



Sogevac Neo D

NEO D/SD 16

NEO D 25

NEO D 40

NEO D 65

Oil sealed rotary vane pump.

Operating instructions 300731504_C7

Part number
970100SD to 970103SD
970100V to 970103V
970200V to 970202V
970300V to 970302V
970400V to 970402V



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Product warranty and limit of liability are dealt with in our standard terms and conditions of sale or negotiated contract under which this document is supplied.

You must use this product as described in this manual. Read the manual before you install, operate, or maintain the product. For manual enquiries, email documentation@leybold.com.

Contents

1 Safety and compliance.	7
1.1 Definition of Warnings and Cautions.	7
1.2 Trained personnel	7
1.3 Safety symbols.	8
2 Important safety information.	11
2.1 Information to user.	13
3 Description.	14
3.1 Principle of operation.	14
3.1.1 Electrical sparks.	15
3.1.2 Static electricity.	15
3.1.3 Chemical reactions.	15
3.2 Table: Technical characteristics Sogevac NEO D/SD 16. .	16
3.3 Table: Technical characteristics Sogevac NEO D 25. . . .	18
3.4 Table: Technical characteristics Sogevac NEO D 40. . . .	20
3.5 Table: Technical characteristics Sogevac NEO D 65. . . .	22
3.6 Ordering Information.	30
3.7 Accessories.	35
3.7.1 Power cords.	35
3.8 Lubricants.	36
4 Transport and Storing.	38
4.1 Transport and packaging.	38
4.1.1 For unpacking.	38
4.1.2 Pump fixation.	38
4.1.3 Pump lifting.	39
4.2 Mounting orientation.	39
4.3 Storage.	40
5 Installation.	41
5.1 Installation.	41
5.2 Connection to the system.	41
5.2.1 Intake Side.	41
5.2.2 Exhaust Side.	42
5.3 Electrical connections.	42
5.3.1 3 phase motors.	43

Contents

5.3.2 1 phase motors.	44
5.3.3 Temperature Switch (Accessory)	44
5.3.4 Temperature Sensor PT100 (Accessory).	45
5.3.5 Oil level Switch (Accessory).	45
5.3.6 Exhaust filter over pressure switch (Accessory)	45
5.3.7 Associated Electrical equipment.	45
5.4 Start-up.	46
6 Operation.	47
6.1 Operation.	47
6.1.1 Pumping of non-condensable gases.	47
6.1.2 Pumping of condensable gases and vapors.	47
6.2 Shutdown.	49
6.3 Ultimate pump pressure.	50
6.4 Taking out of use.	50
7 Maintenance.	51
7.1 Safety Information.	51
7.2 Maintenance Intervals.	51
7.3 Service at Leybold facilities.	52
7.4 Maintenance Work.	53
7.4.1 Checking the oil level.	53
7.4.2 Checking the oil condition.	53
7.4.3 Oil change.	53
7.4.4 Replacing the Exhaust Filters.	54
7.4.5 Checking the float valve.	55
7.4.6 Cleaning the intake port dirt trap and Checking the anti-suck back and gas ballast valves.	55
7.4.7 Replacing the Pump Module.	56
7.4.8 Replacement of electrical motor.	56
8 Trouble shooting.	57
9 Spare parts.	61
10 Service.	62
10.1 Transport and hazardous materials.	62
10.2 Return the equipment or components for service	62

List of Figures

Figure 1. Dimensional drawing NEO SD 16..... 23

Figure 2. Dimensional drawing NEO D 16..... 24

Figure 3. Dimensional drawing NEO D 25..... 24

Figure 4. Dimensional drawing NEO D 40..... 25

Figure 5. Dimensional drawing NEO D 65..... 25

Figure 6. NEO D/SD 16 Pumping speed curve 50 Hz. 26

Figure 7. NEO D/SD 16 Pumping speed curve 60 Hz. 26

Figure 8. NEO D 25 Pumping speed curve 50 Hz. 27

Figure 9. NEO D 25 Pumping speed curve 60 Hz. 27

Figure 10. NEO D 40 Pumping speed curve 50 Hz. 28

Figure 11. NEO D 40 Pumping speed curve 60 Hz. 28

Figure 12. NEO D 65 Pumping speed curve 50 Hz. 29

Figure 13. NEO D 65 Pumping speed curve 60 Hz. 29

List of Tables

Table 1: Technical characteristics Sogevac NEO D/SD 16. . .	16
Table 2: Technical characteristics Sogevac NEO D 25.	18
Table 3: Technical characteristics Sogevac NEO D 40.	20
Table 4: Technical characteristics Sogevac NEO D 65.	22
Table 5: Ordering Information.	30
Table 6: Spare parts.	36

1 Safety and compliance

For safe operation from the start, read these instructions carefully before you install or commission the equipment and keep them safe for future use. Read all the safety instructions in this section and the rest of this manual carefully and make sure that you obey these instructions.

The instruction manual is an important safety document that we often deliver digitally. It is your responsibility to keep the instruction manual available and visible while working with the equipment. Please download the digital version of the instruction manual for use on your device or print it if a device will not be available.

1.1 Definition of Warnings and Cautions

Important safety information is highlighted as warning and caution instructions which are defined as follows. Different symbols are used according to the type of hazard.

WARNING:

If you do not obey a warning, there is a risk of injury or death.

CAUTION:

If you do not obey a caution, there is a risk of minor injury, damage to equipment, related equipment or process.

NOTICE:

Information about properties or instructions for an action which, if ignored, will cause damage to the equipment.

We reserve the right to change the design and the stated data. The illustrations are not binding.

1.2 Trained personnel

For the operation of this equipment "trained personnel" are:

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

Safety and compliance

1.3 Safety symbols

The safety symbols on the products show the areas where care and attention is necessary.

The safety symbols that we use on the product or in the product documentation have the following meanings:

	Warning/Caution Risk of injury and/or damage to equipment. An appropriate safety instruction must be followed or a potential hazard exists.
	Warning - Automatic start up Risk of injury. The equipment can be started remotely and without warning.
	Warning - Corrosive substances Risk of injury or damage to equipment. Identifies the presence of corrosive gases, liquids or materials.
	Warning - Dangerous voltage Risk of injury. Identifies possible sources of hazardous electrical shock.
	Warning - Environmental hazard Risk of damage to the environment. Identifies the presence of toxic or damaging gases, liquids or materials.
	Warning - Flammable material Risk of fire. Identifies possible sources of flammable gases, liquids or materials.
	Warning - Heavy object Risk of injury or damage to equipment. Identifies a possible hazard from a heavy object.
	Warning - High magnetic field Risk of injury or damage to equipment. Identifies a possible source of a magnetic field capable of disrupting equipment including pacemakers.
	Warning - Hot surfaces Risk of injury. Identifies a surface capable of inflicting burns through contact.
	Warning - Maximum angle of paired slings Risk of damage to equipment. Specifies a maximum angle that must be maintained to ensure safe lifting of equipment.
	Warning - Moving parts present Risk of injury. Identifies moving parts that may cause injury or damage to equipment.

Safety and compliance

	Warning - Noise hazard Risk of injury. Identifies a possible source of noise above the recommended safe level.
	Warning - Over-head hazard Risk of injury. Identifies suspended cords, pipes and other raised objects that may result in head or neck injuries.
	Warning - Overhead or Suspended load Risk of injury or damage to equipment. Identifies an area where overhead or suspended items may lower or fall.
	Warning - Pressurised Risk of injury or damage to equipment. Identifies equipment containing pressurised gases or liquids.
	Warning - Risk of explosion Risk of injury or damage to equipment. Identifies a situation that could result in an explosion.
	Warning - Static sensitive equipment Risk of damage to equipment. Identifies the presence of equipment that can be damaged by static build-up and discharge.
	Warning - Topple hazard Risk of injury or damage to equipment. Identifies a risk of an object falling over.
	Warning - Toxic material Risk of injury or damage to the environment. Identifies a source of toxic gases, liquid or material.
	Warning - Trip hazard Risk of injury. Identifies spilled liquids, trailing cords, pipes and other low-lying objects that may result in slipping, tripping or falling.
	Warning - Vacuum hazard Risk of injury. Identifies the source of a dangerous vacuum.
	Warning - Do not step Personnel must not step onto the marked area.
	Warning - Magnetic field Risk of injury. Pacemakers or other medical devices may be affected by the magnetic field.
	Mandatory action symbol Failure to comply with this action may result in injury or damage to equipment.

Safety and compliance

	Mandatory - Read the manual Failure to comply with this action may result in injury or damage to equipment.
	Warning - Use protective equipment Risk of injury. Use appropriate Personal Protective Equipment (PPE) when performing the task.
	Warning - Wear eye protection Risk of injury. Wear appropriate protective goggles when performing the task.
	Warning - Wear protective boots Risk of injury. Wear appropriate protective boots when performing the task.
	Warning - Wear hearing protection Risk of injury. Wear appropriate hearing protection when performing the task.
	Warning - Wear protective gloves Risk of injury. Wear appropriate protective gloves when performing the task.
	Warning - Wear protective respirator Risk of injury. Wear an appropriate protective respirator when performing the task.
	Warning - Fall hazard Risk of injury. Use appropriate fall protection equipment when performing a task at height.
	Symbol – Waste Electrical & Electronic Equipment (WEEE) The equipment must be discarded carefully. Obey local and national regulations for disposal of this equipment. Identifies compliant product supplied without a manufacturing date.
	Symbol – Waste Electrical & Electronic Equipment (WEEE) The equipment must be discarded carefully. Obey local and national regulations for disposal of this equipment. Identifies compliant product supplied with a manufacturing date (YYYY/MM).
	Symbol - Protective earth Identifies an electrical equipment earth (ground) terminal.
	Symbol – Radio Frequency (RF) earth Identifies a radio equipment or antenna earth (ground) terminal.
	Symbol - Noiseless earth Identifies a noiseless (clean) earth (ground) terminal.

Important safety information

2 Important safety information



WARNING: VACUUM HAZARDS

Risk of injury or damage to equipment. 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.



CAUTION: PUMP DAMAGE

Risk of damage to equipment. The Leybold SOGEVAC Neo D have 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. Pumps are designed for indoor use without condensation. Do not step on the pumps.

SOGEVAC pumps are not designed:

- For pumping of dusty, aggressive, corrosive, flammable, explosive or pyrophoric gases or gases mixtures
- For pumping of oxygen or other highly reactive gases with a greater concentration than atmospheric concentration (>20%) unless specific P/N and PFPE fluid are used
- For working in flammable, explosive (unless ATEX pumps are used) or dusty environment
- For continuous duty above 800 mbar abs

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.



CAUTION: HOT SURFACE

Risk of damage to equipment. Never expose part of the body to the vacuum. There is a danger of injury. Never operate the pump with an open and thus accessible inlet. Vacuum connections as well as oil filling and oil draining openings must not be opened during operation of the pump. When operating pump is hot and some surfaces could reach a temperature higher than 80°C (176°F). There is a risk of burn by touching.

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

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

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

Pump must not be operated above 2000 m sea level.

Important safety information



WARNING: HIGH ELECTRIC VOLTAGE

Risk of injury or damage to equipment. 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 deenergized (lockout/tagout) the equipment. Always operate the pump with a properly connected protective earth conductor and make sure that the motor connection box are 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 unfavorable laying. Provide strain relief for the connecting lines so that the 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.

Take appropriate precautions to ensure that the pump cannot start.

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

Observe all safety regulations!

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



CAUTION: DAMAGE TO THE EQUIPMENT

Risk of damage to equipment. Failure to observe the following precautions could result in damage to the equipment or people

Liquid and solid particles or dust 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. The pressure regulation device is to be installed by the end-user. We recommend also to collect the pump exhaust and to treat the gases in function of their nature.

NOTE:

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

Never use discarded seals. Always assemble using new seals.

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

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

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

Important safety information

NOTE:

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

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



CAUTION: HOT SURFACE

Risk of damage to equipment. In normal operation, the pump surface temperature can reach 85°C. 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 or 960560NENC. 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.

Touch the inner sections of the pumps only while wearing clean gloves and use clean tools; do the necessary work in clean and dry rooms.

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.

2.1 Information to user

The user's manual or instruction manual for an intentional or unintentional radiator shall caution the user that changes, or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

Note:

This equipment has been tested and found to comply with the limits for a Class B, group 1 digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

Description

3 Description

SOGEVAC pumps are designed for pumping of inert gases in the range of medium vacuum, between atmospheric pressure and end pressure of the pump. When removing condensable vapors, a gas ballast valve must be installed or opened.

3.1 Principle of operation

The SOGEVAC Neo D are oil-sealed rotary vane pumps. The anti-suckback valve, gas ballast valve, exhaust filter, oil return circuit are integrated functional elements. The pumps are driven by a directly flanged motor.

The rotor mounted eccentrically in the pump cylinder has three vanes which divide the pump chamber into several compartments. The volume of each changes periodically with the rotation of the rotor. As the rotor rotates, the intake portion of the pumping chamber expands and sucks gas through the intake port. The gas passes through the dirt trap and the open anti-suckback valve and enters the pump chamber. As the rotor rotates further, the vane separates part of the pump chamber from the intake port. This part of the pump chamber is reduced, and the gas is compressed. At slightly above atmospheric pressure the gas is expelled from the chamber via the exhaust valve.

