SLOVENSKI STANDARD
SIST EN 14451:2020

01-september-2020

Nadomešča:
SIST EN 14451:2005

Naprave za varovanje pred onesnaženjem pitne vode zaradi povratnega toka - Ventili za preprečevanje podtlaka DN 10 do DN 50 - Družina D, tip A

Devices to prevent pollution by backflow of potable water - In-line anti-vacuum valves DN 10 to DN 50 inclusive - Family D, type A

Sicherungseinrichtungen zur Verhütung von Trinkwasserverunreinigung durch Rückfließen - Rohrleitungsbelüfter DN 10 bis einschließlich DN 50 - Familie D, Typ A

Dispositifs de protection contre la pollution de l'eau potable par retour - Soupape anti-vide en ligne DN 10 à DN 50 inclus - Famille D, type A

Ta slovenski standard je istoveten z: **EN 14451:2020**

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 14451:2020 **en,fr,de**

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 14451

June 2020

ICS 13.060.20; 23.060.50

Supersedes EN 14451:2005

English Version

Devices to prevent pollution by backflow of potable water - In-line anti-vacuum valves DN 10 to DN 50 inclusive - Family D, type A

Dispositifs de protection contre la pollution de l'eau potable par retour - Soupape anti-vide en ligne DN 10 à DN 50 inclus - Famille D, type A

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This European Standard was approved by CEN on 24 May 2020.

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.

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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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European foreword

This document (EN 14451:2020) has been prepared by Technical Committee CEN/TC 164 “Water supply”, the secretariat of which is held by AFNOR.

This document shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by December 2020, and conflicting national standards shall be withdrawn at the latest by December 2020.

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.

This document supersedes EN 14451:2005.

In comparison with the previous edition, the following changes have been made:

a) title changed;

b) scope of application revised;

c) Clause 2 updated;

d) nominal size range in Clause 4 restricted;

e) Clause 9 adapted.

This document has been developed with reference to EN 1717 “Protection against pollution of potable water in water installations and general requirements of devices to prevent pollution by backflow”.

According to the CEN-CENELEC Internal Regulations, the national standards organisations of the following countries are bound to implement this document: 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.

Introduction

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

a) 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;

b) note 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.

1 Scope

This document specifies the field of application, the dimensional, the physico-chemical, the design, the hydraulic, the mechanical, and the acoustic characteristics of in-line anti vacuum valve family D Type A.

This document covers in-line anti vacuum valve family D Type A, intended to prevent pollution of potable water by backflow, caused by backsiphoning only.

It is applicable to in-line anti vacuum valve in denominations DN 10 up to DN 50.

It covers in-line anti vacuum valve of PN 10 that are capable of working without modification or adjustment:

— at any pressure, up to 1 MPa (10 bar);

— with any pressure variation, up to 1 MPa (10 bar);

— in permanent duty at a limited temperature of 65 °C and for maximum 1 h at 90 °C.

It specifies also the test methods and requirements for verifying their 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 248, *Sanitary tapware - General specification for electrodeposited coatings of Ni-Cr*

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

EN 10226-1, *Pipe threads where pressure tight joints are made on the threads - Part 1: Taper external threads and parallel internal threads - Dimensions, tolerances and designation*

EN 10226-2, *Pipe threads where pressure tight joints are made on the threads - Part 2: Taper external threads and taper internal threads - Dimensions, tolerances and designation*

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, *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 5167-1, *Measurement of fluid flow by means of pressure differential devices inserted in circular cross-section conduits running full - Part 1: General principles and requirements (ISO 5167-1)*

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 following terms and definitions 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 https://www.iso.org/obp

3.1
in-line anti-vacuum valve
mechanical device with an air inlet which is closed when water flows through it at or above atmospheric pressure, but which opens to admit air if there is a subatmospheric pressure at the water inlet or when the flow stops, and closes so as to be watertight when the flow of water is resumed at normal pressure

Note 1 to entry: In case of subatmospheric pressure the obturator should admit air to the downstream pipework as well as throttling the inlet waterway of the device.

Note 2 to entry: It ensures no protection against back flow by back pressure.

Note 3 to entry: For the purpose of this document “in-line-anti-vacuum valve(s) DA” is hereafter referred to as “device(s)”

4 Nominal size

The nominal size (DN) of the device shall correspond to the denomination of the thread according to Table 1.

For the specification of threads see 8.2. The thread size shall comply to EN 10226-1.

