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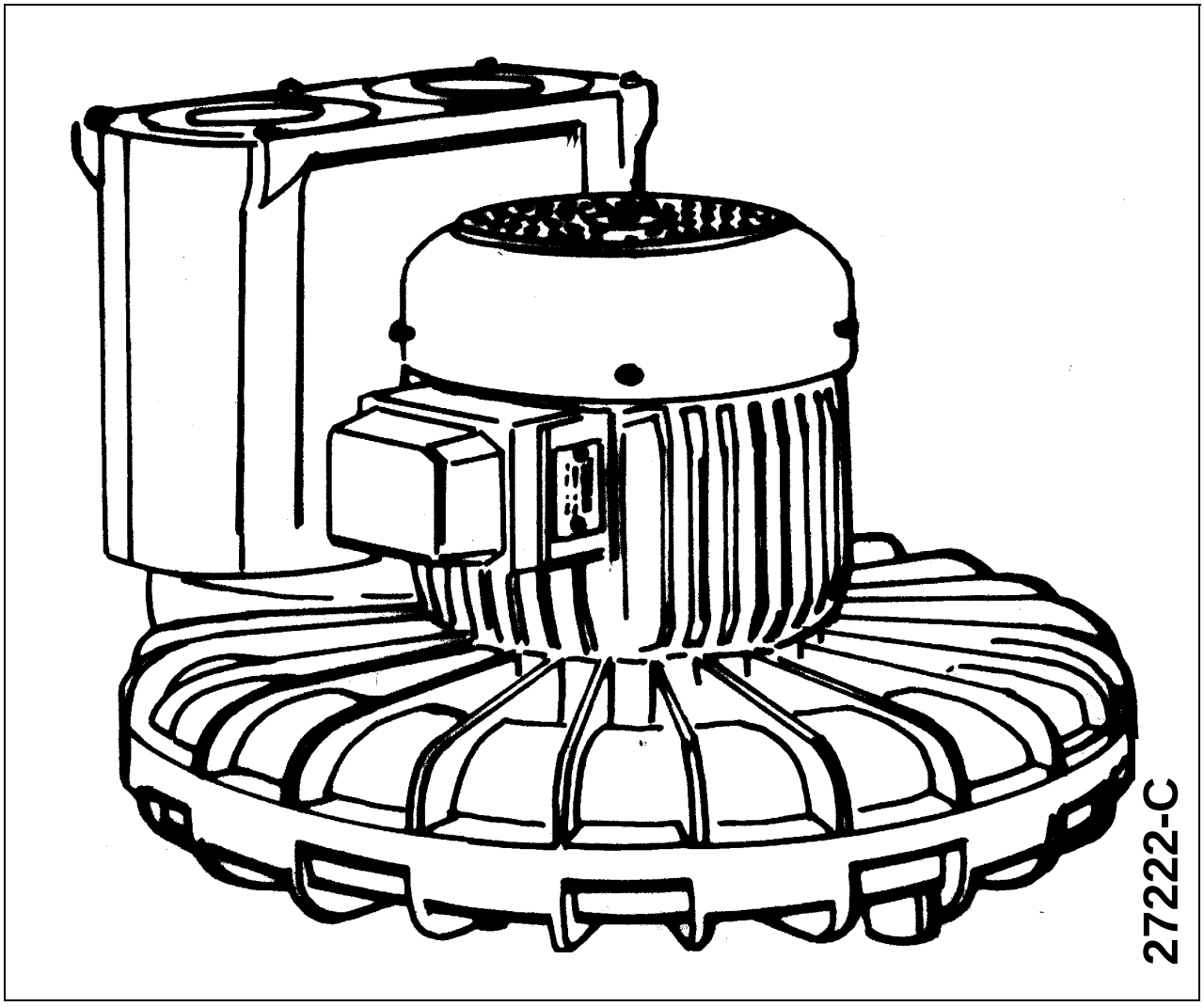
Side channel blower

GB Operator's Manual

Translation of the Original



EU-Declaration of Conformity

Manufacturer:
Schmalenberger GmbH + Co. KG Strömungstechnologie
Im Schelmen 9-11
D-72072 Tübingen / Germany

The manufacturer hereby declares that the product:

Side channel blower type:
SKV 45 / SKV 105 / SKV 135 / SKV 255 / SKV 360 / SKV 600 (identification numbers: all)

Serial number range: 2018000001 - 2025999999

has been manufactured in accordance with the following directives:
Directive 2006/42/EC "Machinery"

Harmonised standards that were used:
EN 809+A1+AC, EN ISO 12100, EN 60034-1, EN 60034-5/A1, EN60034-30-1.

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The EU Declaration of Conformity has been issued:
Tübingen, 06. July 2020

Thomas Merkle
Head of Development & Design
Schmalenberger GmbH + Co. KG

UK-Declaration of Conformity

Manufacturer:
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Im Schelmen 9-11
D-72072 Tübingen / Germany

Importer:
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Object of declaration:
SKV 45 / SKV 105 / SKV 135 / SKV 255 / SKV 360 / SKV 600

Serial number range: 2022000001 - 2025999999

The manufacturer hereby declares:

The objects of the declaration described above are in conformity with the relevant Statutory Instruments:
SI 2019 No. 492: The Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment Regulations 2019
SI 2008/1597: Supply of Machinery (Safety) Regulations 2018

References to the relevant Designated Standards used or references to the other technical specifications in relation to which conformity is declared:
EN 809+A1+AC, EN ISO 12100, EN 60034-1, EN 60034-5/A1, EN60034-30-1.

Electromagnetic compatibility
BS EN 61000-6-1,2,3,4
BS EN (IEC) 60801, Part 2

Electrical safety
BS EN 50110, Parts 1 and 2
BS EN 982, BS EN ISO 12100
PD 5304, BS EN 60204

The UK declaration was issued:
Tübingen, 30th June 2022

Thomas Merkle
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Table of Contents

1 General information

1.1 User information

This Operator's Manual will make it easier for you to become familiar with the side channel blower and make full use of its range of options.
The Operator's Manual contains important information to ensure the side channel blower is operated safely, properly and economically. Observing the instructions helps to avoid dangers, avoid repair costs and downtimes, and increase the reliability and service life of the side channel blower.

The Operator's Manual does not take into consideration requirements for specific location. The operator is responsible for observing these requirements.

The nameplate indicates the series and frame size, the most important operating data and the factory number. Please specify this information if you have questions, a subsequent order, or especially when ordering spare parts.