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

Oil trapped in the exhaust filters is returned to the inlet chamber via an oil return 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.

The oil cycle is maintained by the pressure difference existing between the oil casing (pressure above or equal atmospheric pressure) and the intake port (pressure below atmospheric pressure) and by an oil pump. On part of the oil is taken from the oil casing and flows via the oil filter to the bearing points of the rotor and to the pump chamber. The other part of oil injected in the pump does not run through the oil filter.

A fan running on the motor shaft generates the necessary cooling air.

NOTE:

Pumps depending of their P/N are equipped with a gas ballast device. If opened, a controlled amount of air so called "gas ballast" is admitted into the pump chamber. This gas ballast prevents condensation (up to the limit of water vapor tolerance specified in the Technical Data) when pumping condensable gases or vapors. There are different types of gas ballast:

- Standard manual gas ballast closed, small flow & standard flow
- EM 24 V DC gas ballast available upon request
- Permanent, available upon request.

WARNING: INSTALLATION SAFETY



Risk of injury or damage to equipment. Unintentional venting of the vacuum chamber as well as oil suck back when shutting down the pump are prevented by the integrated anti suck back valve. This valve is not a safety device and its correct operation & tightness can only be assured if the valve plate & sealing zone are kept clean and in good condition.

If oil returns are to be avoided by all means, it is required to install a vacuum safety valve on the pump suction flange. Please consult us.

3.1.1 Electrical sparks

The motor and accessories supplied with this pump are certified to the same classification as the outside of the pump. These should be installed and used in accordance with the manufacturer's instructions attached to this manual.

3.1.2 Static electricity

The pump should be adequately earthed to prevent the accumulation of static electricity. This will be achieved if the electrical earth cable to the motor is properly connected. No hazardous charge generation will occur on the plastic cooling fan and cowl or on the plastic coupling sleeve in normal operation. (For further information on hazards from static electricity see CENELEC report CLC/TR 50404:2003 Electrostatics - Code of practice for the avoidance of hazards due to static electricity.)

NOTE:

Only original Leybold replacement exhaust gas filter cartridges and gas inlet filter cartridges should be used as these have a special construction to ensure earthing.

3.1.3 Chemical reactions

The pump should not be used with reactive gases that could produce an exothermic chemical reaction.

Description

3.2 Table: Technical characteristics Sogevac NEO D/SD 16

Table 1. Technical characteristics Sogevac NEO D/SD 16

		NEO D/SD 16	
		50 Hz	60 Hz
Nominal speed ¹⁾	m ³ . h ⁻¹ (cfm)	19 (11.2)	23 (13.5)
Pumping speed ¹⁾	m ³ . h ⁻¹ (cfm)	16 (9.4)	19 (11.2)
Ultimate total pressure without gas ballast ¹⁾	mbar (Torr)	≤ 8 x 10 ⁻³ (≤ 6 x 10 ⁻³)	
Ultimate total pressure with standard gas ballast ¹⁾	mbar (Torr)	≤ 0.1 (≤ 0.075)	
Ambient temperature		12 ... 40 °C (54...104 °F)	
Inlet gas temperature		-20 ... +60 °C (-4...140 °F)	
Water vapor tolerance with standard gas ballast ¹⁾	mbar (Torr)	10 (7.5)	10 (7.5)
Water vapor capacity with standard gas ballast	kg.h ⁻¹ (qt/h)	0.12 (0.12)	0.12 (0.12)
Noise level ²⁾	dB (A)	54	55
Leak rate	mbar.l.s ⁻¹	≤1.10 ⁻³	≤1.10 ⁻³
Rated rotational speed	min. -1	1500	1800
Net weight (with oil filling)	kg (lbs)	49 (108)	
Protection level		IP55 three phase drives IP40 single phase drives	
Oil capacity	l (qt)	1.5 (1.59)	
Intake connection		DN 25 ISO-KF	
Exhaust connection		DN 25 ISO-KF	

1. To DIN 28400 and following numbers, with standard gas ballast
2. Operated at the ultimate pressure without gas ballast, free-field measurement at a distance of 1 m.

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	1013	760	0	m ³ .h ⁻¹ = m ³ /h	1	0.278	0.589
1 qt = 0.946 l	400	300	18.12				
1 hp = 0.735 kW	133	100	25.98	l.s ⁻¹ = l/s	3.60	1	2.12
1 rpm = 1 min ⁻¹	4	3	29.80				

Description

Conversion factors	Different pressure units			Different pumping speed units			
	mbar (millibar)	torr	Inches Hg vacuum		m ³ .h ⁻¹	l.s ⁻¹	cfm
1 inch = 25.4 mm	1	0.75	29.89	cfm = cubic feet per minute	1.699	0.472	1
	0.1	0.075	29.92				
1 atm (atmosphere) = 1.013 bar 1 Pa (pascal) = 0.01 mbar = 10 ⁻² mbar 1 bar = 1000 mbar 1 torr = 1.33 mbar				Example: 1 m ³ h ⁻¹ = 0.589 cfm  Note: The nominal pumping speed of a pump at 60 Hz is 20% higher than at 50 Hz.			

These values are valid for the standard variants and with the use of the recommended oils.

Description

3.3 Table: Technical characteristics Sogevac NEO D 25

Table 2. Technical characteristics Sogevac NEO D 25

		NEO D 25	
		50 Hz	60 Hz
Nominal speed ¹⁾	m ³ . h ⁻¹ (cfm)	28 (16.5)	34 (20)
Pumping speed ¹⁾	m ³ . h ⁻¹ (cfm)	24 (14.1)	29 (17)
Ultimate total pressure without gas ballast ¹⁾	mbar (Torr)	≤ 8 x 10 ⁻³ (≤ 6 x 10 ⁻³)	
Ultimate total pressure with standard gas ballast ¹⁾	mbar (Torr)	≤ 0.1 (≤ 0.075)	
Ambient temperature		12 ... 40 °C (54...104 °F)	
Inlet gas temperature		-20 ... +60 °C (-4...140 °F)	
Water vapor tolerance with standard gas ballast ¹⁾	mbar (Torr)	10 (7.5)	10 (7.5)
Water vapor capacity with standard gas ballast	kg.h ⁻¹ (qt/h)	0.19 (0.19)	0.19 (0.19)
Noise level ²⁾	dB (A)	54	55
Leak rate	mbar.l.s ⁻¹	≤1.10 ⁻³	≤1.10 ⁻³
Rated rotational speed	min. -1	1500	1800
Net weight (with oil filling)	kg (lbs)	48 (105)	
Protection level		IP55 three phase drives IP40 single phase drives	
Oil capacity	l (qt)	1.5 (1.59)	
Intake connection		DN 25 ISO-KF	
Exhaust connection		DN 25 ISO-KF	

1. To DIN 28400 and following numbers, with standard gas ballast
2. Operated at the ultimate pressure without gas ballast, free-field measurement at a distance of 1 m.

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	1013	760	0	m ³ .h ⁻¹ = m ³ /h	1	0.278	0.589
1 qt = 0.946 l	400	300	18.12				
1 hp = 0.735 kW	133	100	25.98	l.s ⁻¹ = l/s	3.60	1	2.12
1 rpm = 1 min ⁻¹	4	3	29.80				

Description

Conversion factors	Different pressure units			Different pumping speed units			
	mbar (millibar)	torr	Inches Hg vacuum		m ³ .h ⁻¹	l.s ⁻¹	cfm
1 inch = 25.4 mm	1	0.75	29.89	cfm = cubic feet per minute	1.699	0.472	1
	0.1	0.075	29.92				
1 atm (atmosphere) = 1.013 bar 1 Pa (pascal) = =0.01 mbar = 10⁻² mbar 1 bar = 1000 mbar 1 torr = 1.33 mbar				Example: 1 m³h⁻¹ = 0.589 cfm  Note: The nominal pumping speed of a pump at 60 Hz is 20% higher than at 50 Hz.			

These values are valid for the standard variants and with the use of the recommended oils.

Description

3.4 Table: Technical characteristics Sogevac NEO D 40

Table 3. Technical characteristics Sogevac NEO D 40

		NEO D 40	
		50 Hz	60 Hz
Nominal speed ¹⁾	m ³ . h ⁻¹ (cfm)	47 (22.6)	56 (33)
Pumping speed ¹⁾	m ³ . h ⁻¹ (cfm)	40 (23.5)	48 (28.2)
Ultimate total pressure without gas ballast ¹⁾	mbar (Torr)	≤ 8 x 10 ⁻³ (≤ 6 x 10 ⁻³)	
Ultimate total pressure with standard gas ballast ¹⁾	mbar (Torr)	≤ 0.1 (≤ 0.075)	
Ambient temperature		12 ... 40 °C (54...104 °F)	
Inlet gas temperature		-20 ... +60 °C (-4...140 °F)	
Water vapor tolerance with standard gas ballast ¹⁾	mbar (Torr)	10 (7.5)	10 (7.5)
Water vapor capacity with standard gas ballast	kg.h ⁻¹ (qt/h)	0.31 (0.33)	0.31 (0.33)
Noise level ²⁾	dB (A)	57	58
Leak rate	mbar.l.s ⁻¹	≤1.10 ⁻³	≤1.10 ⁻³
Rated rotational speed	min. -1	1500	1800
Net weight (with oil filling)	kg (lbs)	80 (176)	
Protection level		IP55 three phase drives IP40 single phase drives	
Oil capacity	l (qt)	3 (3.2)	
Intake connection		DN 40 ISO-KF	
Exhaust connection		DN 40 ISO-KF	

1. To DIN 28400 and following numbers, with standard gas ballast
2. Operated at the ultimate pressure without gas ballast, free-field measurement at a distance of 1 m.

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	1013	760	0	m ³ .h ⁻¹ = m ³ /h	1	0.278	0.589
1 qt = 0.946 l	400	300	18.12				
1 hp = 0.735 kW	133	100	25.98	l.s ⁻¹ = l/s	3.60	1	2.12
1 rpm = 1 min ⁻¹	4	3	29.80				

Description

Conversion factors	Different pressure units			Different pumping speed units			
	mbar (millibar)	torr	Inches Hg vacuum		m ³ .h ⁻¹	l.s ⁻¹	cfm
1 inch = 25.4 mm	1	0.75	29.89	cfm = cubic feet per minute	1.699	0.472	1
	0.1	0.075	29.92				
1 atm (atmosphere) = 1.013 bar 1 Pa (pascal) = 0.01 mbar = 10⁻² mbar 1 bar = 1000 mbar 1 torr = 1.33 mbar				Example: 1 m³h⁻¹ = 0.589 cfm  Note: The nominal pumping speed of a pump at 60 Hz is 20% higher than at 50 Hz.			

These values are valid for the standard variants and with the use of the recommended oils.

Description

3.5 Table: Technical characteristics Sogevac NEO D 65

Table 4. Technical characteristics Sogevac NEO D 65

		NEO D 65	
		50 Hz	60 Hz
Nominal speed ¹⁾	m ³ . h ⁻¹ (cfm)	74 (43.5)	89 (52.4)
Pumping speed ¹⁾	m ³ . h ⁻¹ (cfm)	63 (37)	76 (44.7)
Ultimate total pressure without gas ballast ¹⁾	mbar (Torr)	≤ 8 x 10 ⁻³ (≤ 6 x 10 ⁻³)	
Ultimate total pressure with standard gas ballast ¹⁾	mbar (Torr)	≤ 0.1 (≤ 0.075)	
Ambient temperature		12 ... 40 °C (54...104 °F)	
Inlet gas temperature		-20 ... +60 °C (-4...140 °F)	
Water vapor tolerance with standard gas ballast ¹⁾	mbar (Torr)	10 (7.5)	10 (7.5)
Water vapor capacity with standard gas ballast	kg.h ⁻¹ (qt/h)	0.50 (0.52)	0.50 (0.52)
Noise level ²⁾	dB (A)	57	58
Leak rate	mbar.l.s ⁻¹	≤1.10 ⁻³	≤1.10 ⁻³
Rated rotational speed	min. -1	1500	1800
Net weight (with oil filling)	kg (lbs)	88 (193)	
Protection level		IP55 three phase drives IP40 single phase drives	
Oil capacity	l (qt)	3 (3.2)	
Intake connection		DN 40 ISO-KF	
Exhaust connection		DN 40 ISO-KF	

1. To DIN 28400 and following numbers, with standard gas ballast
2. Operated at the ultimate pressure without gas ballast, free-field measurement at a distance of 1 m.

