



# SOGEVAC<sup>®</sup>

SV40B - SV65B - SV100B - SV105PR - SV120B  
Single-stage, oil-sealed rotary vane pump

**Operating Instructions 300409141\_002\_C5**

Ref :  
960x00TE to 960x07TE  
960x11TE to 960x14TE  
960x16TE to 960x19TE  
960x20TE to 960x24TE  
12330105Vxx  
960572TE  
and their variants



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# Safety Information

## Important Safety Information

Indicates procedures that must be strictly observed to prevent hazards to persons.

Indicates procedures that must be strictly observed to prevent damage to, or destruction of the product.

Emphasizes additional application information and other useful information provided within these Operating Instructions.

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.

Failure to observe the following precautions could result in serious personal injury!

SOGEVAC® pumps are not designed:

- for pumping of dusty, aggressive, corrosive, flammable or explosive gases or gases mixtures,
- for pumping of oxygen with a greater concentration than atmospheric concentration (>20%) or other highly reactive gases
- for working in flammable, explosive or dusty 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.

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.

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.

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

When working on the pump system always observe the Operating Instructions.

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### Warning

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### Caution

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### Notes

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### Warning



# Safety Information

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## Warning



Disconnect the unit from the power supply before starting any work.

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## Warning



Take appropriate precautions to insure that the pump cannot start.

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.

Observe all safety regulations!

Take adequate safety precautions prior to opening the intake or exhaust port.

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## Caution

Failure to observe the following precautions could result in damage to the equipment!

Liquid and solid particles must not enter the pump. Install the adequate filters, separators and/or condensers. In case of doubt consult Leybold.

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.

Operating of the pump without oil or operating with incorrect direction of rotation can destroy the pump.

Never use discarded seals. Always assemble using new seals.

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## Note

Respect the instructions concerning environment protection when discarding used oil or exhaust filters!

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.

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

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# Description

## 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, a gas ballast valve must be installed.

### 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, which retains > 99,9 % of the oil aerosols. 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. Some pumps are equipped with an oil filter.

Pumps are available with or without gas ballast, with corresponding catalog numbers.

At pump switch off, an anti suck-back valve (ASBV) closes the pump inlet and avoids pump oil be sucked into the chamber.

For this, the ASBV must be kept clean and in good condition.

# Description

## 1.2 Technical characteristics (valid with standard oil)

### SV40 B

Technical data		50Hz	60Hz
Nominal pumping speed	m <sup>3</sup> /h	44	53
Pumping speed (according to PNEUROP)	m <sup>3</sup> /h	38.5	47
Ultimate partial pressure without gas ballast	mbar	≤0.5	≤0.5
Ultimate total pressure with small gas ballast	mbar	≤0.8	≤0.8
Ultimate total pressure with standard gas ballast	mbar	≤1.5	≤1.5
Water vapour tolerance:			
■ with small gas ballast	mbar	10	10
■ with standard gas ballast	mbar	30	30
Water vapour tolerable load:			
■ with small gas ballast	Kg/h	0.28	0.34
■ with standard gas ballast	Kg/h	0.76	0.90
Noise level (according to DIN 46 635)	dB(A)	58	60
Motor power - Rated rotational speed		see ordering information	
Main voltage (+/- 10 %)		see ordering information	
Protection - Isolation		IP55 - F	IP55 - F
Leak rate	mbar.l.s <sup>-1</sup>	1X10 <sup>-3</sup>	1X10 <sup>-3</sup>
Oil capacity	L	1	1
Intake connection		1 1/4	1 1/4
Exhaust connection		1 1/4	1 1/4

### SV65 B

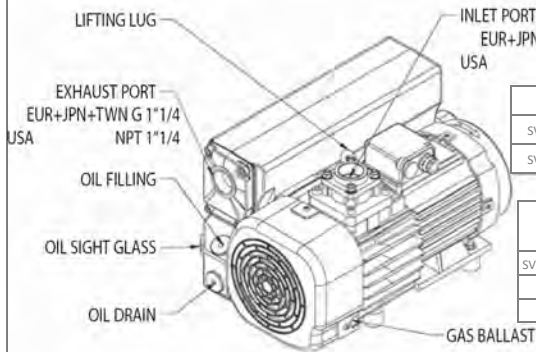
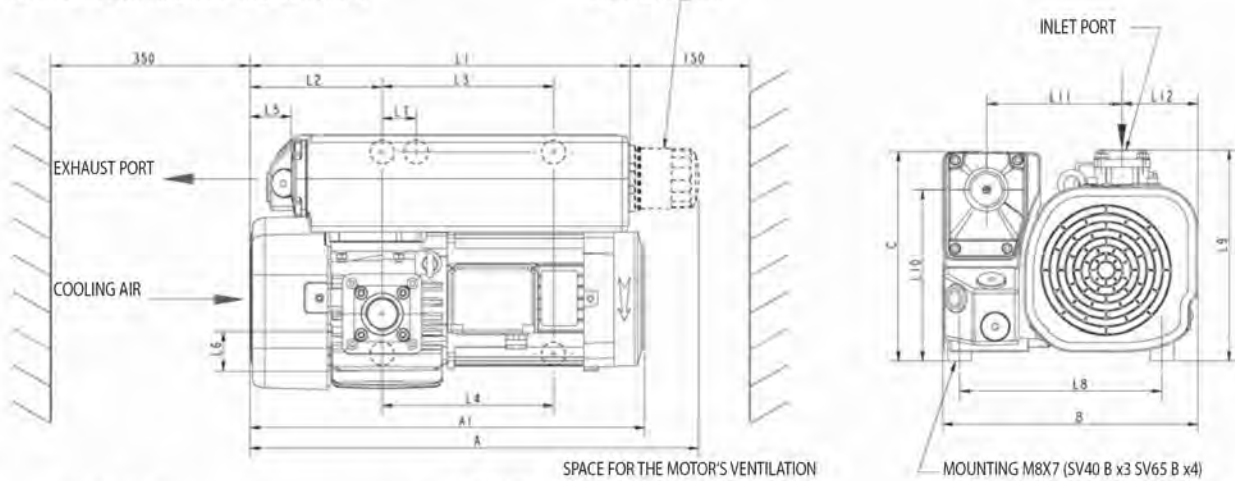
Technical data		50Hz	60Hz
Nominal pumping speed	m <sup>3</sup> /h	59	71
Pumping speed (according to PNEUROP)	m <sup>3</sup> /h	54	64
Ultimate partial pressure without gas ballast	mbar	≤0.5	≤0.5
Ultimate total pressure with small gas ballast	mbar	≤0.8	≤0.8
Ultimate total pressure with standard gas ballast	mbar	≤1.5	≤1.5
Water vapour tolerance:			
■ with small gas ballast	mbar	10	10
■ with standard gas ballast	mbar	30	30
Water vapour tolerable load:			
■ with small gas ballast	Kg/h	0.36	0.42
■ with standard gas ballast	Kg/h	1	1.25
Noise level (according to DIN 46 635)	dB(A)	60	64
Motor power - Rated rotational speed		see ordering information	
Main voltage (+/- 10 %)		see ordering information	
Protection - Isolation		IP55 - F	IP55 - F
Leak rate	mbar.l.s <sup>-1</sup>	1X10 <sup>-3</sup>	1X10 <sup>-3</sup>
Oil capacity	L	2	2
Intake connection		1 1/4	1 1/4
Exhaust connection		1 1/4	1 1/4

# Description

## SV40 B - SV65 B

SPACE FOR EXHAUST FILTER EXCHANGE AND COOLING

OIL FILTER (OPTION)



	A	A1	B	C	L1	L2	L3	L4	L5	L6	L7	L8	L9	L10	L11	L12	Weight
SV40 B	510	450	284	265	425	143	-	220	43	46	40	235	255	217	160	74	38 kg
SV65 B	565	480	320	265	480	166	215	215	52	50	0	254	265	217	170	95	49 kg

	A1	L4	Weight
SV40 B US / JPN / TWN	455	226	45 kg
SV65 B US / JPN	480	215	52 kg
SV65 B TWN	480	215	51 kg

