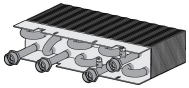
Installation manual GB/en



Air-water systems

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General information

About this manual

This manual is intended for use by fitting and installation companies, in-house technicians, technical staff, instructed persons, and qualified electricians or air conditioning technicians.

It is essential that these individuals read and fully understand this manual before starting any work. The basic prerequisite for safe working is to comply with all safety notes and instructions in this manual.

The local regulations for health and safety at work and the general safety regulations for the area of application of the ventilation unit also apply.

This manual must be given to the system owner when handing over the system. The system owner must include the manual with the system documentation. The manual must be kept in a place that is accessible at all times.

Illustrations in this manual are mainly for information and may differ from the actual design.

TROX Technical Service

To ensure that your request is processed as quickly as possible, please keep the following information ready:

- Product name
- TROX order number
- Delivery date
- Brief description of the fault

Online	*www.troxtechnik.com*
Phone	+49 2845 202-400

Warranty claims

The general delivery terms apply to warranty claims. For purchase orders placed with TROX GmbH, see Section VI, Warranty Claims, of the Delivery and Payment Terms of TROX GmbH, *www.trox.de/en/*.

Safety

Correct use

TROX air-water systems are comfort units for ventilating, cooling and/or heating rooms.

Air-water systems are airside-operated with centrally conditioned outdoor air.

Optionally, some unit types are suitable for venting, by connecting them to the on-site exhaust air system.

Water connection: Air-water systems are to be connected to a central heating and/or cooling system.

Personnel

Qualification

The work described in this manual has to be carried out by individuals with the qualification, training, knowledge and experience described below:

Transport and storage

Delivery check

Check delivered units immediately after arrival for transport damage and completeness. If necessary, remove the packaging to do so and repack after the check for ongoing protection.

Transport

WARNING!

Danger of injury from edges and sheet metal parts. Wear protective gloves for any work.

- To transport pallets, use only lifting and transport vehicles with sufficient load-bearing capacity.
- During transport, always secure the load against tipping and falling.
- Bulky equipment should be transported by at least two people, to prevent injury and damage.

Temporary storage

Air-water system are high-quality components for which the following points must be observed during storage:

- Store only in its original packaging.
- Do not directly expose to the effects of weather.
- Protect from humidity, dust and contamination.
- Storage temperature: -10 °C to +50 °C.
- Relative humidity: max. 95%, no condensation

Installation

Assembly

Air-water systems must not be used in rooms with high humidity, potentially explosive atmospheres, and rooms with very dusty or aggressive air.

WARNING!

Wear personal protective equipment during installation! Perform any work in pairs!

Before the installation, take suitable precautions to protect air distribution components from contamination during installation. → VDI 6022 If this is not possible, at least cover the unit or take other precautions to protect it from contamination. In this case, make sure the unit is not in operation. Ensure that all components are clean before you install them. If necessary, clean them thoroughly. When interrupting the installation procedure, protect all unit openings from the ingress of dust or humidity.

Installation location and fixing

Ceiling

The devices can be fixed to the available suspension points using suitable fixing material. They must be attached to all available suspension points.

Wall/under sill

The devices are set up using adjustable bases and/or using fixing points on the wall or under the sill.

Floor/underfloor

The devices are installed in the raised floor with adjustable feet. If required, the units can be screwed to the floor.

Installation information

- The installation and creation of all connections, as well as the supply of the fastening, connecting and sealing material, are carried out by the customer.
- Install the unit only on structural elements that can carry the load of the unit.
- Only use fixing systems approved by the building authorities.
- After installation, the devices must be easily accessible for cleaning purposes.

Air connection

Active air-water systems always have a outdoor air or primary air connection, as well as a hydraulic connection. Optionally, some unit types can be connected to the exhaust air system. The spigots are suitable for circular ducts according to EN 1506 or EN 13180.

Water connection

CAUTION!

Hot surfaces

Risk of burns or scalding when working on the hot water system!

Before working on the water-side connections, shut down the system, depressurise it and let it cool down.

NOTICE!

Attention

Damage to the heat exchanger possible.

When tightening the connections on the heat exchanger, use a suitable wrench to counteract this, otherwise the heat exchanger may be damaged.

General information

- We recommend that you establish the water connection on the heat exchanger using flexible connecting hoses. The connecting hoses are available as separate accessories.
- Rigid connections on the heat exchanger (soldered or screwed) must be designed in such a way that external influences on the heat exchanger, including thermal expansion, weight of the pipework, vibrations and tension, are prevented.
- The factory-made connections are hand-tight and must be tightened during installation.
- For units with a condensate drain, this drain must be properly connected.
- If possible, install control valves in the water flow and shut-off valves in the water return. Observe the flow direction of the fittings.
- Control fittings, shut-off fittings and safety fittings are required; if they are not part of the supply package, they have to be provided by the customer.
- Fittings for draining and venting are required; if they are not part of the supply package, they have to be provided by the customer.
- As a last step, check all connections to make sure they do not leak.
- We recommend insulating the supply lines in order to prevent energy losses.

2-pipe system

- 2 water connections for connection to the hot or cold water circuit.
- Operating mode: either cooling or heating
- With switching valve, heating and cooling is possible in changeover mode.

