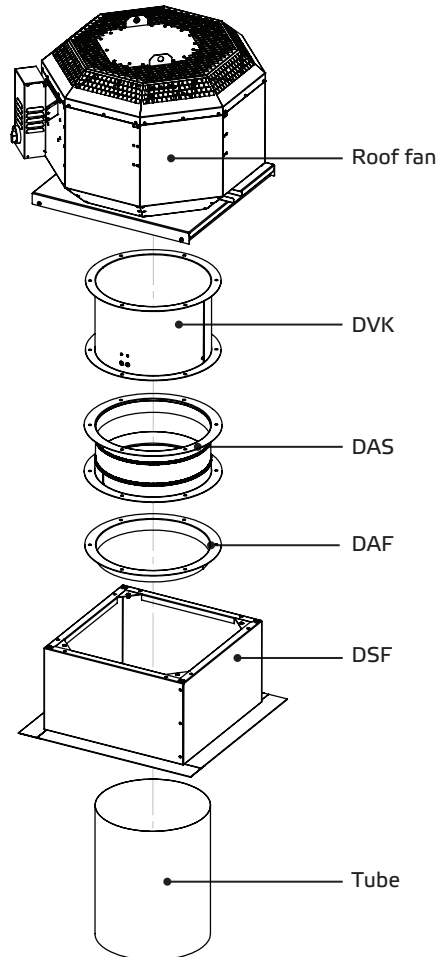
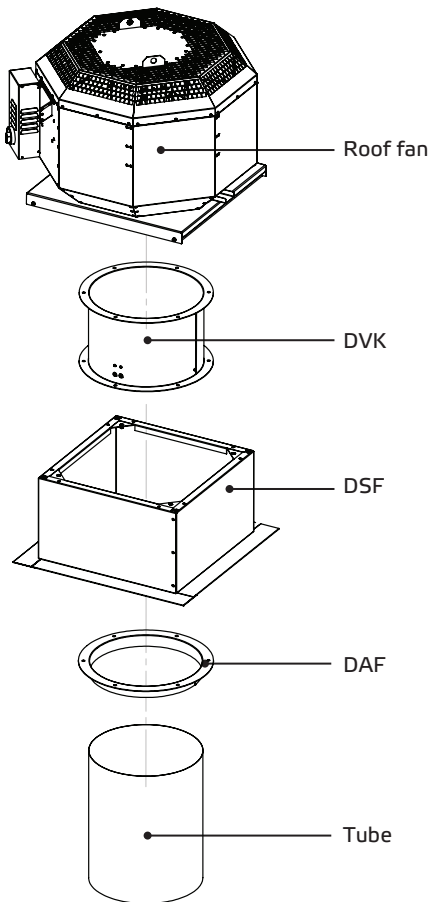
