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**Sanitarne armature - Mehansko nastavljiva mešalna armatura (PN 10) -  
Splošne tehnične zahteve**

Sanitary tapware - Mechanical mixers (PN 10) - General technical specifications

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December 2004

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ICS

Will supersede EN 817:1997

English version

## Sanitary tapware - Mechanical mixers (PN 10) - General technical specifications

Robinetterie sanitaire - Mitigeurs mécaniques (PN 10) -  
Spécifications techniques générales

Sanitärarmaturen - Mechanisch einstellbare Mischer (PN  
10) - Allgemeine technische Spezifikation

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.

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

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## Foreword

This document (prEN 817 :2004) 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 817:1997.

This standard now acknowledges the field of application for mechanical mixing valves used in:

Water supply systems with a pressure range of 0.05 MPa (0.5 bar) to 1.0 MPa (10 bar)

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## Introduction

In respect of potential adverse effects on the quality of water intended for human consumption, caused by the product covered by this standard:

This standard provides no information as to whether the product may be used without restriction in any of the Member States of the EU or EFTA

It should be noted that, while awaiting the adoption of verifiable European criteria, existing national regulations concerning the use and/or the characteristics of these products remain in force.

The tests described are type tests (laboratory tests) and not quality control tests carried out during manufacture.

## 1 Scope

This European Standard specifies:

- the dimensional, leaktightness, mechanical and hydraulic performance, mechanical endurance and acoustic characteristics with which mechanical mixing valves shall comply;
- the procedures for testing these characteristics.

It is applicable:

- to mechanical mixing valves, intended for use on sanitary appliances in washrooms (toilets, bathrooms etc.) and in kitchens;
- to PN 10 mechanical mixing valves used under the following pressure and temperature conditions.

**Table 1 Conditions for the use of mechanical mixing valves**

	Limits of use	Recommended limits for correct operation
Dynamic pressure	0,05 MPa (0,5 bar) min.	0,1 MPa $\leq$ P $\leq$ 0,5 MPa (1 bar $\leq$ P $\leq$ 5 bar)
Static pressure	1 MPa (10 bar) max.	
Temperature	$\leq$ 90 °C	$\leq$ 65 °C

NOTE: Mechanical mixing valves for use at pressures lower than those in table 1 are covered by EN 1286.

## 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 bidet over rim supply only - Connecting dimensions
EN 36	Wall hung bidets over rim supply only - Connecting dimensions
EN 111	Wall hung rinse basins - Connecting dimensions
EN 232	Baths - Connecting dimensions
EN 246	Sanitary tapware - General specifications for flow rate regulators
EN 248	Sanitary tapware - General technical specifications for electrodeposited nickel chrome coatings
EN 695	Kitchen sinks - Connecting dimensions
EN 1717	Protection against pollution of potable water in drinking water installations and general requirements of devices to prevent pollution by backflow
EN ISO 3822-1:1995	Acoustics - Laboratory tests on noise emission from appliances and equipment used in water supply installations - Part 1: Method of measurement
EN ISO 3822-2:1995	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
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 228-1:1994	Pipe threads where pressure-tight joints are not made on the threads - Part 1: Dimensions tolerances and designation
ISO 5167-1:1991	Measurement of fluid flow by means of pressure differential devices - Part 1: Orifice plates, nozzles and Venturi tubes inserted in circular cross-section conduits running full

### 3 Designation

Mechanical mixing valves with a control device mixes hot and cold water between the "all cold water" position and the "all hot water" position and adjusts the flow rate of the mixture obtained between the "no flow" and "maximum flow" positions, either using the same control device or another separate control device.

The valves covered by this standard are designated (see Table 2) by reference to:

- nominal size ( $\frac{1}{2}$  or  $\frac{3}{4}$ );
- this standard.

For example: Mechanical mixing valve, nominal size  $\frac{1}{2}$ , 1-hole, visible body, mounting on horizontal surface, diverter, fixed outlet, flow rate class(es), with acoustic group, EN.