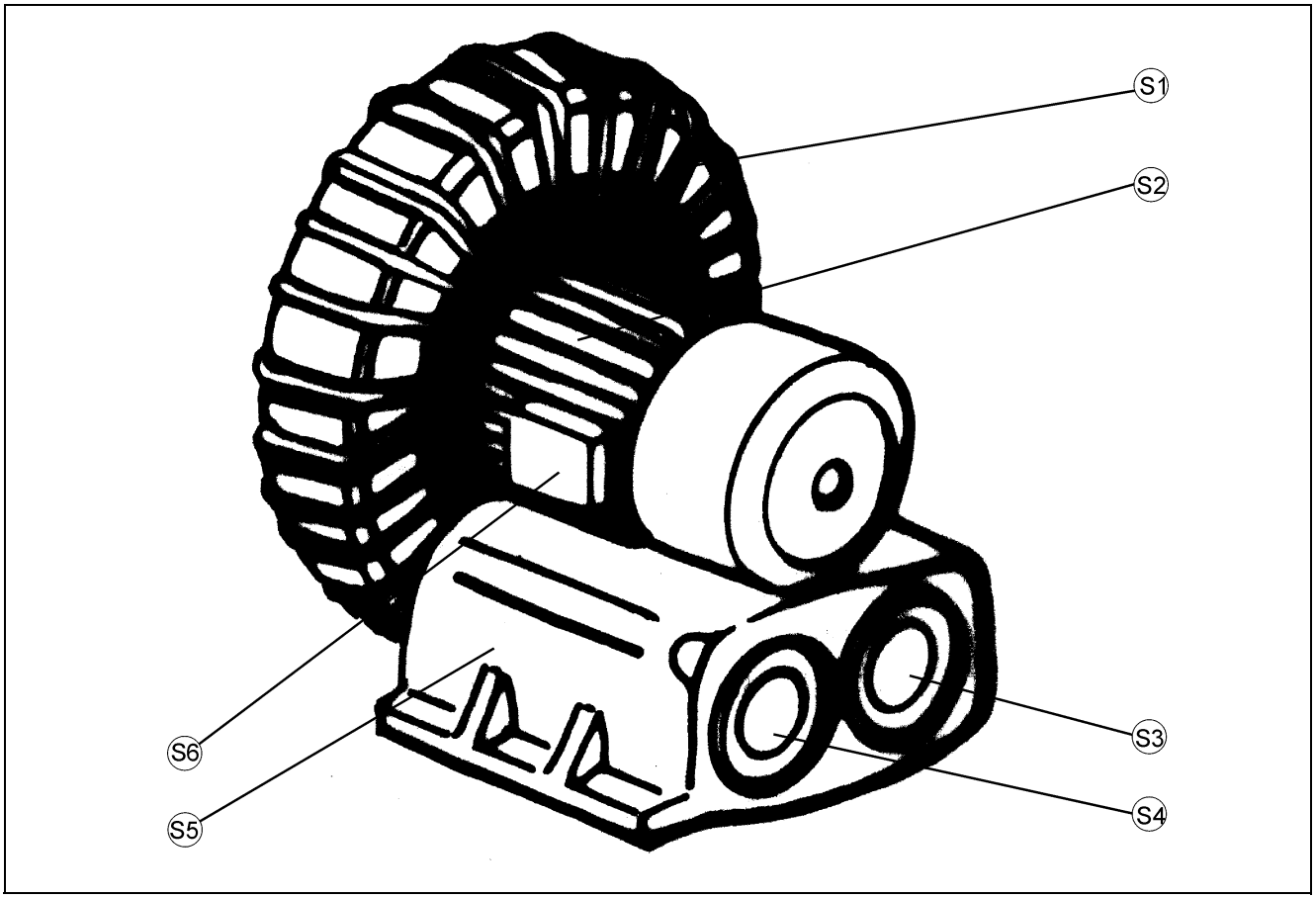

Fig. 1: Side channel blower
- S1 Blower housing
- S2 Drive motor
- S3 Pressure connection
- S4 Suction connection
- S5 Sound absorber housing
- S6 Terminal box

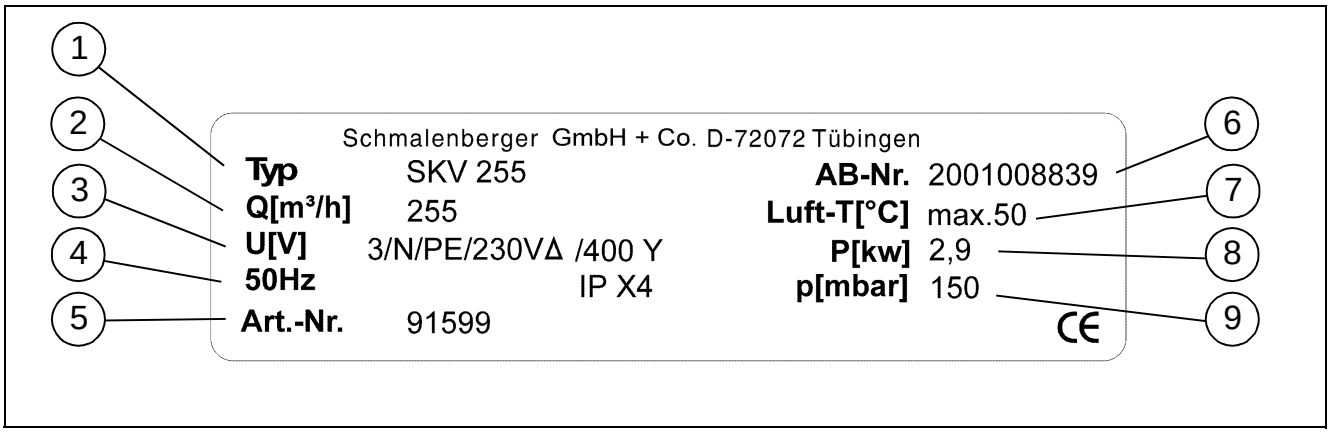

Fig. 2: Blower nameplate

1	Blower type	6	Order number
2	Flow rate	7	Medium temperature
3	Operating voltage	8	Power output
4	Frequency / protection type	9	Delivery pressure
5	Item number		

The blower nameplate (Fig. 2/ shows an example) is located on the fan hood of the blower.

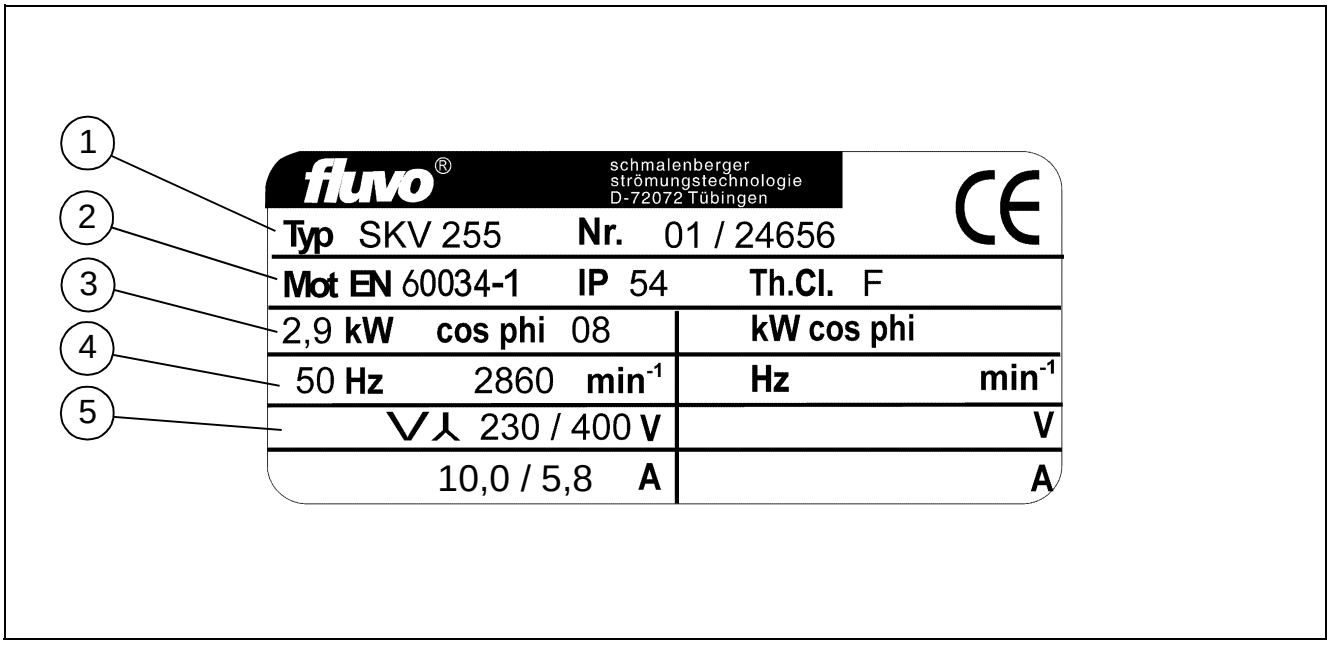

Fig. 3: Motor nameplate

1	Blower type	4	Frequency / speed
2	Motor protection type /heat class	5	Voltage / current
3	Power output/ Power factor		

The motor nameplate (Fig. 3 / shows an example) is located on the electric motor.

1.2 Proper use

The side channel blower is intended exclusively for conveying clean air and must only be used in accordance with the original specification. It must only be operated with the values defined in this Technical Documentation regarding conveying medium, flow rate, speed, density, pressure, temperature, motor power or other data defined in the specification. Any other or more extensive use is considered improper use. The manufacturer shall not be liable for any resulting damage.
The permissible conveying medium temperature for the standard design is -30° to +40°C. Solids or other impurities contained in the conveying medium must be filtered out before the medium enters the side channel blower.
The maximum ambient temperature must not exceed +40°C. The minimum ambient temperature must be at least -20°C.
The side channel blower is not suitable for setting up in a potentially explosive atmosphere.
If the side channel blower will be used for any purpose other than what is prescribed in the specification, always consult with the manufacturer. We will be pleased to determine what adjustments would be required for the new intended use.
Conversions and changes to the side channel blower are not permitted!
Proper use also includes observing the Operator's Manual.

1.3 Other applicable documents

Each side channel blower has various documents which belong together with the Technical Documentation for the side channel blower. They are:

- The Operator's Manual for the side channel blower
- The Operator's Manual for the drive
- The Operator's Manual for the accessories listed in the specification
- Acceptance reports from TÜV, etc.
- Test run report
- Performance run report
- Assembly drawing (dimension sheet)
- Test certificate for (ex) design
- Declaration of Conformity
- Specification with all information

Not all the documents named above exist or are included in every case. Observe the information in the specification in this regard.

