

**AL-KO**

QUALITY FOR LIFE



EN

COMPACT AIR HANDLING UNIT

INSTALLATION AND OPERATING MANUAL

**AL-KO AIRCABINET®**

## Legal

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## 1 About this manual

- This Installation and Operating Manual applies to the **AL-KO AIRCABINET®** unit.
- The German version is the original text of the Installation and Operating Manual. All further language versions are translations of the original Installation and Operating Manual.
- Read this Installation and Operating Manual carefully before installation, commissioning and maintenance. This is the prerequisite for safe work and trouble-free handling.
- Observe the safety instructions and warnings in this documentation and on the product.
- This documentation is a permanent part of the described product, and must be handed over to the buyer if the product is sold.

### 1.1 Explanation of symbols

#### 1.1.1 Safety instructions

##### **DANGER**



This signal word is used to indicate an immediate 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 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
<b>GENERAL DANGER SYMBOL</b> If the required safety instructions are not observed, this can lead to death, severe injuries and serious property damage.	
<b>IMPORTANT NOTE</b> If this notice is not observed, problems can arise with the unit.	
<b>OBSERVE THE INSTALLATION AND OPERATING MANUAL</b> If the notices in the Installation and Operating Manual are not observed, problems can arise with the unit.	

### Warning symbol

The warning symbols used in this Installation and Operating Manual draw attention to specific hazards.

Meaning	Warning symbol
<b>Warning of electric shock hazard</b> If the necessary safety instructions are not observed, this can lead to severe injury or even death due to hazardous electric shock.	
<b>Warning of crushing hazard</b> If the necessary safety instructions are not observed, this can lead to severe injury or even death due to crushing.	
<b>Warning of hand injury risk</b> If the necessary safety instructions are not observed, this can lead to severe injury or even death.	
<b>Warning of substances hazardous to health</b> If the necessary safety instructions are not observed, this can lead to severe injury or even death.	
<b>Warning of hazards due to industrial trucks</b> If the necessary safety instructions are not observed, this can lead to severe injury or even death.	
<b>Warning of falling from heights</b> If the necessary safety instructions are not observed, this can lead to severe injury or even death.	
<b>Warning of obstacles on the floor</b> If the necessary safety instructions are not observed, this can lead to severe injury or even death.	

Meaning	Warning symbol
<p><b>Warning of falling objects</b> If the necessary safety instructions are not observed, this can lead to severe injury or even death.</p>	
<p><b>Warning of hot surfaces</b> If the necessary safety instructions are not observed, this can lead to severe injury or even death.</p>	

### Instruction symbol

The instruction symbols used in this Installation and Operating Manual draw attention to instructions to be observed.

Meaning	Instruction symbol
<p><b>Wear eye protection</b> If eye protection is not worn, injuries may be caused to the eyes.</p>	
<p><b>Wear foot protection</b> If foot protection is not worn, injuries may be caused to the feet.</p>	
<p><b>Wear hand protection</b> If hand protection is not worn, injuries may be caused to the hands.</p>	
<p><b>Wear breathing masks</b> If respiratory protection is not worn, poisoning and chemical burns to the lungs may occur.</p>	
<p><b>Isolate before maintenance or repair</b> Failure to disconnect the unit from all energy sources before starting maintenance or repair work can result in serious injuries.</p>	

### 1.2.1 Abbreviations

PPE – Personal Protective Equipment: for example, cut-proof gloves, safety goggles, helmet, working gloves, helmet, mask

### 1.3 Legal notices

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

## 2 Safety instructions

### 2.1 General safety instructions

#### 2.1.1 Warnings

##### WARNING



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

Working on the **AL-KO AIRCABINET®** without personal protective equipment (PPE) can result in serious injuries or even death.



- Observe the safety instructions in this Installation and Operating Manual.
- Wear your PPE during all work on the unit.
- Use further protective equipment according to the work to be carried out.

##### WARNING



##### **Risk of serious injuries or death!**

Working on the **AL-KO AIRCABINET®** can result in serious injuries or death.



- Have repair, maintenance and service work carried out only by qualified staff.
- Disconnect the unit from the mains power supply and secure it to prevent restart before starting repair or maintenance work.
- Avoid naked flames and sparks in the intake area of the unit.
- Observe the working instructions and this Installation and Operating Manual.
- Work carefully at all times.
- Wear your PPE during all work on the unit.

##### WARNING



##### **Risk of injury from unauthorised opening.**

- Keep the maintenance panel and the maintenance doors closed during operation.
- Never open the unit during operation.
- The unit may only be opened by qualified staff or trained persons.

#### 2.1.2 Children and persons with limited capabilities

This unit may be operated by children aged eight years and older and by persons with limited physical, sensory or mental capabilities or lacking experience and/or knowledge as long as they are supervised or have been instructed in the safe use of the unit and are aware of the resulting dangers. Children must not be allowed to play with the unit. Children may not clean or perform user maintenance on the pump without supervision.

Persons with very severe and complex limitations may have requirements going beyond the instructions given here.



### 2.1.3 Improper use and operation

Observe the safety instructions in this Installation and Operating Manual in order to avoid injury, fire and other dangers caused by improper use and operation of the unit:

- The version and construction of the **AL-KO AIRCABINET®** unit complies with the standards listed in the Declaration of Conformity.
- If installation is performed contrary to our regulations, and the defect/damage which has occurred is attributable to improper modification, processing or any other treatment, all damage compensation or warranty claims are ruled out. The orderer must prove that 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 Installation and Operating Manual in full before starting work on the unit and must observe them at all times!
- In order avoid hazards during operation, all company, operating and working instructions of the user apply in addition to this Installation and Operating Manual.

### 2.1.4 Safety instructions for operation

- The unit may only be operated in the performance range specified in the AL-KO THERM GmbH technical documents.
- The **AL-KO AIRCABINET®** compact air handling unit must be installed correctly and used in strict compliance with our Installation and Operating Manual.
- The unit may only be operated fully assembled and fitted with effective contact protection.
- The unit may only be operated in a technically flawless condition. Malfunctions and damage that can affect safety must be immediately and professionally rectified.
- The version and construction of the **AL-KO AIRCABINET®** compact air handling unit complies with the standards listed in the Declaration of Conformity or Incorporation. All electrical parts are protected by fixed, securely fastened guards that can only be removed using tools.
- Avoid sparking in the vicinity of the **AL-KO AIRCABINET®** compact air handling unit.

### 2.1.5 Safety instructions for maintenance

- Replace damaged and worn components only with original spare parts.
- Always disconnect the unit plug before starting repair and maintenance work.
- General maintenance instructions in the Installation and Operating Manual of the AL-KO THERM GmbH must be observed under all circumstances.
- Observe the delay time of the fan. Wait at least three minutes for the fan impeller to come to a standstill before opening the maintenance panel and the maintenance door.

### 2.1.6 Personal safety instructions

- The **AL-KO AIRCABINET®** compact air handling unit may only be operated by persons trained in its use and expressly authorised to do so.
- The wearing of PPE is necessary when working on the **AL-KO AIRCABINET®** compact air handling unit.
- The Installation and Operating Manual must be available at a suitable place in the unit operating location.

### 2.1.7 Residual dangers

The unit may pose hazards if it is not operated by trained personnel and/or is operated improperly or not according to its intended 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.
- Injuries or death from electric shock due to working on cables with damaged insulation and defective connections.
- Risk of fire hazard due to damaged fan parts, e.g. hot-running bearings.
- Injuries caused by working on the fan before it has come to a standstill.
- Injuries caused by pinching or crushing and collisions during transport, unpacking and setup of the unit.
- Tipping of the unit due to installation on uneven or loose ground.
- Risk of tripping and falling due to improper routing of the electrical connecting lead.
- Health hazards due to poor hygiene, such as failure to change filters at regular intervals.
- Hazards due to misconduct resulting from failure to observe the safety instructions, standards and regulations.

## 2.2 Specific safety instructions

### 2.2.1 Warnings for cleaning work

#### WARNING



##### **Risk of injury due to collisions, cutting, pinching and crushing.**

There is a risk of injury to hands and arms during cleaning work.

- Work carefully at all times.
- Wear your PPE (cut-proof gloves, safety goggles, safety shoes).

#### WARNING



##### **Health hazards due to contact with media.**

There is a risk of health hazards during cleaning work due to skin contact with contaminated impurities and liquids and inhalation of vapours.

- Minimise the risk of contamination by observing the maintenance intervals.
- Use food-safe and paint-compatible disinfectants and cleaning agents. Test the paint compatibility on an inconspicuous area of the housing surface.
- Use only approved containers.
- Ensure an adequate outdoor air supply.
- Wear your PPE (cut-proof gloves, safety goggles, breathing mask).
- Observe the safety data sheet and the hazardous substances regulations for the cleaning agents used.

### 2.2.2 Training

The owner/operator of the **AL-KO AIRCABINET®** compact air handling unit must brief his personnel on the following subjects at regular intervals:

- Compliance with the Installation and Operating Manual and the statutory regulations.
- Intended use of the unit.
- Observance of all company, operating and working instructions at the owner's/operator's installation site.
- Response to faults.

### 2.2.3 Intended use

The **AL-KO AIRCABINET®** compact air handling unit is intended exclusively for the replacement of used and possibly virus-contaminated atmospheric air with outdoor air in heavily frequented spaces. The unit reduces the risk of infection by lowering the dust content, aerosol concentrations and other contaminants in the air. The unit is suitable for operation in the temperature range from -20°C to +40°C. Deviating ranges of application must be agreed with the manufacturer.

The unit may only be used for air exchange in interiors, such as:

- Classrooms in schools
- Day care centres
- Conference rooms
- Cafeterias
- Lecture rooms
- Meeting rooms

The risk is borne solely by the user. Furthermore, the intended use also means compliance with the operating and maintenance conditions listed in this Installation and Operating Manual (see sections "6 Commissioning" on page 33 and "7 Servicing and maintenance" on page 36).

- Operate the unit only when it is fully assembled.
- Set up the unit on level ground.
- Protect the unit from moisture.
- Use only original spare parts from AL-KO THERM GmbH.
- Children and people who are not familiar with the unit may not use it.
- Observe all accident prevention and fire protection regulations.

#### 2.2.4 Foreseeable misuse

The **AL-KO AIRCABINET®** compact air handling unit may only be operated within the scope of the technical data specified by AL-KO THERM GmbH. Any other use or use beyond that described in section "2.2.3 Intended use" on page 11 is regarded as being not in accordance with the intended use. The manufacturer cannot be held liable for damage resulting from this. Possible misuse includes:

- Horizontal setup of the unit not present.
- Storage of objects on the unit.
- Conveying media with non-permissibly high or low temperatures.
- Conveying aggressive media or media with a high dust content.
- Installation and operation in an environment with aggressive media (e.g. sea air) or media with a high dust content (desert).
- Setup and operation outdoors.
- Operation without outdoor air filter and exhaust air filter.
- Use in a potentially explosive atmosphere.
- Failure to observe the static limits (customer supplied).

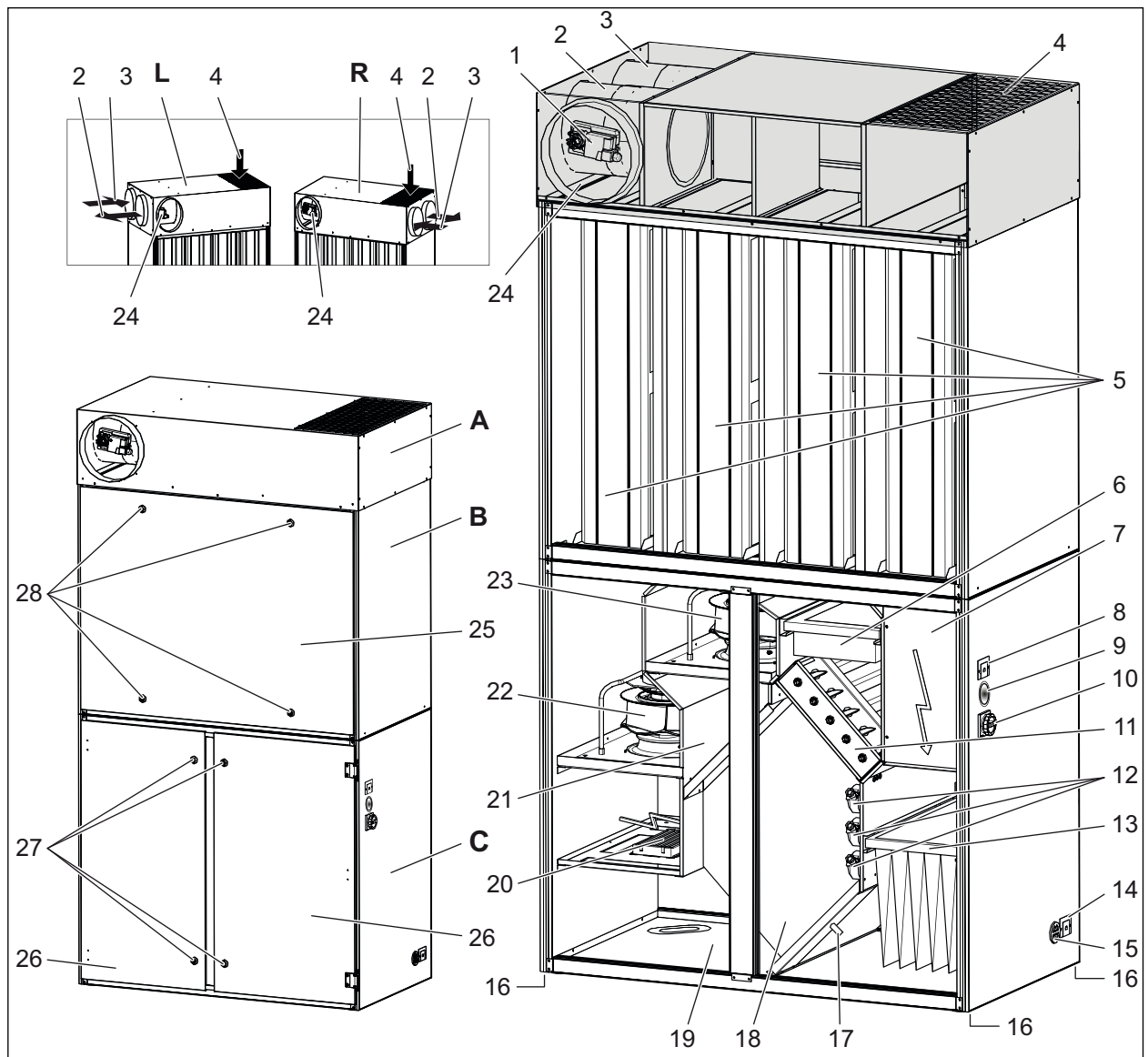
### 3 Product description

The **AL-KO AIRCABINET®** compact air handling unit is used for the continuous supply of outdoor air, especially in the event of poor ventilation options. With extremely quiet continuous operation, the complete replacement of used and possibly virus-contaminated room air with filtered outside air by filtered outdoor air is carried out. The unit recovers more than 80% of the heat energy from the used room air. The CO<sub>2</sub> content of the room air is constantly maintained at the prescribed value of < 1000 ppm, which increases the ability to concentrate of persons present. The filtration meets the highest hygiene standards.

