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भारतीय मानक मसौदा

सेल्फ टैपिंग पेंच – विशिष्ट

Draft Indian Standard

Self-Tapping Screws — Specification

ICS 21.060.10

General Engineering and Fasteners Standards Sectional Committee, PGD 37	Last date for receipt of comment is 23 February 2025
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FOREWORD

(Formal clause will be added later)

Self-tapping screws are versatile fasteners designed to create their own threads as they are driven into materials like metal, wood, or plastic, eliminating the need for pre-threaded holes. Tapping screws are also sometimes called sheet metal screw. They feature sharp or drill-point designs paired with deep, sharp threads for efficient penetration and secure fastening. These screws are simple to install using standard tools and are designed to resist loosening, even under conditions of vibration. These screws are commonly used in a wide range of industries, including woodworking, metalworking, electronics, automotive, and more.

Self-tapping screws are produced with various head shapes and types of self-tapping threads. The committee has tried to include all the major shapes and thread types commonly manufactured in the industry in the standard. However, to encourage innovation, and to suit certain specific requirements, the dimensional parameters (*see 3*) have been left to be mutually agreed upon by the user and the manufacturer. Nonetheless, the standard outlines specific tests that are mandatory to verify the self-tapping capabilities of these screws.

This Indian Standard covers the requirements of cross recessed tapping screws and slotted head tapping screw which were previously covered under IS 18480 (Parts 1 to 3), IS 7169 : 2018, IS 7170 : 2018 and IS 7173 : 2018. After the publication of this standard, all these standards will be superseded.

In the formulation of this standard, assistance has been taken from the following International Standards:

ISO 7049 : 2011	Cross-recessed pan head tapping screws
ISO 7050 : 2011	Cross-recessed countersunk (flat) head tapping screws
ISO 7051 : 2011	Cross-recessed raised countersunk (oval) head tapping screws
ISO 7053 : 2019	Fasteners — Hexagon washer head tapping screws
ISO 10509 : 2012	Hexagon flange head tapping screws
ISO 1479 : 2011	Hexagon head tapping screws
ISO 1481 : 2011	Slotted pan head tapping screws

ISO 1482 : 2011	Slotted countersunk (flat) head tapping screws
ISO 1483 : 2011	Slotted raised countersunk (oval) head tapping screws
ISO 14585 : 2011	Hexalobular socket pan head tapping screws
ISO 14586 : 2011	Hexalobular socket countersunk head tapping screws
ISO 14587 : 2011	Hexalobular socket raised countersunk (oval) head tapping screws
ISO 15480 : 2019	Fasteners — Hexagon washer head drilling screws with tapping screw thread
JIS B 1122 : 1996	Cross recessed head tapping screws

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

SELF-TAPPING SCREWS — SPECIFICATION

1 SCOPE

This standard specifies the requirements of self-tapping screws.

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 these standards.

3 DIMENSIONS

3.1 Unless otherwise agreed to between the user/purchaser and the manufacturer, the dimensions of the tapping screws shall be as given in Table 1.

3.2 The dimensions and tolerances of self-tapping screws with the head shape other than those mentioned in Table 1 shall be as agreed upon between the user/purchaser and the manufacturer. However, the screws shall conform to the requirements given in **6**.

3.3 For self-tapping screws with the shapes mentioned in Table 1 and with integrated/captive washers, the dimensions and other properties of the washer shall be as mutually agreed upon between the user/purchaser and the manufacturer.

4 GENERAL REQUIREMENTS

The general requirements of self-tapping screws shall be in accordance with IS 1367 (Part 1).

5 DRIVE

5.1 The dimensions of cross recess (wherever applicable) shall be in accordance with IS 7478.

5.2 The dimensions of hexalobular socket (wherever applicable) shall be in accordance with ISO 10664.

6 MECHANICAL PROPERTIES

6.1 Self tapping screws made up of steel shall conform to all the requirements given in IS 7178.

6.2 Self tapping stainless steel screws shall be of property class A2-20H or A4-20H or A5-20H in accordance with IS 1367 (Part 14/Sec 4).

7 THREADS

Unless otherwise agreed between the user and the manufacturer, the dimensions of threads shall be in accordance with IS 5957.

8 TOLERANCES

Unless otherwise specified, self-tapping screws shall conform to product grade A in accordance with IS 1367 (Part 2).

9 FINISH

9.1 Self tapping screws made up of steel shall either be electroplated in accordance with IS 1367 (Part 11) or hot dip galvanized in accordance with IS 1367 (Part 13) or zinc flake coated in accordance with IS 10683. However, any other requirements or other finishes or coatings can be as agreed to between the supplier and the purchaser.

9.2 Self tapping screws made up of stainless steel shall be supplied clean and bright condition. If passivation is done, it shall be in accordance with IS 19056.

10 DESIGNATION

Self-tapping screws shall be designated by the thread size, nominal length, type of material, type of drive (wherever applicable) and type of thread end (wherever applicable).

