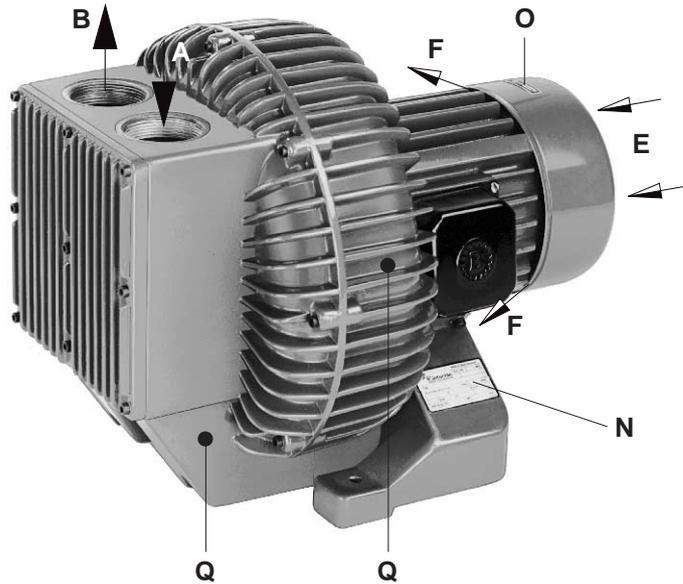




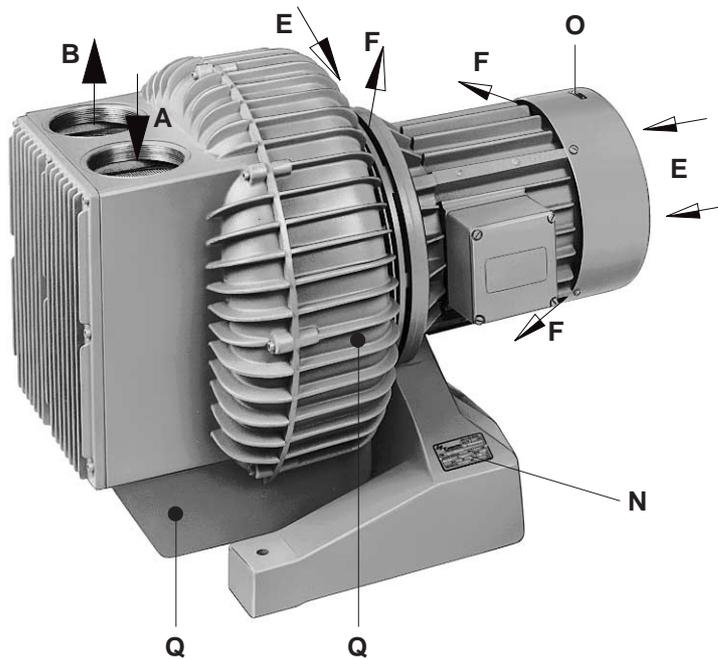
Side channel vacuum pumps / Side channel compressors

SKP

- SKP 253 20
- SKP 302 20
- SKP 358 26
- SKP 430 33
- SKP 490 33
- SKP 490 42



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Pump ranges

These operating instructions concern the following side channel vacuum pumps and compressors: SKP 253 20, SKP 302 20, SKP 358 26, SKP 430 33, SKP 490 33 and SKP 490 42. The capacities at atmosphere respectively are 125, 175, 280, 550, 730, 1100 m³/hr on 50 cycle operation. The performance curves showing capacity against vacuum or pressure can be seen in data sheets D 525 and D 526 or D 625 and D 626.

Description

All SKP models work according to the dynamic compressing principle utilising a non contact rotating impellor. They have a built-in motor. A high efficiency double-flow impellor is fitted on to the motorshaft. Models up to SKP 35826 (picture ①) use the motor fan for cooling. Models SKP 43033 and larger (picture ②) have an additional cooling fan situated between the motor and blower housing.

Air inlet and outlets have built-in silencers with the addition of a mesh disc on the suction silencer to protect the unit from particles larger than 1.2 mm. Both the Inlet and outlet have an inside connection thread corresponding to DIN ISO 228.

All the parts are made from a special aluminium alloy except for the motor rotor, stator and shaft.

Optional extras: As required, vacuum or pressure limiting valve, non-return valve, suction filter, motor starter, vacuum/pressure change over valve.

