



# SLOVENSKI STANDARD

## SIST EN 17821:2023

01-september-2023

---

**Ventili v stavbah - Proti zmrzali odporne pipe za zunanjo uporabo (FRT) - Splošna tehnična specifikacija**

Building valves - Frost resistant taps for outdoor use (FRT) - General technical specification

Frostbeständige Außenarmaturen für den Außenbereich - Allgemeine technische Spezifikation

Robinetterie de bâtiment - Robinets résistant au gel pour une utilisation en extérieur (FRT) - Spécifications techniques générales

**Ta slovenski standard je istoveten z: EN 17821:2023**

---

**ICS:**

23.060.01	Ventili na splošno	Valves in general
91.140.60	Sistemi za oskrbo z vodo	Water supply systems

**SIST EN 17821:2023**

**en,fr,de**



EUROPEAN STANDARD

EN 17821

NORME EUROPÉENNE

EUROPÄISCHE NORM

July 2023

ICS 23.060.01; 91.140.60

English Version

## Building valves - Frost resistant taps for outdoor use (FRT) - General technical specification

Robineets résistant au gel pour une utilisation en  
extérieur - Spécifications techniques générales

Frostbeständige Außenarmaturen für den  
Außenbereich - Allgemeine technische Spezifikation

This European Standard was approved by CEN on 28 May 2023.

CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the CEN-CENELEC Management Centre or to any CEN member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the CEN-CENELEC Management Centre has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Republic of North Macedonia, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Türkiye and United Kingdom.

[SIST EN 17821:2023](https://standards.iteh.ai/catalog/standards/sist/0b0953c4-166f-4509-9d8b-958a908f23c4/sist-en-17821-2023)

<https://standards.iteh.ai/catalog/standards/sist/0b0953c4-166f-4509-9d8b-958a908f23c4/sist-en-17821-2023>



EUROPEAN COMMITTEE FOR STANDARDIZATION  
COMITÉ EUROPÉEN DE NORMALISATION  
EUROPÄISCHES KOMITEE FÜR NORMUNG

CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels

<b>Contents</b>	<b>Page</b>
European foreword.....	3
<b>1 Scope</b> .....	<b>4</b>
<b>2 Normative references</b> .....	<b>5</b>
<b>3 Terms and definitions</b> .....	<b>5</b>
<b>4 Materials</b> .....	<b>6</b>
4.1 <b>General</b> .....	6
4.2 <b>Dezincification resistant copper alloy</b> .....	6
4.3 <b>Corrosion</b> .....	6
<b>5 Characteristics</b> .....	<b>7</b>
5.1 <b>Dimensions and Design</b> .....	7
5.2 <b>Protection unit against backflow</b> .....	8
5.3 <b>Resistance against to damage by frost</b> .....	8
5.4 <b>Types of connection</b> .....	9
5.5 <b>General tolerances</b> .....	9
<b>6 Test methods and requirements</b> .....	<b>9</b>
6.1 <b>Determination of automatic drainage</b> .....	9
6.2 <b>Determination of resistance against damage by frost by controlled expansion</b> .....	10
6.3 <b>Leak tightness characteristics</b> .....	11
6.4 <b>Bending test</b> .....	12
6.5 <b>Torsion strength of control elements</b> .....	14
6.6 <b>Mechanical endurance characteristics of the operating mechanism</b> .....	15
6.7 <b>Resistance under internal pressure</b> .....	16
6.8 <b>Flow rate</b> .....	18
6.9 <b>Acoustic behaviour</b> .....	18
<b>7 Marking and technical product information</b> .....	<b>19</b>
7.1 <b>General</b> .....	19
7.2 <b>Marking</b> .....	19
7.3 <b>Technical product information</b> .....	19
<b>Annex A (informative) Tests and sampling</b> .....	<b>21</b>
<b>Bibliography</b> .....	<b>22</b>

## European foreword

This document (EN 17821:2023) has been prepared by Technical Committee CEN/TC 164 “Water supply”, the secretariat of which is held by AFNOR.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by January 2024, and conflicting national standards shall be withdrawn at the latest by January 2024.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN shall not be held responsible for identifying any or all such patent rights.

