

# INSTALLATION MANUAL

Adiabatic air humidification/air cooling system  
Condair **ME**

# Thank you for choosing Condair

Installation date (MM/DD/YYYY):

Commissioning date (MM/DD/YYYY):

Location ref.:

Model:

Serial number:

## Manufacturer

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# 1 Introduction

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## 1.1 To the very beginning

We thank you for having purchased the **adiabatic air humidification/air cooling system Condair ME**.

The adiabatic air humidification/air cooling system Condair ME incorporates the latest technical advances and meets all recognized safety standards. Nevertheless, improper use of the adiabatic air humidification/air cooling system Condair ME may result in danger to the user or third parties and/or impairment of material assets.

To ensure a safe, proper, and economical operation of the adiabatic air humidification/air cooling system Condair ME, please observe and comply with all information and safety instructions contained in the present documentation as well as in the separate documentations of the components installed in the humidification system.

If you have questions, which are not or insufficiently answered in this documentation, please contact your Condair supplier. They will be glad to assist you.

## 1.2 Notes on the installation manual

### Limitation

**The subject of this installation manual is the adiabatic air humidification/air cooling system Condair ME in its different versions.** The various options and accessories are only described insofar as this is necessary for proper operation of the equipment. Further information on options and accessories can be obtained in the respective instructions.

This installation manual is restricted to the **installation** of the adiabatic air humidification/air cooling system Condair ME and is meant for **well trained personnel being sufficiently qualified for their respective work**.

The installation manual is supplemented by various separate items of documentation (operation manual, spare parts list, etc.), which are included in the delivery as well. Where necessary, appropriate cross-references are made to these publications in the installation manual.

## Symbols used in this manual



### CAUTION!

The catchword “CAUTION” used in conjunction with the general caution symbol designates notes in this installation and operating instructions that, if neglected, may cause **damage and/or malfunction of the unit or other material assets**.



### WARNING!

The catchword “WARNING” used in conjunction with the general caution symbol designates safety and danger notes in this installation and operating instructions that, if neglected, may cause to **injury to persons**.



### DANGER!

The catchword “DANGER” used in conjunction with the general caution symbol designates safety and danger notes in this installation and operating instructions that, if neglected, may lead to **severe injury or even death of persons**.

## Safekeeping

Please safeguard this installation manual in a safe place, where they can be immediately accessed. If the equipment changes hands, the documentation must be passed on to the new operator.

If the documentation gets mislaid, please contact your Condair supplier.

## Language versions

This installation manual is available in various languages. Please contact your Condair supplier for information.

## 2 For your safety

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### General

Every person working with the adiabatic air humidification/air cooling system Condair ME must have read and understood the installation manual and the operation manual of the Condair ME before carrying out any work.

Knowing and understanding the contents of the installation manual and the operation manual is a basic requirement for protecting the personnel against any kind of danger, to prevent faulty operation, and to operate the unit safely and correctly.

All ideograms, signs and markings applied to the unit must be observed and kept in readable state.

### Qualification of personnel

All work described in this installation manual **may only be carried out by specialist who are well trained and adequately qualified and are authorized by the customer.**

For safety and warranty reasons any action beyond the scope of this manual must be carried out only by qualified personnel authorised by the manufacturer.

It is assumed that all persons working with the adiabatic air humidification/air cooling system Condair ME are familiar and comply with the appropriate regulations on work safety and the prevention of accidents.

### Intended use

The adiabatic air humidification/air cooling system Condair ME is intended exclusively for **air humidification and air cooling in AHU's or air ducts** within the specified operating conditions (see chapter 9 "Product specifications". Any other type of application, without the written consent of the manufacturer, is considered as not conforming with the intended purpose and may lead to the adiabatic air humidification/air cooling system Condair ME becoming dangerous.

Operation of the equipment in the intended manner requires **that all the information contained in this installation manual are observed (in particular the safety instructions).**

### Danger that may arise from the adiabatic air humidification/air cooling system Condair ME



**DANGER!**  
**Risk of electric shock!**

**The control units contain live mains voltage. One may get in touch with live parts when the control unit is open. Touching live parts may cause severe injury or danger to life.**

**Prevention:** The control unit must be connected to the mains only after all mounting and installation work has been completed, all installations have been checked for correct workmanship and the covers has been relocated properly.

---



## WARNING!

Some type of evaporative material is manufactured from glass fibre. Though this material is not classified as hazardous, it is recommended that Personal Protection Equipment such as gloves, protective clothing and eye protection are used during handling to protect the user from fibres or dust. If dust is generated during handling it is recommended that respiratory protection is worn.

---

### **Behaviour in case of danger**

All persons working with the adiabatic air humidification/air cooling system Condair ME are obliged to report any alterations to the unit that may affect safety to the owner without delay and to **secure such the adiabatic air humidification/air cooling system Condair ME against accidental power-up.**

### **Prohibited modifications to the unit**

**No modifications must be undertaken** on the adiabatic air humidification/air cooling system Condair ME without the express written consent of the manufacturer.

For the replacement of defective components use exclusively **original accessories and spare parts** available from your Condair supplier.



## 3 Important notes on installation

---

### 3.1 Delivery

After receiving:

- Inspect shipping boxes for damage.  
Any damages of the shipping boxes must be reported to the shipping company.
- Check packing slip to ensure all parts has been delivered.  
All material shortages are to be reported to your Condair supplier within 48 hours after receipt of the goods. Condair assumes no responsibility for any material shortages beyond this period.
- Unpack the parts/components and check for any damage.  
If parts/components are damaged, notify the shipping company immediately.
- Check whether the components are suitable for installation on your site according to the model key stated on the type plate (refer to model key in the operation manual).

### 3.2 Storing/Transportation/Packaging

#### Storing

Until installation store the system components in its original packaging in a protected area meeting the following requirements:

- Room temperature: 1 ... 40 °C
- Room humidity: 10 ... 75 %rh

#### Transportation

For optimum protection always transport the unit in the original packaging and use an appropriate lifting/transporting device.



**WARNING!**

It is the customer's responsibility to ensure that operators are trained in handling heavy goods and to enforce the relevant lifting regulations.

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#### Packaging

Keep the original packaging of the components for later use.

In case you wish to dispose of the packaging, observe the local regulations on waste disposal. Please recycle packaging where possible.

### 3.3 Product designation

The product designation and the most important unit data are found on the rating plate fixed to the evaporative module and the control unit:

|   | Type designation              | Serial number               | Month/Year |
|---|-------------------------------|-----------------------------|------------|
|   | Condair AG, CH-8800 Pfäffikon |                             |            |
| Supply voltage                                    | Condair ME                    | Ser.Nr.: XXXXXXXX           | 05.14      |
| Humidification capacity                           | 230V / 1~ / 50...60Hz         | 200 VA                      |            |
| Admissible water supply pressure (yield pressure) | 150.0 kg/h                    | ME CI 1 0900 1125 F95 1 150 |            |
| Certificates                                      | 2...10 bar, max. 45 °C        |                             |            |
| Product key                                       | CE                            |                             |            |
| Power consumption                                 | Made in Switzerland           |                             |            |

#### Product key

Example:

**Condair ME Circulating 1 0900 1125 F95**

Model: \_\_\_\_\_

**ME Circulating** (Circulating System)

**ME Direct Feed** (Direct Feed System)

Product version (Consecutive version number): \_\_\_\_\_

**Width** Evaporative module in mm \_\_\_\_\_

**Height** Evaporative module in mm \_\_\_\_\_

Material type and efficiency evaporative cassettes: \_\_\_\_\_

**F75**= Fibre 75 %

**F85**= Fibre 85 %

**F95**= Fibre 95 %

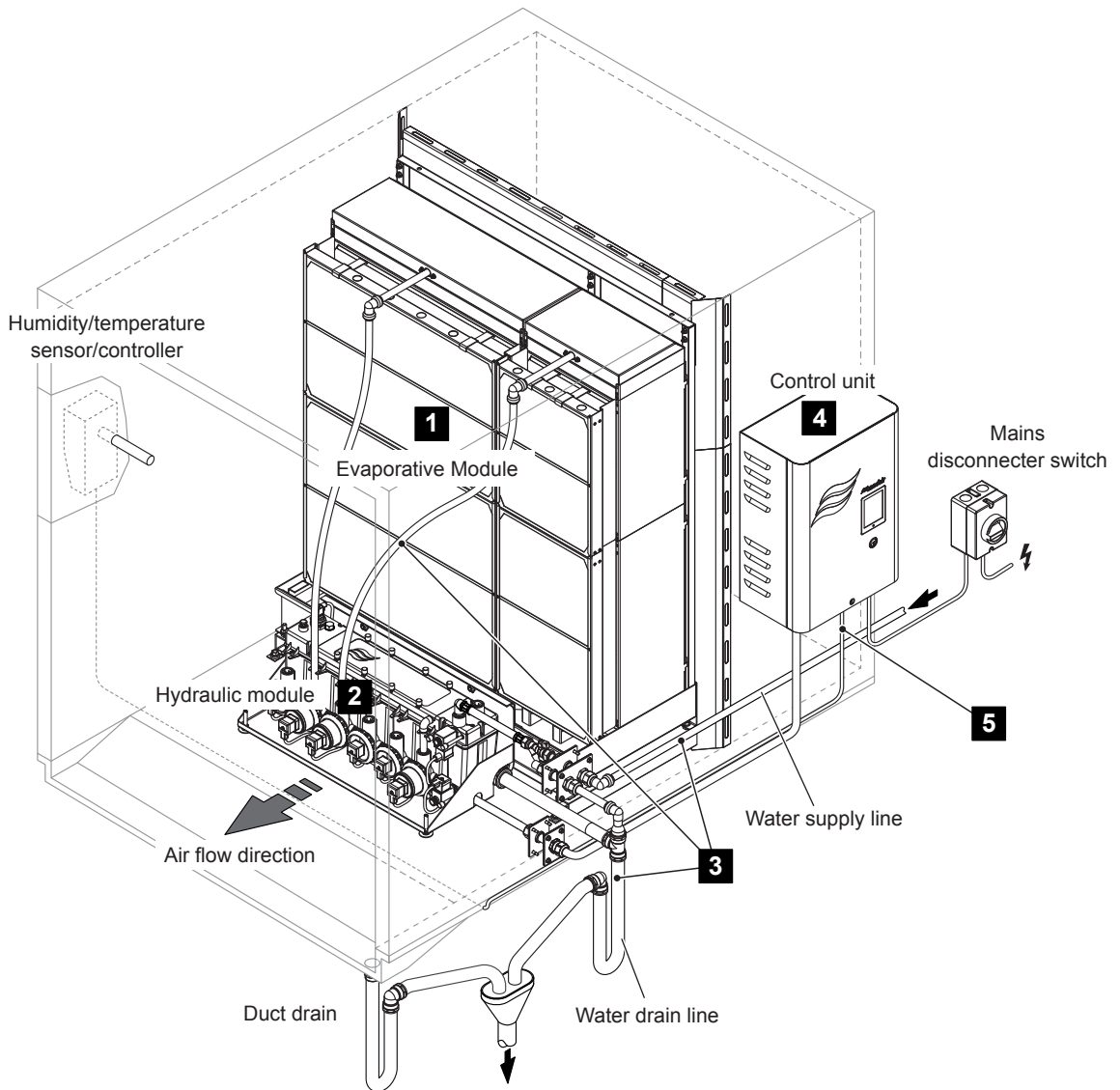
**P85**= Polyester 85 %

**P95**= Polyester 95 %

# 4 Installation

## 4.1 Installation overviews

### 4.1.1 Installation overview Condair ME Circulating System (internal installation)



1 - Mounting the Evaporative Module --> see chapter 4.2 – *Mounting the Evaporative Module*

2 - Mounting the Hydraulic Module --> see chapter 4.3 – *Mounting the Hydraulic Module*

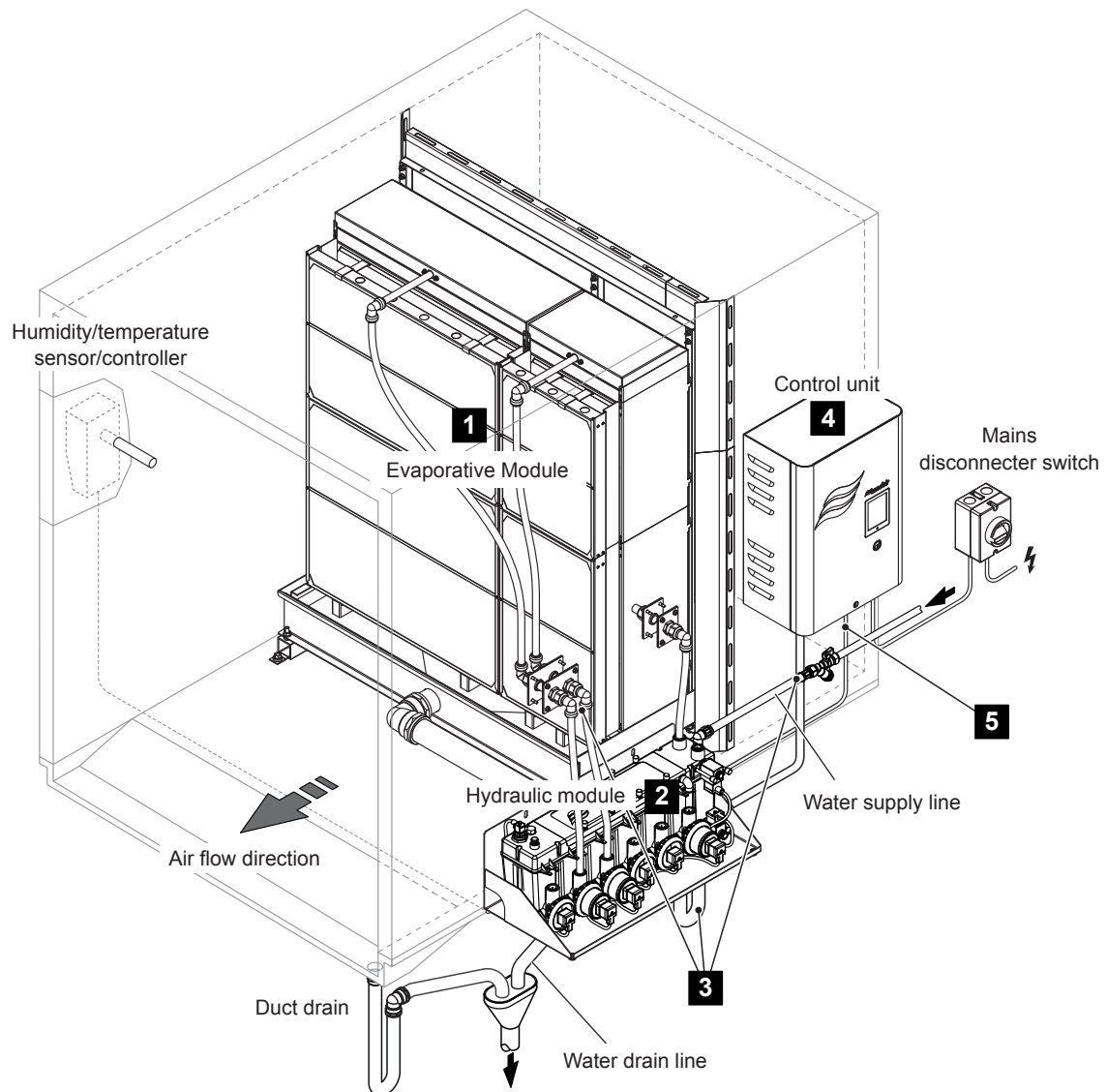
3 - Water installation --> see chapter 4.4 – *Water installation*

4 - Mounting the control unit --> see chapter 4.5 – *Mounting the Condair ME control units*

5 - Electrical installation --> see chapter 4.6 – *Electrical installation*

*Fig. 1: Installation overview Condair ME Circulating System (internal installation)*

