SLOVENSKI STANDARD
SIST EN 12541:2003

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Sanitarne armature ï Tlaļ ni izplakovalniki WC in pisoarjev - Samozaporni PN10

Sanitary tapware - Pressure flushing valves and automatic closing urinal valves PN 10

Sanitärarmaturen - WC- und Urinaldruckspüler mit selbsttätigem Abschluss PN 10

Robinetterie sanitaire - Robinets de chasse d'eau et d'urinoirs a fermeture hydraulique automatique PN 10

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Sanitary tapware - Pressure flushing valves and automatic closing urinal valves PN 10

Robinetterie sanitaire - Robinets de chasse d'eau et d'urinoirs à fermeture hydraulique automatique PN 10

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

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Contents

Foreword

This document (EN 12541:2002) 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of an identical text or by endorsement, at the latest by June 2003, and conflicting national standards shall be withdrawn at the latest by June 2003.

As for possible unfavourable effects of the product to which this standard applies on the quality of water for human consumption :

1) no information is provided by this standard on possible use restrictions of the product in any of the member states of the EU or the EFTA ;

2) it should be noted that, while awaiting the adoption of verifiable European criteria, existing national regulation concerning the use and/or characteristics of this product remain in force.

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

1 Scope

This draft European standard applies to flushing valves for WCs and valves for urinals, with automatic hydraulic closure, intended for :

— WC pans EN 997 ;

— single flush urinals prEN 13407 ;

— siphon acting urinals prEN 13407.

It does not apply to no-contact detection valves.

It is intended to specify :

— marking and identification, physico-chemical, dimensional, leaktightness, pressure behaviour, hydraulic, mechanical endurance and acoustic characteristics of flushing valves for WCs and urinals with automatic closure ;

— test methods used to verify these characteristics ;

— and to determine requirements for the atmospheric interrupter which shall be an integral part of the WC flushing valve.

It applies in the following pressure and temperature conditions :

Table 1 — Conditions of use for tapware

Dynamic Pressure range recommended for a good working	Urinals WC DN 15 WC DN 20	0,1 MPa ≤ P ≤ 0,4 MPa (1 bar ≤ P ≤ 4 bar)
	WC DN 25	0,08 MPa ≤ P ≤ 0,25 MPa (0,8 bar ≤ P ≤ 2,5 bar)
	WC DN 32	0,08 MPa ≤ P ≤ 0,2 MPa (0,8 bar ≤ P ≤ 2 bar)
Maximum static pressure		1 MPa (10 bar)
Water temperature		≤ 25 °C

2 Normative references

This European Standard incorporates by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies (including amendments).

EN 248, *Sanitary tapware — General specification for electrodeposited nickel chromium coatings of Ni-Cr.*

EN 997, *WC pans with integral trap.*

prEN 13407:1998, *Wall-hung urinals - Functional requirements and test methods.*

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 3822-1:1999)*

EN ISO 3822-4, *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)*

ISO 49, *Malleable cast iron fittings threaded to ISO 7-1*

ISO 65, *Carbon steel tubes suitable for screwing in accordance with ISO 7-1*

ISO 228-1:2000, *Pipe threads where pressure-tight joints are not made on the threads -- Part 1: Dimensions, tolerances and designation*

3 Terms and definitions

For the purposes of this European Standard, the following terms and definitions apply.

3.1
automatic closing valves
tapware whose opening is operated by a mechanical action on the control device, and whose closure happens automatically after a period of adjustable or non-adjustable duration

3.2
WC flushing valves
automatic closing valves intended to ensure the flushing out of WC pans in accordance with EN 997, and comprising an atmospheric interrupter

3.2.1
stop valves for flushing valve
this is used to stop water flow upstream of the flushing valve. It may be integrated into the flushing valve, or separate from it

3.2.2
flow control equipment
manual or automatic equipment controlling the flush flow and which is an integral part of the flushing valve or of the stop valve. If it is part of the stop valve, this latter shall not be linked to the flushing valve by a ISO 228 thread

3.2.3
volume control equipment
this is used to control the volume of water delivered by a flushing valve

3.3 Urinal valves

3.3.1
single flush urinal valves
these are intended for flushing single flush urinals (see prEN 13407:1998, 3.6 and 3.7)

