



# SLOVENSKI STANDARD

## oSIST prEN 13828:2023

01-april-2023

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**Ventili v stavbah - Ročni krogelni ventili iz bakrene zlitine in krogelni ventili iz nerjavnega jekla za oskrbo s pitno vodo v stavbah - Preskusi in zahteve**

Building valves - Manually operated copper alloy and stainless steel ball valves for potable water supply in buildings - Tests and requirements

Gebäudearmaturen - Handbetätigte Kugelhähne aus Kupferlegierungen und nicht rostenden Stählen für Trinkwasseranlagen in Gebäuden - Prüfungen und Anforderungen

Robinetterie de bâtiment - Robinets d'arrêt à tournant sphérique actionnés à la main en alliage de cuivre et en acier inoxydable pour la distribution d'eau potable dans les bâtiments - Essais et exigences

**Ta slovenski standard je istoveten z: prEN 13828**

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**ICS:**

23.060.20	Zapirni ventili (kroglasti in pipe)	Ball and plug valves
91.140.60	Sistemi za oskrbo z vodo	Water supply systems

**oSIST prEN 13828:2023**

**en,fr,de**



EUROPEAN STANDARD  
NORME EUROPÉENNE  
EUROPÄISCHE NORM

**DRAFT**  
**prEN 13828**

February 2023

ICS 23.060.20

Will supersede EN 13828:2003

English Version

## Building valves - Manually operated copper alloy and stainless steel ball valves for potable water supply in buildings - Tests and requirements

Robinetterie de bâtiment - Robinets d'arrêt à tournant sphérique actionnés à la main en alliage de cuivre et en acier inoxydable pour la distribution d'eau potable dans les bâtiments - Essais et exigences

Gebäudearmaturen - Handbetätigte Kugelhähne aus Kupferlegierungen und nicht rostenden Stählen für Trinkwasseranlagen in Gebäuden - Prüfungen und Anforderungen

This draft European Standard is submitted to CEN members for enquiry. It has been drawn up by the Technical Committee CEN/TC 164.

If this draft becomes a European Standard, 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.

This draft European Standard was established by CEN 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.

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Recipients of this draft are invited to submit, with their comments, notification of any relevant patent rights of which they are aware and to provide supporting documentation.

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

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

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**prEN 13828:2023 (E)**

## **European foreword**

This document (prEN 13828:2023) has been prepared by Technical Committee CEN/TC 164 “Water supply”, the secretariat of which is held by AFNOR.

This document is currently submitted to the CEN Enquiry.

This document will supersede EN 13828:2003.

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## Introduction

With respect to potential adverse effects on the quality of water intended for human consumption, caused by the product covered by this document:

- This document provides no information as to whether the product may be used without restriction in any of the member states of the EU or EFTA;
- It should be noted that, while awaiting the adoption of the verifiable European criteria, existing national regulations concerning the use and/or the characteristics of this product remain in force.
- The requirements with regard to the drinking water quality are specified in national regulations.

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## 1 Scope

This document applies primarily to copper alloy and stainless steel ball valves with dimensions DN 6 to DN 100, for installations in buildings for potable water supply up to PN16 and a maximum distribution temperature of 65 °C. Occasional excursions up to 90 °C are permitted for a period of 1 h maximum.

The ball valves are classified by their nominal pressure being either PN10 or PN16.

This document specifies:

- the requirements of the materials and the design of ball valves;
- the mechanical, hydraulic and acoustic requirements of ball valves;
- the test methods to verify the requirements of ball valves;
- the marking requirements of ball valves.

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

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

EN ISO 3822-1, *Acoustics - Laboratory tests on noise emission from appliances and equipment used in water supply installations - Part 1: Method of measurement (ISO 3822-1)*

EN ISO 3822-3, *Acoustics - Laboratory tests on noise emission from appliances and equipment used in water supply installations - Part 3: Mounting and operating conditions for in-line valves and appliances (ISO 3822-3)*

EN ISO 5211, *Industrial valves - Part-turn actuator attachments (ISO 5211)*

EN ISO 6509, *Corrosion of metals and alloys - Determination of dezincification resistance of brass (ISO 6509)*

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

ISO 65, *Carbon steel tubes suitable for screwing in accordance with ISO 7-1*

## 3 Terms and definitions

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

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

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



### 3.1

#### ball valves

valves in which a ball, operated manually or via an actuator, rotates around an axis perpendicular to at least one of the directions of flow; the ball has a hole where in open position the water will flow through, in a straight or angled line

Note 1 to entry: Ball valves have a normal operating position of either fully open or fully closed. Ball valves will be opened or closed by a single turn through 90°.

Note 2 to entry: The following types are covered:

- straight pattern ball valves;
- angle pattern ball valves;
- three way valves (1 inlet, 2 outlets).

### 3.2

#### nominal size

##### DN

nominal size of the ball valves is related to the size of the connection ends

Note 1 to entry: See Table 1.

Note 2 to entry: For valves provided with connection ends in different sizes, the nominal size (DN) of the smallest connection end is leading and determines the minimum bore of the ball (Table 2 and Table 3).

## 4 Designation

The designation of a ball valve comprises:

- Design of the body (straight, angled or three way);
- type and material;
- nominal size (DN);
- bore (full or reduced);
- nominal pressure (PN);
- end connections;
- acoustic group (if applicable);
- number of this document, i.e. prEN 13828.

EXAMPLE Straight pattern ball valve (S) of copper alloy, DN 25, PN 16, with threads Rp 1 on both sides, acoustic group 1, according to prEN 13828.

## 5 Design characteristics

### 5.1 Materials

#### 5.1.1 General

All materials 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 should be 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.

