



# SOGEVAC®

SV300 FP

Single-stage, oil-sealed rotary vane pump

**Original Operating Instructions 300419816\_002\_C1  
and Spare Parts list**

Part Numbers :  
960702FP  
960707FP  
960717FP



# Contents

	Page
<b>0 Important Safety Information</b>	<b>4</b>
<b>1 Description</b>	<b>6</b>
1.1 Design and function	6
1.2 Standard specification	7
1.3 Technical data	7
1.4 Ordering Information	10
1.5 Connection fittings	11
1.6 Accessories	12
1.7 Spare parts	13
1.8 Lubricants and grease	13
<b>2 Transport and Storing</b>	<b>14</b>
<b>3 Installation</b>	<b>15</b>
3.1 Setting up	15
3.2 Conforming use	15
3.3 Connection to system	16
3.4 Electrical connections	18
3.3 Start-up	19
<b>4 Operation</b>	<b>20</b>
4.1 Pumping of Non-condensable Gases	20
4.2 Pumping of Condensable Gases and Vapors – Using gas ballast	20
4.3 Working in cycles in / out	21
4.4 Shutdown	22
4.5 Pump Ultimate Pressure	22
<b>5 Maintenance</b>	<b>23</b>
5.1 Leybold Service	23
5.2 Maintenance Schedule	23
5.3 Checking the Oil	24
5.4 Oil change, Replacing the Oil Filter	25
5.5 Cleaning the Dirt Trap	25
5.6 Checking the anti-suckback valve	26
5.7 Cleaning the Gas Ballast Intake Filter	26
5.8 Disassembly of electrical motor	26
5.9 Radiator cleaning	26
5.10 Exhaust filter exchange	27
<b>6 Troubleshooting</b>	<b>28</b>
<b>7 Spare Parts</b>	<b>30</b>
<b>8 Waste Disposal</b>	<b>34</b>
<b>EU Declaration of Conformity</b>	<b>36</b>

# 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<sup>®</sup> 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<sup>®</sup> 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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## 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.

#### WARNING



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### 0.2 Electrical Hazards

- 1 The electrical connection must only be provided by a trained person. Please observe the national regulations in the country of use like EN 50110-1 for Europe, for example.
- 2 Disconnect the unit from the power supply before starting any work.

#### DANGER



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### 0.3 Thermal Hazards

- 1 When operating pump is hot and some surfaces could reach a temperature higher than 80 °C (176 °F). There is a risk of burn by touching.

#### CAUTION



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### 0.4 Hazards Caused by Materials and Substances

- 1 SOGEVAC<sup>®</sup> 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 pumping liquids;
  - for working in flammable, explosive or dusty environment.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!



# Safety Information

## 0.5 Danger of Pump Damage

- 1 Liquid and solid particles must not enter the pump. Install the adequate filters, separators and/or condensers. In case of doubt consult Leybold.
- 2 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.
- 3 Operating of the pump without oil or operating with incorrect direction of rotation can destroy the pump or lead to oil backstreaming.
- 4 Never use discarded seals. Always assemble using new seals.
- 5 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.

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### NOTICE



# Description

## 1 Description

### 1.1 Design and function

The SOGEVAC® SV300 FP are single-stage, oil-sealed rotary vane pumps. The anti-suck back valve, gas ballast valve (optional), exhaust filter, oil return circuit and oil cooling oil are integrated functional elements. The pumps are driven by a directly flanged motor.

The rotor mounted eccentrically in the pump cylinder has three vanes which divide the pump chamber into several compartments. The volume of each changes periodically with the rotation of the rotor.

As the rotor rotates, the intake portion of the pumping chamber expands and sucks gas through the intake port. The gas passes through the dirt trap and the open anti-suck back valve and enters the pump chamber. As the rotor rotates further, the vane separates part of the pump chamber from the intake port. This part of the pump chamber is reduced, and the gas is compressed. At slightly above atmospheric pressure the gas is expelled from the chamber via the exhaust valve.

Oil injected into the pump chamber serves to seal, lubricate and cool the pump. The oil entrained with the compressed gas is coarsely trapped in the oil case by deflection. Then fine filtering occurs in the exhaust filter elements. The proportion of oil in the exhaust gas is thus reduced below the visibility threshold (over 99 % entrapment rate).

Oil trapped in the exhaust filters is returned to the inlet chamber via an oil return transfer. To prevent gas flowing at atmospheric pressure from the oil reservoir into the intake port, the oil return line is controlled by a float valve.

The oil cycle is maintained by the pressure difference existing between the oil case (pressure above or equal to atmospheric pressure) and the intake port (pressure below atmospheric pressure). The ball bearings are greased for 30 000 hours.

A fan running on the pump shaft generates the necessary cooling air. The oil cools down through a radiator.

By opening the gas ballast valve, a controlled amount of air so called "gas ballast" is admitted into the pump chamber. This gas ballast prevents condensation (up to the limit of water vapor tolerance specified in the Technical Data) when pumping condensable gases or vapors.

Unintentional venting of the vacuum chamber as well as oil suckback when shutting down the pump are prevented by the integrated anti-suckback valve.

In applications where an oil-suckback must be avoided by all means, it is recommended to install a dedicated valve.

# Description

## 1.2 Standard Specification

The pump is supplied with drive motor in ready-to-use condition. It is supplied with mineral oil, which is filled in.

In any case, the oil type is indicated on the pump. No warranty claims could be accepted with use of another oil than specified.

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

## 1.3 Technical Data

Technical Data (in SI units)		50Hz	60Hz
Nominal speed <sup>1)</sup>	m <sup>3</sup> /h	280	340
Pumping speed <sup>1)</sup>	m <sup>3</sup> /h	240	290
Ultimate partial pressure without gas ballast	mbar	≤8.10 <sup>-2</sup>	≤8.10 <sup>-2</sup>
Ultimate total pressure with standard gas ballast 7.5 Nm <sup>3</sup> /h	mbar	≤0.7	≤0.7
Water vapour tolerance with standard gas ballast 7.5 Nm <sup>3</sup> /h	mbar	10	12
		with turbine 220 mm 40	with turbine 220 mm 50
Water vapour capacity with standard gas ballast 7.5 Nm <sup>3</sup> /h	Kg/h	1.3	1.8
		with turbine 220 mm 6	with turbine 220 mm 8
Noise level <sup>2)</sup>	dB(A)	72	76
		with turbine 150 mm	with turbine 150 mm
Leak rate	mbar.l.s <sup>-1</sup>	≤1.10 <sup>-3</sup>	≤1.10 <sup>-3</sup>
Mains voltage (std) - for other voltages please contact Leybold		See Ordering data	
Motor power		See Ordering data	
Type of protection		IP55	IP55
Rated rotational speed	min <sup>-1</sup>	1450	1750
Weight (with oil filling)	kg	200	200
Oil capacity (min./max.)	L	8.5/11.5	8.5/11.5
Intake connection		G2	G2 NPT2 <sup>3)</sup>
Exhaust connection		G2	G2 NPT2 <sup>3)</sup>

1) according to DIN28400 and following numbers, with standard gas ballast

2) operated at ultimate pressure without gas ballast, free-field measurements at a distance of 1m

3) please contact Leybold.

# Description

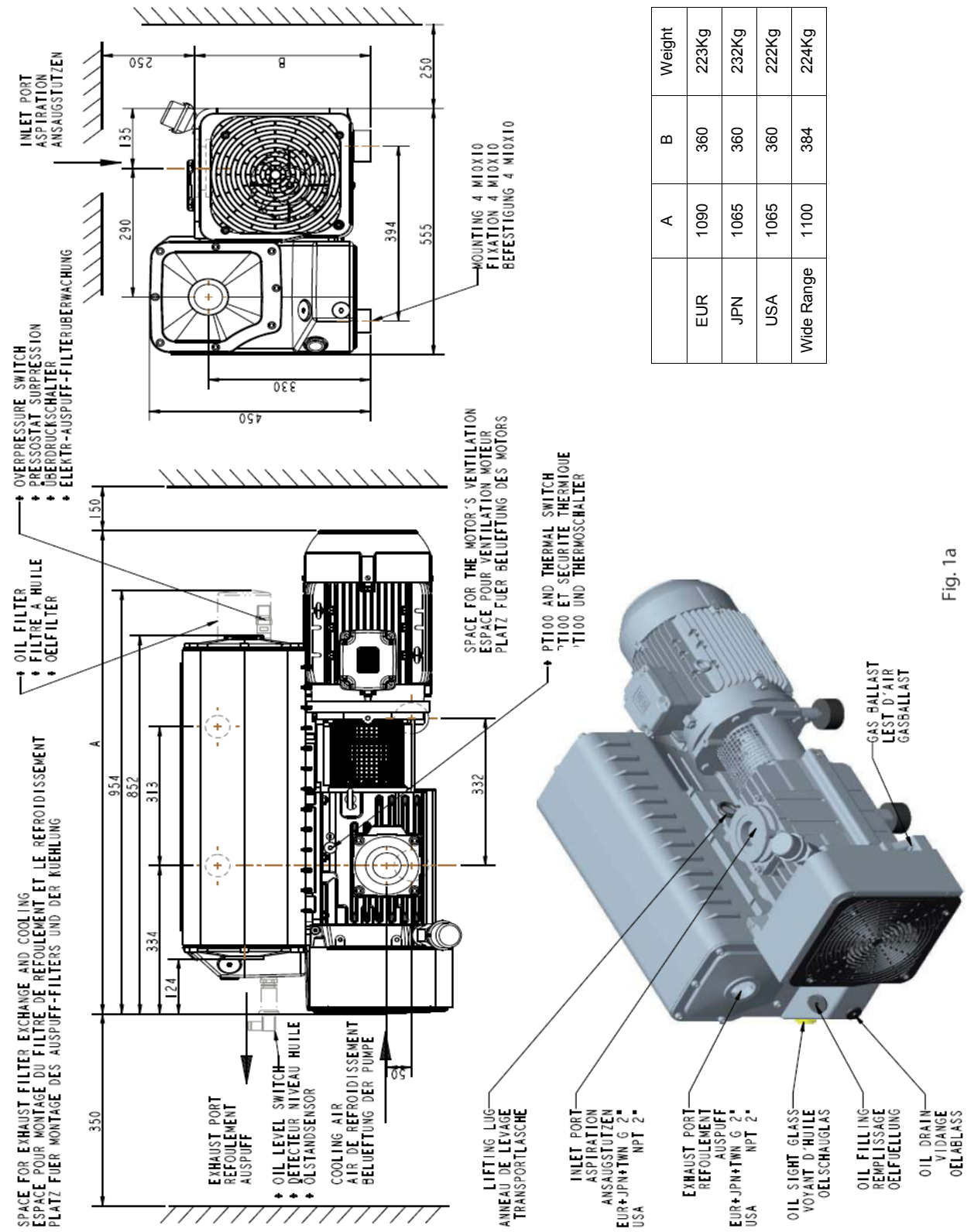


Fig. 1a

OPTION Tolerances : ±5mm

	A	B	Weight
EUR	1090	360	223Kg
JPN	1065	360	232Kg
USA	1065	360	222Kg
Wide Range	1100	384	224Kg

