 2021

Rainer Mehrer,  
CEO

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## 1. INTRODUCTION

The FIPALIFT<sup>pro</sup> tube lifter is a lifting device whose lifting force and movement are based on vacuum. The device can be adapted to a wide range of applications. This allows the lifting of various objects such as boxes, crates, bags, canisters, barrels, drums and other objects.

The FIPALIFT<sup>pro</sup> tube lifter is designed to allow you to work in an ergonomic and fluid way, it allows you to lift and move heavy loads very easily. It is very time efficient by eliminating the need for tedious slinging of the load.

The instruction manual contains a description of the safety rules, installation, operation, maintenance and troubleshooting, as well as the technical data. Special versions of the FIPALIFT<sup>pro</sup> tube lifter are not described. Information on these products can be obtained from our Technical Sales Department (+49 89 962489-0).

The delivered device may only be used for lifting objects for which it is designed according to your inquiry and order confirmation. If you intend to use the lifting device for other objects, please contact our Technical Sales Department.

Peripheral systems with which the FIPALIFT<sup>pro</sup> tube lifter is installed together are not described in these operating instructions. Please refer to the individual descriptions of these system parts.

FIPA is constantly striving to further develop and improve the design and construction of its lifting equipment. Therefore, design and technical features are subject to change without notice.

All information in this operating manual corresponds to the features at the time of publication. Misprints are excepted.



Rainer Mehrer,  
CEO



**The design and construction of the tube lifter may not be changed under any circumstances without the approval of FIPA GmbH. Only original FIPA accessories and spare parts are to be used. Unauthorized modifications and/or the use of third-party accessories and spare parts can cause serious personal injury during the lifting process and will void the warranty.**

## 2. SAFETY

Read these operating instructions carefully before initial start-up and observe the following safety rules. The FIPALIFT<sup>pro</sup> tube lifter may only be operated and maintained by personnel who have read these operating instructions and fully understood their contents. Hang the operating instructions in an easily accessible location near the tube lifter and point them out to the operators.



### SAFETY REGULATIONS

- > The device must not be operated or serviced by persons who are under the influence of alcohol, drugs that impair perception, such as sleeping pills or strong painkillers, or other drugs. Other conditions such as circulatory problems or dizziness are also a criterion that leads to the prohibition of the ability to operate this equipment.
- > It is the responsibility of the operator to ensure that no personal injury can occur during work.
- > Safety shoes must be worn during operation.
- > Never be distracted when working with the tube lifter and never distract the operator himself. Accidents can occur due to lack of concentration.
- > Do not work with loads that are heavier than the design of the device.
- > The tube lifter may only be used to lift loads that are packed in such a way that they do not fall apart when lifted, i.e. are inherently stable.
- > Do not apply the vacuum cup to surfaces that have loose areas, such as address labels or lids that may come loose.
- > Do not place the vacuum cup on surfaces that are so slippery that the load could possibly slide away under the cup (slip effect).
- > Take special care when handling sharp-edged objects such as metal sheets. There is a danger of cutting.
- > Never use the FIPALIFT<sup>pro</sup> tube lifter to lift loads containing hazardous or explosive substances. It must be ensured beforehand that work can be carried out without danger.
- > Position the vacuum cup vertically above the center of gravity of the object to be lifted.
- > The tube lifter with a raised load may only be operated in such a way that dropping the load cannot cause personal injury.
- > Never guide lifted loads over persons. Persons must not stand under the lifted loads.
- > Do not set down the lifted load if this may cause injury to persons or damage to objects.
- > The vacuum cup (suction cup) must not be applied to people or animals.
- > Never lift objects with the vacuum cup of the tube lifter for longer than 60 seconds. The vacuum pump may overheat and be damaged and/or lose its function.
- > Never manipulate the tube lifter manually when raising or lowering it.
- > A lifted load must not be left without supervision.
- > The standard tube lifter must not be operated in potentially explosive atmospheres. Electrical and mechanical components can generate sparks, vapors can ignite. A specially modified device is required for this application. Talk to our technical sales department.
- > Do not attach tube lifter to floor or walls.