Special versions: anti corrosive internal coating, gas tight version.

Suitability

⚠ The units SKP are suitable for the use in the industrial field i.e. the protection equipments corresponds to EN DIN 294 table 4, for people aged 14 and above.

SKP models can be operated as vacuum pumps or compressors. They are suitable for use with air of a relative humidity up to 90% but not aggressive gases. Gas tight versions are available. The tightness of each unit depends on the shaft seal. The shaft seal lifetime relates directly to the operating conditions.

⚠ Dangerous mixtures (i.e. inflammable or explosive gases or vapours), water vapour or aggressive gases must not be handled.

⚠ Handling of inflammable or aggressive gases and vapours is only possible with special versions, if the safety instructions XE 1 are noted.

The ambient and suction temperatures must be between 5 and 40°C. For temperatures outside this range please contact your supplier.

For less aggressive media an internal protection coating can be utilised.

The maximum permissible pressure difference for vacuum or pressure depends upon the motor rating. This is indicated on the data plate (N) and is shown in the data sheet for standard voltages and frequency:

SKP 253 20, SKP 302 20, SKP 358 26 see data sheet D 525 or D 625

SKP 430 33, SKP 490 33, SKP 490 42 see data sheet D 526 or D 626

Operating above these pressure differences the motor would be overloaded. As well as considering the maximum allowable pressure difference, the amperage should also be checked against the data plate (N).

The loading of each unit depends on the specific gravity of the gas handled. Therefore when handling gases other than air there are other pressure different limits to be considered. Please contact the supplier for further advice.

If it is possible for the flow to be throttled more than the allowed limits, then the use of vacuum or pressure limitation valves (optional extras) should be considered.

The standard versions may not be used in hazardous areas.

⚠ All applications where an unplanned shut down of the blower could possibly cause harm to persons or installations, then the corresponding safety backup system must be installed.

Handling and Setting up (pictures ① and ②)

⚠ Pumps that have reached operating temperature may have a surface temperature at position (Q) of more than 70°C. WARNING! Do Not Touch.

When installing the blower especially when the units are built-in, the cooling air entries (E) and the cooling air exits (F) must have a minimum distance of 10 cm from any obstruction. The discharged cooling air must not be recirculated.

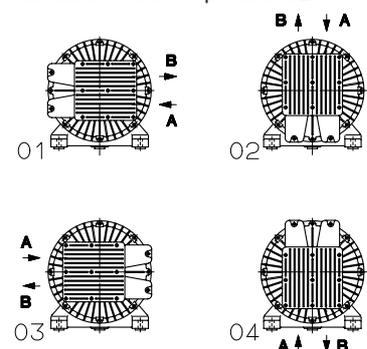
⚠ The SKP blowers can only be operated reliably if they are installed horizontally.

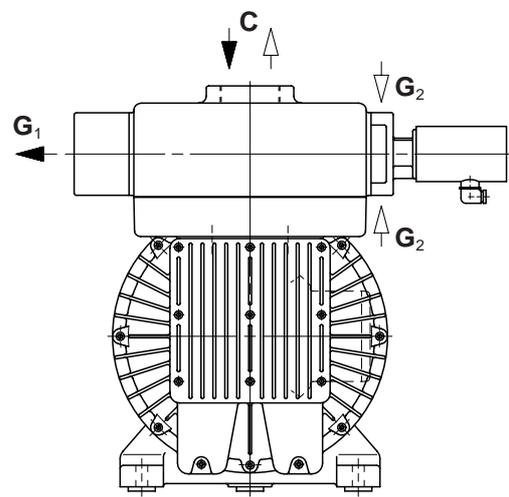
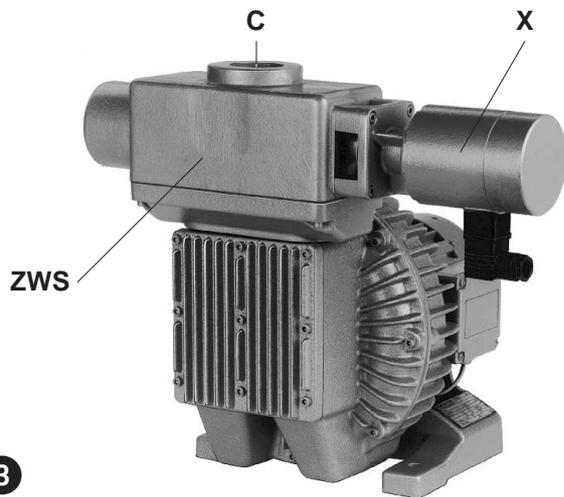
Vertical shaft position with the motor up is possible if this was specified in the original order and the unit was subsequently tested in this configuration. The installation of SKP models on a solid floor is possible without bolting down. When fitting onto a framework we would recommend using anti-vibration mounts.