971464209

# Description

## Conversion factors Different pressure units

	mbar (millibar)	torr
1 lb = 0.453 kg	1013	760
1 qt = 0.946 l	400	300
1 hp = 0.735 kw	133	100
1 r.p.m = 1 min <sup>-1</sup>	4	3
1 inch = 25.4 mm	1	0.75
	0.1	0.75

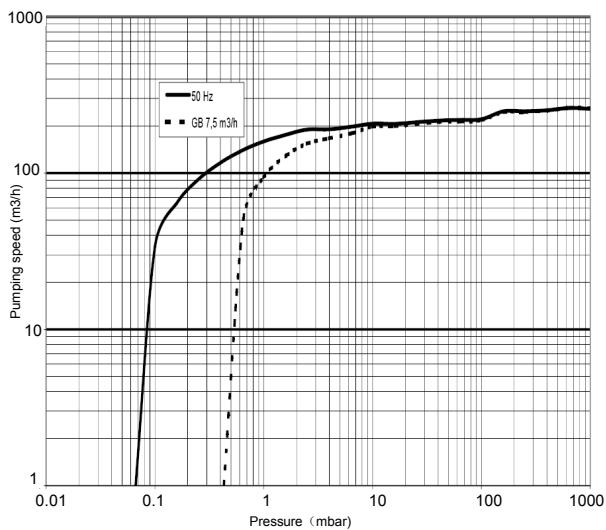
1 atm (atmosphere) = 1013 mbar  
 1 Pa (pascal) = 0.01 mbar = 10<sup>-2</sup> mbar  
 1 bar = 1000 mbar  
 1 torr = 1.33 mbar

## Different pumping speed units

	m <sup>3</sup> .h <sup>-1</sup>	l.s <sup>-1</sup>	cfm
m <sup>3</sup> .h <sup>-1</sup> = m <sup>3</sup> /h	1	0.278	0.589
l.s <sup>-1</sup> = l/s	3.6	1	2.12
cfm (cubic feet per minute)	1.699	0.472	1

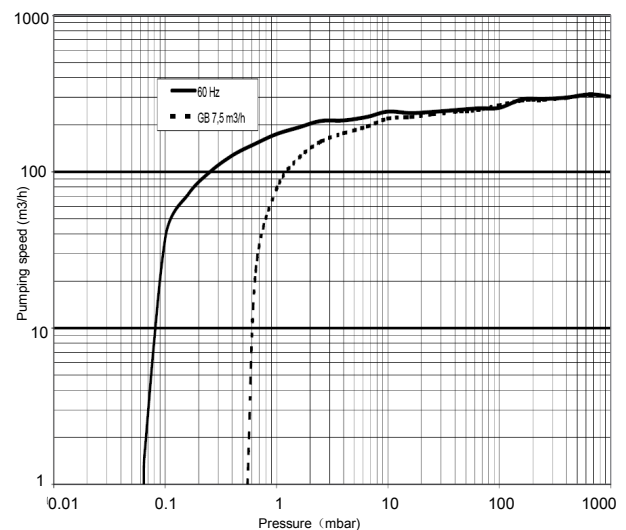
Example: 1m<sup>3</sup>h<sup>-1</sup>= 0.589 cfm = 1013mbar  
 Note : the nominal pumping speed of a pump at 60Hz is 20% higher than at 50Hz

		60Hz
Nominal speed <sup>1)</sup>	cfm	200
Pumping speed <sup>1)</sup>	cfm	171
Ultimate partial pressure without gas ballast	Torr	6.10 <sup>-2</sup>
Ultimate total pressure with gas ballast	Torr	0.5
Water vapour tolerance with standard gas ballast standard <sup>1)</sup>	Torr	≤30
Motor power	hp	10.5
Rated rotational speed	rpm	1750
Weight (with oil filling)	lb	430
Oil capacity (min./max.)	qt	9/12.2
Intake connection NPT (F)	inches	NPT2
Exhaust connection NPT (F)	inches	NPT2



50Hz

without gas ballast



60Hz

with gas ballast

Fig.2

# Description

## 1.4 Ordering Information

<b>Ordering data Ref. No.</b>	<b>SV300FP</b>
Pump with three-phase motor CEI and integrated gas ballast valve 230V/400V, +/-10%, 50Hz, 5.5Kw 460V, +/-10%, 60Hz, 6.3Kw	960702FP
Pump with three-phase motor NEMA and integrated gas ballast valve 208V +/-10% and 230/460 +/-10%, 60Hz, 10 HP 400V +/-10% 50Hz, 10 HP	960707FP
Pump with wide range motor and integrated gas ballast valve 200V -15% ... 230V +10% / 380 ... 400 V +/-10%, 50Hz, 5,5 kW 200V -15% ... 230V +10% / 380 ... 400 V +/-10% & 460 +/-10%, 60Hz, 6,6 kW	960717FP

Other gas ballast variants available. Please contact us.

# Description

## 1.5 Connection fittings

Description	Size	Part. No.
1 Union coupling + Seal	G2 F/M	711 18 025
2 Nipple	G2 M/M - 50mm long	711 18 035
3 Threaded flange adapter	G2 M - DN63 ISO-K	711 18 126
4 Centering ring	DN 63 ISO-K AL/NBR	268 07
5 Set of 4 clamps for ISO-K flanges	M10X24	267 01
6 Adapter for tubing	G2 DN50	711 18 015
7 PVC tubing	50mm, 1m long	711 18 325
8 Adapter for tubing	G2 DN60	711 18 016
9 PVC tubing	60mm, 1m long	711 18 326
10 Right-angle bend 90°	63 ISO-K	887 25
11 Dust filter, metal		711 27 126
Dust filter, polyester		711 27 127
12 Ball valve	G2 F/F	711 30 107
13 Tee reducer bush	G2-G2-G1/2 F/F/F	711 18 265
14 Elbow 90°	G2 F/F	711 18 215
15 Dust filter, metal		711 27 123
Dust filter, polyester		711 27 124
16 Vacuum gauge	G1/2 M	951 92
17 Ball valve	G1/2 M/F	711 30 113
18 Threaded flange adapter	G1/2 M - DN16 KF	711 18 120
19 Regulation valve with isolation valve	G1/2 M	951 87
20 Regulation valve	G1/2 M	951 86
21 Condensate trap	G2 F-G2F	951 44

