



# SLOVENSKI STANDARD

## SIST EN 13433:2022

01-februar-2022

Nadomešča:  
SIST EN 13433:2006

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**Naprave za varovanje pitne vode pred onesnaženjem zaradi povratnega toka - Mehanski ločilniki z neposrednim aktiviranjem - Družina G, tip A**

Devices to prevent pollution by backflow of potable water - Mechanical disconnecter, direct actuated - Family G, type A

Sicherungseinrichtungen zum Schutz des Trinkwassers gegen Verschmutzung durch Rückfließen - Rohrtrenner, nicht durchflussgesteuert - Familie G, Typ A

Dispositifs de protection contre la pollution par retour de l'eau potable - Disconnecteur mécanique à action directe - Famille G, type A

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**Ta slovenski standard je istoveten z: EN 13433:2021**

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**ICS:**

13.060.20	Pitna voda	Drinking water
23.060.50	Blokirni ventili	Check valves
91.140.60	Sistemi za oskrbo z vodo	Water supply systems

**SIST EN 13433:2022**

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EUROPEAN STANDARD

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NORME EUROPÉENNE

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English Version

## Devices to prevent pollution by backflow of potable water - Mechanical disconnecter, direct actuated - Family G, type

A

Dispositifs de protection contre la pollution par retour  
de l'eau potable - Disconnecteur mécanique à action  
directe - Famille G, type A

Sicherungseinrichtungen zum Schutz des Trinkwassers  
gegen Verschmutzung durch Rückfließen -  
Rohrtrenner, nicht durchflussgesteuert - Familie G, Typ  
A

This European Standard was approved by CEN on 8 November 2021.

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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

<b>Contents</b>	<b>Page</b>
European foreword .....	4
Introduction .....	4
1 Scope.....	6
2 Normative references.....	6
3 Terms and definitions.....	7
4 Denomination.....	9
5 Designation .....	9
6 Symbolization.....	9
7 Physical-chemical characteristics.....	10
7.1 General.....	10
7.2 Materials .....	10
7.2.1 General.....	10
7.2.2 Dezincification resistant copper alloy .....	10
7.3 Surface of the body .....	10
7.3.1 General.....	10
7.3.2 Epoxy Coating.....	11
7.3.3 Polyamide Powder based Coating .....	11
8 Design.....	11
8.1 General.....	11
8.2 Relief valve/Obturator.....	11
8.2.1 General.....	11
8.2.2 Mechanical Disconnecter Family G, Type A.....	12
8.3 Disconnection distance.....	12
9 Characteristics and tests .....	12
9.1 General.....	12
9.2 General tolerances .....	12
9.2.1 Tolerance of set parameters.....	12
9.2.2 Accuracy of measuring instruments .....	12
9.3 Dimensional characteristics .....	12
9.3.1 Connections.....	12
9.3.2 Pressure taps.....	12
9.4 Mechanical characteristics.....	13
9.4.1 General.....	13
9.4.2 Mechanical resistance of the body under pressure.....	13
9.4.3 Endurance.....	14
9.4.4 Torque test of Captive rotating Nuts and Bending Strength - Tightness of the Body	15
9.5 Leak tightness characteristics.....	16
9.5.1 Verification of the leak tightness of the downstream check valve in closing direction.....	16
9.5.2 Verification of the leak tightness of check valve device (opening direction) .....	16
9.5.3 Verification of the leak tightness of the upstream spring loaded obturator in drain position at low pressure (in the opening direction) .....	17
9.6 Hydraulic characteristics.....	18

9.6.1	Test rig – General circuit.....	18
9.6.2	Verification of the pressure loss as a function of flow rate .....	19
9.6.3	Verification of the opening and closing pressures of relief valve .....	20
9.6.4	Verification of the relief valve flow rate.....	20
9.6.5	Compatibility with the products used for disinfection of water distribution systems.....	21
9.6.6	Acoustic tests.....	21
10	Order of testing .....	22
11	Marking and technical documents .....	23
11.1	General .....	23
11.2	Marking .....	23
11.3	Technical documents .....	24
12	Presentation at delivery.....	24
Annex A (informative) Examples of presentation of test results.....		25
Bibliography .....		28

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**EN 13433:2021 (E)**

## European foreword

This document (EN 13433:2021) 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 June 2022, and conflicting national standards shall be withdrawn at the latest by June 2022.

