भारतीय मानक **IS 2556 (Part 3) : 2024**

Indian Standard

काँचाभ चीनी मिट्टी के स्वच्छता उपकरण — विशिष्टि

भाग 3 बिठाव कुंडों के लिए विशिष्ट अपेक्षाएँ

(छठा पुनरीक्षण)

Vitreous China Sanitary Appliances — Specification

Part 3 Specific Requirements of Squatting Pans

(Sixth Revision)

ICS 91.140.70

भारतीय मानक ब्यूरो
BUREAU OF INDIAN STANDARDS
मानक भवन, 9 बहादुर शाह ज़फर मार्ग, नई दिल्ली - 110002
MANAK BHAVAN, 9 BAHADUR SHAH ZAFAR MARG
NEW DELHI - 110002
www.bis.gov.in www.standardsbis.in

October 2024 **Price Group 7**

Sanitary Appliances and Water Fittings Sectional Committee, CED 03

FOREWORD

This Indian Standard (Part 3) (Sixth 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 Divisional Council.

This standard was first published in 1963 and thereafter revised in 1967, 1973, 1981, 1994 and 2004 respectively. In the last 2004 revision, saw dust and splash test were included. In this revision, the standard has been brought out in the latest style and format and following major modifications have been done:

a) The main title of the standard has been modified from 'Vitreous sanitary appliances (vitreous China)' to 'Vitreous China sanitary appliances';
b) Additional requirements for water efficiency and labelling of water closets have been incorporated through reference to the concerned Indian Standard; and
c) Other changes, keeping in view the manufacturing practices prevalent in the country, have also been made.

This standard has been published in several parts. Other parts in this series are:

Part 1	General requirements
Part 2	Specific requirements of washdown water closets
Part 4	Specific requirements of wash basins
Part 5	Specific requirements of laboratory sinks
Part 6	Specific requirements of urinals and partition plates
Part 7	Specific requirements of accessories for sanitary appliances
Part 8	Specific requirements of close-coupled and one-piece pedestal washdown and syphonic water closets
Part 9	Specific requirements of pedestal type bidets
Part 14	Specific requirements of integrated squatting pans
Part 15	Specific requirements of universal water closets
Part 16	Specific requirements of washdown wall mounted water closets
Part 17	Specific requirements of wall mounted bidets

This standard helps in achievement of following Sustainable Development Goals:

SDG 6: Clean water and sanitation

SDG 11: Sustainable cities and communities

SDG 12: Ensure sustainable consumption and production patterns

The composition of the Committee responsible for the formulation of this standard is given in 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 : 2022 'Rules for rounding off numerical values (*second revision*)'. 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 CHINA SANITARY APPLIANCES — SPECIFICATION

PART 3 SPECIFIC REQUIREMENTS OF SQUATTING PANS

(Sixth Revision)

1 SCOPE

This standard (Part 3) covers the requirements for patterns, sizes, construction, dimensions, finish, flushing tests, inspection and marking for vitreous China squatting pans.

2 REFERENCES

The standards given below contain provisions which through reference in this text, constitute provisions of this standard. At the time of publication, the editions indicated were valid. All standards are subject to revision and parties to agreements based on this standard are encouraged to investigate the possibility of applying the most recent edition of these standards:

IS No.	*Title*
IS 774 : 2021	Ceramic (vitreous China) flushing cisterns for water closets and urinals — Specification (*sixth revision*)
IS 2556	Vitreous China sanitary appliances — Specification:
(Part 1) : 2021	General requirements (*fourth revision*)
(Part 7) : 1995	Specific requirements of accessories for sanitary appliances (*third revision*)
IS 9140 : 1996	Method for sampling of vitreous and fire clay sanitary appliances (*second revision*)
IS 17650 (Part 1) : 2021	Water efficient plumbing products — Requirements: Part 1 Sanitaryware

3 GENERAL REQUIREMENTS

The general requirements relating to terminology, material and manufacture, glazing, defects, minimum thickness, tolerances, performance and methods of tests shall conform to IS 2556 (Part 1).