⚠ For installations that are higher than 1000 m above sea level there will be a loss in capacity. For further advice please contact your supplier.

The blower can be operated in 4 different connection positions.

Standard version is position 02.





Installation (pictures 1, 2 and 3)

! For operating and installation follow any relevant national standards that are in operation.

1. When on vacuum operation connect the suction pipe at (A) and when on pressure operation connect the pressure pipe at (B).

! Long and/or small bore pipework should be avoided as this tends to reduce the capacity of the blower.

If alternate vacuum or pressure is required, a changeover valve (ZWS) can be fitted (optional extra). In this case there is only one connection (C) for vacuum or pressure operation. The air exit is at (G₁) and the air entry at (G₂).

2. The electrical data can be found on the data plate (N) or the motor data plate. The motors correspond to DIN/VDE 0530 and have IP 54 protection and insulation class F. The connection diagram can be found in the motor terminal box (unless a special plug connection is fitted). Check the electrical data of the motor for compatibility with your available supply (voltage, frequency, permissible current etc.).

3. Connect the motor via a motor starter. It is advisable to use thermal overload motor starters to protect the motor and wiring. All cabling used on starters should be secured with good quality cable clamps.

We recommend that motor starters should be used that are fitted with a time delayed trip resulting from running beyond the amperage setting. When the unit is started cold overamperage may occur for a short time.

When using a changeover valve (ZWS) the solenoid (X) must also be connected. The voltage information on the solenoid should also be checked.

! The electrical installation may only be made by a qualified electrician under the observance of EN 60204. The main switch must be provided by the operator.

Initial Operation (pictures 1 and 2)

1. Initially switch the pump on and off for a few seconds to check the direction of rotation against the direction arrow (O).

2. When installed on the application and under the highest possible load conditions, the pressure differences of the unit may not be higher than the max. allowable pressure differences shown on the data plate (N).

Note: If these values are exceeded when the unit is running on normal operating temperature an unloading of the unit is required by utilising limitation valves ZBS, ZED or ZBD (optional extra).

3. A comparison of the measured current amperage with the max. current amperage on the data plate (N) is not advisable, because the current amperage depends on the voltage.

Potential risks for operating personnel

Noise Emission: The worst noise levels considering direction and intensity (sound power), measured according to DIN 45635 part 3 (as per 3. GSGV), are shown in the table at the back. When working permanently in the vicinity of an operating unit we recommend wearing ear protection to avoid any damage to hearing.

Maintenance and Servicing

! When maintaining these units and having such situations where personnel could be hurt by moving parts or by live electrical parts the blower must be isolated by totally disconnecting the electrical supply. It is imperative that the unit cannot be re-started during the maintenance operation. Do not maintain a blower that is at its normal operating temperature as there is a danger from hot parts.

These side channel vacuum pumps and compressors need no maintenance apart from filtration.

! The capacity of the blower can be reduced if the air inlet filters are not maintained correctly.

1. Mesh on the suction side (A) on the silencing housing:

Cleaning is possible of this through the suction opening (A) after removing the pipework or after unscrewing the silencer box cover.

2. Additional filter (optional extra):

The suction filter (ZAF) should be cleaned every 250 operating hours and changed every 3000 operating hours. Changing the filter: unscrew wing nut (m₁). Remove filter cover (h) and filter cartridge (f₁). The filter cartridge can be cleaned by knocking out by hand or by using compressed air. Replace the filter cartridge if necessary. Reassemble in reverse order (see picture 4).

The filter cartridge (f₂) of the vacuum tight suction filter (ZVF) must be cleaned regularly again depending upon the amount of contamination. Cleaning can be achieved by washing or by blowing out with compressed air. Replace the filter cartridge if necessary. The cartridge (f₂) can be removed completely by undoing the relevant retaining clips (m₂) (see picture 5).