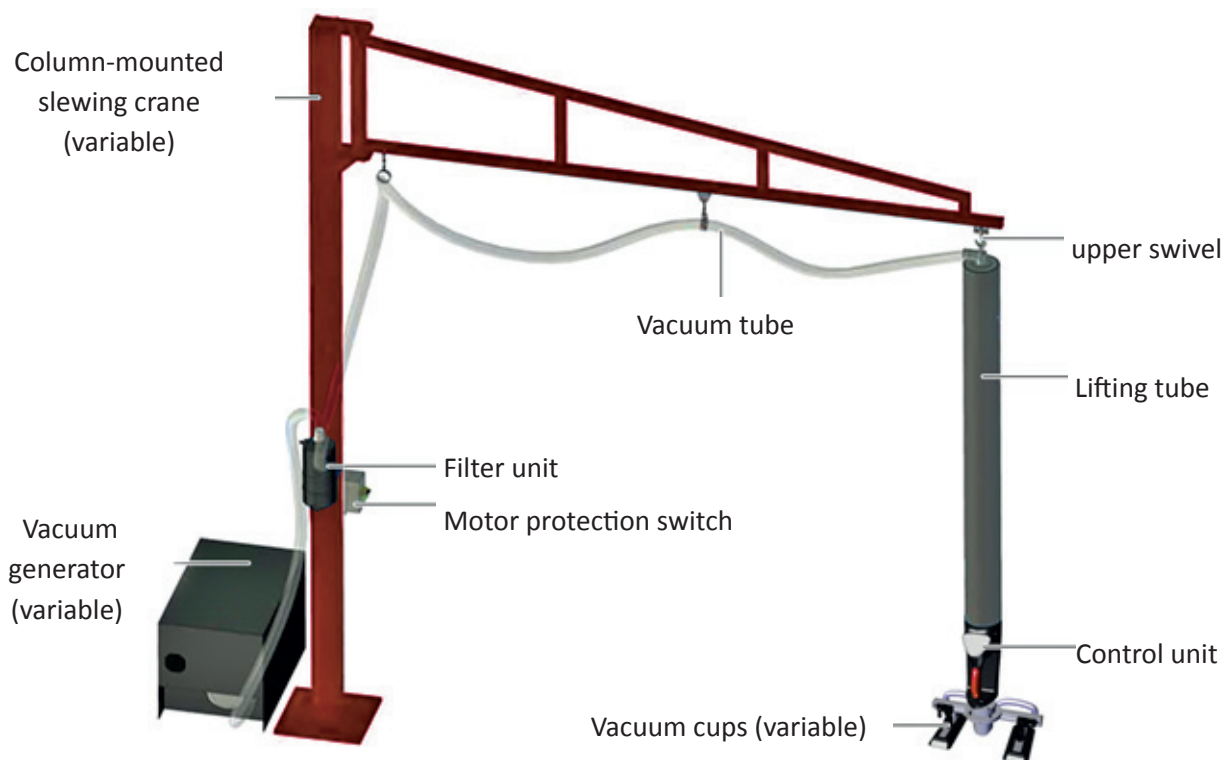


**Observe the rules and regulations of your national authorities and institutions for occupational safety and the operation of lifting equipment!**

