

Manual

Side Channel Blower

Introduction

Thank you for purchasing our side channel blower. These operating instructions are intended to help you use the appliance safely and efficiently. Please read the instructions carefully before commissioning the compressor. It contains important information on the installation, operation, maintenance and safety of the appliance.

Our side channel blower has been designed to provide you with reliable performance and longevity. With the right care and maintenance, it will give you many years of good service. If you have any questions or problems, our customer service team is always available to help.

We wish you every success and satisfaction with your new side channel blower.

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Caution!

When using the side channel blower, the basic safety precautions for reducing fire damage, electric shock and injuries must be observed. Please read the operating instructions and notes carefully before operating the appliance.

1. Symbols



Follow the operating instructions



Warning of dangerous voltage

Do not dispose of in household waste



Warning of hot surface



Warning of automatic start-up

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2. Operational safety



The following is not permitted:

1. Avoid consuming food, drinks and tobacco products during operation.
2. Do not touch the cooling fins as they can be very hot during and after operation.
3. Do not store any highly flammable liquids, gases or objects in the vicinity.
4. Keep children and pets away from the appliance, pressure lines and power supply.
5. The maximum permitted number of starts must not exceed 6 starts per hour.
6. Keep cables and hoses away from heat and sharp edges. Do not pull the appliance by the cables or hoses and do not touch the contacts of the plug.
7. Do not operate the device in humid environments.
8. Do not lubricate the process chamber of the machine with oil or grease.

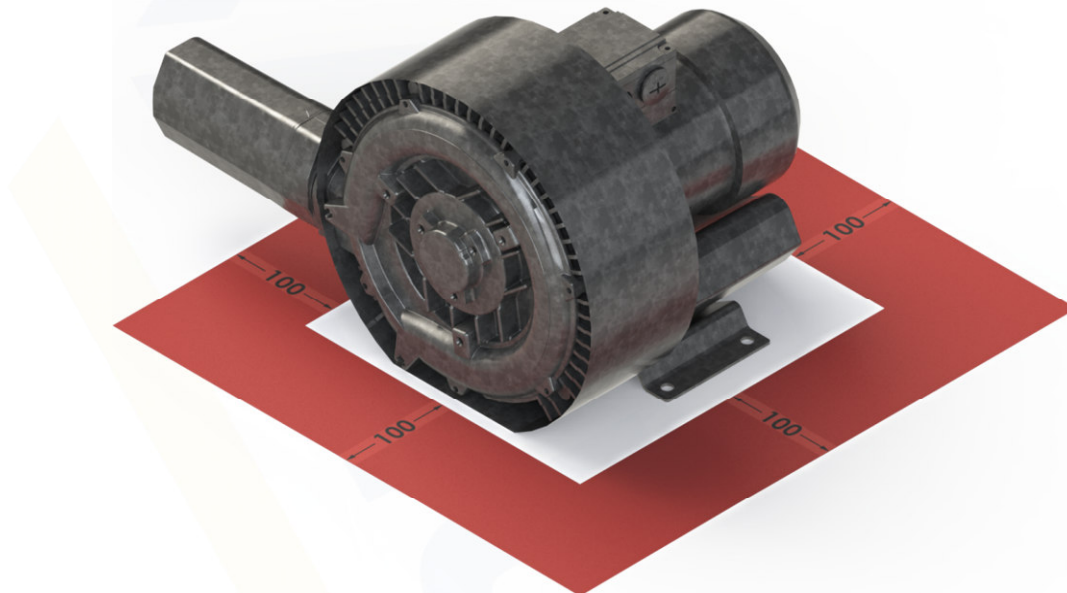


The following is essential:

1. Disconnect the appliance from the power supply before carrying out maintenance work.
2. Repairs to electrical components may only be carried out by qualified specialists.
3. Make sure that the device is switched off when not in use to prevent it from starting unexpectedly.
4. Only use recommended (lower) pressure hoses. If in doubt, contact the manufacturer.
5. Keep a safety distance of 100 mm from surrounding objects or walls during installation.
6. To increase safety against electric shock, use a socket outlet with a residual current device.
7. The appliance must be pressure-free before transportation.
8. Always keep the work area clean.
9. Always wear hearing protection during operation.
10. Only operate the side channel blower in dry, closed rooms at an ambient temperature between 0°C and 40°C

3. Installation

3.1 Installation conditions



- During installation, ensure that a clearance of 100 mm is left around the device.
- Ensure that the area around the machine is not at risk of explosion.
- Ensure that the ambient conditions correspond to the protection class of the motor.
- Ensure that the installation room or location is ventilated in such a way that sufficient cooling of the machine is guaranteed.
- Ensure that the cooling air inlets and outlets are not covered or obstructed and that the cooling air flow is not impaired in any other way.
- Ensure that the machine is set up or mounted horizontally/vertically, with a maximum deviation of 1° in each direction.
- Make sure that the appliance is firmly mounted on a flat surface.
- Ensure that all covers, guards, hoods, etc. are mounted.
- If the machine is installed at an altitude of more than 1000 m above sea level, contact your sales representative, the motor should be throttled back or the ambient temperature limited.
- If the machine is set up outdoors, make sure it is covered to protect it from the weather.

3.2 Connection of tubes and pipes

- Remove all protective caps before installation.
- Ensure that the connecting tubes do not put any strain on the device connection; use flexible connections if necessary.
- Make sure that the tube cross-section of the connecting tubes is at least as large as the connections of the device over the entire length.
- For very long connection tubes, it is advisable to use larger tube cross-sections to avoid performance losses. Ask your sales representative for advice.

3.2.1 Vacuum Connection

- There is a risk of damage to the appliance if foreign bodies or liquids get in.
- To avoid this, install a suitable filter of 5 µm or less.

3.2.2 Pressure Connection

- Depending on the model, other connection dimensions may apply.
- Ensure that the outflowing air can flow freely. Do not shut off or restrict the pressure line.

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3.3 Electrical Connection



CAUTION!

The side channel blower may only be connected by electrically qualified personnel!



Incorrect connection will destroy the capacitor or the complete bellows compressor and thus invalidate the warranty. The 230V/AC must never be connected in parallel to the capacitor. Improper installation or operation of the appliance can lead to damage to the electronics or the machine and pose a risk to the health of the operating personnel. If you have any questions, please contact our technical department.

A suitable circuit breaker must be fitted to the connecting cable to the motor in order to protect the cable and to be able to disconnect the machine from the power supply.

3.3.1 One-Phase Connection

How to proceed:

- Open the terminal board. The motor windings and the capacitor are already connected (see Fig. 1 and Fig. 2).
- Insert the 230 V connection cable (see Fig. 3).
- The protective earth conductor (green / yellow) is connected to the screw provided (see Fig. 4)
- The connection wires L / N (black and labelled with numbers or brown / black and blue, depending on the cable) must be connected to terminals V1 and W1 (see Fig. 4)