3. Bearings:

The units have bearings that are greased for life and require no maintenance.

! Handling of inflammable or aggressive gases and vapours is only possible with special versions, if the safety instructions XE 1 are noted.

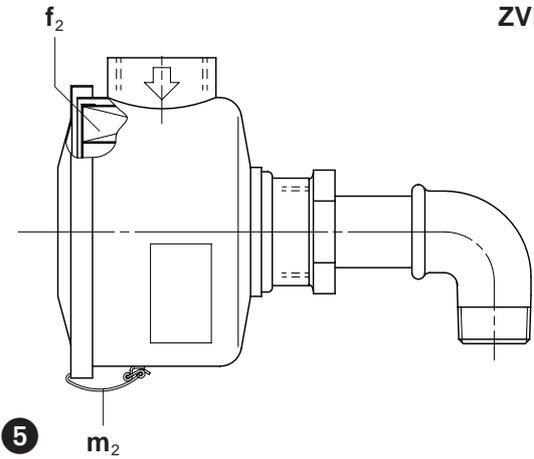
ZAF

f₁

h

m₁

ZVF

**Trouble Shooting:****1. Blower does not reach operating speed when starting:**

- 1.1 Check that the incoming voltage and frequency corresponds with the motor data plate.
- 1.2 Check the connections on the motor terminal block.

2. Motor starter cuts out blower:

- 2.1 Problem as per 1.1 and 1.2.
- 2.2 Incorrect setting on the motor starter.
- 2.3 Motor starter trips too fast.
Solution: Use a motor starter with a time delay trip (version as per IEC 947-4).
- 2.4 Blower is overloaded, i.e. pressure difference is too high.
Solution: Increase the inlet or outlet diameter of the application, on pipework increase the diameter of the pipework, avoid restrictions in the line. Limit the pressure difference by limitation valves (optional extra).
- 2.5 Motor rating selected was too small.
Solution: If available use a blower with the next motor size (exchange of the motor only is not possible).

3. Required pressure difference cannot be achieved:

- 3.1 Blower or motor rating selected was too small.
- 3.2 Filters are contaminated.
- 3.3 Pressure loss into pipework too high.
Solution: Use bigger pipe diameter, avoid restrictions.
- 3.4 Leaks on the system.

4. Blower operates at an abnormally high temperature:

- 4.1 Ambient or suction temperature is too hot.
- 4.2 Pressure difference is higher than permitted.
- 4.3 Cooling air flow is restricted.

5. Exhaust noise (vacuum pump) or suction noise (compressor) are unacceptable:

Solution: Use an additional silencer ZGD (optional extra).

6. Change over valve ZWS (accessory) does not work:

- 6.1 Check that the incoming voltage and frequency correspond with the information on the solenoid.
- 6.2 Change over valve is contaminated.
Solution: Dismantle and clean.

Appendix:

Repair on Site: For all repairs on site an electrician must disconnect the motor so that an accidental start of the unit cannot happen. All engineers are recommended to consult the original manufacturer or one of the subsidiaries, agents or service agents. The address of the nearest repair workshop can be obtained from the manufacturer on application.

After a repair or before re-installation follow the instructions as shown under the headings "Installation and Initial Operation".

Lifting and Transport: To lift and transport units SKP 430 33, SKP 490 33 and SKP 490 42 the eye bolt on the pump must be used. The weight of the blowers are shown in the accompanying table.

Storage: SKP units must be stored in dry ambient conditions with normal humidity. We recommend for a relative humidity of over 80% that the pump units should be stored in a closed container with the appropriate drying agents.

Disposal: The wearing parts (as listed in the spare parts lists) should be disposed of with due regard to health and safety regulations.

Spare parts list: E 525/1 → SKP 253 20 / SKP 302 20 / SKP 358 26
E 525/2 → SKP 430 33 / SKP 490 33 / SKP 490 42

SKP		253 20	302 20	358 26	430 33	490 33	490 42
Noise level (max.) / Sound power*	dB(A)	50 Hz	69	73	76	80	84
		60 Hz	73	75	79	83	87 / 99*
Weight (max.)	kg	24	33	48	84	115	123
Length (max.)	mm	416	429	511	696	747	880
Width	mm	282	344	409	480	553	578
Height	mm	302	355	413	535	563	595