



robatherm ATEX unit.

Disabling and disposal.

the air handling company

March 2024

English translation of the original German operating instructions

Air handling units for potentially explosive atmospheres | TI-50

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Subject to change.

For reasons of better readability, we will use gender-neutral language forms. All references to persons apply equally to all genders.

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General remarks

Information about these instructions

These instructions will facilitate safe and efficient use of the AHU.



All persons working on the AHU must thoroughly read and understand these instructions before starting any kind of work.

Safe working is dependent on adhering to all safety information and instructions.

Further information

The instructions describe all the available options. Whether and which options are available in the AHU depends on the options selected and the country for which the AHU is intended. The illustrations serve as an example and may differ.

The instructions consist of several parts and have the following structure:



Fig. 1: Parts of the instructions

Main operating instructions

- ➔ Transport and unloading
- ➔ Installation and assembly
- ➔ Commissioning
- ➔ Operation and faults
- ➔ Maintenance and cleaning
- ➔ Disabling and disposal

Disabling

If the AHU is taken out of service for an extended period, it is imperative to observe the individual information provided by the component manufacturers in addition to the instructions described in the components.

Commissioning must be performed to restore operation.

NOTE



Material damage due to freezing

Operation temperatures below 4 °C can cause frost damage to the AHU, components, and duct system if the unit is not disabled properly.

- Follow the steps for securing against restarting.
- Decommission each component as described in this manual.

Security

General risk sources

Electrical hazards due to electric current and voltage

DANGER



Risk of electric shock

Risk of death from electric current when touching parts with live voltage. If the insulation is damaged, there is risk of death from electric current.

- When the insulation is damaged, turn the voltage supply off immediately, and arrange for repair.
- Before carrying out any work on the AHU, disconnect power and voltage supply as follows:
 - Turn the main switch to position "0".
 - Secure the main switch with a lock.
 - Disconnect AHU from power and voltage supply of the supply line.
 - Ensure that the unit is disconnected.
 - Ground and short-circuit.
 - Do not bridge or switch off fuses.
 - Keep moisture away from live parts.

DANGER



Danger to life due to stored electric charge!

DC link capacitors of the frequency converter can remain charged even when the mains supply is switched off and disconnected. There is a risk of death if the discharging time is not observed.

- Wait for a discharging time of 15 minutes.

WARNING



Risk of electric shock

When the main switch is switched off, the following parts are still live and can cause injury from electric current: electrical conductors and terminals upstream of the main switch, switch cabinet lamps, surge arresters including their connected wires, cables and terminals.

- Do not touch live parts.
- Work on the switch cabinet may only be carried out by a qualified electrician.

Hazards from explosive atmosphere

WARNING



Risk of explosion from explosive atmosphere

There is a risk of explosion, as the AHU may convey a potentially explosive atmosphere.

- Purge the AHU with fresh air before opening to remove any potentially explosive atmosphere.
- Only open the AHU if it is certain that there is no potentially explosive atmosphere.
- Follow the instructions in the operating instructions.

WARNING



Risk of explosion when AHU not running

There is a risk of explosion, as the AHU may convey a potentially explosive atmosphere. When not in operation, the concentration of the potentially explosive atmosphere can change both in the AHU and in the machine room due to leakages.

- Purge the AHU with fresh air before opening to remove any potentially explosive atmosphere.
- Use electrostatically dissipative safety footwear.
- Use electrostatically dissipative protective clothing.
- Use tools complying with DIN EN 1127-1 Annex A.

WARNING



Risk of explosion from explosive atmosphere

There is a risk of explosion, as the AHU may convey a potentially explosive atmosphere. In conjunction with a source of ignition, this may result in an explosion.

- Before carrying out any work on the AHU, disconnect the power and voltage supply as follows:
 - Turn the main switch to position O.
 - Secure the main switch with a lock.
 - Disconnect the AHU from the power and voltage supply of the supply line.
 - Verify voltage-free state.
 - Earth and short circuit.
 - Never bypass or disable fuses.
 - Keep moisture away from conductive parts.
- Use electrostatically dissipative safety footwear.
- Use electrostatically dissipative protective clothing.
- Use tools complying with DIN EN 1127-1 Annex A.
- Do not take sources of ignition into the danger zone (e.g. hot surfaces, spark discharge, naked flame).
- Alternatively: gauge the danger zone to eliminate a potentially explosive atmosphere.

WARNING



Risk of explosion from electrostatic discharge

Cleaning the AHU with a dry cloth may cause a static charge. The discharge and the resulting sparks may cause an explosion.