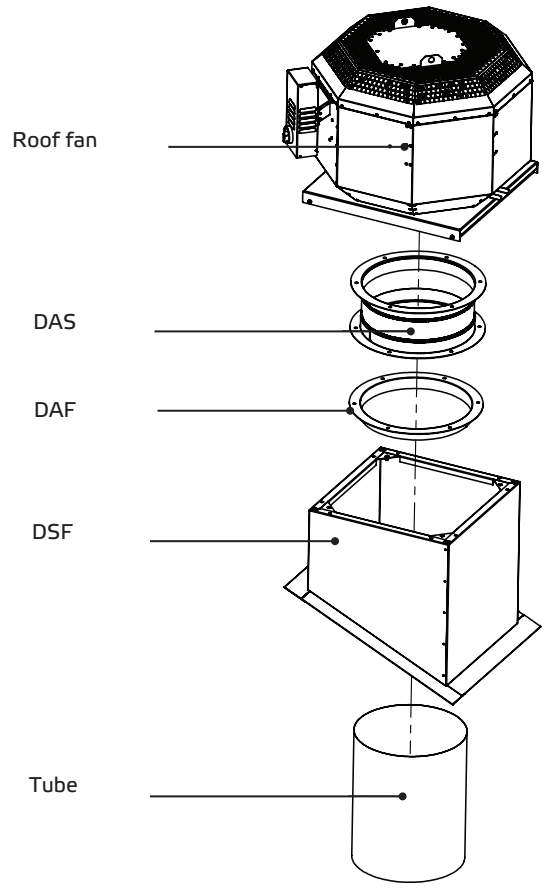
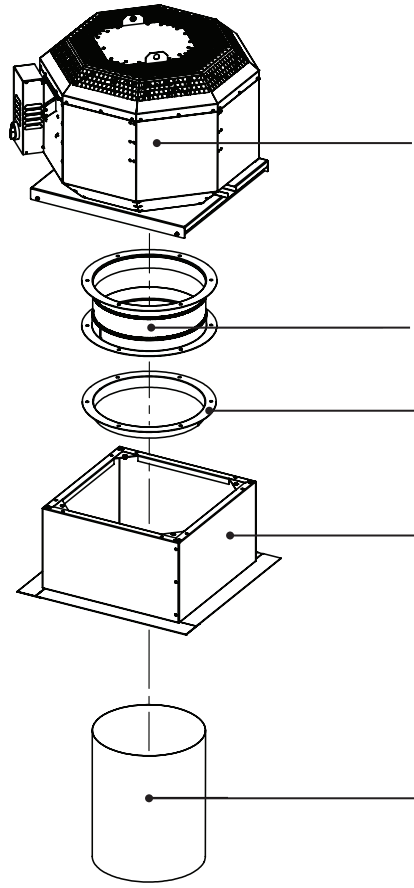
