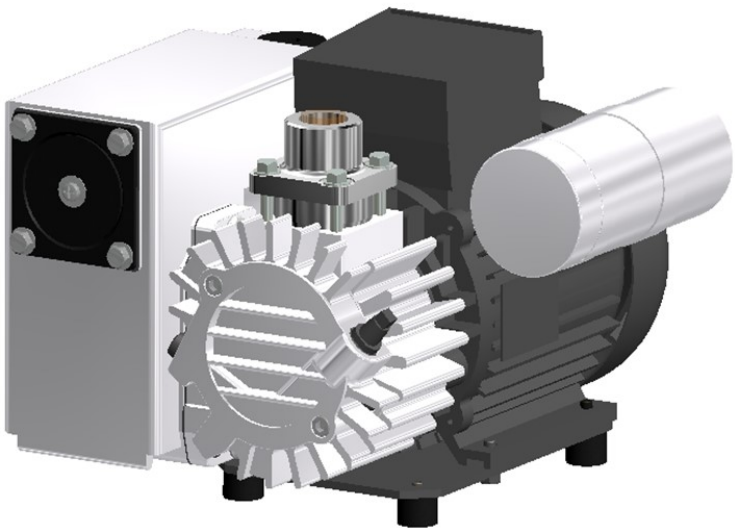
SOGEVAC®

SV10-16B

Single-stage, oil-sealed rotary vane pump

Original Operating instructions 300270017_002_C5

Ref:
960 100
960 101
960 105
960 106
960 110
960 114
960 115
960 160
960 161
960 165
960 166
960 170
960 174
960 175
And their variants



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Important Safety Information

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

Warning

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

Caution

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

Note

The Leybold SOGEVAC® SV10-16 B 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® SV10-16 B 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!

Warning

SOGEVAC® pumps are not designed:
- for pumping of dusty, aggressive, corrosive, flammable or explosive gases or gases mixtures ;
- for pumping of oxygen or other highly reactive gases with a greater concentration than atmospheric concentration (>20%) ;
- for working in flammable, 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.

Safety Information

Warning

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

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.

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.

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.

These installation and operating instructions are valid for the SOGEVAC® pumps SV10-16 B in their standard version.

Special versions to these pumps are delivered with an additive document, which prevails over the standard instructions.

We would be happy to supply further information as required:
Available are :

- Technical description of the SOGEVAC® vacuum pumps
- Technical description of special oil types for SOGEVAC® vacuum pumps
- Breakdown analysis
- Declaration of Contamination of Vacuum Equipment and Components.

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 pumping condensable vapours, a gas ballast valve must be installed.

1.1 Principle of operation

The SOGEVAC® pumps SV10-16 B 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. The proportion of oil in the exhaust gas is thus reduced below the visibility threshold (over 99% entrapment rate). The collected oil is flowing back to the generator through an internal transfer. A non-return valve is included in the oil return screw system to avoid an oil flow from the generator to the oil casing when the pump works at inlet pressures greater than 150mbar. Therefore, continuous operation above 150mbar is not recommended and can lead to oil spilling from the exhaust.
Specific P/N for high inlet pressure duty are available. Please contact us.

Depending on catalog numbers, the pumps are equipped with a permanent gas ballast for pumping condensable vapours.

The anti suck back valve at the inlet flange avoids oil coming back into the inlet line when the pump is stopped.
Nevertheless, this is not a safety valve and correct operation is granted only if the anti suck back valve is clean and in good condition.

1.2 Technical characteristics

SV10B

Technical data		**50Hz**	**60Hz**
Nominal pumping speed [1]	m^3/h	11	13
Pumping speed [1] (according to PNEUROP)	m^3/h	9.5	11.5
Ultimate partial pressure without gas ballast [1]	mbar	⩽1.5	⩽1.5
Ultimate total pressure with gas ballast [1]	mbar	⩽2.5	⩽2.5
Water vapour tolerance [1]	mbar	10	15
Water vapour tolerable load [1] [3]	$g.h^{-1}$	20	30
Oil capacity	l	0.5	0.5
Noise level [2]	dB(A)	60（3φ） 62（1φ）	64（3φ） 66（1φ）
Motor power	kw	0.55	0.65
Motor rated rotational speed	min^{-1}	3000	3600
Protection – Insolation		IP55 – F	IP55 – F
Weight with mineral oil	kg	20	20
Intake connection		G 3/4 + G 1/2	G 3/4 + G 1/2
Exhaust connection		–	–

SV16B

1) to DIN 28400 and following numbers

Technical data		**50Hz**	**60Hz**
Nominal pumping speed [1]	m^3/h	16	19
Pumping speed [1] (according to PNEUROP)	m^3/h	15	17
Ultimate partial pressure without gas ballast [1]	mbar	⩽1	⩽1
Ultimate total pressure with gas ballast [1]	mbar	⩽2	⩽2
Water vapour tolerance [1]	mbar	10	15
Water vapour tolerable load [1] [3]	$g.h^{-1}$	30	50
Oil capacity	l	0.5	0.5
Noise level [2]	dB(A)	60（3φ） 62（1φ）	64（3φ） 66（1φ）
Motor power	kw	0.55	0.65
Motor rated rotational speed	min^{-1}	3000	3600
Protection – Insolation		IP55 – F	IP55 – F
Weight with mineral oil	kg	20	20
Intake connection		G 3/4 + G 1/2	G 3/4 + G 1/2
Exhaust connection		–	–

2) operated at the ultimate pressure without gas-ballast, free-field measurement at a distance of 1 m
3) with room temperature 20 to 25 ° C

Remark : pump technical data like e.g. ultimate pressure & noise level are only valid for standard pumps operating with the mentioned mineral oil. The use of other oils may have consequences on these values.