Table 1 — Nominal size vs thread size

DN	10	15	20	25	32	40	50
Thread size	R 3/8	R 1/2	R 3/4	R 1	R 1 1/4	R 1 1/2	R 2

5 Designation

The devices are designated by:

a) name;

b) reference to this document (EN 14451);

c) family, type;

d) nominal size (DN);

e) its size and type of end connection

f) the acoustic group I, II or nc (for DN ≤ 32);

g) body material.

Example of designation: In-line anti-vacuum valve, EN 14451, family D, type A, DN 20, FF 3/4 “, I, CW617N.

6 Marking and technical documents

6.1 General

In countries where the use of products made of dezincification resistant materials is not required, the dezincification resistant products according to EN ISO 6509-1, as well as the products which do not contain zinc, may be marked “DR”.

In countries where the use of dezincification resistant materials is required, the dezincification resistant products, as well as the products which do not contain zinc, shall be marked “DR”.

6.2 Marking

The devices shall be marked permanently and visibly on the casing or on a fixed data plate.

This information shall be on the upper side or on each lateral side of the device. The indications are to be indelible and obtained by moulding, engraving or similar procedures.

The marking indicates:

a) name, manufacturer's brand or logo;

b) arrow indicating normal direction of flow;

c) nominal size (DN);

d) acoustic group (≤ DN 32 only);

e) letters indicating family and type of device;

f) nominal pressure (PN);

g) conformance with this document (EN 14451);

h) maximum operating temperature °C.

Marking a), b), c), and e) are obligatory. In case there is no marking for d), the device shall be considered as not classified acoustically.

6.3 Technical documents

Each package and/or each batch and/or each catalogue of the supplier/manufacturer shall contain technical product information which shall be written in a commonly spoken language of the country in which the product is sold.

It shall provide the following information:

a) designation and purpose of the product;

b) installation instructions in accordance with EN 1717;

c) minimum installation height in accordance with EN 1717;

d) (brand) name and address of supplier/manufacturer;

e) instructions for maintenance, if any;

f) spare part list, if any;

g) generic information of materials used;

h) maximum operating temperature;

i) acoustic group;

j) nominal pressure (PN);

k) flow rate and relevant pressure differential.

7 Symbolization

The graphic representation of the device is as follows (see Figure 1).

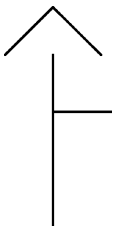


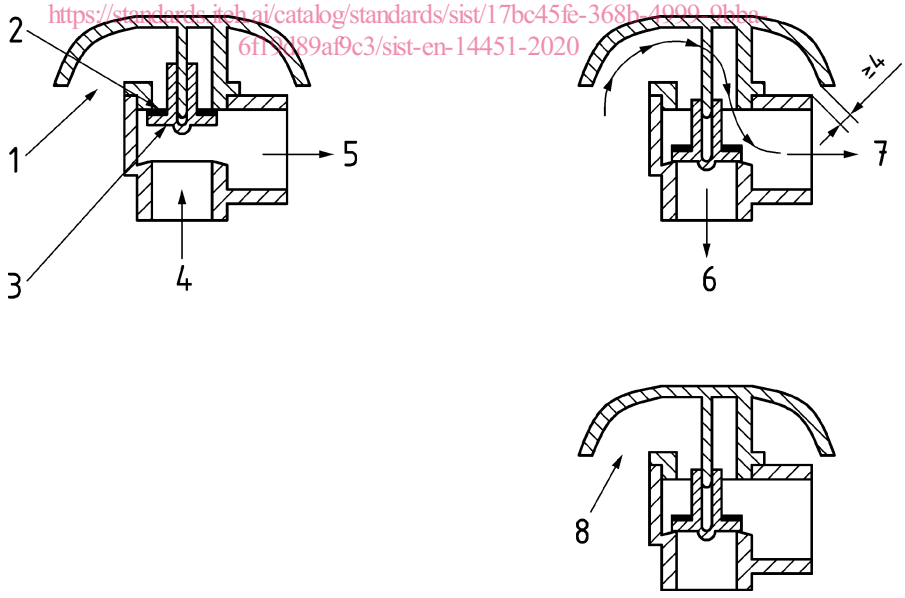
Figure 1 — Graphic symbol

8 General design characteristics

8.1 Design principle

A typical design principle of DA device is given in Figure 2.

Dimensions in millimetres



Key

1	external air inlet	5	water outlet
2	seal	6	vacuum back siphonage condition
3	floating disk	7	air flow under vacuum conditions
4	water inlet	8	Zero flow

Figure 2 — Design principle of DA in-line anti-vacuum valve