



SLOVENSKI STANDARD
oSIST prEN 12541:2024
01-september-2024

Sanitarne armature – Tlačni izplakovalniki in samozaporni izplakovalniki PN10 za WC in pisoarje

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 à fermeture hydraulique automatique PN 10

Ta slovenski standard je istoveten z: prEN 12541

[oSIST prEN 12541:2024](https://standards.iteh.ai/catalog/standards/sist/2ec3db80-2b19-4f4e-bd2e-531978e58c80/osist-pren-12541-2024)

<https://standards.iteh.ai/catalog/standards/sist/2ec3db80-2b19-4f4e-bd2e-531978e58c80/osist-pren-12541-2024>

ICS:

91.140.70 Sanitarne naprave Sanitary installations

oSIST prEN 12541:2024

en,fr,de

EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

DRAFT
prEN 12541

June 2024

ICS 91.140.70

Will supersede EN 12541:2002

English Version

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

Sanitärarmaturen - WC- und Urinaldruckspüler mit selbsttätigem Abschluss PN 10

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.

This draft European Standard was established by CEN 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.

CEN members are the national standards bodies of 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, Türkiye and United Kingdom.

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.

Warning : This document is not a European Standard. It is distributed for review and comments. It is subject to change without notice and shall not be referred to as a European Standard.

<https://standards.iteh.ai/catalog/standards/sist/2ec3db80-2b19-4f4e-bd2e-531978e58c80/osist-pren-12541-2024>



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

CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels

Contents	Page
European foreword	4
Introduction	5
1 Scope.....	6
2 Normative references.....	6
3 Terms and definitions and abbreviated terms	7
3.1 Terms and definitions.....	7
3.2 Abbreviated terms.....	8
4 Classification and Designation.....	8
4.1 Classification of flushing valves.....	8
4.2 Classification of urinal valves.....	9
4.3 Designation	9
5 Marking	9
6 Materials	9
6.1 Condition of exposed surfaces and quality of coating	9
7 Dimensional characteristics	9
7.1 General comments on drawings.....	9
7.2 WC flushing valve.....	10
7.2.1 General.....	10
7.2.2 Side-entry WC flushing valves.....	11
7.2.3 Top-entry WC flushing valves.....	12
7.3 Urinal valves.....	12
7.3.1 General.....	12
7.3.2 Top entry urinal valve.....	13
7.3.3 Side-entry urinal valves.....	14
8 Leaktightness characteristics.....	14
8.1 General.....	14
8.2 Leaktightness tests.....	14
8.2.1 Test methods	14
8.2.2 Leaktightness of the stop valve and leaktightness of tapware upstream of the seat.....	15
8.2.3 Leaktightness of tapware downstream of the seat.....	15
8.3 Leaktightness tests - Summary table.....	16
9 Pressure resistance characteristics	16
9.1 General.....	16
9.2 Mechanical behaviour tests.....	16
9.2.1 Test methods	16
9.2.2 Mechanical behaviour upstream of the seat with the stop valve in the closed position.....	17
9.2.3 Mechanical behaviour downstream of the seat with the stop valve in the open position.....	17
9.3 Mechanical behaviour tests - Summary table.....	17
10 Hydraulic and flow characteristics of WC flushing valves	17
10.1 General.....	17
10.2 Test method for WC flushing valves.....	18
10.2.1 Principle.....	18

10.2.2	Test apparatus	18
10.2.3	Measurement of impact force and requirements	21
10.2.4	Fitting the WC flushing valve	22
10.3	Outline of flow rate-time-volume-impact force test and requirements	23
10.3.1	Definitions.....	23
10.3.2	Test methodology	24
10.3.3	Test at lower dynamic pressure	25
10.3.4	Test at upper dynamic pressure	26
10.4	Summary of requirements	27
10.5	Measurement of water hammer.....	28
10.5.1	Test method.....	28
10.5.2	Requirements.....	28
11	Principle and verification of atmospheric pipe interrupters of WC flushing valves.....	28
11.1	General	28
11.2	Atmospheric pipe interrupter composition	28
11.2.1	General	28
11.2.2	Requirements.....	28
11.2.3	Measurement method of dry part.....	28
11.3	Installation conditions.....	29
11.4	Verification of absence of water splashes at backflow protection	30
11.4.1	Test method.....	30
11.4.2	Requirements.....	30
11.5	Verification of operation at vacuum	30
11.5.1	General	30
11.5.2	Test method.....	31
11.5.3	Requirements.....	31
12	Hydraulic or flow characteristics of urinal valves.....	31
12.1	General	31
12.2	Test method for urinal valves	31
12.2.1	Test apparatus	31
12.3	Requirements.....	32
13	Operating force.....	32
14	Mechanical endurance characteristics	32
14.1	General	32
14.2	WC flushing valves.....	32
14.2.1	Procedure	32
14.2.2	Minimum requirements.....	33
14.3	Urinal valves.....	33
14.3.1	Procedure	33
14.3.2	Minimum requirements	33
15	Acoustic characteristics	33
15.1	General	33
15.2	Procedure	34
15.2.1	Installation conditions and valve operation.....	34
15.2.2	Test method.....	34
15.3	Requirements.....	34
15.3.1	Expression of results	34
15.3.2	Determination of acoustic groups	34
	Bibliography	36

prEN 12541:2024 (E)**European foreword**

This document (prEN 12541:2024) 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 12541:2002.