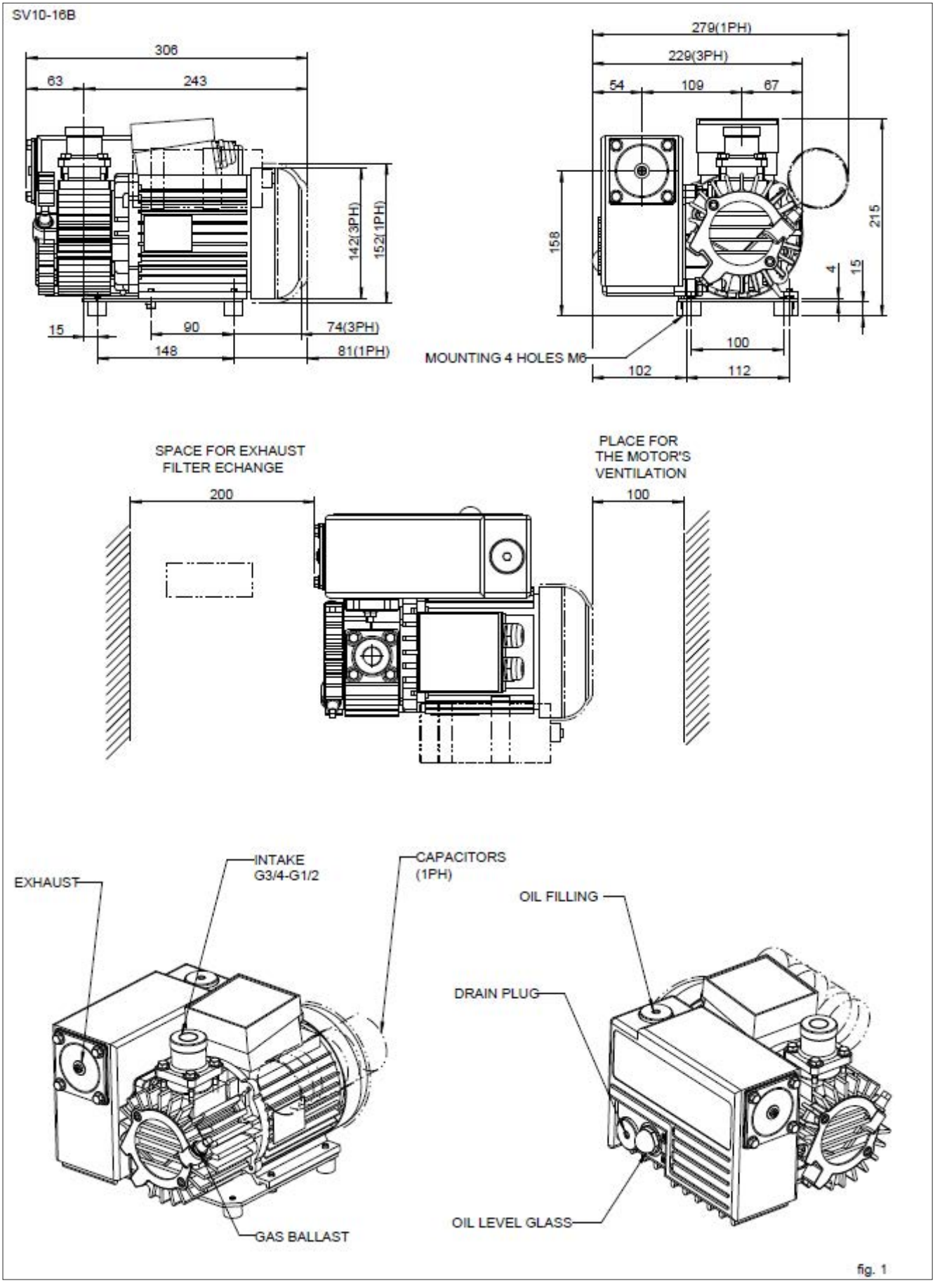
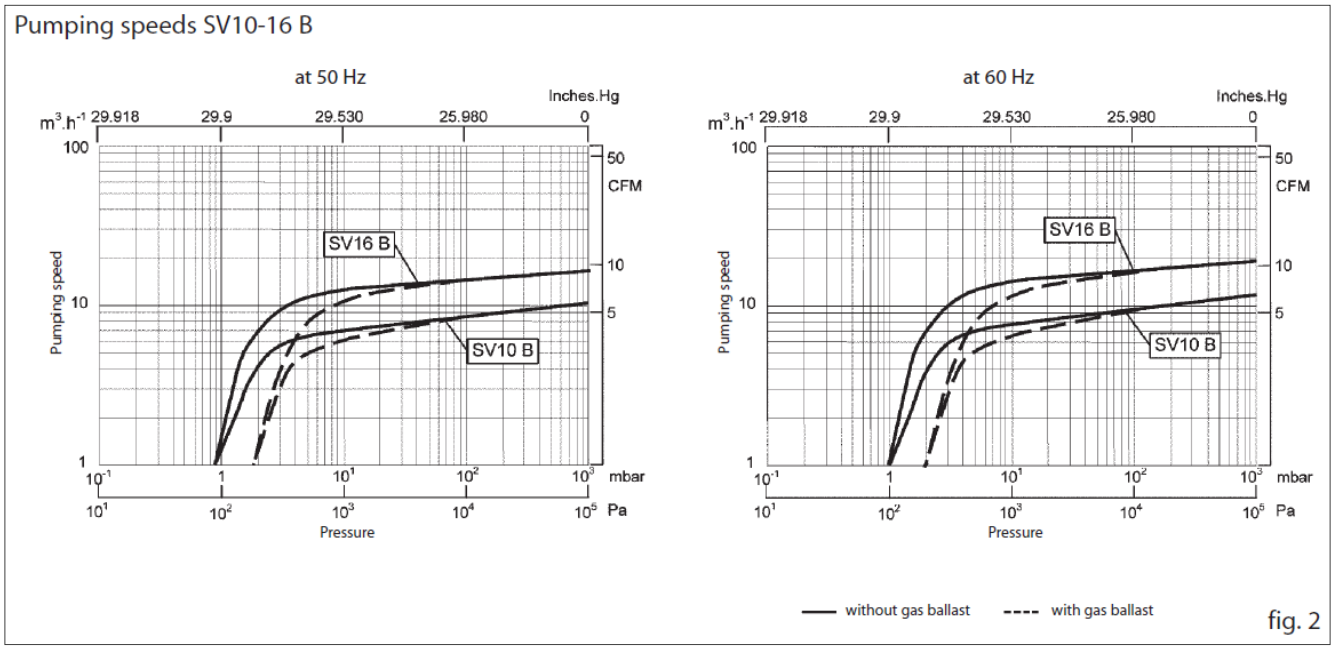