+/- 5 mm  
+/- 2 kg

## Pumping speeds curves SV40 B - SV65 B

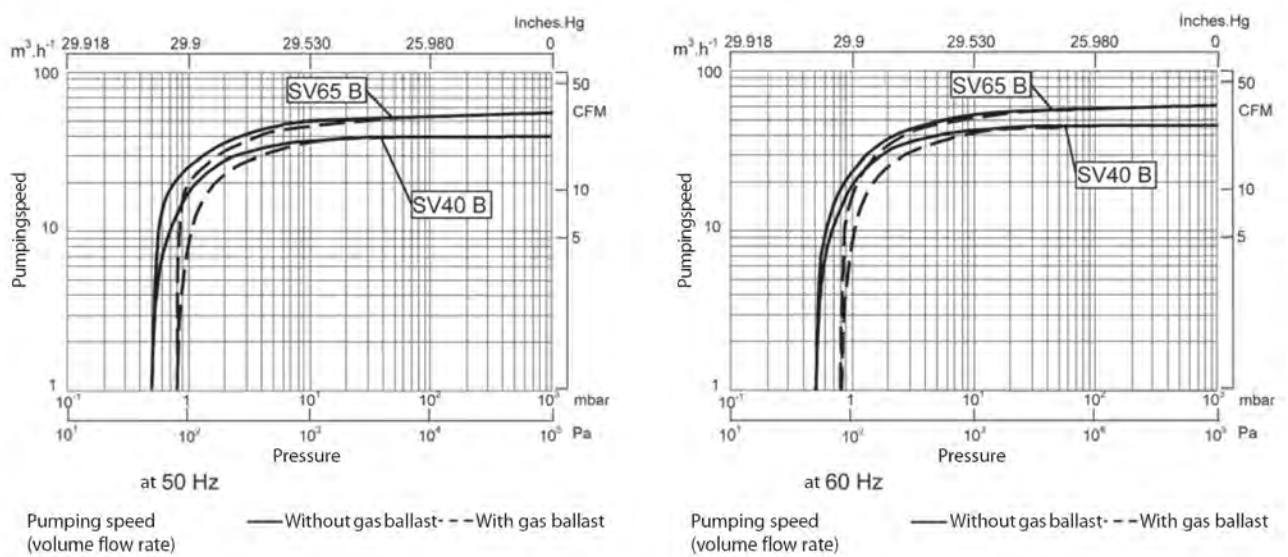


fig. 1

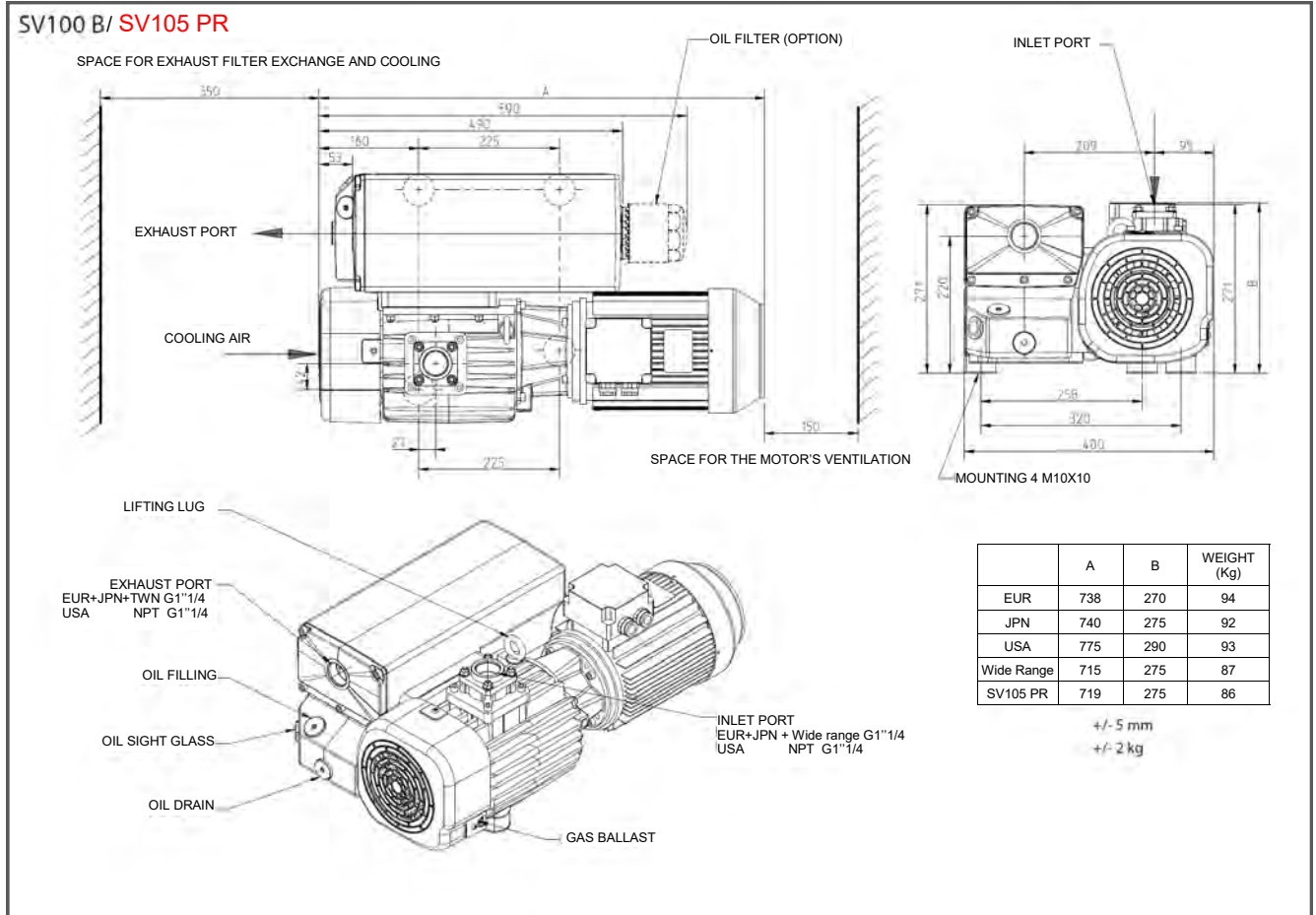
# Description

## SV100 B/SV105PR

Technical data (valid with standard oil)		50Hz	60Hz
Nominal pumping speed	m <sup>3</sup> /h	97.5	117
Pumping speed (according to PNEUROP)	m <sup>3</sup> /h	87.5	105
Ultimate partial pressure without gas ballast	mbar	≤0.5	≤0.5
Ultimate total pressure with small gas ballast	mbar	≤0.8	≤0.8
Ultimate total pressure with standard gas ballast	mbar	≤1.5	≤1.5
Water vapour tolerance:			
■ with small gas ballast	mbar	10	10
■ with standard gas ballast	mbar	30	30
Water vapour tolerable load:			
■ with small gas ballast	Kg/h	0.45	0.60
■ with standard gas ballast	Kg/h	1.60	1.70
Noise level (according to DIN 46 635)	dB (A)	61	64
Motor power - Rated rotational speed		see ordering information	
Main voltage (+/- 10 %)		see ordering information	
Protection - Isolation		IP55 - F	IP55 - F
Leak rate	mbar.l.s <sup>-1</sup>	1X10 <sup>-3</sup>	1X10 <sup>-3</sup>
Oil capacity	L	2	2
Intake connection		1 1/4	1 1/4
Exhaust connection		1 1/4	1 1/4



# Description



**Pumping speeds curves SV100 B / SV105 PR**

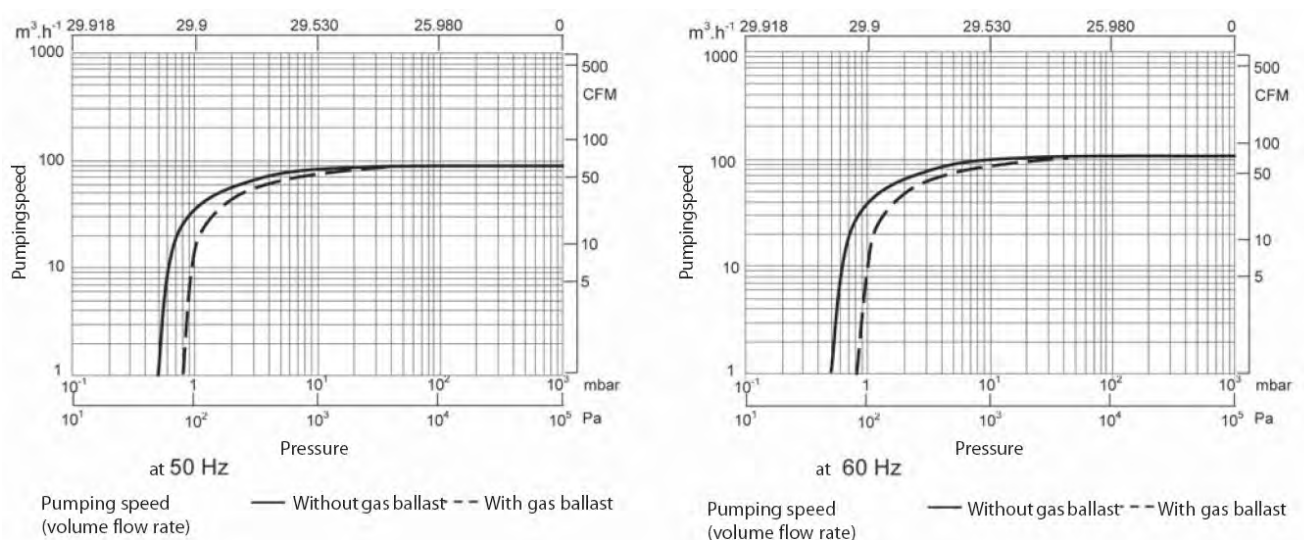


fig. 2

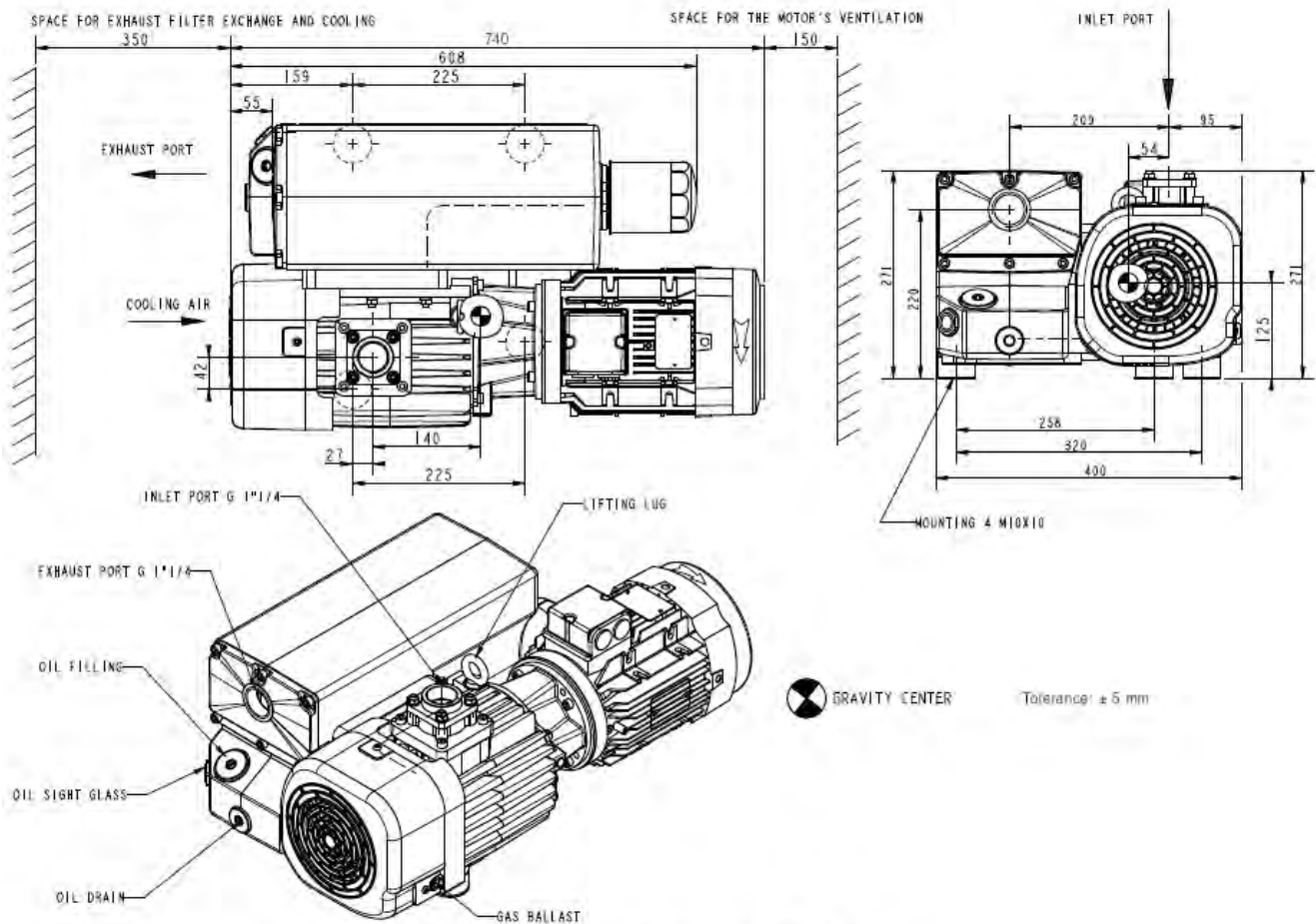
# Description

## SV120 B

Technical data (valid with standard oil)		50Hz	60Hz
Nominal pumping speed	m <sup>3</sup> /h	130	147
Pumping speed (according to PNEUROP)	m <sup>3</sup> /h	110	122
Ultimate partial pressure without gas ballast	mbar	≤0.5	≤0.5
Ultimate total pressure with standard gas ballast	mbar	≤1.5	≤1.5
Ambient temperature	°C	10 – 40	10 – 40
Water vapour tolerance: ■ with standard gas ballast	mbar	30	30
Water vapour tolerable load: ■ with standard gas ballast	Kg/h	1.60	1.70
Noise level (according to DIN 46 635)	dB (A)	61	64
Motor power - Rated rotational speed		see ordering information	
Main voltage (+/- 10 %)		see ordering information	
Protection - Isolation		IP55 - F	IP55 - F
Leak rate	mbar.l.s <sup>-1</sup>	1X10 <sup>-3</sup>	1X10 <sup>-3</sup>
Oil capacity	L	2 - 3	2 - 3
Intake connection	G	1 1/4	1 1/4
Exhaust connection	G	1 1/4	1 1/4

# Description

## SV120 B



Pumping speeds curves SV120 B

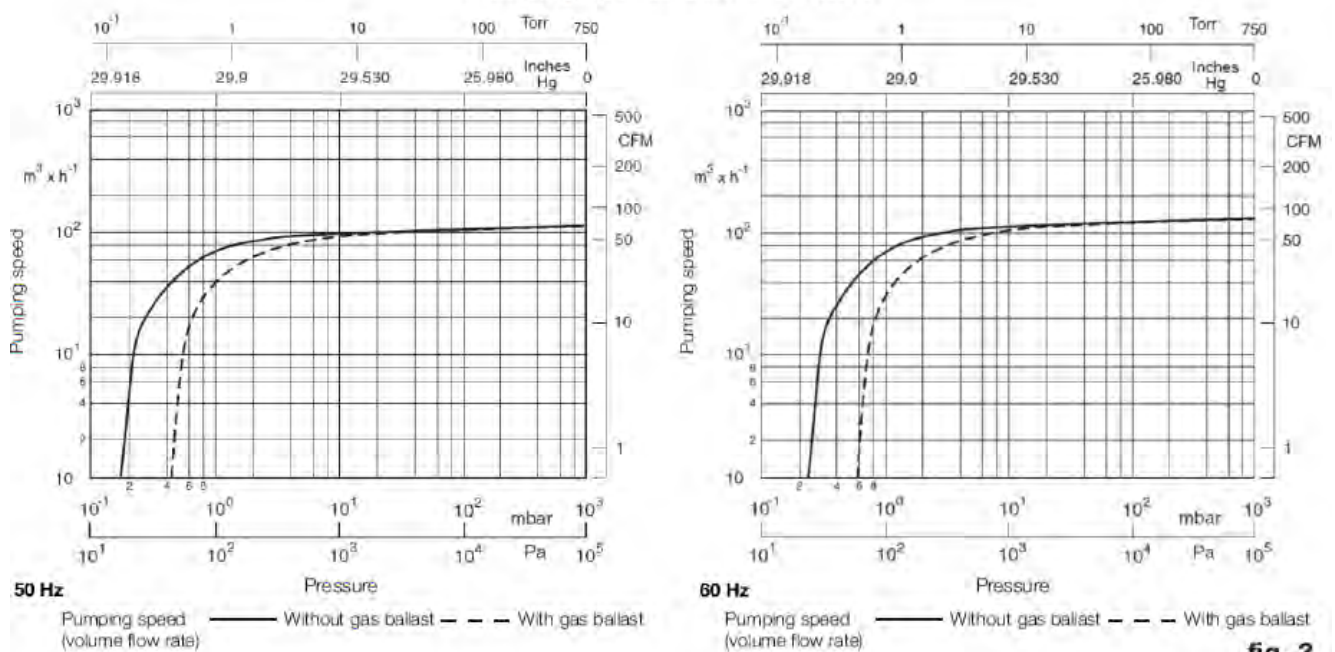


fig. 3

# Description

## 1.3 Ordering Information

SV40 B m <sup>3</sup> /h					
P/N	Pump	Motor	GB	Oil Filter	Inlet & Exhaust
960305TE	SV40B	A	Y2	N	G1 1/4

