AL-KO

QUALITY FOR LIFE

EN

FLAT AIR HANDLING UNIT

OPERATING AND ASSEMBLY INSTRUCTIONS

AL-KO EASYAIR®flat

Legal

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Revision history

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1.0	Initial release	01/12/2013
1.0a	Revision	15/12/2016
1.0b	Revision	22/07/2019
2.0	Complete revision	05/08/2021

Table of contents

1 About this manual

- The German version is the original operating instructions. All further language versions are translations of the original operating instructions.
- Read these operating and assembly instructions carefully before assembly, commissioning and maintenance. This is the prerequisite for safe work and trouble-free handling.
- Observe the safety instructions and warnings in these operating and assembly instructions and on the product.
- These operating and assembly instructions are 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.

ATTENTION

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 serious property damage.	
IMPORTANT NOTICE If you do not heed this notice, this can lead to problems with the unit.	
OBSERVE THE OPERATING AND ASSEMBLY INSTRUCTIONS If you do not heed the notices in the operating and assembly instructions, this can lead to problems with the unit.	

Warning sign

The warning signs used in these operating and assembly instructions draw attention to specific hazards.

Meaning	Warning sign
Warning of danger of falling If the required safety instructions are not observed, this can lead to death or severe injuries due to falling.	
Warning of danger of slipping If the required safety instructions are not observed, this can lead to death or severe injuries due to slipping.	
Warning of electrical voltage If the required safety instructions are not observed, this can lead to death or severe injuries due to dangerous electrical voltage.	
Warning against suspended loads If the required safety instructions are not observed, this can lead to death or severe injuries due to a suspended load.	
Warning of falling objects If the required safety instructions are not observed, this can lead to death or severe injuries due to falling objects.	
Warning of hot surfaces If the required safety instructions are not observed, this can lead to death or severe injuries due to hot surfaces.	
Warning of danger of crushing If the required safety instructions are not observed, this can lead to death or severe injuries due to crushing.	
Warning of sharp objects If the required safety instructions are not observed, this can lead to death or severe injuries due to sharp objects.	

Meaning	Warning sign
Warning of hand injuries If the required safety instructions are not observed, this can lead to death or severe injuries.	
Warning of poisonous substances If the required safety instructions are not observed, this can lead to death or severe injuries due to poisonous substances.	

Prohibition sign

The prohibition signs in these operating and assembly instructions draw attention to 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 Failure to disconnect the unit from all energy sources before starting maintenance or repair work can result in serious injuries.	

1.2.1 Abbreviations

Abbreviation	Meaning
ETA	Extract air
ODA	Outdoor air
EHA	Exhaust air
PPE	Personal protective equipment
SUP	Supply air

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. It may only be operated in the temperature range from -20 °C to +40 °C. In addition, the EASYAIR®flat units are designed exclusively for horizontal ceiling mounting. 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 20 and chapter “7 Integrated control” on page 48). Furthermore, the intended use also means compliance with the operating and maintenance conditions listed in these operating and assembly instructions (see sections “6 Commissioning” on page 46 and “8 Servicing and maintenance” on page 51).

- The unit is intended for transporting breathable air.
- Only operate the EASYAIR®flat unit fully assembled.
- Protect the unit from moisture.
- Only use original spare parts from AL-KO THERM.
- Children and people who are not familiar with the unit may not use it.
- Observe the accident prevention regulations and fire protection regulations.

2.2 Foreseeable misuse

The AL- KO THERM EASYAIR®flat unit 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 “2.1 Intended use” on page 8 is regarded as not in accordance with the intended use. The manufacturer cannot be held liable for damage resulting from this.

Possible misuse includes:

- Conveying media with non-permissibly high or low temperatures.
- Conveying explosive media.
- Conveying aggressive media or heavily dust-containing media.
- Use in an explosive atmosphere.

2.3 General safety instructions

⚠ WARNING

Risk of serious injury or death if working without personal protective equipment.

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

- Observe the safety instructions in this operating and assembly instructions.
- 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®flat unit 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®flat unit from the mains on all poles and secure to prevent restart.
- Integrate metal components to discharge static energy into the potential.
- Avoid sparks and flying sparks in the intake area of the installation.
- Observe the working instructions and these operating and assembly instructions.
- Work with care.
- Use the personal protective equipment when working on the installation.

⚠ WARNING



Risk of injury due to falling and falling modules.

When installing the modules or fastening to the ceiling, 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 assembly instructions in these operating and assembly instructions.
- Use only tested ladders, scaffolding or suitable platforms.
- Only use suitable lifting equipment.
- Only use approved fasteners when installing the EASYAIR®flat unit.
- Use the personal protective equipment when working on the installation.

⚠ WARNING

Risk of injury due to unauthorised opening.

- Keep the maintenance panel and inspection doors closed during operation.
- Never open the unit during operation.

⚠ WARNING

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

- Only use suitable and tested ladders, steps, scaffolding and work platforms.
- Only allow assembly, installation, commissioning, repair, maintenance and servicing work to be carried out by qualified staff.
- Work with care.

Observe the safety instructions to avoid injury, fire and other hazards due to the improper use and operation of the unit:

- If installation is performed contrary to our regulations, and the defect/damage which has occurred is attributable to improperly modification, processing or any other treatment, all damage compensation or warranty claims are ruled out. The orderer must prove that improper 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 authorised persons must have read and understood the operating and assembly instructions in full before starting work on the unit and must observe them at all times!
- To avoid hazards during operation, all of the user's plant, operating and working instructions apply in addition to these operating instructions.

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®flat unit must be installed properly and used subject to precise observation of our operating and assembly instructions.
- The EASYAIR®flat unit may only be operated in technically flawless condition. Malfunctions and damage that can affect safety must be rectified immediately and professionally.
- The design and construction of the EASYAIR®flat unit conform to the standards listed in the Declarations of Conformity.

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®flat unit from the mains supply at all poles.
- General maintenance instructions in the operating and assembly instructions from AL-KO THERM must be observed under all circumstances.

2.3.3 Personal safety instructions

- The EASYAIR®flat unit 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®flat unit!
- To avoid hazards during operation, all of the owner/operator's plant, operating and working instructions apply in addition to these operating and assembly instructions.
- The operating and assembly instructions must be kept at a suitable, known place in the workplace.
- The owner/operator of the EASYAIR®flat unit device must draw up operating procedures in an understandable form and in the language of the employees, taking the operating and assembly instructions 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 used according to its designated use. Residual dangers are potential hazards that are not immediately apparent, such as:

- 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: Due to non-observance of safety instructions, standards and regulations.

2.5 Training

The owner/operator of the EASYAIR®flat unit must regularly train their personnel in the following subjects:

- Observance of the operating and assembly instructions as well as the legal regulations.
- Intended operation of the EASYAIR®flat unit.
- Observance of all plant, operating and working instructions at the owner's/operator's installation site.
- What to do in an emergency.

3 Product description

- The exact type designation can be found on the type plate. The type plate is usually affixed to the housing. When ordering spare parts or in case of other queries, please specify the type designation of the EASYAIR®flat unit, the year of manufacture and the order number.
- The EASYAIR®flat unit may only be operated in the temperature range from -20 °C to +40 °C.
- The unit construction consists of functional modules (filter, fan, sound absorber, heater, cooler, heat recovery). The units can be ordered either as a combined supply air and exhaust air unit incl. heat recovery or as pure supply air or exhaust air unit.

NOTE

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

3.1 Functional description

EASYAIR®flat central ventilation and air handling units are designed for ceiling mounting due to their low installation height. For this purpose, mounting brackets are factory-fitted onto the unit.

The units with heat recovery achieve a heat recovery rate of up to 90 % according to DIN EN 308. The units therefore make a significant contribution to saving energy and reducing operating costs. All units can be ordered with the appropriate control. This ensures trouble-free operation of the units.

All field devices located directly on the unit device are factory-fitted. The switch cabinet is loose and can therefore be installed anywhere. Wiring between the unit and the switch cabinet must be carried out on-site.

The units can be expanded with selectable options.

Optional components for extended use are: Electric or water-heated heater module, cooler module, silencer module, 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 when the associated control system is used. 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: Modbus, LON, Bacnet/Ethernet are available.

EASYAIR®flat EF unit: Supply and exhaust air unit

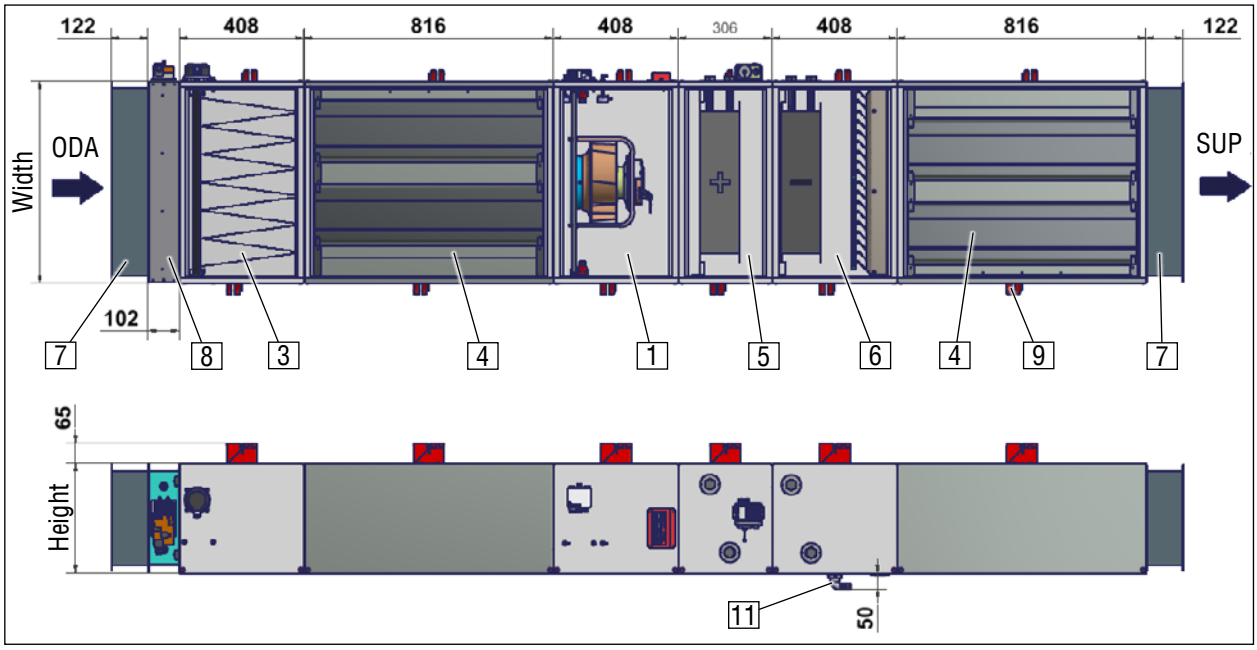


Fig. 1 EASYAIR®flat EF unit - Components and dimensions

ODA	Outdoor air	SUP	Supply air

1	Supply air fan module	7	Connection fitting
3	Filter module	8	Multi-leaf dampers
4	Sound absorber module*	9	Installation brackets
5	Heater module* (hot water or electric heater)	11	Pan drain
6	Cooler module*		

*available as an option

EASYAIR®flat GF unit: Supply and exhaust air unit with heat recovery

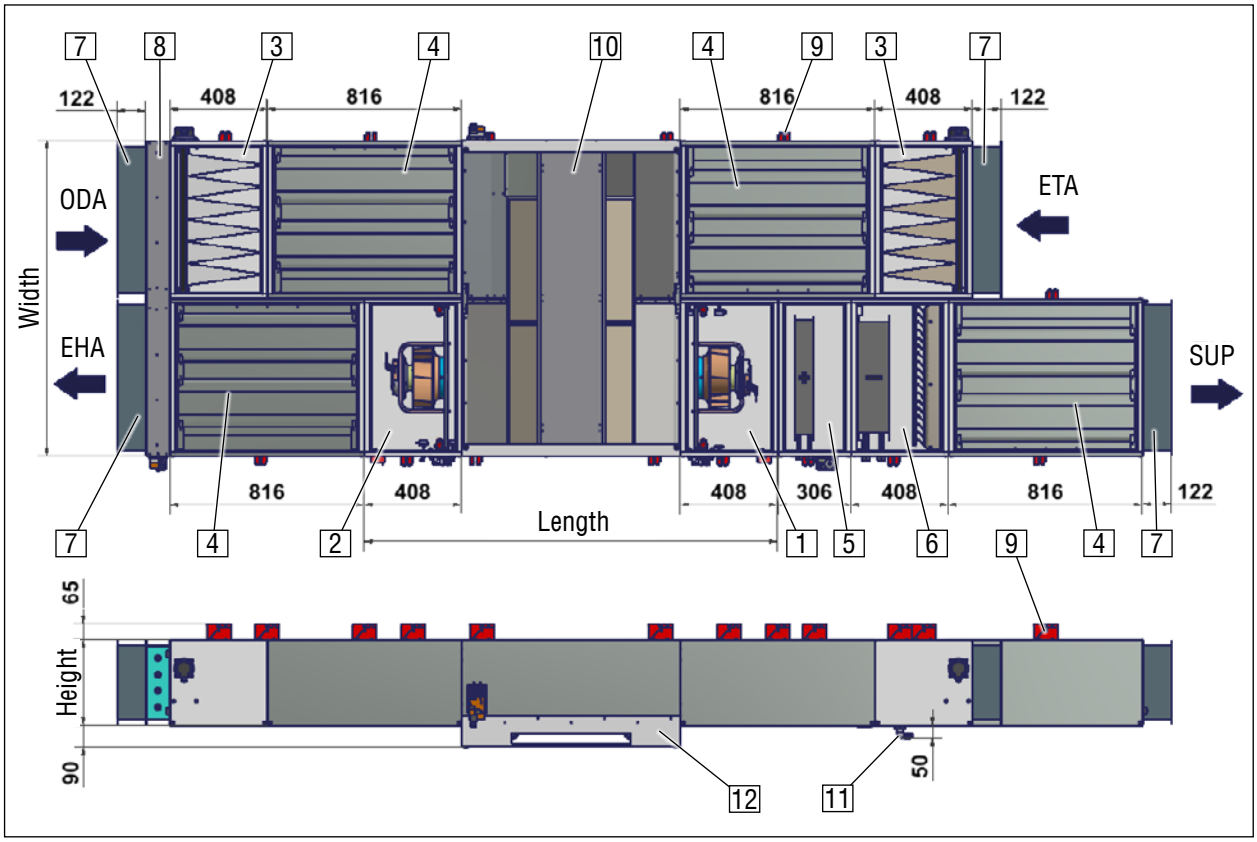


Fig. 2 EASYAIR®flat GF unit - Components and dimensions

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

1	Supply air fan module	7	Connection fitting
2	Exhaust air fan module	8	Multi-leaf dampers
3	Filter module	9	Installation brackets
4	Sound absorber module*	10	Countercurrent plate heat exchanger module
5	Heater module* (hot water or electric heater)	11	Pan drain
6	Cooler module*	12	Removal rail

*available as an option

Base unit length each incl. 2 mm housing seal per module connection.

