SLOVENSKI STANDARD
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Inlet valves for flushing cisterns with internal overflow

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Füllventile für Spülkästen mit integriertem Überlauf

Robinet pour remplissage de réservoir de chasse avec trop-plein intérieur

Ta slovenski standard je istoveten z: **EN 14124:2004**

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This European Standard was approved by CEN on 9 July 2004.

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Foreword

This document (EN 14124:2004) 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of an identical text or by endorsement, at the latest by March 2005, and conflicting national standards shall be withdrawn at the latest by March 2005.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Slovakia, Slovenia, Spain, Sweden, Switzerland and United Kingdom.

1 Scope

The purpose of this document is to specify:

— the dimensional, hygiene, tightness, pressure performance, hydraulic, acoustic, mechanical and physico-chemical characteristics which inlet valves for flushing cisterns shall comply with;

— the test methods for testing these characteristics;

— marking and presentation.

This document applies exclusively to the valve itself and it does not prejudge compliance with health regulations as the inlet valve is being fitted into the cistern.

This document does not cover valves intended to equip flushing cisterns with external overflow.

This document applies to valves such as float valves limit operating at pressures up to NP 10 (whose operating range is from 0,05 MPa to 1 MPa – 0,5 bar to 10 bar) designed to supply cold water to flushing cisterns for use with WC pans, that are permanently connected to a potable water supply system.

The working range can be extended downwards (< 0,05 MPa – 0,5 bar) down to 0,01 MPa (0,1 bar), in which case the manufacturer's instructions shall indicate this possibility as well as the recommended working range.

Range which shall be covered

Optional range

This document does not apply to valves used for other applications: pumping tanks, storage tanks, etc.

Table 1 — Working conditions for flushing cistern inlet valves

	Operating limits	Limit recommended for proper functioning (dynamic pressure)
Minimum dynamic pressure	P ≥ 0,05 MPa (0,5 bar) [a]	0,1 MPa ≤ P ≤ 0,5 Mpa (1 bar ≤ P ≤ 5 bar)
Maximum static pressure	P ≤ 1 MPa (10 bar)	

[a] According to the manufacturer's indication, the dynamic pressure (opening-closing) can be lowered.

2 Normative references

The following referenced documents are indispensable for the application 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 ISO 228-1:2003, *Pipe threads where pressure-tight joints are not made on the threads - Part 1: Dimensions, tolerances and designation (ISO 228-1:2000).*

EN ISO 3822-1:1999, *Acoustics - Laboratory tests on noise emission from appliances and equipment used in water supply installations - Part 1: Method of measurement (ISO 3822-1:1999).*

EN ISO 3822-4:1997, *Acoustics – Laboratory tests on noise emission from appliances and equipment used in water supply installations - Part 4: Mounting and operating conditions for special appliances (ISO 3822-4:1997).*

EN ISO 5167-1:2003, *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 5167:2003).*

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 following term and definition apply.

3.1
inlet valve
ensuring automatic filling of a flushing cistern to a pre-set water level

4 Materials

The choice of materials is left to the manufacturer's initiative, except for end connections which shall be manufactured from copper alloy or any other material giving similar performance.

All materials in contact with water intended for human consumption shall not present any health risk up to a temperature of 25 °C. They shall not cause any deterioration of water intended for human consumption with regard to food quality, appearance, smell or taste.

Within the limits recommended in clause 1 for correct operation, the materials shall not be subjected to any deterioration likely to affect the performance of the valve. Parts submitted to pressure shall withstand the corresponding operating limits. Materials with insufficient corrosion resistance shall be protected against corrosion.

5 Design and manufacture

5.1 Composition of the inlet valve

A flushing cistern inlet valve comprises:

— a single supply connection;

— one or more outlets;

— a detector, generally a float, for shutting off the water supply when the required level in the flushing cistern is reached.

5.2 Connection to the supply network

Inlet valves can be connected inside the cistern to the supply network as follows:

— through the side;

— through the back;

— through the bottom;

— through the top.

It should not exist any submerged connection that can be dismantled or that may be dismantled inside the cistern.

