



SLOVENSKI STANDARD
oSIST prEN 13433:2020
01-junij-2020

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

<https://standards.iteh.ai/catalog/standards/sist/da398bb1-efac-4104-b458-33e2de7b8fac/osist-pren-13433-2020>

Ta slovenski standard je istoveten z: prEN 13433

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

oSIST prEN 13433:2020

en,fr,de

iTeh STANDARD PREVIEW
(standards.iteh.ai)

[oSIST prEN 13433:2020](#)

<https://standards.iteh.ai/catalog/standards/sist/da398bb1-efac-4104-b458-33e2de7b8fac/osist-pren-13433-2020>

EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

DRAFT
prEN 13433

April 2020

ICS 23.060.50

Will supersede EN 13433:2006

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 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.

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, Turkey and United Kingdom.

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.

Warning : This document is not a European Standard. It is distributed for review and comments. It is subject to change without notice and shall not be referred to as a European Standard.



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

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

Contents	Page
European foreword	3
Introduction	4
7.2.1 Dezincification resistant copper alloy	9
7.3.1 General	9
7.3.2 Epoxy Coating	10
7.3.3 Polyamide Powder based Coating	10
8.2.1 General	10
8.2.2 Mechanical Disconnecter Family G, Type A	11
9.2.1 Tolerance of set parameters	11
9.2.2 Accuracy of measuring instruments	11
9.3.1 Connections	11
9.3.2 Pressure taps	11
9.4.1 General	12
9.4.2 Mechanical resistance of the body under pressure	12
9.4.3 Endurance	13
9.4.4 Torque test of Captive rotating Nuts and Bending Strength – Tightness of the Body	14
9.5.1 Verification of the leak tightness of the downstream check valve in closing direction	15
9.5.2 Verification of the leak tightness of check valve device (opening direction)	15
9.5.3 Verification of the leak tightness of the upstream spring loaded obturator in drain position at low pressure (in the opening direction)	16
9.6.1 Test rig – General circuit	17
9.6.2 Verification of the pressure loss as a function of flow rate	18
9.6.3 Verification of the opening and closing pressures of relief valve	19
9.6.4 Verification of the relief valve flow rate	19
9.6.5 Compatibility with the products used for disinfection of water distribution systems	20
9.6.6 Acoustic tests	20
Annex A (informative) Examples of presentation of test results	24
Bibliography	27

European foreword

This document (prEN 13433:2020) 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 13433:2006.

iTeh STANDARD PREVIEW (standards.iteh.ai)

[oSIST prEN 13433:2020](https://standards.iteh.ai/catalog/standards/sist/da398bb1-efac-4104-b458-33e2de7b8fac/osist-pren-13433-2020)

<https://standards.iteh.ai/catalog/standards/sist/da398bb1-efac-4104-b458-33e2de7b8fac/osist-pren-13433-2020>

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.

iTeh STANDARD PREVIEW (standards.iteh.ai)

[oSIST prEN 13433:2020](#)

<https://standards.iteh.ai/catalog/standards/sist/da398bb1-efac-4104-b458-33e2de7b8fac/osist-pren-13433-2020>

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 disconnector 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*

<https://standards.iteh.ai/catalog/standards/sist/da398bb1-efac-4104-b458-33e2de7b8fac/osist-pr-en-13433-2020>

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 systems*

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, *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 14901-1:2014+A1:2019, *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)*

prEN 13433:2020 (E)

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

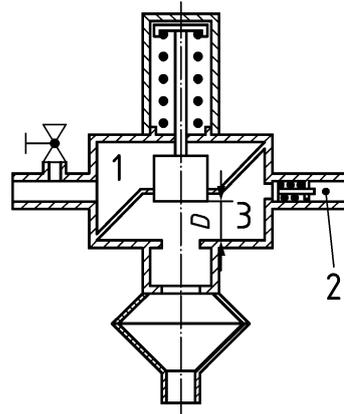
3.1**mechanical disconnect, direct actuated — Family G, type A**

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 standard "Mechanical disconnect, direct actuated — Family G, type A" are hereafter referred to as "device".

**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 on upstream (inlet side, zone 1) of the device

3.3 intermediate pressure

p_i

pressure in the intermediate chamber 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 on the downstream (outlet side, zone 2) of the device

3.5 differential pressure

Δp

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

prEN 13433:2020 (E)**3.8
opening pressure** p_0 pressure at which the disconnection distance of ≤ 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

Mechanical disconnectors direct actuated family G, type A are designated by:

- name;
- reference to this document, EN 13433; [oSIST prEN 13433:2020](https://standards.iteh.ai/catalog/standards/sist/da398bb1-efac-4104-b458-33e2de7b8fac/osist-pren-13433-2020)
- family and type;
- nominal size;
- connection type;
- material of its body;
- surface finish (possible coatings);
- acoustic group (if applicable).

EXAMPLE Mechanical disconnector direct actuated family G type A, DN 32, G 1 1/4 × G 1 1/4, brass, I, EN 13433.

6 Symbolization

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

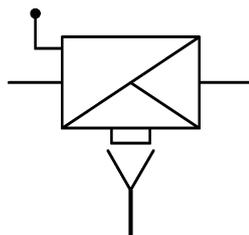


Figure 2 — Graphic symbol design principle of mechanical disconnector

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 Standard;
- 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

<https://standards.iteh.ai/catalog/standards/sist/da398bb1-efac-4104-b458-33e2de7b8fac/osist-pren-13433-2020>

7.2.1 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 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 µm in any direction. For this purpose materials shall be tested in accordance with the standard 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.