4 PATTERNS AND SIZES

4.1 Squatting pans shall be made in any of the following patterns and sizes:

Sl No.	*Pattern*	*Size*, mm	*Ref to Figure*
(1)	(2)	(3)	(4)
i)	Long	580 and 630	Fig. 1A and Fig. 1B
ii)	Orissa	580 × 440 and 630 × 450	Fig. 2
iii)	Rural	480	Fig. 3

4.2 The squatting pan may also be made in other patterns and/or 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 CONSTRUCTIONS

5.1 Each pan shall have an integral flushing rim of suitable type. Rural pattern, however, shall have no integral flushing rim.

Squatting pan, both long and Orissa pattern, of 630 mm size shall be of the box rim type. Squatting pan of sizes smaller than 630 mm may be made either box rim or open rim type. In case of pans with box rim construction, number of holes shall be provided in the rim to satisfy requirements of flushing tests given in **8**. The flushing rim shall have an inlet or supply horn for connecting the flush pipe. The flushing rim and inlet shall be of self-draining type. A weephole shall be provided at the flushing inlet of the pan. The flushing inlet, for the long pattern pan, may be located either at the narrow end or broad end or at both the ends as stipulated by the purchaser.

5.2 The inside of the bottom of the pan shall have sufficient slope from the front towards the outlet to enable easy and quick disposal while flushing. The exterior surface shall not be glazed, and this surface

shall be sufficiently rough or scored or grooved at right angles to the axis of the outlet.

5.3 Each pan shall be provided with a trap where so specified by the purchaser. The trap for long and Orissa pattern pan shall have either 'P' or 'S' outlet with or without inspection vent as specified by the purchaser and the trap shall conform to the requirements given in IS 2556 (Part 7). The trap for rural pattern pan shall conform to the dimensions specified in Fig. 3B of IS 2556 (Part 7). The trap shall be glazed inside.

6 DIMENSIONS AND TOLERANCES

6.1 The functional and connecting dimensions of long and Orissa pattern pans shall conform to those given in Table 1 and Table 2 respectively read with Fig. 1A, Fig. 1B and Fig. 2. The dimensions of rural pattern shall be as shown in Fig. 3.

6.2 The top surface, in the case of long pattern shall not at any point vary from its design plane or contour by more than 6 mm for size 580 mm and by more than 10 mm for size 630 mm; the variation shall not exceed 10 mm in the case of Orissa pattern.