960316TE	SV40B	C	Y1	N	G1 1/4
960318TE	SV40B	C	Y1	Y	G1 1/4

960322TE	SV40B	D	Y2	N	G1 1/4
960324TE	SV40B	D	Y2	Y	G1 1/4

### **Motors :**

A = Three phase Euro 230 / 400 V ± 10 %, 50 Hz and 460 V ± 10 %, 60 Hz  
B = Three phase USA 230 / 460 V ± 10 %, 60 Hz and 400 V ± 10 %, 50 Hz  
C = Three phase Japan 200 V +10 % - 15 %, 50/60 Hz  
D = Three phase 210 - 240 & 360 - 420 V ± 5%, 50 Hz & 210 - 260 & 360 - 460 V ± 5%, 60 Hz

GB Y1 = 0,8 m<sup>3</sup>/h  
GB Y2 = 2 m<sup>3</sup>/h  
GB Y3 = 4 m<sup>3</sup>/h

# Description

SV65 B m <sup>3</sup> /h					
P/N	Pump	Motor	GB	Oil Filter	Inlet & Exhaust
960401V3001TE	SV65B	A	Y1	N	G1 1/4
960405TE	SV65B	A	Y2	N	G1 1/4

960416TE	SV65B	C	Y1	N	G1 1/4
960419TE	SV65B	C	Y2	Y	G1 1/4

960422TE	SV65B	D	Y2	N	G1 1/4
960424TE	SV65B	D	Y2	Y	G1 1/4

## **Motors :**

A = Three phase Euro 230 / 400 V ± 10 %, 50 Hz and 460 V ± 10 %, 60 Hz

B = Three phase USA 230 / 460 V ± 10 %, 60 Hz and 400 V ± 10 %, 50 Hz

C = Three phase Japan 200 V +10 % - 15 %, 50/60 Hz

D = Three phase 210 - 240 & 360 - 420 V ± 5%, 50 Hz & 210 - 260 & 360 - 460 V ± 5%, 60 Hz

GB Y1 = 0,8 m<sup>3</sup>/h

GB Y2 = 3.5 m<sup>3</sup>/h

GB Y3 = 5 m<sup>3</sup>/h

# Description

SV100 B / SV105 PR m <sup>3</sup> /h					
P/N	Pump	Motor	GB	Oil Filter	Inlet & Exhaust
960505TE	SV100B	A	Y2	N	G1 1/4
960505V3004TE	SV100B	A	Y2	Y	G1 1/4
960516TE	SV100B	C	Y1	N	G1 1/4
960518TE	SV100B	C	Y1	Y	G1 1/4
960519TE	SV100B	C	Y2	Y	G1 1/4
960522V3001TE	SV100B	D	Y2	N	G1 1/4
960524TE	SV100B	D	Y2	Y	G1 1/4
960505V3021TE	SV105PR	CN	Y2	N	G1 1/4
12330105V00	SV105PR	JP/KR	Y2	Y	G1 1/4

## **Motors :**

A = Three phase Euro 230 / 400 V  $\pm$  10 %, 50 Hz and 460 V  $\pm$  10 %, 60 Hz

B = Three phase USA 230 / 460 V  $\pm$  10 %, 60 Hz and 400 V  $\pm$  10 %, 50 Hz

C = Three phase Japan 200 V +10 % - 15 %, 50/60 Hz

D = Three phase wide range 230 & 400 V  $\pm$  10%, 50 Hz & 230 & 400 & 460 V  $\pm$  10%, 60 Hz

CN = Three phase China 220 / 380 V  $\pm$  10%, 50 Hz and 230 / 400V  $\pm$  10%, 50Hz

JP/KR = Three phase Japan/ Korea 200 V  $\pm$  10%, 50 Hz and 200 & 220 / 380V  $\pm$  10%, 60Hz

GB Y1 = 1.5 m<sup>3</sup>/h

GB Y2 = 4 m<sup>3</sup>/h

GB Y3 = 7 m<sup>3</sup>/h

# Description

SV120 B m <sup>3</sup> /h						
P/N	Pump	Motor	GB	Oil	Oil Filter	Inlet & Exhaust
960572TE	SV120B	D	Y2	LVO 130	N	G1 1/4

## Motors :

B = Three phase USA 208/ 230 / 460 V  $\pm$  10 %, 60 Hz and 400 V  $\pm$  10 %, 50 Hz, 5HP

C = Three phase Japan 200 V +10 % - 15 %, 50/60 Hz, 3.7 KW

D = Three phase wide range

220 - 230 & 380 - 400 V  $\pm$  10%, 50 Hz, 2.4 kW

230 & 400 & 460 V  $\pm$  10%, 60 Hz, 3.2 kW

GB Y1 = 1.5 m<sup>3</sup>/h

GB Y2 = 4 m<sup>3</sup>/h

## 1.4 Accessories

Item	Specification	Size	Cat. Nr.
1	Union coupling	G1 1/4 M/F	711 18 023
2	Nipple	G1 1/4 M/M	711 18 033
3	Ball valve	G1 1/4 F-F	711 30 105
4	Threaded flange adapter	G1 1/4 M-40KF	711 18 123
5	Centering ring	40KF	18 328
6	Clamping ring	40KF	18 343
7	Adapter for tubing	G1 1/4 M-DN40	711 18 013
8	Rubber vacuum tubing	Ø10X25	17 203
9	Adapter for tubing	G1 1/4-Ø10X25	711 18 153
10	Adapter	40KF-DN40	711 18 303
11	PVC tubing	DN40-1m	711 18 324
12	TEE reducer bush	G1 1/4-1/27	711 18 263
13	Right-angle bend 90°	G1 1/4 F-F7	711 18 213
14	Dust filter, paper F40	G1 1/4 M-F	95 155
	Dust filter, charcoal F40	G1 1/4 M-F	711 27 102
	Dust filter, metal F40	G1 1/4 M-F	711 27 103
	Dust filter, polyester F40	G1 1/4 M-F	711 27 104
	Dust filter, paper F65-100	G1 1/4 M-F	95 160
	Dust filter, charcoal F65-100	G1 1/4 M-F	711 27 112
	Dust filter, metal F65-100	G1 1/4 M-F	711 27 113
	Dust filter, polyester F65-100	G1 1/4 M-F	711 27 114

# Description

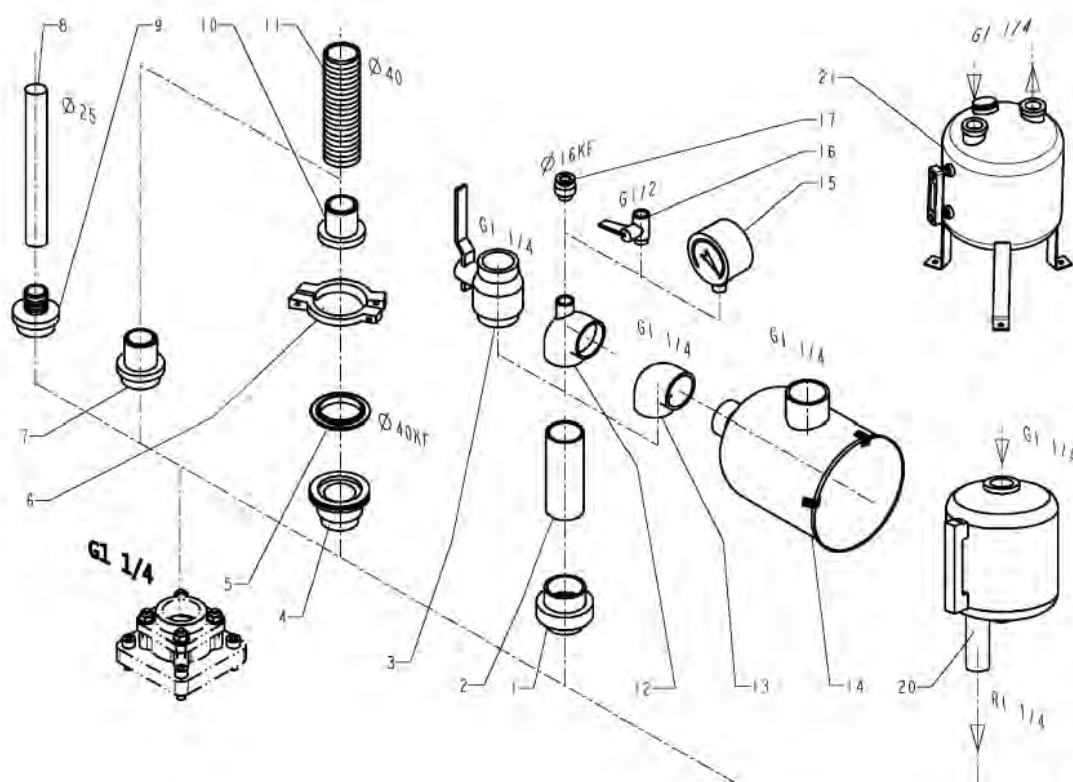


fig. 4

15	Vacuum gauge	G1/2 M	95 192
16	Ball valve	G1/2 M/F DN13	711 30 113
17	Threaded flange adapter	G1/2 M - 16KF	711 18 120
20	Condensate trap SL40	G1 1/4	95 140
21	Condensate trap SL65-100	G1 1/4	95 142

	SV40 B	SV65 B	SV100 B/ 105PR / SV120 B
Specification	Cat. Nr.	Cat. Nr.	Cat. Nr.
Oli level switch	711 19 110	711 19 110	711 19 110
Temperature switch	Upon request		
Exhaust filter over pressure switch	9 714 25 890	9 714 25 890	9 714 25 890
Exhaust filter over pressure manometer	95 194	95 194	95 194
Oil drain tap	711 30 114	711 30 114	711 30 114
Roots adapter			9 714 48 740
Oil filter*	EK96004	EK96004	712EK96006
Oil filter by pass*	712 30 570	712 30 570	712 30 570

\* depends of pump Cat-Nr.



# Description

## 1.5 Spare parts

	SV40 B	SV65 B	SV100 B/105PR / SV120B
Specification	Cat.Nr.	Cat.Nr.	Cat.Nr.
Set of seals, FKM	9 714 27 640	714 20 410	9 714 27 670
Repair set	9 714 27 650	714 20 420	9 714 27 680
Vacuum generator without GB	9 714 28 210	714 22 080	9 714 27 740
Vacuum generator with GB	9 714 28 220	9 714 23 430	9 714 27 750
Service kit	9 714 27 660	9 714 23 440	9 714 27 690
Inlet filter element			
■ paper	710 46 118	712 13 283	712 13 283
■ metal	710 49 083	E712 13 324	E712 13 324
■ charcoal	710 49 103	E712 13 304	E712 13 304
■ polyester	712 61 298	712 61 300	712 61 300

## 1.6 Lubricants

The SOGEVAC® pumps should be run with mineral oils for vacuum pumps with low viscosity according to ISO category VG77. The Leybold oil fulfills these specifications.

LVO 130 OIL:	Conditioning	Reference
	1L	L13001
	5L	L13005
	20L	L13020
	200L	L13098

You may use other special lubricants adapted to the applications.  
Please consult us.

Use the oil type indicated on the pump and in the additional operating instructions. In case other oils are used, Leybold is not liable and declines warranty claims.

# 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.

Please check packaging on delivery for transport damages.

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.

For SV40 B and SV65 B, the necessary oil is supplied in a can beside the pump. For the SV100 B, SV105 PR and SV120 B, the oil is filled in.

### 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.

Use only lifting devices appropriated to the pump weight. Check name plate.

Do not use other pump elements than the lifting lugs as handles.

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

### 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.

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 exchange too. The gas ballast must be closed and if the pump is to be shelved for a longer period of time is 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.

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#### Caution

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# 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 areas ATEX. 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.

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### Warning



### 3.1 Setting up

The pump must be set up or mounted horizontally on a flat surface. Special mounting is not required. For indoor use only up to 1000 m altitude.

The following ambient operating environment must be observed.

- Ambient temperature: 12 °C to 40 °C (54 °F to 104 °F),
- Rel. humidity (without condensation)  $\leq 95\%$
- Ambient pressure = Atmospheric pressure.

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

The pump must be kept clean (no dust deposit)

### 3.2 Connection to system

#### Inlet connection

See safety instructions page 3.

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### Caution

- 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 installed.
- 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 installed.
- Inlet pressure must not exceed atmospheric pressure.

#### Connection to exhaust side

- No isolation 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).

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

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

Corresponding pressure regulating devices to be installed by the user.

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### Warning



# Installation

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## Warning



### 3.3 Electrical connections

Ensure that incoming power to the pump is off before wiring the motor or altering the wiring.

Electrical connection work must only be carried out by a qualified electrician in accordance with the applicable safety rules, see IEC 60204-1 & IEC 61010-1.