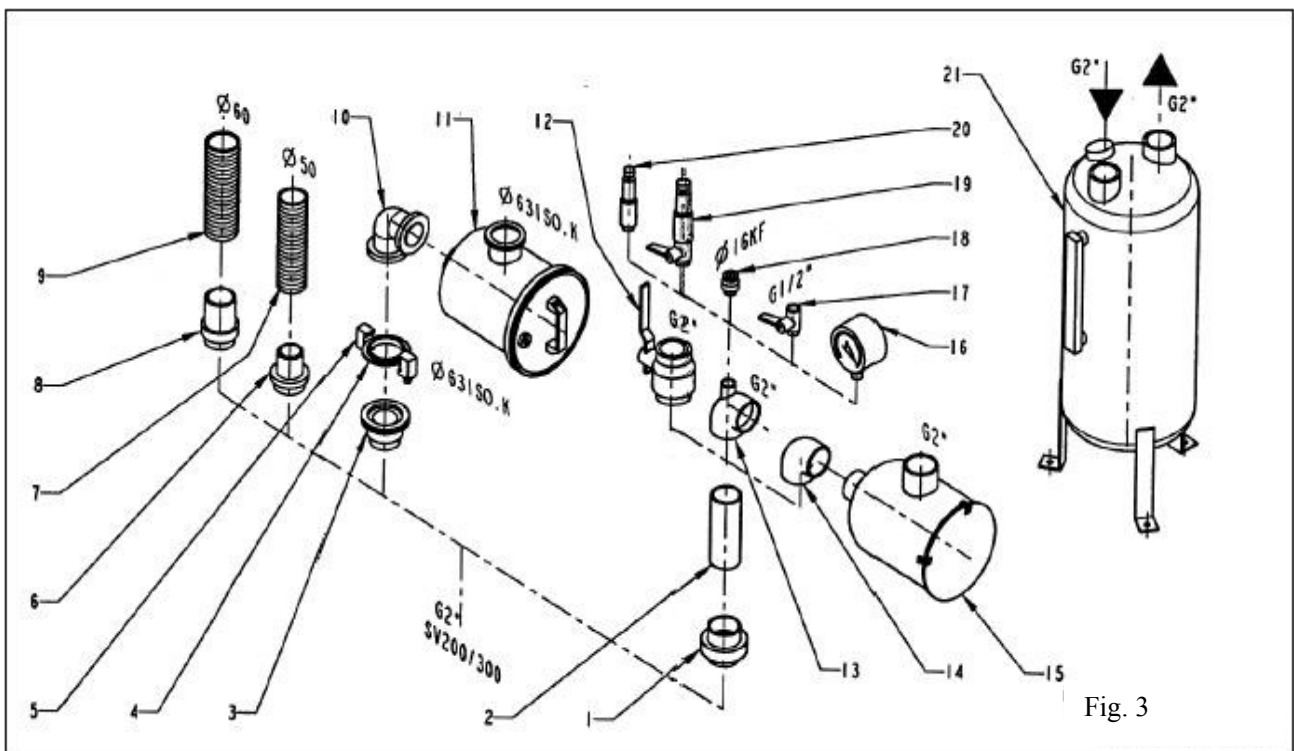


Fig. 3

# Description

## 1.6 Accessories

Item	Specification	Size	Part. No
1	Oil filter by-pass		712 30 570
2	Oil drain tap	G" $\frac{3}{4}$	711 30 114
3	Gas ballast kit manual ("small", "standard", "big")		9 714 64 130
4	Gas ballast standard with EM valve 24 V DC (retrofit kit)		
	with end-plate		9714 65 380 *
	without end-plate		9714 65 680 *
5	Exhaust filter gauge		951 94
6	Exhaust filter overpressure switch		712 22 360 *
7	Oil level monitor (only with all option oil casing)		712 21 992V * or 9714 58 110 *
8	Thermal switch (105°C)		9 714 63 930
9	PT100		9 714 64 020
10	Adapter Roots 500		9 714 63 880
11	Adapter Roots 1000		9 714 63 890
12	Base frame for pump only		711 19 208
13	Base frame for Roots direct mounting		9 714 56 590
14	Water cooling with thermostatic valve (only with all option oil casing)		EK971449111 *
15	Turbine kit 150 mm		EK6503195
16	Separator SEP 63		953 56
17	Separator SEP 63 stainless steel		953 57
18	Separator - Condenser SEPC 63		953 66
19	Separator - Condenser SEPC 63 stainless steel		953 67

\* Please consult us for retrofit. Our Service can carry out these upgrades.

Stability of pump is insured with accessories of Leybold; mounting of any other accessory will engage the responsibility of user concerning stability of pump.

# Description

## 1.7 Spare parts

Item	Specification	Size	Part. No.
1	Oil filter standard		710 18 850
2	Exhaust filter		EK 65 20 391
3	Set of seals	FKM	9 714 64 950
4	Repair set		9 714 64 960
5	Module kit	G2"	9 714 47 390
6	Module kit	NPT2"	9 714 58 970

## 1.8 Lubricants & grease

Unless otherwise specified on the pump, we recommend to run the SOGEVAC® pumps with LVO150 from Leybold or an equivalent oil which meets following requirements and is approved by Leybold:

- low vapor pressure, even at high temperatures ;
- flat viscosity curve ;
- minimum water content and absorption ;
- good lubricating properties ;
- resistant to aging under mechanical strain.

If you use a non-approved oil, we cannot guarantee that our pumps will meet their operating specifications (ultimate pressure, pumping speed, operating temperature, etc). However, the warranty is voided only if the non-approved oil adversely affects the operation or reliability of the pump.

When using other oil brands, employ nodetergent mineral oils of viscosity class ISO VG68 to ISO VG 100.

Use of other special-grade lubricants for specific applications is possible. Please consult us.

Only use lubricants and grease which have been fully qualified by Leybold.

Pump oil LVO150	Ref. No	Grease	Ref. No
1 liter	L15001	400 gr	711 17 700
2 liters	L15002		
20 liters	L15020		

LVO150 is a food grade oil, H1 certificated by the NSF for incidental contact with food products.

# Transport and Storing

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## 2 Transport and Storing

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### NOTICE



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

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### CAUTION



Check the pump for the presence of any oil leaks, because there is the danger that someone may slip on the oil which has leaked from the pump. Only use the lifting lugs which are provided on the pump to lift the pump with the specified lifting devices.

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### NOTICE



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) but not below 0°C. Before taking the pump out of service, it should be properly disconnected from the vacuum system, purged with dry nitrogen and oil should be exchanged too. The inlet and exhaust ports of the pump must be blanked off using the shipping seals which are included upon delivery of the pump. 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 more than one year, standard maintenance must be run and oil must be exchanged too before the pump is put into service again. We recommend that you contact the service from Leybold.

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## 3 Installation

### 3.1 Setting up

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

The SOGEVAC<sup>®</sup> can be set up on any flat, horizontal surface. Under the four feet, there are metric threaded holes for securing the pump.

The oil level cannot be read properly if the pump is tilted. Pump risks to run dry. The ambient temperature should be between 12°C (55°F) and 40°C (104°F) depending on oil type. By modifying the pump or changing the oil type, the pump can be run at a lower ambient temperature. Please consult us about this.

To ensure adequate cooling of the pump, leave enough space at the air intake and exhaust points, so as for access and maintenance. Make sure to keep the air intake of motor clear.

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#### NOTICE



### 3.2 Conforming Use

SOGEVAC<sup>®</sup> 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 vapors, a gas ballast valve must be installed.

SOGEVAC<sup>®</sup> pumps are not designed for pumping of aggressive, corrosive, flammable or explosive gases. By presence of aggressive, flammable, corrosive or explosive gases, contact Leybold.

These pumps are not designed for working in flammable or explosive environment. In case of doubt, contact Leybold for the ATEX pump range.

The pumps are not suitable for pumping liquids or media which contain dust. Corresponding protective measures must be introduced. In case of doubt, contact Leybold.

Before pumping greater than atmospheric concentrations of oxygen (> 20 %) or other highly reactive gases, the pump must be modified, degreased and a special oil (such as PFPE) must be used.

Take adequate safety precautions. Contact Leybold for important safety instructions.

# Installation

## 3.3 Connection to system

The standard pump is not suitable for installation in explosion hazard areas. Please contact us, when 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. The pump must only be installed by suitably qualified and trained personnel.

Observe all safety regulations.

### Intake Side

The pump has an internally-threaded intake flange. Using suitable connecting elements (see Fig. 3 and Section 1.5), the pump can be connected to the vacuum system.

The cross-section of the intake line should be at least the same as the intake port. If the intake line is too narrow, it reduces the pumping speed. We recommend applying either LOCTITE or TEFLON tape to the screwed unions so that they are vacuum-tight (especially if gases are dangerous).

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#### NOTICE



Pump should be connected to inlet line without any tension. Use flex lines or pipe unions in your inlet and exhaust lines so that they can be easily removed for pump maintenance.

The maximum pressure at the inlet may not exceed atmospheric pressure (about 1013 mbar). Never operate the pump in the presence of over pressures at its intake.

Type of materials used for mounting of canalizations should take care of pumped gases. It is the same for its tightness.

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If the process gas contains dust or particles, it is absolutely essential to install a dust filter in addition to the dust trap supplied (see Section 1.5). We recommend to install the dust filter horizontally using the T-piece (3/13) or the elbow (3/14). This ensures that when removing the filter, no particle falls into the intake port.

You have a choice of four cartridges for the optional inlet filters. The metal cartridge prevents solid particles such as paper or plastics from entering the pump ; the paper and polyester cartridges remove small particles such as dust and powder down to one micron ; the activated carbon cartridge absorbs chemical vapors of acids, solvents, etc. If the carbon cartridge was stored in a damp place, bake it for 2 hours at 212°F (100°C) before use.

When pumping vapors, we recommend installing condensate traps or condensers on the intake side (see Section 1.5).

By pumping of dangerous gases, inlet line must be tight.

No particles or liquids may enter in the pump.

## Exhaust Side

The SOGEVAC® have integrated exhaust filters which, even at a high gas throughput, trap the oil mist and guarantee exhaust gas free of oil mist. If the exhaust filters are clogged, pressure relief valves opens and the filters are bypassed. As a result, the proportion of oil in the exhaust gas as well as the pump's oil consumption rise. Installing new exhaust filters will correct this problem. (See Section 5.10)

This situation must be resolved by changing the exhaust filters. It is under user's responsibility to assure maintenance on materiel to avoid any trespassment of the limits authorized by regulations.

Check in the individual case whether an exhaust line is necessary and/or prescribed. Volatile substances can pass through the filter. Depending on the processed gas, we recommend connecting an exhaust line ; this is always necessary when the exhaust gases are dangerous.

Observe the safety precautions that apply to your application and process gases. The pump's exhaust port also has an internal thread (ET3/18). A hose can be connected via a suitable screw-in nipple (see Fig. 3 and Section 1.5).

The cross-section of the exhaust line should be at least the same as the pump's exhaust port. If the exhaust line is too narrow, overpressure may occur in the pump.

Before installing the exhaust line, remove the exhaust-flange plate and ensure that the exhaust demister(s) are secured tightly in place. They sometimes loosen during shipping and installation. A loose demister results in exhaust smoke during start-up and operation.

Install the exhaust line with a downward slope to prevent condensate from flowing back into the pump. If this is not possible, we strongly recommend installing a condensate trap (see Section 1.6). If several pumps are connected to one exhaust line, ensure an adequate cross-section and a non-return valve at the exhaust of each pump.

Never operate the pump with a blocked or restricted exhaust line. Before start-up ensure, that any blinds or similar shut-off devices in the exhaust line on the pressure side are opened and that the exhaust line is not obstructed. Such restrictions reduce the pumping speed, increase the temperature, and could overload the motor or cause a dangerous overpressure in the pump. Excessive pressure in the pump could damage the seals, blow out the sight glass, or destroy the pump housing. In addition to this explosion hazard, excessive back-pressure can result in hazardous process gases leaking out of the pump. If you are purging the oil casing with inert gas, limit the inert-gas flow. Contact Leybold for recommendations.

When pumping dangerous gases, exhaust line must be tight.

