



SOGEVAC® SV1200

Single stage oil sealed rotary vane pump

Original operating Instructions and Spare parts list
GA/ET-02306_002_C0



Catalog Numbers
10970
95070
and their variants

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Obligation to Provide Information

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

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

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

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

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

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

We reserve the right to modify the design and the specified data. The illustrations are not binding. Retain the Operating Instructions for further use.

NOTICE



DANGER



WARNING



CAUTION



NOTICE



0 Important Safety Information

0.1 Mechanical Hazards

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

0.2 Electrical Hazards

1 The electrical connection must only be provided by a trained person. Please observe the national regulations in the country of use like EN 50110-1 for Europe, for example.

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

0.3 Thermal Hazards

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

0.4 Hazards Caused by Materials and Substances

1 SOGEVAC® pumps are not designed:

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

For all these cases, special materials must be used. In case of doubt, please contact Leybold. See also the limits of use indicated in the CE declaration of conformity.

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

3 Take appropriate precautions to insure that the pump cannot start.

4 If the pump has pumped hazardous gases it will be absolutely necessary to determine the nature of the hazard involved and take the appropriate safety precautions.

5 Observe all safety regulations !

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

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

0.5 Danger of Pump Damage

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. Never work with closed or restricted pump exhaust.

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

Never use discarded seals. Always assemble using new seals.

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.

WARNING



DANGER



CAUTION



DANGER



NOTICE



1. Description

1.1 Structure and function

The SOGEVAC SV1200 is a single-stage, oil-sealed rotary vane pump. The anti-suck-back valve, gas ballast valve, exhaust filter with oil feedback, oil cooler and thermal switch are integrated functional elements of the SV 1200. The pump is driven by a foot-mounted motor via four V-belts. The rotor mounted eccentrically in the pump cylinder divides the volume between the rotor and the pump cylinder in three compartments by means of three vanes. The volume of each chamber changes periodically with the rotation of the rotor. As a result of enlargement of the part of the suction compartment A that is open in the direction of the intake port, gas is sucked in. The gas passes through the dirt trap and the open antisuck-back valve and enters into the pump chamber. As the rotor rotates further, the vane separates part of the pump chamber from the intake port. This part of the pump chamber is reduced, and the gas is compressed. At slightly above atmospheric pressure the gas is expelled from the chamber via the exhaust valve. Oil injected into the chamber serves to seal, lubricate and cool the pump. The oil mixed with the compressed gas is coarsely trapped in the bottom part of the L-shaped oil case. Then fine filtering occurs in the integrated exhaust filter elements which are in the vertical part of the oil case. The proportion of oil in the exhaust gas is thus reduced below the visibility threshold (over 99,9 % entrapment rate). The oil trapped in the exhaust filters is returned to the oil cycle below the anti-suck-back valve via an oil return line. To prevent gas flowing at atmospheric pressure from the oil reservoir into the intake port, the oil return line is controlled by a float valve, which opens the line only at an adequate oil level. The oil cycles of the SOGEVAC SV1200 are maintained by the pressure difference existing between the oil case (pressure above the atmospheric pressure) and the intake port (pressure below atmospheric pressure). The oil is taken from the oil reservoir and flows through two separate circuits :

- one circuit where oil flows through the oil cooler after having been filtered via the oil filter and then injected on both rotor end faces
- a second circuit supplies non filtered and non-cooled oil directly into the suction chamber. The oil cooler is an oil - air heat exchanger. The fan is driven by the motor. The endplate bearings are provided with ball bearings taken between two shaft lip seals, thus isolated from the pump. They are grease lubricated. The pump is fitted with two gas ballast valves. These can be opened separately or simultaneously, depending whether the amounts of vapor are important or not. By opening the gas ballast valve, a dosed quantity of air - so called "gas ballast" is admitted into the pump chamber. This gas ballast prevents condensation (up to the vapor tolerance specified in the Technical Data) when pumping condensable gases or vapors. Oil suck-back when switching off the pump is prevented by the anti suck-back function of the valve.

Venting of the pump

The anti-suck-back valve closes, with the intake of atmospheric air through tube and hole, whose pressure exerts underneath the valve guiding end. The intake of that air is ensured by the shifting of piston. As the pump stops, its internal pressures get balanced and piston moves freely, thus allowing in air from atmosphere. The up-building pressure thrusts inlet valve upwards against its seat. Pump is isolated from process vacuum and vented over hole. During that operation a certain amount of oil continues to be injected in the pump. To evacuate that oil surplus and thus prevent a chock load on vanes the pump starting again, a drain pipe to oil sump has been fitted. This drain is provided with a non-return valve which prevents the oil from being sucked in, directly from oil sump. As an additional fail-safe device a thermal switch is incorporated; it measures the temperature in the main oil cycle before the oil is injected into the pump chamber.

1.2 Standard specification

The pump is supplied with drive motor in ready to- use condition. The pump is filled with LVO130 or another Leybonol oil as indicated in the additional variant instruction manual. The connection ports are blanked off by plastic protective caps. The pump is delivered on a wood pallet & crate.

1.3 Technical Data

Technical Data

SOGEVAC SV 1200

50 Hz

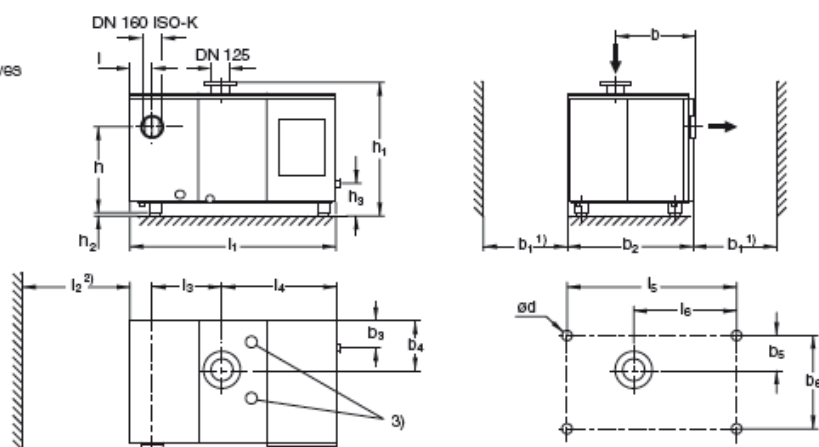
60 Hz

Nominal speed ¹⁾	m ³ /h (cfm)	1150 (677)	
Pumping speed ¹⁾	m ³ /h (cfm)	1070 (630)	
Ultimate total pressure without gas ballast ¹⁾	mbar (Torr)	≤ 0.1 (≤ 0.08)	
Ultimate total pressure with 1 gas ballast ¹⁾	mbar (Torr)	≤ 1.5 (≤ 1.1)	
with 2 gas ballasts ²⁾	mbar (Torr)	≤ 2.0 (≤ 1.5)	
Water vapor tolerance with 1 gas ballast ¹⁾	mbar (Torr)	20.0 (15.0)	
with 2 gas ballasts ²⁾	mbar (Torr)	40.0 (30.0)	
Water vapor capacity with 1 gas ballast ¹⁾	kg/h (qt/hr)	12.5 (13.0)	
with 2 gas ballasts ²⁾	kg/h (qt/hr)	25.0 (26.0)	
Oil capacity, min. / max.	l (qt)	60 (63) / 70 (74)	
Noise level ³⁾	dB(A)	75	
Admissible ambient temperature	°C (°F)	12 to 40 (54 to 104)	
Motor power	kW (hp)	22 (30)	
Nominal motor speed / Pump rated rotational speed	min ⁻¹ (rpm)	1460 (1460) / 700 (700)	1750 (1750) / 700 (700)
Type of protection	IP	54-F	54-F/TEFC ⁴⁾
Weight (with oil filling)	kg (lbs)	1450 (3200)	1500 (3311)
Dimensions (L x W x H)	mm (in.)	1640 x 1021 x 1050 (64.57x 40.20 x 41.34)	
Connection			
Intake	DN	125 PN 10	ASA 150 - 6" ⁵⁾
Exhaust	DN	160 ISO-K	ASA 150 - 6" ⁵⁾
Option ⁶⁾	DN	125 PN 10	-

Conversion factors	Different pressure units			Different pumping speed units			
	Mbar (millibar)	torr	inches Hg vacuum		m ³ .h ⁻¹	l.s ⁻¹	cfm
1 lb = 0.453 kg 1 qt = 0.946 l	1013 400	760 300	0 18.12	m ³ . h ⁻¹ = m ³ /h	1	0.278	0.589
1 hp = 0.735 kW = 1 min ⁻¹	133 4	100 3	25.98 29.80	l.s ⁻¹ = l/s	3.60	1	2.12 l r.p.m.
1 pouce = 25.4 mm	1 0	0.75 0	29.89 29.92	cfm (cubic feet per minute)	1.699	0.472	1
1 atm (atmosphere) = 1013 mbar				Example : 1 m ³ .H ⁻¹ = 0.589 cfm			
1 Pa (pascal) = 0.01 mbar = 10 ⁻² mbar							
1 bar = 1000 mbar							
1 torr = 1.33 mbar							

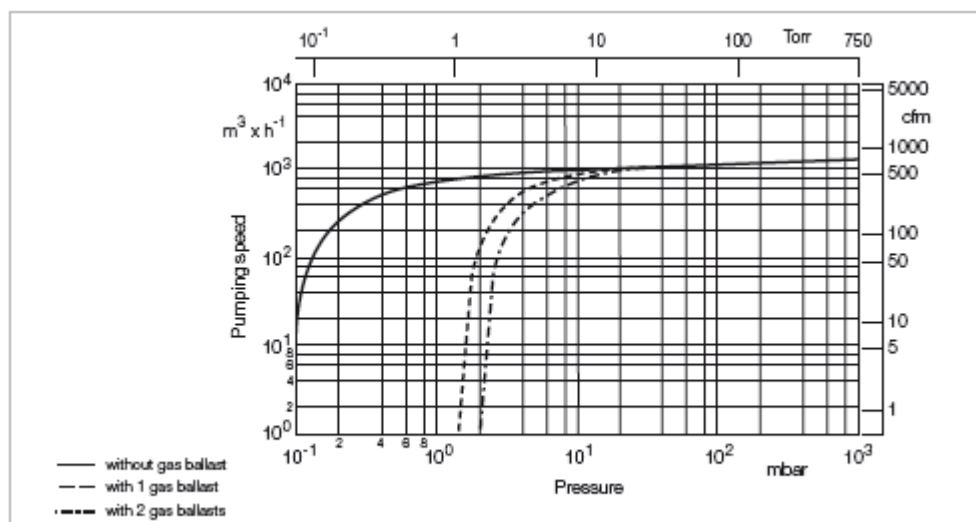
Above data valid with mineral oil Leybonol LVO130

- 1) Clearance for cooling air flow
- 2) Clearance for filter exchange
- 3) Access to the gas ballast valves



Type		b	b ₁	b ₂	b ₃	b ₄	b ₅	b ₆	ø d	h	h ₁	h ₂	h ₃	l	l ₁	l ₂ , min.	l ₃	l ₄	l ₅	l ₆
SV 1200	mm	635	1000	1021	65	386	268	740	18	660	1050	40	240	188	1640	500	547	914	1345	824
	in.	25.00	39.37	40.20	2.56	15.20	10.55	29.13	0.71	25.98	41.34	1.57	9.45	7.40	64.57	19.69	21.54	35.98	52.95	32.44