Any feedback and questions on this document should be directed to the users’ national standards body. A complete listing of these bodies can be found on the CEN website.

According to the CEN-CENELEC Internal Regulations, the national standards organisations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Republic of North Macedonia, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Türkiye and the United Kingdom.

**iTeh STANDARD PREVIEW**  
**(standards.iteh.ai)**

SIST EN 17821:2023

<https://standards.iteh.ai/catalog/standards/sist/0b0953c4-166f-4509-9d8b-958a908f23c4/sist-en-17821-2023>

## EN 17821:2023 (E)

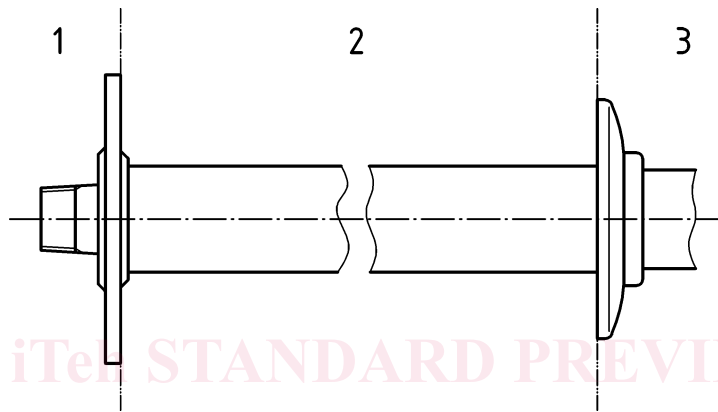
## 1 Scope

This document specifies:

- general construction, performance and material requirements for Frost Resistant Taps for outdoor use (FRT), PN 10.
- the application in the potable water installation with a static pressure of maximum 1,0 MPa (10 bar) and a distribution temperature of maximum 25 °C (PWC).

FRT valves shall consist of the 3 areas shown in Figure 1.

The conditions of use are according to the following Table 1.



### Key

- 1 indoor area
- 2 area in the wall
- 3 outdoor area

SIST EN 17821:2023

<https://standards.iteh.ai/catalog/standards/sist/0b0953c4-166f-4509-9d8b-958a908f23c4/sist-en-17821-2023>

**Figure 1 — The different areas of FRT**

**Table 1 — Conditions of use**

Supply	Dimension	Operating Range	
		recommended	limits
Pressure	DN 15 to DN 20	$\leq 1,0$ MPa (10,0 bar)	
Pressure static — max.		0,1 to 0,5 MPa (1 to 5 bar)	$\geq 0,05$ MPa (0,5 bar)
Pressure dynamic		$\leq 25$ °C	
Temperature cold — PWC			

The requirements with regard to the potable water quality are specified in national regulations.

## 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 248:2002, *Sanitary tapware - General specification for electrodeposited coatings of Ni-Cr*

EN 1254 (all parts), *Copper and copper alloys - Plumbing fittings*

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

EN ISO 3822 (all parts), *Acoustics - Laboratory tests on noise emission from appliances and equipment used in water supply installations (ISO 3822 (all parts))*

EN ISO 6509-1, *Corrosion of metals and alloys - Determination of dezincification resistance of copper alloys with zinc - Part 1: Test method (ISO 6509-1)*

EN ISO 9227, *Corrosion tests in artificial atmospheres - Salt spray tests (ISO 9227)*

ISO 228-1, *Pipe threads where pressure-tight joints are not made on the threads — Part 1: Dimensions, tolerances and designation*

ISO 7-1, *Pipe threads where pressure-tight joints are made on the threads — Part 1: Dimensions, tolerances and designation*

## 3 Terms and definitions

For the purposes of this document, the terms and definitions given in EN 1717 and the following 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 FRT

frost resistant tap for outdoor use defined by:

- method of achieving frost resistance (for example by drainage or by controlled expansion);
- pre-assembled or assembled on-site;
- fix and adjustable length;
- one or two outlets (shall be safe for every outlet)

### 3.2 PWC

potable water cold

Note 1 to entry: The temperature is not higher than 25 °C according to the European Potable Water Directive.

