AL-KO

QUALITY FOR LIFE

EN

COMPACT AIR HANDLING UNIT

INSTALLATION AND OPERATING MANUAL

AL-KO EASYAIR®

Legal

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1 About this manual

- The German version is the original installation and operating manual. All further language versions are translations of the original installation and operating manual.
- Read this installation and operating manual before installation, commissioning and maintenance. This is the prerequisite for safe work and trouble-free handling.
- Observe the safety instructions and warnings in this documentation and on the product.
- This documentation is a permanent part of the described product, and must be handed over to the buyer if the product is sold.

1.1 Explanation of symbols

1.1.1 Safety instructions

⚠ DANGER

This signal word is used to indicate an immediately dangerous situation which, if not avoided, will result in death or severe injury.

⚠ WARNING

This signal word is used to indicate a potentially dangerous situation which, if not avoided, could result in death or severe injury.

⚠ CAUTION

This signal word is used to indicate a potentially dangerous situation which, if not avoided, could result in a minor injury.

IMPORTANT

This signal word is used to indicate a potential risk of property damage.

NOTE

Special instructions for ease of understanding and handling.

1.2 Safety symbols

Meaning	Symbol
GENERAL DANGER SYMBOL If the required safety instructions are not observed, this can lead to death, severe injuries and severe property damage.	
IMPORTANT NOTICE If you do not heed this notice, this can lead to problems with the unit.	
OBSERVE THE INSTALLATION AND OPERATING MANUAL If you do not heed the notices in the installation and operating manual, this can lead to problems with the unit.	

Warning sign

The warning signs used in the installation and operating manual indicate specific dangers.

Meaning	Warning sign
Warning of danger of falling If the required safety instructions are not observed, this can result in death or serious injuries due to falling.	
Warning of danger of slipping If the required safety instructions are not observed, this can result in death or serious injuries due to slipping.	
Warning of electrical voltage If the required safety instructions are not observed, this can result in death or serious injuries due to hazardous electrical voltage.	
Warning against suspended loads If the required safety instructions are not observed, this can result in death or serious injuries due to suspended loads.	
Warning of falling objects If the required safety instructions are not observed, this can result in death or serious injuries due to falling objects.	
Warning of hot surfaces If the required safety instructions are not observed, this can result in death or serious injuries due to hot surfaces.	
Warning of danger of crushing If the required safety instructions are not observed, this can result in death or serious injuries due to crushing.	

Meaning	Warning sign
Warning of sharp objects If the required safety instructions are not observed, this can result in death or serious injuries due to sharp objects.	
Warning of hand injuries If the required safety instructions are not observed, this can result in death or serious injuries.	
Warning of poisonous substances If the required safety instructions are not observed, this can result in death or serious injuries due to poisonous substances.	

Prohibition sign

The prohibition signs used in the installation and operating manual indicate instructions to be observed.

Meaning	Prohibition sign
Wear eye protection If you do not wear eye protection, there is a risk of eye injuries.	
Wear foot protection If you do not wear foot protection, there is a risk of foot injuries.	
Wear hand protection If you do not wear hand protection, there is a risk of hand injuries.	
Wear head protection If you do not wear head protection, there is a risk of head injuries.	
Wear a mask If you do not wear respiratory protection, this can lead to poisoning and chemical burns to the lungs.	
Isolate before maintenance or repair If you do not isolate the unit before maintenance or repair from all energy sources, this can result in serious injuries.	

1.2.1 Abbreviations

PPE: Personal protective equipment: such as cut-proof gloves, safety goggles, work gloves, ear protection, helmet, mask

1.3 Legal notices

All specified data serve solely to describe the product. No statement on a specific characteristic or suitability for a specific purpose can be derived from these data. The data do not exempt the user from his own judgement and checks.

2 Safety instructions

2.1 Intended use

The range of application of these units is exclusively ventilation and extraction in rooms and buildings, maintenance of the required indoor climate and reduction of the content of dust and other contaminants in the air. The EASYAIR® unit is suitable for operation in the temperature range from -20°C to +40°C. Deviating ranges of application must be agreed with the manufacturer.

The risk is borne solely by the user. For the intended use, the unit must be professionally installed and operated as intended. To do this, observe the relevant chapters (see chapter “5 Assembly” on page 23 and chapter “7 Integrated control” on page 41). Furthermore, intended use also includes compliance with the operating and maintenance conditions listed in the installation and operating manual (see chapter “6 Commissioning” on page 38 and chapter “8 Servicing and maintenance” on page 44).

- The unit is an air handling unit for air conditioning.
- Only operate the EASYAIR® unit when fully assembled.
- Set up the unit horizontally, otherwise there is a risk that puddles may form, among other things.
- Protect the unit against moisture.
- Only original spare parts from AL-KO THERM are to be used.
- Children and people who are not familiar with the unit may not use it.
- Observe all accident prevention and fire protection regulations.

2.2 Foreseeable misuse

The AL-KO EASYAIR® may only be operated within the scope of the technical data specified by AL-KO THERM. Any use other or more extensive than that described in the section “2.1 Intended use” on page 10 is regarded as not in accordance with the intended use. The manufacturer cannot be held liable for damage resulting from this.

Possible misuse includes:

- Non-horizontal setup of the unit.
- Conveying media with impermissibly high or low temperatures.
- Conveying aggressive or heavily dust-containing media.
- Installation in an environment with aggressive media (e.g. sea air) or heavily dust-containing media (coast).
- Use in an explosive atmosphere.
- Installation of a non-permissible joint seal.
- Non-compliance with the static limits (customer supplied equipment).

2.3 General safety instructions

⚠ WARNING

Risk of serious injury or death due to working without personal protective equipment!

Working on the EASYAIR ® without PPE can result in serious injury or death.

- Observe the safety instructions in this installation and operating manual.
- Use the personal protective equipment when working on the installation.
- Use other protective equipment according to the work carried out.

⚠ WARNING

Risk of severe injuries or death!

Working on the EASYAIR ® can result in serious injury or death.

- Only allow assembly, installation, commissioning, repair, maintenance and servicing work to be carried out by qualified staff.
- Before repair and maintenance work, disconnect the EASYAIR® from the mains on all poles and secure to prevent restart.
- Integrate weatherproof units into the lightning protection concept when installed outdoors.
- Avoid sparks and flying sparks in the intake area of the installation.
- Observe the working instructions and this installation and operating manual.
- Work with care.
- Use the personal protective equipment when working on the installation.
- Use other protective equipment according to the work carried out.

⚠ WARNING

Risk of injury due to falling and falling modules.

When installing the modules or installing them on platforms or on the roof, persons may fall off and/or modules may fall down.

- Only allow assembly, installation, commissioning, repair, maintenance and servicing work to be carried out by qualified staff.
- Observe the installation instructions in this installation and operating manual.
- Use only tested ladders, scaffolding or suitable platforms.
- Only use suitable lifting equipment.
- Only use approved fasteners when installing the EASYAIR ® unit.
- Use the personal protective equipment when working on the installation.

⚠ WARNING

Risk of injury due to unauthorised opening.

- Keep the inspection doors/inspection covers closed during operation.
- Never open the unit during operation.
- You can only open the inspection doors/inspection covers using a tool.
- Observe the hazard warnings on the inspection doors/inspection covers.

⚠ WARNING

Risk of poisoning when working with sealants, adhesives and pre-treatment agents.

- Do not touch the sealant, adhesive or pre-treatment agent.
- Work with care.
- Do not swallow the sealant, adhesive or pre-treatment agent.
- Ensure that there is adequate ventilation at the workplace.
- Observe the safety data sheets and operating procedures in accordance with the Ordinance on Hazardous Substances.
- Use personal protective equipment during all work on the installation.

⚠ WARNING

Risk of injury from falling from ladders, scaffolding or work platforms.

- Only use suitable and tested ladders, steps, scaffolding and work platforms.
- Work with care.

Observe the safety instructions in this installation and operating manual to avoid injuries, fires and other hazards due to improper use and improper operation of the unit:

- The version and construction of the EASYAIR® unit complies with the standards listed in the Declaration of Conformity or Declaration of Incorporation. A potential hazard can only be extensively ruled out if the other applicable standards for the overall system to be completed and installed by the plant manufacturer are adhered to.
- If installation is performed contrary to our regulations, and the defect/damage which has occurred is attributable to improper modification, processing or any other treatment, all damage compensation or warranty claims are ruled out. The orderer must prove that improperly installation did not cause the defect which has occurred.
- Safety and monitoring equipment must not be removed, bridged or disabled in any other way.
- All contracted persons must have read and understood the installation and operating manual in full before working on the unit and must observe it!
- To avoid hazards within operation, all of the user's company, operating and working instructions apply in addition to this installation and operating manual.

2.3.1 Safety instructions for operation

- The installation may only be operated in the performance range specified in the technical documents from AL-KO THERM.
- The EASYAIR® must be installed properly and used subject to precise observation of our installation and operating manual.
- Only operate the EASYAIR® when it is fully assembled and with correctly fitted contact protection.
- The EASYAIR® may only be operated in technically flawless condition. Malfunctions and damage that can affect safety must be rectified immediately and professionally.
- The version and construction of the EASYAIR® unit complies with the standards listed in the Declaration of Conformity or Declaration of Incorporation.

- All electrical parts are protected with fixed, securely fastened covers consisting of insulating material (switch cabinet hood) which can only be removed using tools.
- Avoid sparking in the vicinity of the EASYAIR® unit.
- Wear personal protective equipment (e.g. ear protection) during operation of the EASYAIR® unit.

2.3.2 Safety instructions for maintenance

- Damaged parts are only permitted to be replaced with original spare parts.
- For repair and maintenance work, disconnect the EASYAIR® from the mains supply at all poles.
- General maintenance instructions in the installation and operating manual of the AL-KO THERM must be observed under all circumstances.
- Observe the delay time of the fans. Observe a waiting time of at least 3 minutes, until the fan impellers are stationary, before opening the inspection doors.

2.3.3 Personal safety instructions

- The EASYAIR® may only be operated by persons who are trained in operating it and expressly authorised to use it.
- Personal protective equipment is required for work on the EASYAIR®!
- To avoid hazards during operation, all of the operator's company, operating and working instructions apply in addition to this installation and operating manual.
- The installation and operating manual must be kept at a suitable, known place in the workplace.
- The operator of the EASYAIR® unit must draw up operating procedures in an understandable form and in the language of the employees, taking the Installation and Operating Manual and the operating conditions into consideration.

2.4 Residual dangers

The installation may present a danger if it is not operated by trained personnel and/or is used improperly or not according to its designated use.

Residual hazards are potential dangers that are not immediately obvious, e.g.:

- Injuries due to failure to observe the safety instructions, standards, directives or regulations.
- Injuries caused by uncoordinated work.
- Danger caused by working on the electrical installation, cables and connections.
- Transporting, unpacking and setting up the unit; these may result in crushing, cutting, puncture or impact injuries.
- Tipping of the unit; uneven and loose surfaces promote unit tipping.
- There is a risk of stumbling, slipping, falling and falling down when setting up the unit and the accessory parts.
- There is a danger of electric shock due to damaged and defective electrical components.
- Electrical connection cable: Danger due to stumbling, falling and slipping.
- Noise (hearing damage).
- Human misconduct: Non-compliance of the safety instructions, standards and regulations.

2.5 Training

The owner of the AL-KO EASYAIR® must regularly train their personnel in the following subjects:

- Compliance with and use of the Installation and Operating Manual as well as statutory regulations.
- Intended operation of the AL-KO EASYAIR® unit.
- Observance of all company, operating and working instructions at the operator's installation site.
- What to do in an emergency.
- VDI 6022

3 Product description

- The exact type designation can be found on the type plates. The type plates are usually affixed to the housing. When ordering spare parts or in case of other queries, please specify the type designation of the EASYAIR® unit, the year of manufacture and the order number (see chapter “3.3 Sample EASYAIR® type plates” on page 18).
- The EASYAIR® unit is suitable for operation in the temperature range from -20°C to +40°C.
- The unit construction consists of two basic unit variants (with rotary heat exchanger or with plate heat exchanger). Expansion modules (such as heat exchanger/cooler (both water-led), electric heating register, sound absorber, filter or refrigerated part) are available as options. A more detailed explanation is given in sections 3.2.1 and 3.2.2. These unit versions are available both for indoor installation and as a weatherproof unit version.
- The customer-specific unit design can be found in the respective data sheets and drawings.

NOTE

Our products are subject to continuous quality control, and comply with the applicable regulations.

3.1 Functional description

EASYAIR® central ventilation and air handling units are compact and highly efficient air handling units with integrated control. These are optionally also available without integrated control.

Both the air handling units with rotary heat exchanger and the units with countercurrent plate heat exchanger achieve heat recovery rates of 80 – 90% according to DIN EN 308 (dry). The units therefore make a significant contribution to saving energy and reducing costs. Sound emissions are minimised by a comprehensive insulation.

Optional components for extended use are: Sound-decoupled unit connection, suction hood with droplet eliminator and tray, outlet hood, electric or water-heated heater module, heater/cooler module, filter module, refrigerated part, pressure sensors for pressure or volume constant control, air quality sensor, room temperature sensor, etc.

Due filter changes are indicated by the differential pressure filter monitoring system. All control functions are prepared and configurable in the control software. The control system can be easily integrated into higher-level systems via permanently configured bus systems. The communication protocols Modbus, LON, Bacnet/IP are available.

3.2 Technical data

IMPORTANT

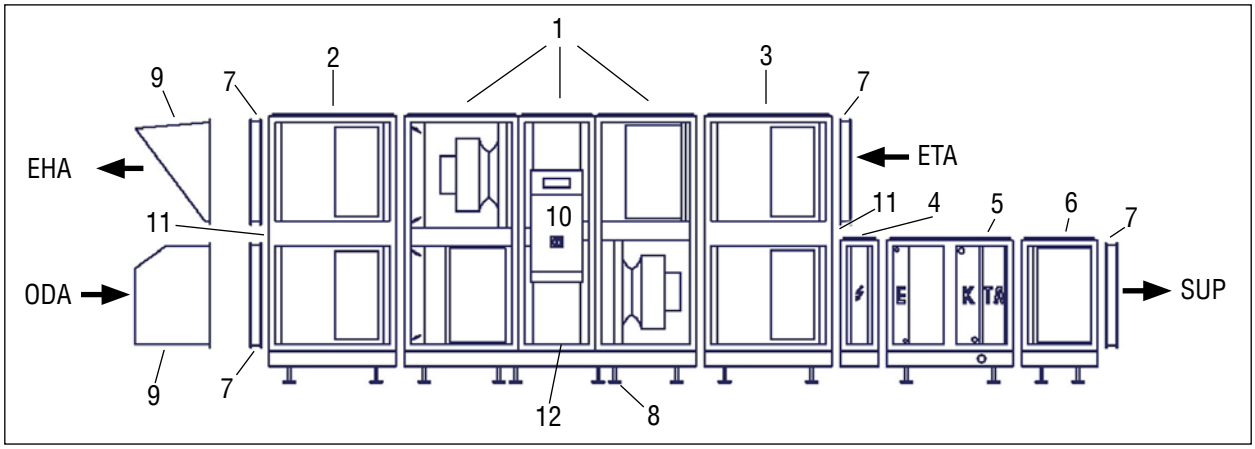
Read the documentation provided. There information on the technical and electrical data can be found.

- With the weatherproof unit design, the unit width widens by a total of 46 mm due to the roof overhang.
- When optionally available connection frames are used, the unit length is extended by 65 mm on both sides.

Vibration values of the fan impeller

Installation	Machine group	Good	Usable	Still permissible
Rigid up to 15 kW	K	0.7 mm/s	1.8 mm/s	4.5 mm/s

3.2.1 EASYAIR® with rotary heat exchanger

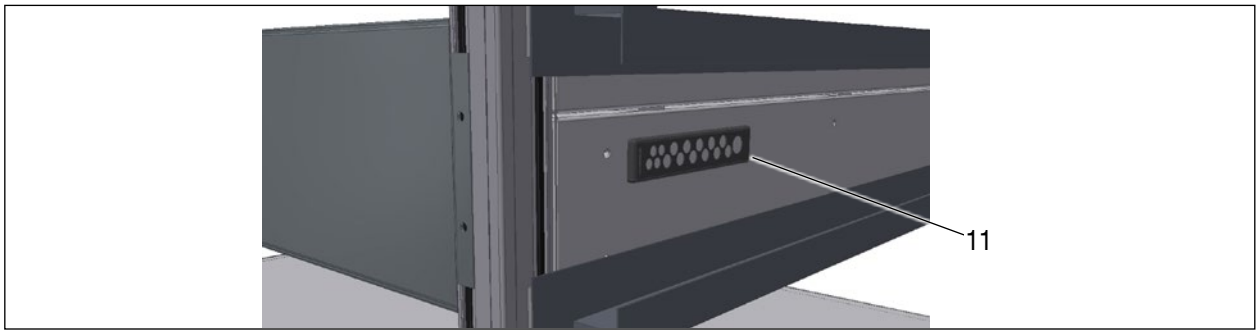


ODA	Outdoor air	SUP	Supply air
ETA	Exhaust air	EHA	Outgoing exhaust air

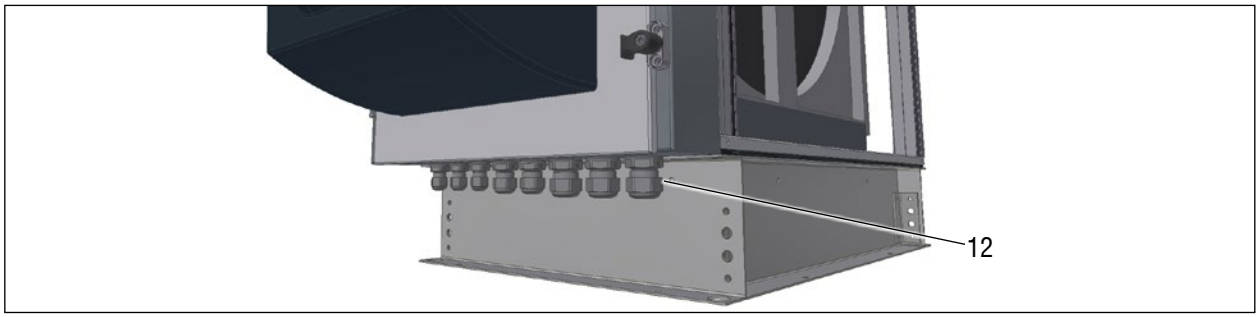
1	Base unit with ODA/EHA flaps, fans, filter, rotary heat exchanger and integrated switch cabinet	7*	Duct connectors (different versions possible)
2*	ODA/EHA silencer module	8*	Levelling foot (H = 98 - 136 mm)
3*	SUP/ETA silencer module	9*	Suction and outlet hoods with weatherproof housing design (ODA suction hood with integrated droplet eliminator and base tray)
4*	Heater module (either water-led or electrical)	10*	Without integrated control
5*	Heater/cooler module (water-led) or cooling empty part with preparation for evaporator	11	Cable bushing plates for on-site electrical connection
6*	Filter module (2nd filter stage in the SUP)	12	Cable glands for on-site electrical connection

