SLOVENSKI STANDARD
SIST EN 15091:2007

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Sanitarne armature - Elektronsko odpiranje in zapiranje sanitarnih armatur

Sanitary tapware - Electronic opening and closing sanitary tapware

Sanitärarmaturen - Sanitäramaturen mit elektronischer Öffnungs- und Schließfunktion

Robinetterie sanitaire - Robinet sanitaire a ouverture et fermeture électroniques

Ta slovenski standard je istoveten z: **EN 15091:2006**

ICS:

91.140.70	Sanitarne naprave	Sanitary installations

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Sanitary tapware - Electronic opening and closing sanitary tapware

Robinetterie sanitaire - Robinet sanitaire à ouverture et fermeture électronique

Sanitärarmaturen - Sanitäramaturen mit elektronischer Öffnungs- und Schließfunktion

This European Standard was approved by CEN on 4 November 2006.

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This European Standard exists 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 Central Secretariat has the same status as the official versions.

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Foreword

This document (EN 15091:2006) 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of an identical text or by endorsement, at the latest by June 2007, and conflicting national standards shall be withdrawn at the latest by June 2007.

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, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and United Kingdom.

Introduction

This standard is relevant for electrically operated (opening and closing) sanitary tapware used with sanitary appliances.

Such tapware can be operated by any electrical source e.g., mains, battery, etc.

Flow and temperature regulation devices installed either upstream or downstream of the tapware are not covered by this specification.

The purpose of this standard is to define requirements for the:

Marking, identification, leak-tightness, electrical and operational safety, mechanical performance and limitation of water hammer for electrical opening and closing tapware.

Dimensional, hydraulic, endurance, limitation of water hammer and acoustic characteristics are covered by the relevant product standards, when they exist.

Procedure of tests in order to verify these characteristics.

As for possible unfavourable effects of the product to which this standard applies, on the quality of water intended 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 EFTA;

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

Requirements for different products are defined in different clauses of this standard as illustrated in Table 1.

Table 1 — Identification of the clauses of this standard

	MARKING-IDENTIFICATION	ELECTRICAL SAFETY	OPERATIONAL SAFETY	LEAKTIGHTNESS	MECHANICAL RESISTANCE	HYDRAULIC CHARACTERISTICS	WATER HAMMER	WATER HAMMER FOLLOWING PRODUCT STANDARD
Clause 4.General requirements and testing	X	x	x	x	x			
Clause 5.Requirements and testing for tapware						x	x	
Clause 6.Requirements and testing for flushing valves for urinals						x	x	
Clause 7. Requirements and testing for flushing valves for WCs						x		x

1 Scope

The purpose of the document is to define requirements for marking, identification, leaktightness, electrical and operational safety and mechanical resistance for sanitary tapware with opening and closing controlled electronically.

The conditions of use for the supply system type are specified in Table 2:

Table 2 — Conditions of use

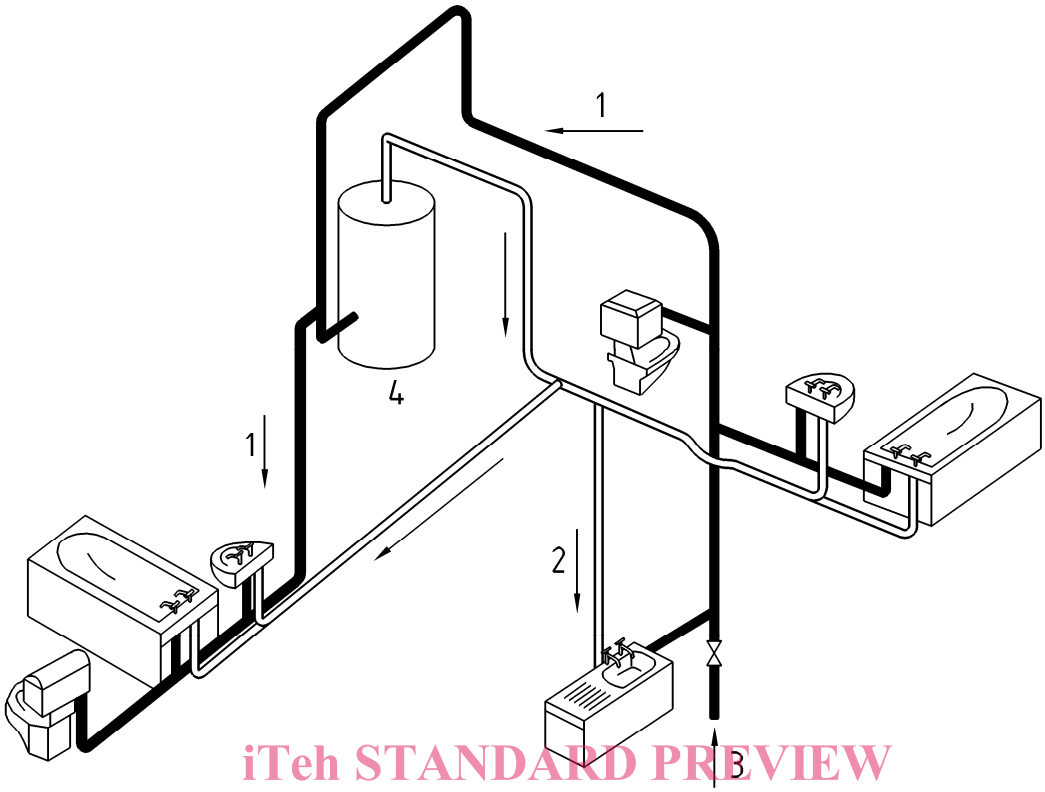
Water supply system		**Limits of use**		**Recommended limits of operation**
		Tapware with monostable solenoid valves	**Tapware with bistable solenoid valves**	
Type 1 (see Figure 1)	Minimum dynamic pressure	0,05 MPa (0,5 bar)	0,05 MPa (0,5 bar)	(0,1 to 0,5) MPa [(1 to 5) bar]
	Maximum static pressure	1 MPa (10 bar)	0,8 MPa (8 bar)	
Type 2[a] (see Figure 2)	Minimum dynamic pressure	0,01 MPa (0,1 bar)	0,01 MPa (0,1 bar)	(0,01 to 0,2) MPa [(0,1 to 2) bar]
	Maximum static pressure	0,8 MPa (8 bar)	0,6 MPa (6 bar)	
Temperature of the water		≤ 75 °C	≤ 75 °C	≤ 65 °C

