

# **SOGEVAC® SV28 BI**

Single-stage, oil-sealed  
Rotary Vane Pump

Operating Instructions 300270050\_002\_C3  
and Spare Parts list

Part Numbers

960 270 - 960 273

960 276 - 960 278

and their variants



## Installation and operating instructions

These installation and operating instructions are valid for the SOGEVAC® pumps SV28 BI in their standard version.

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

The SOGEVAC® vacuum pumps have been manufactured according to the latest technical standards and safety regulations. If not installed properly or not used as directed, dangerous situations or damage could occur.

**It is mandatory that these operating instructions be read and understood prior to vacuum pump installation and start-up.**

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## 1 General Instructions

### 1.1 Safety instructions

In this paragraph, the most important safety and usage instructions for the SOGEVAC® pumps are listed. Ahead of each following paragraph of the manual, the numbers of the applicable safety instructions will be listed.

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

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

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

The Leybold SOGEVAC® has been designed for safe and efficient operation when used properly and in accordance with these Operating Instructions. It is the responsibility of the user to carefully read and strictly observe all safety precautions described in this section and throughout the Operating Instructions. The SOGEVAC® BI must only be operated indoor in the proper condition and under the conditions described in the Operating Instructions. If not, the protection provided by the equipment may be impaired. 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.

“Trained personnel” for the operation of this pump are

- skilled workers with knowledge in the fields of mechanics, electrical engineering and vacuum technology and
- personnel specially trained for the operation of vacuum pumps.

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

#### 1.1.1

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 EC Declaration of Conformity.

#### 1.1.2

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

Do not allow the ingestion of any objects (screws, welding beads, nuts, washers, pieces of wire, fittings etc.) through the intake port of the pump. Objects falling into the pump can cause severe damage.

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#### Warning

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#### Caution

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#### Note

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#### Warning



# General Instructions

## 1.1.3

The intake line of the pump must never be connected to a device with over atmospheric pressure. Size of the exhaust line so that no pressure higher than 1,15 bar abs. (0,15 bar rel.) or depression of 15 mbar (0,15 bar rel.) can occur

## 1.1.4

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

## 1.1.5

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.

### Caution



## 1.1.6

Caution : hot surface !

in normal operation, the pump surface temperature can reach 85°C (185°F). There is a risk of burning. Switch off the pump and let it cool down before any intervention or take appropriate precautions.

It is recommended to use an oil casing or pump touching protection at high ambient temperatures. As a touching protection, you can use the noise enclosure P/N 960331NENC. The noise enclosure is an accessory not included in the pump delivery.

All work on a pump which is "still warm from operation" should be done only whilst wearing protective gloves. Handle the pump only while vented and after having let it cool down.

Never remove the oil-fill or oil-drain plugs while the pump is running. There exists the risk of suffering burns. Always wear protective gloves and protective goggles also for protection against the oil.

### Warning



## 1.1.7

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

## 1.1.8

Observe the safety regulations !

Never use discarded seals. Always assemble using new seals.

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

### Caution



## 1.1.9

High electric voltages ! When touching parts at high electric voltages, there is the risk of suffering severe injuries by an electric shock ! Covers marked with this symbol must only be opened by trained electricians after having reliably deenergised (lockout/tagout) the equipment

Always operate the pump with a properly connected protective earth conductor and make sure that the motor connection box is closed.

Lay the connecting lines so that these cannot be damaged. Protect the lines against humidity and contact with fluids. Avoid thermally stressing the lines by unfavourable laying. Provide strain relief for the connecting lines so that the

# General Instructions

plugs and the line connectors are not subjected to excessively high mechanical stresses.

Lay electric feed lines so that there is no risk of tripping over these.

## 1.2 Application range

See prescriptions chapters 1.1.1. and 1.1.2.

SOGEVAC® pumps are designed for pumping of inert gases in the range of medium vacuum, between atmospheric pressure and ultimate pressure of the pump. Pumps with single phase motors shall not operate in continuous duty over 50 mbar abs. Please advise Leybold if you are in such a case or if the chamber volume exceeds 50 l.