3.2 Technical and electrical data

ATTENTION

For units with condensate pans, an additional 50 mm for the condensate drainage must be included for the specified device height, if necessary, the siphon height must also be taken into account.

For more details, see point “5.5.4 Siphon connection” on page 34

3.2.1 EF supply and exhaust unit

Type	Air volume[1] (m³/h)/sound level[3](dB(A))			SFP[4] Supply/exhaust air	Max. connected values[6]		
	of	normal value	to	W/m³s	kVA	A	V
EF 01	650 / 68	1,000 / 68	1,700 / 73	567	1.6	7.1	1~ 230V 50Hz
EF 02	900 / 69	1,800 / 79	2,750 / 87	654	2.1	9.1	1~ 230V 50Hz
EF 03	1,350 / 64	2,700 / 72	3,700 / 80	608	3.4	5.9	3~ 400V 50Hz

Type	Base unit (mm)			Duct connection (mm)		Base unit
	Length[5]	Width	Height	B	H	Weight kg
EF 01	818	662	362	612	306	59
EF 02	818	662	464	612	408	69.5
EF 03	818	968	464	918	408	87

Options

Type	WWE		KWK		ELE			SD
	kW[9]	kg	kW[8]	kg	kW[11]	A	kg	kg
EF 01	11.4	22.5	5.0	29.5	8.1	11.7	29	49
EF 02	20.5	26	8.9	34.5	14.6	21.1	35.5	55
EF 03	30.8	34	13.8	45.5	21.9	31.6	44.5	74

3.2.2 GF supply and exhaust unit with countercurrent plate heat exchanger

Type	Air volume[1](m³/h)/efficiency WRG[2]/sound level[3](dB(A))			SFP[4] Supply/exhaust air	Max. connected values[6]		
	of	normal value	to	W/m³s	kVA	A	V
GF 01	650 / 84 / 70	1000 / 82 / 71	1350 / 80 / 73	614 / 599	1.6	7.1	1~ 230V 50Hz
GF 02	900 / 84 / 70	1800 / 80 / 80	1880 / 80 / 81	941 / 862	2.1	9.1	1~ 230V 50Hz
GF 03	1350 / 84 / 66	2700 / 80 / 73	2840 / 80 / 74	791 / 731	1.6	5.9	3~ 400V 50Hz

Type	Base unit (mm)			A	Duct connection (mm)		Base unit
	Length[5]	Width	Height	mm	B	H	Weight kg
GF 01	1,738	1,326	362	918	612	306	223
GF 02	1,942	1,326	464	1,122	612	408	274
GF 03	2,044	1,938	464	1,224	918	408	370

Options

Type	WWE		KWK		ELE			SD
	kW[7]	kg	kW[8]	kg	kW[10]	A	kg	kg
GF 01	4.7	20	5.0	29.5	5.5	7.9	24	49
GF 02	8.4	22.5	8.9	34.5	9.5	13.7	31.5	55
GF 03	21.7	29	13.8	45.5	14.0	20.2	37	74

(1)	External pressure drop supply 200 Pa, exhaust 200 Pa
(2)	Efficiency WRG according to DIN EN 308 (dry)
(3)	Sound power level in the supply air duct
(4)	Specific fan power (SFP) according to EnEV 2016 at nominal air volume and external duct pressure losses, Supply air 200 Pa, exhaust air 200 Pa, with filter ePM1 (F7) / ePM10 (M5)
(5)	Base unit length each incl. 2 mm housing seal per module connection Base unit comprising fan module and filter module (EF unit) or 2 fan modules, 2 filter modules and 1 countercurrent plate heat exchanger module (GF unit)
(6)	Without power for optional electric air heater
(7)	Heating power for heating by 14 K, medium 50 / 35 °C
(8)	Cooling power for cooling by 10 K, medium 6 /12 °C
(9)	Heating power for heating by 34 K, medium 50 / 35 °C
(10)	Heating output for heating by 14 K, 400 V / 50 Hz
(11)	Heating output for heating by 22 K, 400 V / 50 Hz

*Value requirements at nominal air volume

3.2.3 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

3.3 Example type plate for EASYAIR®flat

AL-KO THERM GMBH
Hauptstrasse 248-250
D-89343 Jettingen-Scheppach
Germany

CE

AL-KO EASYAIR flat

Type:	GF-01-
Year of construction	2021
Order number:	241
Position number	100

The given data are nominal values. For device design data, see data sheet.

Filter	Supply air	Extract air
Filter class:	ePM1 (F7)	ePM10 (F5)
dp End [Pa]:	200	200

Plate heat exchanger	
Efficiency	81.3%

Fans		
Rated volumetric flow:	1000 m³/h	1000 m³/h
Connected load:	0.52 kW	0.52 kW
Rated current:	2.3 A	2.3 A
Voltage/frequency:	230 V / 50 Hz	230 V / 50 Hz
IP code:	IP 55	IP 55
Total current:	8.0 A	

4 Transport

4.1 Delivery

- EASYAIR®flat units are supplied in individual modules.

4.2 Storage prior to assembly

- Store the individual functional parts in a dry and weatherproof location in their original packaging.
- Cover open pallets with tarpaulins, and protect the functional parts from dirt (e.g. chips, stones, wire, etc.).
- Frequent and, above all, abrupt temperature changes must be avoided during storage. This is especially harmful if moisture is able to form condensation.
- 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 one 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 initiator.

4.3 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.
- Use suitable lifting equipment.

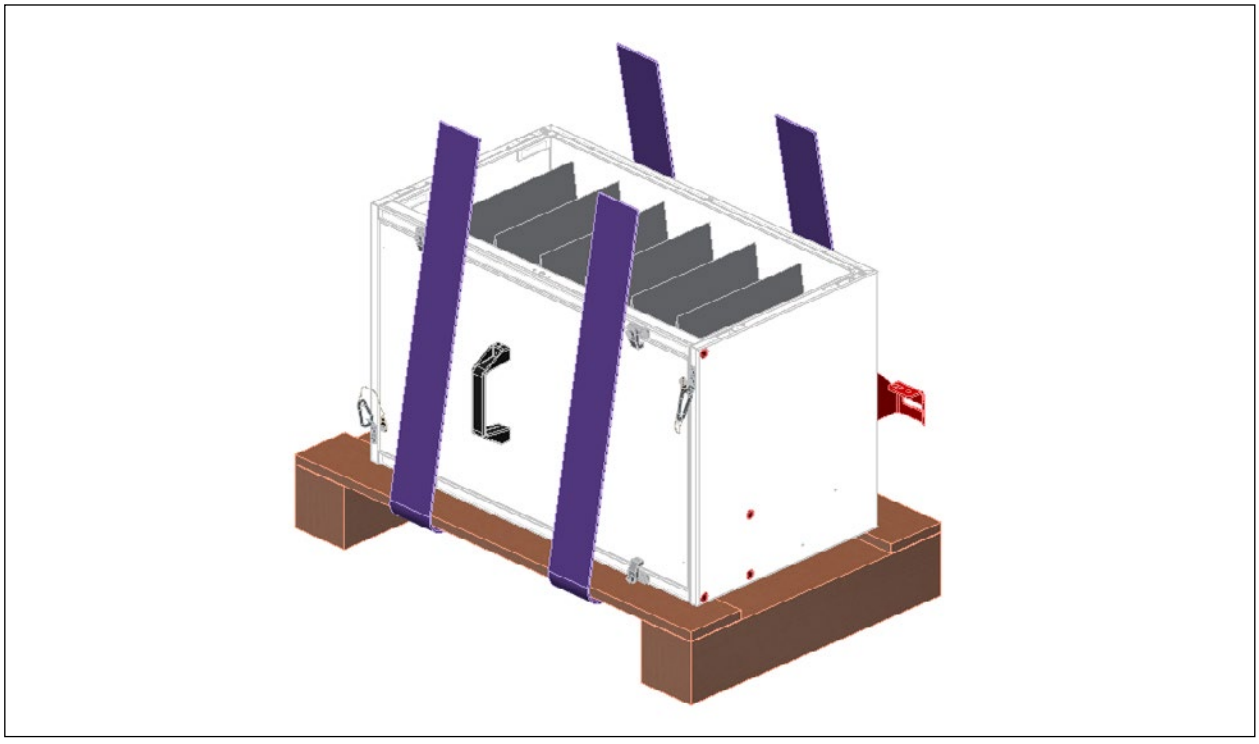


Fig. 3 Crane transport on pallet with slippage

Crane transport is only permitted if the housing module on the pallet is lifted in conjunction with slippage. Attachment to the installation brackets is not permissible. Otherwise, transport is carried out using an industrial truck.

⚠ WARNING

Risk of injury from falling modules.

During transport, modules may fall off onto persons and/or modules may fall down onto persons.

- Have the modules transported by qualified staff only.
- Observe the transport instructions in these operating and assembly instructions.
- Use only use suitable and approved fastening material.
- Wear personal protective 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 falling or tipping over.

- Observe the applicable standards, directives and regulations.
- Observe the instructions in these operating and assembly instructions.
- Define the mounting points.
- Observe the weight specifications.
- Only work on on-site surfaces that are suitable for installation preparations and lifting.

ATTENTION

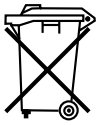
- Uniform lifting of the unit components must be ensured!
- Only approved lifting equipment with a sufficient load capacity may be used.
- The lifting equipment must be in perfect condition.
- The lifting gear must be inspected for load-bearing capacity and damage before use.
- The individual components of the installation may only be moved with the transport equipment/industrial trucks provided for this purpose.
- Operating panels must be kept closed at all times during transport.

- Only transport in modules, not the assembled unit.
- Ensure sufficient visibility during transport (accompanying person, if necessary).
- No persons must be allowed to remain in the transport area.
- The EASYAIR®flat unit modules must only be transported by trained and qualified staff and in observance of the safety aspects.
- If transport units are used that require a driving licence, the personnel operating these units must have an applicable, valid driving licence for this.
- During transport, observe the instructions in these operating and assembly instructions and the relevant regulations on occupational safety and environmental protection.
- Avoid distorting the housing or other damage during transport.
- Damage that results from improper packaging and transport are at the expense of the initiator.

4.4 Transport under difficult conditions

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

4.5 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 General information

⚠ WARNING



Risk of injury due to falling and falling modules.

When installing the modules or fastening to the ceiling, persons may fall off and/or modules may fall down.

- Have installation, commissioning, servicing and maintenance work carried out only by qualified staff.
- Observe the assembly instructions in these operating and assembly instructions.
- Use only tested ladders, scaffolding or suitable platforms.
- Only use suitable industrial trucks.
- Only use approved fastening material for the corresponding ceiling design when installing the EASYAIR®flat unit.
- Wear personal protective equipment.

⚠ WARNING

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

- Have installation, commissioning, servicing and maintenance work carried out only by qualified staff.
- Observe the working instructions and these operating and assembly instructions.
- 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.

- Have installation, commissioning, servicing and maintenance work carried out only by qualified staff.
- Use assembly aids when installing the modules and components.
- Work with care.
- Wear personal protective equipment (cut-proof gloves).

ATTENTION

Before installation and commissioning, it is essential to read and observe the operating and assembly instructions.

- The AL-KO THERM EASYAIR®flat unit is supplied in modules.
- For constructing the modules, in particular in the layout of the filter and fan modules, the supplied unit drawing must be observed.
- 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

- Check the condition of the ceiling.
- Check the individual components for transport damage.
- Select the installation site with regard to good accessibility for servicing and maintenance 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 in the switch cabinet are securely in place.
- Re-fasten any loose components.
- 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.

ATTENTION

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

Space requirements

- Ensure free access to the operating side (bottom).
- It is important that there is enough space for the maintenance cover to be opened and the main components to be removed.
- The installation height of the siphon for condensate drain lines (optional) must be taken into account when suspending the unit.
- Make sure that sufficient space (min. 400 mm) is provided next to the unit for maintenance and adjustment work on the field devices (such as servomotors).

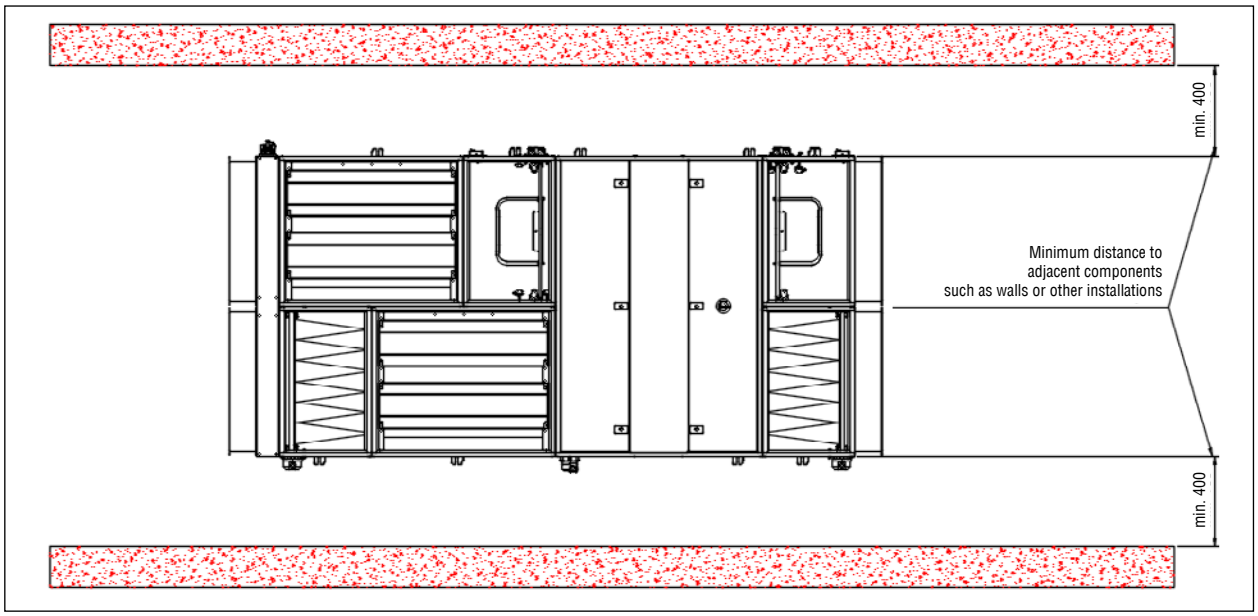


Fig. 4 Space required for assembly, disassembly, maintenance and adjustment work

5.3 Ceiling construction

- The units may only be installed under horizontal, vibration-resistant ceiling constructions.
- The version of the ceiling and suspended construction must meet the on-site requirements for the acoustics (structure-borne sound insulation) and correct water drainage of the condensate.
- The ceiling construction must be able to bear the static load of the units.