[a] For Type 2, The manufacturer is to declare the minimum operating pressure at which opening, closing and the specified flow rate can be obtained.

There is usually no acoustic classification for tapware used in supply systems of Type 2 and no specifications governing the level of noise emissions from these water installations. If supply pressures are such that excessive noise is generated it is recommended that pressure or flow regulators are fitted in the system. Or where practicable, tapware conforming to the appropriate acoustic classification are used.

Table 3 — Performance characteristics to be noted if used outside the recommended operating range

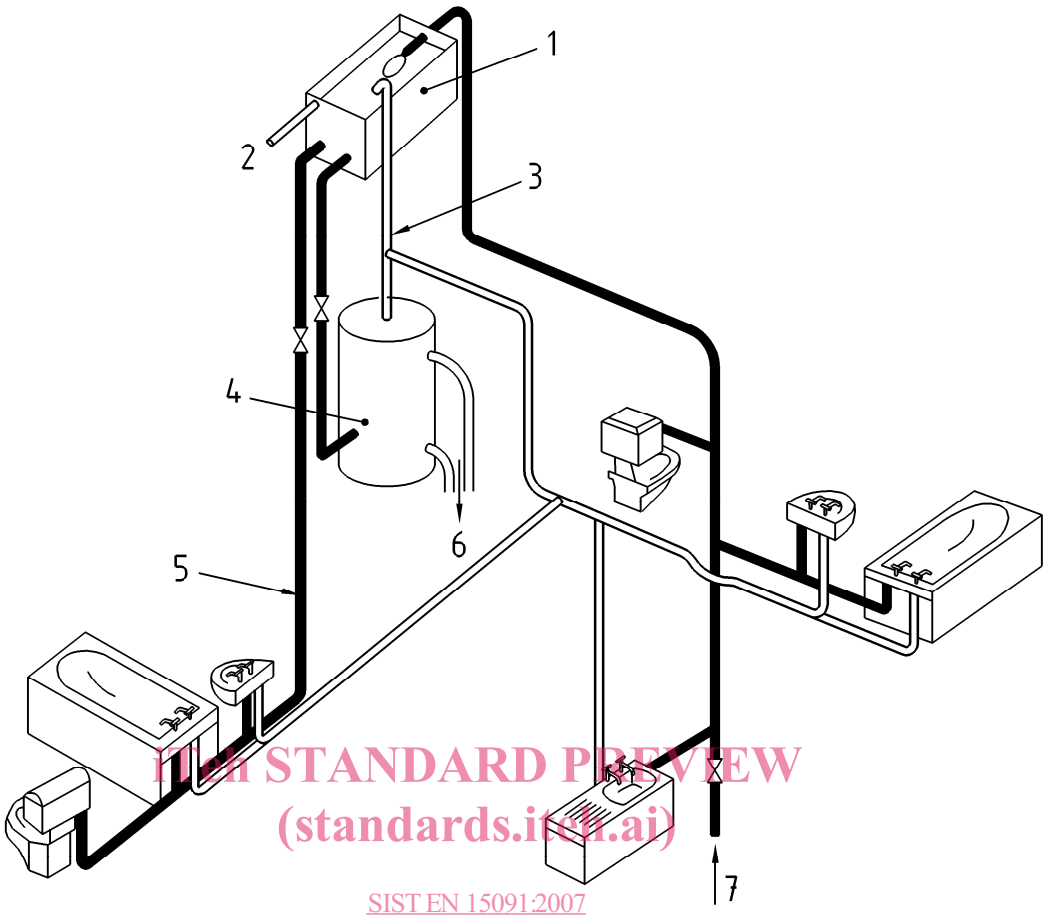
Issue	Supply system type 1	Supply system type 2
Flow performance	Taps for Type 2 systems may result in excessive flow velocity	Taps for Type 1 system may not provide an acceptable flow rate
Noise	National regulations shall be observed, the criteria for classification in acoustic groups according to these national (special) regulations being different and more detailed than those given in this standard Taps for type 1 and type 2 systems may result in excessive noise when used above the recommended pressure.	