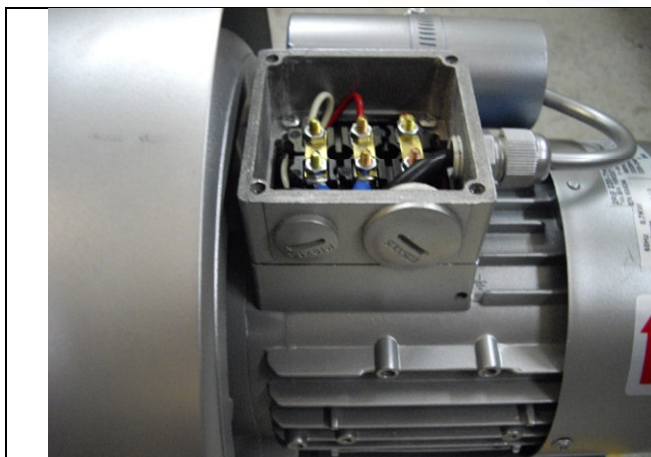


Fig. 1

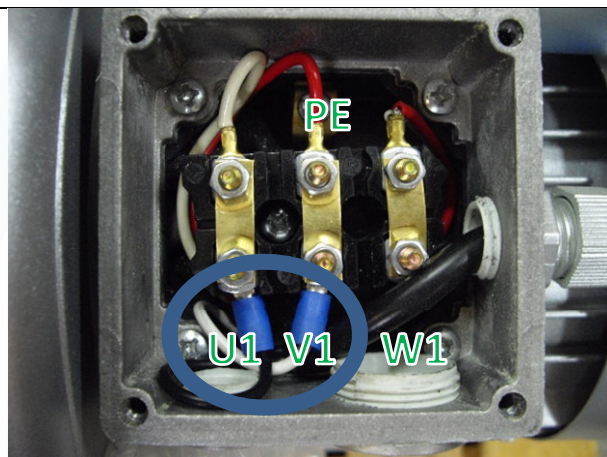


Fig. 2
Capacitor connection to U1 and V1

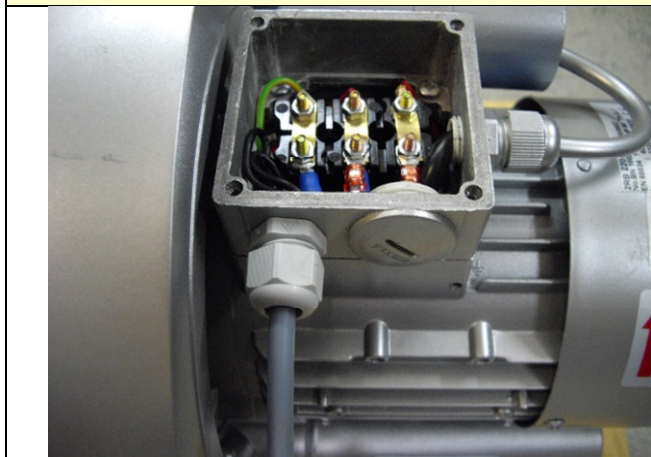


Fig. 3

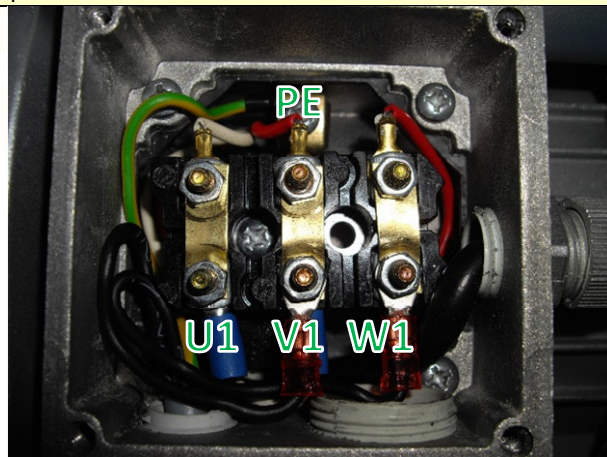


Fig. 4

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3.3.2 Three-Phase Connection

- The side channel blower must be connected to the 3-phase 400 V mains in a star configuration.
- Open the clamping board. The star bridge should already be clamped as standard, otherwise insert the bridges as shown in Fig. 2 and screw them together.
- Inserting the 400 V connection cable (see Fig. 3)
- The protective earth conductor (green / yellow) is connected to the screw provided (see Fig. 4)
- The phase connection wires L1 / L2 / L3 (black and labelled with numbers or brown / black / grey, depending on the cable) must be connected to terminals U1, V1 and W1 depending on the rotating field (see Fig. 4)
- If a 5-core connection cable is used, a neutral conductor must not be connected. This must be cut on both sides of the cable.
- After correct connection, the direction of rotation must be checked. To do this, briefly start the side channel blower and compare the direction of rotation of the fan wheel with the stick-on arrow. If the direction of rotation is the wrong way round, the connection of U1 and W1 must be reversed. (see Fig. 5 and Fig. 6)