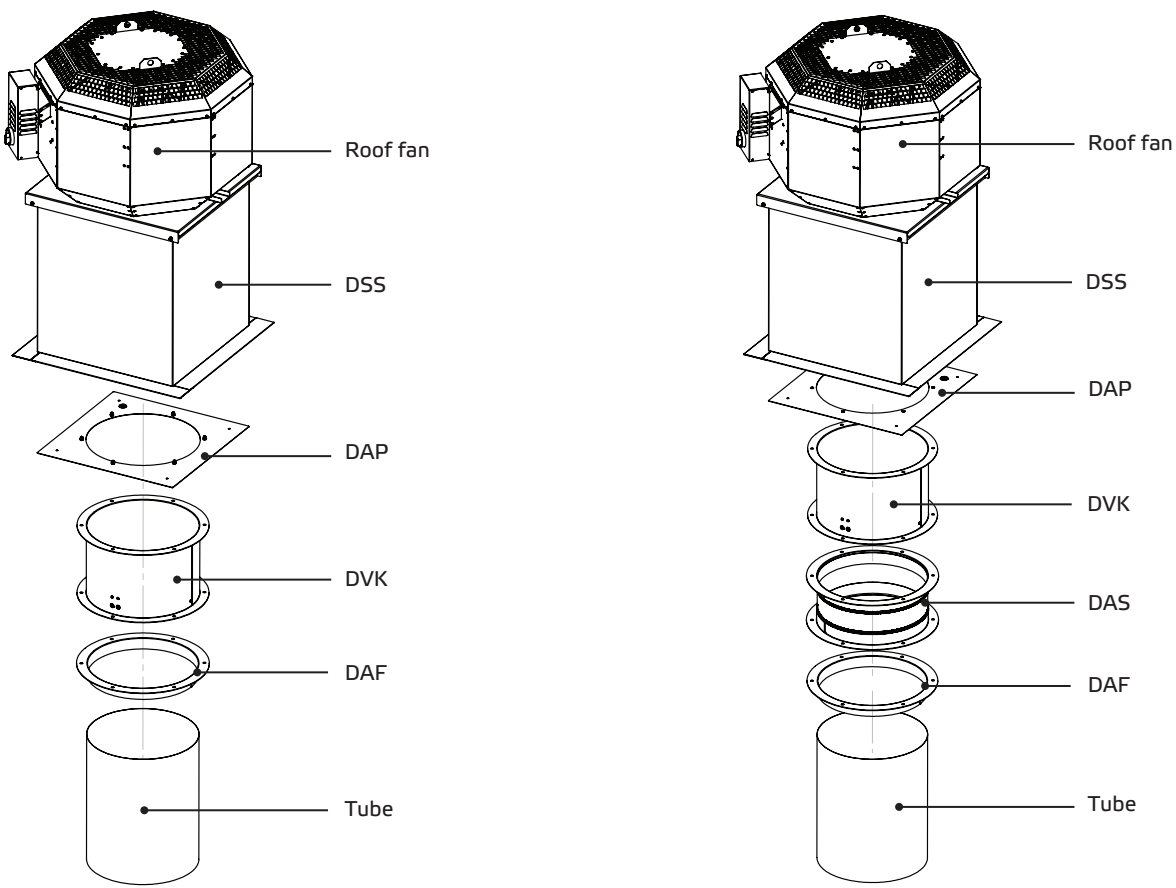
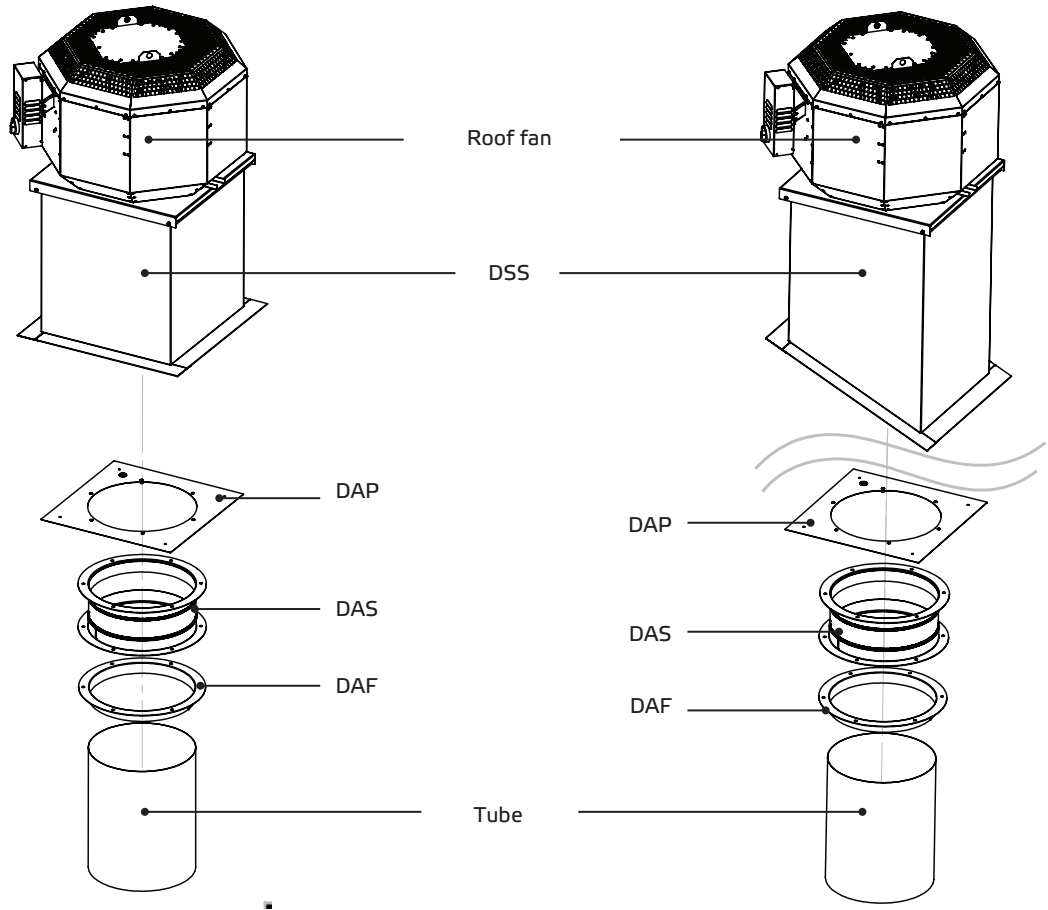