3.2.2
siphon action urinal valves
these are intended for flushing siphon acting urinals (see prEN 13407:1998, 3.4)

3.3.3
stop valves for urinal valves
this is used to stop water supply. It may be integrated in the urinal valve and may be used to control the flow

3.4 Key to Abbreviations

Table 2 — Abbreviations

DESIGNATION	ABBREV.	UNIT	DEFINITION
Nominal size	DN	mm	Defines the hydraulic and dimensional values of the valve
Flow rate	Q	l/s	Volume of water supplied in the unit of time
Operating time	T	s	Time elapsing between the start of activation and the return to 0 of the flow rate
Volume of water	V	l	Volume of water supplied during the operating time
Static pressure	Ps	MPa (bar)	Pressure upstream of valve in absence of flow
Dynamic pressure	Pd	MPa (bar)	Pressure upstream of valve during flow
Water hammer	ΔP	MPa (bar)	Overpressure occurring upstream of valve at time of closure
Impact force	F	N	Force produced by jet at outlet of flushing pipe.

4 Classification and Designation

4.1 Classification of flushing valves

Flushing valves are classified according to their volume class.

4.1.1 6 litre and 6 to 9 litre valves

If a valve is intended to deliver 6 litres of water, or is adjustable from 6 to 9 litres of water, the valve belongs to "Class 6".

4.1.2 9 litre valve

If the valve is intended to deliver 9 litres of water, the valve belongs to "Class 9".

4.2 Classification of urinal valves

Urinal valves are classified according to their “volume class”.

4.2.1 1.5 litre valves

If a valve is intended to deliver 1.5 litre of water, the valve belongs to "Class 1.5".

4.2.2 4 litre valves

If a valve is intended to deliver 4 litres of water, the valve belongs to "Class 4".

4.2.3 6 litre valves

If a valve is intended to deliver 6 litres of water, the valve belongs to "Class 6".

4.3 Designation

An automatic closing flushing or urinal valve is designated by :

— the type of appliance for which it is intended (WC, siphon action urinal, single flush urinals…) ;

— volume class (e.g. class 6 or class 9) ;

— type of control (push-button, remote control...) ;

— mounting method (top-entry, side-entry, flush...) ;

— its nominal DN size ;

— its connecting dimension ;

— the presence of an incorporated stop valve ;

— the acoustic group (if classified).

EXAMPLE flushing valve / for WC / Class 6 / push-button / top-entry / DN 20 / G3/4 B with incorporated stop valve / Group 1

5 Marking

Tapware complying with this standard shall be marked indelibly and permanently on the appliance with the mark or name of the manufacturer and the acoustic group.

6 Materials

6.1 Chemical and hygienic requirements

All materials in contact with water intended for human consumption shall present no danger to health up to a temperature of 25°C.

They shall cause no deterioration in water intended for human consumption either with regard to nutritional quality, appearance, smell or taste.

Within the limits recommended in Clause 1 for correct operation, the materials shall not undergo any deterioration, which might compromise the operation of the valve.

Pressurised parts shall withstand the limits of use set in Table 1.

Materials with inadequate corrosion resistance shall be given adequate protection against it.

6.2 Condition of exposed surfaces and quality of coating

Exposed chromium plated surfaces shall comply with the specifications of EN 248.

7 Dimensional characteristics

General comments on drawings : the design and construction of parts without marked dimensions do not in any way prejudice the various solutions used by the manufacturer to produce the corresponding components.

7.1 WC flushing valve

Table 3 — Threads and outlet pipe (see Figure 1 and Figure 2)

Dimensions	Designation	DN15	DN20	DN25	DN32
A	Male thread (ISO 228-1:2000)	G1/2B	G3/4B	G1B	G1 1/4B
D	Female thread (ISO 228-1:2000)	G1/2	G1/2	G3/4	G1
G (+0/-0,5) mm	Diameter of pipe connection sleeve	20	26	26 or 30	30
H (+0,2/+0,5) mm	Diameter of valve outlet for connection to pipe by compression joint	22	28	28 or 32	32

Table 4 — Permitted thread lengths (see Figure 1 and Figure 2)