* available as an option

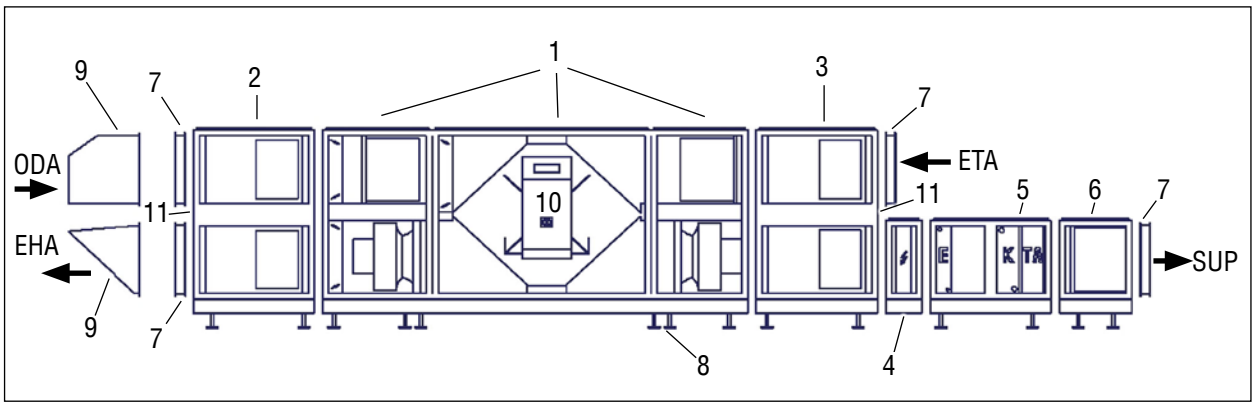
Detail of cable bushing plates for on-site electrical connection



Detail of cable glands for on-site electrical connection



3.2.2 EASYAIR® with countercurrent plate heat exchanger

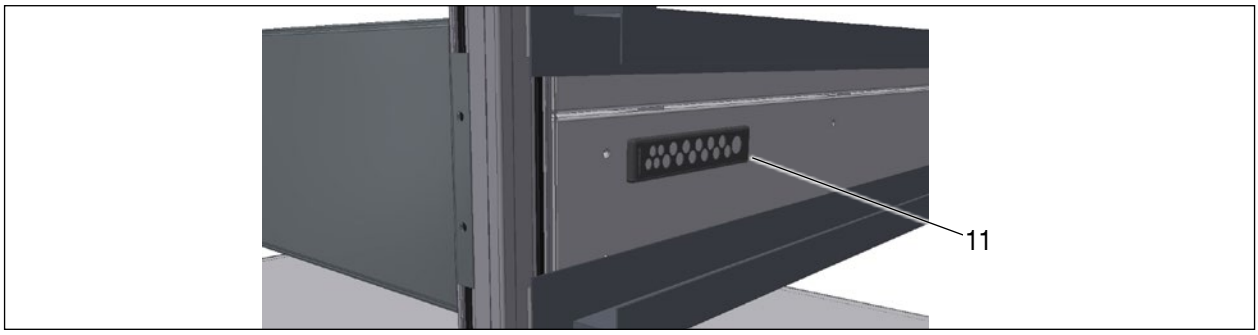


ODA	Outdoor air	SUP	Supply air
ETA	Exhaust air	EHA	Exhaust air

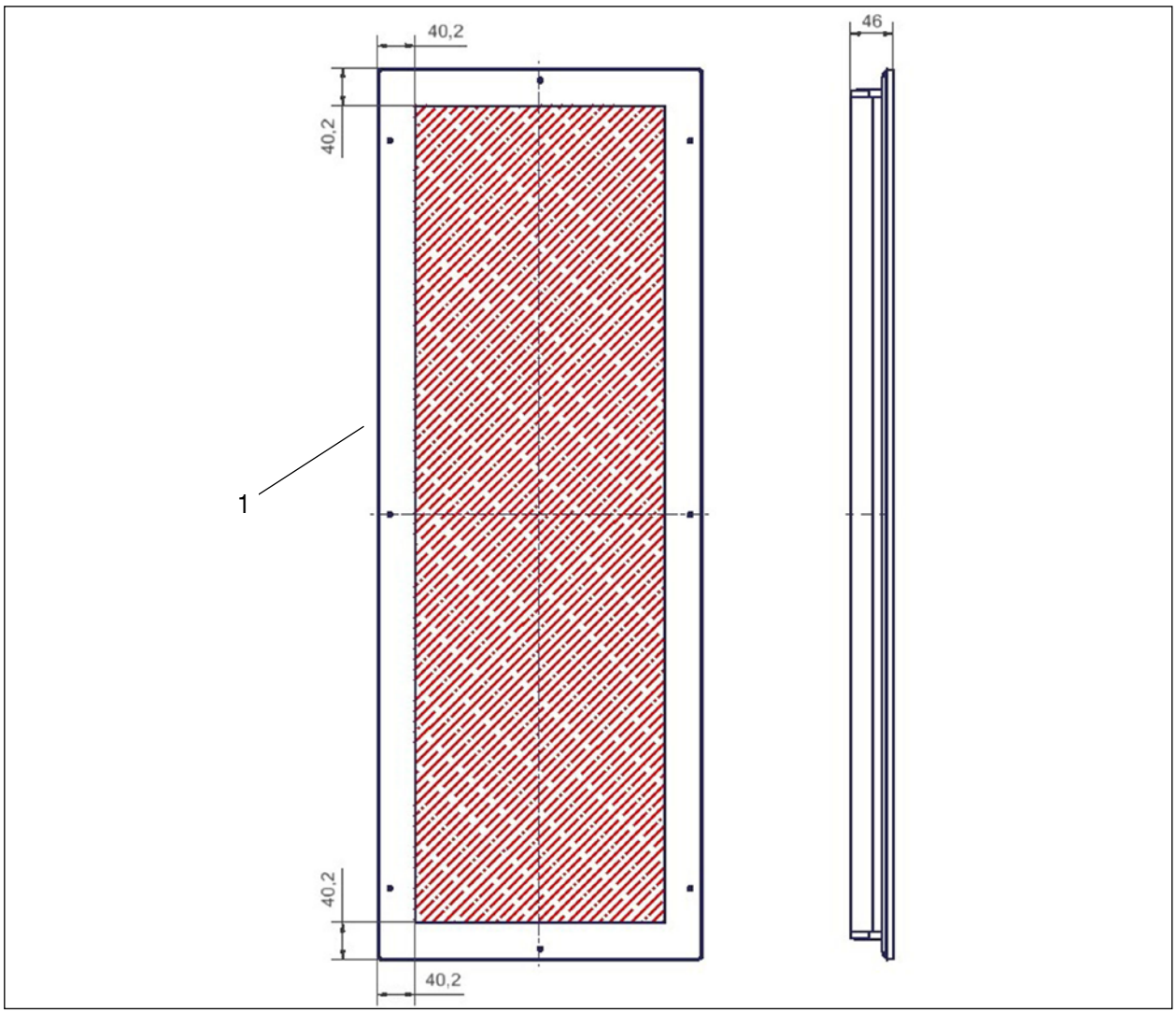
1	Base unit ODA/EHA flap, fans, filter, countercurrent plate heat exchanger and integrated switch cabinet	7*	Duct connectors (different versions possible)
2*	ODA/EHA silencer module	8*	Levelling foot (H = 98 - 136 mm)
3*	SUP/ETA silencer module	9*	Suction and outlet hoods with weatherproof housing design (ODA suction hood with integrated droplet eliminator and base tray)
4*	Heater module (either water-led or electrical)	10*	Without integrated control
5*	Heater/cooler module (water-led) or cooling empty part with preparation for evaporator	11	Cable bushing plates for on-site electrical connection
6*	Filter module (2nd filter stage in the SUP)		

* available as an option

Detail of cable bushing plates for on-site electrical connection



3.2.3 Holes for on-site exchanger connections



1	External view

IMPORTANT

Holes for exchanger connections may only be inserted in the cross-hatched area. Non-compliance leads to constructional damage to the panel!

3.3 Sample EASYAIR® type plates

- Each functional unit is assigned a separate type plate. The type plates contain the order number, position details, year of manufacture, manufacturer's data as well as the design data. These type plates are externally attached to the unit.

Type plate

AL-KO THERM GMBH

Hauptstrasse 248-250
D-89343 Jettingen-Scheppach

Order #: 3223611 Housing: H03/3
Type: EASYAIR 12x4/12x4 - Interior Pos.: 12 Date:2020

fan

	data per fan unit	
# units:	1	Supply air ☐
Air flow:	2.000 m^3/h	
Static increase of pressure:	997 Pa	
Total pressure:	0 Pa	
Nominal rated capacity:	1.18 kW	
Nominal rated speed(s):		
Nominal rated current:	1.80 A	
Nominal rated voltage:	380 .. 480 V	
Speed:	3.660 1/min	
Power Frequency:	50 Hz	
Max. speed:	4.000 1/min	
K factor:	76	

volume flow [m^3/h] = K factor x $\sqrt{\text{nozzle-pressure}}$ [Pa]

AL-KO THERM GMBH

Hauptstrasse 248-250
D-89343 Jettingen-Scheppach

Order #: 3223611 Housing: H01/1
Type: EASYAIR 12x4/12x4 - Interior Pos.: 12 Date:2020

rated volume flow unit: 2.000 m^3/h

filter

Class:	ePM10-55 % / M5	Supply air ☐
Manufacturer type:	KS50	
Initial pressure:	37 Pa	
End pressure:	200 Pa	

filter dimensions	length	count
592x287	360	1
287x287	360	1

4 Delivery, transport, storage

4.1 Delivery

- The EASYAIR® air handling units are delivered in the basic unit version as a complete unit (see chapter “3.2.1 EASYAIR® with rotary heat exchanger” on page 15 and chapter”3.2.2 EASYAIR® with countercurrent plate heat exchanger” on page 16).
- Electric heating register, heater/cooler module, silencer module, refrigerated part and filter module (second filter stage) are supplied as a separate unit.
- For indoor installation, this EASYAIR® basic unit version can optionally also be ordered in a separated version (separation, see unit drawing).
- The EASYAIR® is only to be transported, lifted and set up within the standard limitations of use (-20°C to +40°C).

4.2 Transport

⚠ WARNING

Danger of death - Suspended loads.

For crane transport, all valid safety conditions according to DGUV regulation 52 Cranes and DGUV Control unit 100- 500 chapter 2.8 must be observed.

- Do not walk under suspended loads!
- Use the specified attachment and mounting points.
- Observe the weight specifications.
- Only use suitable lifting equipment.

⚠ CAUTION

Risk of injury due to the module tilting or tipping over.

Non-compliance with the safety instructions, standards, directives and regulations leads to a risk of injury due to the unit tipping over.

- Observe the relevant standards, directives and regulations.
- Observe the instructions in this Installation and Operating Manual.
- Use the specified attachment and mounting points.
- Observe the weight specifications.
- Only work on on-site surfaces that are suitable for installation preparations and lifting.

IMPORTANT

- Uniform lifting of the unit components must be ensured!
- Only approved lifting equipment with a sufficient load capacity may be used.
- The lifting equipment must be in perfect condition.
- The lifting gear must be checked for load-bearing capacity and damage before use.
- Secure the load during transport.
- Use only suitable transport locks.
- If the maximum weights to be lifted are exceeded (per person), plan for a second person to help.
- The individual components of the installation may only be moved with the transport equipment provided for this purpose.
- Use only suitable transport devices and suitable industrial trucks.
- Maintenance doors must be kept closed at all times during transport.

- Ensure sufficient visibility during transport (accompanying persons, if necessary).
- No persons must be allowed to remain in the transport area.
- The unit must only be transported by trained and qualified staff under safety aspects.
- If using transport devices that require a driving licence, the personnel operating these units must have an applicable, valid driving licence for this.
- When transporting, observe the instructions in this Installation and Operating Manual and the relevant regulations on occupational safety and environmental protection.
- Only transport the unit upright and secure the unit against tipping and slipping.
- Avoid distorting the housing or other damage.
- Damage that results from improper packaging and transport are at the expense of the initiator.
- As described in chapters “4.2.2 Fork lift truck / pallet truck” on page 20 and “4.2.3 Crane transport using a base frame bracket” on page 21, the unit can be transported using a forklift or a crane.
- The EASYAIR® is only to be transported, lifted and set up within the standard limitations of use (-20°C to +40°C).

4.2.1 Transport under difficult conditions

- When transporting under difficult conditions (e.g. on open vehicles, under unusual vibration stress, transport by sea or in tropical/subtropical countries), additional packaging must be used that will protect against these particular influences.

4.2.2 Fork lift truck / pallet truck

The AL-KO EASYAIR® is supplied on squared timbers.

IMPORTANT

Always place the lifting forks of the forklift on the squared timbers.

Pay attention to any protrusions (e.g. floor drains).

- Before lifting the units, close the inspection doors/inspection covers!
- Use suitable fork lengths to avoid damage to the unit (front and rear base frame cross profile must rest on both forks)!
- Use suitable wood intermediate layers!

4.2.3 Crane transport using a base frame bracket

The AL-KO EASYAIR® is supplied with a base frame that is suitable for crane transport. Transporting the unit using the base frame bracket is permissible up to an overall weight of max. 1500 kg!

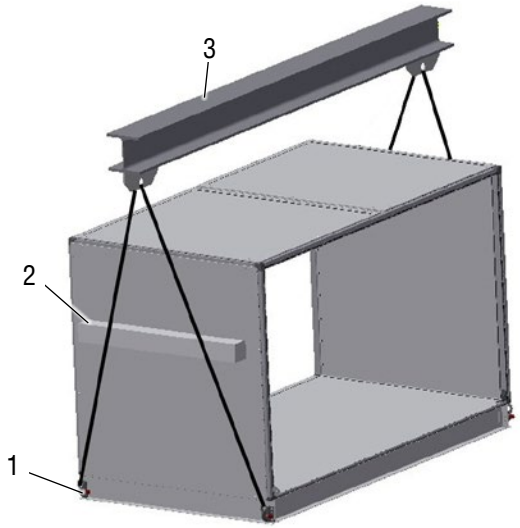
All EASYAIR® units are equipped as standard with a base frame with prefabricated mounting holes for the base frame bracket. Crane transport is also possible in the case of subsequent assembly of these base frame brackets.

⚠ WARNING

Danger of death - Suspended loads and crane transport!

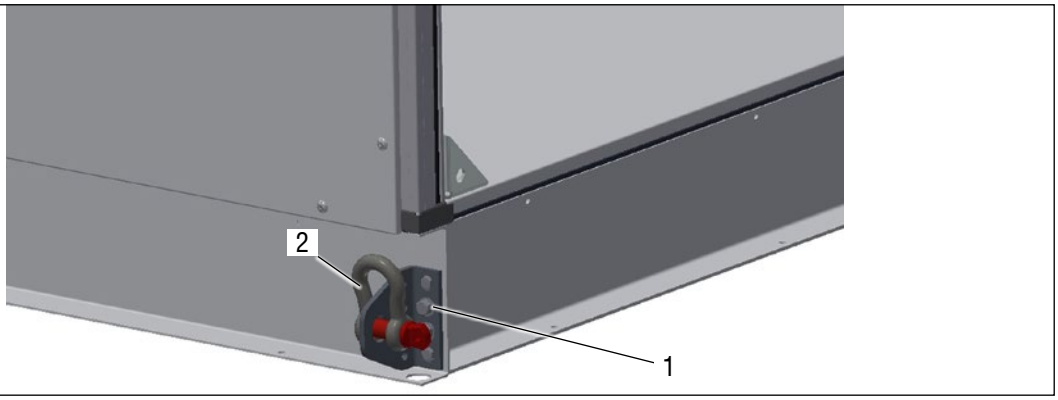
Observe the local and legal regulations and the rules of the professional associations.

- Do not walk under suspended loads!
- Do not work under suspended loads.
- Use the specified attachment and mounting points.
- Observe the weight specifications.
- Only use suitable lifting equipment.
- Only use suitable industrial trucks and lifting equipment (crane).
- Only use suitable positioning tools.
- Attach suitable load securing equipment before lifting the load.
- Wear personal protective equipment.



1	Base frame bracket
2	Spacer (on-site)
3	Spreader beam, chains or slings (on-site)

- Use lifting equipment that complies with the regulations.
- Secure attachment equipment (ropes, chains, lifting slings) to the base frame brackets protruding from the sides.
- In the case of narrow and high unit components, it is important to ensure that the component is not tilted during transport (additional protection).
- The angle between the two traction ropes, chains or lifting slings may not exceed 60° and the angle between the vertical frame profile and the traction rope, chain or lifting sling may not exceed 30°.



1	Base frame bracket
2	Shackle (on-site)

Step	Action
1	Before lifting the units, close the inspection doors/inspection covers.
2	Use only approved and tested transport harnesses to attach them to the intended mounting points.
3	For subsequent crane transport, you must attach the base frame brackets to the base frame. Only use the fastening material supplied by us.

4.3 Storage prior to assembly

- Store the individual functional parts dry and protected from weather in their original packaging.
- Cover open pallets/unpackaged units and housing parts with tarpaulins, and protect the functional parts from dirt (e.g. chips, stones, wire, etc.).
- Constant and, above all, abrupt temperature changes must be prevented during storage. In this case, there is a danger that moisture may condense. As a result, mould can form.
- To avoid bearing damage, the fan must be rotated monthly if at a standstill for more than one month.
- For storage periods of more than 1 year, check the ease of movement of the fans' bearings (by turning by hand) before assembly.
- Avoid distorting the housing or other damage during storage.
- Damage resulting from improper packaging and storage are at the expense of the person responsible.

4.4 Disposal of packaging

When disposing of the packaging, comply with the relevant local environmental and recycling regulations in your country and community that are applicable at the time when the activity is undertaken.

5 Assembly

5.1 Safety instructions for assembly

⚠ WARNING

Risk of injury due to impact, cutting or stabbing during assembly/installation of the modules.

- Only have assembly, commissioning, maintenance and repair work carried out by trained qualified staff!
- Observe the working instructions and the Installation and Operating Manual.
- Work with care.
- Use personal protective equipment when working on the installation.
- Use other protective equipment according to the work carried out (cut-proof gloves).

⚠ WARNING

Risk of injury when installing the unit modules on platforms or on the roof.

When assembling the unit modules, the tool/housing material can fall off in the event of careless operation.

Due to the working height, there is a risk of falling.

- Use only suitable industrial trucks and lifting equipment (crane) and suitable positioning aids.
- Only use suitable and tested ladders, steps, scaffolding and work platforms.
- Work with care.
- Wear personal protective equipment.

⚠ CAUTION

Risk of crushing the limbs and cutting injuries on sharp edges during assembly/installation of the modules.

- Only have assembly, commissioning, maintenance and repair work carried out by trained qualified staff!

- Use assembly aids when installing the modules and components.
- Work with care.
- Wear personal protective equipment (cut-proof gloves).

IMPORTANT

Before assembly and commissioning, it is essential to read and observe the Installation and Operating Manual.

- The AL-KO EASYAIR® is delivered with its components pre-assembled.
- For the installation of the modules, in particular in the separated design of the indoor units, special attention must be paid to the arrangement of the filter and fan modules. Be sure to use the unit drawing supplied with the unit for this purpose.
- Assembly or disassembly work may only be carried out by persons with appropriate training, knowledge and experience.
- Work on electrical and mechanical equipment or components are to be carried out by trained and authorised specialists only.

5.2 Preparations

IMPORTANT

The installation site must be designed for the loads of the entire HVAC unit as well as for the components installed on site!

A check by a structural engineer may be necessary!

- Observe the condition of the substrate.
- Check the individual components for transport damage.
- Select the installation site with regard to good accessibility for maintenance and repair work.
- Ensure that the components and the connection cable at the installation site cannot be either damaged or contaminated by oil or other materials.
- Check that fuses, contactors and circuit boards are securely in place in the switch cabinet.
- Re-fasten any loose components.
- Connect the equipotential bonding to the connection piece or connection frame.