Inner thread pump feet M16



Pumping speed characteristics of the SOGEVAC SV 1200 at 50 and 60 Hz

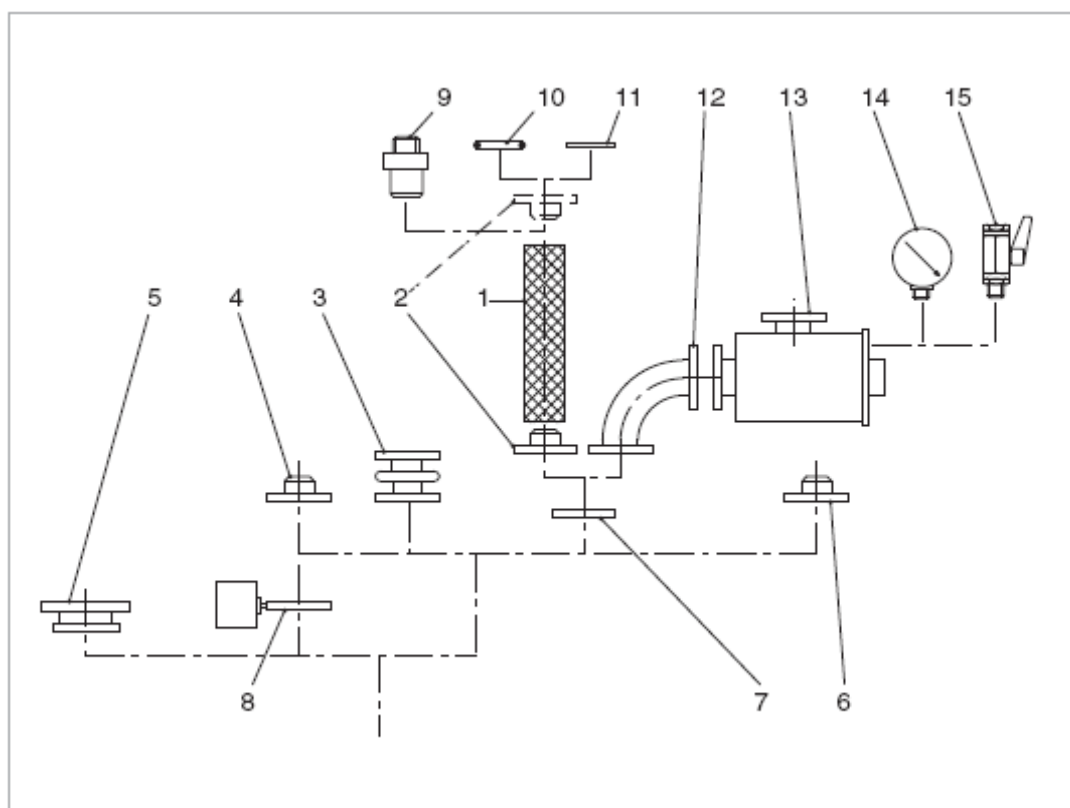
1.4 Ordering information

P/N	Motor & operating frequency	Cooling system	GB	Oil Filter	Oil	Inlet flange	Exhaust flange
10970	400 V 50 Hz - 22kW	Air	2 manual	Yes	LVO130	DN 125 PN 10	DN 160 ISO-K
1097002	400 V 50 Hz - 22kW	Water	2 manual	Yes	LVO130	DN 125 PN 10	DN 160 ISO-K
95070	200-230/460V 60 Hz (Nema)-30 HP	Air	2 manual	Yes	LVO130	ASA 150-6"	ASA 150-6"
9507002	200-230/460V 60 Hz (Nema)-30 HP	Water	2 manual	Yes	LVO130	ASA 150-6"	ASA 150-6"

Other voltages / frequencies upon request

1.5 Connecting Elements

71118329	1 PVC tubing, 90 mm dia., 1 m long
71118363	2 Hose connection, DN 125 PN 10 – DN 90 mm, Steel
71118343	3 Coupling, DN 125 – PN 10, Stainless steel/Aluminum/Rubber
71228863	4 Flange with tubulation (incl O-ring) DN 125 (tube 139,7); Steel
95337	5 Roots adaptor, RUVAC 2001, Steel
71118117	6 Adaptor flange, DN 125 PN 10 – G 4" F, Steel
71118386	7 Collar flange, DN 125 PN 10 – DN 160 ISO-K, Steel
71569202	8 Electropneumatic valve, DN 125 PN 10, Grey cast iron
71118017	9 Hose connection, G 4" M – DN 90, Steel/NBR
71242912	10 O-ring 165 x 5, FKM
71118396	11 Centerring ring with O-ring, DN 125 PN 10 – DN 160 ISO-K, Aluminum
71118287	12 Elbow 90°, DN 125 PN 10, Steel
95175	13 Dust filter with paper cartridge, DN 125 PN 10, (Spare cartridge 2x 71035242) *
71127142	13 Dust filter with activated charcoal cartridge, DN 125 PN 10, (Spare cartridge 2x 71037724) *
71127143	13 Dust filter with metal cartridge, DN 125 PN 10, (Spare cartridge 2x 71037734) *
71127144	13 Dust filter with polyester filter cartridge, DN 125 PN 10, (Spare cartridge 2x 71261508) *
95192	14 Bourdon vacuum gauge, G 1/2" M
71130113	15 Ball valve, G 1/2" M/F, Brass nicked/Aluminum
71241032	* O-ring gasket for Dust filter F630-1200 NBR (Buna N)



1.6 Accessories

cat.-no.	description
971428360	Thermal switch 120 °C
95337	Roots adapter 2001
95338	Roots adapter 3001
9533WH	Roots adapter WH4400 / 7000
95399	Oil level switch
71222360	Exhaust filter monitoring switch, electric
EK96009	Oil filter
71064773	Exhaust filter cartridge (14x required)
71236060	Set of gaskets FKM
71234800	Repair kit, complete (50 Hz)
71234820	Pump module complete (50 Hz)
95148	Condensate traps SL 1200
71130100	Drain Cock
95195	Exhaust filter gauge, mechanical

(For other accessories, please contact Leybold)

1.7 Lubricants

The SOGEVAC® pumps should be run with mineral oils for vacuum pumps with low viscosity according to ISO category VG68. The Leybold oil fulfills these specifications.

Pump oil LVO130	Catalog Number
5 l	L13005
20 l	L13020
200 l	L13099

You may use other Leybold lubricants adapted to the applications. Please consult us. The use of non Leybold oils can change the pump performance and may cause damage or reduce the maintenance intervals. If non Leybold oils are used during the warranty period, Leybold may reject any warranty claim.

1.8 Transportation and Storing

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 pump is delivered enclosed in a plastic foil with dessicant bags inside. 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 pumps have the oil filled in and must only be moved in the upright position (horizontally). Otherwise oil may escape. Avoid any other orientations while moving the pump. See figure below. The SV1200 can be handled underneath with a forklift or a pallet jacking transportation truck (1500 kg capacity). Furthermore, it is fitted with lifting lugs for slings fitting. In that case, the upper hooding will have to be taken off, to gain access to lugs. The SOGEVAC SV1200 must be set up on any flat, horizontal surface. Under the four feet there are holes (15 mm dia.) for securing the pump. These holes are normally used to fit the 4 standard rubber mounts.

Check the pump for the presence of any oil leaks, because there is the danger that someone may slip on the oil which has leaked from the pump.

Only use the lifting lugs which are provided on the pump to lift the pump with the specified lifting devices. Make sure that these have been installed safety. Make sure that all safety regulations are observed.

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.

CAUTION



WARNING

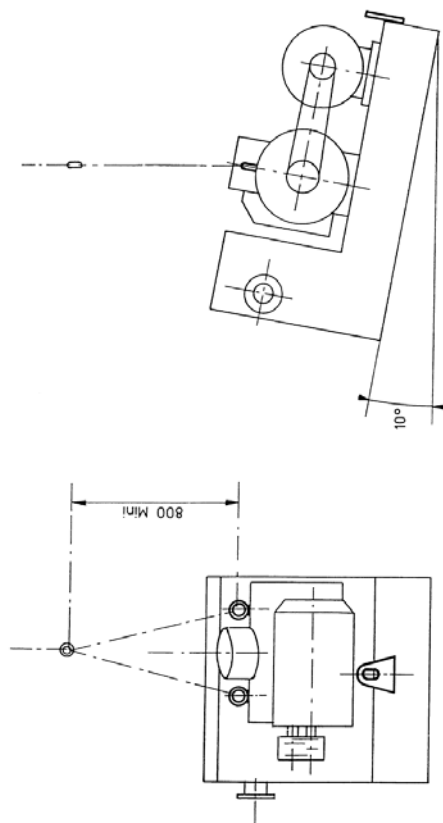


Fig.10

Storage

Until the pump is put back in to service once more, the pump should be stored in a dry place, preferably at room temperature (20 °C). 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 inlet and exhaust ports of the pump must be blanked off using seals. The gas ballast must be closed and if the pump is to be shelved for a longer period of time it should be sealed in a plastic bag together with a desiccant (Silica gel). If the pump has been shelved for over one year, standard maintenance must be run and the oil must be exchanged too (see Operating Instructions) before the pump is put in to service once more. We recommend that you contact the service from LEYBOLD.

CAUTION



2. Operation

2.1 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.

WARNING



The oil level cannot be read properly if the pump is inclined. The oil intake pipe may no longer be immersed in oil even though the oil - level glass is still covered. The pump's ambient temperature should be between 12°C and 40°C (55°F and 105°F). By modifying the pump or changing the oil type, the pump can run at a higher or lower ambient temperature. Please, consult us about this. To ensure adequate cooling of the pump, leave about 1.0 m space at the air intake and exhaust points. Make sure to keep the pump and air intake of the motor clean. The air flow around air-cooled pumps must remain unobstructed. Observe the information provide in the operating Instructions. The maximum amount of heat given off by the pump approximately corresponds to the amount of installed motor power.

The pump is not suited for the following processes and for the pumping of :

- 1) Explosive gazes and vapors
- 2) Oxidants
- 3) Pyrophoric gases
- 4) acids or reactive gases
- 5) the pumps are not suitable for pumping liquids or media which contain a lot of dust. Corresponding protective measures must be introduced. For more information, please contact our technical sales department.

CAUTION



2.2 Connection to Vacuum System

2.2.1 Intake Side

The pump has a PN 10 DN 125 (2.10) flange for connection. Using suitable connection elements, the pump can be connected to the vacuum system via a T- piece or a hose. A gauge or a venting valve can be connected to the T-piece. The cross section of the intake line should be at least the same as that of the intake port. If the intake line is too narrow, it reduces the pumping speed. We recommend applying LOCTITE 577, 515, 567 or Teflon tape to the screwed unions so that they are vacuum tight. If the medium pumped contains dust, it is absolutely essential **to install a F 1200 dust filter**. Install the dust filter horizontally on the T-piece . This ensures that when removing the filter, no particles fall into the intake port. We recommend a separator on the intake and on exhaust side when vapors have to be pumped (see section).

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

CAUTION



2.2.2 Exhaust side

The SOGEVAC SV1200 has integrated exhaust filters which, even at a high gas throughput, trap the oil mist with up to 99.9 % reliability and guarantee exhaust gas free of oil mist. If the exhaust filters are blocked, a pressure relief valve opens at 1.5 bar absolute (7 psid), and the filters are by-passed. As a result, the proportion of oil in the exhaust gas as well as the pump's oil consumption rises.

Check in the individual case whether an exhaust line is necessary and/or prescribed. Volatile substances can pass in the filter. Depending on the properties of the medium being pumped, we recommend connecting an exhaust line ; this is always necessary where the exhaust gases are dangerous.

CAUTION



Important

Depending on the type of use of the pump and the medium pumped, please observe the relevant safety rules and specifications. The exhaust port is provided with a 160 ISO-K flange or an ASA 150-6" (USA). As an option, a PN 10 DN 125 adaptation collar flange can be fitted. A hose can be connected via connecting part. The cross-section of the exhaust line should be at least the same as that of the pump's exhaust port. If the exhaust line is too narrow excessive pressure may build up in the oil casing. **Install the exhaust line with a downward slope** to prevent condensate from flowing back into the pump. If this is not possible, you must incorporate a condensate trap.

You must not operate the pump with a blocked or restricted exhaust line. Make sure before start-up that any blinds or similar shut-off devices in the exhaust line on the pressure side are opened and that the exhaust lines are not obstructed by deposits. 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.

Also reliably prevent the occurrence of any blockage in the exhaust line. Exhaust filter, accessories and the tubing must be rated according to the maximum throughput. The maximum throughput is equivalent to the pumping speed of the pump (see technical data stated in the Operating Instructions).

