

MultiMAXX[®] HX

OPERATION MANUAL



Type Code

MultiMAXX

Fig. 1-1 Unit code

H X 1 1 U W A R A B J K D

Model size

- 1 = Model size 1
- 2 = Model size 2
- 3 = Model size 3
- 4 = Model size 4

Capacity stage

- 1 = Capacity stage 1
- 2 = Capacity stage 2
- 3 = Capacity stage 3
- 4 = Capacity stage 4

Air-flow function

- U = Recirculating-air unit
- M = Mixed-air unit

Medium function

- S = Only heating/steam
- W = Only heating/PWW, PHW
- V = Heating/cooling with condensate drain*

Heat exchanger

- A = Cu/Al max. 130 °C
1.6 MPa - fin spacing 2.5 mm
- C = Cu/Cu max. 130 °C
1.6 MPa - fin spacing 3 mm
- R = Fully galvanized, circular finned pipe;
1.6 MPa - fin spacing 4 mm
- S = Galvanized steel, elliptic Finned tube;
1.6 MPa - fin spacing 3 mm
- T = Galvanized steel, elliptic Finned tube;
1.6 MPa - fin spacing 6 mm
- X = Fully galvanized, elliptic Finned tube;
1.6 MPa - fin spacing 3 mm
- Y = Fully galvanized, elliptic Finned tube;
1.6 MPa - fin spacing 6 mm
- E = Stainless steel, circular finned pipe
1.6 MPa - fin spacing 2.8 mm

Coil connection (front view)

- O = from top
- R = from right
- L = from left

Heat exchanger connection

- A = External screw thread
- O = Without screw thread connection

Outlet

- B = Basis - wall
- V = Four sides, ceiling
- K = Flange
- L = Deflection louvre, ceiling/wall, only heating
- P = Profile ceiling/wall
- A = Outlet nozzle, ceiling
- T = Gate nozzle
- Z = Basic ceiling two sides
- O = Without outlet

Motor/speeds

- J = 3x400V 2-speed - upper speed range - II 2G Ex h IIB T4/T3 Gb
- L = 3x500V 2-speed - upper speed range - II 2G Ex h IIB T4/T3 Gb
- Only model size 2 and:**
- M = 3x400V 1-speed - low air volume - II 2G Ex h IIB+H2 T4/T3 Gb
- N = 3x400V 1-speed - high air volume - II 2G Ex h IIB+H2 T4/T3 Gb
- O = 3x500V 1-speed - low air volume - II 2G Ex h IIB+H2 T4/T3 Gb
- P = 3x500V 1-speed - high air volume - II 2G Ex h IIB+H2 T4/T3 Gb

Electric equipment

- K = Terminal box
- S = Fan isolator

Design

- D = Industrial configuration RAL 7000
- E = Complete unit in stainless steel industrial configuration

Fig. 1-2 Accessories Code

Z H X X X X X X

Model size

- 1 = Model size 1
- 2 = Model size 2
- 3 = Model size 3
- 4 = Model size 4

Air-intake modules

- 20 = Mixed-air module, type 1
- 21 = Mixed-air module, type 2
- 23 = Outside air blocking damper
- 25 = Flexible connection
- 26 = Rectangular duct 150
- 27 = Rectangular duct 1000
- 28 = Duct bend 90°, symmetrical
- 29 = Duct bend 90°, asymmetrical
- 31 = Wall air-intake hood
- 32 = External weather grille
- 34 = Duct through slanted roof
- 35 = Roof air-intake hood
- 36 = Bag-filter module
- 38 = Space bag filter for 35xx
- 39 = Space bag filter for 36xx
- 49 = Roof duct with flat roof-duct base
- 51 = Frame for wall connection
- 52 = Flange (for recirculating-air units)

Additional modules and mounting brackets

- 53 = Compact C Wall
- 55 = Modular (for wall mounting)
- 56 = Ceiling suspension

Material/Design

- 4 = Galvanized steel/EEExd configuration
- 5 = Stainless steel/EEExd configuration

Actuators for louvers and mixed-air modules

- 0 = With actuator on site
(shaft diameter = 15.5 mm)
- 1 = Manual adjustment
- 8 = Actuator 230 V - Zone 1

If required, filter insert/electrical equipment

- 0 = without
- 5 = with filter

Model 55 Modular suspension with types

- | | |
|-------------------------|--|
| 0 = without accessories | 7 = 25+23+51 |
| 1 = 25+20+51 | 8 = 25+36+23+51 |
| 2 = 25+36+20+51 | A = 26+36 |
| 4 = 25+21+29+51 | C = 25+28 (+49...) |
| 5 = 25+36+21+29+51 | W = without accessories for units with vertical outlet |

Configuration 56 ceiling suspension

- 0 = Installation without threaded rod
- 1 = Kit with threaded rod 1 m
- 2 = Kit with threaded rod 2 m
- 3 = Mounting kit with threaded rod 3 m

* Only motor configuration M, O possible with cooling units (model size 2, 4)

Table of Contents

| | |
|--|-----------|
| 1 Type Code | 2 |
| 2 Table of Contents | 3 |
| 3 Safety and User Information | 5 |
| 3.1 Availability of the operation manual | 5 |
| 3.2 Scope of application of the operation manual | 5 |
| 3.3 Icons used | 5 |
| 3.4 Safety-conscious work procedures | 6 |
| 3.5 Proper use | 7 |
| 3.6 Safety regulations and codes | 8 |
| 3.7 Modifications and changes | 8 |
| 3.8 Spare parts | 8 |
| 3.9 Selection and qualification of personnel | 8 |
| 4 Technical Description | 9 |
| 4.1 Basic unit components | 9 |
| 4.2 Material specification | 9 |
| 4.3 Unit setup | 10 |
| 4.4 Operating conditions | 10 |
| 4.5 Unit operating limits | 11 |
| 4.6 Unit dimensions and arrangement of heat exchanger connecting spigots | 12 |
| 4.7 Heat exchanger connections | 14 |
| 4.8 Unit weight and water charge of heat exchanger | 14 |
| 4.9 Sound and electric data | 15 |
| 4.10 Air side accessories | 16 |
| 4.11 Commission Regulation (EU) 2016/2281 (Lot 30) November 2016 | 17 |
| 5 Shipping and storage | 18 |
| 5.1 Transport | 18 |
| 5.2 Shipping and handling of the unit | 18 |
| 5.3 Storage | 19 |
| 6 Assembly | 20 |
| 6.1 Load-bearing capacity of the installation site | 20 |
| 6.2 Ceiling installation | 20 |
| 6.3 Wall installation | 21 |
| 6.4 Safety clearance | 23 |
| 6.5 Unit mounting | 23 |
| 7 Medium connection | 26 |
| 7.1 Pipe connections | 26 |
| 7.2 Heating medium supply | 26 |
| 7.3 Dimensions of heat exchanger connections | 26 |
| 7.4 Connecting condensate drain | 27 |
| 8 Electrical connection | 28 |
| 8.1 Connection diagrams | 28 |
| 8.2 Terminal box/fan isolator | 29 |
| 8.3 Motor terminal diagram for 2-stage three-phase external rotor motor - II 2G Ex h IIB T4/T3 Gb (motor version J, L) | 29 |
| 8.4 Motor terminal diagram for 1-step three-phase standard motor M, N (3 x 400 V), O, P (3 x 500 V), unit designation II 2G Ex h IIB+H2 T4/T3 Gb | 32 |
| 8.5 Frost protection monitoring of outdoor air unit and connecting damper actuator | 34 |
| 8.6 Wiring diagram for shut-off valve | 34 |
| 8.7 Wiring diagram for shut-off valve and safety thermostat | 34 |
| 8.8 Installation of control unit and its connection | 35 |

| | |
|---|-----------|
| 9 Commissioning | 37 |
| 9.1 Pre-commissioning requirements | 37 |
| 9.2 Vent the unit | 38 |
| 9.3 Checking condensate drain | 38 |
| 9.4 Function check of frost protection (frost protection thermostat only with mixed-air units) | 38 |
| 9.5 Profile outlet | 38 |
| 9.6 Operation | 39 |
| 9.7 Operating instructions | 39 |
| 9.8 Decommissioning | 39 |
| 10 Maintenance and Troubleshooting | 40 |
| 10.1 Maintenance | 40 |
| 10.2 Cleaning heat exchanger | 41 |
| 10.3 Quarterly maintenance | 42 |
| 10.4 Before cooling season | 43 |
| 10.5 Troubleshooting | 44 |
| 11 Dismantling and Disposal | 45 |
| 11.1 Dismantling | 45 |
| 11.2 Recycling | 45 |
| 12 EC Declaration of Conformity | 47 |

1 Safety and User Information

This is an original operating manual from the manufacturer.

MultiMAXX HX air heaters are developed and manufactured in accordance with the current state of the art and the recognised safety standards and directives and comply with the EC Machinery Directive.

MultiMAXX HX air heaters are reliable units to meet a high quality standard. Future-oriented technology and pronounced operator and maintenance friendliness were combined in this product series.

Nevertheless, all unit heaters could pose unavoidable residual risk of injury or risk of equipment or property-damage only accidents. Therefore your personal safety and the proper operation of the unit depend on the strict observance of the safety instructions. Failure to follow the safety precautions could result in death, serious injury, environmental damage and/or considerable property damage.

Observing the safety instructions in the current operation manual will help avoid the risks, ensure economical operation of the unit and let you enjoy the full benefits of the product.

The safety aspects covered by this chapter are valid for the entire operation manual.

1.1 Availability of the operation manual

The given operation manual contains important information on the safe and proper use of the MultiMAXX HX.

This operation manual must be available at the installation site of the unit at all times. Anyone who works with or on the unit must read and observe this operation manual.

The operation manual is intended for use by fitting and installation companies, building services engineers, technical personnel or trained persons as well as electrical and air-conditioning engineering specialists.

1.2 Scope of application of the operation manual

This operation manual provides critical information about the following:

- Transport, assembly, installation, electrical connection, medium connection, commissioning, operation, maintenance, cleaning and disposal

1.3 Icons used

The following icons are used to highlight specific text sections in this operation manual:

- Indicates text paragraphs
- Indicates work steps.
- ✓ Indicates process results.



User instructions!

Here you will find additional information on the use of the MultiMAXX HX air heater and its economical handling.



Recycling!

This symbol is used to highlight instructions on proper reuse of packaging material and disused assembly groups (separated according to recyclable materials). To designate the safety instructions the following symbols and notices are provided in appropriate places throughout the user document.



Danger of electrical current!

This icon indicates a risk of accident due to electric shock.

**Risk of personal injury!**

This section specifies procedures and precautions for preventing personal injury.

**Danger due to overhead loads!**

This icon warns about personal injury and damage caused by overhead loads and suspended heavy objects.

**Danger of hot surfaces!**

This section specifies procedures and precautions for preventing personal injury resulting from contact with hot surfaces.

**DANGER – SHARP CUTTING EDGES!**

This section specifies procedures and precautions for preventing personal injury resulting from cuts caused by sheet metal.

**High pressure hazard!**

This section specifies procedures and precautions for preventing personal injury resulting from high pressure.

**Risk of rotating components!**

This section specifies procedures and precautions for preventing personal injury resulting from rotating unit components.

**Danger of hot media!**

This section specifies procedures and precautions for preventing personal injury resulting from contact with a hot medium.

**Danger of inflammable materials!**

This section specifies procedures and precautions for preventing personal injury resulting from fire hazard.

**Environmental Damage!**

This symbol warns about damage to the environment and turns attention to all existing national environmental protection regulations.

**Damage to the unit!**

Here you will find special instructions and prohibitions to avoid damage to the MultiMAXX HX air heater.

1.4 Safety-conscious work procedures

Observe the following instructions during installation, configuration, repair and maintenance tasks:

**Danger of electrical current!**

Disconnect all electric power of the unit and ensure that the power cannot be inadvertently switched on; earth, short-circuit, and block off all neighboring live parts. Non-compliance can lead to death or serious injury.

**Danger of hot media!**

Before you start working on the valves and medium connections, ensure the inlet line is isolated. Thus possible injury can be prevented. Begin your work only after heating medium has cooled down.



Risk of rotating components!

Danger resulting from rotating parts such as fans! Switch off the power supply before you start working. Power supply connections of the unit must be voltage-free and secured against unintentional switching on.

1.5 Proper use

Units must be operated in accordance with EU 1253/2014.

The MultiMAXX HX air heaters are designed for heating, cooling ventilating and filtering of indoor and outdoor air in industrial buildings of explosion risk area of zone 1. Units can be marked II 2G Ex h IIB T4/T3 Gb according to EN 14986 ed.2, EN ISO 80079-36, EN ISO 80079-37, EN IEC 60079-0 ed.5, EN 60079-7 ed.3 or II 2G Ex h IIB+H2 T4/T3 Gb according to EN 14986 ed.2, EN ISO 80079-36, EN 13463-3, EN IEC 60079-0 ed.5, EN 60079-1 ed.3. Filters, mixed-air and air intake modules, suspension sets, control units and control devices can be supplied as optional accessories.

Intended use also includes observance of the operation manual and the maintenance and care instructions prescribed by FläktGroup.

For the operation of Cu/Al (Cu/Cu) heat exchangers, the following limit values for media must be observed:

| Parameters | | Unit | Value |
|-------------------------|-------------------------------------|-------|----------------|
| pH value (at 20 °C) | | | 7.5 - 9 |
| Conductivity (at 20 °C) | | µS/cm | < 700 |
| Oxygen content | O ₂ | mg/l | < 0.1 |
| Total hardness | | °dH | 1 - 15 |
| Dissolved sulphur | S | | not detectable |
| Sodium | Na ⁺ | mg/l | < 100 |
| Iron | Fe ²⁺ , Fe ³⁺ | mg/l | < 0.1 |
| Manganese | Mn ²⁺ | mg/l | < 0.05 |
| Ammonium content | NH ₄ ⁺ | mg/l | < 0.1 |
| Chloride | Cl ⁻ | mg/l | < 100 |
| Sulphate | SO ₄ ²⁻ | mg/l | < 50 |
| Nitrite | NO ₂ ⁻ | mg/l | < 50 |
| Nitrate | NO ₃ ⁻ | mg/l | < 50 |

Tab. 1-1: Limit values of the medium in the closed heating and cooling circuit



Damage to the unit!

In open systems (e.g. when using well water), the limit values specified in the table 1-1 must be adhered to. If the limit values are exceeded, a filter must be installed to clean the medium. Otherwise there is a risk of erosion due to sediments contained in the medium.

At the same time the unit must be protected against dust and other elements that can result in acidic or alkaline reaction with water (aluminium corrosion).

Improper use

Any use other than that described above is considered **improper**. The manufacturer/supplier is not liable for any damages arising from improper use. The user alone bears the risk.

**Risk of personal injury!**

It is prohibited to operate MultiMAXX HX:

- in rooms with high dust or moisture content
- in rooms with strong electromagnetic fields
- in rooms with aggressive atmosphere

The following accident prevention regulations are valid (VBG1, BGV A2 (previously: VBG4), VBG7w, VBG9a) and generally recognized codes for machinery and principles of engineering, in particular DIN VDE 0100, DIN VDE 0105.

1.6 Safety regulations and codes

While performing assembly, electric installation, commissioning, maintenance and service of the MultiMAXX units relevant national safety regulations and codes as well as generally established technical practices must be considered.

- EN 13501-1 Classification of construction products and building elements in relation to their reaction to fire - Part 1: Classification using the results of the reaction to fire tests for construction products
- EN 60079-14 ed. 4 Electrical apparatus for explosive gas atmospheres - Part 14: Electrical installations for hazardous areas (except mines).

1.7 Modifications and changes

Do not attempt to modify, add components, or convert the MultiMAXX HX air heater in any way.

Changes or modifications of unit heater will invalidate the CE conformity and render all warranty claims as null and void.

1.8 Spare parts

Only original FläktGroup spare parts are allowed, since FläktGroup is not liable if third-party spare parts are used.

1.9 Selection and qualification of personnel

**User instructions!**

Every person charged with working on the MultiMAXX HX unit must have read and understood this operation manual in full. It is too late to do this after work has already begun.

Electrical and water connections must be established by qualified licensed staff or other individuals with proper professional training and experience in the following areas:

- Occupational health and safety regulations
- Accident prevention regulations
- Guidelines and recognized codes for technical practice and engineering

All skilled staff must be able to assess the entrusted work and be able to recognize and avoid all associated dangers.