1	Equipotential bonding cable

- The fresh air intake must be designed in accordance with the applicable standards and should be located away from exhaust air outlets or exhaust openings (kitchen, laundry, etc.).
- If possible, the exhaust air must be discharged via a roof hood away from fresh air inlets, windows, balconies, etc.
- With the weatherproof unit version, the optionally available suction/exhaust hoods for transport are only affixed to the unit. The applicable rules/standards regarding the fresh air intake and the exhaust air outlet must be observed for the assembly process.

NOTE

Components that come loose during transport can lead to malfunctions or damage.

5.2.1 Space requirements

- Sufficient space must be available to operate and maintain the unit (see VDI 2050 "Requirements on central technical systems").
- In general, it must be ensured during installation that the unit remains freely accessible for maintenance purposes.
  - During setup and installation, in particular of the connecting pipework, it must be ensured that the inspection doors can always be opened and that the swivel range is kept clear.
  - According to VDI 6022, the removability of system components such as heat exchangers, droplet eliminators etc., must be guaranteed.
- The installation height of the siphon for condensate drain lines (optional) must be taken into account when setting up the unit.

5.2.2 Foundation

- The units must be installed on rigid, horizontal foundations (DIN 18202) or substructures.
- Unevenness of the substrate must be compensated using appropriate measures (e.g. underlays, etc.).
- The foundation version must meet the on-site requirements for the acoustics (structure-borne sound insulation underlay) and the professional water drainage of the condensate.
- The unit must be professionally connected to the foundation in accordance with the on-site conditions. Points to be considered here include the wind loads, in particular for weatherproof units.

5.3 Assembly of separated housing

IMPORTANT

Before assembly and commissioning, it is essential to read and observe the Installation and Operating Manual.

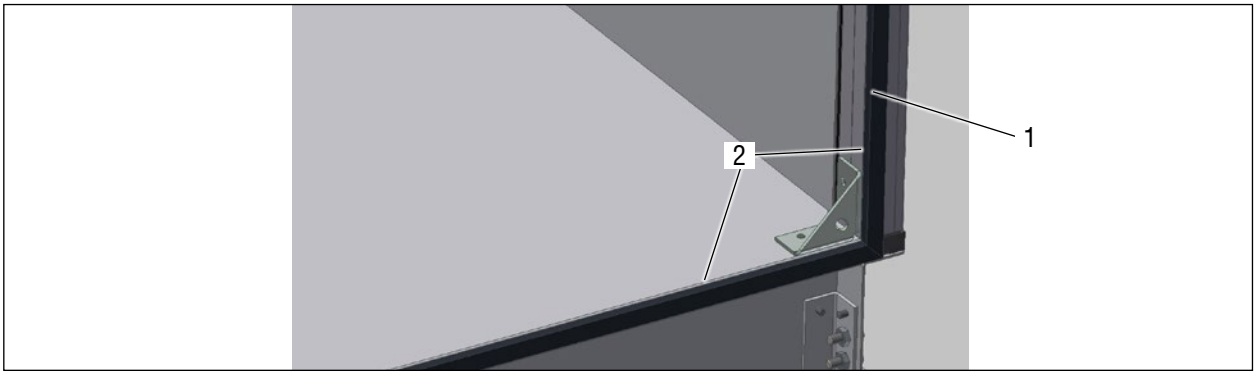
The assembly instructions of the optional/separated modules can be found in the supplied unit drawing.

NOTE

To meet the requirements of the VDI 6022, all unit separation points must be sealed with microbially inert sealing material in the base area.

5.3.1 Housing separation point seal for indoor installation

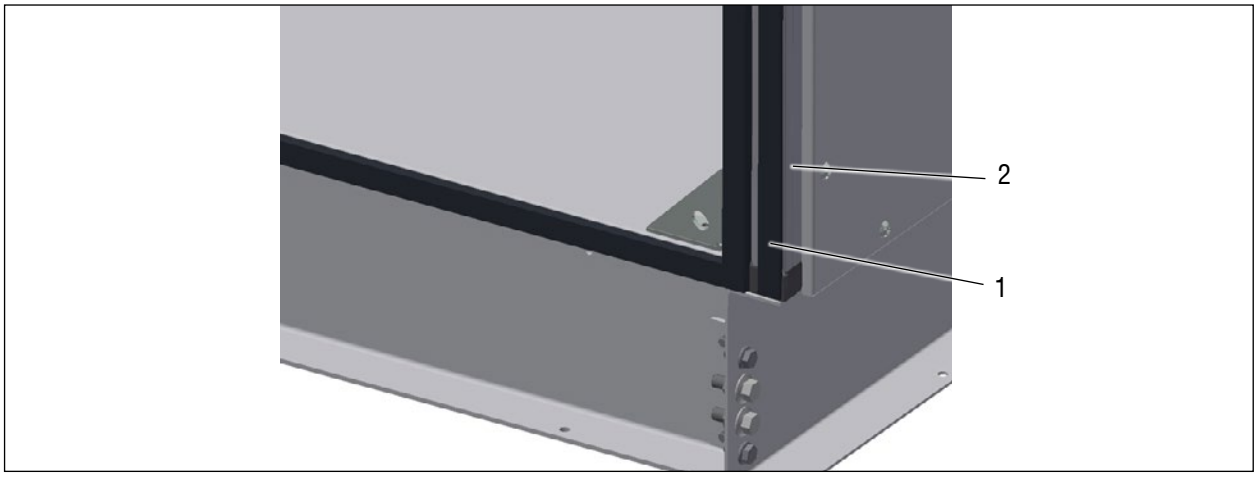
- Affix the enclosed sealing tape (5x15) to the decoupling profile flush with the inside edge.



1	Sealing tape 5 x 15	2	Inside edge

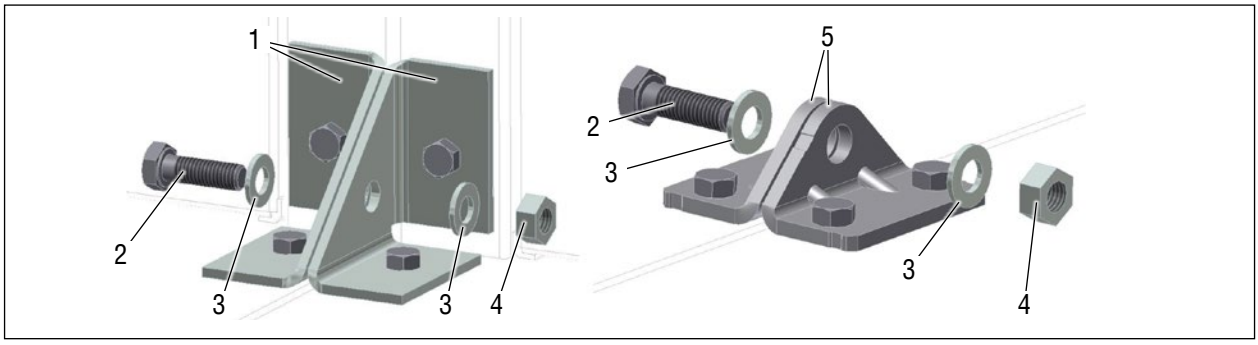
5.3.2 Housing separation point sealing for outdoor installation (weather-proof)

- In the case of outdoor installation, an additional sealing strip (3x15) must be applied to the left and right of the housing frame, flush with the outer edge of the housing.



1	Sealing tape 3 x 15	2	Outer housing edge

5.3.3 Connecting the separated housing



1	Gusset plates	4	Hexagon nuts
2	Hexagon head bolts	5	Connecting bracket
3	Washers		

In the case of units with a separated version, the modules of the basic unit as well as the optional modules, for example, must be assembled on the construction site. To do this, proceed as follows:

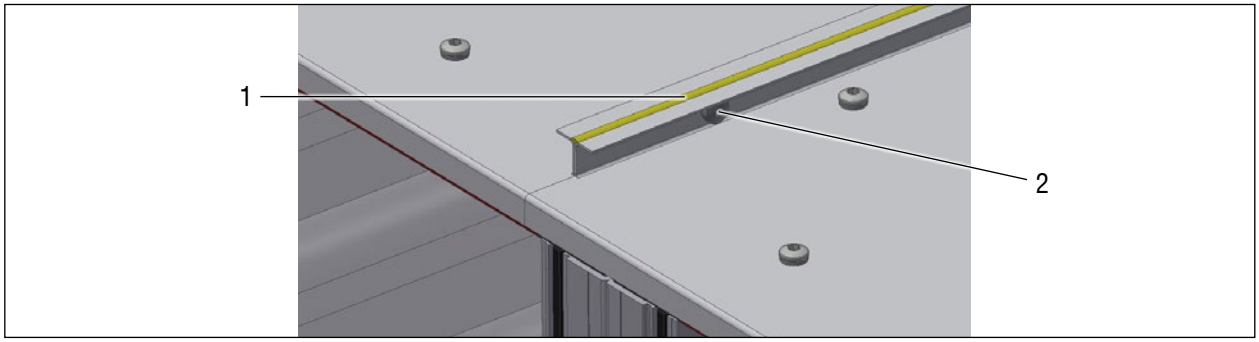
Step	Action
1	Position the unit modules together at spaces up to approx. 200 mm.
2	Before final alignment, connect the electric cable and the hoses together. Corresponding, colour-coded and labelled plugs are attached to the ends of the cables to prevent the connections being interchanged in error. In the case of units with constant pressure in combination with silencer modules, the hose for atmospheric measurement must be placed in the intermediate floor of the silencer module. This is indicated by information stickers.
3	Place and align the unit modules as close to each other as possible.
4	Draw them together using suitable aids (e.g. belts) and connect via the unit connections using the screws provided. The unit connections are used exclusively to fix the final housing position!
5	Lastly, insert the hexagon head bolts into gusset plates and, if necessary, connecting brackets and secure with washers and hexagon nuts.

NOTE

It is not permitted to put together the housing via the unit connection; damage to the unit caused by this is at the expense of the initiator.

5.4 Roof assembly of optional modules (weather-proof)

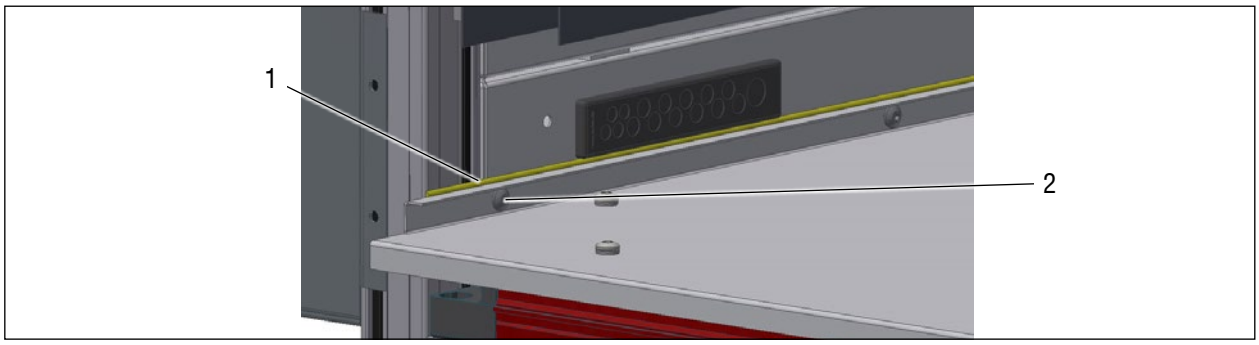
Level-height roof



1	Joint material (Sikaflex 221 RLT)	2	Blind rivet 4.2x8

Step	Action
1	Before assembling the housing parts, apply the supplied joint material (Sikaflex 221 RLT) to the sheet metal flange below and above the row of holes without gaps.
2	Connect the roof ridges to the blind rivet via the corresponding holes.
3	Remove excess joint material (Sikaflex 221 RLT) after assembly by gently tilting upwards.

Vertically offset roof



1	Joint material (Sikaflex 221 RLT)	2	Blind rivet 4.2x8

Step	Action
1	Before assembling the housing parts, apply the supplied joint material (Sikaflex 221 RLT) to the sheet metal flange below and above the row of holes without gaps.
2	Connect the roof ridge to the frame using the drilling screw via the corresponding holes.
3	Remove excess joint material (Sikaflex 221 RLT) after assembly by gently tilting upwards.

5.5 Mechanical connection

⚠ WARNING

Risk of crushing

When installing the duct connections as well as the intake and exhaust hoods, the multi-leaf damper must be closed. When closing the multi-leaf damper, there is a risk of crushing injuries to the hands.

- Do not reach into the damper when closing the multi-leaf damper.
- Wear the personal protective equipment.

5.5.1 Duct connection

The duct system of the ventilation directs the outdoor air to the air handling unit and as supply air into the building. The exhaust air is passed through the unit and to the outside as exhaust air for heat recovery.

Duct connectors (option)

For all EASYAIR® air handling units, you will receive attached, sound-decoupled connectors that use the entire free unit cross-section.

- The connection of the ventilation ducts to the unit must be carried out professionally.
- The duct connection must be mounted distortion-free and free of load on the EASYAIR® air handling unit!
- Establish pre-assembled equipotential bonding on the duct.

Requirements for the duct system

In favour of efficiency, energy consumption and air performance of the unit, the pipe system must be designed for slow flow speeds and low pressure drop.

- All connections between the ventilation ducts and air handling unit must be designed and secured to fit exactly.
- Inspection openings must be provided.

Condensation protection/thermal insulation

Outdoor air and exhaust air ducts must always be well insulated to protect against condensation.

- Careful insulation of all ventilation ducts leading directly to the unit and in cold rooms/zones is particularly important.

5.5.2 Intake and exhaust hood (option)

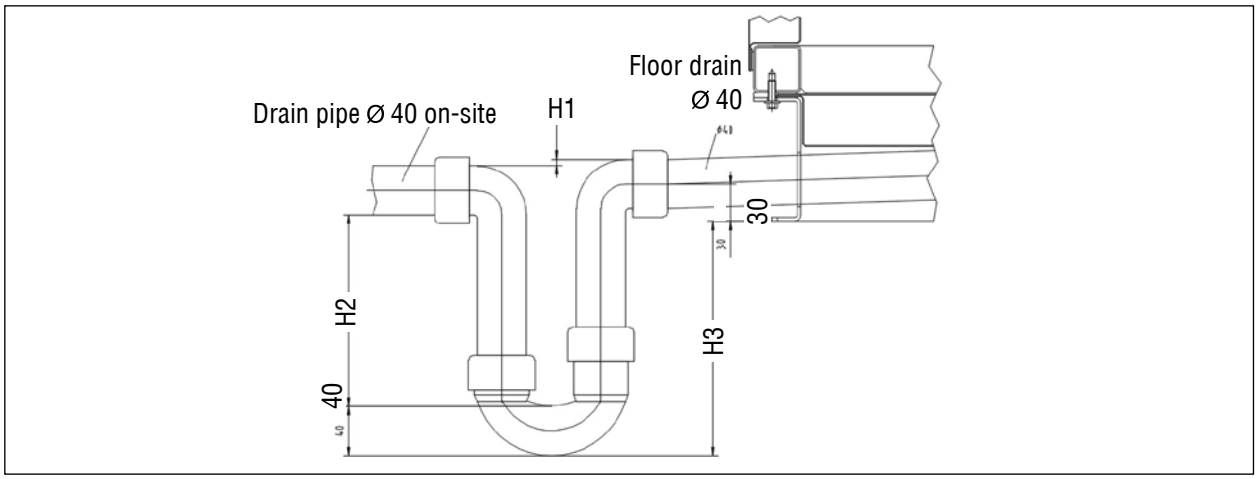
- For a weatherproof version, an optional intake and exhaust hood can be ordered.
- For units without a factory-delivered intake hood, a drain tray must be provided on site at the unit inlet and in the duct.
- To avoid short-circuit currents, these position and orientation of these hoods must be adjusted, depending on the local conditions, using the on-site duct sections.
- For weatherproof implementation, the optionally available intake/exhaust hoods are only attached to the unit for transport. The applicable rules/standards regarding the fresh air intake and the exhaust air outlet must be complied with in this regard.

5.5.3 Siphon connection

- Condensate drain lines must be connected to the drain system with a snake siphon. A direct connection of water drains to the drain system is not permitted!

NOTE

The standing height of the respective siphon must be designed for the underpressure or overpressure of the air handling unit to prevent suction or blowing out of air from the closed drain pipe. For a weatherproof version, the pipe trace heating is to be provided. The pipeline must be protected against environmental influences.



*Dimension H3 below equipment installation level

Height	minimal	maximal	Overpressure up to 800 Pa	Vacuum up to 800 Pa
H1	0	130 mm	50 mm	mm WC + 50 mm
H2	55 mm	145 mm	1.5 * mm WC + 25 mm	mm WC / 2 + 50 mm
H3	100 mm	210 mm	H2 + 40 mm	H1 + H 2 - 10 mm

WC = water column

10 Pa = 1 mm WC

NOTE

The installation height of the siphon must be taken into account when setting up the unit.

Observe minimum dimensions H1-H3!

5.6 Electrical connection

⚠ DANGER

Hazard due to electric current.

Incorrect connection to the energy supply or incorrect installation of electrical components can result in electric shock.

- Only have the electrical connection carried out by an approved electrician.
- Perform the connection exactly according to the circuit diagram and the assignment plan.
- Observe the valid DIN and VDE regulations.
- Observe the directives of the local energy supply company.
- Use the personal protective equipment when working on the installation.
- Use other protective equipment according to the work carried out.
- Do not operate the unit with defective or damaged cables or plugs.
- Regularly check the connection cables for damaged areas.
- Use only the permissible tool.
- Shut off the power supply for maintenance work and secure it to prevent restart.
- Observe the electrical safety regulations.

5.6.1 Connection of room control panels (option)

- Connection of room control panels, see circuit diagram.

5.6.2 Connection of the field devices to the control

- Connection of field devices to the control, see circuit diagram.

5.6.3 Assembly / connection of supply air, outdoor air, exhaust air temperature sensor

- Electrical connections, see circuit diagram.

NOTE

In the EASYAIR®, a frost protection sensor is installed at the factory.

This is used to monitor the frosting of the heat recovery.

Outdoor air temperature sensor

- To detect the outside temperature without interference, the sensor must be placed in the weather protection grille or in the outdoor area.

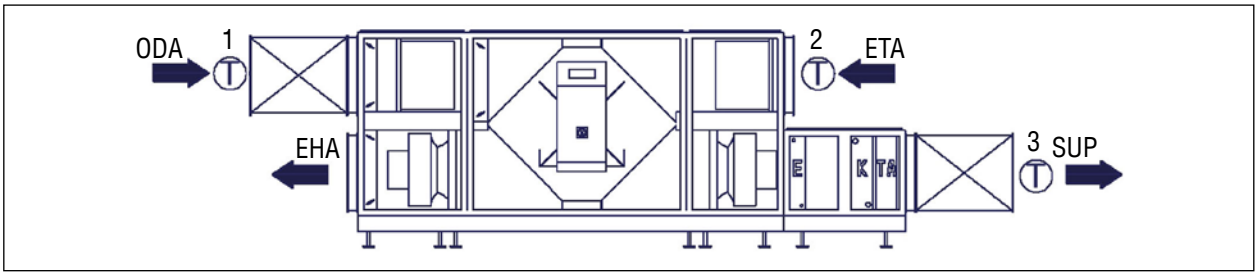
Exhaust air temperature sensor (factory-mounted)

- To measure the exact exhaust air temperature, this temperature sensor* is mounted directly on the intake flange of the exhaust air duct. This avoids any changes in the exhaust air temperature due to external influences in the duct network.