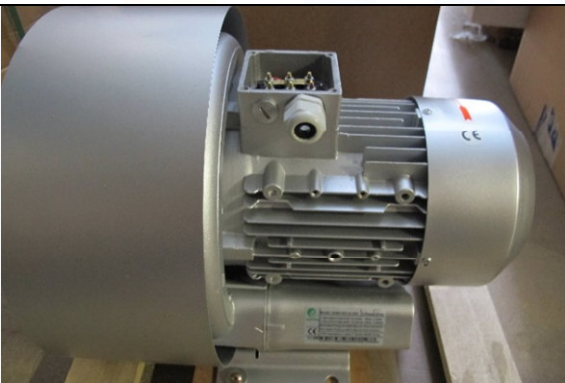


Fig. 1



Fig. 2
Star bridge for 400 V operation

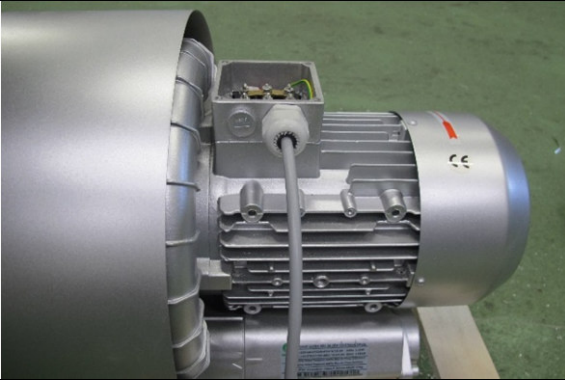


Fig. 3

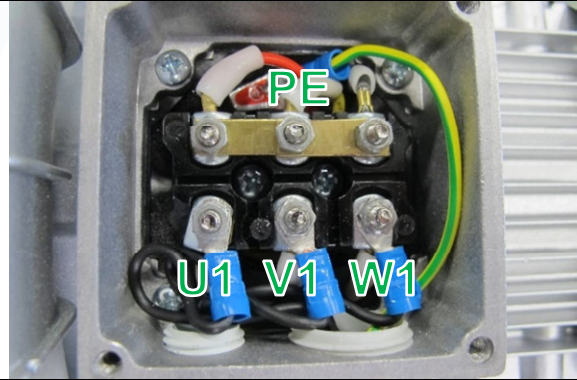


Fig. 4

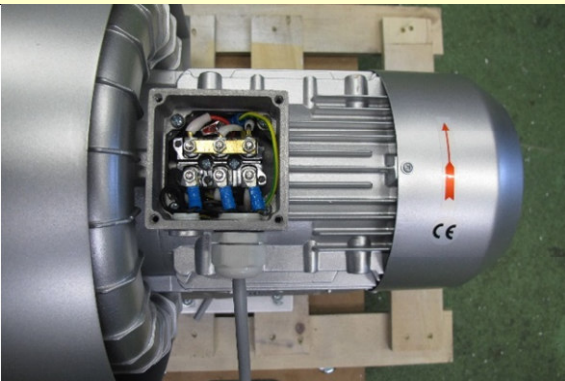


Fig. 5

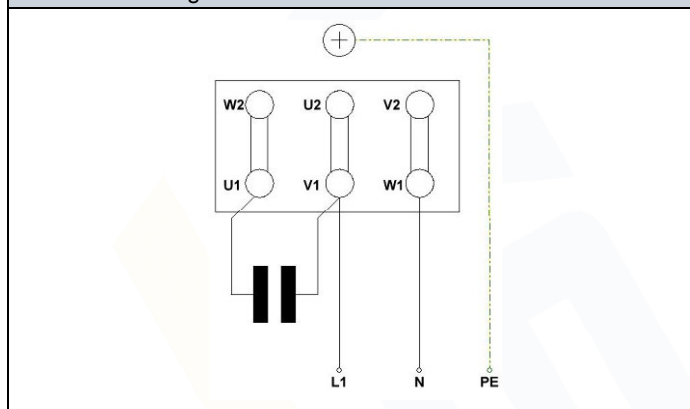


Fig. 6

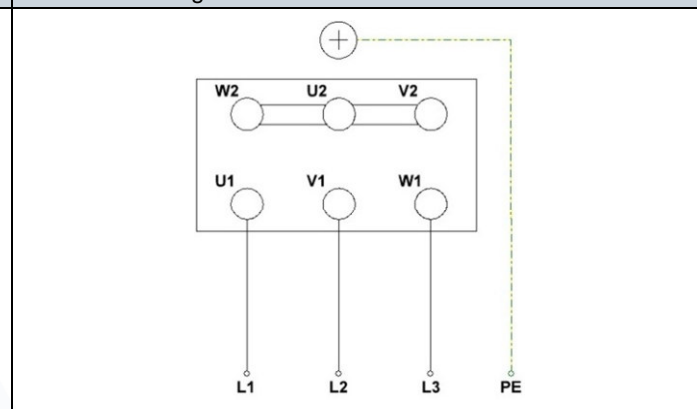
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Connection Diagram One-Phase:



Connection Diagram Three-Phase:








4. Commissioning

	<p>NOTE: Do not lubricate the process chamber of the appliance with oil or grease. This can lead to damage or destruction</p>
	<p>CAUTION: During operation, the surface of the appliance can reach temperatures of more than 70°C. There is a risk of burns. Avoid contact during and immediately after operation.</p>
	<p>It is recommended to wear hearing protection during operation.</p>
	<ol style="list-style-type: none"> 1. Ensure that the installation conditions (see 3.Installation) are fulfilled. 2. Start the Side-Channel-Blower. 3. Ensure that the maximum permitted number of starts does not exceed 6 starts per hour. 4. Ensure that the working and pause times are the same for several starts per hour. 5. Measure the motor current and record it as a reference for future maintenance and troubleshooting.

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5. Maintenance

	If the side channel blower is contaminated with hazardous substances, wear suitable protective equipment during maintenance.
	CAUTION: Hot surface. Risk of burns! Allow the device to cool down before touching it!
	Switch off the appliance and secure it against unintentional switch-on. If necessary, vent the connected lines to atmospheric pressure. Disconnect all connections.
5.1 Maintenance intervals: The maintenance intervals depend very much on the individual operating conditions. The intervals specified below are to be regarded as starting values that should be shortened or extended as required. Particularly severe operating conditions, such as high levels of dust in the environment or in the process gas, may make it necessary to shorten the maintenance intervals considerably. All work should only be carried out by qualified specialist personnel and with the machine at a standstill.	
Interval	Maintenance works
Everyday	Check cable and tubes for damage and replace if necessary.
Monthly	Check the fan wheel, ventilation grille, cooling fins of the entire machine and any external fans for soiling and clean with compressed air if necessary. If an intake filter is installed: Check intake filter cartridge, replace/replace if necessary.
Semi-annual	Clean the appliance to remove dust and dirt. Make sure that the electronic components and the cooling fan are free of dust.
Annual	Carry out a visual inspection and clean the appliance. Check the electrical connections and the monitoring equipment. Clean the intake and exhaust silencer.
Every 5 years	Have the side channel blower subjected to a general overhaul.
	Use eye protection when cleaning with compressed air.
	Disconnect the appliance before carrying out maintenance or repair work.

