

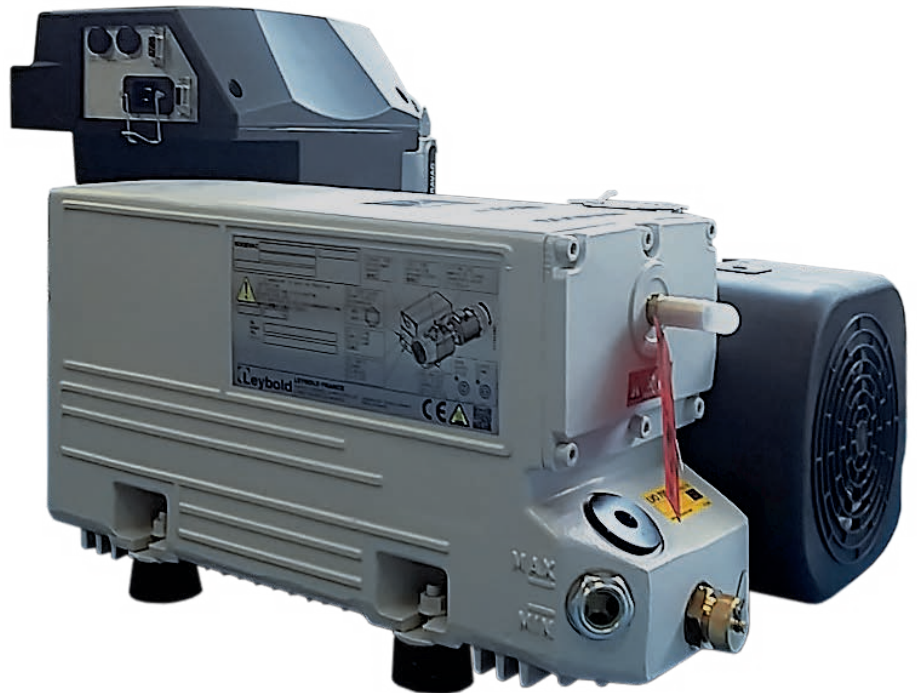
# SOGEVAC®

SV120 BI FC

Single-stage, oil-sealed rotary vane pump

**Operating Instructions 300423246\_002\_C1  
and spare parts list**

Part Numbers  
960560V  
to  
960565V  
and their variants



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# Safety Information

## Obligation to Provide Information

Before installing and commissioning the pumps, carefully read these Operating Instructions and follow the information so as to ensure optimum and safe working right from the start.

The Leybold SOGEVAC® has been designed for safe and efficient operation when used properly and in accordance with these Operating Instructions. It is the responsibility of the user to carefully read and strictly observe all safety precautions described in this section and throughout the Operating Instructions. The SOGEVAC® must only be operated in the proper condition and under the conditions described in the Operating Instructions. It must be operated and maintained by trained personnel only. Consult local, state, and national agencies regarding specific requirements and regulations. Address any further safety, operation and/or maintenance questions to our nearest office.

DANGER indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury.

WARNING indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.

CAUTION indicates a potentially hazardous situation which, if not avoided, could result in minor or moderate injury.

NOTICE is used to notify users of installation, operation, programming or maintenance information that is important, but not hazard related.

We reserve the right to modify the design and the specified data. The illustrations are not binding.

Retain the Operating Instructions for further use.

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## NOTICE



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## DANGER



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## WARNING



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## CAUTION



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## NOTICE



# Safety Information

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## WARNING



## 0 Important Safety Information

### 0.1 Mechanical Hazards

- 1 Never expose part of the body to the vacuum. There is a danger of injury. Never operate the pump with an open and thus accessible inlet. Vacuum connections as well as oil filling and oil draining openings must not be opened during operation of the pump.

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## DANGER



### 0.2 Electrical Hazards

- 1 Disconnect the unit from the power supply before starting any work or pull the mains plug.
  - 2 High electric voltages! When touching parts at high electric voltages, there is the risk of suffering severe injuries by an electric shock! Covers marked with this symbol must only be opened by trained electricians after having reliably deenergised (lockout/tagout) the equipment and waited minimum 10 minutes.
  - 3 Always operate the pump with a properly connected protective earth conductor and make sure that the motor & FC connection box are closed.
  - 4 Observe the manufacturer's information and operating instructions for the respective frequency converter (enclosed).
  - 5 Use only the Leybold frequency converter for the pumps equipped with one.
  - 6 After having made changes to the wiring, check the motor's direction of rotation.
  - 7 Lay the connecting lines so that these cannot be damaged. Protect the lines against humidity and contact with fluids.
  - 8 Avoid thermally stressing the lines by unfavourable laying. Provide strain relief for the connecting lines so that the plugs and the line connectors are not subjected to excessively high mechanical stresses.
  - 9 Lay electric feed lines so that there is no risk of tripping over these.
-

## 0.3 Thermal Hazards

- 1 Hot surfaces! In normal operation, the pump surface temperature can reach 85°C. There is a risk of burning. Switch off the pump and let it cool down before any intervention or take appropriate precautions. It is recommended to use an oil casing or pump touching protection at high ambient temperatures.
- 2 The noise enclosure is an accessory not included in the pump delivery.
- 3 All work on a pump which is "still warm from operation" should be done only whilst wearing protective gloves.
- 4 Handle the pump only while vented and after having let it cool down.
- 5 Never remove the oil-fill or oil-drain plugs while the pump is running. There exists the risk of suffering burns. Always wear protective gloves and protective goggles also for protection against the oil.

### CAUTION



## 0.4 Hazards Caused by Materials and Substances

- 1 SOGEVAC® pumps are **not** designed:
  - for pumping of dusty, aggressive, corrosive, flammable or explosive gases or gases mixtures ;
  - for pumping of oxygen or other highly reactive gases with a greater concentration than atmospheric concentration (>20%) ;
  - for working in flammable or explosive environment.For all these cases, special materials must be used. In case of doubt, please contact Leybold.  
See also the limits of use indicated in the CE declaration of conformity.
- 2 Depending on the process involved, dangerous substances and oil may escape from the pump. Take the necessary safety precautions !
- 3 Take appropriate precautions to insure that the pump cannot start.
- 4 If the pump has pumped hazardous gases it will be absolutely necessary to determine the nature of the hazard involved and take the appropriate safety precautions.
- 5 Observe all safety regulations !
- 6 Take adequate safety precautions prior to opening the intake or exhaust port.
- 7 Respect the instructions concerning environment protection when discarding used oil or exhaust filters !
- 8 Cancer and Reproductive harm (IAW [www.P65warnings.ca.gov](http://www.P65warnings.ca.gov)).

### DANGER



# Safety Information



- 9 Some pumps use perfluoropolyether (PFPE) as lubricant. When handling PFPE you should observe the following: During thermal decomposition at temperatures over 290 °C toxic and corrosive gases are released. This is not likely to happen in a SOGEVAC® pump. When handling PFPE keep it away from open fires. Do not smoke with PFPE on your fingers. Touch the inner sections of the pumps only while wearing clean gloves, and use clean tools; do the necessary work in clean and dry rooms.

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## NOTICE



### 0.5 Danger of Pump Damage

- 1 Do not allow the ingestion of any objects (screws, welding beads, nuts, washers, pieces of wire, fittings etc.) through the intake port of the pump. Objects falling into the pump can cause severe damage.
  - 2 Liquid and solid particles must not enter the pump. Install the adequate filters, separators and/or condensers. In case of doubt consult Leybold.
  - 3 The intake line of the pump must never be connected to a device with over atmospheric pressure. Design the exhaust line so that no pressure higher than 1,15 bar abs. (0,15 bar rel.) can occur. Never work with closed or restricted pump exhaust.
  - 4 The pump must only be operated in buildings and below 2000 m sea level.
  - 5 Operating of the pump without oil or operating with incorrect direction of rotation can destroy the pump or lead to oil backstreaming.
  - 6 Never use discarded seals. Always assemble using new seals.
  - 7 The pump must be packaged in such a way that it will not be damaged during shipping, and so that no harmful substances can escape from the package.
-

## 1 Description

SOGEVAC® pumps are designed for pumping of inert gases in the range of rough vacuum, between atmospheric pressure and ultimate pressure of the pump.

When removing condensable vapours, periodic opening of the gas ballast valve is required.

### 1.1 Principle of operation

The SOGEVAC® pumps are single-stage oil-sealed rotary vane vacuum pumps.

The rotor, having three slots in which the vanes are sliding, is eccentrically installed in a pump cylinder (stator). The vanes separate the interior space into 3 chambers. The volume of these chambers varies with the rotation of the rotor.

The gas sucked into the inlet chamber is compressed and then pushed out at the exhaust valve.

The oil injected in the inlet chamber guarantees the air-tightness, the lubrication and cooling of the pump. It is dragged off by the compressed gases and roughly separated by gravity when entering in the oil sump. A fine separation is then operated in the exhaust filter. An internal transfer pushes the collected oil back into the vacuum generator, the transfer is operated by a float valve to avoid atmospheric air coming from the oil casing to the inlet of the pump when no oil is present in the recovery system.

The oil circulation functions by differential pressures.

The pumps are equipped with a gas ballast valve for pumping condensable vapours.

The anti suckback valve at the inlet flange avoids oil coming back into the inlet line when the pump is stopped. This is valid for working pressures below 100 mbar and under the condition that the valve is kept clean and in good condition. The anti suck-back valve is not a safety valve. If oil back flowing is to be avoided by all means, it is necessary to mount a separate safety valve on the pump inlet.

The frequency converter gives a constant pumping speed independently of the mains frequency and regulates the pump power consumption. At high inlet pressures, the pump speed is decreased.

The pump speed can be reduced to 900 rpm (idle mode) to reduce the power consumption w/o loss of end pressure on some pump variants. In this idle mode, the pump inlet pressure must remain below 10 mbar.

# Description

## Information to user

The user's manual or instruction manual for an intentional or unintentional radiator shall caution the user that changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

Note : This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.



16AT 500 A @ 250 VAC

This product has been tested to the requirements of CAN/CSA-C22.2 No. 61010-1, third edition, including Amendment 1, or a later version of the same standard incorporating the same level of testing requirements. It complies also to EN61010-1 third edition.