### 10.3. Installation examples

DSF - Flat roof socket / Sloped roof socket



DSS - Socket silencer / Sloped roof socket silencer



## 11. ELECTRICAL CONNECTION



- Electricity warning (hazardous voltage)!

» Failure to observe the hazard may result in death, injury or damage to property.

→ Before performing any work on conductive parts, always disconnect the unit completely from the electricity supply and make sure that it cannot be switched back on again.

The electrical installation may only be carried out by qualified electricians in compliance with the installation, operating and maintenance instructions and the applicable national regulations, standards and guidelines:

- ISO, DIN, EN and VDE specifications, including all safety requirements.
- Technical connection conditions.
- Safety at work and accident prevention requirements.

**This list does not claim to be complete.**

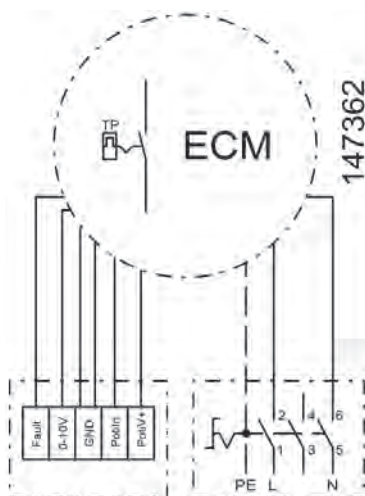
**Requirements should be applied under one's own personal responsibility.**

- The electrical connections must be made as shown in the corresponding wiring diagrams and terminal diagrams.
- The type of cable, size of cable and method of laying should be determined by an authorized electrician.
- Low and extra-low voltage cables should be laid separately.
- If no repair switch is integrated in the device, an all-pole mains disconnecting switch with min. 3 mm contact opening must be provided in the supply line.
- Use a separate cable inlet for each cable.
- Any cable inlets that are not used must be sealed so that it is airtight.
- All cable inlets must have strain relief.
- Create equipotential bonding between the unit and the duct system.
- Check all protective measures after the electrical connection work (earthing resistance, etc.)
- Motor current and motor power must not exceed the values stated on the motor nameplate. The specified max. fan speed must never be exceeded, otherwise the motor and fan will be destroyed by this overload and dissolved or flying parts can destroy other components.

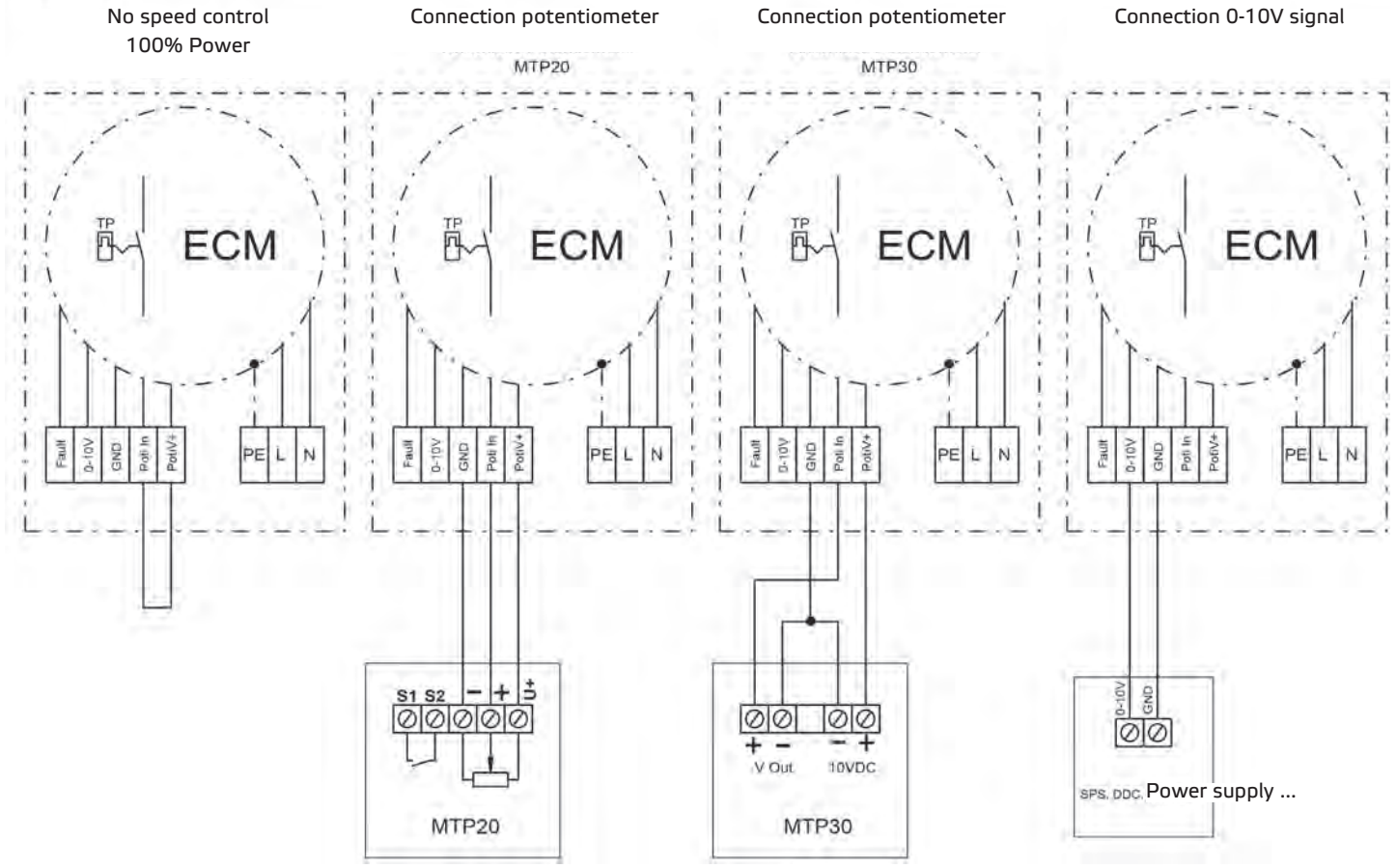
### 11.1. Unit supply cable / Electrical connection / wiring diagram