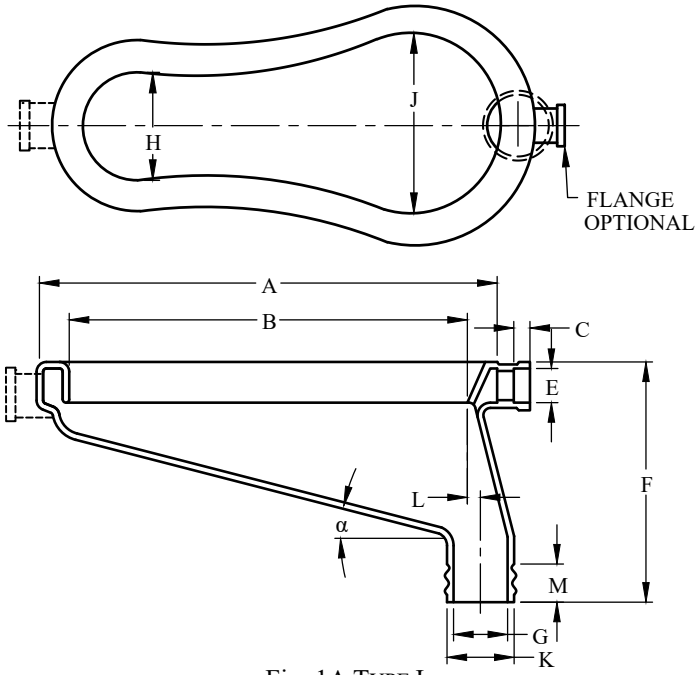


Fig. 1A TYPE I

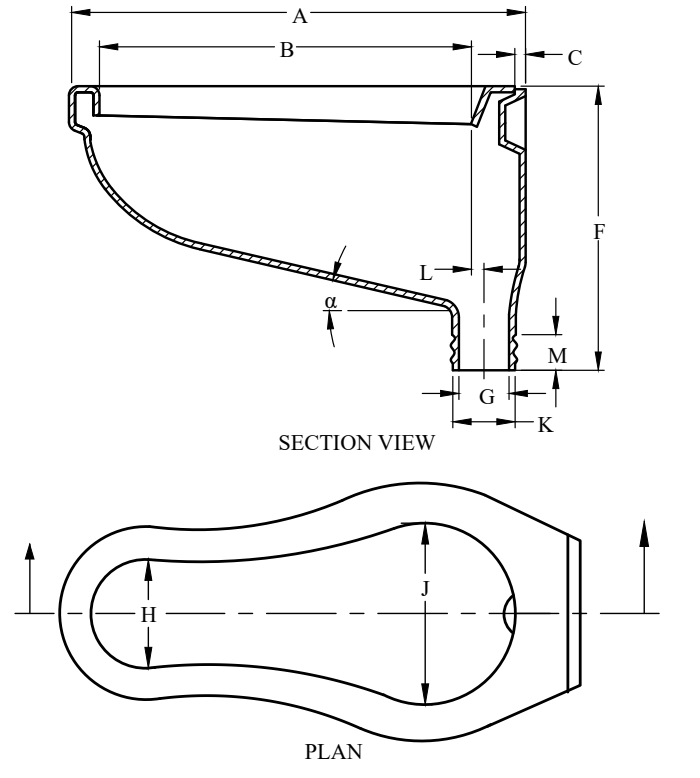
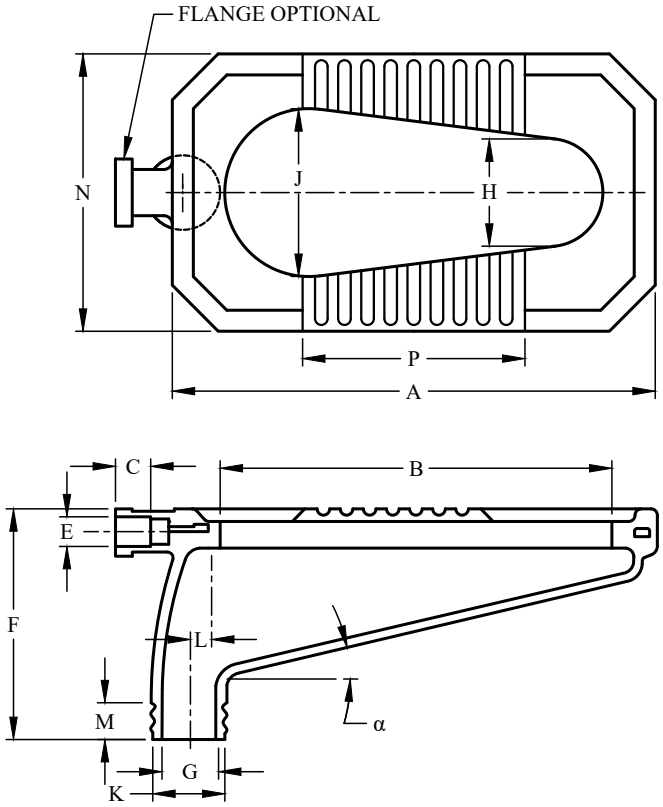


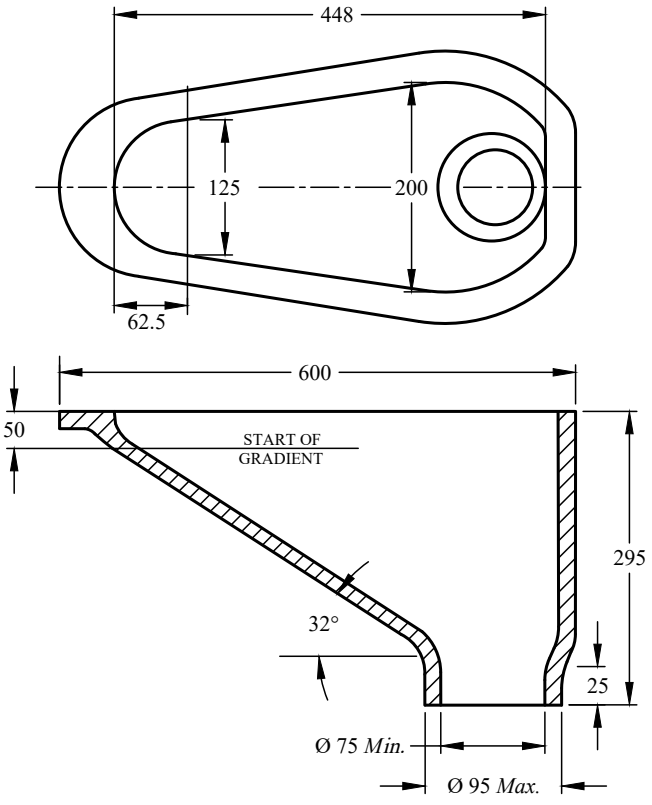
Fig. 1B TYPE II

FIG. 1 LONG PATTERN SQUATTING PAN



NOTE — Footrest may be flushed or raised, clearance permissible between raised footrest and rim opening.