## 1.2 Technical characteristics

### SV120 BI FC

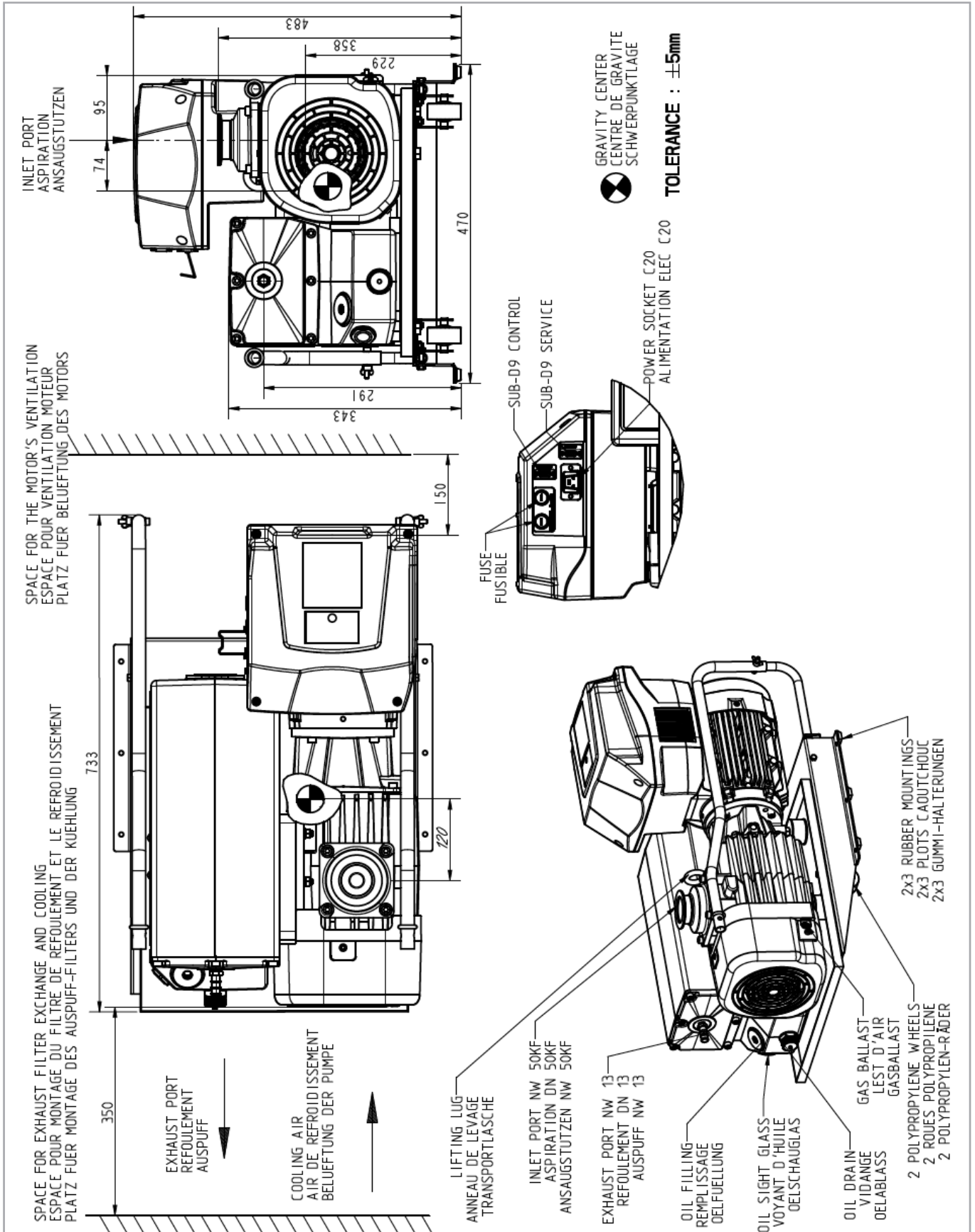
		50 Hz & 60 Hz
Nominal pumping speed	m <sup>3</sup> /h	≥ 147
Pumping speed (according to PNEUROP)	m <sup>3</sup> /h at 2 mbar	≥ 100 with 50 KF inlet
Pumping speed (according to PNEUROP)	m <sup>3</sup> /h at 2 mbar	≥ 90 with 40 KF inlet
Ultimate partial pressure without gas ballast	mbar	≤ 0,2
Ultimate total pressure with small gas ballast	mbar	≤ 1,0
Water vapour tolerance: with small gas ballast approx.	mbar	10
Water vapour tolerable load: with small gas ballast approx.	kg·h <sup>-1</sup>	0.34
Noise level (according to DIN 46 635)	dB (A)	≤ 61
Motor power - Rated rotational speed	kW - min <sup>-1</sup>	2.2-1800
Mains voltage (+/- 10 %) AC ~	V	200 ... 240
Protection - Insulation <sup>1)</sup>		IP 20 - F
Leak rate	mbar·l·s <sup>-1</sup>	<1 x 10 <sup>-3</sup>
Ambient temperature	°C	18 ... 40

See pump nameplate for further data.

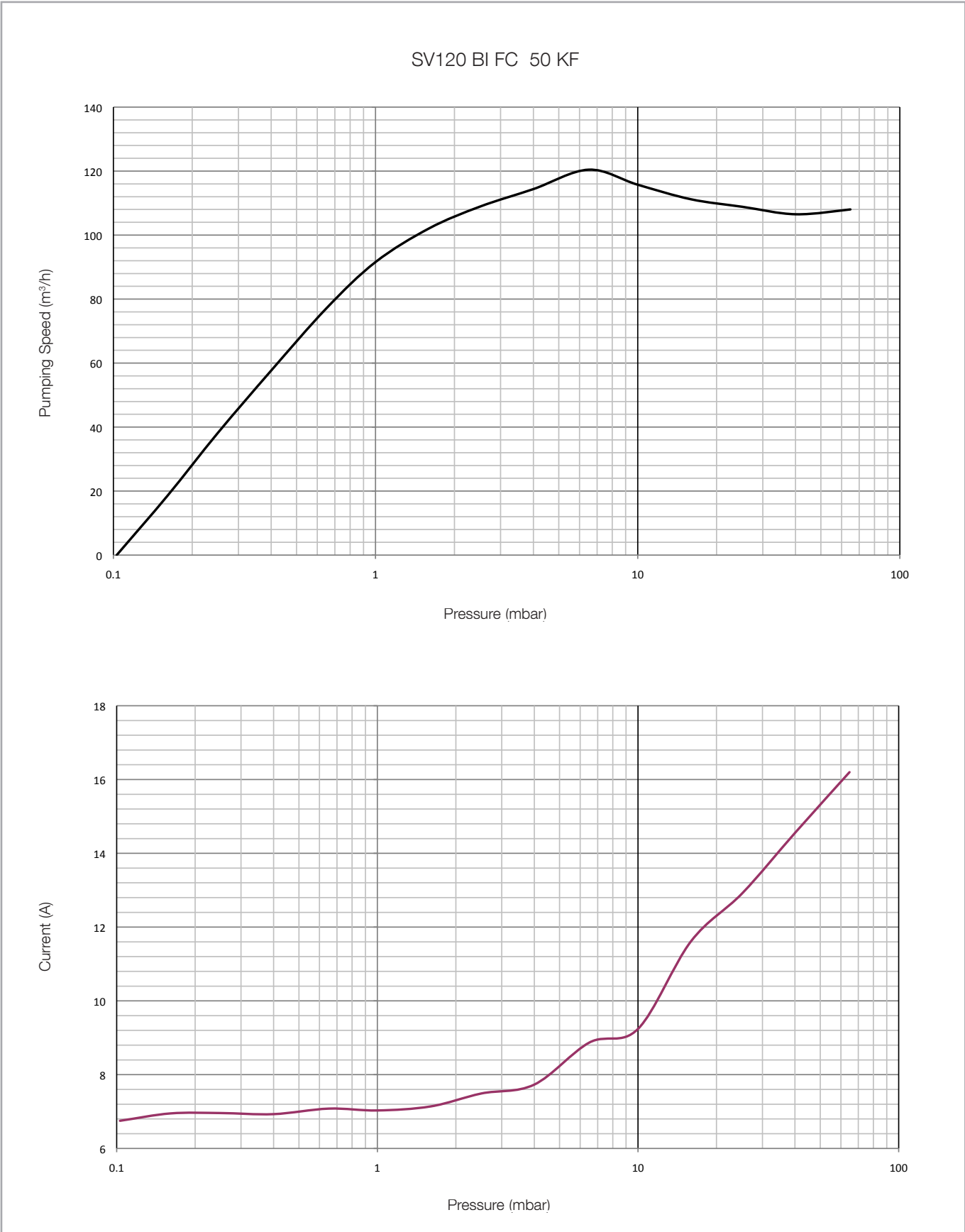
<sup>1)</sup> Given by power & interface connections.



# Description



# Description



## 1.3 Accessories

Specification	Part No.
Adapter for tubing	712 41 608
Hex key metric male 12 mm	E6507617
Mobile base frame with handles and oil pan	960560WB
Noise enclosure	960560NENC

## 1.4 Lubricants

The SOGEVAC® pumps should be run with vacuum pump oils with a viscosity according to ISO category VG32.

Use only the Leybold oil indicated on the name plate and pump. In case other oils are used, Leybold rejects all responsibility should any trouble occur.

Oil	Conditioning	Part No.
PFPE LVO 420	1 l	L 420 01
Long life oil LVO 700	1 l	L 700 01

Part No.	Motor	Gas ballast	Inlet	Exhaust	Oil & quantity	Power connection	Interface
<b>SV120 BI FC</b>							
960563V3001	A	Y1	40 KF	C	LVO 700 2 l	C20	Sub-D9
960565V	A	Y1	50 KF	C	LVO 700 2 l	C20	Sub-D9

Motor: A = Single phase power supply 200-240V +/-10% 50 Hz and 60 Hz with frequency converter

Gas ballast: Y1 = 1.5 m<sup>3</sup>/h manual

Exhaust: C = 1/2" barbed hose fitting

# Transport and Storing

## 2 Transport and Storing

### 2.1 Transport and packaging

SOGEVAC® vacuum pumps pass a rigorous operating test in our factory and are packaged to avoid transport damages. Indications on the packaging must be observed.

Please check packaging on delivery for transport damages.

The outer package bears a shock indicator, turning red at 50 g. Should the shock indicator have reacted, a transportation damage may have occurred and the freight forwarder must be advised.

Packing materials should be disposed off according to environmental laws or re-cycled. These operating instructions are part of the consignment.

The connection ports are blanked off by plastic protective caps or self-adhesives. Take these caps or self-adhesives away before turning on the pump.