SV10-16B
306
63
243
142(3PH)
152(1PH)
15
90
74(3PH)
148
81(1PH)
279(1PH)
229(3PH)
54
109
67
158
215
4
15
100
MOUNTING 4 HOLES M6
102
112
SPACE FOR EXHAUST
FILTER ECHANGE
200
PLACE FOR
THE MOTOR'S
VENTILATION
100
EXHAUST
INTAKE
G3/4-G1/2
CAPACITORS
(1PH)
GAS BALLAST
OIL FILLING
DRAIN PLUG
OIL LEVEL GLASS

fig. 1

Description



Rep.	Specification	Size	Cat. Nr.
1*	REDUCTION + O-RING	G 3/4” M - G 1/2” F	951 24
2	CONNECTING PIECE (THREE PIECES)	G 1/2” MF	711 18 020
3	SCREW IN NIPPLE	G 1/2” M - 16KF	711 18 120
4	CENTERING RING	DN 16 KF	183 26
5	CLAMPING RING	DN 16 KF	183 41
6	HOSE CONNECTION	DN 16KF - 25 mm	711 18 300
7	HOSE CONNECTION	G 1/2” M - 25mm	711 18 011
8	PVC TUBING	25 mm	711 18 323
9	T- PIECE	G 1/2” M-F-F	711 18 250
10	VACUUM CONTROL VALVE	G 1/2” M	951 86
11	VACUUM CONTROL VALVE WITH SHUT-OFF VALVE	G 1/2” M	951 87
12	BALL VALVE	G 1/2” M/F	711 30 113
13	SPRING VACUUM METER	G 1/2” M	951 92
14	ELBOW 90°	G 1/2” M/F	711 18 210
15	DUST FILTER PAPER	G 1/2” M/F	951 50
	DUST FILTER CHARCOAL	G 1/2” M/F	711 27 092
	DUST FILTER METAL	G 1/2” M/F	711 27 093
	DUST FILTER POLYESTER	G 1/2” M/F	711 27 094
	EXHAUST CONNECTION	G 3/4” F	9 714 33 140

1.3 Connection fittings

* Delivered with the pump depending on pump cat no.

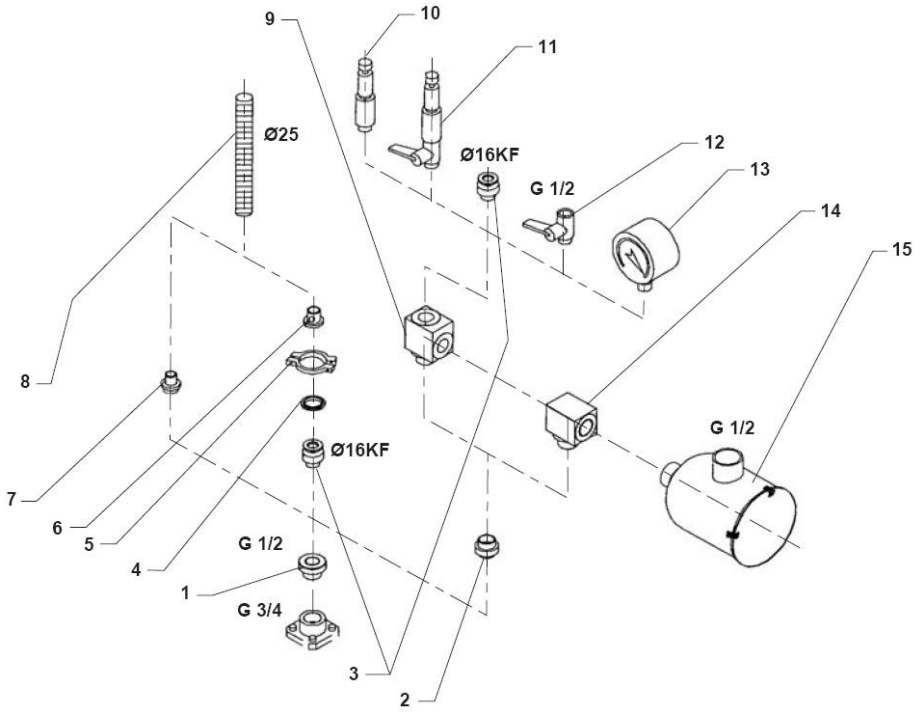


fig. 3

1.4 Spare parts

Specification	Cat. Nr.
SET OF SEALS	714 22 220
REPAIR KIT	714 22 230
SERVICE KIT	9 714 44 430
INLET FILTER ELEMENT FOR FILTER POS. (15)	
FILTER ELEMENT PAPER	710 40 762
FILTER ELEMENT CHARCOAL	710 65 713
FILTER ELEMENT METAL	710 65 813
FILTER ELEMENT POLYESTER	712 61 280

1.5 Lubricants

The SOGEVAC® SV10-16 B pumps should be run with mineral oils for vacuum pumps with low viscosity according to ISO category VG32. The Leybold oil LVO120 corresponds to these prescriptions.
You may use other special lubricants adapted to the applications. Please consult us.