5.3 Adjustment of the water level

Inlet valves for flushing cisterns can, if applicable, be fitted with a device used to adjust the water level in the cistern. If so, the water level in the flushing cistern can be adjusted within certain limits.

Remark: Bending the float arm to achieve adjustment is not considered to be an adjustment device.

5.4 Dimensions of the threaded end connections

In the event of use of a threaded end connection, the dimensions of the end connection shall comply with the specifications in Table 2 below:

Table 2 — Dimensions of the end connections

Designation	Symbol	3/8	1/2	Observations
Outside diameter of the thread	d	G $^{3}/_{8}$B	G $^{1}/_{2}$B	Cylindrical gas pipe thread where pressure-tight joints are not made on the thread, tolerance class B, complying with standard EN ISO 228-1
Diameter of the shoulder	D [a]	≥ 20 mm [b]	≥ 32 mm	for thin-walled cisterns (plastic or other material)
		≥ 28 mm	≥ 32 mm	for thick-walled cisterns (ceramic or other material)
Length of the thread	l	The length shall be such that tightening is possible on a cistern whose thickness is either 4 mm [b] or 12 mm. It shall be designed so that once the cistern is installed and the backnut and any pilot washer are in position, at least 8 mm for size 3/8 and 10 mm for size 1/2 is available for fitting the connecting nut.		

[a] Size D can be obtained by means of a washer, a nut or a shoulder.

[b] In some use, the end connection shouldering is not necessary.

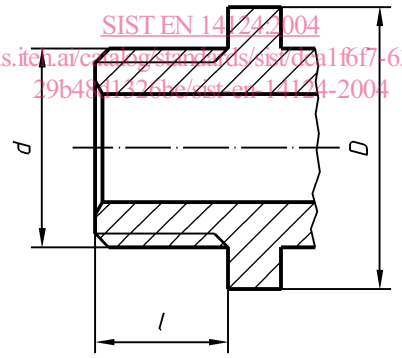

Figure 1 — Inlet tail

6 Mechanical and hydraulic characteristics

6.1 Threaded end connections

6.1.1 General

End connections manufactured from a plastic part material shall comply with the specifications below, checks being made according to 7.2.

6.1.2 Tensile strength

End connections shall comply with the specifications below, checks being made according to 7.2.2.

After the test, there shall be no sign of deterioration on the end connections.

6.1.3 Resistance to tightening torque

End connections shall comply with the specification below, checks being made according to 7.2.3.

After the test, there shall be no sign of deterioration on the end connections.

6.2 Backflow prevention

6.2.1 General

In order to prevent any risk of pollution of the potable water by backsiphonage, the inlet valve air vent shall comply with EN 1717.

An inlet valve whose outlet orifice is designed to operate only when immersed shall be fitted with an air inlet.

Note : An inlet valve whose outlet orifice is designed to operate without being immersed (e.g.: cisterns being supplied using air gaps) does not have to meet this characteristic since the air inlet is not necessary.

6.2.2 Dimension of the air inlet

In order to avoid fouling, an air inlet shall comply with the specification below.

The smallest dimension of the air inlet (for example, for an annular hole, the width of the ring and/or for a rectangular orifice, the smallest side) shall not be less than 4 mm.

6.2.3 Efficiency of the air inlet

Air inlets shall meet the specification below, checks being made according to 7.3.

Under the test conditions laid down in 7.3, no backflow shall be observed in the recovery vessel.

6.3 Leaktightness

The leaktightness of an inlet valve shall meet the specifications below, checks being made according to 7.4.

6.3.1 Leaktightness under static pressure

Under the test conditions laid down in 7.4.2, the difference size h in the water level shall not exceed 20 mm and the sealing efficiency of the valve when closed shall be ensured.

6.3.2 Leaktightness under dynamic pressure

Under the test conditions laid down in 7.4.3, the difference size h in the water level shall not exceed 20 mm and the sealing efficiency of the valve when closed shall be ensured.

6.4 Flow rate and filling time

The inlet valve flow rate and filling time shall meet the specifications in Table 3, checks being made according to 7.5.