

इंटरनेट

मानक

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Mazdoor Kisan Shakti Sangathan

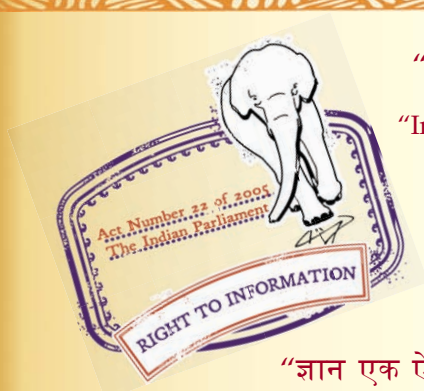
“The Right to Information, The Right to Live”

“पुराने को छोड़ नये के तरफ”

Jawaharlal Nehru

“Step Out From the Old to the New”

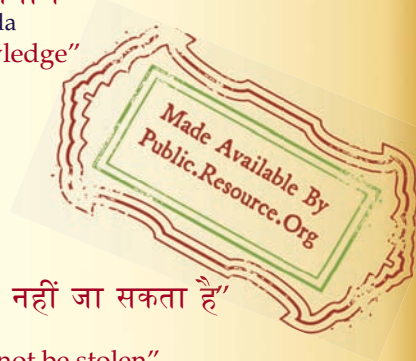
IS 2556-6 (1995): Vitreous Sanitary Appliances (Vitreous China), Part 6: Specific Requirements of Urinals and Partition Plates [CED 3: Sanitary Appliances and Water Fittings]



“ज्ञान से एक नये भारत का निर्माण”

Satyanarayan Gangaram Pitroda

“Invent a New India Using Knowledge”



“ज्ञान एक ऐसा खजाना है जो कभी चुराया नहीं जा सकता है”

Bhartrhari—Nitiśatakam

“Knowledge is such a treasure which cannot be stolen”

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भारतीय मानक

काँचाभ स्वच्छता साधित्र (काँचाभ चीनी मिट्टी) - विशिष्ट

भाग 6 यूरीनल और बिभ्रजन पट्टिका की विशिष्ट अपेक्षाएँ

(चौथा पुनरीक्षण)

Indian Standard

VITREOUS SANITARY APPLIANCES (VITREOUS CHINA)

PART 6 SPECIFIC REQUIREMENTS OF URINALS AND PARTITION PLATES

(Fourth Revision)

First Reprint SEPTEMBER 1999

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BUREAU OF INDIAN STANDARD
MANAK BHAVAN, 9 BAHADUR SHAH ZAFAR MARG
NEW DELHI 110002

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Price Group 5

AMENDMENT NO. 1 OCTOBER 1996
TO
IS 2556 (Part 6) : 1995 VITREOUS SANITARY
APPLIANCES (VITREOUS CHINA)
PART 6 SPECIFIC REQUIREMENTS OF URINALS AND
PARTITION PLATES

(Fourth Revision)

(Second cover page, Foreword, para 4, line 1) — Delete the word 'Metal'.

(Page 1, clause 2, last entry) — Substitute the following for the existing:

'IS 9140 : 1996 Methods of sampling of vitreous and fire clay sanitary
appliances (*second revision*).'

(Page 4, Fig. 4, caption) — Substitute the following for the existing:

'FIG. 4 BOWL TYPE FLAT BACK URINAL WITHOUT RIM'

(Page 8, clause 9) — Substitute 'IS 9140 : 1996' for 'IS 9140 : 1995'.

(CED 3)

Reprography Unit, BIS, New Delhi, India

AMENDMENT NO. 2 DECEMBER 1998
TO
IS 2556 (Part 6) :1995 VITREOUS SANITARY
APPLIANCES (VITREOUS CHINA)
PART 6 SPECIFIC REQUIREMENTS OF URINALS AND
PARTITION PLATES

(Fourth Revision)

(*Page 5, Table 2*) — Substitute the following for the explanation for legends against c_2 :

' c_2 = distance from centre of waste outlet to back of bowl.'

(*Page 5, Table 2*) — Substitute ' e_2 ' for ' $e_2^{(2)}$ ', below dimension in mm.