* Optionally, an external room temperature sensor can be positioned inside the heated rooms. This replaces the factory-mounted sensor and is connected to the control system.

Supply air temperature sensor

- To measure the supply air temperature without interference, the supply air sensor must be installed in the duct behind the air handling unit. Assembly directly at outlet of the supply air duct is ideal.



1	Position of outdoor air temperature sensor (ODA)	3	Position of supply air temperature sensor* (SUP)
2	Position of exhaust air temperature sensor (ETA)		

* Assemble supply air temperature sensor (SUP) at least 3 m behind the unit!

5.6.4 Connection of electric air heater (option)

An electric air heater is optionally available for heating the supply air.

- The additional unit must be flanged to the main unit (see chapter “5.3 Assembly of separated housing” on page 25).
- The electrical connection is to be carried out professionally on-site.

⚠ WARNING

Risk of injuries due to incorrect or faulty connection.

- Only have the electrical connection carried out by an approved electrician.
- Only have assembly, servicing and maintenance carried out by qualified staff.
- Wear personal protective equipment.

⚠ CAUTION

Risk of burns due to contact with the hot electric air heater.

- Wait until the hot electric air heater has cooled down.
- Wear personal protective equipment.

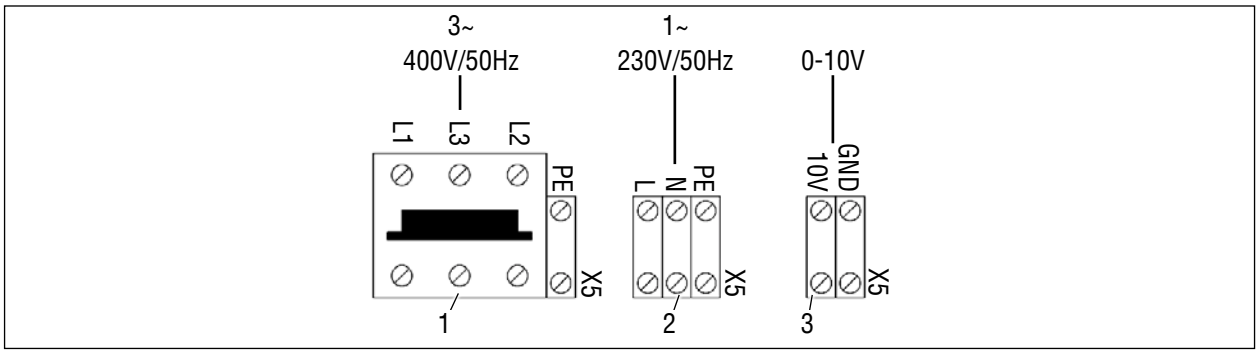
The air heater is included in the regulation for the room or exhaust air temperature and is continuously regulated according to temperature requirements. The air heater is equipped with an integrated safety temperature limiter and air flow monitor.

- For the use of an electric air heater, DIN VDE 0100-420 must be observed.
- A separate mains supply is required for the electric air heater.
- Connect the air heater electrically according to the circuit diagram.

NOTE

If the electric heating register is the last component before the on-site duct, a duct-side inspection opening must be provided directly on the register.

The following figure shows the connection terminals of the electric air heaters. Behind the connection terminals for the release voltage there is a safety chain of flow monitor and safety temperature limiter. These switch off the electric air heater if necessary.



1	Connection of power supply line	3	Connection of 0-100% power request
2	Connection of enabling voltage		

IMPORTANT

For units without integrated control, the flow monitoring must be evaluated on-site and a fan delay must be implemented!

5.6.5 Without integrated control (option)

In this unit version, a design hood (completely closed) is installed instead of the switch cabinet hood (with display and repair switch openings).

The following components and field devices are pre-wired on a terminal row:

- Supply/exhaust air fan
- Damper adjustings actuators
- Rotor controller (only for EASYAIR units with a rotary heat exchanger RO)

For the connection of the components and field devices, refer to the circuit diagram without the control.

5.6.5.1 Filter monitor

In this unit version, the ART VP4000 pressure transmitter is supplied loose with the unit for filter monitoring. This pressure transmitter with switching contact makes it possible to read the filter differential pressure directly on the unit.

If this filter monitoring is to be used not solely as a display unit, the pressure transmitter can be integrated directly into the on-site control technology.

5.7 Media connection of optional modules

5.7.1 Connection of hot water heater (option)

For heating the supply air, a pump hot water air heater (PWW) can be used. Extraction and emptying of the heat exchanger must be carried out on-site. The heat exchanger has an air-side frost protection thermostat.

- The additional unit must be flanged to the main unit (see chapter “5.3 Assembly of separated housing” on page 25).
- The feed and return lines are to be professionally connected on-site.

NOTE

Do not mix up the feed and return lines when connecting the pipelines.

The medium inlet is located on the air outlet side. (Fig.: Counterflow principle for heat exchanger connection).

IMPORTANT

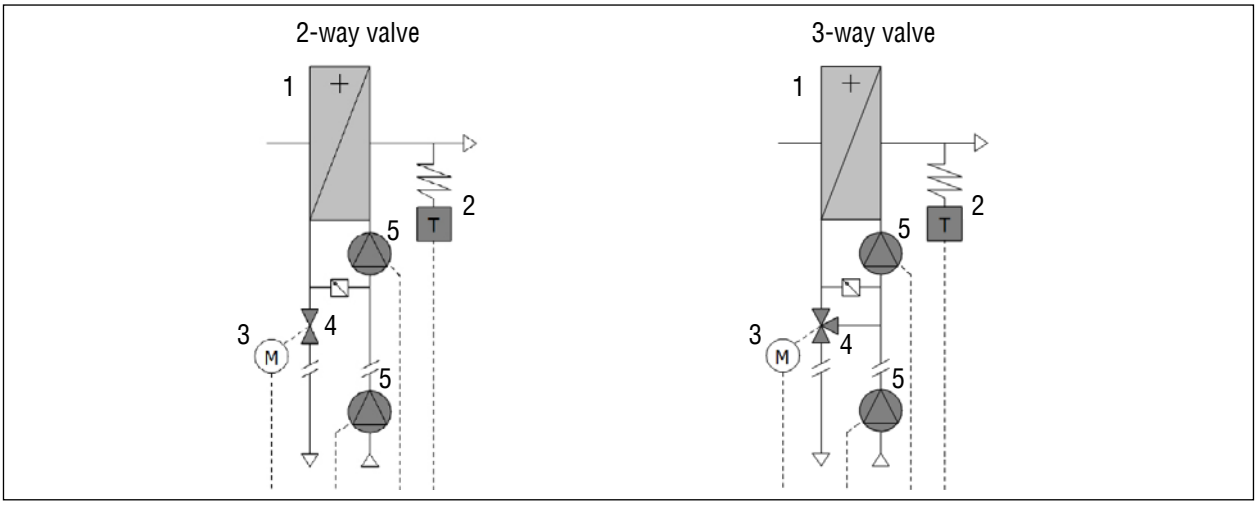
Counter-hold using a suitable tool (e.g. pipe wrench) during connection of the heat exchangers in order to avoid damage.

Install pipes and connections in such a way that the heat exchangers remain freely accessible for maintenance.

- Maximum working pressure: 16 bar
- Maximum hot water flow temperature: 120 °C

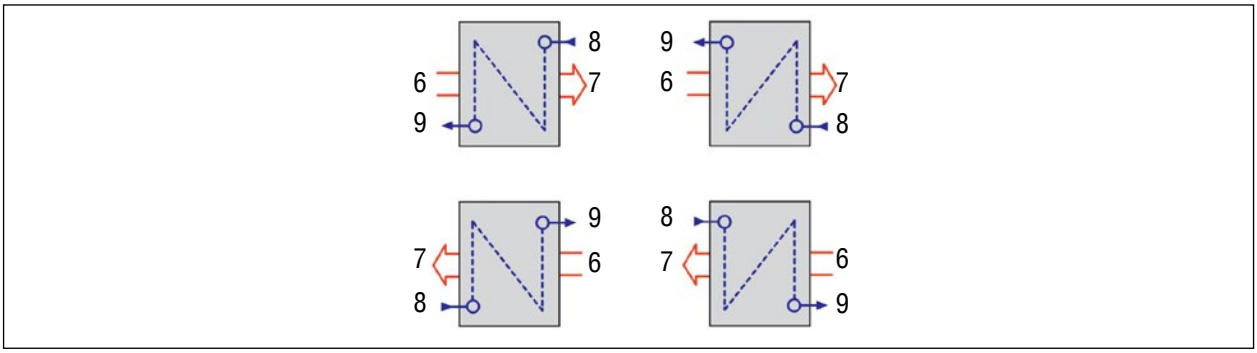
- Valves and actuators must be installed professionally. Please note here whether a version with a 2-way or 3-way valve is to be set up.
- For electrical connection of the actuator, see the circuit diagram.

2-way valve and 3-way valve versions



1	PWW heater	4	Valve
2	Frost monitor	5	Recirculation pump (on-site)
3	Valve actuator		

Counterflow principle for heat exchanger connection



6	Air inlet	8	Media inlet
7	Air outlet	9	Media outlet

IMPORTANT

If the unit version without the integrated switch cabinet has been selected, neither the valve nor the valve actuator are supplied. In this case, these are on-site services.

NOTE

The figure shows schematics only of the hydraulic connection of the heater. The exact hydraulic connection must be carried out at the discretion of the heating specialist.

If the heat exchanger is the last component in front of the on-site duct, a duct-side inspection opening must be provided directly on the register. This is used for inspection and cleaning.

Function

The heater is included in the control system for the room or supply air temperature. The heat output is metered by regulating the corresponding actuating valve.

IMPORTANT

At temperatures below freezing point, the heat exchanger must be either drained and blown out with compressed air, or filled with a commercially available antifreeze with corrosion inhibiting additive due to the risk of freezing and corrosion.

5.7.2 Connection of heater / cooler module (option)

A pump hot water heater (PWW) and pump cold water air cooler (PCW) can be provided for the additional heating and cooling of the supply air.

To avoid condensate transfer into the duct, a droplet eliminator (TA) is installed behind the cooler.

- The additional unit must be flanged to the main unit (see chapter “5.3 Assembly of separated housing” on page 25).
- The supply and return lines of both heat exchangers must be professionally connected.

NOTE

Do not mix up the feed and return lines when connecting the pipelines.

The medium inlet is located on the air outlet side (fig.: Counterflow principle for heat exchanger connection).

IMPORTANT

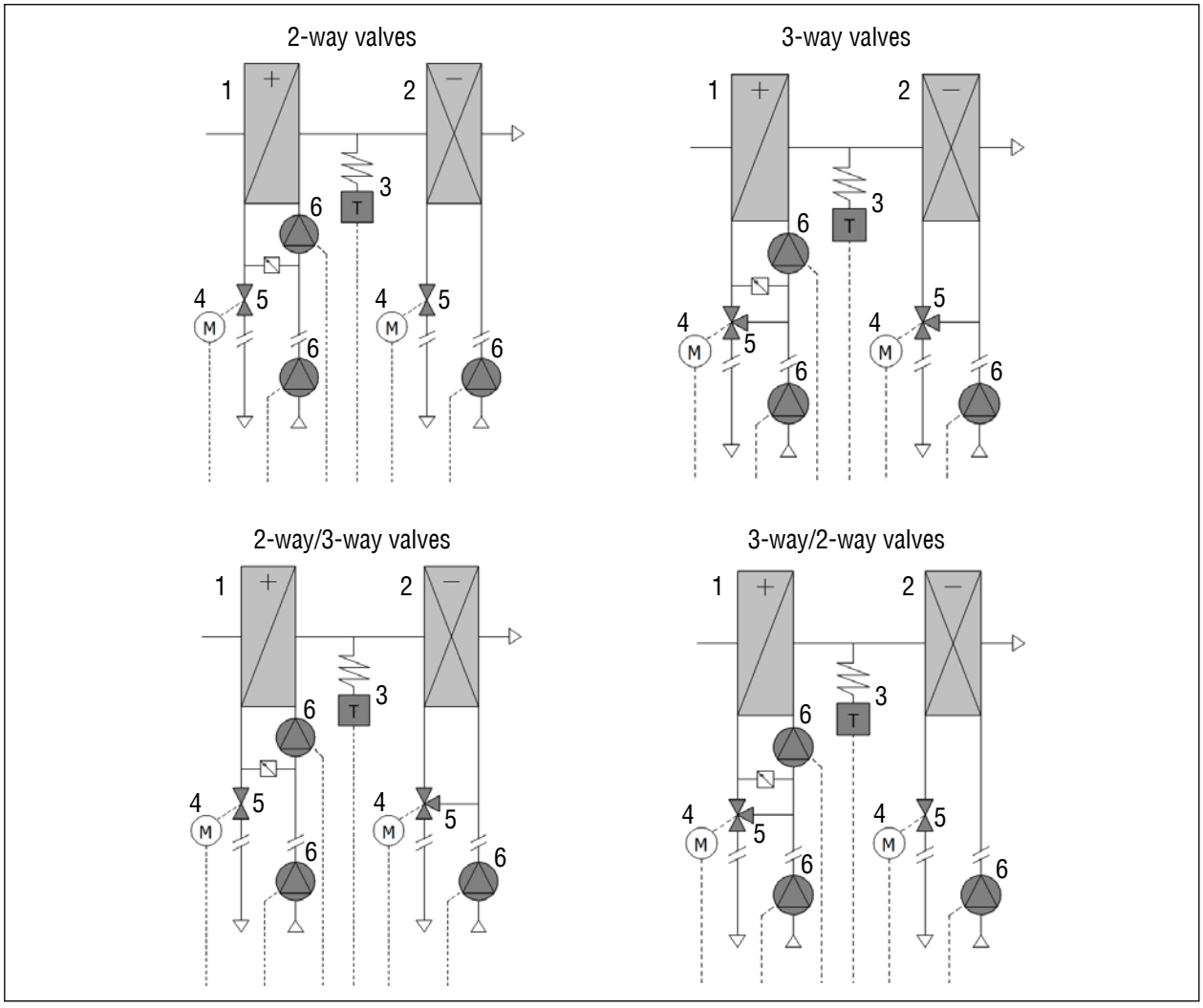
Counter-hold using a suitable tool (e.g. pipe wrench) during connection of the heat exchangers to avoid damage.

Install pipes and connections in such a way that the heat exchangers remain freely accessible for maintenance.

- Maximum working pressure: 16 bar
- Maximum hot water flow temperature: 120 °C

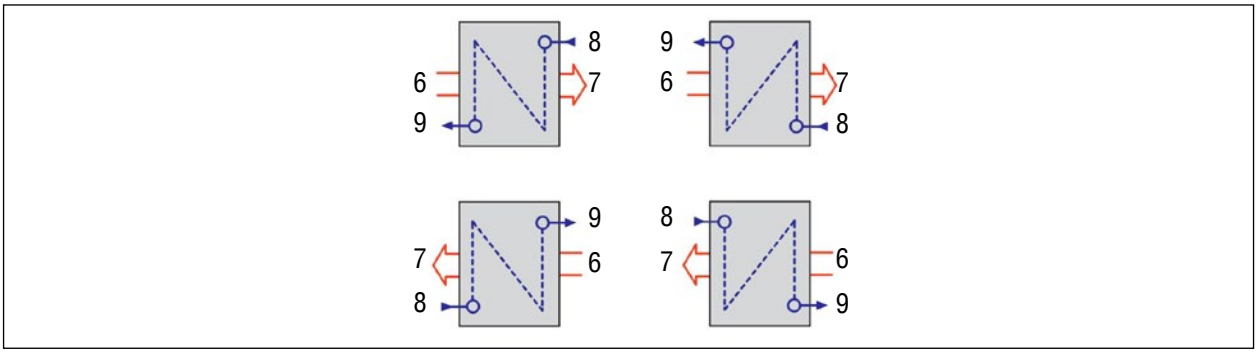
- Valves and actuators must be installed professionally. It should be noted here whether a version with 2-way valves, 3-way valves or with a combination of 2-way and 3-way valves is used.
- For the electrical connection of the actuators, see the circuit diagram.

2-way valve, 3-way valve versions and combined 2-way and 3-way valve versions



1	PWW heater	4	Valve actuator
2	PCW cooler	5	Valve
3	Frost monitor	6	Recirculation pump (on-site)

Counterflow principle for heat exchanger connection



6	Air inlet	8	Media inlet
7	Air outlet	9	Media outlet

IMPORTANT

If the unit version without the integrated switch cabinet has been selected, neither the valve nor the valve actuator are supplied. In this case, these are on-site services.

NOTE

The figure shows schematics only of the hydraulic connection of the heater.and the cooler. The exact hydraulic connection must be carried out at the discretion of the heating specialist.

If the heater/cooler module is the last component before the on-site duct, a duct-side inspection opening must be provided directly on the register/droplet eliminator. This is used for inspection and cleaning.

Function

Heater and cooler are integrated into the temperature control. The temperature is set by controlling the cold water and hot water control valves.

IMPORTANT

At temperatures below freezing point, the heat exchanger must be either drained and blown out with compressed air, or filled with a commercially available antifreeze with corrosion inhibiting additive due to the risk of freezing and corrosion.

5.7.3 Filling and venting

⚠ WARNING

Danger of burns/scalds during filling.

Danger due to contact with leaking media lines and hot surfaces.

- Perform a visual inspection of the pipelines and connections before filling.
- Wear personal protective equipment.

⚠ WARNING

Risk of poisoning when filling with glycol.

- Work with care.
- Avoid skin and eye contact with glycol, do not swallow glycol and observe the safety data sheet.
- Use only approved containers.
- Perform a visual inspection of the pipelines and connections before filling.
- Wear personal protective equipment.

⚠ WARNING

Danger of slipping due to puddle formation.

- Clean away puddles and even small spills immediately.
- Use suitable absorbent materials such as cloths or binders.
- Dispose of the used cloths or binders in accordance with the applicable regulations.
- Wear personal protective equipment.
- Dispose of the ingested spills in a professional manner, in accordance with local regulations.

IMPORTANT

- At temperatures below freezing point, the heat exchanger must be filled with a commercially available antifreeze with corrosion inhibiting additive due to the risk of freezing and corrosion.
- The glycol content must be prepared according to the manufacturer's informations.
- The glycol mixture is to be renewed after a certain operating time in accordance with the manufacturer's data.

- The glycol/water mixture must already be mixed before filling. Otherwise, subsequent mixing is not guaranteed!
- The pipe system must be resistant to the glycol/water mixture used.
- The pipeline system must be carefully and completely vented via the ventilation unit provided on-site.

6 Commissioning

6.1 Principles

During commissioning, all functions are checked, logged and signed by the operator. The signature also confirms the handover of the Installation and Operating Manual These documents must be attached to the unit documentation.

⚠ WARNING

Accident and injury risk due to human misconduct.

Failure to observe the safety instructions, standards, directives and regulations leads to a risk of injury.

- Wear personal protective equipment.
- Have work performed only by trained qualified staff.
- Observe standards and directives.

Before commissioning, always ensure the following:

- that the unit has been installed as described in this Installation and Operating Manual (see chapter “5 Assembly” on page 23).
- that all filter elements are properly installed.
- that the duct system and the water and drain pipes are properly connected to the unit.
- that the fresh air inlet is at a sufficient distance from contamination sources (kitchen hood extraction, central dust extraction, etc.).
- that the electrical installations have been implemented completely and professionally.