### ① Important information

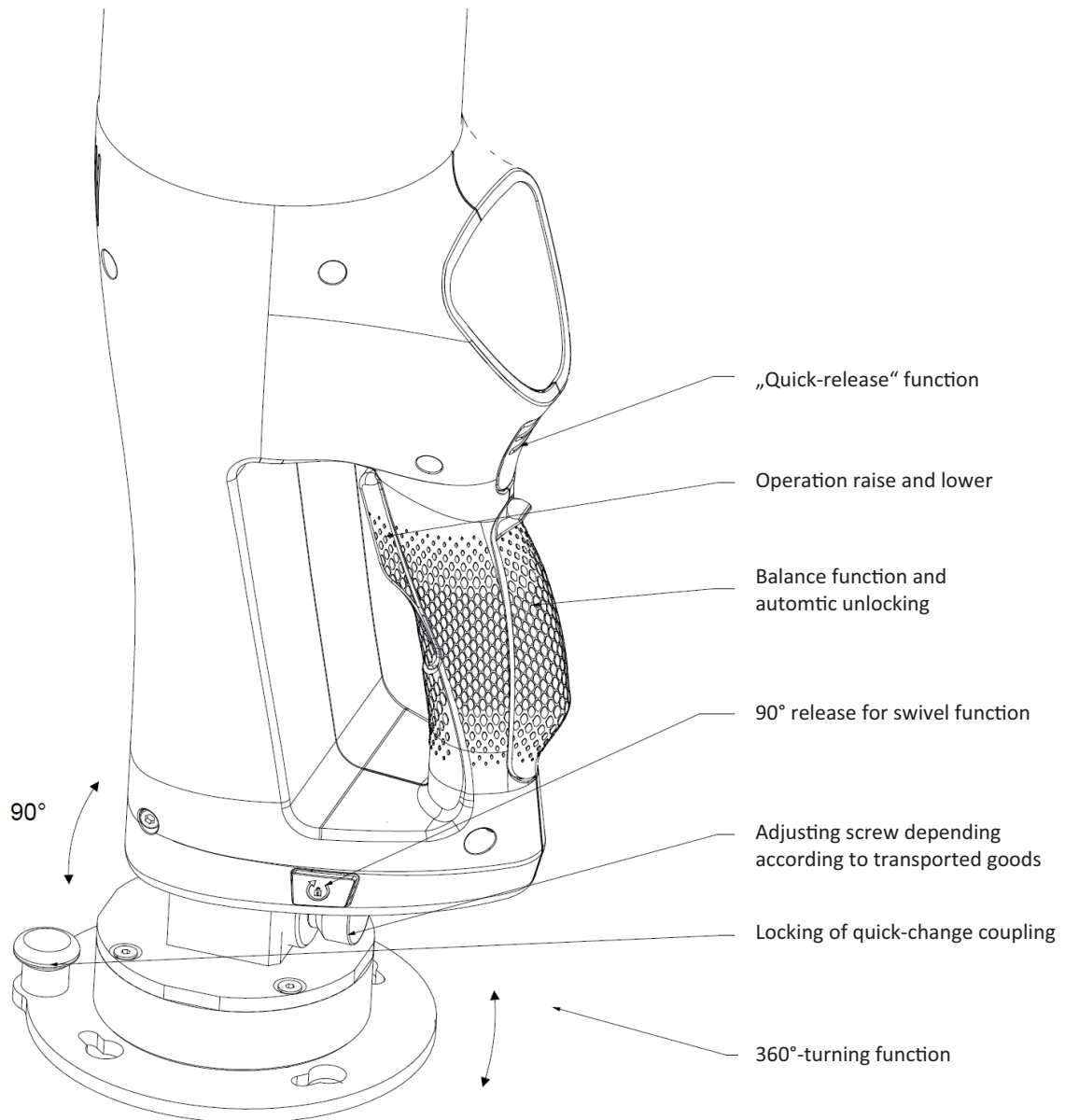
- > The entire manual must be read in detail before installing and commissioning the equipment, and you must familiarize yourself thoroughly with the equipment.
- > The tube lifter is to be operated only with low manual force on the control handle in order to avoid violent movements during lifting.
- > During service and cleaning, the unit must be switched off and secured against being switched on again.
- > The vacuum pump must be handled with special care, as it is sensitive to shocks and vibrations.
- > The vacuum pump must not be operated without an air filter.

## 3. PRODUKTBESCHREIBUNG



**Variant overview**

Item no.	Lifting tube Ø	Operation with	Max. Work load
SH.PRO.100 -DT	100	Rotary vane pump	35 kg
SH.PRO.120 -DT	120	Rotary vane pump	45 - 55 kg
SH.PRO.120-SK	120	Side channel blowers	55 kg
SH.PRO.160-SK	160	Side channel blowers	75 kg



#### 4. INSTALLATION AND COMMISSIONING

It must be ensured that the tube lifter delivered corresponds to the delivery bill. If any parts are missing, please contact our Technical Sales Department. Many problems during installation and test run can be avoided if this manual is read carefully before installation. For safety reasons, it is essential to have a thorough knowledge of the equipment. The FIPALIFTpro tube lifter is used together with an electric vacuum pump or a side channel compressor. Please follow the instructions for the pumps carefully.

##### **Safety instructions for installation**

- > The installation should be carried out by a competent person.
- > The person responsible for installing the FIPALIFTpro tube lifter must ensure that the suspension structure (e.g. the FIPA crane system or the FIPA jib crane or others) is sufficiently dimensioned to hold the dead weight of the tube lifter, including maximum load plus a sufficient safety factor.
- > The electrical installation must be carried out by a trained electrician.