The maximum exhaust pressure must not exceed 1,15 bar (absolute). Also reliably prevent the occurrence of any blockage in the exhaust line. Exhaust filter, accessories and the tubing must be rated according to the maximum throughput. The maximum throughput is equivalent to the pumping speed of the pumps.

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## NOTICE



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## WARNING



# Installation

## 3.4 Electrical Connections

(See fig. 4)

**DANGER**



Ensure that incoming power to the pump is off before wiring the motor or altering the wiring. Electrical connections must be done by a qualified electrician in accordance with the applicable safety regulations.

Wire the motor for the correct supply voltage via connections in the junction box. See the wiring diagram on the motor or in the junction box. For proper connection, a suitable motor protection switch must be used. Set the switch in accordance with the rating on the motor nameplate. The switch should be of class 10 at least.

After connecting the motor and every time you alter the wiring, check the direction of rotation. Observe the direction arrow on the motor hood. During the check, the intake port should be open. If the direction of rotation is wrong, oil may be ejected out the intake port. The vacuum system may be pressurized.

Don't use the motor fan for checking the rotation direction. The motor fan rotates too fast to clearly check during operation ; when it slows during shut-down, it reverses its direction.

Turn off the power supply, and interchange two phases of the connection, if you need to correct the direction of rotation.

We recommend checking the direction of rotation with a phase-sequence indicator.

Prolonged running of the motor in the wrong direction of rotation will damage the pump!

A thermal overload switch is available as an accessory. It cuts out the pump if a specific temperature is exceeded and/or triggers a warning signal.

If any security switch or electrical defect cuts out the pump, re-start-up of the pump is only possible by hand action.

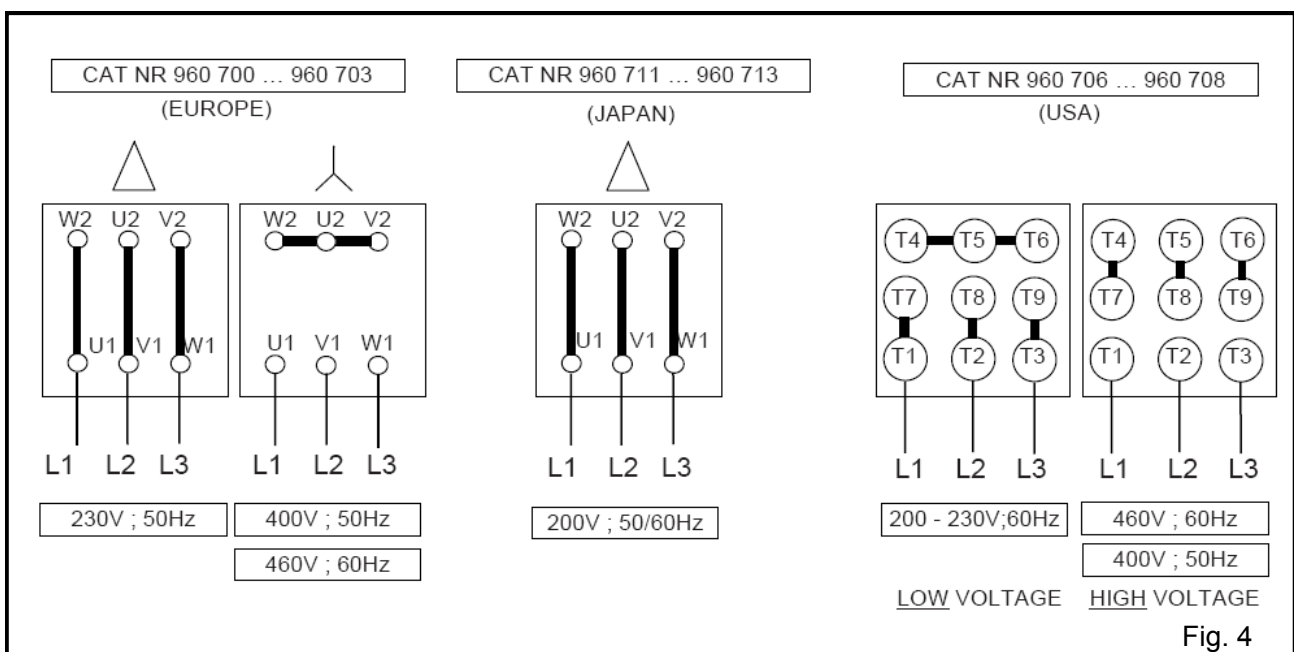


Fig. 4

# Installation

## 3.5 Start-up

Oil for the first filling is supplied with the pump.

Before switching on, always make sure that the pump contains enough oil. The normal oil level is in the middle of sight glass.

If oil has to be added, unscrew the oil-fill plug, add oil and screw the plug firmly back in.

The SOGEVAC® is designed for normal startup at temperatures over 0°C (32°F) (as per PNEUROP), depending on used oils.

To avoid overloading the motor, do not start the pump more than six times within one hour. If frequent starts are needed, the pump should run continuously and be linked to the vacuum vessel by means of a valve. In that case, regulation will be made by the valve and not by start/stop of the pump. With the valve closed, the pump consumes little energy.

Before starting the pump ensure that the attached accessories meet the requirements of your application and that safe operation is ensured.

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.

The safety regulations which apply to the specific application in each case must be observed. This applies in particular to installation, operation and maintenance (servicing) as well as waste disposal and transportation.

Do not lay the hand on the intake to check vacuum.

Exposure of a part of the body to the vacuum result in a rush of blood in the exposed part.

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### WARNING



# Operation

## 4 Operation

The SOGEVAC<sup>®</sup> can pump gases and vapors, provided that the gas ballast valve is installed and open and the pump has reached its operating temperature.

Contact Leybold for important safety instructions before pumping greater than atmospheric concentrations of oxygen or other highly reactive gases. The pump must be degreased, modified, and special inert oil must be used for pumping oxygen. Also ATEX variants are available for pumping explosive gases.

The motor manufacturer guarantees a maximum of 6 starts per hour. To avoid exceeding 6 starts per hour, run the pump continuously and regulate the vacuum in your system with a pilot valve.

---

**CAUTION**

Pump in operation is hot and some surfaces could reach a temperature higher than 80°C (176°F). There is a risk of burn by touching. Take note of warning labels on the pump.

### 4.1 Pumping of Non-condensable Gases

If the process contains mainly permanent gases, the SOGEVAC<sup>®</sup> can be operated without gas ballast, provided that the saturation vapor pressure at operating temperature is not exceeded during compression.

If you do not know the composition of the gases to be pumped, and if you can't rule out the possibility of condensation, run the pump with gas ballast valve open in accordance with Section 4.2.

### 4.2 Pumping of Condensable Gases and Vapors-Using gas ballast.

The pumps with gas ballast valves are delivered with the gas ballast valve open.

The SOGEVAC<sup>®</sup> SV300 FP can be equipped with following types of gas ballasts:

- Standard gas ballast. This gas ballast corresponds to the most important part of applications .
- Gas ballast "big flow" as a variant or accessory is intended for the applications where more vapours of condensable gases could come into the pump.
- Gas ballast "small flow" for pumping on applications where only few vapours are to be pumped and where the ultimate pressure with open gas ballast is important.
- Gas ballast with E.M. valve (Part. No. upon request) This kit is intended for being mounted on pumps on which the gas ballast can be driven by an electro-magnetic valve applied at 24 VDC.

A gas ballast kit including all material required for changing the manual gas ballast flow to "small", "standard" or "big" is available: P/N 9 714 64 130

With the gas ballast valve open and at operating temperature, the SOGEVAC® can pump pure water vapor up to the water vapor tolerance indicated in the Technical Data. The pump's water vapor tolerance can be increased by raising the operating temperature.

Use a screwdriver to open the gas ballast valve. The running noise of the pump is slightly louder when the gas ballast valve is open. Before opening the pump to vapors, ensure that the gas ballast valve is open and that the pump has been warmed up for about 30 minutes with closed intake line.

Do not open the pump to condensable vapors until it has warmed to operating temperature; pumping process gas with a cold pump results in vapors condensing in the oil.

For processes with a high proportion of condensable vapors, slowly open the intake line, after reaching the operating temperature to prevent excessive quantities of vapor entering the pump.

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

During pumping, vapors may dissolve in the oil. This changes the oil properties and causes a risk of corrosion in the pump. Therefore, do not switch off the pump immediately after completion of the process. Instead, allow the pump to continue operating with the gas ballast valve open and the intake line closed until the oil is free of condensed vapors. We strongly recommend operating the pump in this mode for about 30 minutes after completion of the process.

In cyclic process operation, the pump should not be switched off during the intervals between the individual working phases, 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 to improve the ultimate pressure.

### 4.3 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 piloted valve and to let the pump run continuously.

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#### NOTICE



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#### NOTICE



# Operation

## 4.4 Shutdown

Under normal circumstances, all that you need to do is to switch off the pump.

The intake port of the SOGEVAC<sup>®</sup> contains an anti-suck back valve, which closes the intake port when the pump is shut down, thus maintaining the vacuum in the connected system and preventing oil from being sucked back into the system. The valve's functioning is not impaired by gas ballasting, but its cleanliness must be taken care of.

When pumping condensable media, let the pump continue to operate with the gas ballast valve open and the intake line closed before switching off (see Section 4.2).

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**CAUTION**

If the pump is to be shut down for an extended period or if the pump has to be stored, proceed as follows: When pumping harmful substances, take adequate safety precautions.

Drain the oil (see Section 5.4). Pour in clean oil up to the bottom edge of the oil-level glass (see Section 5.4) and let the pump run for a few minutes. Then drain the oil and pour in clean oil up to the top edge of the oil-level glass (see Section 5.4). Seal the connection ports. Special preservation or slushing oils are not necessary.

When the pump has been switched off due to over-heating, initiated by the motor or its protection, 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 main power failure, the pump must be integrated into the control system in such a way that the pump can only be started by a manually operated switch. This applies equally to emergency cut-off switches.