FIG. 2 ORISSA PATTERN SQUATTING PAN



All dimensions in millimetres.

FIG. 3 RURAL PATTERN SQUATTING PAN

Table 1 Functional Dimensions of Long and Orissa Pattern Squatting Pan

(*Clause* 6.1)

All dimensions are in millimetres.

Sl No.	Description	Ref in Fig. 1A, Fig. 1B and Fig. 2	Long Pattern of Size		Orissa Pattern of Size	
			(Type I) 580	(Type II) 630	580 × 440	630 × 450
(1)	(2)	(3)	(4)	(5)	(6)	(7)
i)	Length	*A*	580	630	580	630
ii)	Length of opening, *Min*	*B*	480	530	470	500
iii)	Height	*F*	300 ± 10	320 ± 10	300 ± 10	320 ± 10
iv)	Width of opening, small end[1)]	*H*	170 ± 10	170 ± 10	180 ± 10	180 ± 10
v)	Width of opening, wide end[2)]	*J*	260 ± 10	260 ± 10	210 ± 10	220 ± 10
vi)	Slope of bottom of pan	α	15°	15°	15°	15°
vii)	Distance between the centre of outlet to the inside face of flushing rim at the back, *Max*	*L*	70	70	70	70
viii)	Width	*N*	–	–	440	450
ix)	Length of footrest	*P*	–	–	310 ± 10	310 ± 10

NOTE — Tolerances where not specified shall conform to IS 2556 (Part 1).

Table 2 Connecting Dimensions of Squatting Pans

(*Clause* 6.1)

All dimensions in millimetres.

Sl No.	Description	Ref in Fig. 1A, Fig. 1B and Fig. 2	Long Pattern of Size		Orissa Pattern of Size	
			(Type I) 580	(Type II) 630	580 × 440	630 × 450
(1)	(2)	(3)	(4)	(5)	(6)	(7)
i)	Depth of flush inlet socket, *Min*	*C*	25	25	25	25
iii)	Internal diameter of flush inlet socket	*E*[3)]	50 ± 3	50 ± 3	50 ± 3	50 ± 3
iv)	Diameter of outlet, internal, *Min*	*G*[4)]	80	80	80	80
v)	Diameter of outlet, external	*K*	102 ± 5	102 ± 5	102 ± 5	102 ± 5
vi)	Length of serrated part of outlet, *Min*	*M*	40	40	40	40

[1)] Width of the opening should be measured from the bottom rim of the smaller area (small end).

[2)] Width of the opening should be measured from the maximum area at the bottom rim (wide end).

[3)] Ovality is permissible within the variation allowed for the dimension.

[4)] Ovality is permissible within the dimensions for inlet and outlet diameters.

7 FINISH

The inside of the pan shall be glazed uniform and smooth in order to ensure an efficient flush.

8 FLUSHING TESTS

8.1 The long and Orissa patterns fitted with the trap with which it purports to form a suite, shall satisfy the tests given in 8.2, 8.3, 8.4 and 8.5. For carrying out these tests, a flushing cistern conforming to IS 774 shall be fixed such that the height between the top of closet pan and bottom of the cistern is 1 250 mm, minimum for high level and 700 mm, minimum for low level and the closet pan is connected with cistern by a 40 mm outer diameter pipe. These tests shall be carried out by using the flushing cistern of the capacity with which the appliance is to be used.

8.2 Toilet Paper Test

The pan shall be filled with water to its nominal water seal level and charged with six pieces of usual toilet paper or polythene sheet of thickness 0.05 mm approximately 150 mm × 115 mm in size and loosely crumpled. It shall then be flushed. This test shall be repeated four times, and the pan shall discharge the full charge of the paper at least three out of four times.