##### **Installing the tube lifter**

- > The lifting unit is attached to the suspension eye. Ensure that the fastening elements are sufficiently dimensioned and, if necessary, adequately secured.
  - > When the lifting unit has been hooked in, the vacuum cup (suction cup) should be at least 100 mm above the floor surface. If the vacuum cup is closer to the floor, the tube must be shortened or the suspension system must be placed higher. If the vacuum cup is further from the floor, the tube must be lengthened or the suspension system lowered.
- ① **It must be ensured that the tube lifter can still be reached by the operating personnel in the highest position and that the desired working height is achieved. If this is not the case, the length of the lifting tube must be adjusted and/or the height of the suspension changed.**



## Vacuum pump selection

The selection is highly dependent on the nature of the load to be lifted, lifting tests may be necessary. Please contact our technical sales department for the correct selection.

(+49 89 962489-0).

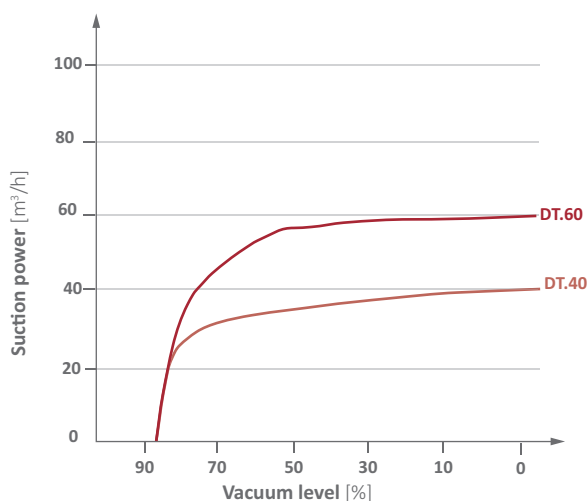
The pumps are not included in the scope of delivery and must be ordered separately.

The following pumps are available from FIPA and are approved for the FIPALIFT<sup>pro</sup> tube lifter:

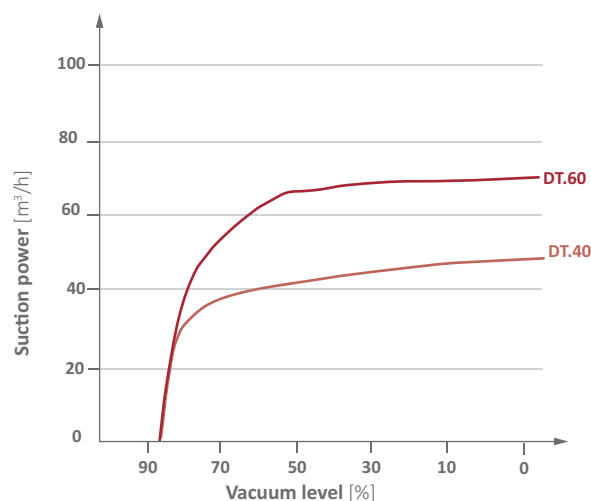
### Technical data: Vacuum pumps

Item no.	DT.40B-3	DT.60C-3
Suction power at 50 Hz [m <sup>3</sup> /h]	40	60
Suction power at 60 Hz [m <sup>3</sup> /h]	46	70
Final vacuum [%]	88	88
Power supply at 50 (60) Hz [V]	Delta: 220-255 (220-266) Star: 380-440 (380-460)	Delta: 230 (265) Star: 400 (460)
Current consumption at 50 (60) Hz [A]	Delta: 7 (7,1-7) Stern: 4 (4,1-4,0)	Delta: 5,91 (5,6) Stern: 3,4 (3,23)
Rated power at 50 Hz [kW]	1,5	1,5
Rated power at 60 Hz [kW]	1,8	1,8
Noise level at 50 Hz [dB(A)]	68	70
Noise level at 60 Hz [dB(A)]	70	72
Operating temperature at 50 Hz [°C]	75 - 80	70 - 73
Operating temperature at 60 Hz [°C]	80 - 85	72 - 75
Weight [kg]	37,5	66
Spare part kit	KIT-DT.40B	KIT-DT.60C