In case of switching processes in connection with a pump which has warmed up under operating conditions, the pump must then not be directly switched on again.

## 4.5 Pump Ultimate Pressure

If the system cannot reach the pressures specified in the technical data, measure the ultimate pressure directly at the pump's intake port after disconnecting the pump from the system.

The ultimate pressure of non-condensable gases (partial pressure of air) can only be measured with a compression vacuum gauge or a partial pressure gauge. Precise measurements can only be obtained with calibrated instruments.

Upon initial start-up, after prolonged idle periods or after an oil change, it takes a while until the pump reaches the specified ultimate pressure. The pump has to attain its operating temperature, and the pump oil has to be degassed. We recommend operating the pump initially with the gas ballast valve open.

The ultimate pressure depends on the pump temperature and the pump oil used. The best ultimate pressure can be obtained at a low pump temperature and by using the recommended oil types.

# Maintenance

## 5 Maintenance

Disconnect the power before disassembling the pump. Make absolutely sure that the pump cannot be accidentally started.

If the pump has pumped harmful substances, ascertain the nature of the hazard and take adequate safety measures.

Observe all safety regulations.

---

### WARNING



### 5.1 Leybold Service

Whenever you send a pump to Leybold, indicate whether the pump 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; we will forward the form on request.

A copy of the form is printed at the end of these operating instructions:

“Declaration of contamination of vacuum equipment and components“. Another suitable form is available from the Leybold homepage:

[www.leybold.com](http://www.leybold.com) → Downloads → Download Documents → Declaration of Contamination.

Connect the form at the device or lay it to the device.

This statement detailing the contamination is required to satisfy legal requirements and for the protection of our employees.

Pumps which are not accompanied by a contamination statement will be returned to the sender.

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### Contamination

### Form

#### Use secure shipping packaging

Package the pump such that it will not suffer any damage when being shipped and so that no oil or hazardous materials can escape from the packaging.

If you open a pump at your own works also observe a potential contamination. When disposing of used oil, please observe the relevant environmental regulations.

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### CAUTION



Due to the design concept, SOGEVAC® pumps require very little maintenance under normal operating conditions. The work required is described in the sections below.

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.

### 3.1 Maintenance Schedule

The frequencies stated in the maintenance schedule are approximate values for normal pump operation.

Unfavorable ambient conditions and/or aggressive media may necessitate more frequent maintenance.

# Maintenance

Maintenance job	Frequency	Section
Check the oil level	daily	5.3
Check the oil condition	Depends on process	5.3
1st oil change	After 150 h of operation	5.4
Subsequent oil changes	Every 2000 h or 6 months (depending on application)	5.4
Replace the oil filter	At each oil change	5.4
Clean the dirt trap	monthly	5.5
Check the anti-suckback valve	annually	5.6
Radiator cleaning	depends on ambient conditions	5.9
Exhaust filter change	if oil mist at exhaust or annually	5.10
Heat exchanger cleaning	6 months	
Ball bearing greasing	Every 30 000 h	

To simplify the maintenance work we recommend combining several jobs.

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## Caution



Never mount used seals. Always mount new seals. Use only genuine Leybold parts.

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## 5.3 Checking the Oil

### Oil Level

The pump oil level during operation must always be in the middle of the oil-level glass (ET3/24). When necessary, switch off the pump and add the correct quantity of oil.

High oil consumption often indicates that exhaust filters are clogged (See 3.9).

Stop the pump for filling oil. The oil level should be checked at least once a day.

### Oil Condition

Normally the oil is clear and transparent. If gases or liquids dissolved in the oil result in deterioration of the ultimate pressure, the oil can be degassed by allowing the pump to run for about 30 min. with the intake port closed and the gas ballast valve open.

The amount of oil required for an oil check should be drained via the oil-drain plug (ET3/19) into a beaker or similar container with the pump switched off but still at operating temperature.

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

Observe the safety regulations.

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## Caution



## 5.4 Oil Change, Replacing the Oil Filter

Tool required: oil filter key (710 73 532)

Always change the oil when the pump is switched off but still at working temperature.

If there is a risk of the oil being polymerized by the connected process, change the oil immediately after operation of the pump.

Pump in function is hot and some surfaces could reach a temperature higher than 80 °C (176 °F).

There is a risk of burn by touching.

Unscrew the oil-drain plug and let the used oil drain into a suitable container.

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!

When the flow of oil slows down screw the oil-drain plug back in, briefly switch on the pump (max. 10s) and switch it off. Remove the oil-drain plug again and drain the remaining oil.

Reinsert the oil-drain plug (check the O-Ring and replace it with a new one if necessary).

Unscrew the oil-fill plug and fill the pump should be flushed by filling it with fresh oil up to the bottom edge of the oil-level glass, run it for a short time and then change the oil again.

Use suitable oil only (see Section 1.8).

## 3.4 Cleaning the Dirt Trap

Required tools: Allen key male 8 mm. A dirt trap for coarse particles is located in the intake flange of the pump. It should be kept clean to avoid reduction of the pumping speed.

Remove four screws and take off the intake flange and gasket. Remove the retaining ring and support piece from inside. Take out the wire-mesh screen and clean it with a suitable solvent.

Reassemble in the reverse sequence. We recommend replacing the gasket by a new one.

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

Observe the safety regulations.

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**CAUTION**



# Maintenance

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

Never mount used seals ; always mount new seals.

## 5.6 Checking the Anti-Suck back Valve

Required tools : Allen key male 8 mm - Adjusting ring: 710 72 333

Keep the anti-suck back valve clean to ensure proper operation of the pump. If the pump is exposed to large amounts of dust or dirt, we strongly recommend installing a dust filter upstream (see Section 1.5).

First disconnect the intake line. Remove four screws and take off the intake flange and gasket. Remove the spring and anti-suck back valve. If the anti-suck back valve closes too soon, carefully compress the spring slightly. The top edge of the valve should be about 1-2 mm away from the bottom side of the intake port.

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**CAUTION**



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

Observe the safety regulations.

---

Never mount used seals ; always mount new seals.

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

## 5.7 Cleaning the Gas Ballast Intake Filter

Required tools: none

On the big flow gas ballast, the inlet filter must be changed when the GB flow decreases. Filter P/N 710 20 852

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**DANGER**



## 5.8 Disassembly of electrical motor

Disconnect the power before disassembling the pump. Make absolutely sure that the pump cannot be accidentally started.

- 1.To disassemble motor from coupling housing, unscrew the 4 hexagonal head screws.
2. With the help of an extractor puller, remove the coupling of the motor shaft after having untightened the locking screw by a male Allen key 4 mm.
3. The reassembly is carried out in the reverse sequence.
- 4.Check direction of rotation.

## 5.9 Radiator cleaning

Please keep the oil cooler clean to have an efficient cooling. For that, remove the turbine cover and clean it with compressed air from the turbine inside. Then reassemble the cover.

## 5.10 Exhaust filter exchange

- Remove the screws of the exhaust plate (ET3/18) using a 8 mm Allen key
- Lift the 3 exhaust filters (ET3/25) from the W shaped metal sheet holder and remove them from the oil casing (ET1/1)
- Make sure that the new exhaust filters (ET3/25) have the O-ring (opposite side of overpressure valve) and grease them using vacuum grease P/N 711 17 700
- Replace the O-ring (ET3/26p) of the exhaust plate (ET3/18)
- Insert new exhaust filters (ET3/25). They are guided in the oil casing (ET1/1) correct position. Make sure the compression springs (ET3/27) are behind the W shaped metal sheet holder.
- Plug the exhaust plate (ET3/18) on the W shaped metal sheet holder with the 2 location pins and screw the exhaust plate (ET3/18) on the oil casing (ET1/1) using a 8 mm Allen key.

### General Remarks

We reserve the right to alter the design or any data given in these Operating Instructions. The illustrations are not binding.

# Troubleshooting

## 6 Troubleshootin

Fault	Possible cause	Remedy	Reference section*
Pump does not start	Pump is connected incorrectly	Connect the pump correctly	3.4
	Motor protection switch incorrectly set.	Set motor protection switch properly	3.4
	Operating voltage does not match motor	Replace the motor	
	Motor is malfunctioning	Replace the motor	
	Oil temperature is below 12°C (54°F)	Heat the pump and pump oil or use different oil	2
	Oil is too viscous	Use appropriate oil grade	5.4
	Exhaust filter / exhaust line is clogged	Replace the filter or clean the exhaust line	5.10
	Pump is seized up (sign : pump is jammed)	Repair the pump	
Pump does not reach ultimate pressure	Measuring technique or gauge is unsuitable	Use correct measuring technique and gauge	4.5
	External leak 1) - Piping fittings loose	Repair the pump - Retighten	
	Float valve does not close	Repair the valve	5.6
	Anti-suck back valve is malfunctioning	Repair the valve	
	Exhaust valve is malfunctioning	Repair the valve	
	Inadequate lubrication due to :		
	- unsuitable or contaminated oil	Change the oil	5.4
	- clogged oil filter	Replace the oil filter	5.4
	- clogged oil lines	Clean the oil lines and oil case	
	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	Dirt trap in the intake port is clogged	Clean the dirt trap.	5.5/1.5/3.3
		Precaution : install a dust filter in intake line	
		Install new filter elements	5.10
	Exhaust filter is clogged	Use adequately wide and short connecting lines	3.3
	Connecting lines are too narrow or too long	Check spring free length	
After switching off pump under vacuum, pressure in system rises too fast	System has a leak	Check the system	
	Anti-suck back is malfunctioning	Repair the valve	5.6
Pump gets too hot	Cooling air supply is obstructed	Set pump up correctly	3.1
	Cooler is dirty	Clean the cooler	5.9
	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
	Oil is unsuitable	Change the oil	5.4
	Oil cycle is obstructed	Clean or repair the oil lines	
	Exhaust filter / exhaust line is obstructed	Replace the exhaust filter, clean the exhaust line	5.10
	Exhaust valve is malfunctioning	Repair the valve	
	Pump module is no longer usable	Replace the pump module	

# 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-suck back valve is obstructed	Clean or repair the valve	5.6
	Sealing surfaces or anti-suck back valve are damaged or dirty	Clean or repair the intake port and valve	5.6
	Oil level is too high	Drain the excess oil	5.4
Oil is turbid	Condensation	Degas the oil or change the oil and clean the pump. Precaution : open the gas ballast valve or insert a condensate trap. Clean the gas ballast intake filter	4.2/5.3
Pump is excessively noisy	Oil level is very low (oil is no longer visible)	Add oil	5.4
	Oil filter is clogged	Change the oil and filter	5.4
	Coupling element is worn	Install new coupling element	
	Large vacuum leak in system	Repair vacuum leak	

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

<sup>1)</sup>Bubble test : Let the pump run at operating temperature with degassed oil, without gas ballast and with closed intake port. Immerse the exhaust line in a bucket of water. If a steady stream of bubbles appear, the pump has an external leak.

