भारतीय मानक

Indian Standard

IS 18508 : 2023

चिपबोर्ड पेंच — विशिष्टि

Chipboard Screws — Specification

ICS 21.060.10

भारतीय मानक ब्यूरो
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November 2023 **Price Group 6**

General Engineering and Fasteners Standards Sectional Committee, PGD 37

FOREWORD

This Indian Standard was adopted by the Bureau of Indian Standards, after the draft finalized by the General Engineering and Fasteners Standards Sectional Committee had been approved by the Production and General Engineering Division Council.

Chipboard screws are widely used in furniture manufacturing and other industries. These screws are mainly used for connection and fastening between wood panels and between wood panels and thin steel plates. Chipboard screws are self-tapping, which means that they do not require pre-tapping, which is the process of creating threads in the material before inserting the screw. This eliminates the need for additional tools and can save time and labour costs. Additionally, self-tapping screws can be used in materials that are too thin or brittle to be pre-tapped, making them a versatile choice for a wide range of applications.

This standard has been formulated to serve as a guide for the industry, outlining the essential parameters required for manufacturing and testing of chipboard screws.

The composition of the Committee responsible for the formulation of this standard is given in Annex B.

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

CHIPBOARD SCREWS — SPECIFICATION

1 SCOPE

This standard specifies the characteristics of cross recessed chipboard screws for thread diameter 3 mm to 6 mm.

2 REFERENCES

The standards listed in Annex A 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 editions of these standards.

3 SYMBOLS

For the purpose of this standard, the symbols given in IS 8535 shall apply.

4 DIMENSIONS

4.1 The dimensions of cross recessed chipboard screws shall be as given in Fig. 1 and Table 1.

4.2 The tolerances on length shall be as given below:

Sl No.	*Length, L* *Mm*	*Tolerance* *Mm*
(1)	(2)	(3)
i)	$L < 11$	+ 0.30 - 0.50
ii)	$11 \leq L < 20$	+ 0.30 - 0.50
iii)	$20 \leq L < 31$	+ 0.30 - 0.80
iv)	$31 \leq L < 60$	+ 0.50 - 1.25
v)	$60 \leq L < 90$	± 1.50
vi)	$90 \leq L < 140$	± 1.75
vii)	$140 \leq L < 200$	± 2.00
viii)	$L \geq 200$	± 2.30

4.3 The thread lengths for various length of screws shall be as given below:

Sl No.	*Length of Screw, L* *mm*	*Thread Length, b* *Min*
(1)	(2)	(3)
i)	$L < 60$	Fully threaded
ii)	$60 \leq L < 100$	55 mm
iii)	$L \geq 100$	75 mm

5 REQUIREMENTS

The various requirements of cross recessed countersunk wood screws shall be as given in Table 2.

6 TORQUE TESTING

The screws shall conform to the minimum breaking torque requirements as mentioned in Table 3 when tested in accordance with IS 1367 (Part 20).

7 HARDNESS

7.1 Cross recessed countersunk head wood screws shall have a minimum surface hardness of 320 HV0.1 when measured in accordance to IS 1501 (Part 1).

7.2 Cross recessed countersunk head wood screws shall have core hardness of 300 HV0.5 to 450 HV0.5 when measured in accordance to IS 1501 (Part 1).

7.3 Chipboard screws shall have a total case depth between 0.10 mm to 0.23 mm.

8 DESIGNATION

The drywall screws shall be designated with the IS No. of this standard, the screw thread diameter *D* the nominal length *L*, material (Grade of steel/SS or Brass) and the and type of cross-slot.

Example:

Designation of a chipboard screw with screw thread diameter of 4.5 mm and a nominal length of 60 mm, made up of stainless steel (Grade A2) and with type H cross recess shall be designated:

Chipboard screw IS 18508 — 4.5 × 60 — SS(A2) — H

9 MARKING

9.1 Each package shall be legibly marked with the following information:

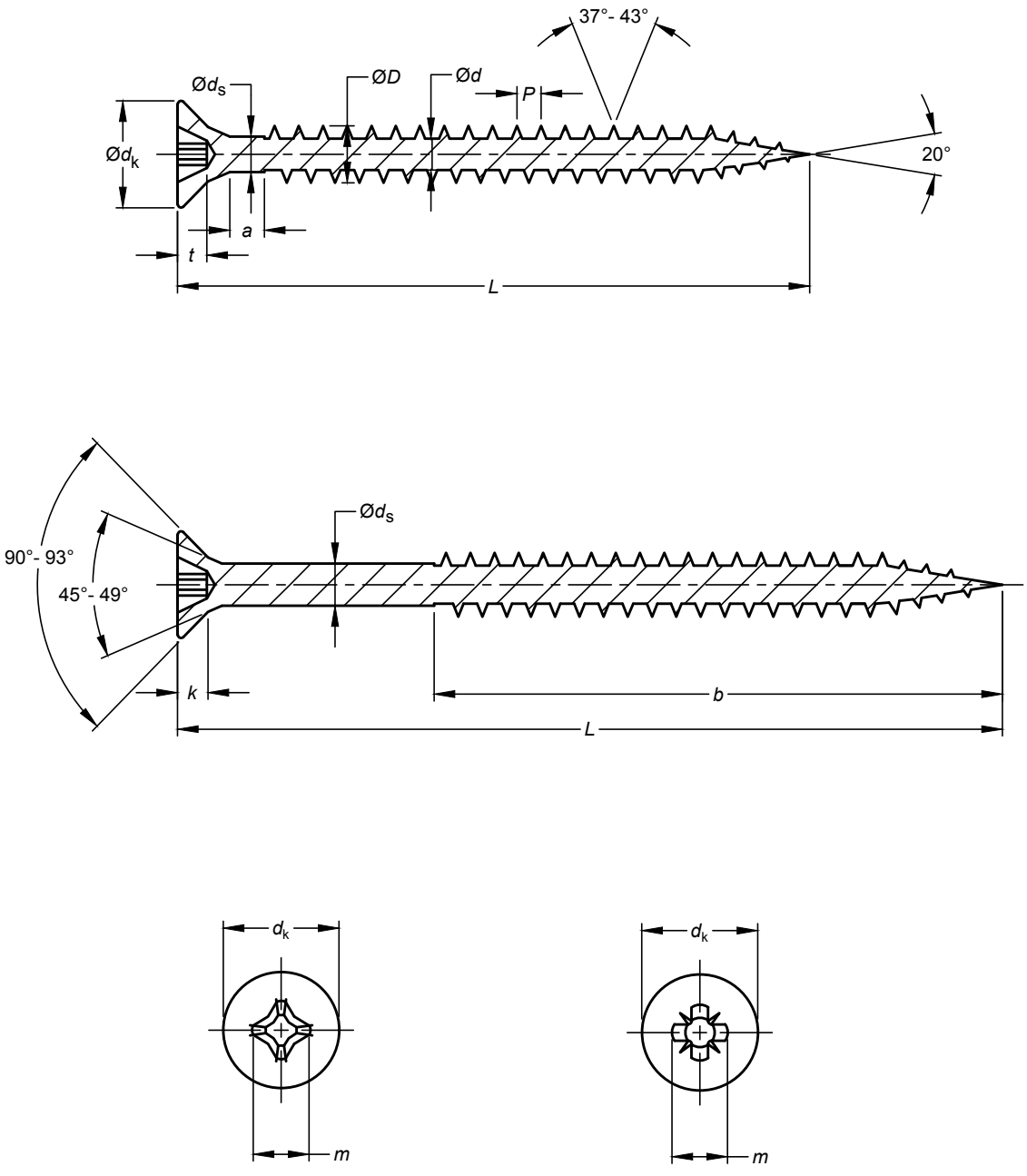
a) Designation and type of coating;

b) Manufacturer's name/initials or trademark; and

c) Month and year of manufacture or batch/lot number.

9.2 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 product(s) may be marked with the Standard Mark.



Head view, cross recess type H Head view, cross recess type Z

FIG. 1 DIMENSIONS OF CHIPBOARD SCREWS

Table 1 Dimensions

(*Clause* 4)
All dimensions are in millimetres.

Sl No.	**Screw Thread *D***		**3**	**3.5**	**4**	**4.5**	**5**	**6**
(1)	(2)		(3)	(4)	(5)	(6)	(7)	(8)
i)	*D*	*Max*	3	3.5	4	4.5	5	6
		Min	2.75	3.2	3.7	4.2	4.7	5.7
ii)	d_s	*Max*	2.20	2.45	2.80	3.10	3.45	4.25
		Min	2.17	2.42	2.77	3.07	3.42	4.22
iii)	*d*	*Max*	2.00	2.2	2.5	2.70	3.1	3.8
		Min	1.75	2.0	2.25	2.45	2.8	3.5
iv)	*p*	Pitch (± 10%)	1.35	1.6	1.8	2	2.2	2.6
v)	*a*	*Max*	2.35	2.6	2.8	3	3.2	3.6
vi)	d_k	*Max* = Nominal size	6	7	8	9	10	12
		Min	5.7	6.64	7.64	8.64	9.64	11.57
vii)	*k*	*Max*	1.9	2.2	2.6	2.90	3.30	3.70
		Min	1.6	1.8	2.1	2.40	2.70	2.90
		Min	1.5	1.67	2.02	2.22	2.52	3.22
viii)	Socket no.		1	2	2	2	2	3
ix)	*m*		3	4	4.4	4.8	5.3	6.6

