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IS: 5219 (Part I) - 1969

Reaffirmed 2010

# Indian Standard SPECIFICATION FOR CAST COPPER ALLOYS TRAPS

PART I P' AND 'S' TRAPS

(Second Reprint MARCH 1990)

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

## Indian Standard SPECIFICATION FOR CAST COPPER ALLOYS TRAPS

#### PART I 'P' AND 'S' TRAPS

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( Continued on page 2)

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#### IS: 5219 ( Part I ) - 1969

( Continued from page 1 )

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### AMENDMENT NO. 1 SEPTEMBER 1984

**T**0

IS:5219(Part 1)-1969 SPECIFICATION FOR CAST COPPER ALLOYS TRAPS

PART 1 'P' AND 'S' TRAPS

### <u>Alteration</u>

[Page 9, Table 4, col (3), last line] - Substitute '50' for '75'.

(BDC 3)

Reprography Unit, BIS, New Delhi, India

## Indian Standard SPECIFICATION FOR CAST COPPER ALLOYS TRAPS

PART I 'P' AND 'S' TRAPS

#### 0. FOREWORD

- 0.1 This Indian Standard (Part I) was adopted by the Indian Standards Institution on 13 August 1969, after the draft finalized by the Sanitary Appliances and Water Fittings Sectional Committee had been approved by the Civil Engineering Division Council.
- **0.2** This standard (Part I) covers the requirements for 'P' and 'S' traps made of copper alloys and their associate component parts for use with waste appliances, such as wash basins, sinks and bath tubs. The second part of the standard, under preparation, will cover the requirements for bottle traps made of cast copper alloys.
- 0.3 While preparing this standard the Sectional Committee was aware of the acute scarcity of non-ferrous metals like copper, tin and nickel in the country and the need for conserving the use of the same. However, noting the present manufacturing practice in the country only cast copper alloy traps have been covered in the standard and work is in progress covering the use of other materials available from indigenous sources, such as, plastics and ferrous metals; further, only brass castings with reduced copper contents have been specified in this standard.
- 0.4 It is a general practice to provide internal threads on the inlet of traps; and to facilitate connections with waste bodies, use of inlet tail pipe and coupling nut has been specified. External threads are provided on the outlet in case of screwed outlet traps for connections to waste pipes.
- 0.5 Straight inlet tail pipes are specified to be threaded with metric screw threads conforming to the basic profile of ISO metric screw threads. Sizes  $M33 \times 1$ ,  $M42 \times 1$  and  $M52 \times 1$  are specified for nominal sizes 32 mm, 40 mm and 50 mm although pitch one is not very common with diameters 33, 42 and 52 but it is essential to have finer threads on the tail pipes and inlet of traps and next higher pitch of 1.5 mm is not good enough for the purpose [see IS: 4218 (Part I) -1967 to IS: 4218 (Part VI) -1967\*].

<sup>\*</sup>ISO Metric screw threads:

Part I Basic and design profiles.

Part II Pitch diameter combinations.

Part III Basic dimensions for design profiles.

Part IV Tolerancing system.

Part V Tolerances.

Part VI Limits of sizes for commercial bolts and nuts (diameter range 1 to 39 mm)

#### 18: 5219 ( Part I ) - 1969

- 0.6 The information to be supplied by the purchaser with enquiry of order for traps, is given in Appendix A.
- 0.7 In the formulation of this standard due weightage has been given to international co-ordination among the standards and practices prevailing in different countries in addition to relating it to the practices in the field in this country. This has been met by deriving assistance from B.S.1184-1961 'Specification for copper and copper alloy traps and wastes'.
- 0.8 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\*. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

#### 1. SCOPE

1.1 This standard (Part I) covers copper alloy cast traps 'P' and 'S' types and their associated components of nominal sizes 32 mm, 40 mm and 50 mm for use in wash basins, sinks, bath tubs and similar waste appliances.