Suction power against vacuum level at 50 Hz

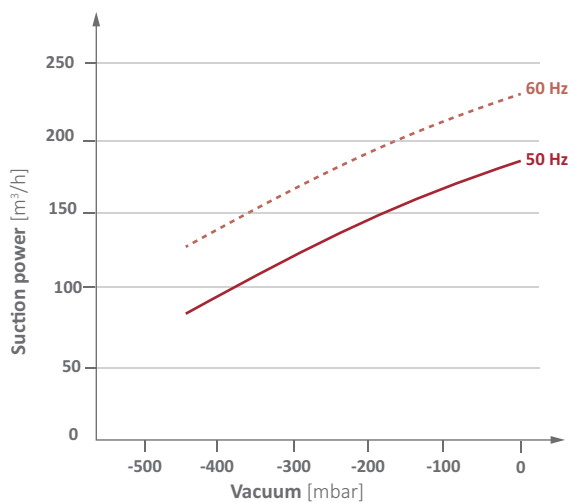


Suction power against vacuum level at 60 Hz



**Technical data: Side channel blowers**

Art-Nr.	SKV.D.181-4.0-C-3
Suction power at 50 Hz [m <sup>3</sup> /h]	181
Suction power at 60 Hz [m <sup>3</sup> /h]	281
Differential pressure [mbar]	450
Power supply at 50 (60) Hz [V]	Delta: 230 (265), Star: 400 (460)
Current consumption at 50 (60) Hz [A]	Delta: 14,05 (14,03), Star: 8,12 (8,1)
Rated power at 50 Hz [kW]	4
Rated power at 60 Hz [kW]	4,8
Noise level at 50 Hz [dB(A)]	70,5
Noise level at 60 Hz [dB(A)]	72,5
Operating temperature [°C]	- 15 - 40
Weight [kg]	53

**Suction power against vacuum**


## Installation of the electric vacuum pump

- > The electrical installation may only be carried out by a trained electrician and in accordance and compliance with local regulations.
- > The vacuum pump must be placed as close as possible to the lifting unit in order to keep the length of the vacuum tube as short as possible. If the FIPALIFT<sup>pro</sup> tube lifter is to lift loads as quickly as possible, it is particularly important that the vacuum tube between the vacuum pump and the lifting unit is not too long. A long vacuum tube reduces the lifting unit's ability to utilize the full capacity of the vacuum pump. It is recommended that the tube between the vacuum pump and the lifting unit not exceed 30 m in length. If a longer tube is necessary, please contact our Technical Sales Department.
- > The vacuum pump must be installed in a well-ventilated area as it radiates heat. Make sure that there is at least 300 mm of free space around the pump and that no loose objects can cover the pump's ventilation openings.
- > If the pump is not installed on the ground, make sure that it is mounted securely so that it cannot fall or tip over.
- > Remove the cover from the vacuum inlet of the pump.
- > The pump may only be operated when the filter is connected.
- > Check the direction of rotation against the direction arrow on the electric motor and check for air leaking from the muffler. The pump can be damaged if it runs in the wrong direction.
- > If several FIPA tube lifters are to be installed, the vacuum pumps must be labeled to make it clear which pump is connected to which tube lifter.
- > The electrical cable must be routed through the cable gland provided for this purpose. (Note the illustration under 2. PRODUCT DESCRIPTION).
- > It is essential that you also observe the operating instructions for the respective pumps.



**The system may only be put into operation after a qualified electrician or electrician has installed a motor protection device. If a motor protection device is not installed, there is a risk of fire!**

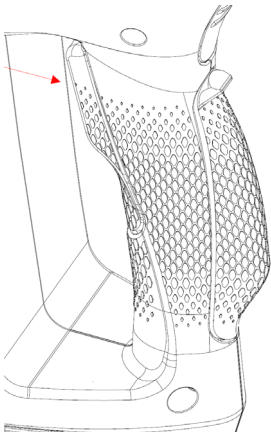
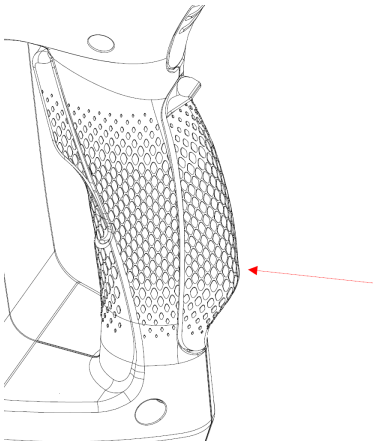
## Installation of the vacuum tube and air filter to the vacuum pump.