Example of ceiling construction

With EF units, a suspension option at a distance of B1 and with GF units, the distances B1 and B2 apply.

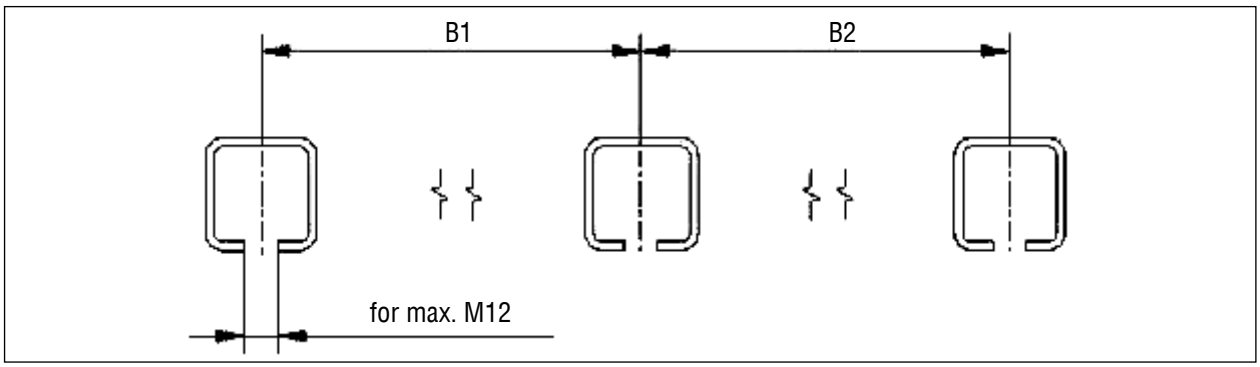


Fig. 5 Dimensions for the ceiling construction

in mm	EF 01	EF 02	EF 03	GF 01	GF 02	GF 03
B1	662	662	968	663	663	969
B2	-	-	-	663	663	969

5.4 Opening/removing the maintenance panel

⚠ WARNING

Risk of injury from falling maintenance panels.

The maintenance panels are no longer secured against falling after the clamp closures have been opened.

- Always support the maintenance panels by hand during opening/removal.

- EASYAIR®flat units are equipped with sufficiently large maintenance panels for easy maintenance and inspection. The operating and maintenance side is always from below.

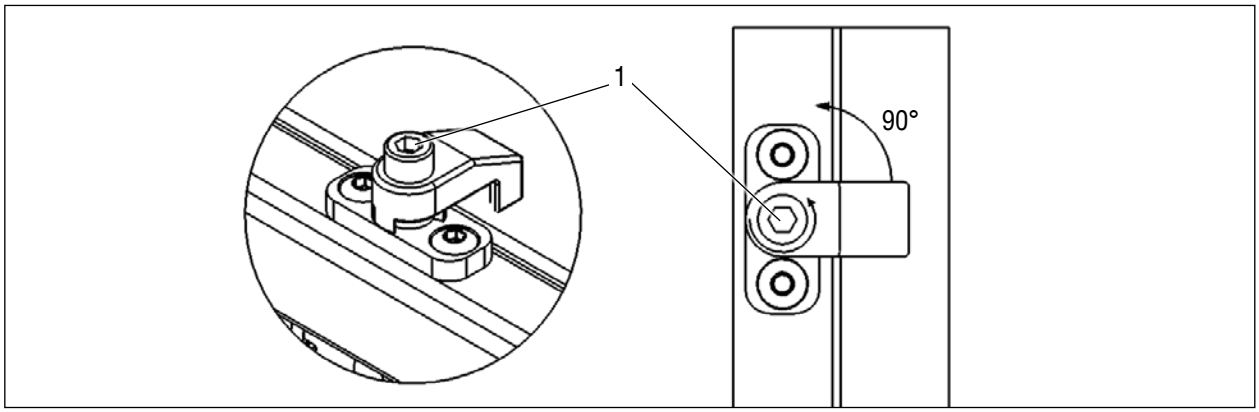


Fig. 6 Clamp closure on the maintenance panels

1	Screw		

Step	Action
1	To open/remove the maintenance panels, loosen the screws of all clamp closures using the supplied hexagon socket wrench (SW05).
2	Then turn the clamp closures by 90°. Always secure the maintenance panel with one hand to prevent it from falling.

5.4.1 Disassembly of the maintenance panel for individual modules

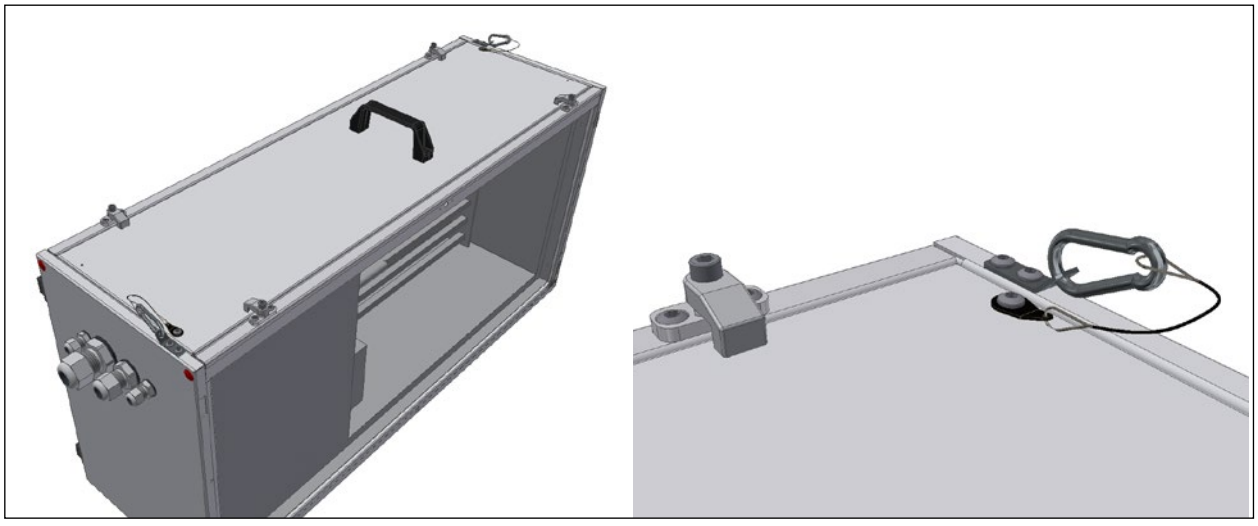


Fig. 7 Safety ropes with carabiners on the maintenance panel (overview and detail)

The small maintenance panels of the individual modules are each secured against falling down via two safety ropes and carabiners. For complete disassembly of the maintenance panels, the carabiners can be unhooked from the fastening lugs.

⚠ WARNING

Risk of injury from falling maintenance panels.

The maintenance panels are no longer secured against falling after the carabiners have been unhooked.

- Always support the maintenance panels by hand during opening/removal.
- Correctly re-suspend the safety ropes, including the carabiners, after closing the housings with the maintenance panels to avoid the maintenance panels falling down when removing them again.

5.4.2 Disassembly of the maintenance panel for countercurrent exchanger module

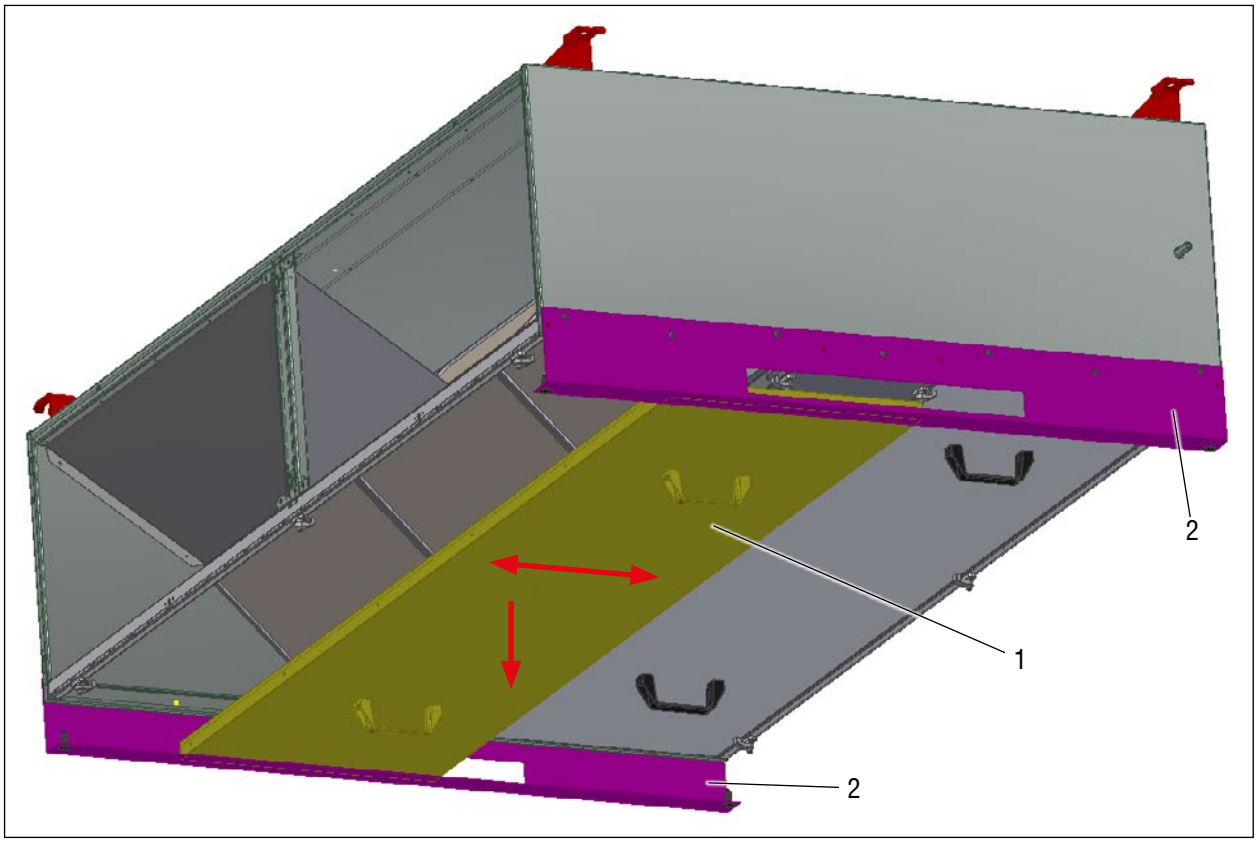


Fig. 8 Place the maintenance panel on the removal rail

1	Maintenance panel	2	Removal rail

Step	Action
1	Open the clamp closures.
2	Place the maintenance panel (1) on the removal rails (2) and slide it to one side if necessary.

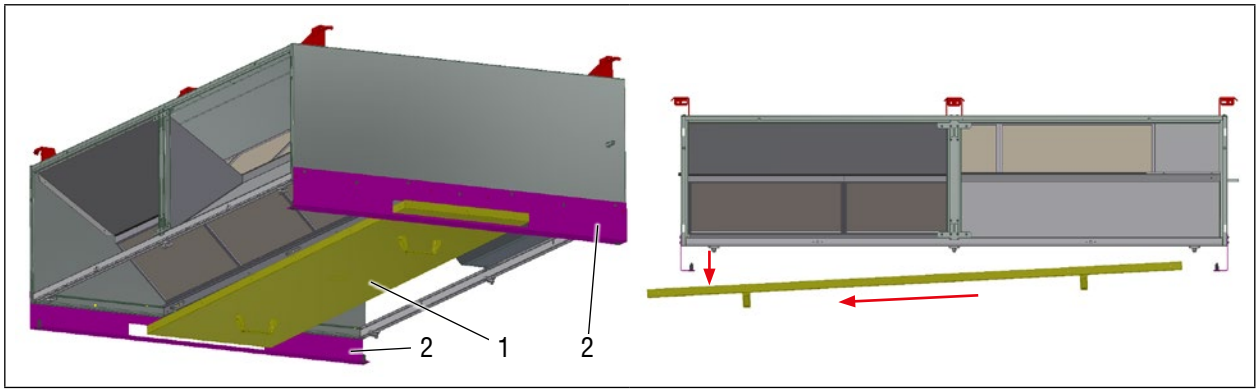


Fig. 9 Remove the maintenance panel

1	Maintenance panel	2	Removal rail

Step	Action
1	To fully remove the maintenance panel (1), lift it slightly.
2	Move the maintenance panel (1) through the cut-out of the removal rail (2).
3	Lower the maintenance panel (1) on the opposite side so that it can be moved below the removal rail (2) and take out the maintenance panel (1).

5.4.3 Assembly of the maintenance panel for the countercurrent exchanger module

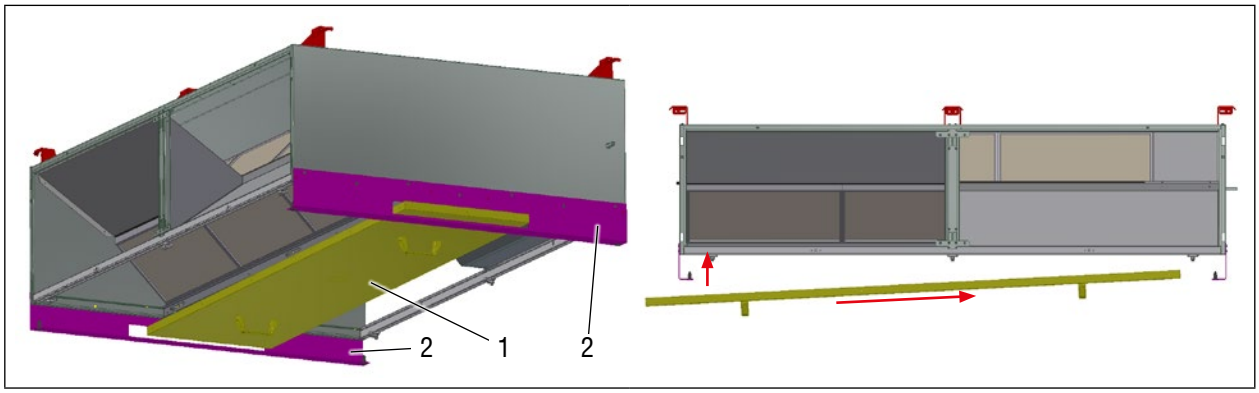


Fig. 10 Fit the maintenance panel

1	Maintenance panel	2	Removal rail

Step	Action
1	To fit the maintenance panel (1), guide it through the cut-out of the removal rail (2).
2	Lift the maintenance panel (1) slightly on the opposite side and place the maintenance panel (1) on the removal rail (2).

