



Read all these instructions before installation.

General information

This product must be installed by an authorised installer. The installer must be qualified to undertake electrical work and to work on pipes.

Before connection, the person in charge must ascertain which regulations apply to the district cooling installation.

Cetetherm MAXI Cooling is a substation designed to cool buildings, by means of district cooling.

See the information supplied with the delivery documentation for an explanation of how the district cooling substation works and how it should be connected.

Connecting the district cooling substation, electric power, pipework and safety equipment incorrectly may result in a major hazard and is not allowed.

This manual and other delivery documentation must be kept accessible close to the cooling substation throughout its life.

If the unit is subsequently added to or modified, the documentation must also be updated.

The owner of the building must be instructed in the operation, setting and care of the unit.

It is particularly important to provide information about the safety systems and about hazards that may arise in relation to the high pressure of the district cooling water.

Arrival inspection

Remove the transport packaging and check that the product has not been damaged in transit and that the delivered unit agrees with the specifications.

Lifting and handling

When lifting the unit, take great care to avoid subjecting pipes and heat exchangers to stresses that might affect their strength.

Use lifting eyes if provided, and a pallet lifter where possible. Note: Lifting objects as heavy as a MAXI Cooling is a very hazardous operation.

Check the weight of the unit before lifting it, and use equipment capable of handling the weight. The weight including packaging is stated on the shipping paperwork.

If the unit needs to be dismantled to move it to the installation site, carefully mark all pipes and electrical connections so that no mistakes are made during reassembly.

Installation space

The Maxi Cooling must be installed in a space where the air temperature is between 0 and +40°C, and where the humidity is lower than the dewpoint. See also the IP class of the electrical equipment supplied, in the respective manuals or product data sheets.

Set up the unit so that the installation work can be done easily and efficiently. It is important to have access to the entire unit for subsequent inspection and servicing.

The unit has adjustable feet to compensate for minor irregularities in the floor.

If the floor is very uneven, it must be made smooth before the unit is installed.

Safety valves release water to protect the installation. The area should therefore have a floor drain or some other means of draining away the discharged water.

The unit must not be installed in such a way that water, from safety valves or any other leakage that might occur, cannot be drained away.

Approvals

MAXI Cooling has been manufactured and inspected in accordance with applicable directives, i.e. the Machine Directive (MD), the Pressure Equipment Directive (PED) and the Low-Voltage Directive (LVD).

See the identification plate of the unit and the *Declaration of Conformity* for marking and further details of regulations invoked.

Safety regulations

Equipment to prevent excess pressure

On its secondary sides, the Maxi Cooling requires safety equipment to prevent excess pressure, which must protect the installation in accordance with the current CE regulations.

- Before the unit goes into service it must be protected with a non-closable safety valve on each secondary circuit.

- These safety valves must protect both the unit's own components, such as heat exchanger, and the components and pipes of the secondary system, against excessive pressure.

If these safety valves are not included in the consignment, they must be retro-fitted to the unit.

Electrical safety

A permanent installation must always include a lockable all-pole safety switch on the supply.

This safety switch may be included in the consignment. If not, it must be installed in the permanent installation.

All electric power to the unit must be switched off before any work is done on the electrical installation.

Take-up of expansion of water

An expansion vessel that can handle the entire volume expansion of the secondary system must be connected at the time of installation. The expansion vessel is not normally included in the consignment, but it must be installed before the system goes into service.

When working on the unit

Make sure that all valves are closed in the circuit to be worked on. The unit normally contains water at high pressure.

When welding or soldering on or close to the unit, combustible parts such as thermal insulation or electrical cables must be moved out of the way.

When certain materials are heated, there is a risk of fire or toxic gases.

Welding work close to the unit must be done with the earthing close to the welding point. Welding currents must NOT travel through components, especially heat exchangers.

Installation

Pipework

All pipes are marked so that they can be connected correctly. Connecting them incorrectly is dangerous.

Discharge pipes from safety valves and drain cocks must be installed so that water is directed downwards and close to the floor.

Connecting pipes must be fixed in such a way that forces, torque and movement from the pipework are not transferred to the unit.

If strainers are not supplied with the unit, they must be obtained and fitted to the primary side and to each secondary side.

It may be necessary to fit additional drain cocks and air bleed valves at the lowest and highest points of the pipework. These must be fitted with plugs to prevent damage from water if they are opened accidentally.

Pipework insulation

All cold pipes should be insulated with humidity proof insulation to prevent air humidity to condensing the pipes.

Condensation dripping on electrical components may cause damage and dripping to steel pipes may eventually cause corrosion.