(*Page 5, Table 2, Sl No. 2, under col $e_2^{(2)}$*) — Substitute '*60 Min*' for '*60*'.

(*Page 5, Table 3, Sl No. 10, col 3*) — Substitute ' ϕ ' for '*0*'.

(CED 3)

Reprography Unit, BIS, New Delhi, India

FOREWORD

This Indian Standard (Fourth Revision) was adopted by the Bureau of Indian Standards, after the draft finalized by the Sanitary Appliances and Water Fittings Sectional Committee had been approved by the Civil Engineering Division Council.

This standard was first issued in 1963 and its first, second and third revisions were issued in 1967, 1974 and 1979, respectively. In this revision changes found necessary in the light of the feed back made available by users and improvements made by the vitreous china sanitaryware industry have been incorporated. Attempts have been made to make it comparable with overseas standards as a measure of export promotion.

Urinals and partition plates covered under Sections 1 to 4 of IS 2556 (Part 6) : 1979 have been combined in this revision and the nomenclature of 'half stall urinals' changed to 'Bowl urinal flat back' without flushing rim and 'Bowl urinal angle back' without flushing rim.

Metal fittings for bowl urinals as covered under Section 5 and Section 6 of IS 2556 (Part 6) : 1974 are intended to be covered in a separate standard.

The technical committee has recommended the use of urinals without flushing rim and overflow in preference to urinals with rim and overflow as they are more hygienic and can be cleaned more easily. The committee has also recommended the use of 2.5 litres capacity automatic cistern for cleanability test.

Connecting dimension of bowl urinal without rim have been aligned with EN 80 : 1979 'Wall hung urinals without built in traps — connecting dimensions' issued by European Committee for Standardization.

The committee responsible for the preparation of this standard is given at Annex A.

For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the result of a test or analysis, shall be rounded off in accordance with IS 2 : 1960 'Rules for rounding off numerical values (*revised*)'. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

Indian Standard

VITREOUS SANITARY APPLIANCES (VITREOUS CHINA)

PART 6 SPECIFIC REQUIREMENTS OF URINALS AND PARTITION PLATES

(Fourth Revision)

1 SCOPE

This Standard (Part 6) lays down the requirements for, patterns and sizes, dimensions, construction, finish, inspection and marking of urinals and partition plates and cleanability test for urinals, made of vitreous china.

2 REFERENCES

The Indian Standards listed below are the necessary adjuncts to this standard:

IS No.	Title
2326 : 1987	Specification for automatic flushing cisterns for urinals
2556 (Part 1) : 1994	Specification for vitreous sanitary appliances (vitreous china) : Part 1 General requirements (<i>third revision</i>)
9140 : 1995	Method for sampling of vitreous and fire clay sanitary appliances (<i>second revision</i>)

3 GENERAL REQUIREMENTS

The general requirements relating to terminology, material, manufacture and defects, minimum thickness, tolerances, performance and method of test covered in IS 2556 (Part 1) : 1994 shall be complied with.

4 PATTERNS AND SIZES

4.1 The urinals shall be of one of the following patterns and sizes:

- i) Bowl (flat back) with flushing rim (*see* Fig. 1), of sizes:
 - a) Size 1 — 440 × 265 × 355 mm with side fixing arrangements; and
 - b) Size 2 — 440 × 265 × 315 mm with top and bottom fixing arrangements.

ii) Bowl (flat back) without flushing rim (*see* Fig. 2), of sizes:

- a) Size 1 — 410 × 265 × 305 mm, and
- b) Size 2 — 590 × 375 × 390 mm.

iii) Bowl (angle back) with flushing rim (*see* Fig. 3), of size:
345 × 420 × 270 mm.

iv) Bowl (angle back) without flushing rim (*see* Fig. 4), of sizes:

- a) Size 1 — 450 × 350 × 275 mm, and
- b) Size 2 — 580 × 500 × 300 mm.

v) Squatting plate (*see* Fig. 5), of sizes:

- a) Size 1 — 450 × 350 mm, and
- b) Size 2 — 600 × 350 mm.

4.2 Partition plates shall be one of the following sizes:

- a) Size 1 — 675 × 325 × 85 mm, and
- b) Size 2 — 825 × 450 mm × 100 mm.

