



# SLOVENSKI STANDARD

## oSIST prEN 13077:2017

01-februar-2017

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### 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**

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#### **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 13077:2017**

**en,fr,de**



EUROPEAN STANDARD  
NORME EUROPÉENNE  
EUROPÄISCHE NORM

**DRAFT**  
**prEN 13077**

December 2016

ICS 13.060.20

Will supersede EN 13077:2008

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: Avenue Marnix 17, B-1000 Brussels**

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## European foreword

This document (prEN 13077:2016) 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 13077:2008.

Compared to the previous edition of the document the following changes have been made:

- a) definitions in Clause 3 revised;
- b) Annex B on alternative defined overflow arrangements added;
- c) editorial errors corrected.

**iTeh STANDARD PREVIEW**  
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SIST EN 13077:2018

<https://standards.iteh.ai/catalog/standards/sist/b3f67593-7957-40d7-a88c-4ec2b4f2597a/sist-en-13077-2018>

**prEN 13077:2016 (E)**

**Introduction**

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

- a) this draft European Standard 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.

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## 1 Scope

This draft European Standard 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 draft European Standard applies to air gaps in factory-assembled products and to constructed air gaps *in situ*, and defines the physico-chemical characteristics of materials of construction used for the purpose and application to ensure compliance with this draft European Standard during normal working use.

## 2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN 1717:2000, *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 1717:2000 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.

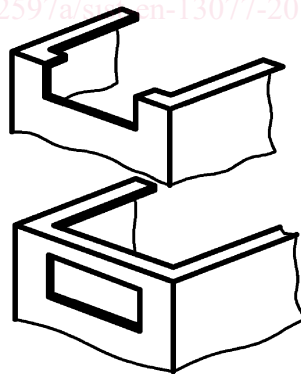


Figure 1 — Design principle

### 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

**prEN 13077:2016 (E)****3.4****dimension  $h$** 

height between the spillover level and the critical level

Note 1 to entry: See 7.4 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 (bore  $D$ )**

maximum internal diameter (or calculated from the equivalent cross sectional area) found within the last metre of the supply pipe or DN of the inlet connection

**4 Designation**

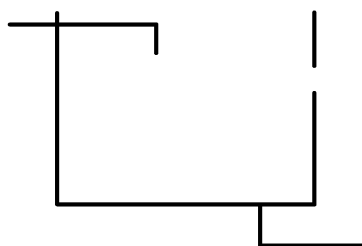
An air gap with non-circular overflow (unrestricted) Family A, Type B is designated by:

- name;
- reference to this draft European Standard, i.e. prEN 13077;
- family and type;
- denomination shall correspond to the type of connection of the inlet
- maximum permitted flow rate

EXAMPLE Air gap, prEN 13077, Family A, Type B, G 1/2, 14 l/minute.

**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**

The manufacturer shall state the type of materials chosen in his technical and commercial documents.

The materials used in water installations, including the materials of protection units in contact with drinking water, shall satisfy the European Standards and national acceptance criteria and/or national restrictions for use currently in force in EU and EFTA.



They 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 atmospheric outlet opening 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.

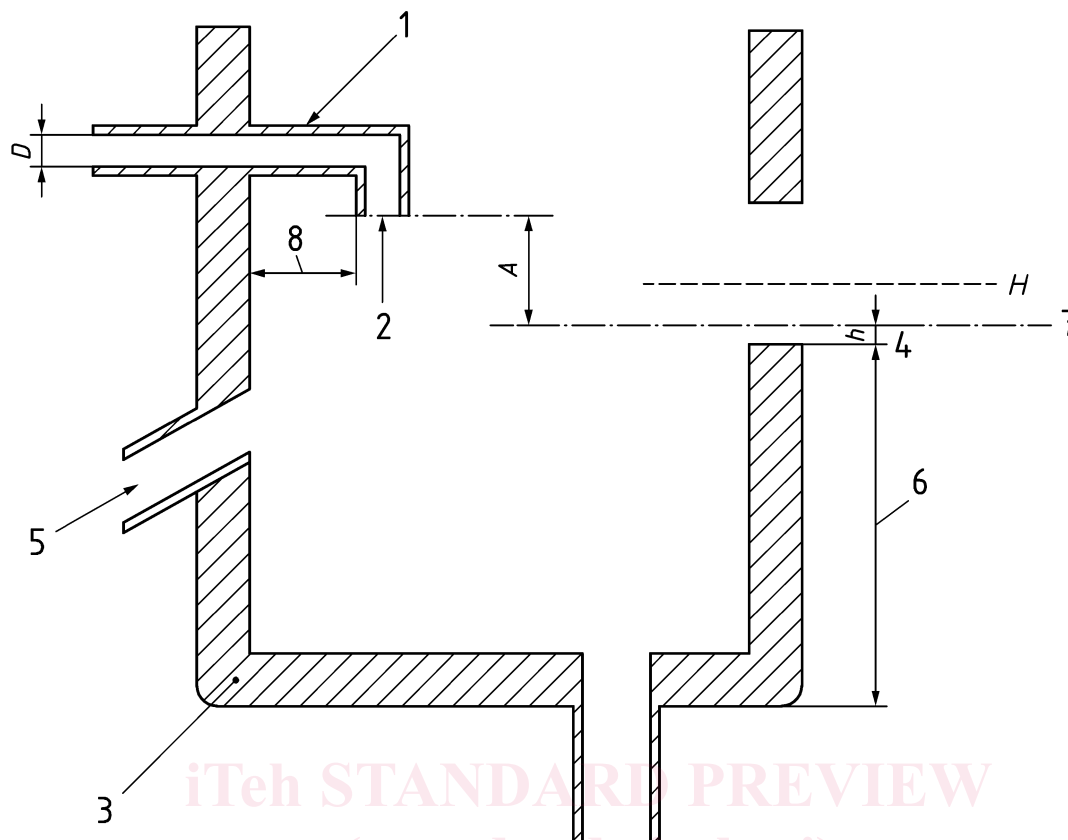
### 7.2 Water inlet device

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 maintaining a 2D radial clearance around the outlet. If a 2D clearance is not present in addition to the air gap validation a vacuum test in accordance with Annex C shall be undertaken.