- The exact type designation can be found on the type plate attached to the housing. When ordering replacement parts or in case of other queries, please specify the type designation of the **AL-KO AIRCABINET®** unit, the year of manufacture and the serial number (see chapter "3.2 Type plat of the AL-KO AIRCABINET® compact air handling unit" on page 21).
- The unit is suitable for operation in the temperature range from -20°C to +40°C.
- The unit construction consists of three components which are assembled at the installation site.
- The unit is available only for indoor installation.

### 3.1 Functional description

#### 3.1.1 Overview



A	air distributor module	13	Exhaust air filter
B	Silencer module	14	LAN connection
C	Basic unit	15	Cable bushing for connection cable with 230 V safety plug
L	Air distributor module, supply air / exhaust air fittings, left-hand side	16	Foot
R	Air distributor module, supply air / exhaust air fittings, right-hand side	17	CO <sub>2</sub> sensor, exhaust air
1	Shut-off damper with stepper motor	18	Heat recovery
2	Exhaust air fitting	19	Drip pan
3	Outdoor air fitting	20	Electric air heater with safety temperature limiter
4	Exhaust air grille (exhaust air opening)	21	Exhaust air / supply air partition plate
5	Sound absorber	22	Supply air fan
6	Outdoor air filter	23	Exhaust air fan
7	Electrical control cabinet	24	Supply air fitting
8	Control unit connection socket	25	Maintenance panel
9	LED status display	26	Maintenance door
10	Main switch	27	Maintenance door turn lock
11	Bypass damper (thermal bypass)	28	Maintenance panel turn lock
12	Filter pressure monitoring and heat recovery		

### 3.1.2 Functional sequence

The compact air handling unit controls two parallel and permanent processes for the supply of outdoor air during its operation: The unit draws in room air, filters it, extracts heat from it if necessary and passes it out into the open as exhaust air. At the same time, outside air is drawn in, filtered, heated if necessary by heat recovery with optional auxiliary heating and discharged to the interior.

### 3.1.3 Unit modules

The **AL-KO AIRCABINET®** compact air handling unit consists of three modules which are assembled at the installation site of the unit:

- Basic unit
- Silencer module
- Air distributor module

#### 3.1.3.1 Basic unit

The basic unit (C) contains the components for filtering the air flows, the heat recovery (18) with thermal bypass (11), an electric air heater (20) for air heating, the low-noise EC fans (22), (23) for conducting the two air flows, the CO<sub>2</sub> sensor for the exhaust air (17) and the pressure monitoring (12). In addition, the electrical control cabinet (7) in the basic unit. Four feet (16), on which the mounted compact air handling unit rests, are mounted on the base.

The electric air heater (20) is equipped with a safety temperature limiter which interrupts the circuit if the surface temperature of the electric air heater (20) is too high. The safety temperature limiter must be reset manually after automatic triggering.

Two filters are used to clean the air flows in the unit: The exhaust air filter (13) cleans the exhaust air from the space and protects the unit from contamination. The outdoor air filter (6) cleans the fresh outdoor air and meets the highest hygiene standards.

The switch cabinet records the control of the unit on the basis of Siemens Climatix and its electronics (see chapter "Control unit" on page 16).

A countercurrent plate heat exchanger is used for heat recovery (18) from the exhaust air and to heat the outside air; the electric air heater (20) is switched on by the control unit if necessary to further heat the fresh outside air before it is released into the space. The bypass damper (11), which is driven by a servomotor and monitored by the control, makes it possible to bypass the heat recovery, for example on days with high outside temperatures.

At the bottom of the basic unit there is a drip pan (19) for any condensation water.

The unit is accessible via two maintenance doors (26).

### 3.1.3.2 Silencer module

In the silencer module (B) of the compact air handling unit there are four sound absorbers (5) separated by partition walls for noise reduction in all air flows. For maintenance purposes, the maintenance panel (25) and the sound absorbers (5) can be removed.

### 3.1.3.3 Air distributor module

The air distributor module (A) contains three round pipe fittings: The exhaust air fitting (2) for discharging used room air into the open air, the outdoor air fitting (3) for receiving fresh outdoor air, and the supply air fitting (24) for discharging cleaned and tempered supply air into the space. Furthermore, the air distributor module contains the exhaust air grille (4), which is located below the exhaust air opening, for receiving the room air (exhaust air) being replaced.

The air paths for outside air and exhaust air can be closed in the switched-off state of the compact air handling unit by means of shut-off dampers (1) controlled by an electric servomotor. This prevents uncontrolled air circulation between the inside and outside.

Depending on the requirements for the spatial situation at the place of operation, the air distributor module can be configured with the exhaust air fitting and the exhaust air fitting on the left-hand side (L) or on the right-hand side (R).

### 3.1.4 Electrical connections

The permanently installed three metre long connection cable with 230 V safety plug is led out via the cable bushing (15) on the right-hand outside of the compact air handling unit. The power supply to the compact air handling unit is provided by a 16 A domestic power supply. Alternatively, a permanent connection provided on site can provide the power supply.

On the right side of the basic module there is an LED (9) which signals the unit condition:

- LED off: Unit switched off.
- LED green: Unit in operation.
- LED red: A malfunction has occurred. The control unit must be connected and the malfunction determined. Or maintenance work is currently being carried out on the unit.

Furthermore, as seen from the operating side, the main switch (10) and a LAN connection (14) are located on the right-hand side of the unit; this can optionally be used for connection to a local network for setting up remote maintenance.

The control unit is plugged into the connection socket (8) using a spiral cable.

An optional presence switch can also be operated. The connection cable must also be passed through the cable bushing (15) and wired to the switch box by a qualified electrician.

### 3.1.5 Presence switch

The optional presence switch is to be attached to the ceiling in the middle of the space to be ventilated and connected to the compact air handling unit via a data cable. The presence switch detects whether or not there are persons in the room and switches the unit on or off accordingly.

When the compact air handling unit is active, the CO<sub>2</sub> value is measured and the air volume is increased to the maximum volume flow when the set limit value is reached.

If the room is not occupied, a delay time of 30 minutes ensures that break times are covered.

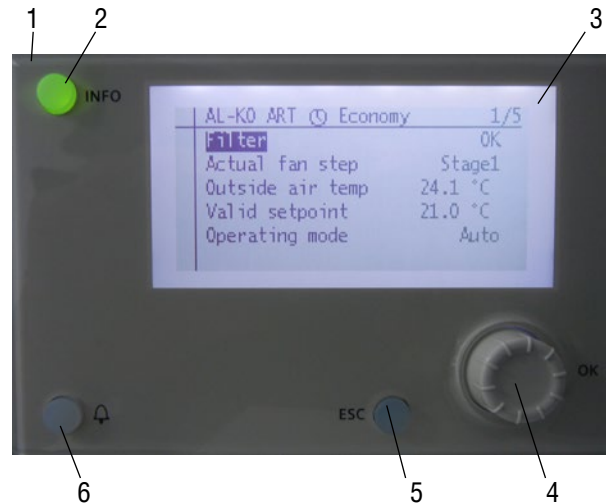
### 3.1.6 Control unit

#### NOTE



For detailed information on the control unit and its handling, refer to the operating manual / functional description for the **Art Tech Level II control**.

Monitoring and setting of the control of the compact air handling unit is carried out via a mobile control unit with control knob, malfunction indicator lamp and display.



1	Control unit	4	<b>OK</b> button
2	<b>INFO</b> button with integrated LED	5	<b>ESC</b> jump back button
3	Display	6	<b>ALARM</b> button with integrated LED

The control unit (1) has magnetic holders on its rear side for attachment at any desired point on the outer skin of the device, preferably in the area of the maintenance panel. The unit is connected to the control with a spiral cable via a network socket located above the main switch. An optional 15 m long extension cable is available from AL-KO THERM GmbH. By opening the closing clip on the underside of the control unit, the control unit can be opened and the spiral cable can be replaced with a longer network cable.

Alternatively, a wall-mounting bracket with three screw connections is possible; for this purpose, the unit must be opened in the unplugged state on its rear side.

Pressing the INFO button (2) calls up the start page on the display. The integrated LED signals the status of the compact air handling unit:

- LED off: Unit ready for operation or unplugged
- LED green: Unit in operation
- LED red: There is a malfunction.

The display (3) shows operating conditions, settings as well as actual and setpoint values.

The knob (4) provides the following settings:

- Clockwise rotation corresponds to scrolling up the display menu or increasing a setting value.
- Turning anti-clockwise corresponds to scrolling down the menu or decreasing a setting value.
- Pressing the rotary knob allows you to confirm a new setting or jump to a menu item or a menu page.

The ESC button (5) allows you to jump back to the previous menu page in the user interface.

The alarm button (6) calls up the alarm pages. The integrated alarm LED flashes red when an alarm is present. In the fault-free state, the alarm LED is off.



The compact air handling unit can also be operated with the control unit removed in a time program or via a presence detector.

In both cases, malfunctions are signalled by the red LED status display installed on the air handling unit. However, to be able to determine the corresponding causes of malfunctions, the control unit must be connected to a display.

### **3.1.7 Remote access portal**

The compact air handling unit can also be optionally monitored and set remotely via the AL-KO THERM GmbH remote access portal <https://remote.al-ko.com/> for example, a PC, a notebook or a tablet.

In addition to the digital twin of the mobile control unit, the AL-KO THERM GmbH remote access portal offers functions such as historical recording of alarms and data points, a plant diagram and automatic notification by e-mail for alarms.

### **3.1.8 HMI for web**

With the **HMI for web** the entire installation can be fully set and commissioned according to the logged-in password level. **HMI for web** is the standard equipment of the control. The function can be accessed via the network connection of the control via an on-site terminal (PC, notebook, table) via web browser. Menu structure and password level are identical to the control unit.

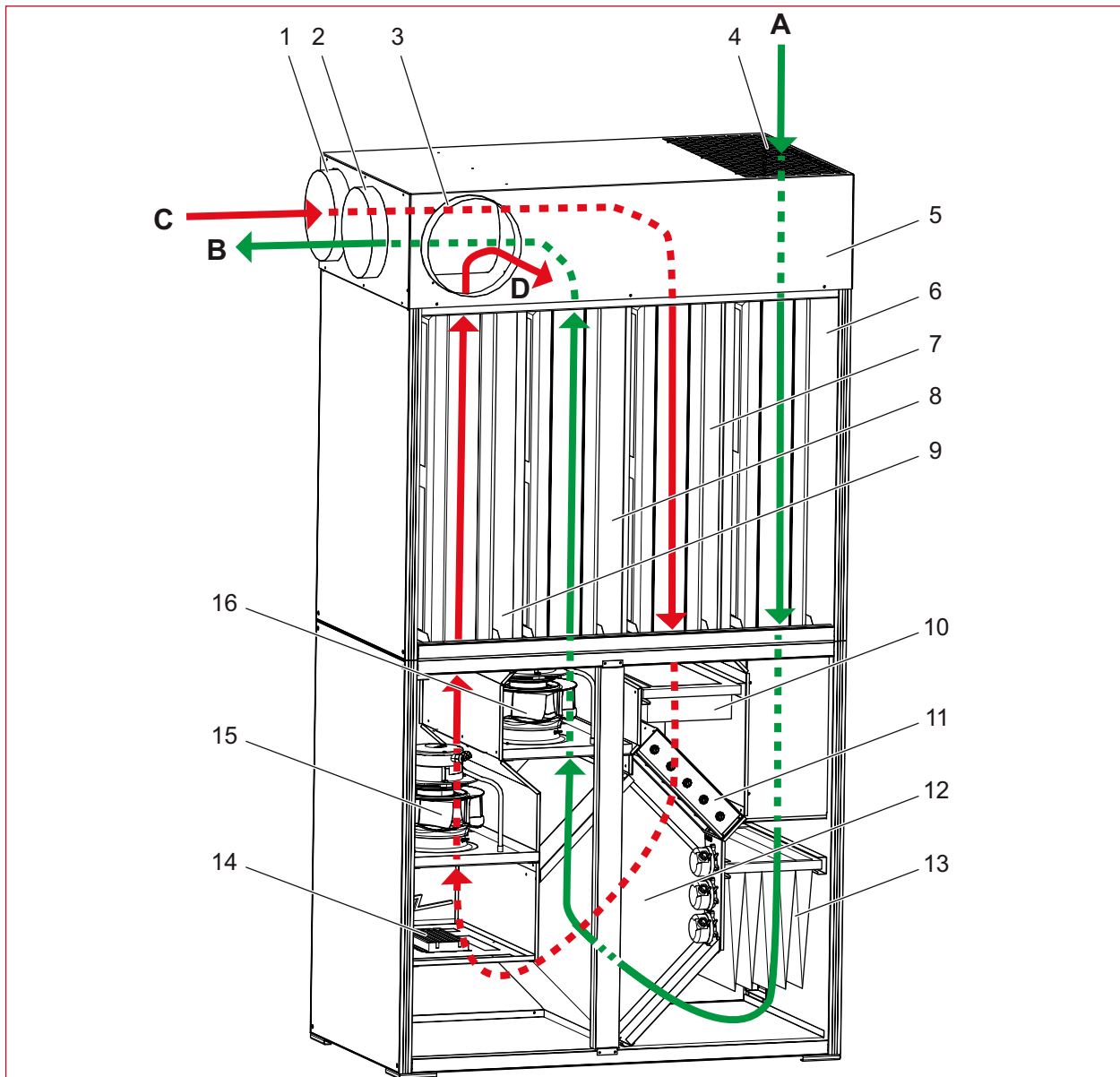
### **3.1.9 Network connection**

Both the AL-KO THERM GmbH remote access portal and **HMI for web** are connected to the compact air handling unit via a network connection. This is located above the main switch.