8.3 Smudge Test

The whole of the interior surface of the pan to 40 mm below the flushing rim shall be smudged with quartz power of contrasting colour passing through 1.18 mm IS sieve and shall then be flushed, carefully observing the surface of the pan during the flushing. Immediately after the flushing, there shall be no smudge left on the pan.

8.4 Water Holding Capacity Test

The pan, when sealed at the outlet and vent (if fitted) with water-tight seal, shall be capable of holding not less than 10 litre of water between the normal water-level and the highest possible water-level of the pan as installed.

8.5 Saw Dust Test

8.5.1 *Specification of the Saw Dust*

20 g of dry saw dust test sifted through 2 mm sieve.

8.5.2 *Procedure*

Set up the pan, cistern or flush valve and flush pipe (if required) as specified by the manufacturer. Charge the pan with water to its designed water seal level. Fully wet the entire internal surface of the pan below the rim. Sprinkle 20 g of fine dry saw dust of above specification on the inside of the pan between the normal water level and the flushing rim as completely and evenly as possible. Then flush the pan. The sprinkle saw dust should be cleaned below 40 mm of rim of pan.

8.6 Splash Test

8.6.1 *Procedure*

Set up pan, cistern or flush valve and flush pipe (if required) as specified by the manufacturer. Charge the pan with coloured water to its design water seal level. Ensure that the floor area is cleaned and dry where the splash test to be carried out. Activate the flush valve or cistern to discharge the squatting pan. Observe and record whether flushing water splashed over rim onto the floor. Repeat the test 5 times. Record whether the flushing water splash over the rim onto the floor. Isolated droplets up to 10 numbers shall not be the cause for rejection.

9 SAMPLING, PROCESS INSPECTION AND LOT INSPECTION

The recommended method of sampling, process inspection and lot inspection shall be as given in IS 9140.

10 ADDITIONAL REQUIREMENTS FOR WATER EFFICIENCY

For water efficiency rating and labelling of squatting pans, the requirements given in IS 17650 (Part 1) shall be complied with.

NOTE — To achieve overall sustainability, it is strongly recommended that users opt for star rated squatting pans. Manufacturers in turn are encouraged to commit to the cause by manufacturing only water efficient squatting pans.

11 MARKING

11.1 Each piece of squatting pan shall be clearly and indelibly marked at a suitable place with the following:

a) Name or trademark of the manufacturer;

b) Batch/lot number; and

c) Date (week/month/year).

11.2 BIS Certification Marking

The product(s) conforming to the requirements of this standard may be certified as per the conformity assessment schemes under the provisions of the *Bureau of Indian Standards Act*, 2016 and the Rules and Regulations framed thereunder, and the products may be marked with the Standard Mark.

ANNEX A

(*Foreword*)

COMMITTEE COMPOSITION

Sanitary Appliances and Water Fittings Sectional Committee, CED 03

Organization	*Representative(s)*
Municipal Corporation of Greater Mumbai, Mumbai	HYDRAULIC ENGINEER **(*Chairperson*)**
Brihan Mumbai Licensed Plumbers' Association, Mumbai	SHRI KISHOR V. MERCHANT SHRI BIJAL M. SHAH (*Alternate*)
Capstan Meters (I) Limited, New Delhi	SHRI ANURAG JAIPURIA SHRI P. K. JAIPURIA (*Alternate*)
Central Institute of Plastic Engineering & Technology, Chennai	DR B. SRINIVASALU SHRI K. PRAKALATHAN (*Alternate*)
Central Public Works Department, New Delhi	SHRI M. K. MALLICK SHRI DIVAKAR AGRAWAL (*Alternate*)
Consumer Co-ordination Council, Delhi	SHRI A. L. SAAHA SHRI S. C. SHARMA (*Alternate*)
CSIR - Central Building Research Institute, Roorkee	SHRI AJAY CHAURASIA SHRI RAJIV (*Alternate*)
Delhi Development Authority, New Delhi	CHIEF ENGINEER (DESIGN)
Delhi Jal Board, New Delhi	CHIEF ENGINEER (WW) II SUPERINTENDING ENGINEER (NW) (*Alternate*)
Engineers India Limited, New Delhi	SHRI SAMIR DAS SHRI RAJESH GUJRAL (*Alternate* I) SHRI ANISH MAHALA (*Alternate* II)
Goverdhan Das P. A., Kolkata	SHRI J. R. AGGARWAL SHRI SANJAY RAJ AGGARWAL (*Alternate* I) SHRI ROHAN AGGARWAL (*Alternate* II)
HSIL Limited, Bahadurgarh	DR R. K. SOMANY
Indian Water Meter Manufacturers Association, New Delhi	SHRI M. P. JAIPURIA SHRI S. K. BOHRA (*Alternate*)
Indian Water Works Association, New Delhi	SHRI VIJAY B. CHARHATE SHRI GURUNATH M. NAIK PARIKAR (*Alternate*)
Institution of Public Health Engineers, Kolkata	SHRI M. M. DATTA SHRI SITANSU BANERJEE (*Alternate*)
Itron India Private Limited, New Delhi	SHRI PAWAN MATHUR SHRI KUNDAN VIRULKAR (*Alternate*)
Kejriwal Castings Limited, Kolkata	SHRI SANDIP KEJRIWAL SHRI RAJEEV KEJRIWAL (*Alternate* I) SHRIMATI RUPA CHAUDHURI (*Alternate* II)
Kohler India Corporation Private Limited New Delhi	SHRIMATI MONICA UNIYAL SHRI RANJIT KUMAR (*Alternate* I) SHRI MANISH ASTHANA (*Alternate* II)