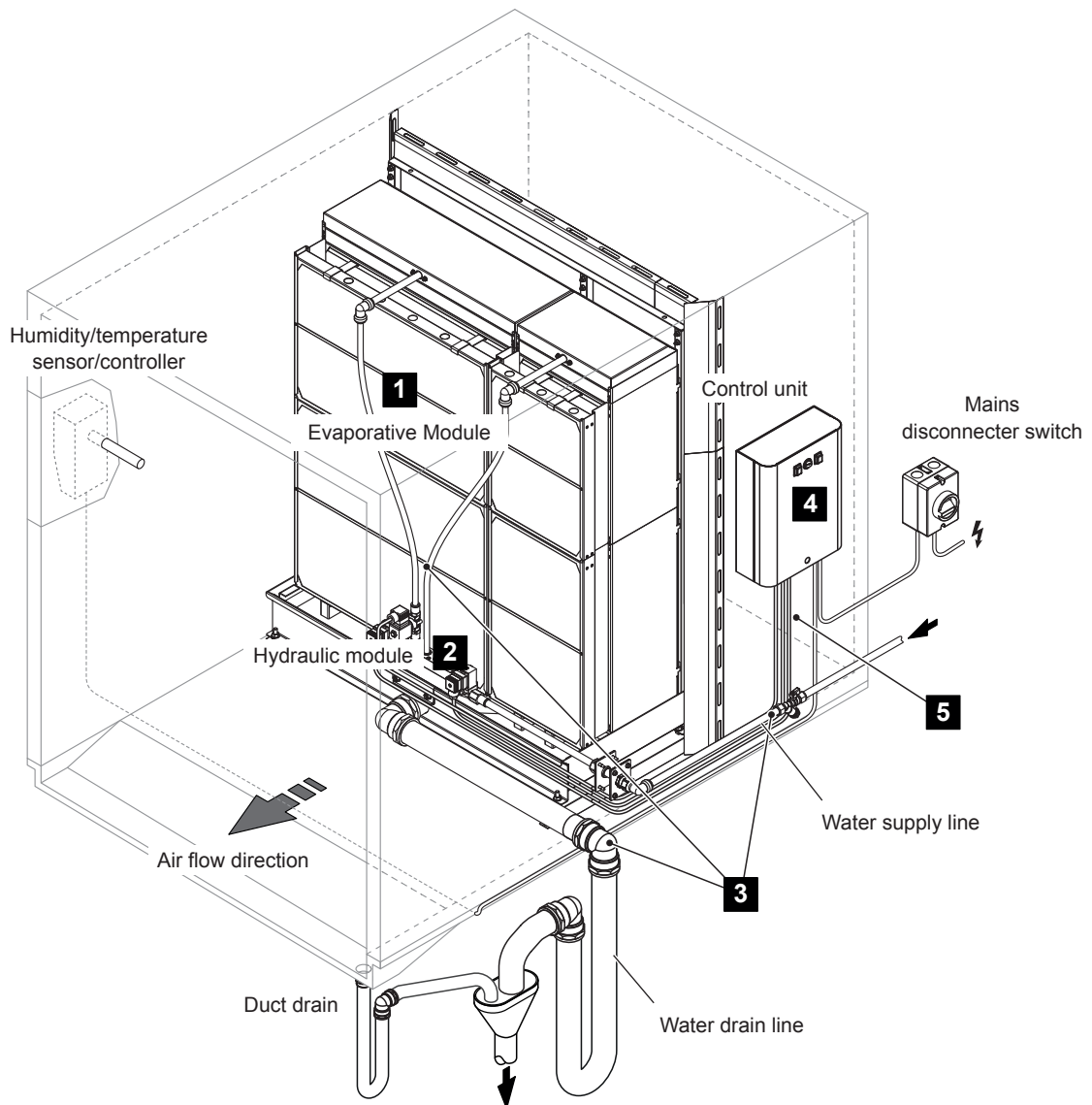
## 4.1.2 Installation overview Condair ME Circulating System (external installation)



- 1 - Mounting the Evaporative Module --> see chapter 4.2 – *Mounting the Evaporative Module*
- 2 - Mounting the Hydraulic Module --> see chapter 4.3 – *Mounting the Hydraulic Module*
- 3 - Water installation --> see chapter 4.4 – *Water installation*
- 4 - Mounting the control unit --> see chapter 4.5 – *Mounting the Condair ME control units*
- 5 - Electrical installation --> see chapter 4.6 – *Electrical installation*

*Fig. 2: Installation overview Condair ME Circulating System (external installation)*

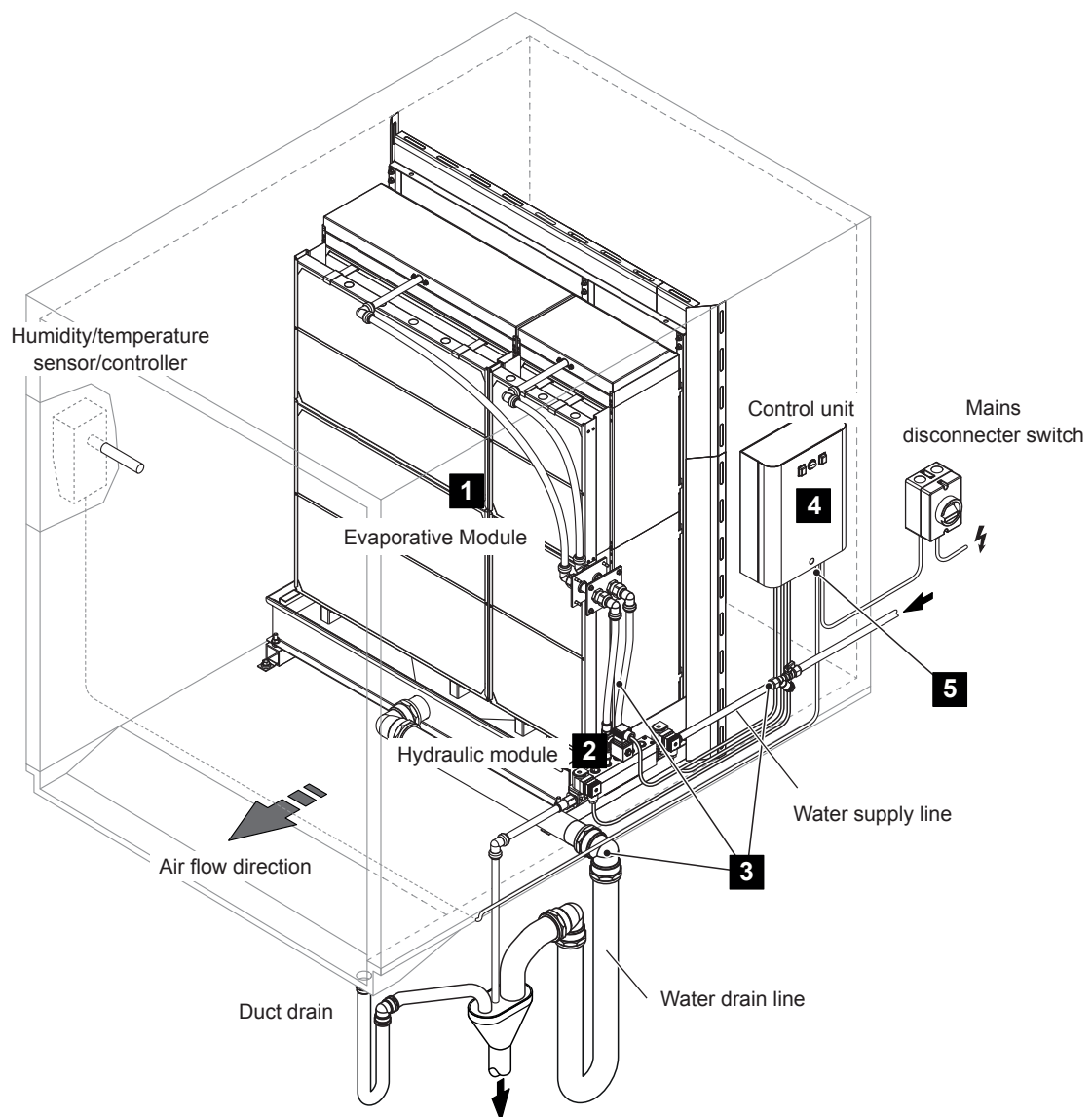
### 4.1.3 Installation overview Condair ME Direct Feed System (internal installation)



- 1 - Mounting the Evaporative Module --> see chapter 4.2 – *Mounting the Evaporative Module*
- 2 - Mounting the Hydraulic Module --> see chapter 4.3 – *Mounting the Hydraulic Module*
- 3 - Water installation --> see chapter 4.4 – *Water installation*
- 4 - Mounting the control unit --> see chapter 4.5 – *Mounting the Condair ME control units*
- 5 - Electrical installation --> see chapter 4.6 – *Electrical installation*

*Fig. 3: Installation overview Condair ME Direct Feed System (internal installation)*

#### 4.1.4 Installation overview Condair ME Direct Feed System (external installation)



- 1 - Mounting the Evaporative Module --> see chapter 4.2 – *Mounting the Evaporative Module*
- 2 - Mounting the Hydraulic Module --> see chapter 4.3 – *Mounting the Hydraulic Module*
- 3 - Water installation --> see chapter 4.4 – *Water installation*
- 4 - Mounting the control unit --> see chapter 4.5 – *Mounting the Condair ME control units*
- 5 - Electrical installation --> see chapter 4.6 – *Electrical installation*

Fig. 4: Installation overview Condair ME Direct Feed System (external installation)

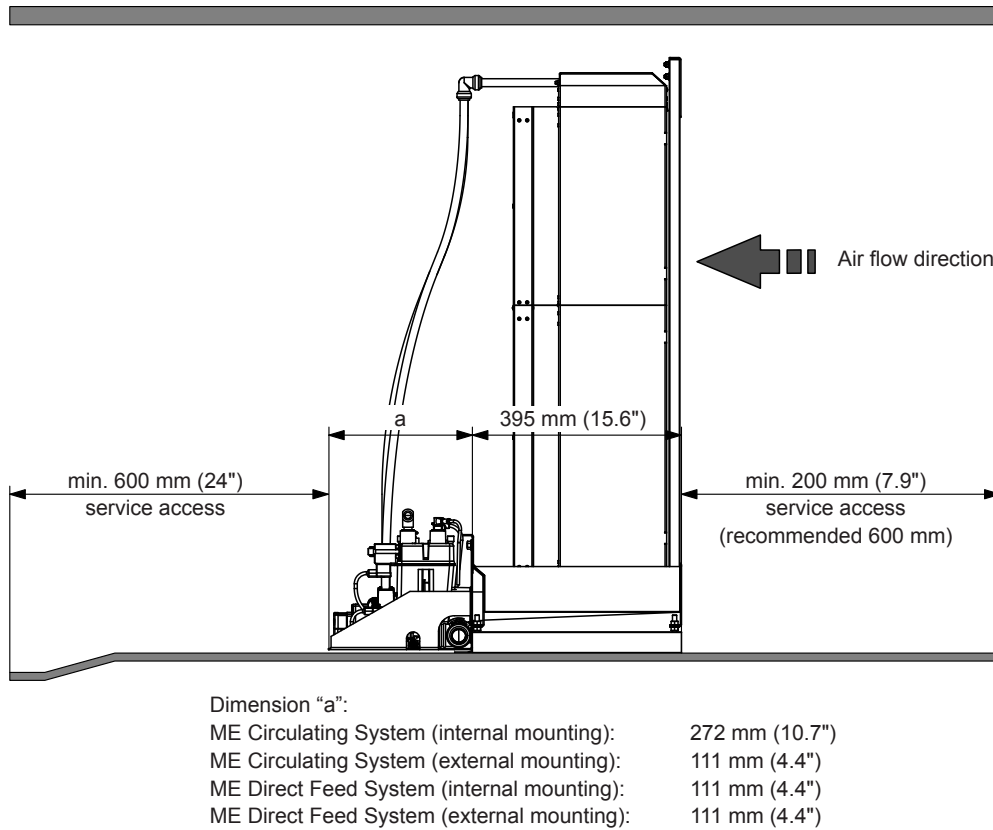
## 4.2 Mounting the Evaporative Module

### 4.2.1 Notes on positioning the Evaporative Module

The design and dimensioning of the AHU/air duct as well as the location of the Evaporative Module inside the duct are determined, recorded and set compulsory when planning the entire system. Prior to installation, however, make sure the following criteria have been taken into consideration:

- The AHU/air duct floor must be designed with a loading capacity capable of supporting the humidifier's weight. The largest unit will weigh 465kg (1025 lb) when in operation (wet condition) - see chapter 5.1 – *Dimensions and Weights Evaporator Module*.
- In the area where the Evaporative Module is installed the floor of the AHU/air duct must offer a plane support (lengthwise and crosswise).
- The section of the AHU/air duct where the Evaporative Module is installed must **mandatory be waterproof!**
- Downstream, directly after the Evaporative Module a **drain pan with provision for running water to waste** must mandatory be installed. The drain must be connected via a drain trap to the waste water line of the building. The drain trap must be sufficiently high and must be filled with water prior to commissioning, so that the drain trap is not emptied by the air pressure in the duct. The drain pan and the drain trap must be accessible for cleaning and disinfection as part of the periodic maintenance of the system.
- For installation and maintenance sufficiently large maintenance doors before and after the Evaporative Module must be available in the AHU/air duct.
- For inspection, commissioning and maintenance a minimum free space of 600 mm (24") must be provided before and after the Evaporative Module.
- An **air filter with quality standard F7 (EU7)** or better must be installed before the Evaporative Module.
- A perforated plate (60/40) should be installed upstream in cases where the air flow is uneven.
- The Evaporative Module must be positioned on up-stands (available as option) with a minimum height of 40 mm (1.6") to allow to install the drain pipe with a downslope through the side wall of the AHU/air duct.
- In case of low ambient temperature the AHU/air duct must be insulated to prevent the moist air from condensing inside the duct.
- If the AHU is equipped with a heater, make sure it is at least 0.6 m away from the Evaporative Module.
- If the air velocity above the evaporative cassettes exceeds 3.5 m/s, the optional droplet separator cassettes must be installed.

- For inspection, commissioning and maintenance a minimum free space of 600 mm (24") must be provided before and after the Evaporative Module.



*Fig. 5: Positioning of the Evaporative Module*

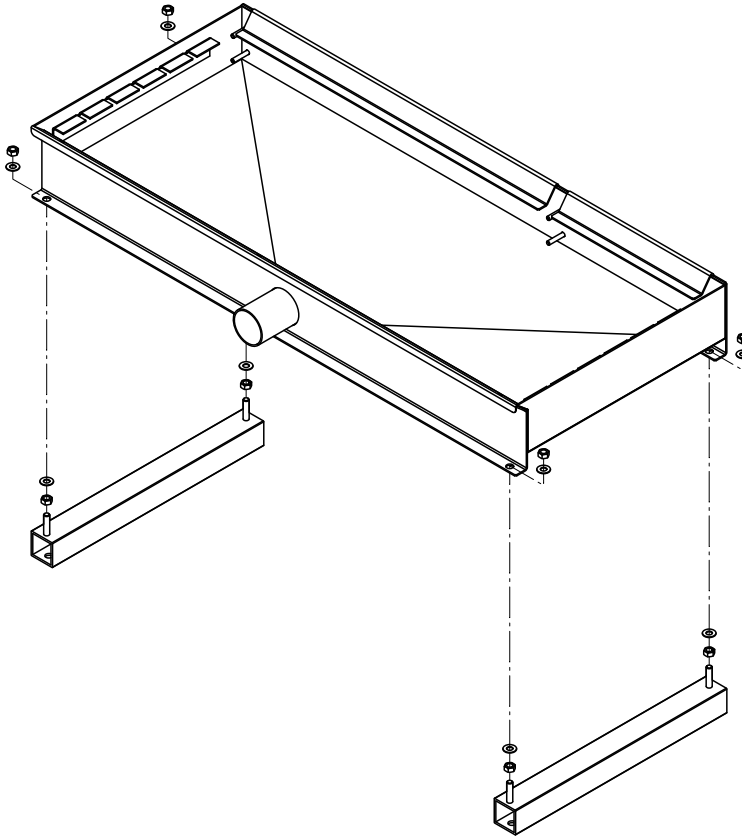


## 4.2.2 Installation procedure Evaporative Module

### 1. Mounting the tank upstands to the tank:

- Mounting the **optional tank upstands**: fix the optional tank upstands to the tank as shown in the figure below using the nuts (M8, AF: 13 mm) and washers supplied. Do not tighten the nuts.

Mounting **tank upstands made by client**: if client specific tank upstands are used make sure they can be fixed to the tank and are adjustable in height to level the tank in the AHU/air duct.



*Fig. 6: Mounting the tank upstands to the tank*

## 2. Mounting the tank:

- Insert the tank into the AHU/air duct.



### WARNING!

Use an appropriate lifting device or handle the tank with the help of another person to position it inside the duct. It is the customer's responsibility to ensure that operators are trained in handling heavy goods and to enforce the relevant lifting regulations.

- Align the tank to the centre of the duct and perpendicular to the duct walls. When aligned fix tank upstands to the floor using the brackets and self-tapping screws 5.5x19 mm supplied.
- Then, adjust the tank with the leveling nuts lengthwise and crosswise exactly horizontal using a spirit level to. When adjusted, tighten the leveling nuts.