#### Necessary tools



Needed for operation 2

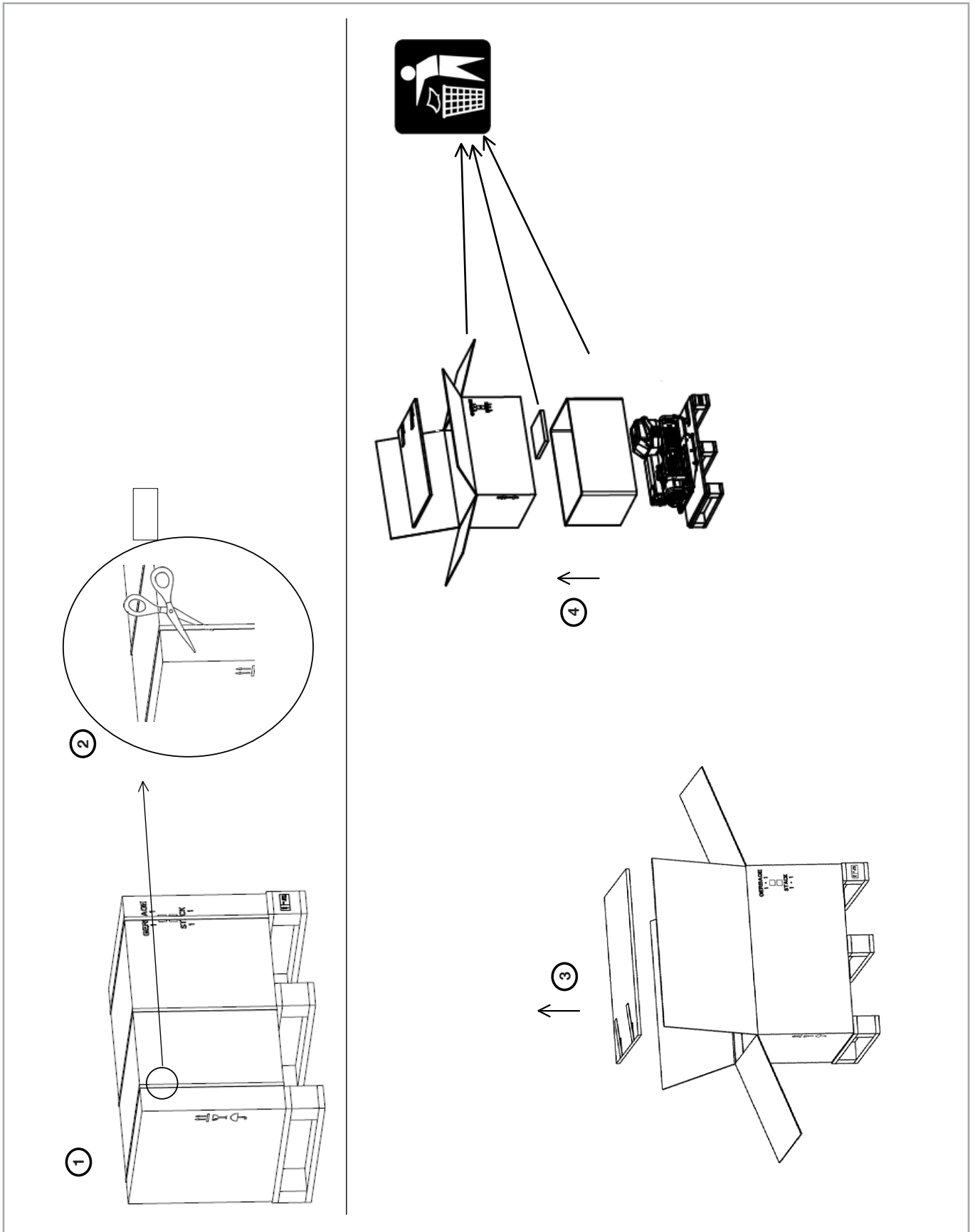


Minimum tool needed for operation 5 (Pozidriv)

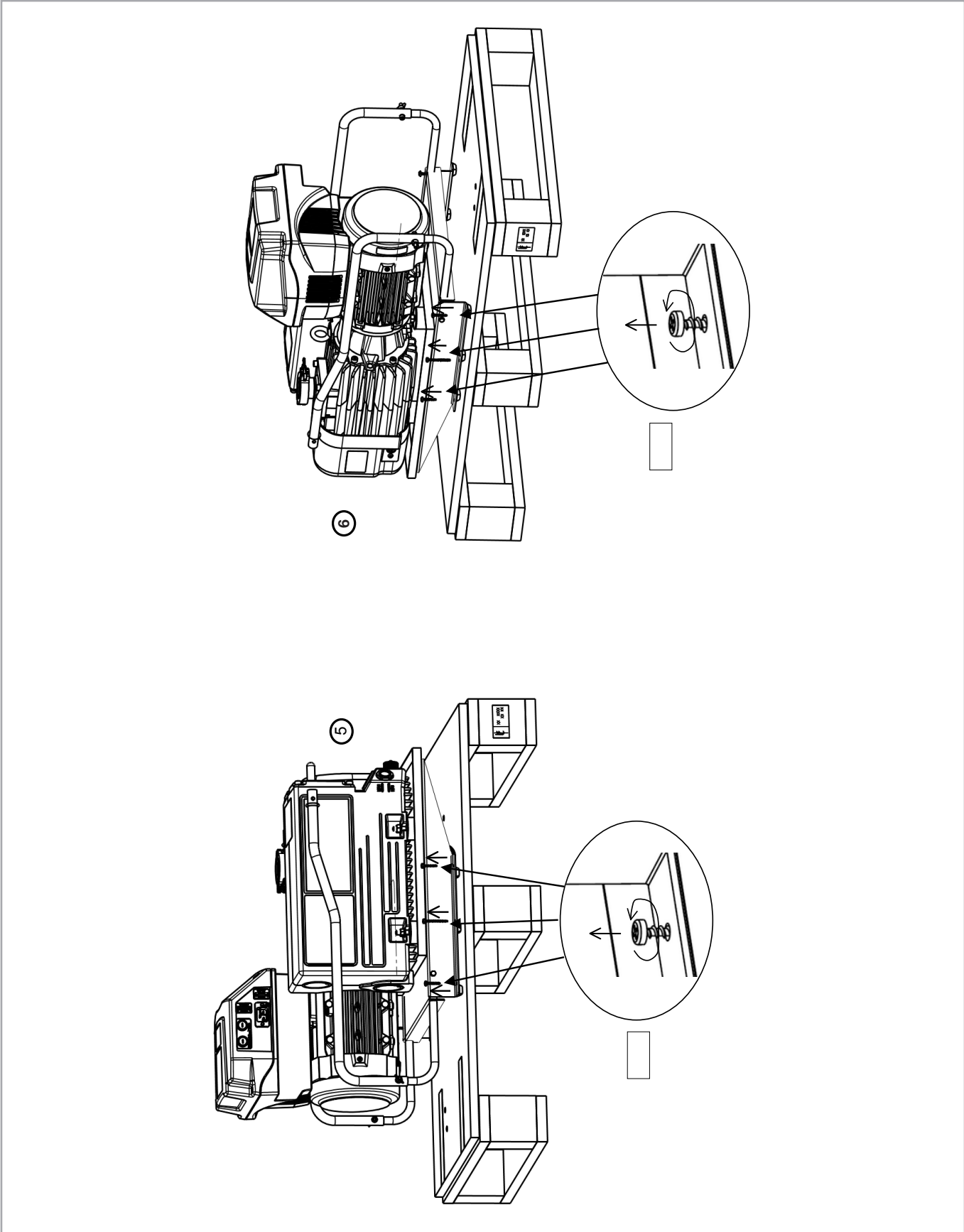


Best tool for operation 5 (Pozidriv)