CAUTION



2.3 Electrical Connections

Electrical connection must only be carried out by a qualified electrician in accordance with the applicable safety rules. Connect the pump's motor to the right supply voltage via the connections in the motor junction box. The relevant safety rules require the use of a suitable motor protection switch. Set the switch in accordance with the rating on the motor nameplate. Check the motor name plate for the allowed voltages & ratings.

The Ordering information indicates at which frequency the motor shall be supplied. A change of frequency is not allowed.

After connecting the motor and after every time you alter the wiring, **check the direction of the rotation**. Refer to the marking on the motor's hood. During the check, the intake port should be open. If the direction of rotation is wrong, oil may be ejected via the intake port. For the check, switch on the motor briefly. If it starts up with the wrong direction of rotation, switch it off immediately and interchange two phases of the connection. It is recommendable to check the direction of rotation with a phase-sequence indicator. **Prolonged running of the motor in the wrong direction of rotation will damage the pump !** When the pump is turning in the wrong direction the vacuum system may be pressurized by the pump.

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

If any security switch or electrical defect cuts out the pump, re-start-up of the pump has to be possible only manually.

DANGER



DANGER



DANGER



CAUTION



Motor protection device

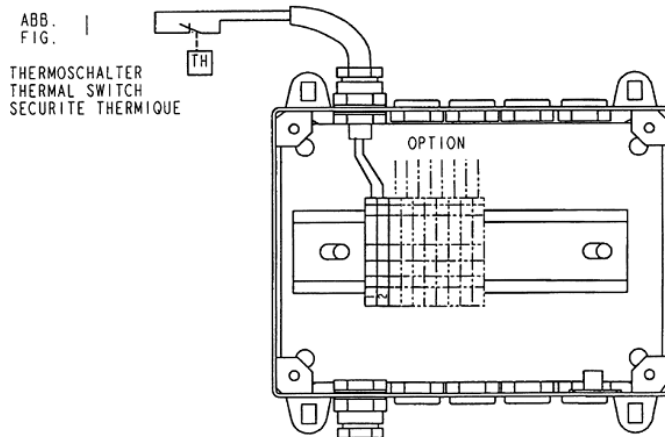
To protect the motor windings against a variety of operational malfunctions, the motor of the SV630 BF is fitted with protection devices. PTC thermistors to IEC 60034-1 and DIN 44081/440823 are temperature - dependent, semi-conductor devices embedded in the motor windings.

Working principle

Non-linear variable resistors. It is recommended to connect them to the control circuit. PTC thermistors ensure a good protection against the overheating of the motor.

When connecting the motor, the thermal switch must also be connected.

The pump is switched off once a certain temperature (120 °C) is exceeded. It is also possible to connect a sound or light alarm system. The pump is designed for direct starting even under load conditions, i.e. the pump can be switched on against vacuum in the intake port. If local regulations require a WYE-DELTA starting, connect the pump to the system so that it can start load 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. starting valve can be mounted. Please, contact us in this case.



Breaking power on resistive circuit 25 VAC or 60 V DC max.
To be serial wired with the coil of motor's contactor. Use an auxiliary relay.

2.4 Start-up

The pumps are supplied with the necessary oil filling in ready-to-use condition. Always verify proper oil-level and proper motor rotation before operating the pump. The pump unit is designed for fail-safe start-up at temperatures over 12°C (55°F) (as per PNEUROP).

2.5 Operation

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

To allow the trapped oil to drain from the stator 2.16 to the oil sump over the drain valve, the pump should be kept off at least 2 minutes after each stop. The SOGEVAC SV 1200 can pump gases and vapors (even saturated water vapor up to the water vapor tolerance indicated in the Technical Data), provided that the gas ballast valve(s) is (are) open and the pump has reached its operating temperature. To avoid overloading the motor, do not start the pump more than 2 times within one hour. After each stop wait one or two minutes before starting the pump again in order to drain the oil contained in the pump ring (see § 1.2). If more that 2 starts per hour are necessary keep the pump running and mount a valve which opens and closes into the intake line.

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

DANGER



CAUTION



CAUTION



2.5.1 Pumping of non-condensable gases

If the pump system contains mainly non-condensable gases, the SV1200 can be operated without gas ballast, provided that the saturation vapor pressure at operating temperature is not exceeded during compression. 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 2.5.2.

2.5.2 Pumping of Condensable Gases and Vapours

With the gas ballast valve(s) open and at operating temperature, the SOGEVAC SV1200 can pump pure water vapour up to the values indicated in the Technical Data. The pump's water vapor tolerance can be increased by raising the operating temperature. The gas ballast valve(s) is (are) opened/closed by a screw driver via an access hole in the upper hood. The running noise of the pump is slightly louder if the gas ballast valve is open. Before pumping vapors, ensure that the SV1200 has warmed up for approx. 20 - 30 min. with closed intake line and with both gas ballast valves open.

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.

For processes with a high proportion of condensable vapors, the intake line should be opened only slowly after reaching the operating temperature to prevent excessive quantities of vapor entering the pump. One sign of condensation of vapors in the pump is a rise in the oil level during operation of the pump. In cycle operation, the pump should not be switched off during the intervals between the individual working phases, but should continue to run with gas ballast valve(s) 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 attainable ultimate pressure.

When vapors are pumped, the SV1200 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 in this mode for at least 30 min. after completion of the process.

NOTICE



CAUTION



2.6 Water cooling (option)

The SV 1200 can be equipped with a water cooling system and a thermostatic valve. Depending on the local regulations, the cooling water needed may not to be taken from the drinking water mains. The thermostatic valve regulate the cooling water throughput, and so the pump temperature. The valve is set in standard on position 1. Normally, the thermostatic valve should be set somewhere in the range from 1 to 3. Thermostat setting 1 (valve fully open) produces a low operating temperature of the pump, and setting 3 (valve nearly closed) a high one. On higher positions than 1, ultimate pressure may degrade.

Technical data :

Water pressure min./max. 2/8 bar

Maximum / Average water flow 1 400 / 550 l/h

Inlet water temperature 5 - 25 °C

Connection with barbed fittings for hoses inner diameter 16 mm.

Water Quality

In order to ensure long trouble-free operation the cooling water must not contain any oils, greases and suspended solids. Moreover, we recommend compliance with the following limit values:

Water cooling

	TH (°f)	0°	4°	8°	12°	20°
Water quality		Corrosion (water too soft)		Service area		Incrusting water (deposit of scale)
	PPm	0	30	90	160	300
Carbonat content		Corrosion (water too soft)		Service area	Incrusting water	Very incrusting water
	PH	0	5	7,5		
		Corrosion (water too soft)		Service area	Incrusting water	

Appearance	Clear, free of oils and greases
Suspended matter	< 250 mg/l
Particle size	< 150 µm
Electrical conductivity	< 700 µS/cm
Aggressive carbon dioxide	None, not detectable
Chloride	< 100 mg/l
Sulfate	< 150 mg/l
Nitrate	≤ 50 mg/l
Iron	< 0.2 mg/l
Manganese	< 0.1 mg/l
Ammonium	< 1.0 mg/l
Free chlorine	< 0.2 mg/l
If there is the danger of frost, you may use a water glycol mixture of up to 30 %.	

Do not use deionized cooling water.

To clean the heat exchanger : it is recommended to clean at least twice a year the water circuit.

For that, dismantle the exchanger from the pump. Chemical cleaning is the most efficient, with dilute hydrochloric acid solution (5 to 10%) then neutralize with hexamethylethyrene tetramine at 0.2 %. For a 1 mm coat of scale, leave acting the acid during about 30 min.

The system must be open during the operations, so the product gases can escape. Rinse copiously with water after neutralization.

Proceed in an open and well ventilated place.

Observe the safety regulations given by the manufacturer of the product you are using.

Observe the regulations for the treatment and the disposal of chemical products. Observe the relevant environmental regulations.

Draining of the water-cooling circuit (before transport, long time storage, winter time). Remove the cover and place a water recovery pan under the heat exchanger and unscrew the plug.

The heat exchanger water will drain.

To drain completely the heat exchanger:

Remove the water outlet hose and close the water outlet with a plug.

Remove the water inlet hose

Connect a compressed air supply in place of plug Item 57 and blow.

Attention, water will be evacuated through the water inlet connection.

Reassemble in the reverse sequence

WARNING



CAUTION



2.7 Switching off/Shutdown

The intake port of the SOGEVAC 1200 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 into the apparatus. The valve's functioning is not impaired by gas ballast operation. When using the SV1200 in process with aggressive or corrosive media, let the pump continue to operate even during long non-working intervals (e.g. overnight) with the intake line closed and the gas ballast valve open. This avoids corrosion during idle periods. If the pump is to be shutdown for a prolonged period after having been used to pump aggressive or corrosive media, it should at once be thoroughly flushed out and filled with clean oil (see section 3.2). Please contact us if you have any other queries about the compatibility of aggressive or corrosive media. If the SV 1200 is to be shutdown, drain the oil, flush out the pump with fresh oil and fill in the required amount of clean oil (see § 1.4). Close the connection ports. Special preservation of slushing oils do not need to be used.

2.8 Ultimate pump pressure

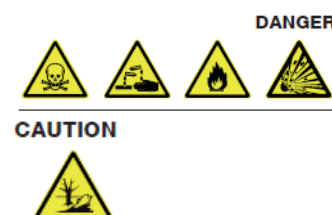
If the values specified in the Technical Data are not attained in the apparatus, measure the ultimate pressure directly at the pump's intake port after disconnecting the pump from the apparatus. The ultimate pressure of non-condensable gases (ultimate partial pressure of air) can only be measured with a vacuum gauge. Leybold offers a comprehensive range of measuring gauges & displays. Precise measured values can only be obtained with calibrated instruments. Upon initial start-up, after prolonged idle periods or after an oil change, it takes a while until the pump reaches the specified ultimate pressure. The pump has to attain its operating temperature, and the pump oil has to be degassed. It is at all events advisable to operate the pump initially with the gas ballast valve open. The ultimate pressure depends on the pump temperature and the pump oil used. The best ultimate pressures can be obtained at a low pump temperature and by using the oil types recommended by us.

3 Maintenance

3.1 Safety information

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

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



Due to the design concept, SOGEVAC SV 1200 pumps require very little maintenance. The work required is described in the sections below. All work on the pump must be carried out by suitably trained personnel. Maintenance or repairs carried out incorrectly will affect the life and performance of the pump and may cause problems when filling warranty claims.

Note

Where the SV 1200 is used for corrosive media, do any maintenance immediately after shutdown to avoid corrosion during idle periods. Treat all sealed areas of the pump with utmost care.

3.2 Maintenance Schedule

The intervals stated in the maintenance schedule are approximate values for normal pump operation with mineral oil LVO130. Unfavorable ambient conditions and/ or aggressive media may greatly reduce the maintenance intervals.

To simplify the maintenance work, we recommend combining individual jobs.

Maintenance job	Frequency
Check the oil level	Daily
Check the oil condition	Depends of process
1st oil change	After 150 h of operation
Subsequent oil changes	Every 2000 h or 6 months C (depending on application & oil type used)
Replace the oil filter	At each oil change
Replace the exhaust filter	If oil mist at exhaust or annually
Clean the dirt trap	Depends of process at least annually
Check the anti-suckback valve	Annually
Clean oil air cooler	Annually
Clean oil water cooler	Depends of cooling water quality, all 6 months
Clean the gasballast filter	Monthly
Checking the float valve	When changing the exhaust filters
Replacing the exhaust valves	In case of specific pump servicing
Replacing the pump module	In case of specific pump servicing
Disassembling and reassembling the pump module	In case of specific pump servicing
Control of belts	6 months

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.

3.3. Checking the Oil

3.3.1 Oil level

The oil level of the pump in operation must always be between the middle and the top edge of the oil level glass. Oil should be replenished when necessary, through filling port. Do not exceed oil level glass upper edge overfilling leads to oils losses at pump exhaust, and excessive strain for demisters.