### **3.1.10 Connection for building management system**

The control system of the compact air handling unit can be integrated into the building management system (BMS) via Modbus or BACnet using an optional bus module.

## 3.1.11 Air flows



A	Exhaust air (room air)	7	Outside air sound absorber
B	Exhaust air	8	Exhaust air sound absorber
C	Outdoor air	9	Supply air sound absorber
D	Supply air	10	Outdoor air filter
1	Outdoor air fitting	11	Bypass damper
2	Exhaust air fitting	12	Heat recovery
3	Supply air fitting	13	Exhaust air filter
4	Exhaust air grille (exhaust air opening)	14	Electric air heater
5	Air distributor module	15	Supply air fan
6	Exhaust air sound absorber	16	Exhaust air fan

The hot exhaust air (A) of the space reaches the exhaust air filter (13) via the sound absorber (6) due to the suction effect of the fan (16) through the exhaust air opening (4) of the air distributor module (5). It is cleaned there before heat is removed from it in the heat recovery unit (12) and the exhaust air is passed on as outgoing exhaust air (B). The fan conveys the cooled exhaust air via the sound absorber (8) through the exhaust air fitting (2) and the connected piping to the outside.

The outdoor air (C) is drawn in by the fan (15) through the piping connected to the outdoor air fitting (1) via the sound absorber (7). The outdoor air filter (10) cleans the outdoor air. In heat recovery (12), the outdoor air flows past the exhaust air, but without mixing with the latter. In this case, the heat previously extracted from the exhaust air is supplied

to the outdoor air. The electric air heater (14) ensures that further heat is supplied if necessary to adapt the outside air temperature to the desired interior climate. The tempered outdoor air is then supplied to the space as supply air (D) via the sound absorber (9) via the supply air fitting (3).

Heat recovery is used in the cooler seasons at low outside temperatures. At high outside temperatures during warm seasons, the outdoor air should not be heated. The outdoor air is then conducted via the bypass damper (11) and the heat recovery is thus bypassed, which in turn reduces pressure losses.

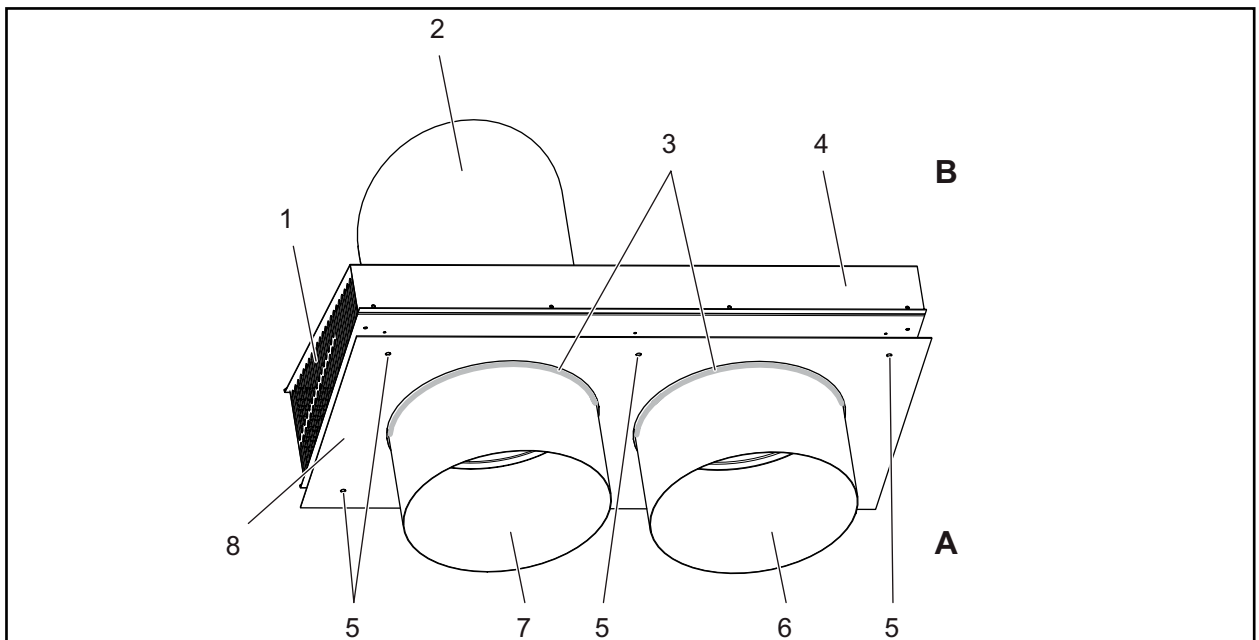
### 3.1.12 Cooling

If an additional cooling function is desired at high outside temperatures, the following measure can be taken:

The night cooling function can be activated on the compact air handling unit control. At sufficiently cool night temperatures, the unit can cool down the room slightly with the outdoor air.

### 3.1.13 Combination exterior wall diffuser

Ideally, the air exchange system is provided via an optional and recommended combination exterior wall diffuser from AL-KO THERM GmbH for installation in a window replacement element. The unit is intended for connecting the outdoor air and the exhaust air piping to the compact air handling unit.

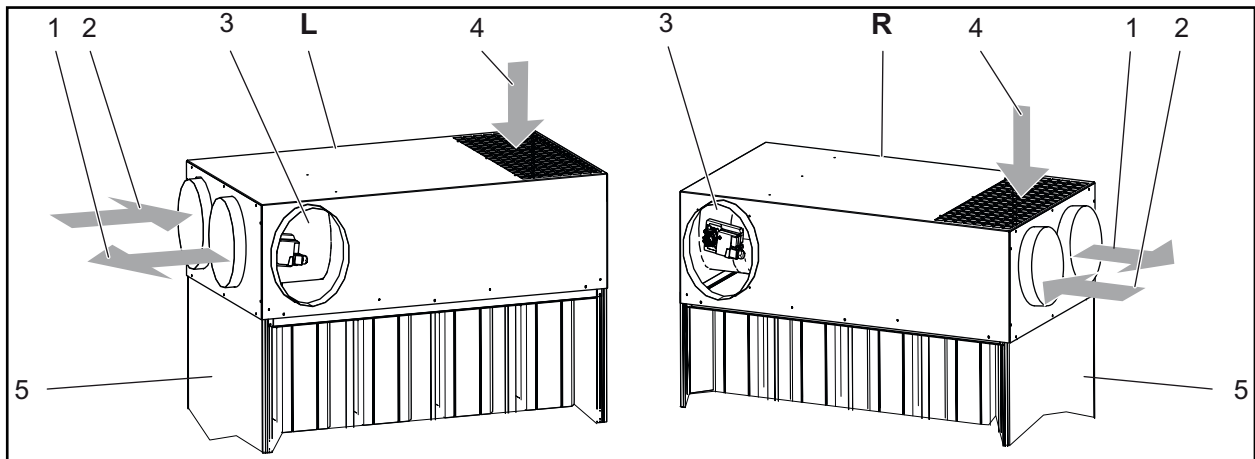


A	Inner side (interior)	4	Combination exterior wall diffuser
B	Outer side	5	6 mm bores for screw connection
1	Outdoor air intake	6	Outdoor air fitting
2	Exhaust air outlet	7	Exhaust air fitting
3	Sealing joint	8	Inside cover

The combination exterior wall diffuser (4) is fixed in a window sandwich element via the inside cover (8). The screw connection (5) is implemented using 5.5 x 45 mm sheet metal screws. A statically supporting sandwich window element provided with corresponding openings for the pipe sockets must be implemented on site. The window sandwich element is installed instead of a window pane. Outdoor and exhaust air fittings are sealed after installation to form the sandwich window element (3).

The piping is carried out on the inside (A) of the corresponding outdoor air fitting (6) and the exhaust air fitting (7). The outdoor air is drawn in via the intake (1) located on the outside (B); the outgoing exhaust air passes into the open via the exhaust air outlet (2). The outgoing exhaust air outlet is fitted on the inside with a locking plate which additionally accelerates the exhaust air as it exits. This avoids uncontrolled recirculation.

### 3.1.14 Piping



L	Air distributor module, outside air / exhaust air fitting, left side	3	Supply air fitting
R	Air distributor module, outside air / exhaust air fitting, right side	4	Exhaust air grille
1	Exhaust air fitting	5	Silencer module
2	Outdoor air fitting		

The air distributor module of the compact air handling unit is available in two versions: Depending on the requirements of the spatial conditions, either with the two  $\varnothing$  250 mm round pipe fittings of the connections for outdoor air (2) and outgoing exhaust air (1) on the left side (L) or on the right side (R). This depends on the direction in which the outdoor air and outgoing exhaust air piping to a window replacement element or another external wall passage can optimally take place.

The piping can be implemented using permanent piping which is installed and insulated on site, using fittings or using flexible, insulated hoses which are available from AL-KO THERM GmbH.

The  $\varnothing$  280 mm round pipe fitting for the supply air (3) can be optionally piped; however, piping is not mandatory. This can be carried out either using a textile air hose fitted on site and available as an option from AL-KO THERM GmbH or using an air line with air passages. The supply air can also exit directly from the fitting into the interior space.


The exhaust air (4) is extracted directly on the unit, no piping is provided.

### 3.1.15 Technical data

Data	AL-KO AIRCABINET®
Dimensions (W x D x H) in mm	1305 x 730 x 2477
Overall weight in kg	406
Air distributor module (W / D / H) in mm	1305 x 730 x 321
Air distributor module weight in kg	35
Silencer module (W / D / H) in mm	1305 x 730 x 983
Silencer module weight in kg	158
Basic unit (W / D / H) in mm	1305 x 730 x 1173
Basic unit weight in kg	213
Round pipe fitting connection for exhaust air, outside air	$\varnothing$ 250 mm
Round pipe fitting connection for supply air	$\varnothing$ 280 mm
Exhaust air filter - filter class / dp End [Pa]	ePM10-50 / 150
Outdoor air filter - filter class / dp End [Pa]	ePM1-75 / 290
Electric air heater, 3-stage	1.5 kW
Hygienic unit design	VDI Directive 6022
Air volumes	800 - 1600 m <sup>3</sup> /h
Unit mains connection	230 V / 16 A
Article no., air distributor module with outside air / exhaust air fitting, left	3420860
Article no., air distributor module with outside air / exhaust air fitting, right	3420861

**3.2 Type plat of the AL-KO AIRCABINET® compact air handling unit**

The article no., serial number, year of manufacture, name of the manufacturer and the design data can be found on the type plate. This type plate is attached to the outside of the unit.

<b>AL-KO THERM GMBH</b>		
Hauptstrasse 248-250		
89343 Jettingen-Scheppach		
Germany		
		
<b>Typ:</b>	AL-KO AIR CABINET	
<b>Baujahr:</b>	2021	
<b>Auftragsnummer:</b>		
<b>Positionsnummer:</b>		
<b>Filter</b>	Zuluft	Abluft
Filterklasse:	ePM1-75	ePM10-50
dp End [Pa]:	290	150
<b>Plattenwärmetauscher</b>		
Wirkungsgrad:	80 %	
<b>Ventilatoren</b>		
Max-Volumenstrom:	1600 m <sup>3</sup> /h	1600 m <sup>3</sup> /h
Anschlussleist. ges.:	2,45 kW	
Gesamtbetriebsstrom:	12 A	
Spannung /Frequenz:	230 V / 50 Hz	230 V / 50 Hz
Schutzklasse:	IP 54	IP 54
Absicherung:	16 A	
Angewandte Daten sind Nominalwerte! Geräte-Auslegungsdaten siehe Datenblatt!		

## 4 Delivery, transport, storage

### 4.1 Delivery

#### 4.1.1 Scope of supply

#### ATTENTION



Suitable fastening material for the combination exterior wall diffuser and the ceiling fastenings for hose lines or permanent piping must be provided by the customer.

Use only approved fastening materials suitable for the ceiling fastening of the piping.

The **AL-KO AIRCABINET®** compact air handling unit is supplied as a three-part unit. The delivery contains:

- **AL-KO AIRCABINET®** compact air handling unit
  - Lower basic unit with lower maintenance doors
  - Medium silencer module with upper maintenance panel
  - Upper air distributor module
- Control unit with spiral cable
- Mounted filter

The **AL-KO AIRCABINET®** compact air handling unit is packed preassembled and wrapped in foil and delivered upright on two one-way pallets:

- Basic unit on one pallet  
Dimensions: (L x W x H): 150 x 80 x 135 cm; overall weight: 235 kg
- Silencer module and air distributor module on one pallet  
Dimensions: (L x W x H): 150 x 80 x 150 cm; overall weight: 215 kg

The control unit is packed in a box behind the left maintenance door of the basic unit. Additional, optional accessories can be stored behind the maintenance doors:

- Presence switch
- Small parts

The following optional accessories are supplied separately packaged when ordering:

- Hoses
- Combination exterior wall diffuser, incl. installation description

#### 4.1.2 Transport damage

#### ATTENTION



Damage claims can only be made within the complaint deadlines. Defects or damage to the supplier are to be reported immediately on discovery.

