



**SLOVENSKI STANDARD**  
**oSIST prEN 17671:2024**  
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**Sistemi za ogrevanje in hlajenje z vodo v stavbah - Projektiranje sistemov za hlajenje z vodo**

Heating systems and water-based cooling systems in buildings - Design for water-based cooling systems

Heizungsanlagen und wassergeführte Kühlanlagen in Gebäuden - Planung von wassergeführten Kühlanlagen

Systèmes de chauffage et systèmes de refroidissement à eau dans les bâtiments - Conception des systèmes de refroidissement à eau

**Ta slovenski standard je istoveten z: prEN 17671**

[oSIST prEN 17671:2024](https://standards.sist.net/catalog/standards/sist/41c7a7c0-4313-408c-9671-6176362724d1/osist-pr-en-17671-2024)

**ICS:**

91.140.30	Prezračevalni in klimatski sistemi	Ventilation and air-conditioning systems
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## Heating systems and water-based cooling systems in buildings - Design for water-based cooling systems

Heizungsanlagen und wassergeführte Kühlanlagen in  
Gebäuden - Norm zu wassergeführten Kühlanlagen

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<b>Contents</b>	<b>Page</b>
European foreword .....	4
<b>1 Scope</b> .....	<b>5</b>
<b>2 Normative references</b> .....	<b>6</b>
<b>3 Terms and definitions</b> .....	<b>6</b>
<b>4 Symbols and subscripts</b> .....	<b>9</b>
4.1 Symbols .....	9
4.2 Subscripts .....	10
<b>5 System design requirements</b> .....	<b>10</b>
5.1 General requirements.....	10
5.2 Requirements for preliminary design information .....	11
5.3 Chilling system.....	12
5.3.1 General.....	12
5.3.2 Sizing .....	12
5.3.3 Devices for water-based heat rejection system (recooler) .....	12
5.4 Primary and secondary distribution circuits .....	13
5.4.1 General.....	13
5.4.2 Requirements for the chilled water .....	13
5.4.3 Flow rate .....	14
5.4.4 Circulation pumps .....	14
5.4.5 Pipework.....	14
5.4.6 Hydronic balancing.....	15
5.5 Cooling emission system – coolers .....	15
5.5.1 General.....	15
5.5.2 Sizing .....	16
5.5.3 Positioning of coolers.....	16
5.5.4 Protection against damage to buildings and installations.....	16
5.5.5 Unnecessary cooling consumption.....	16
5.5.6 Cleaning.....	17
5.6 Cooling system controls.....	17
5.6.1 General.....	17
5.6.2 Central control.....	17
5.6.3 Local temperature control.....	17
5.6.4 Zone control.....	18
5.6.5 Supply temperature control .....	18
5.6.6 Time control of cooling.....	18
5.7 Safety arrangements.....	19
5.7.1 General.....	19
5.7.2 Protection against temperatures falling below the minimum system safety temperature.....	19
5.7.3 Safety valves, rating, design and arrangements .....	19
5.7.4 Flow control device .....	20
5.7.5 Pressurization systems.....	20
5.8 Operational requirements.....	21
5.8.1 General.....	21
5.8.2 Provision for monitoring operating conditions.....	21

<b>5.8.3</b>	<b>Temperature/power controller</b> .....	<b>21</b>
<b>5.8.4</b>	<b>Pressure maintaining control device</b> .....	<b>21</b>
<b>5.8.5</b>	<b>Filling and feeding device</b> .....	<b>21</b>
<b>5.9</b>	<b>Thermal insulation</b> .....	<b>22</b>
<b>5.10</b>	<b>Preventing corrosion</b> .....	<b>23</b>
<b>5.11</b>	<b>Documentation</b> .....	<b>23</b>
<b>5.12</b>	<b>Instructions for maintenance, operation and use</b> .....	<b>24</b>
<b>5.13</b>	<b>Installation and commissioning</b> .....	<b>24</b>
<b>Annex A</b>	<b>(informative) Information for the design of diaphragm expansion vessels (static pressurization and pressurization stations (dynamic pressurization) for closed systems</b> .....	<b>25</b>
<b>A.1</b>	<b>General</b> .....	<b>25</b>
<b>A.2</b>	<b>Expansion vessel size calculation</b> .....	<b>27</b>
<b>Annex B</b>	<b>(informative) Hydraulic schemes for heating and cooling</b> .....	<b>31</b>
<b>B.1</b>	<b>General</b> .....	<b>31</b>
<b>Bibliography</b>	.....	<b>37</b>

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## prEN 17671:2024 (E)

### European foreword

This document (prEN 17671:2024) has been prepared by Technical Committee CEN/TC 228 “Heating systems and Water based Cooling Systems in Buildings”, the secretariat of which is held by DIN.