1.4 Technical data / specification

- The system meets the requirements of the VDE regulations.
- The electric motor corresponds to protection type IP 54.
- The side channel blower as a whole meets the requirements of protection class 1.

The specification of the delivered side channel blower is the most important document for every Operator's Manual. It contains a summary of all factual and technical data for the side channel blower. It is the side channel blower's "birth certificate" and must be treated as such.
The confirmation of order together with the delivery slip can be used as a replacement for proof of technical data.

Blower type	**SKV 45**	**SKV 105**	**SKV 135**	**SKV 255**	**SKV 360**	**SKV 600**
Output	0.95 kW	1.2 kW	2.3 kW	2.9 kW	5.5 kW	7.0 kW
Voltage	230 / 400 V	230 / 400 V	230 / 400 V	230 / 400 V	400 V	400 V
Frequency	50 Hz	50 Hz	50 Hz	50 Hz	50 Hz	50 Hz
Current	4,0 / 2,3 A	4,35 / 2,5 A	7,4 / 5,6 A	10,0 / 5,8 A	10,2 A	13,4 A
Speed	2730 rpm	2800 rpm	2870 rpm	2860 rpm	2910 rpm	2890 rpm
Delivery	45 m^3/h	105 m^3/h	135 m^3/h	255 m^3/h	360 m^3/h	600 m^3/h
Discharge pressure	150 mbar	150 mbar	150 mbar	150 mbar	150 mbar	150 mbar
Weight	22,0 kg	22,0 kg	36.0 kg	56,0 kg	88.0 kg	107.0 kg

2 Safety instructions

2.1 General information

- **Make certain before commissioning that the operating personnel have read and understood the Operator's Manual. It is the owner rather than the operator who is responsible for safety!**
- Make certain the safety requirements and laws for the use of side channel blowers which apply to the operating company and/or country in which the system is operated are observed.
- Use the side channel blower only when it is in flawless condition technically and only according to its intended purpose. Be conscious of safety and dangers and observe all the instructions of this Operator's Manual!

Eliminate all malfunctions that could have a detrimental effect on safety immediately.

2.2 Signs and symbols

We warn you of sources of danger in this Operator's Manual through corresponding notices. The use of symbols is designed to direct your attention at these notices.

Caution - risk of injury!
This symbol warns you of dangers due to mechanical effects.

Caution - danger of death!
This symbol warns you of dangers due to electrical current.

Note!
This symbol warns you of actions that may damage or destroy the side channel blower. It provides information about financially efficient use of the side channel blower.

Notices placed directly on the side channel blower, such as the arrow for direction of rotation and identification of fluid connections, must always be observed and must be maintained in legible condition.

2.3 Responsibilities of the operator

- The side channel blower is built according to the state of the art and recognised safety engineering rules. Nevertheless, danger to life and limb of the operator or third parties, or damage to other property may arise during use.
- The owner / operator must therefore take care to heed the safety instructions in this Operator's Manual.

2.4 Safety instructions for installation

- The side channel blower is designed for installation in a complete machine or system. The side channel blower is delivered without a contact safety device. If a contact safety device is required (for example when conveying gaseous media above 60°C) it must be provided by the system manufacturer when the side channel blower is installed in the system.
- If the side channel blower is installed in a shaft, the shaft must have sufficient ventilation (motor cooling).

2.5 Safety instructions for connection

- Electrical equipment must only be installed and serviced by qualified personnel. Applicable safety regulations and equipment requirements at the installation site must be observed. The term qualified professional (Fachkraft) is defined in **VDE 0105** and **IEC364**. This Operator's Manual does not contain any information for non-qualified persons. We explicitly draw to your attention that the stipulations of the EC prohibit the use of non-qualified persons on electrical systems.
- Work on the side channel blower's electrical equipment must only be performed by a professional electrician or persons instructed by and under the direction and supervision of an electrician in accordance with electrical regulations.
- Hazards due to electrical energy must be excluded (for specific details, see country-specific regulations and/or your local energy supply company).
- The information on the nameplate and the conditions for electrical connection must match.

The side channel blower must only be operated with an FI circuit breaker.

2.6 Safety instructions for commissioning

- Before turning on the side channel blower or placing it in operation, make certain no one can be endangered by the side channel blower starting up!

2.7 Safety instructions for operation

2.7.1 Suction effect

Side channel blowers produce a powerful suction effect

Caution - risk of injury!

- Object including articles of clothing as well as hair can be sucked in at the suction connection.
- Do not remain near the suction opening during operation.
- The side channel blower must never be operated with the suction opening open. The open suction opening must be covered with a protective grating in accordance with **DIN EN 294**.
- Do not reach into the suction opening.

2.7.2 Blowing effect

Caution - risk of injury!

- Very strong blowing effect on the blowing connection. Objects that are drawn in may be forcibly ejected at high speed.
- The side channel blower is intended exclusively for conveying clean air. Foreign objects or impurities that are drawn in must be filtered out before the medium enters the side channel blower.
- The side channel blower must never be operated with an open blowing connection and must therefore be covered with a protective grating in accordance with **DIN EN 294**.
- Do not reach into the blower opening.

2.7.3 Temperature

Caution - risk of injury!

The blower housing heats up during operation. If the temperature increases above +50°C, the side channel blower must be protected against direct contact by the operator.

2.8 Safety instructions for maintenance and repair work

- Repairs of any nature must only be made by qualified professionals.
- Before making repairs to the side channel blower, disconnect it from its electrical power source and prevent it from being turned on again.

2.9 Potential sources of danger from the side channel blower

Side channel blower are built according to the state of the art and recognised safety engineering rules. Nevertheless, danger to life and limb of the operator or third parties, or damage to other property may arise during use.
A residual risk still remains!

Potential danger zones of the side channel blower are:

- the suction connection
- the blowing connection
- the blower housing

Danger of entanglement!
A powerful suction effect is present on the suction connection.

Caution - risk of injury!

- Make certain to wear close fitting clothes and keep long hair covered. Remove jewellery before starting work.
- Do not reach into the suction connection.
- Always operate the side channel blower with a protective grating in accordance with **DIN EN 294**!

Danger of impact!
Objects which have been drawn in may be forcibly ejected at high speed.

Caution - risk of injury!

- Position a filter upstream from the side channel blower to filter out objects that have been drawn in.
- Always operate the side channel blower with a protective grating in accordance with **DIN EN 294**!

Danger of burns!

The blower housing heats up during operation and must therefore be protected against direct access.

Caution - risk of injury!

Protect the user from contact with the side channel blower!
Install a guard to prevent contact.
Allow the side channel blower to cool off before starting maintenance and repair work.

Electrical equipment

Caution! Electrical voltage!

Work on the side channel blower must only be performed by properly trained and qualified professionals and must be performed in accordance with electrical rules.