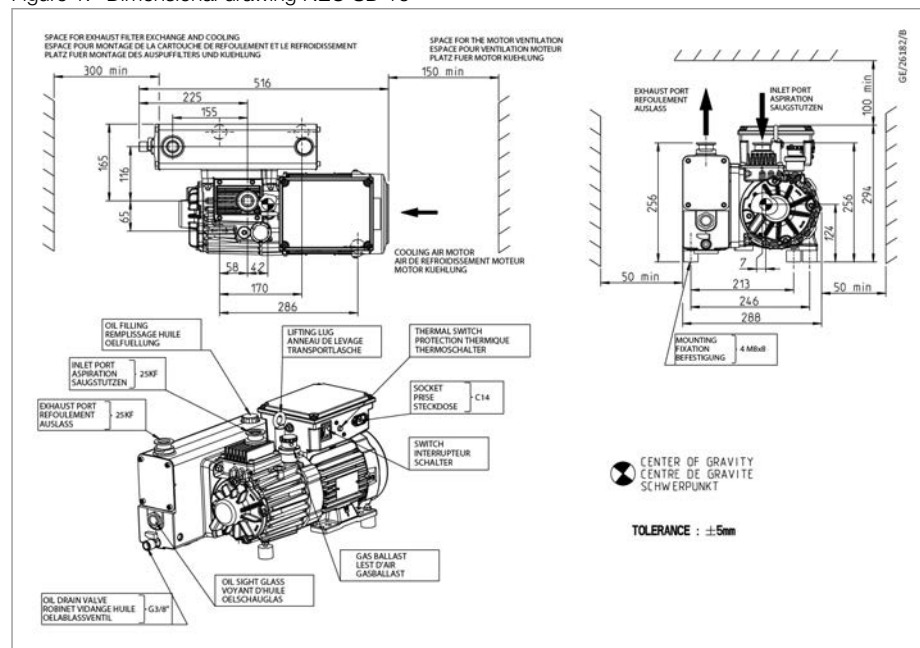
Conversion factors	Different pressure units			Different pumping speed units			
	mbar (millibar)	torr	Inches Hg vacuum		m ³ .h ⁻¹	l.s ⁻¹	cfm
1 lb = 0.453 kg	1013	760	0	m ³ .h ⁻¹ = m ³ /h	1	0.278	0.589
1 qt = 0.946 l	400	300	18.12				
1 hp = 0.735 kW	133	100	25.98	l.s ⁻¹ = l/s	3.60	1	2.12
1 rpm = 1 min ⁻¹	4	3	29.80				

Description

Conversion factors	Different pressure units			Different pumping speed units			
	mbar (millibar)	torr	Inches Hg vacuum		m ³ .h ⁻¹	l.s ⁻¹	cfm
1 inch = 25.4 mm	1	0.75	29.89	cfm = cubic feet per minute	1.699	0.472	1
	0.1	0.075	29.92				
1 atm (atmosphere) = 1.013 bar 1 Pa (pascal) = 0.01 mbar = 10 ⁻² mbar 1 bar = 1000 mbar 1 torr = 1.33 mbar				Example: 1 m ³ .h ⁻¹ = 0.589 cfm  Note: The nominal pumping speed of a pump at 60 Hz is 20% higher than at 50 Hz.			

These values are valid for the standard variants and with the use of the recommended oils.

Figure 1. Dimensional drawing NEO SD 16



Description

Figure 2. Dimensional drawing NEO D 16

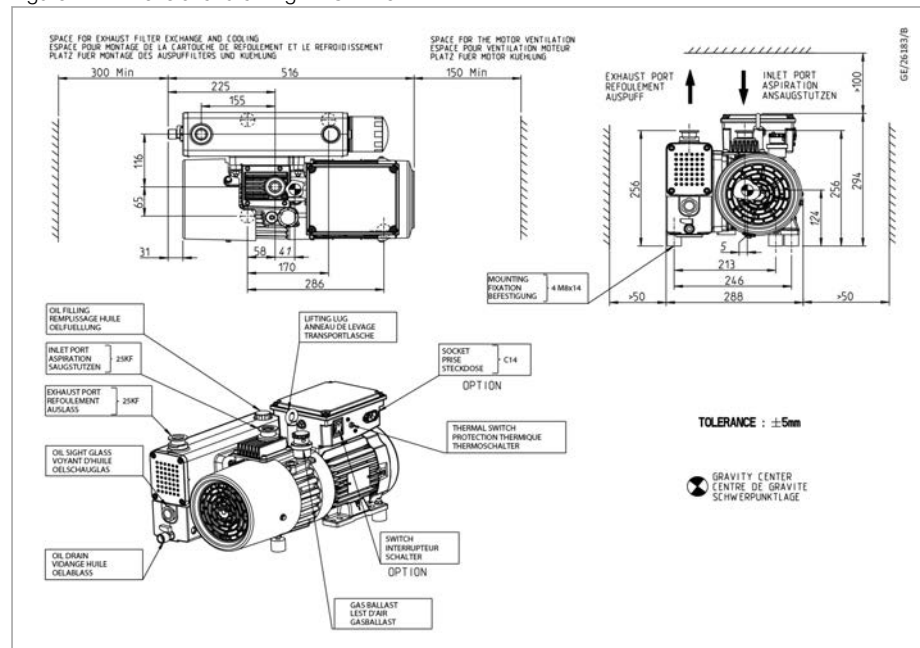
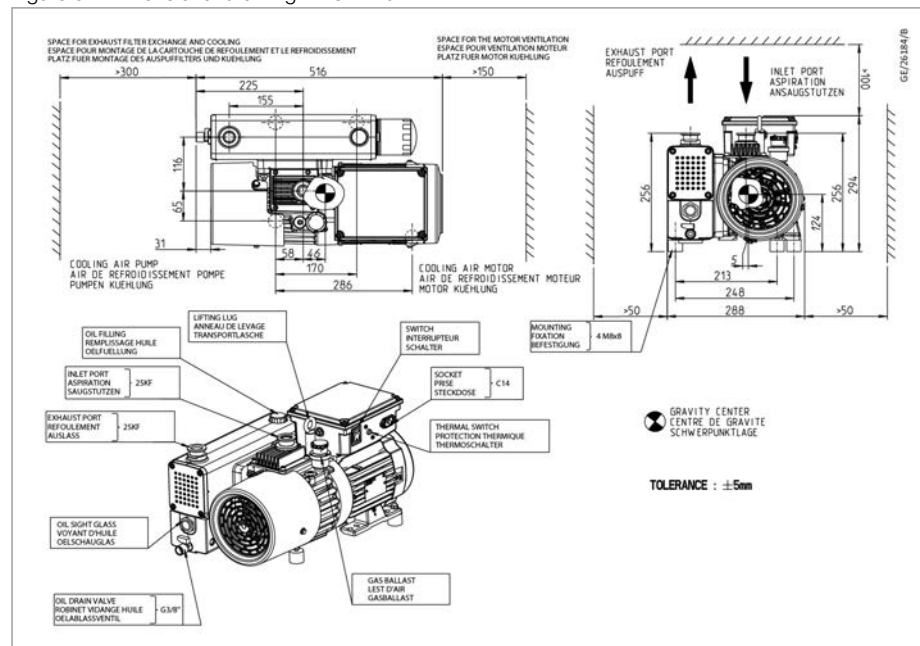


Figure 3. Dimensional drawing NEO D 25



Description

Figure 4. Dimensional drawing NEO D 40

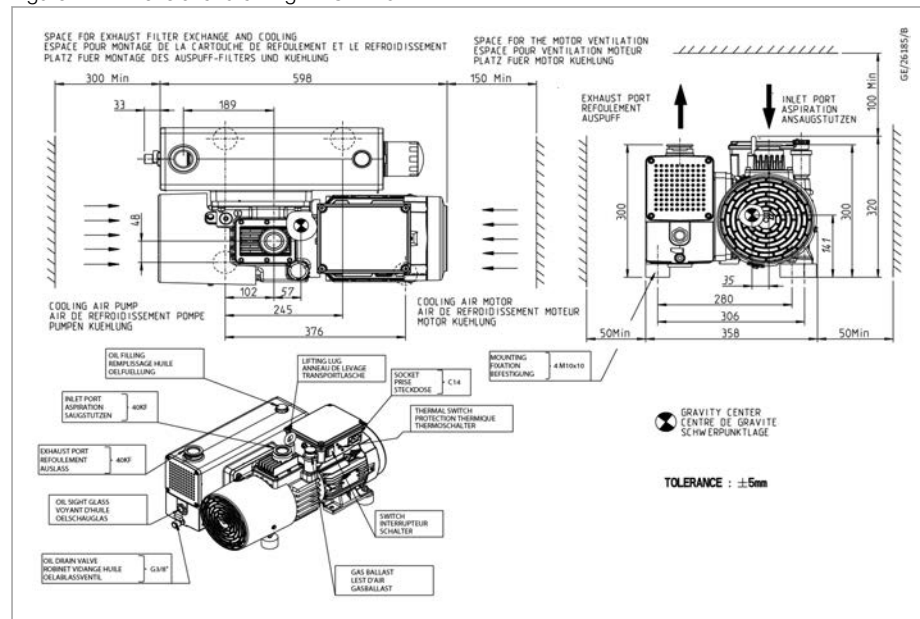
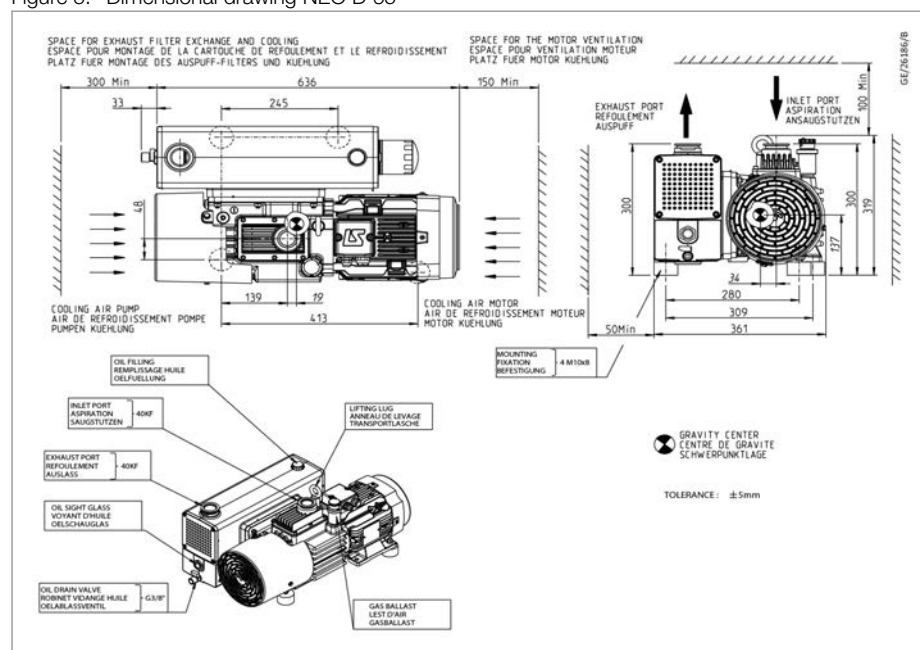


Figure 5. Dimensional drawing NEO D 65



Description

Figure 6. NEO D/SD 16 Pumping speed curve 50 Hz

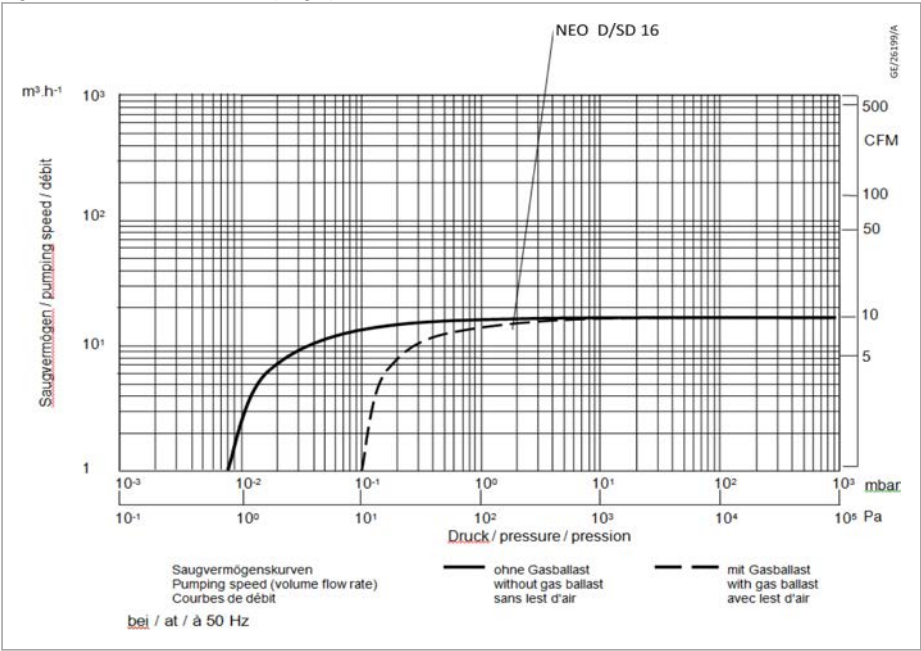
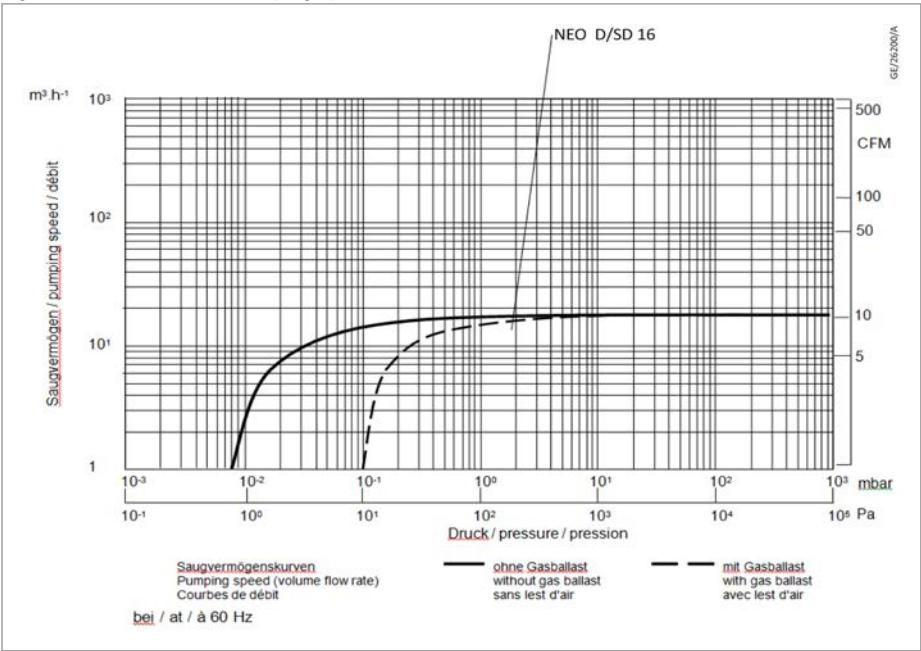