NB: For any other operation as described before, return the pump to a Leybold service center.

# Spare parts

## 7 Spare parts list

Pos.	Qty	Description	Cat.No	Remarks
1	1	OIL CASING WITH OIL FILTER G2"	971447620	Incl. 18,19,20,22,23,24,25,26b,c,d,e,k,p,q,27
1	1	OIL CASING WITH OIL FILTER NPT2	EK971460641	Incl. 18,19,20,22,23,24,25,26b,c,d,e,k,p,q,27
2	1	VACUUM GENERATOR EUR G2"	EK6701084	Incl. 11,12,13,14,15,17,26b,c,d,e,g,h,l,j,k,m,n,o
2	1	VACUUM GENERATOR EUR NPT2	971458970	Incl. 11,12,13,14,15,17,26b,c,d,e,g,h,l,j,k,m,n,o
3	1	RADIATOR	971460700	Incl. 26a
4	1	TURBINE	971445920	220mm
	1	TURBINE	EK6503195	150mm
5	1	COVER	971460710	
6a	1	COUPLING EUR IEC MOTORS	971445970	
6b	1	COUPLING US NEMA MOTORS	971446030	
7a	1	MOTOR EUR IEC 230 / 400V±10%, 50Hz 460V±10%,60Hz	971457700	
7b	1	MOTOR US NEMA 208 V ± 10 %, 230 / 460 V ± 10 %, 60 Hz 400 V ± 10 %, 50 Hz	971458960	
7c	1	WIDERANGE MOTOR 200 V - 15 % ... 230 V + 10 % 380 ... 400 V ± 10 %, 50 & 60 Hz 460 V ± 10 %, 60 Hz, CTP	971466740	
8a	1	INTAKE FLANGE EUR G2"	971458900	Incl. 9,26f
8b	1	INTAKE FLANGE EUR NPT2	971460750	Incl. 9,26f
9	1	INTAKE FLANGE FILTER	71213390	
10	1	ANTI SUCKBACK VALVE	971457690	Incl. 26f
11	1	BEARING KIT	971464910	Incl. 26g,h,l,j
12	1	END PLATE KIT	971446060	Incl. 13, 26a,b,e,k,m,n,o
13	1	GAS BALLAST 3 FLOWS	971464130	Incl. 26k
14	1	SET OF 3 VANES	971446880	
15	1	ROTOR KIT	971445930	
16	1	RUBBER FEET KIT	971464930	
17	1	VALVE AND VALVE STOP KIT	971464940	
18	1	EXHAUST PLATE G2" KIT	971458930	Incl. 26p
18	1	EXHAUST PLATE NPT2 KIT	EK971460541	Incl. 26p
19	1	OIL DRAIN PLUG G3/4"	71256380	Incl. 26q
20	1	OIL FILTER	71018850	
21	1	OIL FILTER BYPASS	71230570	
22	1	FLOAT VALVE KIT	71417210	
23	1	OIL FILL PLUG G1"	71073040	Incl. 26k
24	1	GLASS OIL SIGHT GLASS	971460230	
25	3	EXHAUST FILTER WITH BYPASS	EK6520391	
27	3	COMPRESSION SPRING	71436210	
28	1	ORIENT EXHAUST DEFLECTOR	EK971469641	Incl. 26o,26t
26	1	SEAL KIT FKM	971464950	All 26+10
	1	REPAIR KIT	971464960	Incl. 6,11,14,17,20,24,25,26,27
	1	MAINTENANCE KIT	971464970	Incl. 19,23,25,26k,p,q,27