**Table 2 Designation**

<b>Mechanical mixer according to application</b>	
Intended use	Basin, bidet, sink, shower, bath/shower
Mounting method	Horizontal or vertical surfaces
Type of body	Single or multi-hole, visible, or concealed
Type of outlet	Fixed-, moveable-, with or without flow rate regulator

Mechanical mixer according to application	
Diverter	with or without diverter
Acoustic group, classification	Group I, or group II, unclassified
Flow rate class of mixers	Z, A, S, B, C, D
Ref. to the Standard	EN 817

## 4 Marking - Identification

### 4.1 Mechanical mixing valves shall be marked permanently and legibly with:

- the manufacturer's or agent's name or identification - on the body or handle;
- the manufacturer's name or identification - on the headwork;
- the acoustic group (see Table 13) and the flow rate class(es), (see Table 12), - on the body.

Examples of marking:

Name or identification and I-A-A, or II-B-B (acoustic group and flow rate class(es))

Bath/Shower mixer: the first letter for the bath outlet, the second letter for the shower outlet

### 4.2 Identification

The direction of movement of the control device for water temperature adjustment of mechanical mixing valves shall be identified:

- for cold water by the colour blue;
- for hot water by the colour red.

The identification of cold water shall be on the right and the hot water on the left.

## 5 Materials

### 5.1 Chemical and hygiene requirements

All materials coming into contact with water intended for human consumption shall present no health risk up to a temperature of 90°C.

They shall not cause any change of the drinking water in terms of quality, appearance, smell or taste.

### 5.2 Exposed surface conditions

Visible chromium plated surfaces and Ni-Cr coatings shall comply with the requirements of EN 248.

## 6 Dimensional characteristics

### 6.1 General remarks

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



Special cases are covered in clause 6.2

- Inlet dimensions (shanks, connections, tubes, attachments) are shown in Table 3, Figure 1, Figure 2, Figure 3, Figure 4 and Figure 5
- Outlet dimensions (length, flow rate regulators, attachments) are shown in Table 4, Figure 6, Figure 7 and Figure 8.
- Mounting dimensions of mixers described in this standard are shown in Table 5, Figure 9.

### 6.1.1 Inlet Dimensions - Single-hole mixer - visible body - Supply Connections

**Table 3 Inlet Dimensions**

INLET – DIMENSIONS (all dimensions are in mm)			COMMENTS
Shank, Union, Captive nut, (useful thread length)			
A	G ½ B	Shank, union	ISO 228 /1
A 1	G ¼ B		
A 2	9 min	Captive nut	Useful thread length
A 3	15 min	Shank, Union	
Connecting centres			
G	150 ± 1	2 - hole wall -mounted size ½ (Bath, Shower)	Supply connection, with captive nut or straight unions
G 1	140 – 160		- with eccentric unions (extension of this range is permitted)
G 2	200 ± 3,5	Multi-hole tap size ½ (Kitchen, Basin)	
Inlet connections (Connecting ends)			
N 1	12,3 +0.2	Type 1 size ½	
N 2	5 min		
N 1	15,2 ± 0.05	Type 2 size ½ 30° chamfer / flat 0,3	
N 2	13 min		
T		Plain end Ø 10 or 12 or 15 or G ½ or G 3/8 male or female	Copper tube(s) or flexible hose(s)
U	350 min		Tube(s) or flexible hose(s) Flex. Hoses in acc. with EN 13618