GS32 / LV0120 Oil	Conditioning	Reference
	1 l	L120 01
	5 l	L120 05
	20 l	L120 20

Transport and Storing

2 Transport and storing

2.1 Transport and packing

SOGEVAC® vacuum pumps pass a rigorous operating test in our factory and are packed to avoid transport damage.

Please check packing on delivery for transport damage.

Packing materials should be disposed off according to environmental laws or re-used.

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.

The necessary LVO120 oil is shipped in a separate can.

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

2.2 Mounting orientation

See required space on chart 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.

2.3 Storage

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 sump) and store the pump in a dry place at room temperature.

If the pump has been shelved for over one year, standard maintenance must be run 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.

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.

Observe all safety regulations.

Warning

3.1 Setting-up

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

The following ambient operating environment must be observed:
- Ambient temperature: 12 °C to 40 °C (54 °F to 104 °F)
- Ambient pressure: Atmospheric pressure. Max. altitude 1000 m absl.

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 Inlet connection

See safety information page 3.

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 least the same as the diameter of pump's inlet flange.

When pumping condensable vapours, a gas ballast valve must be used.

3.3 Connection to exhaust side

No isolation or restricting devices should be installed in the exhaust line of the pump.

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

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).

Warning: The maximum exhaust pressure must neither exceed 1.15 bar absolute (0.15 bar relative), nor fall under atmosphere pressure minus 15 mbar. Corresponding pressure regulating devices to be installed by the user.

Note

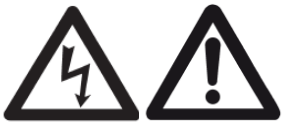
3.4 Oil filling

See safety information page 3.

The necessary LVO120 oil is supplied in a can beside the pump. To fill in the oil, unscrew the oil fill plug and fill in until the oil level reaches the MAX–mark beside the oil sight glass.

Caution

Warning



3.5 Electrical connection

See safety information page 3.

The electrical installation may only be conducted by a specialist. IEC regulations have to be followed as well as local or country regulations.

- Voltage and frequency mentioned on the motor nameplate must agree with the supply voltage.
- The drive motor must be protected against overloads according to IEC 60204-1 & 61010-1.
- To check the direction of rotation of pumps with three-phase motor, flick the ON/OFF switch for a short time at atmospheric pressure. 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 counter clockwise.

4 Operation

4.1 Operating advices

See safety information page 3.

Caution

When removing condensable vapours, a gas ballast valve must be installed.

The vacuum pump must be run for 30 minutes before operating with condensable vapours with the inlet connection closed, in order to reach the operating temperature of about 75 °C. Only up from this operating temperature, condensable vapours can be pumped. After use, the pump has to be left running for an additional 30 minutes with the inlet connection closed, to clear the oil of condensate.

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

Clean eventual oil on the floor.

4.2 Shutdown

The inlet flange of the SOGEVAC® pumps contains an anti-suck back valve. It closes the inlet flange when the pump is voluntarily or accidentally shut down, thus maintaining the vacuum in the connected system and preventing oil from being sucked back into the system.

Except the indications in chapter 4.1 (operating advices) there are no particular precautions for the shutdown of the pump.

If the pump must be stopped for a longer period, see chapter 2.3.

Maintenance

Warning

5 Maintenance

5.1 Safety Information

Observe all safety regulations.

The vacuum pump must be switched off and secured against accidental switch-on for all maintenance jobs.

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. Unfavourable ambient conditions and/or aggressive media may significantly reduce the maintenance intervals.
In order to simplify the maintenance work we recommend to combine several jobs.

Maintenance job	Frequency	Section
Oil level checking	Daily	A
1st oil change	After 150 h of operation	B
Subsequent oil changes	Every 2000 h or 6 months (depending on application)	B
Exhaust filter	If oil mist at exhaust replacement or annually	C
Checking the oil recovery system		D
Gas ballast valve	Monthly checking	E
Inlet flange sifter cleaning	6 months	F
Anti-suck back valve checking	6 months	G
Fan cover cleaning	6 months	H
Electrical connection checking (only by a specialist)	6 months	
Single phase motor capacitors exchange	3 years	

5.3 Leybold Service

Contamination

Whenever you send us in equipment, indicate whether the equipment is contaminated or is free of substances which could pose a health hazard. If it is contaminated, specify exactly which substances are involved. You must use the form we have prepared for this purpose.

Form

A copy of the form has been reproduced at the end of these Operating Instructions: “Declaration of Contamination for Compressors, Vacuum Pumps and Components”. Another suitable form is available from the Leybold home-page:
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.

Caution

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

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

5.4 Maintenance Work

A. Oil level
The oil level should be checked at least once a day. If the oil level is below the “MAX” mark, oil has to be added until the level reaches the mark. If the oil level is below the “MIN” mark, stop the pump and check it (see chapter 6).

B. Oil changing
See safety information page 3.

Warning

Oil must be changed after the first 150 operating hours. Further oil changes, depending on operating conditions (products, vapours, ambient temperature…) must be done every 500 to 2 000 operating hours or at least every 6 months.

If there is considerable pollution, it could be necessary to change the oil more frequently.