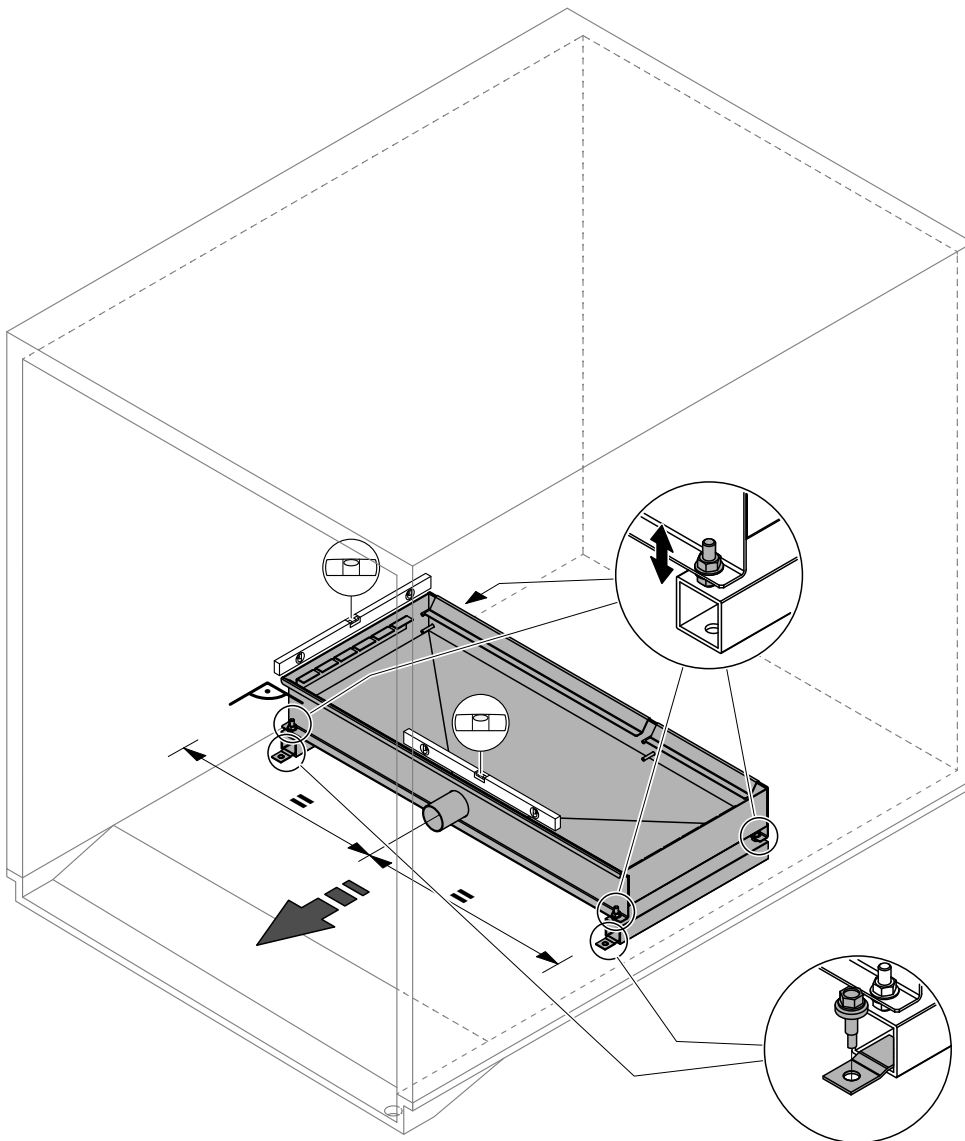


Fig. 7: Mounting the tank

### 3. Fix frame to the tank:

- Fix the vertical supports to the tank using the nylock nuts (M6, AF: 10 mm) and M6 washers. Then, align the vertical supports exactly vertical using a spirit level and tighten the nuts.
- Fix the cross member to the vertical supports using the nylock nuts (M6, AF: 10 mm) and M6 washers. Then, tighten the nuts.

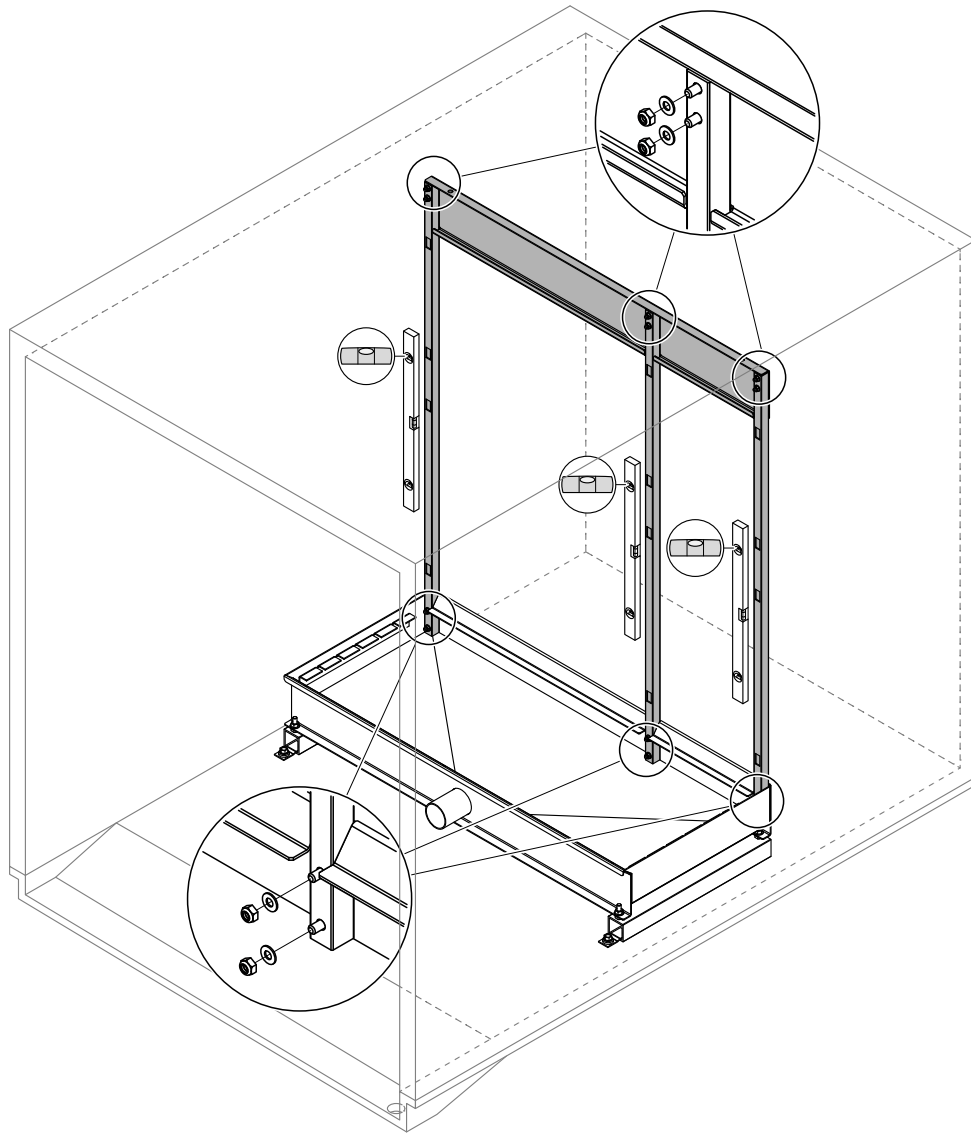
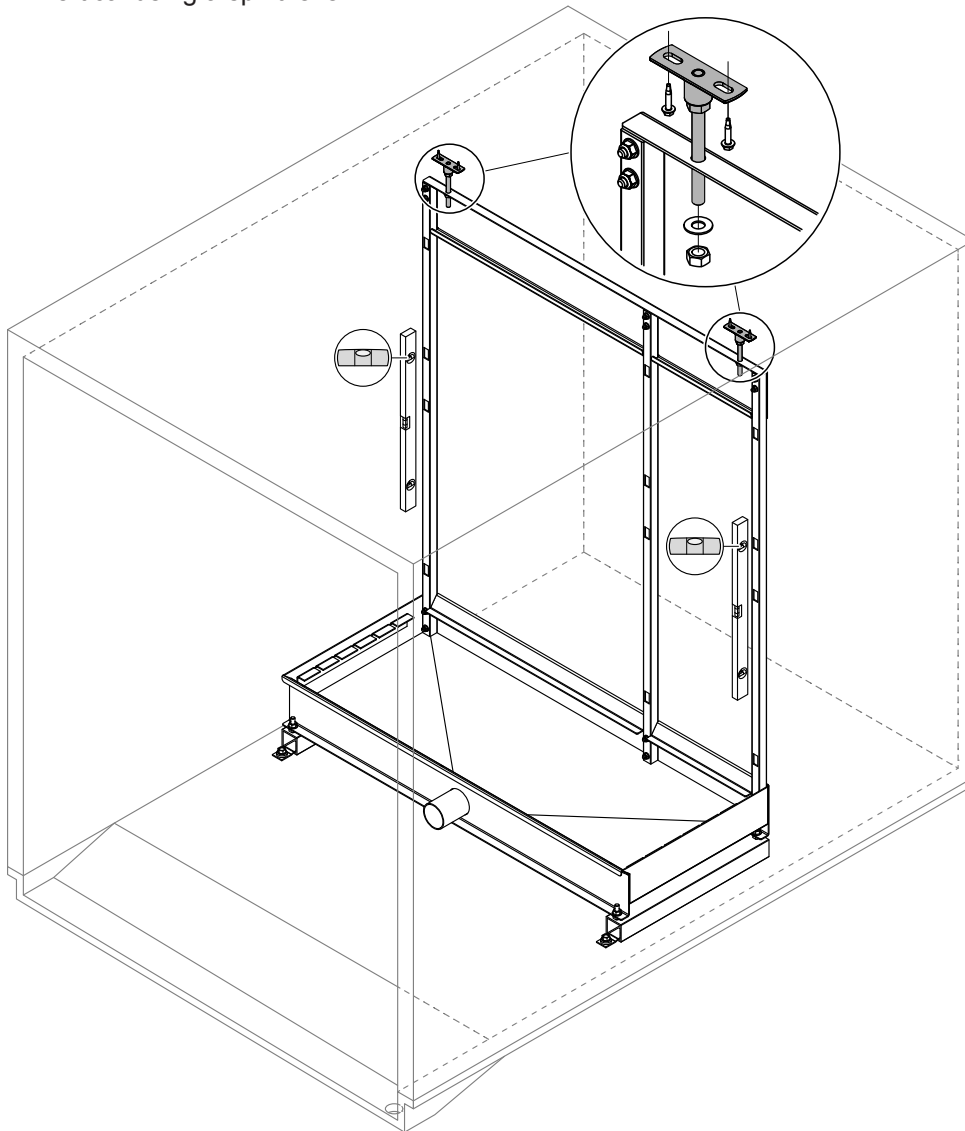


Fig. 8: Fix frame to tank

#### 4. Fix cross member of frame to AHU/duct ceiling:

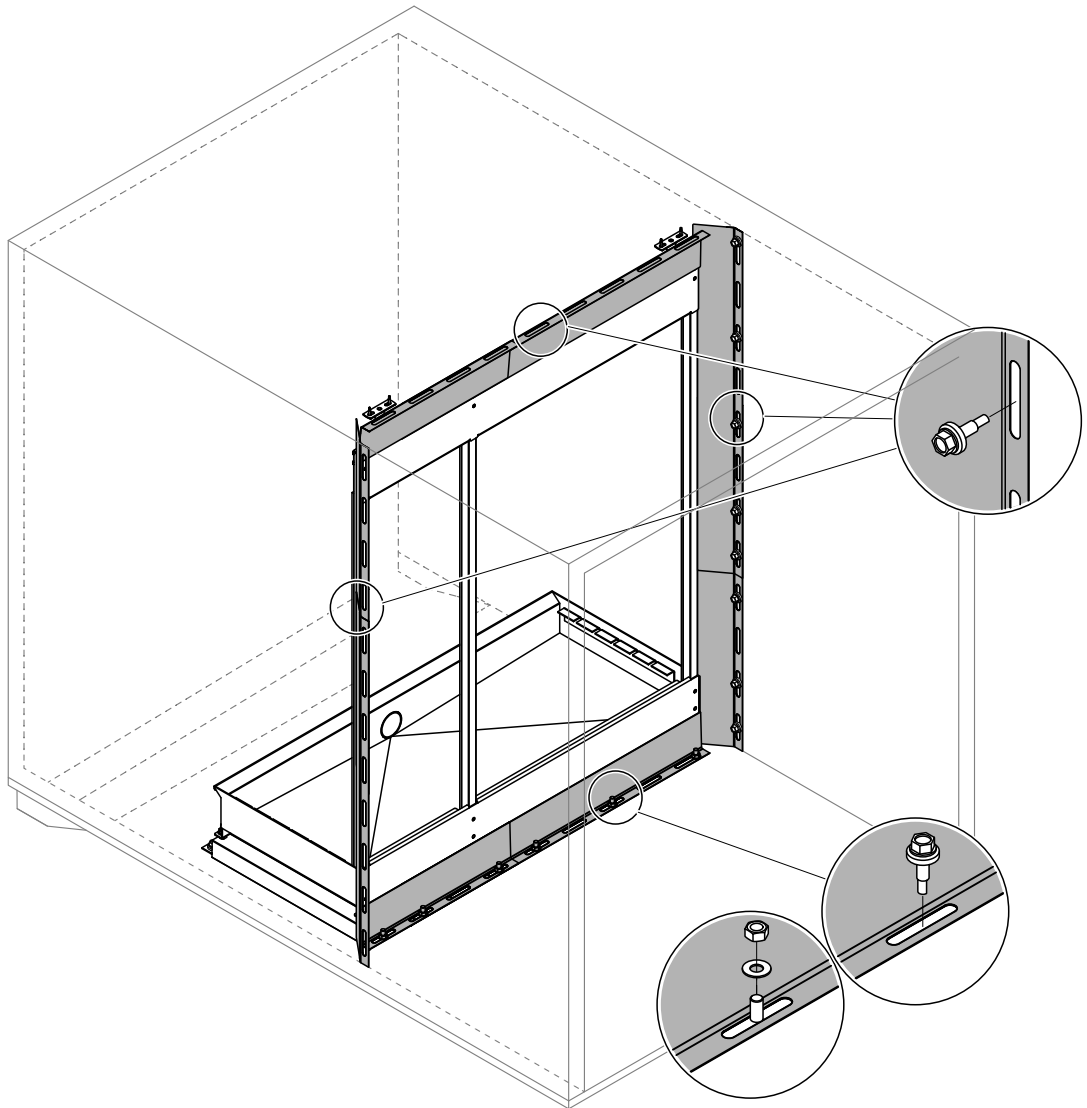
- Fix the cross member to the AHU/duct ceiling using appropriate supports and self-tapping screws (supports available as accessory). Before tightening the screws align the vertical supports exactly vertical using a spirit level.



*Fig. 9: Fix cross member to AHU/duct ceiling*

**5. Mount the blanking plates on the air inlet side (blanking plates available as option):**

- Starting on each duct side on the bottom fix the side blanking plates to the duct wall using the self-tapping screws 5.5x19 mm supplied. Before fixing make sure the side blanking plates are aligned exactly vertical and the free end of the blanking plates touches the middle of the corresponding vertical support.
- Starting on one side fix the upper blanking plates to the duct ceiling using the self-tapping screws 5.5x19 mm supplied. Before fixing make sure the upper blanking plates are aligned exactly perpendicular to the duct walls and the free ends of the blanking plates touch the cross member of the frame.
- Starting on one side fix the lower blanking plates to the duct floor using the self-tapping screws 5.5x19 mm supplied (or welding studs, washers and nuts). Before fixing make sure the lower blanking plates are aligned exactly perpendicular to the duct walls and the free ends of the blanking plates touch the tank wall.