Connect the mains supply cable as shown in the wiring diagram. For the dimensioning of the line, observe the unit's rating plate and the relevant guidelines. Appropriate protection with correctly dimensioned automatic safety breakers (circuit protection breaker) must be provided.

The device must be connected according to the wiring diagram. For fans which are controlled by external control devices, the corresponding operating instructions of the manufacturer must be observed.



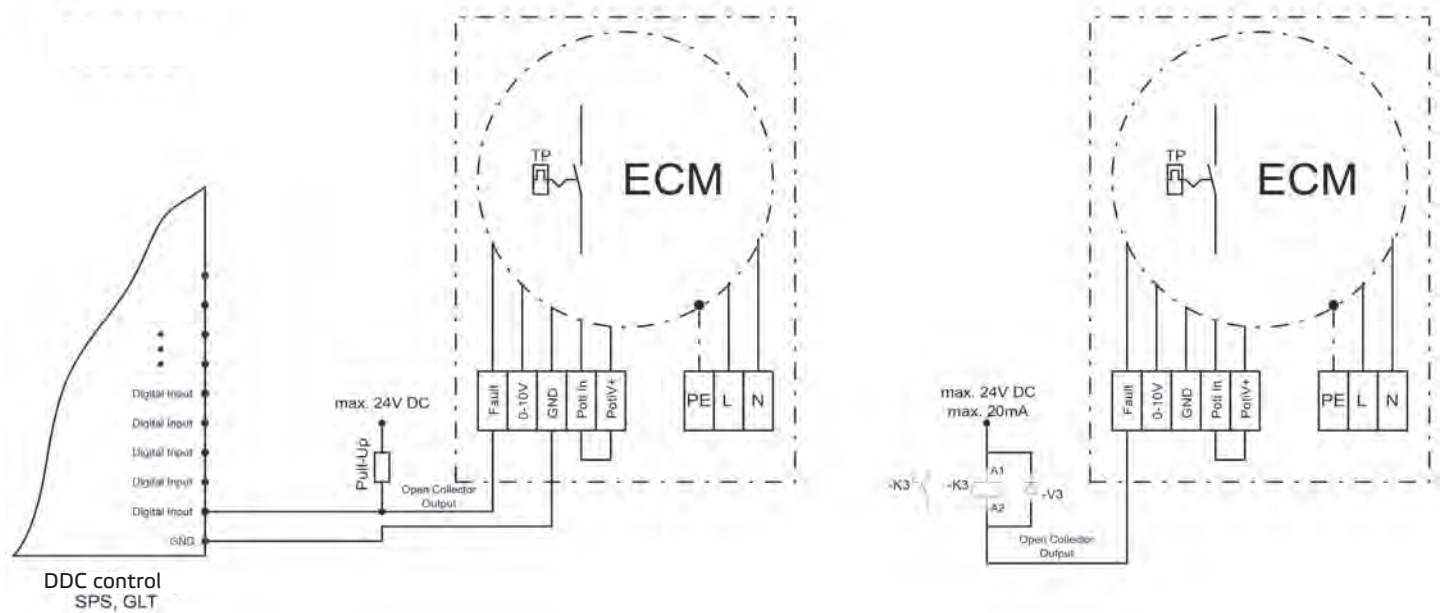
Control



Connection alarm output

Alarm output connected to controls

Relay with alarm output activated



An open-collector output is a digital low-voltage output in which the height voltage for the signal is applied via a pull-up resistor.

If the pull-up is supplied with 5 Vdc, the high level is 5V and the low level is 0V

The open-collector output supports max. 20mA load.

High = OK

Low = Failure

## 11.2. Thermal motor protection

During operation, electric motors heat up. Under certain circumstances (excessively high ambient or fluid temperatures, heavy contamination, etc.), the motor temperature may exceed the safety limit of the electrically isolated parts. In case of EC motors an electronic temperature monitoring is present.

## 11.3. Fault current protection switch

The use of a fault current protection switch is not mandatory. If a fault current protection switch is used, only AC/DC sensitive RCD protective devices (type B or B+) are permitted.



Even when the device is switched off, voltage is applied to terminals and connections. Do not touch the device for 5 minutes after all-pole disconnection from the mains.

## 12. COMMISSIONING



Commissioning by trained technical personnel may only be performed after any risk has been ruled out. The following checks should be performed in accordance with the installation and operating manual and the regulations in force:

- Correctly sealed installation of the unit and duct system.
- Check the duct system, unit and medium lines, if present, remove any foreign bodies if necessary.