2 Technical Description

2.1 Basic unit components

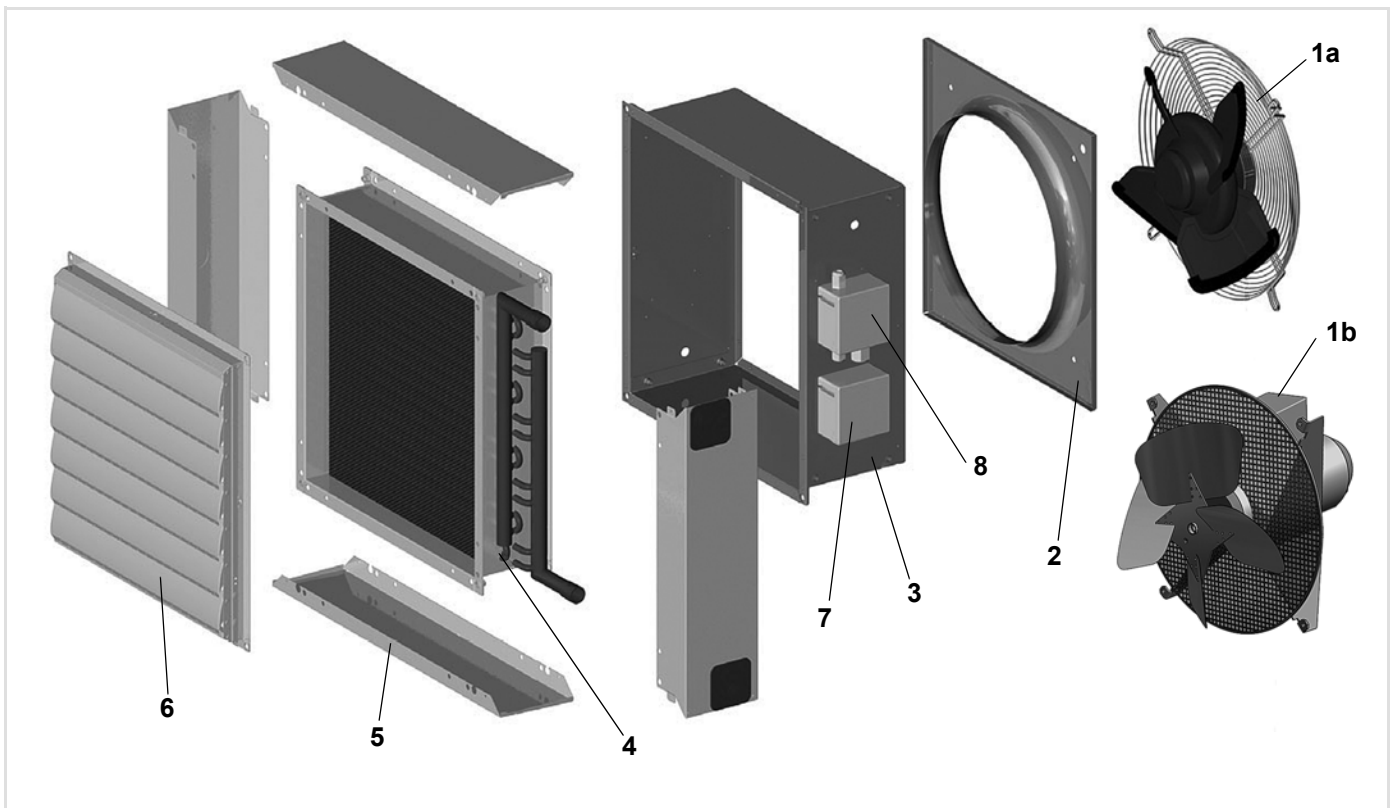


Fig. 2-1: Basic unit components

- Pos. 1a: Fan with contact protection grille - II 2G Ex h IIB T4/T3 Gb
 Pos. 1b: Fan with contact protection grille - II 2G Ex h IIB+H2 T4/T3 Gb
 Pos. 2: Intake nozzle
 Pos. 3: Fan module with terminal box
 Pos. 4: Heat exchanger

- Pos. 5: Unit casing
 Pos. 6: Discharge - base wall (optional)
 Pos. 7: Frost protection thermostat (optional)
 Pos. 8: Terminal box (optional)

2.2 Material specification

| Unit part | Material |
|------------------------------------|--|
| Fan with contact protection grille | Various materials |
| Intake nozzle | Galvanized sheet steel or galvanized sheet steel with paint finish |
| Fan module | Galvanized metal sheet or stainless steel |
| Wärmetaucher | Cu/Cu or Cu/Al or Fe/Fe |
| Unit casing | Galvanized metal sheet or stainless steel |
| Outlet | Galvanized sheet steel or stainless steel or aluminium fins and galvanized sheet steel or aluminium fins and stainless steel |
| Frost-protection thermostat | Various materials |
| Terminal box | Various materials |
| Condensate tray | Stainless steel |

Tab. 2-1: Material specification of unit components

2.3 Unit setup

The configuration of the MultiMAXX HX units comprises a fan, heat exchanger and casing performed in metal sheet or painted metal sheet. The discharge side is fitted with an optional discharge louvre. The axial fan is fitted on the rear side and is equipped with a contact protection grille as of EN ISO 13857.

M8 nuts are riveted on the sides of the fan chamber (4 on each side) and are used to secure the unit with brackets or suspensions on the wall or below the ceiling.

With cooling units make sure that the fan is not running and the supply of cooling medium is shut off (in order to prevent condensation in places that are not fitted with a drain pan).

For connecting air supply or cleaning accessories a flange must be mounted on the rear side.

Units with a cooling function are equipped with a drain pan with a free drainage below the unit (discharge hose with 17mm internal diameter).

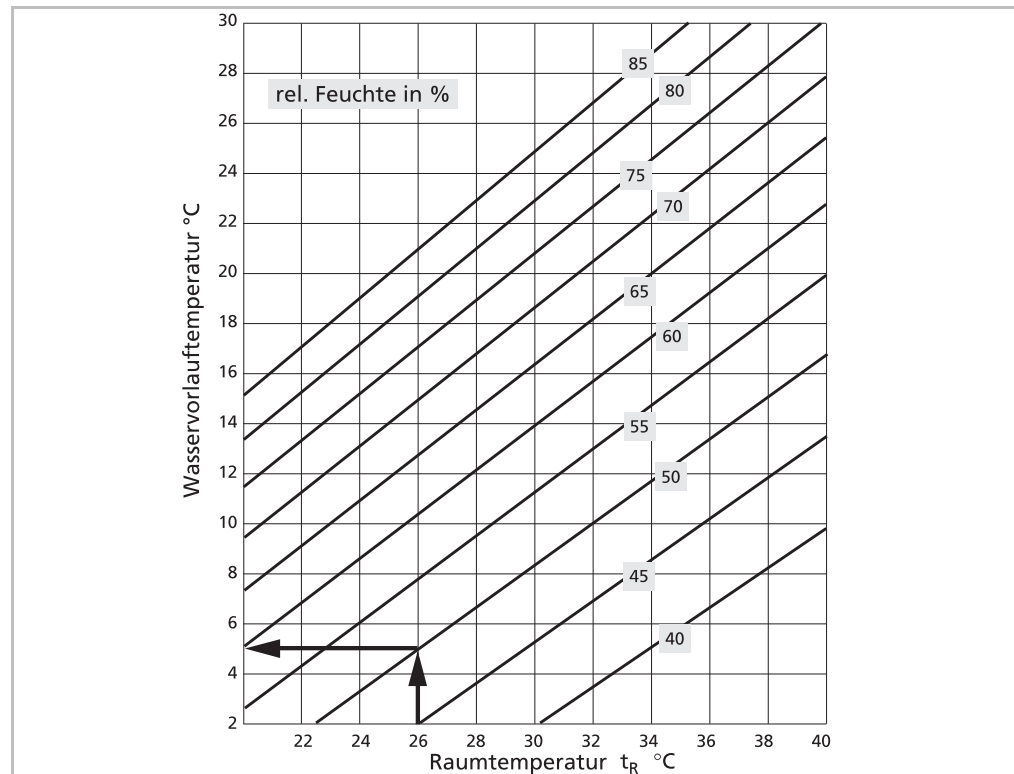
2.4 Operating conditions

Heating media The unit is not designed for a medium that can damage or destroy the surface coating as a result of corrosion, chemical reaction, abrasion or other similar effects. Only non-corrosive and non-combustible liquids or steam must be used as a heating medium.

Operating temperature The maximum permissible operating temperatures of the heating media are given in Table 2-2.

Cooling medium To prevent condensate from forming on non-insulated casing parts when the temperature falls below the dew point during cooling operation, certain minimum inlet temperatures must be maintained. These are dependent on the temperature and relative humidity of the indoor air and are presented in Diag. 2-1.

For example, at room temperature of +26°C and relative humidity of 50% the medium inlet temperature should not fall below +5°C.



Diag. 2-1 Temperature and relative humidity

2.5 Unit operating limits

Operating limits for heat exchanger

| Function (unit type code) | W (V) | S | W (V) | S | Design | Maximum air inlet tem- perature | Ac- ces- sory |
|------------------------------|-------------------------|-------------------------|----------------------------|----------------------------|---------|---------------------------------------|---------------------|
| Heating medium | Water | Steam | Water | Steam | | | |
| Fan (unit type code) | J, L | J, L | M, N, O, P | M, N, O, P | | | |
| Designation | II 2G Ex h IIB T4 Gb | II 2G Ex h IIB T3 Gb | II 2G Ex h IIB+H2 T4 Gb | II 2G Ex h IIB+H2 T3 Gb | | | |
| Without valve | 90°C | - | 90°C | - | Ceiling | 40°C | No |
| with valve | 130°C | - | 130°C | 175°C | | 40°C | |
| Without valve | 90°C | - | 90°C | - | Wall | 40°C | |
| with valve | 130°C | 130°C | 130°C | 180°C | | 40°C | |
| with valve | - | 144°C | - | - | | 30°C | |
| Without valve | - | - | - | - | Ceiling | 40°C | |
| with valve | 100°C | - | 108°C | 130°C | | 40°C | |
| Without valve | 90°C | - | 90°C | - | Wall | 40°C | |
| with valve | 100°C | 100°C | 108°C | 130°C | | 40°C | |

Tab. 2-2: Operating limits for heat exchanger



User instructions!

Mixed-air units must always be fitted with a valve to shut off the medium.

Maximum unit surface temperature

The maximum surface temperature mostly depends on the temperature of circulated heating medium, unit configuration and mounting position (wall/ceiling). Therefore the maximum inlet temperature must not be exceeded (Tab.2-2).



User instructions!

All other important information about unit capacity, weights, connections and sound power is specified in the „Technical data - MultiMAXX HX“

| | | |
|--------------------|------------------------------------|------------------------------------|
| Unit heater | Max. allowed ambient temperature | -20°C to +40°C |
| | Max. allowed inlet temperature | -20°C to +40°C* |
| | Operating voltage | 3 x 400 V or 1 x 500 V ~ 50 Hz |
| | Protection class | IP 54 |
| | Max. relative air humidity | 95% at 25°C |
| | Corrosion resistance class | C3 - EN ISO 12944-2 |
| | Max. dust concentration in the air | 10 mg / m ³ |
| | Power consumption | refer to unit identification plate |

* If it is not possible to maintain the maximum air inlet temperature (+40°C), a safety thermostat (e.g. 902 017) must be installed to shut off the medium by closing the valve if the maximum air inlet temperature is exceeded. Units with a mounted safety thermostat can be supplied extra, if a customer requests this configuration.

2.6.2 Medium technical function S (heating - steam)

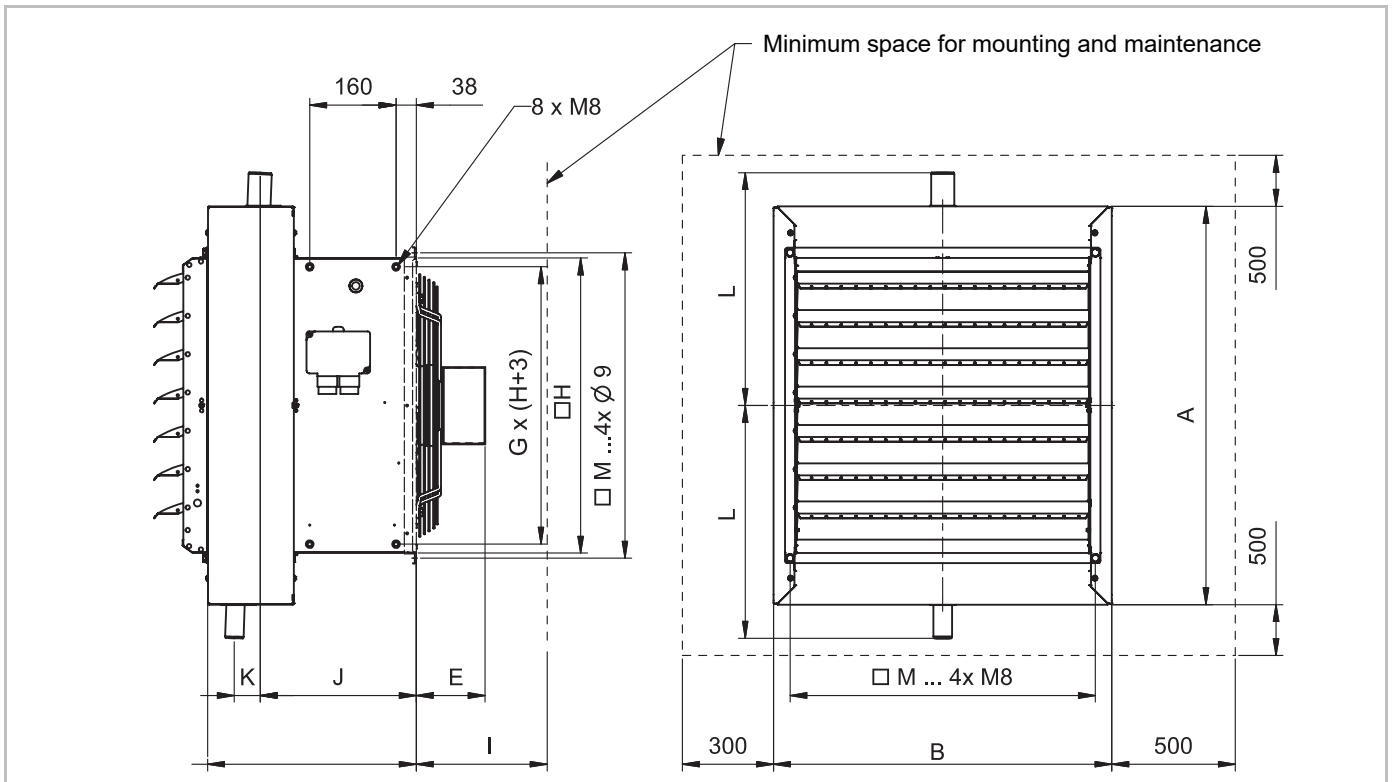


Fig. 2-3: Dimension of unit heater and arrangement of heat exchanger connection fittings - only steam heating

Table with unit dimensions for configuration:

S – only heating/steam

| Dimensions / unit size | 1 | 2 | 3 | 4 |
|-----------------------------------|-----|-----|-----|------|
| A | 642 | 738 | 866 | 1026 |
| B | 520 | 616 | 744 | 904 |
| C | 386 | 386 | 386 | 452 |
| E (for motor J, L) | 120 | 120 | 140 | 140 |
| E (for motor M, N, O, P) | - | 223 | - | 250 |
| G | 418 | 514 | 642 | 802 |
| H | 451 | 547 | 675 | 835 |
| I (for motor J, L) | 300 | 300 | 400 | 400 |
| I (for motor M, N, O, P) | - | 450 | - | 550 |
| J | 291 | 290 | 288 | 350 |
| K | 41 | 45 | 49 | 55 |
| L (for Fe/Fe Zn, stainless steel) | 361 | 409 | 483 | 553 |
| M | 470 | 566 | 694 | 854 |

Tab. 2-4: Unit dimensions

2.7 Heat exchanger connections

| Model size | | 1 | | | | 2 | | | | 3 | | | | 4 | | | |
|-------------------------------|--|------|------|---|---|------|----|---|---|--------|----|----|----|--------|----|----|----|
| Rows | | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 |
| Pipe connections | | | | | | | | | | | | | | | | | |
| Heat Exchanger C, A | Threaded pipe (external thread) | G 1" | | | | | | | | G 5/4" | | | | | | | |
| | Smooth bore pipe external \varnothing d [mm] | 22 | | | | 22 | 28 | | | 22 | 28 | 35 | 28 | 28 | 35 | 42 | 35 |
| Heat Exchanger R, S, X | Threaded pipe (external thread) | G 1" | - | - | - | G 1" | - | - | - | G 5/4" | - | - | - | G 5/4" | - | - | - |
| | Smooth bore pipe external \varnothing d [mm] | 33,8 | - | - | - | 33,8 | - | - | - | 42,4 | - | - | - | 42,4 | - | - | - |
| Heat Exchanger T, Y | Threaded pipe (external thread) | G 1" | - | - | - | G 1" | - | - | - | G 5/4" | - | - | - | G 5/4" | - | - | - |
| | Smooth bore pipe external \varnothing d [mm] | 33,8 | - | - | - | 33,8 | - | - | - | 42,4 | - | - | - | 42,4 | - | - | - |
| Heat Exchanger E | Threaded pipe (external thread) | - | G 1" | - | - | G 1" | - | - | - | G 5/4" | - | - | - | G 5/4" | - | - | - |
| | Smooth bore pipe external \varnothing d [mm] | - | 33,8 | - | - | 33,8 | - | - | - | 42,4 | - | - | - | 42,4 | - | - | - |

Tab. 2-5: Water connections

2.8 Unit weight and water charge of heat exchanger

| Unit size | Weight including heat exchanger | | | Water charge of heat exchanger | |
|-----------|---------------------------------|-------|---------|--------------------------------|---------|
| | Cu/Al | Cu/Cu | Fe/FeZn | Cu/Al and Cu/Cu | Fe/FeZn |
| | kg | kg | kg | kg | kg |
| HX11 | 28 | 30 | 53 | 1.0 | 3.8 |
| HX12 | 29 | 33 | 74 | 1.7 | 7.2 |
| HX13 | 31 | 36 | - | 2.5 | - |
| HX14 | 33 | 39 | - | 3.2 | - |
| HX21 | 36 | 37 | 69 | 1.3 | 5.2 |
| HX22 | 38 | 42 | 96 | 2.4 | 10.1 |
| HX23 | 40 | 46 | - | 3.4 | - |
| HX24 | 42 | 50 | - | 4.3 | - |
| HX31 | 51 | 54 | 100 | 1.8 | 7.4 |
| HX32 | 54 | 60 | 139 | 3.5 | 14.4 |
| HX33 | 58 | 67 | - | 5.3 | - |
| HX34 | 61 | 73 | - | 6.3 | - |
| HX41 | 75 | 80 | 144 | 3.0 | 10.7 |
| HX42 | 80 | 90 | 198 | 5.6 | 20.9 |
| HX43 | 85 | 99 | - | 8.4 | - |
| HX44 | 91 | 109 | - | 9.9 | - |