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Voltage and frequency mentioned on the motor nameplate must agree with the supply voltage. Check the wiring diagram in motor 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.

To check the direction of rotation of pumps, flick the ON/OFF switch. If the direction of rotation is not identical with the one indicated by the arrow sticking on the motor hood, then inverse any two of the electrical phases in the terminal box. Looking at the motor fan cover, the direction of rotation has to be counterclockwise.

## 3.4 Oil filling

For SV40 B and SV65 B, the necessary oil is supplied in a can beside the pump.

For the SV100 B, SV105PR and SV20 B, the oil is filled in.

To fill in the oil, unscrew the oil fill plug (48 for SV40 B and SV65 B, 52 for SV100 B/SV105 PR) and fill in until the oil level reaches the "MAX" mark beside the oil sight glass.

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**Caution**

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## 3.5 Start-up

The pumps are supplied with the necessary oil filling in ready-to-use condition. Always verify proper oil level before operating the pump.

The pump is designed for fail-safe start-up at temperatures over 12 °C (55 °F) (as per PNEUROP).

If local regulations provide a WYE-DELTA starting connect the pump to the system so that it can start lead-free, i.e. at atmospheric pressure in the intake port. If the vacuum system is not to be vented further measures will be necessary, e.g. a starting valve can be mounted.

Please contact us in this case.

The signals of the oil level switch and exhaust filter over pressure switch must be delayed (timer) on the pump switch-on for approx. 1 minute.

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**Caution**

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# Operation

## 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

---

#### Warning



#### 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 a screwdriver. 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; pumping process gas with a cold pump results in vapors condensing in the oil.

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#### Caution

For processes with a high proportion of condensable vapors, the intake line should be opened only slowly after reaching the operating temperature. One sign of condensation of vapors in the pump is a rise of the oil level during operation of the pump.

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#### Caution

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.

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#### Note

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 Switching off / Shutdown

The intake port of the SOGEVAC® pumps contains an anti-suck back 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, but must be kept clean.

Nevertheless, the anti suck-back valve is not a safety device and it is recommended to install a pilot valve. The anti suck-back must be kept clean and in good condition to remain tight.

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 protection, the pump must be cooled down to the ambient temperature, and must only be switched on again manually after having eliminated the cause.

---

**Caution**

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In order to prevent the pump from running up unexpectedly after a mains power failure, the pump must be integrated in to 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.

# Maintenance

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## Warning



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## Caution

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## 5 Maintenance

### 5.1 Safety Information

Observe all safety regulations.

For all maintenance works, use only genuine Leybold parts ! If non genuine Leybold parts are used during warranty period, we reserve the right to reject any claim.

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.

### 5.2 Maintenance Intervals

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

To simplify the maintenance work we recommend combining several jobs.

Maintenance job	Frequency*	Section
Check the oil level	daily	A
1st oil change	After 150 h of operation	B
Subsequent oil changes	4000 h or 6 months (Depending on application)	B
Replace the oil filter	At each oil change	B
Replace exhaust filter	If oil mist at exhaust or at each oil change	C
Gas ballast	Monthly	D
Clean the dirt trap	6 months	E
Check the anti-suckback valve	6 months	F
Fan cover cleaning	6 months	G
Electrical connections (only by a specialist)	6 months	

\* Timescales are based on normal applications 8000 operating hours (Mineral Oil) per year. More severe applications may require more frequent maintenance.



## 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.

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) → Downloads → Download Documents → Declaration of Contamination .

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.

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.

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### Caution

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## 5.4 Maintenance Work

Checking the oil

### A. Oil level

The pump's oil level during operation must always be between the middle and top edge of the oil-level glass.

When necessary, switch off the pump and add the correct quantity of oil.

High oil consumption often indicates that exhaust filters are clogged.

The oil level should be checked at least once a day.

### B. Oil Change, Replacing the Oil Filter (if installed)

Tool required:

- oil filter key (Ref. No. 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 when operating 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 the warning labels on the pump.

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### Warning

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# Maintenance

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

Observe the safety 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.

Unscrew the oil filter. Take a new oil filter, moisten its gasket with oil and screw it in manually.

Reinsert the oil-drain plug.

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

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## Caution

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Use suitable oil only (see Section 1.8).

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## Warning

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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.

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## Note

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

### C. Replacing the exhaust filters

When the exhaust filter elements are clogged, the integrated by-pass opens and the filters are bypassed. Oil mist at the exhaust, and/or high oil consumption are signs that the exhaust filters are clogged.

The exhaust filters must be replaced more often if subjected to increased oil cracking products at high operating temperatures and/or aggressive media.

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.

Open the exhaust hood, take out the filter and replace it.

Also check the gasket of the exhaust flange and change it if necessary.

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## Note

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

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

To clean the gas ballast valve, disassemble the fan cover and the fan. Unscrew the lateral pressure screw, remove the plug and the gas ballast valve by using an appropriate M10 screw screwed in the valve by pulling on the screw.

Clean the membrane, the seat and the RILSAN tube.

Reassemble in the reverse sequence.

## **E. Inlet flange sifter cleaning**

To clean the inlet flange sifter, disconnect the inlet flange and clean the sifter with blast air or an appropriate solvent.

## **F. 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.

## **G. 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.

## **H. 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, remove the centering pin, 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.

# Troubleshooting

## 6 Troubleshooting

Fault	Possible cause	Remedy	Reference section *
Pump does not start	Pump is connected incorrectly Motor protection switch incorrectly set. Operating voltage does not match motor Motor is malfunctioning Oil temperature is below 12°C (54°F)	Connect the pump correctly Set motor protection switch properly Replace the motor Replace the motor Heat the pump and pump oil or use different oil	3.3 3.3 1.8
	Oil is too viscous Exhaust filter / exhaust line is clogged	Use appropriate oil grade Replace the filter or clean the exhaust line	5.4-B 3.4-C
Pump does not reach ultimate pressure	External leak Float valve does not close Anti-suckback valve is malfunctioning Inadequate lubrication due to : ■ unsuitable or contaminated oil ■ clogged oil filter ■ clogged oil lines ■ vacuum lines are dirty ■ pump is too small	Repair the pump Repair the valve Repair the valve  Change the oil (degas it, if necessary). Replace the oil filter Clean the oil casing Clean vacuum lines Check the process date ; replace the pump, if necessary	5.4-H 5.4-F  5.4-B 5.4-B
Pumping speed is too low	Dirt trap in the intake port is clogged	Clean the dirt trap. Precaution : install a dust filter in intake line	5.4-E/1.2/3.2
	Exhaust filter is clogged Connecting lines are too narrow or too long Anti-suckback valve is hard to open	Install new filter elements Use adequately wide and short connecting lines Check spring free length	5.4-C 3.2
After switching off pump under vacuum, pressure in system rises too fast	System has a leak Anti-suckback is malfunctioning	Check the system Repair the valve	5.4-F
Pump gets too hot	Cooling air supply is obstructed Cooler is dirty Ambient temperature is too high Process gas is too hot Oil level is too low Oil is unsuitable Oil cycle is obstructed Exhaust filter / exhaust line is obstructed	Set pump up correctly Clean the cooler Set pump up correctly Change the process Add oil to reach the correct oil level Change the oil Clean or repair the oil lines Replace the exhaust filter, clean the exhaust line	3.1 3.1 5.4-B 5.4-B 5.4-C
Oil in intake line or in vacuum vessel	Oil comes from the vacuum system Anti-suckback valve is obstructed Sealing surfaces or anti-suckback valve are damaged or dirty Oil level is too high	Check the vacuum system Clean or repair the valve Clean or repair the intake port and valve  Drain the excess oil	5.4-F 5.4-F 5.4-B
Pump's oil consumption too high, oil mist at exhaust	Exhaust filters are clogged or damaged. Nozzle of float valve is clogged. Oil level is too high.	Replace the filters. Check the valve, clean the nozzle. Drain the excess oil.	5.4-C 5.4-I 5.4-B
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	4.1/5.4-B 5.4-G
Pump is excessively noisy	Oil level is very low (oil is no longer visible) Oil filter is clogged Large vacuum leak in system	Add oil  Change the oil and filter Repair vacuum leak	5.4-B 5.4-B 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.

Consumables 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 here after and in the spare parts table where the contents of each kits is detailed.

- Oil filter (on some models)
- Exhaust demisters
- Oil (Special oils please refer to the specific notice of the pump or contact Leybold)
- Service kit
- Set of seals
- Repair kit
- Vacuum generator without GB
- Vacuum generator with GB