- Only wipe the AHU with a damp cloth.
- Follow the instructions in the operating instructions.

Mechanical hazards due to machine movements

WARNING



Risk of death due to sudden switch-on

When AHU is switched off, or the electrical power supply fails, certain control functions (e.g., timer programs, pump-out, fan overshoot, frost protection) or power restoration can cause components to switch on immediately. This poses danger to life.

- Carry out the steps "Securing the AHU against restarting" (see "Main operating instructions", section "Securing against restarting").

WARNING



Danger from moving parts

After switching off the AHU, there is still a risk of death due to moving parts, as the components do not have immediate stop functions.

- Wait for all moving parts (e.g., fan, rotary heat exchanger, motor, belt drive) to come to a standstill.

Thermal hazards due to hot and cold surfaces

CAUTION



Risk of burns due to hot surfaces

Hot surfaces of components (e.g., heating coils, direct firing, pressure steam humidifiers, steam heaters) pose a risk of burn injuries during operation and even after the AHU has been switched off.

- Let the fan run to cool down to room temperature.
- Do not touch the hot surface.

CAUTION



Risk of burns due to hot surfaces

There is a risk of burns when touching hot pipes.

- Pipes outside the AHU must be insulated by the customer to make them impermeable.

CAUTION



Risk of injury due to cold surfaces

Cold surfaces of components (e.g., cooling coils, refrigeration technology) pose a risk of injury from ice burns or frostbite during operation and even after the AHU has been switched off.

- Wait until the temperature of components matches room temperature.
- Do not touch cold surfaces.

CAUTION



Risk of injury due to cold surfaces

There is a risk of injury from ice burns or frostbite when touching cold pipes.

- Pipes outside the AHU must be insulated by the customer to make them impermeable.

General hazards

WARNING



Danger to life from falling!

If a grate above an air opening is overloaded downwards (>400kg), this will cause the structure to fail. When a person steps on the grate, the structure may fail, causing a risk to life by falling through the air opening.

- Do not exceed the maximum load ($\leq 400\text{kg}$ or 2 persons).

WARNING



Danger to life from falling!

When stepping on the protection roof, there is a risk to life from falling, as the protection roof is unsuitable for supporting loads.

- Do not enter the protection roof.

NOTE



Material damage due to localized weight

If more than one person enters the AHU at a time or localized loads are otherwise applied, pans and floors may be deformed.

- Do not let several persons enter the AHU at the same time.
- If this becomes necessary, take suitable measures to distribute the weight (e.g., grates, wooden boards, wood beams).

Personnel qualification

The work described in this section may only be performed if the person has the following qualifications:

- Qualified person in accordance with pressure equipment regulation
- Qualified person in explosion protection
- Qualified electrician
- Qualified electrician in explosion protection
- Mechanic
- Cleaning specialist
- Person trained in explosion protection

Filter component

CAUTION



Allergic reactions to skin, eyes, or respiratory tract due to contact with filter dust

Filters may be contaminated with viruses, bacteria, or fungi. When removing the filters, there is a risk of allergic reactions to skin, eyes, or respiratory tract.

- Comply with work instructions.
- Wear protective clothing, gloves, safety glasses, and respiratory protection.
- Avoid contaminating the environment.

Heating and cooling coils

Heating coil

In case of a prolonged standstill, especially if there is a risk of freezing, all coils must be completely drained if no frost protection agent has been added.

1. Remove venting screws.
2. Remove drain screws.
3. To empty completely, blow air (compressed air, blower, etc.) through each coil, as up to 50 % of the medium remains in the coil when drained freely, which poses a high risk of damage in the event of frost.
4. Dispose of brine according to manufacturer's instructions.

Cooling coil

In case of a prolonged standstill, especially if there is a risk of freezing, all coils must be completely drained if no frost protection agent has been added.

1. Remove venting screws.
2. Remove drain screws.
3. To empty completely, blow air (compressed air, blower, etc.) through each coil, as up to 50 % of the medium remains in the coil when drained freely, which poses a high risk of damage in the event of frost.
4. Dispose of brine according to manufacturer's instructions.

Hydraulic set

In case of a prolonged standstill, especially if there is a risk of freezing, the hydraulic set must be drained completely.

1. Open venting and draining devices.
2. To empty completely, blow through the hydraulic set with air (compressed air, blower, etc.)

Disposal

Local regulations must be observed when disposing of components and waste to protect the environment and conserve resources.