Key

1	Cold water	3	Mains supply pipe (Supply pressures from (0,05 to 1,0) MPa [(0,5 - 10) bar)
2	Hot water	4	Water heater

Figure 1 — Type 1 - Supply system with a pressure range of (0,05 to 1,0) MPa [(0,5 to 10) bar]



Key

1 Cold water storage cistern (cover omitted for clarity)
2 Warning pipe
3 Vent pipe
4 Hot water cylinder
5 Alternative cistern fed cold supply to sanitary appliances
6 To boiler
7 Mains supply pipe (Supply pressures up to 10 bar)

Figure 2 — Type 2 - Supply system with a pressure range of (0,01 to 1,0) MPa [(0,1 to 10) bar].

A vented domestic hot water and cold water supply system incorporating gravity hot water, mains cold water and alternative gravity cold water supply to sanitary appliances.

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 31, *Pedestal wash basins - Connecting dimensions*

EN 32, *Wall-hung wash basins - Connecting dimensions*

EN 35, *Pedestal bidets with over-rim supply — Connecting dimensions*

EN 36, *Wall-hung bidets with overrim supply — Connecting dimensions*

EN 111, *Wall-hung hand rinse basins — Connecting dimensions*

EN 246, *Sanitary tapware — General specifications for flow rate regulators*

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

EN 695, *Kitchen sinks — Connecting dimensions*

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

EN 12541:2002, *Sanitary tapware — Pressure flushing valves and automatic closing urinal valves PN 10*

EN 13407:2006, *Wall-hung urinals — Functional requirements and test methods*

prEN 13618, Hose assembly - Flexible hose assembly

EN 13959, *Anti-pollution check valves — DN 6 to DN 250 inclusive family E, type A, B, C and D*

EN 60335-1, *Household and similar electrical appliances — Safety — Part 1: General requirements (IEC 60335-1:2001, modified)*

EN 60529, *Degrees of protection provided by enclosures (IP code) (IEC 60529:1989)*

EN 60730-2-8, *Automatic electrical controls for household and similar use — Part 2-8: Particular requirements for electrically operated water valves, including mechanical requirements (IEC 60730-2- 8:2000, modified)*

EN 61000-6-1, *Electromagnetic compatibility (EMC) — Part 6-1: Generic standards — Immunity for residential, commercial and light-industrial environments (IEC 61000-6-1:2005)*

EN 61000-6-3, *Electromagnetic compatibility (EMC) — Part 6-3: Generic standards — Emission standard for residential, commercial and light-industrial environments (IEC 61000-6-3:1996, modified).*

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

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

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 3822-2, *Acoustics - Laboratory tests on noise emission from appliances and equipment used in water supply installations - Part 2: Mounting and operating conditions for draw-off taps and mixing valves (ISO 3822-2:1995)*

EN ISO 3822-3, *Acoustics - Laboratory tests on noise emission from appliances and equipment used in water supply installations - Part 3: Mounting and operating conditions for in-line valves and appliances (ISO 3822-3: 1997)*

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 3822-4:1985)*

3 Terms and definitions

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

3.1
cold water
water with a temperature less than 25 °C

3.2
hot water
water with a temperature between 52 °C and 75 °C

3.3
system of detection
device for initiating the process of opening and/or closing

NOTE Such sensors can be touch or touchless (handsfree) operation.

3.4
valve
electrically operated obturator for controlling the flow of water

3.5
monostable valve
obturation system continuously fed electrically while operated

3.6
bistable valve
obturation system electrically fed only for operating opening and closing

3.7
electronic circuitry
whole of electronic components that operate both the system of detection and the valve

3.8
integrated tap
tapware with all or part of the electronic components inside the body

4 General requirements and testing

4.1 Marking

Tapware conforming to the requirements of this standard shall be permanently and legibly marked with:

— name or logo of the manufacturer;

— EC marking rules;

— acoustic and flow-rate classes (if relevant);

— volume class for urinals (e.g. class 6 or class 9).