Examples:

- a) A cross-recessed pan head tapping screw with thread size ST 3.5, nominal length $l = 16$ mm, made of steel (St), rounded end (Type R) and cross recess Type Z is designated as follows:

Tapping screw IS 18480 — ST 3.5 × 16 — St — Z — R

- b) A cross-recessed pan head tapping screw with thread size ST 3.5, nominal length $l = 16$ mm, made of stainless steel (A4-20H), rounded end (Type R) and cross recess Type H is designated as follows:

Tapping screw IS 18480 — ST 3.5 × 16 — A4-20H — R — H

11 MARKING

11.1 The following shall be marked on the package:

- a) Designation and type of coating;
- b) Manufacturer's name, initials or trademark; and
- c) Month and year of manufacture or batch/lot number.

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.

12 SAMPLING AND ACCEPTANCE PROCEDURE

The sampling and acceptance procedure shall be in accordance with IS 1367 (Part 17).

Table 1 Dimensions
(Clauses 3.1, 3.2 and 3.3)

SI No. (1)	Type of Screw (2)	Dimensions (3)
Cross Recessed Screws		
i)	Pan Head	<i>see Fig. 1 and Table 2</i>
ii)	Countersunk head	<i>see Fig. 1 and Table 3</i>
iii)	Raised countersunk head	<i>see Fig. 1 and Table 4</i>
Slotted Screws		
iv)	Pan Head	<i>see Fig. 2 and Table 5</i>
v)	Countersunk head	<i>see Fig. 2 and Table 6</i>
vi)	Raised countersunk head	<i>see Fig. 2 and Table 7</i>
Hexalobular/Torx/Star Socket Screws		
vii)	Pan head	<i>see Fig. 3 and Table 8</i>
viii)	Countersunk head	<i>see Fig. 3 and Table 9</i>
ix)	Raised countersunk head	<i>see Fig. 3 and Table 10</i>
Hexagon Head Screws		
x)	Hexagon head	<i>see Fig. 4 and Table 11</i>
xi)	Hexagon washer head	<i>see Fig. 4 and Table 12</i>
xii)	Hexagon flange head	<i>see Fig. 4 and Table 13</i>

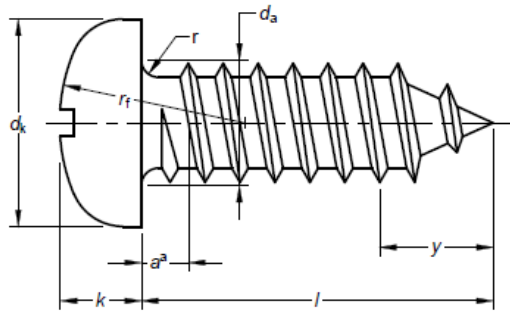


FIG. 1(A) PAN HEAD (TYPE C END)

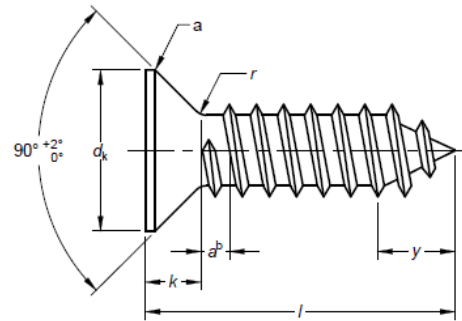


FIG. 1(B) COUNTERSUNK HEAD (TYPE C END)

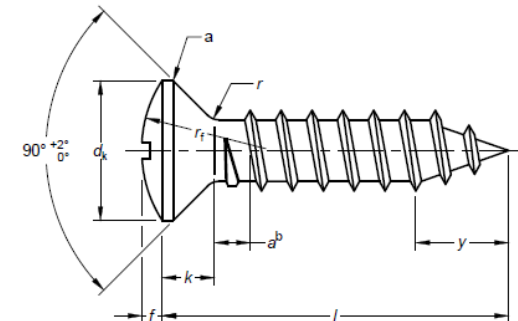


FIG. 1(C) RAISED CSK HEAD (TYPE C END)

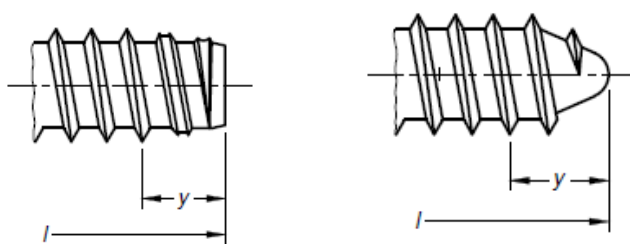


FIG. 1(D) TYPE F AND TYPE R ENDS

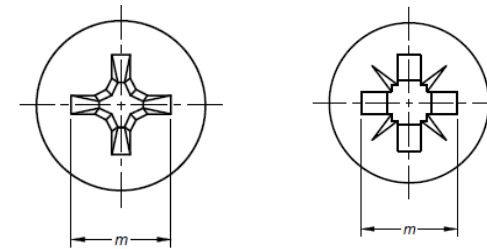


FIG. 1(E) TYPE H AND TYPE Z CROSS RECESS

FIG. 1 CROSS RECESSED SCREWS (PAN HEAD, COUNTERSUNK HEAD AND RAISED COUNTERSUNK HEAD)