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

SV40 B

ERSATZTEILLISTE / SPARE PARTS LIST / LISTE DES PIÉCES DE RECHANGE SOGEVAC SV40 B

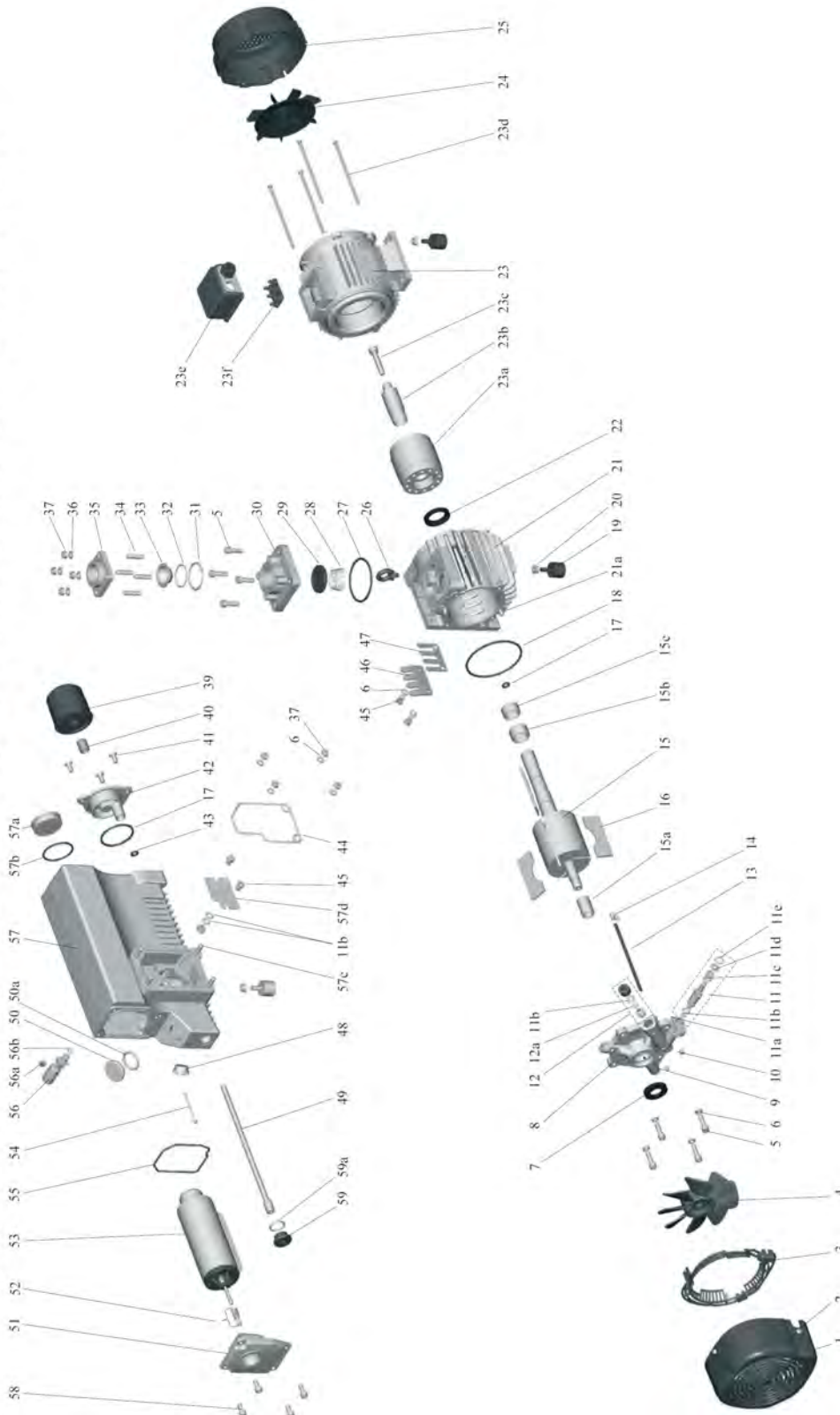


fig. 5

# Spare parts

Pos.	Qty	SPECIFICATION	Dimensions (mm), Material	Ref, No,	Notes					
1	1	MODULE COVER		971424850	Incl. 2					
2	3	SCREW	M6							
3	1	PROTECTIVE COVER		971424860						
4	1	COOLING FAN		971424870						
5	8	SCREW	M8					x	x	
6	10	WASHER	8					x	x	
7	1	RADIAL SHAFT SEAL	25	FKM 71421000		x			x	x
8	1	END PLATE WITHOUT GB		971424660					x	
8	1	END PLATE WITH GB		71420450	Incl.11,12,13,14					x
9	1	SCREW	M6							
10	1	SCREW	M6	971424710						
11	1	GAS BALLAST VALVE		971424450	Incl. 10,11a,b,c,d,e					
11a	1	O-RING	4.5	FKM 971424460		x				
11b	4	O-RING	11	FKM 71237320		x				
11c	1	SPRING		71417990						
11d	1	WASHER	M8							
11e	1	LOCKING RING	D18							
12	1	GAS BALLAST		71417050	Incl. 9,11b,12a					
12	1	GAS BALLAST		71418710	Incl. 9,11b,12a					
12a	1	MEMBRAN	D12	FKM 71417060		x				
13	1	RILSAN TUBE	D4/6	971424360						x
14	1	CLAMPING RING	DN8	971424370						x
15	1	ROTOR WITH RINGS		71420760	Incl. 15a,b,c			x	x	
15a	1	ROTOR RING	DN25	71421170			x			
15b	1	ROTOR RING	DN37	971424900			x			
15c	1	ROTOR RING	DN35	71420790			x			
16	1	VANE SET OF 3		71420810			x	x	x	
17	2	O-RING	9	FKM 71417260		x			x	x
18	1	O-RING	111	FKM 71237440		x			x	x
19	1	RUBBER MOUNT Kit	DN30 H25	71212640						
20	4	HEXAGON FLANGE NUT	H M8							
21	1	PUMP CYLINDER		71420400	Incl. 21a				x	x
21a	2	CENTERING PIN	DN8 L32	71233890						
22	1	RADIAL SHAFT SEAL	35	FKM 71420820		x		x	x	
23		SEE NEXT PAGE								
24	1	FAN		71416840						
25	1	FAN COVER		71416830						
26	1	LIFTING LUG	M8	71402970						
27	1	O-RING	82	FKM 71421340		x				
28	1	SPRING		71212400						
29	1	INTAKE VALVE		FKM 71015460		x				
30	1	INTAKE FLANGE		71416640						
31	1	O-RING	50	FKM 71217660		x				
32	1	O-RING	42	FKM 71237130		x				
33	1	FILTER	DN45	71407290						
34	4	LOCKING SCREW	M8							
35	1	INTAKE FLANGE	G1 ¼	71416650						
35	1	INTAKE FLANGE	NPT 1 ¼	71417390	USA					
36	4	WASHER	8							
37	8	NUT	M8							
39	1	OIL FILTER		EK96004			x			
40	1	NIPPLE	½ 16 UNF 2A	71417150						
41	4	SCREW	M8							
42	1	OIL FILTER HOLDER		71418960	Incl. 40					
43	1	O-RING	63	FKM 71417330		x				
44	1	GASKET		ES971456791		x				
45	4	SCREW	M8				x	x	x	
46	1	VALVE STOP		71420840			x	x	x	
47	1	VALVE		71420830			x	x	x	
48	1	OIL LEVEL GLASS	G3/4	71219480			x			
49	1	OIL RECOVERY PIPE		71420970						
50	1	PLUG + O-RING	G 1	71073040	Incl. 50a					
50a	1	O-RING	33	FKM 71217410		x				x
51	1	EXHAUST FLANGE	G1 ¼	71420440						
51	1	EXHAUST FLANGE	NPT 1 ¼	71422000	USA					
52	1	SPRING UNIT		71420370			x			x
53	1	EXHAUST FILTER		71421180			x			x
54	1	CENTERING PIN	DN2.5	971427110						
55	1	GASKET	108	FKM 971454030		x				x
56	1	FLOAT COMPL.		71417210	Incl. 56a,b					
56a	1	OIL RETURN VALVE SEAL		71212500		x				
56b	1	O-RING	8X2	FKM 71217650		x				
57	1	OIL CASING WITH OIL FILTER		71420910	Incl. 45,57a,b,c,d					
57	1	OIL CASING WITHOUT OIL FILTER		71421260	Incl. 45,57a,b,c,d					
57a	2	PLUG + GASKET	G 2	71212650	Incl. 57b					
57b	2	O-RING	56	FKM 71217980		x				
57c	4	LOCKING SCREW M8X25	M8	V2113426						
57d	1	GRID		71421230						
58	4	SCREW	M8							
59	1	PLUG + O-RING	G ¾	71256380	Incl. 59a					
59a	1	O-RING	27	FKM 71217580		x				x
		SET OF SEALS		FKM 971427640						
		REPAIR KIT		971427650						
		VACUUM GENERATOR WITHOUT GB		971428210						
		VACUUM GENERATOR WITH GB		971428220						
		SERVICE KIT		971427660						

# Spare parts

SV40 B

ERSATZTEILLISTE / SPARE PARTS LIST / LISTE DES PIÉCES DE RECHANGE SOGEVAC SV40 B

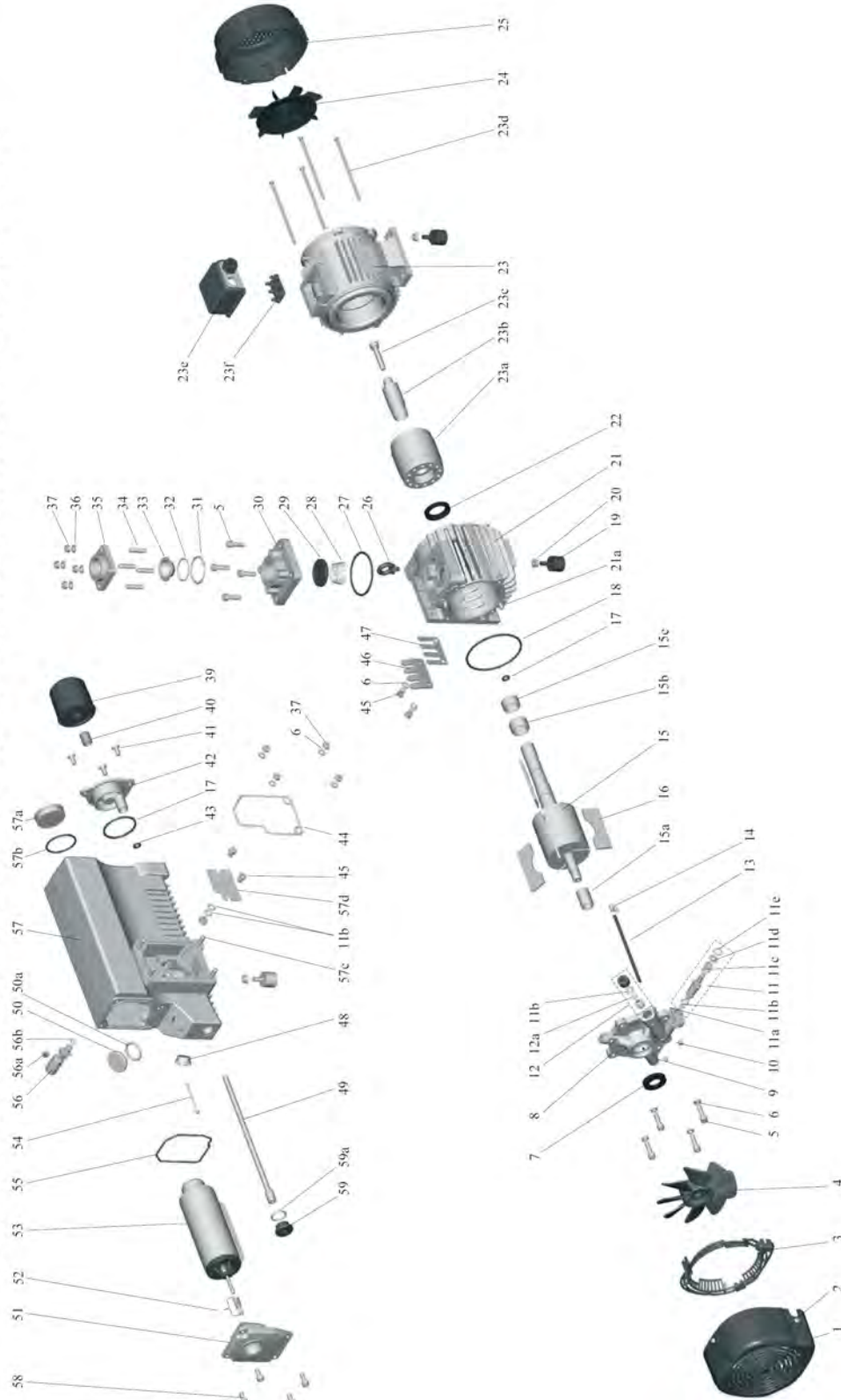


fig. 5



# Spare parts

Pos.	Qty	SPECIFICATION	Dimensions (mm), Material	Ref, No,	Notes					
23	1	MOTOR	1.1KW 50HZ 230/400V	EK6528297	Incl.23a,b,c,d,e,f,24,25					
23a	1	ELECTRICAL ROTOR		971424230						
23b	1	MOTOR RING		E6528102						
23c	1	SCREW	CHC M10							
23d	1	TIE ROD (SET OF 4)		71416800						
23e	1	TERMINAL BOX		971422840						
23f	1	TERMINAL BOARD		971422860						
23	1	MOTOR	2 HP 60HZ 230/460V	71421160	Incl.23a,b,c,d,e,f,24,25					
23a	1	ELECTRICAL ROTOR		971424240						
23b	1	MOTOR RING		71421140						
23c	1	SCREW	CHC M10							
23d	1	TIE ROD (SET OF 4)		71416800						
23e	1	TERMINAL BOX		971422900						
23	1	MOTOR	1.5 KW 50/60HZ 200V	71421250	Incl.23a,b,c,d,e,f,24,25					
23a	1	ELECTRICAL ROTOR		971424240						
23b	1	MOTOR RING		71421140						
23c	1	SCREW	CHC M10							
23d	1	TIE ROD (SET OF 4)		71416800						
23e	1	TERMINAL BOX		971422840						
23f	1	TERMINAL BOARD		971422860						
23	1	MOTOR	1.3 KW 50/60HZ 230/400V	71421240	Incl.23a,b,c,d,e,f,24,25					
23a	1	ELECTRICAL ROTOR		971424240						
23b	1	MOTOR RING		71421140						
23c	1	SCREW	CHC M10							
23d	1	TIE ROD (SET OF 4)		71416800						
23e	1	TERMINAL BOX		971422840						
23f	1	TERMINAL BOARD		971422860						