4.3 Urinals and partition plates may be made in other patterns and sizes where so agreed between the manufacturer and the purchaser. However, except for functional dimensions, all other requirements as laid down in this standard shall be complied with.

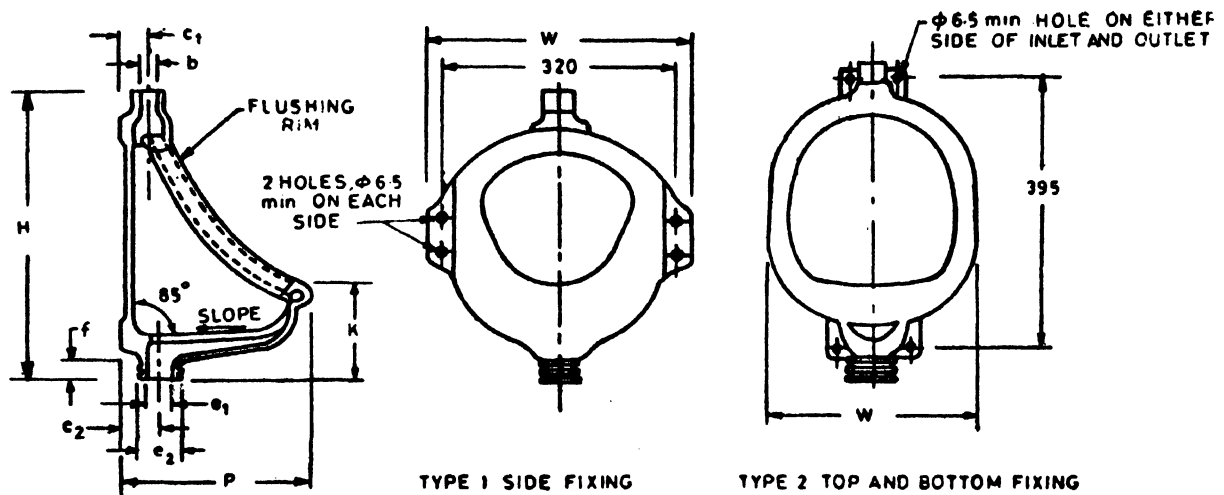
5 DIMENSIONS AND TOLERANCES

5.1 Bowl pattern urinal (*see* Fig. 1, Fig. 2, Fig. 3 and Fig. 4).

5.1.1 Functional dimensions shall be as given in Table 1.

5.1.2 Connecting dimensions shall be as given in Table 2.

NOTE — Connecting dimensions are vital for the functioning and interchangeability of the system and shall be strictly followed.



NOTE — Where a closed channel with overflow is not provided a domed grating with perforations starting from the base and the crown of which shall be 25 mm, minimum above surface shall be provided which may be integral or otherwise.

All dimensions in millimetres.

FIG. 1 BOWL PATTERN URINAL (FLAT BACK)