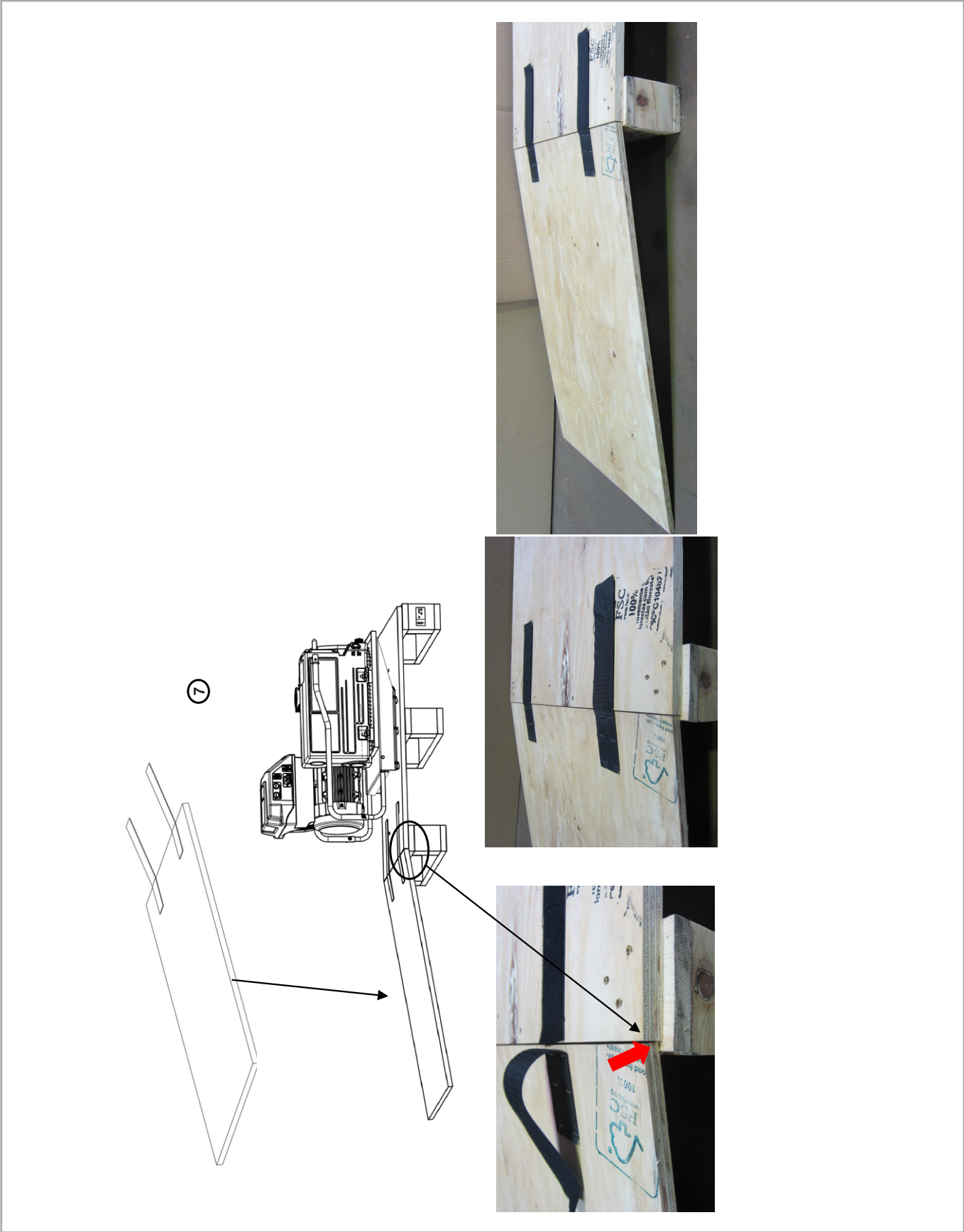
# Transport and Storing



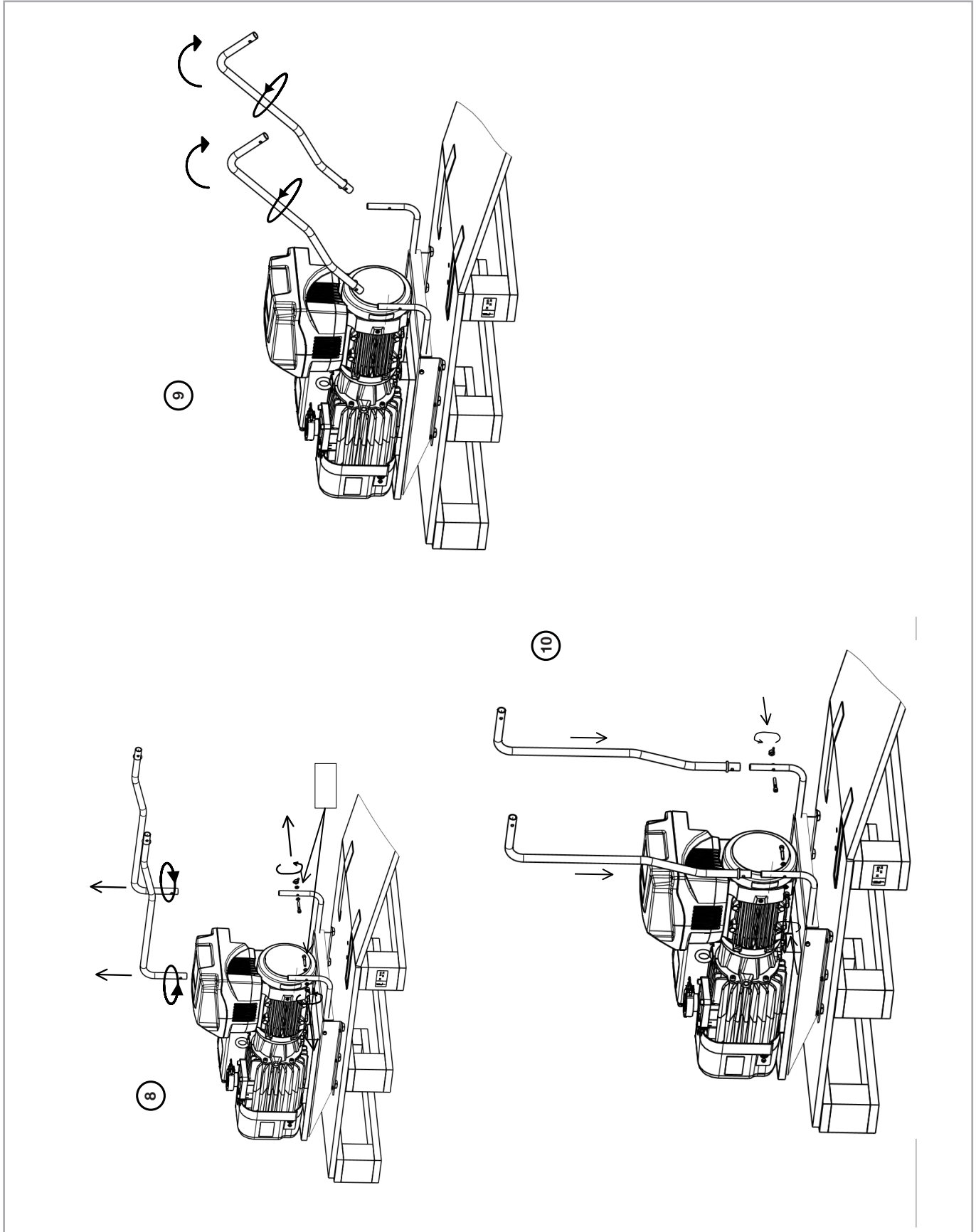
# Transport and Storing



# Transport and Storing

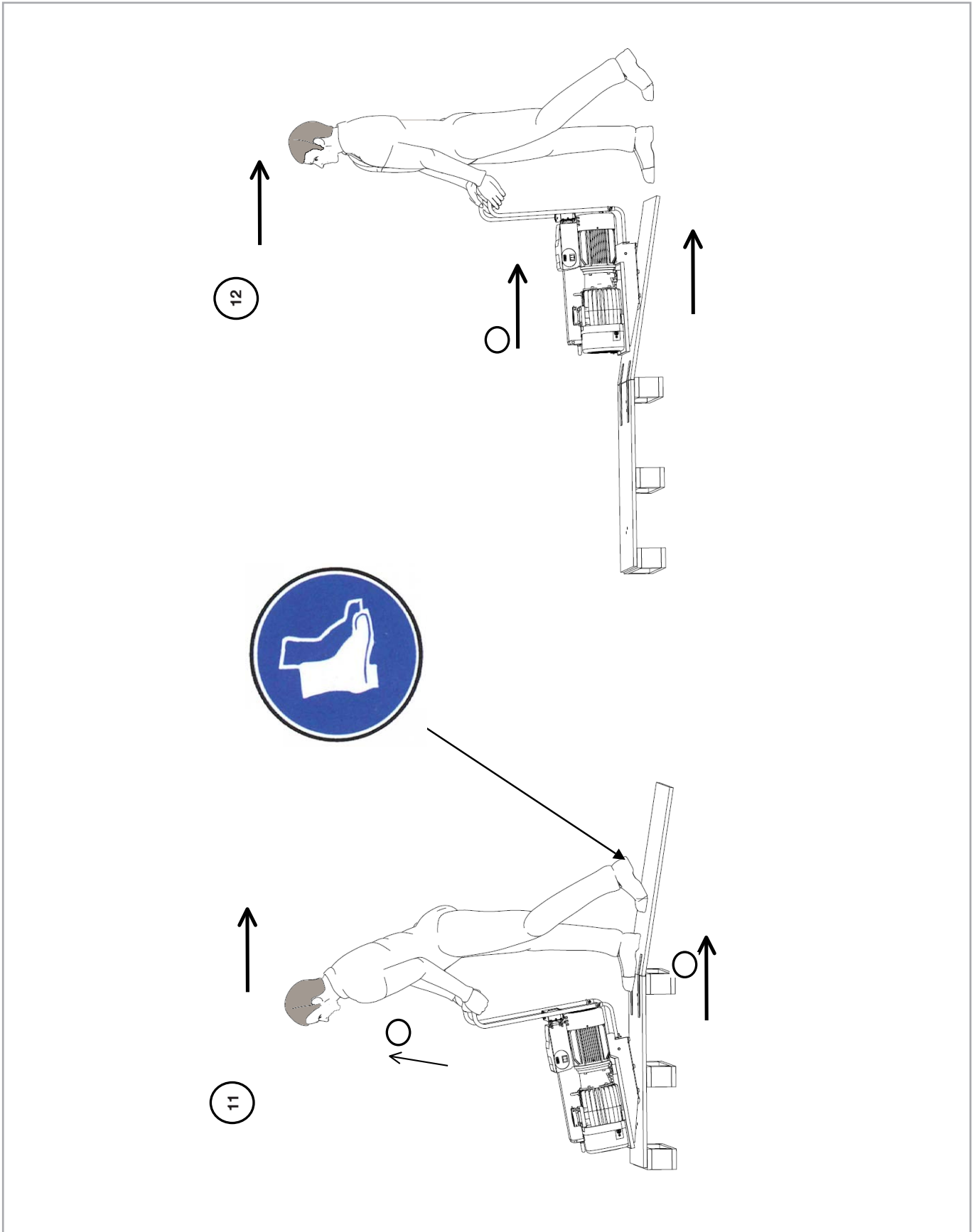


# Transport and Storing

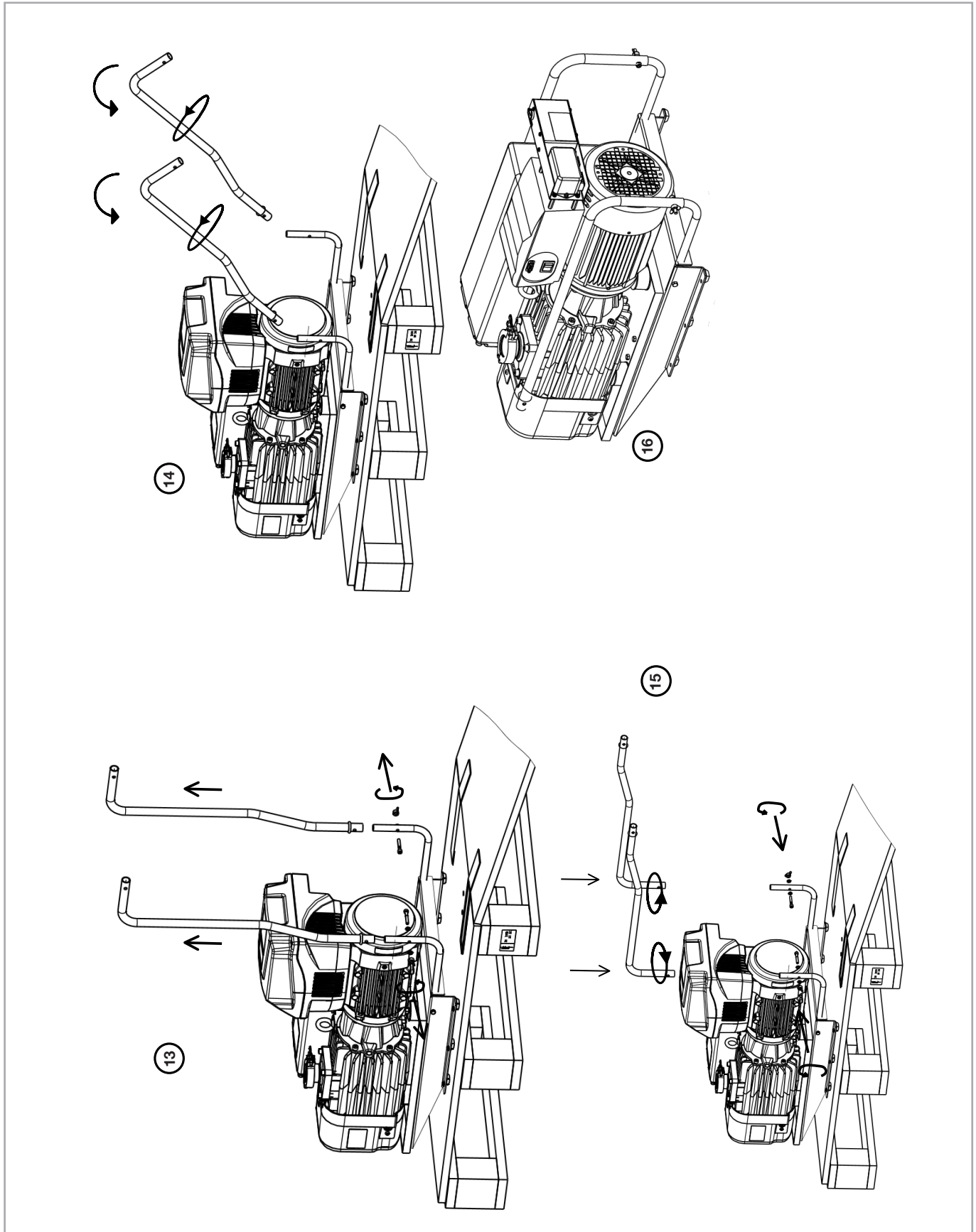




# Transport and Storing



# Transport and Storing



## 2.2 Mounting orientation

See required space on drawings in paragraph 1.2.

Pumps which have been filled with oil must only be moved in the upright position (horizontally). Otherwise oil may escape. The angle of slope may not be over 10° max. Avoid any other orientations while moving the pump.