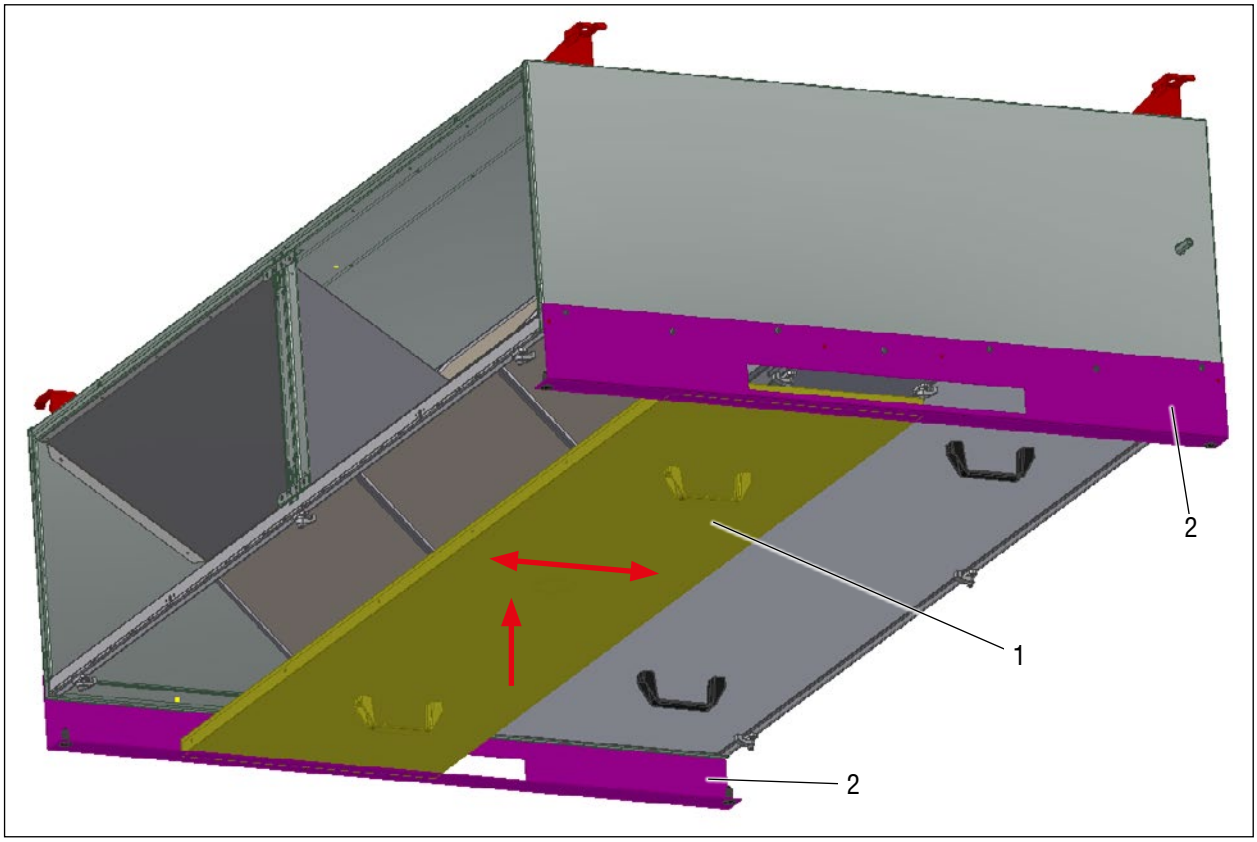


Fig. 11 Fit the maintenance panel

1	Maintenance panel	2	Removal rail

Step	Action
1	Fit the maintenance panel (1) into the sealing position.
2	Close the clamp closures.

5.5 Assembly of the modules

5.5.1 Work steps

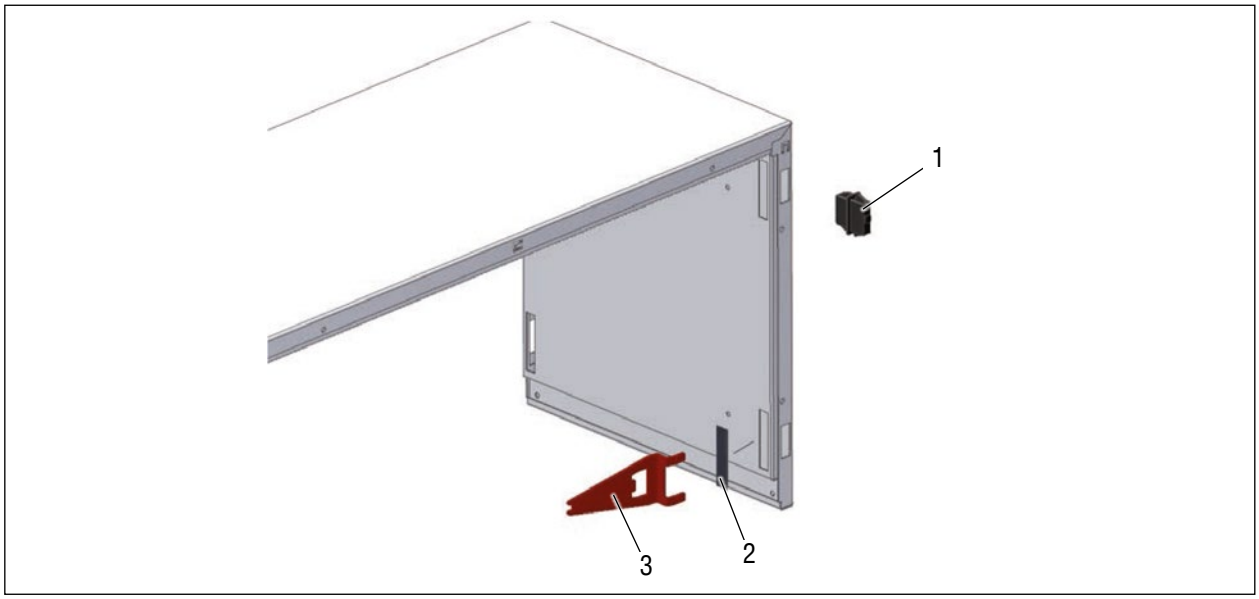


Fig. 12 Fit click connectors and covering caps

1	Click connectors	3	Special tool for disassembly
2	Covering cap		

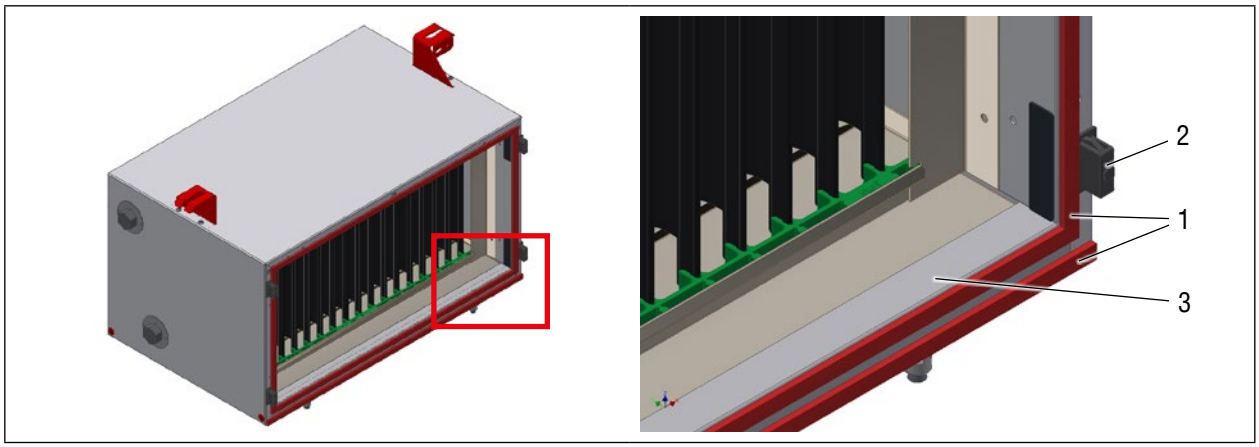


Fig. 13 Affix sealing tape

1	Sealing tape	3	Intermediate rib
2	Click connectors		

Step	Action
1	Unpack modules.
2	Fit the provided click connectors (2) into the intended opening on the front of the module.
3	Always affix the enclosed sealing tape (1) flush to the unit inside edge past the click connector (2) to the end face of the modules and additionally to the intermediate rib (3) on the outer edge. It is important to ensure that the sealing tape (1) is not attached under tension (especially at the corners).
4	Attach the supplied coverings caps to the inside of the housing. The inspection openings for the click connectors (2) are thus closed.

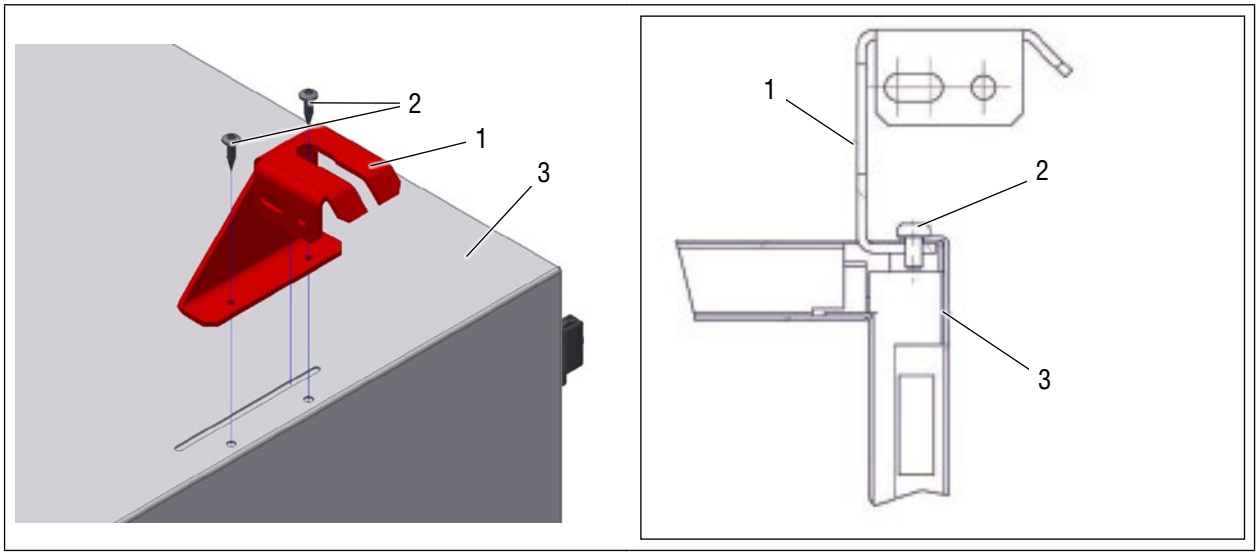


Fig. 14 Attach the installation brackets

1	Installation bracket	3	Housing
2	Fastening screws		

Step	Action
5	Hang the installation brackets (1) on the upper side of the housing and screw them together with the supplied fastening screws (2) and the housing (3). All installation brackets are to be used for mounting the unit.

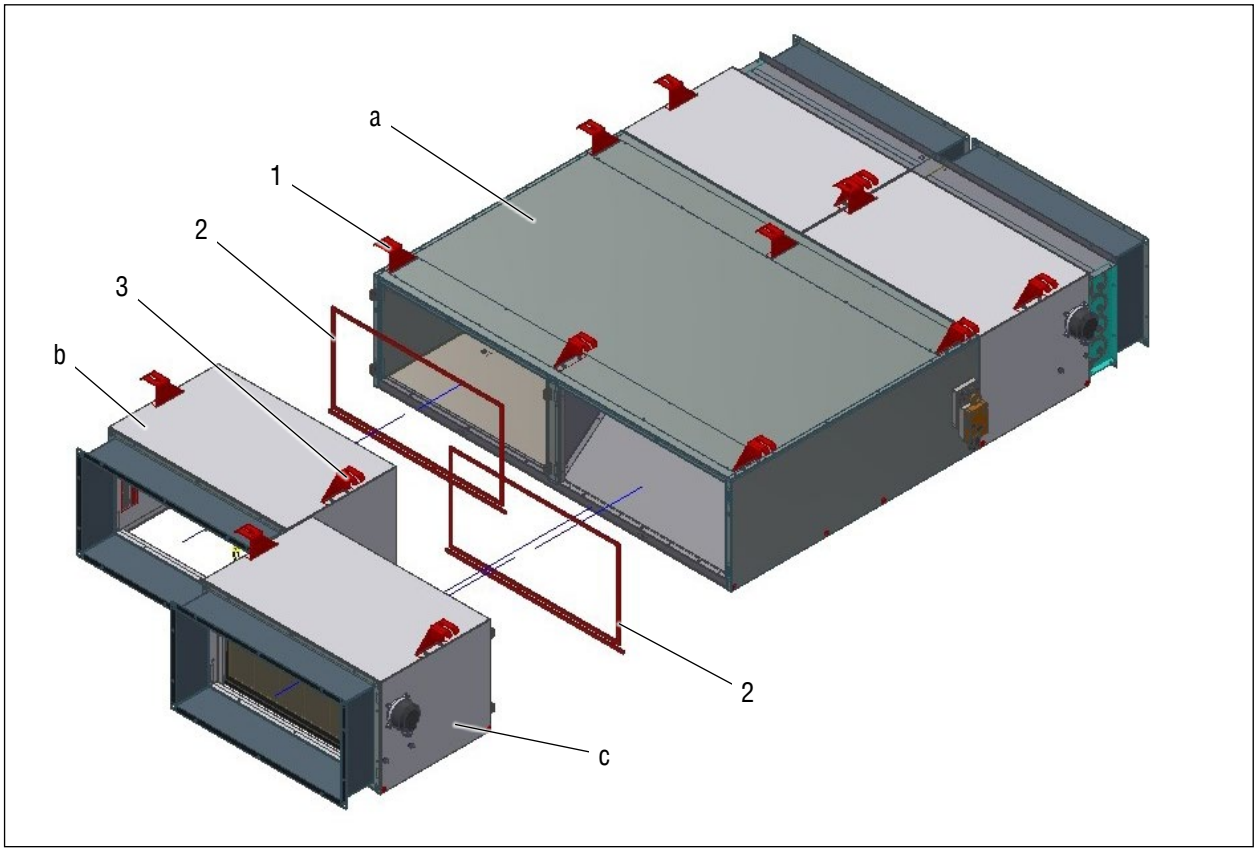


Fig. 15 Installing the modules

1	Installation bracket	a	GST housing
2	Sealing tape	b	Left housing
3	Duo-Taptite M8X25	c	Right housing

Step	Action
6	Screw the Duo-Taptite screw M8X25 (3) into the hole of the inner installation bracket (1) of the "left" housing (b). Assembly work on GF units should begin with the heat recovery module.
7	Mount the modules in the corresponding assembly sequence (left housing in front of right housing!) on the ceilings using installation brackets (1) and suitable mounting material (on-site sound decoupling). Observe the construction of the units.
8	After the modules are mounted on the ceiling, press the modules into the click connectors by pressing them together. It is important to ensure that the duo-taptite screw (3) is threaded into the slot of the "right housing" bracket (c).