Inspect the delivery for transport damage immediately. If damage is discovered, proceed as follows:

- Do not accept the delivery or accept it with reservations.
- Document the extent of damage discovered on the delivery note.
- Initiate a complaint.

## 4.2 Transport

### 4.2.1 Safety

#### ⚠ WARNING



##### **Risk of injury during transport and setup of the unit.**

Risk of injury during transport and setup of the unit due to impact with hands and arms, tripping over foreign objects, falling from steps and ladders, cuts on sharp edges, parts falling or tipping over.



- Observe the applicable safety conditions in DGUV regulation 68 "Industrial trucks".
- Have a second person to help you.
- Use only suitable lifting equipment, industrial trucks and load securing units.
- Use the specified pick-up and lifting points.
- Use safe steps and ladders.
- Do not stand or walk under suspended loads.
- Secure loads to prevent tipping, slipping and rolling away using suitable lashing straps.
- Observe the indicated weights.
- Keep the transport route and installation site free of tripping hazards.
- Wear your PPE (cut-proof gloves, safety shoes).

#### ⚠ CAUTION



##### **Risk of injury due to the unit falling or tipping over.**

Failure to observe 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 this Installation and Operating Manual.
- Work only on surfaces on-site that are suitable for installation preparation and lifting.

#### ATTENTION



- Uniform lifting of the unit must be ensured.
- Only approved lifting equipment with a sufficient load-bearing capacity may be used.
- The lifting equipment must be in a flawless condition.
- The lifting gear must be inspected for load-bearing capacity and damage before use.
- Secure the load during transport.
- Use only suitable transport locks.
- Plan for a second person to help if there is a load to be lifted or moved.
- Move this unit only with the intended transport equipment.
- Use only suitable transport equipment and industrial trucks.
- Maintenance doors and maintenance panels must be kept closed at all times during transport.

#### 4.2.2 Transport under normal conditions

- Ensure sufficient visibility during transport (accompanying person, if necessary).
- No persons must be allowed to remain in the transport area.
- The unit must only be transported by trained and qualified personnel 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.
- Observe the instructions in this Installation and Operating Manual and the relevant regulations on occupational health & safety and environmental protection during transport.
- Transport the unit only when upright and secure the unit to prevent tipping and slipping.
- Avoid damaging the unit.
- Damage resulting from improper packaging, storage and transport are at the expense of the person responsible.
- The unit should be transported in an enclosed vehicle. Use a forklift or pallet truck together with a hand truck at the installation site. On short, flat surfaces, the plastic castors installed under the unit base can be used.
- The **AL-KO AIRCABINET®** compact air handling unit is only to be transported, lifted and installed within the standard limitations of use (-20 °C to +40 °C).

#### 4.2.3 Transport under aggravated conditions

- When transporting under aggravated conditions (e.g. on open vehicles, under unusual vibration stresses, transport by sea or in subtropical countries), additional packaging must be used that will protect the unit from these particular influences.

#### 4.2.4 Transport with pallet truck

The compact air handling unit is pre-assembled and delivered standing upright on two one-way pallets and secured with lashing straps.

#### ATTENTION



Always engage the forks of the hand truck with the pallet.  
Pay attention to possible protrusions.

- Before lifting the components, ensure that the maintenance panels and maintenance doors are closed.
- Suitable fork lengths must be used to prevent damage to the components.
- Use suitable wood intermediate layers.

#### 4.2.5 Transport from the delivery to the installation site

#### ATTENTION



The individual components of the compact air handling unit must be lifted for transport and must not be slid across the floor for any extended distance. Use a pallet truck to transport the unit over longer distances.

#### ATTENTION



Secure the components of the compact air handling unit against falling from the transport equipment being used, and against tipping over and sliding away during the subsequent work activities. Only ever carry one component in your hand when transferring it to the installation site of the unit. Have a second person to help you.



Use a pallet truck to lift the one-way pallets with the components of the compact air handling unit off the transport vehicle and transport them to their intended location.

- Only ever transport one loaded one-way pallet using the pallet truck.
- Position the forks of the forklift in the middle of the one-way pallet. Pay attention to uniform weight distribution.
- Lift the one-way pallet from the loading area of the transport vehicle and place it on level ground at the destination.

#### NOTE



To protect the surface of the unit during transport, we recommend that the outer packaging (plastic film) is left on the unit and removed only at the final installation site.

### 4.3 Storage prior to installation

If the compact air handling unit has been delivered, but cannot be installed immediately in its intended installation site, observe the following points:

- Store the compact air handling unit in its original packaging or protect the unit from dust using a flexible cover during prolonged storage.
- Store the compact air handling unit in a dry and weatherproof location.
- Do not store the compact air handling unit outdoors.
- Frequent and, above all, abrupt temperature changes must be avoided during storage. This entails a risk of moisture condensing. Mould could develop as a result.
- In order to avoid bearing damage, the fans must be turned once a month during standstill times of more than one month. To do this, open the left maintenance door and turn the two fans by hand. The compact air handling unit must not be connected to the power supply during this time.
- In the case of storage periods of more than one year, the ease of movement of the fan bearings must be checked (by turning by hand) before installation. This work must only be carried out with the compact air handling unit switched off, disconnected from the power supply and protected against restart. Please contact your Customer Service.
- Pay attention to unusual noises when switching on the unit after prolonged storage. If in doubt, switch off the unit immediately at the unit main switch. Disconnect the unit plug.
- Avoid distortion of the housing or other damage during storage.
- Damage resulting from improper packaging and storage is at the expense of the person responsible.

### 4.4 Disposal of packaging



When disposing of the packaging, proceed according to the relevant local environmental and recycling regulations in your country and community applicable at the time.

## 5 Installation

### 5.1 Safety

#### WARNING



##### **Risk of injury or death from electric shock.**

When working on the electrical equipment of the unit, there is an increased risk of injury or death due to contact with energized parts.

- Such work may only be carried out by a qualified electrician.
- Perform a visual inspection of the mains lead and unit plug for damage.
- Ensure that the mains lead is routed correctly.
- Ensure that the unit is not standing on the mains lead.
- Wear your PPE (safety shoes).

#### CAUTION



##### **Risk of hand injuries due to crushing.**

There is a risk of hand injuries due to crushing or crushing during lifting or stopping of unit components.

- Have a second person to help you.
- Use the recessed handles and holding points provided when lifting the unit components.
- Wear your PPE (protective gloves, safety shoes).

#### CAUTION



##### **Risk of injury due to tripping.**

There is a risk of tripping due to objects on the floor when installing the unit.

- Remove packaging materials and one-way pallets that are no longer required from your working area immediately.
- Do not climb over unit components standing on the floor.
- Use secure ladders and steps.
- Wear your PPE (protective gloves, safety shoes, protective helmet).

#### ATTENTION



Ensure that the components of the compact air handling unit cannot tip over during subsequent work activities. Have a second person to help you.

#### ATTENTION



Take care during installation work that loosened parts do not fall into the interior of the compact air handling unit. Remove loose parts and tools from the inside of the compact air handling unit when the installation work is complete.

## 5.2 Preparing the compact air handling unit for installation

Step	Action
1	Transport the components of the compact air handling unit one after the other to their installation site. Have a second person to help you; use a pallet truck.
2	Remove the fastening straps from both one-way pallets.
3	Remove the packaging film from the unit components of both one-way pallets.
4	Remove the protective film from the intake protection grille of the air distributor module.
5	Remove packaging materials from your working area.
6	Remove the double bit key from the outer wall of the basic unit.
7	Unlock the two turn locks of the left maintenance door of the basic unit with the double bit key.
8	Open the left maintenance door.
9	Remove the box with the control unit.
10	Close the maintenance door and lock the turn locks with the double bit key.
11	With a second person, lift the basic unit off the one-way pallet and place it on a level, non-slip surface. The one-way pallet with the basic unit should be as close to the installation site as possible.
12	Unlock the four turn locks of the maintenance panel of the silencer module with the double bit key.
13	Remove the maintenance panel.
14	Remove the four sound absorbers one after the other. To do this, lift the sound absorber slightly and pull it out completely.
15	Loosen the 12 Torx (TX25) fastening screws at the top of the silencer module.
16	With a second person, lift the air distributor module off the silencer module and place it on a level, non-slip surface.
17	Lift the silencer module off the one-way pallet with a second person and place it on a level, non-slip surface.
18	Remove the two one-way pallets from your working area.

## 5.3 Setting up and installing the unit

### ATTENTION



Suitable screws and PVC universal shims for horizontal alignment of the compact air handling unit must be provided by the customer.

Proceed as follows to set up the compact air handling unit:

Step	Action
1	Ensure that the appropriate domestic power supply is within reasonable reach of the installation site.
2	Ensure that the installation site of the compact air handling unit is at a distance from contamination sources (kitchen hood, central dust extraction system, etc.).
3	Ensure that both filters are installed in the compact air handling unit. Check that both filters are securely fitted.
4	Install the basic unit at its intended location approx. 30 cm from the wall of the room.
5	Lift the silencer module onto the basic unit.
6	Ensure that the silencer module is seated flush and firmly on the basic unit.
7	Screw the four fastening screws from the silencer module into the basic unit.
8	Hand-tighten the four self-tapping screws M6x12 (SW10).
9	Remove the rolled-up connection cable of the upper flap servomotor and unwind it.
10	Lift the air distributor module together with a second person onto the silencer module using a step ladder.
11	Ensure that the air distributor module is seated flush and firmly on the silencer module.
12	Screw the 12 Torx fastening screws (T25) into the air distributor module.
13	Connect the mains lead of the upper butterfly valve actuator to the air distributor module.
14	Push the compact air handling unit with its rear side against the room wall with a second person.
15	Observe the minimum clearances of 0.25 m to the sides and above the unit.
16	Ensure that the compact air handling unit is standing on a level surface with sufficient load-bearing capacity.

Step	Action
18	Install the four sound absorbers into the silencer module.
19	Note that the <b>TOP</b> stickers are directed upwards and can be read from the outside.
19	Ensure that the sound absorbers are aligned parallel to one another and parallel to the side walls of the silencer module.
20	Check that the sound absorbers are securely fitted.
21	Close the silencer module with the maintenance panel.
22	Lock the four turn locks of the maintenance panel with the double bit key.
23	Check that all lockings are secure.
24	Ensure the horizontal setup of the compact air handling unit. Correct the alignment of the unit if necessary using on-site PVC universal shims.
25	Ensure that the air intake can be drawn in unhindered through the exhaust air grille on the upper right side of the air distributor module. Do not place anything on the air distributor module.

## 5.4 Connecting the unit to the mains power supply

### ATTENTION



The use of a all-current sensitive residual current circuit breaker instead of an earth-leakage circuit breaker is recommended for the electrical protection of the compact air handling unit.

### ATTENTION



Ensure that no access or escape routes are obstructed when routing the mains lead.

The **AL-KO AIRCABINET®** compact air handling unit has a three metre connection cable with 230 V unit plug (domestic power supply).

Proceed as follows to connect the compact air handling unit to the electrical power supply:

Step	Action
1	Check that the compact air handling unit is set up on level ground.
2	Connect the 230 V unit plug to the domestic power supply.
3	Particularly in the event of overlength, secure the mains lead so that it does not pose a tripping hazard.

## 5.5 Installing the combination exterior wall diffuser

### 5.5.1 Safety

#### **WARNING**



##### **Risk of injury from falling parts.**

There is a risk of injury from falling parts when installing the combination exterior wall diffuser.

- This work may only be carried out by a qualified glazier specialist.
- Have a second person to help you.
- Use secure steps or a ladder.
- Ensure that the sandwich window element has sufficient load-bearing capacity for the combination exterior wall diffuser and does not become distorted after it has been installed.
- Wear your PPE (safety shoes, protective helmet).

#### **ATTENTION**



The combination exterior wall diffuser is not part of the scope of delivery of the compact air handling unit.

#### **ATTENTION**



The sandwich window element and its installation must be provided by the customer.

#### **ATTENTION**



Sealing materials such as silicone must be provided by the customer.  
Ensure that the product you are using is suitable for the application.