Tab. 2-6: Weight including basic outlet and 2-speed Motor fan

2.9 Sound and electric data

| Model size | Speed | | Sound power level (dB) | | | | | | | | A-rated sum level | | Max. Power consumption kW | Max. Current consumption A |
|--|-------|------|------------------------------|-----|-----|-----|------|------|------|------|-------------------|-----------------------|---------------------------|----------------------------|
| | | | Octave medium frequency (Hz) | | | | | | | | Sound power dB(A) | Sound pressure* dB(A) | | |
| | Speed | RPM | 63 | 125 | 250 | 500 | 1000 | 2000 | 4000 | 8000 | | | | |
| II 2G Ex h IIB T4/T3 Gb - Motor J (3 x 400 V) | | | | | | | | | | | | | | |
| 1 | 2 | 1420 | 54 | 64 | 70 | 65 | 67 | 65 | 61 | 54 | 71 | 55 | 0,14 | 0,48 |
| | 1 | 1230 | 58 | 69 | 65 | 61 | 62 | 61 | 57 | 48 | 67 | 51 | 0,12 | 0,28 |
| 2 | 2 | 1390 | 62 | 74 | 76 | 69 | 69 | 69 | 66 | 59 | 75 | 59 | 0,29 | 0,80 |
| | 1 | 1130 | 64 | 65 | 97 | 64 | 65 | 65 | 61 | 54 | 70 | 54 | 0,23 | 0,46 |
| 3 | 2 | 910 | 79 | 67 | 73 | 68 | 67 | 67 | 64 | 56 | 73 | 57 | 0,31 | 0,87 |
| | 1 | 730 | 62 | 70 | 65 | 62 | 63 | 63 | 59 | 50 | 69 | 52 | 0,23 | 0,50 |
| 4 | 2 | 890 | 78 | 75 | 85 | 74 | 73 | 70 | 67 | 60 | 80 | 63 | 0,44 | 0,99 |
| | 1 | 690 | 67 | 84 | 73 | 73 | 68 | 66 | 62 | 55 | 75 | 59 | 0,32 | 0,57 |
| II 2G Ex h IIB T4/T3 Gb - Motor L (3 x 500 V) | | | | | | | | | | | | | | |
| 1 | 2 | 1440 | 54 | 64 | 70 | 65 | 67 | 65 | 61 | 54 | 71 | 55 | 0,17 | 0,48 |
| | 1 | 1290 | 58 | 69 | 65 | 61 | 62 | 61 | 57 | 48 | 67 | 51 | 0,12 | 0,28 |
| 2 | 2 | 1400 | 62 | 74 | 76 | 69 | 69 | 69 | 66 | 59 | 75 | 59 | 0,33 | 0,64 |
| | 1 | 1130 | 64 | 65 | 67 | 64 | 65 | 65 | 61 | 54 | 70 | 54 | 0,25 | 0,37 |
| 3 | 2 | 900 | 79 | 67 | 73 | 68 | 67 | 67 | 64 | 56 | 73 | 57 | 0,33 | 0,71 |
| | 1 | 730 | 62 | 70 | 65 | 62 | 63 | 63 | 59 | 50 | 69 | 52 | 0,24 | 0,41 |
| 4 | 2 | 870 | 78 | 75 | 85 | 74 | 73 | 70 | 67 | 60 | 80 | 63 | 0,50 | 0,80 |
| | 1 | 660 | 67 | 84 | 73 | 73 | 68 | 66 | 62 | 55 | 75 | 59 | 0,34 | 0,46 |
| II 2G Ex h IIB+H2T4/T3 Gb - Motor M (3 x 400 V) | | | | | | | | | | | | | | |
| 2 | 1 | 930 | 63 | 59 | 68 | 61 | 61 | 58 | 53 | 43 | 66 | 49 | 0,18 | 0,64 |
| 4 | 1 | 700 | 72 | 77 | 76 | 71 | 65 | 61 | 56 | 49 | 73 | 56 | 0,18 | 0,71 |
| II 2G Ex h IIB+H2T4/T3 Gb - Motor O (3 x 500 V) | | | | | | | | | | | | | | |
| 2 | 1 | 925 | 63 | 59 | 68 | 61 | 61 | 58 | 53 | 43 | 66 | 49 | 0,18 | 0,52 |
| 4 | 1 | 700 | 72 | 77 | 76 | 71 | 65 | 61 | 56 | 49 | 73 | 56 | 0,18 | 0,53 |
| II 2G Ex h IIB+H2T4/T3 Gb - Motor N (3 x 400 V) | | | | | | | | | | | | | | |
| 2 | 1 | 1385 | 81 | 78 | 78 | 70 | 66 | 61 | 56 | 50 | 73 | 57 | 0,25 | 0,65 |
| 4 | 1 | 935 | 82 | 84 | 84 | 79 | 73 | 69 | 64 | 58 | 81 | 64 | 0,37 | 1,10 |
| II 2G Ex h IIB+H2T4/T3 Gb - Motor P (3 x 500 V) | | | | | | | | | | | | | | |
| 2 | 1 | 1370 | 81 | 78 | 78 | 70 | 66 | 61 | 56 | 50 | 73 | 57 | 0,25 | 0,55 |
| 4 | 1 | 940 | 82 | 84 | 84 | 79 | 73 | 69 | 64 | 58 | 81 | 64 | 0,37 | 0,93 |

Tab. 2-7: Sound and electric data

* Sound pressure: standard values at 5 m distance to the unit side, at maximum air volume flow and low reflection room. Industrial hall volume 1500 m³, absorption surface 200 m² Sabin, hemispherical radiation = direction coefficient 2. These values can be significantly influenced by the indoor characteristics in a positive or negative way.

2.10 Air side accessories

For MultiMAXX HX the following accessories can be supplied.

| Designation | Order No. | Design |
|---|--|--|
| Mixed-air module, type 1* | ZH#.20## | Recirculating and outside air offset by 90° |
| Mixed-air module, type 2* | ZH#.21## | Recirculating and outside air opposite at 180° |
| Blocking damper outside air* | ZH#.23## | Galvanized metal sheet or stainless steel |
| Flexible connection | ZH#.2520 ZH#.2530 ZH#.2540 ZH#.2550 | Frame made of galvanized metal sheet, overall length 150 mm Frame made of stainless steel, overall length 150 mm Frame made of galvanized metal sheet, overall length 300 mm Frame made of stainless steel, overall length 300 mm |
| Rectangular duct 150 | ZH#.26#0 | Spacer, overall length 150 mm |
| Rectangular duct 1000 | ZH#.27#0 | Overall length 1000 mm |
| Duct bend 90°, symmetrical | ZH#.28#0 | 90° symmetrical, tapered peripheral mounting frame |
| Duct connecting bend 90°, asymmetrical | ZH#.29#0 | 90° asymmetrical, tapered with run-around mounting frame |
| Wall air-intake hood | ZH#.3140 | Galvanized metal sheet. |
| External weather grille | ZH#.3240 | Galvanized metal sheet, overall depth 45 mm |
| Duct through slanted roof | ZH#.3440 | Galvanized metal sheet |
| Roof air-intake hood | ZH#.3540 ZH#.3545 | Metal sheet in RAL 9002 with bird protection grille, without filter Metal sheet in RAL 9002 with bird protection grille, with G5 filter |
| Bag filter for roof air intake hood | ZH#.3845 | M5 filter |
| Bag-filter module | ZH#.3640Z H#.3645 | Without filter unit With filter M5 |
| Bag filter for module „36“ | ZH#.3945 | Filter M5 |
| Duct through roof with flat roof plinth | ZH#.4940 | Galvanized metal sheet |
| Frame for wall connection | ZH#.51#0 | As spacer for wall opening |
| Flange | ZH#.52#0 | Only for recirculating-air units |
| Suspension type compact C | ZH#.53#0 | For recirculating-air units |
| Modular type suspension | ZH#.55#0 | Only wall mounting |
| Ceiling suspension | ZH#.56#0 ZH#.56#1 ZH#.56#2 ZH#.56#3 | Installation without threaded rod Threaded rod 1 m - M10 Threaded rod 2 m - M10 Threaded rod 3 m - M10 |

Tab. 2-8: Airside accessories MultiMAXX HX

The symbol "#" - see "Type Code" on page 2

* Unit type code (X) for mixed-air modules and outside-air blocking damper depending on the actuator

ZH#.2###0 - with actuator on site by customer (shaft diameter = 15.5 mm)

ZH#.2###1 - Manual adjustment

ZH#.2###8 - with actuator 230 V - Zone 1

2.11 Commission Regulation (EU) 2016/2281 (Lot 30) November 2016

The values presented in the table Tab. 2-9 are provided to ensure the implementation of the EU Directive 2009/125/EG. This Directive sets the framework for the requirements to the environmentally-friendly design of energy-related products such as air heaters, air coolers, units for air cooling in industrial processes with high operating temperature and fan coil units.

| Model size | UNITS | Electric motor | Speed | Cooling capacity (total) | Cooling capacity (sensitive) | Cooling capacity (latent) | Heating capacity | Total power consumption | Air flow rate | Sound power level (if necessary per speed-setting) |
|------------|------------|----------------|-------|---------------------------|------------------------------|---------------------------|---------------------------|-------------------------|-------------------------|--|
| | | | | $P_{\text{rated,c}}$ [kW] | $P_{\text{rated,c}}$ [kW] | $P_{\text{rated,c}}$ [kW] | $P_{\text{rated,h}}$ [kW] | P_{elec} [kW] | V [m ³ /h] | L_{WA} [dB(A)] |
| 1 | HX14.#W### | AC | 1 | - | - | - | 9,4 | 0,12 | 1490 | 67,0 |
| | HX14.#V### | | 2 | - | - | - | 10,9 | 0,14 | 1860 | 71,0 |
| 2 | HX24.#W### | AC | 1 | 11,1 | 8,8 | 2,3 | 14,9 | 0,23 | 2480 | 70,0 |
| | HX24.#V### | | 2 | - | - | - | 17,8 | 0,29 | 3200 | 75,0 |
| 3 | HX34.#W### | AC | 1 | - | - | - | 20,3 | 0,23 | 3190 | 69,0 |
| | HX34.#V### | | 2 | - | - | - | 24,2 | 0,31 | 4100 | 73,0 |
| 4 | HX44.#W### | AC | 1 | 23,1 | 17,7 | 5,4 | 30,8 | 0,32 | 4820 | 75,0 |
| | HX44.#V### | | 2 | - | - | - | 38,2 | 0,44 | 6550 | 80,0 |

Tab. 2-9: Values according to Regulation (EU) 2016/2281

Listed values are valid for 2-pipe system - water temperature 45°C/40°C, intake air temperature 20°C, rel. hum. 50% and for cooling capacity with cooling water 7/12°C, air intake temperature 27°C, rel. hum. 47%

3 Shipping and storage

3.1 Transport

Observe the manufacturer's instructions regarding shipping and storing the unit (see labels on the packing).



User instructions!

- When the unit heater is delivered and unpacked, check that the delivery is correct according to the despatch note, and also check for completeness and transit damage.
- Ship and store units in original packing!



Damage to the unit!

- After shipment, check to make sure that the unit is not damaged.



User instructions!

Claims for damage or missing parts can only be filed with the insurance company only if shipping damage is confirmed by an authorized worker of the transportation company.

3.2 Shipping and handling of the unit

- Lift the unit only using the bottom edges. Attach lifting gear to the designated points of the assembly unit. Chains/slings should not be knotted and/or be exposed to sharp edges. The weight must be evenly distributed! Only use lifting gear with sufficient load carrying capacity. Do not lift the unit using air outlet or heat exchanger fittings.

Only use lifting gear with sufficient load carrying capacity.



Danger due to overhead loads!

Do not raise units overhead with personnel below units.



Risk of personal injury!

Do not use damaged transport devices.
Use a fork lift truck only if the unit is placed on a pallet.



DANGER – SHARP CUTTING EDGES!

Use personal protective gear such as safety gloves, footwear and protective clothes during transport.

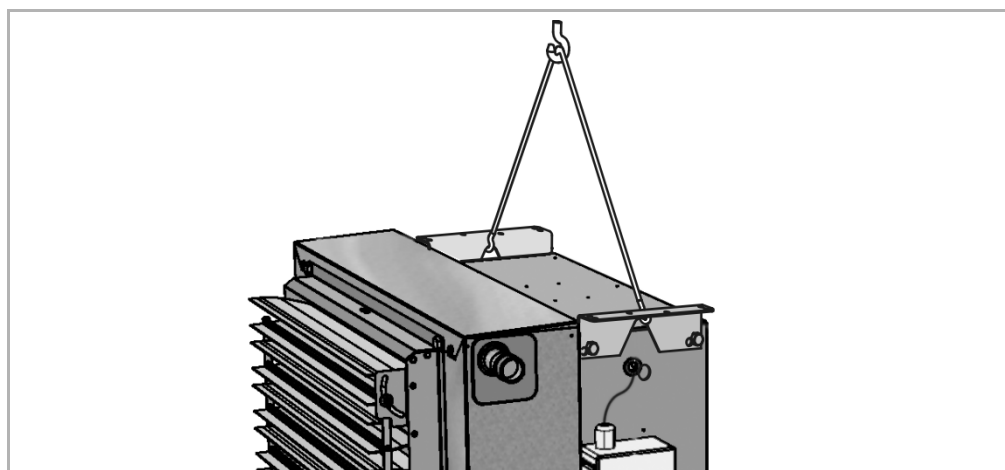


Fig. 3-1: Transport of unit

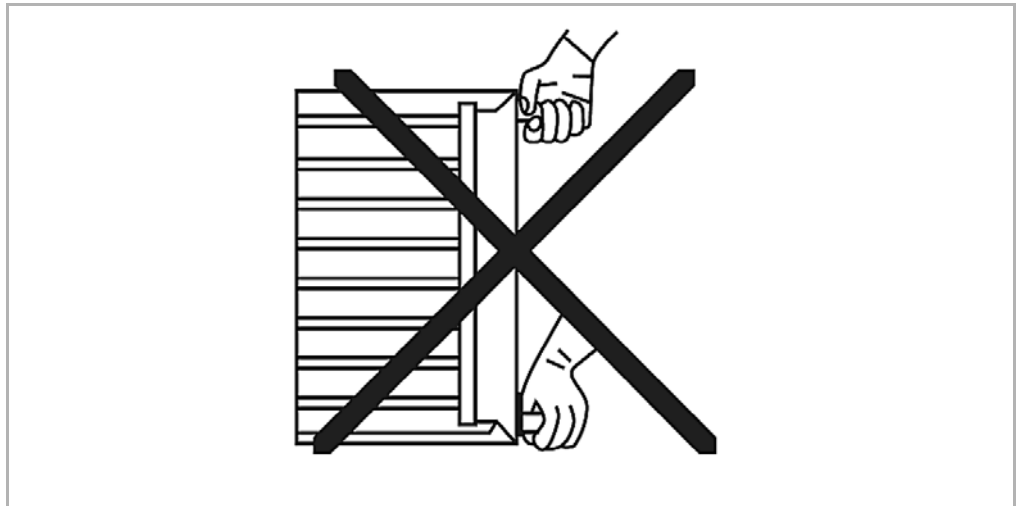


Fig. 3-2: Transport

3.3 Storage

Protect the MultiMAXX HX unit from humidity and dirt. Store the unit on premises meeting ambient standards of class IE12 and in accordance with the requirements EN 60 721-3-1, Edition 2.



User instructions!

Allowable storage conditions:

Air temperature: -25 °C to +40 °C

Air humidity: between 50 and 85 % (relative humidity with no condensation)

4 Assembly

4.1 Load-bearing capacity of the installation site



User instructions for setting up and mounting the unit!

The assembly site must be vibration-free and suitable for permanently supporting the weight of the unit heater. If necessary, the approval of a structural engineer or architect must be received.

For mounting the unit - 2 sets with 4 M8 nuts are located on the fan module – refer to Fig. 2-2 and Fig. 2-3. The fixing material is included with the suspensions. The unused M8 riveting nuts must be covered by the M8 screws which are used to fix the unit to the transport pallet.

4.2 Ceiling installation

- During planning give special attention to: the suspension height, distance between the units and minimum distance from the ceiling.
- Minimum suspension height amounts to 2.7 m.

Table specifying suspension height for units with ceiling mounting

| Unit Size | Suspension max. (m) |
|-----------|---------------------|
| HX11 | 11.5 |
| HX12 | 9.8 |
| HX13 | 9 |
| HX14 | 7.5 |
| HX21 | 14 |
| HX22 | 13 |
| HX23 | 12 |
| HX24 | 11 |
| HX31 | 13 |
| HX32 | 12 |
| HX33 | 11 |
| HX34 | 10 |
| HX41 | 14.5 |
| HX42 | 13 |
| HX43 | 12 |
| HX44 | 11 |

The figures in the table are Standard values and apply to the Air outlet temperature $\Delta 15$ to 20 K above ambient temperature

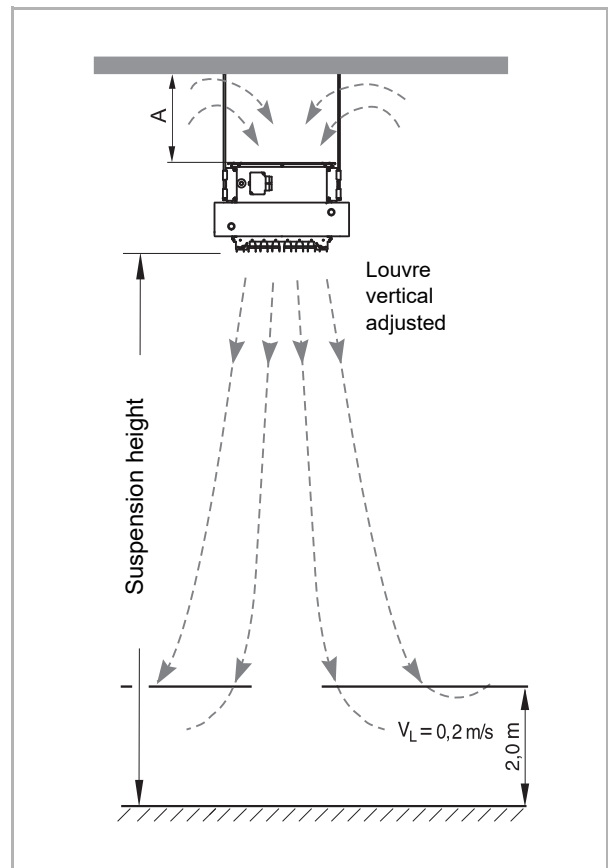


Fig. 4-1: Suspension height for ceiling mounting



User instructions!