At the end of its service life, the AHU must be dismantled by an authorized specialist company. To avoid injuries or material damage when dismantling the AHU, the precautions described for the individual components and the individual information provided by the component manufacturers must be observed.

Security

Hazards from explosive atmosphere

WARNING



Risk of explosion from explosive atmosphere

There is a risk of explosion, as the AHU may convey a potentially explosive atmosphere.

- Purge the AHU with fresh air before opening to remove any potentially explosive atmosphere.
- Only open the AHU if it is certain that there is no potentially explosive atmosphere.
- Follow the instructions in the operating instructions.

WARNING



Risk of explosion from explosive atmosphere

There is a risk of explosion, as the AHU may convey a potentially explosive atmosphere. In conjunction with a source of ignition, this may result in an explosion.

- Use electrostatically dissipative safety footwear.
- Use electrostatically dissipative protective clothing.
- Use tools complying with DIN EN 1127-1 Annex A.
- Do not take sources of ignition into the danger zone (e.g. hot surfaces, spark discharge, naked flame).
- Alternatively: gauge the danger zone to eliminate a potentially explosive atmosphere.

WARNING



Risk of explosion when AHU not running

There is a risk of explosion, as the AHU may convey a potentially explosive atmosphere. When not in operation, the concentration of the potentially explosive atmosphere can change both in the AHU and in the machine room due to leakages.

- Purge the AHU with fresh air before opening to remove any potentially explosive atmosphere.
- Use electrostatically dissipative safety footwear.
- Use electrostatically dissipative protective clothing.
- Use tools complying with DIN EN 1127-1 Annex A.

WARNING



Risk of explosion from electrostatic discharge

Cleaning the AHU with a dry cloth may cause a static charge. The discharge and the resulting sparks may cause an explosion.

- Only wipe the AHU with a damp cloth.
- Follow the instructions in the operating instructions.

General hazards

WARNING



Danger to life from falling!

If a grate above an air opening is overloaded downwards (>400kg), this will cause the structure to fail. When a person steps on the grate, the structure may fail, causing a risk to life by falling through the air opening.

- Do not exceed the maximum load ($\leq 400\text{kg}$ or 2 persons).

WARNING



Danger to life from falling!

Removing the grates in the floor causes a risk to life from falling, as the opening in the floor is exposed.

- When working on air openings with removed grates, the customer must provide protection against falling.
- After the work, mount the grates again according to the instructions.

WARNING



Risk to life from falling objects

Risk to life from being struck by falling objects.

- Cordon off the endangered area under the opening to secure persons against falling objects.
- After the work, mount the grates again according to the instructions.

WARNING



Danger to life from falling!

When stepping on the protection roof, there is a risk to life from falling, as the protection roof is unsuitable for supporting loads.

- Do not enter the protection roof.

NOTE



Material damage due to localized weight

If more than one person enters the AHU at a time or localized loads are otherwise applied, pans and floors may be deformed.

- Do not let several persons enter the AHU at the same time.
- If this becomes necessary, take suitable measures to distribute the weight (e.g., grates, wooden boards, wood beams).

Personnel qualification

The work described in this section may only be performed if the person has the following qualifications:

- Waste disposal and recycling company and waste and recycling specialist
- Qualified person in accordance with pressure equipment regulation
- Qualified person in explosion protection
- Qualified electrician
- Qualified electrician in explosion protection
- Mechanic
- Person trained in explosion protection

Filter component

CAUTION



Allergic reactions to skin, eyes, or respiratory tract due to contact with filter dust

Filters may be contaminated with viruses, bacteria, or fungi. When removing the filters, there is a risk of allergic reactions to skin, eyes, or respiratory tract.

- Comply with work instructions.
- Wear protective clothing, gloves, safety glasses, and respiratory protection.
- Avoid contaminating the environment.

Silencer

CAUTION



Allergic reactions to skin, eyes, or respiratory tract due to contact with splitters

Splitters may be contaminated with viruses, bacteria, or fungi. When removing the silencers, there is a risk of allergic reactions to skin, eyes, or respiratory tract.

- Comply with work instructions.
- Wear protective clothing, gloves, safety glasses, and respiratory protection.
- Avoid contaminating the environment.

Components and equipment

All parts and operating materials (e.g. oils, brine, batteries) must be disposed of in accordance with local regulations.

Electronic waste, metal and plastic parts are to be separated by type and recycled to conserve resources.

Panel sections are made of polyvinyl chloride (PVC).

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Fig. 1: Parts of the instructions

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