

**BUREAU OF INDIAN STANDARDS**  
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**Doc: PGD 37(27614)WC**

**March 2025**

*भारतीय मानक मसौदा*

**चिपबोर्ड पेंच – विशिष्ट**

(IS 18508 का पहला पुनरीक्षण)

*Draft Indian Standard*

**Chipboard Screws — Specification**

*(First Revision of IS 18508)*

ICS 21.060.10

General Engineering and Fasteners Standards Sectional Committee, PGD 37	Last date for receipt of comment is: <b>5 April 2025</b>
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## FOREWORD

*(Formal clauses will be added later)*

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.

This standard was originally published in 2024. This revision has been brought out to incorporate technical changes based on feedback received from the industry. The major changes in this revision are as follows:

- a) Fig. 1 on ‘Dimensions’ has been revised;
- b) Breaking torque requirements for steel screws have been revised and breaking torque requirements for stainless steel screws have been added;
- c) Hardness requirements for steel screws have been revised and hardness requirements for stainless steel screws have been added.

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.

*Draft Indian Standard*

## **CHIPBOARD SCREWS — SPECIFICATION**

### **1 SCOPE**

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

### **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 the standard are encouraged to investigate the possibility of applying the most recent editions of the standards listed below:

### **3 SYMBOLS**

For the purpose of this standard, following symbols have meaning indicated against each:

$a$  — Length of the unthreaded shank

$d$  — Inner diameter of the thread

$d_k$  — Diameter of the head

$d_s$  — Diameter of the unthreaded shank

$D$  — Outer diameter of the thread

$k$  — Height of the first counter

$P$  — Pitch of the thread

### **4 DIMENSIONS**

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

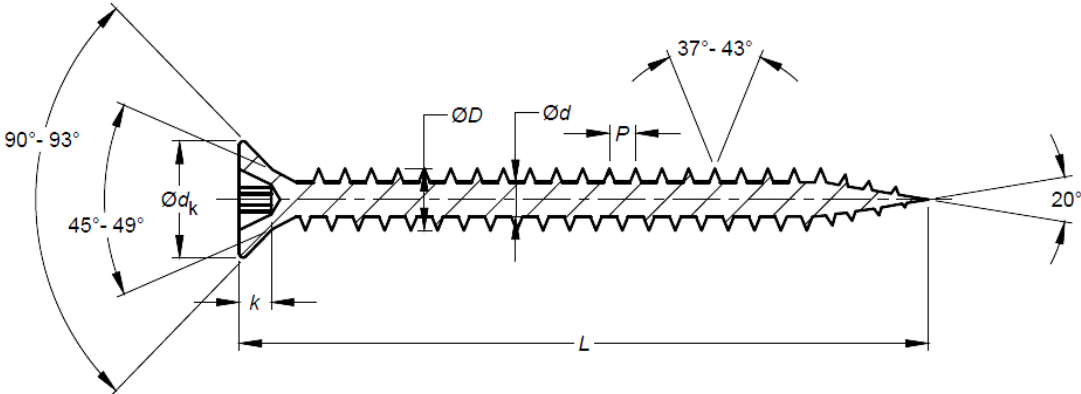


FIG. 1 (a) FULLY THREADED CHIPBOARD SCREWS

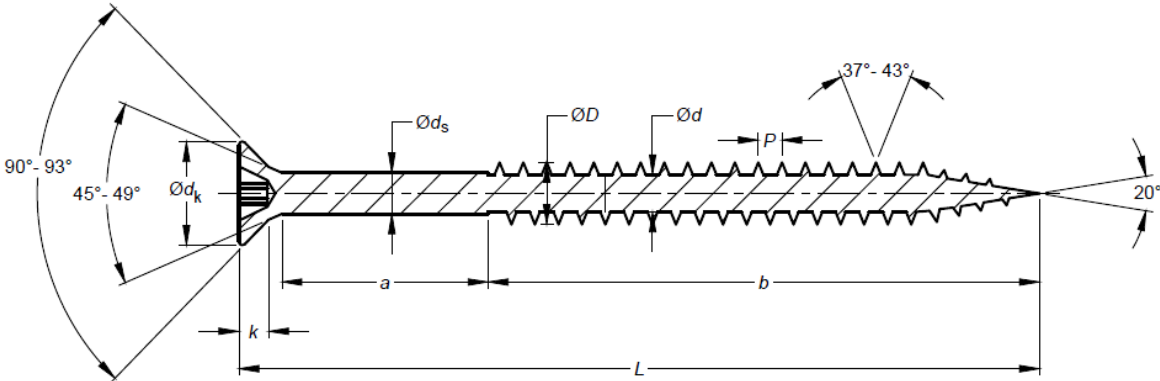


FIG. 1 (b) PARTIALLY THREADED CHIPBOARD SCREWS



FIG. 1 (c) TYPE H AND TYPE Z CROSS RECESS

FIG. 1 DIMENSIONS OF CHIPBOARD SCREWS

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**Table 1 Dimensions**

(Clause 4.1)

All dimensions are in mm.