# Spare parts

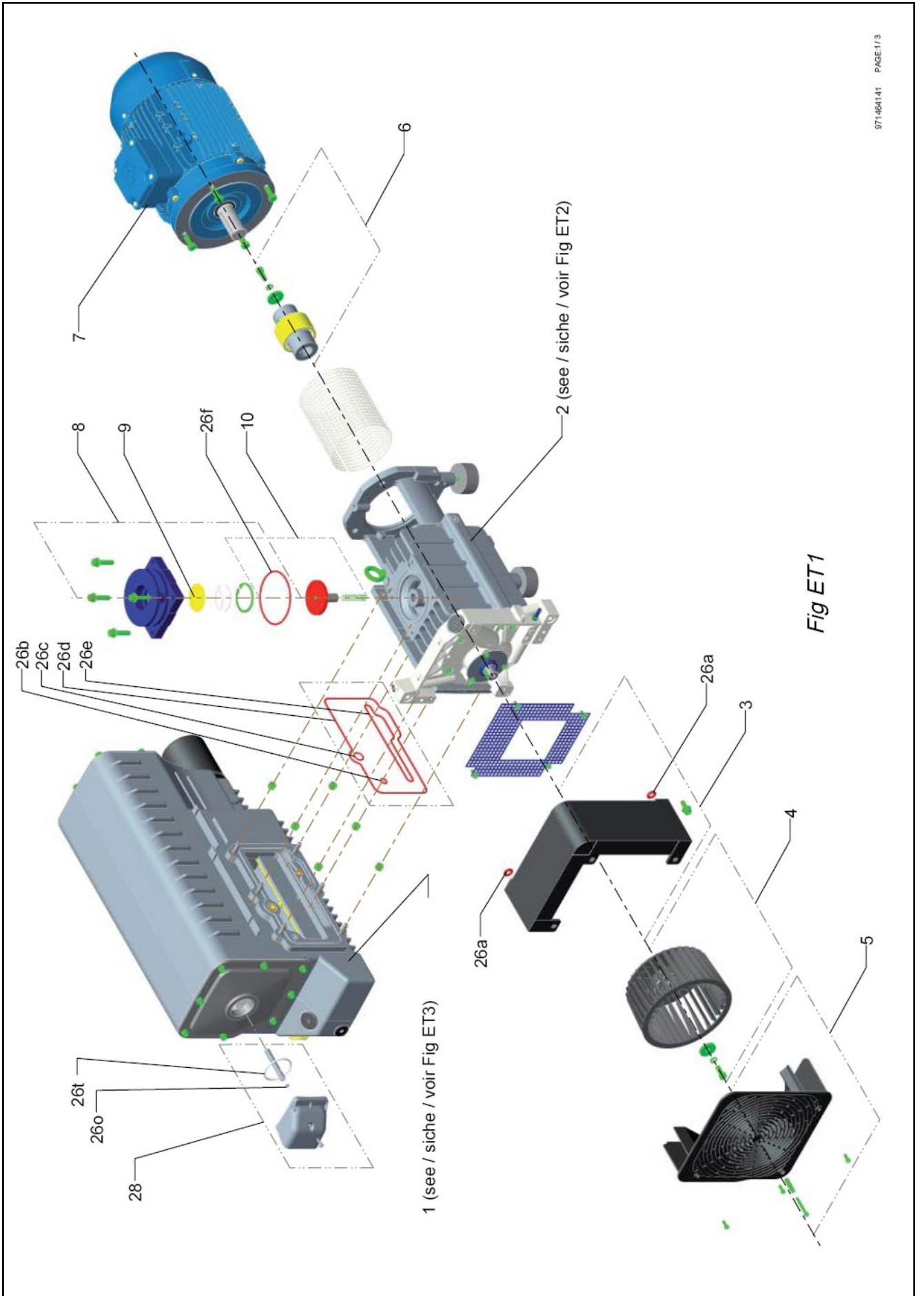


Fig ET1

# Spare parts

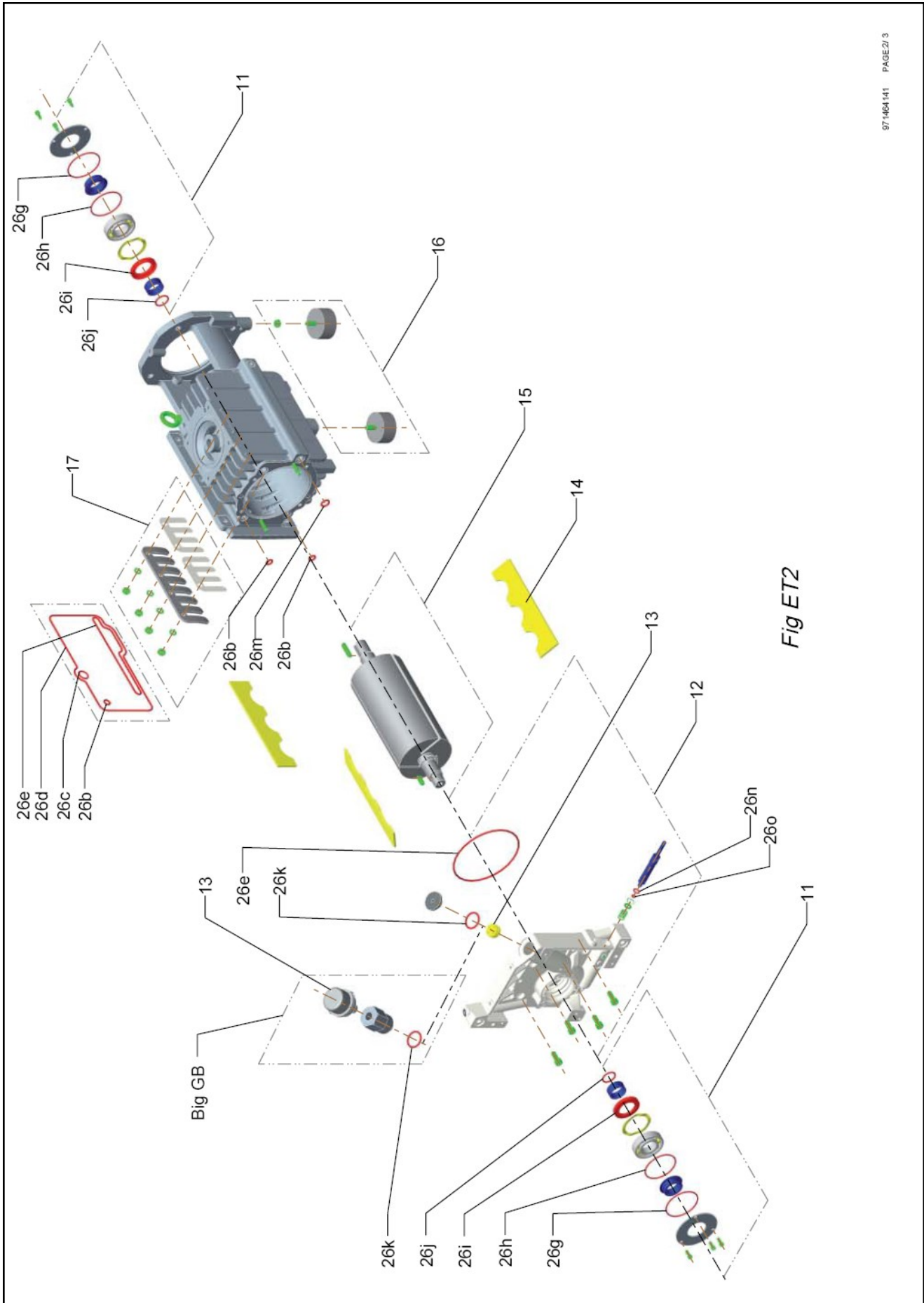


Fig ET2

# Spare parts

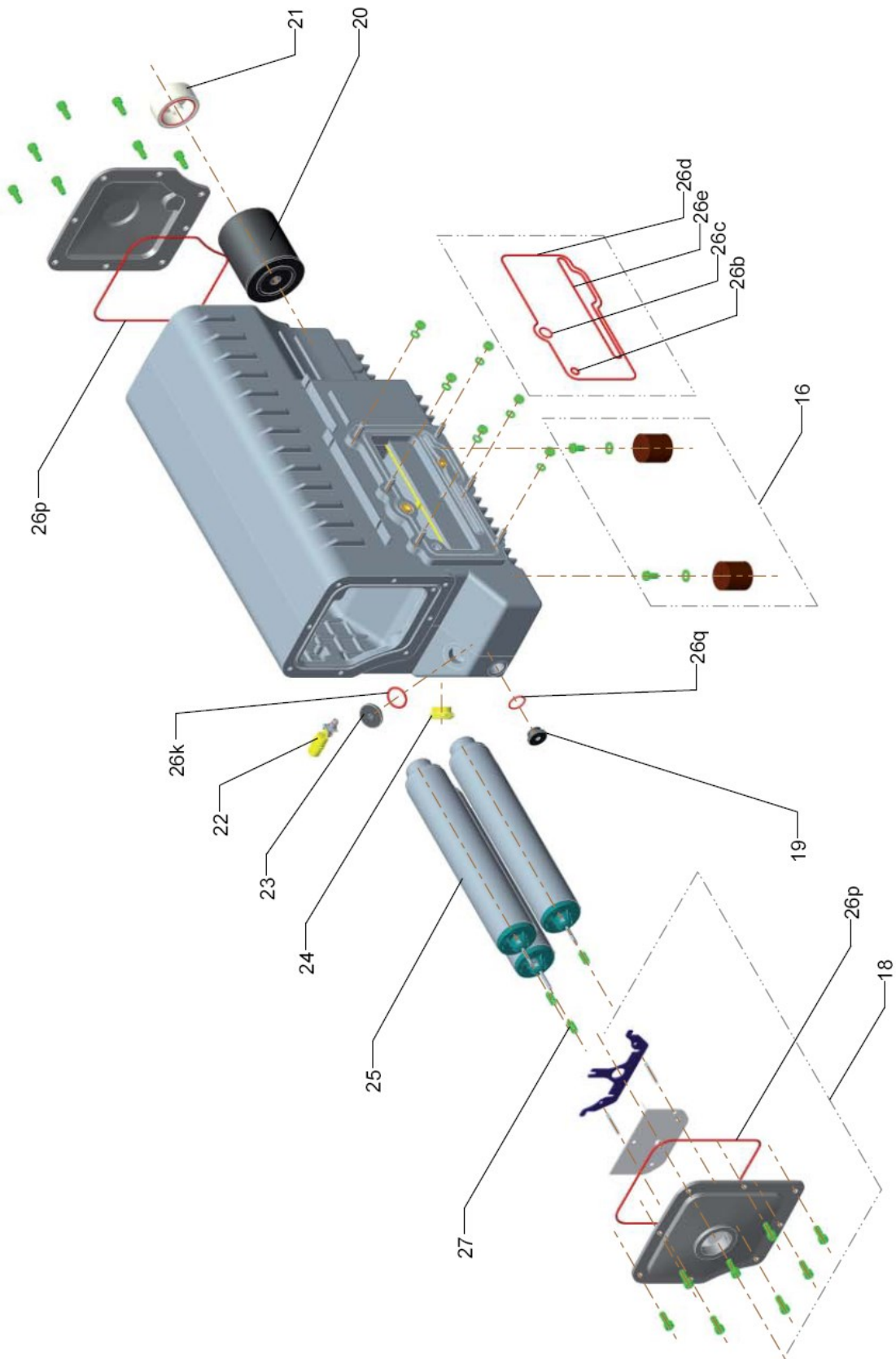


Fig ET3

# Disposal

## Contamination

### 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.

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#### WARNING



#### Risk of injury and environmental damage

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.

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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 "5.1 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 GmbH  
Bonner Strasse 498  
D-50968 Köln, Germany

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:** SV10 B, SV16 B, SV25 B, SV40 B, SV65 B, SV70 B, SV100 B, SV105 B, SV200, SV300B, SV630 B, SV750 B, SV10 FP, SV16 FP, SV25 FP, SV45 FP, SV70 FP, SV105 FP, SV200 FP and SV300 FP, and their variants, excepted pumps delivered without motor

**Part no.:** 960100 to 960115 / 960160 to 960175 / 960250 / 960250V3001 / 960251 / 960251V2022 / 960251V3003 / 960251V3005 / 960252 / 960253 / 960255 / 960256 / 960256V2022 / 960256V3003 / 960257 / 960261 / 960261V3001 / 960266 / 960305TE / 960316TE / 960318TE / 960322TE / 960324TE / 960401V3001TE / 960405TE / 960416TE / 960416V2046TE / 960419TE / 960419V1706TE / 960422TE / 960424TE / 960505TE / 960505V3004TE / 960516TE / 960518TE / 960519TE / 960522V3001TE / 960524TE / 10927TE / 109279900037TE / 109279900045TE / 9552746TE / 9552748TE / 955279900001TE / 955279900004TE / 960702TE / 960702V3005TE / 960702V3013TE / 960702V3018TE / 960703V3001TE / 960706V2048TE / 960711V2048TE / 960712TE / 960713V2046TE / 960716V2048TE / 960717TE / 960717V3001TE / 960717V3004TE / 960717V3005TE / 960718V2046TE / 960100FP to 960110FP / 960160FP to 960170FP / 960251FP / 960256FP / 960257FP / 960261FP / 960307FP / 960314FP / 960324FP / 960407FP / 960414FP / 960424FP / 960507FP / 960514FP / 960524FP / 10927FP / 1092791FP / 960702FP / 960707FP / 960717FP / 960862V3002TE / 960863TE / 960863V3006TE / 960863V3008TE / 960863V3020TE / 960867TE / 960867V2091TE / 960867V3001TE / 960867V3005TE / 960875V3002TE / 960876V2007TE / 960877V3002TE / 960877V3013TE / 960877V3017TE

**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:**

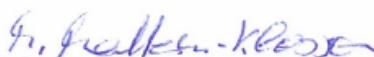
EN 1012-2:1996+A1:2009	Compressors and vacuum pumps — Safety requirements — Part 2: Vacuum pumps
EN 60204-1:2006/A1:2009	Safety of machinery — Electrical equipment of machines — Part 1: General requirements
EN 61000-6-2:2005/AC:2005	Electromagnetic compatibility (EMC) - Part 6-2: Generic standards - 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  
T: +49(0)221 347 0  
F: +49(0)221 347 1250  
documentation@leybold.com