- The intake opening and inflow into the unit must be clear.
- Check all mechanical and electrical protection measures (e.g. earthing).
- Voltage, frequency and type of current must correspond with the rating plate.

## 13. MAINTENANCE AND CLEANING



**Servicing, troubleshooting and cleaning may only be performed by specialised personnel in accordance with this installation and operating manual and the regulations in force.**



- Make sure that no connections or components are loosened unless the device is disconnected from the mains. Make sure that the equipment cannot be switched back on again.



- Individual components must not be interchanged. For example, the components intended for one product may not be used for other products.



- The regular maintenance and care of our devices is designed to ensure proper function, value retention and avoidance of damage. Keep a maintenance log.

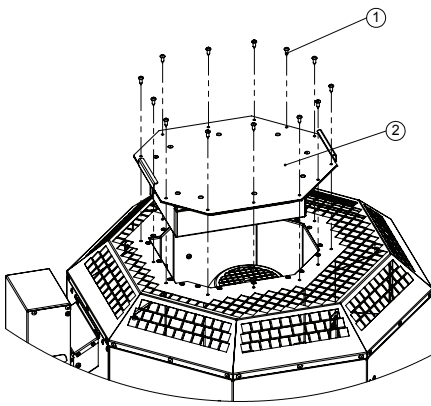
- Perform the specified maintenance on the unit at the specified intervals.

Our devices require little maintenance when operated properly.

The following work should be performed at regular intervals, in accordance with health and safety regulations:

- Check the operation of the control system and safety devices.
- Check electrical connections and wiring for damage.
- Remove any dirt from the fan impeller or impellers and from inside the fan housing in order to prevent any unbalance or reduction in output.
  - Do not use aggressive or easily flammable products for cleaning (impellers/housing).
  - Preferably only water (not flowing water) or mild soapsuds should be used.
  - The impeller should be cleaned with a cloth or brush.
  - Never use a high-pressure cleaner.
  - Balancing clips must not be moved or removed.
  - The impeller and fittings must not be damaged in any way.

Before putting the unit back into operation after maintenance and servicing work, carry out a visual inspection as described in section 12. and 13.