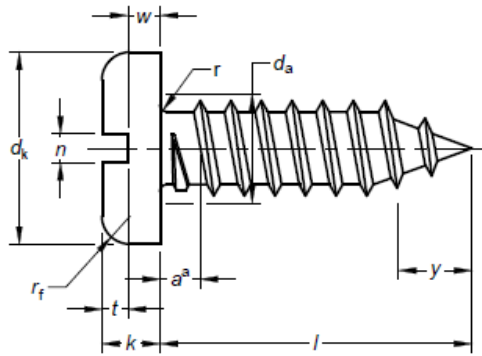


FIG. 2(A) PAN HEAD (TYPE C END)

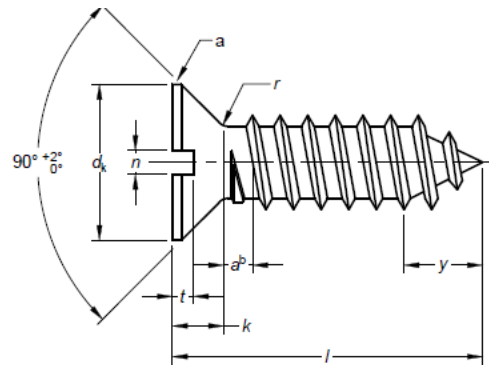


FIG. 2(B) COUNTERSUNK HEAD (TYPE C END)

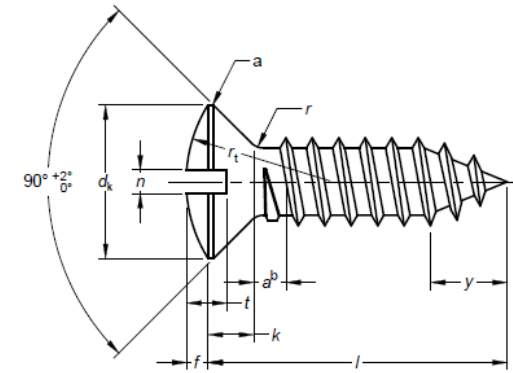


FIG. 2(C) RAISED CSK HEAD (TYPE C END)

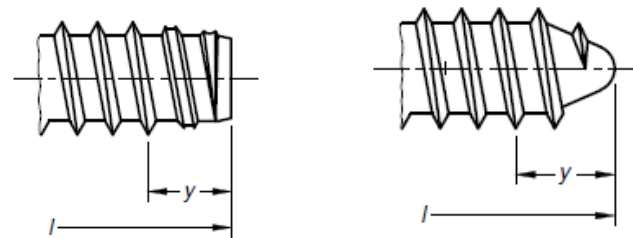


FIG. 1(D) TYPE F AND TYPE R ENDS

FIG. 2 SLOTTED SCREWS (PAN HEAD, COUNTERSUNK HEAD AND RAISED COUNTERSUNK HEAD)

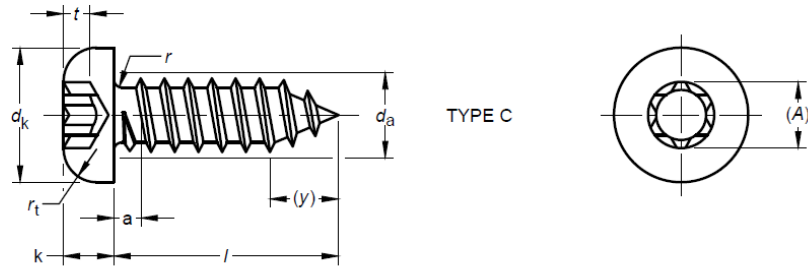


FIG. 3(A) PAN HEAD (TYPE C END)

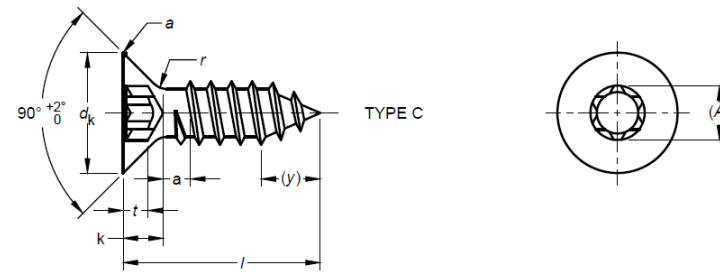


FIG. 3(B) COUNTERSUNK HEAD (TYPE C END)

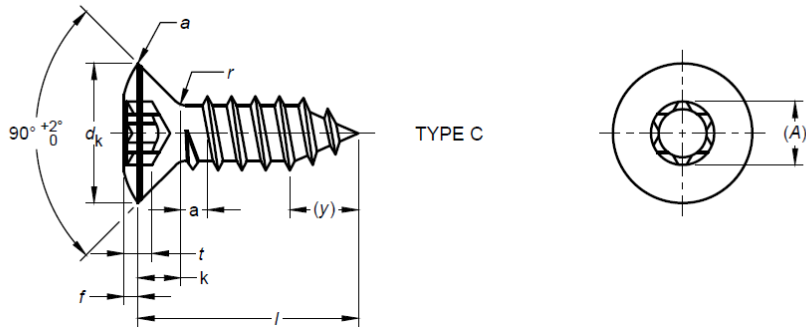


FIG. 3(C) RAISED CSK HEAD (TYPE C END)