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6. Malfunctions: Causes and solutions



Malfunction	Cause	Workaround	Competence
Machine does not start (makes no noise)	Interruption of at least 2 power supply lines	Check the function of fuses, terminals and supply lines	Electrical specialist
	Mains voltage/frequency do not match the motor data	Check the motor rating plate data, change the supply voltage	
	Connection on motor terminal board not correct	Checking the terminal board wiring	
	Motor protection switch too small or set to a much too low value	Change the trip value of the circuit breaker or replace the circuit breaker.	
	Overload	Reduce throttling	Qualified personnel*
Machine does not start (makes noises)	Interruption of a power supply line	Check the function of fuses, terminals and supply lines	Electrical specialist
	Impeller sits firmly	Open compressor cover, clean	Specialist service
	Roller bearing defective	Change roller bearing	
Motor circuit breaker trips again after switching on.	Motor overloaded	Reduce throttling. Clean the filter, silencer and air connection lines.	Qualified personnel*
	Short circuit in the coil	Check coil	Electrical specialist
	Impeller is locked	Open compressor cover, clean.	Specialist service
No or too low pressure difference	Wrong direction of rotation	Check direction of rotation, swap connection cables if necessary.	Electrical specialist
	Machine is leaking	Seal the system	Qualified personnel*
	Intake filter or the air supply line is clogged	Clean the filter, strainer, silencer and air connection pipes	
	Density of the pumped medium is higher or lower than permitted	Conversion of the pressure values, contact the manufacturer.	
	Radial shaft seal is defective	Replace the radial shaft seal.	Specialist service
	Impeller dirty	Clean the impeller and have it replaced if worn.	
Abnormal flow noise	Flow rate too high	Clean pipes or hoses or increase cross-section.	Qualified personnel*
	Silencer dirty	Clean the silencer.	
Vibrations or abnormal running noises	Roller bearing defective	Replacing roller bearings	Specialist service
Excessive vibration	Defective spring elements	Replace spring elements	Qualified personnel*
Machine is leaking	Rotary shaft seal defective	Replace radial shaft seal	Specialist service
	Seal on the silencer is defective or screws are loose	Check seal, replace if necessary or tighten screws	Qualified personnel*
Machine is getting too hot	Cooling air flow obstructed	Clean the fan cover, fan grille and cooling fins. Check the minimum distances (see Chapter 3 "Installation")	Qualified personnel*
	Insufficient medium flow rate	Provide a suitable vacuum or pressure relief valve.	
	Intake filter or the air supply line is blocked.	Clean the filter, strainer, silencer and air connection pipes.	
	Intake or ambient temperature too high	Check ambient conditions, comparison with rating plate data	Operator

* This repair work can be carried out by qualified personnel if the repair instructions are available.
 In the event of other faults or faults that cannot be rectified, please contact your responsible specialist service.

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7. Decommissioning

	<p>Disconnect the machine electrically and secure it against being switched on again. This also applies to auxiliary circuits (e.g. parking heater).</p>
	<p>CAUTION: Hot surface. Risk of burns! Allow the appliance to cool down before touching it!</p>
<ul style="list-style-type: none"> Before disconnecting connections, ensure that the connected lines are vented to ambient pressure. For longer storage periods, please refer to chapter "8. Storage". 	
<h3>7.1 Disassembly</h3> <ul style="list-style-type: none"> Disconnect from all electrical connections Wait until the machine has cooled down Disconnect pipes and hoses Loosen the fastening of the side channel blower Ensure that the materials and components to be treated as hazardous waste are separated from the bellows duct compactor. Ensure that the side channel blower is not contaminated with any foreign substances that are hazardous to health, decontaminate properly if necessary Dispose of the side channel blower as scrap metal <p>To the best of our knowledge at the time of printing these operating instructions, the materials used to manufacture the side channel blower do not present any hazards..</p>	

8. Storage

- Ensure that the gas inlet / intake side and the gas outlet / discharge side are closed
- The side channel blower
 - if possible in its original packaging
 - in a closed room at T=0°C to 40 °C
 - room temperature approx. 10 °C higher than outside temperature
 - well ventilated, free from aggressive gases
 - dry, relative humidity < 60 %, non-condensing
 - store away from dust and vibration
- If possible, the machine should remain in its original packaging and must be well covered.
- Side channel blowers can be stored for up to 5 years under these "favourable conditions"
- If the storage time of 5 years is exceeded, the ball bearings and radial shaft seals must be replaced before commissioning.