This document is currently submitted to the CEN Enquiry.

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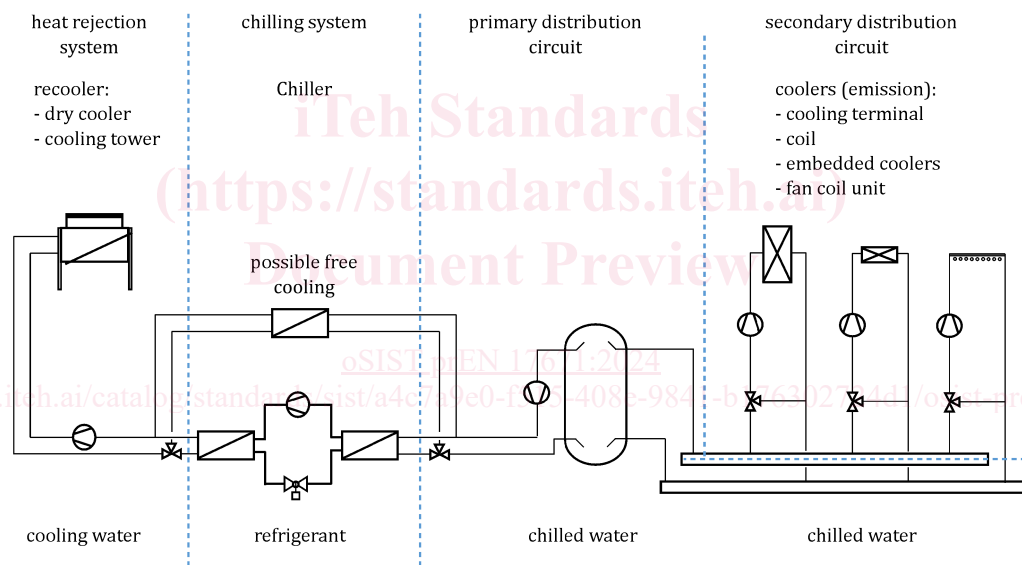
## 1 Scope

This document specifies design criteria for closed water-based cooling systems in buildings. The requirements aim at achieving a proper technical quality level and maintaining the desired thermal indoor climate with minimum energy consumption.

Systems for dissipating process heat from industrial processes, for example, are not covered by this document.

This document does not amend product standards or product installation requirements. The document covers cooling systems of the following type (see Figure 1):

- 1) devices for the water-based heat rejection of the chilling system;
- 2) devices for chilling and storage of chilled water;
- 3) devices for the distribution of chilled water;
- 4) devices for the absorption of heat (“cooling emission”);
- 5) control devices;
- 6) safety devices.



**Figure 1 — Schematic example of a water-based cooling system**

The design of such systems is described in this document. Additional safety aspects for water-based cooling systems with local operating temperatures  $\leq 0\text{ °C}$  are not covered by this document. The other clauses of this document are still valid for systems with local operating temperatures  $\leq 0\text{ °C}$ .

This document does not cover the chilling system itself, but only the parts of the chilling system which are an integral part of the cooling system, including determination of the design performance. Furthermore, this document does not cover:

- the requirements for installation or instructions for operation, maintenance and use;
- the design of the system components (e.g. re-cooler, chilling system, coolers, pipes, safety devices etc.).

**prEN 17671:2024 (E)****2 Normative references**

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN 1717, *Protection against pollution of potable water in water installations and general requirements of devices to prevent pollution by backflow*

EN 12170, *Heating systems in buildings — Procedure for the preparation of documents for operation, maintenance and use — Heating systems requiring a trained operator*

EN 12171, *Heating systems in buildings — Procedure for the preparation of documents for operation, maintenance and use — Heating systems not requiring a trained operator*

EN 16798-1:2019, *Energy performance of buildings — Ventilation for buildings — Part 1: Indoor environmental input parameters for design and assessment of energy performance of buildings addressing indoor air quality, thermal environment, lighting and acoustics — Module M1-6*

EN 14336, *Heating systems in buildings — Installation and commissioning of water based heating systems*

EN ISO 52000-1:2017, *Energy performance of buildings — Overarching EPB assessment — Part 1: General framework and procedures (ISO 52000-1:2017)*

**3 Terms and definitions**

For the purposes of this document, the following terms and definitions apply.

ISO and IEC maintain terminology databases for use in standardization at the following addresses:

- ISO Online browsing platform: available at <https://www.iso.org/obp/>
- IEC Electropedia: available at <https://www.electropedia.org/>

**3.1 chilling system**

configuration of interconnected components and appliances for the supply of chilled water to the distribution system

**3.2 chilled water**

water on the heat-absorbing side of a chiller (primary and secondary circuit)

Note 1 to entry: Usually with a temperature  $\leq 25$  °C.