Dimension	Comment	G1/2B	G1/2	G3/4B	G3/4	G1B	G1	G1 1/4B
C min	Useful thread length (mm)	8		10		10		11
L min	Male thread (mm)	11		13		15		19
F min	Female thread (mm)		10		12		12	

7.1.1 Side-entry WC flushing valves

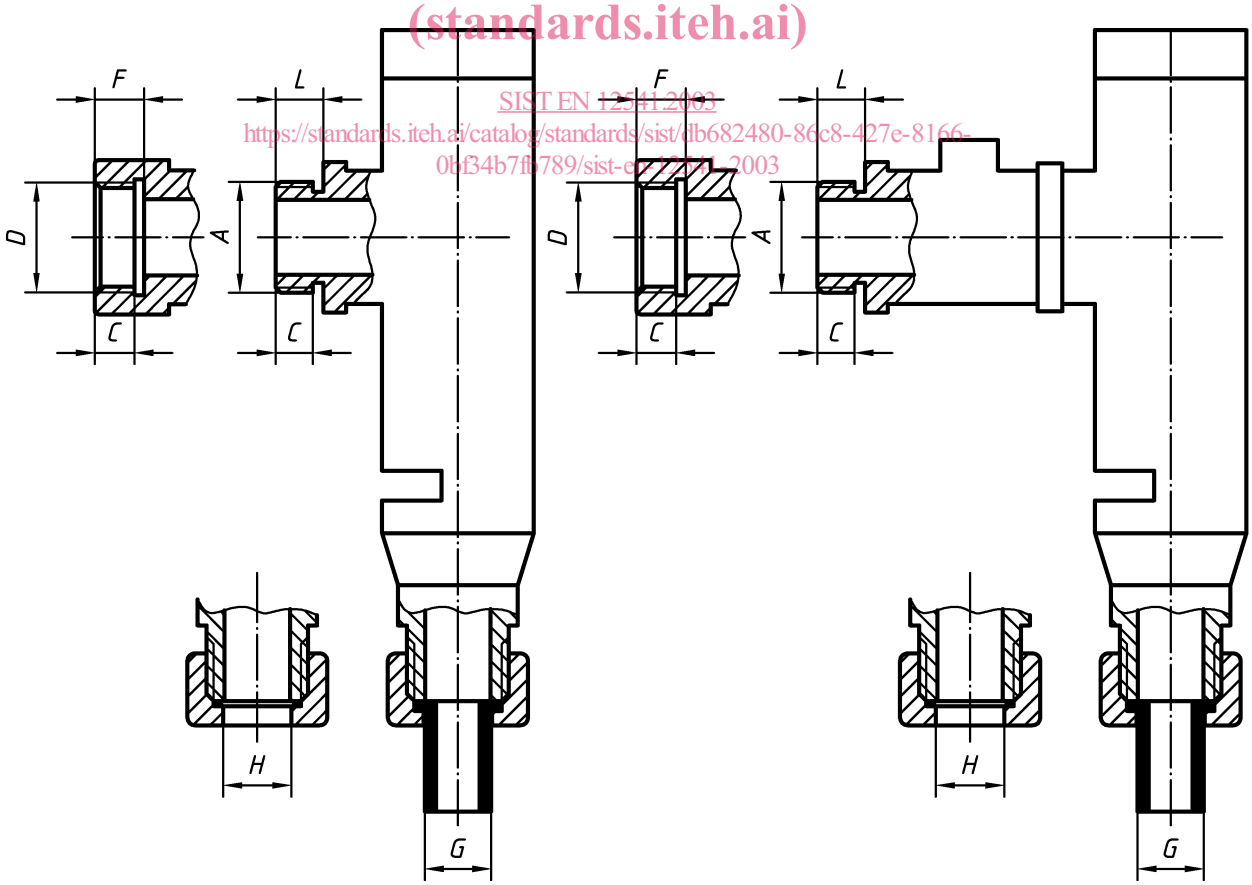

Figure 1 — Side entry WC flushing valves (see Table 3 and Table 4)