6.2 Before system start

⚠ WARNING

Risk of injury from fan during fan test run.

- Never disassemble or bypass safety installations.
- Work with care.
- Remove any loose parts in the air handling unit.
- Eliminate tripping hazards.
- Maintain the safety distance.
- Remain in the debris shadow when the fan starts up.
- Wait until the fan impeller has come to a standstill.
- Perform a vibration measurement of the fan impeller. If the permissible vibrations are exceeded, no commissioning may take place. Observe the table with the respective vibration values (see chapter “3.2 Technical data” on page 14). Contact our customer service if necessary.
- Carry out a visual inspection for cracks in the impeller.
- Wear personal protective equipment (ear protection).
- Never brake the impellers of the fans by hand or using an object.

⚠ CAUTION

Risk of fire due to foreign objects on the electric heating register.

- Before commissioning, check the electric heating register for foreign objects.

Before starting up the system, check:

- Mechanical function of the multi-leaf dampers.
- Tight fit of all installed filters.

NOTE

AL-KO generally recommends the replacement of all installed filters after a short period of operation of the AC unit to remove any dirt that may have entered the filters during the installation phase and after commissioning (see chapter “8.5 Replacing components” on page 56).

Use genuine branded filter insert parts.

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Web: www.al-ko.com

- Before commissioning the rotary heat exchanger, make sure that no objects or excessively compressed seals impede the free running of the thermal mass.
- Bypass damper for mechanical function (plate heat exchanger).
- Fan for foreign objects and easy running.
- Heat exchangers for contamination, damage and leakage of the media connections.
- Each condensate drain must be connected to the drain system by a separate siphon.
- Fully assemble the unit and commission it according to the commissioning protocol.
- Inspection doors/inspection covers must be closed.

6.3 Switching the installation on/off

⚠ WARNING

Risk of severe injuries or death.

Working on the EASYAIR ® can result in serious injury or death.

- After switching off via the main switch, no safety functions of the unit are guaranteed (e.g. frost protection).
- Never use the main switch to switch it on and off during operation.
- Use the main switch only for repair purposes.

- The main switch connects the installation to the mains power supply. This means that all control and regulating modules are ready for operation.

6.4 After system start

NOTE

Further information on the control of the EASYAIR® unit can be found in the AL-KO THERM Operating Manual/functional description for "Control ART TECH LEVEL II".

⚠ WARNING

Risk of injuries due to overrun of fans.

- Only open the inspection doors only when the fans are switched off and stationary.
- Observe the delay time of the fans. Observe a waiting time of at least 3 minutes, until the fan impellers are stationary, before opening the inspection doors.
- Never brake the impellers of the fans by hand or using an object.

- Check the valves of the heat exchangers to see if they are in the correct position. If this is not the case, the direction of rotation of the valve actuators must be changed if necessary.

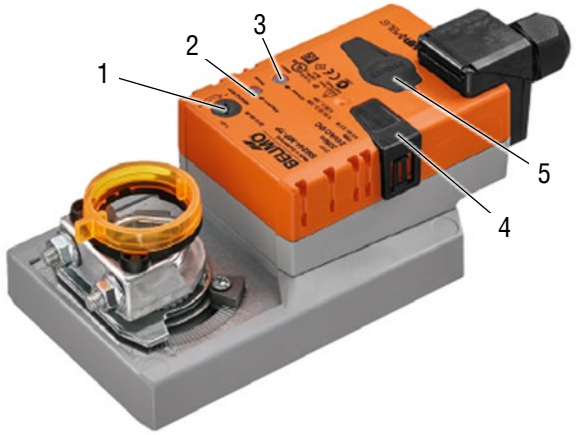
- Set the time, date, average and low air performance, and program the weekly schedule.
- Commissioning of the electric heating register (option):

IMPORTANT

Electric heating register (option)

Check safety chain: Test the function of the flow monitor and temperature monitor and adjust these if necessary. This is the only way to ensure safe operation of the air handling unit!

6.4.1 Damper adjustings actuators



1	Direction of rotation switch	Changeover	Change direction of rotation
2	Pushbutton and LED display green	Off	No electrical power supply or malfunction
		Glowing green	Operation
		Green glowing	In address mode: Pulses according to the set address (1 ... 16) When starting: Reset to factory setting (communication)
		Press the button	In normal operation: Triggering the rotational angle adaptation In address mode: Confirmation of the set address (1 ... 16)
3	Pushbutton and LED display yellow	Off	Drive is ready for operation
		Yellow flashing	Adaptation or synchronisation process active
		Yellow flickering	Communication active
		Press the button	In operation (>3 s): Switching the address mode on and off In address mode: Setting the address by multiple actuation When starting (>5 s): Reset to factory setting (communication)
4	Gear disengagement button	Press the button	Gear disengaged, motor stops, manual adjustment possible
		Release button	Gear engaged, start of synchronisation, afterwards normal operation
5	Service plug		For connecting the parameterisation and service tools

7 Integrated control

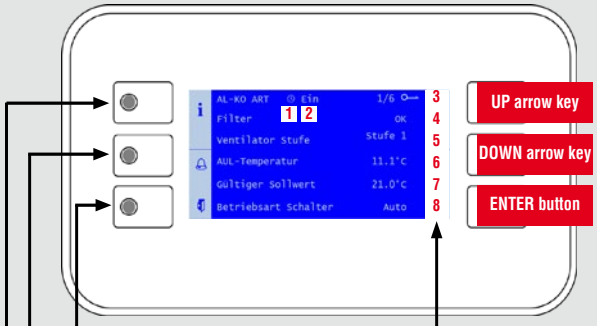
NOTE

Further information on the control of the EASYAIR® units can be found in the AL-KO THERM Operating Manual/functional description for "Control ART TECH LEVEL II".

7.1 HMI Basic quick start guide

ART Tech Level II

Quick Guide HMI Basic (Room Control Panel)



Display on the start page

If no button is pressed for a few minutes, the display jumps to the main menu. Press **INFO** to go to the start page with the most important plant information.

1. State
   - Plant switched on control panel (HMI Basic, Facility, Web)
   - Plant switched via external enable (e.g. presence sensor)
   - Plant switched on the room control panel (HMI Room)
   - Plant switched via the building management system
   - Plant switched via the time program
   - Plant OFF: Configuration is not complete
   - Plant OFF: switched off alarm or emergency stop
   - Plant ON: Free cooling, cool-down or overheating protection
   - Plant ON: early start before time program (boost)

2. Operating mode

Off	Plant OFF
Start	Plant is starting up (dampers open, pre heating)
On	Plant ON
Comfort	Plant ON in comfort mode
Economy	Plant ON in economy mode
Run-on	Plant follow-up (humidifier/electrical heating coil)

3.	Display of the logged-in password level
4. Filter alarm	Display of the filter state (depending on the equipment of the plant, the degree of soiling in percent is also displayed).
5. Fan steps	Display of the current fan steps
6. Outside air temp	Display of the current outdoor temperature
7. Valid setpoint	Display of the current valid temperature setpoint
8. Operating mode switch	Switching of the operating mode on the control panel

ALARM button with integrated ALARM LED

- **Off:** No alarm; press to go directly to the **alarm history**.
- **Red flashing:** Alarm
- **Red:** Alarm is still active; an attempt has been made to acknowledge it

INFO button with integrated INFO-LED

- **Off:** Plant off
- **Green flashing:** Plant starts (dampers open, preheating) or running on (humidifier drying, electric heating cooling)
- **Green:** Plant on
- **Orange/red flashing:** Manual mode active
- **Orange flashing:** Plant not functional as not fully configured

ESCAPE button

Press this button to return to the previous menu item.

Password entry

1. Press **INFO** to access the **main menu**. The topmost entry is the **password enter**. Press **ENTER**.
2. A password consists of four numbers. Each number is set separately with the **arrow keys** and confirmed with **ENTER**.
   Enter the user password **1 0 0 0** .
   After entering the password correctly, a key symbol appears at top right of the display.
3. Other passwords levels are described in the operating manual.

Acknowledging alarms (only when alarms are pending)

1. Press **ALARM**; the **alarm list detail** appears.
2. Then press **ALARM** again; the **alarm list** appears. The topmost entry is **Acknowledge**. Press **ENTER**.
3. Select **Execute** with the **arrow keys** and press **ENTER** again. The acknowledgement attempt is started.

Switch on the plant using the control panel (user password required)

1. Use **INFO** to access the **start page**. Select **Operating mode** with the **arrow keys** and press **ENTER**.
2. Use the **arrow keys** to mark the required **operating mode** and press **ENTER**.

Important information!

1. The number of plant steps and the availability of the economy mode depend on the configuration of the plant (see operating instructions).
2. In economy mode, the plant is operated at a reduced temperature setpoint. See the operating manual for further information.

Plant information

Use **INFO** to access the **main menu**. Select **Information** with the **arrow keys** and press **ENTER**.
See the operating manual for a description of the individual items.

Setting the temperature setpoint (user password required)

1. Use **INFO** to access the **main menu**. Select **Setpoints** with the arrow keys and press **ENTER**.
2. Go to **Temp control** with the **arrow keys** and press **ENTER**.
3. Select **Comfort setpoint** or **Economy setpoint** with the **arrow keys** and press **ENTER**. Now change the value with the **arrow keys** and confirm again with **ENTER**.

Setting the timer program (user password required)

1. Use **INFO** to access the **main menu**. Select **Time program** with the arrow keys and press **ENTER**.
2. Recommendation: Set the switching times for **Monday** and copy it to the other days. To do this, select **Monday** with the **arrow keys** and press **ENTER**.
3. **Time 1** is fixed to **00:00** and cannot be changed. For **Value 1**, **off** is recommended as otherwise the plant starts at 00:00.
   Use the **arrow keys** to go to **Time 2** or **Value 2** and press **ENTER**. Use the arrow keys to send the morning compensation time (e.g. **07:00**) and the operating mode (e.g. **Stage 1**).
4. Set the other value/time pairs in the same way. Leave unused switching times at ***:***.
   Set a corresponding **value …** to **off** as the shut-down time.
5. If necessary, copy the time switching catalogue from **Monday** to other days. To do this, use the **arrow keys** to go to "Copy schedule" and press **ENTER**. Use the **arrow keys** to select the destination (e.g. **Tues-Fri** for Tuesday to Friday) and confirm with **ENTER**. The time switching catalogue is copied.

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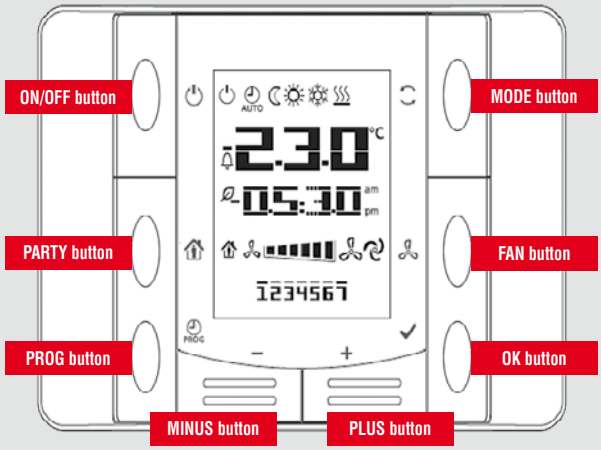
7.2 HMI Room quick start guide

ART Tech Level II

Quick Guide to HMI Room (Room Control Panel)



Display range

- Temperature setpoint
- Time (error code when an alarm is pending)
- Fan steps:
  - 1-stage plants: Off = no display; On = 6 bars
  - 2-stage plants: Off = no display; Stage 1 = 3 bars; Stage 2 = 6 bars
  - 3-stage plants: Off = no display; Stage 1 = 2 bars; Stage 2 = 4 bars; Stage 3 = 6 bars
- Automatic: Fan steps are selected automatically
- Weekday: 1 = Monday, 2 = Tuesday, 3 = Wednesday, …
- Plant OFF
- Automatic: Plant switched by time program or building management system
- Plant ON in economy mode (reduced temperature setpoint)
- Plant ON in comfort mode
- Cooling ON
- Heating ON
- Plant ON: Party mode
- Alarm
- Heat recovery ON

Switching the plant (only with switching authorisation)

If ⏻ is displayed at the top left, the plant is off. Press **ON/OFF** to switch the plant on.
The plant operating mode can then be switched (see **Switching the operating mode**).

Party mode

1. Press **PARTY** to start the party mode.
   The symbol is displayed and, instead of the time, the remaining run time of **P1:00** (= 1 hour and 59 minutes) is displayed.
   Press **PARTY** again to prematurely end the party mode.
2. Press **PLUS** to increase the remaining run time by 1 hour.
   Press **MINUS** to decrease the remaining run time by 1 hour.
3. Press **FAN** to switch in a cycle between:
   Stage 1, Stage 2, Stage 3 and Automatic.

Setting the temperature setpoint (not possible in party mode)

Press **PLUS** or **MINUS** to increase or decrease the setpoint by 0.5 °C.

Setting the time/date

Use **PROG** to switch to the time and date setting.
Press **PLUS** or **MINUS** to set the individual numbers and confirm with **OK**.

Switching the operating mode (only with switching authorisation)

1. Make sure that the plant is switched on (see **Switching the plant**).
2. Press **MODE** to switch in a cycle between:
   Comfort, Economy and Automatic.

   In Automatic, the time program or building management system decides on the operating mode.

Setting the fan steps (only with switching authorisation)

Press **FAN** to switch in a cycle between:
Stage 1, Stage 2, Stage 3 and Automatic.

Alarm display and acknowledgement

1. If 🔔 is displayed, an alarm is pending. Most alarms display an error code in addition to the symbol. This appears on the display instead of the time (e.g. A:81). See the operating manual for a description of the error codes.
2. Keep **OK** pressed for one second to start an acknowledgement attempt.

Important information!

1. The switching authorisation of the room control panel depends on the setting in the controller (see operating manual).
2. The possible setting range of the temperature setpoint depends on the setting in the control (see operating manual).
3. Flashing symbols in the display area indicate that the room control panel has been overridden by the controller.
4. The number of TSP steps and the availability of the economy mode depend on the configuration of the plant (see operating manual).
5. In economy mode, the plant is operated at a reduced temperature setpoint. See the operating manual for further information.

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8 Servicing and maintenance

8.1 Safety instructions for servicing and maintenance

⚠ WARNING

Risk of injuries.

- Before all repair and maintenance work, disconnect the EASYAIR® from the mains on all poles and secure to prevent restart.
- Follow the applicable safety rules.
- Only have assembly, commissioning, maintenance and repair work carried out by trained qualified staff!

To be carried out by the person responsible:

- After carrying out the work, ensure that there are no longer any persons in the installation.
- Before restarting the installation, ensure that all factory-installed protective measures are functioning correctly.

⚠ WARNING

Risk of cuts

During maintenance and cleaning of the EASYAIR® unit there is a risk of cuts!

- Wear personal protective equipment (cut-proof gloves)!

⚠ WARNING

Risk of injuries due to overrun of fans.

- Only open the inspection doors only when the fans are switched off and stationary.
- Observe the delay time of the fans. Observe a waiting time of at least 3 minutes, until the fan impellers are stationary, before opening the inspection doors.
- Never brake the impellers of the fans by hand or using an object.

⚠ CAUTION

Risk of burns as a result of contact with hot surfaces and media (plate heat exchanger, heat exchanger and electric heating register).

- Wait until the hot surfaces have cooled down.
- Wear personal protective equipment.

NOTE

The owner of an RLT installation is obliged to have the system maintained regularly by trained qualified staff.

AL-KO recommends that maintenance is carried out in accordance with German VDI 6022 and VDMA 24186.

In addition, a hygiene inspection in compliance with VDI 6022 is required every 3 years.

Upon conclusion of a maintenance contract, AL-KO THERM undertakes these tasks.

Customer-Service
Phone: +49 8225 39 - 2574
E-mail: service.center@al-ko.com
Web: www.al-ko.com

IMPORTANT

Only use original consumables and spare parts. This is the only way to ensure safe operation.

Otherwise the warranty will be voided!

A spare parts list can be found in the scope of the unit documentation.

Customer-Service
Phone: +49 8225 39 - 2574
E-mail: service.center@al-ko.com
Web: www.al-ko.com

8.2 Fuses and terminal assignment

- The fuses implemented are slow-blow circuit breakers.
- The fuse and terminal assignments can be found in the supplied circuit diagram.

8.3 Maintenance schedule

NR	Activity / unit component	Measure / remark	Inspections to be performed at monthly intervals				
1	**Outdoor air intakes and exhaust air outlets**		**1**	**3**	**6**	**12**	**24**
1.1	Check for soiling, damage and corrosion	Completely clean and repair				X	
2	**Unit housing**		**1**	**3**	**6**	**12**	**24**
2.1	Inspect for soiling, damage and corrosion on the air side	Clean and repair				X	
2.2	Check for water formation (condensate, leaks)	Clean and identify the cause			X		
2.3	Check function of drains	Clean, if necessary				X	
2.4	Flexible connections	Check leaktightness				X	
2.5	Check doors and closures for ease of movement and leak-tightness	Repair				X	
3	**Air filter**		**1**	**3**	**6**	**12**	**24**
3.1	Check for impermissible contamination and damage (leakages) and odours (the air filter must have the separation efficiency corresponding to the filter class for its entire period of use)	If there is noticeable contamination or leakage, the affected filter must be replaced. Replacement of the entire filter stage if the replacement of the entire filter stage is more than 6 months ago.		X			
3.2	"Filter change" warning message	If the maximum differential pressure is exceeded, replace the filter stage	X				
3.3	Latest filter change					X	
3.4	Checking the hygiene condition					X	
4	**Heat exchanger, general (optional)**		**1**	**3**	**6**	**12**	**24**
4.1	If cleaning in installed state is not sufficient, the heat exchanger must be removed and cleaned accordingly.						
4.2	Check for soiling, damage and corrosion	Clean and repair		X			
4.3	Check wet cooler, condensate pan and droplet eliminator for soiling, corrosion and function	Repair		X			
4.4	Check function of siphon	Repair		X			
4.5	Checking the hygiene condition					X	
4.6	**Air heater**						
4.6.1	Inspect on the air side for soiling, damage and corrosion	Clean and repair		X			
4.6.2	Check function of flow and return lines					X	
4.6.3	Venting					X	

4.7	**Electric air heater**						
4.7.1	Check for scale deposits and corrosion	Clean and repair				**X**	
4.7.2	Inspect on the air side for soiling and damage	Clean and repair				**X**	
4.7.3	Check functionality	Repair				**X**	
4.7.4	Check control and safety equipment for correct function	Repair				**X**	
4.8	**Air cooler**	The siphon with backflow protection must be dimensioned according to the pressure conditions and located in such a way that the condensate can drain off without delay.					
4.8.1	Inspect for soiling, damage and corrosion	Clean and repair			**X**		
4.8.2	Clean wet cooler, droplet eliminator and trays				**X**		
4.8.3	Check function of flow and return lines					**X**	
4.8.4	Venting					**X**	
4.8.5	Check the hygiene condition					**X**	
4.9	**Droplet eliminator**						
4.9.1	Inspect for soiling damage and coating formation	Function-preserving cleaning of all surfaces, including trays; dismantle the droplet eliminator, if necessary	**X**				
4.9.2	Check function of water drain and odour trap	Clean and repair				**X**	
5	**Heat recovery, general**		**1**	**3**	**6**	**12**	**24**
5.1	Heat exchangers and their accessories must be checked regularly for airborne contamination, corrosion and damage.						
5.2	Check for soiling, damage and corrosion	Clean and repair			**X**		
5.3	Check leaktightness between exhaust and outdoor air supply	Repair		**X**			
5.4	Check condensate tray for soiling, corrosion and function	Repair		**X**			
5.5	Check function of siphon	Repair		**X**			
5.6	Checking the hygiene condition					**X**	
5.7	**Rotary heat exchanger**						
5.7.1	Inspect on the air side for soiling and corrosion	Clean			**X**		
5.7.2	Function-preserving cleaning	The rotors can be cleaned off using compressed air. In this process, the air jet must act on the thermal mass at right angles				**X**	
5.7.3	Check rotor for unbalance					**X**	
5.7.4	Check bearings for noise	The ball bearings used are low-maintenance and designed for running times of up to 100,000 hours. They can generally be used up to 120 °C				**X**	
5.7.5	Check the function of the sealing element	The seals on the thermal mass are factory-set			**X**		
5.7.6	Check for hygienic condition					**X**	
5.7.7	Check drive elements					**X**	
5.8	**Plate heat exchanger**						
5.8.1	Inspect on the air side for soiling, damage and corrosion	Clean and repair			**X**		
5.8.2	Function-preserving cleaning (air-side)					**X**	
5.8.3	Check function of water drain and odour trap	Clean and repair				**X**	
5.8.4	Check for hygienic condition					**X**	

6	Multi-leaf dampers		1	3	6	12	24
6.1	Check for soiling, damage and corrosion	Clean and repair				X	
6.2	Check the mechanical function	Repair				X	
6.3	Check the function of the damper adjusting actuators	Repair				X	

7	Fans		1	3	6	12	24
7.1	Inspect the fan for soiling, damage and corrosion	Clean and repair			X		
7.2	Check the impeller for soiling, unbalance and running noises	Switch on motor briefly Clean and repair				X	

8	Control unit		1	3	6	12	24
8.1	Perform visual inspection of clamping and plug-in connections	Clean, check that they are seated firmly				X	

8.4 Maintaining and cleaning components

All installed components are either freely accessible for maintenance and cleaning or can either be removed or pulled out from the unit after removing the inspection doors/inspection covers.