#### 2. TERMINOLOGY

- 2.0 For the purpose of this standard, the following definitions shall apply.
- 2.1 Trap A tabular device to prevent the passage of foul gases by means of a water seal from a waste pipe into a building.
- 2.2 'P' Trap A trap in which when the inlet leg is vertical, the outlet leg is inclined below the horizontal within the limits specified in this standard.
- 2.3 'S' Trap A trap in which the outlet leg is parallel with the inlet leg.
- 2.4 Water Seal The depth of water which shall be removed from a fully charged trap before gases at atmospheric pressure may pass from the waste pipe through the trap into a building.
- 2.5 Associated Components These shall mean the tailpipes, coupling nuts, blank nuts, clean out plugs, removable caps and washers.

#### 3. NOMINAL SIZES

3.1 The trap shall be manufactured in the following nominal sizes: 32 mm, 40 mm and 50 mm.

#### 4. MATERIALS

4.1 Castings — The castings shall be of brass with copper content not less than 56 percent.

<sup>\*</sup>Rules for rounding off numerical values ( revised ).

4.1.1 A typical example of a suitable material is brass conforming to Grade 3 of IS: 292-1961\*.

NOTE — Castings made from the brass scrap materials may be used provided the copper content is not less than the value given in 4.2.

4.2 Pressings — Pressings where used for associated components shall be of forgeable brass with the following composition:

		Min	Max
Copper		56.5	60.0
Lead		1.0	2.5
Zinc	 Remainder		

Note - Total impurities not more than 0.75 percent.

4.3 The washers where supplied shall be of compressed fibre conforming to Grade C of IS: 2712-1965† or equally suitable rubber material.

#### 5. WORKMANSHIP AND FINISH

- 5.1 Casting shall be sound in all respects, free from blow holes, laps and sand pittings. Both the external and internal surface shall be clean, smooth and free from sand. No casting shall be plugged, stopped or patched.
- 5.2 The external surface of traps and associated components shall have one of the following finishes:
  - a) Self-colour, free from grease and tool marks;
  - b) Polished; and
  - c) Nickel or chromium plated.

#### 6. DESIGN AND CONSTRUCTION

6.1 Typical illustrations of traps are shown in Tables 1 to 8.

NOTE — The figures are intended to show main features of the parts only and are not intended to limit the design and shapes of component parts.

6.2 Inlet — Inlet of every trap shall have internal threads conforming to the basic profile of ISO metric screw threads (IS: 1362-1962‡) and shall be provided with a tail pipe and a coupling nut. The tail pipe shall be screwed on to the inlet with a minimum engagement of 8 mm and secured in position by soldering.

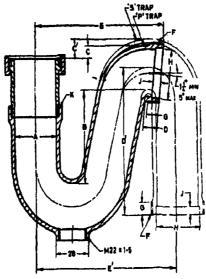
<sup>\*</sup>Specification for brass ingots and castings ( revised ).

<sup>†</sup>Specification for compressed asbestos fibre jointing.

Dimensions for screw threads for general purposes (diameter range 1.6 to 39 mm) (revised).

TABLE 1 DIMENSIONS OF 'P' AND 'S' TRAPS WITH EXTERNALLY SCREWED OUTLET

' (Clauses 6.1, 6.3, 6.7 and 7.1)

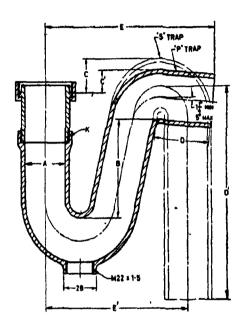


Particulars		DIMENSIONS FOR NOMINAL SIZE					
•		32	32	40	40	50	50
Internal diameter	A	30	30	38	38	48	48
Water scal, Min	B	35	75	· <b>3</b> 5	75	35	75
Height over collas, Max {	C,	15 22	20 27	15 22	15 22	15 22	15 22
Length of outlet with externally screwed end, Min	D D'	22 105	22 150	22 115	22 150	22 130	22 165
Centre of inlet to outlet	E E'	100 95 <b>±</b> 1·5	100 95 <b>=</b> 1·5	110 110 <b>=</b> 1·5	110 110 <b>±</b> 1·5	130 130 <b>±</b> 1·5	130 130 ± 1·5
Thread on outlet (parallel pipe thread fastening IS: 2643 - 1964*)	F	FP 11	FP 14	FP 1	FP 11	FP 21	FP 21
	G	10	10	τΩ	10	10	10
Diameter of recess in outlet, Min	H	35.50	35.50	41.40	41:40	51-90	51-90
Length of recess in outlet	3	6	6	6	6	6	6
Internal thread on inlet	K	M33×1	M33 x I	M42×1	$M42 \times 1$	$M52 \times 1$	$M52 \times 1$

<sup>\*</sup>Dimensions for pipe threads for fastening purposes.