Organization	*Representative(s)*
Military Engineer Services, Engineer-in- Chief's Branch, Integrated HQ of MoD (Army), New Delhi	SHRI SOMESH KUMAR SHRI M. K. DEEPAK (*Alternate*)
Municipal Corporation of Greater Mumbai, Mumbai	DEPUTY HYDRAULIC ENGINEER EXECUTIVE ENGINEER (PLANNING) (*Alternate*)
National Test House, Kolkata	SHRI S. MURALI DR SUJOY KUMAR MANNA (*Alternate*)
National Water Mission, Department of Water Resources, River Development & Ganga Rejuvenation, Ministry of Jal Shakti, New Delhi	SHRI SUNEEL KUMAR ARORA
NBCC (India) Limited, New Delhi	SHRI H. S. YADAV SHRIMATI ANNU GARG (*Alternate*)
Northern Railway, New Delhi	CHIEF ENGINEER (P&D)
Plastindia Foundation, Mumbai	REPRESENTATIVE
Research Designs and Standards Organization, Lucknow	REPRESENTATIVE
Roca Bathroom Products Private Limited, Chennai	SHRI ANKIT DILLIWAL SHRI MUKESH KUMAR JAIN (*Alternate*)
Society of Asian Rotomoulder (STAR), New Delhi	SHRI S. B. ZAMAN SHRI MOHIT SHUKLA (*Alternate* I) SHRI UMAKANT SAVADEKAR (*Alternate* II)
Tata Consulting Engineers Limited, Mumbai	REPRESENTATIVE
Venkatasai Potteries Private Limited, Medchal Malkajgiri	SHRI MADHUSUDANA CHARY. M.
Voluntary Organization in Interest of Consumers Education (VOICE), New Delhi	SHRI HEMANT KUMAR
In Personal Capacity (*Maple House, No. 691-T, 16th Main Road, 4th T Block, Jayanagar, Bengaluru 560047*)	SHRI B. S. A. NARAYAN
In Personal Capacity (*A-404 Milan Chs, Veeradessai Road, Andheri, Mumbai 400058*)	SHRI T. R. RANE
BIS Directorate General	SHRI DWAIPAYAN BHADRA, SCIENTIST 'E'/DIRECTOR AND HEAD (CIVIL ENGINEERING) [REPRESENTING DIRECTOR GENERAL (*Ex-officio*)]