Figure 7. NEO D/SD 16 Pumping speed curve 60 Hz



Description

Figure 8. NEO D 25 Pumping speed curve 50 Hz

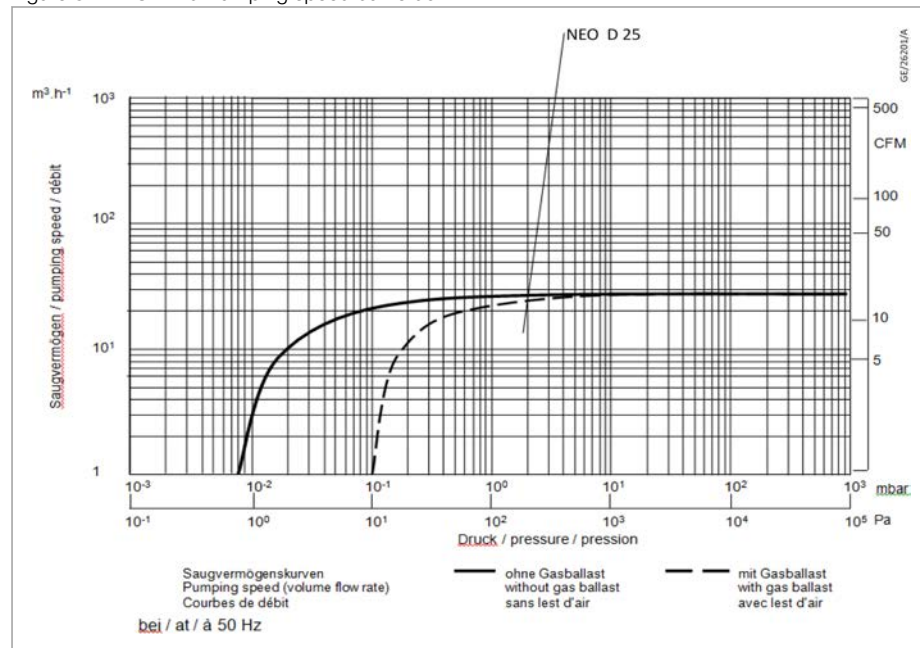
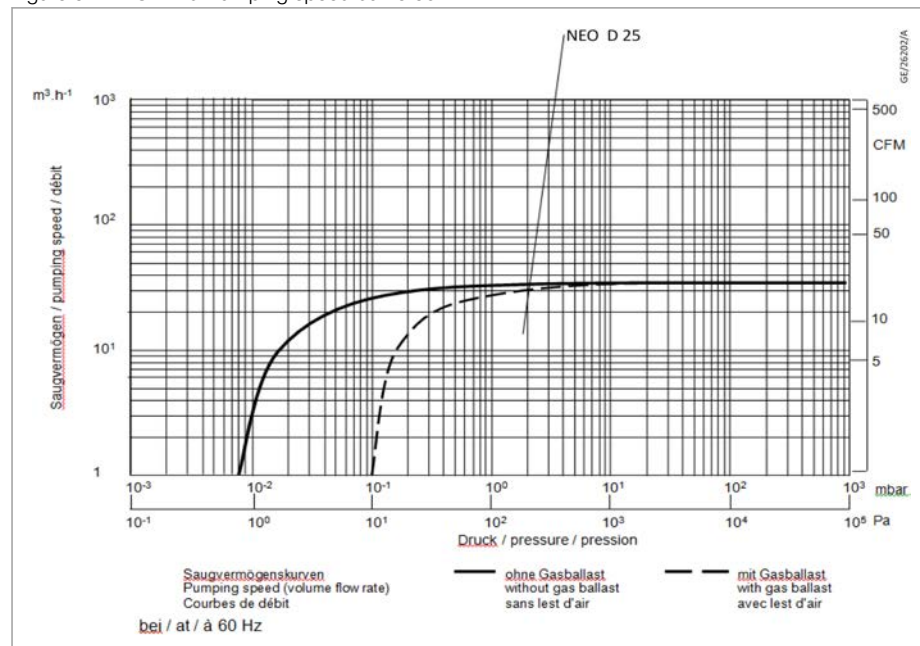


Figure 9. NEO D 25 Pumping speed curve 60 Hz



Description

Figure 10. NEO D 40 Pumping speed curve 50 Hz

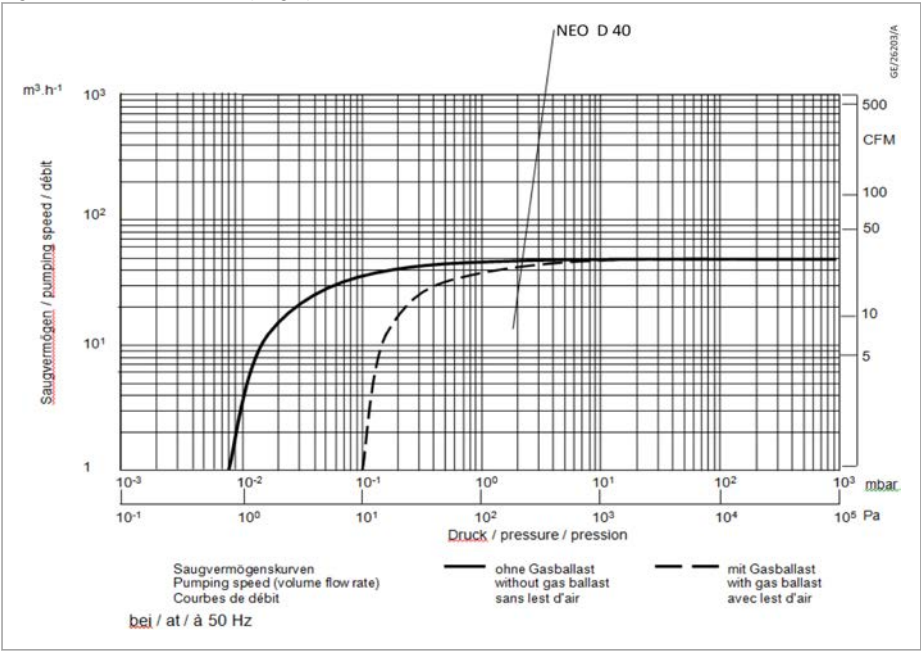
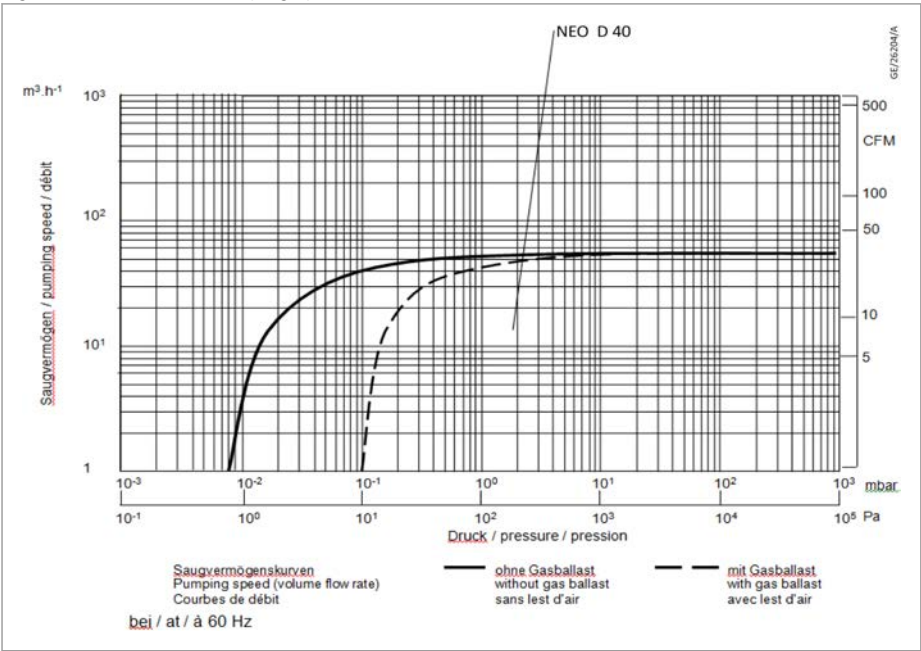


Figure 11. NEO D 40 Pumping speed curve 60 Hz



Description

Figure 12. NEO D 65 Pumping speed curve 50 Hz

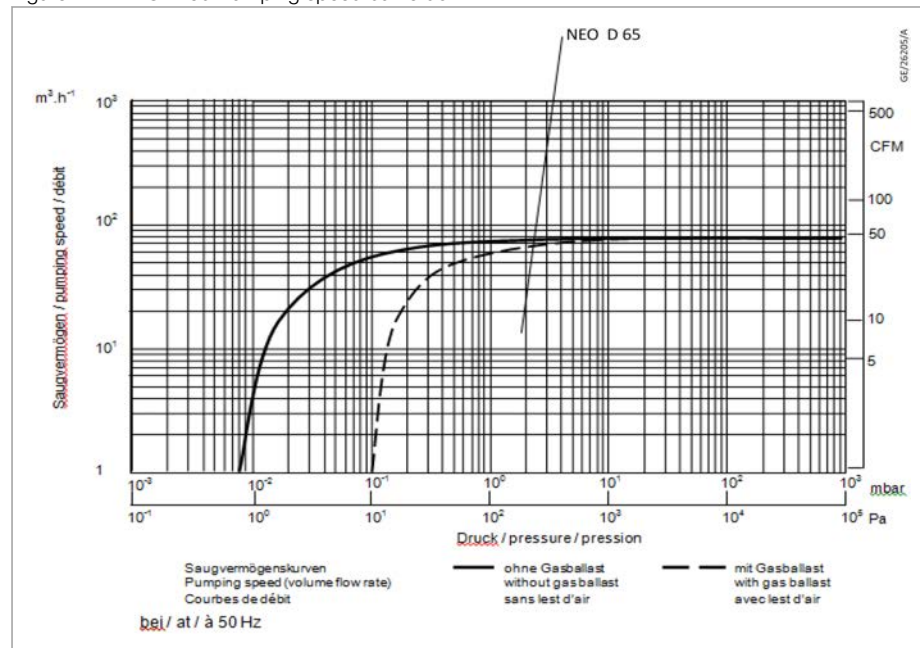
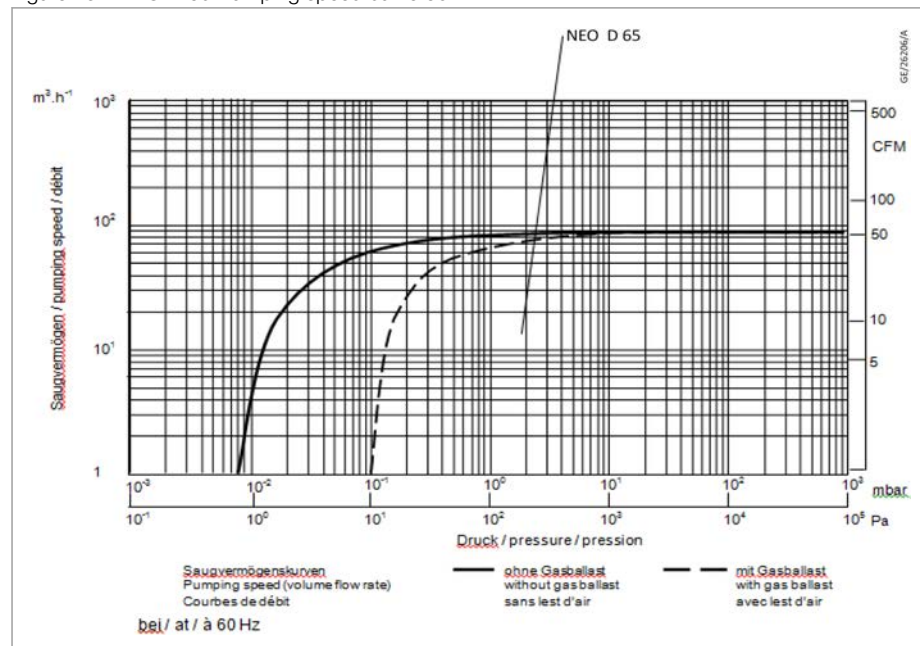