3.3.2. Oil condition (LVO130)

Normally the oil is clear and transparent. If the oil darkens, it should be changed. If gases or liquids dissolved in the oil produce a deterioration of the ultimate pressure, the oil may be degassed by allowing the pump to run for approx. 30 min. with closed intake port and open gas ballast valve. When an oil sample is needed to determine whether an oil change is required, oil should be discharged via the oil-drain plug into a beaker or similar container with the pump switched off but still at operating temperature.

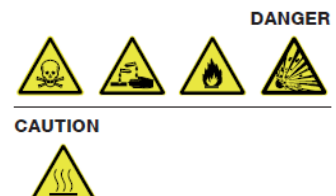
Depending on the process involved dangerous substances may escape from the pump and oil. Take the appropriate precautions. Observe the safety regulations



3.4 Oil Change

Always carry out the oil change when the pump is switched off but still warm. If there is a risk of the oil being polymerized owing to the connected process, the oil should be changed immediately after completion of the operation. Remove the oil-drain plugs and let the used oil drain into a suitable container.

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



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.

When the flow of oil slows down, screw the oil drain plugs back in, briefly switch on the pump (max. 5 s) and switch it off. Remove the oil drain plugs again and drain the remaining oil. Screw the oil-drain plugs back in (check the O-rings and replace them if necessary). Ensure that both oil drain plugs are always well tightened. Open the front single door Remove the oil-fill plug and fill in fresh oil. Then screw the oil-fill plug back in and close the door. In the event of considerable contamination, the pumps should be flushed by filling in with fresh oil only up to the bottom edge of the oil-level glass, running it for a short while and then changing the oil again.

Attention : When filling in new oil

In addition to the oil to be filled in over the filling port till obtaining the normal oil level, an additional 6 liters oil quantity will have to be filled in over the exhaust port to build up a permanent reserve in the exhaust demisters chamber. In case, this is not performed, that quantity will be missing in the main oil reserve after a certain time and the oil level will fall. Use suitable oil only (see section 1.6).

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



3.5 Replacing the oil filter

Tool required: Oil filter band wrench (ref: 710 73 532). **Whenever changing the pump oil, replace the oil filter.** Open the front door. Screw off the used oil filter. Moisten the new filter and the sealing ring with oil and retighten. Close the door.

3.6 Greasing the bearings

The bearings are lubricated with special high temperature long life bearing grease. Please contact us for greasing operations.

The motor bearings must be changed every 20 000 h. Please check the instruction manual of the motor, also available on Internet. Clean the motor and remove its condensate plugs once a year at least.

3.7. Replacing the Exhaust filters and Checking the Pressure Relief Valves

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



Tools required: Open-jaw or ring spanner 10 and 13 mm, special key for pressure relief valve (ref: 710 72 293). When the exhaust filter elements are clogged, the bypass valves open for safety reasons and the filters are by-passed. Oil mist at the exhaust is thus a sign of inefficient filter elements. The exhaust filters must be replaced more frequently if subjected to increased oil cracking products at high operating temperatures and/or aggressive media. Open the door and the oil case cover. Unscrew the nuts. Remove the fastening flats. The filter elements can now be replaced by new ones. Check that the 6 bypass valves are clean and work properly. Reassemble in the reverse order. Ensure that the seal is in good condition.

3.8 Replacing and tightening the V-belts

The tension of the V-belts is provided by a belt tightener which once adjusted keeps them automatically tightened.

3.8.1 Replacing the V belts

Have the V-belts jump their grooves. Take off fan deflector securing bolts. Disconnect fan by unscrewing both screws. Push the fan deflector back, against the motor to clear the passage to extract the fan. Extract the worn V belts, through the deflector central opening. Use same opening to insert the new ones. Reassemble fan with screws non fully tightened. Reinstall deflector and tighten screws (5.3) fully home. Secure the deflector with screws. Fit V-belts into their grooves by watching that the automatic belt tightener pulley contacts the inner side of the belts.

3.8.2 Adjusting of the belt tightener

Adjusting of the automatic belt tightener has to be done the V-belts not yet fitted in their grooves. To do so, loosen the hexagonal head screw. Set pulley holding arm at about 30°, with respect to the horizontal line. Retighten screw. Fit V belts in their pulley grooves by watching, that tightener pulley contacts the inner side of the belts. Both following cases may turn up:

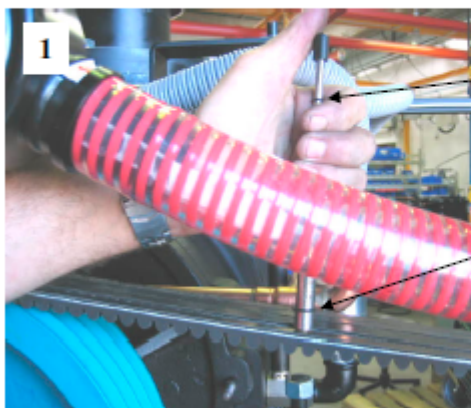
- Impossibility to fit the V-belts in their grooves.

- V-belts are slack once fitted in their grooves.

If it is impossible to fit the V-belts, loosen slightly screw and increase the arm angle till belts fitting becomes possible.

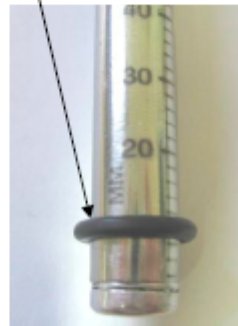
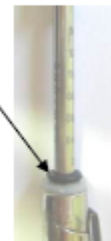
Mesure de la tension des courroies avec un tensiometre (REF LEBOLD : 971437840)
Measurement of the V-belt tension with the tensiometer (PIN LEYBOLD 971437840)
Messung der Riemen Spannung mit einem Dynamometer (Sach – Nr 971437840)

Repérer la courroie la plus longue et positionner l'outil au milieu sur celle-ci (marquer cette courroie)
Position of the tool on the longest V-belt in its centre and mark this belt.
Dynamometer in die Mitte des längsten Keilriemens stellen, und Riemen markieren.

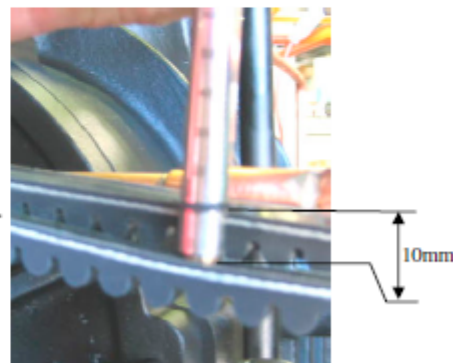
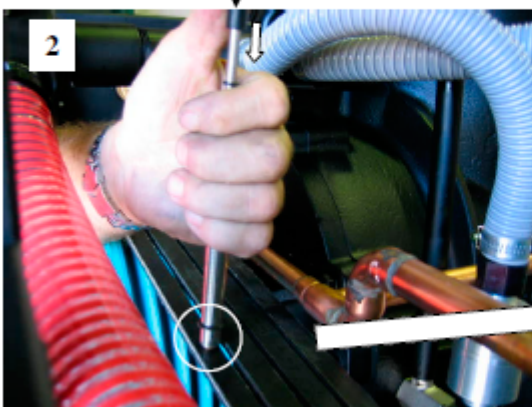


Le joint torique à la position initiale 0 N
O-ring set on initial position 0 N
O-Ring auf Position 0 N eingestellt

Le joint torique est sur la position 10 mm
O-ring is set on position 10 mm
O-Ring auf Position 10 mm einstellen



Pousser sur l'outil jusqu'à une flexion de 10mm sur la courroie
Push the tool down until you reach a 10 mm belt deflection
Auf die Dynamometer drücken, um eine Biegung von 10mm zu erreichen

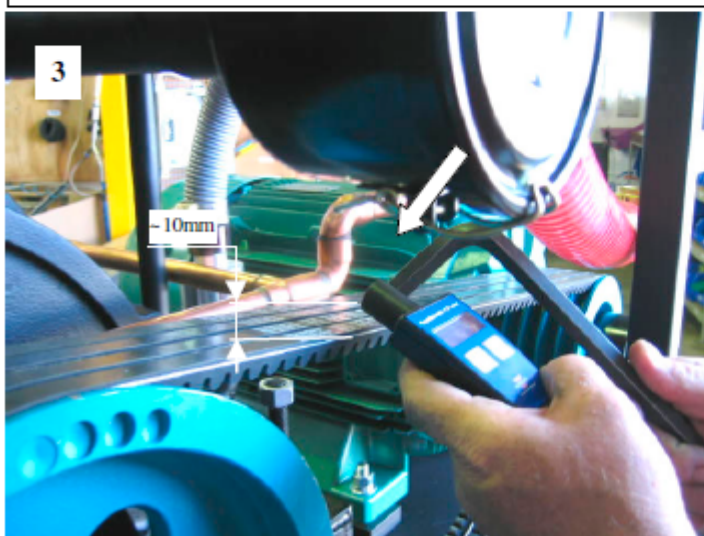


La force F nécessaire pour obtenir une flèche de 10mm est donnée dans le tableau page 3.
 The necessary force F to deflect the belts by 10mm is given in table page 3.
 Die notwendige Kraft F um die Riemen um 10mm zu biegen ist in der unten stehenden Tabelle angegeben Seite 3.



Mesure de la tension des courroies avec une mesure de fréquence
 Measurement of the belts tension with a frequency measurement
 Spannung der Riemen mit Frequenzmessung

Se positionner entre la poulie générateur et la poulie moteur, 10mm au dessus des courroies.
 Place the frequency meter between the motor and generator pulleys, 10mm above the belts.
 Frequenzmeter zwischen die Motor und Generatorscheiben, 10mm über die Riemen halten.



Taper un coup sec et lire l'afficheur puis se référer au tableau page 3 pour la fréquence f (Hz) nominale.
 Strike the belt and read the frequency f (Hz). Refer to the table page 3 for the rated value.
 Auf den Riemen schlagen und den Wert ablesen, Bitte die Tabelle Seite 3 für den Nennwert beachten.

VALEURS DE TENSIONS DES COURROIES CRANTEES TIGHTENING VALUES OF THE NOTCHED V-BELTS SPANNUNGSWERTE DER GEKERBTEN KEIL RIEMEN											
			AVANT RODAGE Before run-in Vor dem Einlauf		RETENSION (après 10 à 24h) Re-tightening (after 10 to 24h.) Nachspannen (nach 10 bis 24st.) (1)			Vérification périodique (~6 mois ou 3000h.) Regular check (~6 months or 3000h.) Periodische Überprüfung (~6 Monate oder 3000St.) Valeurs en dessous desquelles une retension est nécessaire.* Value under which a re-tension is necessary.* Wert unter welchem eine Wiederspannung notwendig ist.*			
POMPE PUMP PUMPE	COURROIES BELTS RIEMEN L[mm]	REF LEYBOLD PIN LEYBOLD Sach Nr LEYBOLD	EFFORT FORCE KRAFT F [N]	FREQUENCY FREQUENCY FREQUENZ f [Hz] HFX HFX plus		EFFORT FORCE KRAFT F [N]	FREQUENCY FREQUENCY FREQUENZ f [Hz] HFX HFX plus		EFFORT FORCE KRAFT F [N]	FREQUENCY FREQUENCY FREQUENZ f [Hz] HFX HFX plus	
SV1200	2000	71223400	45	mini 43 maxi 45	mini 49 maxi 51	40	mini 39 maxi 41	mini 44 maxi 46	35	36	41
SV1200 USA	2150	71231460	50	mini 45 maxi 47	mini 51 maxi 53	45	mini 42 maxi 44	mini 48 maxi 50	40	38	43

(*) Retendre suivant les valeurs de la colonne (1) / Re-tighten with values given in column (1) / Nachspannen mit Werte der Kolonne (1)

Prendre les mesures toujours sur la même courroie. / Measure always on the same belt. / Immer die Messungen auf dem gleichen Riemen vornehmen

ATTENTION : Ne jamais détendre les courroies, si la mesure est > au maxi de la colonne (1), ne pas intervenir sur la tension de la courroie.