Indoor use up to 2000 m altitude and rel. humidity  $\leq 95\%$  without condensation.

Ambiant temperature 1 ph. pumps 16 ... 40°C

Ambiant temperature 3 ph. pumps 12 ... 40°C

## 1.3 Principle of operation

The SOGEVAC® pumps SV28 BI 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 exhaust filter retains > 99,9% of the aerosols. An internal transfer pushes the collected oil back into the vacuum generator, the transfer is operated by a float valve to avoid atmospheric air coming from the oil casing to the inlet of the pump when no oil is present in the recovery system.

The oil circulation functions by differential pressure.

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

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

The pumps P/N 960 276 and 960 277 and their variants are certified according Std. EN 61010-1 (2004).

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

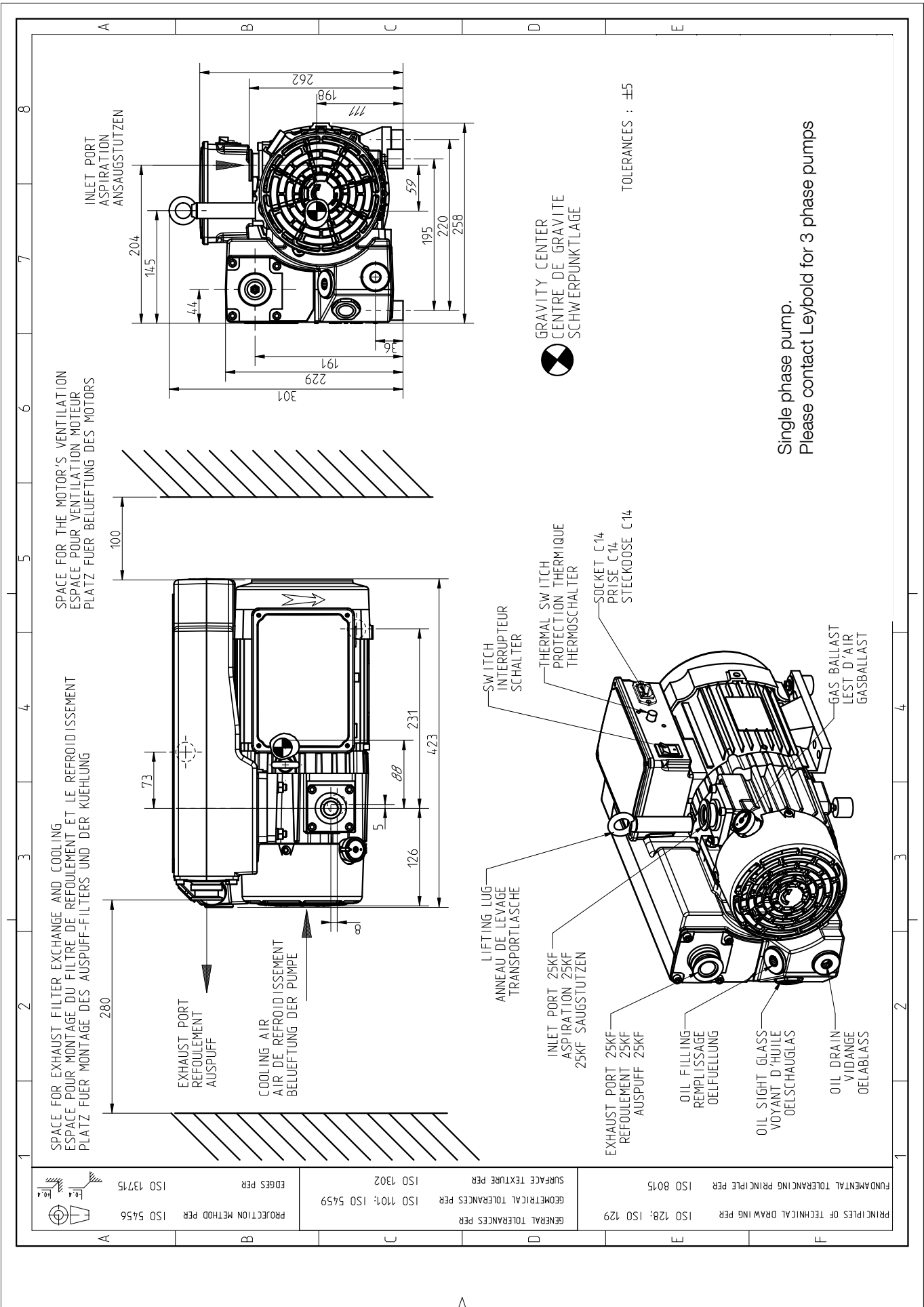


37 A @ 240 V AC

# General Instructions

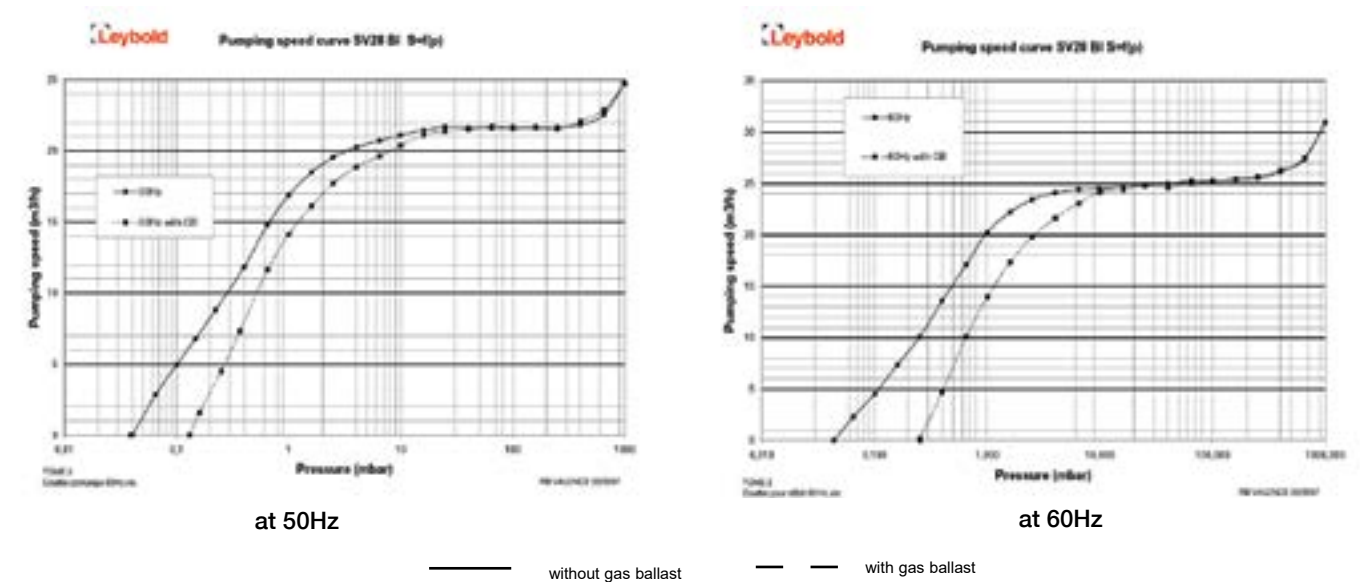
## 1.4 Technical Characteristics

|                                                                                                                      |                                 | 50Hz                                       | 60Hz               |
|----------------------------------------------------------------------------------------------------------------------|---------------------------------|--------------------------------------------|--------------------|
| Nominal pumping speed                                                                                                | m <sup>3</sup> ·h <sup>-1</sup> | 25                                         | 30                 |
| Pumping speed (according to Pneurop)                                                                                 | m <sup>3</sup> ·h <sup>-1</sup> | 23                                         | 27                 |
| Ultimate partial pressure without gas ballast                                                                        | mbar                            | ≤ 0.05                                     | ≤ 0.05             |
| Ultimate total pressure with small gas ballast                                                                       | mbar                            | ≤ 0.5                                      | ≤ 0.5              |
| Water vapour tolerance with small gas ballast                                                                        | mbar                            | 10                                         | 10                 |
| Water vapour tolerable load with small gas ballast                                                                   | kg·h <sup>-1</sup>              | 0.07                                       | 0.08               |