**EN 17821:2023 (E)****3.3****indoor area**

area inside of the wall of the buildings

Note 1 to entry: The air temperature shall be higher than 0 °C.

**3.4****area in the wall**

wall of the building

Note 1 to entry: Locally, the temperature can be lower than 0 °C.

**3.5****outdoor area**

area in front of the wall of the buildings

**4 Materials****4.1 General**

The end connection in the indoor area (1) and the body in the front of the wall (3) – as indicated in Figure 1 – shall be made of metallic materials.

All materials which coming into contact with water intended for human consumption shall present no health risk nor cause any change to the water in terms of quality, appearance, smell or taste.

NOTE It is noted that while awaiting the adoption of verifiable European criteria for testing materials in contact with water intended for human consumption, existing national regulations concerning the use and/or the characteristics of these products remain in force.

**4.2 Dezincification resistant copper alloy**

Copper-zinc alloys containing more than 15 % zinc are subject to dezincification when submitted to water capable of dezincification. In the countries where the use of products made of dezincification resistant materials is required, the materials used shall guarantee a dezincification depth less than 200 µm in any direction. For this purpose, materials shall be tested in accordance with EN ISO 6509-1 and the product shall be marked in compliance with the indications according to Clause 7.

**4.3 Corrosion****4.3.1 General**

The applied materials shall be corrosion resistant or protected against corrosion. The materials used shall not have an adverse effect on each other.

**4.3.2 Corrosion resistance test****4.3.2.1 General**

The purpose of the corrosion resistance test is to qualify all used materials of the external part of the FRT (Figure 1, area 3), especially when used in a humid atmosphere where condensation water can occur. The whole FRT shall be tested, not only the parts in contact with potable water, e.g. springs, spring caps, etc.

**4.3.2.2 Test method**

Samples shall be prepared for the corrosion resistance test as described as follows.



Carry out the test under the conditions described in EN ISO 9227 specifically for the neutral saline-spray test, in the following way:

- a) Subject the device to spraying for at least 100 h, interrupt the spraying treatment for  $(48 \pm 1)$  h while maintaining the heat in the tank and resume the spraying treatment for another  $(100 \pm 1)$  h.
- b) For the duration of the tests, the tank should only be opened to check and maintain the conditions, the maximum rest period in spraying being 30 min per day. The heating should not be interrupted; samples under test should not be handled, washed or checked.
- c) After treatment and before visual examination, rinse the test samples in water to remove any salt residue.

#### 4.3.2.3 Requirements

The FRT shall comply with the requirements given in EN 248:2002, 5.1.

After the test, the FRT shall be disassembled and inspected visually for corrosion. No corrosion shall occur on any component.

## 5 Characteristics

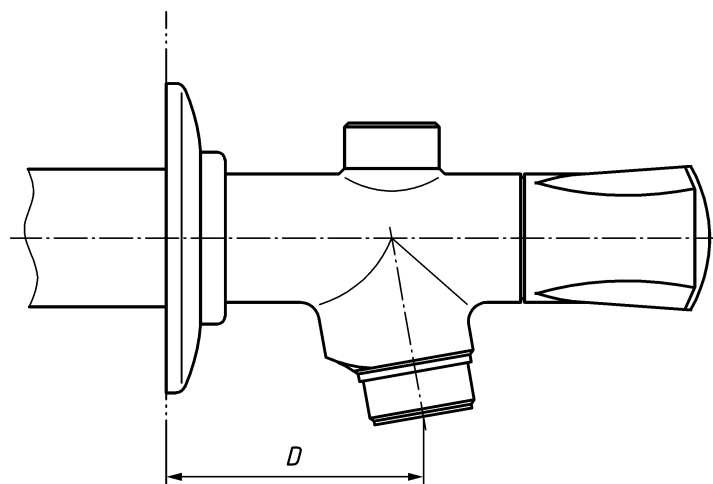
### 5.1 Dimensions and Design

For the different kind of FRT are the defined distances and requirements in this document to fulfil.

Internal or external threads at the inlet and outlet of the FRT shall comply with ISO 228-1 or ISO 7-1.