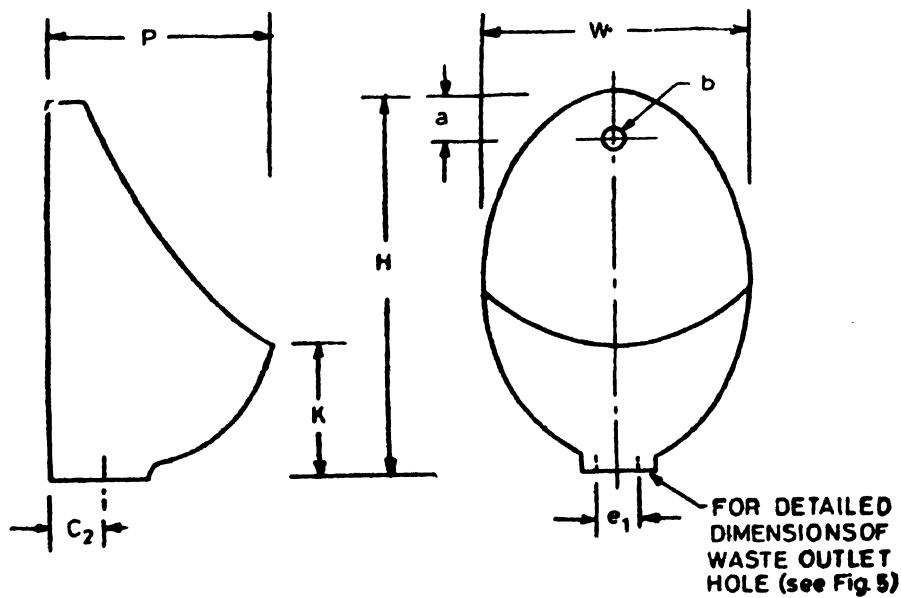
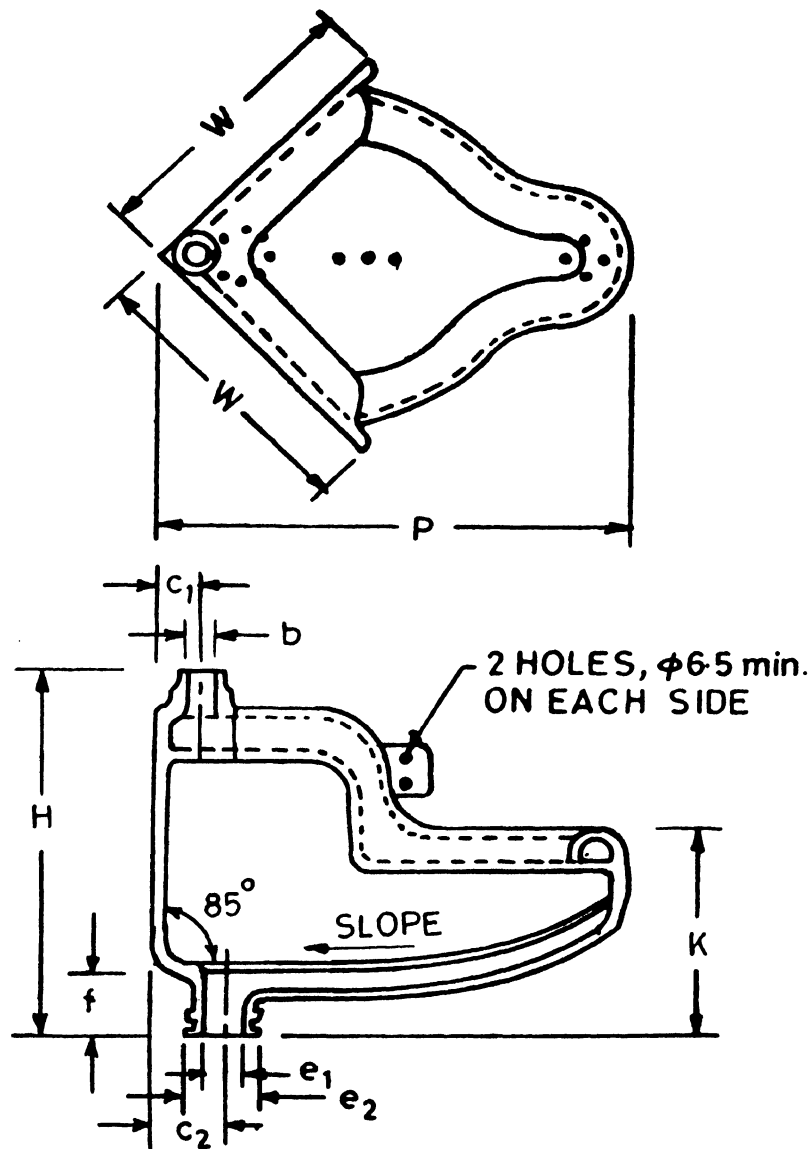


FIG. 2 BOWL URINAL FLAT BACK (WITHOUT FLUSHING RIM)



NOTE — Ovality of 5 percent is permissible on inlet and outlet diameters.
All dimensions in millimetres.