The maximum height of the unit ceiling installation varies depending on the discharge temperature, reduced speed and air volume flow due to accessories.

Minimum distance from ceiling A (see Fig. 4-1)

Provide minimum distance to ceiling to allow sufficient air circulation and ensure adequate access for maintenance.

| Model size | 1 | 2 | 3 | 4 |
|------------------|-----|-----|-----|-----|
| Clearance A (mm) | 300 | 300 | 400 | 400 |

Unit spacing for ceiling mounting (see Fig. 4-2)

In order to provide favourable air distribution pattern in the occupied zone we recommend that the following distances between units are maintained:

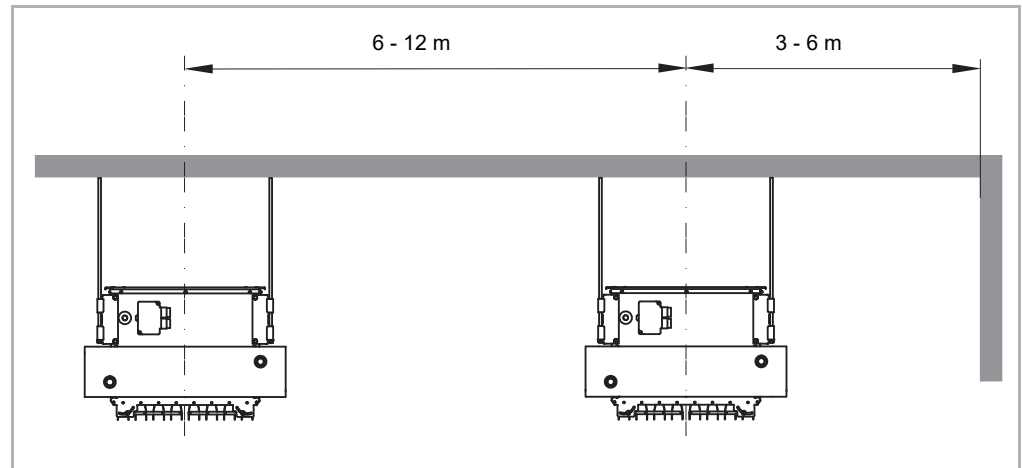


Fig. 4-2: Distance between units with ceiling mounting

The ceiling installation for recirculating-air units with suspension „ceiling“ (ZHx.560x) is given in Fig. 4-7 and for mixed-air units - refer to Fig. 4-8.

4.3 Wall installation

- It is necessary to consider the minimum height, the direction of discharged air flow, distance between units and minimum distance from the wall (refer to Fig. 4-3).

**Risk of personal injury!**

The minimum permissible height above the floor is 2.7 m.

**User instructions!**

Wall mounted unit heaters must not be mounted too high above the floor in order to ensure good mixing of bottom air layers.

Direction of discharged air flow

Set the direction of discharge so as to avoid air draughts in the room. The primary air flow must not be directed against walls, beams, cranes, shelves, columns or similar obstacles!

Recommended distances between wall-mounted units (see Fig. 4-3)

The distances between units depend on the heat demand, number of units and their arrangement.

Minimum distance from wall A (see Fig. 4-3)

Provide minimum distance to wall to allow sufficient air circulation and ensure adequate access for maintenance.

| Model size | 1 | 2 | 3 | 4 |
|------------------|-----|-----|-----|-----|
| Clearance A (mm) | 300 | 300 | 400 | 400 |

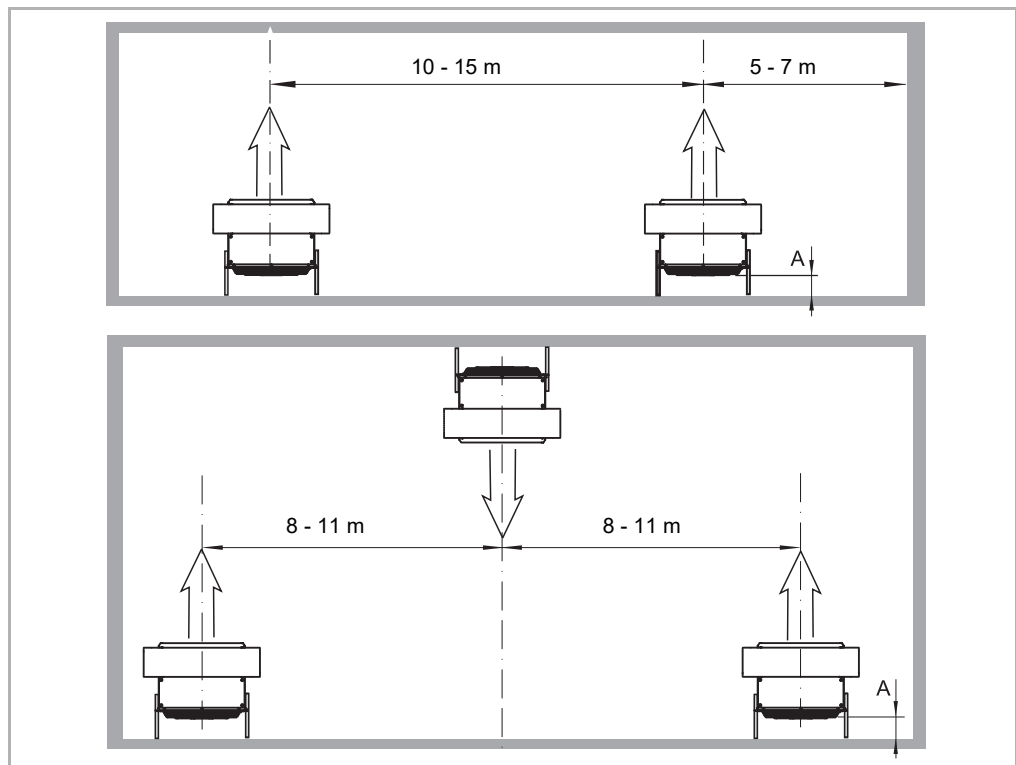


Fig. 4-3: Distance between units with wall mounting

Air throw

Air throws are specified in the following table:

| Unit Size | Air throw max. (m) |
|-----------|--------------------|
| HX11 | 8,2 |
| HX12 | 7,7 |
| HX13 | 7,1 |
| HX14 | 6,8 |
| HX21 | 9,5 |
| HX22 | 9,1 |
| HX23 | 8,7 |
| HX24 | 8,3 |
| HX31 | 9,3 |
| HX32 | 8,9 |
| HX33 | 8,1 |
| HX34 | 7,5 |
| HX41 | 10,8 |
| HX42 | 10,2 |
| HX43 | 9,6 |
| HX44 | 8,9 |

The information in the table are standard values and apply for the discharge temperature $\Delta 15$ to 20 K above room temperature

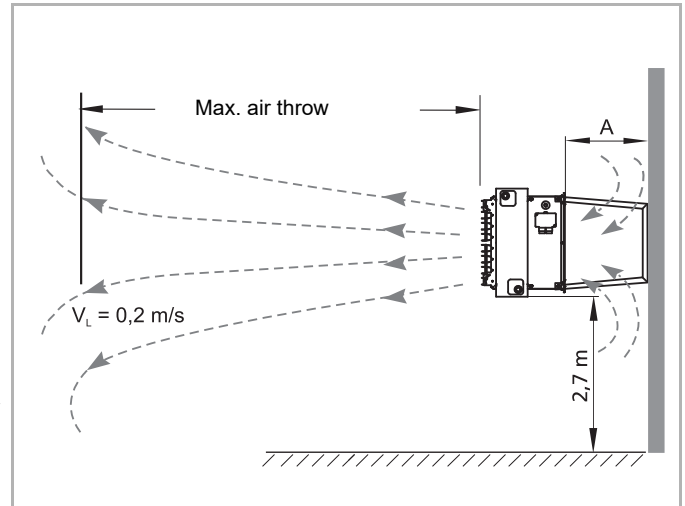


Fig. 4-4: Air throws with wall mounting

- Wall mounting of the air recirculation unit with suspension "Modular" (ZH#.550#) see Fig. 4-5 with suspension "Compact C" (ZHx.530#) see Fig. 4-6
- Wall mounting of the mixed-air unit with suspension "Modular" (ZH#.550#) see Fig. 4-9

4.4 Safety clearance



User instructions!

When installing unit, observe safety clearances of burnable materials: at least 500 mm from the unit side parts and 1500 mm in the airflow direction and the flue gas pipework.

In areas where there is a fire hazard (combustible materials, dust, liquids, gases and vapours), the distance must be at least 1500 mm in all directions. Otherwise a partition wall made of inflammable material of min. 3 mm thickness must be employed. No objects may be set up in the vicinity of the units.

4.5 Unit mounting



User instructions!

Units should be installed in a safe, reliable and visually correct manner. For this reason it is recommended to use the manufacturer's suspensions and mounting brackets.



Damage to the unit!

The unit must be installed in a stain-free, vibration-free and twist-free way.



User instructions!

Units must be fitted level to the ceiling to allow access for air venting and bleeding of heat exchanger.

Fixation points: unit heaters are secured in at least 4 fixation points. Use the screws of the transport safety device. When welding the heat exchanger connections, the heat exchanger casing must be protected.

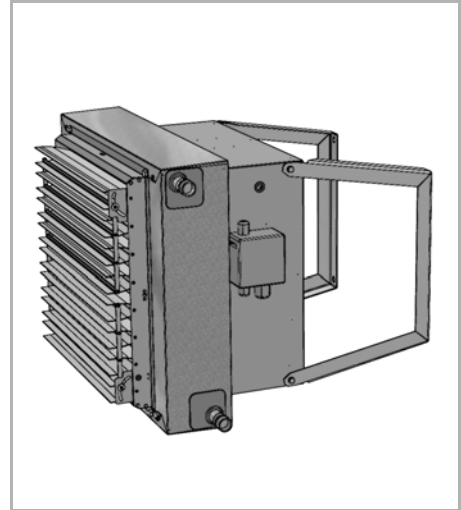
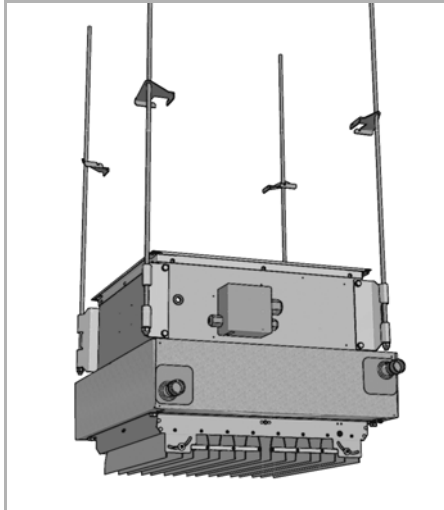
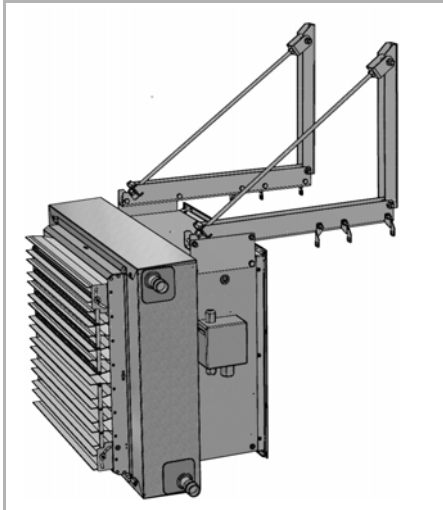


Fig. 4-5: Wall mounting of the air recirculation unit with suspension "Modular" (ZH#.550#)

Fig. 4-6: Ceiling mounting of the air recirculation unit with "ceiling" suspension (ZH#.560#)

Fig. 4-7: Wall mounting of the air recirculation unit with suspension "Compact C" (ZH#.530#)

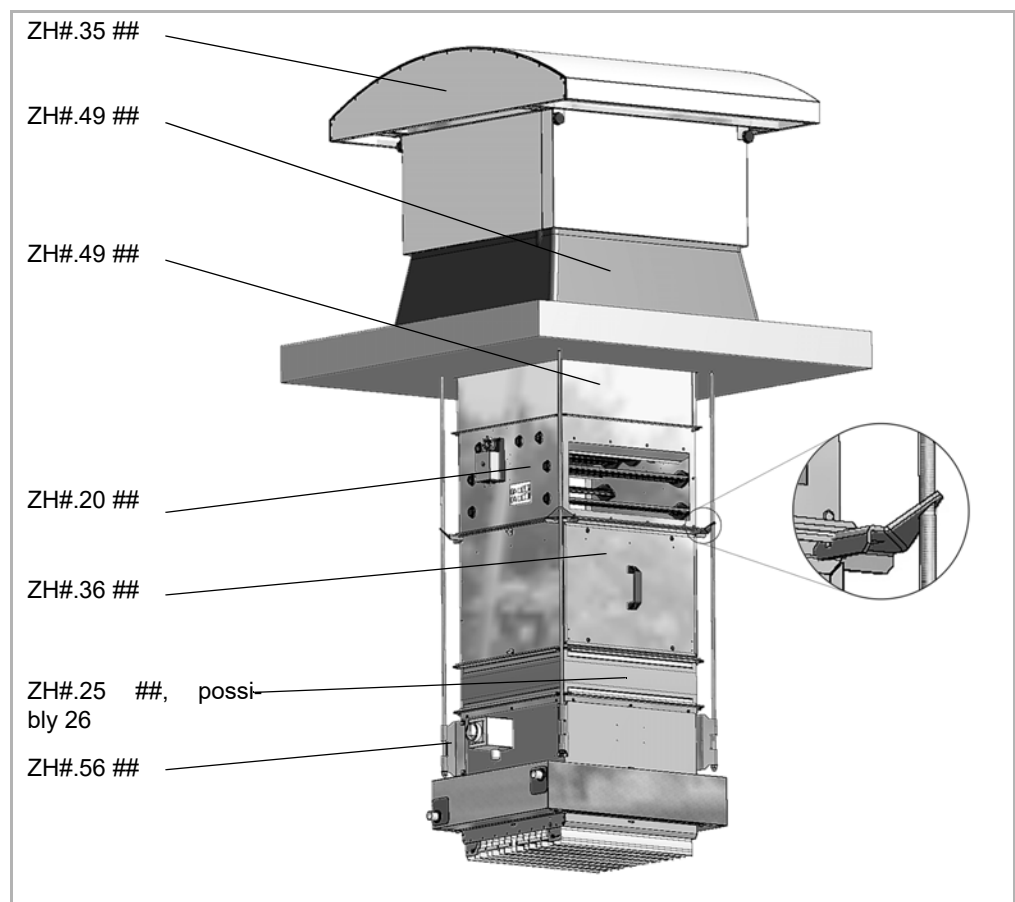


Fig. 4-8: Ceiling mounting of the mixed air unit with suspension "Ceiling" (ZH#.560#)

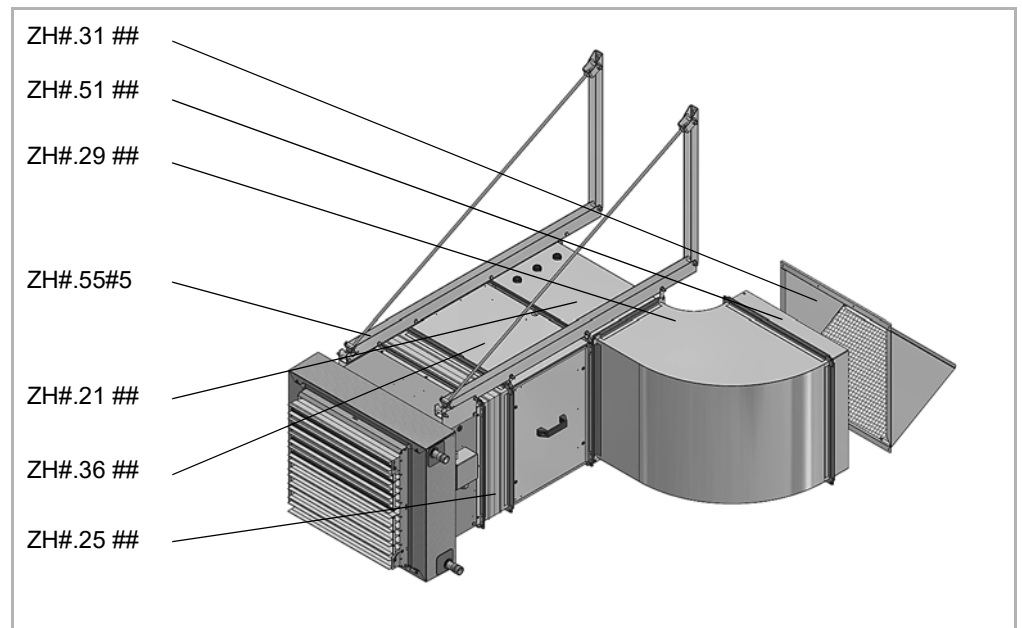


Fig. 4-9: Wall mounting of the mixed-air unit with suspension "Modular" (ZH#.550#)

With mixed-air units the flange for mounting accessories is fitted by the manufacturer; with recirculating-air units the flange (ZH#.5200) must be ordered as an accessory and fitted by others on site.

For wall arrangement the mixed-air chamber must be fitted to provide lateral suction of recirculating air (refer to Fig. 4-9).

As first add-on module of a recirculating-air unit either flexible canvas connection (ZH#.25#0) or rectangular duct 150 (ZH#.26#0) must be fitted. Refer to mounting examples in Fig. 4-8 and Fig. 4-9.