3 Transport, storage and assembly

3.1 Transport and storage

3.1.1 Transport

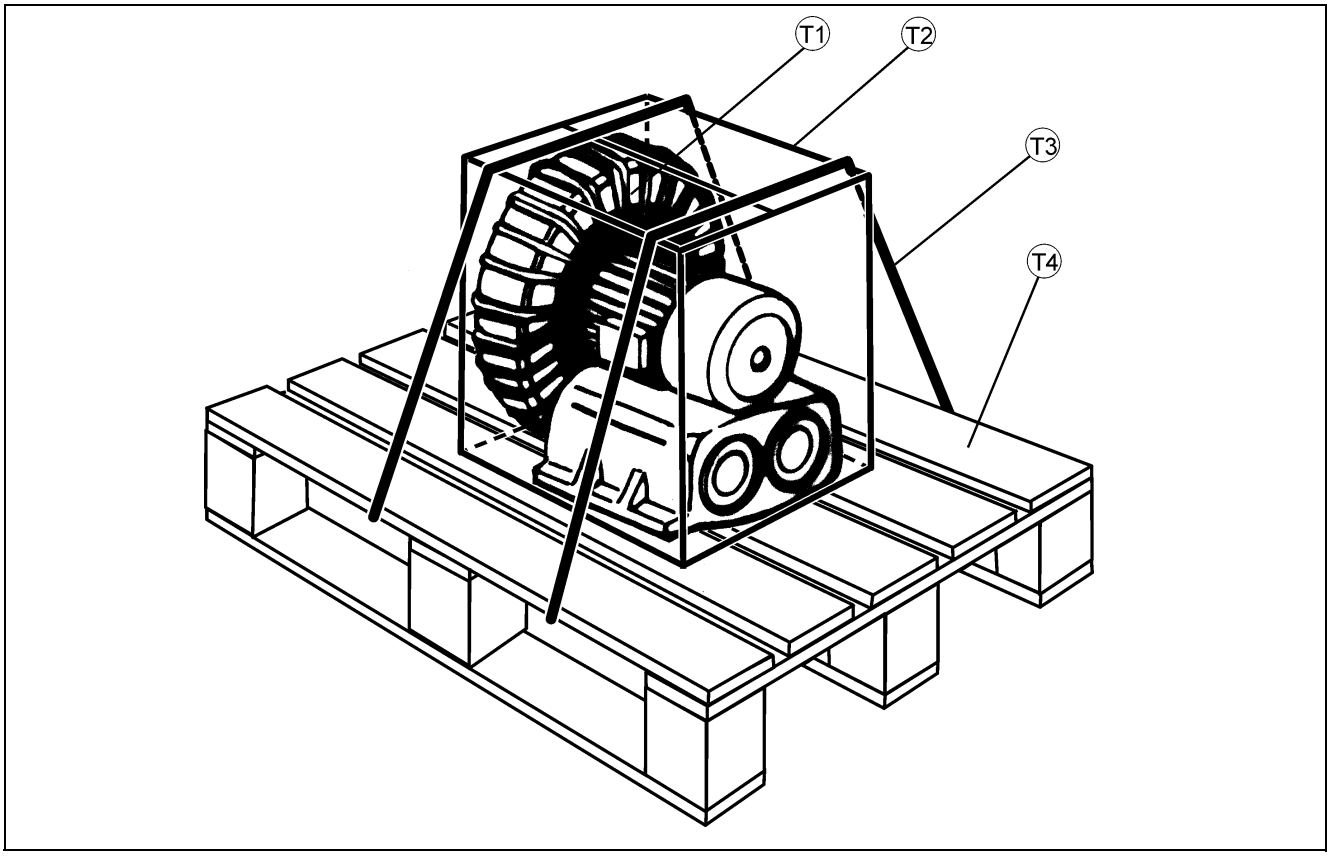

Fig. 4: T1 Side channel blower
T2 Crate
T3 Conveyor belt
T4 Pallet

Side channel blowers (T1) must be transported lying down!
The side channel blower (T1) is secured on a pallet (T4) with bands (T3) for transport. For transport over extended distances it is packed in cases or crates (T2).

Note!
The lifting lugs on the motor are only designed for the weight of the motor alone. A unit consisting of a motor and side channel blower must be attached on both the motor and side channel sides. If necessary, the position of the centre of gravity is identified on the side channel blower unit itself and the positions for inserting lifting equipment are marked on the packaging.

Caution - risk of injury!
Use only suitable lifting equipment and load holding devices which are in perfect working order and have adequate load-bearing capacity!

3.1.2 Storage

Temporary storage

Even for temporary storage of short duration, store in a dry, well ventilated location free of vibration on wooden supports at a temperature that is as constant as possible.

Unsuitable storage

If storage conditions are unsuitable (for example high relative humidity), or if the side channel blower will be in storage for longer than 6 weeks, the housing of the side channel blower must be filled with oil.

Storage for extended duration

If the storage time exceeds 2 years, the roller bearings in the motor must be regreased or completely replaced.

3.1.3 Preservation

The side channel blowers we deliver are provided with preservation according to the storage time specified in the order. This preservation must be removed before commissioning; see Section 3.2.2 "Cleaning".

If the side channel blower will be taken out of operation for an extended time or if the storage time originally planned before commissioning will be considerably exceeded, preservation should be performed as corrosion protection.

The procedure to follow is described in detail in Section 9.1 "Decommissioning / placing in storage / preservation".

3.2 Unpacking, cleaning and assembly

3.2.1 Unpacking

The side channel blower is secured on a pallet with bands for transport. For transport over extended distances it is packed in cases or crates.
After the retaining bands are loosened, lift the side channel blower out of the packaging with auxiliary equipment (lifting tackle).

3.2.2 Cleaning

Various measures are provided for protection against transport damage or corrosion. Find out which ones have been selected for your side channel blower.

1. Cover plates on the connections
2. Shaft protection, for delivery without motor
3. Protective paint on bare metal parts

Before set-up or installation of the side channel blower, these protective devices must be removed. No contamination can be allowed to remain inside the side channel blower.

Note!
If possible do not use steam jet cleaners.
If you do, make certain not to damage the electric motor and bearings during use.

3.2.3 Assembly

The side channel blower generally comes premounted and is therefore ready for delivery.

Note!
Check to ensure the side channel blower is running easily and freely before starting assembly
Other external accessories such as air chambers, etc., that are not premounted on the side channel blower in the factory should not be connected until after the side channel blower is installed in the system or on the foundation of the side channel blower.

3.3 Setting up and connecting

Explosion protection / safety instructions!
Electrical equipment that will be operated in areas subject to the risk of explosion must meet explosion protection requirements. These are identified by the factory plate on the motor. For installation in areas subject to the danger of explosion, applicable local regulations for explosion protection and requirements of the test certificate included with delivery, which was issued by the office responsible for testing, must be observed. The test certificate included with delivery must be kept in a safe place at the installation location (for example in the supervisor's office, etc.).

Installation situation

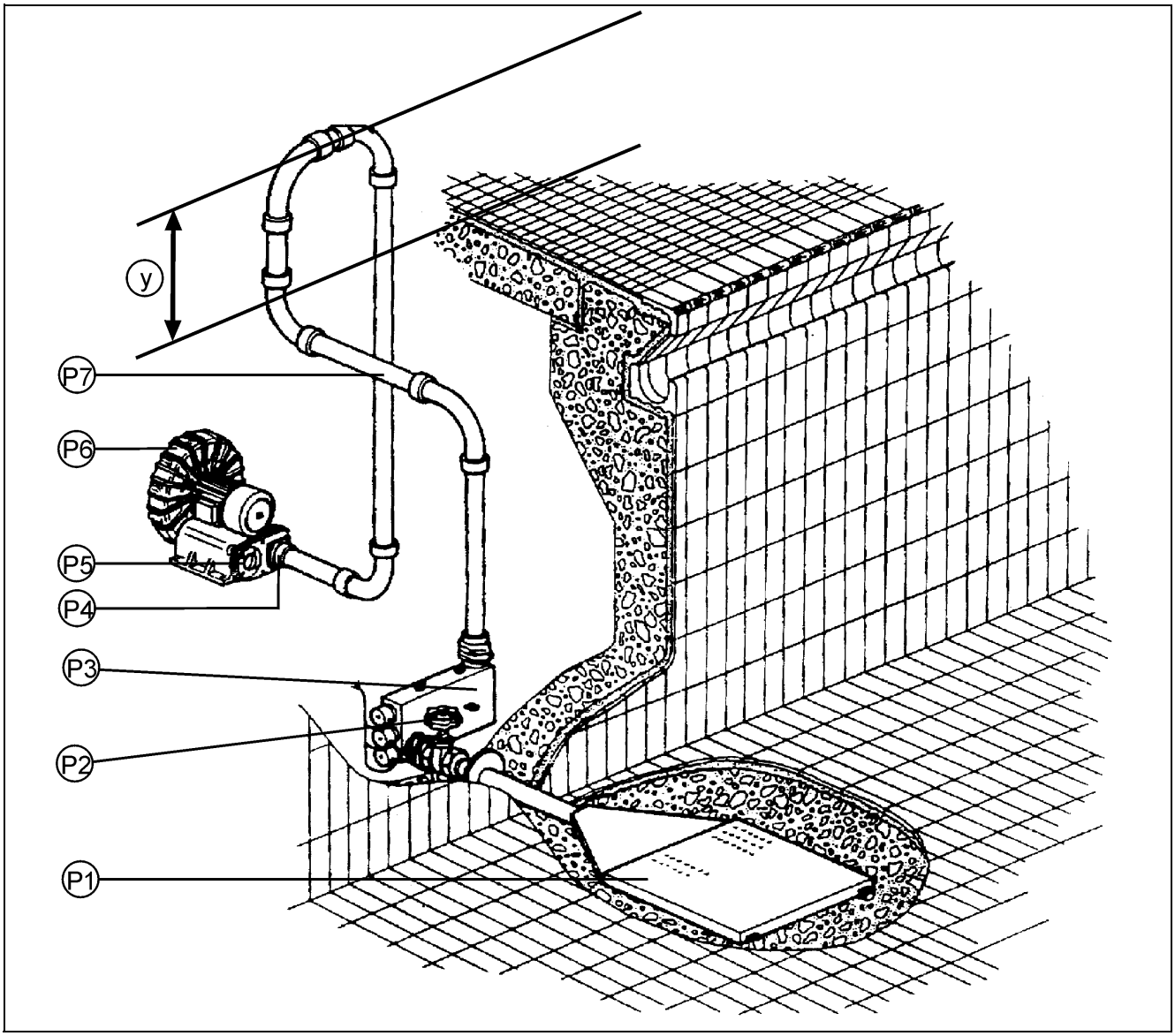

Fig. 5:
- P1 Air pad
- P2 Pressure-end shut-off unit
- P3 Heater (additional accessory)
- P4 Pressure end
- P5 Suction end
- P6 Side channel blower
- P7 Pipeline
- Y Air loop y= min. 50 cm

The side channel blower must be installed so that the air loop is always at least y= 0.5 m above the water level.
One side channel blower can supply several air pads with compressed air.
The air pad can be installed in the bottom. It can also be built into a bench or reclining recess.