Figure 13. NEO D 65 Pumping speed curve 60 Hz



Description

3.6 Ordering Information

Table 5. Ordering Information

P/N	Pump Pompe Pumpe	Motor	GB	Oil filter Filtre huile Öl- filter	Oil Huile Öl	Inlet flange Bride aspi Einlass	Exhaust flange Bride re- foul Aus- lass	Mains socket type Prise alim Leis- tungsstecker	On Off switch
970100SD	NEO SD 16	A	std	N	LVO710	25KF	25KF	C14	Y
970100SD4010	NEO SD 16	A	std	N	LVO130	25KF	25KF	C14	Y
970100SD4200	NEO SD 16	A	EM	N	LVO710	25KF	25KF	C14	Y
970102SD	NEO SD 16	D	std	N	LVO710	25KF	25KF	-	-
970102SD4010	NEO SD 16	D	Std	N	LVO130	25KF	25KF	-	-
970102SD4200	NEO SD 16	D	EM	N	LVO710	25KF	25KF	-	-
970103SD	NEO SD 16	B	Std	N	LVO710	25KF	25KF	C14	Y
970100V	NEO D 16	A	std	Y	LVO702	25 KF	25 KF	C14	Y
970100V4100	NEO D 16	A	P	Y	LVO702	25 KF	25 KF	C14	Y
970100V4200	NEO D 16	A	EM	Y	LVO702	25 KF	25 KF	C14	Y
970100V4020	NEO D 16	A	std	Y	LVO120	25 KF	25 KF	C14	Y
970100V4050	NEO D 16	A	std	Y	LVO140	25 KF	25 KF	C14	Y
970102V	NEO D 16	D	std	Y	LVO702	25 KF	25 KF	-	-
970102V4100	NEO D 16	D	P	Y	LVO702	25 KF	25 KF	-	-
970102V4200	NEO D 16	D	EM	Y	LVO702	25 KF	25 KF	-	-
970102V4020	NEO D 16	D	std	Y	LVO120	25 KF	25 KF	-	-

Description

P/N	Pump Pompe Pumpe	Motor	GB	Oil filter Filtre huile Öl- filter	Oil Huile Öl	Inlet flange Bride aspi Einlass	Exhaust flange Bride re- foul Aus- lass	Mains socket type Prise alim Leis- tungsstecker	On Off switch
970103V	NEO D 16	B	std	Y	LVO702	25 KF	25 KF	C14	Y
970103V4050	NEO D 16	B	std	Y	LVO140	25 KF	25 KF	C14	Y

Motors

A = single phase wide range 200 ... 240 V +- 10 % 50 & 60 Hz

B = single phase low voltage 115 V +- 10 % 60 Hz

D = Three phase wide range 180...264 / 342...457 V, 50 Hz & 180...264 / 342...506 V, 60 Hz

Gas ballast

std = 3 positions (OFF/1/2)

P = permanent

EM = electromagnetic

N = no gas ballast

Oil filter

Y = Yes

N = No

P/N	Pump Pompe Pumpe	Motor	GB	Oil filter Filtre huile Öl- filter	Oil Huile Öl	Inlet flange Bride aspi Einlass	Exhaust flange Bride re- foul Aus- lass	Mains socket type Prise alim Leis- tungsstecker	On Off switch
970200V	NEO D 25	A	std	Y	LVO702	25 KF	25 KF	C14	Y
970200V4020	NEO D 25	A	std	Y	LVO130	25 KF	25 KF	C14	Y
970200V4100	NEO D 25	A	P	Y	LVO702	25 KF	25 KF	C14	Y
970200V4200	NEO D 25	A	EM	Y	LVO702	25 KF	25 KF	C14	Y
970202V	NEO D 25	D	std	Y	LVO702	25 KF	25 KF	-	-
970202V4020	NEO D 25	D	std	Y	LVO130	25 KF	25 KF	-	-

Description

P/N	Pump Pompe Pumpe	Motor	GB	Oil filter Filtre huile Öl- filter	Oil Huile Öl	Inlet flange Bride aspi Einlass	Exhaust flange Bride re- foul Aus- lass	Mains socket type Prise alim Leis- tungsstecker	On Off switch
970202V4100	NEO D 25	D	P	Y	LVO702	25 KF	25 KF	-	-
970202V4200	NEO D 25	D	EM	Y	LVO702	25 KF	25 KF	-	-

Motors

A = single phase wide range 200 ... 240 V +- 10 % 50 & 60 Hz

D = Three phase wide range 180...264 / 342...457 V, 50 Hz & 180...264 / 342...506 V, 60 Hz

Gas ballast

std = 3 positions (OFF/1/2)

P = permanent

EM = electromagnetic

N = no gas ballast

Oil filter

Y = Yes

N = No

P/N	Pump Pompe Pumpe	Motor	GB	Oil filter Filtre huile Öl- filter	Oil Huile Öl	Inlet flange Bride aspi Einlass	Exhaust flange Bride refoul Aus- lass	Mains socket type Prise alim Leis- tungsstecker	On Off switch
970300V	NEO D 40	A	std	Y	LVO702	40 KF	40 KF	C20	Y
970300V4020	NEO D 40	A	std	Y	LVO130	40 KF	40 KF	C20	Y
970300V4100	NEO D 40	A	P	Y	LVO702	40 KF	40 KF	C20	Y
970300V4200	NEO D 40	A	EM	Y	LVO702	40 KF	40 KF	C20	Y
970302V	NEO D 40	D	std	Y	LVO702	40 KF	40 KF	-	-
970302V4020	NEO D 40	D	std	Y	LVO130	40 KF	40 KF	-	-

Description

P/N	Pump Pompe Pumpe	Motor	GB	Oil filter Filtre huile Öl- filter	Oil Huile Öl	Inlet flange Bride aspi Einlass	Exhaust flange Bride refoul Aus- lass	Mains socket type Prise alim Leis- tungsstecker	On Off switch
970302V4100	NEO D 40	D	P	Y	LVO702	40 KF	40 KF	-	-
970302V4200	NEO D 40	D	EM	Y	LVO702	40 KF	40 KF	-	-

Motors

A = single phase wide range 200 ... 240 V +- 10 % 50 & 60 Hz

D = Three phase wide range 180...264 / 342...457 V, 50 Hz & 180...264 / 342...506 V, 60 Hz

Gas ballast

std = 3 positions (OFF/1/2)

P = permanent

EM = electromagnetic

N = no gas ballast

Oil filter

Y = Yes

N = No

P/N	Pump Pompe Pumpe	Motor	GB	Oil filter Filtre huile Öl- filter	Oil Huile Öl	Inlet flange Bride aspi Einlass	Exhaust flange Bride refoul Aus- lass	Mains socket type Prise alim Leis- tungsstecker	On Off switch
970402V	NEO D 65	D	std	Y	LVO702	40 KF	40 KF	-	-
970402V4020	NEO D 65	D	std	Y	LVO130	40 KF	40 KF	-	-

Description

P/N	Pump Pompe Pumpe	Motor	GB	Oil filter Filtre huile Öl- filter	Oil Huile Öl	Inlet flange Bride aspi Einlass	Exhaust flange Bride refoul Aus- lass	Mains socket type Prise alim Leis- tungsstecker	On Off switch
970402V4100	NEO D 65	D	P	Y	LVO702	40 KF	40 KF	-	-
970402V4200	NEO D 65	D	EM	Y	LVO702	40 KF	40 KF	-	-

Motors

D = Three phase wide range 180...264 / 342...457 V, 50 Hz & 180...264 / 342...506 V, 60 Hz

Gas ballast

std = 3 positions (OFF/1/2)

P = permanent

EM = electromagnetic

N = no gas ballast

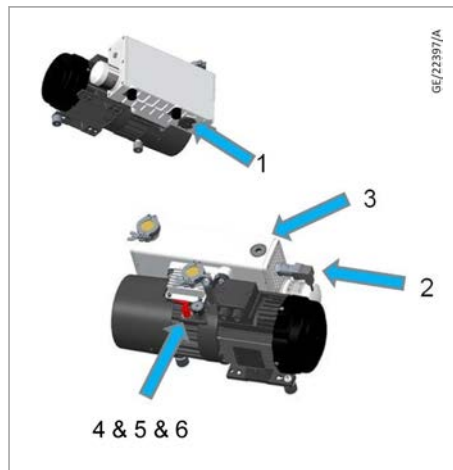
Oil filter

Y = Yes

N = No

3.7 Accessories

Description	Part-Nr.
1 Oil level switch	9700LS
2 Exhaust filter pressure switch	971471210
3 Exhaust filter pressure manometer	95193
4 Temperature switch	9700TS 9700TS65
Pump sizes 16-25-40	
Pump size 65	
5 PT100 on 40 & 65 sizes only	971444320
6 Gas ballast manual 3 flows	EK6702808 EK6703081
Pump size 16-25	
Pump size 40-65	
6 Gas ballast manual 16 KF	9700GBA
6 Gas ballast permanent	9700GBP
6 Gas ballast permanent 16 KF	EK6702221
6 Gas ballast EM 24 V DC	9700GBDC
Roots adapter up to WAU 501 for SV Neo D 65	970RA01
Roots adapter up to WAU 501 for SV Neo D 40	970RA02



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

In case a direct Roots pump coupling is used, it is important to check the gas temperature due to the

Roots compression.

3.7.1 Power cords

For single phase pump versions

P/N / Ref / Kat-Nr	Plug pump side	Plug supply side	Length m
141103US	C19	NEMA 5-15P 125 V	1.8
161810US	C19	NEMA 6-15P 250 V	1.8

Description

P/N / Ref / Kat-Nr	Plug pump side	Plug supply side	Length m
161810EU	C19	Euro / Schuko 16 A	1.8
161810UK	C19	UK plug 13 A	1.8
E6500825	C19	C20	2.5
E6505883	C19	IEC 309 16 A	5
EK6502798	C19	C14	2.5
971443450	C13	Euro / Schuko 16 A	2
6534485V	C13	NEMA 5-15P 125 V	2
EK6508756	C13	NEMA 5-15P 125 V	2
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

SV Neo D 16 & 25 need C13 cables

SV Neo D 40 & 65 need C19 cables

The power cords are not included in the pump scope of delivery. We include a C14 resp. C20

plug.

Should non Leybold power cords be used, take below minimum cross sections:

Pump	115V	230V
SV Neo 16 D-SD / 25D	AWG14 / 2 mm ²	AWG15 / 1,5 mm ²
SV Neo D 40 / 65	N/A	AWG14 / 2 mm ²

Table 6. Spare parts

Description	SV Neo D/SD 16	SV Neo D 25	SV Neo D 40	SV Neo D 65
Set of gaskets	EK9701SK	EK9702SK	EK9703SK	EK9704SK
Exhaust filter	EK6702228	EK6702158	EK6702490	EK6702425
Oil filter	EK96004	EK96004	EK96004	EK96004
Oil filter bypass	71230570	71230570	71230570	71230570
Maintenance kit	EK9701M	EK9702M	EK9703M	EK9704M
Repair kit	EK9701RES	EK9702RES	EK9703RES	EK9704RES
Generator kit	EK9701GEN	EK9702GEN	EK9703GEN	EK9704GEN

3.8 Lubricants

Only original Leybold oil are to be used in the pumps, at least during their warranty period.

Description



WARNING:

Risk of injury or damage to equipment. Following oil types can be used depending of the pump P/N, see [Ordering Information](#) on page 30.

Ordering Information:

- Mineral oil LVO120/130
- Food grade oil LVO140
- Long life oil LVO702/710

Oil volume Oil Can	Mineral oil LVO120	Mineral oil LVO130	Food grade oil LVO140	Long life oil LVO702/710
	Part-Nr.	Part-Nr.	Part-Nr.	Part-Nr.
1 l	L12001	L13001	L14001	L70201/L71001
5 l	L12005	L13005		L70205/L71005

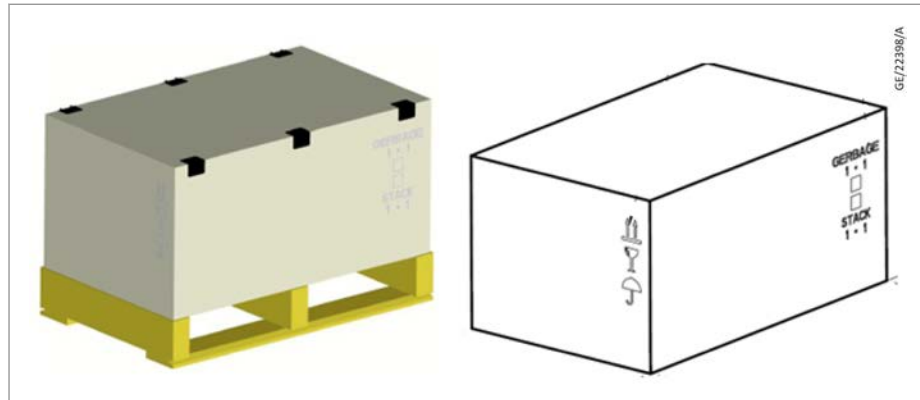
Transport and Storing

4 Transport and Storing

4.1 Transport and packaging

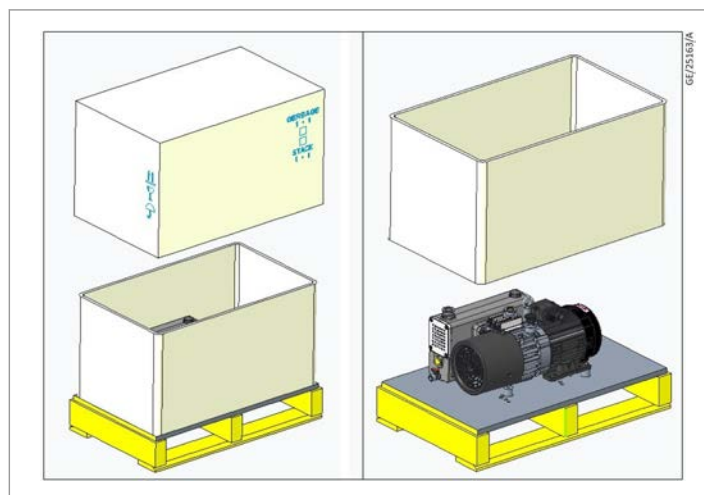
SOGEVAC vacuum pumps pass a rigorous operating test in our factory and are packaged to avoid transport damages.