The design and construction of components without defined dimensions permits various design solutions to be adopted by the manufacturer.

The minimum required distances to the wall are shown in Table 2. Figure 2 and Figure 3 are only an illustration of possibilities for design/construction.

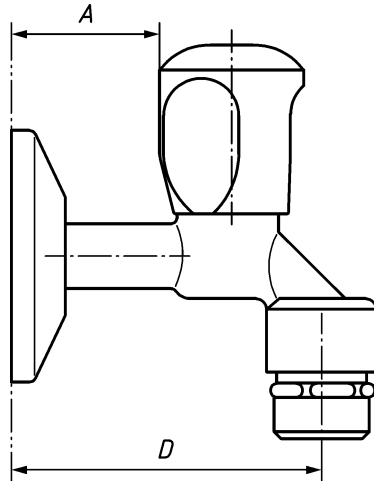


#### Key

$D$  distance between wall and the outlet

NOTE For the “front operated” FRT, other designs and/or angles for the outlet are possible.

**Figure 2 — Outlet dimensions for FRT (“front operated”)**

**Key**

- A* distance between wall to handle  
*D* distance between wall to outlet

NOTE For the “above operated” FRT, other designs are possible. The distance *D* is between the wall and the cross point of middle line and thread end.

**Figure 3 — Outlet dimensions for FRT (“above operated”)**

**Table 2 — Outlet dimensions**

Dimensions in mm

<i>D</i>	min. 30
<i>A</i>	min. 30

## 5.2 Protection unit against backflow

A protection unit against backflow shall be integrated in the complete product.

When/If the tap has the possibility to connect fitting/pipe to the outlet the backflow prevention shall comply with the relevant product standard for anti-pollution device referenced in EN 1717.

## 5.3 Resistance against to damage by frost

### 5.3.1 General

FRT shall be prevented for damage by frost by means of valves with drainage function. Following two kinds of resistance against to damage by frost are possible:

- automatic drainage;
- controlled expansion (without drainage function).

### 5.3.2 FRT with automatic drainage

The test procedure for FRT with automatic drainage as defined in 6.1.

### 5.3.3 FRT with controlled expansion (without drainage function)

The test procedure for FRT with controlled expansion (without drainage function) as defined in 6.2.

## 5.4 Types of connection

Inlet connections shall comply with the EN 1254 series, with the exception of EN 1254-1 and EN 1254-5 (ends for capillary soldering or capillary brazing to copper tubes).

Valves with threaded connection ends shall have flats on the body which, when used for fitting, shall accommodate commercially available tools.

The connection ends as applied shall be suitable (and approved as such) for the nominal pressure of the valve.

Other types of connection may be used when in accordance with EN 1213:1999, Table 1.

## 5.5 General tolerances

### 5.5.1 Tolerance of set parameters

In the absence of any particular specifications:

- flow rate and pressure:  $\pm 2\%$  of the value specified;
- temperature: cold water  $\pm 5\text{ °C}$  of the value specified; other values  $\pm 2\text{ °C}$  of the value specified;
- time  $\begin{matrix} 10\% \\ 0 \end{matrix}$  of the value specified.

### 5.5.2 Accuracy of measuring instruments

All the measuring instruments shall have an accuracy of  $\pm 2\%$  of the measured value, except for temperature measurement accuracy shall be  $\pm 1\text{K}$ .

## 6 Test methods and requirements

### 6.1 Determination of automatic drainage

#### 6.1.1 General

This clause describes a test method that shall be carried out to verify the determination of automatic drainage of the complete FRT and specifies the test criteria.

#### 6.1.2 Test method

##### 6.1.2.1 Principle

- a) Determine the weight ( $M_1$ ) of the empty tap and cap(s) with an accuracy of  $\pm 1\text{ g}$ .
- b) Fill the tap completely with water, close the outlet(s) with a cap and also close the vacuum breaker.
- c) Determine the total weight of the tap filled with water ( $M_2$ ), with an accuracy of  $\pm 1\text{ g}$ .
- d) Drain the tap and mount the tap in accordance to the mounting instructions of the manufacturer.
- e) Rinse the tap with a free outlet.
- f) Close the tap.