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, Turkey and the United Kingdom.

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## Introduction

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

- 1) this document provides no information as to whether the product can be used without restriction in any of the member states of the EU or EFTA;
- 2) it should be noted that, while awaiting the adoption of verifiable European criteria, existing national regulations concerning the use and/or the characteristics of this product remain in force.

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**EN 13433:2021 (E)****1 Scope**

This document specifies the dimensional, physical-chemical, design, hydraulic, mechanical and acoustic characteristics of mechanical disconnectors, direct actuated Family G, Type A.

This document is applicable to mechanical disconnectors in nominal sizes DN 8 up to DN 250, intended to prevent the return of water having lost its original sanitary and drinking qualities (called “polluted water” in this document), into the potable water distribution system whenever the pressure of the latter is temporarily lower than in the polluted circuit.

This document covers the mechanical disconnectors of PN 10 that are capable of working without modification or adjustment:

- at any pressure up to 1,0 MPa (10 bar);
- with any pressure variation up to 1,0 MPa (10 bar);
- in permanent duty at a limit temperature of 65 °C and 90 °C for 1 h maximum.

It specifies also the test methods and requirements for verifying these characteristics, the marking and the presentation at delivery.

**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 806-1, *Specifications for installations inside buildings conveying water for human consumption - Part 1: General*

EN 1329-1, *Plastics piping systems for soil and waste discharge (low and high temperature) within the building structure - Unplasticized poly(vinyl chloride) (PVC-U) - Part 1: Specifications for pipes, fittings and the system*

EN 1453-1, *Plastics piping systems with structured-wall pipes for soil and waste discharge (low and high temperature) inside buildings - Unplasticized poly(vinyl chloride) (PVC-U) - Part 1: Specifications for pipes and the system*

EN 1717:2000, *Protection against pollution of potable water in water installations and general requirements of devices to prevent pollution by backflow*

EN 10310:2003, *Steel tubes and fittings for onshore and offshore pipelines - Internal and external polyamide powder based coatings*

EN 13959, *Anti-pollution check valves - DN 6 to DN 250 inclusive family E, type A, B, C and D*

EN 14901-1, *Ductile iron pipes, fittings and accessories - Requirements and test methods for organic coatings of ductile iron fittings and accessories - Part 1: Epoxy coating (heavy duty)*

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

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 3822-3:2018, *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 3822-3:2018)*

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)*

### 3 Terms and definitions

For the purposes of this document, the terms and definitions given in EN 1717, EN 806-1 and the following 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

##### **mechanical disconnecter, direct actuated — Family G, Type A**

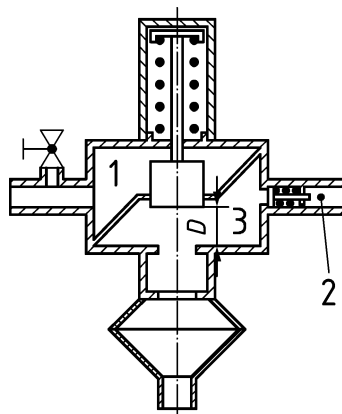
device, also referred to as “GA”, the characteristics of which are as follows:

- two pressure zones in flow position: upstream (zone 1) and downstream (zone 2);
- two pressure zones in zero flow position (static): upstream (zone 1) and downstream (zone 2), check valve closed;
- three pressure zones in drain position: upstream (zone 1) and downstream (zone 2) and intermediate zone (zone 3) at atmospheric pressure;
- the upstream spring loaded obturator with discharge system and the downstream (zone 2) check valve separate the intermediate zone (zone 3) from the upstream (zone 1) and downstream zone (zone 2);
- flow position is achieved at a pressure  $p_f \geq p_s + 50 \text{ kPa}$  (0,5 bar);
- the relief valve starts opening at the set pressure  $p_s \geq p_{\text{stat}} + 50 \text{ kPa}$  (0,5 bar);
- drain position is achieved at a pressure  $p_0 \geq p_s - 36 \text{ kPa}$  (0,36 bar);
- a determined relief flow rate;
- a drain position visible directly or by a position indicator

Note 1 to entry: See Figure 1.