| Noise level (according to DIN 46635)                                                                                 | dB(A)                           | 54                                         | 57                 |
| Mains voltage AC ~ 3 ph                                                                                              | V                               | 230/400<br>(+/- 10%)                       | 460<br>(+/- 10%)   |
| Mains voltage AC ~ 1 ph                                                                                              | V                               | 200 ... 240<br>(+/- 10%)                   |                    |
| Motor power - Rated rotational speed 3 ph                                                                            | kW/rpm                          | 0.75-1430                                  | 0.9-1720           |
| Motor power - Rated rotational speed 1 ph                                                                            |                                 | 0.55-1440                                  | 0.66-1700          |
| Pump protection - Motor isolation                                                                                    |                                 | IP55 - F<br>IP40-F for single-phase motors | IP55 - F           |
| Leak rate                                                                                                            | mbar·l·s <sup>-1</sup>          | 1·10 <sup>-3</sup>                         | 1·10 <sup>-3</sup> |
| Oil type / Capacity                                                                                                  | l                               | 1.5 l                                      |                    |
| Intake connection                                                                                                    |                                 | 25 KF                                      | 25 KF              |
| Exhaust connection                                                                                                   |                                 | 25 KF                                      | 25 KF              |
| Pump with three-phase motor, gas ballast, big oil casing<br>400 V, 50Hz ; 230/460 V, 60Hz                            |                                 |                                            | 960 273            |
| Pump with single-phase motor wide range, gas ballast, big oil casing<br>180-264V, 50/60Hz                            |                                 |                                            | 960 277            |
