SLOVENSKI STANDARD
oSIST prEN 13077:2022

01-januar-2022

Naprave za varovanje pred onesnaženjem pitne vode zaradi povratnega toka - Prosti iztok s prelivom nekrožne oblike (neoviran) - Družina A - Tip B

Devices to prevent pollution by backflow of potable water - Air gap with non-circular overflow (unrestricted) - Family A - Type B

Sicherungseinrichtungen zum Schutz des Trinkwassers gegen Verschmutzung durch Rückfließen - Freier Auslauf mit nicht kreisförmigem Überlauf (uneingeschränkt) - Familie A - Typ B

Dispositifs de protection contre la pollution de l'eau potable par retour - Surverse avec trop-plein non circulaire (totale) - Famille A, type B

Ta slovenski standard je istoveten z: **prEN 13077**

ICS:

13.060.20	Pitna voda	Drinking water
23.060.99	Drugi ventili	Other valves
91.140.60	Sistemi za oskrbo z vodo	Water supply systems

oSIST prEN 13077:2022 **en,fr,de**

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

DRAFT
prEN 13077

November 2021

ICS 13.060.20

Will supersede EN 13077:2018

English Version

Devices to prevent pollution by backflow of potable water - Air gap with non-circular overflow (unrestricted) - Family A - Type B

Dispositifs de protection contre la pollution de l'eau potable par retour - Surverse avec trop-plein non circulaire (totale) - Famille A, type B

Sicherungseinrichtungen zum Schutz des Trinkwassers gegen Verschmutzung durch Rückfließen - Freier Auslauf mit nicht kreisförmigem Überlauf (uneingeschränkt) - Familie A - Typ B

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.

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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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European foreword

This document (prEN 13077:2021) 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 13077:2018.

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

a) Terms and definitions have been amended;

b) Figure 1, Figure 4 and Figure 5 were updated and redrawn;

c) Figure 6 was added as an additional overflow arrangement;

d) the dimension D has been redefined;

e) 7.5 has been revised;

g) Annex B has been deleted;

h) the entire standard has been revised editorially.

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 State of the EU or EFTA;

b) 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.

1 Scope

This document specifies the characteristics and the requirements of air gap with non-circular overflow (unrestricted) Family A, Type B for nominal flow velocity not exceeding 3 m/s. Air gaps are devices for protection of potable water in water installations from pollution by backflow. This document applies to air gaps in factory-assembled products and to constructed air gaps *in situ* and defines requirements and methods to verify and ensure compliance with this document during normal working use.

The fluid in the receiving vessel is assumed to have similar properties to the water supply. Where this is not the case, additional care or tests could be required to verify the efficacy of the solution in practical use.

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 806-5, *Specifications for installations inside buildings conveying water for human consumption - Part 5: Operation and maintenance*

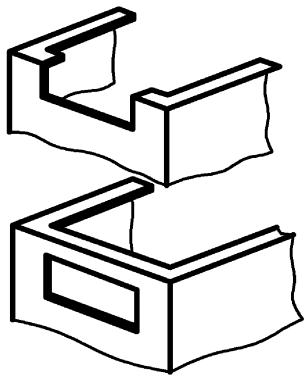
EN 1717, *Protection against pollution of potable water in water installations and general requirements of devices to prevent pollution by backflow*

3 Terms and definitions

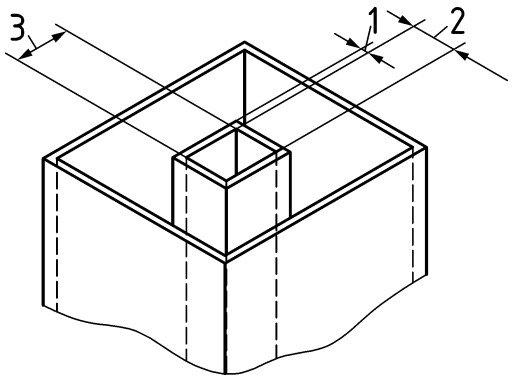
For the purposes of this document, the terms and definitions given in EN 806-1 and EN 1717 and the following apply.