Coarse dirt in the housing can be removed using an industrial vacuum cleaner.

Remove other dirt with a damp cloth.

Only lukewarm water, possibly with a mild detergent without perfume, should be used for cleaning.

If disinfection is necessary for hygiene units, a checked must be performed at a suitable and non-critical point before using disinfectants to ensure that the disinfectant does not cause damage to the seals, surfaces, etc.!

Only use cleaning agents and disinfectants that do not attack the materials used in the EASYAIR® unit!

The aim of the hygiene checks to be performed regularly is to determine and eliminate hygiene deficiencies on the air conditioning systems at an early stage through frequent visual inspections or random microbiological self-checks.

The regular hygiene checks include the following measures:

- Visual inspection of the relevant unit area for hygiene deficiencies such as e.g. microbial growth or soiling, rust formation, calcium deposits and damage.
- If soiled components are detected during the hygiene checks, these must be cleaned immediately.

8.4.1 Pump warm water and pump cold water heat exchangers

⚠ WARNING

Risk of cuts

During maintenance and cleaning of the heat exchanger there is a risk of cuts!

- Wear personal protective equipment (cut-proof gloves)!

⚠ CAUTION

Risk of burns as a result of contact with hot surfaces and media (plate heat exchanger, heat exchanger and electric heating register).

- Wait until the hot surfaces have cooled down.
- Wear personal protective equipment.

IMPORTANT

The use of high-pressure water cleaners with conventional single-jet nozzles is not permitted due to the risk of damage!

8.4.1.1 Maintenance

- Inspect the heat exchangers on the air side for soiling, damage and corrosion.
- Check connections and screw fittings.
- Check the venting valve and filling of the heat exchangers.
- Check antifreeze concentration and top up if necessary.
- Inspect the siphon and top up, if necessary.
- Inspect water drains for correct function.

NOTE

During prolonged standstills, corrosion can be caused in the heat exchangers by sulphate-reducing bacteria. These sulphides primarily attack the solder seams as well as the copper base material.

We recommend the following measures to reduce this type of copper corrosion:

- Use of sulphate-free water in the whole circuit
- Ensure that the circuit has no leaks
- Avoid prolonged standstills of the filled circuit
- Avoid frequent topping up of fresh water
- Use of material-compatible inhibitors or use of biocides

8.4.1.2 Cleaning

- Only methods that do not damage the fins may be used for cleaning of the heat exchanger registers.

	Cleaning methods	Can be used for all types of finned heat exchanger
1	Compressed air	All heat exchanger registers
2	Steam cleaners	Steel galvanised heat exchanger registers only
3	High-pressure water cleaner **only** with THD multi-jet method	All heat exchanger registers

IMPORTANT

When using compressed air and steam cleaners, ensure a sufficient distance and that the jet is aligned parallel to the fins!

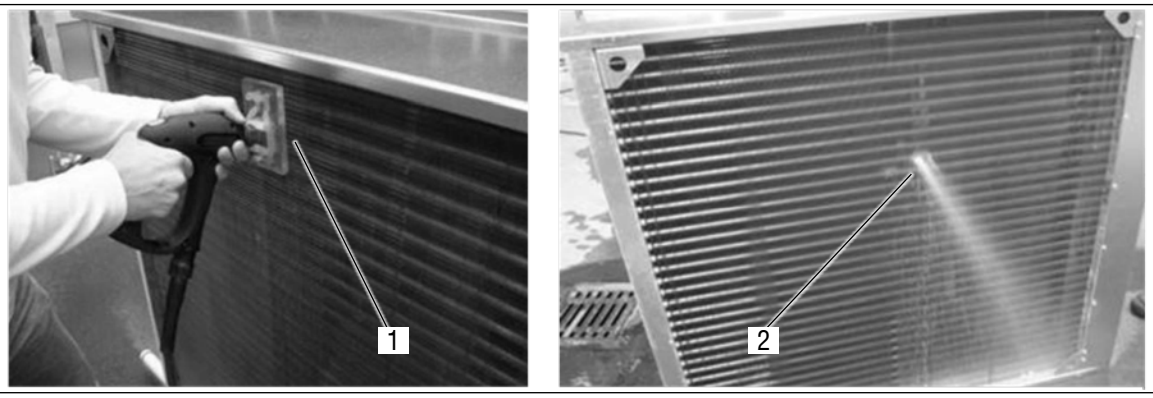
NOTE

Complete removal of the deposits in heat exchangers is not possible using compressed air. Thorough cleaning cannot be guaranteed, particularly in deep registers, by using only compressed air and steam cleaners.

As a result, the dirt deposits are compacted in the depths of the heat exchangers instead of being removed. The consequences are increased pressure losses, a lack of hygiene, odours, material attack, etc.

- The use of high-pressure water cleaners using conventional spray nozzles is not permitted as these can damage the delicate fins and thorough cleaning, particularly in the deeper heat exchanger registers, cannot always be achieved.
- Heat exchanger registers should therefore only by cleaned with high-pressure water cleaners using the THD multi-jet method. This ensures damage-free deep cleaning of the heat exchanger registers. This applies to all heat exchanger register types.

- The cleanability of the AL-KO THERM heat exchanger registers using the THD multi-jet method was demonstrated by the Institute for Air Hygiene Berlin during the hygiene conformity evaluation for the AL-KO air handling units (see figure THD multi-jet method).
- The use of the THD multi-jet method includes the correction of any bent fins to restore the optimum flow and performance of the heat exchangers ("fluidic renovation").



1	THD multi-jet method/front	2	THD multi-jet method/back

For further information on the THD multi-jet method:

Technischer Hygiene Dienst GmbH

Einödshoferweg 3-5

12109 Berlin

Phone: +49 / (0)30 / 66 76 57 75-0

Fax.: +49 / (0)30 / 66 76 57 75-5

E-mail: info@thd-berlin.de

Web: www.thd-berlin.de

8.4.2 Rotary heat exchanger

⚠ WARNING

Risk of injuries.

- Before repair and maintenance work, disconnect the EASYAIR® from the mains on all poles and secure to prevent restart.

⚠ WARNING

Risk of cuts

During maintenance and cleaning of the heat exchanger there is a risk of cuts!

- Wear personal protective equipment (cut-proof gloves)!

8.4.2.1 Maintenance

IMPORTANT

To avoid bearing damage, the thermal mass must be rotated periodically (monthly) in the event of a prolonged standstill.

IMPORTANT

- Check seals before commissioning.
- Check drive elements and control elements.
- The respective manufacturer documentation of the rotor manufacturers must be observed.

8.4.2.2 Cleaning

The thermal mass is made of wound aluminium foil. On the basis of the counterflow principle, self-cleaning takes place in most cases, which prevents contamination of the thermal mass.

- As access for cleaning the thermal mass of the rotary heat exchanger, you can use the inspection doors/inspection covers of the upstream and downstream functional units.

IMPORTANT

- The switch cabinet doors can only be opened when the main switch is switched off.
- The respective manufacturer documentation of the rotor manufacturers must be observed.

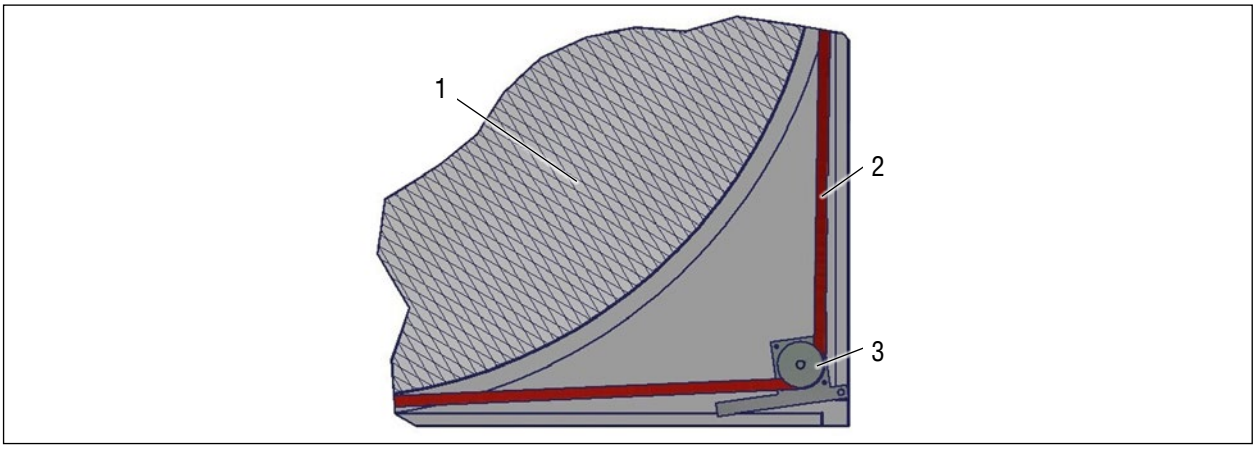
- If necessary, the thermal mass can be cleaned with compressed air, depending on the degree of contamination. Use a hot water high pressure cleaner for stubborn contamination.

IMPORTANT

Only use compressed air or water without chemical additives as the medium! The air or water jet must act on the thermal mass vertically, otherwise there is a risk of damage!

8.4.2.3 Drive belt maintenance

- Visually inspect the drive belts regularly for wear, replace if necessary.



1	Rotary heat exchanger
2	V-belt
3	V-belt pulley

- Check the tension of the V-belt pulley
  - The V-belt can stretch, particularly within the first 400 operating hours.
  - If the drive belt stretches too much, it must be shortened.
  - This can be carried out by simply removing links. Please refer to the relevant manufacturer's documentation.

8.4.3 Countercurrent plate heat exchanger

⚠ WARNING

Risk of cuts

During maintenance and cleaning of the countercurrent plate heat exchanger there is a risk of cuts!

- Wear personal protective equipment (cut-proof gloves)!

⚠ CAUTION

Risk of burns as a result of contact with hot surfaces and media (plate heat exchanger, heat exchanger and electric heating register)

- Before and after cleaning and maintenance, wait until the hot surfaces have cooled down.
- Wear personal protective equipment.

8.4.3.1 Maintenance

- Check plates for soiling.
- Remove oil and grease deposits (see”8.4.3.2 Cleaning” on page 53)
- Check water drain and siphon of the drain tray and top up if necessary.

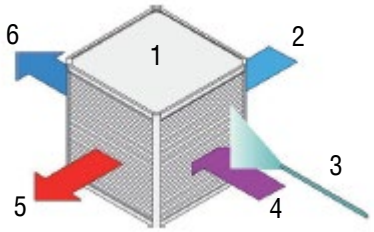
8.4.3.2 Cleaning

- The heat exchanger can be cleaned using a hot water high pressure cleaner.

The following parameters are to be observed here:

Nozzle:	Flat jet nozzle
Pressure:	max. 50 bar
Water volume:	max. 450 l/h
Water temperature:	max. 70 °C
Distance to heat exchanger*:	min. 10 cm
Nozzle direction:	90° offset to foil embossing or fins

* The minimum distance to the heat exchanger is a recommendation! The minimum distance must be selected in such a way that complete and thorough cleaning without damage is ensured.



1	Plate heat exchanger	4	Exhaust air
2	Outdoor air	5	Supply air
3	High pressure flat jet nozzle	6	Exhaust air

IMPORTANT

The specified values must be adhered to, otherwise the plate heat exchanger may be damaged.

NOTE

To remove stubborn dirt, cleaning agents can also be used (e.g. all-purpose cleaner, biodegradable).

It must then be rinsed using plenty of fresh water!

Do not use aluminium cleaners! These are acidic and attack the surface of the plate heat exchanger.

8.4.4 Multi-leaf dampers

⚠ WARNING

Risk of crushing

When closing the multi-leaf damper, there is a risk of crushing injuries to the hands.

- Do not reach into the damper when closing the multi-leaf damper.
- Wear the personal protective equipment.

8.4.4.1 Maintenance

- Inspect the multi-leaf dampers for soiling, damage and corrosion.
- Check the mechanical function of the multi-leaf dampers.
- Check the end position of the damper adjustings actuators and adjust, if necessary.
- Lubricate the damper bearing and joints if necessary using appropriate lubricants.

8.4.4.2 Cleaning

- Clean the multi-leaf dampers at regular intervals.

8.4.5 Droplet eliminator

⚠ WARNING

Risk of cuts

There is a risk of cutting injuries during cleaning and maintenance of the droplet eliminator!

- Wear personal protective equipment (cut-proof gloves)!

8.4.5.1 Maintenance

- The droplet eliminator can be pulled out laterally from the housing for maintenance purposes.
- Inspect the droplet eliminator for soiling, damage and corrosion.
- Check water drain and siphon of the drain tray and top up if necessary.

8.4.5.2 Cleaning

- The droplet eliminator can be pulled out laterally from the housing for cleaning purposes.

8.4.6 Fans

⚠ WARNING

Risk of injuries due to overrun of fans.

- Switch off the unit on all poles and secure it against being restarted.
- Only open the inspection doors only when the fans are switched off and stationary.
- Observe the delay time of the fans. Observe a waiting time of at least 3 minutes, until the fan impellers are stationary, before opening the inspection doors.
- Never brake the impellers of the fans by hand or using an object.

⚠ WARNING

Risk of cuts

There is a risk of cuts during maintenance and cleaning of the fans!

- Wear personal protective equipment (cut-proof gloves)!

8.4.6.1 Maintenance

- The ball bearings used are low-maintenance and designed for extended running times. They can normally be used up to +40 °C. Maintenance is not required under normal conditions.
- Check fans for dirt, damage and corrosion.
- Check fan mounting and retighten all fastening screws.
- Check the function of the protective devices.

8.4.6.2 Cleaning

- Clean the ventilation wheel, motor and motor mounting regularly.

8.4.7 Sound absorbers

⚠ WARNING

Risk of cuts

During maintenance and cleaning of the sound attenuator splitters there is a risk of cuts!

- Wear personal protective equipment (cut-proof gloves)!

8.4.7.1 Maintenance

- The sound absorbers must be inspected for soiling and damage at regular intervals.

8.4.7.2 Cleaning

- Sound attenuator splitters can be removed from the unit for cleaning.
- Recommendation: Following extended operating intervals, clean the sound attenuator splitters using an industrial vacuum cleaner.

8.5 Replacing components

8.5.1 Replacing filter bags

⚠ WARNING

Risk to health when changing the filters due to dust load and microbial contamination.

- Switch off the unit on all poles and secure it against being restarted.
- Adhere to the maintenance plan.
- Wear the personal protective equipment (dust mask) when changing the filter.
- Use other protective equipment according to the work carried out.

In general, the filter bags must be replaced when the permissible end pressure difference is reached.

NOTE

Do not wash and reuse used air filters; always replace them. Otherwise, the hygienic requirements will not be met!

- Release the clamping device by simply pulling it out using pull-out lever that is supplied loose.
- Pull the filter bags out of the unit individually.
- Clean the filter gaskets, inspect and replace any damaged gaskets.
- Insert new filter bags and close the clamping device by pushing it in.

IMPORTANT

Only use original consumables and spare parts. This is the only way to ensure safe operation.

Otherwise the warranty will be voided!

A spare parts list can be found in the scope of the unit documentation.

The filter bags must be disposed of in accordance with the currently valid and applicable local regulations!

Customer-Service
Phone: +49 8225 39 - 2574
E-mail: service.center@al-ko.com
Web: www.al-ko.com

9 Help in the event of malfunctions

⚠ WARNING

Risk of injury due to incorrectly implemented measures.

Incorrect or incorrectly executed measures can put the installation in a potentially dangerous state. There is then a risk of injuries and even electric shock.

- Only allow work on electrical equipment inside the switch cabinet (e.g. test work, replacement of fuses) to be carried out by qualified staff!
- Only allow diagnosis, troubleshooting and recommissioning to be carried out by authorised persons.
- Use the personal protective equipment when working on the installation.
- Use other protective equipment according to the work carried out.

9.1 Contacts

For all questions that you have in connection with our products, please contact the manufacturer of your ventilation installation, one of our branches or directly to:

AL-KO THERM GmbH	Phone:	(+49) 82 25 / 39 - 0
Hauptstraße 248-250	Fax:	(+49) 82 25 / 39 - 2113
D-89343 Jettingen-Scheppach	E-mail:	klima.technik@al-ko.com
Germany	Web:	www.al-ko.com
Customer Service	Phone:	(+49) 82 25 / 39 - 2574
	E-mail:	service.center@al-ko.com

9.2 General malfunctions

NOTE

Further information on "general malfunctions" of the EASYAIR® unit can be found in the AL-KO THERM Operating Manual/functional description for the "ART TECH LEVEL II Control".

10 Shut-down

10.1 Decommissioning

De-energize the installation before beginning work (all-pole shutdown) and secure it against unauthorised restart.

⚠ WARNING

Risk of injury due to pressurised parts.

- When decommissioning, note that certain installation parts are pressurised.
- Comply with the safety rules!

IMPORTANT

In winter, there is a general freezing hazard for all components. If necessary, take suitable measures such as fully draining the liquid media. At temperatures below freezing point, the heat exchanger must be either drained and blown out with compressed air, or filled with a commercially available antifreeze with corrosion inhibiting additive due to the risk of freezing and corrosion.

- If the installation is decommissioned for a long period of time, the instructions for the individual components must be observed.
- The information from the component manufacturers must also be followed (request this information if necessary).
- Before recommissioning, observe chapters “6 Commissioning” on page 38 and “8 Servicing and maintenance” on page 44.