| Pump with JP and USA single-phase motor, gas ballast, big oil casing<br>100V -15/+10%, 50/60Hz & 115V -15/+10%, 60Hz |                                 |                                            | 960 278            |



# General Instructions

## Pumping speed curves



### 1.5 Accessories

For the accessories, please refer to the Leybold General Catalogue chapters C01 and C13.

|                                    |                                      |
|------------------------------------|--------------------------------------|
| Kit anti suck back valve           | 9 714 62 600                         |
| Gas ballast kit                    | 9 714 62 640                         |
| Gas ballast obturator              | EK971473010                          |
| Set of seals                       | 9 714 62 670                         |
| Float valve kit                    | 9 714 62 660                         |
| Rubber feet kit                    | 9 714 62 650                         |
| 3 phase motor flange kit           | 9 714 62 630                         |
| Stator kit                         | 9 714 62 620                         |
| Complete oil casing 1.5 l          | 9 714 54 140                         |
| Repair kit                         | 9 714 62 690                         |
| Vacuum generator three phase pump  | 9 714 62 620                         |
| Vacuum generator single phase pump | 9 714 62 630                         |
| Oil level switch                   | upon request<br>no retrofit possible |
| Noise enclosure                    | 960331NENC                           |

# General Instructions

## 1.6 Transport and Packing

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

Please check packing on delivery for transport damages.

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

Packing materials should be disposed off according to local 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 oil is supplied in a can beside the pump.

## 1.7 Mounting orientation and storage

### 1.7.1 Mounting orientation :

See required space on chart in paragraph 1.4. Pumps which have been filled with operating 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.

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

### 1.7.2 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. A storage period exceeding one year requires a pump maintenance. Please contact Leybold customer service.

Storage temp. : - 15°C to + 60°C.

## 1.8 Lubricants

The SOGEVAC® SV28 BI pumps should be run with mineral oils for vacuum pumps with low viscosity according to ISO category VG32. The Leybold oil corresponds to these prescriptions.