3.1
air gap with non-circular overflow (unrestricted) Family A, Type B ("AB" air gap)
permanent and vertical distance between the lowest point of the inlet orifice and the critical water level of the receiving vessel having an overflow which is non-circular in design

Note 1 to entry: See Figure 1 for the design principle.



a) Air gap with non-circular overflow



b) Internal non-circular overflow arrangement

Figure 1 — Design principle

3.2
spillover level
level at which water will start to overflow the receiving vessel with all outlets closed

3.3
critical water level
physical or piezometric level of the liquid reached in any part of the appliance 2 s after closing the water inlet starting from maximum level

3.4
dimension *h*
height between the spillover level and the critical level

Note 1 to entry: See 7.6 for measurement and calculation. For example, see Annex A.

3.5
maximum level
highest water level *H* reached above the spillover level with flow rate *Q* applied and all outlets closed

3.6
diameter of feed pipe outlet orifice (bore *D*)
internal diameter size of the outlet feed orifice (or calculated from the equivalent cross sectional area)

3.7
unrestricted
during fault condition the water pathway to the overflow (of the receiving vessel) is not compromised including through the overflow itself

4 Designation

An air gap with non-circular overflow (unrestricted) Family A, Type B is designated by:

— name;

— reference to this document, prEN 13077;

— family and type;

— maximum permitted flow rate.

EXAMPLE Air gap, prEN 13077, Family A, Type B, 14 l/min.

5 Symbolization

The graphic representation of the air gap with non-circular overflow (unrestricted) Family A, Type B is as follows (see Figure 2).

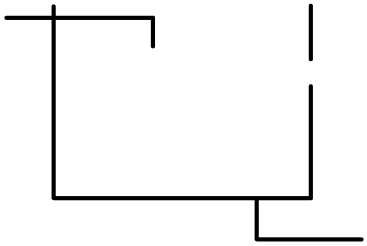


Figure 2 — Graphic symbol

6 Materials

All materials coming into contact with water intended for human consumption shall present no health risk nor cause any change of the drinking water in terms of quality, appearances, smell or taste. All materials shall be compatible among themselves and with the water supplied and with the fluids or substances that can come into contact with them.

There are no special requirements concerning the materials downstream of the feed orifice provided they do not have any harmful effect on the upstream part or the overflow arrangement.

7 Requirements

7.1 General

The protection assembly comprises three parts:

— water inlet device;

— receiving vessel (container);

— non-circular overflow.

7.2 Characteristics and tests

7.2.1 General

Performance tests shall be carried out on the device as installed in accordance with the manufacturer's technical documents, subject to dimension h being complied with. If not specified, all tests shall be performed with water at an ambient temperature.

7.3 General tolerances and measurements

7.3.1 Tolerance of set parameters in the absence of any particular specifications:

— flow rate and pressure: ± 2 % of the value specified;

— temperature: cold water: ± 5 °C of the value specified;

other values: ± 2 °C of the value specified.

7.3.2 Accuracy of measuring instruments

All the measuring instruments shall have an error limit of ± 2 % of the measured value.

7.3.3 Measurements

All measurements shall be in mm or l/m unless otherwise specified.

7.3.4 Requirement

All the constituent parts of the arrangement, and in particular those made of elastomer, shall be compatible with the treated water used for the shock disinfection of the networks using sodium hypochlorite, hydrogen peroxide, chlorine dioxide or thermal disinfection.

7.4 Water inlet device

Every float-operated valve or other device, which controls the inflow of water to a receiving vessel, shall be securely and rigidly fixed to the vessel.

Every feed pipe supplying water to such a valve assembly or other device shall be fixed in its position to prevent it from moving or buckling and to maintain a 2D radial clearance around the outlet. If a 2D with a minimum of 20 mm clearance is not present, in addition to the air gap validation a vacuum test in accordance with Annex B shall be undertaken and the radial clearance shall be > D.