NOTE

To reduce the weight of the individual modules, the components can be removed from the housing.

NOTE

By means of the supplied special tool, the click connectors can be opened and removed from the housing at any time after releasing the covering caps.

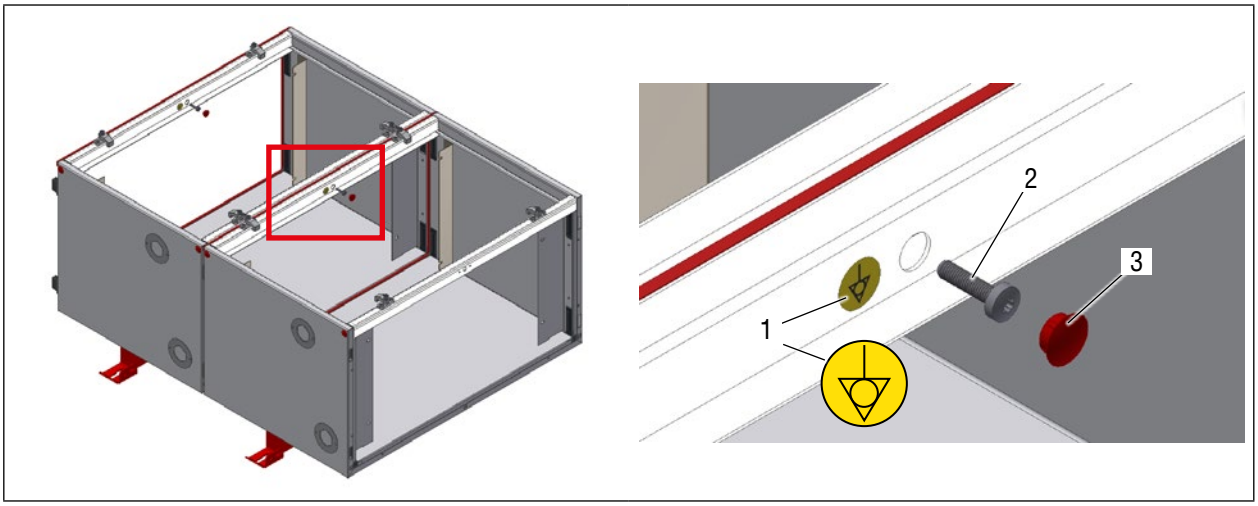


Fig. 16 Connecting the equipotential bonding of the modules

1	Equipotential bonding symbol	3	Covering cap
2	Equipotential bonding screw		

Step	Action
9	Establish equipotential bonding by connecting the modules using the equipotential bonding screw (2).
10	Then fit the covering cap (3).
11	Include the entire unit in the equipotential bonding.

5.5.2 Removability of the components

⚠ WARNING

Risk of injury from falling components.

The components are no longer secured against falling after the component locks have been removed.

- For components in the suspended state, secure the parts that are to be pulled out against falling, if necessary by a second person.
- Prevent components from falling using opposite force.
- Wear personal protective equipment.

Removing the component lock

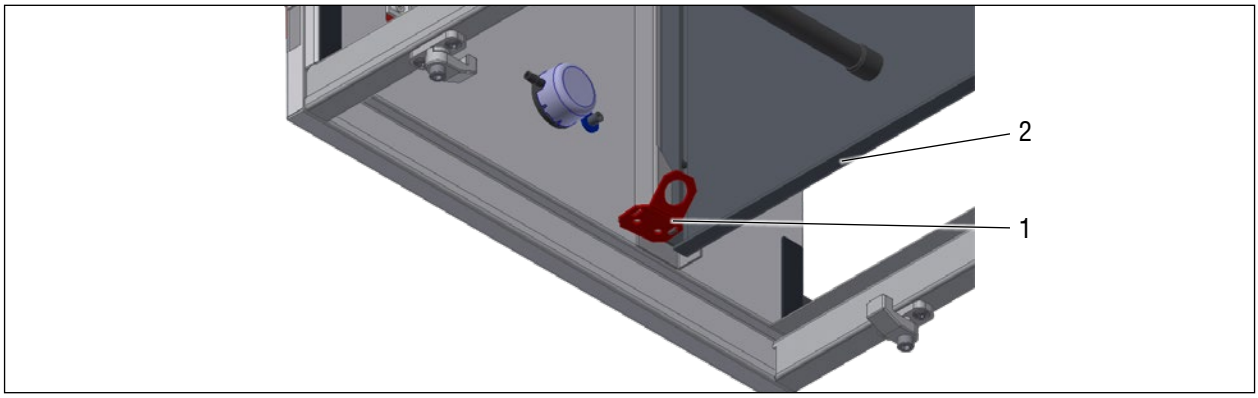


Fig. 17 Remove component lock

1	Component lock	2	Component

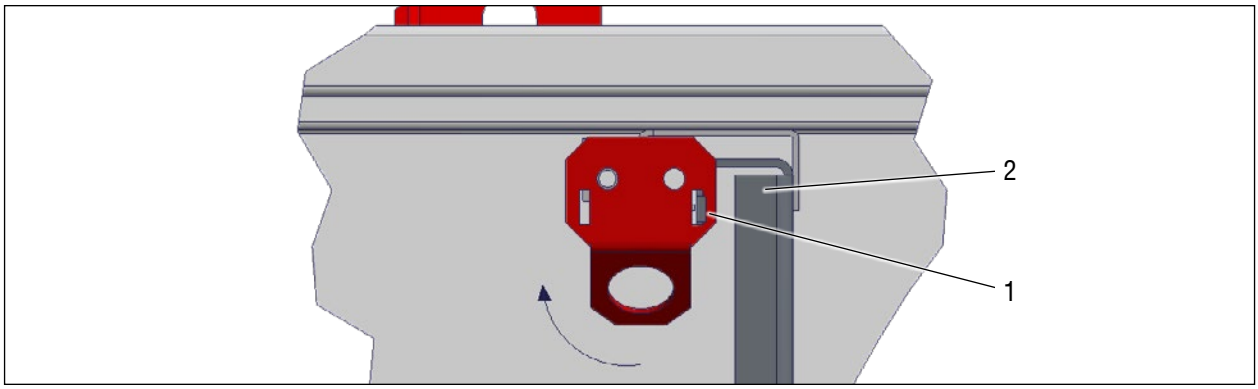


Fig. 18 Component lock detail

1	Component lock	2	Component

In general, the following components can be removed from the housings:

Filter

- Open or fit the maintenance panel, see “5.4 Opening/removing the maintenance panel” on page 23.
- The filter can be removed from the housing by pulling the filter bag frame.

Sound absorber

- Position the component lock in the slot with a 90° rotation.
- Carefully remove the sound absorber from the housing.

Fans

- Open or fit the maintenance panel, see “5.4 Opening/removing the maintenance panel” on page 23.
- Disconnect the electric cable by unfastening the plug-in connection.
- Position the component lock in the slot with a 90° rotation.
- Carefully remove the fan from the housing.

Plate heat exchanger (counterflow)

⚠ CAUTION

Risk of injury due to slipping parts.

The blocks on the door ribs are secured against falling.

- By moving the door ribs horizontally, prevent the blocks lying on them from slipping off.
- Wear personal protective equipment.

- Open or fit the maintenance panel, see “5.4 Opening/removing the maintenance panel” on page 23.
- Support the door rib from below.
- Unfasten the screws on the door rib.
- Carefully take out the door rib and modules of the plate heat exchanger (countercurrent) from the housing and remove them individually.

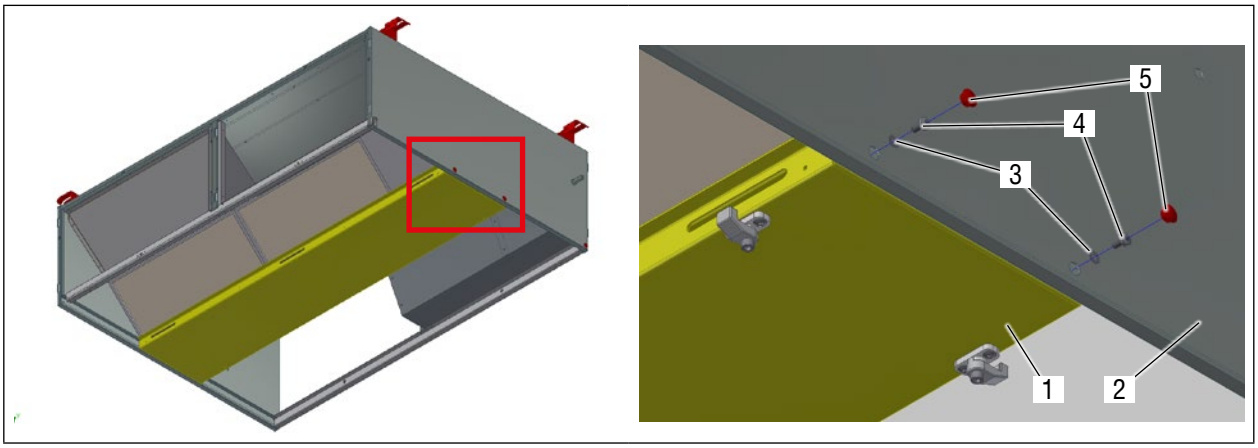


Fig. 19 Remove door rib

1	Door rib	4	DUO-Taptite M5x10
2	GF module	5	Covering cap
3	Tooth disc		

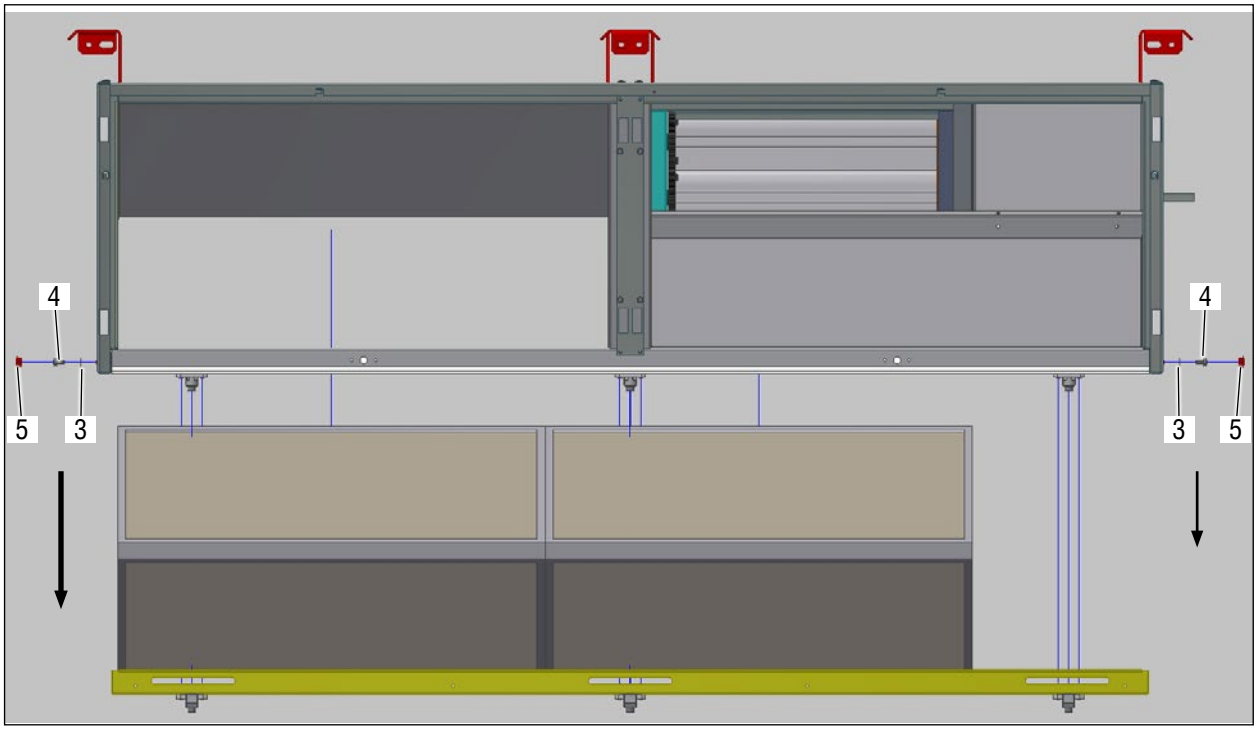


Fig. 20 Remove door rib

3	Tooth disc	5	Covering cap
4	DUO-Taptite M5x10		

Droplet eliminator (cooling module)

- Open or fit the maintenance panel, see “5.4 Opening/removing the maintenance panel” on page 23.
- The droplet eliminator can be carefully removed from the housing by pushing it up and moving it to the side in the direction of the heat exchanger by releasing it.

5.5.3 Duct connection

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

With EF units, the duct system directs the outdoor or room air to the air handling unit and as supply air into the building/room or as exhaust air out of the building.

Duct connection fitting

For all EASYAIR®flat air handling units, you will receive sound-decoupled connectors that use the entire free device cross-section. EASYAIR®flat connection fittings are supplied loose.