3.3.1 Before starting to set up, check the following

- Is the machine / system / container connection prepared according to the dimensions of the dimension sheet / installation diagram?
- Do the concrete foundations have sufficient concrete strength (min. B 15) per **DIN 1045**?
- Is the concrete foundation hardened?
- Is the surface horizontal and even?

Stability - risk of injury!
Side channel blowers with large drives that are installed vertically are top-heavy. These side channel blowers must be secured against tipping during assembly or disassembly, for example by using retaining ropes.

3.3.2 Installation and set-up of the side channel blower

Side channel blowers are always placed with their feet on a base plate and are fastened with screws.
For assembly on a foundation, the side channel blower must be aligned with a spirit level.

3.3.3 Connecting the pipelines

Note!
The side channel blower must never under any circumstances be used as a point for securing the pipeline. No forces or moments (for example caused by warping or heat expansion) from the pipelines may be allowed to affect the side channel blower. Pipes must be intercepted directly before the side channel blower and connected with no tension. Suitable compensators should be used when doing this.

Caution - risk of injury!
If pipeline forces are exceeded, points with faulty seals may develop on the side channel blower itself or on the flange connections, which may result in powerful ejection of conveying medium.

- For short pipelines, the nominal widths should at least match those of the side channel blower connections. For longer pipelines, determine the most cost-effective nominal width from case to case.
- Transition pieces to larger nominal widths should be designed with an expansion angle of about 8° to prevent increased pressure loss.
- The suction line rises continuously to the side channel blower. Lay pipelines continuously falling for the supply to prevent air lock from forming.
- Depending on the type of system and side channel blower, installation of backflow prevention valves and shut-off elements is recommended.
- Expansion of pipelines due to temperature must be countered by suitable measures. We recommend installing compensators directly between the side channel blower and the pipeline.

- Always avoid fittings in pipelines that close suddenly (rapidly). Pressure peaks which occur as a result of these fittings may exceed the maximum permissible housing pressure of the side channel blower several times over! To avoid strong pressure peaks, install pressure absorbers or air chambers

Note!

After assembly is complete or before starting up the system, the containers, pipelines and connections must be thoroughly cleaned, rinsed and blown out with air.

Often welding beads, pipe scale and other impurities do not come loose until some time has passed. They must be kept out of the pipe by installing a sieve in the suction line of the side channel blower. The open cross-section of the sieve must be at least three times the cross-section of the pipeline to prevent too much resistance from building up due to trapped foreign objects.

Experience shows that hat-shaped sieves containing a mesh wire net with a mesh size of 2.0 mm and a wire diameter of 0.5 mm and made of corrosion resistant material are effective.

3.3.4 Electrical connection - general

The electrical connection for the side channel blower should only be made by a company specialising in electrical systems that is approved by the power provider, taking into consideration the technical connection requirements.

Connection tasks must only be performed by a certified installation electrician, who is approved by the responsible power provider as a specialist in electrical installation.

For additional details, see the **TAB of EVS**, **VBG 4 (§3)** and **DIN VDE 1000-10 / 1995-5.**

Applicable DIN VDE regulations 0100 and for explosion protection 0165 must be observed.

Danger of lethal electrical shock!

Danger of electrical shock if the installation is not performed properly!

Make certain:

- The mains power connection must only be made via a fixed connection.
- The mains power supply line must be equipped with an all-pole separator with a contact opening of 3 mm.
- Equipotential bonding with a cross-section of 10 mm² must be applied on the connection terminal so identified (on the motor mount or next to the terminal box).

Compare the existing mains power supply with the information on the motor nameplate (Section 1.1 "User information") and select a suitable circuit.

We recommend using a motor protection device. Motors with explosion protection, increased safety (Ex)-e, temperature class T3, must always be connected in accordance with **DIN VDE 0170/0171** using a motor protection switch.

3.3.5 Electrical connection - three-phase current

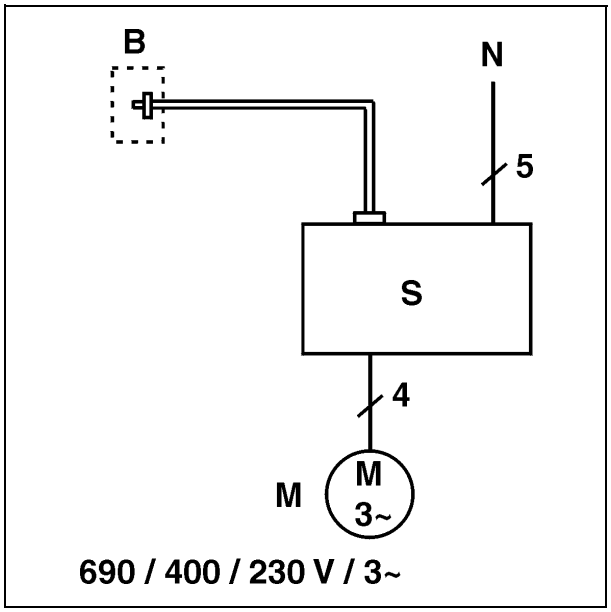

Fig. 6: Schematic diagram for 690/400/ 230 V three-phase current

B Control stage in the pool
M Motor of the side channel blower
N Mains power connection (690/400/ 230 V 3~)
S Control box

Mains voltage: 690/400/230 V for 3~phase current

Connection cable for power supply line: 5x2.5mm²
Connection cable for side channel blower: 4x2.5mm²
Fuse: 16 A delayed

Connection cable, e.g. HO7RNF, all others for connecting necessary data can be found under Section 1.4 "Technical data / specification"

Protective measure:
A fault current circuit breaker (rated error current ≤30 mA) must be provided in the mains power supply line.

Note the arrangement of the terminal bridges!
See inside the terminal box cover or enclosed connection diagram.
Always observe the motor manufacturer's instructions!

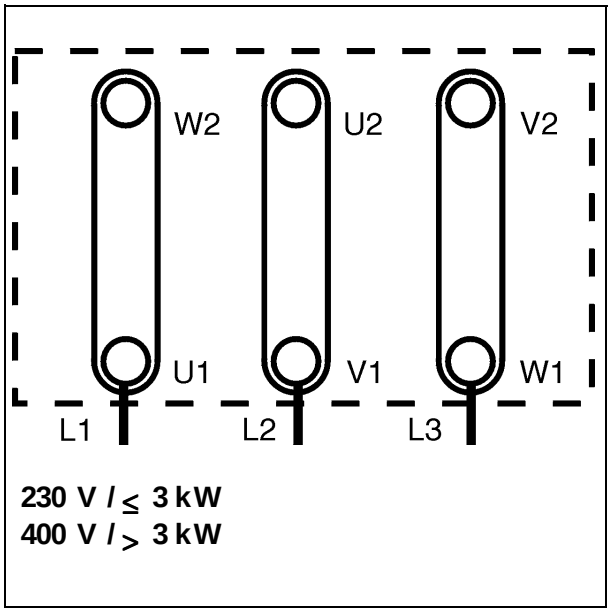

Fig. 7: Connection diagram for three-phase motors;
Delta connection Δ

Connect the motor according to the circuit diagram in the terminal box or Fig. 7 or Fig. 8.

Time relay setting

For three-phase motors with star-delta connection, you must ensure that the switching points between star and delta follow one after the other in as little time as possible. Longer switching times will result in damage to the motor. Time delay setting for star-delta connection: < 3 sec.