### LVO120 Oil

| Conditioning | Reference |
|--------------|-----------|
| 1 l          | L12001    |
| 1 l          | L70201    |

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

# Installation

## 2 Installation (see chapter 1.1)

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.

### 2.1 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: 15°C to 40°C (59°F to 104°F),
- . Ambient pressure = Atmospheric pressure.

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

The pump must be kept clean (no dust deposit)

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#### Warning



### 2.2 Inlet connection (see chapter 1.1)

The inlet flange can be connected with a vacuum-tight flexible hose and/or pipe. The pipes should cause no stresses on the pump's flanges. If necessary, compensators must be installed.

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

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

The inlet pressure must not be above atm. pressure.

### 2.3 Connection to exhaust side

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

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

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

Corresponding pressure regulating devices to be installed by the user.

### 2.4 Oil filling (see chapter 1.1.4)

The necessary 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.

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#### Warning



### 2.5 Electrical connection (see chapters 1.1.4 and 1.1.5)

The electrical installation may only be conducted by a specialist. Local regulations have to be followed. Disconnect the power supply before any work in the motor connection box !

. Voltage and frequency mentioned on the motor nameplate must correspond to the supply voltage and frequency.

. The drive motor must be protected against overloads according to local regulations and IEC 60204-1 & IEC 61010-1

## 2.5.1 Single phase motors

Single phase motors are equipped with a C14 socket (depending of their rated voltage) and a C13 plug for user's mains cord.

The motor integrates a motor over-load protection device (red knob on motor connection box) to be manually reset after an overload trip, and an ON/OFF switch.

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

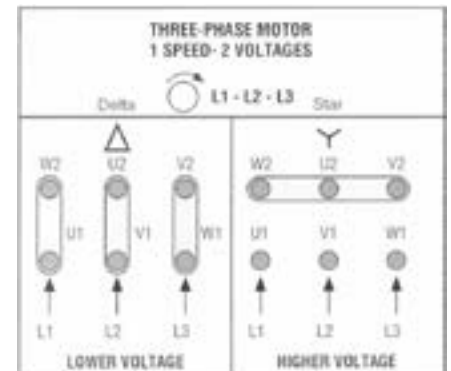
Below power cords (typically not included in the scope of delivery) are available:

| P/N       | Plug pump side | Plug supply side   | Length m |
|-----------|----------------|--------------------|----------|
| 971443450 | C13            | Euro / Schuko 16 A | 2        |
| EK6508756 | C13            | NEMA 6-15P 250 V   | 2        |
| 6534485V  | C13            | NEMA 5-15P 125 V   |          |
| 9714434GB | C13            | UK plug 13 A       | 2        |
| 9714434CH | C13            | CH plug 10 A       | 2        |
| 9714434WW | C13            | w/o                | 2        |
| E6500255  | C13            | C14                | 2.5      |
| EK6701862 | C13            | C20                | 0.2      |

## 2.5.2 Three phase motors

A motor protection breaker is to be used to protect the motor against over-currents. The breaker tripping current must be set in accordance with the rated current marked on the motor nameplate.

To check the direction of rotation of pumps, flick pump on. If the direction of rotation is not identical to the one indicated by the arrow sticking on the motor hood, then inverse any two of the 3 electrical phases in the terminal box. Looking at the motor fan cover, the direction of rotation has to be counter-clockwise.



3-phase connection diagram

## 2.6 Operating advices (See chapters 1.1.1, 1.1.2, 1.1.3 and 1.2)

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

The vacuum pump must be run for 30 minutes prior to operation 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 transported. After use, the pump has to be left running for an additional 30 minutes with the inlet connection closed and open gas ballast, to clear the oil of condensate.

Use ear protection in case of operation at high inlet pressures

## Warning



## 2.7 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 2.6 (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 1.7.

Close the gas ballast

# Maintenance

## 3 Maintenance (see chapter 1.1)

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.

The following maintenance-schedule shows the regular maintenance periods for an average use of the pump.

Unfavourable ambient conditions and/or aggressive media may significantly reduce the maintenance intervals.