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

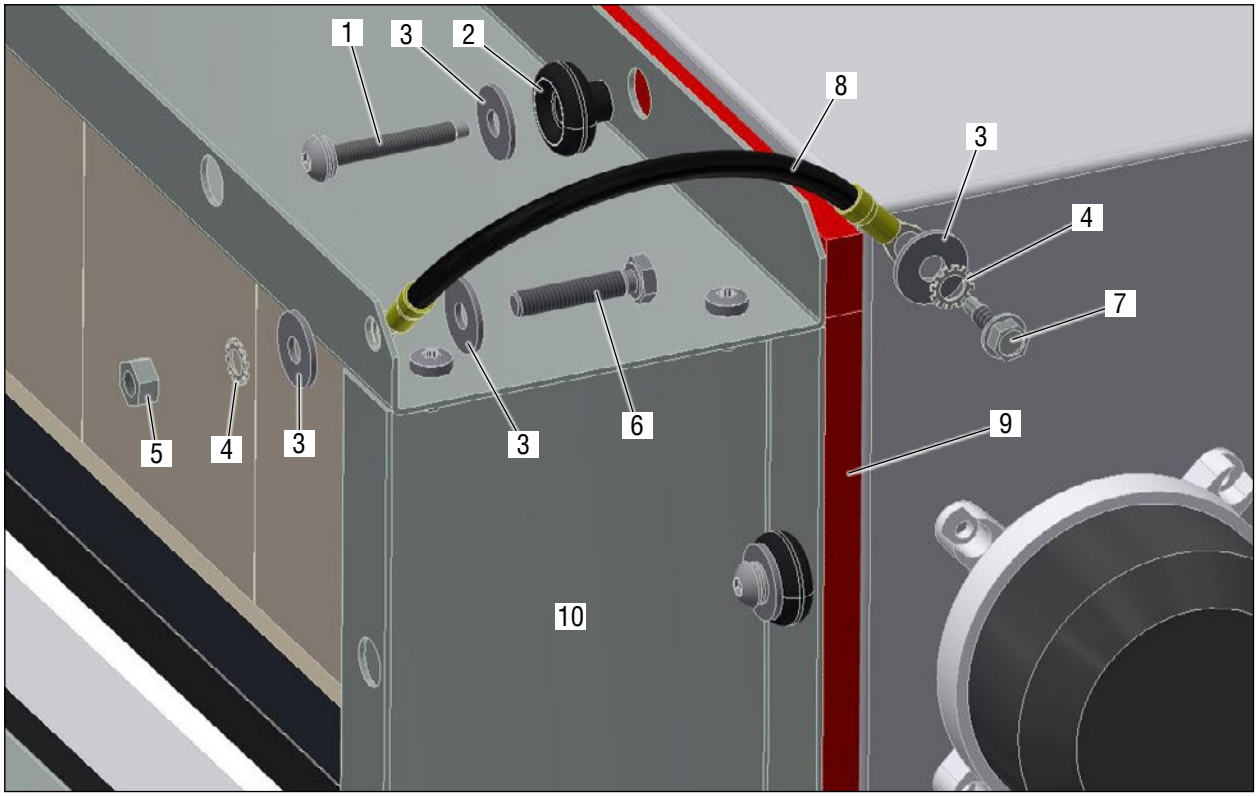


Fig. 21 Install the connection frame and equipotential bonding to the unit

1	Drilling screw 4.8 x 38	6	Hexagon head bolt M6 x 30
2	Vibration absorber	7	Drilling screw 4.8 x 19
3	Washer 6.4	8	Equipotential bonding
4	Sealing washer 6.4	9	Rubber fitting
5	Nut M6	10	Connection frame

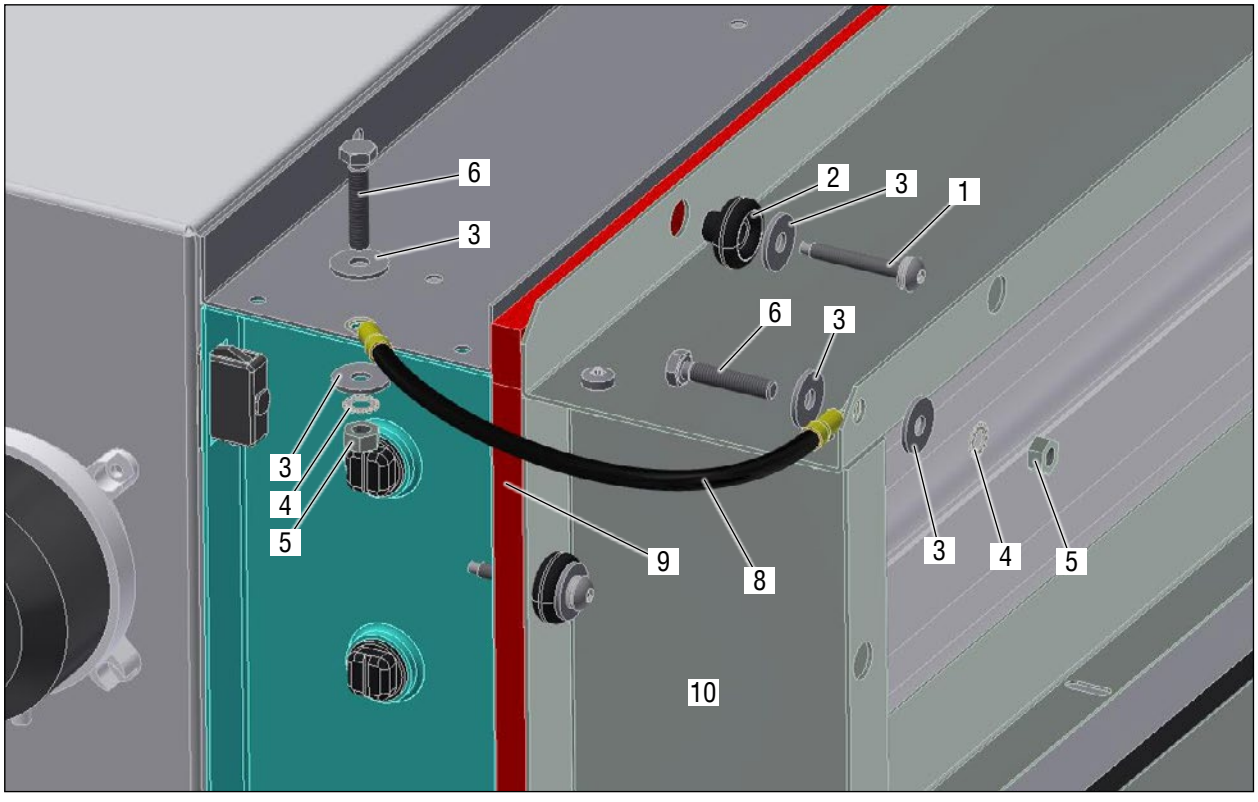


Fig. 22 Install the connection frame and equipotential bonding to the flap

5.5.4 Siphon connection

Heat recovery modules and cooler modules of the EASYAIR®flat units are fitted with base trays and a condensate connection in the maintenance panel.

These can be fitted with a standard ½" diameter hose with a hose clip.

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

NOTE

The water level height of the respective siphon must be designed for the underpressure or overpressure of the air handling unit to prevent suction or outlet of air from the closed drain pipe.

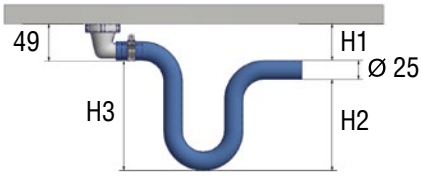


Fig. 23 Siphon connection

Height	Overpressure	Vacuum
H1	25 mm	105 mm
H2	120 mm	65 mm

H3 = H1 + H2

NOTE

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

5.6 Electrical connection

Delivery options for EASYAIR®flat units:

- Without control and without field devices
- With control and stepper motor, without other field devices
- With control and field devices

The switch cabinet is supplied loose and must be cabled on-site with the EASYAIR®flat unit. This means it is possible to install the switch cabinet with good accessibility at any location.

⚠ DANGER

Hazard due to electric current.

There is a risk of electric shock due to incorrect or faulty power connection.

- 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.
- Wear personal protective equipment.

⚠ WARNING

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

- Only use suitable and tested ladders, steps, scaffolding and work platforms.
- Only allow assembly, installation, commissioning, repair, maintenance and servicing work to be carried out by qualified staff.
- Work with care.

If necessary, connect the switch cabinet to the field devices of the EASYAIR®flat unit in accordance with the circuit diagram included with the unit documentation (option with control).

5.6.1 Cable lists

NOTE

The cable cross-sections are provided with no liability.

The installation type, installation length and any accumulations have not been taken into account.

NOTE

More information on the cable list for the EASYAIR®flat unit can be found in the circuit diagram supplied.

5.6.2 Cable from the switch cabinet to the field devices

Field device	Cable
Actuator for damper and bypass damper	3 x 1.0 mm²
Room unit	6-wire flat-band phone cable for RJ12 connector
Temperature sensor	2 x 1.0 mm²
Frost protection thermostat	2 x 1.0 mm²
Valves (heating valve, cooling valve)	3 x 1.0 mm²
Pumps (heating pump, cooling pump)	3 x 1.5 mm²

5.6.3 Cable from unit switch cabinet to the electric fan heater

0-10 V DC control	2 x 1.0 mm²
Control voltage (230 VAC / 1 PH)	3 x 1.5 mm²

Equipment type	Voltage (V)	Output (kW)	Power consumption (A)	Supply line (mm²)
GF-01	400 V / 3 Ph	5.5 kW	7.9 A	4 x 1.5 mm²
GF-02	400 V / 3 Ph	9.5 kW	13.7 A	4 x 2.5 mm²
GF-03	400 V / 3 Ph	14.0 kW	20.2 A	4 x 2.5 mm²
EF-01	400 V / 3 Ph	8.1 kW	11.7 A	4 x 2.5 mm²
EF-02	400 V / 3 Ph	14.6 kW	21.1 A	4 x 4 mm²
EF-03	400 V / 3 Ph	21.9 kW	31.6 A	4 x 4 mm²

Room unit installation/connection (option)

NOTE

More information on installing/connecting the room unit of the EASYAIR®flat unit can be found in the circuit diagram supplied.

5.6.4 Connection of the field devices to the control

NOTE

More information on connecting the field devices to the EASYAIR®flat unit control can be found in the circuit diagram supplied.

5.6.5 Assembly/connection of supply air, outdoor air, extract air temperature sensor

Electrical connection

NOTE

More information on the electrical connection for the EASYAIR®flat unit can be found in the circuit diagram supplied.

Outdoor air temperature

To determine the exact outside temperature, the sensor must be placed in the weather protection grille or in the outdoor area.

Exhaust air temperature*

To measure the exact exhaust air temperature, the exhaust air temperature sensor is to be positioned in the duct so that a mixed temperature from all individual zones is achieved.

* 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.

NOTE

Either a room or an exhaust air sensor may be connected.

It is not permissible to connect both sensors.

Supply air temperature sensor

To measure the exact supply air temperature, the supply air sensor must be installed in the duct behind the air handling unit. Ideally, it should be mounted directly on the supply air duct outlet to take into account any interference in the duct network.

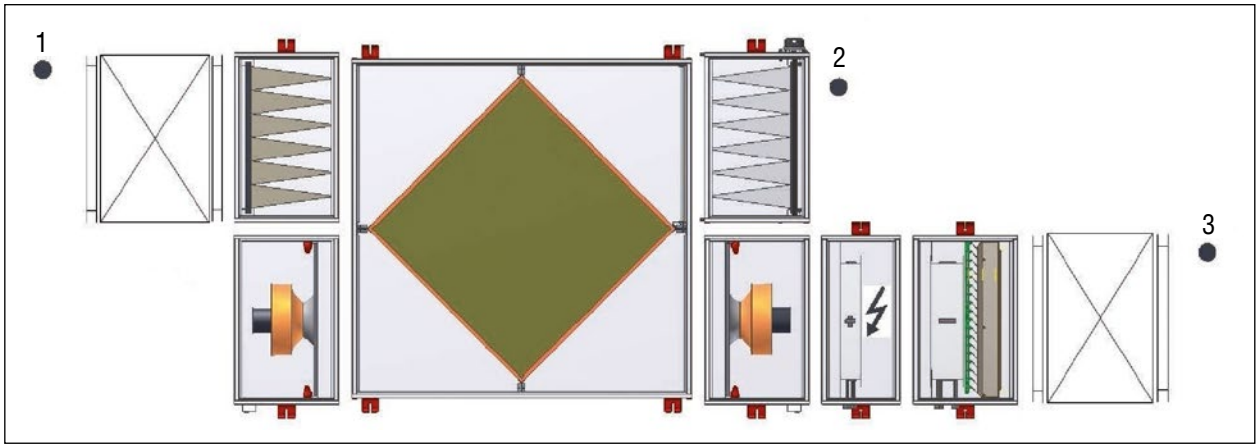


Fig. 24 Supply air temperature sensor

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

5.6.6 Connection of electric air heater (ELE option)

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

⚠ 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 supply 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.

- A separate mains supply is required for the electric air heater.
- Connect the air heater electrically according to the circuit diagram.
- Attach a warning sign.

NOTE

More information on the power consumption for the EASYAIR®flat unit can be found in the circuit diagram supplied.

NOTE

The output-side power supply must be implemented on-site.

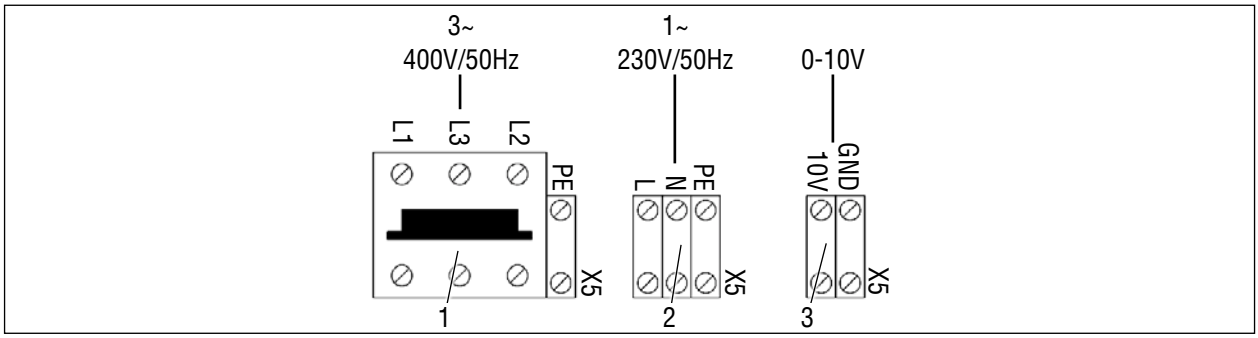


Fig. 25 Connection of electric air heater

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

ATTENTION

For units without integrated control, flow monitoring and fan delay must be implemented on-site.

5.6.7 Connection of hot water heater (WWE 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 device (see chapter “5.5 Assembly of the modules” on page 27).
- 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. 27 Counterflow principle for heat exchanger connection).