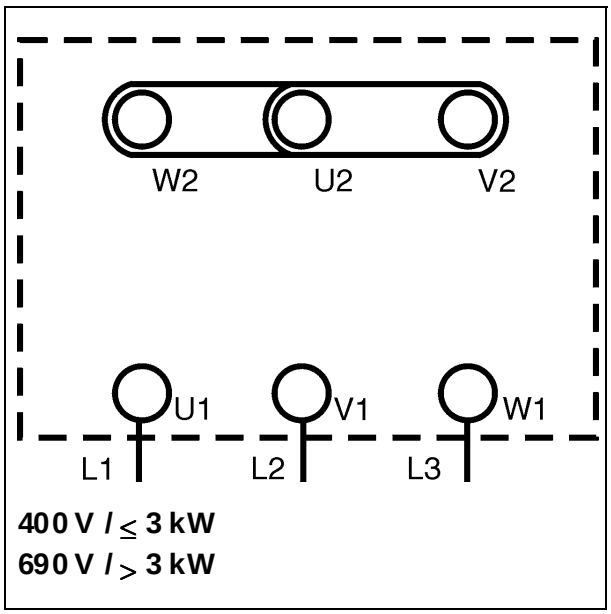

Fig. 8: Connection diagram for three-phase motors, star circuit Y

Direction of rotation check

The direction of rotation of the motor must match the direction indicated by the direction of rotation arrow on the spiral housing of the side channel blower. Check by switching on and off briefly.
If the direction of rotation is incorrect, reverse two phases L1, and L3 of the mains power supply line in the motor terminal box.

Auxiliary equipment for motor

If special control devices are provided, for example in conjunction with use of the side channel blower in a technical system, the manufacturer's instructions for these control devices must always be observed.

4 Operation of the side channel blower

4.1 Initial commissioning

Note!

Make certain the following preconditions are met before initial commissioning of the side channel blower:

1. The side channel blower is connected electrically with all protective devices in accordance with requirements.
2. Rotating parts of the side channel blower must be provided with a contact safety device. (In accordance with the accident prevention requirements (UVV) the side channel blower may only be operated with a contact safety device.)
3. The direction of motion has been checked.

4.1.1 Start the side channel blower

The side channel blower must only be turned on with the pressure-end shut-off element half open! Do not open it until full speed is reached. Then slowly open it and adjust control to the operating point.

5 Operation

5.1 Operation monitoring

In most cases the side channel blower is controlled from the central control unit of the entire system. Data associated with the design of the side channel blower and related to the intended purpose (see specification) must be observed as a precondition for problem-free functionality.
It is especially important to observe the points listed below during manual operation of the side channel blower:

Note!

1. **Temperature of the conveying medium:** Do not operate the side channel blower at temperatures higher than those listed in the original specification.
2. **Switching frequency:**To avoid large temperature increases in the motor and excessive load on the side channel blower, motor and bearings, one switching-on process per minute must not be exceeded.
3. **Minimum quantity:** If the nature of the system includes the possibility of running against the shut-off element closed on the pressure end, a minimum flow for t -30 to +70°C of 15% of Qopt. and for over +70 to +110°C of 25% of Qopt must be provided.

5.1.1 Piping diagram

Note!

The piping suggestion outlined here does not take into consideration specific details of the actual installation site. All elements that affect the flow must be taken into consideration for exact dimensioning of pipelines.
Above all, make certain that no 90° T pieces or angle pieces are used. In addition, all shut-off elements such as flaps or slides as well as measurement sensors or similar devices must be included when calculating flow loss.

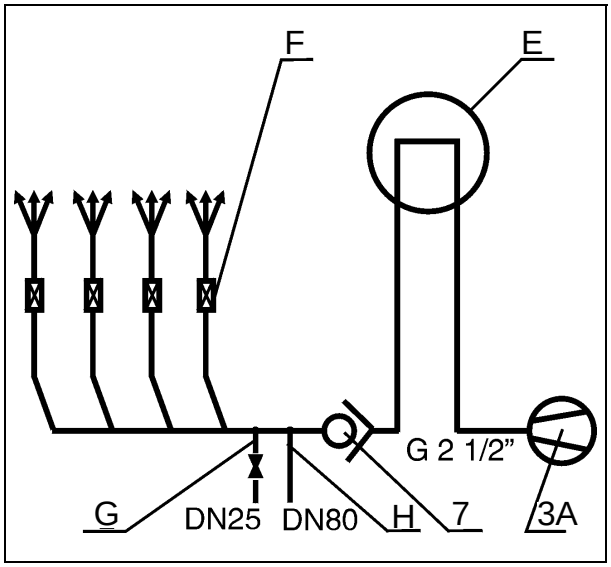

Fig. 9

Suggestion for four connections of side channel blower (in series)
Flow rate per connection: 60 m³/h

F Shut-off unit
G Drain line
H Clean water line
3A Blower, P= 2.9 kW
7 Check valve

D Air loop. Must run at least 0.5 m above the water level.

5.1.2 Blower accessories

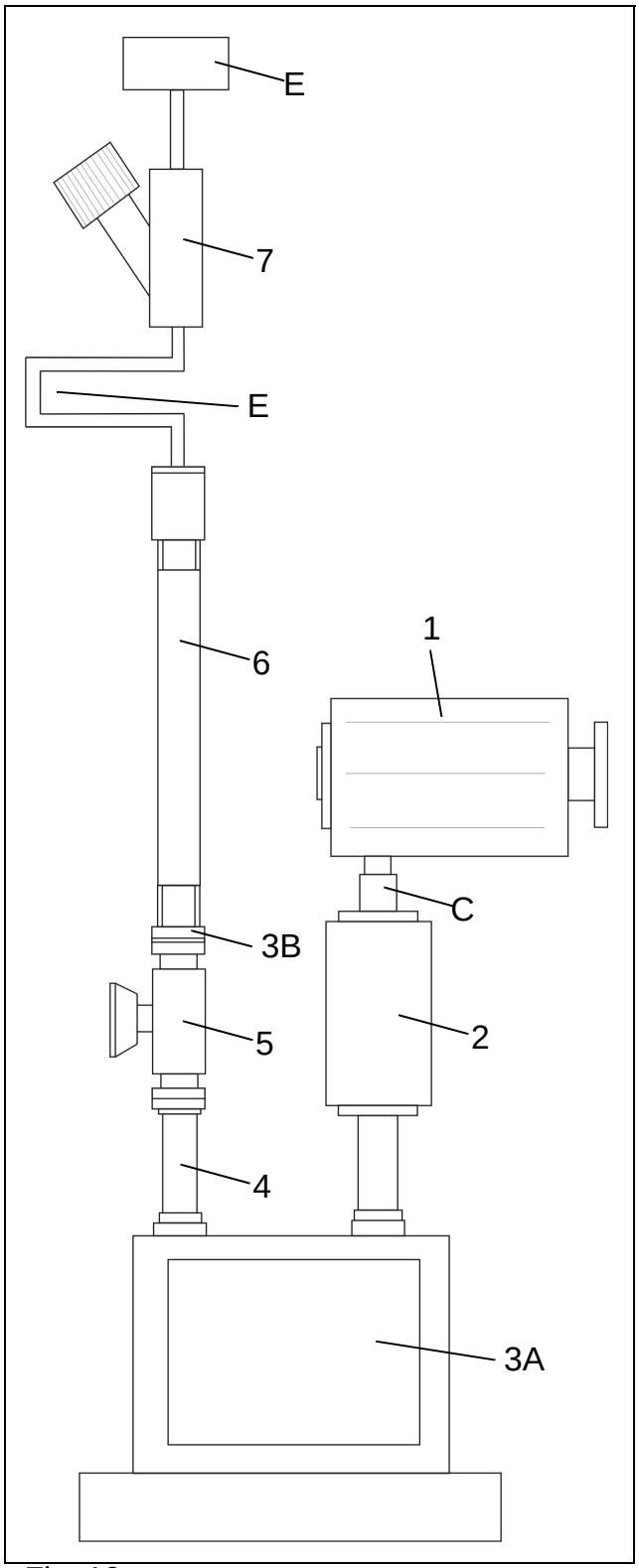

Fig. 10

C Pipe clamp
E Air bubbler
1/2 Fine filter / sound absorber
3A Blower
3B Screw flange (component of 3A)
4 Intermediate piece
5 Pressure limiting valve
6 Heat-resistant pipe
7 Check valve

D Air loop. Must run at least 0.5 m above the water level.

6 Notices of incorrect operation

6.1 General information

Operation by means of a central control system ensures that incorrect operation is largely excluded.

For manual operation, but also with system control, observe the following instructions:

- Avoid damage to the side channel blower and make certain that:
- The side channel blower always runs quietly and without vibration.
- Extended operation against a closed shut-off element is avoided to prevent the conveying medium from heating up. For minimum required delivery see section 5.1,
- the maximum permissible room temperature of +40°C is not exceeded,
- The ball bearing temperature does not exceed +50°C above room temperature, or in any case +90°C (measured on the outside of the motor housing). When the side channel blower is in operation the shut-off element is not closed in the supply line.

