SLOVENSKI STANDARD
SIST EN 13407:2015+A1:2018

01-december-2018

Nadomešča:
SIST EN 13407:2015

Zidni pisoar - Funkcionalne zahteve in preskusne metode

Wall-hung urinals - Functional requirements and test methods

Wandhängende Urinale - Funktionsanforderungen und Prüfverfahren

Urinoirs muraux - Prescriptions fonctionnelles et méthodes d'essai

Ta slovenski standard je istoveten z: EN 13407:2015+A1:2018

ICS:

91.140.70	Sanitarne naprave	Sanitary installations

SIST EN 13407:2015+A1:2018 **en,fr,de**

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 13407:2015+A1

October 2018

ICS 91.140.70

English Version

Wall-hung urinals - Functional requirements and test methods

Urinoirs muraux - Prescriptions fonctionnelles et méthodes d'essai

Wandhängende Urinale - Funktionsanforderungen und Prüfverfahren

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EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
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CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels

Ref. No. EN 13407:2015+A1:2018 E

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European foreword

This document (EN 13407:2015+A1:2018) has been prepared by Technical Committee CEN/TC 163 "Sanitary appliances", the secretariat of which is held by UNI.

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of an identical text or by endorsement, at the latest by April 2019 and conflicting national standards shall be withdrawn at the latest by July 2020.

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 includes Amendment 1 approved by CEN on 14 April 2018.

This document supersedes A1 EN 13407:2015 A1.

The start and finish of text introduced or altered by amendment is indicated in the text by tags A1 A1.

This document has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association.

For relationship with EU Construction Products Regulation, see informative Annex ZA, which is an integral part of this document.

A1 The main changes introduced in EN 13407 were the following:

a) introduction of a new Annex ZA according to the latest template (in the format of TF N 678 rev 1 of 2015-06-02);

b) modification of the marking of products;

c) modification of the clause "Test samples, testing and compliance criteria";

d) editorial modifications as agreed between representatives of EU/DG Growth, CEN/TC 163 and FECS on 2016-07-07 in Brussels for citation of standard in OJEU. A1

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, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

1 Scope

This European Standard specifies constructional and performance A1 characteristics A1 together with test methods for wall-hung urinals made of vitreous china or stainless steel that are used for personal hygiene.

This European Standard does not apply to slab and stall urinals nor to waterless urinals.

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 80, *Wall-hung urinals - Connecting dimensions*

EN 274-1, *Waste fittings for sanitary appliances - Part 1: Requirements*

EN 12056-2, *Gravity drainage systems inside buildings - Part 2: Sanitary pipework, layout and calculation*

3 Terms and definitions

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

3.1
wall-hung urinal
sanitary appliance comprising a bowl to be fixed to a wall, for receiving urine and water used for flushing and directing both into a drainage system

Note 1 to entry: See Figure 1:

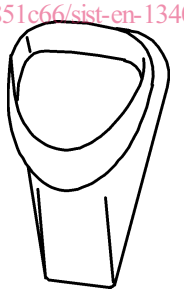


Figure 1 — Wall-hung urinal

3.2
slab urinal
sanitary appliance comprising a floor channel and a slab or sheet fixed to a wall, for receiving urine and water used for flushing and directing both into a drainage system

Note 1 to entry: See Figure 2:

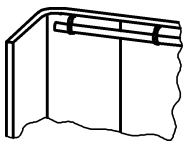


Figure 2 — Slab urinal

3.3
stall urinal
sanitary appliance for receiving and directing urine and water used for flushing to the drainage system consisting of a floor-mounted stall secured to a wall with an integral outlet

Note 1 to entry: See Figure 3:

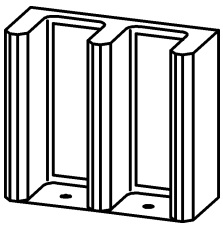


Figure 3 — Stall urinal

3.4
urinal with siphonic action
urinal in which urine is removed by siphonage (suction) induced by flushing water flowing through either an integral trap or a dedicated separate trap assembled in accordance with the manufacturer's instruction

3.5
wash-down urinal
non-siphonic acting urinal with or without integral trap

3.6
waterless urinal
sanitary appliance for receiving urine and directing it into a drainage system, which functions without the use of water

3.7
flushing cistern
cistern for storage and discharge of a defined volume of flushing water for removal of urine from urinals

3.8
flush valve
valve connected directly to a water supply, which delivers a pre-determined volume of flushing water for removal of urine from a urinal

3.9
cleanability
characteristics which allow surfaces intended to come into contact with water and/or urine and cleansing materials to be visibly smooth, non-absorbent and free from acute internal corners, such that they can be kept visibly free from dirt and/or stains when subject to a regular maintenance regime, which may include, when appropriate, specific instructions for use and care specified by the manufacturer

3.10
product type
〈A1〉 set of representative performance levels or classes of a construction product, in relation to its essential characteristics, produced using a given combination of raw materials or other elements in a specific production process

Note 1 to entry: This definition is taken from Regulation (EU) No. 305/2011. 〈A1〉

4 Principles of design

4.1 General

Wall-hung urinals in accordance with Table 1 shall meet the following [A1] characteristics [A1]:

— for connection to supply and drainage systems the connecting dimensions shall be in accordance with EN 80 or the manufacturer shall provide or recommend necessary auxiliary components;

— wall-hung urinals shall function with flushing device(s) supplying flushing volumes and/or flow rates as specified by the manufacturer in accordance with Table 2.