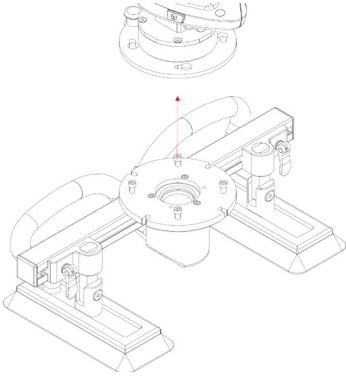
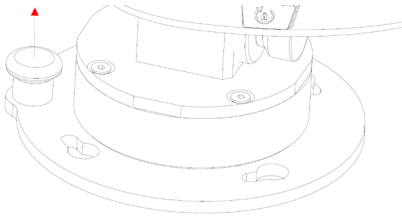
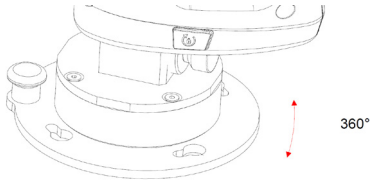
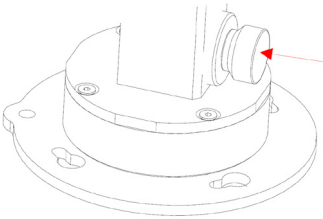
- > The air filter should be installed in an easily accessible place and it should also be clearly marked to which lifting device it is connected. To begin with, the vacuum tube should be hooked into the suspension system on which the lifting device is mounted (e.g. the FIPA crane system or the FIPA slewing crane or others). Attach the vacuum tube to the upper swivel joint of the lifting unit and to the air filter.
- > Also attach the vacuum tube between the air filter and the vacuum pump.
- > NOTE! The arrow on the air filter points in the direction in which the air filter to the vacuum pump.
- > Ensure that the vacuum tube cannot be pinched along its entire length or come into contact with anything that could damage it.

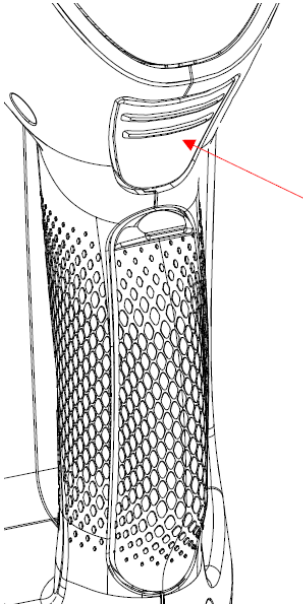
## Test operation and initial acceptance

- > Lift a load with a surface that is completely impermeable to air. Allow the load to hang freely from the lifting device and listen for hissing noises throughout the device to ensure that no leaks have occurred during installation.
- > Lift a load with an impermeable surface of approximately 5 kg. Let the load hang freely on the tube lifter and then switch off the vacuum pump. The load and lifting unit should now slowly sink down to the floor. If this is not the case, please contact our Technical Sales Department.
- > Lift a load with a completely air-impermeable surface and the maximum permissible weight for this version. See the „Troubleshooting“ section if the load is not lifted.
- > After the FIPALIFTpro tube lifter has been properly installed on a suitable crane system, a plate with the maximum permitted load must be attached to the control unit. The maximum allowed load must correspond to the maximum load of the installed tube lifter, as well as the maximum load of the lifting system. Please note that these signs are not supplied by FIPA.

## 5. OPERATION

Function	Illustration	Description
Lifting and lowering		By pressing the „Trigger“ button the load can be lifted upwards. As soon as the trigger is slowly released, the load will move back to below.
Hover function/ unlocking		The release is intuitively pressed when actuated and serves as a safety interlock for the lowering function. Among other things, the balance function can be held by releasing the unlocking device, with or without load.