For maintenance works:

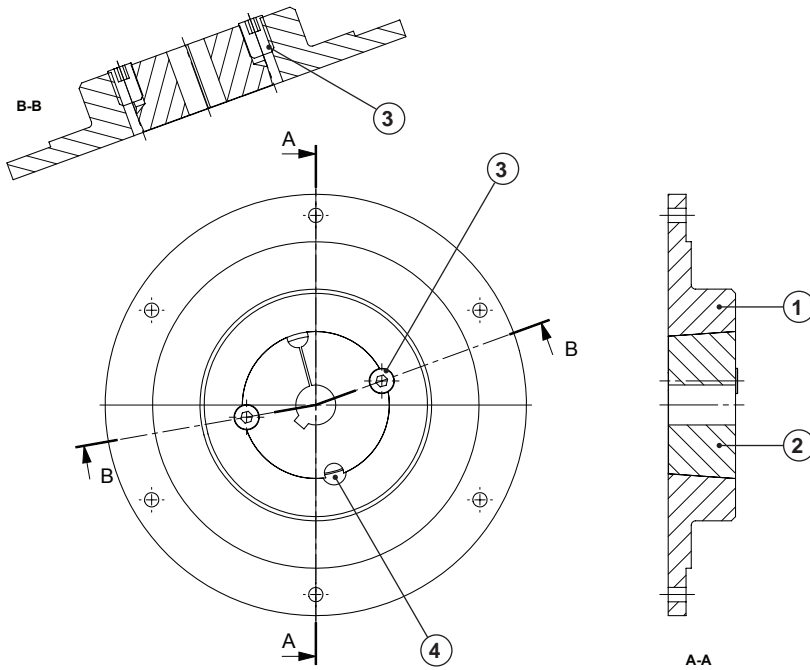
- Unscrew the sheet metal screws (1)
- Remove cover (2)

### 13.1. Checklist Maintenance and Service

Description	check interval
Triggering device	monthly
■ Fan	
Check fan for function and operational readiness (test run at least 15 minutes)	every 6 months
Check fan for function and operational readiness (test run at least 1 hour)	yearly
Check for dirt, damage, corrosion and fastening	every 6 months
Function-preserving cleaning	every 6 months
Check impeller rotation direction	yearly
Check flexible connections for leaks	yearly
Check impeller for imbalance	yearly
Check protective device for function	yearly
■ Motor	
Check externally for dirt, damage, corrosion and fastening	every 6 months
Function-preserving cleaning	yearly
Check bearing for noise	yearly
Check terminals for tight fit	yearly
Measure the voltage	yearly

## 13.2. Impeller installation with Taperlock clamping bush

The impeller is connected by means of the clamping bush to the shaft end of the drive motor.



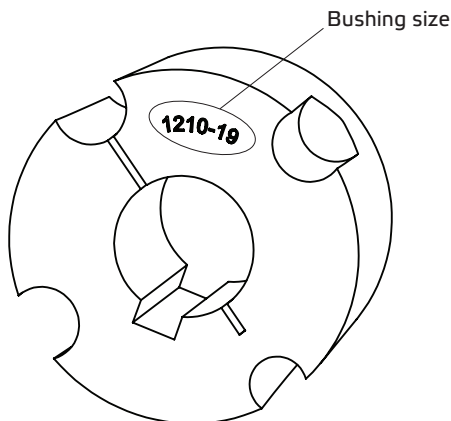
### Assembly

1. Clean all bare surfaces (mating surfaces of the clamping bushings and motor shaft).
2. Insert the clamping bush (1) into the hub (2) and bring the holes into alignment.
3. Loosely lubricate the threaded pins (3) and screw in - do not tighten yet.
4. Push the impeller onto the shaft with the clamping sleeve, align it in the axial position and tighten the threaded pins evenly on both sides. Observe the tightening torque according to table.

### Disassembly

1. Loosen all the threaded studs (3) and screw them out completely. Lubricate a threaded pin and screw it into the disassembly hole (4).
2. Tighten the threaded pin until the clamping bush (1) is released from the hub (2).
3. The impeller can be removed.