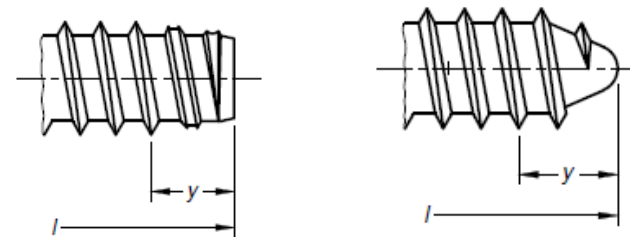


FIG. 3(D) TYPE F AND TYPE R END

FIG. 3 HEXALOBULAR SOCKET SCREWS (PAN HEAD, COUNTERSUNK HEAD AND RAISED COUNTERSUNK HEAD)

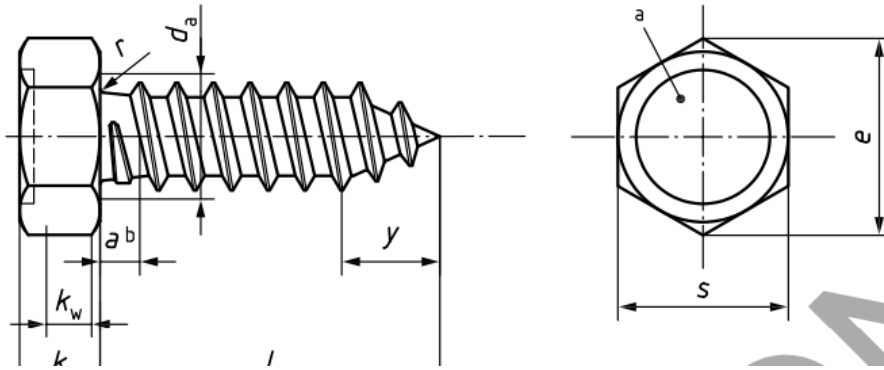


FIG. 4(A) HEXAGON HEAD (TYPE C END)

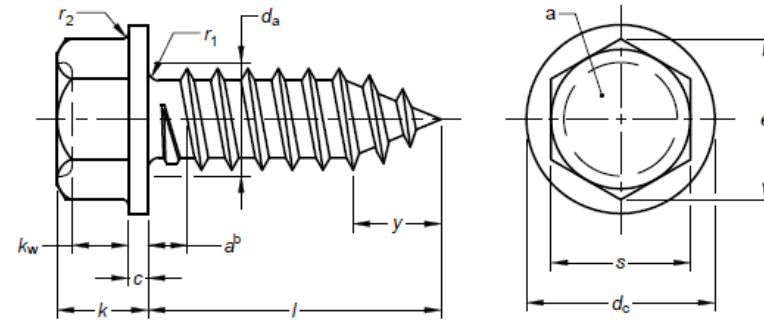


FIG. 4(B) HEXAGON WASHER HEAD (TYPE C END)

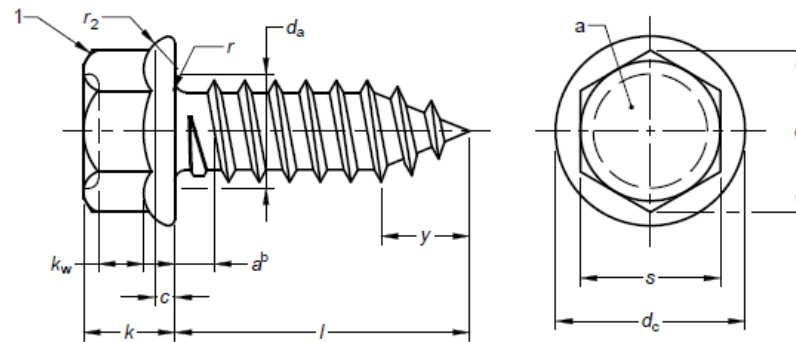


FIG. 4(C) HEXAGON FLANGE HEAD (TYPE C END)

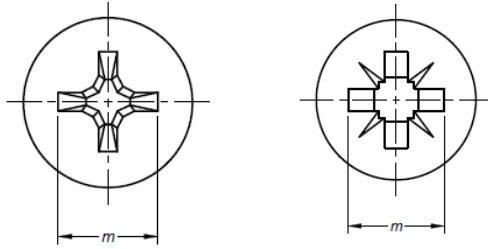


FIG. 4(D) TYPE H AND TYPE Z CROSS RECESS

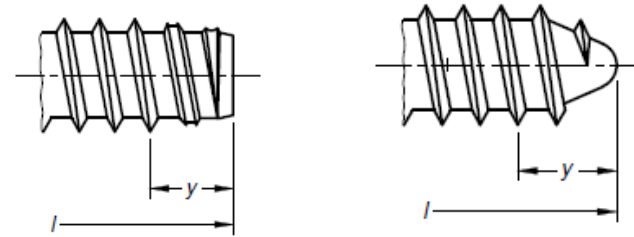


FIG. 4(E) TYPE F AND TYPE R ENDS

FIG. 4 HEXAGON HEAD SCREWS (COMMON, WASHER HEAD AND FLANGE HEAD)

Table 2 Dimensions of Cross Recessed Pan Head Screws
(Clause 3)

All dimensions in millimeters.