**3.3 combined heating and cooling systems**

system used both for covering a heat load and the cooling load of a building, and for which there is a temporary or permanent hydraulic connection between the two respective circuits

**3.4 cooler**

device for extracting heat from a cooled space

EXAMPLE a fan coil unit, embedded cooler, cooling terminal and coil



**3.5****cooling water**

water on the heat-rejection side of a chiller

**3.6****cooled space**

space which, per design, is cooled to the specified internal design temperature and separated from other spaces by building elements, walls etc

Note 1 to entry: Usually each single (cooled) room is considered a cooled space.

**3.7****external air temperature**

air temperature outside the building

**3.8****external design temperature**

external air temperature which is used for the calculation of the design cooling load

**3.9****free cooling**

cooling that uses the natural low temperature of the air, water or earth instead of mechanical refrigeration

Note 1 to entry: Auxillary energy can be used to attain this effect.

EXAMPLE By means of ventilation during the day or night or through the direct use of cooling towers, dry coolers, seawater, groundwater or embedded coils with energy consumption for any pumps and fans.

**3.10****passive cooling**

building design approach that focuses on heat gain control and heat dissipation in a building and can consist of a combination of free cooling and protection against heat gains

**3.11****frost inhibitor**

additive to water that lowers its freezing point

**3.12****heat rejection system**

part of the cooling system which emits the rejected heat produced by the chiller to the external environment including pipes, valves, pumps and mixing systems

**3.13****lockout**

default condition resulting in a shutdown of the system and requiring a manual reset

Note 1 to entry: The intention of a lockout is to require the operator to investigate and eliminate the cause of the lockout.

**3.14****maximum operating pressure**

maximum pressure at which the system, or parts of the system, is designed to operate

**prEN 17671:2024 (E)****3.15****maximum operating temperature**

maximum temperature at which the system, or parts of the system, is designed to operate

**3.16****minimum operating temperature**

minimum temperature at which the system, or parts of the system, is designed to operate

**3.17****maximum system safety temperature**

highest temperature any component of the cooling system can accommodate

**3.18****minimum system safety temperature**

lowest temperature any component of the cooling system can accommodate

**3.19****operative temperature**

arithmetic average of the internal air temperature and the mean radiant temperature

**3.20****design cooling load**

heat flow (power) required to achieve the specified internal design temperature and/or humidity conditions under external summer design conditions

**3.21****partial cooling load**

fraction of design cooling load (occurring under typical dynamically varying cooling system operating conditions)

**3.22****pressure limiting device**

automatic operating device which prevents the maximum operating pressure from being exceeded

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**3.23****pressurization system**

system equipment (diaphragm expansion vessels, compressor-controlled pressurization units and pump-controlled pressurization units) for maintaining the pressure in closed cooling systems

Note 1 to entry: The equipment provides to maintain the system pressure between defined limits and ensures the required minimal working pressure of the cooling system. The equipment holds the accruing expansion water when the system water is heated and restores the volume when the cooling system is cooling down and contracting. Due to the design of construction, the expansion system simultaneously protects the expansion water from corrosion producing ingress of oxygen.

**3.24****primary distribution circuit**

part of the cooling system which distributes chilled water from the chilling system to the individual cooling circuits including pipes, valves, pumps and mixing systems

**3.25****room set point temperature**

operative temperature of a cooled space which is used for the calculation of the design cooling load

**3.26****secondary distribution circuit**

part of the cooling system which distributes chilled water from the primary distribution circuit to the individual coolers at the appropriate temperatures and/or flowrates including pipes, valves, pumps and mixing systems

**3.27****sealed system**

cooling system in which the cooling medium is closed to the atmosphere

**3.28****temperature controller**

automatic device intended to keep the temperature at a set point

**3.29****timing control**

method of controlling the generation, extraction or transfer of heat by using a timed program for starting and shutting down the system

**3.30****control**

method of controlling the heat flow to a cooling emission system by changing the flow rate and/or the flow temperature

**3.31****central control**

control at a central point

**3.32****local control**

control locally on the basis of the temperature of the cooled space

**3.33****zone control**

local control of a zone consisting of more than one space

**3.34****zone**

space or groups of spaces with similar thermal characteristics

**4 Symbols and subscripts****4.1 Symbols**

For the purposes of this document, the symbols given in EN ISO 52000-1:2017 and the specific symbols listed in Table 1 apply. Symbols and subscripts may have more than one denotation.