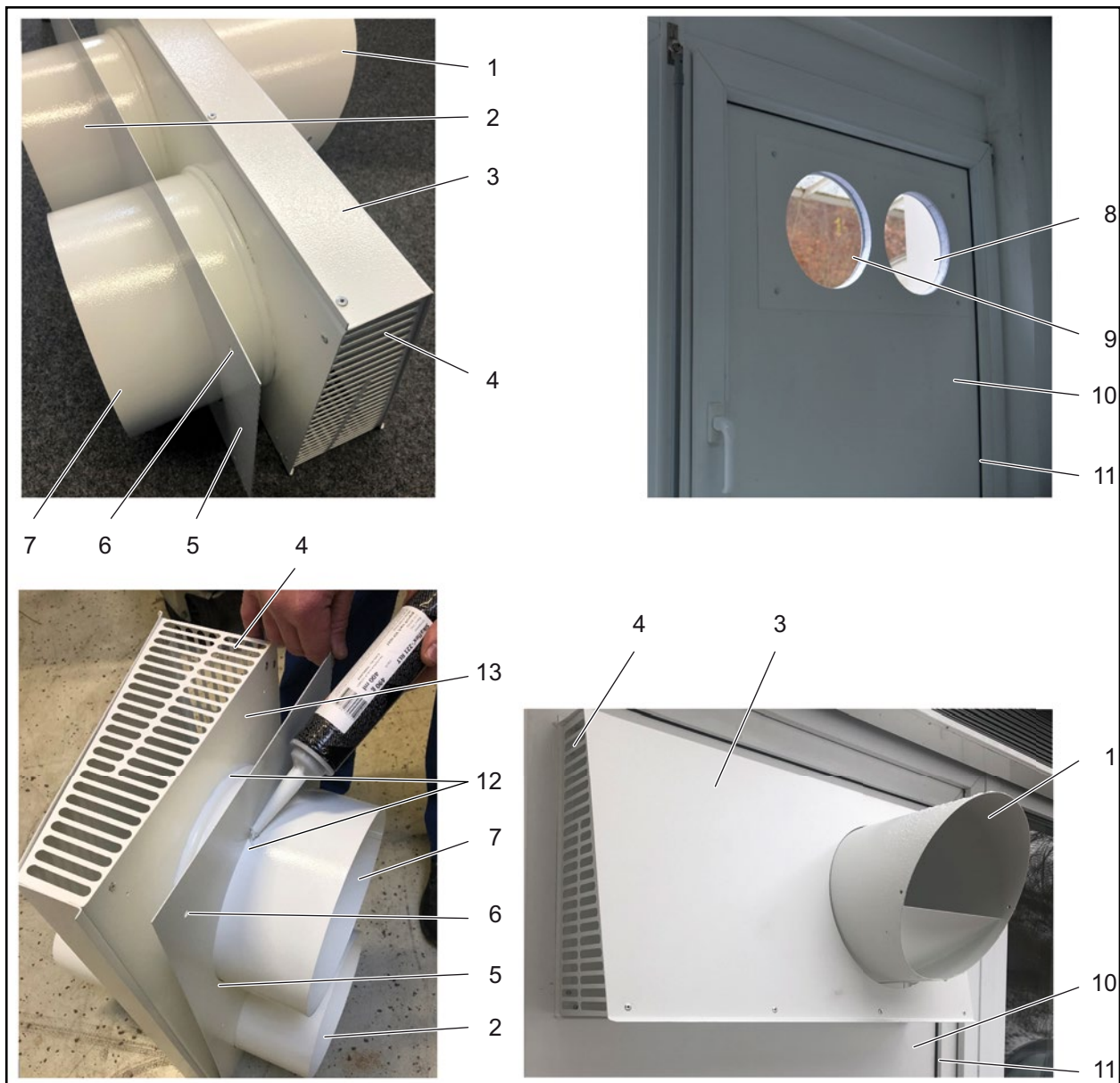
#### **ATTENTION**



The combination exterior wall diffuser is not rotatable. Pay attention to the correct installation position.

### 5.5.2 Overview

The combination exterior wall diffuser is used to produce a building passageway in a sandwich window element, for air exchange via an **AL-KO AIRCABINET®** compact air handling unit. The piping for outdoor air and exhaust air is connected to the combination exterior wall diffuser.



1	Exhaust air outlet	8	Outdoor air breakthrough
2	Exhaust air fitting	9	Exhaust air breakthrough
3	Combination exterior wall diffuser	10	Sandwich window element (customer provision)
4	Outdoor air intake	11	Sealing compound for window sandwich element
5	Inside cover	12	Sealing compound for combination exterior wall diffuser
6	Screw connection holes	13	Rear wall
7	Outdoor air fitting		

### 5.5.3 Creating and inserting a sandwich window element

A sandwich window element (10) is to be installed on site instead of a window pane in a window element by a glazier. It must have sufficient stability to ensure the firm, torsion-free fit of the combination exterior wall diffuser (3). It must be manufactured to fit exactly; use the inside cover (5) as a template for this purpose.

Apply an approximately 15 mm thick sealing compound strip (12) to the edge of the sandwich window element (10) before pressing and screwing into the window replacement element.

### 5.5.4 Installing a combination exterior wall diffuser

To install the optionally available combination exterior wall diffuser, proceed as follows:

Step	Action
1	In the outer window element provided for this purpose, implement the openings for outside air (8) and outgoing exhaust air (9) with a diameter of 260 to 270 mm as follows:
1a	If you want to install the combination exterior wall diffuser (3) in an outer window element, replace the relevant window with a window sandwich element (10) in which you implement the openings prior to installation (see chapter "5.5.3 Creating and inserting a sandwich window element" on page 30).
1b	If you want to install the combination exterior wall diffuser (3) in an outer wall, clarify the outer wall opening with AL-KO THERM GmbH.
2	Remove the combination exterior wall diffuser (3) from its packaging; remove the packaging from your working area.
3	Remove the inside cover (5) from the combination exterior wall diffuser (3).
4	Apply sealing compound (12) to the housing of the combination exterior wall diffuser (3) to seal with the sandwich element (10).
5	Insert the combination exterior wall diffuser (3) from the outside into the sandwich element (10) as far as it will go. Apply light pressure to ensure sealing.
6	From the interior, slide the inside cover (5) over the exhaust air fitting (2) and the outdoor air fitting (7) as far as it will go.
7	Drill the six fixing holes of 6.5 mm through the holes of the inside cover (5) into the sandwich window element (10). Drill completely through the support material of the window sandwich element, but not through the sheet metal of the rear wall (13) of the combination exterior wall diffuser (3) to ensure that the sheet metal screws can be securely fastened.
8	Screw the six 5.5 x 45 mm self-tapping screws for the screw connections (6) through the inside cover (5) into the sandwich window element (10) and tighten them by hand using a suitable screwdriver.
9	Seal the inside cover (5) with sealing compound (12) to the exhaust air fitting (2) and to the outdoor air fitting (7).
10	Do not carry out further work on the combination exterior wall diffuser (3) until the seals have hardened. Observe the manufacturer's data for the sealing material.
11	Check that the mounted combination exterior wall diffuser (3) is secure and that it is horizontal with the sandwich element (10).
12	Ensure that the exhaust air outlet (1) and the outdoor air intake (4) are not misaligned.

## 5.6 Installing the piping

### 5.6.1 Safety

#### WARNING



#### Risk of damage to property due to the action of uncontrolled forces

There is a risk of property damage or total damage if uncontrolled forces act on the piping or pipe sockets.

- No forces may be dissipated or loads deposited on the pipe sockets of the compact air handling unit and the combination exterior wall diffuser.
- Always adequately intercept the piping and do not allow it to sag.
- Observe the manufacturer's data for the proper installation of the piping.
- Damage caused by improper installation shall be at the expense of the initiator.

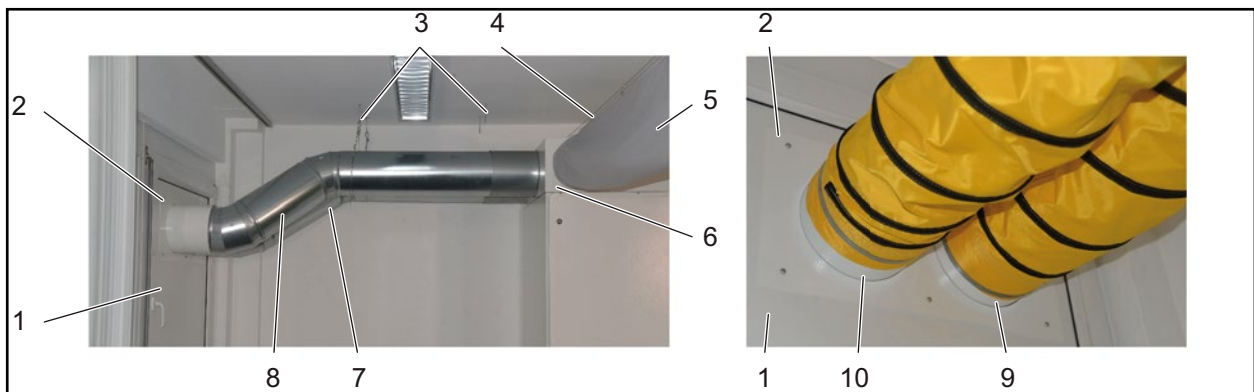
#### ATTENTION



The piping of the compact air handling unit via pipes or hoses must be implemented on site.

## 5.6.2 Overview

The piping for outdoor air and exhaust air can be implemented using either permanent piping or flexible piping. As an option, the supply air can be discharged into the space via a textile hose.



1	Sandwich window element	6	Air distributor module
2	Inside cover / combination exterior wall diffuser	7	Permanent piping - outdoor air
3	Ceiling suspension	8	Permanent piping - exhaust air
4	Ceiling rail	9	Flexible piping - outdoor air
5	Textile air hose - supply air	10	Flexible piping - extract air

## 5.6.3 Installing the piping

Step	Action
1	Ensure that the piping is available in sufficient lengths.
2	Ensure that the combination exterior wall diffuser (2) is properly mounted.
3	Install the ceiling suspensions (3) for the outdoor air and exhaust air piping.
4	If necessary, install the optional ceiling rail (4) for the supply air piping.
5	Install the piping for the outside air and exhaust air on the ceiling suspensions (3). Use permanent piping (7), (8) or flexible piping (9), (10).
6	Install the optional textile hose (5) for the supply air.
7	Connect the exhaust air fitting and the outdoor air fitting of the air distributor module (6) to the corresponding pipe connections of the combination exterior wall diffuser (2).
8	Connect the optional textile hose to the supply air fitting of the air distributor module (6).
9	Check that all closing clips on the piping are secure.
10	Check that the ceiling suspensions of the piping are secure.



## 6 Commissioning

### 6.1 Safety

#### **WARNING**



##### **Accident and injury risk due to human misconduct**

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

- Work carefully at all times.
- Wear your PPE.
- Perform a visual inspection for damage, particularly to the mains lead of the unit.
- Carry out commissioning only when you have been instructed in doing so.
- Observe the standards and directives.

Before commissioning, ensure that:

- The unit has been installed as described in these installation instructions and the Operating Manual (see "5 Installation" on page 26).
- All the filter elements are correctly installed.
- The unit is connected to the mains power supply.

#### **WARNING**



##### **Risk of damage to property**

There is a risk of property damage or total destruction of the unit if the components come into contact with solid or liquid media.

- Install the unit only in interiors intended for this purpose.
- Ensure that no solid or liquid media can enter the unit through the exhaust air grille.
- If foreign media have entered the unit, switch it off immediately at the main switch and disconnect the unit plug.
- In the event of damage, have the unit inspected by qualified staff.
- Only put the unit back into operation following approval from the qualified staff.

## 6.2 Switching the unit on and off

### 6.2.1 Safety

#### ⚠ WARNING



##### Risk of serious injuries or death.

Working on the AL-KO AIRCABINET® compact air handling unit can result in serious injuries or death.

- After switching off via the main switch, no safety functions of the unit are guaranteed.
- Never use the main switch to switch it on and off during operation.
- Use the main switch only for maintenance and repair purposes or when shutting down the unit.

#### ATTENTION



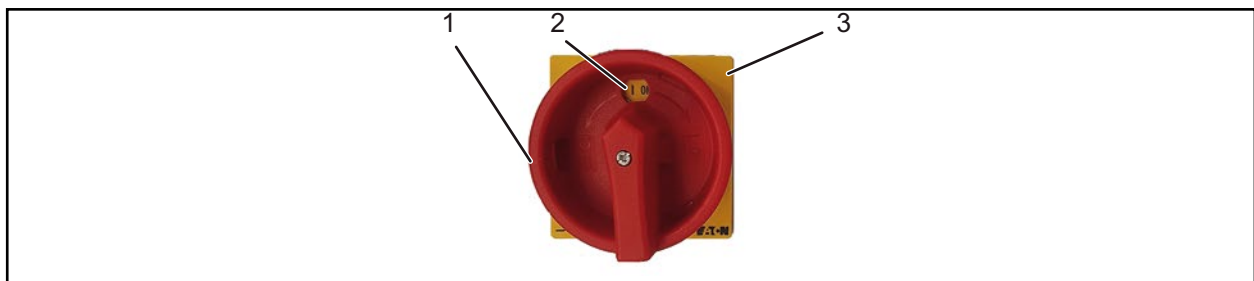
The compact air handling unit should only be switched off via the control unit for break times and night-time shutdown. The main switch on the basic unit for interrupting the power supply must only be operated during maintenance work and when the unit is shut down.

#### NOTE



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

### 6.2.2 Overview



1	<b>O OFF</b> switch position OFF	3	main switch
2	<b>I ON</b> switch position ON		

### 6.2.3 Switching on the unit

Step	Action
1	Switch on the compact air handling unit at the main switch (3). The unit is ready for operation, the LED status display above the main switch lights up green.
2	Ensure that the main switch (3) is fully engaged in the <b>I ON</b> (2) position.
3	Switch on the compact air handling unit on the control unit and make further settings on the control unit, such as <b>fan step</b> and <b>operating mode switch</b> . In this process, follow the enclosed Operating Manual / functional description of the <b>Art Tech Level II control</b> .

## 6.2.4 Switching off the unit

Step	Action
1	Switch off the compact air handling unit on the control unit. Follow the enclosed Operating Manual / functional description <b>Art Tech Level II control</b> .
2	Wait three minutes until the electric air heater has cooled down and the two fans have come to a standstill.
3	Switch off the compact air handling unit at the main switch (3). The unit is off, the LED status display above the main switch has gone out. All displays on the control unit have gone out.
4	Ensure that the main switch (3) is fully engaged in the <b>0 OFF</b> (1) position.
5	Secure the main switch (3) against unintentional restart of the unit with suitable locking.
6	Disconnect the unit plug if maintenance work is to be carried out or if the unit is not in operation for a prolonged period.

## 7 Servicing and maintenance

### 7.1 Safety

#### ⚠ WARNING



##### **Risk of fatal electric shock.**

There is a risk of a fatal electric shock if live clampings or connections are touched, even when the unit is switched off.

- Switch off the unit at the unit main switch.
- Disconnect the unit plug.
- Only open the maintenance panel or the maintenance doors when the unit has cooled down and the fans are stationary.
- Wear your PPE (safety shoes, cut-proof gloves).

#### ⚠ WARNING



##### **Risk of injury.**

- Disconnect the unit plug before starting any maintenance or repair work on the unit.
- Protect the unit against unauthorised restart.
- Observe the applicable safety rules.
- Have installation, commissioning, maintenance and repair work carried out only by qualified staff!
- Make sure that all factory-fitted safety units are functional before switching the unit on again.