7.1.2 Top-entry WC flushing valves

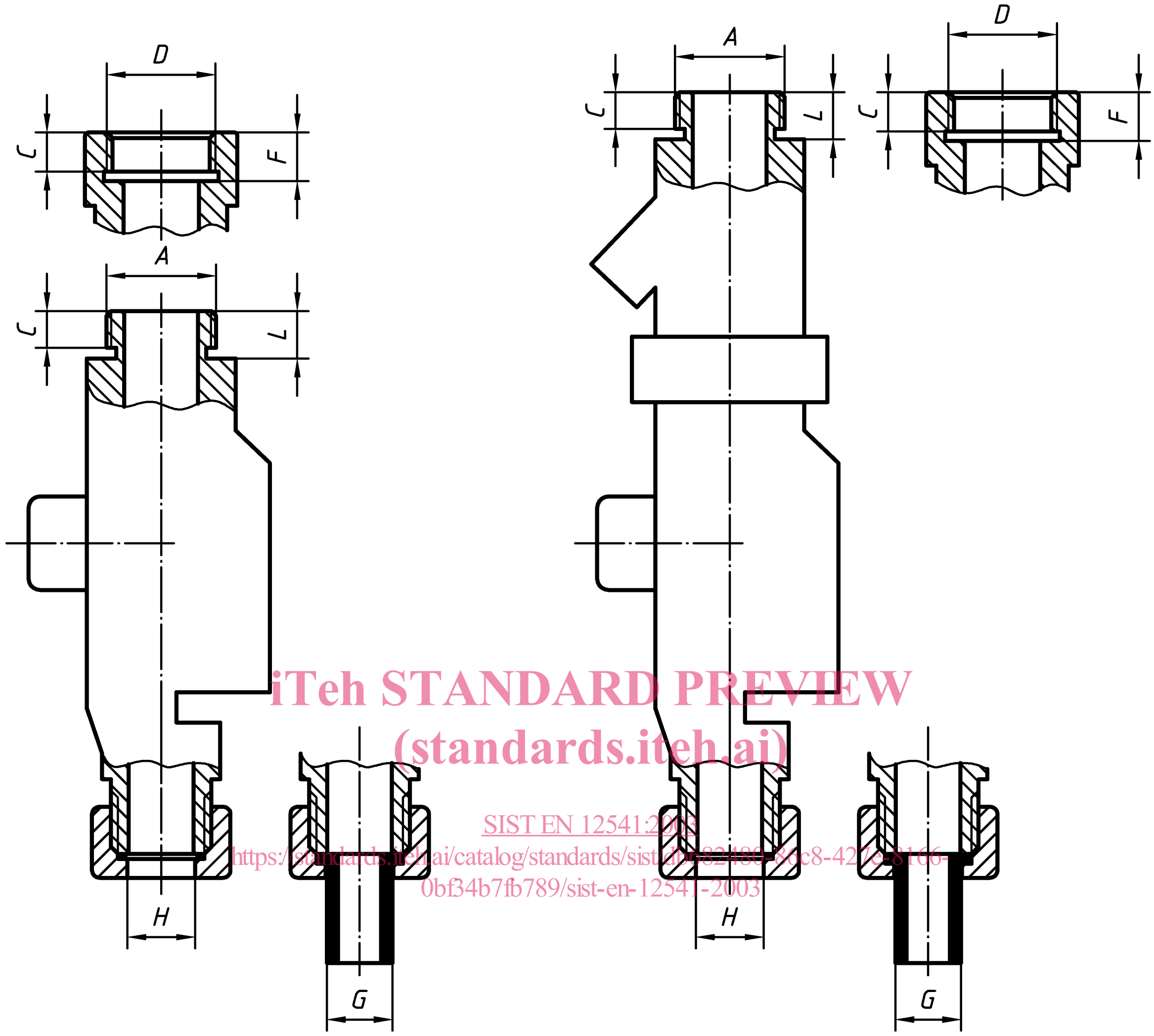

Figure 2 — Top entry WC flushing valves (see Table 3 and Table 4)

7.2 Urinal valves

Table 5 — Threads (see Figure 3 and Figure 4)

DIMENSIONS	DESIGNATION	DN15	DN20
A[a]	Male thread (ISO228-1:2000)	G1/2B	G3/4B
D[a]	Female thread (ISO 228-1:2000)	G1/2	G1/2
C min	Useful thread length	8	10
L min	Male thread	11	13
F min	Female thread	10	12

[a] If the urinal connecting pipe is supplied with the valve, dimensions A and D are not mandatory at the outlet