Sanitary tapware - Electronic opening and closing sanitary tapware

EESTI STANDARDIKESKUS
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NATIONAL FOREWORD

See Eesti standard EVS-EN 15091:2013 sisaldab Euroopa standardi EN 15091:2013 inglisekeelset teksti.	This Estonian standard EVS-EN 15091:2013 consists of the English text of the European standard EN 15091:2013.
Standard on jõustunud sellekohase teate avaldamisega EVS Teatajas.	This standard has been endorsed with a notification published in the official bulletin of the Estonian Centre for Standardisation.
Euroopa standardimisorganisatsioonid on teinud Euroopa standardi rahvuslikele liikmetele kättesaadavaks 11.12.2013.	Date of Availability of the European standard is 11.12.2013.
Standard on kättesaadav Eesti Standardikeskusest.	The standard is available from the Estonian Centre for Standardisation.

Tagasisidet standardi sisu kohta on võimalik edastada, kasutades EVS-i veebilehel asuvat tagasiside vormi või saates e-kirja meiliaadressile standardiosakond@evs.ee.

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English Version

Sanitary tapware - Electronic opening and closing sanitary tapware

Robinetterie sanitaire - Robinet sanitaire à ouverture et fermeture électroniques

Sanitärarmaturen - Sanitärarmaturen mit elektronischer Öffnungs- und Schließfunktion

This European Standard was approved by CEN on 26 October 2013.

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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 CEN-CENELEC Management Centre has the same status as the official versions.

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COMITÉ EUROPÉEN DE NORMALISATION
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Foreword

This document (EN 15091:2013) 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of an identical text or by endorsement, at the latest by June 2014, and conflicting national standards shall be withdrawn at the latest by June 2014.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN [and/or CENELEC] shall not be held responsible for identifying any or all such patent rights.

This document supersedes EN 15091:2006.

Significant technical differences between this edition and EN 15091:2006 are as follows:

- the introduction of a maximum voltage;
- the change of dimensional characteristics (see 5.2);
- the change in minimum flow rates and hammer test (5.3.5 and 5.3.3).

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

Introduction

This standard is relevant for electrically operated (opening and closing) sanitary tapware used with sanitary appliances, with a maximum voltage of 42 V AC / 72 V DC, in the enclosure of the tap.

Such tapware can be operated by any electrical source e.g. mains with a transformer, 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:

1) marking, identification, leak-tightness, electrical and operational safety, mechanical performance and limitation of water hammer for electrical opening and closing tapware;

2) dimensional, hydraulic, endurance and acoustic characteristics;

3) 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:

4) 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;

5) 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	DIMENSIONAL CHARACTERISTICS	ENDURANCE	ACOUSTIC	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	X					X	X	
Clause 6. Requirements and testing for flushing valves for urinals		X	X						X	X	
Clause 7. Requirements and testing for flushing valves for WCs		X	X	X					X		X

1 Scope

The purpose of this European Standard 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:

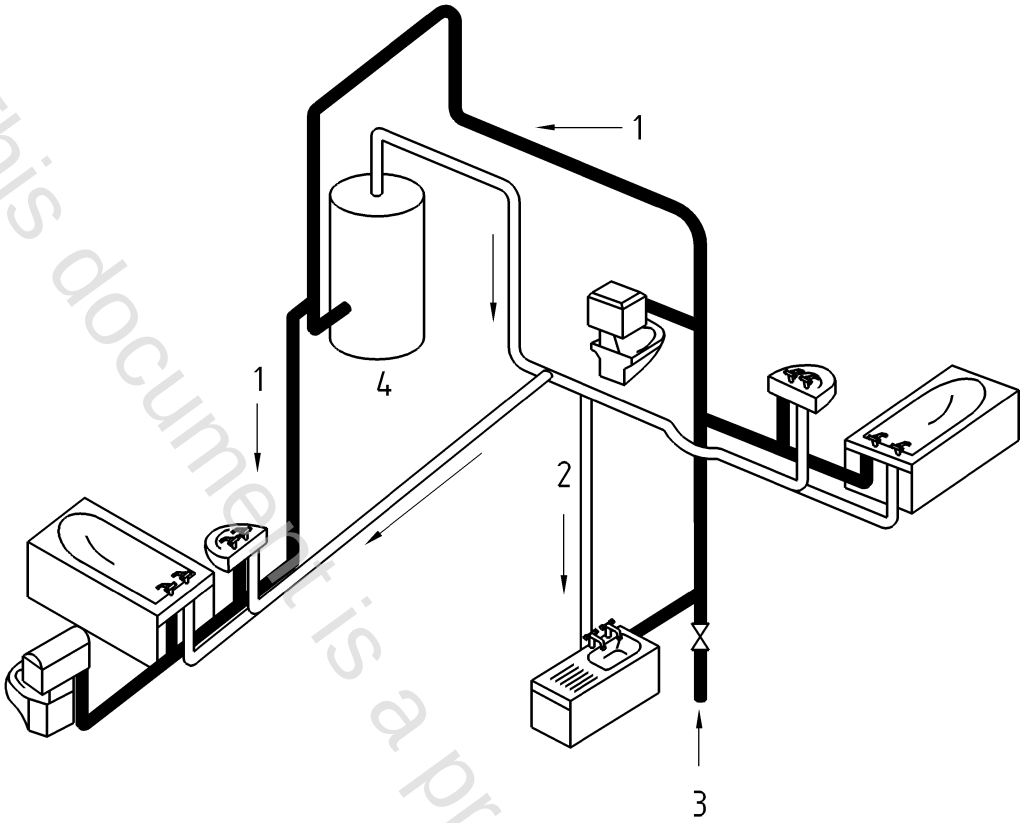
Table 2 — Conditions of use

Water supply system		Limits of use		Recommended limits of operation	
		Tapware with normally open or normally closed (monostable) solenoid valves	Tapware with latching (bistable) solenoid valves	Tapware with normally open or normally closed (monostable) solenoid valves	Tapware with latching (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]	(0,1 to 0,5) MPa [(1 to 5) bar]
	Maximum static pressure	1 MPa (10 bar)	1 MPa (10 bar)	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]	(0,01 to 0,2) MPa [(0,1 to 2) bar]
	Maximum static pressure	1 MPa (10 bar)	1 MPa (10 bar)	0.8 MPa (8 bar)	0.6 MPa (6 bar)
Temperature of the water		≤ 75 °C	≤ 75 °C	≤ 65 °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.

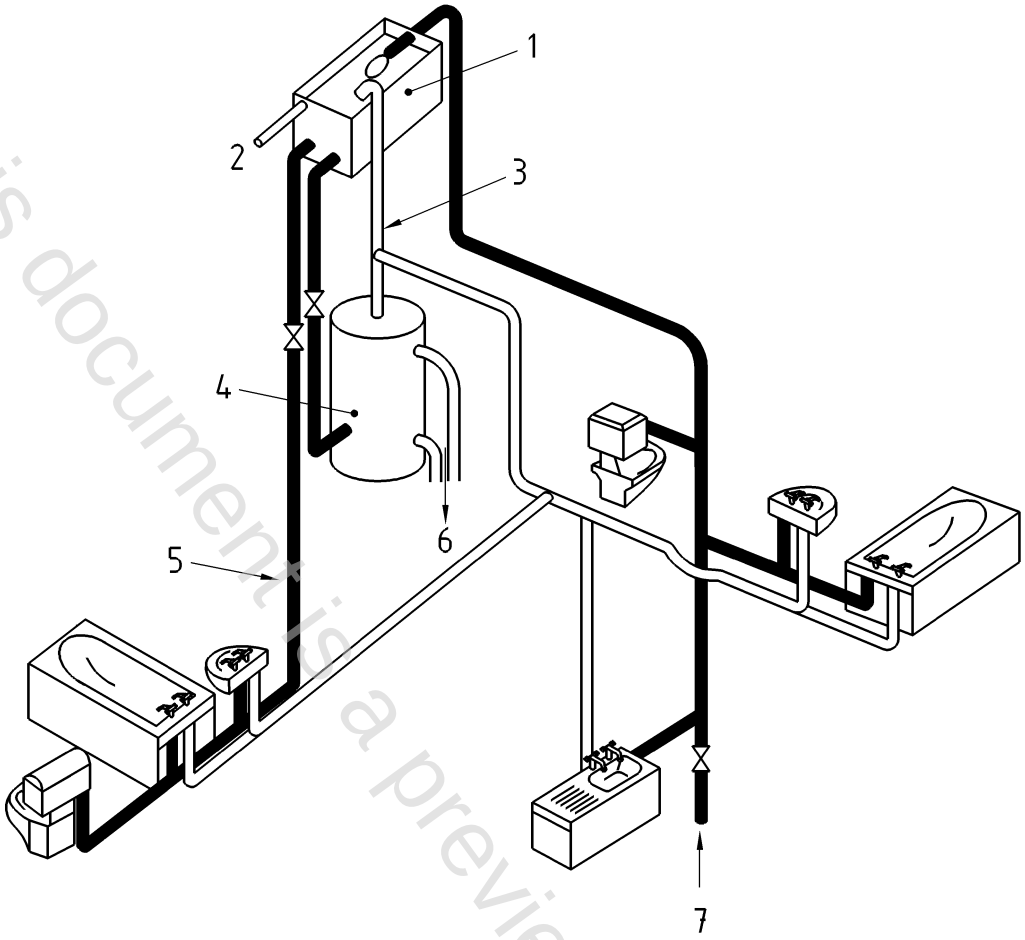
Annex B lists possible consequences of using a product outside its recommended operating range.



Key

1 cold water
2 hot water
3 mains supply pipe (Supply pressures from (0,05 to 1,0) MPa ((0,5 - 10) bar)
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 8 bar)

Figure 2 — Type 2 — Supply system with a pressure range of (0,01 to 0,8) MPa ((0,1 to 8) 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 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 31, *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 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 997, *WC pans and WC suites with integral trap*

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

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

EN 13618, *Flexible hose assemblies in drinking water installations — Functional requirements and test methods*

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)*

EN 60529, *Degrees of protection provided by enclosures (IP Code) (IEC 60529)*

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)*

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

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)*

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)*

EN ISO 3822 (all parts), *Acoustics — Laboratory tests on noise emission from appliances and equipment used in water supply installations (ISO 3822, all parts)*

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)*

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
valve
electrically operated obturator for controlling the flow of water