TABLE 2 DIMENSIONS OF 'P' AND 'S' TRAPS WITH PLAIN OUTLET

(Clauses 6.1, 6.3, 6.7 and 7.1)



Particulars		_	DIMENSIONS FOR NOMINAL SIZE					
		32	32	40	40	50	50	
Internal diameter	A	30	30	38	<b>3</b> 8	48	48	
Water scal, Min	B	35	75	35	75	35	75	
Height over collar, Max	$\left\{ egin{array}{l} C' \\ C' \end{array}  ight.$	<del>-15</del> 22	20 27	15 <b>22</b>	15 22.	15 22	15 22	
Length of plain end outlet, My	$\left\{ \begin{array}{ll} D \\ D'. \end{array} \right.$	50 120	55 165	55 125	55 165	60 140	60 175	
Centre of inlet to cutlet	$\left\{\begin{array}{l} E \\ E' \end{array}\right.$	130 95 ±1·5	130 95 ± 1·5	145 110±1·5	145 110±1·5	170 130 ± 1·5	170 130 <b>±</b> 1·5	
Internal thread on inle	et K	M33 × i	M33×1	M42×1	M42×1	M52×1	M52×1	

TABLE 3 DIMENSIONS OF BATH 'P' TRAPS WITH EXTERNALLY SCREWED OUTLET AND OVERFLOW CONNECTIONS
(Cloums 6.1, 6.8, 6.8.1 and 7.1)

All dimensions in millimetres.

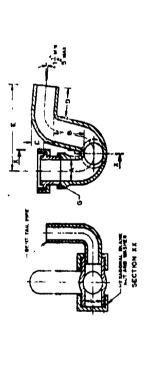
	1
	SECTION XX .

INTERNAL Terrado On Inlet	7	(12)	M42×1	M42×1	
INTERNAL BORR DIA IN THE CLEANING AND OVERFLOW CONNECTIONS, MIS	×	(11)	25-0	25-0	
LENGTH OF RECEN IN OUTLET	۲	(10)	9	9	
DIAMETER OF RECESS IN OUTLET, Min	H	6)	41-40	41.40	
LENGTH  OF  EXTERNAL  THREADS  ON  OUTLET,  Min	v	(8)	10	01	
Thread on Outlet (Para- Liel Pipe Threads Fatering IS:2643- 1964•)	£,	3	FP 13	FP 14	
CENTRA OF INLET TO OUTLET	B	(9)	110	110	
LENGTH OF CENTRE OUTLET OF WITH INLET EXTER- TO NALLY OUTLET SCREWED END, Min	Q	(3)	22	22	
Height Over Collar, Mer	v	•	28	28	
WATER SEAL, Min	Q	ව	35	75	
Inter- NAL DIA, Min	₹	3	8	8	
None- nal Size	•	Ξ	\$	\$	

TABLE 4 DIMENSIONS OF BATH 'P' TRAPS WITH PLAIN OUTLET AND OVERPLOW CONNECTIONS

(Clauses 6.1, 6.3, 6.8.1 and 7.1)

All dimensiors in millimetres



Internal Threads on Inlet G	. (8)	M <del>\$</del> 2×1	M42×1
Internal Bore Diameter in the Cleanno and Overplow Connections	(3)	25.0	. 25-0
CENTRE OF INLET TO OUTLET	(9)	140	140
LENGTH OF OUTLET WITH PLAIN END, D Ain	(3)	20	20
Height Over Collar, C	£	28	28
WATER SEAL, B Afin	<b>(</b> 2)	35	75
Interne Diameter, A Afra	(2)	88	88
Nominal Size	(3)	\$	\$

TABLE 5 DIMENSIONS OF CLEANOUT PLUG

(Clauses 6.1, 6.7 and 7.1)