ATTENTION

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

The limitation of the permissible heating medium temperature of the heat exchanger is to be implemented on-site by the owner/operator.

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 2-way or 3-way valve version is to be set up.
- For the electrical connection of the actuator, see the circuit diagram.

Requirements for water	Maximum working pressure	Maximum hot water flow temperature
free of corroding properties free of oxygen free of carbon dioxide	16 bar	120 °C

2-way valve and 3-way valve versions

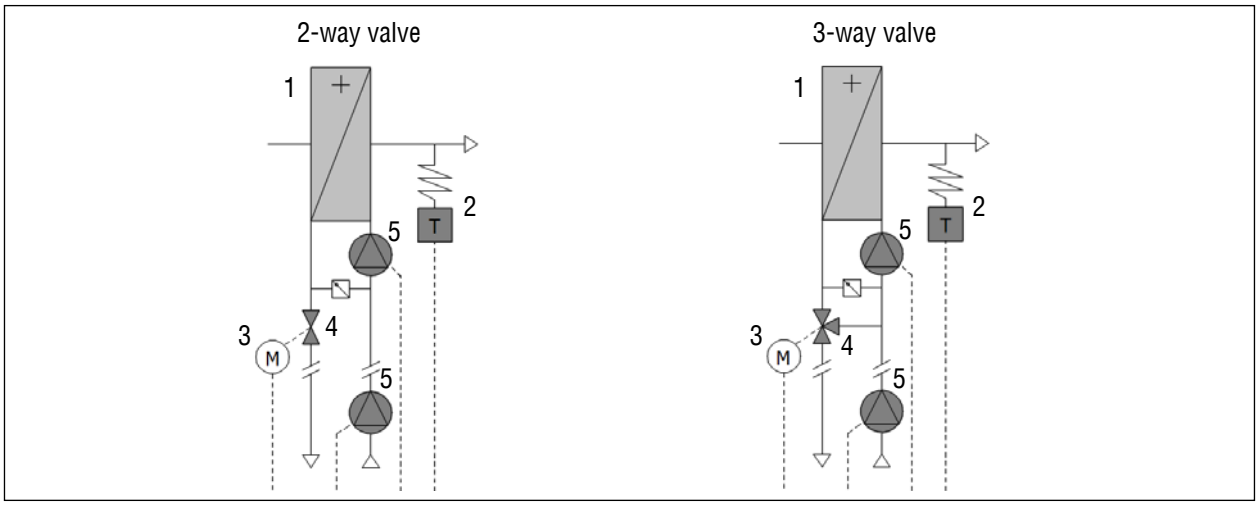


Fig. 26 2-way valve and 3-way valve connection versions

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

Counterflow principle for heat exchanger connection

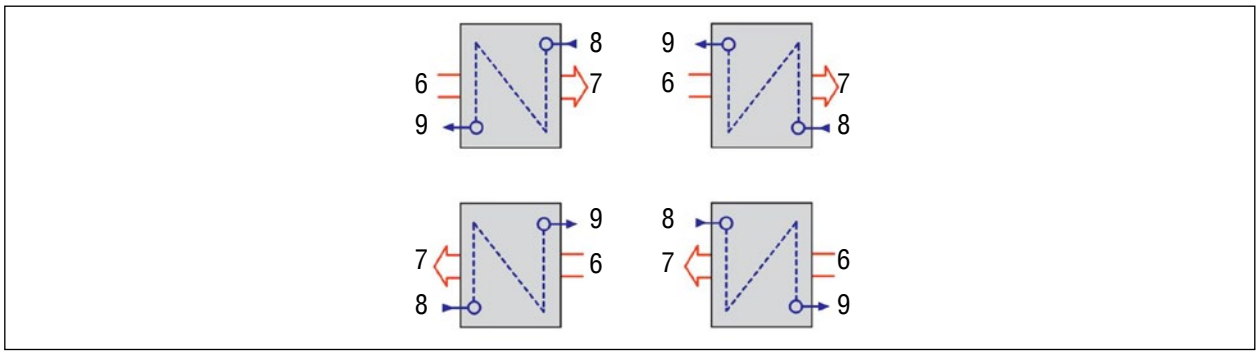


Fig. 27 Counterflow principle for heat exchanger connection

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

Step	Action
1	Connect the heat exchanger using the counterflow principle (water flow direction opposite the air flow direction in the unit).
2	Connect the pre flow up or down depending on the air direction.
3	Carefully vent the heat exchanger.
4	Check all of the piping for leaks.

ATTENTION

If the device version control 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.

ATTENTION

At temperatures below freezing, 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.

5.6.8 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 (DE) is installed behind the cooler.

- 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. 29 Counterflow principle for heat exchanger connection).

ATTENTION

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. 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 being used.
- For the electrical connection of the actuators, see the circuit diagram.

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

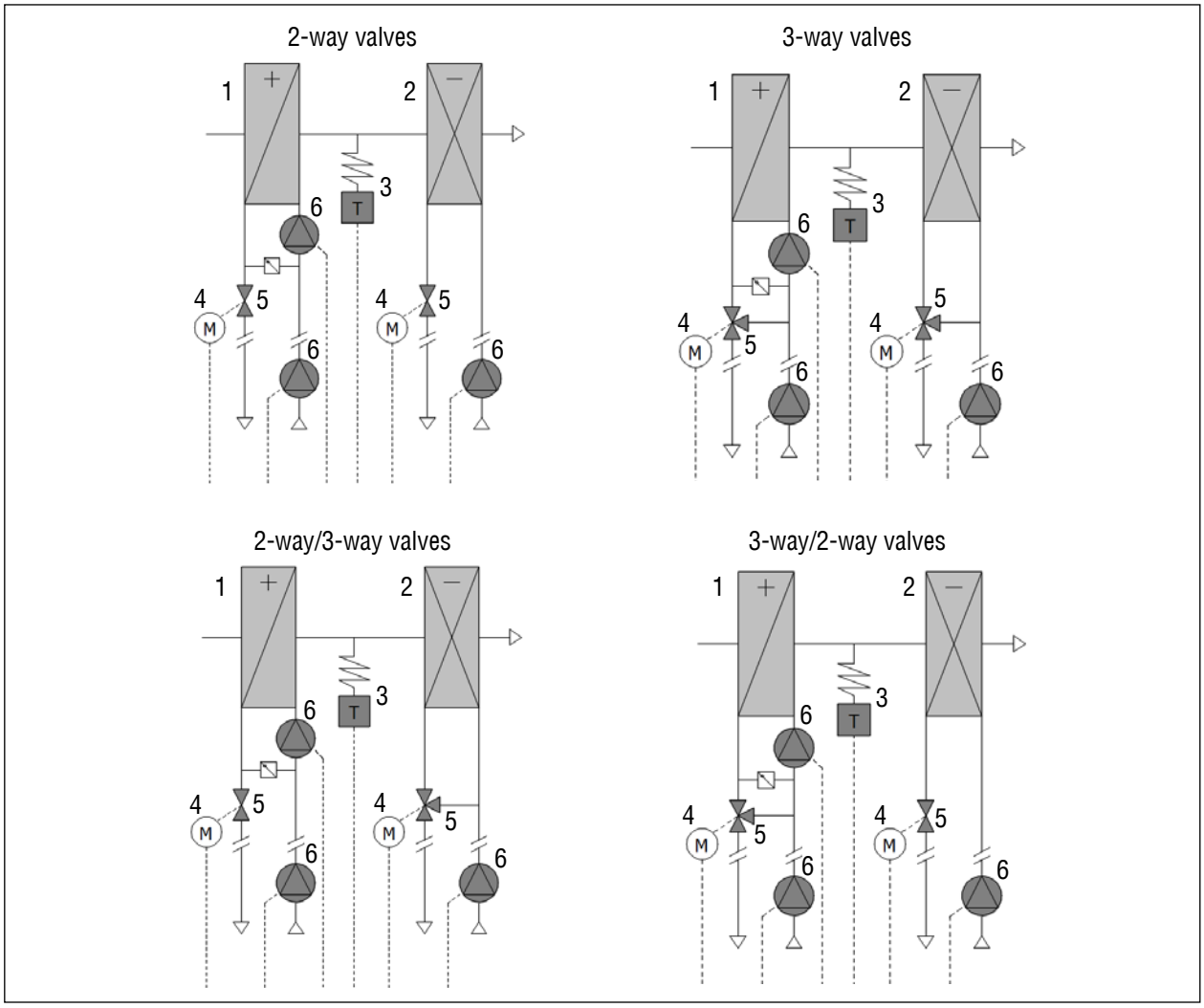


Fig. 28 2-way valve and 3-way valve connection versions

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

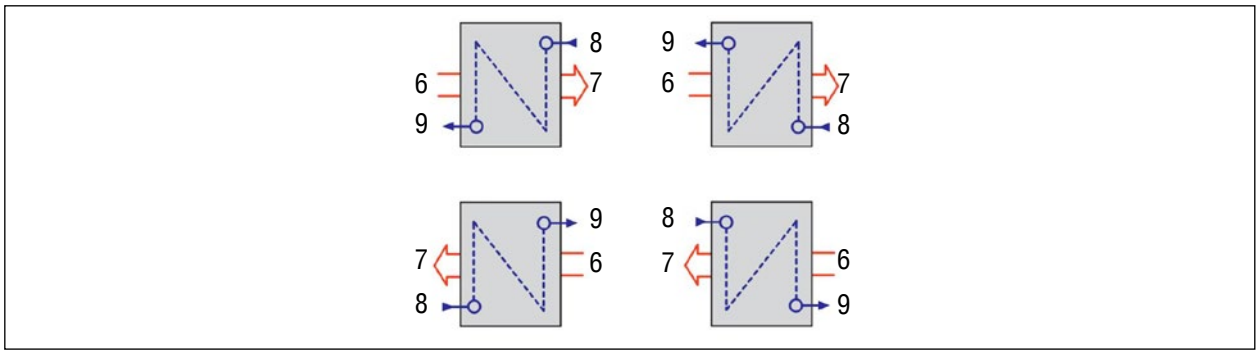


Fig. 29 Counterflow principle for heat exchanger connection

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

Step	Action
1	Connect the heat exchanger using the counterflow principle (water flow direction opposite the air flow direction in the unit).
2	Connect the pre flow up or down depending on the air direction.
3	Carefully vent the heat exchanger.
4	Check all of the piping for leaks.

ATTENTION

If the device version control 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 actuating valves.

ATTENTION

At temperatures below freezing, 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.

On-site siphon

ATTENTION

The drain pipe and the siphon are to be kept frost-proof on-site.

- A siphon is also required on-site for the cooler.
- Each pan drain must be fitted with a separate siphon.

5.6.9 Connection of cooler module (KWK option)

For additional cooling of the supply air, a pump cold water air cooler (PKW) can be used.

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

- 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. 31 Counterflow principle for heat exchanger connection).

ATTENTION

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 implemented.
- For the electrical connection of the actuator, see the circuit diagram.

2-way valve and 3-way valve versions

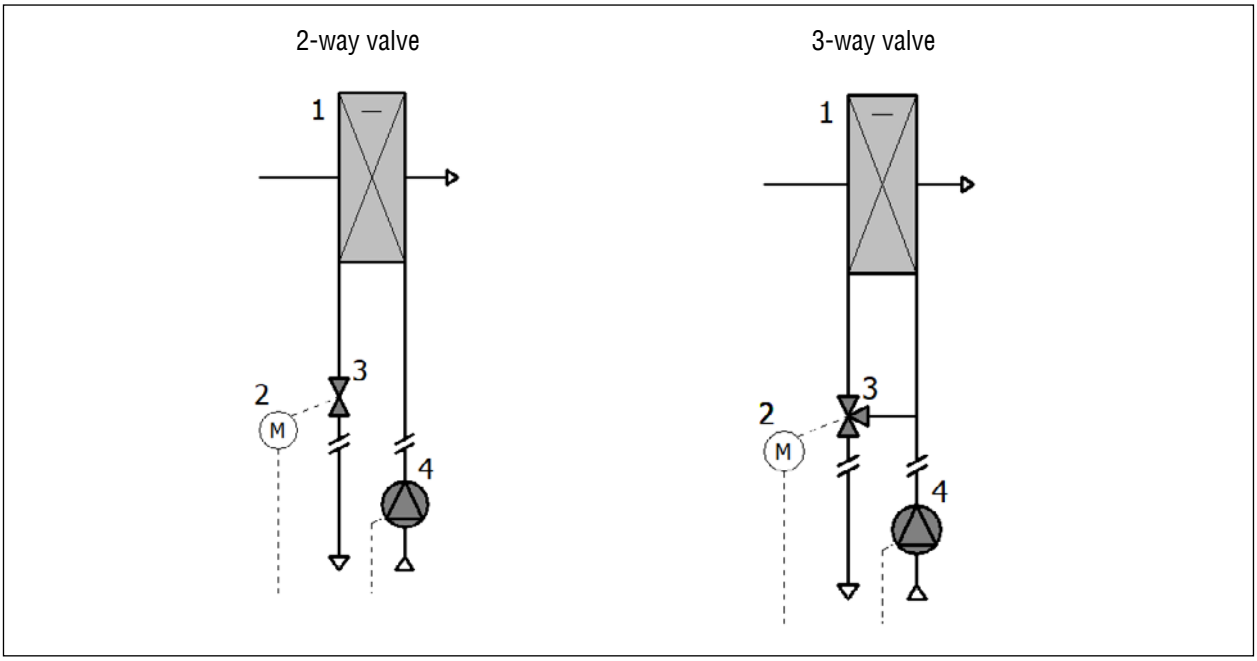


Fig. 30 2-way valve and 3-way valve connection versions

1	PCW cooler	3	Valve
2	Valve actuator	4	Recirculation pump (on-site)

Counterflow principle for heat exchanger connection

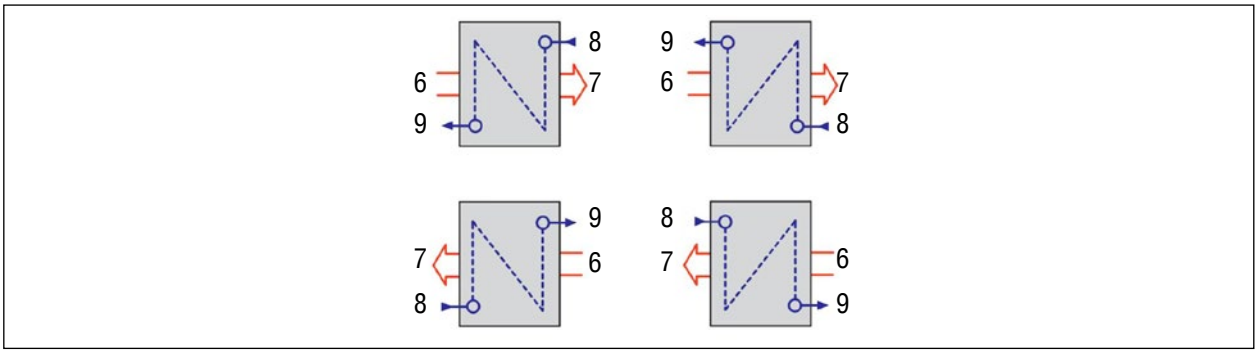


Fig. 31 Counterflow principle for heat exchanger connection

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

Step	Action
1	Connect the heat exchanger using the counterflow principle (water flow direction opposite the air flow direction in the unit).
2	Connect the pre flow up or down depending on the air direction.
3	Carefully vent the heat exchanger.
4	Check all of the piping for leaks.