#### ⚠ WARNING



##### **Risk of injuries from the run-on of the fan.**

- The unit may only be opened by qualified staff or by instructed persons.
- The unit may only be opened when the fan has been switched off and has come to a standstill.
- Observe the fan delay time. Wait at least three minutes for the fan impeller to come to a standstill before opening the service cover and maintenance panel.

#### ⚠ WARNING



##### **Risk of burn injuries.**

- The unit may only be opened by qualified staff or trained persons.
- The unit may only be opened in the shut down and cooled condition.
- Wear your PPE (cut-proof gloves).

#### ⚠ WARNING



##### **Health hazards when removing the filter elements.**

- Wear your PPE (FFP2 dust mask) when removing the filters.
- Use further protective equipment according to the work to be carried out (safety shoes, gloves).
- Avoid contact with the dust.

**⚠ WARNING**



**Risk of injury when opening the maintenance panel.**

There is a risk of injury from falling parts when opening the maintenance panel.

- Use a safe step or approved ladder.
- Make sure you have a secure footing.
- Work carefully when unfastening the turn locks of the maintenance panel.
- Have a second person to help you who can take the removed maintenance panels off you and put them in a safe place.
- Wear your PPE (safety shoes, cut-proof gloves).

**NOTE**



The owner/operator of the compact air handling unit is obliged to carry out visual inspections of the unit at regular intervals, but at the latest following an extended standstill. This includes in particular checking the mains lead and the displays on the operating panel.

**NOTE**



The owner/operator of the compact air handling unit is obliged to have the unit serviced at regular intervals by qualified staff.

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

**If a maintenance contract is concluded, AL-KO THERM GmbH will carry out this work in a professional manner.**

Customer Service  
 Phone: +49 8225 39 - 2440  
 E-mail: aircabinet@al-ko.com  
 Web: www.al-ko.com

**ATTENTION**



Only use original consumable materials and spare parts. This is the only way to ensure safe operation. Use of other parts will void the warranty!

A spare parts list can be found as part of the unit documentation.

Customer Service  
 Phone: +49 8225 39 - 2440  
 E-mail: aircabinet@al-ko.com  
 Web: www.al-ko.com

**7.2 Maintenance schedule**

No.	Activity / unit component	Measure / remark	Inspections to be performed at monthly intervals				
			1	3	6	12	24
<b>1</b>	<b>Outdoor air intakes and exhaust air outlets</b>		<b>1</b>	<b>3</b>	<b>6</b>	<b>12</b>	<b>24</b>
1.1	Check for soiling, damage and corrosion	Completely clean and repair				<b>X</b>	
<b>2</b>	<b>Housing of compact air handling unit (all modules)</b>		<b>1</b>	<b>3</b>	<b>6</b>	<b>12</b>	<b>24</b>
2.1	Inspect for soiling, damage and corrosion on the air side	Completely clean and repair				<b>X</b>	
2.2	Check for water formation (condensate)	Clean and identify the cause			<b>X</b>		
2.3	Flexible connections	Check leaktightness				<b>X</b>	
2.4	Check maintenance panel, maintenance doors and turn locks for ease of movement and leak-tightness	Repair				<b>X</b>	

<b>3</b>	<b>Supply air filter, exhaust air filter</b>		<b>1</b>	<b>3</b>	<b>6</b>	<b>12</b>	<b>24</b>
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. Replace both filters if their replacement is more than 6 months ago.		X			
3.2	Filter change' warning message on the control unit	If the maximum differential pressure is exceeded, replace both filters	X				
3.3	Latest filter change					X	
3.4	Checking the hygiene condition					X	
<b>4</b>	<b>Heat recovery, general</b>		<b>1</b>	<b>3</b>	<b>6</b>	<b>12</b>	<b>24</b>
4.1	Heat exchangers and their accessories must be checked regularly for airborne contamination, corrosion and damage.						
4.2	If cleaning in installed state is not sufficient, the heat recovery equipment must be removed and cleaned accordingly.						
4.3	Check for soiling, damage and corrosion	Completely clean and repair		X			
4.4	Check leak-tightness between exhaust and outdoor air supply	Repair		X			
4.5	Check the condensate drip pan for dirt, corrosion and correct function	Repair		X			
4.6	Checking the hygiene condition					X	
<b>5</b>	<b>electric air heater</b>		<b>1</b>	<b>3</b>	<b>6</b>	<b>12</b>	<b>24</b>
5.1	Check for scale deposits and corrosion	Completely clean and repair				X	
5.2	Inspect on the air side for soiling and damage	Completely clean and repair				X	
5.3	Check functionality	Repair				X	
5.4	Check control and safety equipment for correct function	Repair				X	
<b>6</b>	<b>Countercurrent plate heat exchanger</b>		<b>1</b>	<b>3</b>	<b>6</b>	<b>12</b>	<b>24</b>
6.1	Inspect on the air side for soiling, damage and corrosion	Completely clean and repair			X		
6.2	Clean to preserve function (air-side)					X	
6.3	Check for hygienic condition					X	
<b>7</b>	<b>Bypass dampers</b>		<b>1</b>	<b>3</b>	<b>6</b>	<b>12</b>	<b>24</b>
7.1	Check for soiling, damage and corrosion	Completely clean and repair				X	
7.2	Check the mechanical function	Repair				X	
7.3	Check the function of the damper adjusting actuators	Repair				X	
<b>8</b>	<b>fans</b>		<b>1</b>	<b>3</b>	<b>6</b>	<b>12</b>	<b>24</b>
8.1	Inspect the fan for soiling, damage and corrosion	Completely clean and repair			X		
8.2	Check the impeller for soiling, unbalance and running noises	Switch on motor briefly Completely clean and repair				X	
<b>9</b>	<b>Electrical switch box</b>		<b>1</b>	<b>3</b>	<b>6</b>	<b>12</b>	<b>24</b>
9.1	Perform visual inspection of clamping and plug-in connections	Clean, check that they are seated firmly				X	

## 7.3 Carry out filter change

### 7.3.1 Safety

#### **WARNING**



##### **Risk of injury due to collisions, cutting, pinching, crushing and tripping.**

Risk of injury during filter changing due to collision of hands, arms and head on the unit housing, cutting on metal parts, pinching or crushing between filter and filter frame and tripping over foreign objects.

- This work may only be carried out by trained, qualified staff.
- Wear your PPE (breathing mask, cut-proof gloves, helmet, safety shoes).
- Clear away tripping hazards such as parts lying around.

#### **WARNING**



##### **Risk of fatal electric shock from energized parts**

Working on the **AL-KO AIRCABINET®** compact air handling unit can lead to serious injury or death due to electric shock.

- Disconnect the unit from the mains power supply and secure it to prevent restart.
- Disconnect the unit plug from the domestic power supply.
- Secure the mains lead so that it does not pose a tripping hazard.

#### **WARNING**



##### **Health hazards due to dust load and microbial contamination.**

Lack of maintenance of the filters can cause these to collect dust and germs. Skin contact with germs or inhalation of escaping dusts can lead to health hazards.

- Observe the filter monitoring on the unit operating panel.
- Observe the prescribed maintenance intervals.
- Wear your PPE (FFP2 dust mask, cut-proof gloves).
- If there is a risk of the air in a room being contaminated, allow the unit to run in the unoccupied room for a few hours and change the filters before the room is occupied again.

#### **NOTE**



In order to comply with hygiene requirements, do not reuse used filters; dispose of them in accordance with the local regulations currently in force.

#### **ATTENTION**



Only use original consumable materials and spare parts.

This is the only way to ensure safe operation. Otherwise the warranty will be voided.

The filters must be disposed of in accordance with the local regulations currently in force.

Customer Service

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## ATTENTION



Note that there are two different types of filters that should not be confused:

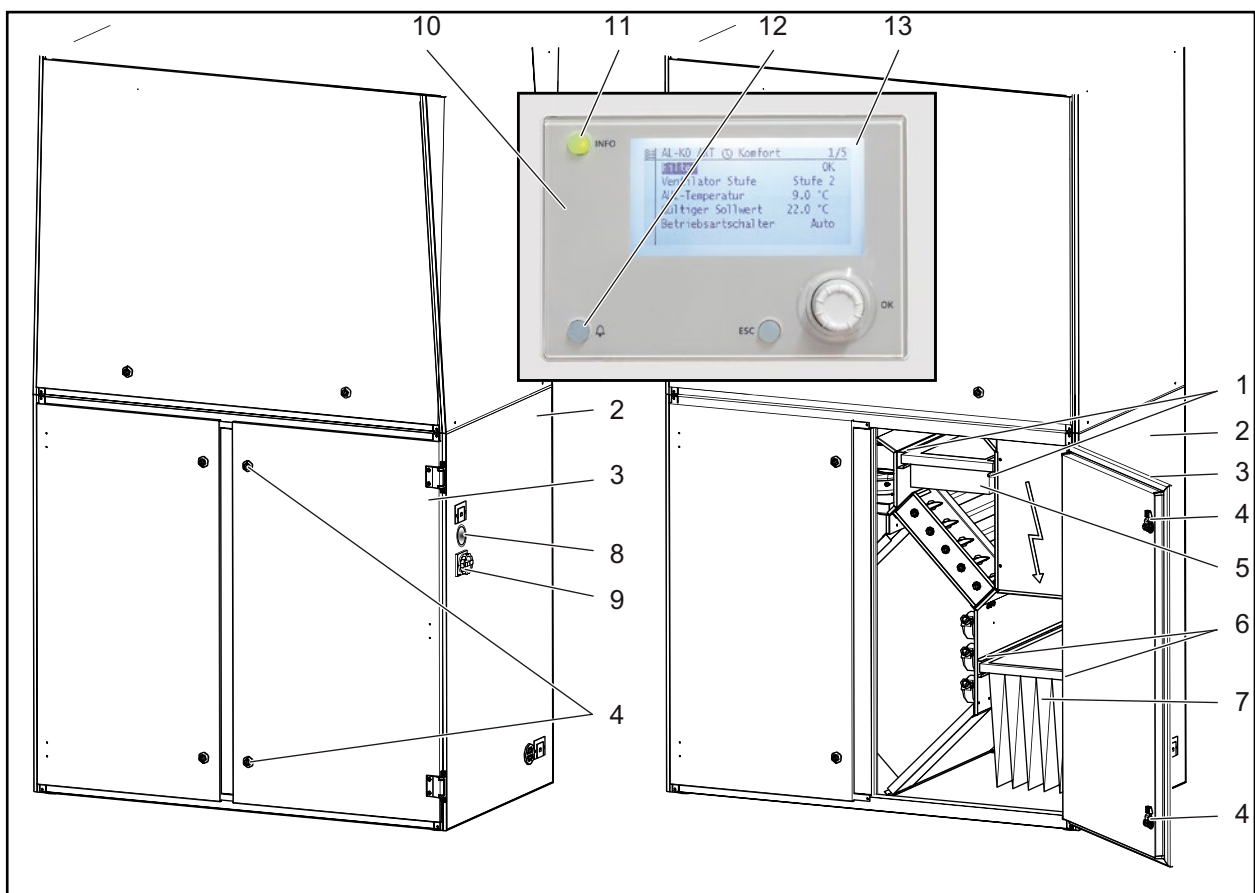
- Outdoor air filter
- Exhaust air filter

## NOTE



Further information on the control of the **AL-KO AIRCABINET®** compact air handling unit can be found in the enclosed operating manual / functional description for the **ART TECH LEVEL II control**.

## 7.3.2 Overview



1	Supply air filter guide rail	8	LED status display
2	Basic unit	9	Main switch
3	Maintenance door, right	10	Control unit
4	Turn lock	11	<b>INFO</b> button with integrated LED
5	Outdoor air filter	12	<b>ALARM</b> button with integrated LED
6	Exhaust air filter guide rail	13	Display
7	Exhaust air filter		

## 7.3.3 Filter change indicator

In the following cases, it may be necessary to change the supply air filter (5) and the exhaust air filter (7) due to a fault message:

- No control unit is connected. The LED status display (8) lights up red. The control unit must be connected to dis-



play the alarm number. The corresponding malfunction can be found in the enclosed Operating Manual / functional description for the **Art Tech Level II control**.

- A control unit (10) is connected. The LED status display (8) lights up red. The **ALARM** button (12) on the control unit lights up red. The corresponding malfunction can be found in the enclosed Operating Manual / functional description for the **Art Tech Level II control**.

**ATTENTION**



The two filters must be changed if the error code displayed indicates a fault message. Both filters must be changed if the unit has been out of use for more than six months. In case of heavy contamination, both filters may have to be changed before six months have passed.

LED status display / INFO button / Display	Action
LED status display (8) on the unit lights up red; The LED <b>ALARM</b> button (12) on the control unit lights up red; Display (13) displays an alarm.	Check the exhaust air filter (7) and outdoor air filter (5) for obvious contamination.
	Only replace the filters if obviously contaminated.
	Switch the unit back on.
Even if filters have been replaced: LED status display (8) on the unit lights up red; The LED <b>ALARM</b> button (12) on the control unit lights up red; Display (13) displays an alarm.	Check both filters: Correctly fitted in the holder; correct filter installed.
	Switch the unit back on.
LED status display (8) on the unit lights up green; <b>INFO</b> button LED on the control unit lights up green; Display (13) on main page shows <b>Filter OK</b> .	Unit is in operation.