*Fig. 10: Mount the blanking plates on the air inlet side*

## 6. Mounting the cross bar:

- Put the cross bar on the corresponding cross bar bracket with a distance of A mm to the vertical support (see table below).

| Type evaporative cassette<br>(according to rating plate) | Dimension<br>A |
|--|----------------|
| F75  | 50 mm          |
| F85  | 100 mm         |
| F95  | 150 mm         |
| P85  | 150 mm         |
| P95  | 250 mm         |

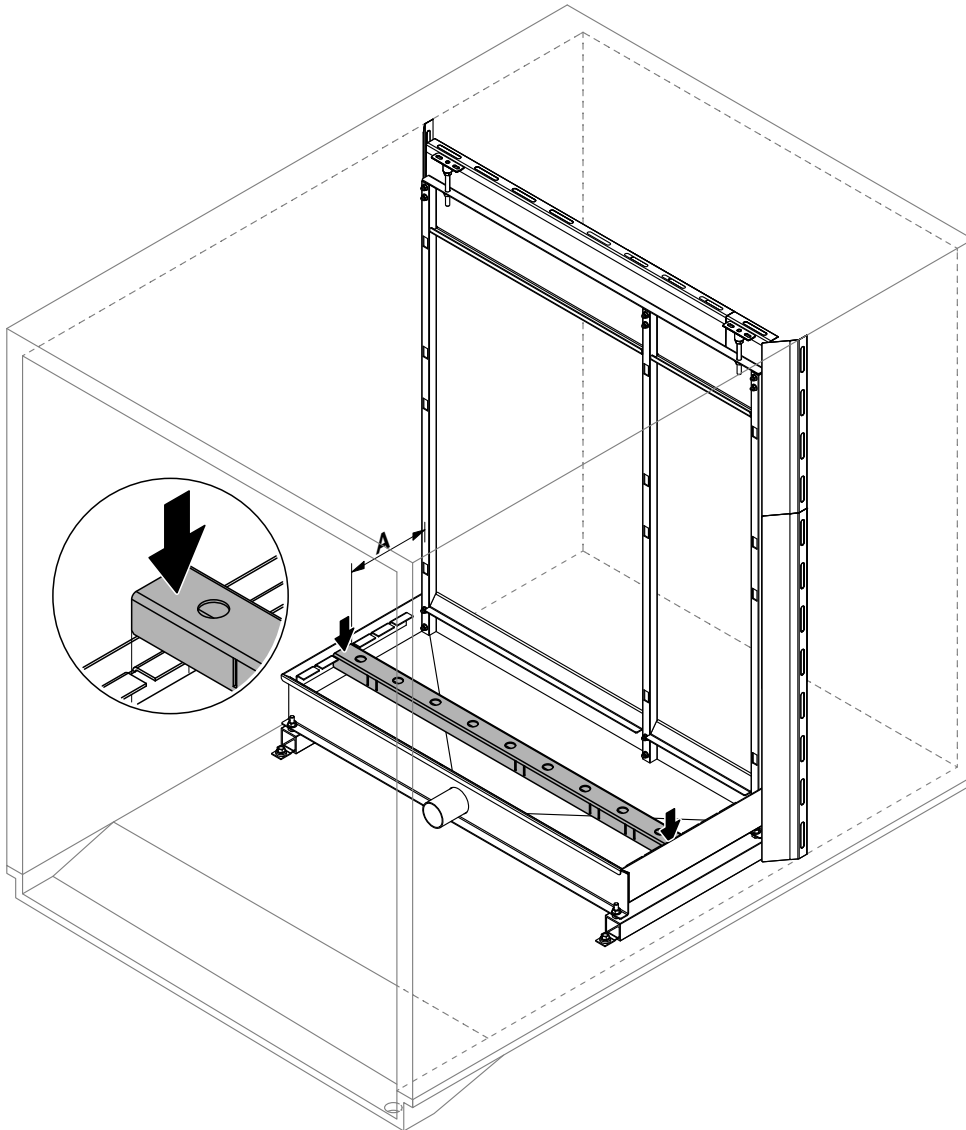


Fig. 11: Mounting the cross bar

## 7. Mount distribution head assembly to the topmost evaporative cassettes:

- This step must only be carried out on evaporative cassettes with fibre media: mount the appropriate distribution cassettes onto the corresponding evaporative cassettes. Then, fix the distribution cassettes to the evaporative cassettes using the plastic rivets supplied.
- Mount the appropriate distribution heads onto the corresponding evaporative cassettes or distribution cassettes respectively. Then, fix the distribution heads to the evaporative cassettes or distribution cassettes respectively using the plastic rivets supplied.

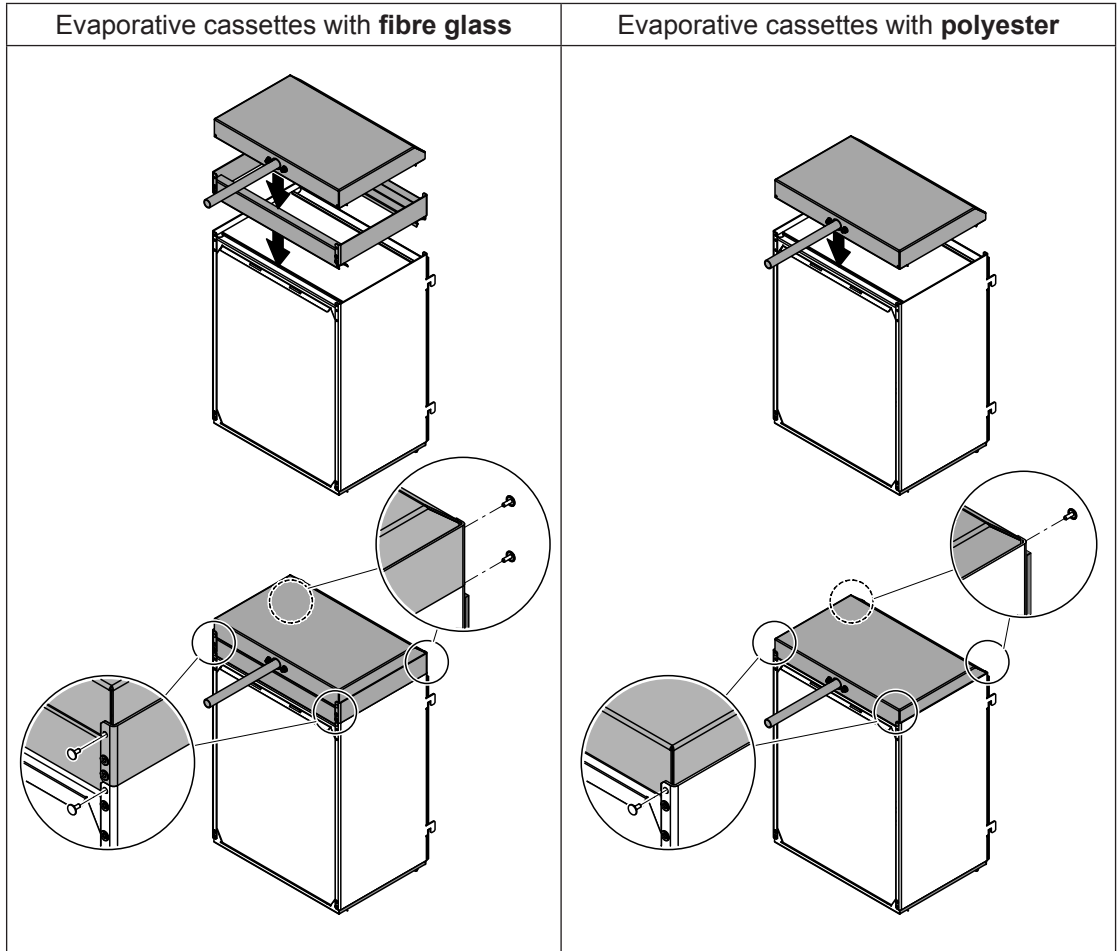


Fig. 12: Mount distribution head assembly to the topmost evaporative cassettes

## 8. Mount evaporative cassettes:

- Starting with the highest evaporative cassettes on the bottom hook the cassettes into the vertical supports. Make sure the overlying cassettes slip properly into each other.

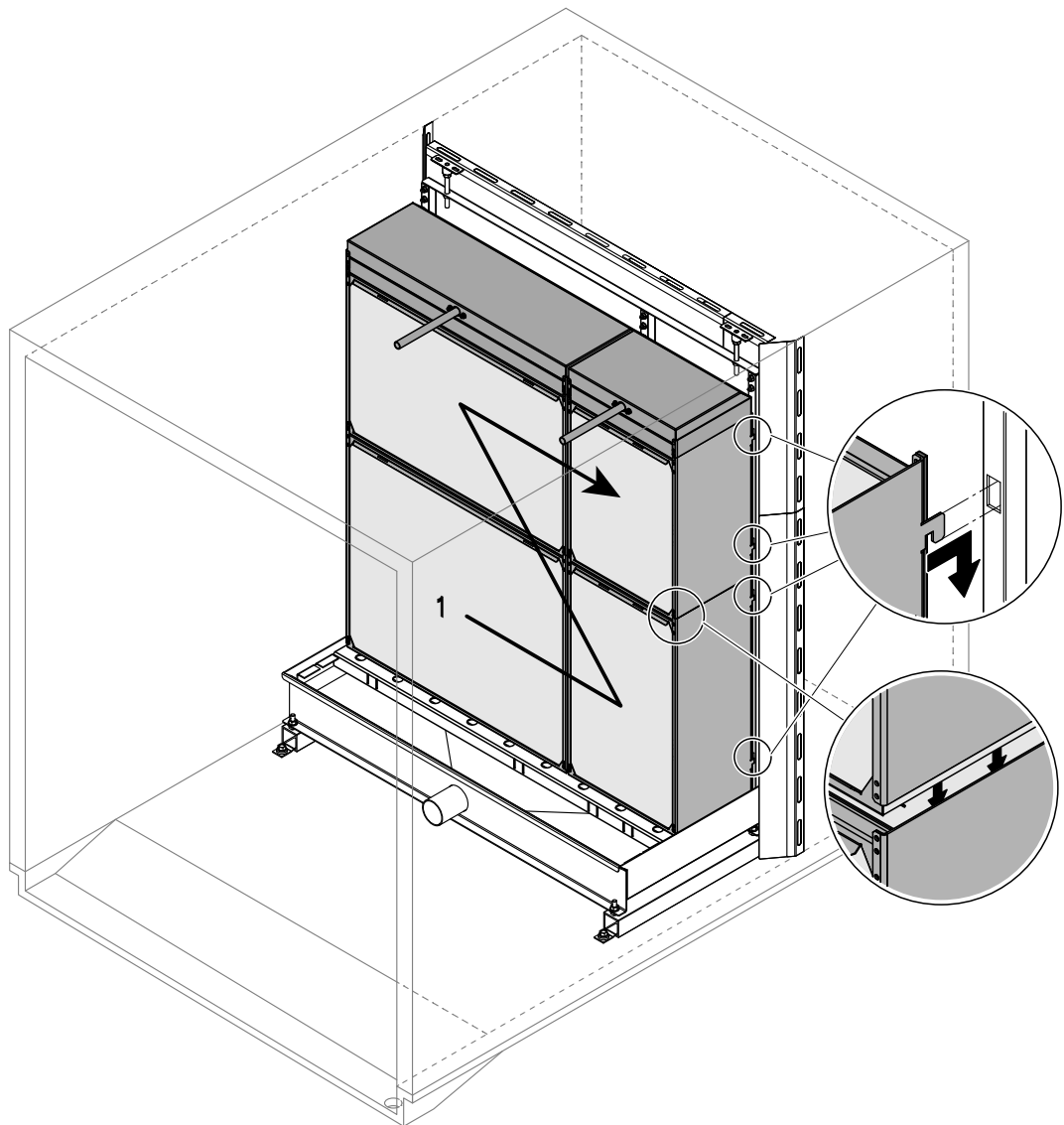
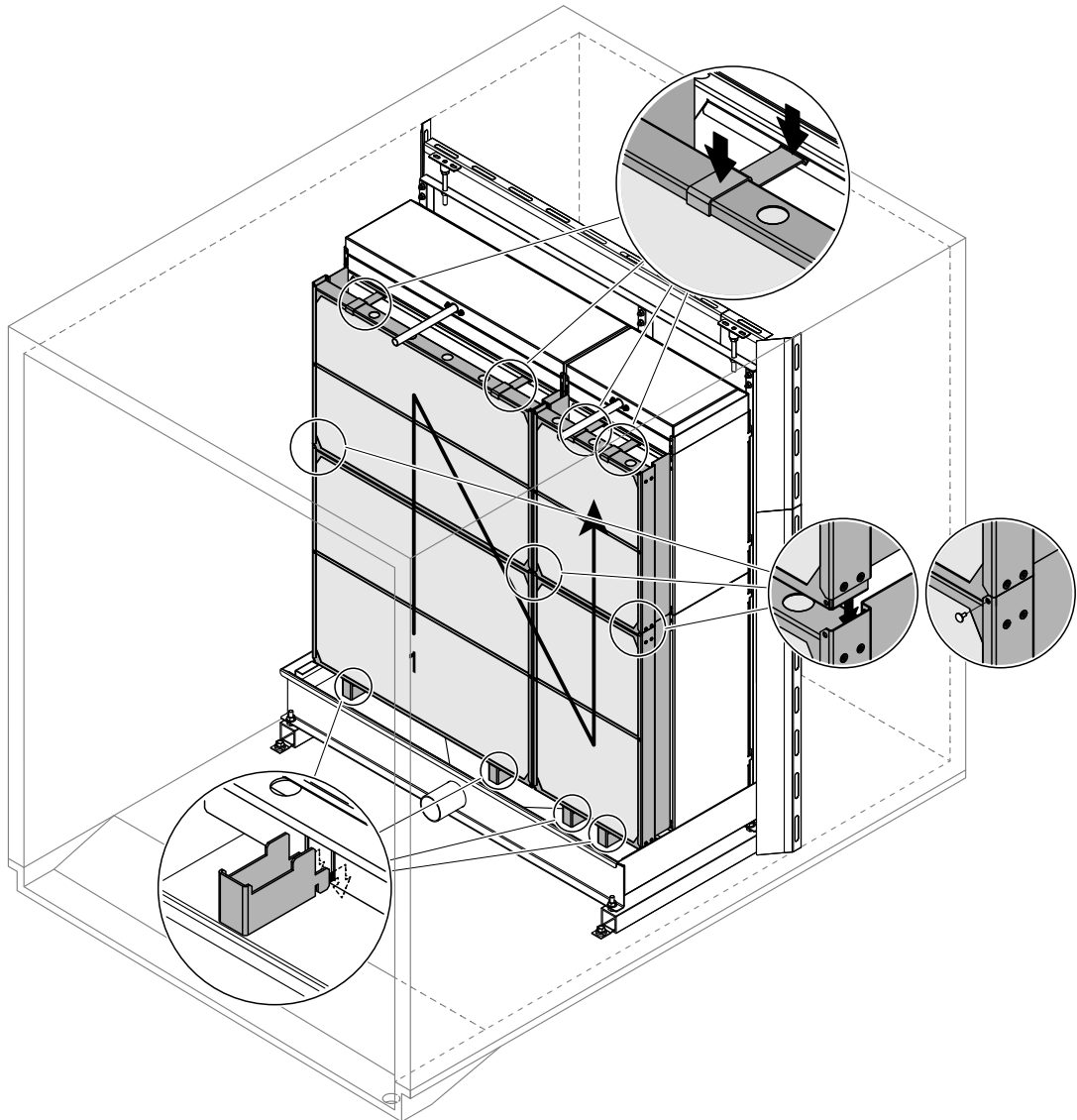


Fig. 13: Mount evaporative cassettes



**9. Mount the droplet separator cassettes (this step must only be carried out, if your system is equipped with a droplet separator):**

- Hook the lower separator brackets into the cross bar.
- Then, starting with the highest droplet separator cassette on the bottom complete one separator row after the other. Make sure the overlying cassettes slip properly into the subjacent cassettes. After each cassette fix the cassettes with the plastic rivets supplied.
- If a row is completed secure the row with the separator brackets.



*Fig. 14: Mount the droplet separator cassettes*

## 4.3 Mounting the Hydraulic Module

The mounting procedure of the Hydraulic Module depends on the system version (Circulating System or Direct Feed System). Refer to the corresponding section.

### 4.3.1 Mounting the Hydraulic Module of ME Circulating System (internal installation)

1. Apply **silicone free grease** (e.g. gasket grease) onto the surface of the drain connector of the tank and onto the surface of the rubber sealing inside the connector of the Hydraulic Module.
2. Then, slide the connector bore of the Hydraulic Module carefully onto the drain connector of the tank until it comes to a stop.
3. **Align Hydraulic Module exactly horizontal using a spirit level and the leveling screws on the support.** Then, fix the support of the Hydraulic Module to the tank using the bracket, nuts (M8, AF: 13 mm) and washers supplied and tighten the nuts.