FIG. 3 BOWL PATTERN URINAL (ANGLE BACK) WITH FLUSH RIM

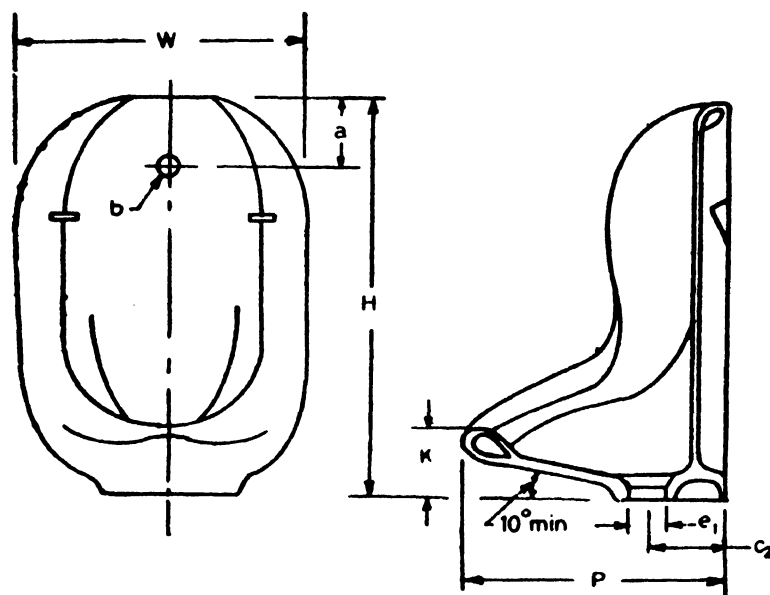


FIG. 4 BOWL TYPE ANGLE BACK URINAL WITHOUT RIM

Table 1 Functional Dimensions of Bowl Pattern Urinals
(Clause 5.1.1)

All dimensions in millimetres.

Sl No.	Pattern	Ref to Fig.	Dimension			
			Height <i>H</i>	Projection <i>P</i>	Width <i>W</i>	Distance <i>K, Min</i>
1.	Flat back with flushing rim	1				
	Size 1		440	265	355	140
	Size 2		440	265	315	140
2.	Flat back without flushing rim	2				
	Size 1		410	265	305	100
	Size 2		590	375	390	100
3.	Angle back with flushing rim	3	345	420	270	190
4.	Angle back without flushing rim	4				
	Size 1		450	350	275	100
	Size 2		580	500	300	100

Table 2 Connecting Dimensions of Bowl Pattern Urinals

(Clause 5.1.2)

All dimensions in millimetres.

Sl No.	Pattern	Ref to Fig.	Dimension in mm						
			<i>a</i>	<i>b</i> ¹⁾	<i>c</i> ₁	<i>c</i> ₂	<i>d</i>	<i>e</i> ₁	<i>e</i> ₂ ²⁾
1. Flat back, with flushing rim	1	—	20 ± 3	40 ± 5	50 ± 5	—	35 ± 2	55	20
2. Flat back, without flushing rim	2, 5	75 Max	20 ± 3	—	100 Min	65 ± 5	45 ± 2	60	20
3. Angle back, with flushing rim	3	—	20 ± 3	35 ± 5	65 ± 5	—	35 ± 2	55	20
4. Angle back, without flushing rim	4, 5	75 Max	20 ± 3	—	150 (for size 1) 225 (for size 2)	65 ± 5	45 ± 2	60	20

Explanation for Legends Used*a* = Dimension from top of bowl to centre of water supply hole or spreader*b* = Diameter of water supply hole*c*₁ = Distance from centre of water supply hole to back of bowl*c*₂ = Distance from centre of waste outlet from back of bowl*d* = Dimension of outlet of the waste flange*e*₁ = Internal diameter of waste outlet*e*₂ = Outside diameter of the outlet hole*f* = Depth of waste outlet

NOTE — Distance between pairs of screw holes for flat back with flushing rim bowl urinal (Fig. 1) shall be 395 mm for top/bottom fixing arrangement and 320 mm for side fixing arrangement.

1) Ovality is permissible within the variation allowed for the dimensions.

2) Ovality is permissible within ± 2 mm of the dimensions.

5.1.2.1 Waste outlet hole provided in bowl pattern urinal, both for flat back and angle back, without flushing rim shall be of dimensions given in Table 2, read with Fig. 5.

5.2 Squatting Plate Type Urinals**5.2.1 Functional Dimensions**

Functional dimensions shall be as given in Table 3, read with Fig. 6.