Only use the lifting lugs which are provided on the pump to lift the pump with the specified lifting devices.

Make sure that these have been installed safely. Use suitable lifting equipment. Make sure that all safety regulations are observed.

Use only lifting devices appropriated to the pump weight. Check name plate. Do not use other pump elements than the lifting lugs as handles.

## 2.3 Storing

Before stocking the pump for a long time put it back in its original condition (blank off inlet and exhaust ports with the shipping seals, drain the oil) and store the pump in a dry place at room temperature.

Storage temperature: - 15°C to + 50°C.

Until the pump is put back in to service again, the pump should be stored in a dry place, preferably at room temperature (20 °C - 168 °F). Before taking the pump out of service, it should be properly disconnected from the vacuum system, purged with dry nitrogen and the oil should be exchanged too. The gas ballast must be closed and if the pump is to be shelved for a longer period of time it should be sealed in a plastic bag together with a desiccant (Silicagel).

If the pump has been shelved for over one year, standard maintenance must be done and the oil must be exchanged too before the pump is put in to service once more.

We recommend that you contact the service from Leybold.

# Installation



## 3 Installation

It is essential to observe the following instructions step by step to ensure safe start-up. Start-up may only be conducted by trained specialists.

The standard pump is not suitable for installation in explosion hazard ATEX areas. Please contact us, if you are planning such an application. Before installing the pump you must reliably disconnect it from the electrical power supply and prevent the pump from running up inadvertently.

Observe all safety regulations.

### 3.1 Setting up

The pump must be set up or mounted horizontally on a flat surface. Special mounting is not required.

The pump must be levelled within a tolerance of  $\pm 2$  degrees.

The following ambient operating environment must be observed:

- Pollution degree 2
- Ambient temperature: 18 °C to 40 °C (54 °F to 104 °F),
- Ambient pressure = Atmospheric pressure.
- Rel. humidity  $\leq 95$  % without condensation

In order to avoid over-heating of the pump, an undisturbed fresh airflow to the pump is necessary.

Consider changes in ambient temperatures that might occur when air conditioning is turned down, such as nights and weekends.

The pump must be kept clean (no dust deposit).

The usual transient over-voltage level corresponds to the category II of the impulse withstand (over-voltage) of the IEC 60364-4-443.

## 3.2 Conforming use

The SOGEVAC® SV BI (FC) pumps are intended to be used on clean processes, at low inlet pressure, e.g. for backing turbo molecular pumps (TMP) in Analytical or R&D applications like mass spectrometers, electronic microscopes, coating installations, etc.

In normal operation, the SOGEVAC® SV BI (FC) pumps operated typically below 10 mbar inlet pressure or at ultimate pressure with open gas ballast (for pumps having a gas ballast). Continuous duty is possible.

In the below listed abnormal conditions (but not limited to) the pump may stop due to overheating of the power electronics or motor.

- Continuous operation at high inlet pressure
- Restricted, clogged or blocked exhaust filter or exhaust line
- Out of tolerance supply voltage
- Unsuitable, polluted or too old oil
- Too low oil level
- Too high ambient temperature
- Clogged fan hoods or impeded fresh air circulation

The pump has been designed & tested to work in an normal EMC environment in acc. to IEC 61326-1 Table 1.

Sogevac rotary vane pumps of the models SV40 BI FC / 65 BI FC / 120 BI FC require a single phase power supply in the range of 200 ... 240 V +- 10 %; 50 or 60 Hz.

The vacuum pumps are for professional use and have a rated power greater than 1 kW. Thus they are not in the scope of the standard EN61000-3-2:2014 and KN 61000-3-2:2014.

Therefore, the connection to the mains must be permitted. According to local regulations, the end user may need to contact his utility.

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### 3.3 Connection to system

#### WARNING



Note the safety information in Section 0.

#### Inlet connection

The inlet flange can be connected with a vacuum-tight flexible hose and/or pipe.

The pipes should cause no stresses on the pump's flanges. If necessary, compensators must be opened.

Restriction of the pipes must be avoided in order not to decrease the pumping speed of the pump. The nominal diameter of the pipes has to be at least the same as the diameter of pump's inlet flange.

When removing condensable vapours, a gas ballast valve must be opened periodically to avoid solvent build up in the oil.

Additional air flow may be needed during ballast, as this increases pump temperature.

The inlet pressure must not be above atm. pressure.

See also indications on the pump nameplate.

#### Connection to exhaust side

No valve or restricting devices should be installed in the exhaust line of the pump. If an exhaust line is installed, it must at least have the same diameter as the exhaust flange. It should be installed in a manner so that no condensate can enter the pump (siphon, slope).

Pump exhaust to be connected if oil mist or process gases are to be avoided in the pump area.

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#### NOTICE



The maximum exhaust pressure must neither exceed 1.15 bar absolute (0.15 bar relative), nor fall under atmosphere pressure minus 15 mbar.

Corresponding pressure regulating devices to be installed by the user.

## 3.4 Electrical connections

Ensure that incoming power to the pump is off before wiring the motor or altering the wiring. IEC & local electrical regulations must be followed.

Should the pump be connected to a standard wall socket, it must be checked that a building protection rated 16 A is installed (fuse or breaker) to protect the power cable. Use trip curve B type breaker. The frequency converter itself is self-protecting.

Even if the pump is not operating, live voltage is present in the frequency converter ! Even after complete power disconnection, allow min. 1 minute for a complete capacitor discharge.

Voltage and frequency mentioned on the pump nameplate must agree with the supply voltage.

The control cable must be at least distant by 10 cm to the mains cable and crossings shall be at 90°.

Pump control and power supply connection:  
See Ordering information for the power supply & interface type on the pump.

The C20 power socket is equipped with a cable retention clip avoidind unwanted pulling of the power cord.

The power socket and cord are disconnection elements which must remain accessible to the users.

Following power cables with connection IEC 320 / C19 exist:

		Part No.
UK	l = 1.8 m	161810UK
EUR Schuko plug	l = 1.8 m	161810EU
USA (high V)	l = 1.8 m	161810US

**DANGER**



### Control / interface connections for F/C pumps Sub-D9 Pin-out

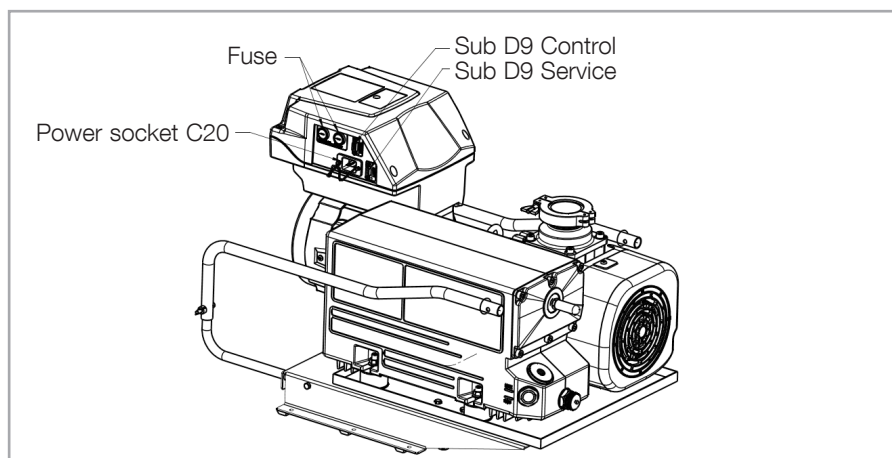
**P/N : 960563V3001  
960565V**

**pin 1 : Analog output  
pin 2 : 24 V  
pin 3 : 10 V (potentiometer)  
pin 4 : Digital input 2  
pin 5 : NC  
pin 6 : Potentiometer input  
pin 7 : 0 V (potentiometer)  
pin 8 : Digital input 1  
pin 9 : 24 V**

**Sub-D male**

For high speed operation, connect 8 and 9. For low speed operation, connect 2 to 4.

# Installation



The pump is protected against over-currents by one 5X20 mm internal fuse rated 250 V, 16A Time lag T. Fuses are available under P/N EK971473350.

The fuse is mounted in a separate housing and can be exchanged from outside using a screwdriver to open the fuse holder cap. See drawing below.

Exchange fuse only with electrically unplugged pump.

### 3.5 Oil filling

The pump is delivered with its oil inside.

To fill up the oil, unscrew the oil fill plug and fill in until the oil level reaches the "MAX" mark beside the oil sight glass.

2 l oil are needed for the SV120 BI FC.

Always verify proper oil level before operating the pump.



## 4 Operation

### 4.1 Operation

To avoid overloading the motor, do not start the pump more than 6 times within one hour. If more than 6 starts per hour are necessary keep the pump running and mount a valve which opens and closes into the intake line.

Take note of warning labels on the pump.

Use ear protection in case of operation at high inlet pressures.

The power socket and cord are disconnection elements which must remain accessible to the users.

#### Pumping of non-condensable gases

If the pump system contains mainly non condensable gases, the pumps should be operated without gas ballast.

If the composition of the gases to be pumped is not known and if condensation in the pump cannot be ruled out, run the pump with gas ballast valve open in accordance with section below.

#### Pumping of condensable gases and vapors

With the gas ballast valve open and at operating temperature, the SOGEVAC® pumps can pump pure water vapor up to the values indicated in the Technical Data.

The gas ballast valve is opened by hand by a knob or a screwdriver on the fan cover or by an EM valve 24 VDC.

The running noise of the pump is slightly louder if the gas ballast valve is open. Before pumping vapors ensure that the pump has warmed up for approx. 30 min. with closed intake line and with open gas ballast valve.

Don't open the pump to condensable vapors until it has warmed to operating temperature (approximately 75 °C); pumping process gas with a cold pump results in vapors condensing in the oil.

One sign of condensation of vapors in the pump is a rise of the oil level during operation of the pump.

When vapors are pumped, the pump must not be switched off immediately after completion of the process because the condensate dissolved in the pump oil may cause changes or corrosion. To prevent this, the pump must continue to operate with open gas ballast valve and closed intake port until the oil is free of condensate. We recommend operating the pump in this mode for at least 30 min. after completion of the process.

Daily ballasting is recommended when continuously pumping larger volumes of condensable vapors.

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#### CAUTION



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#### NOTICE



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#### NOTICE



# Operation

In cycle operation, the pump should not be switched off between the cycles but should continue to run with gas ballast valve open and intake port closed (if possible via a valve). Power consumption is minimal when the pump is operating at ultimate pressure.

Once all vapors have been pumped off from a process (e. g. during drying), the gas ballast valve can be closed in order to improve the ultimate pressure.

## **4.2 Working in cycles in / out**

We recommend strongly to limit starting of the pump to 5 or 6 per hour. If the process need it, we recommend utilization of a pneumatic or electromagnetic valve and to let the pump run continuously.

## **4.3 Switching off / Shutdown**

The intake port of the SOGEVAC® pumps contains an anti-suckback valve which closes the intake port when the pump is switched off, thus maintaining the vacuum in the connected apparatus and preventing oil from being sucked back into the apparatus. The valve's functioning is not impaired by gas ballast operation.