Table 2 Requirements

(*Clause* 5)

Sl No	Material	Steel	Stainless steel	Non-ferrous Metal
(1)	(2)	(3)	(4)	(5)
i)	General Requirements	IS 1367 (Part 1)		
ii)	Cross recess	Cross slots according to IS 7478		
iii)	Material	Grade 7M or 8M conforming to IS 7887	Grades A2 to A5 conforming to IS 1367 (Part 14) : Sec 4	Brass
iv)	Tolerances, shape and positional tolerances	Product grade C confirming to IS 1367 (Part 2)[1)]		
v)	Surface Coating	As processed (no coating) Electroplating shall be done in accordance with IS 1367 (Part 11). Phosphating shall be done in accordance with IS 1367 (Part 12). Additional requirements or other finishes or coatings shall be agreed between the supplier and the purchaser.	Clean and bright and/or passivated	As processed (no coating) Electroplating shall be in accordance to IS 1367 (Part 11).
vi)	Surface condition	The limits of surface defects shall be in accordance with IS 1367 (Part 9/Sec 1).		
vii)	Acceptance test	Requirements of IS 1367 (Part 17) shall apply to the acceptance test.		

[1)]IS 1367 (Part 2) currently only applies to screws with metric ISO threads and self-tapping screws. The permissible deviations and tolerances for shape and position for these screws are to be adopted for chipboard screws unless they are specified in this standard.

Table 3 Breaking Torque Requirements

(*Clause* 6)

Sl No.	**Thread Size** *D*	**Torque (Nm)** *Min*
(1)	(2)	(3)
i)	3	1.4
ii)	3.5	2.0
iii)	4	3.0
iv)	4.5	4.3
v)	5	6.0
vi)	6	10.5

ANNEX A

(*Clause 2*)

LIST OF REFERRED STANDARDS

IS No.	*Title*
IS 1367	Technical supply conditions for threaded steel fasteners:
(Part 1) : 2014/ ISO 8992 : 2005	Part 1 General requirements for bolts, screws, studs and nuts (*fourth revision*)
(Part 2) : 2002/ ISO 4759-1 : 2000	Part 2 Tolerances for fasteners — Bolts, screws, studs and nuts — Product grades A, B and C (*third revision*)
(Part 9/Sec 1) : 1993/ISO 6157-1 : 1988	Part 9 Surface discontinuities, Section 1 bolts, screws and studs for general applications (*third revision*)
(Part 11) : 2020/ ISO 4042 : 2018	Part 11 Electroplated coating systems (*fourth revision*)
(Part 12) : 1981	Part 12 Phosphate coatings on threaded fasteners (*second revision*)
(Part 14/Sec 4) : 2023/ISO 3506-4 : 2009	Part 14 Mechanical properties of corrosion-resistant stainless-steel fasteners, Section 4 Tapping screws
(Part 17) : 2023/ ISO 3269 : 2019	Part 17 Inspections sampling and acceptance procedure (*fifth revision*)
(Part 20) : 1996/ ISO 898-7 : 1992	Mechanical properties: Part 20 Torsional — Test and minimum torques for bolts and screws with nominal diameters 1 mm to 10 mm
IS 1501 (Part 1) : 2020/ISO 6507-1 : 2018	Metallic materials — Vickers hardness test: Part 1 Test method (*fifth revision*)
IS 7478 : 2011/ ISO 4757 : 1983	Cross recesses for screws (*second revision*)
IS 7887 : 1992	Mild steel wire rod for general engineering purposes — Specification *(first revision)*
IS 8535 : 2020/ ISO 1891 : 2009	Fasteners — Terminology (*second revision*)

ANNEX B

(*Foreword*)

COMMITTEE COMPOSITION

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This Indian Standard has been developed from Doc No.:PGD 37 (23037).

Amendments Issued Since Publication

Amend No.	Date of Issue	Text Affected

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Published by BIS, New Delhi