On the other hand, favorable conditions may allow longer operating periods or to skip the first oil change.

| Maintenance job                                        | Frequency                                                                                                      | Section |
|--------------------------------------------------------|----------------------------------------------------------------------------------------------------------------|---------|
| Check the oil level                                    | daily or yearly at analytical applications                                                                     | 3.1     |
| Subsequent oil changes                                 | Every 2000 h of operation or 6 months (depending on application) / 8000 h or yearly at analytical applications | 3.2     |
| Replace the exhaust filter                             | If oil mist at exhaust or annually                                                                             | 3.3     |
| Gas ballast valve                                      | Monthly                                                                                                        | 3.4     |
| Clean the inlet flange sifter                          | 6 months                                                                                                       | 3.5     |
| Check the anti-suckback valve                          | 6 months                                                                                                       | 3.6     |
| Clean the fan cover                                    | 6 months                                                                                                       | 3.7     |
| Check the electrical connection (only by a specialist) | 3 years                                                                                                        |         |
| Generator overhaul                                     | 3 years                                                                                                        |         |

To simplify the maintenance work we recommend combining several jobs.

Use only Leybold spare & consumables.

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

### 3.1 Oil level

The oil level must be checked while the pump is at standstill. It must be close to the MAX mark. Should the oil level be below the MIN mark switch off the pump, check it (see chapter 4) and add the required amount of oil.

### 3.2 Oil change

Oil changes, depending on operating conditions (products, vapours, ambient temperature...) must be done every 500 to 30000 operating hours, or at latest every 6 months to 3 years, depending of the application.

If there is considerable pollution, it could be necessary to change the oil more frequently. Special oils allow to extend the oil changing period.

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. Re-open the oil drain plug and drain the rest of the oil.

Before refastening the oil drain plug, control 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, let the pump run briefly (for a few minutes) then drain the oil again.

### **3.3 Exhaust filters replacement (see chapters 1.1.6 and 1.1.8)**

Oil mist escaping from the exhaust during operation indicates that the filter is probably clogged. Increased energy intake by the motor could also be the result of a soiled exhaust filter. Open the exhaust hood, take out the filter and replace it. Also check the gasket of the exhaust flange and change it if necessary.

### **3.4 Gas ballast valve cleaning (see safety prescriptions chapter)**

Consult Leybold

### **3.5 Inlet flange sifter cleaning**

See safety prescriptions chapters 1.1.2., 1.1.6. and 1.1.8.

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

### **3.6 Anti-suck back valve checking**

See safety prescriptions chapters 1.1.2., 1.1.6. and 1.1.8.

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

### **3.7 Fan cover cleaning**

Soiling of the fan cover may lead to overheating of the motor and the pump. Put off the cover and clean it with blast air. Before starting the pump again, be sure that the cover has been reassembled.

### **3.8 Checking the float valve (see chapters 1.1.6 and 1.1.8)**

When replacing the exhaust filter, check the cleanliness and the proper operation of the float valve. After having disassembled the exhaust flange and fan cover, remove the screw using a 4mm Allen Key. Pull on the float valve, clean the nozzle and check that the float itself oscillates free around its axle and that the valve is tight. Clean the float chamber of the oil casing. Reassemble in the reverse sequence.

## **4 Breakdown analysis**

If you have a breakdown, please contact the Leybold service station and/or ask us, to send you the guide: "breakdown analysis".

# Spare parts

## 5 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 hereafter and in the spare part table where the contents of each kit is detailed.

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

Return to Leybold service station

If the pump has to be returned to Leybold service station for repairing, you have to attach the form "Declaration of Contamination of Vacuum Equipment and Components".

This form is available from  
[www.leybold.com](http://www.leybold.com) —> Downloads —> Download Documents.

Leybold will return to the sender's address any material received without this declaration.

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

## 6 Information

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 vacuum pumps
- . Declaration of Contamination of Vacuum Equipment and Components.