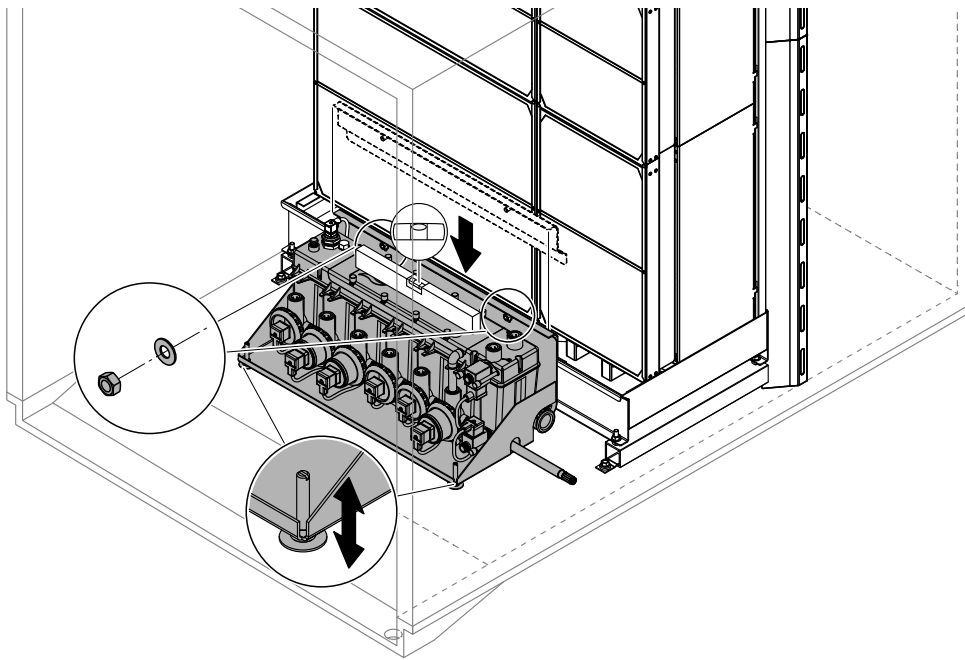


Fig. 15: Mounting the Hydraulic Module of ME Circulating System (internal installation)

### 4.3.2 Mounting the Hydraulic Module of ME Circulating System (external installation)

1. Mark position of the hole for the drain pipe feed through on the AHU/duct wall.  
**Important:** when mounted the drain pipe must have a **downslope of 1 to max. 2 % towards the AHU/duct wall**.
2. Drill hole  $\varnothing$  55 mm (2.2") into AHU/duct wall.
3. Lead drain pipe  $\varnothing$ 54 mm (2.1") through the wall feed through and connect it to the drain connector of the tank using the elbow union supplied.
4. Cut drain pipe to length and de-bur leading edge.  
**Important:** the end of the drain pipe must exactly poke out 46 mm of the AHU/duct wall. Otherwise correct mounting of Hydraulic Module is not possible.
5. Apply **silicone free grease** (e.g. gasket grease) onto the surface of the drain connector and onto the surface of the rubber sealing inside the connector of the Hydraulic Module.
6. Then, slide the connector bore of the Hydraulic Module carefully onto the drain connector of the tank until it comes to a stop.
7. **Align Hydraulic Module exactly horizontal using a spirit level**. Then, fix the Hydraulic Module to the AHU/duct wall using the self-tapping screws 5.5x19 mm supplied.

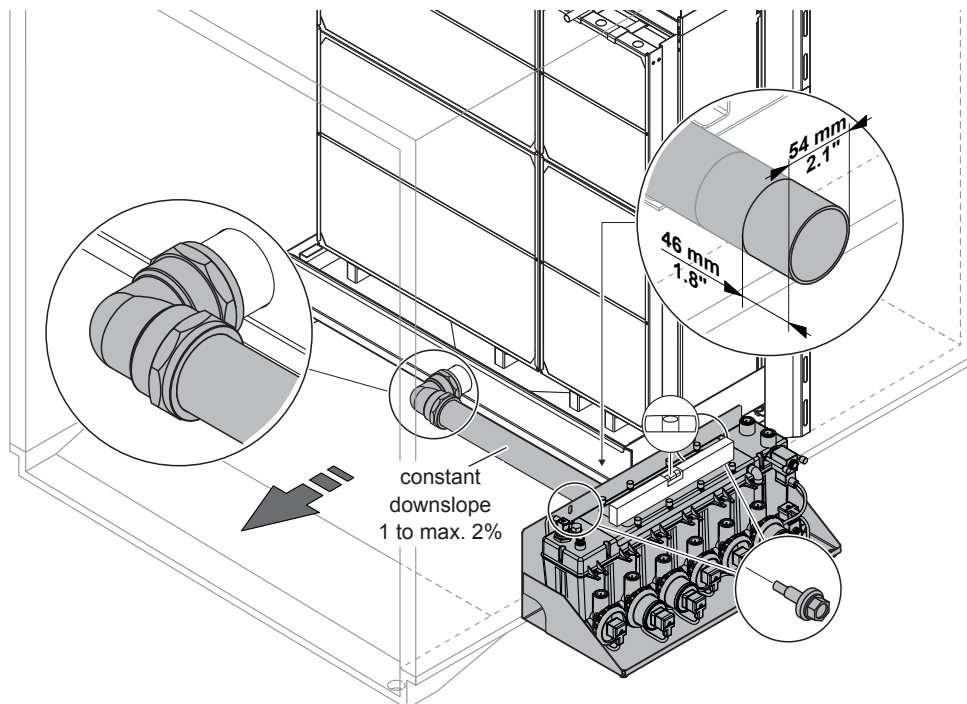


Fig. 16: Mount the Hydraulic Module of ME Circulating System (internal installation)

### 4.3.3 Mounting the Hydraulic Module of ME Direct Feed System (internal installation)

1. Fix the Hydraulic Module via the prefixed support to tank using the bracket, nuts (M8, AF: 13 mm) and washers supplied.
2. Align the Hydraulic Module to the middle of the tank, then tighten the nuts.

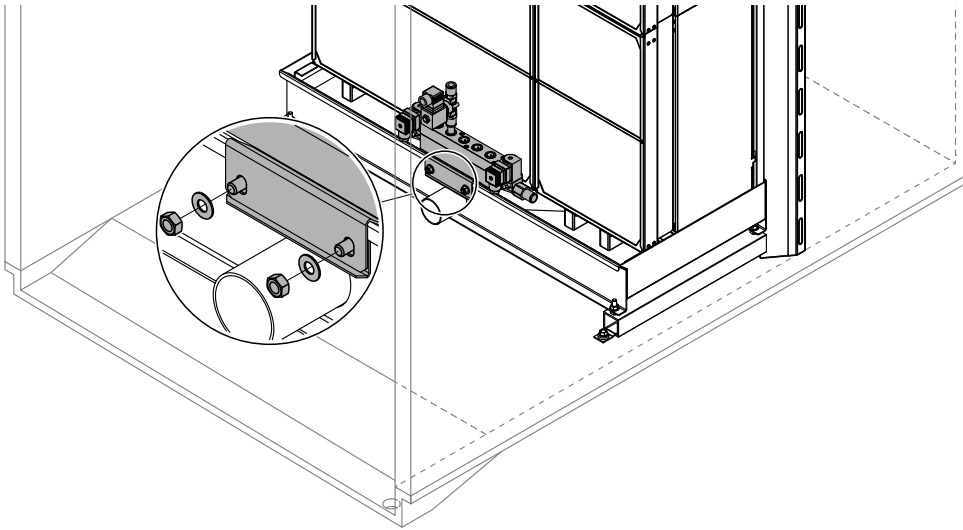


Fig. 17: Mounting the Hydraulic Module of ME Direct Feed System (internal installation)

### 4.3.4 Mounting the Hydraulic Module of ME Direct Feed System (external installation)

1. Mark a horizontal line as help at the desired position to the AHU/duct wall.
2. Position and align the Hydraulic Module at the desired position. Then, fix the Hydraulic Module to the duct wall using the self-tapping screws 5.5x19 mm supplied.

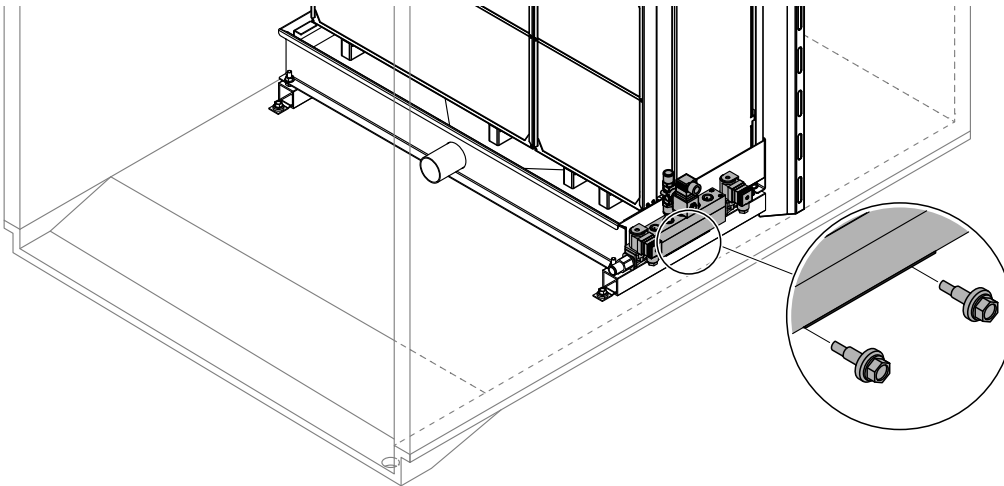


Fig. 18: Mounting the Hydraulic Module of ME Direct Feed System (external installation)

## 4.4 Water installation

### 4.4.1 Notes on water installation

The layout of the water piping (distribution, supply and drain water piping) depends on the system version. Refer to the corresponding chapter for detailed information and observe the following installation notes.

#### – Notes on distribution piping

- The distribution piping is to be carried out according to the figure found in the chapter of the corresponding system and the applicable local regulations for water installations. The indicated connection specifications and connection layout must be observed.
- The distribution piping is made of  $\varnothing 15$  mm plastic hoses (supplied). On site the plastic hoses must be cut to length.
- Make sure the distribution hoses have a constant downslope (no sagging) to the Hydraulic Module and are not kinked.
- All connections are made with Push-Fit fittings.
- On systems where the hydraulic module is mounted outside the duct, the supplied wall feed throughs and hose supports must be used.

#### – Notes on water supply

- The water supply is to be carried out according to the figure found in the chapter of the corresponding system and the applicable local regulations for water installations. The indicated connection specifications must be observed. The installation material must be supplied by the customer.
- The installation of a **shut-off valve** is mandatory and should be made as close as possible to the Hydraulic Module.
- Regarding supply water quality see appendix.
- The installation material must be pressure-proof and certified for use in drinking water supply systems.
- Wall feed throughs must be done by the customer.
- **Important!** Before connecting the water line to the unit, the supply line must be flushed thoroughly.

#### Water drain

- The water drain is to be carried out according to the figure found in the chapter of the corresponding system and the applicable local regulations for water installations. The indicated connection specifications must be observed.
- Make sure the drain line is installed with a constant down-slope over entire length.
- Make sure the drain pipe is correctly fixed and easily accessible for inspections and cleaning purposes.
- Wall feed throughs must be done by the customer.
- The minimum inside diameter of the drain pipe must be maintained throughout the entire length!

## 4.4.2 Water installation of ME Circulating System (internal installation)

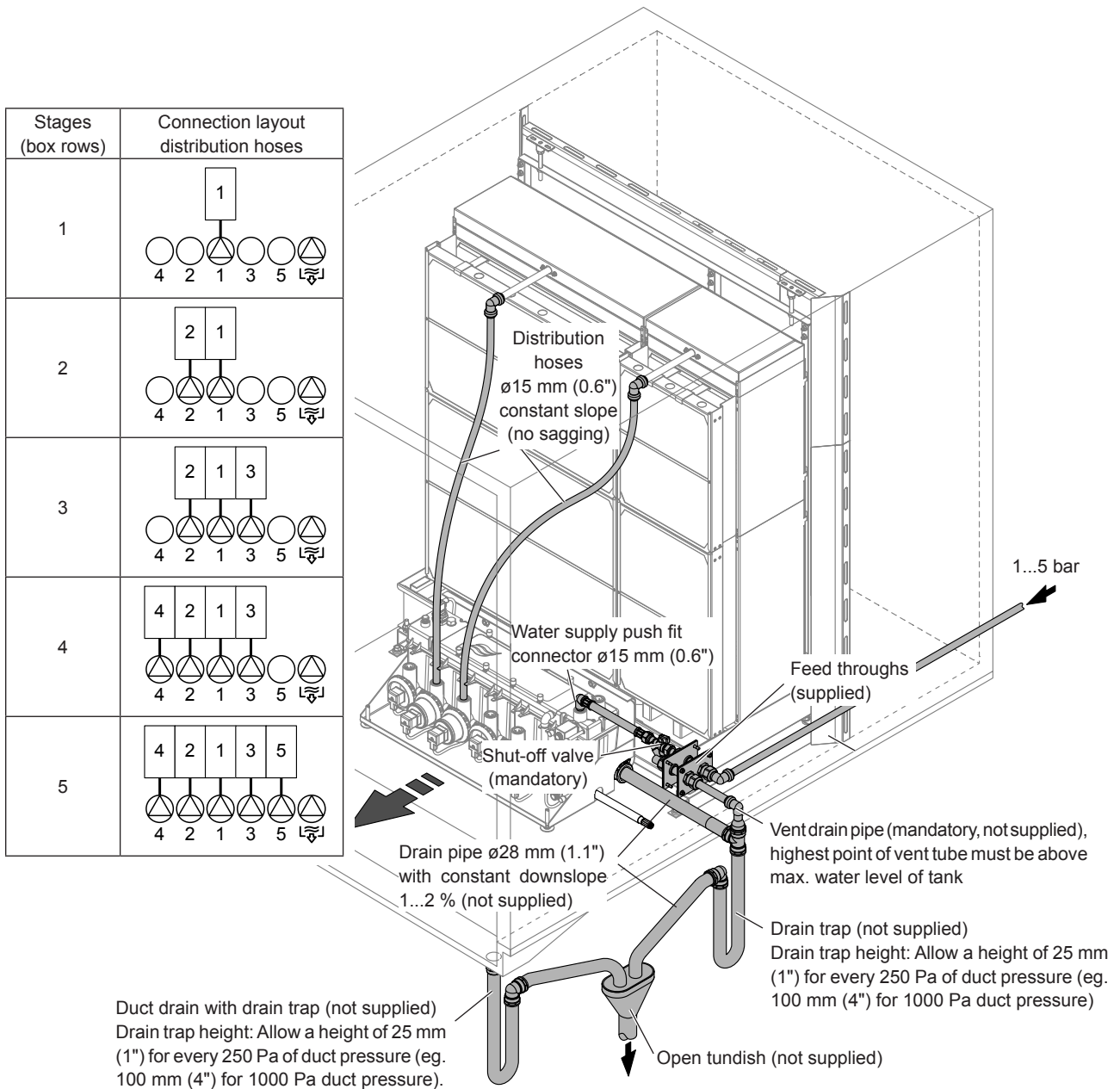


Fig. 19: Water installation ME Circulating System (internal installation)

### 4.4.3 Water installation of ME Circulating System (external installation)

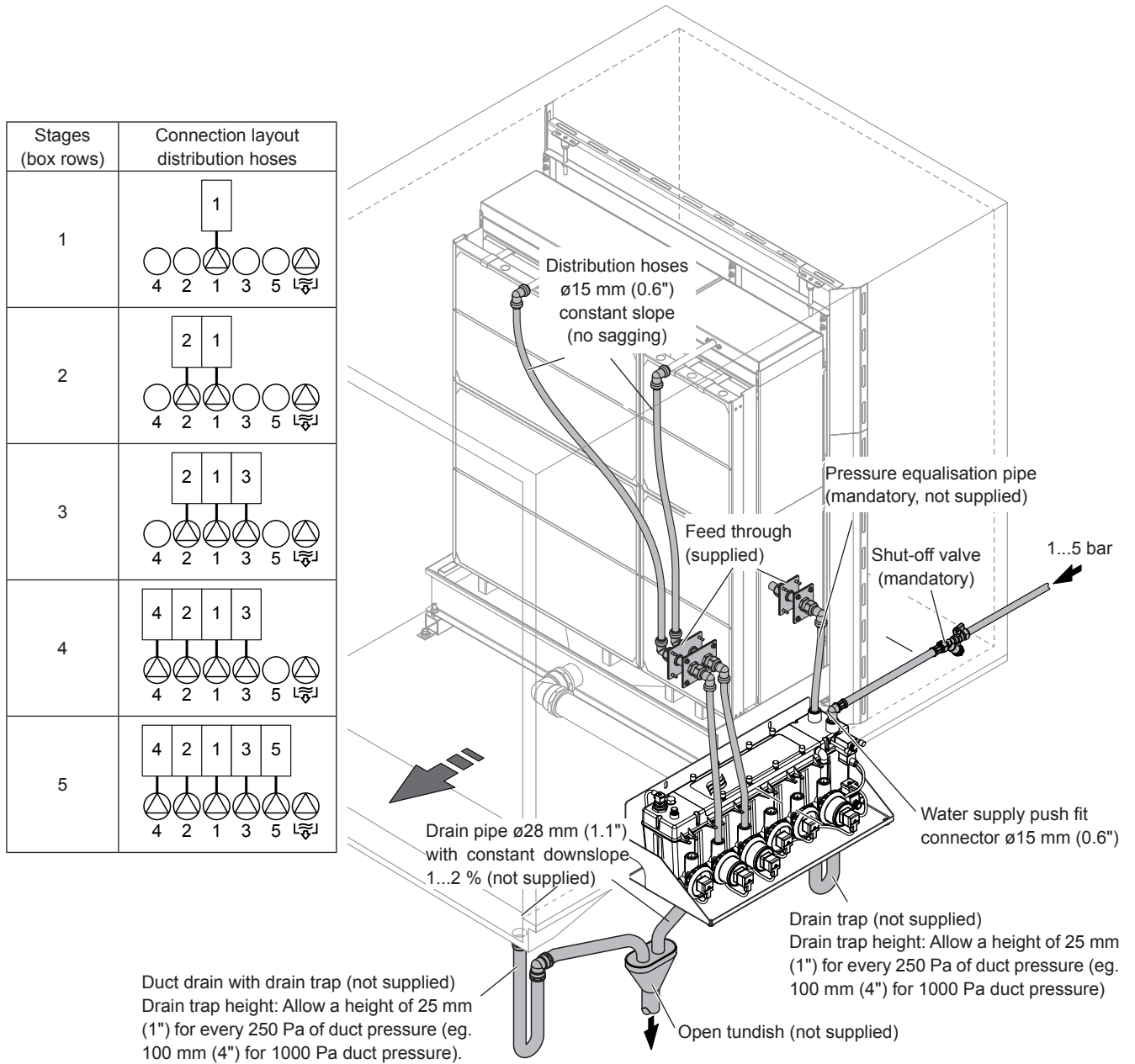


Fig. 20: Water installation of ME Circulating System (external installation)