prEN 12541:2024 includes the following significant technical changes with respect to EN 12541:2002:

- the document has been technically updated;
- the classifications for flushing and urinal valves have been updated;
- the 4l flow rate was introduced.

iTeh Standards
(<https://standards.iteh.ai>)
Document Preview

[oSIST prEN 12541:2024](https://standards.iteh.ai/catalog/standards/sist/2ec3db80-2b19-4f4e-bd2e-531978c58c80/osist-pren-12541-2024)

<https://standards.iteh.ai/catalog/standards/sist/2ec3db80-2b19-4f4e-bd2e-531978c58c80/osist-pren-12541-2024>

Introduction

As for possible unfavourable effects of the product to which this document applies on the quality of water for human consumption, no information is provided by this document on possible use restrictions of the product in any of the member states of the EU or the EFTA.

NOTE While awaiting the adoption of verifiable European criteria, attention is also drawn to existing national regulation that can apply.

iTeh Standards
(<https://standards.iteh.ai>)
Document Preview

[oSIST prEN 12541:2024](https://standards.iteh.ai/catalog/standards/sist/2ec3db80-2b19-4f4e-bd2e-531978c58c80/osist-pren-12541-2024)

<https://standards.iteh.ai/catalog/standards/sist/2ec3db80-2b19-4f4e-bd2e-531978c58c80/osist-pren-12541-2024>

prEN 12541:2024 (E)**1 Scope**

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

- WC pans EN 997;
- single flush urinals EN 13407;
- siphon acting urinals EN 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 ≤ 0,5 MPa (1 bar ≤ P ≤ 5 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 ≤ 0,25 MPa (0,8 bar ≤ P ≤ 2,5 bar)
Maximum static pressure		1 MPa (10 bar)
Water temperature		≤ 25 °C

NOTE 1 Although this document limits the pressure for WC DN 25 and WC DN 32 valves till 0,25 MPa (2,5 bar), some European countries have legislation and recommendations for higher pressures.

Health and quality requirements in accordance to European and national legislation for final materials in contact with water intended for human consumption are not covered by this document.

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 997, *WC pans and WC suites with integral trap*

EN 13407:2015+A1:2018, *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)*

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)*

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 and abbreviated terms

3.1 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 <https://www.electropedia.org/>
- ISO Online browsing platform: available at <https://www.iso.org/obp>

3.1.1

automatic closing valve

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

3.1.2

WC flushing valve

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

3.1.2.1

stop valve for flushing valve

valve used to stop water flow upstream of the flushing valve

Note 1 to entry: It may be integrated into the flushing valve, or separate from it.

3.1.2.2

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

Note 1 to entry: If it is part of the stop valve, this latter shall not be linked to the flushing valve by a ISO 228-1 thread.

3.1.2.3

volume control equipment

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

3.1.3

urinal valve

prEN 12541:2024 (E)**3.1.3.1****single flush urinal valve**

valve intended for flushing single flush urinals in accordance with EN 13407:2015+A1:2018, 3.6 and 3.7

3.1.3.2**siphon action urinal valve**

valve intended for flushing siphon acting urinals in accordance with EN 13407:2015+A1:2018, 3.4

3.1.3.3**stop valves for urinal valve**

valve used to stop water supply

Note 1 to entry: It may be integrated in the urinal valve and may be used to control the flow.

3.2 Abbreviated terms

For the purposes of this document, the abbreviated terms in Table 2 apply.

Table 2 — Abbreviated terms

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 as shown in Table 3:

Table 3 — Volume class of flushing valves

Class	Amount of delivered water (v)
4	$4 \text{ l} \leq v < 6 \text{ l}$
6	$6 \text{ l} \leq v < 9 \text{ l}$

9	$9\text{ l} \leq v < 10\text{ l}$
---	-----------------------------------

4.2 Classification of urinal valves

Urinal valves are classified according to their “volume class” as shown in Table 4:

Table 4 — Volume class of urinal valves

Class	Amount of delivered water (v)
1	$v \leq 1\text{ l}$
2	$1\text{ l} < v \leq 2\text{ l}$
4	$2\text{ l} < v \leq 4\text{ l}$
6	$4\text{ l} < v \leq 6\text{ l}$

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, class 9, etc);
- 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).

<https://standards.iteh.ai/catalog/standards/sist/2ec3db80-2b19-4f4e-bd2e-531978e58c80/osist-pren-12541-2024>

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 document shall be marked indelibly and permanently on the appliance with the mark or name of the manufacturer and the acoustic group, if tested.

6 Materials

6.1 Condition of exposed surfaces and quality of coating

Coated visible surfaces shall comply with the requirements of EN 248.

7 Dimensional characteristics

7.1 General comments on drawings

The design and construction of components without defined dimensions permits various design solutions to be adopted by the manufacturer.