ATTENTION

If the device version control 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 cooler. The exact hydraulic connection must be carried out at the discretion of the heating specialist.

If the 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

Coolers are integrated into the temperature control. The temperature is set by controlling the cold water actuating valves.

ATTENTION

At temperatures below freezing, 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.

On-site siphon

ATTENTION

The drain pipe and the siphon are to be kept frost-proof on-site.

- A siphon is also required on-site for the cooler.
- Each pan drain must be fitted with a separate siphon.

5.6.10 Control connection (option)

- Connect the supplied supply air sensor to the switch cabinet.
- Connect the supplied outdoor air sensor to the switch cabinet.
- Connect the supplied external air sensor to the switch cabinet.
- With the "Room temperature control" option, connect the supplied room sensor to the switch cabinet.
- Connect the attached damper adjusting actuators to the switch cabinet.
- With WWE units, connect the frost protection thermostat to the switch cabinet.
- With filter units, connect the load cells to the filter monitoring on the switch cabinet.
- Connect the corresponding valves and pumps to the switch cabinet.
- Connect the supply voltage and the control cable for the supply and exhaust air fans to the switch cabinet and to the supplied plugs in accordance with the circuit diagram. Then connect the plugs to the sockets integrated into the fan unit.
- With the room unit, connect the room unit to the switch cabinet. With an additional room unit, this must be plugged into the control, socket J10, using RJ-12 connectors.
- Connect the supply line in accordance with the circuit diagram.

6 Commissioning

6.1 Principles

Before commissioning, always ensure the following:

- The unit has been installed as described in these operating and assembly instructions, see “5 Assembly” on page 20.
- All filter elements are properly installed.
- The duct system and the water and drain pipes are properly connected to the unit.
- The fresh air inlet is at a sufficient distance from contamination sources (kitchen hood extraction, central dust extraction, etc.).

6.2 Before a system start

⚠ WARNING

Risk of injury from loose parts in the air handling unit being thrown out.

- Perform a visual inspection by qualified staff before commissioning.
- Remove any loose parts in the air handling unit.
- Keep the maintenance panels closed during operation.
- 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 “3.2.3 Vibration values of the fan impeller” on page 16). Contact our customer service if necessary.
- Wear personal protective equipment.

⚠ 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 dampers via manual unlock on the stepper motor.
- 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 installation to remove any dirt that may have entered the filters during the construction phase and after commissioning.

- Fan on 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 using the commissioning protocol.
- Inspection covers must be closed.

6.3 Switching the installation on/off

⚠ WARNING

Risk of severe injuries or death!

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

- After switching off via the main switch, no safety functions of the unit are then 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 power supply of the switch cabinet puts all regulation and control modules into the ready status.

6.4 Addressing flap stepper motors/valve actuators

The stepper motors of the dampers must be connected to the connections of the EASYAIR®flat unit. The stepper motors must be addressed on the control during commissioning.

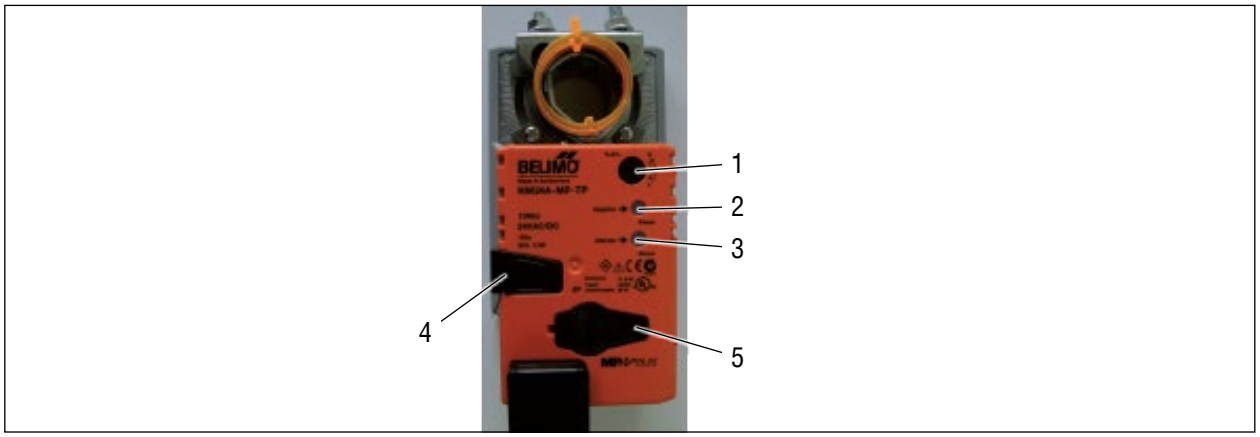


Fig. 32 Addressing flap stepper motors/valve actuators

1	Direction of rotation selector	Changeover: Change direction of rotation
2	Pushbutton and LED display green	Off: No electrical power supply or malfunction Lit in green: Operation Press the button: Trigger the rotational angle adaptation, normal mode afterwards
3	Pushbutton and LED display yellow	Off: Normal mode Lit in yellow: Adaptation or synchronisation process active Yellow flashing: Request for addressing Press the button: Confirm the addressing Yellow flickering: Communication active
4	Transmission disengagement button	Press the button: Transmission disengaged, motor stops, manual adjustment possible Release the button: Transmission engaged, start of synchronisation, afterwards normal operation
5	Service plug	For connecting the parameterisation and service tools

7 Integrated control

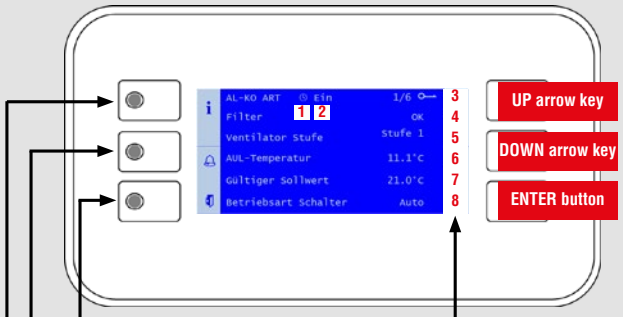
NOTE

Further information on the control of the EASYAIR®flat unit can be found in the AL-KO THERM operating and assembly instructions/functional description for "ART TECH LEVEL II control".

7.1 HMI Basic quick start guide

ART Tech Level II

Quick Guide HMI Basic (Room 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

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

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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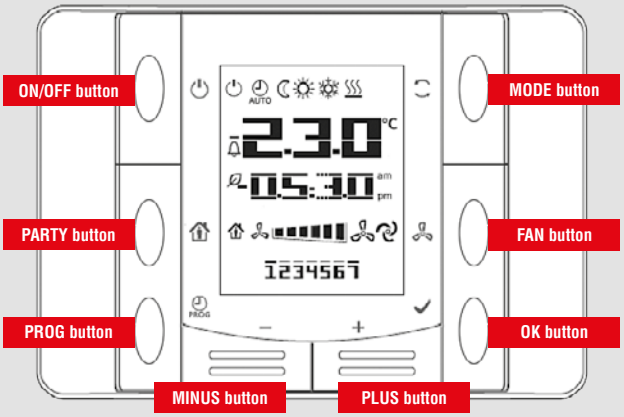
7.2 HMI Room quick start guide

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:	2-stage plants:	3-stage plants:
Off = no display	Off = no display	Off = no display
On = 6 bars	Stage 1 = 3 bars	Stage 1 = 2 bars
	Stage 2 = 6 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®flat unit from the mains on all poles and secure to prevent restart.
- Follow the applicable safety rules.
- Have installation, commissioning, servicing and maintenance work carried out only by 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 injuries due to fan delay.

- 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 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.

NOTE

The owner/operator of an air conditioning system is obliged to have the installation maintained regularly by qualified staff.

AL-KO THERM 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.

The actual maintenance intervals are to be adjusted to the corresponding operating conditions.

If a maintenance contract is concluded, AL-KO THERM will carry out this work.

ATTENTION

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 as part 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

No.	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 connections 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	Check 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 drip tray and droplet eliminator for soiling, corrosion and function	Repair		X			
4.4	Check function of siphon	Repair		X			
4.5	Check 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 flow					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 drip trays				X		
4.8.3	Check function of flow and return flow					X	

No.	Activity / unit component	Measure / remark	Inspections to be performed at monthly intervals				
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 of all surfaces, including drip 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 leak-tightness 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	Check the hygiene condition					X	
5.7	**Plate heat exchanger**						
5.7.1	Inspect on the air side for soiling, damage and corrosion	Clean and repair			X		
5.7.2	Clean to preserve function (air-side)					X	
5.7.3	Check function of water drain and odour trap	Clean and repair				X	
5.7.4	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 Cleaning components

ATTENTION

For maintenance and cleaning work, the unit is to be shut down on all poles and secured against restart.

All installed components are either freely accessible for testing or can be pulled out of the unit after removing the maintenance doors.

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 WWE/KWK

ATTENTION

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

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.

8.4.2 Plate heat exchanger

⚠ WARNING

Risk of cuts

During maintenance and cleaning of the 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.

8.4.2.1 Maintenance

- Check plates for soiling.
- Remove oil and grease deposits (see “8.4.2.2 Cleaning” on page 55)
- Check water drain and siphon of the drain tray and top up if necessary.

8.4.2.2 Cleaning

The heat exchanger can be cleaned using a hot water high pressure cleaner. The following parameters are to be observed:

Nozzle:	Flat jet nozzle
Pressure:	max. 20 bar
Water volume:	max. 450 l/h
Water temperature:	max. 70 °C
Distance to heat exchanger:	min. 30 cm
Nozzle direction:	90° offset to foil embossing or fins

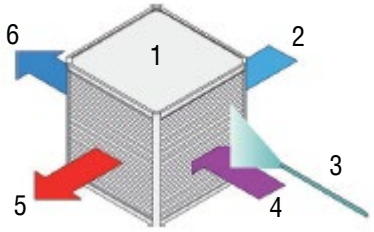


Fig. 33 Plate heat exchanger cleaning

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

ATTENTION

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. washing-up liquid, 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.

8.4.3 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 personal protective equipment (gloves).

8.4.3.1 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 flap stepper motors and adjust, if necessary.
- Lubricate the damper bearing and joints if necessary using appropriate lubricants.

8.4.3.2 Cleaning

- Clean the multi-leaf dampers at regular intervals.

8.4.4 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).

8.4.4.1 Maintenance

- The droplet eliminator can be pulled out of the housing to the side 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.

8.4.4.2 Cleaning

- The droplet eliminator can be pulled out of the housing downwards for cleaning purposes.

8.4.5 Fans

⚠ WARNING

Risk of injuries due to fan delay.

- 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 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 due to contact with hot surfaces.

- Wait until the hot surfaces have cooled down.
- Wear personal protective equipment.
- Observe the manufacturer's documentation.

8.4.5.1 Maintenance

- Check fan for unbalance.
- Check fan for hygienic condition, dirt, damage, corrosion, and a secure fastening.
- Check the function of the protection devices.

8.4.5.2 Cleaning

- Clean fan impeller and motor regularly.

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 restart.
- Adhere to the maintenance plan.
- Wear the personal protective equipment (dust mask) during a filter change.
- 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.

- Open or fit the maintenance panel, see “5.4 Opening/removing the maintenance panel” on page 23.
- The filter can be removed from the housing by pulling the filter bag frame downwards.
- Clean the filter gaskets, inspect and replace any damaged gaskets.
- Insert new filter bags by pushing them in and close the component lock.
- Wear the personal protective equipment (dust mask) during a filter change.
- Use other protective equipment according to the work carried out.

ATTENTION

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 as part 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

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.
- Wear personal protective equipment.

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	Telephone:	(+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
	Web:	www.al-ko.com
Customer Service	Telephone:	(+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®flat unit can be found in the AL-KO THERM Operating Manual for the "ART TECH LEVEL II Control".

10 Shut-down

10.1 Decommissioning

De-energise 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 unit parts are pressurised.
- Follow the applicable safety rules!

ATTENTION

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, 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.

- Before recommissioning, observe chapters “6 Commissioning” on page 46 and “8 Servicing and maintenance” on page 51.
- 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).

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 when dismantling electrical and thermal components.

- Before starting work, disconnect the installation from the central supply line.
- Protect the installation against unauthorised restart.
- Only have disassembly work carried out by trained qualified staff.
- When dismantling, note that certain parts of the unit are pressurised.
- Shut off the fans on all poles and secure them to prevent restart.
- Fix the impellers of the fans.
- Work with care.
- Use only suitable means of transport when transporting unit parts.
- Follow the applicable safety rules.
- Wear personal protective equipment.

⚠ WARNING

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

- Only use suitable and tested ladders, steps, scaffolding and work platforms.
- Only allow assembly, installation, commissioning, repair, maintenance and servicing work to be carried out by qualified staff.
- Work with care.

⚠ WARNING

Risk of poisoning when draining 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.

⚠ 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.

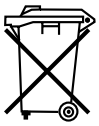
10.3 Disposal

⚠ 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 Declaration of Conformity

EG-KONFORMITÄTSERKLÄRUNG

EC DECLARATION OF CONFORMITY
DÉCLARATION DE CONFORMITÉ 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 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®flat
Typ */ type / Type:*	EF-01; EF-02; EF-03 PF-01; PF-02; PF-03 GF-01; GF-02; GF-03

Hiermit erklären wir, dass die oben genannte Maschine alle sicherheitstechnischen Anforderungen der folgenden anwendbaren EG/EU- Richtlinien entspricht:
We hereby declare that the above-mentioned machine conforms to all relevant safety-provisions of the following EC/EU 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:*

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 de 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*

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

- 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*
- 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*
- 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*
- 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

Notes

AL-KO

QUALITY FOR LIFE

3059570/August 2021

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