ATTENTION : Do not untighten a belt if the measurement is over the value in column (1). Do not change the V-belt tension.

ACHTUNG : Keilriemen nicht entspannen falls deren Spannung über dem Wert in Kolonne (1) liegt. In diesem Fall die Spannung des Riemens nicht ändern.

3.9 Cleaning the dirt trap

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



3.9.1 Intake port

A wire-mesh screen is located in the pump's intake port to act as a dirt trap for impurities. It should be kept clean at all times in order to avoid reduction of the pumping capacity. For this purpose, disconnect the intake line, remove the dirt trap from the intake port by removing the circlip and rinse it in a suitable container using a solvent. Then thoroughly dry it with compressed air. If the dirt trap is defective, replace it. The cleaning intervals depend on requirements. If large amounts of abrasive materials occur, a dust filter should be fitted into the intake line.

3.9.2 Gas ballast

When the pump operates with open gas ballast valves, check the filters behind the gas ballast intake once a month. If required, replace it. To do so, open the front double door. Release the clips on the gas ballast filter housing, remove the filter cartridge and insert the new one. Reassemble in the reverse order.

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



3.10 Checking the anti suck back valve

Tool required: Allen key 14 mm The anti-suck-back valve must be kept clean to ensure proper operation of the pump. If large amounts of dust or dirt occur, we strongly recommend installing a dust filter upstream. First, remove the intake line. Remove screws and take off the intake port. Remove the anti-suck-back valve, the spring and the O-ring. Clean all parts and check that they are in perfect condition; if not, replace them. Clean the valve guiding bore. Check, for good condition of guiding bushings. Reassemble in reverse order.

3.11 Checking the pump venting control device

Tool required: Open jaw spanner : 13 mm. With the tubing disconnected, take off cover, membrane and piston with its O-Ring. If necessary, clean the piston bore, so as concerned tubing, including the atmospheric air venting tube. Check the condition of O ring contact area on piston bore bottom. Reassemble in reverse order. Be careful when reassembling the piston which is to be fitted with O-ring showing against bore bottom (opposite to membrane). The membrane can be mounted both ways. It fits between piston and cover.

3.12 Checking the float valve oil return

Tools required: Tube spanner 10 mm, 13mm, 17 mm. If the pressure does not fall below approx. 5 mbar (4 torr) during pump operation, the tightness of the float valve and return line should be checked. Open the double door (1.33) and remove the oil case cover. Unfasten the clamp and remove the cartridge together with the gasket. Loosen the screw and dismount the complete float valve including the float, the sealing element, the O-ring, the pin and the glued-in nozzle.

Attention

Don't remove the glued-in nozzle from the float valve. Clean the nozzle. Check the tightness of the float valve. Check all gaskets and replace them if necessary. Reassemble in the reverse order.

When ordering spare parts, please always state the serial and catalogue numbers of the pump.
We reserve the right to alter the design or any data given in these Operating Instructions. The illustrations are not binding.

Replacing the pump module

Fully assembled pump modules are available. Consult Leybold.

Disassembling and reassembling the pump module

Consult Leybold.

4. 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 ☐ Documents ☐ Download Documents.

Attach the form to the equipment or enclose it with the equipment.

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

We must return to the sender any equipment which is not accompanied by a contamination statement.

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.

Fault	Possible cause	Remedy	Repair aid*
Pump does not start	Pump is incorrectly connected. Operating voltage does not match motor. Motor protection switch is incorrectly set. Motor is malfunctioning. Oil temperature is below 12°C Oil is too viscous Exhaust filter/exhaust line is clogged. Power transmission by V-Belts is impaired Vane is broken or pump is seized up (sign: pump is jammed).	Connect as per circuit diagram. Replace the motor Set motor protection switch properly Replace the motor Heat the pump and pump oil or use different oil Change the oil Replace the filter or repair the pressure relief valves, clean the exhaust line. Tighten or replace the V-belts. Repair the pump	2.3 2.3 2.3 Service 3.3 3.3 3.6 3.7q Service
Pump does not reach the ultimate pressure	Pump is too small. Measuring technique or gauge is unsuitable. Float valve does not close. Defective venting system. Inadequate lubrication owing to - clogged oil filter - contaminated oil - clogged oil lines External leak 1) Anti-suckback valves closes Exhaust valve is defective Rotor play is too large.	Check the process data, replace the pump if necess. Use correct measuring technique and gauge. Check the float valve and repair it if necessary. Check the venting system. Replace the filters Degas or change the oil Clean the oil line and the oil case Repair Repair the valve Repair the valve Repair the pump.	- 2.7 3.9 3.10 3.4 3.2.2/3.3 - Service 3.9 Service Service
Pumping capacity of the pumps too low	Dirt trap in the intake port is clogged Exhaust filter is clogged. Rotor play is too large Connecting lines are too narrow or too long.	Clean the dirt trap Precaution: install a dust filter in intake line Replace the filter elements Repair the pump Use adequately wide and short connecting lines.	2.2.1 3.6 Service 2.2
Pump gets unprecedently hot.	Air intake or discharge points of the cooler are obstructed or dirty. Exhaust filter/exhaust line is obstructed. Lubrication is inadequate owing to - clogged oil filter - contaminated oil - clogged oil lines Exhaust valve is defective Fan is defective	Set pump un correctly or clean the cooler Replace the exhaust filters or repair the pressure relief valves, clean the exhaust line. Replace the filter Degas or change the oil Clean the oil lines and oil case Repair the valves Repair the fan	2.1 3.6 3.4 3.2.2/3.3 - Service Service
Pump is too loud.	On new pump: inadequate run-in of vanes Inadequate lubrication owing to : - clogged oil filter - contamination of oil - clogged oil lines	Noise must disappear after approx. 300 hours of operation otherwise consult our Service Dpt. Replace the filter Degas or change the oil Clean the oil lines and oil case	Service 3.4 3.2.2/3.3 -
Oil consumption is too high, oil mist at the exhaust.	Exhaust filter elements are clogged or damaged. Nozzle of the float valve is clogged Oil level is too high.	Replace the exhaust filter Check the float valve, clean the nozzle Drain the excess oil.	3.6 3.11 3.3
Oil in the intake line or in the vacuum vessel	Oil comes from the vacuum system Anti-suckback valve is obstructed Sealing surfaces of the anti-suckback valve are damaged or dirty. Motor turns in the wrong direction. Oil level is too high.	Check the vacuum system Clean or repair the valve Clean or repair the intake port and anti-suckback valve Interchange two phases at the motor connection. Drain the excess oil.	- 3.9 3.9 2.3 3.3
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.	3.2.2/3.3 2.2

* Repair aid: see section of the text stated. 1) Bubble test: Let the pump run at operating temperature with degassed oil, without gas ballast and with closed intake port. Immerse the exhaust line in a container with water. If steady bubble stream appears, the pump has an external leak.

6 Spare parts

To guarantee safe operation of the Leybold vacuum 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

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

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.