Function	Illustration	Description
Quick-change coupling		The coupling serves to change the suction cup within seconds.
Quick-change coupling release		The suction cup can be unlocked by the locking bolt.
360° rotation function		Lifting object to be transported can be rotated through 360° in (90° positions locking).
Adjusting screw		<p>The adjusting screw allows the suction of airtight and porous materials. Airtight transport materials can be lifted with closed screw. To lift cartons, the screw must be turned further out. For the handling of bags, this screw has to be completely open.</p> <p><b><u>Factory setting</u></b>            Pump application: Screw closed</p> <p><b><u>Blower application</u></b>            Screw half open</p>

Function	Illustration	Description
„Quick-release“-function		<p>The load can be released quickly and easily by pressing the „quick-release“ button.</p>

## 6. MAINTENANCE

The maintenance instructions must be followed exactly to ensure that the equipment operates safely and that the lifting characteristics are not impaired. If faults are detected in the system, they must be rectified immediately before the FIPALIFTpro tube lifter is put into operation again.

- > During service work, the unit must be switched off and secured against being switched on again.
- > Only FIPA original spare parts are to be used for maintenance and repair work. The FIPA original spare parts are matched to the necessary loads and forces of the tube lifter; the use of other spare parts can lead to serious defects and void the warranty.

### Daily maintenance and inspection

- > In dusty or dirty operating conditions, check the filter daily. Shake out the filter and clean it with a vacuum cleaner. Damaged filters, or filters that can no longer be cleaned, must be replaced.

### Weekly maintenance and inspection

- > Test to verify that a power failure results in a rapidly decreasing load:
  - Step 1:** Start the vacuum pump.
  - Step 2:** Lift a load with a completely air-impermeable surface and a weight of approximately 5 kg.
  - Step 3:** Switch off the vacuum pump.
  - Step 4:** The load should now slowly sink to the floor. If the load sinks too quickly or the load drops, do not use the tube lifter until the fault has been rectified. Please contact our technical sales department.

- > Check whether the filter is clogged or damaged.
- > Check whether the vacuum cup (suction cup) is damaged.
- > Check whether the lifting tube is damaged.
- > The lifting tube becomes longer over time. Check the length of the lifting tube and ensure that the vacuum cup (suction cup) does not touch the floor.

### Three-monthly maintenance and inspection

- > Check that the suspension eye and the crane system to which the FIPALIFT<sub>pro</sub> tube lifter is attached are in perfect condition.  
***If any parts are damaged, do not use the tube lifter until the fault has been rectified. Please contact our technical sales department!***
- > Check whether bolts and nuts of the fastening system are tight and secured if necessary.
- > Check whether the vacuum tube and the lifting tube are airtight and not pinched.

## 7. TROUBLESHOOTING

### Fault: The load is not lifted or it is lifted slower than usual.

- 👁 Is the air filter clogged?  
✂ Shake out the filter and clean it with the vacuum cleaner. Replace the filter if it is damaged.
- 👁 Is the filter unit cap correctly installed?  
✂ Tighten the cap correctly.
- 👁 Does the unit have any leaks? Place the vacuum cup (suction cup) on an airtight, flat board. Pull control handle up and check vacuum tube, connections, air filter, top swivel, lift tube, control unit and suction cup for hissing sounds.  
✂ Seal leaks or replace leaking components.
- 👁 Is there any contamination in the vacuum cup?  
✂ Remove impurities from the vacuum cup (suction cup).
- 👁 Is the vacuum tube pinched somewhere?  
✂ Seal leaks or replace vacuum tube.
- 👁 Perform test to verify that a power failure causes the load to drop quickly.  
(See „Weekly maintenance“)
- 👁 Is the load to be lifted too heavy? Check that the weight corresponds to the lifting capacity of the FIPALIFT<sub>pro</sub> tube lifter supplied.

**If you cannot correct the error yourself, please contact our Technical Sales Department.**



If the load is not lifted, this may be due to the fact that no vacuum is generated in the lifting tube and/or vacuum cup (suction cup). The cause is usually a leak in the load or in the reciprocator.

**Fault: The load is lifted very slowly at the beginning, but faster as the lifting height increases.**

- 👁 Is there a leak in the lifting tube?
- ✂ Replace the lifting tube without fail.
  
- 👁 Is there a leak in the vacuum tube?
- ✂ Seal leaks or replace vacuum tube.

**Fault: The load is not lowered slowly during the power failure test.**

- 👁 See „Weekly maintenance“.
- ✂ Please contact our technical sales department.