Oil changing must be done with a switched off and still warm pump.

Open the oil drain plug and let run out the used oil into an appropriate container. Refasten the oil drain plug when oil runs slower, start up the pump briefly (5 sec. max) and switch off immediately. Reopen the oil drain plug and drain the rest of the oil. Before refastening the oil drain plug, inspect the O-ring and if necessary replace it. Open the oil fill plug and pour in clean oil; refasten the oil fill plug. The pump has to be rinsed out if there is considerable pollution. Therefore pour in clean oil up to the low edge of the oil level glass, let the pump run briefly (for a few minutes) then drain the oil again.

Maintenance

Caution

C. Exhaust filters replacement
See safety information page 3.

Oil mist escaping form the exhaust during operation indicates that the filter is probably choked up. Increased motor current could also be the result of a dirty 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.

Caution

D. Checking the oil recovery system
See safety information page 3.

During the exchange of the exhaust filter, check the cleanliness of the foam which protects the oil return compartment and the oil recovery system. Disassemble the oil return screw system from the end plate and check the cleanliness of the nozzle (without disassembling it from the unit). In case of heavy dirtiness, replace the whole oil recovery screw system.

Caution

E. Gas ballast cleaning
See safety information page 3.
If the filter of the gas ballast is dirty, the gas ballast is no longer operative.
The filter has to be replaced (see spare parts list).

Caution

F. Inlet flange sifter cleaning
See safety information page 3.

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

Caution

G. Anti-suck back valve checking
See safety information page 3.

The anti suck-back valve should be checked at the same time as the inlet flange screen and if dirty, be cleaned with an appropriate solvent. Also check, if there is no damage on the sealing part of the valve.

H. Fan cover cleaning
Dirt blockage 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.

6 Troubleshooting

Fault	Possible cause	Remedy	Reference section *
Pump does not start	Pump is connected incorrectly	Connect the pump correctly	3.5
	Motor protection switch incorrectly set.	Set motor protection switch properly	3.5
	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	1.5
	Oil is too viscous	Use appropriate oil grade	5.4-B
	Exhaust filter / exhaust line is clogged	Replace the filter or clean the exhaust line	5.4-C
Pump does not reach ultimate pressure	External leak	Repair the pump	
	Anti-suckback valve is malfunctioning	Repair the valve	5.4-G
	Inadequate lubrication due to :		
	■ unsuitable or contaminated oil	Change the oil (degas it, if necessary).	
	■ clogged oil lines	Clean the oil lines	5.4-D
	■ 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. Precaution : install a dust filter in intake line	5.4-F
	Exhaust filter is clogged	Install new filter elements	5.4-C
	Connecting lines are too narrow or too long	Use adequately wide and short connecting lines	3.3
	Anti-suckback valve is hard to open	Check spring free length	
After switching off pump under vacuum, pressure in system rises too fast	System has a leak	Check the system	
	Anti-suckback is malfunctioning	Repair the valve	5.4-G
Pump gets too hot	Cooling air supply is obstructed	Set pump up correctly	3.1
	Cooler is dirty	Clean the cooler	
	Ambient temperature is too high	Set pump up correctly	3.1
	Process gas is too hot	Change the process	
	Oil level is too low	Add oil to reach the correct oil level	5.4-A
	Oil is unsuitable	Change the oil	5.4-B
	Oil cycle is obstructed	Clean or repair the oil lines	
	Exhaust filter / exhaust line is obstructed	Replace the exhaust filter, clean the exhaust line	5.4-C
Oil in intake line or in vacuum vessel	Oil comes from the vacuum system		
	Anti-suckback valve is obstructed	Clean or repair the valve	5.4-G
	Sealing surfaces or anti-suckback valve are damaged or dirty	Clean or repair the intake port and valve	5.4-G
	Oil level is too high	Drain the excess oil	5.4-A
Pump's oil consumption too high, oil mist at exhaust	Exhaust filters are clogged or damaged.	Replace the filters.	5.4-C
	Oil level is too high.	Drain the excess oil.	5.4-A
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.	4.1/5.4-B
		Clean the gas ballast intake filter	5.4-E
Pump is excessively noisy	Oil level is very low (oil is no longer visible)	Add oil	5.4-B
	Oil filter is clogged	Change the oil and filter	5.4-D
	Large vacuum leak in system	Repair vacuum leak	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.

Spare parts

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.