Cologne, November 14, 2016

Cologne, November 14, 2016

  
ppa. Martin Tollner  
Head of Product Lines

  
ppa. Dr. Monika Mattern-Klosson  
Head of Quality & Business Process Management



## 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 55350-1&-4.2.1																																																																			
<b>A. Description of the Leybold product:</b> _____ <b>Failure description:</b> _____ Material description : _____ Catalog number: _____ <b>Additional parts:</b> _____ Serial number: _____ <b>Application-Tool:</b> _____ Type of oil (ForeVacuum-Pumps) : _____ <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> <tr> <td colspan="5">If yes, which cleaning agent _____</td> </tr> <tr> <td colspan="5">and which method of cleaning _____</td> </tr> <tr> <td colspan="5"><sup>1)</sup> If answered with "No", go to D. ←</td> </tr> </tbody> </table> <table style="width: 100%; border-collapse: collapse; margin-top: 10px;"> <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><b>Contamination :</b></td> <td></td> <td></td> </tr> <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	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"/>		If yes, which cleaning agent _____					and which method of cleaning _____					<sup>1)</sup> If answered with "No", go to D. ←						No <sup>1)</sup>	Yes	<b>Contamination :</b>			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 safetydata sheet (e.g. toxic, inflammable, corrosive, radioactive) <table border="1" style="width: 100%; border-collapse: collapse; margin-top: 5px;"> <thead> <tr> <th style="width: 10%;"></th> <th style="width: 40%;">Tradename:</th> <th style="width: 50%;">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> <table style="width: 100%; border-collapse: collapse; margin-top: 10px;"> <thead> <tr> <th style="width: 60%;"></th> <th style="width: 10%; text-align: center;">No</th> <th style="width: 10%; text-align: center;">Yes</th> </tr> </thead> <tbody> <tr> <td>2. Are these substances harmful ?</td> <td style="text-align: center;"><input type="checkbox"/></td> <td style="text-align: center;"><input type="checkbox"/></td> </tr> <tr> <td>3. Dangerous decomposition products when heated ?</td> <td style="text-align: center;"><input type="checkbox"/></td> <td style="text-align: center;"><input type="checkbox"/></td> </tr> <tr> <td colspan="3">If yes, which ? _____</td> </tr> </tbody> </table> <p><sup>2)</sup> Components contaminated by microbiological, explosive or radioactive products/substances will not be accepted without written evidence of decontamination.</p>			Tradename:	Chemical name:	a)	_____	_____	b)	_____	_____	c)	_____	_____	d)	_____	_____		No	Yes	2. Are these substances harmful ?	<input type="checkbox"/>	<input type="checkbox"/>	3. Dangerous decomposition products when heated ?	<input type="checkbox"/>	<input type="checkbox"/>	If yes, which ? _____																																										
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<b>D. Legally binding declaration</b> 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 \_\_\_\_\_

firm stamp



# Sales and Service

## Germany

**Leybold GmbH**  
Sales, Service, Support Center (3SC)  
Bonner Strasse 498  
D-50968 Cologne  
T: +49-(0)221-347 1234  
F: +49-(0)221-347 31234  
sales@leybold.com  
www.leybold.com

**Leybold GmbH**  
**Sales Area North**  
Branch Office Berlin  
Industriestrasse 10b  
D-12099 Berlin  
T: +49-(0)30-435 609 0  
F: +49-(0)30-435 609 10  
sales.bn@leybold.com

**Leybold GmbH**  
**Sales Office South**  
Branch Office Munich  
Karl-Hammerschmidt-Strasse 34  
D-85609 Aschheim-Dornach  
T: +49-(0)89-357 33 9-10  
F: +49-(0)89-357 33 9-33  
sales.mn@leybold.com  
service.mn@leybold.com

**Leybold Dresden GmbH**  
**Service Competence Center**  
Zur Wetterwarte 50, Haus 304  
D-01109 Dresden  
Service:  
T: +49-(0)351-88 55 00  
F: +49-(0)351-88 55 041  
info.dr@leybold.com

## Europe

### Belgium

**Leybold Nederland B.V.**  
**Belgisch bijkantoor**  
Leuvensesteenweg 542-9A  
B-1930 Zaventem  
Sales:  
T: +32-2-711 00 83  
F: +32-2-720 83 38  
sales.zv@leybold.com  
Service:  
T: +32-2-711 00 82  
F: +32-2-720 83 38  
service.zv@leybold.com

### France

**Leybold France S.A.S.**  
Parc du Technopolis, Bâtiment Beta  
3, Avenue du Canada  
F-91940 Les Ulis cedex  
Sales and Service:  
T: +33-1-69 82 48 00  
F: +33-1-69 07 57 38  
info.ctb@leybold.com  
sales.ctb@leybold.com

**Leybold France S.A.S.**  
Valence Factory  
640, Rue A. Bergès  
B.P. 107  
F-26501 Bourg-lès-Valence Cedex  
T: +33-4-75 82 33 00  
F: +33-4-75 82 92 69  
marketing.vc@leybold.com

## Great Britain

**Leybold UK LTD.**  
Unit 9  
Silverglade Business Park  
Leatherhead Road  
Chessington  
Surrey (London)  
KT9 2QL  
Sales:  
T: +44-13-7273 7300  
F: +44-13-7273 7301  
sales.ln@leybold.com  
Service:  
T: +44-13-7273 7320  
F: +44-13-7273 7303  
service.ln@leybold.com

## Italy

**Leybold Italia S.r.l.**  
Via Trasimeno 8  
I-20128 Mailand  
Sales:  
T: +39-02-27 22 31  
F: +39-02-27 20 96 41  
sales.mi@leybold.com  
Service:  
T: +39-02-27 22 31  
F: +39-02-27 22 32 17  
service.mi@leybold.com

## Netherlands

**Leybold Nederland B.V.**  
Floridadreef 102  
NL-3565 AM Utrecht  
Sales and Service:  
T: +31-(30) 242 63 30  
F: +31-(30) 242 63 31  
sales.ut@leybold.com  
service.ut@leybold.com

## Switzerland

**Leybold Schweiz AG, Pfäffikon**  
Churerstrasse 120  
CH-8808 Pfäffikon  
Warehouse and shipping address:  
Riedthofstrasse 214  
CH-8105 Regensdorf  
Sales:  
T: +41-44-308 40 50  
F: +41-44-302 43 73  
sales.zh@leybold.com  
Service:  
T: +41-44-308 40 62  
F: +41-44-308 40 60  
service.zh@leybold.com

## Spain

**Leybold Spain, S.A.**  
C/í. Huelva, 7  
E-08940 Cornellà de Llobregat  
(Barcelona)  
Sales:  
T: +34-93-666 43 11  
F: +34-93-666 43 70  
sales.ba@leybold.com  
Service:  
T: +34-93-666 46 11  
F: +34-93-685 43 70  
service.ba@leybold.com

## America

### USA

**Leybold USA Inc.**  
5700 Mellon Road  
USA-Export, PA 15632  
T: +1-724-327-5700  
F: +1-724-325-3577  
info.ex@leybold.com  
Sales:  
T: +1-724-327-5700  
F: +1-724-333-1217  
Service:  
T: +1-724-327-5700  
F: +1-724-325-3577

### Brazil

**Leybold do Brasil**  
Rod. Vice-Prefeito Hermenegildo Tonolli,  
No. 4413 - 6B  
Distrito Industrial  
Jundiaí - SP  
CEP 13.213-086  
Sales and Service:  
T: +55 11 3395 3180  
F: +55 11 99467 5934  
sales.ju@leybold.com  
service.ju@leybold.com

## Asia

### P. R. China

**Leybold (Tianjin)**  
**International Trade Co. Ltd.**  
Beichen Economic  
Development Area (BEDA),  
No. 8 Western Shuangchen Road  
Tianjin 300400  
China  
Sales and Service:  
T: +86-22-2697 0808  
F: +86-22-2697 4061  
F: +86-22-2697 2017  
sales.tj@leybold.com  
service.tj@leybold.com

### India

**Leybold India Pvt Ltd.**  
No. 82(P), 4th Phase  
K.I.A.D.B. Plot  
Bommasandra Industrial Area  
Bangalore - 560 099  
India  
Sales and Service:  
T: +91-80-2783 9925  
F: +91-80-2783 9926  
sales.bgl@leybold.com  
service.bgl@leybold.com

### Japan

**Leybold Japan Co., Ltd.**  
Headquarter  
Shin-Yokohama A.K.Bldg., 4th Floor  
3-23-3, Shin-Yokohama  
Kohoku-ku, Yokohama-shi  
Kanagawa 222-0033  
Japan  
Sales:  
T: +81-45-471-3330  
F: +81-45-471-3323  
sales.yh@leybold.com

**Leybold Japan Co., Ltd.**  
Tsukuba Technical Service Center  
1959, Kami-yokoba  
Tsukuba-shi, Ibaraki-shi 305-0854  
Japan  
Service:  
T: +81-29 839 5480  
F: +81-29 839 5485  
service.iik@leybold.com

### Malaysia

**Leybold Malaysia**  
**Leybold Singapore Pte Ltd.**  
No. 1 Jalan Hi-Tech 2/6  
Kulim Hi-Tech Park  
Kulim, Kedah Darul  
Aman 09000  
Malaysia  
Sales and Service:  
T: +604 4020 222  
F: +604 4020 221  
sales.ku@leybold.com  
service.ku@leybold.com

### South Korea

**Leybold Korea Ltd.**  
3F. Jellzone 2 Tower  
Jeongja-dong 159-4  
Bundang-gu Sungnam-si  
Gyeonggi-do  
Bundang 463-384, Korea  
Sales:  
T: +82-31 785 1367  
F: +82-31 785 1359  
sales.bd@leybold.com  
Service:  
623-7, Upsung-Dong  
Cheonan-Si  
Chungcheongnam-Do  
Korea 330-290  
T: +82-41 589 3035  
F: +82-41 588 0166  
service.cn@leybold.com

### Singapore

**Leybold Singapore Pte Ltd.**  
8 Commonwealth Lane #01-01  
Singapore 149555  
Singapore  
Sales and Service:  
T: +65-6303 7030  
F: +65-6773 0039  
sales.sg@leybold.com  
service.sg@leybold.com

### Taiwan

**Leybold Taiwan Ltd.**  
No 416-1, Sec. 3  
Chungshin Rd., Chutung  
Hsinchu County 310  
Taiwan, R.O.C.  
Sales and Service:  
T: +886-3-500 1688  
F: +886-3-583 3999  
sales.hc@leybold.com  
service.hc@leybold.com

**Headquarter**  
**Leybold GmbH**  
Bonner Strasse 498  
D-50968 Koeln  
T:+49-(0)221-347 0  
F:+49-(0)221-347 1250  
info@leybold.com



www.leybold.com