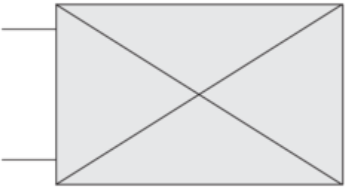

Fig. 1: Schematic illustration of the 2-pipe system

Labelling	Connection	Function
-	Cold or hot water	Cooling or heating

4-pipe system

- 4 water connections for connection to the hot and cold water circuit.
- 2 operating modes: cooling or heating.
- Water flow and return flow can be selected (in the respective circuit)

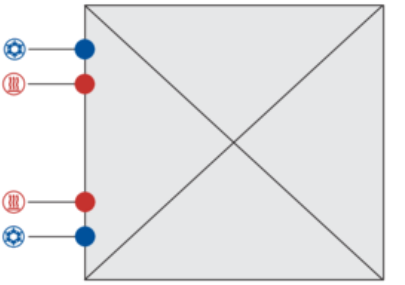

Fig. 2: Schematic illustration of the 4-pipe system

Labelling	Connection	Function
blue	Chilled water	Cooling
red	Hot water	Heating

Hot water connection max. 75 °C, for connection hoses 55 °C

Chilled water connection, 6 °C min.

Operating pressure, 6 bar max.

CAUTION!

Damage to the heat exchanger due to frost!

Only fill the heat exchanger if there is no danger of freezing.

Temperatures below the dew point

Temperatures below the dew point must be avoided as they lead to condensation which may cause damage to the building structure.

Initial commissioning

Before you start commissioning, check the following points:

- Check that the cooling panels are fitted correctly.
- Remove protective film, if any
- Ensure that all cooling panels and chilled ceiling elements are clean and free from residues and foreign matter.

NOTICE!

Hygienic requirements for ventilation and air-conditioning systems must be carried out in accordance with VDI 6022, Sheet 1.

- Check water connections for correct installation (connection hoses with oxygen diffusion barrier)

NOTICE!

The commissioning procedure is described in detail in BTGA rule 3.002

- Carry out leak and pressure tests
- Flushing the system
- Filling and venting the water-bearing system
- Carry out hydraulic balancing of the control zones.
- Actual/target comparison of the water parameters of the filling water

NOTICE!

Parallel consideration of the requirements for preventing damage in water circuits in accordance with VDI/BTGA 6044 (cold water and cooling circuits) and VDI 2035 Sheet 1 (for hot water - heating systems) is the responsibility of the competent person. The water-bearing system must be assessed as a whole so that it complies with the applicable regulations in both cooling and heating mode. Filling and supplemental must be filled into the system with the appropriate water quality in order to ensure the long-term operation of the system.

Pressure testing

A pressure test must be carried out pneumatically or hydraulically in closed water-based heating and cold or cooling water circuits in accordance with the general rules of technology or BTGA 3.002, and recorded. The hydraulic test should be carried out with the appropriate filling water quality. A pneumatic test is carried out with air or inert gas.

Rinsing/Flushing

Rinsing removes unwanted dirt particles from the water circuit. We recommend flushing with the appropriate filling water quality and taking a water sample after the flushing process is complete. Make sure that the system is completely emptied after the flushing process and then filled with suitable filling water.

Filling the system

After flushing, the system must be filled with suitable filling and supplemental water. Manufacturers' information for all installed components must be observed. Particular attention must be paid to compliance with the quality of the filling and supplemental water. During the water filling of the system, as well as during the necessary pressing or draining processes, it is recommended that these are permanently monitored.

Ventilation

Ensure complete ventilation to avoid problems in the system and to ensure full performance of the water-bearing systems. Since a continuously rising conduit to a venting point is usually impossible, thorough flushing is recommended until the system is air-free. Upstream installations must also be air-free so that no air is introduced into the ceiling system via supply lines.

Electrical connection

DANGER!

Danger of electric shock! Do not touch any voltaged components.

Electrical equipment carries a dangerous electrical voltage.

– Only qualified electricians are allowed to work on the electrical system.
– Switch off the supply voltage and secure it against being switched on accidentally before working on any electrical equipment.

Air-water systems can be equipped with electrical components, which must be connected by a qualified electrician. The connection data can be found in the installation instructions or the wiring diagrams.

- The power supply must be provided according to the wiring diagrams. The rules and regulations of the VDE (German Association of Electrical Engineering, Electronics and Information Technology) and the local electric utility must be observed.
- All air-water systems can be equipped with the optionally available control system. The wiring of the individual components must be performed by a qualified electrician. The details can be found in the wiring diagrams.

Maintenance and cleaning

Maintenance

The water quality may change during operation. The water quality must be monitored and documented at regular intervals to prevent corrosion.

Cleaning

During cleaning, the following points must be observed:

- Clean surfaces with a damp cloth.
- Use only common household cleaners, do not use any aggressive cleaning agents.
- Do not use cleaning agents that contain chlorine.
- Do not use equipment for removing stubborn contamination, e.g., scrubbing sponges or scouring cream, as it may damage the surfaces.
- The cleaning intervals given in the VDI 6022 standard apply.

DANGER!

Danger of electric shock! Do not touch any voltaged components.

Electrical equipment carries a dangerous electrical voltage.

Before cleaning, switch off the power supply to the appliances and secure them against being switched on again.

CAUTION!

When performing cleaning work on the heat exchanger, there is a danger of burns.

Before performing cleaning work, switch off the system and let it cool down.