Table 1 — [A1] Sub-types [A1] of wall-hung urinals

[A1] Sub-type [A1]	Construction
I	Siphonic action urinal with flushing rim and with integral trap or with dedicated trap specified by the manufacturer
II	Wash-down urinal with or without flushing rim and with integral trap or with dedicated trap specified by the manufacturer
III	Wash-down urinal with or without flushing rim and without dedicated trap
IV	Urinal of [A1] sub-types [A1] I, II or III with dedicated flushing device specified by the manufacturer

4.2 Flushing volume and flow rate

The flushing volumes and flow rates for particular flushing devices shall be as given in Table 2.

Table 2 — Flushing devices, volumes and flow rate

[A1] Sub-type [A1] of urinal	Flushing device for testing			
	Flush valve (C) in accordance with Annex A		Manually operated flushing cistern (A) in accordance with Annex B	Automatic flushing cistern (B) in accordance with Annex C
	Flushing volume l	Flow rate l/s	Flushing volume l	Flushing volume l
I	> 0,5 ≤ 5,0	$0{,}5\ ^{+0{,}1}_{-0{,}2}$	> 0,5 ≤ 5,0	—
II		$0{,}2\ ^{+0{,}2}_{-0{,}1}$		
III		≤ 0,2		> 0,5 ≤ 4,5
IV		$0{,}5\ ^{+0{,}1}_{-0{,}4}$		

5 Classification

Wall-hung urinals are classified as described below:

— [A1⟩ Type ⟨A1] 1: Wall-hung urinals intended to be installed in drainage systems of [A1⟩ sub-type ⟨A1] I, II or IV in accordance with EN 12056-2 and tested in accordance with Clause 6.

— [A1⟩ Type ⟨A1] 2: Wall-hung urinals intended to be installed in drainage systems of [A1⟩ sub-type ⟨A1] III in accordance with EN 12056-2 and tested in accordance with Clause 7.

6 Functional [A1⟩ characteristics ⟨A1] and test methods for [A1⟩ type ⟨A1] 1 products

6.1 Depth of water seal

When tested as described in 6.6.1.2, the depth of water seal in urinals of [A1⟩ sub-types ⟨A1] I and II shall be not less than 50 mm. Ensure that the trap will be re-filled up to not less than 50 mm.

Traps in accordance with EN 274-1 are exempted from this test.

6.2 Flushing [A1⟩ characteristics ⟨A1]

6.2.1 Wash of bowl

When tested as described in 6.6.1.3.1, the arithmetic average of any un-flushed area of the surface to be tested shall not be greater than 80 cm^2 after five flushing operations.

The surface to be tested is defined as described below:

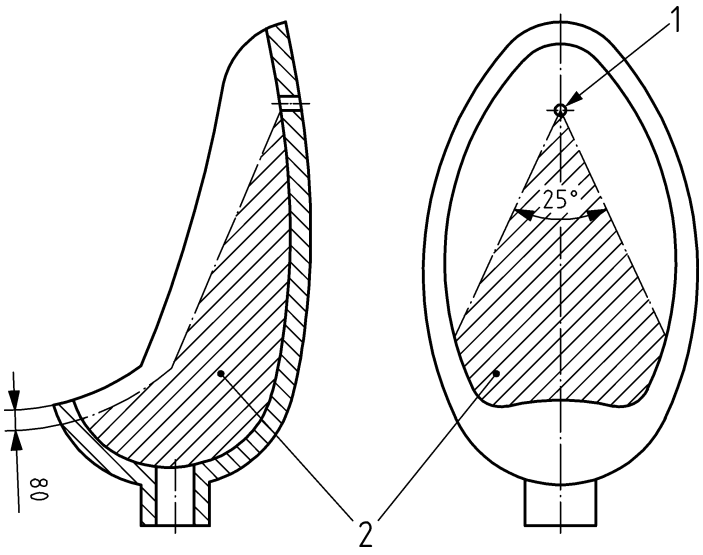
a) for urinals with flushing rim: the area below the flushing rim and above the water surface in the trap;

b) for urinals without flushing rim: the surface enclosed by:

   1) an angle of 25° on the surface of urinal beginning from the central point of the water inflow, and

   2) a line in a distance of 80 mm from the edge of the bowl (see Figure 4).

Dimensions in millimetres



Key

1 spreader or central inlet hole

2 surface to be tested

Figure 4 — Surface to be tested for urinals without flushing rim flushed by a spreader or inlet holes

6.2.2 Flushing of three plastics balls

When tested as described in 6.6.1.3.2, at least two plastics balls shall be flushed out of the trap of the urinal in each of five separate flushing operations with three balls.