**7.3.3.1 Carry out filter change**

To replace both filters, proceed as follows:

Step	Action
1	Ensure that an alarm displayed on the control unit (10) indicates the required filter change.
2	Switch off the compact air handling unit (see chapter "6.2.4 Switching off the unit" on page 35).
3	Ensure that the main switch (9) is in the <b>O OFF</b> position.
4	Disconnect the unit plug.
5	Route the mains lead so that it does not pose a tripping hazard.
6	Ensure that the unit has cooled down sufficiently and that the fans are completely stationary.
7	Unlock the two turn locks (4) on the right-hand maintenance door (3) of the basic unit (2) with the double-bit key.
8	Open the right-hand maintenance door (3).
9	Take the outdoor air filter (5) out of the guide rail (1).
10	Insert the new outdoor air filter (5) into the guide rail (1) and push it in as far as it will go. Do not apply pressure.
11	Take the exhaust air filter (7) out of the guide rail (6).
12	Insert the new exhaust air filter (7) into the guide rail (6) and push it as far as it will go. Do not apply pressure.
13	Ensure that the two filters have not been switched. Check that both filters are securely fitted.
14	Close the right-hand maintenance door (3). In this case, slight resistance should be felt, which indicates that the seals attached to the door are resting correctly against the filters.
15	Lock the turn locks (4) using the double bit key.
16	Connect the mains power supply.
17	Switch on the compact air handling unit at the main switch (9), <b>I ON</b> ; position; it is connected to the power supply. The settings implemented on the control unit prior to the maintenance work are retained.
18	Pay attention to the status display LED (8) and the <b>INFO</b> button LED (11) on the operating panel. Both must light up green.
19	Ensure that the main page on the display shows <b>Filter OK</b> .

Step	Action
20	Adjust further settings on the control unit if necessary, such as <b>fan step</b> and <b>operating mode switch</b> . In this process, follow the enclosed Operating Manual / functional description of the <b>Art Tech Level II control</b> .
21	Dispose of the filters in an environmentally friendly manner.

## 7.4 Resetting the safety temperature limiter

### 7.4.1 Safety

#### ATTENTION



The following work may only be carried out after the unit has been disconnected from the power supply and has cooled down.

#### ATTENTION



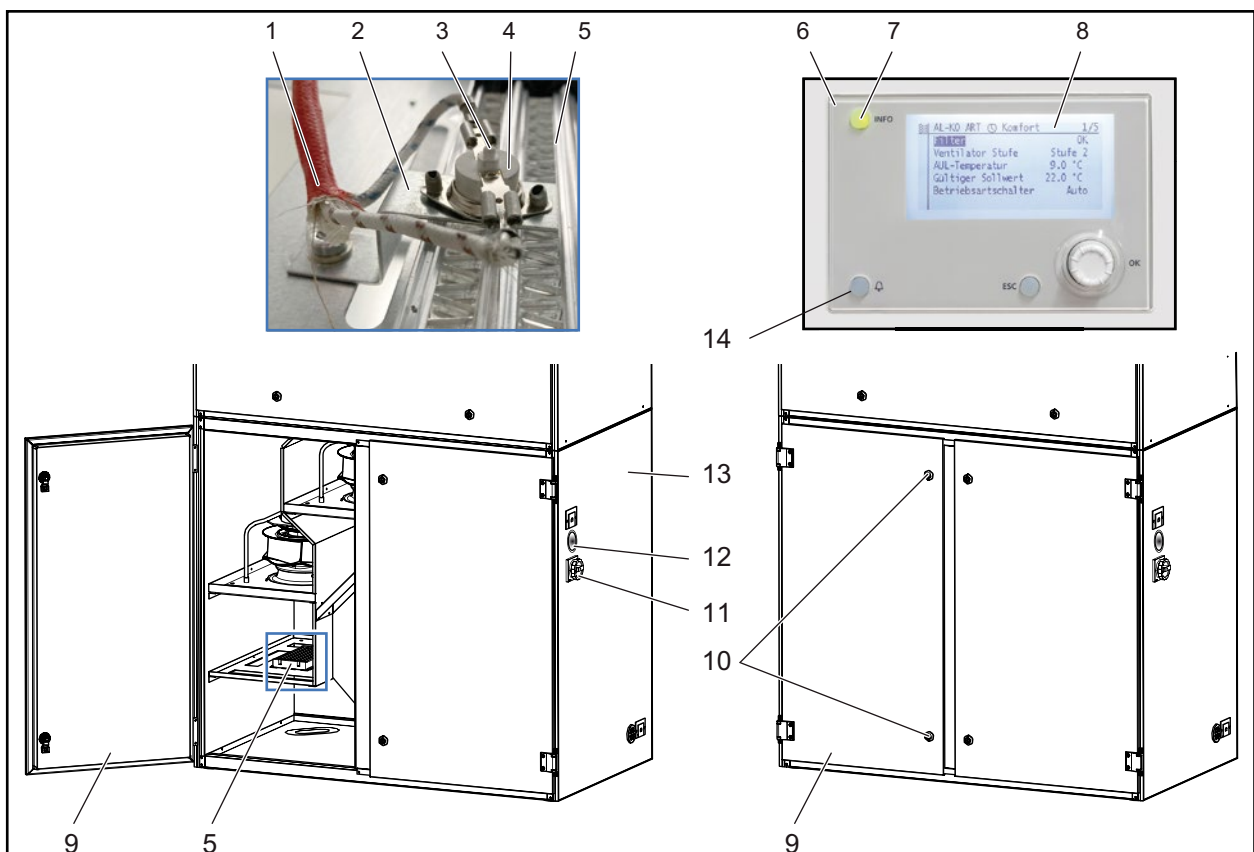
Before starting work, the cause of the malfunction must be determined by a qualified electrician. The malfunction may only be corrected by a qualified electrician.

#### NOTE



Further information on the control of the **AL-KO AIRCABINET®** compact air handling unit can be found in the enclosed operating manual / functional description for the **ART TECH LEVEL II control**.

### 7.4.2 Overview



1	Wiring of safety temperature limiter control	8	Display
2	Holder	9	Maintenance door, left
3	Reset button	10	Turn lock
4	Safety temperature limiter (STL)	11	Main switch
5	Electric air heater	12	LED status display
6	Control unit	13	Basic unit
7	<b>INFO</b> button with integrated LED	14	<b>ALARM</b> button with integrated LED

### 7.4.3 Resetting the safety temperature limiter

The safety temperature limiter (4) can trigger automatically to protect the electric air heater against overheating. The electric air heater (5) is then switched off; no further additional heating of the supply air flow takes place. This is indicated by the red status display LEDs (12) on the basic unit and **ALARM** (14) on the control unit (7). The display (8) of the control unit indicates an alarm.

The automatic tripping must be reset manually; to do this, proceed as follows:

Step	Action
1	Make sure that an alarm displayed on the control unit (10) is indicating a malfunction of the safety temperature limiter.
2	Switch off the compact air handling unit (see chapter "6.2.4 Switching off the unit" on page 35).
3	Ensure that the main switch (11) is in the <b>0 OFF</b> position and secured against unintended restart.
4	Disconnect the unit plug.
5	Route the mains lead so that it does not pose a tripping hazard.
6	Ensure that the unit has cooled down sufficiently and that the fans are completely stationary.
7	Unlock the two turn locks (10) of the left-hand maintenance door (9) of the basic unit (13) with the double-bit key.
8	Open the left maintenance door (9).
9	Check that the electric air heater (5) is sufficiently cooled; do not reach into the unit with unprotected hands.
10	Determine the cause of the malfunction of the safety temperature limiter (4) and eliminate it.
11	Acknowledge the malfunction on the safety temperature limiter (4) by pressing the reset button (3).
11	Acknowledge the malfunction on the control unit (6). In this process, follow the enclosed Operating Manual / functional description of the <b>Art Tech Level II control</b> .
12	Close the left-hand maintenance door (9) and lock the turn locks (10) with the double bit key.
14	Connect the mains power supply.
15	Switch on the compact air handling unit at the main switch (11), <b>I ON</b> ; position; it is connected to the power supply. The settings made on the control unit before the maintenance work are retained.
16	Note the LED status display (12) and the LED in the <b>INFO</b> button (7). Both must light up green.
18	Adjust further settings on the control unit if necessary, such as <b>fan step</b> and <b>operating mode switch</b> . In this process, follow the enclosed Operating Manual / functional description of the <b>Art Tech Level II control</b> .

## 7.5 Circuit diagrams

### NOTE



Further information can be found in the **electrical documentation**.

## 8 Integrated control

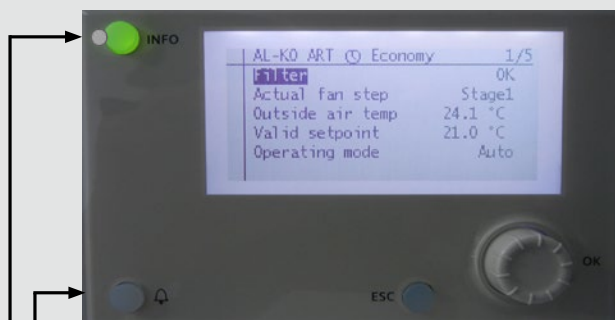
### NOTE



Further information on the control of the **AL-KO AIRCABINET®** compact air handling unit can be found in the enclosed operating manual / functional description for the **ART TECH LEVEL II control**.

# ART Tech Level II

## Quick start guide mobile HMI



### 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

- Installation switched on control unit (mobile HMI, Facility, Web)
- Installation switched via external enable (e.g. presence detector)
- Installation switched on the room control panel (mobile HMI Room)
- Installation switched via the building management system
- Installation switched via the time program
- Installation OFF: Configuration is not complete
- Installation OFF: deactivating alarm or emergency off
- Installation ON: Summer night cooling, cool-down or overheat protection
- Installation ON: early start before time program (boost)

#### 2. Operating mode

- Off** Installation OFF
- Start** Installation is starting up (dampers open, preheating)
- On** Installation ON
- Delay** Installation runs on (electrical heating coil)

#### 3. Key

- 4. Filter alarm Display of the logged-in password level
- 5. Air inlet temperature Display of the filter state
- 6. Air quality Display of the current air inlet temperature
- 7. Valid setpoint Display of the current air quality
- 8. Operating mode switch Display of the current valid temperature setpoint
- Switching of the operating mode on the control unit

### ESCAPE button

Press this button to return to the previous menu item.

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

### Password entry

- Press **INFO** to access the **Main menu**. The topmost entry is the **Password entry**. Press **ENTER**.
- A password consists of four numbers. Each number is set separately with the **rotary knob** and confirmed by pressing the **rotary knob**. Enter the user password **1 0 0 0** or the service password **2 0 0 0**. After entering the password correctly, two key symbols appear at the top right of the display.

### Acknowledging alarms (only when alarms are pending)

- Press **ALARM**; the **Alarm list detail** appears.
- Then press **ALARM** again; the **Alarm list** appears. The topmost entry is **Acknowledge**. Press the **rotary knob**.
- Select **Version** using the **rotary knob** and press it again. The acknowledgement attempt is started.

### Switch on the installation using the control unit (user password required)

- Use **INFO** to access the **Start page**. Select **Operating mode switch** with the **rotary knob** and press it.
- Use the **rotary knob** to mark the required **operating mode** and press it.

### Important information!

- The number of plant steps and the availability of the economy mode depend on the configuration of the installation (see operating manual).
- In economy mode, the installation 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 **rotary knob** and press it. See the operating manual for a description of the individual items.

### Setting the temperature setpoint (user password required)

- Use **INFO** to access the **Main menu**. Select **Setpoints** with the **rotary knob** and press it.
- Go to **Temperature control** with the **rotary knob** and press it.
- Select **Comfort setpoint** with the **rotary knob** and press it. Then change the value with the **rotary knob** and confirm again by pressing the **rotary knob**.

### Setting the timer program (user password required)

- Use **INFO** to access the **Main menu**. Select **Time program** with the **rotary knob** and press it.
- Recommendation: Set the switching times for **Monday** and copy it to the other days. To do this, select **Monday** with the **rotary knob** and press it.
- Time-1** is fixed to **00:00** and cannot be changed. For **Value-1**, **off** is recommended as otherwise the installation starts at 00:00. Use the **rotary knob** to go to **Time-2** or **Value-2** and press it. Use the **rotary knob** to set the morning start time (e.g. **07:00**) and the operating mode (e.g. **Stage 1**).
- 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.
- If necessary, copy the time switching catalogue from **Monday** to other days. To do this, use the **rotary knob** to copy to Day and press it. Use the **rotary knob** to select the destination (e.g. **Tues-Fri** for Tuesday to Friday) and confirm by pressing the **rotary knob**. The time switching catalogue is copied.

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### Set the fan setpoints

To set the setpoints of the supply fan, open the following menu item:

**Main menu > Setpoints > Fan control > SUP fan**

To set the setpoints of the extract fan, open the following menu item:

**Main menu > Setpoints > Fan control > ETA fan**

To change the value, use the **rotary knob** to go to the corresponding value and press it. The value can then be changed with the **rotary knob** and the input confirmed by pressing the **rotary knob**.


	from 0 - 100%
Speed	Volume flow rate in m <sup>3</sup> /h
20%	80
23%	140
24%	175
25%	200
30%	326
33%	400
40%	555
50%	796
60%	1010
67%	1200
70%	1250
80%	1460
90%	1650
100%	1740

Display	Values	Description
Step 1	0-100%	Indicates the current setpoint of the fan in step 1; the setpoint can be overwritten here
Max compensation	0-100% - highest %	Indicates the maximum permissible shift of the fan setpoint due to compensation. The maximum setpoints is defined as follows: Highest available step setpoint + max compensation

Example: If I want a basic ventilation of 200 m<sup>3</sup>/h, then I set step 1 to 25%. This means I can enter a maximum of 75% for the max compensation. In the case of poor air quality, the fans are increased in power up to 1740 m<sup>3</sup>/h in this example. The aim of the compensation is to convey more fresh air into the space. If I only want a maximum air volume of 1200 m<sup>3</sup>/h, the basic ventilation of 25% must then be deducted from the 67%, giving a maximum compensation of 42%. 42% must be set for max. compensation.

### Setting the air quality setpoints

To set the setpoints for the air quality, open the following menu item:

**Main menu > Setpoints** 

To change the value, use the **rotary knob** to go to the corresponding value and press it. The value can then be changed with the **rotary knob** and the input confirmed by pressing the **rotary knob**.


Display	Values	Description
Air quality	0 – 3,000 ppm	Indicates the setpoint of the air quality.

### Switching on via the presence detector

The installation is switched on or switched into a different fan step via the presence detector. For presence detector without a built-in delay time, the delay time can also be set on the controller.