#### 5.1.2 Body materials

##### 5.1.2.1 General

All parts of the body shall be made of a copper alloy or stainless steel.

##### 5.1.2.2 Dezincification resistant copper alloy

Copper-zinc alloys containing more than 15 % zinc are subjected 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 and the product shall be marked in compliance with the indications according to Clause 9.

#### 5.1.3 Corrosion resistance

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

When tested to the neutral salt spray (NSS) test according to the EN ISO 9227 for a duration of  $(96 \pm 1)$  h, no corrosion which could impair the device's operation shall be revealed by visual examination (disregarding possible salt deposits). After the test, the valve shall not show any internal and/or external leakage when being tested according to 6.8.

#### 5.1.4 Anti corrosive layer of the ball

Applied metallic anticorrosive protection layers shall fulfil the requirements of EN 248.

For this purpose, a separate ball shall be tested.

### 5.2 Connection ends

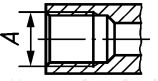
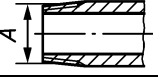
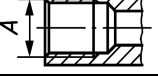
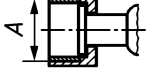
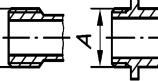
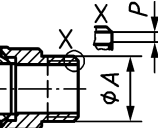
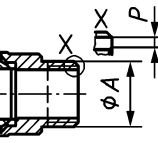
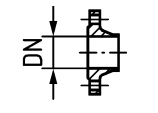
#### 5.2.1 General

Connection ends shall comply with EN 1254 (all parts), with the exception of EN 1254-1 and EN 1254-5 (ends for capillary soldering or capillary brazing to copper tubes). Examples of connection ends are defined in Table 1.

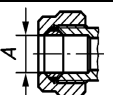
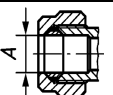

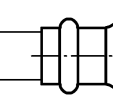
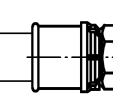
Valves with threaded connection ends shall have flats on the body which, when used for fitting, shall accommodate commercially available tools.

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

Table 1 — End connections and nominal sizes (DN)

Type		Dimension	DN 6	DN 8	DN 10	DN 15	DN 20	DN 25	DN 32	DN 40	DN 50	DN 65	DN 80	DN 100
Internal thread to EN 10226-1		A	R <sub>p</sub> or R <sub>c</sub> 1/8	R <sub>p</sub> or R <sub>c</sub> 1/4	R <sub>p</sub> or R <sub>c</sub> 3/8	R <sub>p</sub> or R <sub>c</sub> 1/2	R <sub>p</sub> or R <sub>c</sub> 3/4	R <sub>p</sub> or R <sub>c</sub> 7/8 R <sub>p</sub> or R <sub>c</sub> 1	R <sub>p</sub> or R <sub>c</sub> 1 1/4	R <sub>p</sub> or R <sub>c</sub> 1 1/2	R <sub>p</sub> or R <sub>c</sub> 2	R <sub>p</sub> or R <sub>c</sub> 2 1/2	R <sub>p</sub> or R <sub>c</sub> 3	R <sub>p</sub> or R <sub>c</sub> 4
External thread to EN10226-1		A	R 1/8	R 1/4	R 3/8	R 1/2	R 3/4	R 1	R 1 1/4	R 1 1/2	R 2	R 2 1/2	R 3	R 4
Internal thread to ISO 228-1		A	G 1/8	G 1/4	G 3/8	G 1/2	G 3/4	G 1	G 1 1/4	G 1 1/2	G 2	G 2 1/2	G 3	G 4
Union end connections (nut) to ISO 228-1		A	—	G 3/8	G 1/2	G 3/4	G 7/8 G 1	G 1 1/4	G 1 1/2	G 2	G 2 1/2	—	—	—
external thread with shoulder to ISO 228-1		A	G 1/8 B	G 1/4 B	G 3/8 B	G 1/2 B	G 3/4 B	G 1 B	G 1 1/4 B	G 1 1/2 B G 1 3/4 B	G 2 B G 2 3/8 B <sup>a</sup>	G 2 1/2 B	G 3 B	G 4 B
Flat faced external thread to ISO 228-1		A	G 1/4 B	G 3/8 B	G 1/2 B	G 3/4 B	G 1 B	G 1 1/4 B	G 1 1/2 B G 1 3/4 B	G 2 B G 2 3/8 B <sup>a</sup>	G 2 1/2 B	G 3 B	G 3 1/2 B	—
Flat face for sealing purposes		P	≥ 1	≥ 1	≥ 1,5	≥ 1,7	≥ 2	≥ 2,2	≥ 2,5	≥ 2,5	≥ 3	≥ 3	≥ 3	≥ 3
Flanged connection to ISO 7005-3 (EN 1092-1, -2 and -3)		DN	—	—	—	15	20	25	32	40	50	65	80	100

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Type		Dimension	DN 6	DN 8	DN 10	DN 15	DN 20	DN 25	DN 32	DN 40	DN 50	DN 65	DN 80	DN 100
Compression end for copper pipe to EN 1254-2		A	—	10	12	14/15/ 18	22	28	35	42	54	76,1	88,9	108
Polyethylene pipe compression joints to EN 1254-3		A	—	—	—	20	25	32	40	50	63	75	90	110
Press ends for metallic tubes EN 1254-7		A	—	10	12	14/15/ 18	22	28	35	42	54	76,1	88,9	108
Ends for use with plastics and multilayer pipes to EN 1254-8		A	/10	12/14/ 15/16	18/20	/25/26	/32	/40	/50	/63	/75	/90	/110	/—

<sup>a</sup> Although this dimension has not been included in the ISO 228-1 it is used to connect the ball valves to other standardized devices and appliances.