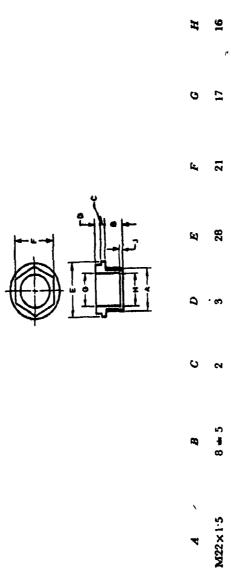
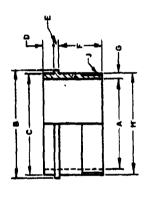


TABLE 6 DIMENSIONS OF STRAIGHT TAIL PIPES

( Clauses 6.1, 6.4 and 7.1)



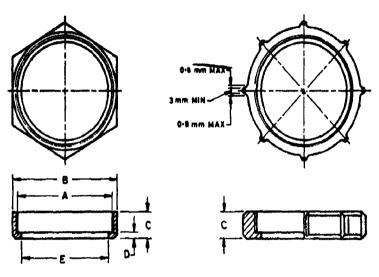
	•		`		• ,	. 130.
THREADS ON . TAIL	3		(11)	M33×1	$M42 \times 1$	$M52\times I$
Diameter Of Tail, Max	Н		(10)	. 23	42	52
Thickness of OP Wall, Min	IJ		(6)	1.0	1.4	<b>†·</b> •
Length Of Wall, Min	F		(8)	25	25	25
AXIAL LENGTH OF COLLAR, Min	E		(7)	€	က	က
AXIAL LENGTH OF SPIGOT	D		(9)	9	9	9
DIAMBTER OF SPIGOT, Max	·U		(5)	35-3	41-1	51.6
DIAMETER OF COLLAR	<b>e</b> g .	Min Max	€	38.6	44.5	56.3
9 S		Min	(3)	37.9	44.0	55.6
Bore, Min	7		(2)	29	37	47
Nominal Size			Ξ	32	4	5°

IS: 5219 ( Part I ) - 1969

Mindle Straight Length OF Tall (12) 20 Roof Rapics of Bend, Min TABLE 7 DIMENSIONS OF BENT TAIL PIPES FOR OVERFLOW CONNECTIONS  $\widehat{\Xi}$ 7 × THICKNESS DIAVETER OF OF WALL, TAIL, Max (OE) 25 3 Min H ව 2 All dimensions in millimetres Draneter of Spigot, ( Clauses 6.1, 6.4 and 7.1) Max 24.7 1 S 6 AXIAL LENGTH OF SPIGOT, Min € ₩ 0.5  $\mathbb{C}$ AVIAL LENGTH OF COLLAR, 9 37 ш DIANETER OF COLLAR Min Max <u>0</u> 30 € 29 CENTRE LINE OF INLET TO OUTLET ပ ව 42 LENGTH
OF
TAIL TO
CENTRE
LINE OF 8 \$ Q Borr (Mil.) Ξ 20

TABLE 8 DIMENSIONS OF COUPLING NUT AND BLANK NUT

(Clauses 6.1, 6.5, 6.6 and 7.1)



COUPLING NUT

BLANK NUT

Nominal Size	Internal Thread ( Parallel Pipe Threads- Fastening IS: 2643-1964* )	SIZE ACROSS FLATS OF HEXAGONAL PATTERN†, Min	Axial Length, Min	THICKNESS OF FLANGE, Min	DIAMETER OF HOLE PN FLANGE, Min
	A	B	C	D	E
(1)	(2)	(3)	(4)	(5)	<b>(</b> 6)
25	FP 1	36-	14	3	35.75
32 '	FP 11	45	14	3	33.2
40 ,	FP 11 .	51	14	3	42.2
50	FP 2	63	14	3	52.3

<sup>\*</sup>Dimensions for pipe threads for fastening purposes.

<sup>†</sup>Minimum outside diameter of nut in case of ribbed pattern.