Note: Only the digital input "External enable" is used for the function.

To view and/or change the settings, open the following menu item:

**Main menu > Settings > External enable** 

To change the value, use the **rotary knob** to go to the corresponding value and press it. The value can then be changed with the **rotary knob** and the input confirmed by pressing the **rotary knob**.

Display	Values	Description
Min run time	<input type="checkbox"/> 0.0 – 23.0 h	Indicates the selected delay time after the presence signal has expired. Note: It is only recommended that the delay time is set for presence detectors without a built-in delay time. Otherwise, 0.0 h is recommended.
Fan step	<input type="checkbox"/> Auto <input type="checkbox"/> Off <input type="checkbox"/> Step 1 <input type="checkbox"/> Step 2 <input type="checkbox"/> Step 3	Indicates the selected fan steps in case of a presence signal. <input type="checkbox"/> Automatic <input type="checkbox"/> Off <input type="checkbox"/> Speed or setpoint step 1 <input type="checkbox"/> Speed or setpoint step 2 <input type="checkbox"/> Speed or setpoint step 3 Note: Automatic means that the next priority (e.g. time program) will take over the circuit.
Start/stop function	<input type="checkbox"/> no pulse function <input type="checkbox"/> The first input pulse starts the presence detection, the second stops it again.	Indicates whether the pulse function is selected for the input. The function is not suitable for presence detectors. No is recommended.

Display	Values	Description
Actual value	<input type="checkbox"/> Passive <input type="checkbox"/> Active	Indicates whether a period is set in the calendar (e.g. holidays): <input type="checkbox"/> No period is set <input type="checkbox"/> At least one period is set
Choice-1 – Choice-10	<input type="checkbox"/> Date <input type="checkbox"/> Range <input type="checkbox"/> Weekday <input type="checkbox"/> Off	Indicates the type of entry for the corresponding period: <input type="checkbox"/> A special date/day <input type="checkbox"/> A time period (e.g. holiday) <input type="checkbox"/> An exact day of the week <input type="checkbox"/> Entries for the period have no validity
(Start) date <sup>1)</sup>	<input type="checkbox"/> * <input type="checkbox"/> Mon – Sun <input type="checkbox"/> DD.MM.YY	The start date is entered under the range. The exact date is entered under the date. <input type="checkbox"/> The weekday is disregarded <input type="checkbox"/> The weekday is not disregarded <input type="checkbox"/> Not possible! Please enter date <input type="checkbox"/> Date entry
End date <sup>1)</sup>	<input type="checkbox"/> * <input type="checkbox"/> Mon – Sun <input type="checkbox"/> DD.MM.YY	The end date is specified under the range. <input type="checkbox"/> The weekday is disregarded <input type="checkbox"/> The weekday is not disregarded <input type="checkbox"/> Not possible! Please enter date <input type="checkbox"/> Date entry
Weekday <sup>1)</sup>	<input type="checkbox"/> * <input type="checkbox"/> 1. <input type="checkbox"/> 2. <input type="checkbox"/> 3. <input type="checkbox"/> 4. <input type="checkbox"/> 5. <input type="checkbox"/> Last <input type="checkbox"/> * <input type="checkbox"/> Mon – Sun <input type="checkbox"/> * <input type="checkbox"/> Even <input type="checkbox"/> Uneven <input type="checkbox"/> Jan – Dec	The weekday is entered under the weekday. The entry is made with three values. <input type="checkbox"/> Every one <input type="checkbox"/> First <input type="checkbox"/> Second <input type="checkbox"/> Third <input type="checkbox"/> Fourth <input type="checkbox"/> Fifth <input type="checkbox"/> Last <input type="checkbox"/> Not possible! <input type="checkbox"/> Monday – Sunday <input type="checkbox"/> In every month <input type="checkbox"/> In even months <input type="checkbox"/> In uneven months <input type="checkbox"/> In January – December

<sup>1)</sup> To enter this, use the **rotary knob** to go to the line in question and press it. Use the **rotary knob** to select the desired value and confirm with it. The cursor automatically moves to the next value in the same line. Select the value again and confirm it, etc.

### Calendar

In addition to the weekly program, two calendars are generally available:

1. Exception calendar
2. Fix-off calendar

The exception calendar is for storing exception periods (e.g. holidays). In an exception period, the time switch catalogue stored for the exception day applies, i.e. the priority is higher than the weekly program.

The fix-off calendar always switches the installation to off and has a higher priority than the exception calendar.


Up to ten periods can be set per calendar.

To set the time switch catalogue of the exception day, open the following menu item:


**Main menu > Time program > Exception**

Note: The exception day is set like a normal weekday.

To set the exception calendar, open the following menu item:

**Main menu > Time program > Calendar exception** 

To set the fix-off calendar, open the following menu item:

**Main menu > Time program > Fix-off calendar** 

To view and/or change the calendar, use the **rotary knob** to go to the corresponding calendar and press it.

## 9 Help in the event of malfunctions

### 9.1 Safety

#### **WARNING**



##### **Risk of serious injuries or death.**

Wrong or incorrectly performed measures can render the unit potentially dangerous. The risk then ranges from injury to electric shock.

- Have work on electrical equipment inside the unit (inspections, fuse replacement) carried out only by qualified staff.
- Only allow diagnosis, troubleshooting and recommissioning to be carried out by authorised persons.
- The unit may only be opened by qualified staff or trained persons.
- Wear your PPE during all work on the unit.
- Use further protective equipment according to the work to be carried out.

#### **ATTENTION**



Ensure that the control unit is connected in the event of fault detection and troubleshooting. Determine the alarm number and the corresponding malfunction from the enclosed operating manual / functional description for the **Art Tech Level II control**.

#### **NOTE**



In the event of malfunctions that you cannot rectify yourself, contact the AL-KO Customer service or a qualified electrician.

## 9.2 Possible malfunctions

Malfunction / description of fault	Possible cause	Remedy
Unit not running	Unit main switch not switched on.	Turn on the unit at the unit main switch.
LED status display on the basic unit / LED <b>ALARM</b> on the control unit lights up red.	General malfunction	Connect the control unit, determine the alarm number and corresponding error in the manual.
LED status display on the basic unit / LED <b>ALARM</b> on the control unit lights up red.	Contamination limit for supply air or outdoor air filter reached.	Replace both filters.
LED status display on the basic unit / LED <b>ALARM</b> on the control unit lights up red.	See Operating Manual / functional description for <b>Art Tech Level II control</b> .	Switch off the unit. Contact a qualified electrician or AL-KO THERM GmbH.
Air flow rate too high or too low.	Incorrect controller setting on the control unit.	Set the air flow rate to the desired value via the controller on the control unit.
Air exchange is not being carried out at the expected level, e.g. CO <sub>2</sub> content of the room air is too high.	Outgoing exhaust air cannot escape unhindered into the open air.	Check and clean the exhaust air piping. Check and clean the exhaust air outlet on the combination exterior wall diffuser.
	Outdoor air intake blocked.	Check the outdoor air intake of the combination exterior wall diffuser. Clean or remove any blockages with objects.
	Exhaust air intake blocked.	Check the exhaust air fitting for contamination, clean if necessary. Remove objects placed on the exhaust air grille.
	Piping disconnected or damaged.	Check all pipe fittings for proper fixation of the piping, readjust the fixation. Check, repair or replace all piping for damage. Inspect all piping for proper ceiling suspensions and straight installation, correct
Unit not installed level.	Floor uneven	Select a different installation site
		Correct the alignment of the unit using PVC universal shims. Obtain assistance from a second person.
Unit is unusually loud or vibrating, or generating and unusual odour.	Maintenance panel and / or maintenance doors not properly closed.	Check turn lock fixations, lock properly if necessary.
	Fan defective	Switch off the unit at the main switch. Unplug the unit plug. Contact Customer Service.
	Heavy soiling of the unit	Visual inspection for foreign objects in the unit.
	Coarse contamination of the piping	Visual inspection for foreign objects in the piping.
	Sound absorber defective.	Remove sound absorber, replace.
	Sound absorber incorrectly installed	Check secure fitting of all sound absorbers, correct



### 9.3 Contacts

For all questions arising in conjunction with our products, please contact one of our branches or contact us directly at:

AL-KO THERM GmbH	Phone:	(+49) 82 25 / 39 - 2440
Hauptstraße 248-250	Fax:	(+49) 82 25 / 39 - 2113
D-89343 Jettingen-Scheppach	E-mail:	aircabinet@al-ko.com
Germany	Web:	www.al-ko.com
Customer Service	Phone:	(+49) 82 25 / 39 - 2574
	E-mail:	service.center@al-ko.com

## 10 Spare parts

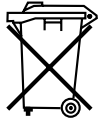
### 10.1 Spare part list

Spare part	Article no.
Filter set	3421278
Load cell	964291
CO <sub>2</sub> sensor	3407682
Temperature sensor	3093514
Bypass damper stepper motor	3407681
Shut-off damper stepper motor	3407680
Fan	3334591
AIRCABINET NETWORK ADAPTER GROMMET	3407686
AIRCABINET KEYSTONE MODULE NETWORK	3407687
Plate heat exchanger	3405525
Electric heating register	3407108
Turn lock	3407149
Connection hoses + hose clips D250	3421281
Connection hose + hose clip D280	3421282
Presence detector	3420858
Control unit	3327932
Cable temperature sensor	3093514
Sound attenuator splitter	3420601
Bypass damper	3420930
Pipe damper	3420809
Main switch	3420876
LED warning light	3420869
HMI extension, 15 m	3420862
Unit foot	3420857

### 10.2 Proof of delivery

AL-KO THERM GmbH	Phone:	(+49) 82 25 / 39 - 2440
Hauptstraße 248-250	Fax:	(+49) 82 25 / 39 - 2113
D-89343 Jettingen-Scheppach	E-mail:	aircabinet@al-ko.com
Germany	Web:	www.al-ko.com
Customer Service	Phone:	(+49) 82 25 / 39 - 2574
	E-mail:	service.center@al-ko.com

## 11 Disposal


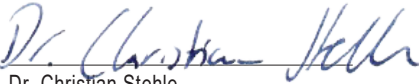


Do not dispose of worn-out units, spent batteries or rechargeable batteries in domestic waste. When disposing of the device, operating equipment and accessories, proceed according to the relevant local environmental and recycling regulations in your country and community applicable at the time.

## 12 EC Declaration of Conformity in accordance with 2006/42/EC

The following EU Declaration of Conformity is issued individually for each order, depending on its validity.

Both the order number and the position of the device is indicated. The issued document is therefore specific to the respective unit.

<h1>EG-KONFORMITÄTSERKLÄRUNG</h1> <p>EC DECLARATION OF CONFORMITY DÉCLARATION DE CONFORMITÉ CE</p>		 <p>QUALITY FOR LIFE</p>	
<p><b>Hersteller / Manufacturer / Fabricant:</b> AL-KO THERM GMBH   Hauptstraße 248-250   89343 Jettingen-Scheppach   Germany</p>			
<p><b>Im Sinne der EG-Maschinenrichtlinie 2006/42/EG, Anhang II, Teil 1, Abschnitt A</b> 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</p>			
<p><b>Produkt / Product / produit:</b></p>		<p><b>Luftreiniger / Air cleaner / purificateur d'air</b></p>	
<p><b>Typ / type / Type:</b></p>		<p><b>AL-KO AIRCABINET</b></p>	
<p><b>Hiermit erklären wir, dass die oben genannte Maschine alle sicherheitstechnischen Anforderungen der folgenden anwendbaren EG/EU- Richtlinien erfüllt:</b> We hereby declare that the above-mentioned machine conforms to all relevant safety-provisions of the following EG/EC directives: Nous déclarons par la présente que la machine susmentionnée correspond à toutes les des exigences de sécurité pertinentes de la directive CE/UE suivante:</p>			
<p><b>Maschinenrichtlinie 2006/42/EG / Machinery Directive 2006/42/EC / Directive Machines CE 2006/42/CE:</b> <b>Niederspannungsrichtlinie 2014/35/EU / Low Voltage Directive 2014/35/EU / Directive Basse Tension 2014/35/UE</b></p>			
<p><b>Angewandte harmonisierte Normen / Applied harmonized standards / Normes harmonisées appliquées :</b></p>			
- DIN EN ISO 12100 (2011-03)	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 (2019-06)	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 ISO 13854 (2020-01)	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 (2020-04)	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		
<p><b>Zusätzlich angewendete Normen / Additional applied standards / Normes appliquées supplémentaires:</b></p>			
- DIN EN 13053 (2020-05)	Lüftung von Gebäuden; Zentrale raumlufttechnische Geräte – Leistungskenndaten für Geräte, Komponenten und Baueinheiten Ventilation for buildings - Air handling units - Rating and performance for units, components and sections Ventilation des bâtiments ; appareils centraux techniques à air conditionné – Données caractéristiques de puissance pour les appareils, les composants et les unités de montage		
- VDMA 24167 (1994-10)	Ventilatoren – Sicherheitsanforderungen Fans - Safety requirements Ventilateurs – Exigences de sécurité		
- VDI 6022 B 1(2018-01)	Hygieneanforderungen an Raumlüfttechnische 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	Ökodesign-Verordnung / Ecodesign regulation / Réglementation écoconception		
<p><b>Bei einer mit uns nicht abgestimmten Änderung der Maschine verliert diese Erklärung ihre Gültigkeit.</b> 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.</p>			
<p>Bevollmächtigter für die Zusammenstellung der technischen Unterlagen: Authorized representative in charge of the technical document compilation: Personne autorisée à constituer le dossier technique</p>		<p>Leiter der Abteilung Entwicklung Head of Development Department Chef du département de développement</p>	
<p>Anschrift siehe Hersteller / see manufacturer's address above / Adresse, voir fabricant</p>			
<p>Jettingen-Scheppach, <u>01.02.2021</u></p>		 Dr. Christian Stehle	

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**Notes**

## Notes



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3435687 / February 2021