## EU Declaration of Conformity

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

**Leybold GmbH**  
Bonner Strasse 498  
D-50968 Köln  
Germany

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

- Product: SOGEVAC, Single Stage Rotary Vane pumps, with motor
- Models: SV28BI
- Pump family codes:

*SV28 BI 960273Vxxxx to 960277Vxxxx and 10330028Vxx*

*xx or xxxx are chronologically numbered customer variants*

Is in conformity with the relevant Union harmonisation legislation:

- |            |                                                                                                                                                                              |
|------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 2006/42/EC | Machinery directive<br><i>Note: The safety objectives of the Low Voltage Directive 2014/35/EU were complied with in accordance with Annex 1 No. 1.5.1 of this directive.</i> |
| 2011/65/EU | Restriction of certain hazardous substances (RoHS) directive<br>as amended by Delegated Directive (EU) 2015/863                                                              |

Based on the requirements of relevant harmonised standards and technical documentation:

- |                         |                                                                             |
|-------------------------|-----------------------------------------------------------------------------|
| 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 |

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: *2023-04-06*

**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



François BOUILLOT  
General Manager Leybold Valence

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



## Declaration of Conformity

Leybold GmbH  
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**Documentation Officer**  
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West Sussex  
RH15 9TW  
[documentation@leybold.com](mailto:documentation@leybold.com)

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

- Product: SOGEVAC, Single Stage Rotary Vane pumps, with motor
- Models: SV28BI
- Pump family codes:

*SV28 BI 960273Vxxxx to 960277Vxxxx and 10330028Vxx  
xx or xxxx are chronologically numbered customer 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.*

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

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

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: *2023-04-06*

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 GmbH**



Andries de BOCK  
VP Engineering  
Industrial Vacuum Division



François BOUILLOT  
General Manager Leybold Valence

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 | Regulation (EU) No 2019/1781 electric motors and variable speed drives<br><i>Based on the requirements of harmonised standard:</i><br>EN 60034-30:2009: Rotating electrical machines -- Part 30: Efficiency classes of single-speed, three-phase, cage-induction motors (IE-code) |
| Fans   | 2009/125/EC Ecodesign directive requirements for energy-related products<br>Regulation (EU) No 327/2011: Industrial fans driven by motors                                                                                                                                         |

### 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) |
|------------|---------------------------------------------------------------|