Please check packaging on delivery for transport damages. Outer packaging is made by a wood pallet & cardboard or wood top Pallets are to be handled with a forklift.



4.1.1 For unpacking

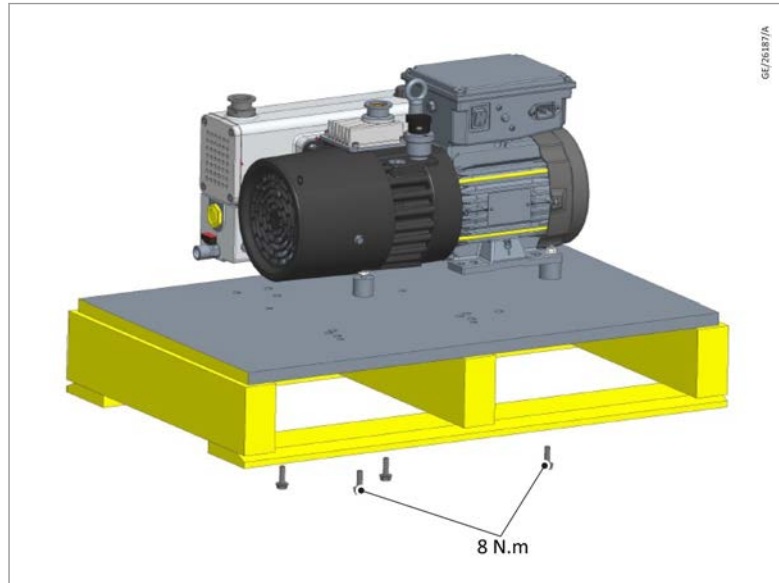
1. Cut the 3 plastic straps carefully. Wear gloves & protection glasses!
2. Remove the cardboard top and inner reinforcement cardboard belt or wood box.



4.1.2 Pump fixation

The pumps are bolted by screws. Screws are to be removed from under the pallet using a 13 mm wrench.

Transport and Storing



4.1.3 Pump lifting

The pump is then ready to be shifted or lifted off the pallet.

Due to the pump weight **ONLY** a suitable lifting device shall be used to lift the pump at the lifting lug (CE regulations) A lifting device is the only officially recommended way of handling the pump.

Do not lift at the motor, cables connection boxes, flanges etc.! Do not drag the pump from these points.

Packing materials should be disposed of according to environmental laws or re-cycled. These operating instructions are part of the consignment. The connection ports are blanked off by plastic or metallic protective caps.

Take these caps away before turning on the pump. A sticker showing the steps is delivered with every pump. Please follow these instructions.

The pumps have their oil filled in.

4.2 Mounting orientation

See required space on drawings in paragraph [Table: Technical characteristics Sogevac NEO D/SD 16](#) on page 16, [Table: Technical characteristics Sogevac NEO D 25](#) on page 18, [Table: Technical characteristics Sogevac NEO D 40](#) on page 20 and [Table: Technical characteristics Sogevac NEO D 65](#) on page 22.

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. 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 safely. Use suitable lifting equipment. Make sure that all safety regulations are observed. Use only lifting devices appropriated to the pump weight. Check name plate. Do not use other pump elements than the lifting lugs as handles.

Transport and Storing

4.3 Storage

Before stocking the pump for a long time put it back in its original condition (blank off inlet and exhaust ports with the shipping seals, drain the oil) and store the pump in a dry place at room temperature.

Storage temperature: - 15°C to + 50°C

Until the pump is put back in to service again, the pump should be stored in a dry place, preferably at room temperature (20 °C - 68 °F). Before taking the pump out of service, it should be properly disconnected from the vacuum system, purged with dry nitrogen and the oil should be changed too. The inlet and exhaust ports of the pump must be blanked off using the shipping seals which are included upon delivery of the pump.

The gas ballast must be closed and if the pump is to be shelved for a longer period of time it should be sealed in a plastic bag together with a desiccant (Silicagel).

If the pump has been shelved for over one-year, standard maintenance must be done, and the oil must be exchanged too before the pump is put into service once more.

We recommend that you contact the service from Leybold.

5 Installation

It is essential to observe the following instructions step by step to ensure safe start-up.

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.

Do not stand on the pump and do not place objects on the pump as these can cause deformation of the fan housing and possible frictional rubbing.

5.1 Installation

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

The oil level cannot be read properly if the pump is tilted and lubrication may be affected. The max. slope angle is $\pm 1^\circ$.

The pump's ambient temperature must be between 12°C (55°F) and 40°C (104°F). Additional warning note: consider changes in ambient temperatures that might occur when air conditioning is turned down, such as nights and weekends.

The following ambient operating environment must be observed:

- Pollution degree 2
- Ambient pressure = Atmospheric pressure.
- Rel. humidity $\leq 95\%$ without condensation

Normal presence of transient over-voltages due to the power mains.

NOTE:

The usual transient over-voltage level corresponds to the category II of the impulse withstand (over-voltage) of the IEC 60364-4-443.

To ensure adequate cooling of the pump, leave enough space at the air intake and exhaust points, and for access and maintenance (see [Figure 2](#) on page 24 to [Figure 4](#) on page 25). Make sure to keep the fans, hoods, cooling coils & air intake of the motor clean. The pump must be kept clean (no dust deposit). The pump is to be installed such that the oil level sight-glass can be both easily read and so that it will not be broken.

The pumps are delivered with closed gas ballast.

5.2 Connection to the system

5.2.1 Intake Side

- Pump should be connected to inlet line without any tension. Use flex lines or pipe unions in your inlet and exhaust lines so that they can be easily removed for pump maintenance.
- The maximum pressure at the inlet may not exceed atmospheric pressure (about 1013 mbar). Never operate the pump in the presence of over pressures at its intake.
- Type of materials used for mounting of pipings should take care of pumped gases regulations. It is the same for its tightness. Using suitable connecting elements, the pump can be connected to the vacuum system.

Installation

The cross-section of the intake line should be at least the same as the one for the intake port. If the intake line is too narrow, it reduces the pumping speed. If the process gas contains dust, it is essential to install a dust filter in addition to the dirt trap supplied.

We recommend installing the dust filter horizontally. This ensures that when removing the filter, no particles fall into the intake port.

When pumping vapors, we recommend installing condensate traps on the intake and exhaust sides.

The intake must be installed in such a way to avoid condensates flowing into the pump.

5.2.2 Exhaust Side

The SOGEVAC pumps have integrated exhaust filters which, even at a high gas throughput, trap the oil mist and guarantee exhaust gas free of oil mist. If the exhaust filters are clogged, the bypass opens at 1.5 bar, (absolute pressure), and the filters are bypassed. As a result, the proportion of oil in the exhaust gas as well as the pump's oil consumption will rise. Installing new exhaust filters will correct this problem. (See [Maintenance Work](#) on page 53).

Check in the individual case whether a line is necessary and/or prescribed.

Volatile substances will pass through the filter. Depending on the process gas, we recommend connecting an exhaust line; this is always necessary when the exhaust gases are dangerous.

The maximum exhaust pressure must neither exceed 1.15 bar absolute (0.15 bar relative), nor fall under atmosphere pressure minus 15 mbar. Pump exhaust to be connected if oil mist or process gases are to be avoided in the pump area. Corresponding pressure regulating devices to be installed by the user.

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

Before installing the exhaust line, remove the exhaust-flange plate and ensure that the exhaust demister(s) are secured tightly in place. They sometimes loosen during shipping and installation. A loose demister results in exhaust smoke during start-up and operation. Install the exhaust line with a downward slope to prevent condensate from flowing back into the pump. If this is not possible, we strongly recommend installing a condensate trap.

Never operate the pump with a blocked or restricted exhaust line. Before start-up, ensure that any blinds or similar shut-off devices in the exhaust line on the pressure side are opened and that the exhaust line is not obstructed. Exhaust pipe material must be resistant to pumped gases. Use conductive materials for the exhaust pipe to avoid electrostatic charges.

5.3 Electrical connections

Ensure that incoming power to the pump is off before wiring the motor or altering the wiring. The specific wiring and instructions for installation given in the manual for the electric motor must be followed.

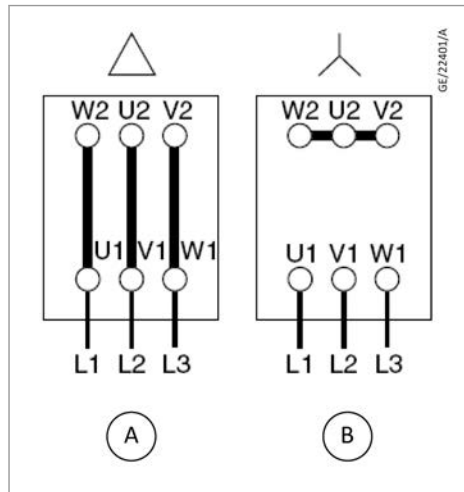
The pump shall be adequately earthed to prevent the accumulation of static electricity. The electrical junction box should only be opened, and electrical connections made when no explosive atmosphere is present.

5.3.1 3 phase motors

For connecting the motor, follow the schematics provided on the motor name plate or in its junction box, given your local mains voltage & frequency.

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.

Connect the pump's motor to the right supply voltage via the connections in the 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.

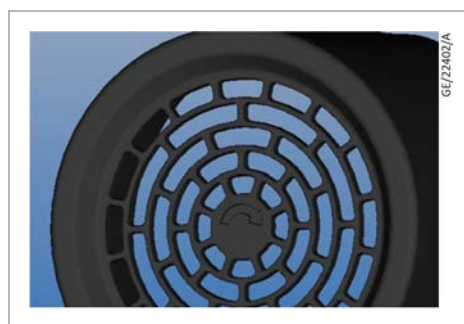


If any security switch or electrical defect cuts out the pump, re-start-up of the pump must be possible only manually.

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.

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

After connecting the motor and after every time you alter the wiring, check the direction of rotation. Refer to the arrow marked on the generator fan cover center and on the motor cover:



During the check, the intake port should be open. If the direction of rotation is wrong, oil may be ejected out the intake port. (The vacuum system may be pressurized).

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.

Installation

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

5.3.2 1 phase motors

Should the pump be connected to a standard wall socket, it must be checked that a building protection rated 16 A is installed (fuse or breaker curve B) to protect the power cable. Even if the pump is not operating, live voltage is present in the connection box! Voltage and frequency mentioned on the pump nameplate must agree with the supply voltage. The control cable must be at least distant by 10 cm to the mains cable and crossings shall be at 90°. The power socket and cord are disconnection elements which must remain accessible to the users.

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



5.3.3 Temperature Switch (Accessory)

A temperature switch can be retrofitted on the pumps and is available as an accessory.

It is a dry contact normally closed, tripping at

- Pumps sizes 16-25-40 : 100 °C.
- Pumps size 65 : 115 °C

Hysteresis 15 to 20 °C

The thermal switch can be connected in series with the motor protection relay.

Switching ratings DC 3A/60V Max

AC 5A/25V Max

Make sure the pump restart will be possible only by a voluntary action after having solved the overheating cause.

5.3.4 Temperature Sensor PT100 (Accessory)

A temperature sensor type PT100 can be placed on the vacuum generator (40 & 65 sizes only) close to the exhaust valves. The temperature sensor monitors the pump temperature. See above paragraph Thermal switch for threshold values.

Make sure the pump restart will be possible only by a voluntary action after having solved the overheating cause.

5.3.5 Oil level Switch (Accessory)

An oil level switch can be retrofitted on the pumps and is available as an accessory.

The pump must be switched off and the pump and oil level checked immediately if the oil level is too low.

To avoid false alarms, it is recommended to use a timer of 20 seconds on the switch output. If the default remains longer than 20 seconds, the pump must be switched off.

Switching ratings DC 1A/60V Max

AC 0,5A/25V Max

5.3.6 Exhaust filter over pressure switch (Accessory)

An overpressure switch can be retrofitted on the pumps and is available as an accessory. The pump must be switched off and the pump, exhaust line and exhaust filters checked or changed immediately if the pressure in the oil casing is too high.