#### 4.4.4 Water installation of ME Direct Feed System (internal installation)

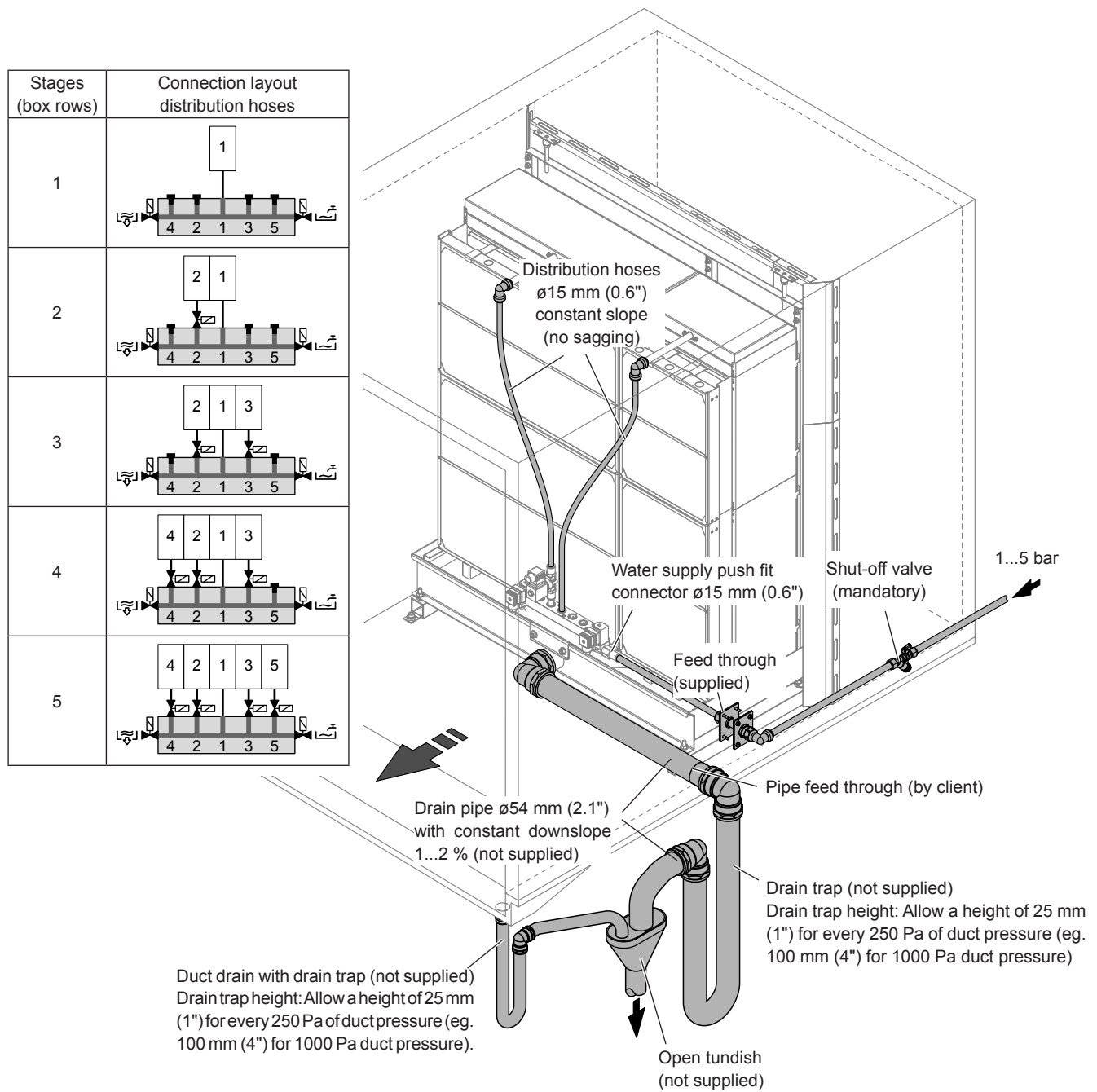


Fig. 21: Water installation ME Direct Feed System (internal installation)



#### 4.4.5 Water installation of ME Direct Feed System (external installation)

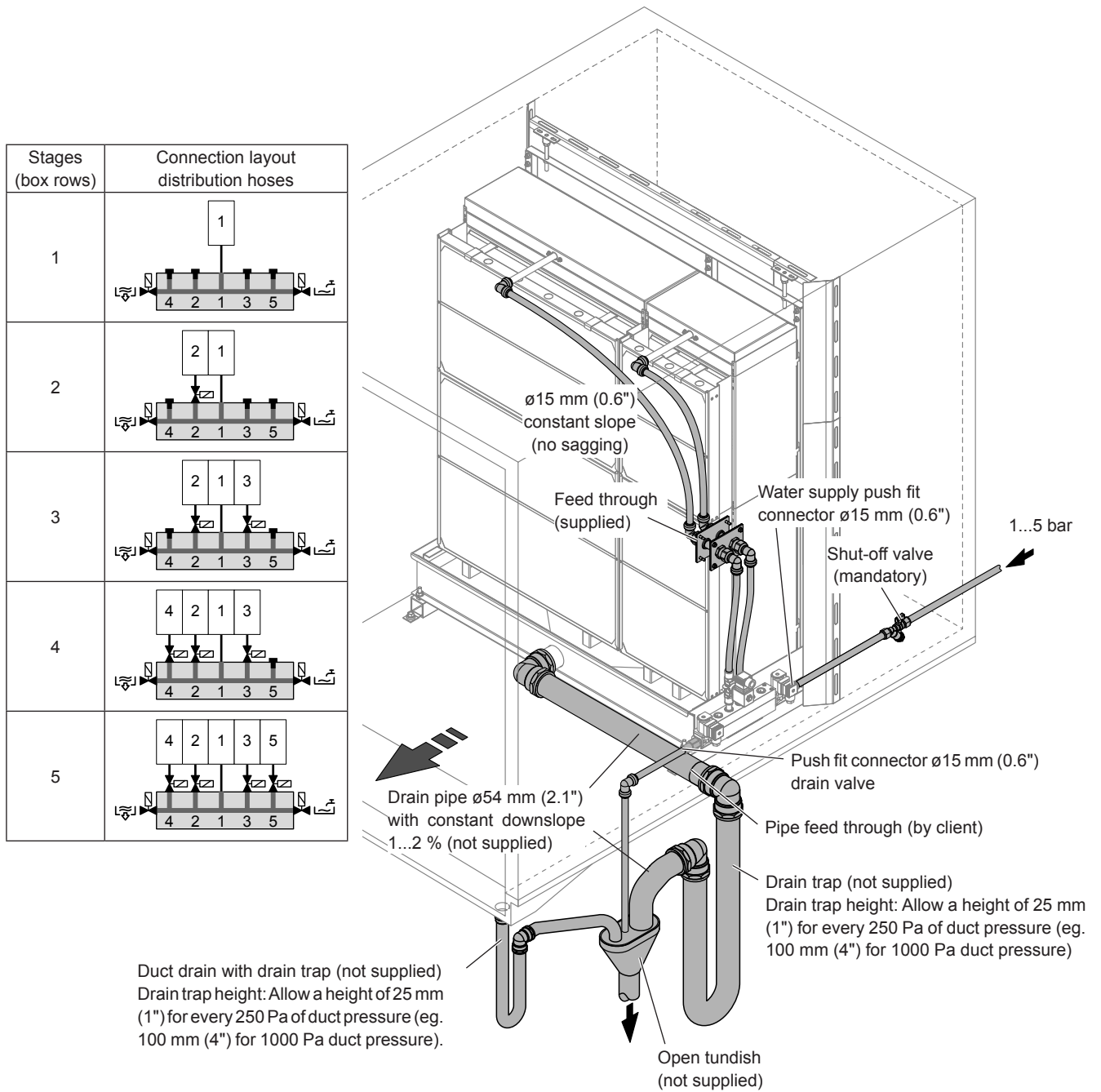


Fig. 22: Water installation ME Direct Feed System (external installation)

## 4.5 Mounting the Condair ME control units

### 4.5.1 Notes on positioning the control units

Please observe the following notes when positioning the Condair ME control units:

- The control units can be mounted directly outside to the AHU/air duct or to a wall or stand (not supplied).
- The control units should ideally be positioned as close to the Evaporative Module as possible for ease of servicing and maintenance.  
Note: the Hydraulic Module of Condair ME Circulating Systems is equipped with a 5 m (16.4') 14-core electrical inter-connecting cable for connection to the control unit. Make sure the control unit is mounted within the range of the inter-connecting cable.
- The control units are protected according to **IP21**. Make sure the control units are installed in a drip-proof location and the admissible ambient conditions are complied with (see technical data in the operating manual to the Condair ME).
- The power supply to the control units must be equipped with an electrical mains disconnecter switch (mains disconnecter switch, not supplied) fitted within 1m (39") for purposes of maintenance and emergencies. When positioning the control unit make sure the mains disconnecter switch can be mounted within that range.

## 4.5.2 Mounting the control unit for Condair ME Circulating System

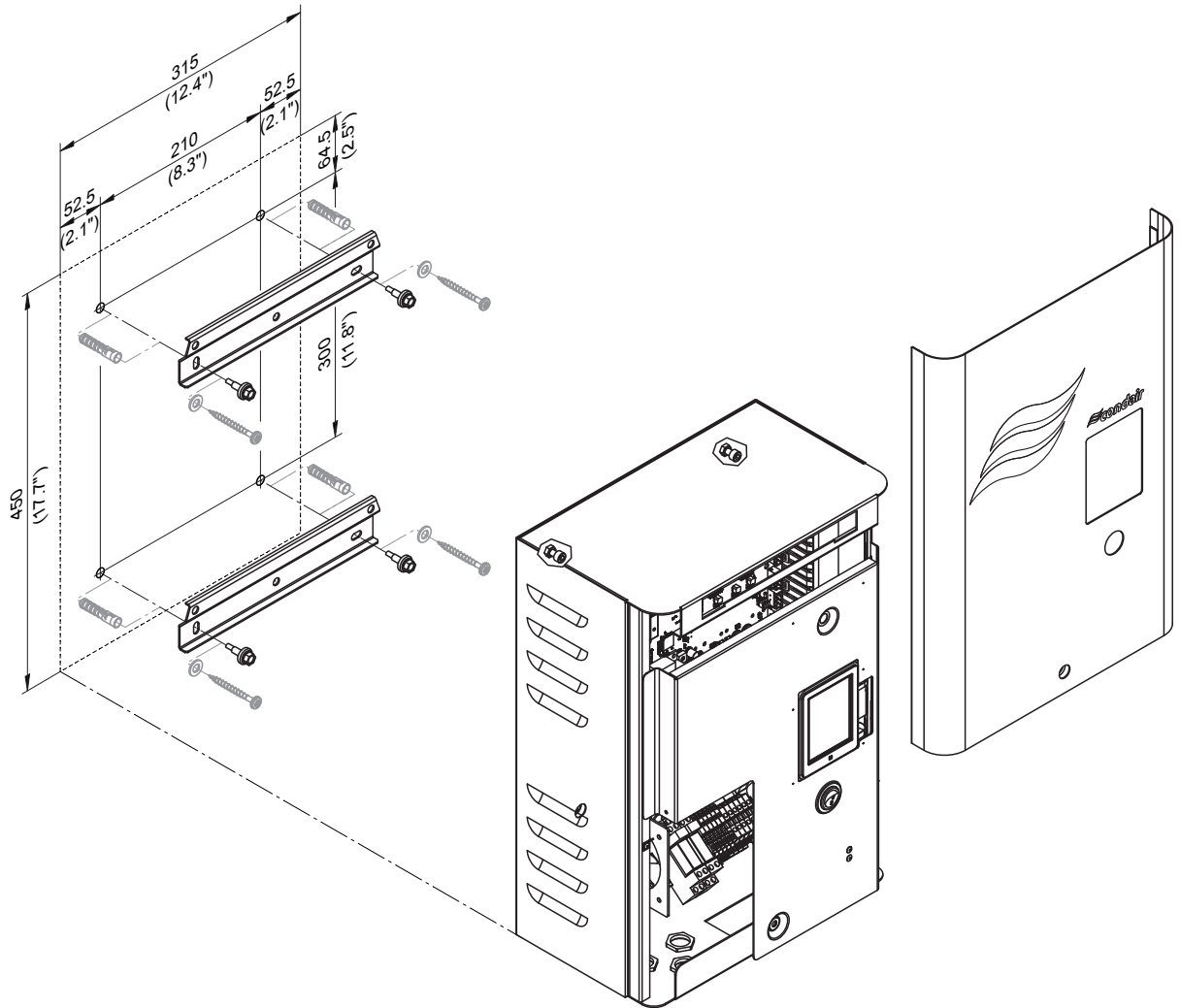
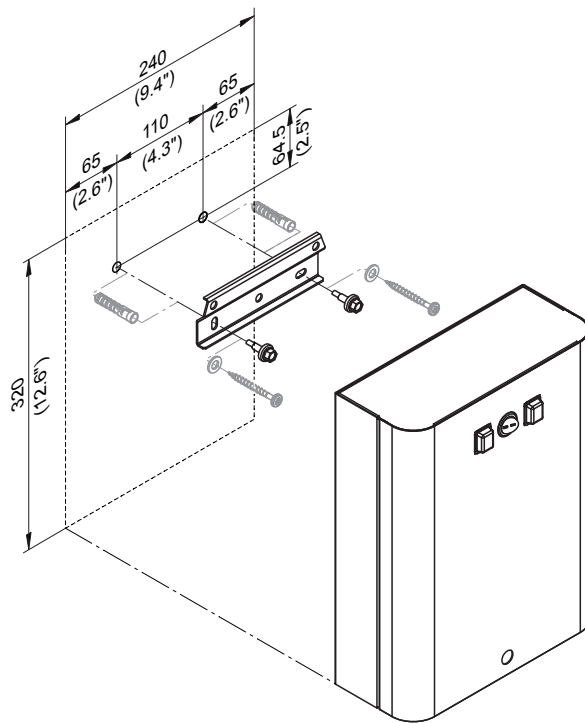


Fig. 23: Mounting the control unit of Condair ME Circulating Systems

Mounting procedure:

1. Mark the attachment points for the upper and lower wall support at the desired position with the help of a spirit level.
2. This step must be performed only, if the control unit is mounted to brickwork or a concrete wall: drill holes diameter: 8 mm, depth: 40 mm. Insert the supplied plastic plugs.
3. Fix the wall supports to the wall using the screws supplied (self-tapping screws 5.5x19 mm or round head screws). Before tightening the screws adjust the wall supports horizontally using a spirit level.
4. Unlock the screw of the front panel of the control unit, then remove the front panel.
5. Hang up the control unit onto the wall supports. Then, fix the unit to the upper wall support using the two hexagon socket screws already mounted inside the control unit.
6. Reattach the front panel and secure it with the screw.