5 Medium connection

5.1 Pipe connections



User instructions!

The supply and return piping should be run in such a way as to prevent mechanical stress and without placing a strain on the heat exchanger with sufficient clearance around the unit to allow for maintenance and servicing.

Connected piping: pipe and heat exchanger venting must be performed by others on site!

Attention! Inlet and outlet heating coil connections: give special attention to fitted labels!



Damage to the unit!

Use a pipe wrench when attaching piping to coil fittings to prevent damage (refer to Fig. 5-1).

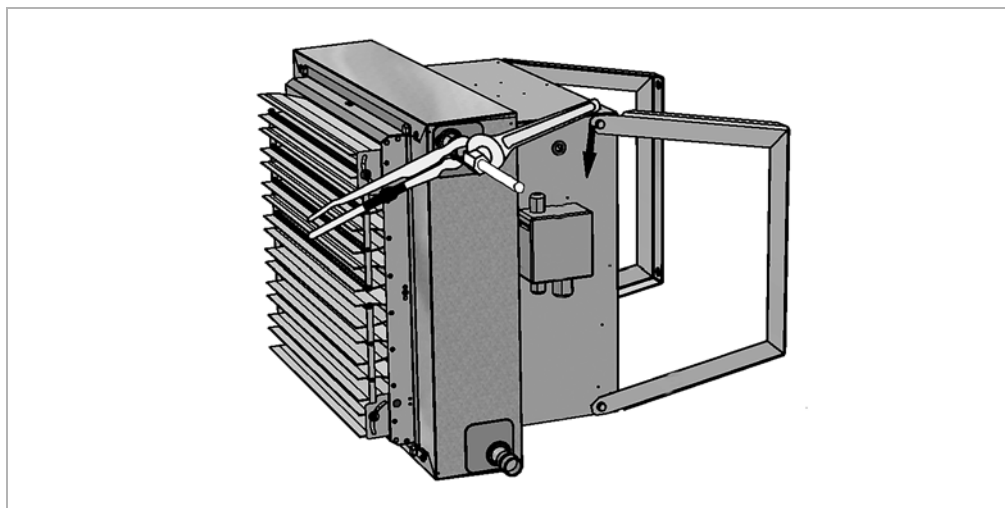


Fig. 5-1: Connecting unit heaters to pipework

5.2 Heating medium supply

In order to assure the maximum ambient conditions of the motor - a valve with a spring return (230V) must be fitted in the supply inlet line of the heat exchanger with a task to shut off medium supply in case of power interruption or fan deactivation.

The operating limits of the heat exchanger must be considered (see Tab. 2-2, Page 11)

5.3 Dimensions of heat exchanger connections

For dimensions see Fig. 2-2 and Fig. 2-3 on the Page 12 and Page 13, for the heat exchanger connections refer to Tab. 2-5.

5.4 Connecting condensate drain

To drain off condensate properly, field-provided condensate drain must be connected to the coil drip tray. (refer to Fig. 5 in the enclosed operation manual for louvers).

- Insert a plastic hose on the relevant spigot of the drain pan and ensure proper sealing.
- When connecting the condensate drain to the sewage system, observe the relevant regulations of the local Water Board (stench trap).



User instructions!

Maintain a continuous drain line slope to provide adequate condensate drainage. When running pressure-free piping or outdoor drainage, a stench trap is not required.

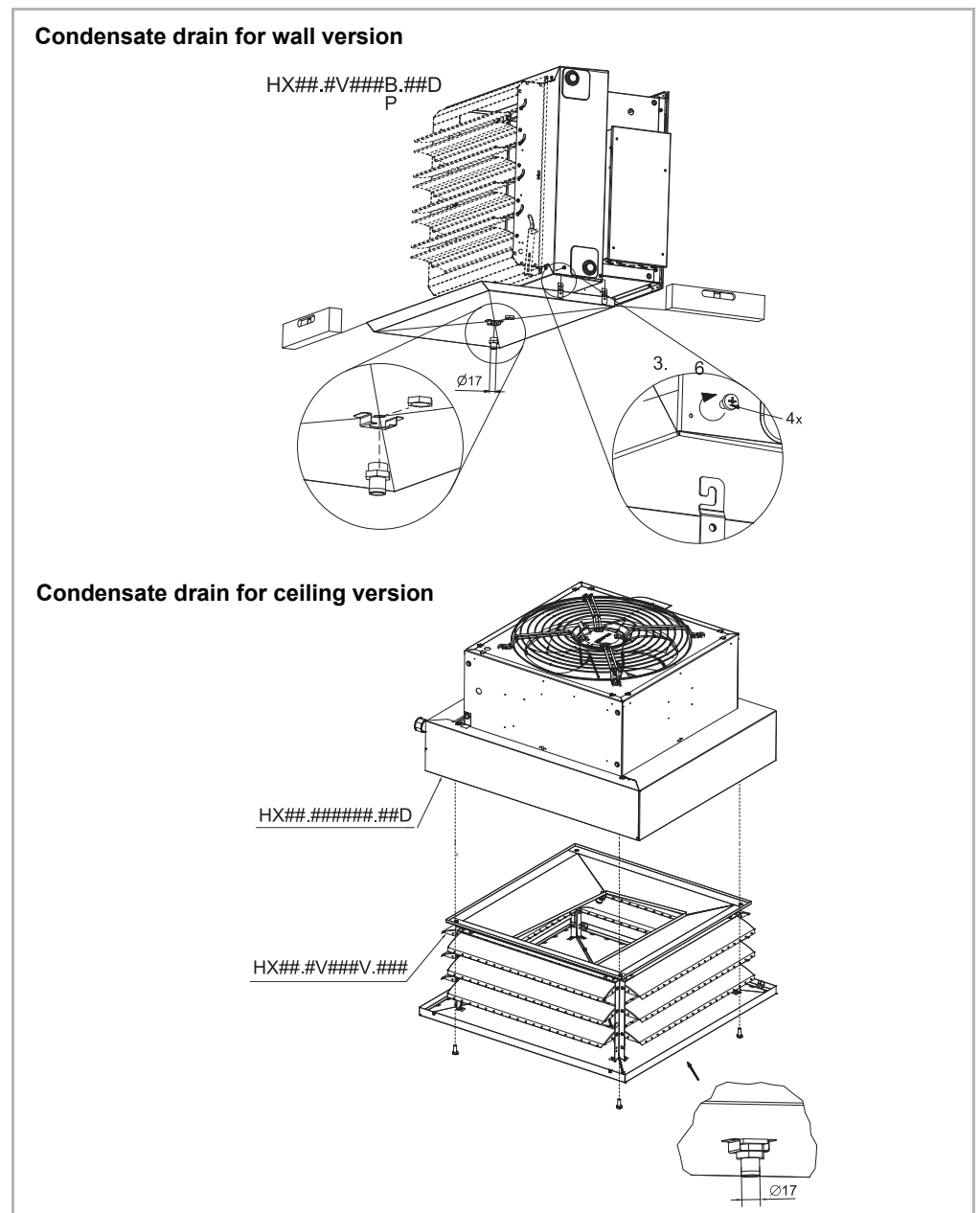


Fig. 5-2: Connecting condensate drain

6 Electrical connection



Danger of electrical current!

The electrical installation of MultiMAXX HX unit heaters must only be carried out by qualified electrical engineers in compliance with this operation manual and the current regulations:



- VDE regulations, including safety regulations
- Accident prevention regulations
- Installation instructions

6.1 Connection diagrams

The electrical connection of MultiMAXX HX unit heaters must only be carried out in accordance with valid connection diagrams. The connection diagram is located on the inside cover of the unit connection box or is enclosed separately.



Danger of electrical current!

The connection diagrams do not specify any protective measures. Currently valid standards and regulations must be observed and checked with the local power company.

Currently valid standards and regulations must be observed and checked with the local power company.

| Control unit type | Fusing |
|--|------------|
| 986920.3, 986920T.51, 986960.3, 986960T.51 | 9 A |
| 986810.3, 986810T.51, 986811.3, 986811T.51 | |

Tab. 6-1: Fusing

6.1.1 Cable connections

The cable connections must be performed in compliance with the local regulations and code of practice.

The selection of cable type and cable cross section must be performed by a qualified electrical engineer. Addition of components by others and field line runs must be designed for high temperatures and fitted with spacers.

Electrically screened line must be used for the PTC thermistor, whereas earth screen must be connected on one side to the protective conductor terminal (PE) in the control unit. The decision to apply electrical shielding at both ends can only be made on site (e.g. in case of severe interference) and the relevant applicable local regulations and codes of practice must be observed.

After successful cable installation all cable entry points must be sealed in a splash-proof manner.

6.1.2 Motor protection using PTC thermistor

The PTC thermistors are embedded in motor windings and in combination with the motor full protection of control unit (986810.3, 986811.3, 986920.3 or 986960.3) enable interlocking disconnection of the fan motor, if the maximum allowed winding temperature is exceeded. If the unit heater is not operated by the FläktGroup control unit, the motor must be protected by a trigger device of class Ex II (2) G or a trigger device for Ex fan motors of type EK230E.

6.1.3 Operation of basic unit

For operating the unit heaters - control units for recirculating and mixed-air operation are available (refer to Fig. on Page 35 and Page 36). Operation with frequency converters or control units with voltage reduction (e.g. transformer) is not possible.

6.2 Terminal box/fan isolator

The MultiMAXX HX unit heater is supplied with a plastic terminal box or fan switch.

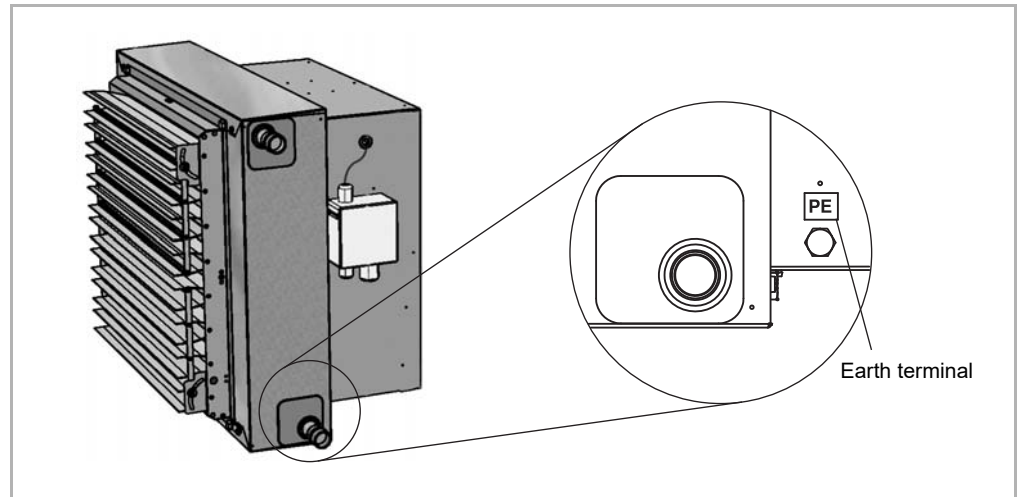


Fig. 6-1: Terminal box

Plastic terminal box

The plastic terminal box contains a terminal block.

Electrical connection of the unit heater and control unit must be carried out according to the current EN 60079-14, edition 4 standard and terminal diagrams with consideration of all necessary protective measures.

6.2.1 Potential equalisation

Electrical conductive connection must be assured between all units and accessory parts. Thermistors and overload protection must be activated.

Besides, the unit heater must be integrated in potential equalisation using the designated connection point. The earthing must be continuously ensured. The resistance must not exceed max. 0.1 Ohm (refer to Fig. 6-1).

The potential equalisation between accessory parts must be performed using enclosed screws, nuts and tooth lock washers.

6.3 Motor terminal diagram for 2-stage three-phase external rotor motor - II 2G Ex h IIB T4/T3 Gb (motor version J, L)

- With PTC thermistor
- Slip regulator
- Winding D/Y
- Without voltage change-over!
- Operating voltage: refer to unit identification plate

6.3.1 1-speed operation with operating voltage 3 x 400 V (3 x 500 V) - unit with terminal box (K)

- Power cable: 3 + PE = 4 connection wires
- Electrically screened line: 2 K connecting wires

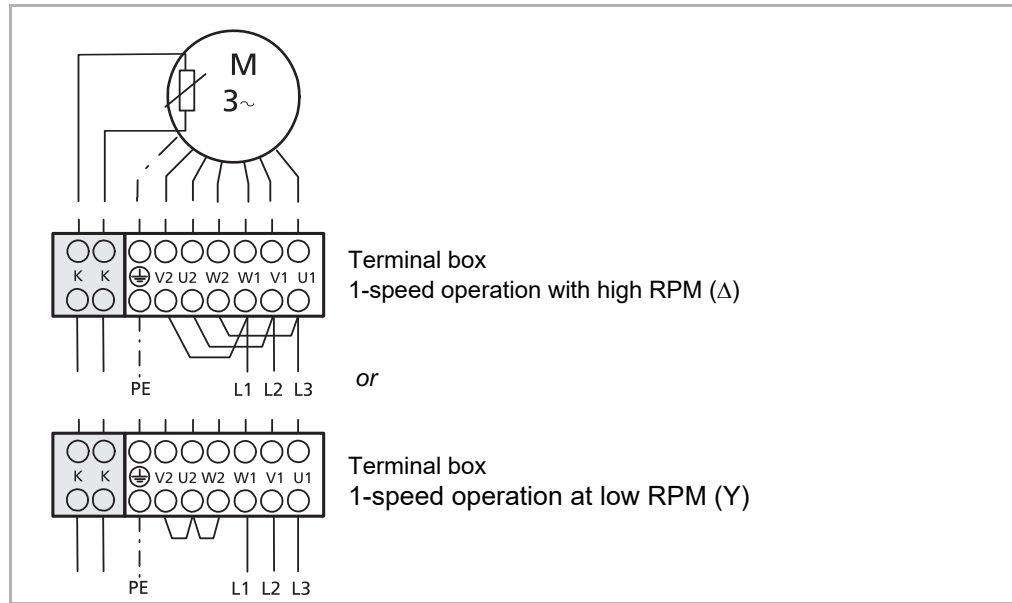


Fig. 6-2: Electrical connection - 1-speed operation - unit with terminal box (this connection at high or low speed must be implemented by the customer)

6.3.2 2-speed operation with operating voltage 3 x 400 V (3 x 500 V) - unit with terminal box (K) and control unit

- with FläktGroup control unit 986920.3 or 986960.3 operated with 3 x 400 V (AC motor J), 986920T.51 or 986960T.51 operated with 3 x 500 V (AC motor L)
- Power cable: 3 + PE = 4 connection wires
- Connection cable: 6 + PE = 7 wires
- Electrically screened cable: 2 K connecting wires (T1, T2)

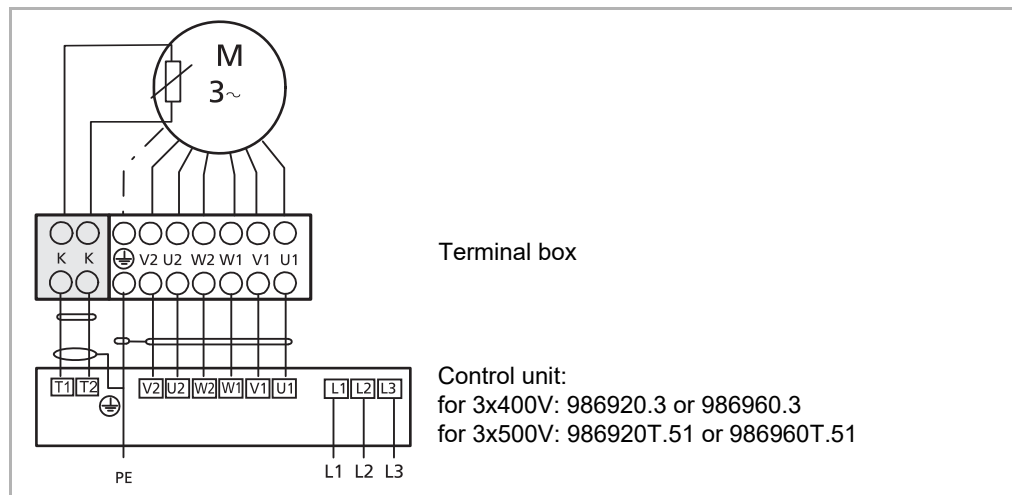


Fig. 6-3: Electrical connection - 2-speed operation - unit with terminal box and control unit

6.3.3 1-speed operation with operating voltage 3 x 400 V (3 x 500 V) - unit with fan switch (S)

- Power cable: 3 + PE = 4 connection wires
- Electrically screened cable: 2 K connecting wires (T1, T2)

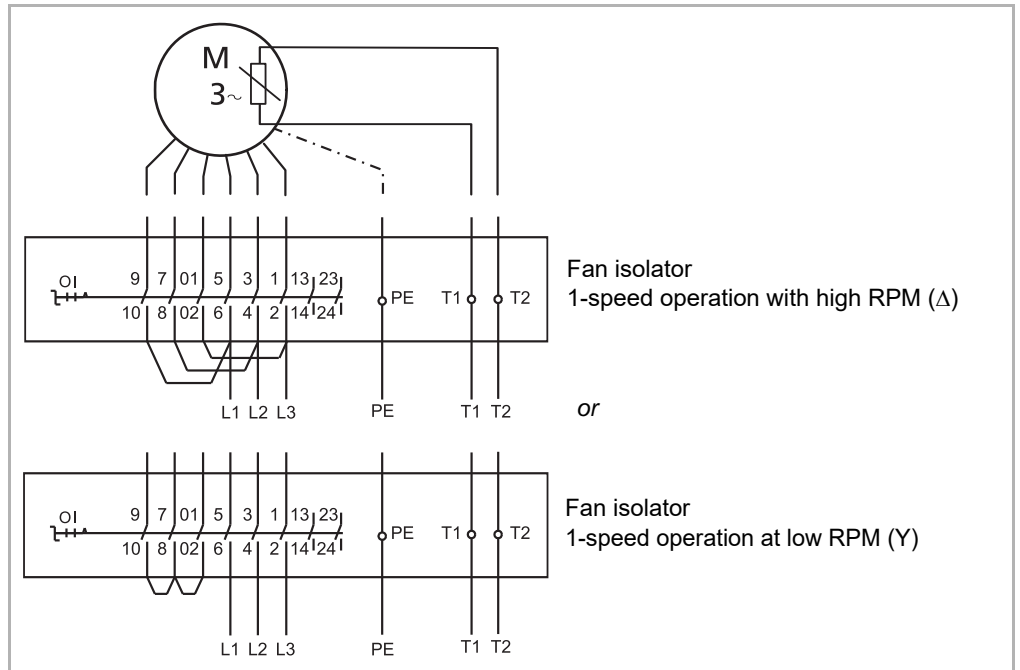


Fig. 6-4: Electrical connection - 1-speed operation - unit with fan switch (this connection at high or low speed must be implemented by the customer)