Flushing

Before the system goes into service, every circuit must be flushed to remove any debris or contaminants in the system. Among other things, contaminants in the water are harmful to the heat exchanger and this may result in lower heat transfer capacity or pressure drop.

Pressure testing

Before the installation goes into service, it must be pressure-tested in accordance with local or national regulations.

According to the PED Directive, the test pressure must be at least 1.43 times the design pressure for the respective circuit. Some Maxi Cooling units are not within the PED, and may have a little lower test pressure, 1,3 x PS.

See the identification plate data for suitable test pressures (PT) for the unit.

Before circuits with safety valves are pressure-tested, the safety valves must be removed and replaced with plugs.

DO NOT plug the outlets of installed safety valves for pressure testing
- This may damage the valves.

When pressure testing is complete, refit the safety valves and check for leaks.

Filling

Before filling the system with water, retighten all joints in the unit that are fitted with a gasket.

To fill secondary side, open the incoming water supply and fill each circuit.

Observe the pressure in the secondary circuits during filling, to ensure that the maximum pressure is not exceeded. After filling, carefully close manual filling valves.

Unless there is a strainer on the return line, the primary (district cooling) side should be filled by opening the supply first.

If the unit is filled via a return line that has no strainer, debris may enter the unit and lodge in control valves, for instance. This might result in incorrect operation or leakage.

Sealing leaks in gasket joints

If a bolted or flanged joint with a gasket is leaking, de-pressurise the circuit before tightening the joint. This is because there is water between the gasket and the mating surfaces. Continuing to tighten the joint with the system under pressure will deform the gasket and it will have to be replaced to stop the leakage.

Bleeding

Air is bled from secondary circuits in the customary way. Depending on the equipment level and system type of the unit, repeated bleeding may be necessary in the initial period after starting. Cooling circuits hold more gas in the water, and it can take some time to get it all out.

Electrical connection

MAXI Cooling can be supplied with or without electrical components and control centre.

Electrical connection and installation work done when the unit is installed must undergo appropriate safety and function testing.

Electrical connection done at the factory conforms to the rules for CE marking, and has undergone electrical safety and function testing to the extent possible for the degree of completion of the unit.

A ready-wired unit is supplied with a socket to connect an outside sensor, to be installed on the coldest side of the building, normally the north side, ≥ 2 metres above ground.

Adjustment, settings

Pumps and flows in the secondary system

Maxi Cooling can be supplied with a circulation pump for one or more secondary circuits. Each circuit should be adjusted in order to extract the required performance from the substation. Make sure water quality is in accordance with VDI 2035 or similar norm, to prevent damage to pumps and/ or other equipment in the circuit.

A low return temperature or unnecessarily high flow rates on the primary side may result in excessive energy cost.

Control equipment

Check that the available primary differential pressure agrees with the design values of the unit.

The control equipment must be set for the relevant operating case, so that the control system can operate optimally and so that maximum comfort and safety is achieved.

See separate documentation about the control equipment, if equipped from delivery.

Temperature “hunting” may result in control valves, actuators and heat exchangers having to be replaced prematurely.

Modification of the unit

MAXI Cooling has been marked and documented by Cetetherm in the configuration in which it left the factory.

Any modification or extension requires a documented assessment of compliance with the directives and regulations applicable at the time of the change.

Dismantling and recycling

MAXI Cooling consists primarily of metals, steel, stainless steel, brass and copper in different amounts, depending on the size of the unit and the type of system.

When the time comes to dispose of the unit, some of these can be separated and recycled.

Non-metallic parts and components must be disposed of in the correct manner in accordance with local or national regulations.

Technical data – Cetetherm MAXI Cooling

Sign data

- Type designation
- Manufacturing no.
- Order no.
- Unit ...
 - design temperature TS
 - design pressure PS
 - test pressure PT
- Year of manufacture/week of pressure test
- Design data of heat exchanger, such as
 - capacity, kW
 - temperatures, - flow, - pressure drop
 - volume in litres per side
- Relief pressure of any safety valves supplied
- Electric power supply, single- or three-phase
- Fluid group 2 according to PED
- CE marking if applicable
- Manufacturer

The identification plate is affixed on the unit, and a copy is provided with the delivery documentation.

Weight

The weight of the unit is stated in the shipping document.

Sound level

The sound level from a Maxi Cooling does not exceed 70 dB(A) at 1.6 metres above the floor, at a distance of 1 metre.

Appendices (depending on version)

- Flowchart, description
- Operating instructions
- Declaration of conformity as per directives
- Electrical diagram
- Product data sheets for included components