If the pump has to be shutdown, drain the oil flush out the pump with fresh oil and fill in the required amount of clean oil (see § 5.4). Close the connection ports. Special preservation or flushing oils do not need to be used.

When the pump has been switched off due to over heating, initiated by the motor or its temperature detector, the pump must be cooled down to the ambient temperature, and must only be switched on again manually after having eliminated the cause.

In order to prevent the pump from running up unexpectedly after a mains power failure, the pump must be integrated into the control system in such a way that the pump can only be started by a manual action. This applies equally to emergency cut-off switches.

Close the gas ballast when the pump is switched off.

## **4.4 Return to Leybold**

If returning the pump to Leybold, repackage it according to § 2.1 "Transport and Packaging" and make sure to fix the pump correctly with the original squares.

## **4.5 Taking out of use**

Please contact Leybold for all relation question about the disposal of spares, consummables or the entire pump

## 5 Maintenance

### 5.1 Safety Information

Depending on the process involved dangerous substances may escape from the pump and oil. Take the appropriate precautions.

Observe the safety regulations.

When disposing of used oil please observe the relevant environmental regulations !

All work must be done by suitably trained personnel. Maintenance or repairs carried out incorrectly will affect the life and performance of the pump and may cause problems when filing warranty claims.

Never mount used seals ; always mount new seals.

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#### DANGER



#### CAUTION



#### NOTICE



### 5.2 Maintenance Intervals

The intervals stated in the maintenance schedule are approximate values for normal pump operation. Unfavourable ambient conditions and/or aggressive media may significantly reduce the maintenance intervals.

Maintenance job	Frequency	Section
Check the oil level	Daily	A
1st oil change	Depends of process	B
Subsequent oil changes operation	Depends of process	B
Exhaust filter replacement	with LVO700 every 2 to 3 years, otherwise annually	C
Gas ballast valve	Monthly checking	D
Anti-suck back valve checking	Annually	E
Fan cover cleaning	Annually	F
Check the float valve	Annually	G
Check electrical components	Every 3 years	H

In order to simplify the maintenance work we recommend to combine several jobs.

Maintenance works must be carried out with proper tools in an adequate work space / bench equipped with sufficient lighting.

Only genuine Leybold spare parts and consumables shall be used if any warranty claims shall be considered by Leybold.

After maintenance operations, make sure the device is in a safe condition before putting back into operation.

# Maintenance

- Contamination** **5.3 Leybold Service** Whenever you send us in equipment, indicate whether the equipment is contaminated or is free of substances which could pose a health hazard. If it is contaminated, specify exactly which substances are involved. You must use the form we have prepared for this purpose.
- Form** A copy of the form has been reproduced at the end of these Operating Instructions: "Declaration of Contamination for Compressors, Vacuum Pumps and Components". Another suitable form is available from [www.leybold.com](http://www.leybold.com) → Documents → Download Documents.
- Attach the form to the equipment or enclose it with the equipment.
- This statement detailing the type of contamination is required to satisfy legal requirements and for the protection of our employees.
- We must return to the sender any equipment which is not accompanied by a contamination statement.

---

**CAUTION**



The pump must be packaged in such a way that it will not be damaged during shipping, and so that no harmful substances can escape from the package.

When disposing of used oil, please observe the relevant environmental regulations.

---

## 5.4 Maintenance Work

### Checking the oil

#### A. Oil level

The oil level shall be checked at least once a day and must be, while the pump is in operation, close to the MAX marks. Should the oil level be below the MIN mark, switch off the pump, check it (see chapter 4) and add the required amount of oil.

Oil level may drop when pump is operating due to oil distribution in the pump.

#### B. Oil Change

Oil must be changed typically after the first year of service. Further oil changes must be done annually. If there is considerable pollution, it could be necessary to change the oil more frequently.

Oil changing must be done with **a switched off and still warm pump**. Open the oil drain plug and let the used oil run out into an appropriate container.

Refasten the oil drain plug when oil runs sloup the pump briefly (5 sec. max.) and switch of immediately. Reopen the oil drain plug and drain the rest of the oil.

More frequent oil changes may be necessary if the ambient temperature is above 30 °C.

Before refastening the oil drain plug, inspect the o-ring and verify that it is free of particulate and is seated properly. Replace if necessary. Open the oil fill plug, fill in fresh oil and refasten the oil fill plug. The pump should be flushed if there is considerable pollution. To flush the pump, fill clean oil up to the minimum level, let the pump run for a few minutes and drain the oil. Install a full charge of oil.

Clean any oil which is on the floor !  
Check regularly that no oil is on the floor !

---

**CAUTION**



### **C. Replacing the exhaust filters**

Oil mist escaping from the exhaust during operation indicates that the filter is probably clogged. Increased energy intake by the motor could also be the result of a soiled exhaust filter.

Take care about hot oil! Risk of burning by touching!

---

**CAUTION**



With the pump switched off, open the exhaust hood, take out the filter and replace it. Also check the gasket of the exhaust flange and change it if necessary.

### **D. Gas ballast valve cleaning**

Contact Leybold.

Clean the membrane, the seat and the knob.

Reassemble in the reverse sequence.

### **E. Anti-suck back valve checking**

The anti-suck back valve should be checked at the same time as the inlet flange sifter and if dirty, be cleaned with an appropriate solvent.

Also check, if there is no damage on the sealing part of the valve.

### **F. Fan cover cleaning**

Soiling of the fan cover may lead to overheating of the motor and the pump.

Put off the cover and clean it with blast air.

Before starting the pump again, be sure that the cover has been reassembled.

# Maintenance

## **G. Checking the float valve**

When replacing the exhaust filter, check the cleanliness and the proper operation of the float valve. After having disassembled the exhaust flange and oil casing, remove screw, pull on the float valve, clean the nozzle and check that the float itself oscillates free around its axle and that the valve is tight. Clean the float chamber of the oil casing. Reassemble in the reverse sequence.

## **H. Checking electrical components**

Please contact nearest Leybold Service Centre.

# Troubleshooting

## 6 Troubleshooting

Fault	Possible cause	Remedy	Reference section *
Pump does not start.	Pump is connected incorrectly.	Connect the pump correctly.	3.3
	Motor protection switch incorrectly set or fuse is blown.	Set motor protection switch properly or change fuse.	3.3
	Operating voltage does not match motor.	Replace the motor.	1.4
	Motor is malfunctioning.	Replace the motor.	
	Oil temperature is below 12 °C (54 °F).	Heat the pump and pump oil or use different oil.	5.4-B 5.4-D
Oil is too viscous.	Use appropriate oil grade.		
	Exhaust filter / exhaust line is clogged.	Replace the filter or clean the exhaust line.	
Pump does not reach ultimate pressure.	External leak	Repair the pump.	5.4-H 5.4-F
	Float valve does not close.	Repair the valve.	
	Anti-suckback valve is malfunctioning.	Repair the valve.	
	Inadequate lubrication due to:		
	■ unsuitable or contaminated oil,	Change the oil (degas it, if necessary).	5.4-C
	■ clogged oil filter,	Replace the oil filter.	5.4-C
	■ clogged oil lines.	Clean the oil casing.	
	Vacuum lines are dirty.	Clean vacuum lines.	
Pump is too small.	Check the process date; replace the pump, if necessary.		
Pumping speed is too low.	Exhaust filter is clogged.	Precaution : install a dust filter in intake line. Install new filter elements.	5.4-D
	Connecting lines are too narrow or too long.	Use adequately wide and short connecting lines.	3.2
	Anti-suckback valve is hard to open.	Check spring free length.	
After switching off pump under vacuum, pressure in system rises too fast.	System has a leak.	Check the system.	5.4-F
	Anti-suckback is malfunctioning.	Repair the valve.	
Pump gets too hot	Cooling air supply is obstructed.	Set pump up correctly.	3.1
	Cooler is dirty.	Clean the cooler.	
	Ambient temperature is too high.	Set pump up correctly.	3.1
	Process gas is too hot.	Change the process.	
	Oil level is too low.	Add oil to reach the correct oil level.	5.4-C
	Oil is unsuitable.	Change the oil.	5.4-C
	Oil cycle is obstructed.	Clean or repair the oil lines.	
Exhaust filter / exhaust line is obstructed.	Replace the exhaust filter, clean the exhaust line.	5.4-D	
	Pump module is no longer usable.	Replace the pump module.	5.4-K

# Troubleshooting

<b>Fault</b>	<b>Possible cause</b>	<b>Remedy</b>	<b>Reference section *</b>
Oil in intake line or in vacuum vessel.	Oil comes from the vacuum system.	Check the vacuum system.	
	Anti-suckback valve is obstructed.	Clean or repair the valve.	5.4-F
	Sealing surfaces of anti-suckback valve are damaged or dirty.	Clean or repair the intake port and valve.	5.4-F
	Oil level is too high.	Drain the excess oil.	5.4-B
Pump's oil consumption too high, oil mist at exhaust.	Exhaust filters are clogged or damaged.	Replace the filters.	5.4-C
	Nozzle of float valve is clogged.	Check the valve, clean the nozzle.	5.4
	Oil level is too high.	Drain the excess oil.	5.4-B
Oil is turbid.	Condensation.	Degas the oil or change the oil and clean the pump.	4.1/5.4-B
		Precaution : open the gas ballast valve or insert a condensate trap.	
		Clean the gas ballast intake filter.	
Pump is excessively noisy.	Oil level is very low (oil is no longer visible).	Add oil.	5.4-B
	Oil filter is clogged.	Change the oil and filter.	5.4-B
	Vane or bearing defective	Repair pump. Contact Leybold.	

\* Reference section : This column refers to the section in the Operating Instructions that contains the applicable repair information.

Never mount used seals. Always mount new seals.