To avoid false alarms (e.g. at cold pump start) it is recommended using a timer set to 20 seconds on the switch output.

The exhaust filter switch warns when the increase in pressure drop over a filter caused by gradual clogging becomes too high, by means of an electrical alarm indication.

Attention: this only works at high inlet pressure (ideally atmospheric pressure at the inlet)!

Switching ratings DC 1A/60V Max

AC 0,5A/25V Max

See next page for threshold values.

5.3.7 Associated Electrical equipment

The electrical equipment supplied with this pump e.g. motor, valves, sensors etc. are also suitable for use in potentially explosive gas / dust atmospheres under the same conditions as those for the pump. The instructions given in the electrical motor manufacturer's Information for Use attached to this manual must be complied with. The electrical motor and accessories meet the IP65 enclosure requirements or their equivalent.

The ignition protection sensors (over-temperature, outlet-pressure, oil-level) must be used to protect the pump against critical operational parameters and must be configured to cause shut of the pump if the values go outside of the allowable range. Additionally, the Temperature and pressure measurements should be configured to be fail safe i.e. loss of signal from the sensor should cause the pump to shut down.

Installation

Restart should not be possible without re-setting of the ignition preventing system. The system should meet requirements of IPL1 (EN ISO 80079-36 / EN ISO 80079-37) equivalent to SIL1 (EN 61508) or EN ISO 13849-1.

5.4 Start-up

During cold start up the pressure in the oil casing can rise momentarily to above 650 mbar due to the oil filters being temporally blocked by oil. In order to prevent an inadvertent shut-off of the pump the pressure sensor control system should include a delay such that the pressure must be above 650 mbar for 15 s before the pump is switched off.

If the pressure in the oil casing rises above 1 bar overpressure the pump should be immediately switched off as this indicated that the outlet is blocked.

The noise level can be higher at pump cold start. The noise level normalizes itself once the pump warms up after a few minutes.

The oil for the first filling is supplied with the pump. Before switching on, always make sure that the pump contains enough oil. The normal oil level in a still standing pump is in the upper half of the sight glass. If oil must be added, unscrew the oil-fill plug, add oil and screw the plug firmly back in. The SOGEVAC is designed for normal start-up at temperatures over 12°C (54°F) (as per PNEUROP).

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

Never expose part of the body to the vacuum. Do not lay the hand on the intake to check suction. Exposure of a part of the body to the vacuum result in a rush of blood in the exposed part.

There is a danger of injury. Never operate the pump with an open and thus accessible inlet.

Vacuum connections as well as oil filling and oil draining openings must not be opened during operation of the pump.

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

6 Operation

6.1 Operation

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

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

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

Wear ear protection in case of operation at high inlet pressure!

6.1.1 Pumping of non-condensable gases

If the pump system contains mainly non-condensable gases, the pump should be operated without gas ballast.

If the composition of the gases to be pumped is not known and if condensation in the pump cannot be ruled out, run the pump with gas ballast valve open in accordance with section below.

6.1.2 Pumping of condensable gases and vapors

With the gas ballast valve open and at operating temperature, the SOGEVAC can pump pure water vapor up to the values indicated in the Technical Data.

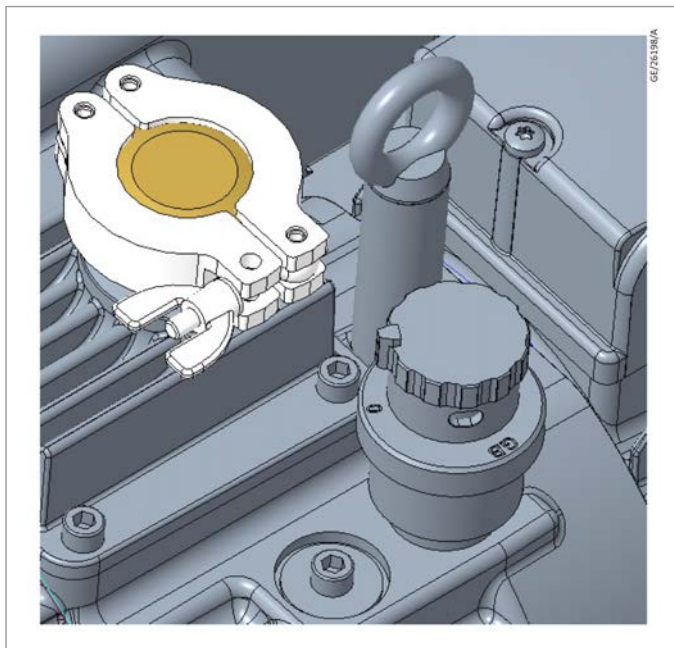
The gas ballast valve is operated manually by turning the rubber knob on the gas ballast head. There are 3 positions:

O closed

I small flow for small vapor quantities and

II standard flow for standard vapor quantities

Operation



The running noise of the pump is slightly louder if the gas ballast valve is open. Before pumping vapors ensure that the pump has warmed up for approx. 30 min. with closed intake line and with open gas ballast valve.

Don't open the pump to condensable vapors until it has warmed to operating temperature: pumping process gas with a cold pump results in vapors condensing in the oil.

For processes with a high proportion of condensable vapors, the intake line should be opened only slowly after reaching the operating temperature.

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

When vapors are pumped, the pump must not be switched off immediately after completion of the process because the condensate dissolved in the pump oil may cause changes or corrosion. To prevent this, the pump must continue to operate with open gas ballast valve and closed intake port until the oil is free of condensate. We recommend operating the pump in this mode for at least 30 min. after completion of the process.

In cycle operation, the pump should not be switched off between the cycles but should continue to run with gas ballast valve open and intake port closed (if possible, via a valve). Power consumption is minimal when the pump is operating at ultimate pressure.

Once all vapors have been pumped off from a process (e. g. during drying), the gas ballast valve can be closed in order to improve the ultimate pressure.

CAUTION: OPERATION SAFETY



Risk of injury or death. The SOGEVAC Neo D can be equipped with different types of gas ballasts, as defined by their cat-nr. The GB flow is valid for a pump operating at ultimate pressure (inlet closed) and for a GB gas supply of 1 bar abs. GB gas supply pressure max. 1 bar abs. In case an EM gas ballast is used, it must be supplied with 24 V DC.



WARNING: SAFETY INFORMATION

Risk of injury or damage to equipment. In normal operation, the SOGEVAC Neo D pumps operate typically below 10 mbar inlet pressure or at ultimate pressure with open gas ballast. Continuous duty and cycling operation are of course possible.

In the below listed abnormal conditions (but not limited to) the pump may stop due to overheating of the power electronics or motor.

- Continuous operation at high inlet pressure
- Restricted, clogged or blocked exhaust filters or exhaust line
- Out of tolerance supply voltage
- Unsuitable, polluted or too old oil
- Too low oil level
- Too high ambient temperature
- Clogged fan hoods or impeded fresh air circulation
- Etc.

The pump has been designed & tested to work in a normal EMC environment in acc. to IEC 61326-1 Table 1

6.2 Shutdown

Under normal circumstances, all that you need do is to switch off the pump. The intake port of the SOGEVAC contains an anti-suck back valve, which closes the intake port when the pump is shut down, to avoid the pump oil being sucked back into the vacuum chamber. The valve's functioning is not impaired by gas ballasting. The anti-suck back valve is not a safety vacuum valve.

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

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

Drain the oil (see Section [Maintenance Work](#) on page 53).

Pour in clean oil up to the bottom edge of the oil-level glass (see Section 5.4) and let the pump run for a few minutes.

Then drain the oil and pour in clean oil up to the top edge of the oil-level glass (see Section 5.4).

Seal the connection ports. Special preservation or flushing oils are not necessary.

When the pump has been switched off due to over-heating, initiated by the motor or its protection, the pump must be cooled down to the ambient temperature and must only be switched on again manually after having eliminated the cause.

In order to prevent the pump from running up unexpectedly after a mains power failure, the pump must be integrated into the control system in such a way that the pump can only be started by a manually operated switch. This applies equally to emergency cut-off switches.

Operation

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

6.3 Ultimate pump pressure

If the system cannot produce the pressures specified in the technical data, measure the ultimate pressure directly at the pump's intake port after disconnecting the pump from the system. The ultimate pressure of non-condensable gases (partial pressure of air) can only be measured with a compression vacuum gauge or a partial pressure gauge. Precise measurements can only be obtained with calibrated instruments.

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

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

6.4 Taking out of use

Please contact Leybold for all relation question about the disposal of spares, consumables or the entire pump

7 Maintenance

7.1 Safety Information

Observe all safety regulations.

All work must be done by suitably trained personnel. Maintenance or repairs carried out incorrectly will affect the life and performance of the pump, may change its CE compliance ratings and may cause problems when filing warranty claims or free Leybold from any responsibility.

Never mount used seals; always mount new seals. Only the use of genuine Leybold parts is allowed! Any integration of non Leybold parts or non-authorized repairs will cancel the pump CE certification and will waive all Leybold responsibilities.

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

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

Warning

The equipment must be maintained in such a way that the safety of the system is not impaired in any way.

The system instruction manual details the routine maintenance tasks that are necessary to maintain CE. Where the customer wishes to conduct more complex maintenance / overhaul tasks it is necessary for them to be trained by Leybold and supplied with the correct maintenance / inspection tooling.

In addition to the maintenance operations given in the manual, a complete overhaul of the pump including the replacement of the motor bearings should be carried out every 15'000 h of operation or every 3 years whichever is the sooner.

7.2 Maintenance Intervals

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

Maintenance job	Frequency	Section
Checking the oil level	Daily.	Maintenance Work on page 53
Checking the oil condition	Depends of process, at least weekly.	Maintenance Work on page 53
First oil change	After 150 hours of operation.	Maintenance Work on page 53
Following oil changes	Depends of process. Clean processes and LVO 702/710 oil allow up to 3 years.	Maintenance Work on page 53
Changing the exhaust and oil filters	If oil mist at exhaust or at indication of exhaust filter pressure sensor. At least annually. Clean processes and LVO702/710 oil allow up to 3 years	Maintenance Work on page 53

Maintenance

Checking the float valve	At each exhaust filter change or at least yearly.	Maintenance Work on page 53
Cleaning the intake port dirt trap	Depends of process, at least monthly.	Maintenance Work on page 53
Checking the anti-suck back valve	Depends of process, at least yearly.	Maintenance Work on page 53
Replacing the Pump Module	In case of specific pump servicing.	Maintenance Work on page 53
Replacement of electrical motor	In case of specific pump servicing.	Maintenance Work on page 53

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

7.3 Service at Leybold facilities



WARNING: GENERAL SAFETY

Risk of injury or damage to equipment. If you send a pump to us, indicate whether the pump is free of substances damaging to health or whether it is contaminated. If it is contaminated also indicate the nature of hazard. For this you must use the form we have prepared, and which will be provided upon request.

A copy of this form, "Declaration of Contamination of Vacuum Instruments and Components" is reproduced at the end of the Operating Instructions.

Another suitable form is available from <https://www.leybold.com/en/downloads/download-documents/declaration-ofcontamination/>

Please attach this form to the pump or enclose it with it. This statement detailing the type of contamination is required to satisfy legal requirements and for the protection of our employees.

We will return any pump received without a "Declaration of Contamination" to the sender's address.

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. If you open a pump at your own works also observe a potential contamination.



WARNING: GENERAL SAFETY

Risk of injury or damage to equipment. When disposing of used oil, please observe the relevant environmental regulations. Due to the design concept, SOGEVAC pumps require very little maintenance under normal operating conditions. The work required is described in the sections below.

All work must be done by suitably trained personnel. Maintenance or repairs carried out incorrectly will affect the life and performance of the pump and may cause problems when filing warranty claims.

In connection with this, you may be interested in the Leybold practical seminars, in which maintenance, repair and testing information for the Sogevac pumps is conveyed by qualified trainers.

7.4 Maintenance Work

7.4.1 Checking the oil level

The pump's oil level during operation must always be in the upper quarter of the oil-level glass. When necessary, switch off the pump and add the correct quantity of oil.



Overfilling leads to oil losses at high intake pressures. High oil consumption often indicates that exhaust filters are clogged (See [Replacing the Exhaust Filters](#) on page 54).

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

7.4.2 Checking the oil condition

Normally the oil is clear and transparent. If the oil darkens, it is an indication that the oil must be checked.

The oil must be changed if:

- Its viscosity increases by 20 % compared to new oil.
- Its Total Acid Index exceeds given limits, depending of oil type. Please consult us.

If gases or liquids dissolved in the oil result in deterioration of the ultimate pressure, the oil can be degassed by letting the pump running for about 30 min. with the intake port closed and the gas ballast valve open.

The amount of oil required for an oil check should be drained via the oil-drain plug 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.

Check to be carried out, depending on process, at least weekly.

7.4.3 Oil change

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

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

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

There is a risk of burn by touching.

Maintenance



Open the oil-drain valve and let the used oil drain into a suitable container.

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

Observe the safety regulations.

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

When the flow of oil slows down close the oil-drain valve, briefly switch on the pump (max. 10s) and switch it off. Drain the remaining oil.

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



Use suitable oil only.

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

Never mount used seals; always mount new seals.