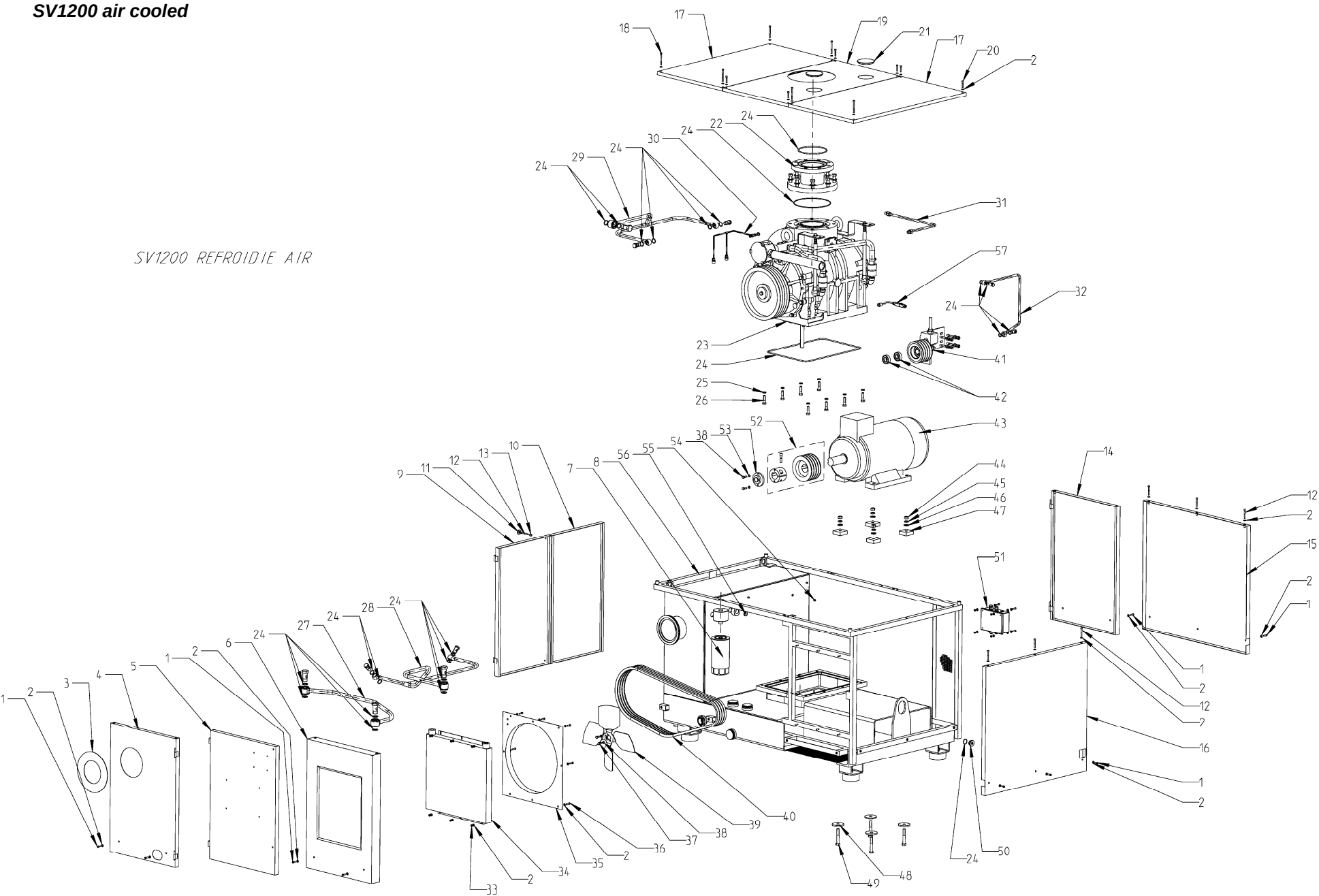
7 Spare part list

Pos. Item	Qté Qty Stück	DESIGNATION	DESCRIPTION	BENENNUNG	REF. Part N° Bestell Nr	Remarques Notes Bemerkungen
1	12	VIS CHC M6 X 20 Q8.8 ZINGUEE	SCREW	SCHRAUBE		
2	44	RONDELLE MN6 ZINGUEE	WASHER	SCHEIBE		
3	1	RONDELLE SOUPLE REFOUL	WASHER	SCHEIBE		
4	1	CAPOT CHEMINEE AV.				
5	1	PORTE DE MAINTENANCE	MAINTENANCE DOOR	WARTUNGSGZUGANG		
6	1	CAPOT RADIATEUR	OIL COOLER HOOD	OELKÜHLER HAUBE		
7	1	FILTRE HUILE 1" - 12UNF	OIL FILTER	OELFILTER	EK96009	
8	1	CARTER D'HUILE	OIL CASING	OELKASTEN		
9	1	PORTE CARTOUCHES DROITE	DOBLE DOOR (RIGHT)	DOPPELTÜR (RECHTS)		
10	1	PORTE CARTOUCHES GAUCHE	DOBLE DOOR (LEFT)	DOPPELTÜR (LINKS)		
11	2	TETE MOLETEE POUR VIS CHC M6	KNURLED HEAD	RÄNDELKOPF		
12	8	VIS CHC M6 X 50 Q8.8 ZINGUEE	SCREW	SCHRAUBE		
13	2	ENTRETOISE D12XD6.4X10 POLYAMIDE NOIR	SPACER	ZWISCHENSTÜCK		
14	1	CAPOT CHEMINEE AR.				
15	1	CAPOT ARRIERE	REAR COVER	HINTERE HAUBE		
16	1	CAPOT LATERAL	LATERAL HOOD	SEITENHAUBE		
17	2	CAPOT SUPERIEUR	UPPER HOOD	VORDERHAUBE		
18	6	VIS CHC M6 X 70 Q8.8 ZINGUEE	SCREW	SCHRAUBE		
19	1	CAPOT ASPIRATION	INLET HOOD	HAUBE		
20	6	VIS CHC M6 X 35 Q8.8 ZINGUEE	SCREW	SCHRAUBE		
21	2	COUVERCLE NOIR DN92	COVER	DECKEL		
22	1	BRIDE ASPIR. 160ISO.K ENS.	INTAKE FLANGE 160ISO.K	ANSAUGFLANSCH 160ISO.K	EK71236601	
	1	BRIDE ASPIRATION DN125 PN10	INTAKE FLANGE DN125 PN10	ANSAUGFLANSCH DN125 PN10	71228700	
	1	BRIDE ASPIRATION US	INTAKE FLANGE ASA 150	ANSAUGFLANSCH ASA 150	71230260	
23	1	GENERATEUR SAV	GENERATOR	PUMPENTEIL	71259240	
24	1	JEU JOINTS FKM	SET OF VITON SEALS	DICHTUNGSSATZ VITON	71236060	All items 24 + 92
25	18	RONDELLE W12 ZINGUEE BLANC	WASHER	SCHEIBE		
27	1	CANAL.FILTRE/RADIATEUR	OIL TUBING	OELLEITUNG	EK71215513	Refr air Air cooled Luftgekühlt
28	1	CANAL.RADIATEUR/FLASQ.	OIL TUBING	OELLEITUNG	EK71215514	Refr air Air cooled Luftgekühlt
29	1	CANAL. CARTER-FLASQUE.	OIL TUBING	OELLEITUNG	EK71215503	
30	1	CANAL.RECUP.HUILE EXT.	OIL TUBING	OELLEITUNG	EK71229723	
31	1	CANAL. DE REMISE A LA P.A.	OIL TUBING	OELLEITUNG	EK71226443	
32	1	CANAL.FLASQUE/PISTON REMISE PA	OIL TUBING	OELLEITUNG	EK71215583	
33	10	ECROU FREIN MP M6 Q8 ZINGUE	NYLON STOP NUT	RÄNDELMUTTER		
34	1	REFROIDISSEUR D'HUILE	OIL COOLER (AIR COOLER)	ÖLKÜHLER (LUFTKÜHLER)	71214760	
35	1	DEFLECTEUR	DEFLECTOR SHROUD	ABLENKUMHÜELLUNG		
36	12	VIS CHC M6 X 20 Q8.8 PHOSPH.	SCREW	SCHRAUBE		
37	22	VIS HM8 x 20 Q6.8 ZINGUEE	SCREW	SCHRAUBE		
38	20	RONDELLE W8 ZINGUEE	WASHER	SCHEIBE		
39	1	VENTILATEUR DN400	TURBINE DN400	LÜFTER DN400	71214770	
40	1	COURROIE (JEU DE 4)	V BELT (SET OF 4)	KEILRIEMEN (SATZ VON 4)	71223400	LG2000
	1	COURROIES USA (JEU DE 4)	V BELT USA (SET OF 4)	KEILRIEMEN USA (SATZ VON 4)	71231460	LG2150
41	1	TENDEUR FIXE	STRECHING BRACKET	KEILRIEMENSANNER KOMPLETT	71261190	Incl.42
42	1	JEU DE 2 ROULEMENTS	BEARINGS (SET OF 2)	LAGER (SATZ VON 2)	71238760	
43	1	MOTEUR 22KW 400V +/-10% 50HZ	MOTOR	MOTOR	E71225028	
	1	MOTEUR 30HP 200-230/460V 60HZ	MOTOR	MOTOR	E71230208	
	1	MOTEUR 22KW-400V-60HZ CTP	MOTOR	MOTOR	E71414128	
	1	MOTEUR TRIPHASE NEMA 40HP	MOTOR	MOTOR		
	1	MOTEUR 30KW 400/690V 50/60HZ CTP	MOTOR	MOTOR		
	1	MOTEUR 30KW 200V 60HZ	MOTOR	MOTOR		JIS
	1	MOTEUR 30KW 200V 50HZ IP54	MOTOR	MOTOR		JIS
44	4	Ecrou HM14 Q6 zingué	NUT	MUTTER		
45	4	RONDELLE W14 AC ZINGUEE	WASHER	SCHEIBE		
46	4	RONDELLE M14 ZINGUEE	WASHER	SCHEIBE		
47	4	CALE MOTEUR	MOTOR SUPPORTING BLOCK	MOTOR UNTERLEGESCHEIBE		
48	4	RONDELLE	WASHER	SCHEIBE		
49	4	VIS HM14 X 90 Q8.8 ZINGUEE	SCREW	SCHRAUBE		
50	3	BOUCHON HC G 3/4"	PLUG SCREW	SCHRAUBVERSCHLUSS	71256380	
51	1	BOITIER DE CONNEXIONS	ELECTRICAL BOX	ANSCHLUSSKASTEN	71405150	
52	1	ENSEMBLE POULIE MOYEU	PULLEY UNIT	PULLEY UNIT		
52	1	POULIE DP150	V BELT PULLEY DP150	KEILRIEMENSCHIEBE DP150	EK6512304	For 50 Hz SV1200 versions
		POULIE DP160	V BELT PULLEY DP160	KEILRIEMENSCHIEBE DP160	EK71231844	For 60 Hz SV1200 versions
		POULIE DP180	V BELT PULLEY DP180	KEILRIEMENSCHIEBE DP180	EK71239411	For 50 Hz SV1400 versions
	1	MOYEU MOTEUR 180L	HUB	NABE		
		MOYEU MOTEUR 200L	HUB	NABE		
		MOYEU MOTEUR USA	HUB (USA MOTOR)	NABE (USA MOTOR)	EK71230233	
		MOYEU MOTEUR 40HP	HUB	NABE		
		MOYEU DN48	HUB	NABE	EK71232083	
53	1	VIS CHC M10 X 45 Q8.8 ZINGUEE	SCREW	SCHRAUBE		
	1	AXE VENTILATEUR 180L	VENTILATOR ROD	VENTILATORSTIFT		
	1	AXE VENTILATEUR 200L	VENTILATOR ROD	VENTILATORSTIFT		
	1	AXE VENTILATEUR 30HP	VENTILATOR ROD	VENTILATORSTIFT		
	1	AXE VENTILATEUR 40HP	VENTILATOR ROD	VENTILATORSTIFT		
	1	AXE VENTILATEUR DN48	VENTILATOR ROD	VENTILATORSTIFT		
54	18	VIS HM8 x 25 Q6.8 ZINGUEE	SCREW	SCHRAUBE		
55	1	BOUCHON CONIQUE R1/4	PLUG SCREW	SCHRAUBVERSCHLUSS		
56	1	CANALISATION FLASQUES DELTA P	OIL TUBING ENDPLATES DELTA P	ÖLLEITUNG LAGERDECKEL DELTA P	EK6700981	
57	1	SECU. THERMIQUE EQUIPEE 120°C LG500	THERMAL SWITCH	THERMOSCHALTER	971428360	
70	1	CAPOT RADIATEUR GRILLE	RADIATOR COVER	KÜHLERHAUBE		Refr eau Water cooled Wassergekühlt sur demande upon request auf Anfrage
71	1	CANAL.FILTRE/RAD. EAU	OIL TUBING	OELLEITUNG	EK971474100	Refr eau Water cooled Wassergekühlt
72	1	CANAL RAD./FLASQ. EAU	OIL TUBING	OELLEITUNG	EK971474110	Refr eau Water cooled Wassergekühlt
73	1	ECHANGEUR DE CHALEUR ENS.	HEAT EXCHANGER	WÄRMETAUSCHER	971433470	Incl. 74-75
74	1	ECHANGEUR DE CHALEUR	HEAT EXCHANGER	WÄRMETAUSCHER	71414090	
75	1	VANNE THERMO. G1/2 + POCHE LAITON	THERMOSTATIC VALVE	THERMOSTATVENTIL	71232450	