Note 2 to entry: For the purposes of this document “Mechanical disconnecter, direct actuated — Family G, Type A” are hereafter referred to as “device”.

## EN 13433:2021 (E)

**Key**

- 1, 2, 3      pressure zones  
*D*          disconnection distance

**Figure 1 — Design principle of Mechanical disconnector, direct actuated – Family G, Type A**

**3.2  
inlet pressure**

$p_1$   
pressure upstream (inlet side, zone 1) of the device

**3.3  
intermediate pressure**

$p_i$   
pressure in the intermediate zone of the device (in drain position  $p_i = p_{atm.}$  and under flow condition  $p_i = p_1$  (zone 3))

**3.4  
outlet pressure**

$p_2$   
pressure downstream (outlet side, zone 2) of the device

**3.5  
differential pressure**

$\Delta p$   
differential pressure between the inlet pressure  $p_1$  and the outlet pressure  $p_2$

**3.6  
static pressure**

$p_{stat}$   
pressure equivalent to the height of the water column between the highest draw-off point and the horizontal axis of the installed disconnector

**3.7  
set pressure**

$p_s$   
pressure at which the relief valve starts to open

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### 3.8 opening pressure

$p_o$

pressure at which the disconnection distance of  $\geq 20$  mm is reached

### 3.9 closing pressure

$p_f$

pressure at which the relief valve is fully closed

### 3.10 disconnection distance

$D$

minimal vertical distance between the seat 1 of the relief valve and the seat 2 (see Figure 1) of the upstream zone

## 4 Denomination

For the purpose of this document for the devices the nominal sizes DN is a function of the minimum flow rate given in Table 5.

## 5 Designation

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Mechanical disconnectors direct actuated Family G, Type A are designated by:

- name of the product;
- family and type;
- reference to this document, EN 13433; [SIST EN 13433:2022](https://standards.iteh.ai/catalog/standards/sist/da398bb1-efac-4104-b458-33e2de7b8fac/sist-en-13433-2022)
- nominal size; <https://standards.iteh.ai/catalog/standards/sist/da398bb1-efac-4104-b458-33e2de7b8fac/sist-en-13433-2022>
- connection type;
- material of its body;
- surface finish (possible coatings);
- acoustic group (if applicable).

EXAMPLE Mechanical disconnector direct actuated, Family G, Type A, EN 13433, DN 32, G 1 1/4 × G 1 1/4, CW617N, I.

## 6 Symbolization

The graphic representation of the mechanical disconnector direct actuated, Family G, Type A is as follows (see Figure 2):

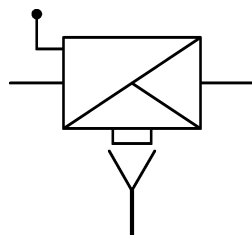


Figure 2 — Graphic symbol design principle of mechanical disconnector

## 7 Physical-chemical characteristics

### 7.1 General

The selection of materials is the responsibility of the manufacturer, provided they satisfy the following requirements:

- a) materials and coatings shall not contaminate the potable water;
- b) in a technical document, the manufacturer shall state the nature of the materials and coatings used;
- c) materials with inadequate corrosion resistance shall have additional protection;
- d) the materials used shall be suitable for the temperatures specified in the tests in this document;
- e) the materials, and in particular copper alloys, for which recommendations or international standards exist, shall comply with the relevant European standards.

### 7.2 Materials

#### 7.2.1 General

SIST EN 13433:2022

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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 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.

#### 7.2.2 Dezincification resistant copper alloy

Copper-zinc alloys containing more than 10 % 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  $\mu\text{m}$  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 11.

### 7.3 Surface of the body

#### 7.3.1 General

The outside and inside surfaces of the device may or may not contain a coating. Such coating shall not impair the functional characteristics of the device.

The coating for protection of the basic material against corrosion can be either realized by epoxy coating or by polyamide powder based coating.