		Thread Size		ST 2.2	ST 2.9	ST 3.5	ST 4.2	ST 4.8	ST 5.5	ST 6.3	ST 8	ST 9.5	
(1)	(2)			(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	
i)	p^1			0.8	1.1	1.3	1.4	1.6	1.8	1.8	2.1	2.1	
ii)	a^2, Max			0.8	1.1	1.3	1.4	1.6	1.8	1.8	2.1	2.1	
iii)	d_a, Max			2.8	3.5	4.1	4.9	5.6	6.3	7.3	9.2	10.7	
iv)	d_k	<i>Max</i>		4.00	5.60	7.00	8.00	9.50	11.00	12.00	16.00	20.00	
		<i>Min</i>		3.70	5.30	6.64	7.64	9.14	10.57	11.57	15.57	19.48	
v)	k	<i>Max</i>		1.60	2.40	2.60	3.10	3.70	4.00	4.60	6.00	7.50	
		<i>Min</i>		1.40	2.15	2.35	2.80	3.40	3.70	4.30	5.60	7.10	
vi)	r, Min			0.10	0.10	0.10	0.20	0.20	0.25	0.25	0.40	0.40	
vii)	r_f	\approx		3.2	5.0	6.0	6.5	8.0	9.0	10.0	13.0	16.0	
viii)	Cross recess	Recess No		0	1	2		3		4			
		Type H	m ref.		1.9	3.0	3.9	4.4	4.9	6.4	6.9	9.0	10.1
			Penetration	<i>Max</i>	1.20	1.80	1.90	2.40	2.90	3.10	3.60	4.70	5.80
		<i>Min</i>		0.85	1.40	1.40	1.90	2.40	2.60	3.10	4.15	5.20	
		Type Z	m ref.		2.0	3.0	4.0	4.4	4.8	6.2	6.8	8.9	10.1
			Penetration	<i>Max</i>	1.20	1.75	1.90	2.35	2.75	3.00	3.50	4.50	5.70
<i>Min</i>	0.95	1.45		1.50	1.95	2.30	2.55	3.05	4.05	5.25			
ix)	y ref.	Type C		2.0	2.6	3.2	3.7	4.3	5.0	6.0	7.5	8.0	
		Type F		1.6	2.1	2.5	2.8	3.2	3.6	3.6	4.2	4.2	
		Type R		—	—	2.7	3.2	3.6	4.3	5.0	6.3	—	
		$l^{3),4)}$											

	Nom	Type C and Type R		Type F										
		Min	Max	Min	Max									
x)	4.5	3.7	5.3	3.7	4.5		—	—	—	—	—	—	—	—
xi)	6.5	5.7	7.3	5.7	6.5			—	—	—	—	—	—	—
xii)	9.5	8.7	10.3	8.7	9.5							—	—	—
xiii)	13	12.2	13.8	12.2	13.0								—	—
xiv)	16	15.2	16.8	15.2	16.0									
xv)	19	18.2	19.8	18.2	19.0			Range of preferred length						
xvi)	22	21.2	22.8	20.7	22.0									
xvii)	25	24.2	25.8	23.7	25.0									
xviii)	32	30.7	33.3	30.7	32.0									
xix)	38	36.7	39.3	36.7	38.0									
xx)	45	43.7	46.3	43.5	45.0									
xxi)	50	48.7	51.3	48.5	50.0									

¹⁾*P* = Pitch of the thread.

²⁾Dimension *a* shall be measured at the core diameter of the first full thread.

³⁾For lengths greater than 50 mm, the tolerances shall in accordance with product grade A as specified in Table 1 of IS 4206. For nominal lengths other than those specified in the table, the nearest value of the length shall be taken to calculate tolerance.

⁴⁾Sizes with lengths marked with a dash (—) cannot be manufactured.

Table 3 Dimensions of Cross Recessed Countersunk (Flat) Head Screws
(Clause 3)