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

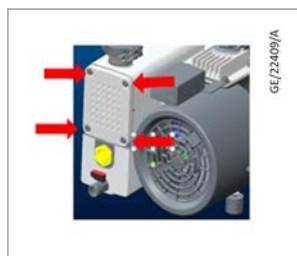
7.4.4 Replacing the Exhaust Filters

Tools required:

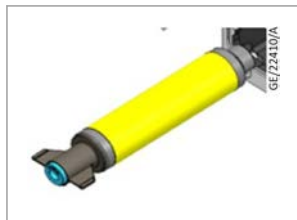
- Allen key 6 mm.
- Box wrench 10 mm.

Oil filter key (710 73 532)

- Remove the 4 screws of the exhaust filter cover plate



- Pull out the exhaust filter



- Verify on the new exhaust filter that the O-Ring is present
- Mount the new exhaust filter.
- Tighten the 4 screws of the exhaust filter cover plate with 9.5 Nm.

Respect the indications on the oil filter for changing the latter.



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

Observe the safety regulations.

Important

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

Never mount used seals; always mount new seals.

7.4.5 Checking the float valve

Tools required: Allen Key 6 mm

If the pressure does not fall below approx. 5 mbar during pump operation, check the tightness of the float valve.

Remove the exhaust filter with the exhaust flange.

Remove the float valve screw and pull the float valve assembly out of the float chamber.

Take off the gasket.

Clean the nozzle. Check the tightness of the float valve.

Check all gaskets and replace them with new ones if necessary.

Reassemble the float valve in the reverse sequence.

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

Never mount used seals; always mount new seals.

7.4.6 Cleaning the intake port dirt trap and Checking the anti-suck back and gas ballast valves

Cleaning the intake port dirt trap and gas ballast air filter

Tools required: open-jaw or box wrench 13 mm. Allen key 6 mm

Maintenance

A dirt trap for coarse particles is located in the intake flange of the pump. It shall be kept clean to avoid reduction of the pumping speed.

The dirt trap consists of a wire-mesh screen.

Disassemble the intake hose or pipe.

Take out the wire-mesh screen and clean them using a suitable solvent.

Reassemble in the reverse sequence.

Check the condition of the anti-suck back and gas ballast valves and clean or replace if needed. Clean or replace the gas ballast air filter (on 3 position manual gas ballast).

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

Never mount used seals; always mount new seals.

Checking the Anti-Suck back Valve

Tools required:

- Allen key 6 mm

Keep the anti-suck back valve clean to ensure proper operation of the pump. In

any application we strongly recommend installing a polyester dust filter upstream.

First disconnect the intake line.

Remove four screws and take off the intake flange and gasket.

Remove the anti-suck back valve and clean it.

Reassemble the intake port. We recommend replacing the gasket with a new

one.

Depending on the process involved, dangerous substances may escape from

the pump and oil. Take the appropriate precautions.

Observe the safety regulations.

Never mount used seals; always mount new seals.

Depends of process, but to be done at least yearly.

7.4.7 Replacing the Pump Module

Please consult Leybold.

7.4.8 Replacement of electrical motor

Please consult Leybold for specific maintenance works to be carried e.g. bearing replacement.

The motor can only be exchanged with an identical one for the same manufacturer and marking.

In case other motors are used, the pump loses its CE certification.

8 Trouble shooting

Fault	Pump does not start
Cause	Pump is connected incorrectly.
Remedy	Connect the pump correctly.
Cause	Motor protection switch incorrectly set.
Remedy	Set motor protection switch properly.
Cause	Operating voltage does not match motor.
Remedy	Replace the motor.
Cause	Motor is malfunctioning.
Remedy	Replace the motor.
Cause	Oil temperature is below 12 °C (54 °F).
Remedy	Heat the pump and pump oil or use different oil.
Cause	Oil is too viscous.
Remedy	Use appropriate oil grade.
Cause	Exhaust filter / exhaust line is clogged.
Remedy	Replace the filter or clean the exhaust line.
Cause	Pump is seized up
Remedy	Repair the pump.

Fault	Pump does not reach ultimate pressure
Cause	Measuring technique or gauge is unsuitable.
Remedy	Use correct measuring technique and gauge.
Cause	External leak
Remedy	Repair the pump.
Cause	Float valve does not close.
Remedy	Repair the valve.
Cause	Anti-suckback valve is malfunctioning.
Remedy	Repair the valve.

Trouble shooting

Cause	Inadequate lubrication due to: ▪ Unsuitable or contaminated oil ▪ Clogged oil filter ▪ Clogged oil lines.
Remedy	Change the oil (degas it if necessary). Replace the oil filter. Clean the oil casing.
Cause	Vacuum lines are dirty.
Remedy	Clean vacuum lines.
Cause	Pump is too small.
Remedy	Check the process data replace the pump if necessary.
Fault	Pumping speed is too low
Cause	Dirt trap in the intake port is clogged.
Remedy	Clean the dirt trap. Precaution: Install a dust filter in intake line.
Cause	Exhaust filter is clogged.
Remedy	Install new filter elements
Cause	Connecting lines are too narrow or too long.
Remedy	Use adequately wide and short connecting lines.
Cause	Anti-suckback valve is hard to open.
Remedy	Check spring free length.
Fault	After switching off pump under vacuum pressure in system rises too fast
Cause	System has a leak.
Remedy	Check the system.
Cause	Anti-suckback is malfunctioning.
Remedy	Repair the valve.
Fault	Pump gets too hot
Cause	Cooling air supply is obstructed.
Remedy	Set pump up correctly.
Cause	Cooler is dirty.
Remedy	Clean the cooler.
Cause	Ambient temperature is too high.
Remedy	Set pump up correctly.

Trouble shooting

Cause	Process gas is too hot.
Remedy	Change the process.
Cause	Oil level is too low.
Remedy	Add oil to reach the correct oil level.
Cause	Oil is unsuitable.
Remedy	Change the oil.
Cause	Oil cycle is obstructed.
Remedy	Clean or repair the oil lines.
Cause	Exhaust filter / exhaust line is obstructed.
Remedy	Replace the exhaust filter clean the exhaust line.
Cause	Pump module is no longer usable.
Remedy	Replace the pump module.

Fault	Oil in intake line or in vacuum vessel.
Cause	Oil comes from the vacuum system.
Remedy	Check the vacuum system.
Cause	Anti-suckback valve is obstructed.
Remedy	Clean or repair the valve.
Cause	Sealing surfaces of anti-suckback valve are damaged or dirty.
Remedy	Clean or repair the intake port and valve.
Cause	Oil level is too high.
Remedy	Drain the excess oil.

Fault	Pump's oil consumption too high oil mist at exhaust.
Cause	Exhaust filters are clogged or damaged.
Remedy	Replace the filters.
Cause	Nozzle of float valve is clogged.
Remedy	Check the valve clean the nozzle.
Cause	Oil level is too high.
Remedy	Drain the excess oil.

Fault	Oil is turbid.
Cause	Condensation.
Remedy	Degas the oil or change the oil and clean the pump. Precaution: open the gas ballast valve or insert a condensate trap. Clean the gas ballast intake filter.

Trouble shooting

Fault		Pump is excessively noisy.
Cause	Oil level is very low (oil is no longer visible).	
Remedy	Add oil.	
Cause	Oil filter is clogged.	
Remedy	Change the oil and filter.	
Cause	Large vacuum leak in system.	
Remedy	Repair vacuum leak.	

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

9 Spare parts

To guarantee safe operation of the Leybold pump, only original & genuine spare parts and accessories shall 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.

The pump loses its CE certification if non-genuine Leybold parts are used.

Consumables and main spare parts kits for SOGEVAC pumps are usually available on stock at Leybold service centers. The list of these parts is given here after and in the spare parts table where the contents of each kits is detailed.

- Exhaust demisters
- Oils (Special oils please refer to the specific notice of the pump or contact Leybold).
- Maintenance kit
- 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.

10 Service

10.1 Transport and hazardous materials

This product may contain components classified as dangerous goods under international transport regulations. These might include:

- **Hazardous substances:** e.g. lithium-ion batteries (for memory backup), helium (for cooling), or other pressurised gases.
- **Purpose:** Each substance serves a specific function such as energy storage or thermal regulation.

Refer to the declarations document for specific details.

These transport and handling regulations may apply to any substances that you have used in your operations.

10.2 Return the equipment or components for service

Before you send your equipment to us for service or for any other reason, you must complete a Declaration of Contamination Form. The form tells us if any substances found in the equipment are hazardous, which is important for the safety of our employees and all other people involved in the service of your equipment. The hazard information also lets us select the correct procedures to service your equipment.

If you are returning equipment note the following:

- If the equipment is configured to suit the application, make a record of the configuration before returning it. All replacement equipment will be supplied with default factory settings.
- Do not return equipment with accessories fitted. Remove all accessories and retain them for future use.
- The instruction in the returns procedure to drain all fluids does not apply to the lubricant in pump oil reservoirs.

Download the latest documents from leybold.com/en/downloads/download-documents/declaration-of-contamination/, follow the procedure in HS1, fill in the electronic HS2 form, print it, sign it, and return the signed copy to us.



NOTICE:

If we do not receive a completed form, your equipment cannot be serviced.

EU Declaration of Conformity



Leybold GmbH
Bonner Strasse 498
D-50968 Köln
Germany

Documentation Officer

T: +49(0) 221 347 0 documentation@leybold.com

The product specified and listed below

- NEO D
- NEO D 16, NEO D 25, NEO D 40, NEO D 65
- Pump family codes:

NEO D 16: 970100V / 970100SD to 970104V / 970104SD and 10420016V00 to 10420016V99

NEO D 25: 970200V to 970204V and 10420025V00 to 10420025V99

NEO D 40: 970300V to 970304V and 10420040V00 to 10420040V99

NEO D 65: 970400V to 970404V and 10420065V00 to 10420065V99

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

2006/42/EC Machinery directive

Note: The safety objectives of the Low Voltage Directive 2014/35/EU were complied with in accordance with Annex 1 No. 1.5.1 of this directive.

2014/30/EU Electromagnetic compatibility (EMC) directive

2011/65/EU Restriction of certain hazardous substances (RoHS) directive
as amended by Delegated Directive (EU) 2015/863

Based on the relevant requirements of harmonised standards:

EN 1012-2:1996 +A1:2009 Compressors and vacuum pumps. Safety requirements. Vacuum pumps

EN 60204-1:2018 Safety of machinery. Electrical equipment of machines. General requirements

EN 61000-6-2:2005 Electromagnetic Compatibility (EMC) - Part 6-2: Generic Industrial Immunity Standard

EN 61000-6-4:2007 Electromagnetic Compatibility (EMC) - Part 6-4: Generic Industrial Emission Standard

This declaration, based on the requirements of the listed Directives and EN ISO/IEC 17050-1, covers all product serial numbers from this date on: *December 6, 2021*

You must retain the signed legal declaration for future reference

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

Cologne, Dec 06, 2021



Andries de BOCK - VP Engineering
Industrial Vacuum Division

Bourg Les Valence, Dec 06, 2021



François BOUILLOT - General Manager
Product Company Valence

Declaration of Conformity

Leybold GmbH
Bonner Strasse 498
D-50968 Köln
Germany

Documentation Officer
Innovation Drive
Burgess Hill
West Sussex
RH15 9TW
documentation@leybold.com

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

The product specified and listed below

- NEO D
- NEO D 16, NEO D 25, NEO D 40, NEO D 65
- Pump family codes:

NEO D 16: 970100V / 970100SD to 970104V / 970104SD and 10420016V00 to 10420016V99

NEO D 25: 970200V to 970204V and 10420025V00 to 10420025V99

NEO D 40: 970300V to 970304V and 10420040V00 to 10420040V99

NEO D 65: 970400V to 970404V and 10420065V00 to 10420065V99

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

Supply of Machinery (Safety) Regulations 2008

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

Electromagnetic Compatibility Regulations 2016

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

EN 61000-6-2:2005 Electromagnetic Compatibility (EMC) - Part 6-2: Generic Industrial Immunity Standard

EN 61000-6-4:2007 Electromagnetic Compatibility (EMC) - Part 6-4: Generic Industrial Emission Standard

This declaration, based on the requirements of the listed Statutory Instruments and EN ISO/IEC 17050-1, covers all product serial numbers from this date on: *December 6, 2021*

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 France SAS

Cologne, Dec 06, 2021

Bourg Les Valence, Dec 06, 2021



Andries de BOCK - VP Engineering
Industrial Vacuum Division



François BOUILLOT - General Manager
Product Company Valence

ADDITIONAL LEGISLATION AND COMPLIANCE INFORMATION

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

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

RoHS (EU, UK): Material Exemption Information

This product is compliant with the following Exemptions

Annex III:

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

REACH (EU, UK)

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

Article 33.1 Declaration (EU, UK)

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

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

Compliance Information – incorporated products and assemblies

Motors

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

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

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

Based in the requirements of harmonised standard:

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

Additional Applicable Requirements

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

2012/19/EU

Directive on waste electrical and electronic equipment (WEEE)

材料成分声明

China Material Content Declaration

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

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Pioneering products. Passionately applied.

Leybold GmbH
Bonner Strasse 498
50968 Cologne
GERMANY
+49-(0)221-347-0
info@leybold.com
www.leybold.com