## 7 Spare parts

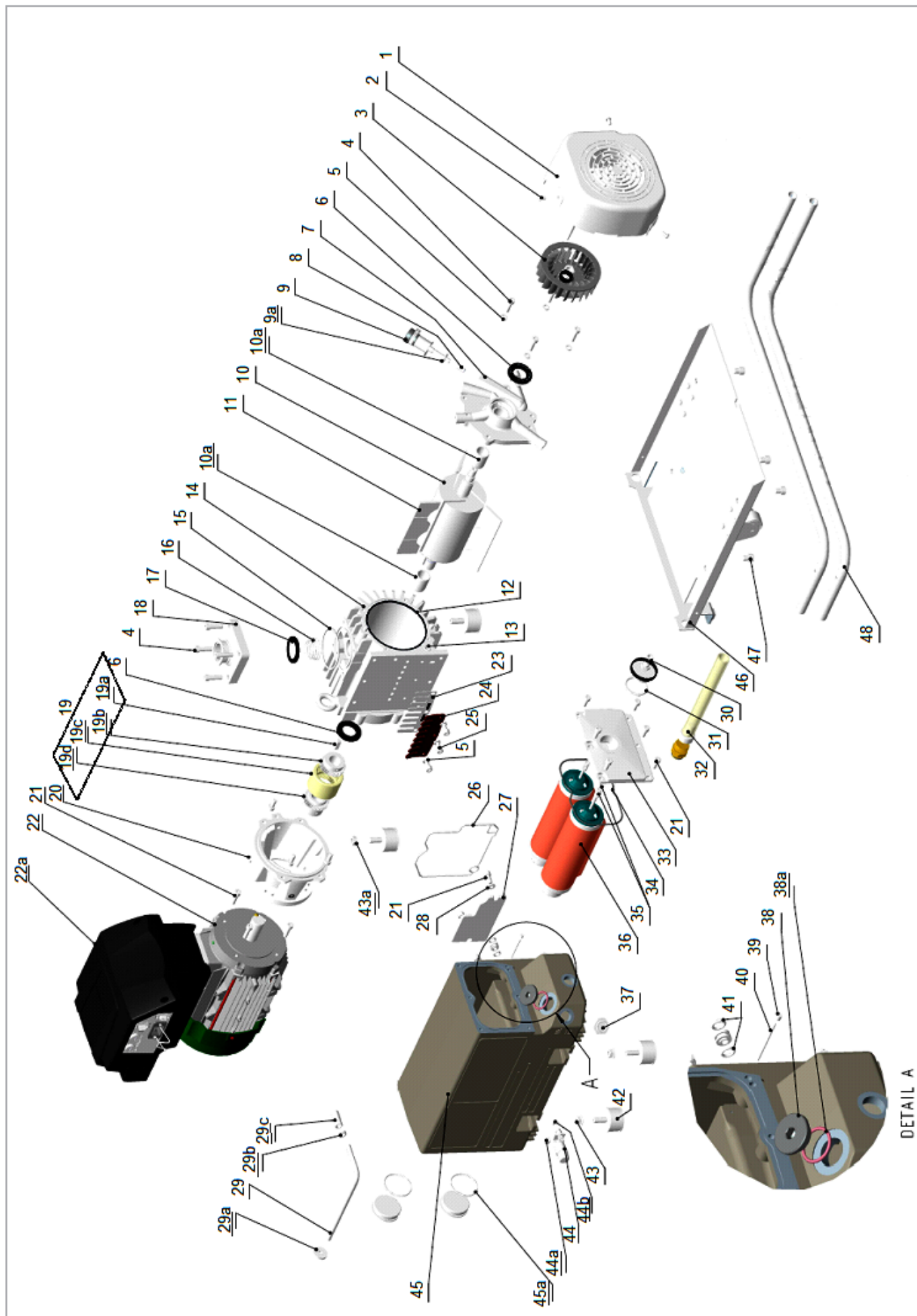
To guarantee safe operation of the Leybold pump, only original spare parts and accessories should be used. When ordering spare parts and accessories, always state pump type and serial number. You can find part numbers in the spare parts list.

Consummables and main spare parts kits for SOGEVAC® pumps are usually available on stock at Leybold's service centers. The list of these parts is given hereafter and in the spare parts table where the contents of each kit is detailed.

- Exhaust demisters
- Oil
- Service kit
- Set of seals
- Repair kit

We recommend to use these kits which have been defined to allow an optimal maintenance or repair. Individual spare parts may need longer delivery time.

# Spare parts



Pos	Stück. Qty Qté	BENENNUNG	SPECIFICATION	DESIGNATION	Abmessungen Dimensions Dimensions (mm)	Werkstoff Material matière	Bestell-Nr Ref. No, N° de réf	Bemerkungen Notes Remarques						
1	1	LUEFTER GEHÄUSE	MODULE COVER	CAPOT POMPE			EK6506342	Incl.2						
2	3	SCHRAUBE	SCREW	VIS BOMBEE PLATE	CHC M6X12									
3	1	LUEFTER	COOLING FAN	TURBINE DE REFROIDISSEMENT			EK6514814							
4	8	SCHRAUBE	SCREW	VIS	CHC M8 X 30									
5	13	UNTERLEGSCHLEIBE	WASHER	RONDELLE	W8									
6	2	RADIAL-DICHRING	RADIAL SHAFT SEAL	JOINT A LEVRE		FKM								
7	1	LAGERDECKEL	END PLATE	FLASQUE BAGUE		PTFE - FKM	EK6514815	Incl.4-6, 8, 13						
8	1	RÜCKSCHLAG-GB SCHRAUBE	GB SCREW NON-RETURN UNIT	VIS LEST D'AIR AVEC ANTIRETOUR										
9	1	MANUELLER GASBALLAST	MANUAL GAS BALLAST	LEST D'AIR MANUEL			EK971472930							
9a	1	O-RING	O-RING	JOINT TOR		FKM								
10	1	ANKER MIT RINGEN	ROTOR WITH RINGS	ROTOR BAGUE			EK6514812	Incl. 10a						
10a	2	ANKERRING	ROTOR RING	BAGUE INTERIEURE										
11	1	SCHIEBER SATZ VON 3	VANES SET OF 3	JEU DE 3 PALETTES										
12	1	O-RING	O-RING	JOINT TOR		FKM								
13	1	O-RING	O-RING	JOINT TOR		FKM								
14	1	PUMPENRING AUSGERUESTET	PUMP CYLINDER EQUIPPED	STATOR EQUIPE	40KF		EK6514825	With centering pins						
14	1	PUMPENRING AUSGERUESTET	PUMP CYLINDER EQUIPPED	STATOR EQUIPE	50KF		upon request	With centering pins						
15	1	O-RING	O-RING	JOINT TOR		FKM								
16	1	FEDER	SPRING	RESSORT CLAPET ASPIRATION										
17	1	ANSAUGVENTIL	INTAKE VALVE	CLAPET ASPI		FKM								
18	1	ANSAUGFLANSCH	INTAKE FLANGE	BRIDE ASPIRATION	40KF		EK971472860	Incl. 4, 15, 16, 17						
18	1	ANSAUGFLANSCH	INTAKE FLANGE	BRIDE ASPIRATION	50KF		upon request	Incl. 4, 15, 16, 17						
19	1	KUPPLUNG KOMPLETT	COUPLING UNIT	ACCOUPEMENT			71418770	Incl. 19a,b,c,d						
19a	1	PASS-FEDER	KEY	CLAVETTE										
19b	1	PUMPE KUPPLUNG	PUMP COUPLING	MOYEU ACCOUPLEMENT POMPE			71418980							
19c	1	ZAHNKRANZ	TOOTHED RING	ANNEAU ACCOUPLEMENT	POLYAMIDE		71418780							
19d	1	MOTOR KUPPLUNG	MOTOR COUPLING	MOYEU ACCOUPLEMENT MOTEUR			71418990							
20	1	KUPPLUNGSGEHÄUSE	COUPLING HOUSING	CLOCHE			71418790							
21	16	SCHRAUBE	SCREW	VIS	CHC M8 X 20									
22	1	MOTOR	MOTOR	MOTEUR			EK6527409							
22a	1	BLACKBOX G	BLACKBOX G	BLACKBOX G			EK6530212 EK6524750 EK6530165							
23	1	VENTILPLATTE	EXHAUST VALVE	LAME										
24	1	VENTILANSCHLAG	VALVE STOP	CONTRE LAME										
25	3	SCHRAUBE	SCREW	VIS	CHC M8 X 12									
26	1	DICHTUNG	GASKET	JOINT DE FORME CARTER STATOR		FKM								
27	1	GITTER	GRID	DEFLECTEUR CARTER										
28	2	UNTERLEGSCHLEIBE	WASHER	RONDELLE	Ø8									
29	1	ÖLRÜCKFÜHRUNGSLAUFUNG	OIL RECOVERY PIPE	TUBE ASPIRATION HUILE										
29a	1	RING	RING	BAGUE TUBE ASPIRATION HUILE										
29b	1	DICHTUNG	GASKET	JOINT	Ø10									
29c	1	LEITUNG	PIPE	TUBE SERRAGE JOINT										
30	1	STOPFEN M - SCHLAUCHTUELLE	PLUG M - BARBED HOSE FITTING	BOUCHON M - EMBOUT CANNELE	G1 1/4 M - DN13		EK6514862	Incl. 31						
30	1	FLANSCH	ADAPTER	ADAPTATEUR	G1 1/4 M - 25KF		EK971443480	Incl. 31						
30	1	FLANSCH	ADAPTER	ADAPTATEUR	G1 1/4 M - 40KF		71118123	Incl. 31						
31	1	O-RING	O-RING	JOINT TOR		FKM								
32	1	ABLAßSTUTZEN	DRAIN COUPLING	EMBOUT DRAINAGE	G3/4		71241608							
33	1	AUSPUFFFLANSCH	EXHAUST FLANGE	BRIDE REFOULEMENT	G3/8		71418900	Incl. 34						
34	1	O-RING	O-RING	JOINT DE FORME BRIDE REFOULEMENT		FKM								
35	2	FEDER KOMPLETT	SPRING UNIT	RESSORT DE COMPRESSION ENS.										
36	2	AUSPUFF-FILTER MIT BYPASS	EXHAUST FILTER WITH BYPASS	CARTOUCHE REFOUL. AVEC BY-PASS			71417300							
37	1	ÖLSCHAUGGLAS	OIL SIGHT GLASS	VOYANT HUILE	G3/4									
38	1	STOPFEN + O-RING	PLUG + O-RING	BOUCHON AVEC JOINT	G 1		71073040	Incl. 38a						
38a	1	O-RING	O-RING	JOINT TOR		FKM								
39	1	DICHTUNG FÜR STIFT	GASKET FOR PIN	JOINT GOUPILLE										
40	1	ZENTRIERZIFT	CENTERING PIN	GOUPILLE FLOTTEUR	DN2.5									
41	2	O-RING	O-RING	JOINT TOR		FKM								
42	4	GUMMIFUSS (SATZ VON 4)	RUBBER MOUNT (SET OF 4)	AMORTISSEUR (JEU DE 4)	DN50 H30		71024220	Incl.43						
43	3	GEFLANSCHTE SECHSKANTMUTTER	HEXAGONAL FLANGE NUT	ECROU EMBASE CRANTEE	H M8									
43a	1	SECHSKANTMUTTER	HEXAGONAL NUT	ECROU	H M8									
44	1	SCHWIMMER KOMPLETT	FLOAT VALVE COMPL.	FLOTTEUR				Incl. 45a, 45b						
44a	1	ÖLRÜCKFÜHRVENTILKLAPPE	OIL RETURN VALVE SEAL	CLAPET RECUPERATION HUILE		FKM								
44b	1	O-RING	O-RING	JOINT TOR		FKM								
45	1	ÖLCASTEN	OIL CASING	CARTER EQ.			971424390	Incl. 21, 27, 28, 46a						
45a	2	O-RING	O-RING	JOINT TOR		FKM								
46	1	SCHUBKARREN	CART	CHARIOT			960560WB	Incl. 48						
48	2	HANDHABUNG-ARM	HANDLING ARM	BRAS DE MANUTENTION										
		WDR KIT FPM SV120BI FC	SHAFT SEAL KIT FKM SV120BI FC	KIT JAL FKM SV120BI FC		FKM	EK6509912							
		DICHTUNGSSATZ SV120BI FC	SET OF SEALS SV120BI FC	JEU DE JOINTS SV120BI FC		FKM	EK971474160							
		REPARATUR KIT SV120B	REPAIR KIT SV120B	KIT REPARATION SV120B		FKM	EK96056RES							
		PUMPENTEIL KOMPL. MIT MAN GB SV120BI FC	VACUUM GENERATOR WITH MAN GB SV120BI FC	GENERATEUR DE VIDE LA MANUEL SV120BI FC		FKM	EK971474170							
		WARTUNGSSATZ SV100B	SERVICE KIT SV100B	KIT DE MAINTENANCE SV100B			EK96056M							

# Disposal

## Contamination

### WARNING



## 8 Waste Disposal

The equipment may have been contaminated by the process or by environmental influences. In this case the equipment must be decontaminated in accordance with the relevant regulations. We offer this service at fixed prices. Further details are available on request.