SI No.	Thread Size, <i>D</i>			3	3.5	4	4.5	5	6	
(1)	(2)			(3)	(4)	(5)	(6)	(7)	(8)	
i)	<i>D</i>	<i>Max</i>			3	3.5	4	4.5	5	6
		<i>Min</i>			2.75	3.2	3.7	4.2	4.7	5.7
ii)	<i>d<sub>s</sub></i>	<i>Max</i>			2.20	2.45	2.80	3.10	3.45	4.25
		<i>Min</i>			2.17	2.42	2.77	3.07	3.42	4.22
iii)	<i>d</i>	<i>Max</i>			2.00	2.2	2.5	2.70	3.1	3.8
		<i>Min</i>			1.75	2.0	2.25	2.45	2.8	3.5
iv)	<i>p</i>	Pitch ( $\pm 10\%$ )			1.35	1.6	1.8	2	2.2	2.6
v)	<i>a</i>	<i>Max</i>			2.35	2.6	2.8	3	3.2	3.6
vi)	<i>d<sub>k</sub></i>	<i>Max</i> = Nominal size			6	7	8	9	10	12
		<i>Min</i>			5.7	6.64	7.64	8.64	9.64	11.57
vii)	<i>k</i>	<i>Max</i>			1.9	2.2	2.6	2.90	3.30	3.70
		<i>Min</i>			1.6	1.8	2.1	2.40	2.70	2.90
viii)	Cross recess No.			1	2	2	2	2	3	
ix)	Cross recess	Type H	<i>m</i>	$\approx$	3.5	4.0	4.4	4.8	5.0	6.6
			Penetration depth, <i>q</i> <sup>1)</sup>	<i>Min</i>	0.91	1.4	1.79	2.19	2.38	2.7
				<i>Max</i>	1.43	1.93	2.33	2.73	2.93	3.26
		Type Z	<i>m</i>	$\approx$	3.0	4.0	4.4	4.8	5.3	6.6
			Penetration depth, <i>q</i> <sup>2)</sup>	<i>Min</i>	1.76	1.6	2.05	2.46	2.99	2.99
				<i>Max</i>	2.01	2.06	2.51	2.92	3.45	3.45

<sup>1)</sup> see 2.2 of IS 7478.

<sup>2)</sup> see 3.2 of IS 7478.

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4.2 The tolerances on length shall be as given below in Table 2.

**Table 2 Tolerances on Length**  
(Clause 4.2)

SI No.	Length, $L$ <i>mm</i>	Tolerance <i>mm</i>
(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)	$60 \leq L < 90$	$\pm 1.50$
vi)	$90 \leq L < 140$	$\pm 1.75$
vii)	$140 \leq L < 200$	$\pm 2.00$
viii)	$L \geq 200$	$\pm 2.30$

4.3 The thread length for various lengths of screws shall be as given below in Table 3.

**Table 3 Thread Length**  
(Clause 4.3)

SI No.	Length of Screw, $L$ <i>mm</i>	Thread length, $b$ <i>Min</i>
(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 4.

**Table 4 Requirements**  
(Clause 5)

SI No. (1)	Material (2)	Steel (3)	Stainless steel (4)
i)	Cross recess	Cross slots according to IS 7478	
ii)	Chemical Composition	Grade 7M or 8M conforming to IS 7887	Grade A2, A3, A4 or A5 conforming to IS 1367 (Part 14/Sec 4)
iii)	Tolerances, shape and positional tolerances	Product grade C conforming to IS 1367 (Part 2) <sup>1)</sup>	
iv)	Surface 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
v)	Surface condition	The limits of surface defects shall be in accordance with IS 1367 (Part 9/Sec 1)	
vi)	Acceptance test	Requirements of IS 1367 (Part 17) shall apply to the acceptance test	

<sup>1)</sup>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.

## 6 HARDNESS

**6.1** Chipboard screws made up of steel shall have a minimum surface hardness 520 HV 0.1 and core hardness of 300 HV 0.5 to 450 HV 0.5 when measured in accordance with IS 1501 (Part 1). The total case depth shall be between 0.10 mm to 0.23 mm.

**6.2** Chipboard screws made up of stainless steel shall have a minimum core hardness of 250 HV<sup>1)</sup> when tested in accordance with IS 1501 (Part 1). The material shall be of austenitic grade stainless steel.

## 7 TORQUE TESTING

Chipboard screws shall conform to the minimum breaking torque requirements as specified in Table 5 when tested in accordance with **6.3** of IS 1367 (Part 14/Sec 4).

<sup>1)</sup>For thread size, *D*, less than 4, test force of 5 HV shall be used; for thread size greater than and equal to 4, test force of 10 HV shall be used.

**Table 5 Breaking Torque Requirements**  
(Clause 7)

SI No.	Thread Size <i>D</i>	Torque for Steel N-m, <i>Min</i>	Torque for Stainless Steel N-m, <i>Min</i>
(1)	(2)	(3)	(4)
i)	3.0	1.5	1.2
ii)	3.5	2.7	2.2
iii)	4	3.6	2.9
iv)	4.5	4.4	3.5
v)	5	6.9	5.5
vi)	6	10.8	8.7

## 8 DESIGNATION

Chipboard screws conforming to this standard 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 as:

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.

**ANNEX A**  
(Clause 2)

**LIST OF REFERRED STANDARDS**

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