All dimensions in millimeters

SI No.	Thread size		ST 2.2	ST 2.9	ST 3.5	ST 4.2	ST 4.8	ST 5.5	ST 6.3	ST 8	ST 9.5		
(1)	(2)		(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)		
i)	$p^{1)}$		0.8	1.1	1.3	1.4	1.6	1.8	1.8	2.1	2.1		
ii)	$a^2), Max$		1.6	1.2	2.6	2.8	3.2	3.6	3.6	4.1	4.2		
iii)	d_k	Theoretical ³⁾ , Max		4.4	6.3	8.2	9.4	10.4	11.5	12.6	17.3	20.0	
		Actual	Max	3.8	5.5	7.3	8.4	9.3	10.3	11.3	15.8	18.3	
			Min	3.5	5.2	6.9	8.0	8.9	9.9	10.9	15.4	17.8	
iv)	k, Max		1.10	1.70	2.35	2.60	2.80	3.00	3.15	4.65	5.25		
v)	r, Max		0.8	1.2	1.4	1.6	2.0	2.2	2.4	3.2	4.0		
vi)	Cross recess Series 1(deep)	Recess No		0	1	2		3		4			
		m ref.		1.9	3.2	4.4	4.6	5.2	6.6	6.8	8.9	10.0	
		Type H	Penetration	Max	1.2	2.1	2.4	2.6	3.2	3.3	3.5	4.6	5.7
				Min	0.9	1.7	1.9	2.1	2.7	2.8	3.0	4.0	5.1
		m ref.		2.0	3.0	4.1	4.4	4.9	6.3	6.6	8.8	9.8	
		Type Z	Penetration	Max	1.20	2.01	2.20	2.51	3.05	3.18	3.45	4.60	5.64
Min	0.95			1.76	1.75	2.06	2.60	2.73	3.00	4.15	5.19		
vii)	y ref.	Type C		2.0	2.6	3.2	3.7	4.3	5.0	6.0	7.5	8.0	
		Type F		1.6	2.1	2.5	2.8	3.2	3.6	3.6	4.2	4.2	
		Type R		—	—	2.7	3.2	3.6	4.3	5.0	6.3	—	
	$l^{4),5)}$												

	<i>Nom</i>	Type C and Type R		Type F										
		<i>Min</i>	<i>Max</i>	<i>Min</i>	<i>Max</i>									
viii)	4.5	3.7	5.3	3.7	4.5		—	—	—	—	—	—	—	—
ix)	6.5	5.7	7.3	5.7	6.5			—	—	—	—	—	—	—
x)	9.5	8.7	10.3	8.7	9.5						—	—	—	—
xi)	13	12.2	13.8	12.2	13.0								—	—
xii)	16	15.2	16.8	15.2	16.0									
xiii)	19	18.2	19.8	18.2	19.0				Range of preferred length					
xiv)	22	21.2	22.8	20.7	22.0									
xv)	25	24.2	25.8	23.7	25.0									
xvi)	32	30.7	33.3	30.7	32.0									
xvii)	38	36.7	39.3	36.7	38.0									
xviii)	45	43.7	46.3	43.5	45.0									
xix)	50	48.7	51.3	48.5	50.0									

¹⁾*P* = Pitch of the thread.

²⁾Dimension *a* shall be measured at the core diameter of the first full thread.

³⁾In accordance with IS 11362.

⁴⁾Sizes with lengths marked with a dash (—) cannot be manufactured.

⁵⁾For lengths greater than 50 mm, the tolerances shall in accordance with product grade A as specified in Table 1 of IS 4206. For nominal lengths other than those specified in the table, the nearest value of the length shall be taken to calculate tolerance.

Table 4 Dimensions of Cross Recessed Raised Countersunk (Oval) Head Screws
(Clause 3)

All dimensions in millimeters.

SI No.	Thread size		ST 2.2	ST 2.9	ST 3.5	ST 4.2	ST 4.8	ST 5.5	ST 6.3	ST 8	ST 9.5		
(1)	(2)		(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)		
i)	$p^1)$		0.8	1.1	1.3	1.4	1.6	1.8	1.8	2.1	2.1		
ii)	$a^2), Max$		1.6	1.2	2.6	2.8	3.2	3.6	3.6	4.1	4.2		
iii)	d_k	Theoretical ³⁾ , Max	4.4	6.3	8.2	9.4	10.4	11.5	12.6	17.3	20.0		
		Actual	Max	3.8	5.5	7.3	8.4	9.3	10.3	11.3	15.8	18.3	
			Min	3.5	5.2	6.9	8.0	8.9	9.9	10.9	15.4	17.8	
iv)	$f \approx$		0.5	0.7	0.8	1.0	1.2	1.3	1.4	2.0	2.3		
v)	k, Max		1.10	1.70	2.35	2.60	2.80	3.00	3.15	4.65	5.25		
vi)	r, Max		0.8	1.2	1.4	1.6	2.0	2.2	2.4	3.2	4.0		
vii)	$r_f \approx$		4.0	6.0	8.5	9.5	9.5	11.0	12.0	16.5	19.5		
viii)	Cross recess	Recess No		0	1	2		3		4			
		m ref.		1.9	3.2	4.4	4.6	5.2	6.6	6.8	8.9	10.0	
		Type H	Penetration	Max	1.2	2.1	2.4	2.6	3.2	3.3	3.5	4.6	5.7
				Min	0.9	1.7	1.9	2.1	2.7	2.8	3.0	4.0	5.1
		m ref.		2.0	3.0	4.1	4.4	4.9	6.3	6.6	8.8	9.8	
		Type Z	Penetration	Max	1.20	2.01	2.20	2.51	3.05	3.18	3.45	4.60	5.64
Min	0.95			1.76	1.75	2.06	2.60	2.73	3.00	4.15	5.19		
ix)	y ref.	Type C		2.0	2.6	3.2	3.7	4.3	5.0	6.0	7.5	8.0	
		Type F		1.6	2.1	2.5	2.8	3.2	3.6	3.6	4.2	4.2	