6.3.4 2-speed operation with operating voltage 3 x 400 V (3 x 500 V) - Unit with fan switch (S) and switching unit

- with FläktGroup control unit 986920.3 or 986960.3 operated with 3 x 400 V (AC motor J), 986920T.51 or 986960T.51 operated with 3 x 500 V (AC motor L)
- Power cable: 3 + PE = 4 connection wires
- Connection cable: 6 + PE = 7 wires
- Screened line: 2 PTC connection wires (T1, T2)

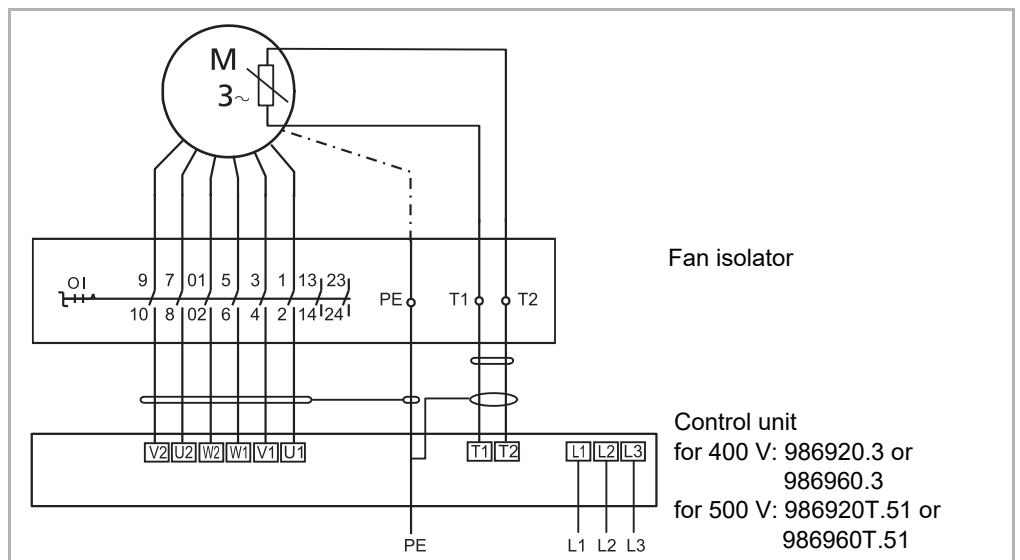


Fig. 6-5: Electrical connection - 2-stage operation - Unit with fan switch and switchgear

6.4 Motor terminal diagram for 1-step three-phase standard motor M, N (3 x 400 V), O, P (3 x 500 V), unit designation II 2G Ex h IIB+H2 T4/T3 Gb

- With PTC thermistor
- Operating voltage: refer to unit identification plate

6.4.1 1-stage operation with operating voltage 3 x 400 V (3 x 500 V) - Device with terminal box (K)

- Power cable: 3 + PE = 4 connection wires
- Electrically screened cable: 2 K connecting wires (T1, T2)

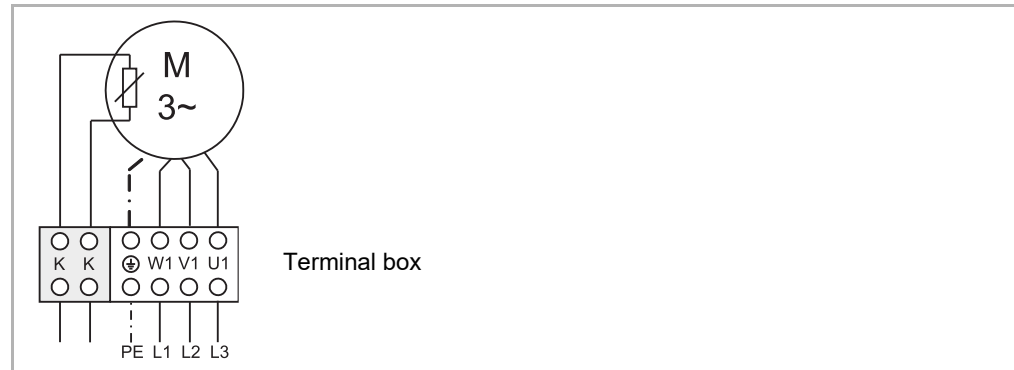


Fig. 6-6: Electrical connection - 1-stage operation - Device with terminal box

6.4.2 1-stage operation with operating voltage 3 x 400 V (3 x 500 V) - unit with terminal box (K) and control unit

- with FläktGroup step switchgear 986810.3 or 986811.3 for 3 x 400 V (AC motor M, N), 986810T.51 or 986811T.51 for 3 x 500 V (AC motor O, P)
- Power cable: 3 + PE = 4 connection wires
- Connection cable: 3 + PE = 4 wires
- Electrically screened cable: 2 K connecting wires (T1, T2)

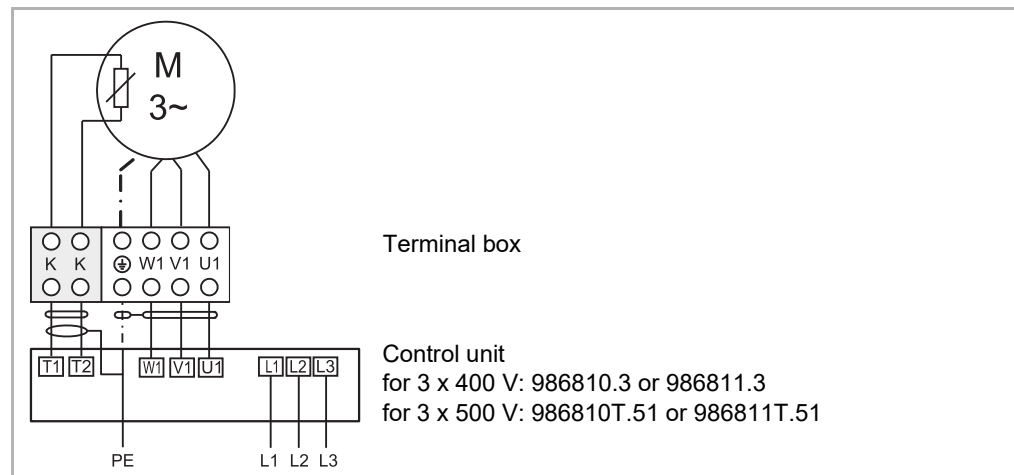


Fig. 6-7: Electrical connection - 1-speed operation - unit with terminal box and control unit

6.4.3 1-stage operation with operating voltage 3 x 400 V (3 x 500 V), unit with fan switch (S)

- Power cable: 3 + PE = 4 connection wires
- Electrically screened cable: 2 K connecting wires (T1, T2)

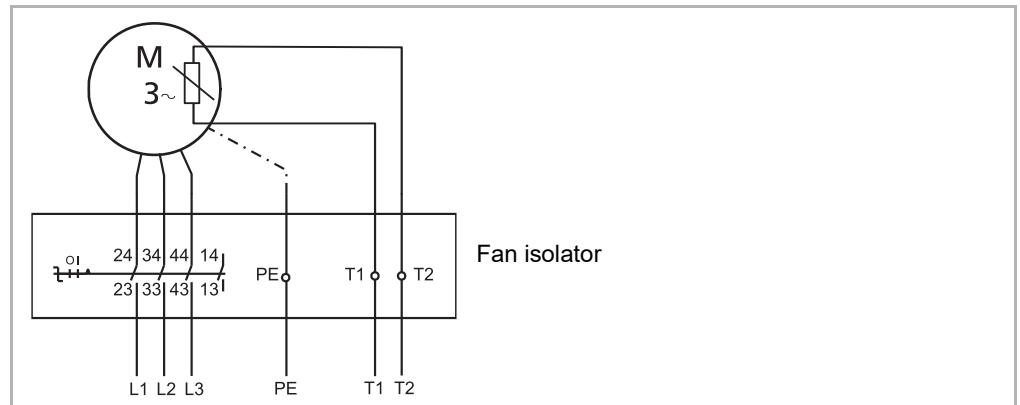


Fig. 6-8: Electrical connection - 1-stage operation - Unit with fan switch

6.4.4 1-stage operation with operating voltage 3 x 400 V (3 x 500 V) - Unit with fan switch (S) and control unit

- with FläktGroup step switchgear 986810.3 or 986811.3 for 3 x 400 V (AC motor M, N), 986810T.51 or 986811T.51 for 3 x 500 V (AC motor O, P)
- Power cable: 3 + PE = 4 connection wires
- Connection cable: 3 + PE = 4 wires
- Screened line: 2 PTC connection wires (T1, T2)

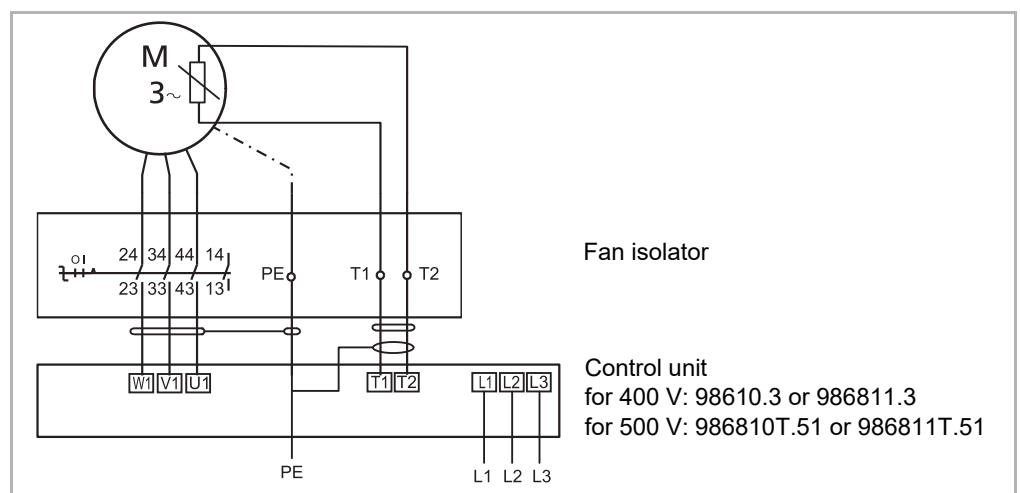


Fig. 6-9: Electrical connection - 1-stage operation - Unit with fan switch and switchgear

6.5 Frost protection monitoring of outdoor air unit and connecting damper actuator

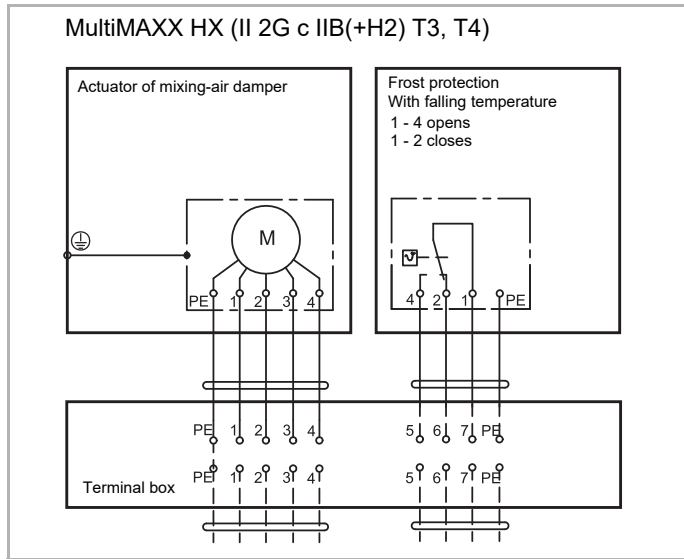


Fig. 6-10: Connection frost protection thermostat and actuator Mixed air damper

Monitoring of the heat exchanger is performed by the frost protection thermostat.

In conjunction with a 986960 or 986811 switchgear unit, the fan is switched off and any connected fresh air flap is closed. After the fault is corrected and the frost protection thermostat resets automatically the unit heater can be started again by using the 0-position of the speed selection switch.

When connecting the damper actuator the following must be considered:

During manual deactivation of the unit heater - external remote switch or regulation system in frost risk case must ensure that the fresh air damper is closed by the actuator.

During relevant connection - a separate operation manual provided by Schischek company must be observed.

6.6 Wiring diagram for shut-off valve

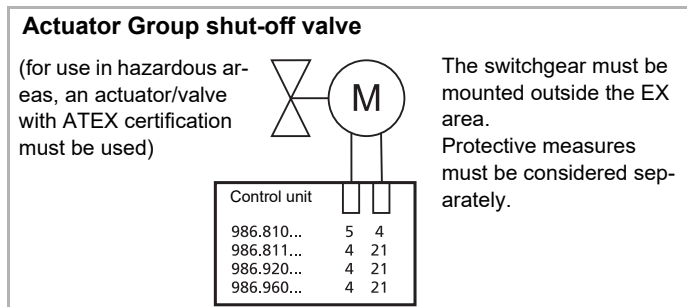


Fig. 6-11: Connection diagram for shut-off valve

The valve actuator with spring return is controlled by a FläktGroup control unit (Fig. 6-12) or a unit provided by the customer.

6.7 Wiring diagram for shut-off valve and safety thermostat

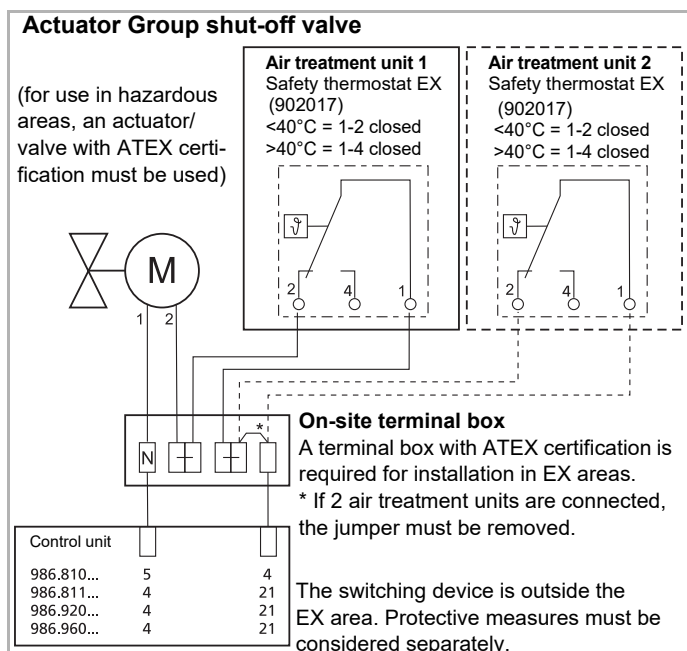


Fig. 6-12: Connection diagram for shut-off valve and Safety thermostat

The valve actuator with spring return is controlled by a FläktGroup control unit (Fig. 6-12) or a unit provided by the customer.

The thermostat records the intake temperature. If the temperature exceeds 40°C, a shut-off valve (in the flow line) provided by the customer must be closed.

6.8 Installation of control unit and its connection

Mount the control unit at the intended location (outside zone 1) (control unit is an accessory). Determine if an individual unit connection or a group unit connection is required. As a group - adjacent units must be connected to one heating line. An intermediate terminal box shall be used if a unit group is connected. A maximum of 2 unit heaters (with consideration to motor full protection device) can be included in a unit group.

6.8.1 Installation example

Unit group consisting of MultiMAXX HX air-recirculation units with control unit.