### Technical data



### Torque table

Bushing size	1210	2012	2517
Screw tightening torque with feather (Nm)	17	26	41
Screw tightening torque without feather (Nm)	20	31	48
Number of screws	2	2	2

### Commissioning (after replacement)

- Remove any remaining installation material and foreign objects from the impeller and suction area.
- Check direction of rotation (direction of rotation arrow on the impeller base disc).
- During initial commissioning, the entire unit must be checked for mechanical vibrations. If necessary, re-balancing must be carried out.
- Pay attention to a quiet operation, without vibrations.



## 14. LIFETIME AND DISPOSAL

### 14.1. Product life

The motors are equipped with maintenance-free, permanently lubricated ball bearings. Under normal operating conditions, the expected lifetime is about 30,000 operating hours.

The information given here depends strongly on the respective field of application as well as the environmental conditions. We recommend replacing these fans after reaching about 30,000 operating hours or 5 years.

### 14.2. Decommissioning and disposal



**When disassembling, parts under voltage are exposed, which can lead to electric shock when touched. Before dismantling, disconnect the fan from all poles of the mains and secure against being switched on again!**

Parts and components of the device that have reached their lifetime, e.g. due to wear, corrosion, mechanical stress, fatigue and/or all other, not directly recognizable effects, must be disposed of professionally and properly after disassembly in accordance with national and international laws and regulations. The same applies to excipients in use such as oils and fats or other substances. The conscious or unconscious reuse of used components such as e.g. impellers, rolling bearings, motors. etc. can lead to a risk to persons, the environment as well as machinery and equipment. The applicable local operating regulations must be observed and applied.

### 14.3. Spare parts (motor + impeller)

Only original spare parts may be used.

The repair may only be carried out by personnel trained and authorized.

## 15. TROUBLESHOOTING

Fault	Possible cause	Remedy methods
<ul style="list-style-type: none"> <li>■ Fan does not start</li> </ul>	<ul style="list-style-type: none"> <li>■ No power supply</li> <li>■ Impeller does not rotate freely</li> </ul>	<ul style="list-style-type: none"> <li>■ Check mains supply / connections</li> <li>■ Find out the causes and, if possible, remove the fault. If not possible, contact the supplier.</li> </ul>
<ul style="list-style-type: none"> <li>■ Motor overheated / temperature protection is triggered</li> </ul>	<ul style="list-style-type: none"> <li>■ Fault of the ball bearings</li> <li>■ Too high operating temperature</li> <li>■ Air flow is too low, motor cannot cool down</li> </ul>	<ul style="list-style-type: none"> <li>■ Contact the supplier</li> <li>■ Observe the data on the nameplate</li> <li>■ See fault „Low air flow“</li> </ul>
<ul style="list-style-type: none"> <li>■ Device too noisy / casing vibrations</li> </ul>	<ul style="list-style-type: none"> <li>■ Dirt deposits on the impeller</li> <li>■ Imbalance of the impeller</li> <li>■ Connection with intake or exhaust pipe / duct causes vibrations / oscillations</li> <li>■ Fixing screws released</li> <li>■ Fault of the ball bearings</li> <li>■ Loose impeller blade</li> </ul>	<ul style="list-style-type: none"> <li>■ See chapter maintenance and cleaning</li> <li>■ Contact the supplier</li> <li>■ Install fan with vibration dampers</li> <li>■ Tighten screws</li> <li>■ Contact the supplier</li> <li>■ Contact the supplier</li> </ul>
<ul style="list-style-type: none"> <li>■ Low airflow</li> </ul>	<ul style="list-style-type: none"> <li>■ Impeller runs in the wrong direction (wrong air transport direction)</li> <li>■ High pressure losses in the system</li> <li>■ Return flaps closed or only partially open</li> <li>■ Duct system clogged</li> <li>■ Speed control incorrectly set / incorrectly connected</li> </ul>	<ul style="list-style-type: none"> <li>■ Note the marking on the device / nameplate. Check electrical connections</li> <li>■ Improve piping configuration or select a more powerful fan</li> <li>■ Check drive system / installation position of the return flap</li> <li>■ Remove blockage / clean protective grille</li> <li>■ Check settings / switching unit and possibly adjust / connect</li> </ul>