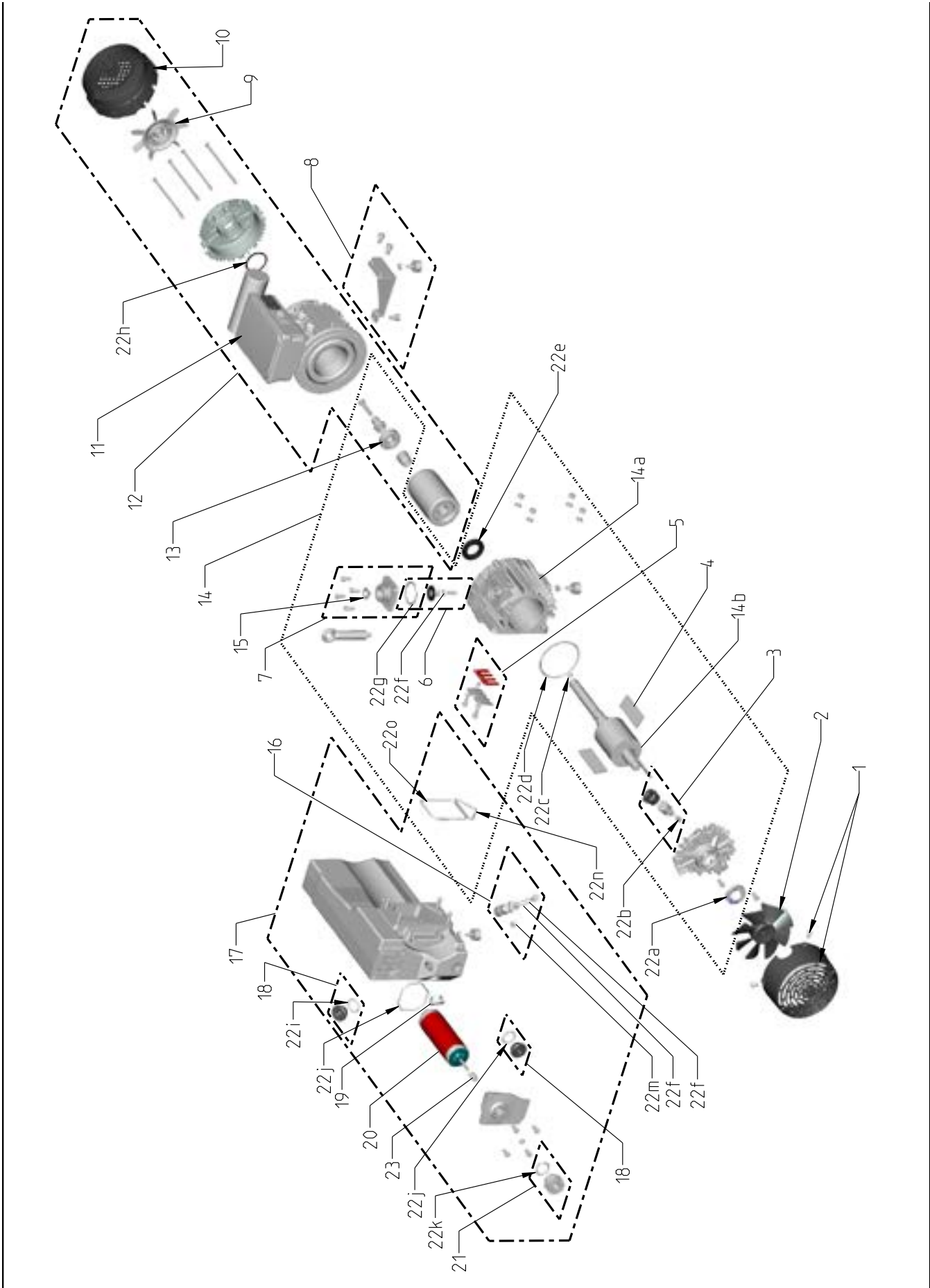
This product has been manufactured under a quality management system certified to ISO 9001:2015

# 材料成分声明

## China Material Content Declaration

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

# Spare parts list



Spare parts list

| Pos | QTY | GENEVA N° | SPECIFICATION | DESIGNATION | MOYEN<br>UNITE<br>UNITE | EMERGENCY<br>N° | EMERGENCY<br>N° |
|-----|-----|-----------|---------------|-------------|-------------------------|-----------------|-----------------|
| 1   | 1   | 1         | 1             | 1           | 1                       | 1               | 1               |
| 2   | 1   | 1         | 1             | 1           | 1                       | 1               | 1               |
| 3   | 1   | 1         | 1             | 1           | 1                       | 1               | 1               |
| 4   | 1   | 1         | 1             | 1           | 1                       | 1               | 1               |
| 5   | 1   | 1         | 1             | 1           | 1                       | 1               | 1               |
| 6   | 1   | 1         | 1             | 1           | 1                       | 1               | 1               |
| 7   | 1   | 1         | 1             | 1           | 1                       | 1               | 1               |
| 8   | 1   | 1         | 1             | 1           | 1                       | 1               | 1               |
| 9   | 1   | 1         | 1             | 1           | 1                       | 1               | 1               |
| 10  | 1   | 1         | 1             | 1           | 1                       | 1               | 1               |
| 11  | 1   | 1         | 1             | 1           | 1                       | 1               | 1               |
| 12  | 1   | 1         | 1             | 1           | 1                       | 1               | 1               |
| 13  | 1   | 1         | 1             | 1           | 1                       | 1               | 1               |
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| 17  | 1   | 1         | 1             | 1           | 1                       | 1               | 1               |
| 18  | 1   | 1         | 1             | 1           | 1                       | 1               | 1               |
| 19  | 1   | 1         | 1             | 1           | 1                       | 1               | 1               |
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