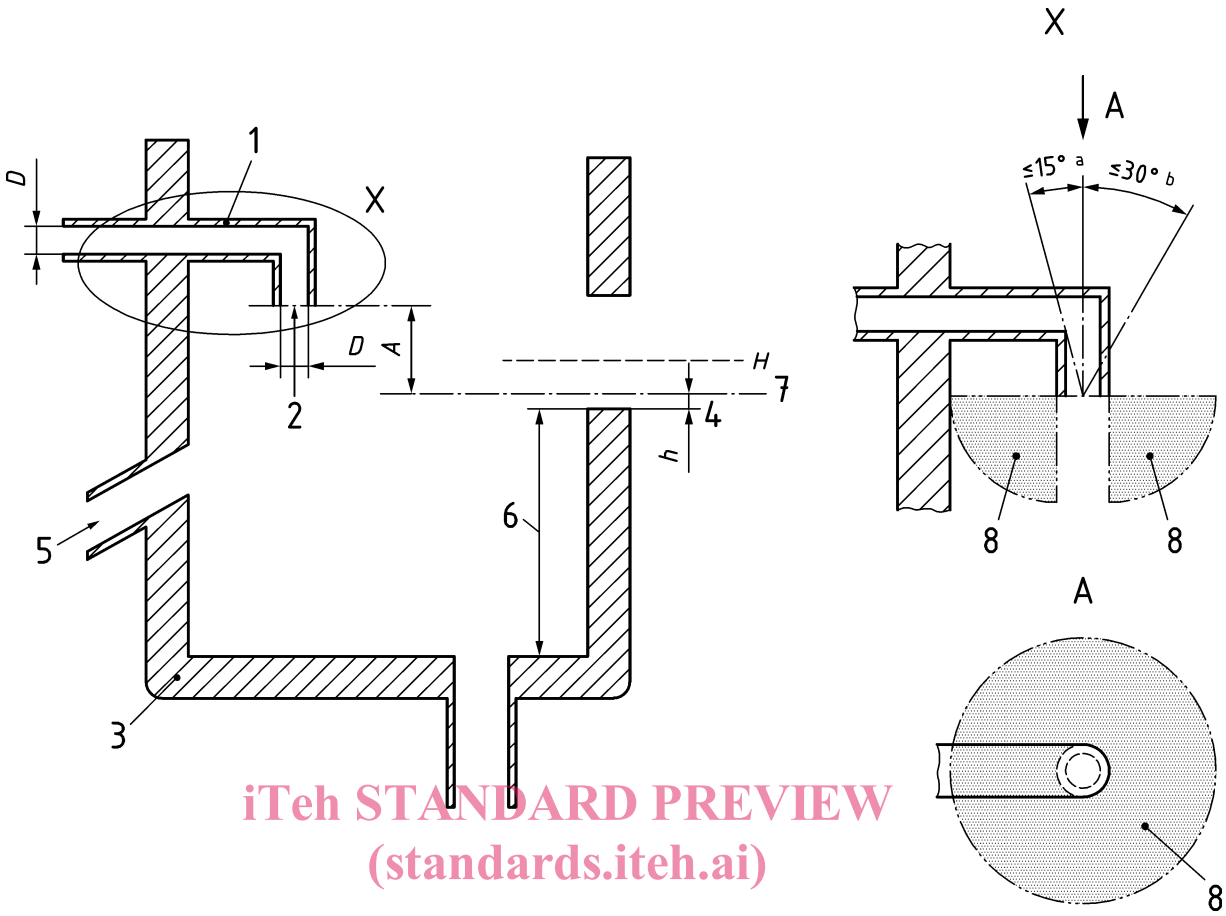
The direction of flow from a feed pipe into the receiving vessel shall be into air at atmospheric pressure, downwards and not more than 30° from the vertical. If the direction of flow is < 15°, the air gap shall be validated by calculation or by test, if it is ≥ than 15° it shall be verified by test.

The feed orifice shall not be in contact with the receiving vessel.

No contact shall be observed between the upstream components and the liquid in the receiving vessel.

When maintaining the maximum flow rate at normal operating conditions, the feed pipe, inlet device and its outlet shall not come into contact in any way with a product from downstream; it shall always be above level *H* (see Figure 3).

The water pathway to the overflow shall be unrestricted.



Key

A	air gap (distance)	4	spillover level
		5	optional warning pipe
H	maximum level	6	$Uw \geq 5h$(internal vertical surface)
1	feed pipe	7	critical water level (distance *h*)
2	feed orifice with a minimum diameter D (bore or equivalent cross section)	8	2D Minimum radial clearance
3	receiving vessel	a	15° maximum from the vertical (validation by test or calculation)
		b	30° maximum from the vertical (validation by test only)

Figure 3 — Air gap with non-circular overflow (unrestricted) Family A, Type B

7.5 Overflow arrangements

The overflow arrangements at the receiving vessel shall be of non-circular design and discharge immediately into free air.

Overflow extensions are permitted and shall discharge into free air (p = atmosphere). The overflow arrangements at the receiving vessel shall be of non-circular design. After the receiving vessel, the geometry of the water pathway may change, as long as it is unrestricted. (any circular overflow extension shall be sized to accommodate the geometry of the original noncircular overflow. Where a wastewater connection is required then they shall discharge via an air break to drain as detailed in EN 1717.