### 4.5.3 Mounting the control unit for Condair ME Direct Feed System



*Fig. 24: Mounting the control unit of Condair ME Direct Feed Systems*

Mounting procedure:

1. Mark the attachment points for the wall support at the desired position with the help of a spirit level.
2. This step must be performed only, if the control unit is mounted to brickwork or a concrete wall: drill holes diameter: 8 mm, depth: 40 mm. Insert the supplied plastic plugs.
3. Fix the wall supports to the wall using the screws supplied (self-tapping screws 5.5x19 mm or round head screws). Before tightening the screws adjust the wall supports horizontally using a spirit level.
4. Hang up the control unit onto the wall support.

## 4.6 Electrical installation

### 4.6.1 Notes on electrical installation



**DANGER!**  
Risk of electric shock!

The control unit contain live mains voltage. One may get in touch with live parts when the control unit is open. Touching live parts may cause severe injury or danger to life.

**Prevention:** The control unit must be isolated from the mains before commencing any installation work.



**WARNING!**

The **electronic components** inside the control units are **very sensitive to electrostatic discharge**. Before carrying out installations work inside the control unit, appropriate **measures must be taken to protect the electronic components against damage caused by electrostatic discharge (ESD protection)**.

- All work concerning the electrical installation must be performed only by **skilled and qualified technical personnel (e.g. electrician or technicians with appropriate training)** authorised by the owner. It is the owner's responsibility to verify proper qualification of the personnel.
- The electrical installation must be carried out according to the corresponding wiring diagrams (see chapter 4.6.2 – *Electrical Installation Condair ME Circulating System* and 4.6.3 – *Electrical Installation Condair ME Direct Feed System*), the notes on electric installation as well as the applicable local regulations. All information given in the wiring diagrams must be followed and observed.
- All cables must be lead into the control unit via the cable feed throughs on the bottom side of the control units. The mains cable must be lead into the control unit via the cable opening equipped with the cable gland.

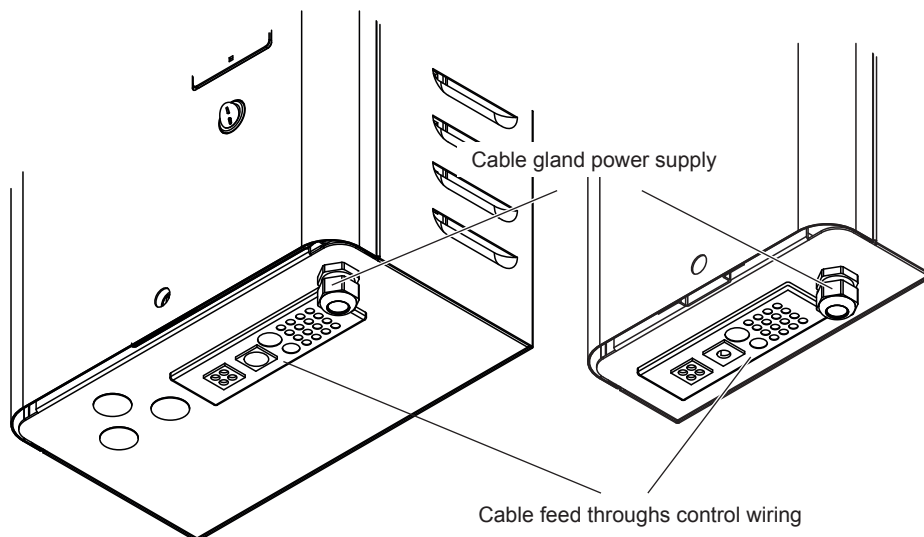


Fig. 25: Cable feed throughs control units

- All cables from the hydraulic module mounted inside the AHU/air duct must be lead via cable gland(s) out of the duct.
- Make sure the cables are adequately fixed, do not scrub on any components or become a stumbling trap.
- Observe and maintain maximum cable length and required cross section per wire.
- The mains supply voltage must match the respective voltage stated on the type plate.

## 4.6.2 Electrical Installation Condair ME Circulating System

### 4.6.2.1 Wiring diagram Condair ME Circulating System

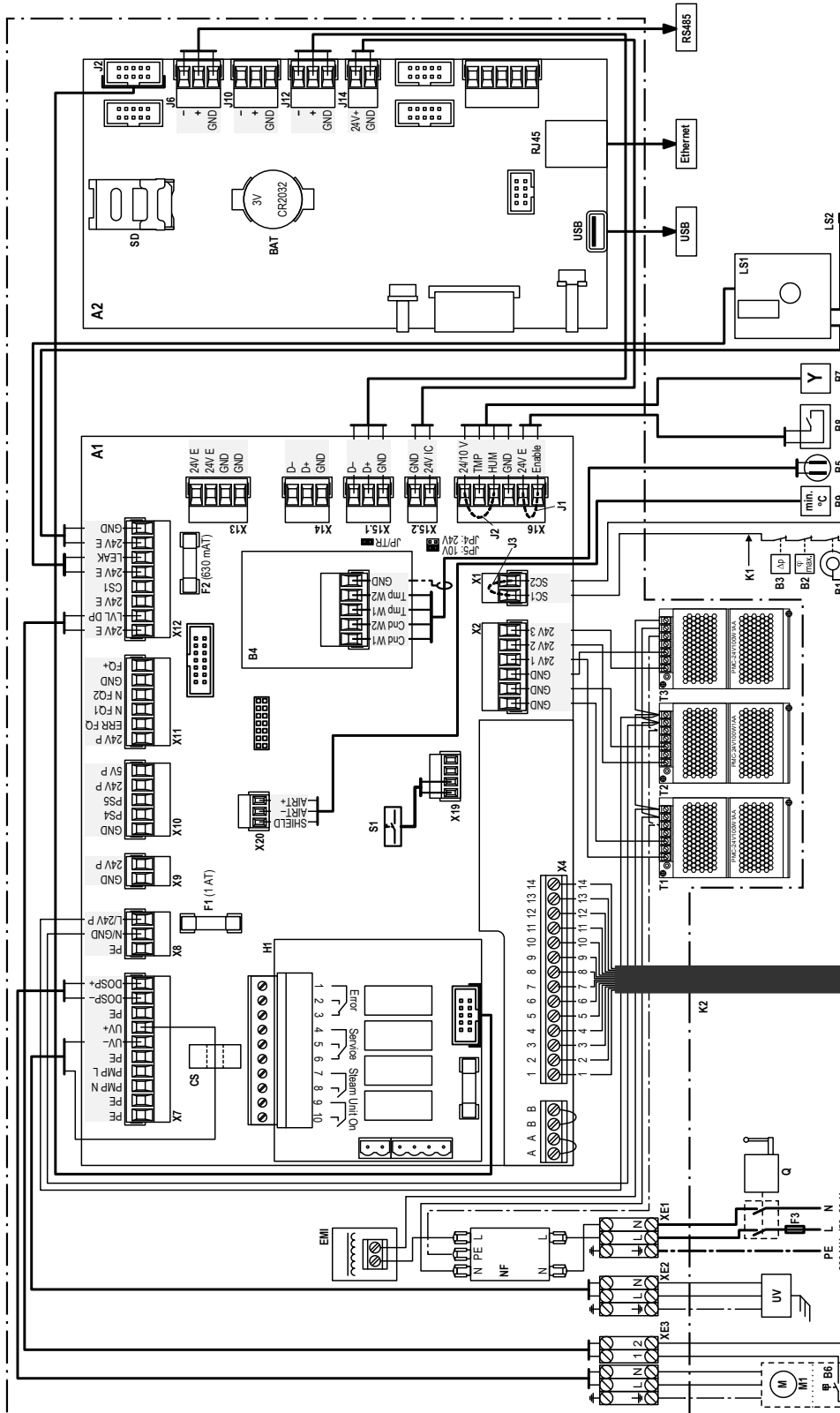


Fig. 26: Wiring diagram Condair ME Circulating System

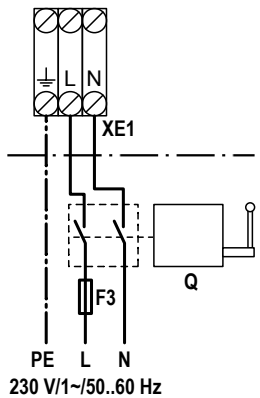
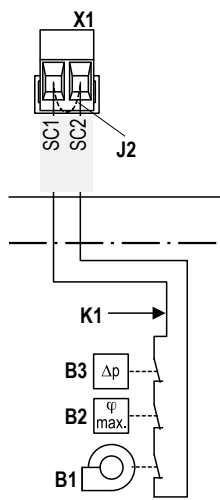
## Legend wiring diagram Condair ME Circulating System

|               |  |
|---------------|--|
| <b>A1</b>     | Driver board   |
| <b>A2</b>     | Control board  |
| <b>B1</b>     | Ventilation interlock                                  |
| <b>B2</b>     | Max. humidity monitor                                  |
| <b>B3</b>     | Air flow monitor                                       |
| <b>B4</b>     | Temperature and conductivity measuring                 |
| <b>B5</b>     | Sensor temperature and conductivity measuring          |
| <b>B6</b>     | Level sensor dosing pump (option)                      |
| <b>B7</b>     | Demand or humidity/temperature signal                  |
| <b>B8</b>     | External On/Off switch (external enable)               |
| <b>B9</b>     | Air temperature monitoring duct (option)               |
| <b>CS</b>     | Current sensor (UV lamp)                               |
| <b>BAT</b>    | Backup battery (CR2032, 3V)                            |
| <b>EMI</b>    | EMI choke  |
| <b>F1</b>     | Fuse 230V supply (6.3 AT)                              |
| <b>F2</b>     | Fuse 10/24 VDC supply(630 mAT)                         |
| <b>F3</b>     | Fuse mains supply (10 AF)                              |
| <b>H1</b>     | Remote operating and fault indication board (option)   |
| <b>J1</b>     | Cable bridge if no external On/Off switch is connected |
| <b>J2</b>     | Cable bridge demand signal (for commissioning only)    |
| <b>J3</b>     | Cable bridge if no safety chain is connected           |
| <b>JP4</b>    | Jumper fitted= 24 V on X16 (JP5 removed)               |
| <b>JP5</b>    | Jumper fitted= = 10 V on X16 (JP4 removed)             |
| <b>JP/TR</b>  | Jumper fitted on the last driver board                 |
| <b>K1</b>     | External safety chain                                  |
| <b>K2</b>     | 14-core inter-connecting cable from Hydraulic Module   |
| <b>LS1</b>    | Leakage monitoring board (option)                      |
| <b>LS2</b>    | Sensor leakage monitoring (option)                     |
| <b>M1</b>     | Dosing pump (option)                                   |
| <b>NF</b>     | Mains filter   |
| <b>Q</b>      | External mains disconnecter switch                     |
| <b>S1</b>     | On/Off switch control unit                             |
| <b>SD</b>     | Memory card  |
| <b>T1..T3</b> | 24V power supply                                       |
| <b>UV</b>     | UV lamp (option)                                       |
| <b>XE1</b>    | Terminal mains supply voltage                          |
| <b>XE2</b>    | Terminal UV lamp                                       |
| <b>XE3</b>    | Terminal Disinfection pump                             |
| <b>X4</b>     | Terminal cable harness Hydraulic Module                |



#### 4.6.2.2 Installation work Condaire ME Circulating System

Note: for the connection of the available options please refer to the installation and operating manual of the corresponding option.

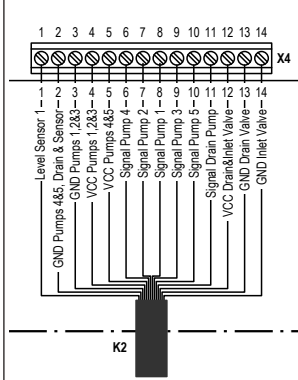
|  |   |
|--|---|
| <p><b>Power supply</b></p>  <p>230 V/1~/50..60 Hz</p> | <p>Connect <b>power supply</b> 230 V/1~/50...60 Hz in accordance with the wiring diagram, to the <b>terminal block "XE1"</b> in the control unit. The customer is to install a <b>mains disconnecting switch Q</b> (all pole disconnecting device with a minimum contact opening of 3 mm) fitted within 1m (39") to the control unit and a <b>fuse "F3"</b> (10 A fast acting) in the supply line (these are both essential requirements).</p> <p>The cross-section of the mains cable must comply with the applicable local regulations (minimum 1.5 mm<sup>2</sup>).</p>  |
| <p><b>External safety circuit</b></p>                | <p>To guarantee the safety of the humidification/cooling system, monitoring the operation by means of a safety circuit "K1" is an absolute requirement.</p> <p>To accomplish this, the <b>potential-free contacts (max. contact loading 250V/5A)</b> of external monitoring devices (e.g. ventilation interlock "B1", safety high limit humidistat "B2", airflow monitor "B3", etc.) are <b>connected in series to the contacts "SC1" and "SC2" of the terminal block "X1"</b> on the driver board in accordance with the wiring diagram.</p> <div style="background-color: #cccccc; padding: 5px; border: 1px solid black;"> <p><b>⚠ DANGER!</b><br/><b>Risk of electric hazard!</b></p> </div> <p>Mains voltage is connected to terminal block "X1" (up to 240 V). The control unit must therefore be isolated from the mains supply, before starting the connection work.</p> <p>If, for whatever reason, no external monitoring devices are connected, a cable bridge "J2" must be installed on the contacts "SC1" and "SC2" of the terminal block "X1".</p> <p>Do not apply any <b>extraneous voltage</b> to the terminals.</p> <p>The cross-section of the connecting cable must comply with the applicable local regulations (minimum 1 mm<sup>2</sup>).</p> |

## Control signal (Y)

Note: the control settings must be done via the control software of the Condair ME. Please refer to the operating manual of the Condair ME.

|  |  |
|--|--|
|  | <p><b>External continuous humidity or temperature controller</b></p> <p>An external continuous humidity or temperature controller is to be connected to the contacts “HUM” (+) and “GND” (–) of the terminal block “X16” on the driver board.</p> <p>Note: If 24V supply is used for the external controller Jumper “JP4: 24V” must be set and Jumper “JP5: 10V” must be removed</p> |
|  | <p><b>Humidity sensor</b></p> <p>A humidity sensor is to be connected to the contacts “HUM” (+) and “GND” (–) of the terminal block “X16” on the driver board.</p> <p>Note: Jumper “JP5: 10V” must be removed and Jumper “JP4: 24V” must be set.</p>   |
|  | <p><b>Temperature sensor</b></p> <p>A temperature sensor is to be connected to the contacts “TMP” (+) and “GND” (–) of the terminal block “X16” on the driver board.</p> <p>Note: Jumper “JP5: 10V” must be removed and Jumper “JP4: 24V” must be set.</p>   |
|  | <p><b>24 VDC On/Off humidistat</b></p> <p>A 24 VDC On/Off humidistat is to be connected to the contacts “24V” and “HUM” of the terminal block “X16” on the driver board.</p> <p>Note: for the 24 VDC On/Off control jumper “JP5: 10V” must be removed and Jumper “JP4: 24V” must be set.</p>   |

### Connecting the 14-core inter-connecting cable from the Hydraulic Module



The 14-core inter-connecting cable “K2” from the Hydraulic Module is to be connected according the wiring diagram to the terminals “X4”.  
 Note: The 10 m inter-connecting cable has to be cut to length on site.