76	1	CAPOT LATERAL EAU	LATERAL HOOD (WATER COOLER)	SEITENHAUBE (WASSERGEKÜHLT)		Refr eau Water cooled Wassergekühlt sur demande upon request auf Anfrage
77	1	CAPOT SUPERIEUR EAU	UPPER HOOD (WATER COOLER)	VORDERHAUBE (WASSERGEKÜHLT)		Refr eau Water cooled Wassergekühlt sur demande upon request auf Anfrage
79	1	KIT PALIER 2 COTES ENS.	BEARING KIT	LAGERKIT	EK971473040	Incl. 80 (qty 2)-81-89-90-91-92-93
80	26	VIS HM12X45 Q8.8 ZINGUEE	SCREW	SCHRAUBE		
81	2	RONDELLE	STOP WASHER	HALTESCHEIBE		
82	1	POULIE DP 315	V BELT PULLEY	KEILRIEMENSCHIEBE		
82	1	POULIE DP 400	V BELT PULLEY	KEILRIEMENSCHIEBE	EK71230253	
83	1	CLAVETTE 16X10X60	KEY	PASSFEDER		
84	8	VIS HM10 x 25 Q6.8 ZINGUEE	SCREW	SCHRAUBE		
85	12	RONDELLE MN10 ZINGUEE	WASHER	SCHEIBE		
86	1	BOUCHON AR.	REAR COVER	HINTERER DECKEL		
87	1	BAGUE + JAL TAPE ENS.	RING AND SHAFT SEAL	RING UND WDR	EK971473020	
88	1	ENTRETOISE ROTOR	SPACER	ZWISCHENSTÜCK		
89	4	RONDELLE BORRELLY	SPRING RING	FEDERRING		
90	1	ROUL. BILLES	BALL BEARING (SET OF 2)	KUGELLAGER (SATZ VON 2)	71214810	
91	2	BAGUE DE ROUL 65X75X28	RACE BUSHING	SCHLEIFRING	EK71214822	
92	4	JOINT A LEVRE DN75X95X10	RADIAL SHAFT SEAL	RADIAL DICHTRING	EK71214822	
92	2	BAGUE D'APPUI	THRUST RING	HALTERING	EK71214822	
93	2	RONDELLE ROTOR	DISC FOR ROTOR	SCHEIBE FÜR ROTOR		
94	4	GOUPILLE CONIQUE	TAPERED PIN	KEGELSTIFT		
95	1	FLASQUE AR.USINE	REAR END PLATE	HINTERER LAGERDECKEL		
96	1	STATOR USINE	PUMP CYLINDER	PUMPENRING		
97	1	FLASQUE AV.USINE	FRONT END PLATE	VORDERER LAGERDECKEL		
98	1	BOUCHON AV.	FRONT PLUG	VORDERE STOPFEN		
99	1	TAPE GENERATEUR	INSPECTION COVER	ABSCHLUSSDECKEL		
100	10	RONDELLE MN8 ZINGUEE	WASHER	SCHEIBE		
101	1	BAGUE FENDUE (JEU DE 2)	BUSHING (SET OF 2)	BUECHSE (SATZ VON 2)	71214860	
102	2	ANNEAU LEVAGE M24	LIFTING LUG	TRANSPORTLASCHE		
103	2	RONDELLE MN24 ZINGUEE	WASHER	SCHEIBE		
104	1	BOUCHON M16X150	PLUG SCREW	VERSCHLUSS-SCHRAUBE		
105	1	ROTOR	ROTOR	ROTOR	71214260	Incl. 80 (qty2)-88-90-91-93-95-97-98
106	1	JEU DE 3 PALETTES	SET OF 3 VANES	SATZ VON 3 SCHIEBERN	71214310	
107	1	COUVERCLE	FLANGE	FLANSCH		
108	3	PLATINE SUPP.VALVE D'ECHAPPEMENT	EXHAUST VALVE MOUNTING PLATE	AUSPUFFVENTIL MONTIERPLATTE		
109	1	JEU DE 6 LAMES	EXHAUST VALVE PLATE (SET OF 6)	AUSPUFFVENTILPLATTE (SATZ VON 6)	71214600	
110	6	CONTRE LAME D'ECHAPPEMENT	EXHAUST VALVE STOP PLATE	AUSPUFFVENTILANSCHLAG		
111	1	VIDANGE GENERATEUR ENS.	OIL DRAIN KIT	OELABLASSKIT	EK971473030	Incl.112
112	1	CLAPET DE NON RETOUR	OIL DRAIN VALVE	ÖLABLASSVENTIL		
113	1	MANCHON G1 1/4 ACIER L=50	BUSH STEEL	MUFFE STAHL		
114	1	CARTOUCHE PAPIER F40	CARTRIDGE PAPER	PAPIERPATRONE	71046118	
115	1	FILTRE PAPIER F40	FILTER WITH CARTRIDGE PAPER	STAUBFILTER MIT PAPIERPATR.	95155	Incl.114
116	1	RACCORD G1 1/4 M-DN40 LISSE	ADAPTER	SCHLAUCHANSCHLUSS	71118013	
117	1	TUYAU PVC DN40 X 1 METRE	PVC TUBING	PVC-SCHLAUCH	71118324	
118	2	TUYAU PVC DN25 X 1 METRE	PVC TUBING	PVC-SCHLAUCH	71118323	
119	4	COLLIER SERFLEX TO D24/36	TIE	BINDER		
120	2	SUPPORT MEMBRANE LEST D AIR	GAS BALLAST MEMBRANE HOLDER	GAS BALLAST MEMBRANE HALTERUNG		
121	2	ROBINET LEST D'AIR SAV	GAS BALLAST VALVE	GASBALLASTVENTIL	71215040	Incl. 122-126
122	2	ANTI RETOUR LEST D'AIR ENS	GB CHECK VALVE	GB RUECKSCHLAGVENTIL	971472700	Incl.120
123	2	BAGUE TEFLON	GASKET RING	DICHTRING		
124	2	RESSORT COMPRESSION	SPRING	FEDER		
125	2	COMMANDE LEST D'AIR	GB VALVE CONTROL DEVICE	GBV BETÄTIGUNG		
126	2	ROBINET BS G3/4 M/F ROHS	G3/4 M/F VALVE	G3/4 M/F VENTIL		
130	20	VIS HM8 X 16 Q6.8 AC.PHOSPHATEE.	SCREW	SCHRAUBE		
131	20	RONDELLE MN8 PHOSPHATEE	WASHER	SCHEIBE		
132	1	PORTE CARTER	COVER	DECKEL		sur demande upon request auf Anfrage
133	2	CLIP	CLIP	BUEGEL		
134	2	Cartouche	FILTER	FILTER		
135	2	FLOTTEUR ENS.	FLOAT VALVE	SCHWIMMER	71417210	
136	2	VIS HM4 X 10 Q6.8 ZINGUEE	SCREW	SCHRAUBE		
137	14	CARTOUCHE REFOUL.	DEMISTER CARTRIDGE	AUSPUFF-FILTERELEMENT	71064770	
138	7	ECROU HM8 Q6 ZINGUE	NUT	MUTTER		
139	7	PLAT DE FIXATION CARTOUCHE	STRAPS	LASCHE		
140	7	TIGE FILETEE D8	THREADED ROD	GEWINDESTANGE		
141	6	BY-PASS SURPRESSION	OVERPRESSURE VALVE	ÜBERDRUCKVENTIL	71017930	
142	1	VOYANT D'HUILE + JOINT	OIL SIGHT GLASS	OELSCHAUGLAS	71029600	
143	3	BOUCHON G1-1/4	PLUG SCREW	SCHRAUBVERSCHLUSS	71078080	
144	1	AMORTISSEUR M16	SET OF 4 RUBBER MOUNT	GUMMIFÜSSE (SATZ VON 4)	71403350	
145	4	ECROU HM16 Q6 ZINGUE	NUT	MUTTER		
		KIT REPARATION 50HZ	REPAIR SET	REPARATUR SATZ	71234800	Incl. 7-24-40(EUR)-42-79-87-106-109-110-112-114-118-137-142
		KIT REPARATION 60HZ	REPAIR SET	REPARATUR SATZ	71234810	Incl. 7-24-40(US)-42-79-87-106-109-110-112-114-118-137-142
		KIT MODULE 50HZ	GENERATOR KIT	MODULE KIT	71234820	Incl. 7-23-24-40(EUR)-114-137-143
		KIT MODULE 60HZ	GENERATOR KIT	MODULE KIT	71234830	Incl. 7-23-24-40(US)-114-137-138-143

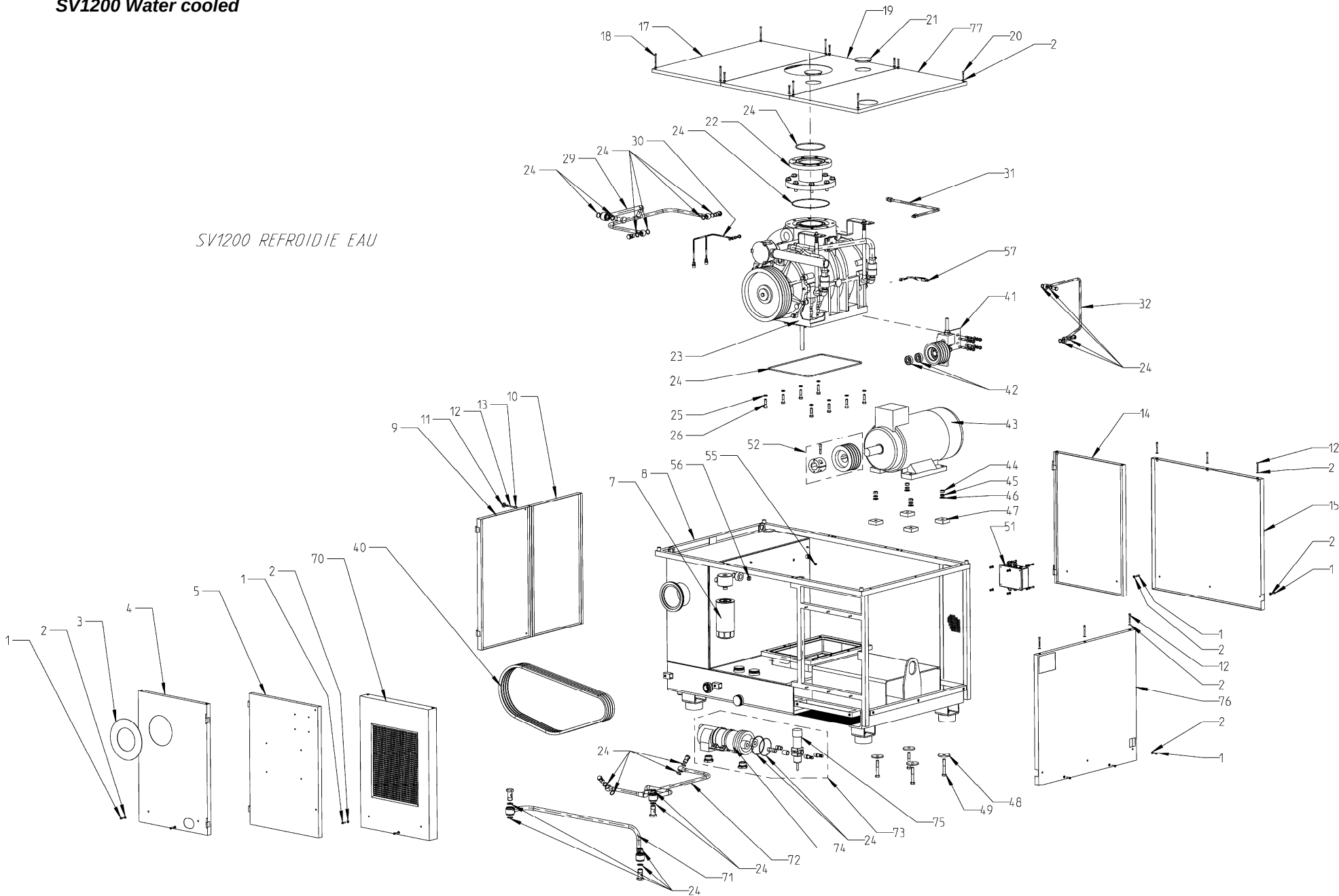
SV1200 air cooled

SV1200 REFROIDIE AIR



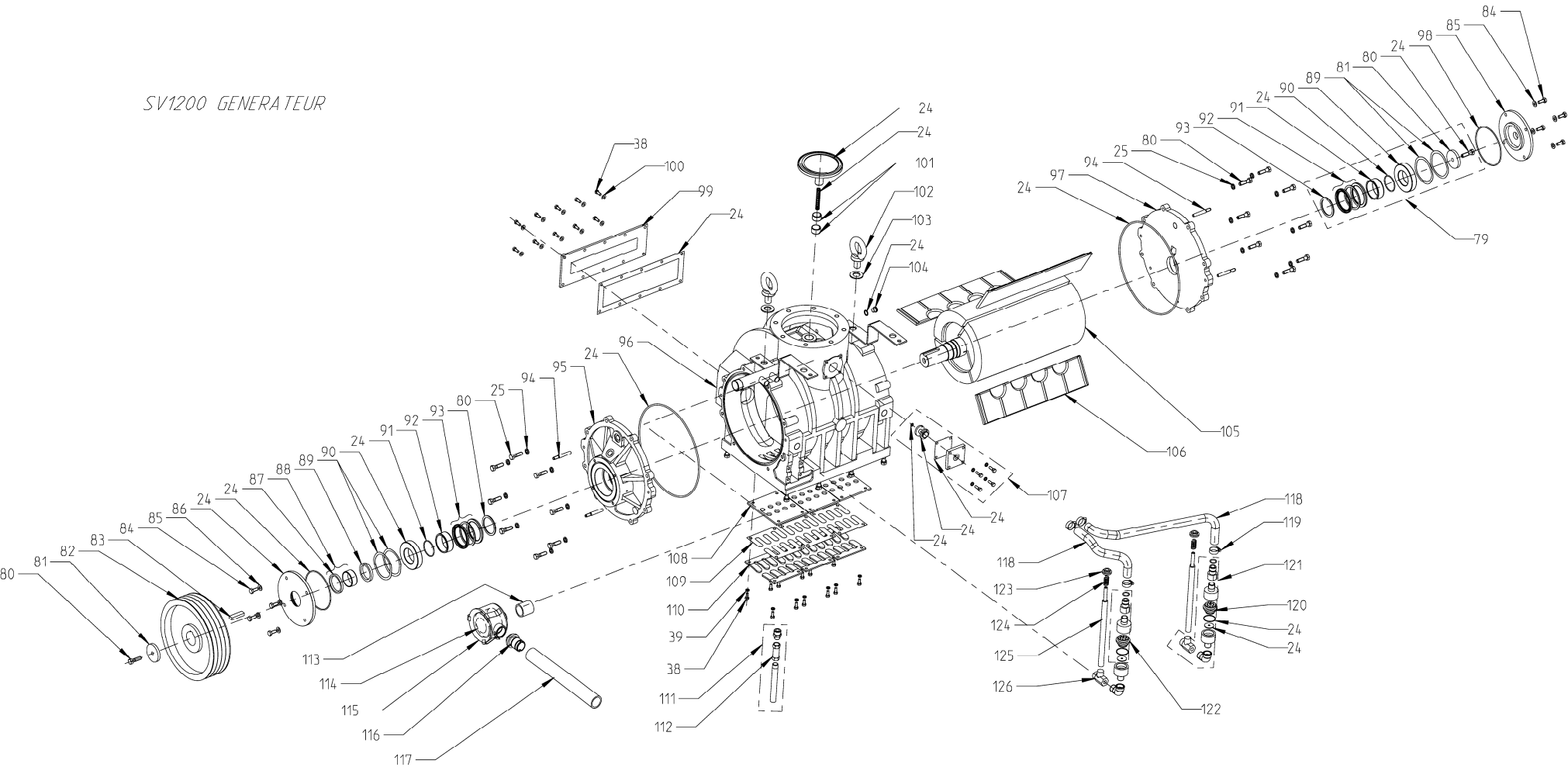
SV1200 Water cooled

SV1200 REFROIDIE EAU



SV1200 Generator

SV1200 GENERATEUR



SV1200 CARTER D'HUILE



8 Waste Disposal

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

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

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

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

Disposal of Waste Oil

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

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

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

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

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

Important notes

Hence, anyone in possession of used oil is responsible for its proper disposal.