6.1.1 Faults

When faults occur while the side channel blower is in operation that are not caused by the control system or other external errors, follow these steps:

1. Pinpoint the fault or malfunction.
2. Determine the cause.
3. Eliminate the fault.

6.2 Shutdown

1. Close the shut-off elements in the pressure and suction lines. If a backflow prevention valve is installed in the pressure line, the shut-off element can remain open provided counter pressure is present.
2. Turn off the motor. Make certain run-out is quiet. Depending on the system, when the heat source (if present) is turned off, the side channel blower should have sufficient coast-down until the conveying medium temperature is reduced enough so that heat backup in the side channel blower is avoided.
3. Close the shut-off element in the pressure line.

7 Maintenance / repair

7.1 General information

The operator must ensure that all inspection, maintenance and repair work on the side channel blower is performed only by authorised and specially trained personnel. The operator must ensure that personnel is sufficiently informed thorough study of the Operator's Manual.
We recommend creating and following a maintenance plan. This will help you to avoid costly repairs and achieve problem-free and reliable operation of the side channel blower. Only original spare parts may be used for repairs.
When working on the motor, the instructions of the relevant motor manufacturer and instructions must be followed.

Caution - danger of death!
Normally work on terminal boxes and on machine control must only be performed with the electrical connections unclamped or the power turned off to avoid electrical shocks.

Danger of injury and death!
During checks and maintenance work, secure the side channel blower against being turned on unintentionally (turn off the power).

7.2 Maintenance / inspection

The following information should be used to create a maintenance plan. It consists of minimum recommendations that must be adjusted and if necessary supplemented as required by local specific details of how the side channel blower is used.

7.2.1 Checks

Continuous checks:
- Delivery data for the side channel blower (pressure, quantity)
- Current consumption

Daily checks:
- Running = quiet with no vibration
- Storage temperature

Check / replace every 6 months:
- Check if screws are tight.

7.2.2 Lubrication and change of lubricant

Side channel blowers with standard design are only supported in the drive motor bearing. The bearings in smaller motors are designed to last for life and have permanent grease lubrication that cannot be relubricated. Faulty bearings must be replaced.

7.3 Repair

7.3.1 General information

Repair work must only be performed on the side channel blower after removal and in a suitable workshop.
The following instructions will allow you to disassemble the side channel blower and reassemble it properly with the necessary new parts.

Note!
Note also the enclosed exploded drawing and spare parts list! (section 8).
In case of defects send the side channel blower in to the factory for repairs.

Jobs can be performed with standard workshop tools. Special tools are not required. After disassembly, clean all the individual parts of the side channel blower. Check the individual parts for wear and damage. Parts that are not in flawless condition must be reworked or replaced.

7.3.2 Preparations for disassembly

Before starting disassembly, the side channel blower must be secured so that it cannot be turned on (turn the power off). Place a warning notice on the switch cabinet!
If the system is in operation, inform the shift manager.

When performing the jobs described below, take local regulations and specific features into consideration.

7.3.3 Disassembly / removal of the side channel blower

- The side channel blower must have reached ambient temperature.
- Disconnect the power supply.
- Close the fittings (suction-end and pressure-end).
- Unclamp the motor.
- Disassemble any additional connections that are present.
- Loosen the pressure and suction connections.
- Loosen the side channel blower from the base plate.
- Raise the side channel blower completely up.

7.3.4 Disassembly / dismantling the side channel blower

Before beginning

Do not begin working until after you have checked to ensure:

- that all necessary spare parts are present and they match the side channel blower or the version of if that you have, or that damaged parts which may still be discovered can be obtained in short order.
- that you have all tools and auxiliary equipment required for work.

Note!

Use only original spare parts for repairs!

Observing these instructions is a precondition for problem-free operation of the side channel blower and for honouring any warranty claims that may be submitted.

Customer service:

Schmalenberger offers a 24-hour service for spare parts delivery!

8 Spare parts list / drawing

The exploded drawing appears on the next page. The following section is the spare parts list for your side channel blower.

Please note your type.

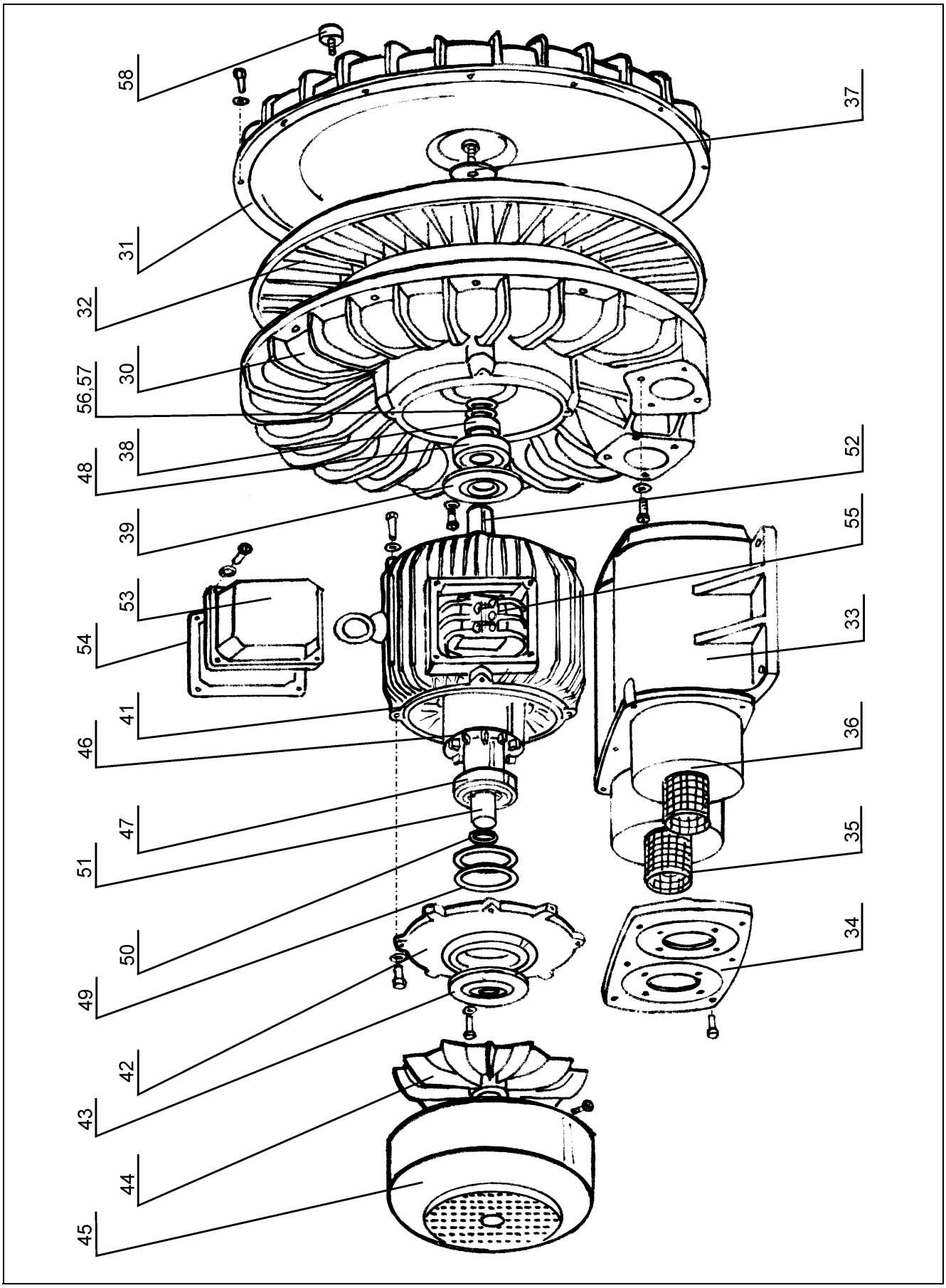
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Fig. 11

Item	Order No.	Description	Pieces	Comment
30		Blower housing		
31		Housing cover		
32		Impeller		
33		Sound absorber housing with foot		
		Sound absorber housing without foot		
34		Flange		
35		Protective grating		
36		Foam		
37		Washer		
38		Socket		
39		Bearing cover plate		
40		Connecting flange		
41		Stator complete		
42		Bearing shield		
43		Bearing cover plate		
44		Fan blade		
45		Hood		
46		Rotor complete		
47		Ball bearing		
48		Ball bearing		
49		Plate spring		
50		Retaining ring		
51		Key		
52		Key		
53		Terminal box		
54		Terminal box seal		
55		Terminal board		
56		Spacing washer 0.1mm thick		
57		Spacing washer 0.2 mm thick		
58		Stop buffer		

9 Appendix

9.1 Decommissioning / placing in storage / preservation

Every side channel blower leaves the factory in carefully mounted condition. If commissioning will not take place for an extended time after delivery, we recommend the following measures for storage of the side channel blower.