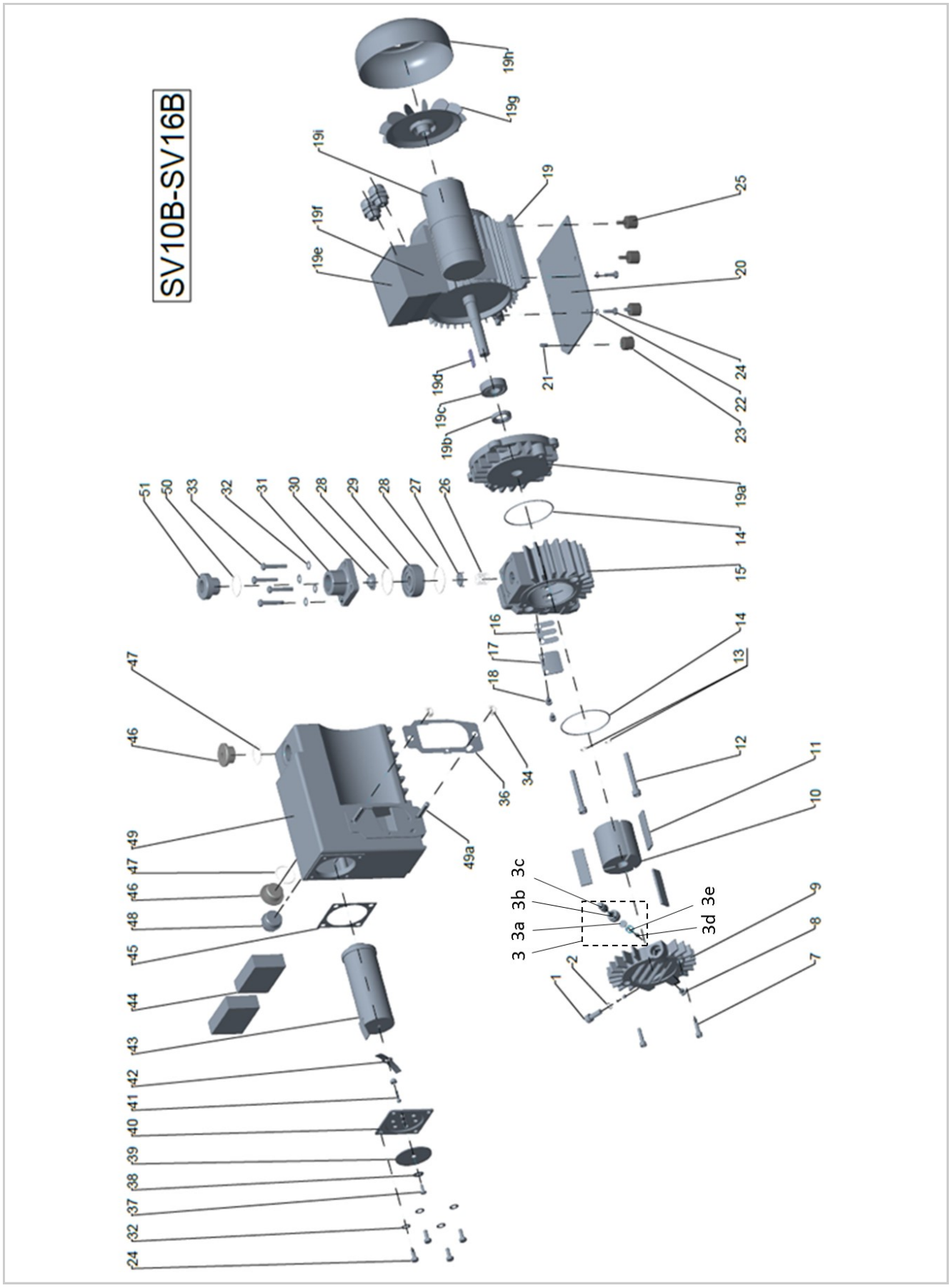
- Exhaust demisters 714 13 280
- LVO120 Oil (Special oils please refer to the specific notice of the pump or contact Leybold).
- Service kit 9 714 44 430
- Set of seals 714 22 220
- Repair kit 714 22 230

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.

Repairs requiring the replacement of the stator or the rear endplate should be made by the Leybold Service.

Notes

Spare parts


SV10B-SV16B
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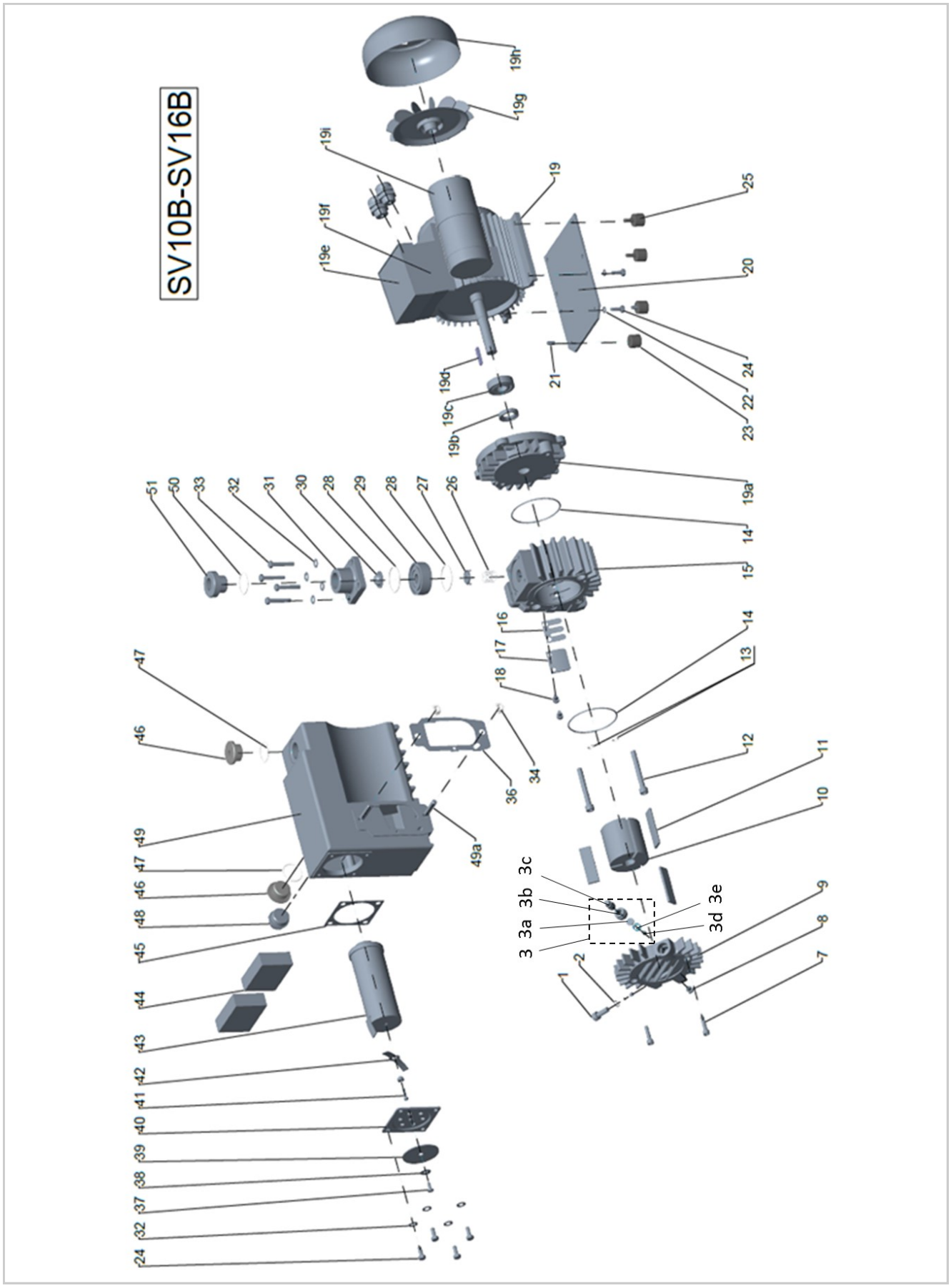
49a