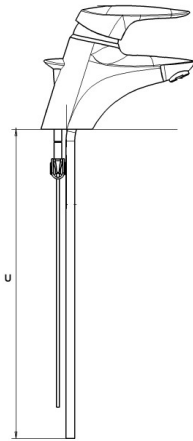


Figure 1 Pipe connection

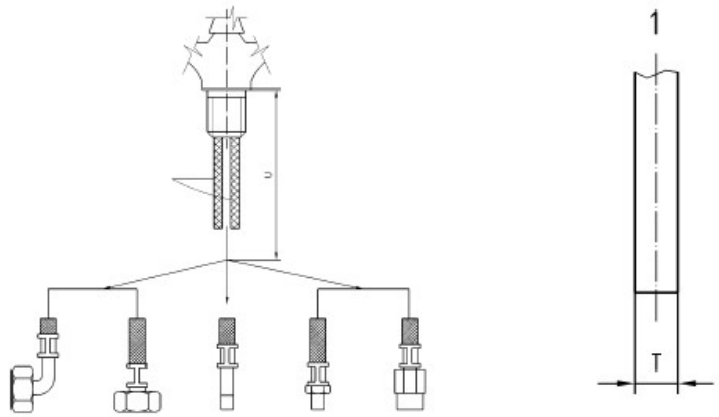


Figure 2 Flexible hoses

6.1.2 Connecting ends

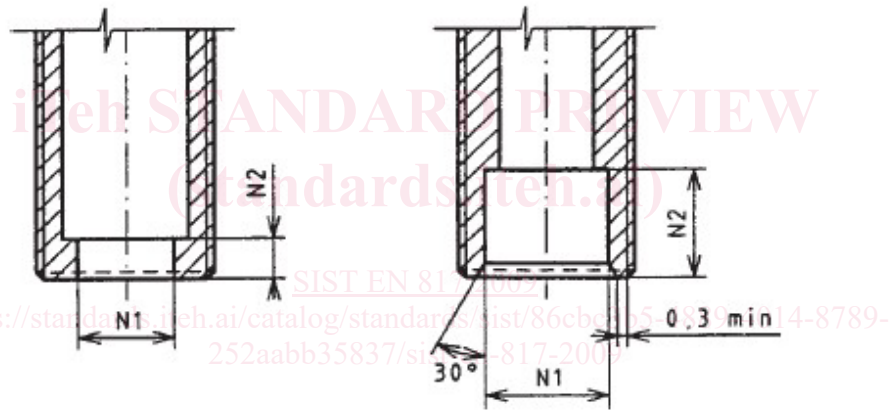


Figure 3 Dimensions of connecting ends

6.1.3 Inlet Dimensions - Two hole mixer

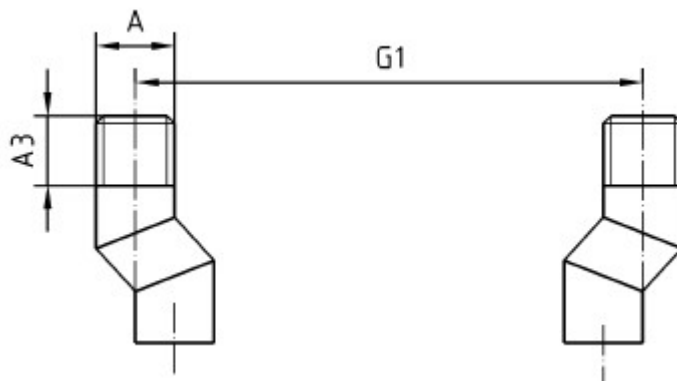


Figure 4 Eccentric unions

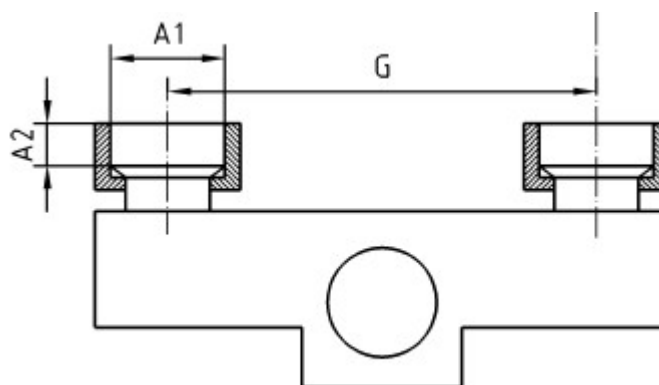


Figure 5 Mechanical mixing valve with captive nuts

Table 4 Outlet dimensions (Outlets, single &amp; multi -hole mechanical mixer)