	Type R					—	—	2.7	3.2	3.6	4.3	5.0	6.3	—
	$l^{(4),5)}$													
	Nom	Type C and Type R		Type F										
		Min	Max	Min	Max									
x)	4.5	3.7	5.3	3.7	4.5		—	—	—	—	—	—	—	—
xi)	6.5	5.7	7.3	5.7	6.5			—	—	—	—	—	—	—
xii)	9.5	8.7	10.3	8.7	9.5						—	—	—	—
xiii)	13	12.2	13.8	12.2	13.0								—	—
xiv)	16	15.2	16.8	15.2	16.0									
xv)	19	18.2	19.8	18.2	19.0				Range of preferred length					
xvi)	22	21.2	22.8	20.7	22.0									
xvii)	25	24.2	25.8	23.7	25.0									
xviii)	32	30.7	33.3	30.7	32.0									
xix)	38	36.7	39.3	36.7	38.0									
xx)	45	43.7	46.3	43.5	45.0									
xxi)	50	48.7	51.3	48.5	50.0									

¹⁾ P = Pitch of the thread.

²⁾Dimension a shall be measured at the core diameter of the first full thread.

³⁾In accordance with IS 11362.

⁴⁾Sizes with lengths marked with a dash (—) cannot be manufactured.

⁵⁾For lengths greater than 50 mm, the tolerances shall in accordance with product grade A as specified in Table 1 of IS 4206. For nominal lengths other than those specified in the table, the nearest value of the length shall be taken to calculate tolerance.

Table 5 Dimensions of Slotted Pan Head screws
(Clause 3)

All dimension in millimeters

SI No.	Thread size		ST2.2	ST 2.9	ST 3.5	ST 4.2	ST 4.8	ST 5.5	ST 6.3	ST 8	ST 9.5
(1)	(2)		(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
i)	$P^1)$		0.8	1.1	1.3	1.4	1.6	1.8	1.8	2.1	2.1
ii)	$a^2), Max$		0.8	1.1	1.3	1.4	1.6	1.8	1.8	2.1	2.1
iii)	d_a, Max		2.8	3.5	4.1	4.9	5.5	6.3	7.1	9.2	10.7
iv)	d_k	<i>Max</i>	4.0	5.6	7.0	8.0	9.5	11.0	12.0	16.0	20.0
		<i>Min</i>	3.7	5.3	6.6	7.6	9.1	10.6	11.6	15.6	19.5
v)	k	<i>Max</i>	1.3	1.8	2.1	2.4	3.0	3.2	3.6	4.8	6.0
		<i>Min</i>	1.1	1.6	1.9	2.2	2.7	2.9	3.3	4.5	5.7
vi)	n	<i>Nom</i>	0.5	0.8	1	1.2	1.2	1.6	1.6	2	2.5
		<i>Max</i>	0.70	1.00	1.20	1.51	1.51	1.91	1.91	2.31	2.81
		<i>Min</i>	0.56	0.86	1.06	1.26	1.26	1.66	1.66	2.06	2.56
vii)	r, Max		0.10	0.10	0.10	0.20	0.20	0.25	0.25	0.40	0.40
viii)	$r_f, Ref.$		0.6	0.8	1.0	1.2	1.5	1.6	1.8	2.4	3.0
ix)	t, Min		0.5	0.7	0.8	1.0	1.2	1.3	1.4	1.9	2.4
x)	w, Min		0.5	0.7	0.8	0.9	1.2	1.3	1.4	1.9	2.4
xi)	y ref.	Type C	2.0	2.6	3.2	3.7	4.3	5.0	6.0	7.5	8.0
		Type F	1.6	2.1	2.5	2.8	3.2	3.6	3.6	4.2	4.2
		Type R	—	—	2.7	3.2	3.6	4.3	5.0	6.3	—
	$\beta^{3),4)}$										
	<i>Nom</i>	Type C and Type R		Type F							
		<i>Min</i>	<i>Max</i>	<i>Min</i>	<i>Max</i>						
xii)	4.5	3.7	5.3	3.7	4.5		—	—	—	—	—

xiii)	6.5	5.7	7.3	5.7	6.5				—	—	—	—	—	—
xiv)	9.5	8.7	10.3	8.7	9.5						—	—	—	—
xv)	13	12.2	13.8	12.2	13.0								—	—
xvi)	16	15.2	16.8	15.2	16.0									
xvii)	19	18.2	19.8	18.2	19.0									
xviii)	22	21.2	22.8	20.7	22.0				Range of preferred length					
xix)	25	24.2	25.8	23.7	25.0									
xx)	32	30.7	33.3	30.7	32.0									
xxi)	38	36.7	39.3	36.7	38.0									
xxii)	45	43.7	46.3	43.5	45.0									
xxiii)	50	48.7	51.3	48.5	50.0									

¹⁾ P = Pitch of the thread.

²⁾Dimension a shall be measured at the core diameter of the first full thread.

³⁾Sizes with lengths marked with a dash (—) cannot be manufactured.

⁴⁾For lengths greater than 50 mm, the tolerances shall in accordance with product grade A as specified in Table 1 of IS 4206. For nominal lengths other than those specified in the table, the nearest value of the length shall be taken to calculate tolerance.