Member Secretary
SHRI RAJESH CHOUDHARY
SCIENTIST 'B'/ASSISTANT DIRECTOR
(CIVIL ENGINEERING), BIS

Sanitary Appliances and Accessories Subcommittee, CED 3 : 1

Organisation	*Representative(s)*
HSIL Limited, Bahadurgarh	DR R. K. SOMANY **(*Convener*)**
Binay Udyog Pvt Ltd (HEPCO), Kolkata	REPRESENTATIVE
Building Materials and Technology Promotion Council, New Delhi	SHRI D. P. SINGH SHRI C. N. JHA (*Alternate*)
Central Public Health Environmental Engineering Organization (CPHEEO), New Delhi	SHRI ROHIT KAKKAR SHRI SATISH KUMAR (*Alternate*)
Central Public Works Department, New Delhi	SHRI M. K. MALLICK SHRI DIVAKAR AGRAWAL (*Alternate*)
Commander Watertech Private Limited, Mumbai	SHRI NATRAJAN SHRI SWAPNIL NAVGE (*Alternate*)
CSIR - Central Building Research Institute, Roorkee	SHRI AJAY SINGH SHRI S. K. GUPTA (*Alternate*)
Delhi Jal Board, New Delhi	CHIEF ENGINEER (WW) II SUPERINTENDING ENGINEER (NW) (*Alternate*)
HSIL Limited, Bahadurgarh	SHRI R. P. SRIVASTAVA SHRI T. K. RAHA (*Alternate*)
Indian Plumbing Association, New Delhi	SHRI SUBHASH DESHPANDE SHRI CHANDRA SHEKHAR GUPTA (*Alternate*)
Institute of Public Health Engineers, Kolkata	SHRI MURARI MOHAN DUTTA
Jayaswal Neco Industries Limited, Nagpur	SHRI PRAVEEN BHALMEY SHRI SANDESH DUWAWALE (*Alternate*)
Karnataka Water Supply and Drainage Board, Bengaluru	SHRI T. THIMME GOWDA SHRI R. RANGASWAMY (*Alternate*)
Military Engineer Services, Engineer-in- Chief's Branch, Integrated HQ of MoD (Army), New Delhi	COL N. CHAKRABORTY SHRI M. K. DEEPAK (*Alternate*)
Municipal Corporation of Greater Mumbai (Hydraulic Engineer Department), Mumbai	HYDRAULIC ENGINEER DY HYDRAULIC ENGINEER (WATER SUPPLY) (*Alternate*)
Municipal Corporation of Greater Mumbai (Sewerage Operations), Mumbai	REPRESENTATIVE
Municipal Corporation of Greater Mumbai (Storm Water Drains), Mumbai	REPRESENTATIVE
National Test House, Kolkata	SHRI ANIMESH DAS SHRI RAMEEZ ALI KHAN (*Alternate*)
Pune Municipal Corporation, Pune	REPRESENTATIVE
Rajiv Gandhi National Drinking Water Mission, New Delhi	SHRI AMIT KUMAR SAHA
Roca Bathroom Products Private Limited, Alwar	SHRI ANKIT DILLIWAL SHRI MUKESH KUMAR JAIN (*Alternate*)
Rotomoulding Association (ROMA), Mumbai	REPRESENTATIVE

Organisation	*Representative(s)*
Supreme Industries Limited, Mumbai	REPRESENTATIVE
Tamil Nadu Water Supply and Drainage Board, Chennai	JOINT CHIEF ENGINEER (COM) JOINT CHIEF ENGINEER (PDC) (*Alternate*)
In Personal Capacity *(168, Building No A/5, Ground Floor, Snehadhara Society, Dadabhai Cross Road No 3, Vile Parle (West), Mumbai 400056*)	SHRI H. G. GANDHI

Panel for Formulation of Standards for Requirements for Water Efficient Plumbing Products, CED 3 : P1