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).

**Key**

A	air gap (distance)	4	spillover level
D	internal diameter of feed pipe (bore)	5	optional warning pipe
H	maximum level	6	$Uw \geq 5h$
1	feed pipe	7	critical water level (distance $h$ )
2	feed orifice		
3	receiving vessel	8	2D Minimum radial clearance

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

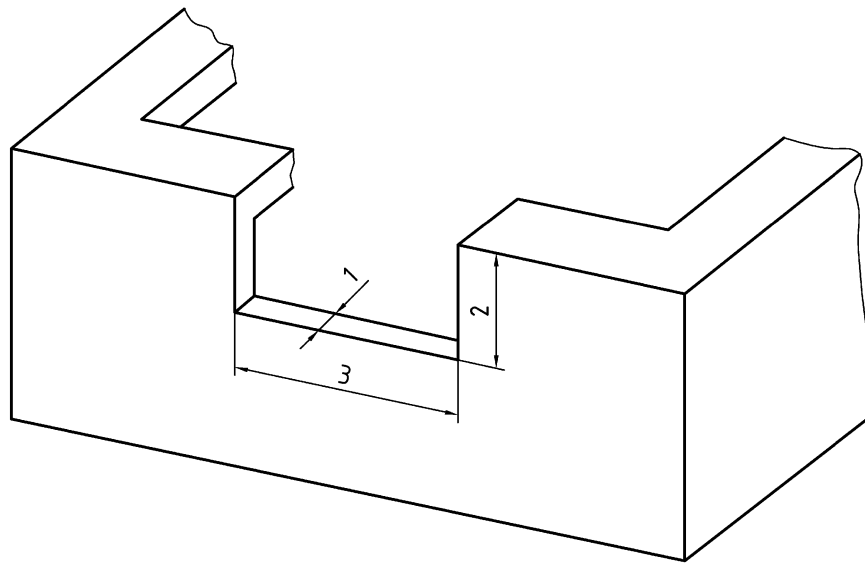
### 7.3 Overflow arrangements

The overflow arrangements shall be of non-circular design, shall discharge immediately into free air and shall be totally unobstructed. NB; consideration is only given to the largest possible single rectangle irrespective of the actual shape of the overflow.

If the overflow has an extension (see Annex B) the air gap shall be verified by measurement as defined in 7.4.1 a).

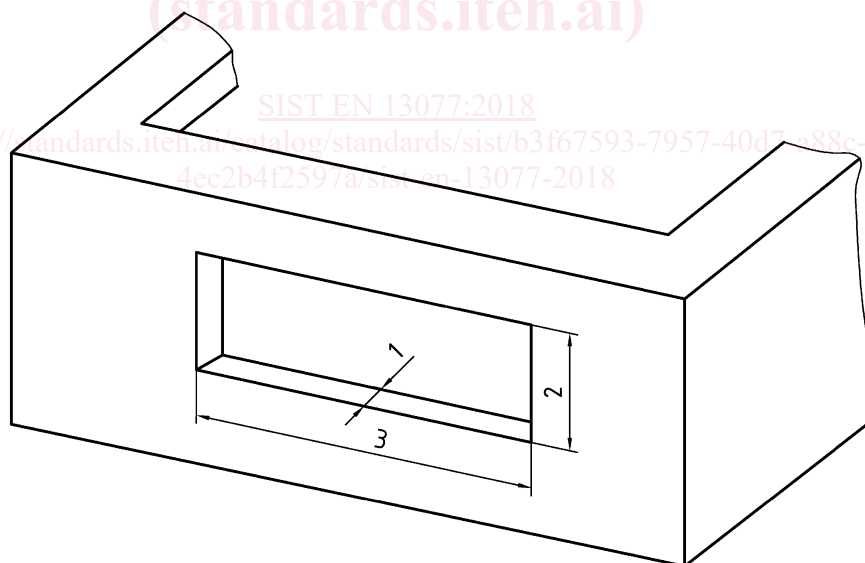
If the overflow also performs as an air inlet during negative pressure conditions in the supply line, then a vacuum test shall be undertaken as defined in Annex C.

The height of the overflow arrangement  $Ow$  is  $\geq 2D + h$  and never less than 20 mm (see Figures 4 and 5).

**Key**

- 1  $Cw \leq 5 h$
- 2  $Ow \geq 2D + h$  and never less than 20 mm
- 3  $l \geq 10 h$

**Figure 4 — Rectangular overflow arrangement**

**Key**

- 1  $Cw \leq 5 h$
- 2  $Ow \geq 2D + h$  and never less than 20 mm
- 3  $l \geq 10 h$

**Figure 5 — Letterbox overflow arrangement**

For multiple inlets  $D$  is the largest single inlet feed pipe bore diameter.

**NOTE** There is no relationship between the maximum water level and the top most level of the overflow arrangement. An additional circular warning pipe can also be fitted if required.