**Fault: The vacuum pump does not start.**

- ✂ Please contact the person responsible for the electrical installation or our technical sales department.

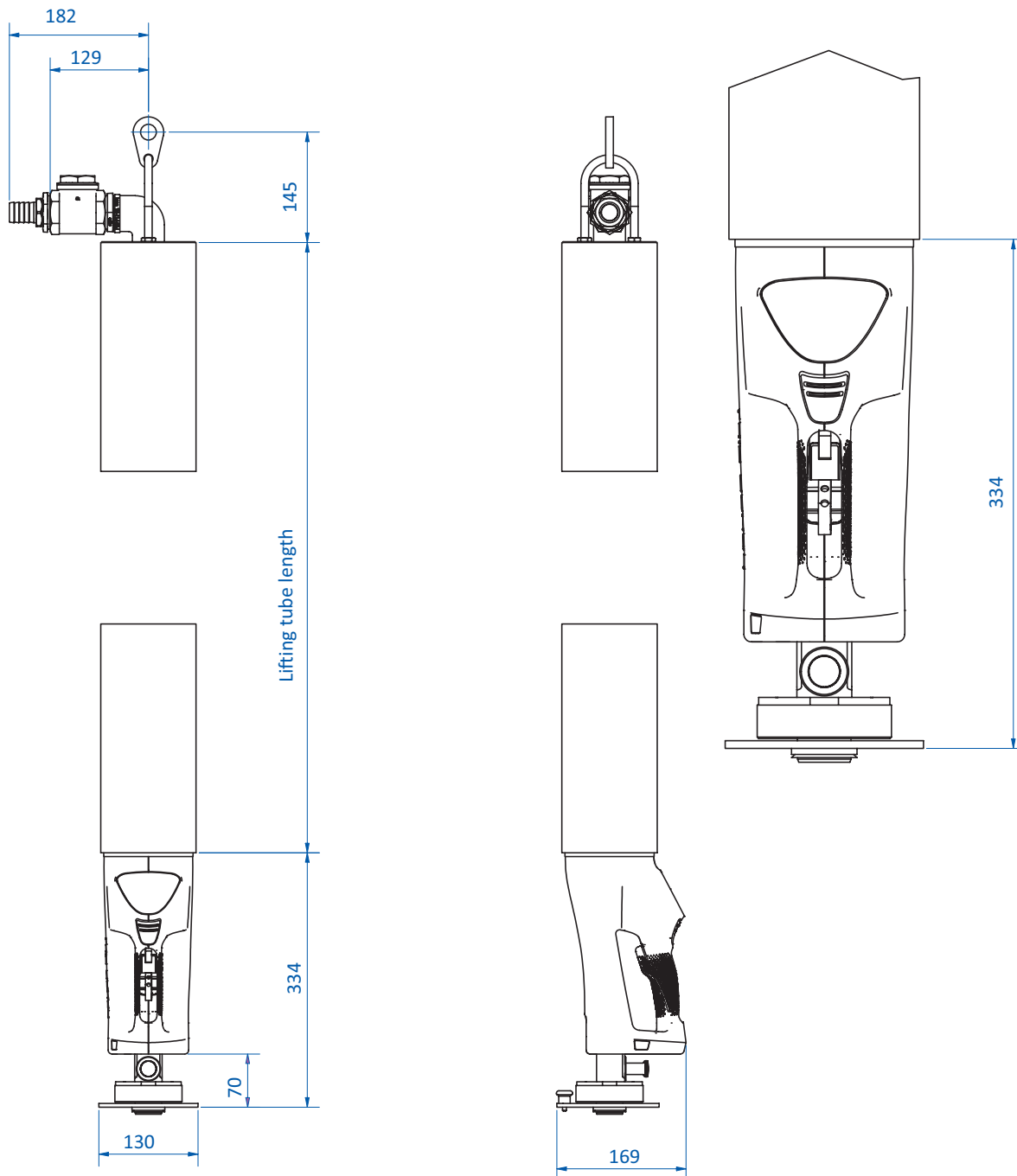
**Fault: Extraneous noise from the vacuum pump.**

Please shut down the vacuum pump and contact our Technical Sales Department.



## 8. SPECIFICATIONS

### Dimensions FIPALIFT<sup>pro</sup>



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