## 4.6.3 Electrical Installation Condair ME Direct Feed System

### 4.6.3.1 Wiring diagram Condair ME Direct Feed System with stage control

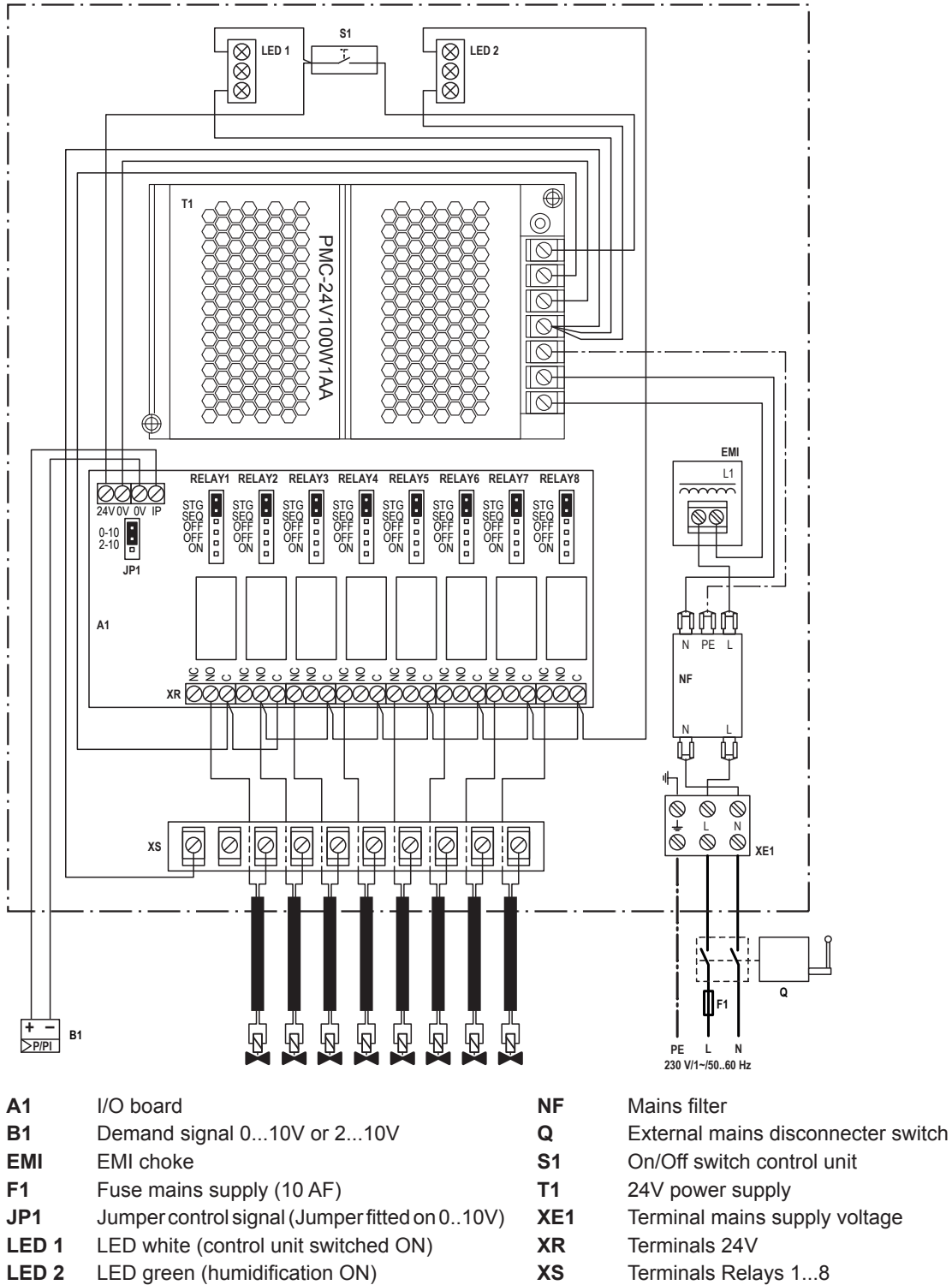
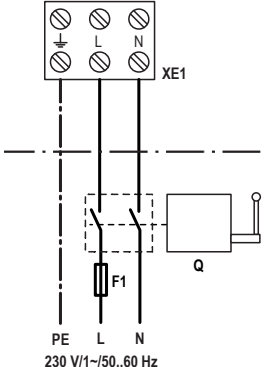
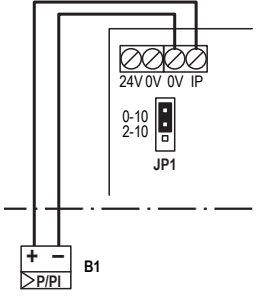


Fig. 27: Wiring diagram Condair ME Direct Feed System with stage control

### 4.6.3.2 Installation work Condair ME Direct Feed System with stage control

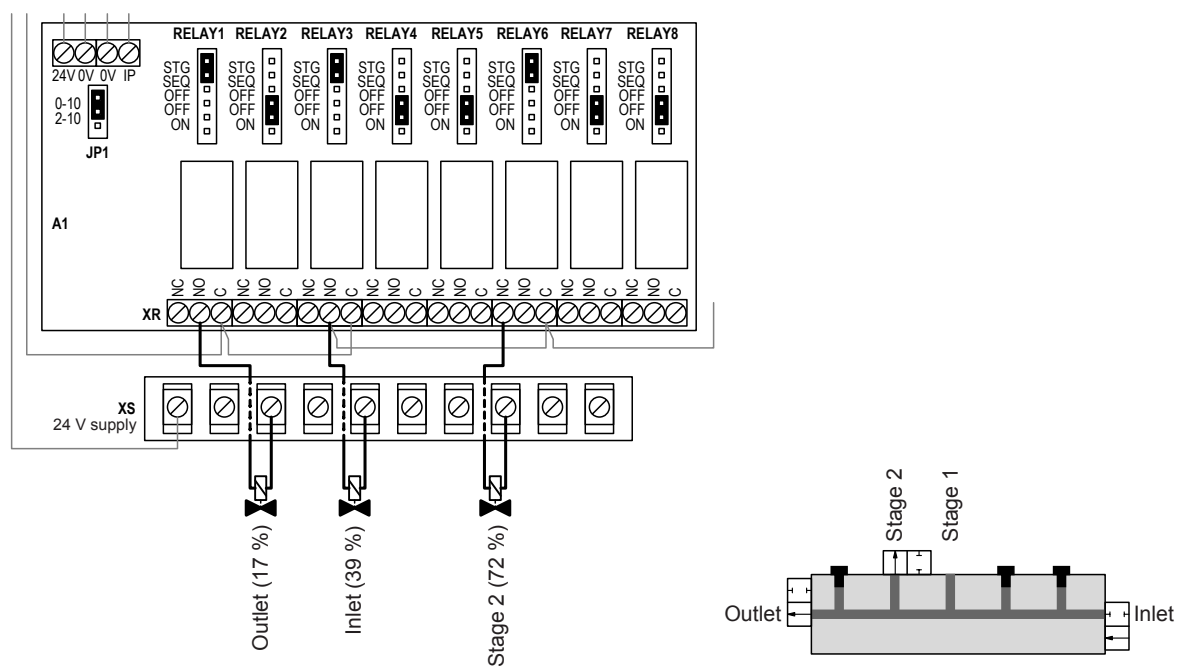
Note: for the connection of the available options please refer to the installation and operating manual of the corresponding option. The safety monitoring of the operation of the humidification/cooling system via a safety chain (max. humidity monitor, air flow monitor, etc.) is the responsibility of the client.

| Power supply   |  |
|--|--|
|   | <p>Connect <b>power supply</b> 230 V/1~/50...60 Hz in accordance with the wiring diagram, to the <b>terminal block “XE1”</b> in the control unit. The customer is to install a <b>mains disconnecter switch Q</b> (all pole disconnecting device with a minimum contact opening of 3 mm) and a <b>fuse “F1”</b> (10 A fast acting) in the supply line (these are both essential requirements).</p> <p>The cross-section of the mains cable must comply with the applicable local regulations (minimum 1.5 mm<sup>2</sup>).</p> |
| Control Signal   |  |
|  | <p>Connect an <b>external controller</b> to the corresponding terminals (0V= “-”, IP= “+”) on the IO board.</p> <p>Admissible control signals are 0-10VDC or 2-10VDC selctable via the Jumper JP1 on the IO board.</p>   |

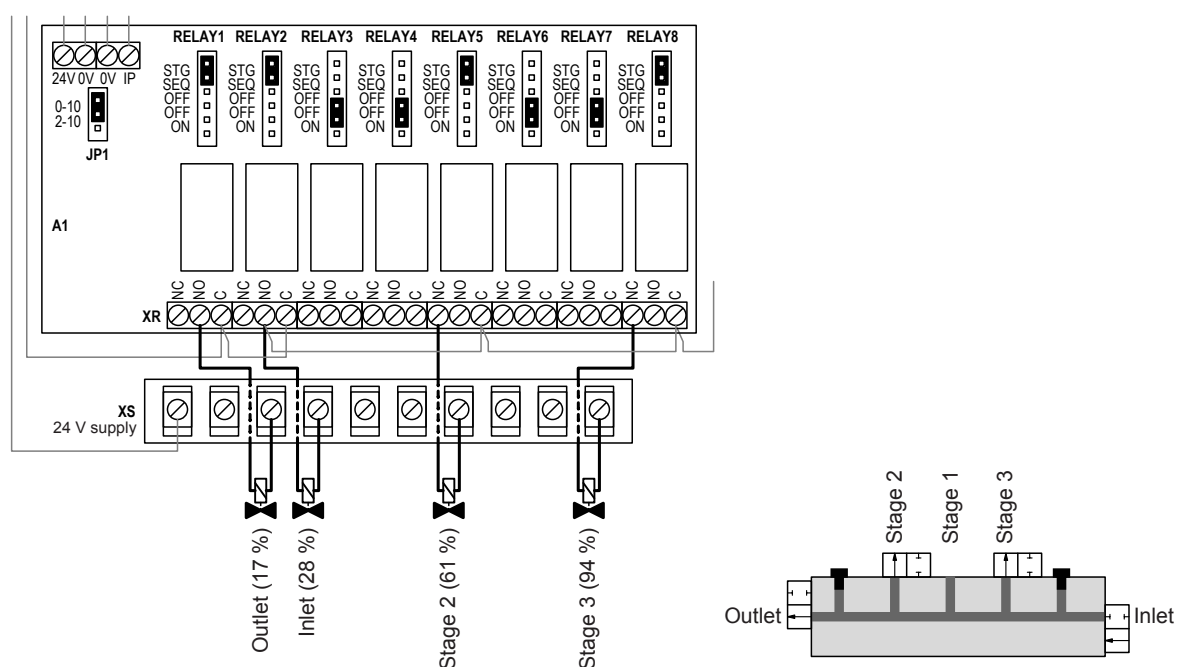
## Connecting the valves of the Hydraulic Module

Note: Relay 1 to 8 on the IO board are switched dependent on the percentage of the demand signal. For this reason the valves must be connected to the control unit according to the corresponding stage control diagram and the relays on the IO board must be configured accordingly via the corresponding jumpers.

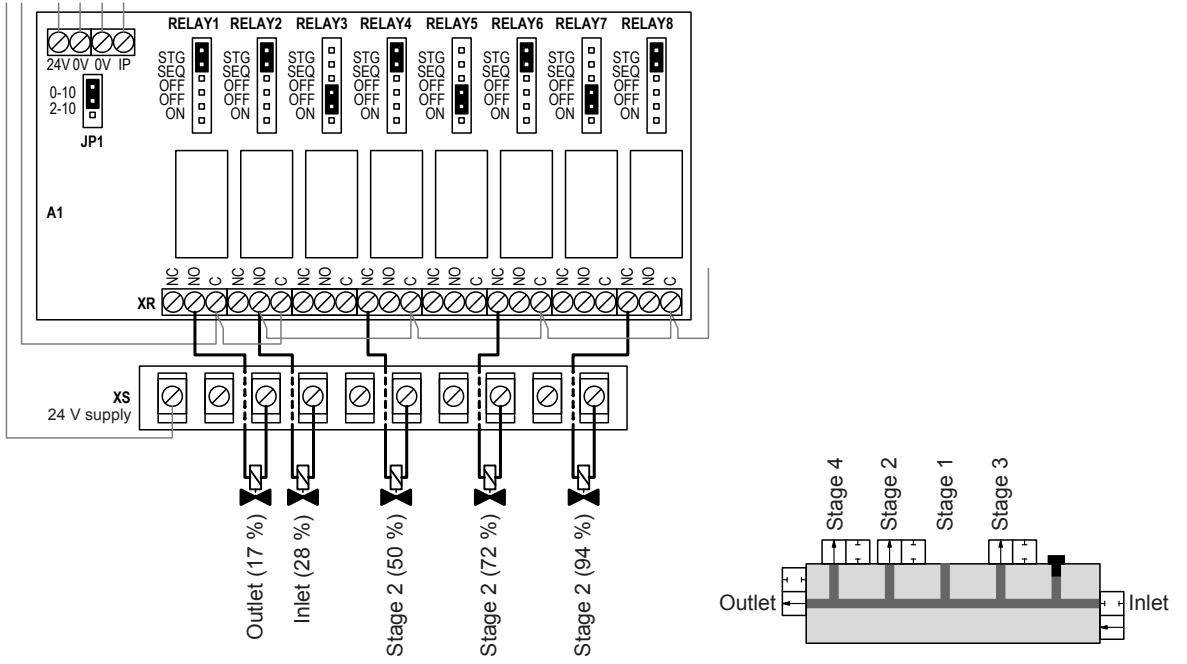
### – Wiring and Jumper settings 2 stage control



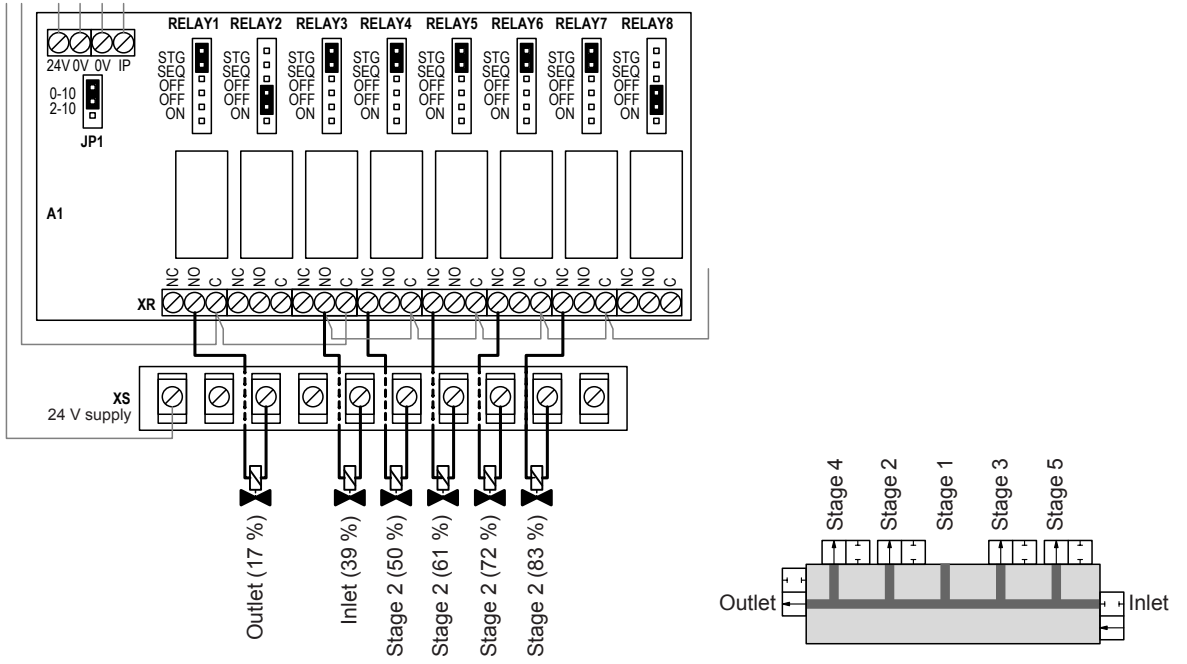
### – Wiring and Jumper settings 3 stage control



**– Wiring and Jumper settings 4 stage control**



**– Wiring and Jumper settings 5 stage control**



### 4.6.3.3 Wiring diagram Condair ME Direct Feed System with On/Off control

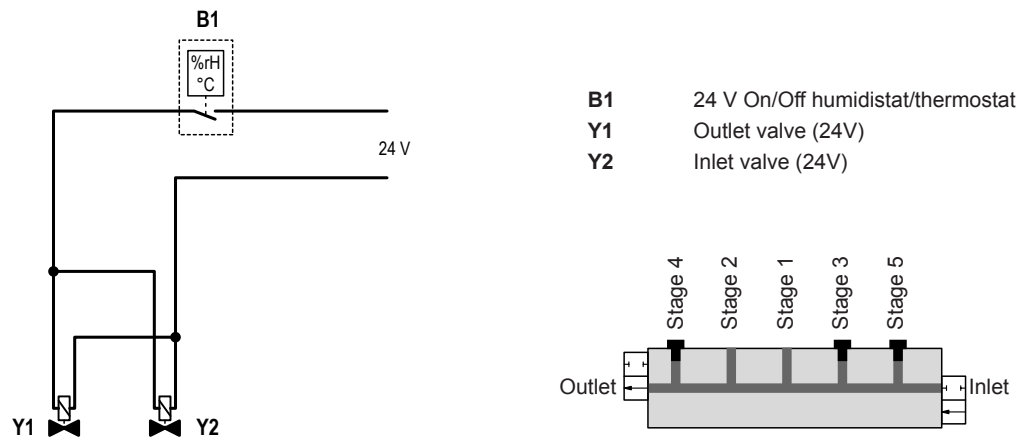


Fig. 28: Wiring diagram Condair ME Direct Feed System with On/Off control



# 5 Appendix

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## 5.1 Dimensions and Weights Evaporator Module

Remark: Table or formula must be supplied by JS or Condair AG

## 5.2 Component Dimensions

Remark: Dimensional drawings will be added after receiving final CAD drawings of the components





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