Contaminated parts can be detrimental to health and environment. Before beginning with any work, first find out whether any parts are contaminated. Adhere to the relevant regulations and take the necessary precautions when handling contaminated parts.

Separate clean components according to their materials, and dispose of these accordingly. We offer this service. Further details are available on request.

When sending us any equipment, observe the regulations given in Section "5.3 Leybold service".

### Disposal of Waste Oil

Owners of waste oil are entirely self-responsible for proper disposal of this waste.

Waste oil from vacuum pumps must not be mixed with other substances or materials.

Waste oil from vacuum pumps (Leybold oils which are based on mineral oils) which are subject to normal wear and which are contaminated due to the influence of oxygen in the air, high temperatures or mechanical wear must be disposed of through the locally available waste oil disposal system.

Waste oil from vacuum pumps which is contaminated with other substances must be marked and stored in such a way that the type of contamination is apparent. This waste must be disposed of as special waste.

European, national and regional regulations concerning waste disposal need to be observed. Waste must only be transported and disposed of by an approved waste disposal vendor.

# EU Declaration of Conformity

(Translation of original Declaration of Conformity)

**The manufacturer:** Leybold France SAS  
640 rue Aristide Bergès  
26501 Bourg Les Valence  
France

herewith declares that the products specified and listed below which we have placed on the market, comply with the applicable EU Council Directives. This declaration becomes invalid if modifications are made to the product without agreement of Leybold GmbH.

**Product designation:** SOGEVAC  
**Type designation:** SV16, SV25, SV16D, SV25D, SV200, SV1200, SV16B, SV25B, SV40B, SV65B, SV100B, SV120B (I FC), SV300B, SV470B, SV500B, SV570B, SV630B, SV750B, SV28BI (FC), SV40BI (FC), SV65BI (FC), and their variants, excepted pumps delivered without motor

## The products complies to the following European Council Directives:

Machinery Directive (2006/42/EC)

The safety objectives of the Low Voltage Directive 2014/35/EU were complied with in accordance with Appendix 1 No. 1.5.1 of Machinery Directive 2006/42/EC.

Electromagnetic Compatibility (2014/30/EU)

RoHS Directive (2011/65/EU) & (2015/863/EU)

## The following harmonized standards have been applied:

EN 1012-2:1996+A1:2009	Compressors and vacuum pumps — Safety requirements — Part 2: Vacuum pumps
EN 60204-1:2006/A1:2009	Safety of machinery — Electrical equipment of machines — Part 1: General requirements requirements
EN 61000-6-2:2005/AC:2005	Electromagnetic compatibility (EMC) - Part 6-2: Generic standards - Immunity for industrial environments
EN 61000-6-4:2007/A1:2011	Electromagnetic compatibility (EMC) - Part 6-4: Generic standards - Emission standard for industrial environments

**Documentation officer:** Herbert Etges  
Bonner Str. 498, D-50968 Köln, Germany  
T: +49(0)221 347 0, documentation@leybold.com

Cologne, March 30, 2017

Cologne, March 30, 2017



i.V. Dr. Thomas Dreifert  
Head of Product Group Rough Vacuum  
& Technology Management



i.A. Ernst Schnacke  
Head of Quality Assurance Methods  
& Technical Standards

## Declaration of Contamination of Compressors, Vacuum Pumps and Components

The repair and / or servicing of compressors, vacuum pumps and components will be carried out only if a correctly completed declaration has been submitted. Non-completion will result in delay. The manufacturer can refuse to accept any equipment without a declaration.

**A separate declaration has to be completed for each single component.**

This declaration may be completed and signed only by authorized and qualified staff.

Customer/Dep./Institute : _____ Address : _____ _____ Person to contact: _____ Phone : _____ Fax: _____ End user: _____	Reason for return: <input checked="" type="checkbox"/> applicable please mark <b>Repair:</b> <input type="checkbox"/> chargeable <input type="checkbox"/> warranty <b>Exchange:</b> <input type="checkbox"/> chargeable <input type="checkbox"/> warranty <input type="checkbox"/> Exchange already arranged / received <b>Return only:</b> <input type="checkbox"/> rent <input type="checkbox"/> loan <input type="checkbox"/> for credit <b>Calibration:</b> <input type="checkbox"/> DKD <input type="checkbox"/> Factory-calibr. <input type="checkbox"/> Quality test certificate DIN 55350-18-4.2.1																																																	
<b>A. Description of the Leybold product:</b> Material description : _____ Catalog number: _____ Serial number: _____ Type of oil (ForeVacuum-Pumps) : _____	<b>Failure description:</b> _____ <b>Additional parts:</b> _____ <b>Application-Tool:</b> _____ <b>Application- Process:</b> _____																																																	
<b>B. Condition of the equipment</b> <table style="width:100%; border-collapse: collapse;"> <thead> <tr> <th style="width:60%;"></th> <th style="width:10%; text-align: center;">No<sup>1)</sup></th> <th style="width:10%; text-align: center;">Yes</th> <th style="width:10%; text-align: center;">No</th> <th style="width:10%;"></th> </tr> </thead> <tbody> <tr> <td>1. Has the equipment been used</td> <td style="text-align: center;"><input type="checkbox"/></td> <td style="text-align: center;"><input type="checkbox"/></td> <td style="text-align: center;"><input type="checkbox"/></td> <td style="text-align: center;">→</td> </tr> <tr> <td>2. Drained (Product/service fluid)</td> <td style="text-align: center;"><input type="checkbox"/></td> <td style="text-align: center;"><input type="checkbox"/></td> <td style="text-align: center;"><input type="checkbox"/></td> <td></td> </tr> <tr> <td>3. All openings sealed airtight</td> <td style="text-align: center;"><input type="checkbox"/></td> <td style="text-align: center;"><input type="checkbox"/></td> <td style="text-align: center;"><input type="checkbox"/></td> <td></td> </tr> <tr> <td>4. Purged</td> <td style="text-align: center;"><input type="checkbox"/></td> <td style="text-align: center;"><input type="checkbox"/></td> <td style="text-align: center;"><input type="checkbox"/></td> <td></td> </tr> </tbody> </table> <p>If yes, which cleaning agent _____          and which method of cleaning _____</p> <p><sup>1)</sup> If answered with "No", go to D. ←</p>		No <sup>1)</sup>	Yes	No		1. Has the equipment been used	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	→	2. Drained (Product/service fluid)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		3. All openings sealed airtight	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		4. Purged	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<b>Contamination :</b> <table style="width:100%; border-collapse: collapse;"> <thead> <tr> <th style="width:60%;"></th> <th style="width:10%; text-align: center;">No<sup>1)</sup></th> <th style="width:10%; text-align: center;">Yes</th> </tr> </thead> <tbody> <tr><td>toxic</td><td style="text-align: center;"><input type="checkbox"/></td><td style="text-align: center;"><input type="checkbox"/></td></tr> <tr><td>corrosive</td><td style="text-align: center;"><input type="checkbox"/></td><td style="text-align: center;"><input type="checkbox"/></td></tr> <tr><td>flammable</td><td style="text-align: center;"><input type="checkbox"/></td><td style="text-align: center;"><input type="checkbox"/></td></tr> <tr><td>explosive <sup>2)</sup></td><td style="text-align: center;"><input type="checkbox"/></td><td style="text-align: center;"><input type="checkbox"/></td></tr> <tr><td>radioactive <sup>2)</sup></td><td style="text-align: center;"><input type="checkbox"/></td><td style="text-align: center;"><input type="checkbox"/></td></tr> <tr><td>microbiological <sup>2)</sup></td><td style="text-align: center;"><input type="checkbox"/></td><td style="text-align: center;"><input type="checkbox"/></td></tr> <tr><td>other harmful substances</td><td style="text-align: center;"><input type="checkbox"/></td><td style="text-align: center;"><input type="checkbox"/></td></tr> </tbody> </table>		No <sup>1)</sup>	Yes	toxic	<input type="checkbox"/>	<input type="checkbox"/>	corrosive	<input type="checkbox"/>	<input type="checkbox"/>	flammable	<input type="checkbox"/>	<input type="checkbox"/>	explosive <sup>2)</sup>	<input type="checkbox"/>	<input type="checkbox"/>	radioactive <sup>2)</sup>	<input type="checkbox"/>	<input type="checkbox"/>	microbiological <sup>2)</sup>	<input type="checkbox"/>	<input type="checkbox"/>	other harmful substances	<input type="checkbox"/>	<input type="checkbox"/>
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<b>C. Description of processed substances (Please fill in absolutely)</b> 1. What substances have come into contact with the equipment ? Trade name and / or chemical term of service fluids and substances processed, properties of the substances According to safety data sheet (e.g. toxic, inflammable, corrosive, radioactive) <table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th style="width:5%;"></th> <th style="width:20%;">Tradename:</th> <th style="width:75%;">Chemical name:</th> </tr> </thead> <tbody> <tr><td>a)</td><td></td><td></td></tr> <tr><td>b)</td><td></td><td></td></tr> <tr><td>c)</td><td></td><td></td></tr> <tr><td>d)</td><td></td><td></td></tr> </tbody> </table>						Tradename:	Chemical name:	a)			b)			c)			d)																																	
	Tradename:	Chemical name:																																																
a)																																																		
b)																																																		
c)																																																		
d)																																																		
2. Are these substances harmful ? <input type="checkbox"/> No <input type="checkbox"/> Yes 3. Dangerous decomposition products when heated ? <input type="checkbox"/> No <input type="checkbox"/> Yes If yes, which ? _____ ←																																																		
<p><sup>2)</sup> Components contaminated by microbiological, explosive or radioactive products/substances will not be accepted without written evidence of decontamination.</p>																																																		

### D. Legally binding declaration

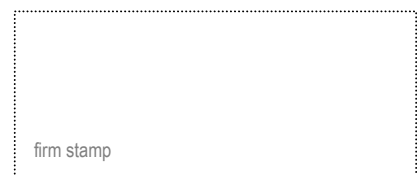
I / we hereby declare that the information supplied on this form is accurate and sufficient to judge any contamination level.

Name of authorized person (block letters) : \_\_\_\_\_



\_\_\_\_\_ Date

\_\_\_\_\_ signature of authorized person





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