OUTLET – DIMENSIONS (all dimensions are in mm)			COMMENTS
E	25 min	Outlet Orifice - Lowest point - All taps and outlets	Dimension from lowest point of the outlet orifice including any flow rate regulator or flow straightener to the mounting surface.
D1,	90 min	Basin, Bidet, Kitchen mixer	Dimension from the centre of outlet orifice including any flow rate regulator or flow straightener
D 3	115 min	Wall mounted mechanical mixer or separate spout,	
A	G ½ B or G ¾ B	Shower outlet (preferred G ½ B)	ISO 228-1
A 4	7,5 min	Shower outlet	Useful thread length
A 5	9,5 min		Free length of connection
Nozzle outlets to accept flow rate regulators according with EN 246 not in accordance with EN 246, those are covered by 6.2			

6.1.4 Two hole mechanical mixer

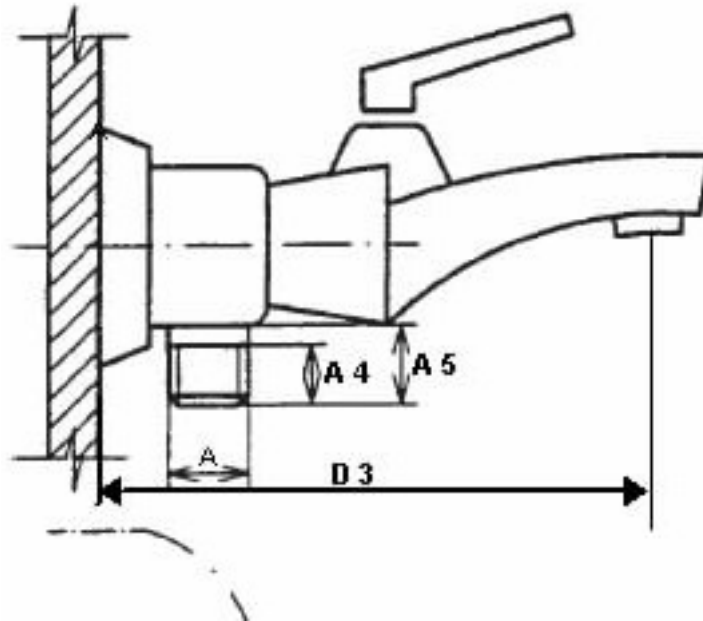


Figure 6 Outlet dimensions – Bath/Shower mixer

6.1.4.1 Separate outlets

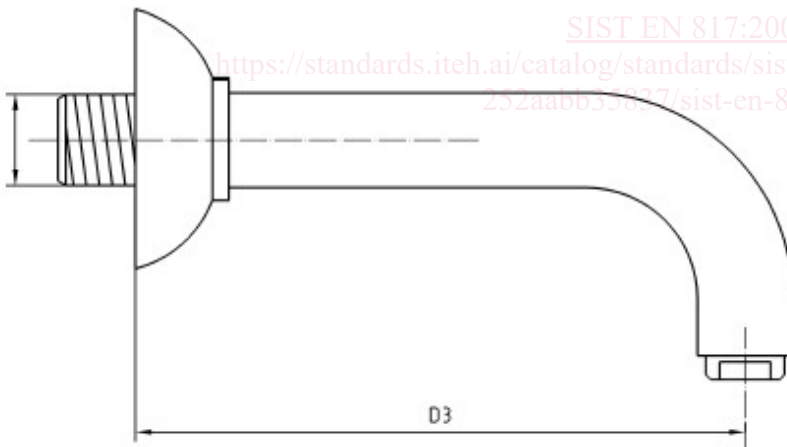


Figure 7 Outlet – wall mounted

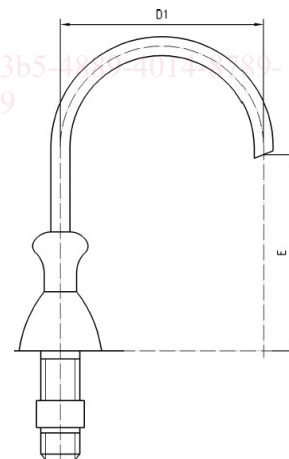


Figure 8 Outlet – Basin, Bidet, Kitchen

Table 5 Mounting dimensions

MOUNTING – DIMENSIONS			COMMENTS
Shank diameter			
H 2	29 max	side spray	Shank diameter
H 3	33,5 max	Single hole mixer	The two inlet pipes and re-tension stud shall be contained in a circle of diameter H 3