Spare parts

POS	QTY	SPECIFICATION	DIMENSIONS（mm）	MATERIAL	REF.NO.	REMARKS	9 714 44 430	714 22 230	714 22 220
1	1	NON RETURN SCREW UNIT							●
2	1	FLAT GASKET							●
*	1	FILTER VK 31/2			71414970	For pump with GB pipe+filter	●	●	
3	1	GAS BALLAST UNIT			EK6702951	Incl.3a~3e			
3a	1	MENBRAN			71417060				●
3b	1	GB VALVE BODY							
3c	1	SILENCER			71418060				
3d	1	CHOKE PLUG							
3e	1	GB SPRING							
7	2	SCREW		ZC					
8	1	SCREW		ZC					
9	1	FRONT END-PLATE			EK6528992	Incl.1,2,3,7,8,13,14			
10	1	ROTOR			71413100				
11	1	SET 3 VANES			71413150			●	
12	2	SCREW							
13	2	O-RING	6,02 X 2,62 70SH	FKM	71237600				●
14	2	O-RING	70 X 2,5 70SH	NBR	71413470				●
15	1	PUMP CYLINDER SV10 B			71418380				
15	1	PUMP CYLINDER SV16 B			71416450				
16	1	VALVE PLATE			71416370			●	
17	1	VALVE STOP			71416360			●	
18	2	SCREW							
19	1		SEE NEXT PAGE						
20	1	SUPPORTING PLATE			71415300				
21	2	SCREW							
22	2	WASHER							
23	2	RUBBER MOUNT	D20X15 F-F M6		71418670				
24	6	SCREW		ZC					
25	2	RUBBER MOUNT	D20X15		71414030				
26	1	INLET SPRING			71415640				
27	1	ANTI SUCKBACK VALVE			71042990				●
28	2	O-RING	34.52X3.53 70SH	FKM	71417660				●
29	1	INLET ADAPTER			71413110				
30	1	DIRT TRAP			71413440				
31	1	INLET FLANGE			71413120				
32	8	WASHER	M6	ZC	V3600401				
33	4	SCREW							
34	2	NUT							
36	1	FLAT GASKET			71416430				●
37	1	SHEET METAL SCREW	CL N 10-19 TYPE P						
38	1	WASHER							
39	1	EXHAUST MEMBRANE			71413170				
40	1	FLANGE EXHAUST			71413160				
41	1	SCREW							
42	1	FRICTION SPRING CAR-TRIDGE			71413270		●	●	
43	1	EXHAUST FILTER			71413280		●	●	
44	1	OIL RETURN FILTER			71416440		●	●	
45	1	FLAT GASKET OUTLET			71413240		●		●
46	2	PLUG + O-RING	G3/4		71256380	Incl.47			
47	2	O-RING	27 X 2,5	NBR			●		●
48	1	OIL SIGHT GLASS	G3/4		71419480			●	
49	1	OIL CASING			71416410	Incl.49a			
49a	2	LOCKING SCREW							
50	1	O-RING	28 X 3	FKM	71217590				●
51	1	O-RING	G 3/4-G 1/2		95124				
		SET OF SEALS			71422220	Incl.		●	●
		REPAIR KIT			71422230	Incl.		●	
		SERVICE KIT			971444430	Incl.	●		