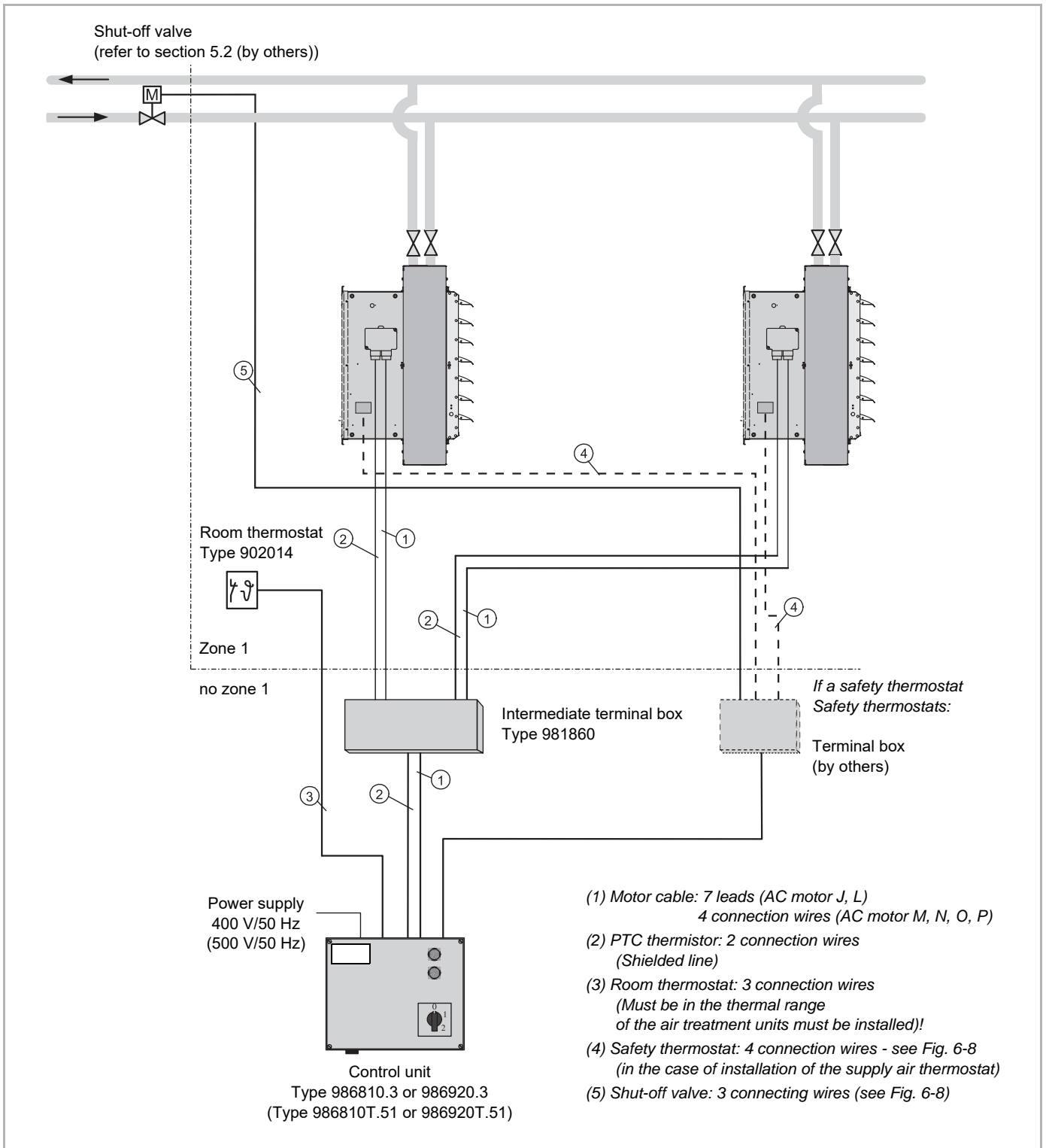


Fig. 6-13: Unit group consisting of MultiMAXX HX air-recirculation units with control unit

Unit group consisting of MultiMAXX HX mixed-air units with control unit.

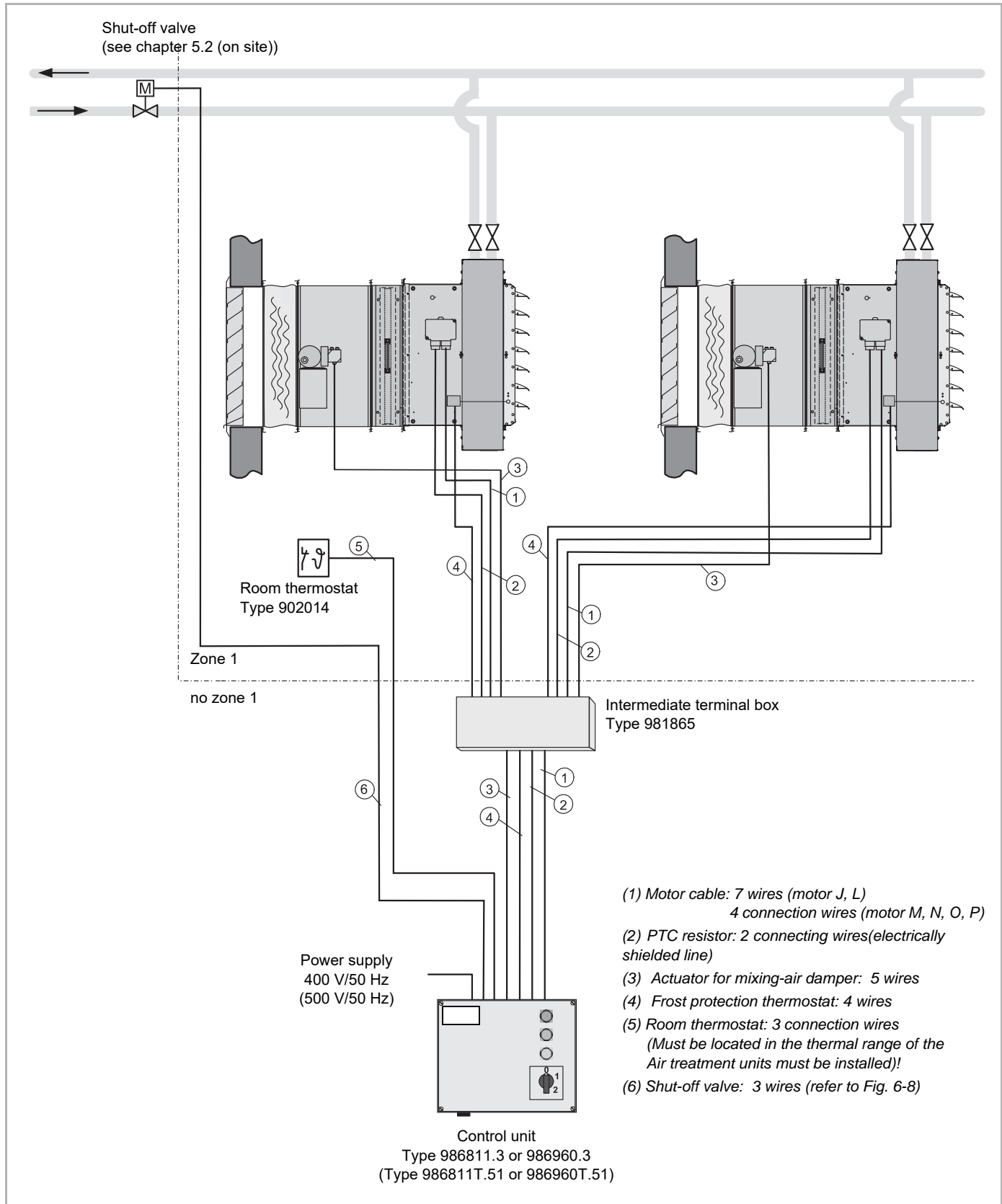


Fig. 6-14: Unit group consisting of MultiMAXX HX mixed air units with control unit

7 Commissioning



Danger of electrical current!

Before performing any work on the unit, ensure that the unit is disconnected and powered down. Ensure that the unit is properly secured against subsequent switch-on at an appropriate point of the on-site power supply.



Danger of hot media!

Wait until the heat exchanger and the air handling unit cool down!
As a requirement for installation, maintenance and repair it must be ensured that no explosive atmosphere can occur.



Risk of rotating components!

Rotating fan impeller wheel poses a risk of injury! Before performing any work on the unit, ensure that the unit is disconnected and powered down. Ensure that the unit is properly secured against subsequent switch-on at an appropriate point of the on-site power supply.



User instructions!

Before commissioning ensure that the unit heater is clean e.g.: discharge louvre, heat exchanger, condensate tray, filter

7.1 Pre-commissioning requirements

- All mechanical and electrical systems of the GEA unit heater have been installed.
- The unit is de-energised and isolated.
- All medium pipes were flushed and are free of residues and foreign objects.
- The unit is properly charged with medium (refer to "Proper use" on Page 7)

7.1.1 Initial commissioning

- Main isolator shall be in "Off" position and the unit must be secured against inadvertent energizing!
- Checking the unit:
 - Inspect the casing for damage.
 - Check painted surfaces for signs of damage.
 - Rotate the fan manually to check it turns in the proper direction; ensure even slit width of the fan to confirm a stress-free installation. The slit width must amount to at least 1 % of the impeller diameter.
 - Open the valves for medium supply
 - Ensure that the unit is air vented to prevent air bags in the system.
 - Check the tightness of all piping and connecting parts
 - Ensure free air passage on the air-side
 - Check faulty electrical connections
 - Check proper operation of protection devices (thermostat and shut-off valve)
 - Connection of potential equalisation
 - Electrical conductive connection must be assured between unit and accessory parts (using screws and tooth lock washer)
- Switch on the unit: (if necessary, set jumper for the remote switch contact, increase temperature setpoint to activate the unit)
- Check the rotating direction; the rotating direction is correct, if circulated air is discharged from the outlet.
- Changing phases enables to swap rotating direction (e.g. L1 with L2)
- Measure current consumption and compare with the identification type plate.
- Adjust the discharge louvre to the required air throw direction. The discharge direction must be set in such way as to prevent air draughts in the occupied zone!

7.2 Vent the unit

- Open all shut-off and control valves.
- Use an air vent key to open an air vent screw by others.
- Close the air vent screw again, only if heating/cooling medium is still pouring out.

7.3 Checking condensate drain



User instructions!

Condensate forms as a result of unit operation in cooling mode, the same applies to non-insulated pipes.

With free condensate drain check the following:

- condensate pan for proper installation (refer to installation manual „Louvre“)
- Carefully fill the drain pan with some water. The water must drain continuously through the plastic drain connection. The filling water quantity corresponds max. to the formed condensate, i.e. 12l/h.

7.4 Function check of frost protection (frost protection thermostat only with mixed-air units)

Units with fresh air intake (mixed-air units) are fitted with an anti-freeze facility. If supply air temperature falls below 5°C, anti-freeze device is activated. The fan motor is switched off and mixed-air module changes into recirculating-air mode.

- If not yet switched on, switch on the electrical supply.
- Check if the actuator closes and outside air damper closes at temperature below 5°C. To reach cut-out temperature and icing condition, apply a coolant spray on the anti-freeze sensor.
- Check the closing of the control valve
- Check if the fan is switched off.
- After the check, switch the device off again

7.5 Profile outlet

The profile outlet is intended to optimally introduce the air conditioned by the air treatment unit into the area to be air-conditioned. The control of the profile outlet sets the optimum outlet angle for the respective air volume (fan speed) at the current temperature conditions. The occupied zone can be air conditioned in a draught-free way, at the same time formation of room temperature layers can be prevented to a large extent.

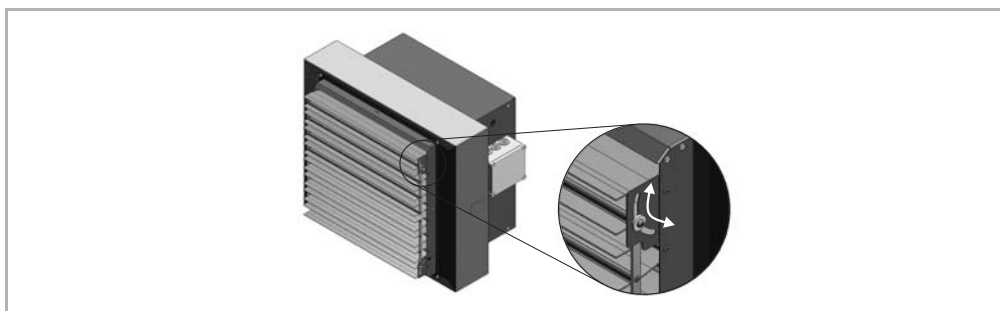


Fig. 7-1: Manual control Profile outlet

7.6 Operation

Activation and deactivation of the unit is performed using the speed selection switch or room thermostat or/and external remote switch.

7.7 Operating instructions

Ensure free air passage, air flow must be discharged without obstacles.

Adjust the air jet so that there are no draughts in the occupied area!

An optional fan switch fitted on the unit is only used to deactivate the fan.

This switch is not used as the main isolator or emergency switch.

7.8 Decommissioning

Set the unit switch to „0“ or the main isolator to „Off“.

8 Maintenance and Troubleshooting

8.1 Maintenance



User instructions!

We recommend to conclude a maintenance contract with a service company.



Danger of electrical current!

Isolate all power supply connections of the GEA unit heater and ensure the power cannot be inadvertently energised.



Risk of rotating components!

Wait to allow the fan rotational momentum to cease!



Danger of hot media!

Wait until heat exchanger and air treatment unit have cooled down. wait and see!

As a requirement for installation, maintenance and repair it must be ensured that no explosive atmosphere can occur.



User instructions!

Observe regular intervals for inspection and maintenance. It is recommended to inspect the unit every year before the beginning of the heating season. Maintenance must only be performed by authorized and qualified staff if the air handling unit is fully isolated.

Part of the inspection must focus on client witness test of the fan and heat exchanger. If necessary, possible dirt and solid deposits must be removed from the heat exchanger. Make sure that the impeller is not obstructed and rotating freely while maintaining equal distance (the slit width must be at least 1% of the impeller diameter) to the inlet nozzle.

Compressed air or detergents and water must be used to clean a dirty heat exchanger. During cleaning heat exchanger fins or louvres must not be damaged.



Damage to the unit!

Beware not to damage fins or louvres during cleaning of heat exchanger. Non compliance will result in the reduction of heating output. Drain water from the heat exchanger if the unit heater is deactivated for the winter period. Otherwise this may cause water in the heat exchanger to freeze.

When cleaning with water jet - do not direct the latter to the electric motor or electrical components, if necessary remove the fan motor.

Overview of regular maintenance intervals

The following maintenance intervals must be observed within the specified periods.

| Components | Maintenance intervals | | | | |
|--|-----------------------|--------------|----------|-----------------------|-----------------------|
| | Quarterly | Twice a year | Annually | before cooling period | before heating period |
| Checking air filter* (dirt, damage, odour) | x | | | | |
| Checking air intake openings / grilles* | | x | | | |
| Checking air discharge openings / grilles* | | x | | | |
| Checking fans or fan sections* | | x | | | |
| Checking screw connections of medium lines ** | | | x | | |
| Checking electrical connections | | | x | | |
| Checking the earthing | | | x | | |
| Air venting heat exchanger ** | | | x | | |
| Checking heat exchanger and drain pan for dirt/mould and, if necessary, clean and disinfect ** | | | | x | |
| Check the condensate drain, if necessary check the on-site syphon ** | | | x | | |
| Checking cooling medium (if available) ** | | | | | x |

* If necessary, clean and remove foreign objects or replace
 ** Depends on the unit configuration

Tab. 8-1: Regular maintenance

8.2 Cleaning heat exchanger

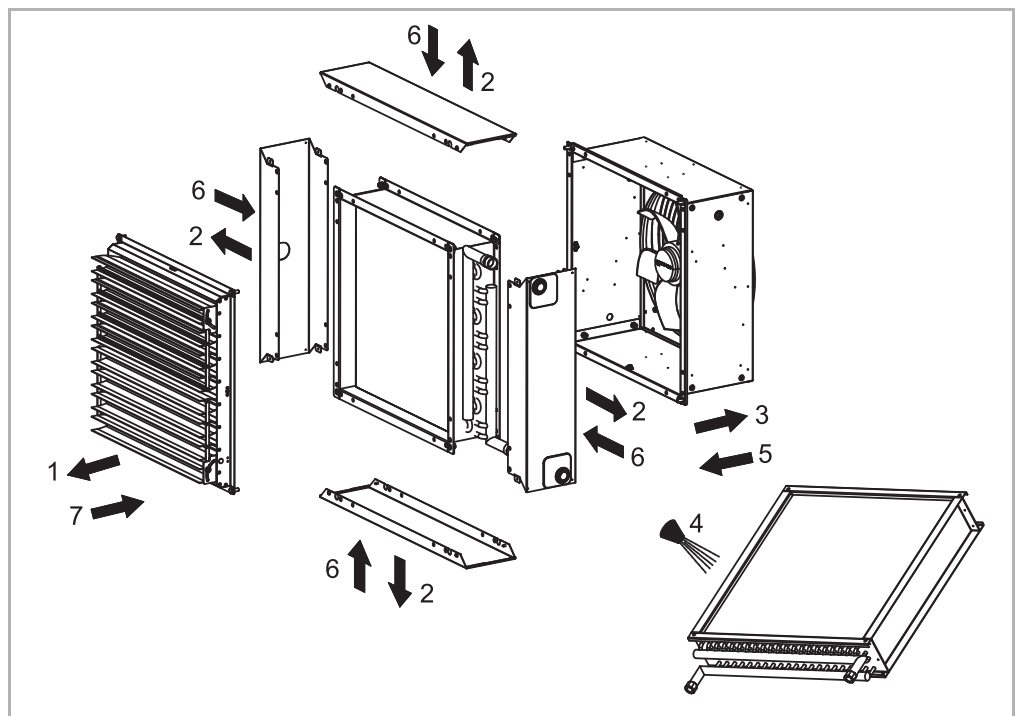


Fig. 8-1: Procedure for cleaning heat exchanger

Remove the heat exchanger before cleaning it. While removing heat exchanger the specified sequence must be adhered to (see Fig. 8-1). Compressed air or detergents and water must be used to clean a dirty heat exchanger. Replace and assemble all parts of the unit. Consider the sequence of installation steps (refer to Fig. 8-1).



Damage to the unit!

Beware not to damage fins or louvres during cleaning of heat exchanger. Non compliance will result in the reduction of heating output. Drain water from the heat exchanger if the unit heater is deactivated for the winter period. Otherwise this may cause water in the heat exchanger to freeze. When cleaning with water jet - do not direct the latter to the electric motor or electrical components, if necessary remove the fan motor.

8.3 Quarterly maintenance

8.3.1 Filter replacement

In case of reduced air flow of the unit heater its filter should be inspected and, if necessary, replaced or cleaned.

Use the type code on page Page 2 for ordering a spare filter.