Used oil from vacuum pumps must not be mixed with other substances. Used oil from vacuum pumps (Leybold oils on the basis of mineral oils) having been affected by normal contamination due to:

- oxygen from ambient air
- increases in temperature;
- mechanical wear

must be disposed of as used oil in accordance with the regulations. Used oil from vacuum pumps that have been contaminated by other substances must be labelled, stored and disposed of as special waste with reference to the kind of contamination. If you send a pump to LEYBOLD for repair, please indicate any harmful substances existing in the pump oil or around the pump. A form is available from LEYBOLD for this purpose. When disposing of used oil please observe the safety regulations that are valid in your country.

9 Taking out of use

Please contact Leybold for all related questions about the disposal of spares, consumables or the entire pump



EU Declaration of Conformity

(Translation of original Declaration of Conformity)

The manufacturer:

Leybold France SAS
640 rue Aristide Bergès
26501 Bourg Les Valence
France

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

Product designation:

SOGEVAC

Type designation:

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

The products complies to the following European Council Directives:

Machinery Directive (2006/42/EC)

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

Electromagnetic Compatibility (2014/30/EU)

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

The following harmonized standards have been applied:

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

Documentation officer:

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

Cologne, March 30, 2017

Cologne, March 30, 2017

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

Dr. Ernst Schnacke
Head of Quality Assurance Methods
& Technical Standards

Declaration of Contamination of Compressors, Vacuum Pumps and Components

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

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

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

Customer/Dep./Institute : _____ Address : _____ _____ Person to contact: _____ Phone : _____ Fax: _____ End user: _____	Reason for return: ☒ 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: _____ Failure description: _____ Material description : _____ Catalog number: _____ Additional parts: _____ Serial number: _____ Application-Tool: _____ Type of oil (ForeVacuum-Pumps) : _____ Application- Process: _____																																																																						
B. Condition of the equipment <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 40%;"></th> <th style="width: 10%; text-align: center;">No¹⁾</th> <th style="width: 10%; text-align: center;">Yes</th> <th style="width: 10%; text-align: center;">No</th> <th style="width: 10%;"></th> <th style="width: 20%;"></th> <th style="width: 10%; text-align: center;">No¹⁾</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;">☐</td> <td style="text-align: center;">☐</td> <td style="text-align: center;">☐</td> <td style="text-align: center;">☐</td> <td rowspan="4" style="vertical-align: middle; text-align: center;"> → </td> <td>Contamination :</td> <td></td> </tr> <tr> <td>2. Drained (Product/service fluid)</td> <td style="text-align: center;">☐</td> <td style="text-align: center;">☐</td> <td style="text-align: center;">☐</td> <td style="text-align: center;">☐</td> <td>toxic</td> <td style="text-align: center;">☐</td> </tr> <tr> <td>3. All openings sealed airtight</td> <td style="text-align: center;">☐</td> <td style="text-align: center;">☐</td> <td style="text-align: center;">☐</td> <td style="text-align: center;">☐</td> <td>corrosive</td> <td style="text-align: center;">☐</td> </tr> <tr> <td>4. Purged</td> <td style="text-align: center;">☐</td> <td style="text-align: center;">☐</td> <td style="text-align: center;">☐</td> <td style="text-align: center;">☐</td> <td>flammable</td> <td style="text-align: center;">☐</td> </tr> <tr> <td colspan="5"></td> <td></td> <td>explosive ²⁾</td> <td style="text-align: center;">☐</td> </tr> <tr> <td colspan="5">If yes, which cleaning agent</td> <td></td> <td>radioactive ²⁾</td> <td style="text-align: center;">☐</td> </tr> <tr> <td colspan="5">and which method of cleaning</td> <td></td> <td>microbiological ²⁾</td> <td style="text-align: center;">☐</td> </tr> <tr> <td colspan="5">¹⁾ If answered with "No", go to D. ←</td> <td></td> <td>other harmful substances</td> <td style="text-align: center;">☐</td> </tr> </tbody> </table>			No ¹⁾	Yes	No			No ¹⁾	Yes	1. Has the equipment been used	☐	☐	☐	☐	→	Contamination :		2. Drained (Product/service fluid)	☐	☐	☐	☐	toxic	☐	3. All openings sealed airtight	☐	☐	☐	☐	corrosive	☐	4. Purged	☐	☐	☐	☐	flammable	☐							explosive ²⁾	☐	If yes, which cleaning agent						radioactive ²⁾	☐	and which method of cleaning						microbiological ²⁾	☐	¹⁾ If answered with "No", go to D. ←						other harmful substances	☐
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and which method of cleaning						microbiological ²⁾	☐																																																															
¹⁾ If answered with "No", go to D. ←						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) <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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a)																																																																						
b)																																																																						
c)																																																																						
d)																																																																						
2. Are these substances harmful ? No Yes ☐ ☐ ☐ ☐ ← 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

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Čeština (024)	Návod k použití přiložený k tomuto výrobku je standardně k dispozici v němčině a angličtině. Potřebujete-li návod k použití ve svém jazyce (v rámci EU), obraťte se prosím na některou z poboček Leybold.
Dansk (016)	Den medfølgende brugsvejledning til deres produkt fås på to sprog, engelsk og tysk. Hvis en brugsvejledning på eget europæiske sprog ønskes, bedes man tage kontakt til ens Leybold repræsentant.
Deutsch (001)	Die diesem Produkt beigelegte Gebrauchsanleitung liegt standardmäßig in den Sprachen Deutsch und Englisch vor. Für eine Gebrauchsanleitung in Ihrer Landessprache (EU) wenden Sie sich an die Leybold-Niederlassung.
Eesti (028)	Selle tootega kaasnev kasutusjuhend on standardsealt saksa ja inglise keeles. Kasutusjuhendi saamiseks teie riigikeeles (EU) pöörduge Leybold-täiendi poole.
Ελληνικά (017)	Οι οδηγίες χρήσης που συνοδεύουν αυτό το προϊόν είναι διαθέσιμες στα γερμανικά και στα αγγλικά. Για οδηγίες χρήσης στη γλώσσα σας (ΕΕ) απευθυνθείτε σε υποκατάστημα της Leybold.
English (002)	The instruction manual supplied with your product is available in two different standard European languages, English and German. If you wish to have a manual in your own European language, please contact your Leybold representative.
Español (006)	Las instrucciones de operación, adjuntas al presente producto, son en alemán e inglés. Para obtener las instrucciones en su idioma nacional (EU), póngase en contacto con su representante de Leybold.
Français (003)	Le mode d'emploi fourni avec ce produit est rédigé en anglais et en allemand. N'hésitez pas à contacter votre agence Leybold si vous avez besoin du mode d'emploi traduit dans la langue de votre pays (union européenne).
Hrvatski (029)	Uz ovaj proizvod standardno su priložena uputstva za upotrebu na njemačkom i engleskom jeziku. Za uputstva na jeziku Vaše zemlje (u EU), obratite se poslovnici Leybold-a.
Italiano (004)	Le istruzioni per l'uso allegate al presente prodotto sono disponibili di norma in lingua tedesca e inglese. Per le istruzioni per l'uso nella propria lingua (UE) si prega di rivolgersi alla filiale Leybold.
Íslenska (034)	Leiðarvísirinn sem fylgir vörinni er gefinn út á tveimur tungumálum, þýsku og ensku. Hafð samband við næsta útibú Leybold varðandi leiðarvísi á tungumál ykkar (ESB).
Latviešu (030)	Kopā ar jūsu produktu piegādātā lietošanas instrukcija ir pieejama divās dažādās standartā Eiropas valodās, angļu un vācu. Ja jūs vēlaties saņemt instrukciju citā Eiropas valodā, sazinieties ar savu Leybold pārstāvi.
Lietuvių (031)	Prie šio produkto pridėdamos naudotojo instrukcijos paprastai pateikiamos dviemomis kalbomis - vokiečių ir anglų. Dėl instrukcijos jūsų valstybine kalba (ES), kreipkitės į Leybold atstovą.
Magyar (033)	A termékhez mellékelte használati útmutató angol és német nyelvű. Ha a használati útmutatót a saját nyelvén (EU) szeretné megkapni, akkor kérjük forduljon az egyik Leybold képviselőhöz.
Nederlands (010)	De bij dit product bijgevoegde gebruiksaanwijzing is standaard in het Duits en Engels beschikbaar. Voor een gebruiksaanwijzing in uw taal (EU), neem dan contact op met het Leybold-filiaal.
Norsk (020)	Bruksanvisningen som medfølger dette produktet finnes som standard i språkversjonene engelsk og tysk. Ønsker du en bruksanvisning på ditt nasjonale språk (innen EU), henvender du deg til en Leybold-forhandler.
Polski (022)	Instrukcja obsługi załączona do tego produktu dostępna jest w języku niemieckim i angielskim. Po instrukcję obsługi w innym języku urzędowym Unii Europejskiej proszę zgłosić się do siedziby Leybold.
Português (005)	As Instruções de Uso anexas a este produto são fornecidas normalmente nas línguas alemã e inglesa. Para Instruções de Uso na sua língua (UE), queira dirigir-se à sucursal de Leybold.
Română (013)	Manualul de utilizare anexat acestui produs este disponibil în mod standard în limbile germană și engleză. Pentru a obține un manual de utilizare în limba țării dumneavoastră (EU), vă rugăm să vă adresați unei reprezentanțe Leybold.
Slovenčina (023)	Návod na používanie priložený k tomuto produktu je štandardne k dispozícii v nemeckom a anglickom jazyku. Ak potrebujete návod na používanie v jazyku svojej krajiny (EÚ), obráťte sa na pobočku Leybold.
Slovenščina (032)	Priročena navodila so na voljo v dveh različnih evropskih jezikih, angleščini in nemščini. Če želite navodila za uporabo v svojem jeziku (EU), se obrnite na predstavnika Leybold.
Suomi (019)	Tähän tuotteeseen liittyvä käyttöopas on saksan- ja englanninkielisiä. Mikäli haluatte käyttöoppaan maanne kielellä (EU), voitte kääntä vastaaavan Leybold-toimipisteen puoleen.
Svenska (009)	Den användarmanual som följer med denna produkt finns i standardutgåendet på tyska och engelska. Vänd dig till en Leybold-återförsäljare för en användarmanual på ditt språk (gäller EU-språk).
Türkçe (018)	Bu ürünün ekinde bulunan kullanım kılavuzu, standart olarak Almanca ve İngilizce dillerinde bulunmaktadır. Kendi dilinizdeki (AB) kullanım kılavuzu için bir Leybold-Şubesi ile başvurun.
Български (027)	Приложените към този продукт указания за употреба в общия случай са налични на немски и на английски език. За указания на Вашия език (ЕС) можете да се обърнете към представителството на Leybold.
Русский (007)	В стандартную комплектацию изделия входит руководство по эксплуатации на немецком и английском языках. За руководством по эксплуатации на языке Вашей страны (ЕС), пожалуйста, обращайтесь в представительство Leybold.

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