9. Models

Model	Phases	Voltage (V AC)		Current (A)		Output Power (kW)	
		50 Hz	60 Hz	50 Hz	60 Hz	50 Hz	60 Hz
SKV 07/1	1	230	230	4,5	5,6	0,70	0,83
SKV 15/1	1	230	230	9,0	10,0	1,50	1,75
SKV 22/3	3	Y 345-415 Δ 200-240	Y 380-480 Δ 220-275	Y 5,6 Δ 9,7	Y 5,8 Δ 10,0	2,20	2,55
SKV 30/3	3	Y 345-415 Δ 200-240	Y 380-480 Δ 220-275	Y 7,2 Δ 12,5	Y 7,3 Δ 12,5	3,00	3,45

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10. Conformity excerpt



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EU-Konformitätserklärung / EC-Declaration of Conformity

Originalausgabe
Original edition

Die Firma / The company
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erklärt, dass das Produkt / declares that the product

Seitenkanalverdichter / Side Channel Blower Type:
SKV 07/1, SKV 15/1, SKV 22/3, SKV 30/3

auf das sich diese Erklärung bezieht, mit den wesentlichen Schutzanforderungen folgender
Richtlinie(n) übereinstimmt:

is in conformity with the following complies with the essential protection requirements of the
following directive(s):

2006/42/EG (L157/24 09.06.2006) (MRL/MD)

EN 60204-1:2018 Sicherheit von Maschinen - Elektrische Ausrüstung von Maschinen - Teil 1: Allgemeine
Anforderungen (IEC 60204-1:2016, modifiziert)

Electrical equipment of machines - Part 1: General requirements

EN ISO 12100:2010 Sicherheit von Maschinen - Allgemeine Gestaltungsleitsätze - Risikobeurteilung und
Risikominderung

General principles for design - Risk assessment and risk reduction

EN 1012-1:2010 Kompressoren und Vakuumpumpen - Sicherheitsanforderungen - Teil 1: Kompressoren; Deutsche
Fassung

Safety requirements - Part 1: Air compressors

EN 60034-1:2010/AC:2010 Drehende elektrische Maschinen - Teil 1: Bemessung und Betriebsverhalten
Rotating electrical machines - Part 1: Rating and performance

2009/125/EC (L285/10 31.10.2009) & 2019/1781/EU (L272/74 25.10.2025)

Ecodesign and Energy labelling - Electric motors

2011/65/EU (Abl. L 174/88 S. 1.7.2011) (RoHS) & VO (EU) 2015/863 L 137/10 4.6.2015

EN IEC 63000:2018 Technische Dokumentation zur Beurteilung von Elektro- und Elektronikgeräten hinsichtlich der
Beschränkung gefährlicher Stoffe

Technical documentation for the assessment of electrical and electronic products with respect to the restriction of
hazardous substances

Bevollmächtigte Person zur Zusammenstellung der technischen Unterlagen:
Authorized representative to compile the technical documentation:

Vor- und Zuname / first and last name:

Alexander Ludwig

Adresse / Address:

Rheinmünster, wie oben angegeben / as stated above

Rheinmünster, den 18.12.2024

Alexander Ludwig,
Geschäftsführung / **Managing Director**

Geschäftsführer: Alexander Ludwig, Hubert Roth
Handelsregister Mannheim HRA 711228

SKV_Seitenkanalverdichter_Konferklärung_241218