9.1.1 Placing new side channel blowers in storage

If requested, new side channel blowers have preservation protection according to the storage time specified by the customer when the order is placed. If this time is significantly exceeded, the condition of the side channel blower must be checked and it must be represerved if necessary.

9.1.2 Recommissioning after being placed in storage

Removal of preservation

Before the side channel blower that was in storage is installed, the preservation material with which it was coated and/or filled must be removed. To do this, follow the instructions in Section 3.2.2 "Cleaning".

Note!

After an extended storage time under preservation conditions, check elastomer parts (O-rings) to ensure they have retained proper shape and elasticity. Brittle elastomer parts must be replaced. Elastomer parts made of EPDM must always be replaced.

Recommissioning

Reinstall the previously removed side channel blower as described in Section 3.3 "Setting up and connecting".

Immediately after work is complete, all safety and protective equipment must be put back in place and/or placed in operation again.

Before recommissioning of the installed side channel blower, the checks and maintenance measures described in section 7 must be performed. Before using the side channel blower again, all the items listed in Section 4.1 "Initial commissioning" must be observed.

9.2 Disposal

If you want to shut down the side channel blower permanently and take it out of operation, observe local regulations for disposal of industrial waste.

9.3 Documents for operation

The following documents are enclosed:
- Operator's Manual
- Dimensional diagram

For complaints related to the side channel blower motor, please contact us or the motor manufacturer.

9.4 Dimension sheet

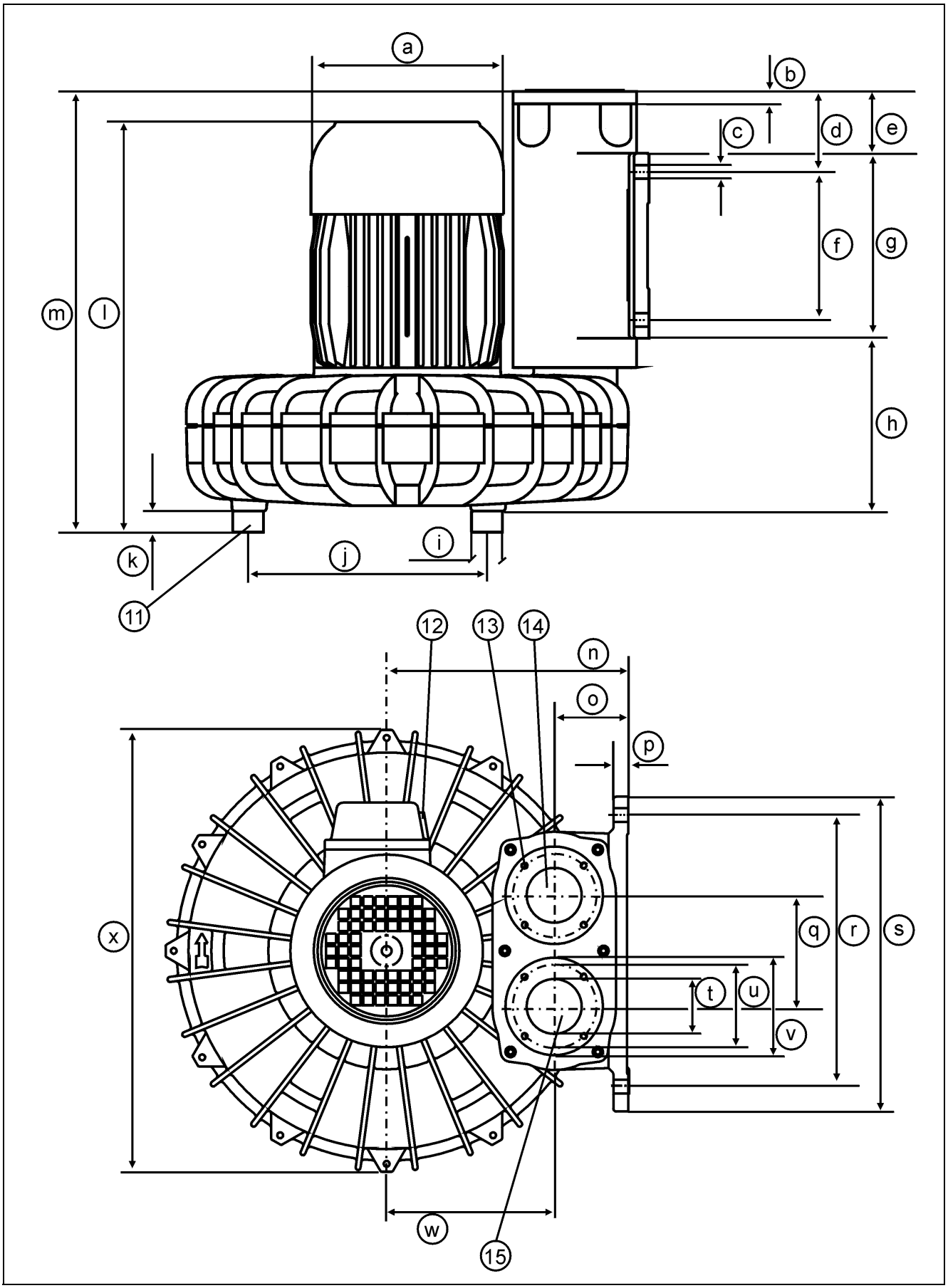

Fig. 12: Dimension sheet

All figures in mm:

Dimension	Type 45	Type 105	Type 135	Type 255	Type 360	Type 600
a	ø 156	ø 156	ø 174	ø 194	ø 218	ø 258
b	10	12	12	12	12	12
c	ø 11	ø 10		ø 14	ø 14	ø 17
d	66	74	72	43	43	58
e	51	52	49	20	20	30
f	120	160	160	260	260	380
g	150	200	200	300	300	430
h	140	151	166	162	187	207
i	ø 25	ø 25	ø 28	ø 40	ø 40	ø 50
j	ø 258	ø 280	ø 204	ø 328	ø 345	ø 390
k	17	17	17	20	20	25
l	333	345	383	437	472	559
m	358	420	435	505	530	695
n	196	225	225	260	282	325
o	60	80	80	85	85	95
p	12	12	12	18	18	20
q	90	125	125	145	145	160
r	220	300		365	365	400
s	250	350	350	420	420	450
t	44,5	55	55	65	65	80
u	ø 68	ø 85	ø 85	ø 110	ø 110	ø 118
v	79	100	100	130	130	145
w	136	145	145	175	197	230
x	358	386	396	460	500	560
Item						
11	3 stop buffers, offset by 120°	3 stop buffers, offset by 120°	Rubber buffer	3 stop buffers, offset by 120°	3 stop buffers, offset by 120°	3 stop buffers, offset by 120°
12			1xPg16			
13	M5 (4x90°)					
14	Pressure end				Pressure end	Pressure end
15	Suction end			Suction end		Suction end

9.5 Ordering spare parts

When ordering spare parts, always specify the following important information:

- Side channel blower number and type designation, alternatively the motor number
- Conveying medium
- Item number from the spare parts list
- Name of the part
- Material information from the specification or confirmation of order

You will find the side channel blower number on the blower nameplate, which is fastened onto the fan hood of the motor.
The confirmation of order or motor number may also be helpful.
This will help us deliver the right spare part for your side channel blower!

Customer Service:

Schmalenberger offers a 24-hour service for spare parts delivery!

Please visit our homepage at: *www.fluvo.de*

Address of main office:

Schmalenberger GmbH+Co. KG
Postfach 2380
D-72013 Tübingen, Germany

Phone: +49 (0)7071 7008-0
Fax: +49 (0)7071 7008-10

UK CA

Importer:
Certikin International Ltd
4 Tungsten Park
Colletts Way
Witney
Oxfordshire, OX29 0AZ
United Kingdom
www.certikin.co.uk

Manufacturer:
Schmalenberger GmbH & Co. KG
Strömungstechnologie
Im Schelmen 9 - 11
D-72072 Tübingen / Germany

Phone: +49 (0)7071 70 08 - 0
Fax: +49 (0)7071 70 08 - 10
Internet: www.fluvo.de
E-mail: info@schmalenberger.de

Side channel blower
Version: 27222 - C