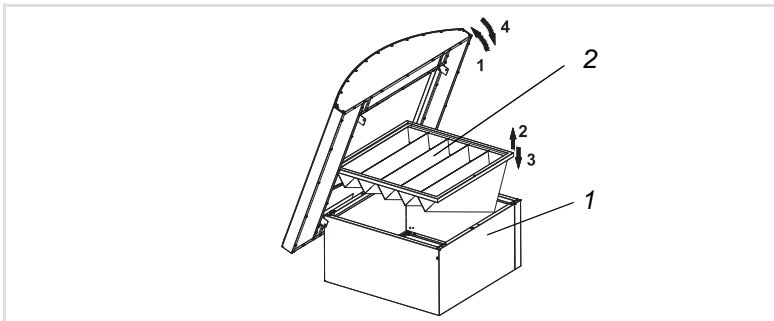


Fig. 8-2: Filter exchange in the roof hood ZHx.35xx

Pos. 1: Roof hood intake side
Pos. 2: Bag filter M5

Remove the side screws (screws with plastic caps) and open the upper section of the roof hood. Remove and replace the filter. Close the roof hood and tighten the screws.

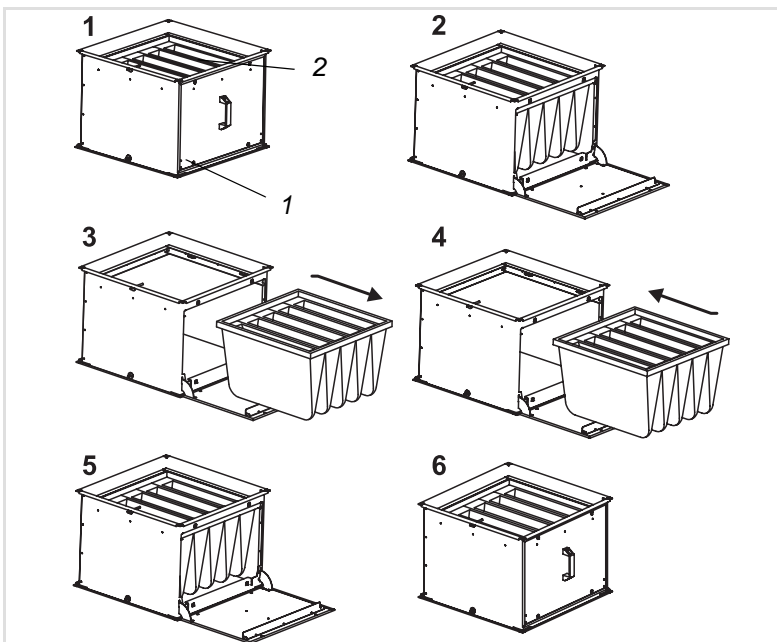


Fig. 8-3: Replacing the pocket filter insert in the pocket filter ZHx.36xx

Pos. 1: Filter chamber
Pos. 2: Bag filter M5

Unlock the side panel of the filter section (1) by slightly turning quick-action clamps by 90°, open the panel and remove and replace the filter insert (2).

After inserting the bag filter insert, close the side part of the filter chamber and secure it by turning the quick-release fastener by 90°.

8.4 Before cooling season

8.4.1 Condensate tray cleaning

Only for cooling units

- Clean the drain pan
- Check the drain connection or field-provided trap. Water must continuously drain through the drain connector, otherwise perform cleaning.

8.5 Troubleshooting

| Symptom | Possible cause | Action/remedy |
|---|--|--|
| Fan does not work Fan switch is switched on Indicator lights do not light up | Unit not switched on | Switch on unit |
| | No mains voltage | Check fuse/circuit breaker/power supply (technical personnel only) |
| | Electrical cables not connected | Connect electrical cables (technical personnel only) |
| | Faulty unit fuse | Replace fuses (technical personnel only) |
| | Controller deactivates fan after room temperature is reached | Setpoint value changed |
| Fan does not work Fan switch is switched on STOP indicator lamp (fault) lights up | Motor protection triggered | Check engine temperature and let the engine cool down if necessary and then switch on (if the problem persists, determine the cause of overheating) |
| Unit too noisy | Air intake or discharge areas blocked | Clear discharge/air intake of obstructions or bends |
| | Noisy fan bearings | Replace faulty fan (technical personnel only) |
| | Filter is dirty | Clean/replace filter |
| Unit does not heat/heats insufficiently | Fan not switched on | Switch on fan |
| | Air volume flow of unit too low | Select higher speed |
| | Air intake or discharge areas blocked | Clear or clean air flow paths |
| | Fan blocked/faulty | Check fan, replace if necessary (technical personnel only) |
| | Filter is dirty | Clean/replace filter |
| | Heating medium is not hot | Switch on the heating system (boiler) |
| | | Switch on the circulating pump |
| | | Vent the unit |
| | Water-volume flow too low | Check pump performance (qualified personnel only) |
| | | Check line balancing and adjust using calculated pressure drop (technical personnel only) |
| Setpoint temperature on the room thermostat set too low | Set a higher setpoint temperature on the room thermostat | |
| Room thermostat is placed above a heat source or is directly exposed to the sun's rays | Place the room thermostat in a suitable place (only qualified personnel) | |
| Water leakage in unit area | Heat exchanger or hydraulic Connections leaky | Heat exchanger, venting and Check valve connections for tightness |
| | | if necessary, retighten connections, clean screw insert or re-connect connections seal |
| | | for valves, check the screw connection for free movement, clean the sealing surfaces and replace the seal if necessary (qualified personnel only) |
| | | Check soldered joints between collector and heat exchanger tubes and on heat exchanger deflection bends for leaks; if any leaks found, replace heat exchanger (technical personnel only) |
| Controller switches on continuously | Heating medium temperature too high/low | Correct the external temperature curve on the controller of the boiler system. Check the control mode and adjust accordingly (technical personnel only) |

* repeated activation after troubleshooting

First set the speed selection switch on the switch box to "0", then select the required speed

If the maintenance personnel cannot remedy the fault, please request our authorized service.

9 Dismantling and Disposal



Environmental Damage!

Dismantling and disposal of the MultiMAXX HX air treatment unit may only be carried out by appropriately qualified personnel!

9.1 Dismantling

Proceed as follows when dismantling the MultiMAXX HX unit



High pressure hazard!

When carrying out decommissioning and dismantling jobs on the unit heater, shut off and evacuate/empty all connected piping until system pressure has equalized with ambient air pressure. Failure to follow safety precautions can result in serious injury.



Danger of electrical current!

When carrying out decommissioning and dismantling work on the unit heater, disconnect all power supply connections, ensure the power cannot be inadvertently energised and verify that electrical lines have been disconnected. When carrying out decommissioning and dismantling jobs on the unit, isolate all power supply connections and ensure that power cannot be inadvertently energised. Earth and isolate all adjacent live parts. Non-compliance can lead to death or serious injury.

- Disconnect all connections and ensure there are no leakages of such materials as oil, refrigerant and water-glycol mixture.
- Loosen the connection to the unit suspension.



Risk of personal injury!

Secure the unit heater against slipping. Relevant shipping instructions for GEA units must be followed.

9.2 Recycling



Recycling!

Ensure safe and environmentally-friendly disposal of operating, auxiliary and packing materials as well as spare parts.

Consider and follow local regulations and codes of practice regarding recycling procedures.

For disposal, the device components must be separated in the best possible way and sorted according to material types (see device structure on Page 10).



Environmental Damage!

Dispose of all operating materials (e.g. oil, refrigerant and water-glycol mix) and components in an environmentally-friendly manner and in compliance with local laws and regulations.

Appendix to the Operation, Installation and Maintenance Manual and Technical Data

By performing regular checks (three times a year at a maximum are required) dust, sediments and foreign matter must be cleaned and removed. Besides, the protective features must be checked as well. Inspection intervals depend on the operating conditions of the fan. The implementation of the inspection must be stated and confirmed in this installation manual.

Air heater MultiMAXX HX
(add type at 1st revision)

Accessories ZH
(add type at 1st revision)

.....
.....

Inspection 1 (*before commissioning*) performed by (date, stamp, signature)

Inspection 2 performed by (date, stamp, signature)

Inspection 3 performed by (date, stamp, signature)

Inspection 4 performed by (date, stamp, signature)

Inspection 5 performed by (date, stamp, signature)

Inspection 6 performed by (date, stamp, signature)

Inspection 7 performed by (date, stamp, signature)

Inspection 8 performed by (date, stamp, signature)

Inspection 9 performed by (date, stamp, signature)

Inspection 10 performed by (date, stamp, signature)

EC DECLARATION OF CONFORMITY

pursuant to the directive of the European Parliament and of the Council 2014/34/EU, pursuant to the directive of the European Parliament and of the Council 2006/42/EC, and pursuant to the directive of the European Parliament and of the Council 2014/30/EU /original EC Declaration of Conformity/2023/051/5AB28908

Manufacturer:

FläktGroup Czech Republic a.s., Slovanská 781, 463 12 Liberec XXV - Vesec, Czech Republic;
ID No.: 46708375

Entity authorized to compile technical documentation:

FläktGroup Czech Republic a.s., Slovanská 781, 463 12 Liberec XXV - Vesec, Czech Republic;
ID No.: 46708375

Product description:



Water and steam heating units **SAHARA[®] MAXX / MultiMAXX[®]** model


HX ##. #####. J##; HX ##. #####. L##; HX ##. #####. M##; HX ##. #####. N##; HX ##. #####. O##;
HX ##. #####. P##

Ventilation units **SAHARA[®] Vent / MAXX[®] Vent** model

VX ##. #####. J##; VX ##. #####. L##; VX ##. #####. M##; VX ##. #####. N##; VX ##. #####. O##;
VX ##. #####. P##

The products are designed for heating, cooling and ventilation in areas where there is an explosion hazard; they use water or steam as a heating medium. They are designed for operation in ambient temperature from -20°C to +40°C.

Model  II 2G Ex h IIB T4/T3 Gb: Only the heating units of model range HX ##. #####. J##; HX ##. #####. L##, sizes 1 to 4. The heating units consist of an axial ventilator powered by an electrical motor and a warm-water exchanger housed in a casing. The system used comprises an FB series axial ventilator with a MK 106-D series electrical motor in secure design  II 2G c EEx e IIB T4 made by the firm ZIEHL-ABEGG AG. The suction side of the ventilator is covered with a protective grille.

Model  II 2G Ex h IIB + H₂ T4/T3 Gb: Only the heating units of model range HX ##. #####. M##; HX ##. #####. N##; HX ##. #####. O##; HX ##. #####. P##, sizes 2 and 4. The heating units consist of an axial ventilator powered by an electrical motor designed as flameproof enclosure (E)Ex d and a warm-water or steam exchanger housed in a casing. The impeller blades and suction nozzles of fans are made of cast aluminium. The suction side of the fan is covered with a protective grid.

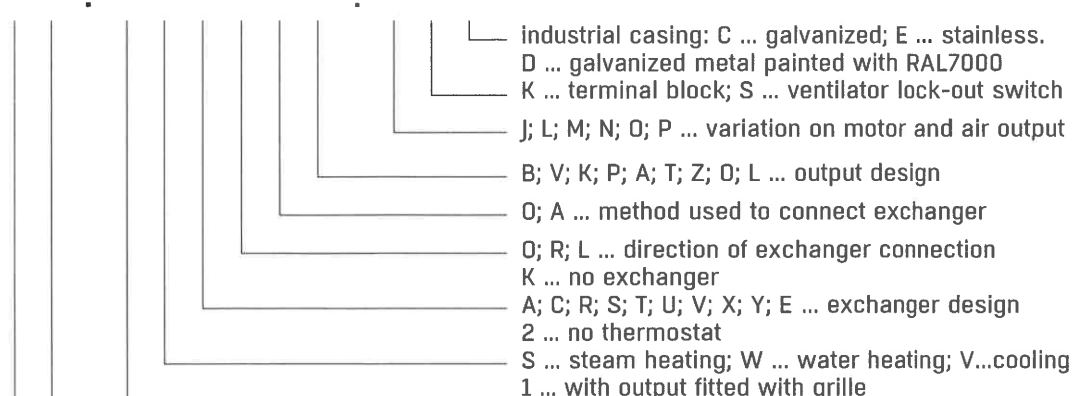
The SAHARA[®] Vent / MAXX[®] Vent ventilation units are a variant of products that has no heating exchanger. The exchanger is replaced with a frame with a protective grid.

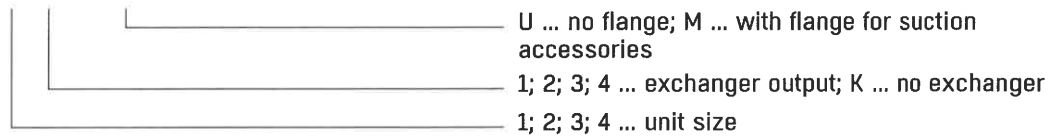
Accessories of ZH type series can be combined with the heating and ventilating units, which mainly serve for filtration, mixing or rectification of air blown into the heated and ventilated space. These products are made of steel galvanized or stainless sheet metal. Controlling the tilting shutter leaves can be manual or using a servo-drive in a non-explosive design, in case of pocket filters, an electrostatic-conductive material is used as the filtrating medium.

Labelling system (for more information see product catalogue):

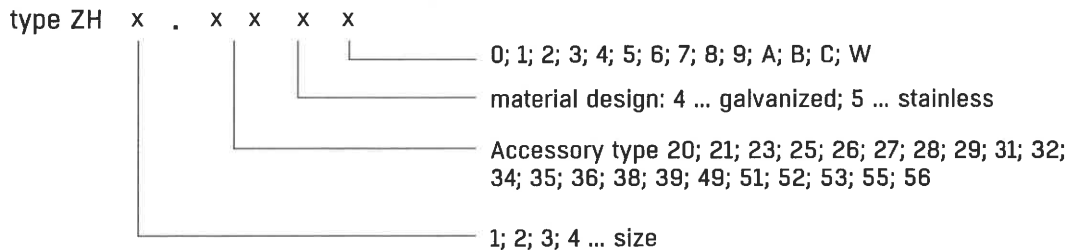
SAHARA[®] MAXX / MultiMAXX[®] type HX, SAHARA[®] Vent / MAXX[®] Vent type VX

x x . x x x x x x . x x x





ACCESSORIES for SAHARA[®] MAXX / MultiMAXX[®] type HX, SAHARA[®] Vent / MAXX[®] Vent type VX



Labelling:



II 2G Ex h IIB T4/T3 Gb

resp.



II 2G Ex h IIB+H₂ T4/T3 Gb

All relevant provisions the product conforms to:

- The directive of the European Parliament and of the Council 2014/34/EU
- The directive of the European Parliament and of the Council 2006/42/EC
- The directive of the European Parliament and of the Council 2014/30/EU

Reference to technical standards and technical specifications:

EN ISO 80079-36:2016; EN ISO 80079-37:2016; EN 14986:2017; EN ISO 14120:2015; EN ISO 12100:2010; EN ISO 13857:2008; EN ISO 3746:2010; EN ISO 11202:2010; EN 61000-6-1:2007; EN 61000-6-3:2007+A1:2011; EN 55014-1:2017; EN 55014-2:2015

COMPLIANCE ASSESSMENT METHOD:

Assessment of compliance in accordance with the directive of the European Parliament and of the Council 2014/34/EU:

| | | |
|----------------------------|--|---|
| Type revision certificates | No.: | FTZÚ 09 ATEX 0050X + Supplemet No.1, 2, 3, 4, 5, 6, 7, 8, 9 |
| | Valid: | since: 27.03.2009 (22.07.2010, 26.11.2010, 01.05.2012, 19.03.2014, 23.04.2014, 6.9.2016, 14.5.2018, 31.1.2020, 20.03.2023) to: 31.03.2028 |
| | No.: | FTZÚ 09 ATEX 0051X + Supplemet No.1, 2, 3, 4, 5, 6 |
| | Valid: | since: 27.03.2009 (22.07.2010, 26.11.2010, 01.05.2012, 19.03.2014, 23.04.2014, 6.9.2016, 14.5.2018, 31.1.2020) to: 31.01.2025 |
| Issued by | Fyzikálně technický zkušební ústav (Physical-Technical Testing Institute), NB 1026, Pikartská 7, CZ 716 07 Ostrava, Czech Republic; ID No. 577 880 | |

The manufacturer, FläktGroup Czech Republic a.s., has been certified by TÜV Rheinland/Berlin-Brandenburg in accordance with EN ISO 9001:2015

CONFIRMATION: The manufacturer FläktGroup Czech Republic a.s. hereby conforms that the properties of the products conform to the basic requirements of the regulations of European Parliament and Council 2014/34/EU, 2006/42/EC, 2014/30/EU, and the above listed technical standards and regulations. On the conditions of usual use, advised by the manufacturer, the products are safe. The manufacturer adopted such measures, through which it provides conformance of the products, launched on the market, with the technical documentation, and with the basic requirements. The manufacturer provided all necessary provision in order to make sure that the manufacturing process, including the final inspection and tests of final products, ensured uniformity of the production, and compliance of the products with the types described in the Certificate, and with the basic requirements applicable to these.

The manufacturer hereby declares that the product incorporates measures to prevent the initiation of an explosive atmosphere by excluding all electrical and non-electrical sources of initiation in accordance with art. 1.0.1. b) appendix 2 of Directive 2014/34/EU; the product complies with all the basic requirements for category II 2G equipment, is in conformity with the technical documentation, with the basic requirements of other governmental decrees relating thereto and may be operated in environments where there is the risk of explosion.

Issued at Liberec: 20.03.2023

Name, title: Ing. Eduard Horbal', chairman of the board

Signed

EXCELLENCE IN SOLUTIONS

FläktGroup is the European market leader for smart and energy efficient Indoor Air and Critical Air solutions to support every application area. We offer our customers innovative technologies, high quality and outstanding performance supported by more than a century of accumulated industry experience. The widest product range in the market, and strong market presence in 65 countries worldwide, guarantee that we are always by your side, ready to deliver Excellence in Solutions.

PRODUCT FUNCTIONS BY FLÄKTGROUP

Air Treatment | Air Movement | Air Diffusion | Air Distribution | Air Filtration
Air Management | Air Conditioning & Heating | Controls | Service

» Learn more on www.flaktgroup.com
or contact one of our office