5.2.2 Connecting Dimensions

Connecting dimensions shall be as given in Table 4, read with Fig. 6.

5.3 Partition Plates**5.3.1 Functional Dimensions**

Functional dimensions shall be as given in Table 5, read with Fig. 7.

5.3.2 Connecting Dimensions

Connecting dimensions shall be as given in Table 6, read with Fig. 7.

Table 3 Functional Dimensions of Squatting Plates (in mm)

(Clause 5.2.1)

Sl No.	Description	Ref in Fig. 6	Size 1	Size 2
1. Size	—	—	450 × 350	600 × 350
2. Length	<i>L</i>	—	450	600
3. Minimum foot rest width	<i>W</i> ₁	—	125	165
4. Width	<i>W</i>	—	350	350
5. Height at back end	<i>H</i> ₁	—	100	100
6. Height at front end	<i>H</i> ₂	—	85	85
7. Minimum height at bowl draining surface	<i>H</i> ₃	—	50	50
8. Width at flat top	<i>W</i> ₂	—	100	100
9. Radius of curvature of the bowl	<i>R</i>	—	65	65
10. Angle of direction of the two end spray hole with that of the central one	<i>θ</i>	—	30°	30°

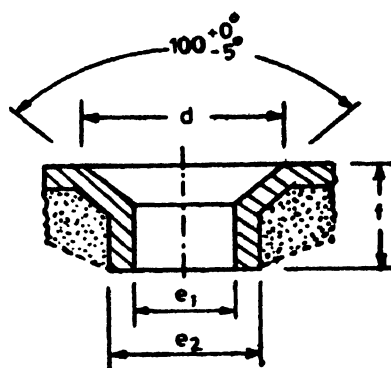


FIG. 5 WASTE OUTLET

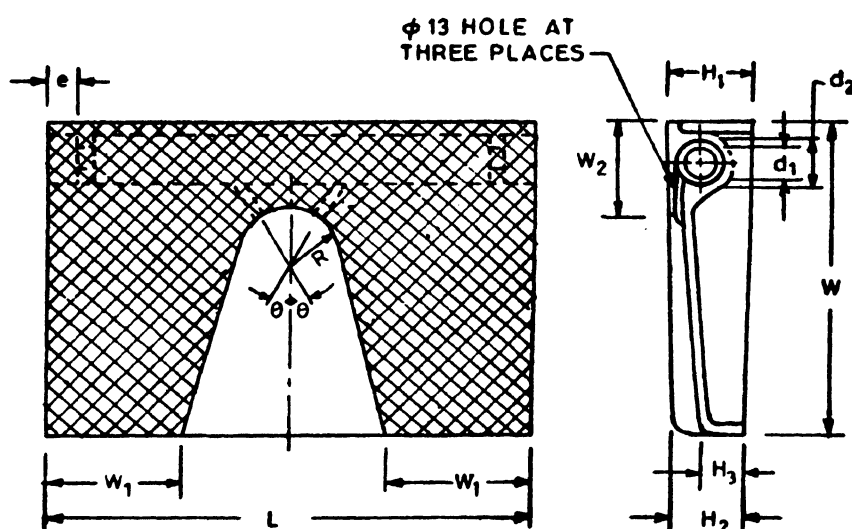


FIG. 6 SQUATTING PLATE URINAL

Table 4 Connecting Dimensions of Squatting Plates, mm

(Clause 5.2.2)

Description	Ref in Fig. 6	Size 1/Size 2
Diameter of inlet hole	d_1	40
Diameter of the inlet socket	d_1	50
Depth of the inlet socket, Min	e	25
1) Ovality is permissible within the variation allowed for the dimensions.		