Organization	*Representative(s)*
HSIL Limited, Gurugram	DR R. K. SOMANY **(*Convener*)**
Bathline India Private Limited, New Delhi	SHRI VINAY GUPTA
Brihan Mumbai Licensed Plumbers' Association, Mumbai	SHRI KISHORE V. MERCHANT SHRI B. M. SHAH (*Alternate*)
Central Public Health and Environmental Engineering Organization, New Delhi	REPRESENTATIVE
Centre for Science and Environment, New Delhi	DR SURESH KUMAR ROHILLA
Cera Sanitaryware Limited, Kadi	SHRI BHUSHAN YERPUDE SHRI BHAVIK PATEL (*Alternate*)
Delhi Jal Board, New Delhi	SHRI AJAY KUMAR GUPTA
Fluid Control Research Institute, Palakkad	SHRI GOPAN C. K.
HSIL Limited, Bahadurgarh	SHRI K. N. JHA SHRI AJAY JAIN (*Alternate*)
Indian Green Building Council, Hyderabad	SHRI S. KARTHIYEYAN SHRI PUNIT AGARWAL (*Alternate*)
Indian Plumbing Association, New Delhi	SHRI SHARAT V RAO SHRI B. O. PRASANNA KUMAR (*Alternate* I) SHRI MINESH SHAH (*Alternate* II)
Jaquar & Company Private Limited, Gurugram	SHRI MOHAN SHARMA SHRI YASHWANT GUPTA (*Alternate*)
MKG Consultants, New Delhi	SHRI M. K. GUPTA
Municipal Corporation of Greater Mumbai, Mumbai	SHRI PURUSHOTTAM MALVADE SHRI N. D. SHINDE (*Alternate*)
Municipal Corporation of Gurugram, Gurugram	REPRESENTATIVE
National Water Mission, Department of Water Resources, River Development & Ganga Rejuvenation, Ministry of Jal Shakti, New Delhi	SHRI SUNEEL KUMAR ARORA
Neoperl India Private Limited, Gurugram	SHRI NAVEEN VATSA
NSF Safety and Certification India Private Limited, Gurugram	SHRI B. B. SINGH

Organization	*Representative(s)*
Proion Consultants, New Delhi	SHRI SANDEEP GOEL
Roca Bathroom Products Private Limited, Chennai	SHRI ANKIT DILLIWAL SHRI MUKESH JAIN (*Alternate*)
Sloan India Private Limited, Gurugram	SHRI ANUP KUMAR TRIPATHI SHRIMATI DEEPIKA KAUSHAL (*Alternate*)
Superflo Private Limited, Hyderabad	MAJ GEN RAM PARTAP
Vandana Menon Architects, New Delhi	SHRIMATI VANDANA MENON
In Personal Capacity (*A-1202, Marvel Azure Sade Satrah Nali Road, Pune 411028*)	SHRI R. P. SRIVASTAVA

Bureau of Indian Standards

BIS is a statutory institution established under the *Bureau of Indian Standards Act*, 2016 to promote harmonious development of the activities of standardization, marking and quality certification of goods and attending to connected matters in the country.

Review of Indian Standards

Amendments are issued to standards as the need arises on the basis of comments. Standards are also reviewed periodically; a standard along with amendments is reaffirmed when such review indicates that no changes are needed; if the review indicates that changes are needed, it is taken up for revision. Users of Indian Standards should ascertain that they are in possession of the latest amendments or edition by referring to the website-www.bis.gov.in or www.standardsbis.in.

This Indian Standard has been developed from Doc No.: CED 03 (21944).

Amendments Issued Since Publication

Amend No.	Date of Issue	Text Affected

BUREAU OF INDIAN STANDARDS

Headquarters:

Manak Bhavan, 9 Bahadur Shah Zafar Marg, New Delhi 110002
Telephones: 2323 0131, 2323 3375, 2323 9402 *Website*: www.bis.gov.in

Regional Offices:		*Telephones*
Central	: 601/A, Konnectus Tower -1, 6th Floor, DMRC Building, Bhavbhuti Marg, New Delhi 110002	2323 7617
Eastern	: 8th Floor, Plot No 7/7 & 7/8, CP Block, Sector V, Salt Lake, Kolkata, West Bengal 700091	2367 0012 2320 9474
Northern	: Plot No. 4-A, Sector 27-B, Madhya Marg, Chandigarh 160019	265 9930
Southern	: C.I.T. Campus, IV Cross Road, Taramani, Chennai 600113	2254 1442 2254 1216
Western	: 5th Floor, NTH Complex (W Sector), F-10, MIDC, Andheri (East), Mumbai 400093	283 25838

Branches : AHMEDABAD, BENGALURU, BHOPAL, BHUBANESHWAR, CHANDIGARH, CHENNAI, COIMBATORE, DEHRADUN, DELHI, FARIDABAD, GHAZIABAD, GUWAHATI, HARYANA (CHANDIGARH), HUBLI, HYDERABAD, JAIPUR, JAMMU, JAMSHEDPUR, KOCHI, KOLKATA, LUCKNOW, MADURAI, MUMBAI, NAGPUR, NOIDA, PARWANOO, PATNA, PUNE, RAIPUR, RAJKOT, SURAT, VIJAYAWADA.

Published by BIS, New Delhi