When tested as described in 6.6.1.3.2, [A1] sub-type [A1] I urinals shall flush with a siphonic action when not connected to the drainage pipe.

Urinals of [A1] sub-types [A1] II and III are excluded from this test.

6.2.3 Oversplashing

When tested as described in 6.6.1.3.3, the flushing water shall not splash beyond the edge of the bowl and wet the floor. Only a few small drops on the floor are permissible.

6.2.4 Discharge

When tested as described in 6.6.1.3.4, no flushing water shall run over the rim of the bowl.

6.3 Water absorption

When tested as described in 6.6.2, the arithmetic average for water absorption of glazed ceramic urinals shall not exceed 0,75 % by mass where no individual value shall exceed 1,00 %.

Experience has shown that urinals made of stainless steel comply with this requirement.

6.4 Load resistance

When tested in accordance with 6.6.3, the wall-hung urinal shall not crack, become detached from the wall or show permanent distortion.

6.5 Durability of [A1] type [A1] 1 products

[A1] Type [A1] 1 products conforming with the [A1] characteristics [A1] of 6.1 to 6.4 are deemed to be durable.

6.6 Test methods

6.6.1 Testing the depth of water seal and flushing tests

6.6.1.1 General

For testing the depth of water seal and flushing requirements with the device(s) indicated by the manufacturer, i.e. a flush valve in accordance with Annex A and/or with a flushing cistern in accordance with either Annex B or Annex C, install the urinal to be tested in accordance with the manufacturer's instructions on a firm flat vertical surface and connect the water inlet and the trap.

The flow rate shall be adjusted in accordance with the manufacturer's specification.

6.6.1.2 Depth of water seal

Fill the trap with water by flushing twice. After the second flush, check that the trap complies with 6.1.

6.6.1.3 Flushing tests

6.6.1.3.1 Sawdust test

6.6.1.3.1.1 Test apparatus

For urinals without rim, a template made of a flexible sheet in accordance with Figure 5.

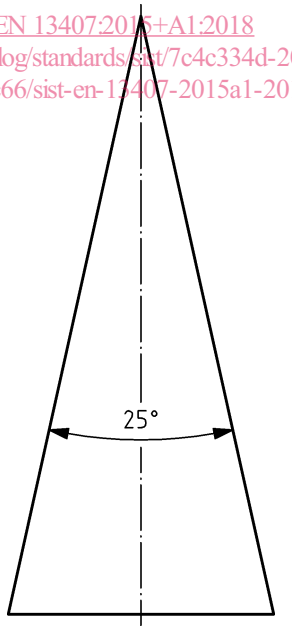


Figure 5 — Template for testing urinals without flushing rim

6.6.1.3.1.2 Test material

20 g of fine dry wood sawdust.

6.6.1.3.1.3 Method

For urinals without rim draw the perimeter of the surface to be tested (see Figure 4) using the template and a water resistant ink.

Moisten the surface to be tested of all [A1) sub-types (A1] of urinals. Immediately afterwards, sprinkle the sawdust as completely and evenly as possible over the moistened surface.

Flush the urinal with the flushing volume and/or flow rate indicated by the manufacturer and measure any un-flushed area of the surface to be tested.

Perform this procedure five times and check the compliance with 6.2.1.

6.6.1.3.2 Flushing of three plastics balls

6.6.1.3.2.1 Test material

Three balls of non-absorbent material, e.g. polyethylene, each having a mass of (3,7 ± 0,2) g and a diameter of (20 ± 0,2) mm[1].

6.6.1.3.2.2 Method

For each flushing operation place the three balls into the urinal. Without the urinal being connected to a drainage pipe, flush the urinal with the flushing volume and/or flow rate specified by the manufacturer. Verify that the balls are flushed out of the trap of the urinal. Remove any balls left in the urinal or its trap.

Perform the test five times, checking for compliance with the requirements of 6.2.2 each time.

6.6.1.3.3 Oversplashing test

Using the flushing device(s) with the maximum volume for flushing cistern and maximum flow rate for flush valve in accordance with Table 2, flush the urinal and record any visible evidence of water on the floor in the area below.

6.6.1.3.4 Discharge

The test is made with the maximum flow rate in accordance with Table 2 for a minimum of 2 min in the case of a flush being provided by a flush valve, and with the maximum flushing volume in accordance with Table 2 in the case of a flush being provided by a flushing cistern in accordance with 4.2.

Record any evidence of water flowing over the rim of the bowl.

6.6.2 Determination of water absorption

6.6.2.1 Test apparatus

6.6.2.1.1 Balance accurate to 0,05 g.

6.6.2.1.2 Oven controlled at a test temperature of (105 ± 2) °C.

6.6.2.1.3 Desiccator with fresh prepared silica gel.

6.6.2.1.4 Chamois leather and a fine brush.

6.6.2.1.5 Heated bath with constant water level.

1) Suitable balls are available from Gebauer GmbH, Kugelfabrik, P.O. Box 425, 36004 Fulda, Germany, or CIMAP, Avenue Paul Adam 21 – 25, 75017 Paris, France. This information is given for the convenience of users of this European Standard and does not constitute an endorsement by CEN of these products.