Table 5 Functional Dimensions of Partition Plates, mm

(Clause 5.3.1)

Description	Ref in Fig. 7	Size 1	Size 2
Size	—	675 × 325 × 85	825 × 450 × 100
Height	H	675	825
Projection of slab from wall, Min	P	325	450
Width near the centre of the slab, Min	W_1	85	100
Width at the top end, Min	W_2	50	75
Width at the bottom end, Min	W_3	50	55

Table 6 Connecting Dimensions of Partition Plates, mm
(Clause 5 3.2)

Description	Ref in Fig. 7	Size 1/Size 2
Distance of the bracket resting surface from the nearest end of the plate	<i>h</i>	70 Min

5.4 Tolerances where not given for specific dimensions, shall conform to IS 2556 (Part 1) : 1994.

6 CONSTRUCTION

6.1 Bowl urinals shall be of one piece construction.

6.1.1 Bowl urinal (flat back) with flushing rim (see Fig. 1) and bowl urinal (angle back) with flushing rim (see Fig. 3) shall have an integral flushing box rim with minimum 12 holes, well distributed in the rim to ensure satisfactory flushing. It shall have an integral outlet and overflow.

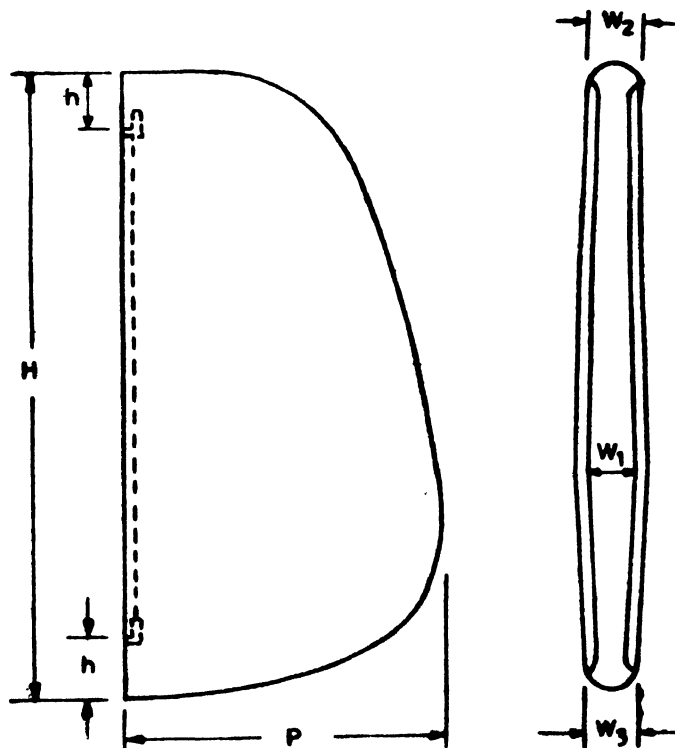
6.1.2 Bowl urinal (flat back) without flushing rim (see Fig. 2) and bowl urinal (angle back)

without flushing rim (see Fig. 4) shall be without integral outlet and overflow. The bowls shall be suitable for use with a back inlet spreader or shall be provided with a top supply spreader. It shall be provided with waste outlet fitting to fit tightly in the waste outlet hole.

6.2 Bowl urinals shall be provided with adequate means of support, preferably of the concealed type. Alternately, where screw fixing holes are provided, each urinal shall have not less than two fixing holes on each side having a minimum diameter of 6.5 mm.

6.3 At the bottom of the bowl urinal (flat back and angle back) with flushing rim, and outlet horn for connecting to the trap and outlet pipe shall be provided. The exterior of the outlet horn shall not be glazed upto 20 mm and the surface shall be provided with grooves at right angles to the axis of the outlet to facilitate fixing of the outlet pipe with cement or other suitable binding material.

6.4 Squatting plate type urinal shall be of one piece construction having an integral longitudinal flushing pipe of suitable type which may be connected to the flush pipe. The integral



NOTE — Alternative arrangement may be provided for fixing the plate at the bottom portion but the height 'H' should not be reduced.

FIG. 7 PARTITION PLATES

flushing type shall be connected to the sump by three 13 mm diameter holes (*see* Fig. 6).

6.5 The inside surface of all urinals shall be regular and smooth to ensure efficient flushing. The bottom of the pan shall have sufficient slope from the front towards the outlet such that there is efficient draining of the urinal.

6.6 The design of urinals shall be such that when properly installed there should be no liquid left over in the bottom of the pan of the urinal after flushing.

6.7 Partition plates shall be of one piece construction and provided with fixing arrangement at the flat back top and bottom. A counter sunk hole of diameter 8 mm (min) at the bottom may also be provided for the purpose of keeping it fixed.