## Spare parts

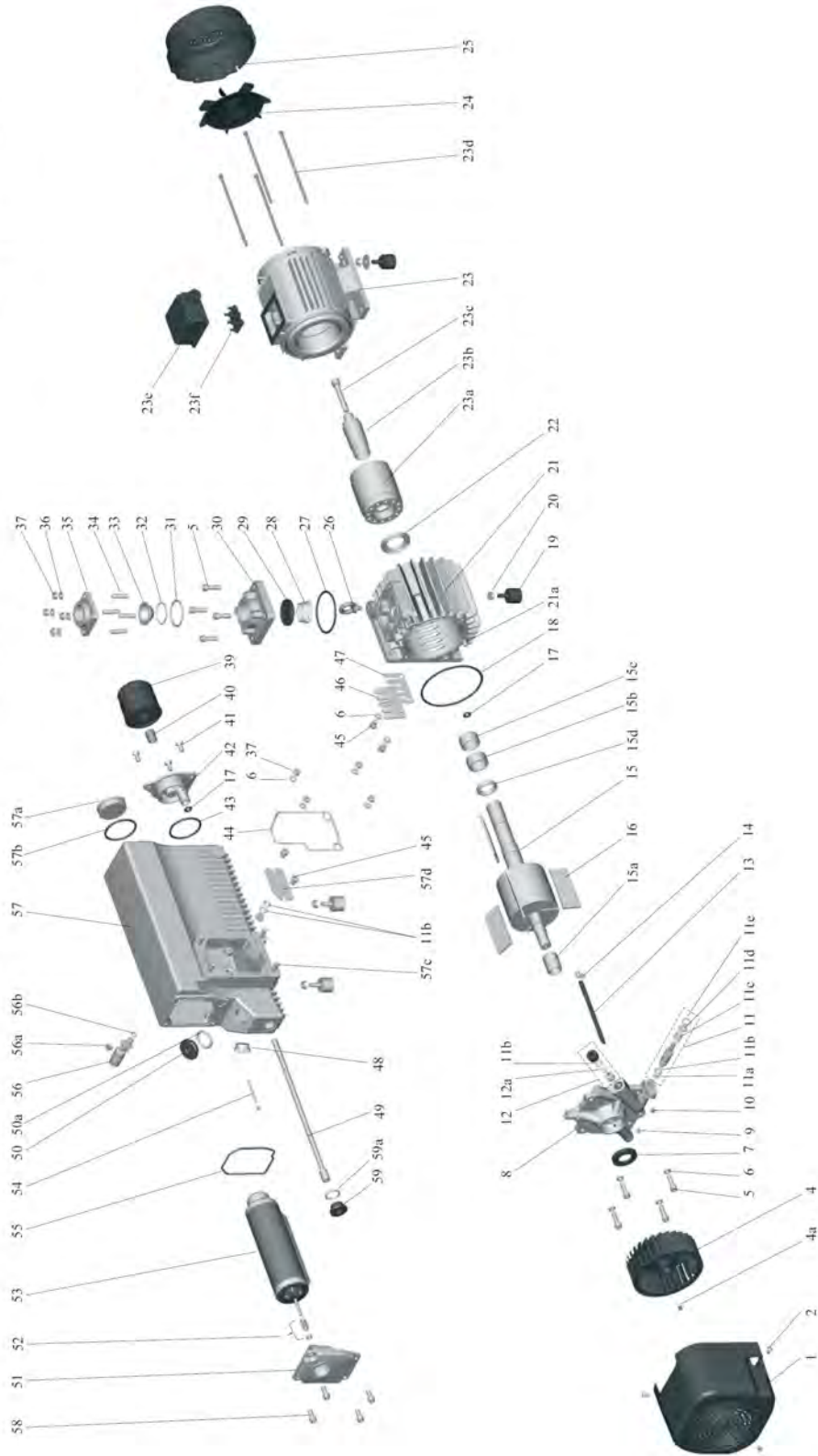
**SV65 B**

fig. 6

# Spare parts

Pos.	Qty	SPECIFICATION	Dimensions (mm), Material	Ref, No,	Notes					
1	1	MODULE COVER		71417020	Incl. 2					
2	3	SCREW	M6							
4	1	TURBINE		71417080	Incl.4a					
4a	1	SCREW	M6	71257660						
5	8	SCREW	M8					X	X	
6	10	WASHER	W8					X	X	
7	1	RADIAL SHAFT SEAL		FKM 71417570		X		X	X	
8	1	END PLATE WITHOUT GB		71421970	Incl.17,18			X		
8	1	END PLATE WITH GB		971423420	Incl.11,12,13,14,17,18				X	
9	1	SCREW	M6							
10	1	SCREW	M6	971424710						
11	1	GAS BALLAST VALVE		971424450	Incl. 10,11a,b,c,d,e					
11a	1	O-RING	4	FKM 971424460		X				
11b	4	O-RING	10	FKM 71237320		X				
11c	1	SPRING		71417990						
11d	1	WASHER	M8							
11e	1	LOCKING RING	D18							
12	1	GAS BALLAST		71417050	Incl. 9,11b,12a					
12	1	GAS BALLAST		71418710	Incl. 9,11b,12a					
12a	1	MEMBRAN	D12	FKM 71417060		X				
13	1	RILSAN TUBE		71418040					X	
14	1	CLAMPING RING	DN8	71418050					X	
15	1	ROTOR WITH RINGS		71417400	Incl. 15a,b,c,d			X	X	
15a	1	ROTOR RING	DN30	71416860			X			
15b	1	ROTOR RING	DN42				X			
15c	1	ROTOR RING	DN40				X			
15d	1	ROTOR RING	DN42				X			
16	1	VANE SET OF 3		71416750			X	X	X	
17	2	O-RING	9	FKM 71417260		X		X	X	
18	1	O-RING	126	FKM 71417240		X		X	X	
19	1	RUBBER MOUNT (SET OF 4)	DN30 H25	71212640	Incl.20					
20	4	HEXAGON FLANGE NUT	M8							
21	1	PUMP CYLINDER		71416600	Incl. 21a			X	X	
21a	2	CENTERING PIN	DN8	71233890						
22	1	RADIAL SHAFT SEAL	40/62	FKM 71417010		X		X	X	
23	1	MOTOR	1.5KW 50HZ 230/400V	71419820	Incl.23a,b,c,d,e,f,24,25					
23a	1	ELECTRICAL ROTOR		71416820						
23b	1	MOTOR RING		71416880						
23e	1	TERMINAL BOX		971422840						
23f	1	TERMINAL BOARD		971422860						
23	1	MOTOR	3HP 60HZ 230/460V	71419970	Incl. 23a,b,c,d,e,24,25					
23a	1	ELECTRICAL ROTOR		71416910						
23b	1	MOTOR RING		71416770						
23f	1	TERMINAL BOX		971422900						
23	1	MOTOR	2.2KW 50/60HZ 200V	71422120	Incl.24a,b,c,d,25,26,27,28					
23a	1	ELECTRICAL ROTOR		71416910						
23b	1	MOTOR RING		71416770						
23e	1	TERMINAL BOX		971422840						
23f	1	TERMINAL BOARD		971422860						
23	1	MOTOR	1.8KW 50/60HZ 230/400V	71422130	Incl.23a,b,c,d,e,f,24,25					
23a	1	ELECTRICAL ROTOR		71416970						
23b	1	MOTOR RING		71416760						
23c	1	SCREW	M8							
23d	1	TIE ROD (SET OF 4)		71416800						
23e	1	TERMINAL BOX		971422840						
23f	1	TERMINAL BOARD		971422860						
24	1	FAN		71416840						
25	1	FAN COVER		71416830						
26	1	LIFTING LUG	M8	71402970						
27	1	O-RING	82	FKM 71421340		X				
28	1	SPRING		71212400						
29	1	INTAKE VALVE		FKM 71015460		X				
30	1	INTAKE FLANGE		71416640						
31	1	O-RING	50	FKM 71217660		X				
32	1	O-RING	42	FKM 71237130		X				
33	1	FILTER	DN45	71407290						
34	4	LOCKING SCREW	M8							
35	1	INTAKE FLANGE	G1 1/4	71416650						
35	1	INTAKE FLANGE	NPT 1 1/4	71417390	USA					
36	4	WASHER	8							

## Spare parts

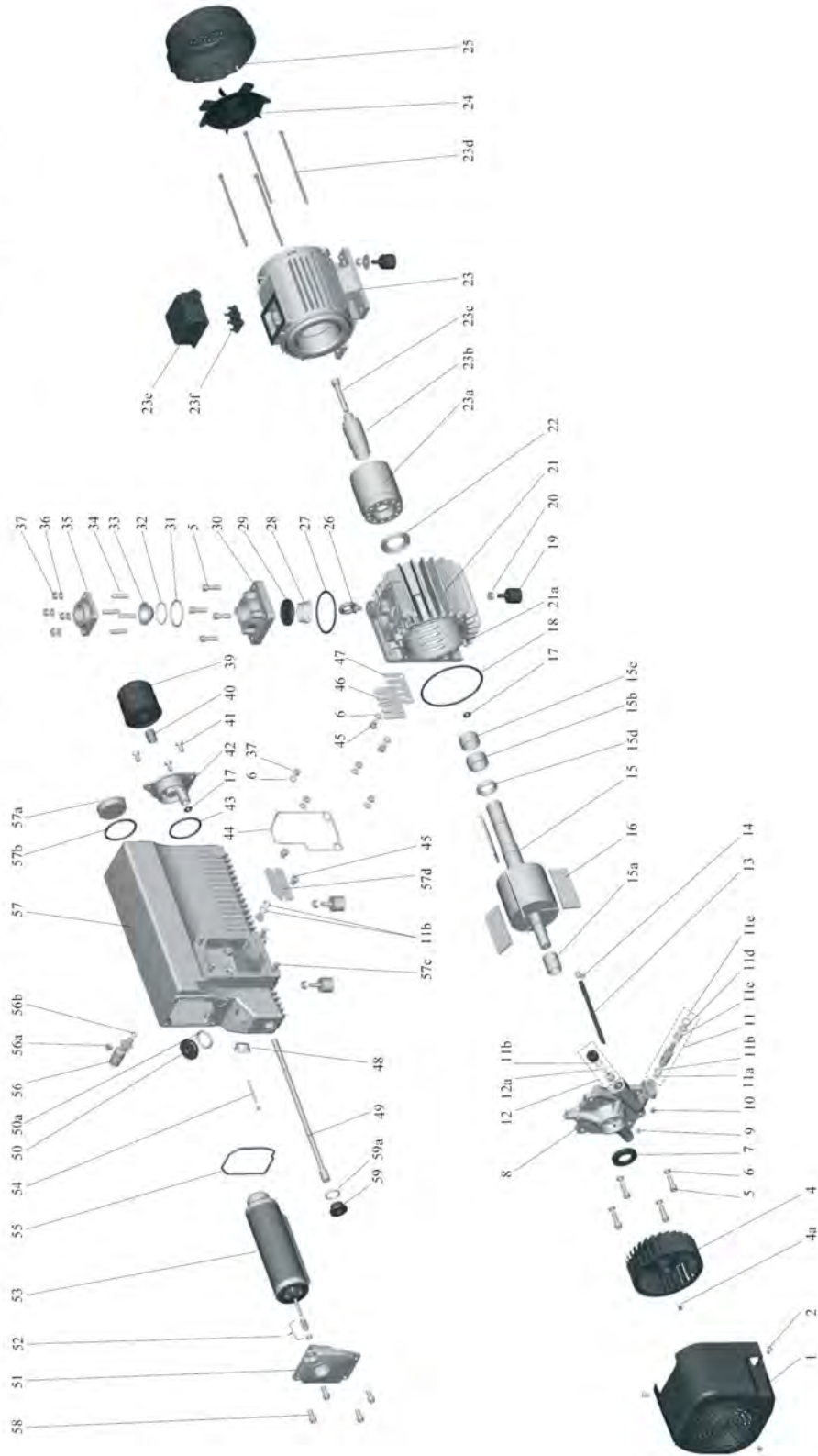
**SV65 B**

fig. 6

# Spare parts

Pos.	Qty	SPECIFICATION	Dimensions (mm), Material	Ref, No,	Notes					
37	8	NUT	M8							
39	1	OIL FILTER		EK96004			X			
40	1	NIPPLE	3/4 16 UNF 2A	71417150						
41	4	SCREW	M8							
42	1	OIL FILTER HOLDER		71418960	Incl. 40					
43	1	O-RING	63 FKM	71417330		X				
44	1	GASKET		ES971456801		X				
45	4	SCREW	M8				X	X	X	
46	1	VALVE STOP		71417100			X	X	X	
47	1	VALVE		71417090			X	X	X	
48	1	OIL LEVEL GLASS	G3/4	71219480			X			
49	1	OIL RECOVERY PIPE		71417130						
50	1	PLUG + O-RING	G 1	71073040	Incl. 50a					
50a	1	O-RING	33 FKM	71217410		X				X
51	1	EXHAUST FLANGE	G1 1/4	71420440						
51	1	EXHAUST FLANGE	NPT 1 1/4	71422000	USA					
52	1	SPRING UNIT		71420370			X			X
53	1	EXHAUST FILTER		71417300			X			X
54	1	CENTERING PIN	DN2.5	971427110						
55	1	GASKET	FKM	971454030		X				X
56	1	FLOAT COMPL.		71417210	Incl. 56a,b					
56a	1	OIL RETURN VALVE SEAL		71212500		X				
56b	1	O-RING	8 FKM	71217650		X				
57	1	OIL CASING WITH OIL FILTER		71419790	Incl. 45,57a,b,c,d					
57	1	OIL CASING WITHOUT OIL FILTER		71419830	Incl. 45,57a,b,c,d					
57a	2	PLUG + GASKET	G 2	71212650	Incl. 57b					
57b	1	O-RING	56 FKM	71217980		X				
57c	4	LOCKING SCREW M8X25	M8							
57d	1	GRID		71417170						
58	4	SCREW	M8							
59	1	PLUG + O-RING	G 3/4	71256380	Incl. 59a					
59a	1	O-RING	27 FKM	71217580			X			X
		SET OF SEALS	FKM	71420410			X			
		REPAIR KIT		71420420						
		VACUUM GENERATOR WITHOUT GB		71422080						
		VACUUM GENERATOR WITH GB		971423430						
		SERVICE KIT		971423440						