#### IS: 5219 ( Part I ) - 1969

- 6.3 Outlet The outlet of 'P' and 'S' trap shall be either with plain ends suitable for connection to lead pipe or with external parallel pipe threads of fastening type conforming to IS: 2643-1964\* (see Tables 1 and 2).
- 6.4 Tail Pipes Tail pipes shall be of any of the following types:
  - a) Screwed Inlet Straight Tail Pipes shall conform to Table 6 and shall be threaded externally to a length sufficient to have a minimum engagement of 8 mm into trap inlet. Collar shall be integral with the tail pipe.
  - b) Bent Tail Pipe When used for bath trap, overflow connections shall conform to Table 7 and shall have an integral collar. It may also be used for converting a 'P' trap to an 'S' trap.
- 6.5 Coupling Nuts The dimensions of coupling nuts for tail pipes shall conform to Table 8.
- 6.6 Blank Nuts Blank nuts for bath traps shall be of 25 mm nominal size conforming to Table 8 except that the flange shall be without hole.
- 6.7 Access for Inspection and Cleaning Every trap of the type shown in Tables 1 and 2 shall be provided with a clean out in the position shown in the figures and shall be fitted with the clean out plugs (see Table 5).
- 6.8 Lower Flow Openings Bath traps shall be provided with branches in positions shown in Tables 3 and 4 and shall be screwed externally with 25 mm (P-1) parallel pipe threads conforming to IS: 2643-1964\* with a minimum thread length of 10 mm.
- 6.8.1 One branch shall be fitted with a blank cap, complete with washer and other branch shall at the option of the purchaser be fitted either with a bent tail pipe and coupling nut as shown in Tables 3 and 4 or with a blank cap.

#### 7. DIMENSIONS

- 7.1 The traps and associated components shall conform to the dimensions given in Tables 1 to 8.
- 7.2 Thickness of Wall The average thickness of the wall of the traps shall be not less than 2.3 mm and at no point shall be the thickness less than 1.6 mm.
- 7.3 Depth of Seal The minimum depth of the seal shall be either 35 mm or 75 mm as ordered.
- 7.4 Rake of Outlet In 'P' traps, the outlet shall be in possession of a rake of 1½° Min and 5° Max below the horizontal when the access of the inlet is vertical. Variation shall be permissible when so ordered.

<sup>\*</sup>Dimensions for pipe threads for fastening purposes.

#### 8. MARKING

- 8.1 Each trap shall be clearly and permanently marked with the manufacturer's name and trade-mark, if any.
  - 8.1.1 The trap may also be marked with the ISI Certification Mark.

Note — The use of the ISI Certification Mark is governed by the provisions of the Indian Standards Institution (Certification Marks) Act and the Rules and Regulations made thereunder. The ISI Mark on products covered by an Indian Standard conveys the assurance that they have been produced to comply with the requirements of that standard under a well-defined system of inspection, testing and quality control which is devised and supervised by ISI and operated by the producer. ISI marked products are also continuously checked by ISI for conformity to that standard as a further safeguard. Details of conditions under which a licence for the use of the ISI Certification Mark may be granted to manufacturers of processors, may be obtained Certification Mark may be granted to manufacturers or processors, may be obtained from the Indian Standards Institution.

#### APPENDIX A

(Clause 0.6)

#### INFORMATION TO BE SUPPLIED WITH ENQUIRY AND ORDER FOR TRAPS

- A-1. The information to be supplied is given below:
  - a) The nominal size;
  - b) 'P' or 'S' trap:
  - c) The depth of seal (see 7.3);
  - d) The type of outlet ( see 6.3);

  - e) The external finish (see 5.2);
  - f) Bath traps, whether overflow connection and a blank cap are required or two blank caps ( see 6.8); and
  - g) In case of screwed end outlet traps whether the outlet is required fitted with plain and tail pipe and a coupling nut or with or without any of these components.

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R14 Yudhister Marg. C Scheme, JAIPUR 3020	1	6		32
117/418 B Sarvodaya Nagar, KANPUR 20800		21 ( 21 (		
Patliputra Industrial Estate, PATNA 800013	( •		23	
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<sup>†</sup>Sales Office in Bombay is at Novelty Chambers, Grant Road, 89 65 28 Bombay 400007

‡Sales Office in Bangalore is at Unity Building, Narasimharaja Square, 22 36 71

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