7 FINISH

Inside and outside visible surfaces of urinals shall be glazed, uniform and smooth. The finish shall ensure efficient flush. The inside surfaces of the inlet and outlet not visible shall be smooth but not glazed. In case of integrated outlets (*see* Fig. 1 and Fig. 3) the serrated part of the outlet shall not be glazed externally (*see* 6.3).

8 CLEANABILITY TEST

8.1 Bowl Urinal

The bowl urinal shall be tested for cleanability test. For this the bowl shall be mounted vertically in its normal position so that when flushed, the water is discharged against the flat back bowl. The urinals which are meant for flushing with the help of spreaders should be fitted with a 12.5 mm bore spreader such that the spreader sits flushed with urinal back plate with slot of the spreader washing downwards. A 2.5 litres capacity automatic flushing cistern conforming to IS 2326 : 1987 shall be fixed with 20 mm bore flush pipe. The height of the bottom of the tank to the end of the spreader or inlet socket shall be not less than 90 cm.

The whole of the interior flushing surface of the bowl below the spreader or the flush rim shall be smudged with 0.1 percent solution of an organic dye and the urinal shall be flushed. Immediately after the flush there shall be no colour left on the urinal.

8.2 Squatting Plate Urinal

The squatting plate urinal shall be tested for cleanability test. For this it shall be mounted on a horizontal plane. The inside flushing surface below the flush holes shall be smudged with 0.1 percent solution of an organic dye and 2.5 litres of water shall be poured along the side of the flush holes. There shall be no colour left on the horizontal flushing surface.

9 SAMPLING, PROCESS INSPECTION AND LOT INSPECTION

The recommended method of sampling, process inspection and lot inspection of urinals and partition plates shall be as given in IS 9140 : 1995.

10 MARKING

10.1 Urinals and partition plates shall be clearly and indelibly marked at a suitable place with the following:

- a) Name or trade-mark of the manufacturer:
- b) Batch/lot No.

10.2 BIS Certification Marking

10.2.1 Urinals and partition plates may also be marked with the Standard Mark.

10.2.2 The use of the Standard Mark is governed by the provisions of the Bureau of Indian Standards Act, 1986 and the Rules and Regulations made thereunder. Standard marked products are also continuously checked by BIS for conformity to that standard as a further safeguard. Details of conditions under which a licence for the use of the Standard Mark may be granted to manufacturers or producers may be obtained from the Bureau of Indian Standards.

ANNEX A

(Foreword)

Sanitary Appliances and Water Fittings Sectional Committee, CED 3

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Joint Director (Civ Engg), BIS

(Continued on page 10)

IS 2556 (Part 6) : 1995

(Continued from page 9)

Domestic Sanitary Appliances and Accessories Subcommittee, CED 3 : 1

<i>Convener</i>	<i>Representing</i>
SHRI R. K. SOMANY	Hindustan Sanitaryware and Industries Ltd, Bahadurgarh
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This Indian Standard has been developed from Doc: No. CED 3 (5330).

Amendments Issued Since Publication

Amend No.	Date of Issue	Text Affected

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Telephones: 323 01 31, 323 33 75, 323 94 02

Telegrams: Manaksanstha
(Common to all offices)

Regional Offices:

	Telephone
Central : Manak Bhavan, 9 Bahadur Shah Zafar Marg NEW DELHI 110002	323 76 17, 323 38 41
Eastern : 1/14 C.I.T. Scheme VII M, V.I.P. Road, Kankurgachi CALCUTTA 700054	{ 337 84 99, 337 85 61 337 86 26, 337 91 20
Northern : SCO 335-336, Sector 34-A, CHANDIGARH 160022	{ 60 38 43 60 45 52
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Western : Manakalaya, E9 MIDC, Marol, Andheri (East) MUMBAI 400093	{ 832 92 95, 832 78 58 832 78 91, 832 78 92
Branches : AHMEDABAD. BANGALORE. BHOPAL. BHUBANESHWAR. COIMBATORE. FARIDABAD. GHAZIABAD. GUWAHATI. HYDERABAD. JAIPUR. KANPUR. LUCKNOW. NAGPUR. PATNA. PUNE. RAJKOT. THIRUVANANTHAPURAM.	