# Spare parts

SV100 B/ SV105 PR

ERSATZTEILLISTE / SPARE PARTS LIST / LISTE DES PIÉCES DE RECHANGE SOGEVAC SV100 B

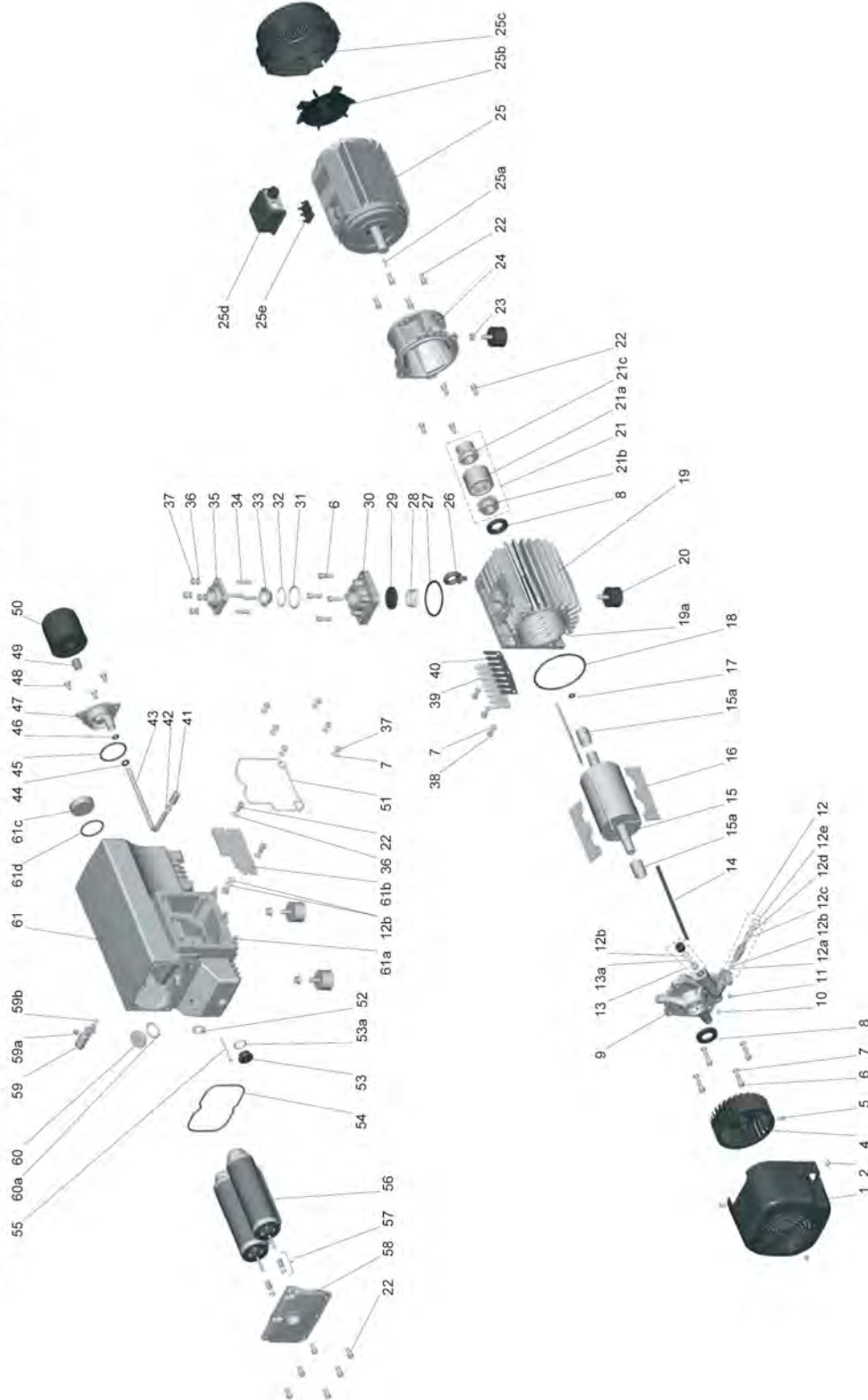


fig. 7

# Spare parts

Pos.	Qty	SPECIFICATION	Dimensions (mm), Material	Ref. No.	Notes					
1	1	MODULE COVER		71417020	Incl. 2					
2	3	SCREW	M6							
4	1	SCREW	M6	71257660						
5	1	TURBINE		71417080						
6	8	SCREW	M8					X	X	
7	13	WASHER	W8					X	X	
8	2	RADIAL SHAFT SEAL		FKM 71417570		X		X	X	
9	1	END PLATE WITHOUT GB		971423900				X		
9	1	END PLATE WITH GB		971423930	Incl.12,13,14				X	
10	1	SCREW	M6							
11	1	SCREW	M6	971424710						
12	1	GAS BALLAST VALVE		971431250	Incl. 11,12a,b,c,d,e					
12a	1	O-RING	4.5	FKM 971424460		X				
12b	4	O-RING	11	FKM 71237320		X				
12c	1	SPRING		71417990						
12d	1	WASHER	M8							
12e	1	LOCKING RING	D18							
13	1	GAS BALLAST		71417050	Incl. 10,12b,13a					
13	1	GAS BALLAST		71418710	Incl. 10,12b,13a					
13a	1	MEMBRAN	D12	FKM 71417060		X				
14	1	RILSAN TUBE	D5	71419130						
15	1	ROTOR WITH RINGS		71418740	Incl. 15a			X	X	
15a	2	ROTOR RING	DN30	971427720			X			
16	1	VANE SET OF 3		71418750			X	X	X	
17	1	O-RING	9	FKM 71417260		X		X	X	
18	1	O-RING	126	FKM 71417240		X		X	X	
19	1	PUMP CYLINDER		71418730	Incl. 19a			X	X	
19a	2	CENTERING PIN	DN8	71233890						
20	4	RUBBER MOUNT	DN50 H30	71024220						
21	1	COUPLING UNIT		71418770	Incl. 21a,b,c					
21a	1	TOOTHED RING	POLYAMIDE	71418780		X				
21b	1	PUMP COUPLING		71418980						
21c	1	MOTOR COUPLING		71418990						
21	1	USA COUPLING UNIT		71419740	USA Incl. 21a,b,c					
21a	1	TOOTHED RING	POLYAMIDE	71418780						
21b	1	PUMP COUPLING		71418980						
21c	1	USA MOTOR COUPLING		71419750	USA					
21	1	COUPLING UNIT FOR SV105PR		G6703832	For SV105PR ONLY					
21a	1	COUPLING ELEMENT		GM6539758	For SV105PR ONLY					
22	16	SCREW	M8							
22	4	USA SCREW	3/8"		USA					
23	4	HEXAGON FLANGE NUT	M8							
24	1	COUPLING HOUSING		71418790						
24	1	USA COUPLING HOUSING		971427760	USA					
25		SEE NEXT PAGE								
26	1	LIFTING LUG	M8	71039700						
27	1	O-RING	82	FKM 71421340		X				
28	1	SPRING		71212400						
29	1	INTAKE VALVE		FKM 71015460		X				
30	1	INTAKE FLANGE		71416640						
31	1	O-RING	50	FKM 71217660		X				
32	1	O-RING	42	FKM 71237130		X				
33	1	FILTER	DN45	71407290						
34	4	LOCKING SCREW	M8							
35	1	INTAKE FLANGE	G1 1/4	71416650						
35	1	INTAKE FLANGE	NPT 1 1/4	71417390	USA					
36	6	WASHER	Z8							
37	8	NUT	M8							
38	3	SCREW	M8					X	X	X
39	1	VALVE STOP		71418840				X	X	X
40	1	VALVE		71418830				X	X	X
41	1	PIPE		71418930						
42	1	GASKET	DN10	71418910		X				
43	1	OIL RECOVERY PIPE		71418880						
44	1	RING		971424570		X				
45	1	O-RING	9	FKM 71417260		X				
46	1	O-RING	63	FKM 71417330		X				
47	1	OIL FILTER HOLDER		71418960	Incl. 45					
48	4	SCREW	M8							
49	1	NIPPLE	3/4 16 UNF 2A	71417150						
50	1	OIL FILTER		EK96005			X			
51	1	GASKET		ES971456811		X				
52	1	OIL LEVEL GLASS	G3/4	71219480			X			
53	1	PLUG + O-RING	G 3/4	71256380	Incl. 53a					
53a	1	O-RING	27	FKM 71217580		X				X
54	1	FLAT GASKET	160	FKM		X				X
55	1	CENTERING PIN	DN2.5	971427110						
56	2	EXHAUST FILTER		71417300			X			X
57	2	SPRING UNIT		71420370			X			X
58	1	EXHAUST FLANGE	G1 1/4	71418900						
58	1	EXHAUST FLANGE	NPT 1 1/4	71421780	USA					
59	1	FLOAT COMPL.		71417210	Incl. 59a,b					
59a	1	OIL RETURN VALVE SEAL		71212500		X				
59b	1	O-RING	8	FKM 71217650		X				
60	1	PLUG + O-RING	G 1	71073040	Incl. 60a					
60a	1	O-RING	33	FKM 71217410		X				X
61	1	OIL CASING WITH OIL FILTER		71420110	Incl. 61a,b,c,d					
61	1	OIL CASING WITHOUT OIL FILTER		971424390	Incl. 61a,b,c,d					
61	1	OIL CASING FOR SV105PR		GK6703887	Incl. 61a,b,c,d					
61a	6	LOCKING SCREW M8X25	M8							
61b	1	GRID		71418950						
61c	2	PLUG + GASKET	G 2	71212650	Incl. 61d					
61d	1	O-RING	56	FKM 71217980			X			
		SET OF SEALS		FKM 971427670						
		REPAIR KIT		971427680						
		VACUUM GENERATOR WITHOUT GB		971427740						
		VACUUM GENERATOR WITH GB		971427750						
		SERVICE KIT		971427690						



# Spare parts

SV100 B/ SV105 PR

ERSATZTEILLISTE / SPARE PARTS LIST / LISTE DES PIECES DE RECHANGE SOGEVAC SV100 B

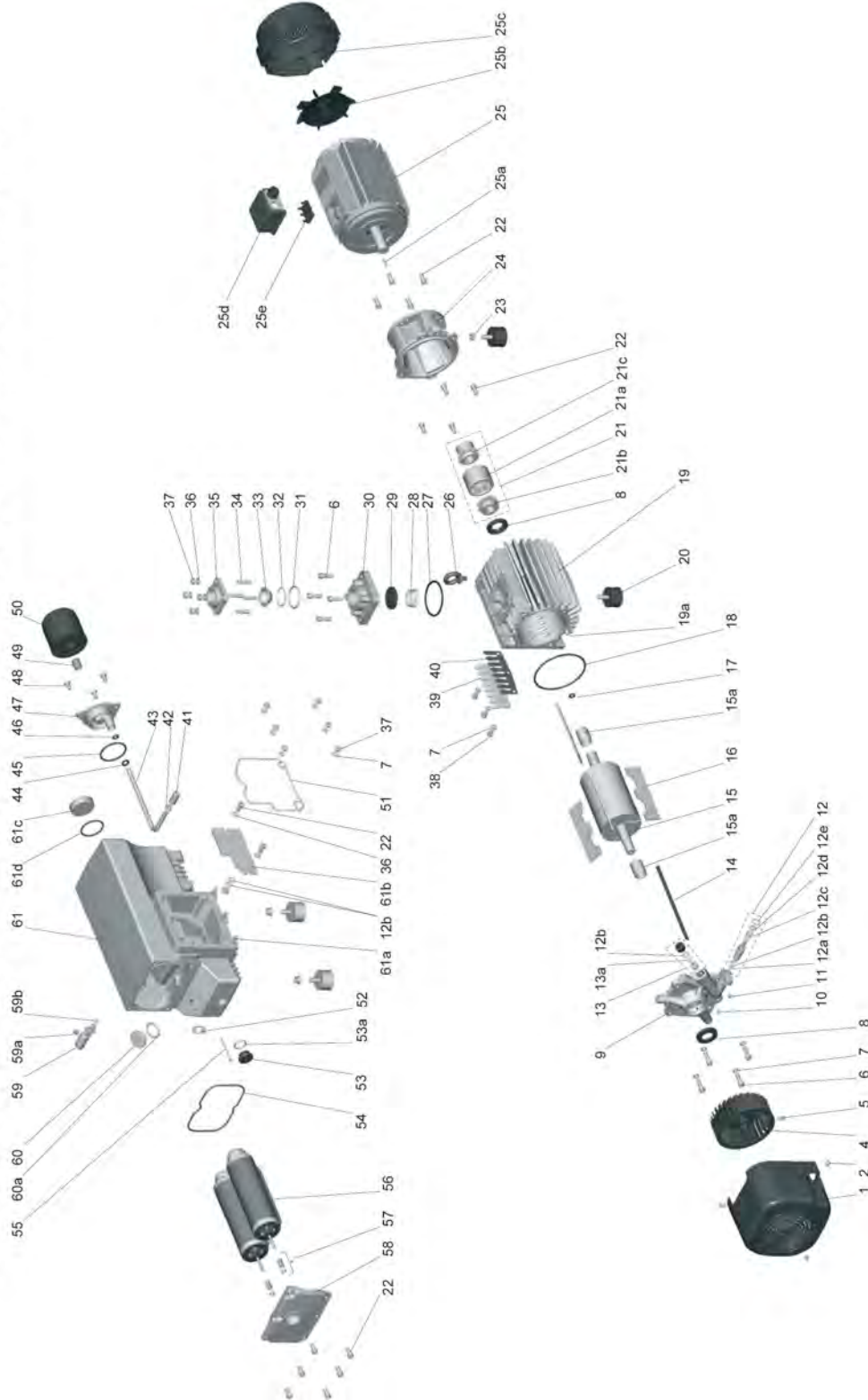


fig. 7



# Spare parts

Pos.	Qty	SPECIFICATION	Dimensions (mm), Material	Ref, No,	Notes						
25	1	MOTOR	2.2KW 50/60HZ 230/400V	71418800	Incl.25a,b,c,d,e						
25a	1	KEY		*							
25b	1	FAN		*							
25c	1	FAN COVER		*							
25d	1	TERMINAL BOARD		*							
25e	1	TERMINAL BOARD		*							
25	1	MOTOR	5HP 60HZ 230/400V	971423660	Incl. 25a,b,c,d						
25a	1	KEY		*							
25b	1	FAN		*							
25c	1	FAN COVER		*							
25d	1	TERMINAL BOX		*							
25	1	MOTOR	3.7KW 50/60HZ 200V	971423670	Incl.25a,b,c,d,e						
25a	1	KEY		*							
25b	1	FAN		*							
25c	1	FAN COVER		*							
25d	1	TERMINAL BOX		*							
25e	1	TERMINAL BOARD		*							
25	1	MOTOR	2.2KW 50/60HZ 230-400V	971423680	Incl.25a,b,c,d,e						
25a	1	KEY		*							
25b	1	FAN		*							
25c	1	FAN COVER		*							
25d	1	TERMINAL BOX		*							
25e	1	TERMINAL BOARD		*							
25	1	MOTOR	2.2KW 50/60HZ 220-400V	G6543687	SV105PR CN						
25	1	MOTOR	3.0KW 50Z/200V, 60HZ/220-380V	G6535559	SV105PR TW						

\*For every order, please indicate the brand and the serial number of motor and of the pump.