10.2 Dismantling

- Dismantling must be carried out according to the currently valid and applicable occupational safety and accident prevention regulations.

⚠ WARNING

Risk of injury from falling from ladders, scaffolding or work platforms.

- Only use suitable and tested ladders, steps, scaffolding and work platforms.
- Work with care.

⚠ WARNING

Risk of poisoning when draining the media.

The unit may contain media that are hazardous to health, such as coolants.

- The drained media may only be filled and stored in approved containers.
- Work with care.
- Avoid skin and eye contact with the media, do not swallow media and observe the safety data sheets.
- Wear personal protective equipment.
- Absorb spills immediately.

⚠ WARNING

Risk of injury when dismantling electrical and thermal components.

- Only have disassembly work carried out by trained qualified staff.
- Before starting work, disconnect the installation from the central supply line.
- When dismantling, note that certain parts of the installation are pressurised.
- Fix the impellers of the fans.
- Work with care.
- Use only suitable means of transport when transporting installation parts.
- Use the personal protective equipment when working on the installation.
- Absorb spills immediately.

⚠ WARNING

Danger to health when removing the filter inserts.

- When removing filters, wear the personal protective equipment (dust mask).
- Use other protective equipment according to the work carried out.
- Avoid contact with the dust.

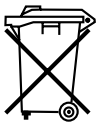
10.3 Disposal

⚠ WARNING

Risk of poisoning when disposing of the media.

The unit may contain media that are hazardous to health, such as coolants.

- Work with care.
- Avoid skin and eye contact with the media, do not swallow media and observe the safety data sheets.
- Wear personal protective equipment.
- When disposing of the media, comply with the relevant local environmental and recycling regulations in your country and community that are applicable at the time when the activity is undertaken.
- The drained media may only be filled and stored in approved containers.



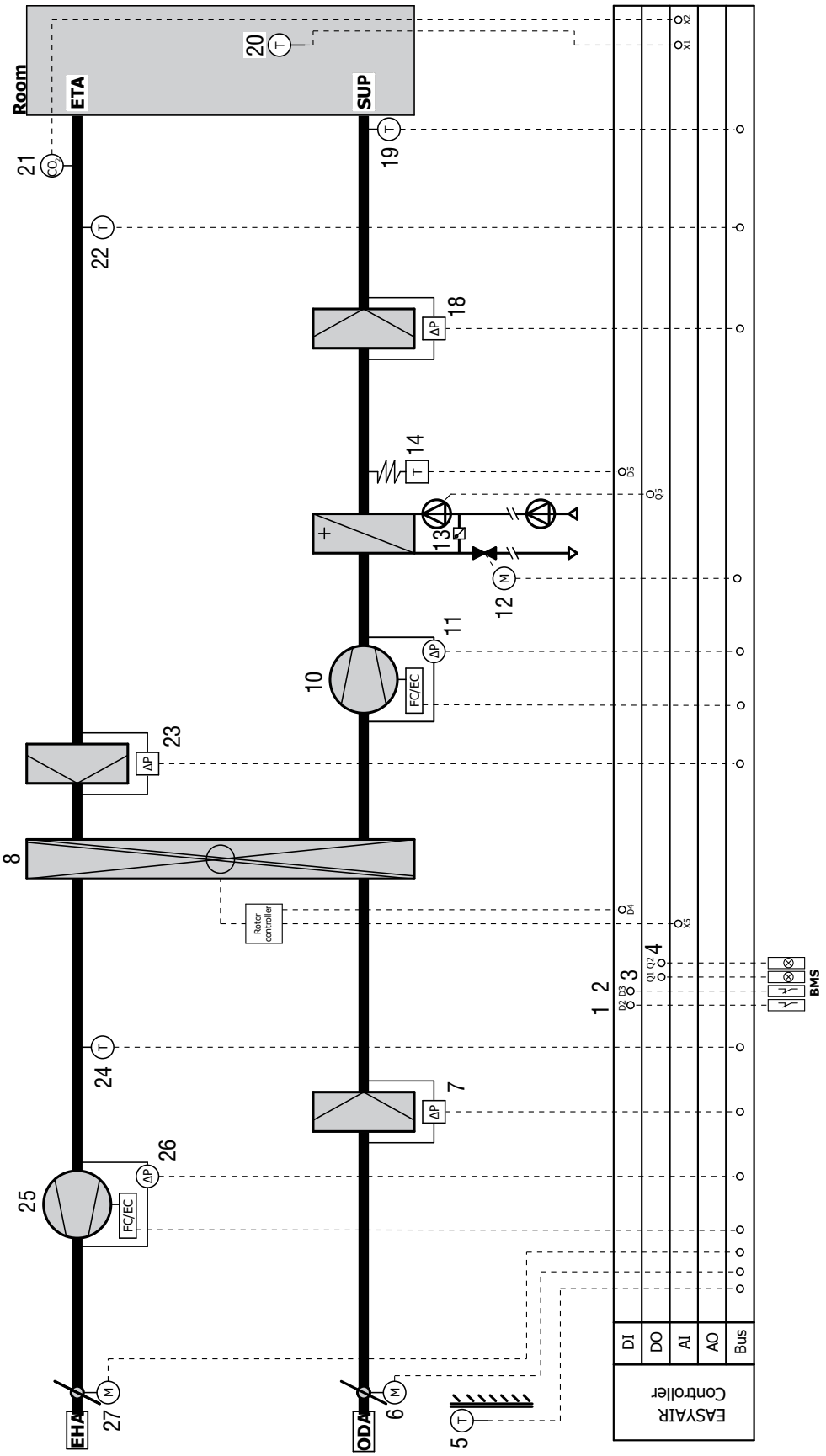
Do not dispose of worn-out units, spent batteries or rechargeable batteries in domestic waste.
When disposing of the unit, operating equipment and accessories, proceed according to the relevant local environmental and recycling regulations in your country and community that are applicable at the time when the activity is undertaken.

11 Control schemes appendix

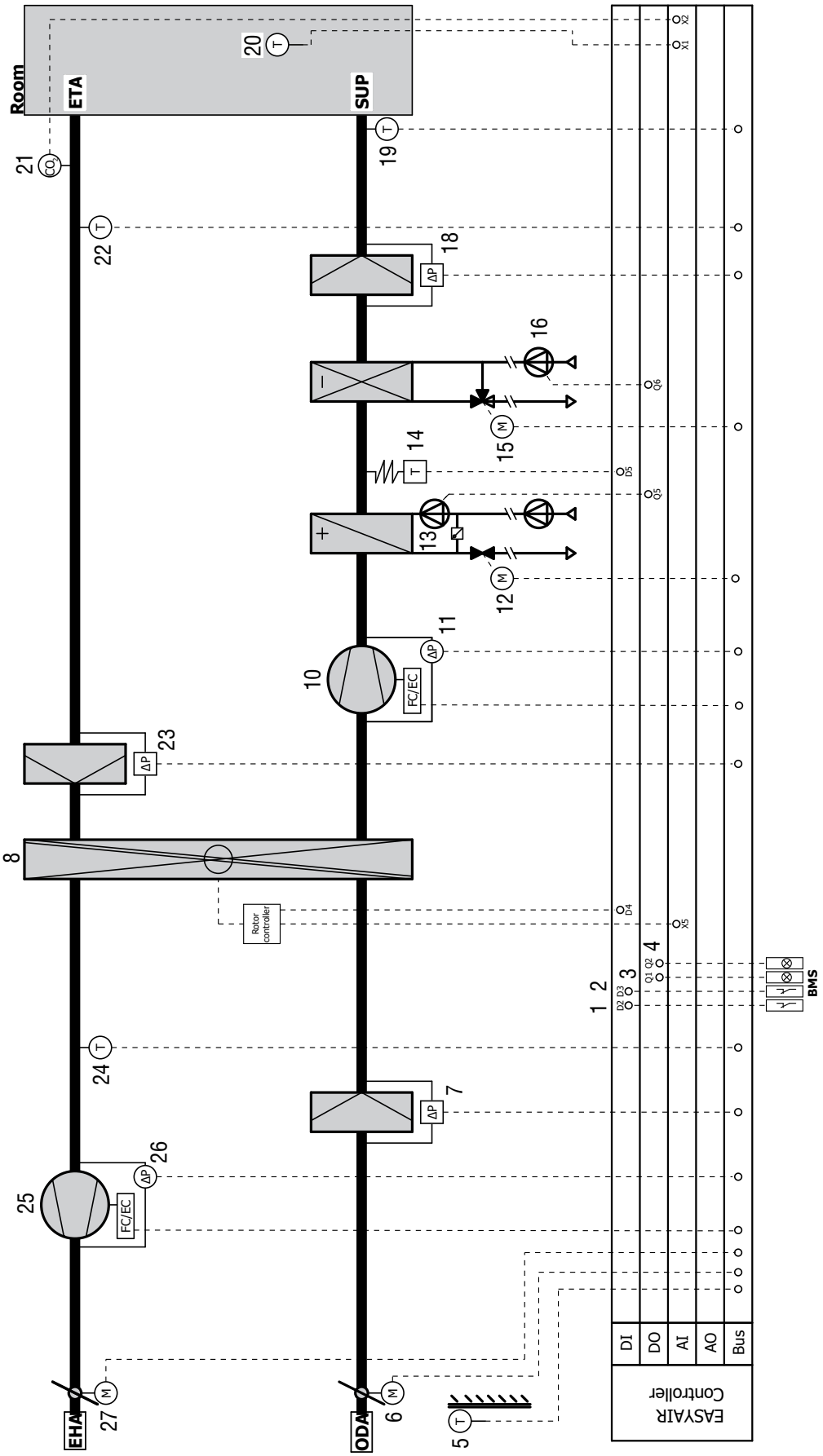
11.1 Control schemes legend

1	Presence detection	15	Cooler valve actuator
2	Fire/smoke alarm	16	Cooler pump
3	Collective fault message	17	Electric fan heater
4	Operating message	18	Differential pressure 2nd filter stage
5	Outdoor air temperature sensor	19	Supply air temperature sensor
6	Outdoor damper adjusting actuators	20	Room air temperature sensor
7	Outdoor air filter differential pressure	21	Exhaust air quality sensor
8	Rotary heat exchanger	22	Exhaust air temperature sensor
9	WRG bypass damper actuator	23	Exhaust air filter differential pressure
10	Supply air fan	24	Exhaust air temperature sensor according to WRG (defrost protection)
11	Duct/effective pressure supply air	25	Exhaust air fan
12	Heater valve actuator	26	Duct/effective pressure exhaust air
13	Heater pump	27	Exhaust damper adjusting actuators
14	Frost protection thermostat		

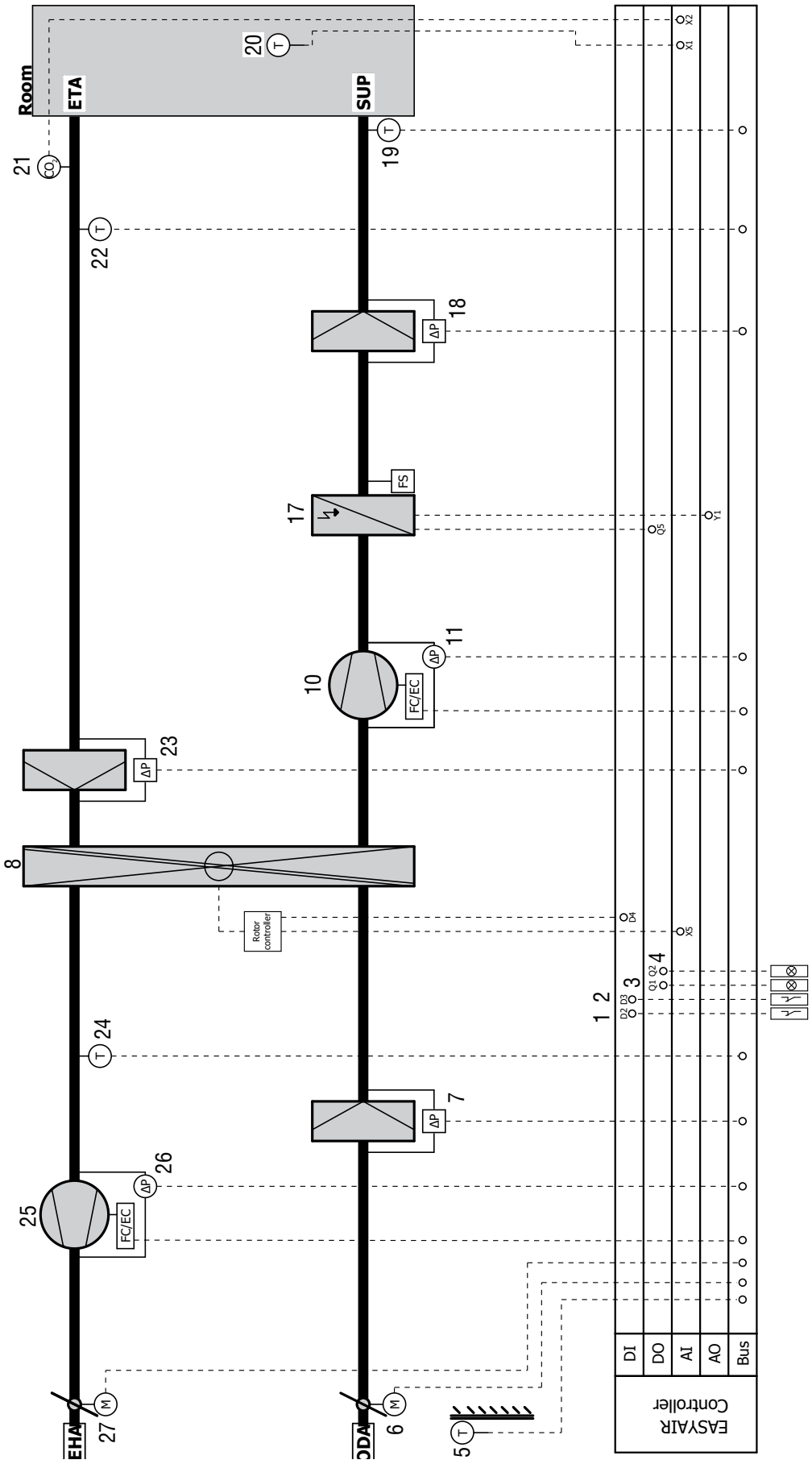
11.2 RO-units with PWW coil



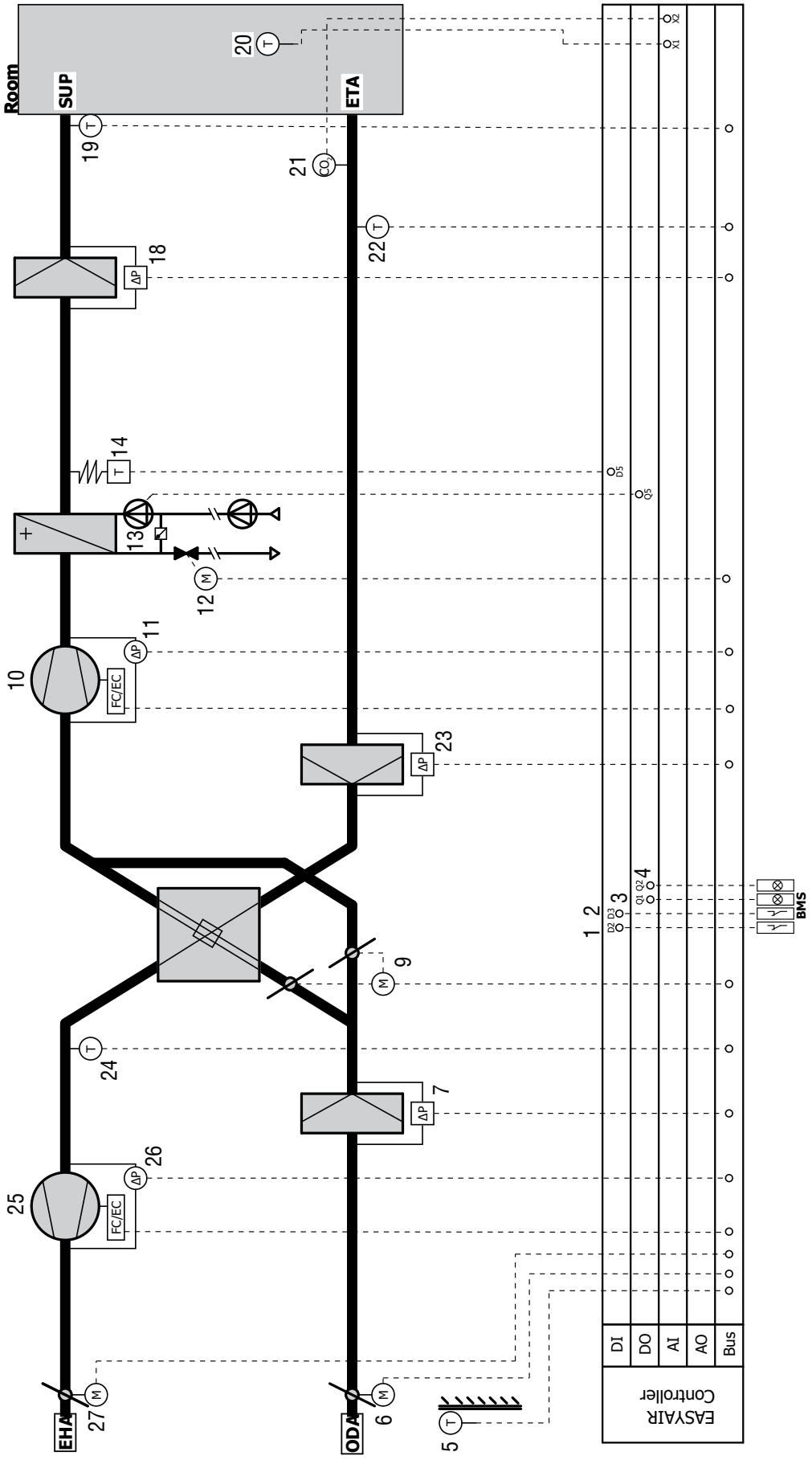
11.3 RO-units with PWW and PCW coils



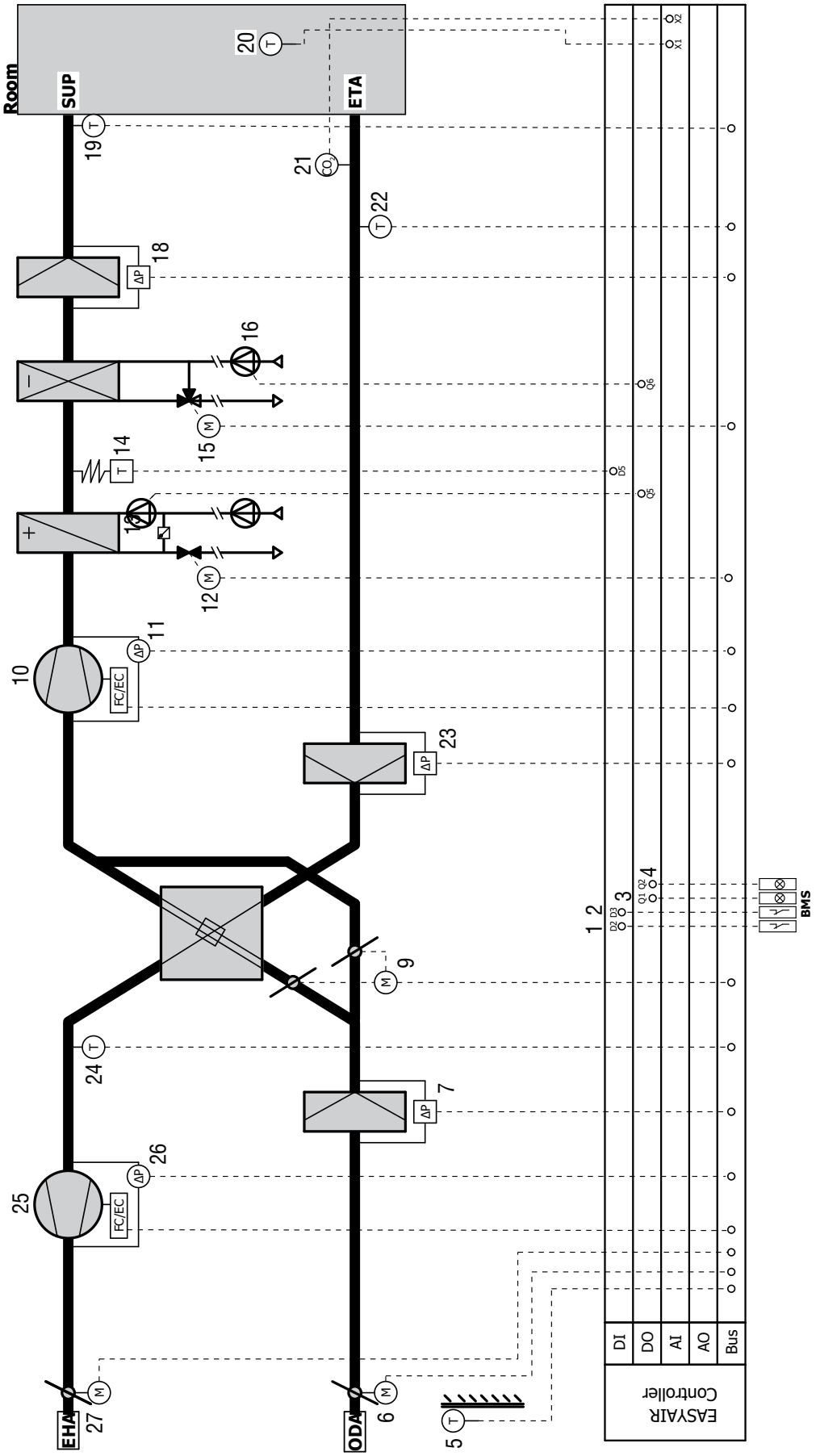
11.4 RO-units with electric heating coil