Spare parts


SV10B-SV16B
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POS	QTY	SPECIFICATION	DIMENSIONS（mm）	MATERIAL	REF.NO.	REMARKS	714 22 220	714 22 230	9 714 44 430
19	1	MOTOR EUR / USA 3PH CCC	0,55 kW @ 50 Hz / 0,65 kW @ 60 Hz 220 - 240 / 380 - 415 V ± 10 %; 50 Hz 220 - 266 / 380 - 460 V ± 10 %; 60 Hz		E6526450	Incl.19a,b,c,d,e,f,g,h			
19a	1	END BEARING PLATE				Consult Leybold Service			
19b	1	RADIAL SHAFT SEAL	DN17X30X6			Consult Leybold Service	●		
19c	1	BALL BEARING	DN17X40X12			Consult Leybold Service			
19d	1	KEY	5X5X30			Consult Leybold Service			
19e	1	TERMINAL BOX				Consult Leybold Service			
19f	1	TERMINAL BOARD				Consult Leybold Service			
19g	1	FAN				Consult Leybold Service			
19h	1	FAN COVER				Consult Leybold Service			
19	1	MOTOR JAPAN 3PH	0,55 kW @ 50 Hz / 0,65 kW @ 60 Hz 200 V + 10 % - 15 %; 50 & 60 Hz		E6526459	Incl.19a,b,c,d,e,f,g,h			
19e	1	TERMINAL BOX				Consult Leybold Service			
19f	1	TERMINAL BOARD				Consult Leybold Service			
19g	1	FAN				Consult Leybold Service			
19h	1	FAN COVER				Consult Leybold Service			
19	1	MOTOR USA 1PH	0,65 kW @ 60 Hz 110 - 120 V ± 10 %; 60 Hz		E6526454	Incl.19a,b,c,d,e,f,g,h,i			
19e	1	TERMINAL BOX				Consult Leybold Service			
19f	1	TERMINAL BOARD				Consult Leybold Service			
19g	1	FAN				Consult Leybold Service			
19h	1	FAN COVER				Consult Leybold Service			
19i		CAPACITOR	110 µF			Consult Leybold Service			
19	1	MOTOR JAPAN 1PH	0,55 kW @ 50 Hz / 0,65 kW @ 60 Hz 100 V + 10 % - 15 %; 50 & 60 Hz		E6526455	Incl.19a,b,c,d,e,f,g,h,i			
19e	1	TERMINAL BOX				Consult Leybold Service			
19f	1	TERMINAL BOARD				Consult Leybold Service			
19g	1	FAN				Consult Leybold Service			
19h	1	FAN COVER				Consult Leybold Service			
19i		CAPACITOR	110 µF			Consult Leybold Service			
19	1	MOTOR EUR 1PH CCC	0,55 kW @ 50 Hz / 0,65 kW @ 60 Hz 230 V ± 10 %; 50 & 60 Hz		E6526452	Incl.19a,b,c,d,e,f,g,h,i			
19e	1	TERMINAL BOX				Consult Leybold Service			
19f	1	TERMINAL BOARD				Consult Leybold Service			
19g	1	FAN				Consult Leybold Service			
19h	1	FAN COVER				Consult Leybold Service			
19i		CAPACITOR	16 µF			Consult Leybold Service			
19	1	MOTOR Wiide range exclude Japan 3PH	0,55 kW @ 50 Hz / 0,65 kW @ 60 Hz 220 - 240 V / 380 - 415 V ; 50Hz 220 - 266 V / 380 - 460 V ; 60Hz		E6526451	Incl.19a,b,c,d,e,f,g,h			
19e	1	TERMINAL BOX				Consult Leybold Service			
19f	1	TERMINAL BOARD				Consult Leybold Service			
19g	1	FAN				Consult Leybold Service			
19h	1	FAN COVER				Consult Leybold Service			
						▲			
		SET OF SEALS			71422220	Incl.			

*Always change the ball bearing when changing the shaft seal.

Leybold

P20050063A

EU Declaration of Conformity

CE

Leybold GmbH
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Germany

Documentation Officer
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documentation@leybold.com

The product specified and listed below

- *Product: SOGEVAC – Single stage oil sealed rotary vane pumps with motor*
- *Model: SV10B, SV16B Air-cooled*
- *Pump family codes:*
  - *SV10B: 96010x, 96011x, 960105V3001 and 12330010Vy*
  - *SV16B: 96016x, 96017x, 960160V3002, 960160V3003, 960165V3002 and 12330016Vy*

  Where
  x can be 0, 4 or 5
  y can be any value from 00 to 99
  defining their variants

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

2006/42/EC	Machinery directive *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.*
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

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: March 18, 2022

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

Younsu Cho
General Manager PC Tianjin
Industrial Vacuum Division

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

Leybold

P10050063A

UK CA

Declaration of Conformity

Leybold GmbH
Bonner Strasse 498
D-50968 Köln
Germany

Documentation Officer
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Burgess Hill
West Sussex
RH15 9TW
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 motor*
- *Model: SV10B, SV16B Air-cooled*
- *Pump family codes:*
  - *SV10B: 96010x, 96011x, 960105V3001 and 12330010Vy*
  - *SV16B: 96016x, 96017x, 960160V3002, 960160V3003, 960165V3002 and 12330016Vy*

  Where
  x can be 0, 4 or 5
  y can be any value from 00 to 99
  defining their variants

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

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: March 18, 2022

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

Younsu 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

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.

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.

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

Leybold

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: ☒ applicable please mark
Repair: ☐ chargeable ☐ warranty
Exchange: ☐ chargeable ☐ warranty
☐ Exchange already arranged / received
Return only: ☐ rent ☐ loan ☐ for credit
Calibration: ☐ DKD ☐ Factory-calibr.
☐ Quality test certificate DIN 55350-18-4.2.1

A. Description of the Leybold product:
Material description :
Catalog number:
Serial number:
Type of oil (Fore\Vacuum-Pumps) :

Failure description:
Additional parts:
Application-Tool:
Application- Process:

B. Condition of the equipment

	No [1]	Yes	No
1. Has the equipment been used	☐	☐	
2. Drained (Product/service fluid)		☐	☐
3. All openings sealed airtight		☐	
4. Purged		☐	☐

If yes, which cleaning agent
and which method of cleaning

[1] If answered with "No", go to D.

Contamination :

	No [1]	Yes
toxic	☐	☐
corrosive	☐	☐
flammable	☐	☐
explosive [2]	☐	☐
radioactive [2]	☐	☐
microbiological [2]	☐	☐
other harmful substances	☐	☐

C. Description of processed substances (Please fill in absolutely)

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)

X	Tradename:	Chemical name:
a)		
b)		
c)		
d)		

	No	Yes
2. Are these substances harmful ?	☐	☐
3. Dangerous decomposition products when heated ?	☐	☐

If yes, which ?

[2] 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

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