## Notes

[illegible]

## EU Declaration of Conformity



Leybold GmbH  
Bonner Strasse 498  
D-50968 Köln  
Germany

Documentation Officer  
T: +49(0) 221 347 0  
[documentation@leybold.com](mailto:documentation@leybold.com)

The product specified and listed below

- *Product: SOGEVAC – Single stage oil sealed rotary vane pumps with and without motor*
  - *Model:*
    - *SV40B, SV65B, SV100B, SV105PR, SV120B Air-cooled*
    - *SV100B Air-cooled Bareshaft*
  - *Pump family codes:*
    - *SV40B: 96030xTE, 96031xTE, 96032xTE, 960305V2013TE, 960305V2040TE and 12330040Vy*
    - *SV65B: 96040xTE, 96041xTE, 96042xTE, 960416V2046TE and 12330065Vy*
    - *SV100B: 96050xTE, 96051xTE, 96052xTE, 960505V3004TE, 960507V2090TE (bareshaft), 960516V2046TE, 960522V2040TE, 960522V3001TE and 12330100Vy*
    - *SV105PR: 960505V3021TE and 12330105Vy*
    - *SV120B: 960572TE, 960557V3001TE and 12330120Vy*
- Where*  
*x can be any value from 0 to 9*  
*y can be any value from 00 to 99*  
*defining their variants*  
*y = 90 up to 99 = without motor (bareshaft)*

Is in conformity with the relevant requirements of European CE legislation:

2006/42/EC	Machinery directive <i>Note: The safety objectives of the Low Voltage Directive 2014/35/EU were complied with in accordance with Annex 1 No. 1.5.1 of this directive.</i>
2014/30/EU*	Electromagnetic compatibility (EMC) directive Class A Emissions, Industrial Immunity
2011/65/EU	Restriction of certain hazardous substances (RoHS) directive as amended by Delegated Directive (EU) 2015/863

Based on the relevant requirements of harmonised standards:

EN 1012-2:1996 +A1:2009	Compressors and vacuum pumps. Safety requirements. Vacuum pumps
EN 60204-1:2018*	Safety of machinery. Electrical equipment of machines. General requirements
EN 61000-6-2:2005*	Electromagnetic Compatibility (EMC) - Part 6-2: Generic Industrial Immunity Standard
EN 61000-6-4:2007*	Electromagnetic Compatibility (EMC) - Part 6-4: Generic Industrial Emission Standard

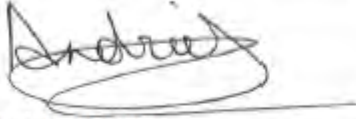
\*: not valid for pump bareshaft versions without motor as indicated above

This product has been manufactured under a quality management system certified to ISO 9001:2015

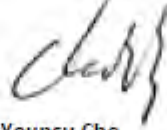
This declaration, based on the requirements of the listed Directives and EN ISO/IEC 17050-1, covers all product serial numbers from this date on: 2022-07-18

You must retain the signed legal declaration for future reference

This declaration becomes invalid if modifications are made to the product without prior agreement.



Andries DE BOCK  
VP Engineering - Industrial Vacuum Division  
Cologne



Younsou Cho  
General Manager PC Tianjin  
Industrial Vacuum Division

This product has been manufactured under a quality management system certified to ISO 9001:2015

## Declaration of Conformity

Leybold GmbH  
Bonner Strasse 498  
D-50968 Köln  
Germany

Documentation Officer  
Innovation Drive  
Burgess Hill  
West Sussex  
RH15 9TW  
[documentation@leybold.com](mailto:documentation@leybold.com)

This declaration of conformity is issued under the sole responsibility of the manufacturer.

- *Product: SOGEVAC – Single stage oil sealed rotary vane pumps with and without motor*
  - *Model:*
    - *SV40B, SV65B, SV100B, SV105PR, SV120B Air-cooled*
    - *SV100B Air-cooled Bareshaft*
  - *Pump family codes:*
    - *SV40B: 96030xTE, 96031xTE, 96032xTE, 960305V2013TE, 960305V2040TE and 12330040Vy*
    - *SV65B: 96040xTE, 96041xTE, 96042xTE, 960416V2046TE and 12330065Vy*
    - *SV100B: 96050xTE, 96051xTE, 96052xTE, 960505V3004TE, 960507V2090TE (bareshaft), 960516V2046TE, 960522V2040TE, 960522V3001TE and 12330100Vy*
    - *SV105PR: 960505V3021TE and 12330105Vy*
    - *SV120B: 960572TE, 960557V3001TE and 12330120Vy*
- Where*  
*x can be any value from 0 to 9*  
*y can be any value from 00 to 99*  
*defining their variants*  
*y = 90 up to 99 = without motor (bareshaft)*

The object of the declaration described above is in conformity with relevant statutory requirements:

Supply of Machinery (Safety) Regulations 2008

*The objectives of the Electrical Equipment (Safety) Regulations 2016 are governed by Annex 1 1.5.1 of this regulation.*

Electromagnetic Compatibility Regulations 2016\*

Class A Emissions, Industrial Immunity

Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment Regulations 2012

Relevant designated standards or technical specifications are as follows:

EN 1012-2:1996 +A1:2009	Compressors and vacuum pumps. Safety requirements. Vacuum pumps
EN 60204-1:2018*	Safety of machinery. Electrical equipment of machines. General requirements
EN 61000-6-2:2005*	Electromagnetic Compatibility (EMC) - Part 6-2: Generic Industrial Immunity Standard
EN 61000-6-4:2007*	Electromagnetic Compatibility (EMC) - Part 6-4: Generic Industrial Emission Standard

\*: not valid for pump bareshaft versions without motor as indicated above

This product has been manufactured under a quality management system certified to ISO 9001:2015

This declaration, based on the requirements of the listed Statutory Instruments and EN ISO/IEC 17050-1, covers all product serial numbers from this date on: 2022-07-18

You must retain the signed legal declaration for future reference

This declaration becomes invalid if modifications are made to the product without prior agreement.

Signed for and on behalf of Leybold Equipment (Tianjin) Co., Ltd



Andries DE BOCK  
VP Engineering - Industrial Vacuum Division  
Cologne



Younsus Cho  
General Manager PC Tianjin  
Industrial Vacuum Division

This product has been manufactured under a quality management system certified to ISO 9001:2015

## ADDITIONAL LEGISLATION AND COMPLIANCE INFORMATION

EMC (EU, UK): Class A/B Industrial equipment

Caution: This equipment is not intended for use in residential environments and may not provide adequate protection to radio reception in such environments.

RoHS (EU, UK): Material Exemption Information

This product is compliant with the following Exemptions

Annex III:

- 6(a) Lead as an alloying element in steel for machining purposes and in galvanised steel containing up to 0.35 % lead by weight
- 6(b) Lead as an alloying element in aluminium containing up to 0.4% by weight
- 6(c) Copper alloy containing up to 4% lead by weight

REACH (EU, UK)

This product is a complex article which is not designed for intentional substance release. To the best of our knowledge the materials used comply with the requirements of REACH. The product manual provides information and instruction to ensure the safe storage, use, maintenance and disposal of the product including any substance based requirements.

Article 33.1 Declaration (EU, UK)

This product contains Candidate List Substances of Very High Concern above 0.1%ww by article as clarified under the 2015 European Court of Justice ruling in case C-106/14.

- Lead (Pb)  
This substance is present in certain steel / aluminium / brass components.

### Compliance Information – incorporated products and assemblies

Motors

2009/125/EC Ecodesign directive requirements for energy-related products

To 1 July 2021: Regulation (EC) No 640/2009 requirements for electric motors

From 1 July 2021: Regulation (EU) No 2019/1781 electric motors and variable speed drives

Based in the requirements of harmonised standard:

EN 60034-30:2009: Rotating electrical machines – Part 30: Efficiency classes of single-speed, three-phase, cage-induction motors (IE-code)

### Additional Applicable Requirements

The product is in scope for and complies with the requirements of the following:


2012/19/EU

Directive on waste electrical and electronic equipment (WEEE)

This product has been manufactured under a quality management system certified to ISO 9001:2015



材料成分声明  
China Material Content Declaration

部件名称 Part name 	有害物质 Hazardous Substances					
	铅 Lead (Pb)	汞 Mercury (Hg)	镉 Cadmium (Cd)	六价铬 Hexavalent Chromium (Cr VI)	多溴联苯 Polybrominated biphenyls (PBB)	多溴二苯醚 Polybrominated diphenyl ethers (PBDE)
铸铝及铝合金制品 Aluminium alloys	X	O	O	O	O	O
钢合金制品 Steel alloys	X	O	O	O	O	O
铜管管件 Brass pipe fitting	X	O	O	O	O	O
铜接头 Brass connectors	X	O	O	O	O	O
铜衬套轴承 Brass bush bearing	X	O	O	O	O	O
<p>O: 表示该有害物质在该部件的所有均质材料中的含量低于 GB/T 26572 标准规定的限量要求。 O: Indicates that the hazardous substance contained in all of the homogeneous materials for this part is below the limit requirement in GB/T 26572.</p> <p>X: 表示该有害物质在该部件的至少一种均质材料中的含量超出 GB/T26572 标准规定的限量要求。 X: Indicates that the hazardous substance contained in at least one of the homogeneous materials used for this part is above the limit requirement of GB/T26572.</p>						

This product has been manufactured under a quality management system certified to ISO 9001:2015



## 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> _____ <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: 40%;"></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: 30%;"></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>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></td> <td style="text-align: center;"><input type="checkbox"/></td> <td style="text-align: center;"><input type="checkbox"/></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> <td style="text-align: center;"><input type="checkbox"/></td> <td style="text-align: center;"><input type="checkbox"/></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> <td style="text-align: center;"><input type="checkbox"/></td> <td style="text-align: center;"><input type="checkbox"/></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> <td style="text-align: center;"><input type="checkbox"/></td> <td style="text-align: center;"><input type="checkbox"/></td> </tr> <tr> <td colspan="4">If yes, which cleaning agent</td> <td></td> <td></td> <td></td> </tr> <tr> <td colspan="4">and which method of cleaning</td> <td></td> <td></td> <td></td> </tr> <tr> <td colspan="4"><sup>1)</sup> If answered with "No", go to D. ←</td> <td></td> <td></td> <td></td> </tr> </tbody> </table>			No <sup>1)</sup>	Yes	No		No <sup>1)</sup>	Yes	1. Has the equipment been used	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	2. Drained (Product/service fluid)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	3. All openings sealed airtight	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	4. Purged	<input type="checkbox"/>	<input type="checkbox"/>	<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. ←						
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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: 10%; text-align: center;">X</th> <th style="width: 40%;">Tradename:</th> <th style="width: 50%;">Chemical name:</th> </tr> </thead> <tbody> <tr><td style="text-align: center;">a)</td><td></td><td></td></tr> <tr><td style="text-align: center;">b)</td><td></td><td></td></tr> <tr><td style="text-align: center;">c)</td><td></td><td></td></tr> <tr><td style="text-align: center;">d)</td><td></td><td></td></tr> </tbody> </table>		X	Tradename:	Chemical name:	a)			b)			c)			d)																																											
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2. Are these substances harmful? <span style="float: right;">←</span> 3. Dangerous decomposition products when heated ? If yes, which ? _____																																																									
<sup>2)</sup> Components contaminated by microbiological, explosive or radioactive products/substances will not be accepted without written evidence of decontamination.																																																									

### 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 \_\_\_\_\_

firm stamp

## Notes

[illegible]

## Notes

[illegible]

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