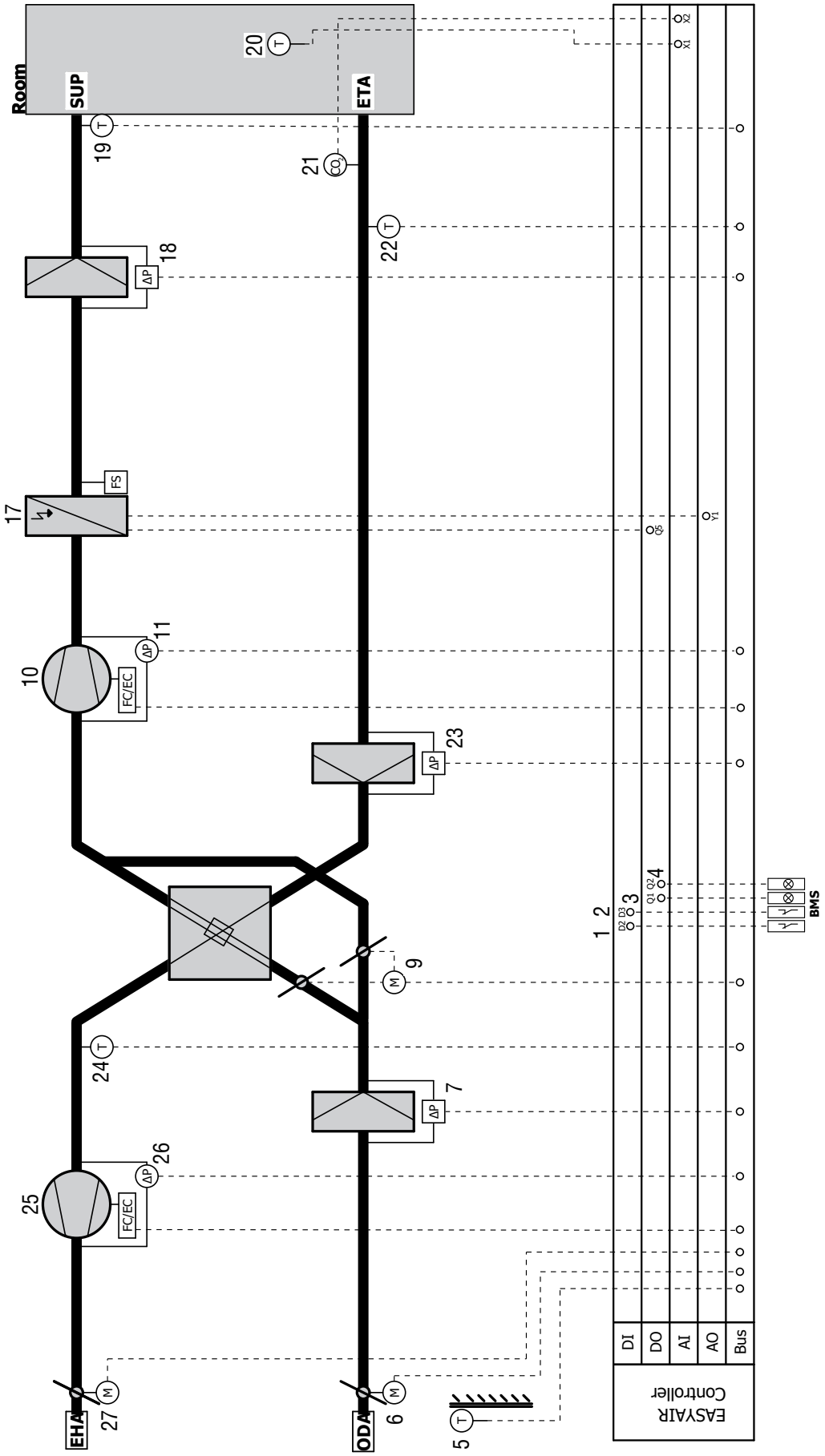
11.5 PL-units with PWW coil



11.6 PL-units with PWW and PCW coils



11.7 PL-units with electric heating coil



12 Spare parts

NOTE

The valid spare parts list can be found in the corresponding customer documentation which is created on the basis of the order.

AL-KO THERM GmbH	Phone:	(+49) 82 25 / 39 - 0
Hauptstraße 248-250	Fax:	(+49) 82 25 / 39 - 2113
D-89343 Jettingen-Scheppach	E-mail:	klima.technik@al-ko.com
Germany	Web:	www.al-ko.com
Customer Service	Phone:	(+49) 82 25 / 39 - 2574
	E-mail:	service.center@al-ko.com

13 Certifications

The following EC Declaration of Incorporation and EC Declaration of Conformity will be issued per order, according to their validity.

If both the order number and the position of the unit are specified, the issued document must be assigned to the respective unit.

13.1 EC Declaration of Incorporation conforming to 2006/42/EC

EG- EINBAUERKLÄRUNG

EC DECLARATION OF INCORPORATION
DÉCLARATION DE MONTAGE CE

QUALITY FOR LIFE

Hersteller / *Manufacturer / Fabricant:* **AL-KO THERM GMBH I Hauptstraße 248-250 I 89343 Jettingen-Scheppach I Germany**

Im Sinne der EG- Maschinenrichtlinie 2006/42/EG, Anhang II, Teil 1, Abschnitt B
As defined in EC Machinery Directive 2006/42/EC, Annex II, Part 1, Section B
Au sens de la directive Machines CE 2006/42/CE, annexe II, partie 1, section B

Unvollständige Maschine */ Partly completed machinery / Machine incomplète:* **RLT**/Space air technical devices / Air d'espace les appareils echniques
Serie */ Series / Série:* EASYAIR
Auftrags-Nr. */ Order no. / N° de commande:* xxxxxxxx **Position**/ *position/ la position:* xx

Hiermit erklären wir, dass die oben genannte unvollständige Maschine den folgenden EG/EU- Richtlinien entspricht:
We hereby declare that the above-mentioned partly completed machinery conforms to all relevant provisions of the following EC/EU directives:
Nous déclarons par la présente que le Machine incomplète susnommé répond à toutes les dispositions pertinentes de la directive CE/UE suivante:

Maschinenrichtlinie 2006/42/EG / *Machinery Directive 2006/42/EC / Directive Machines CE 2006/42/CE.*
Elektromagnetische Verträglichkeit 2014/30/EU / *Electromagnetic Compatibility 2014/30/EU / Compatibilité électromagnétique 2014/30/UE:*
Druckgeräterichtlinie 2014/68/EU / *Pressure Equipment Directive 2014/68/EU / Directive sur les appareils sous pression 2014/68/UE:*

Angewandte harmonisierte Normen / *Applied harmonized standards / Normes harmonisées appliquées:*

- DIN EN ISO 12100-1/-2,	Sicherheit von Maschinen – Allgemeine Gestaltungsleitsätze – Risikobeurteilung und Risikominderung *Safety of machinery - General principles for design - Risk assessment and risk reduction* *Sécurité des machines – Principes généraux de conception – Appréciation et réduction du risque*
- DIN EN 60204-1,	Sicherheit von Maschinen – Elektrische Ausrüstung von Maschinen – Teil 1: Allgemeine Anforderungen *Safety of machinery - Electrical equipment of machines - Part 1: General requirements* *Sécurité des machines – Equipement électrique des machines – Partie 1 : exigences générales*
- DIN EN 349,	Sicherheit von Maschinen - Mindestabstände zur Vermeidung des Quetschens von Körperteilen *Safety of machinery - Minimum gaps to avoid crushing of parts of the human body* *Sécurité des machines – Distances minimales pour prévention des contusions de parties du corps humain*
- DIN EN ISO 13857,	Sicherheit von Maschinen – Sicherheitsabstände gegen das Erreichen von Gefährdungsbereichen mit den oberen und unteren Gliedmaßen *Safety of machinery - Safety distances to prevent hazard zones being reached by upper and lower limbs* *Sécurité des machines – Distances de sécurité empêchant l'entrée dans les zones dangereuses des membres supérieurs et inférieurs*
- DIN EN 61000-6-1,	Störfestigkeit für Wohnbereich, Geschäfts- und Gewerbebereiche sowie Kleinbetriebe *Immunity standard for residential, commercial and light-industrial environments* *Résistance au brouillage pour le domaine d'habitation, les locaux commerciaux et professionnels ainsi que les petites exploitations*
- DIN EN 61000-6-2,	Störfestigkeit für Industriebereiche *Immunity standard for industrial environments* *Résistance au brouillage pour les zones industrielles*
- DIN EN 61000-6-3,	Störaussendung für Wohnbereich, Geschäfts- und Gewerbebereiche sowie Kleinbetriebe *Emission standard for residential, commercial and light-industrial environments* *Émission au brouillage pour le domaine d'habitation, les locaux commerciaux et professionnels ainsi que les petites exploitations*
- DIN EN 61000-6-4,	Störaussendung für Industriebereiche *Emission standard for industrial environments* *Émission d'interférences pour les zones industrielles*
- DIN EN 378-2,	Kälteanlagen und Wärmepumpen – Sicherheitstechnische und umweltrelevante Anforderungen – Teil 2: Konstruktion, Herstellung, Prüfung, Kennzeichnung und Dokumentation *Refrigerating systems and heat pumps - Safety and environmental requirements - Part 2: Design, construction, testing, marking and documentation* *Installations frigorifiques et pompes à chaleur – Exigences techniques de sécurité et pertinentes écologiquement – Partie 2 : construction, fabrication, contrôle, marquage et documentation*

Zusätzlich angewendete Normen / *Additional applied standards / Normes appliquées supplémentaires :*

- DIN EN 1886,	Lüftung von Gebäuden – Zentrale raumlufttechnische Geräte – Mechanische Eigenschaften und Messverfahren *Ventilation for buildings - Air handling units - Mechanical performance* *Ventilation des bâtiments – Appareils centraux techniques à air conditionné – Propriétés mécaniques et procédés de mesure*
- DIN EN 13053,	Lüftung von Gebäuden; Zentrale raumlufttechnische Geräte – Leistungskenndaten für Geräte, Komponenten und Baueinheiten *Ventilation for buildings - Air handling units - Rating and performance for units, components and sections* *Ventilation des bâtiments ; appareils centraux techniques à air conditionné – Données caractéristiques de puissance pour les appareils, les composants et les unités de montage*
- VDMA 24167,	Ventilatoren – Sicherheitsanforderungen *Fans - Safety requirements* *Ventilateurs – Exigences de sécurité*
- VDI 6022,	Hygieneanforderungen an Raumlufttechnische Anlagen und -Geräte *Hygiene requirements for ventilation and air-conditioning systems and units* *Exigences hygiéniques applicables aux installations et appareils techniques à air conditionné*

Die Inbetriebnahme unseres Produktes bleibt so lange untersagt, bis festgestellt wurde, dass die Ausführung der Anlage/ Maschine, in welcher der Einbau erfolgen soll oder von dem es ein Teil sein wird, mit den entsprechenden Rechtsvorschriften übereinstimmt.
Our product is not cleared for commissioning and use until it has been determined that the product is going to be integrated into a facility/machine and/or is used as part of an assembly, which agree with all applicable laws and regulations.
La mise en service de ce produit est interdite tant qu'il n'a pas été constaté, que le modèle de l'installation/ la machine, dans lequel il doit être incorporé, ou dont il deviendra une partie, est conforme aux dispositions légales correspondantes.

Bevollmächtigter für die Zusammenstellung der technischen Unterlagen:
Authorized representative in charge of the technical document compilation:
Personne autorisée à constituer le dossier technique
Anschrift siehe Hersteller / *see manufacturer's address above / Adresse, voir fabricant*

Jettingen-Scheppach, 01.07.2019

Leiter der Abteilung Entwicklung
Head of Development Department
Chef du département de développement

Dr. Christian Stehle
Geschäftsführer / *Managing Director / Directeur général*

13.2 EC Declaration of Conformity conforming to 2006/42/EC

EG-KONFORMITÄTSERKLÄRUNG

EC DECLARATION OF CONFORMITY
DÉCLARATION DE CONFORMITÉ CE

AL-KO QUALITY FOR LIFE

Hersteller / *Manufacturer / Fabricant:* **AL-KO THERM GMBH I Hauptstraße 248-250 I 89343 Jettingen-Scheppach I Germany**

Im Sinne der EG- Maschinenrichtlinie 2006/42/EG, Anhang II, Teil 1, Abschnitt A
As defined in EC Machinery Directive 2006/42/EC, Annex II, Part 1, Section A
Au sens de la directive Machines CE 2006/42/CE, annexe II, partie 1, section A

Maschine / *Machine / Machine:* **RLT**/Space air technical devices / Air d'espace les appareils techniques
Serie / *Series / Série:* EASYAIR
Auftrags-Nr. / *Order no. / N° de commande:* xxxxxxxx **Position** / *position/ la position:* xx

Hiermit erklären wir, dass die oben genannte Maschine alle sicherheitstechnischen Anforderungen der folgenden anwendbaren EG/EU- Richtlinien erfüllt:
We hereby declare that the above-mentioned machine conforms to all relevant safety-provisions of the following EG/EC directives:
Nous déclarons par la présente que la machine susmentionnée corresponde à toutes les des exigences de sécurité pertinentes de la directive CE/UE suivante:

Maschinenrichtlinie 2006/42/EG / *Machinery Directive 2006/42/EC / Directive Machines CE 2006/42/CE:*
Elektromagnetische Verträglichkeit 2014/30/EU / *Electromagnetic Compatibility 2014/30/EU / Compatibilité électromagnétique 2014/30/UE:*
Druckgeräterichtlinie 2014/68/EU / *Pressure Equipment Directive 2014/68/EU / Directive sur les appareils sous pression 2014/68/UE:*

Angewandte harmonisierte Normen / *Applied harmonized standards / Normes harmonisées appliquées:*

- DIN EN ISO 12100-1/-2,	Sicherheit von Maschinen – Allgemeine Gestaltungsleitsätze – Risikobeurteilung und Risikominderung *Safety of machinery - General principles for design - Risk assessment and risk reduction* *Sécurité des machines – Principes généraux de conception – Appréciation et réduction du risque*
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- DIN EN 61000-6-1,	Störfestigkeit für Wohnbereich, Geschäfts- und Gewerbebereiche sowie Kleinbetriebe *Immunity standard for residential, commercial and light-industrial environments* *Résistance au brouillage pour le domaine d'habitation, les locaux commerciaux et professionnels ainsi que les petites exploitations*
- DIN EN 61000-6-2,	Störfestigkeit für Industriebereiche *Immunity standard for industrial environments* *Résistance au brouillage pour les zones industrielles*
- DIN EN 61000-6-3,	Störaussendung für Wohnbereich, Geschäfts- und Gewerbebereiche sowie Kleinbetriebe *Emission standard for residential, commercial and light-industrial environments* *Émission au brouillage pour le domaine d'habitation, les locaux commerciaux et professionnels ainsi que les petites exploitations*
- DIN EN 61000-6-4,	Störaussendung für Industriebereiche *Emission standard for industrial environments* *Émission d'interférences pour les zones industrielles*
- DIN EN 378-2,	Kälteanlagen und Wärmepumpen – Sicherheitstechnische und umweltrelevante Anforderungen – Teil 2: Konstruktion, Herstellung, Prüfung, Kennzeichnung und Dokumentation *Refrigerating systems and heat pumps - Safety and environmental requirements - Part 2: Design, construction, testing, marking and documentation* *Installations frigorifiques et pompes à chaleur – Exigences techniques de sécurité et pertinentes écologiquement – Partie 2 : construction, fabrication, contrôle, marquage et documentation*

Zusätzlich angewendete Normen / *Additional applied standards / Normes appliquées supplémentaires:*

- DIN EN 1886,	Lüftung von Gebäuden – Zentrale raumlufttechnische Geräte – Mechanische Eigenschaften und Messverfahren *Ventilation for buildings - Air handling units - Mechanical performance* *Ventilation des bâtiments – Appareils centraux techniques à air conditionné – Propriétés mécaniques et procédés de mesure*
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- VDI 6022,	Hygieneanforderungen an Raumlufttechnische Anlagen und -Geräte *Hygiene requirements for ventilation and air-conditioning systems and units* *Exigences hygiéniques applicables aux installations et appareils techniques à air conditionné*
- 1253/2014/EU	Ökodesignrichtlinie / *Ecodesign Directive / Directive de design écologique*

Bei einer mit uns nicht abgestimmten Änderung der Maschine verliert diese Erklärung ihre Gültigkeit.
Any modification of this machine without confirmation shall automatically annul this declaration.
En cas de modification de la machine non convenue avec nous, la présente déclaration perd sa validité.

Bevollmächtigter für die Zusammenstellung der technischen Unterlagen:
Authorized representative in charge of the technical document compilation:
Personne autorisée à constituer le dossier technique
Anschrift siehe Hersteller / *see manufacturer's address above / Adresse, voir fabricant*

Jettingen-Scheppach, 01.07.2019

Leiter der Abteilung Entwicklung
Head of Development Department
Chef du département de développement

Dr. Christian Stehle
Geschäftsführer / *Managing Director / Directeur général*

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