Table 6 Dimensions of Slotted Countersunk Head Screws
(Clause 3)

All dimension in millimeters

SI No.	Thread size		ST 2.2	ST 2.9	ST 3.5	ST 4.2	ST 4.8	ST 5.5	ST 6.3	ST 8	ST 9.5		
(1)	(2)		(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)		
i)	$p^{1)}$		0.8	1.1	1.3	1.4	1.6	1.8	1.8	2.1	2.1		
ii)	$a^{2)}, Max$		0.8	1.1	1.3	1.4	1.6	1.8	1.8	2.1	2.1		
iii)	d_k	Theoretical ³⁾ , <i>Max</i>		4.4	6.3	8.2	9.4	10.4	11.5	12.6	17.3	20.0	
		Actual	<i>Max</i>		3.8	5.5	7.3	8.4	9.3	10.3	11.3	15.8	18.3
			<i>Min</i>		3.5	5.2	6.9	8.0	8.9	9.9	10.9	15.4	17.8
iv)	k, Max		1.10	1.70	2.35	2.60	2.80	3.00	3.15	4.65	5.25		
v)	n	<i>Nom</i>		0.5	0.8	1	1.2	1.2	1.6	1.6	2	2.5	
		<i>Max</i>		0.70	1.00	1.20	1.51	1.51	1.91	1.91	2.31	2.81	
		<i>Min</i>		0.56	0.86	1.06	1.26	1.26	1.66	1.66	2.06	2.56	
vi)	r, Max		0.8	1.2	1.4	1.6	2.0	2.2	2.4	3.2	4.0		
vi)	t	<i>Max</i>		0.60	0.85	1.20	1.30	1.40	1.50	1.60	2.30	2.60	
		<i>Min</i>		0.4	0.6	0.9	1.0	1.1	1.1	1.2	1.8	2.0	
vii)	$y, ref.$	Type C		2.0	2.6	3.2	3.7	4.3	5.0	6.0	7.5	8.0	
		Type F		1.6	2.1	2.5	2.8	3.2	3.6	3.6	4.2	4.2	
		Type R		—	—	2.7	3.2	3.6	4.3	5.0	6.3	—	
	$l^{4),5)}$												
	<i>Nom</i>	Type C and Type R		Type F									
		<i>Min</i>	<i>Max</i>	<i>Min</i>	<i>Max</i>								
viii)	4.5	3.7	5.3	3.7	4.5		—	—	—	—	—		
ix)	6.5	5.7	7.3	5.7	6.5			—	—	—	—		

x)	9.5	8.7	10.3	8.7	9.5							—	—	—	—
xi)	13	12.2	13.8	12.2	13.0									—	—
xii)	16	15.2	16.8	15.2	16.0										—
xiii)	19	18.2	19.8	18.2	19.0										
xiv)	22	21.2	22.8	20.7	22.0										
xv)	25	24.2	25.8	23.7	25.0										
xvi)	32	30.7	33.3	30.7	32.0										
xvii)	38	36.7	39.3	36.7	38.0										
xviii)	45	43.7	46.3	43.5	45.0										
xix)	50	48.7	51.3	48.5	50.0										

¹⁾ P = pitch of the thread.

²⁾Dimension a shall be measured at the core diameter of the first full thread.

³⁾In accordance with IS 11362

⁴⁾Sizes with lengths marked with a dash (—) cannot be manufactured.

⁵⁾For lengths greater than 50 mm, the tolerances shall in accordance with product grade A as specified in Table 1 of IS 4206. For nominal lengths other than those specified in the table, the nearest value of the length shall be taken to calculate tolerance.

Table 7 Dimensions of Slotted Raised Countersunk (Oval) head Screws
(Clause 3)

All dimension in millimeters

SI No.	Thread size				ST 2.2	ST 2.9	ST 3.5	ST 4.2	ST 4.8	ST 5.5	ST 6.3	ST 8	ST 9.5	
(1)	(2)				(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	
i)	P^1				0.8	1.1	1.3	1.4	1.6	1.8	1.8	2.1	2.1	
ii)	a^2 , Max				0.8	1.1	1.3	1.4	1.6	1.8	1.8	2.1	2.1	
iii)	d_k	Theoretical ³⁾ , Max			4.4	6.3	8.2	9.4	10.4	11.5	12.6	17.3	20.0	
		Actual	Max			3.8	5.5	7.3	8.4	9.3	10.3	11.3	15.8	18.3
			Min			3.5	5.2	6.9	8.0	8.9	9.9	10.9	15.4	17.8
iv)	f ≈				0.5	0.7	0.8	1.0	1.2	1.3	1.4	2.0	2.3	
v)	k , Max				1.10	1.70	2.35	2.60	2.80	3.00	3.15	4.65	5.25	
vi)	n	Nom			0.5	0.8	1	1.2	1.2	1.6	1.6	2	2.5	
		Max			0.70	1.00	1.20	1.51	1.51	1.91	1.91	2.31	2.81	
		Min			0.56	0.86	1.06	1.26	1.26	1.66	1.66	2.06	2.56	
vii)	r , Max				0.8	1.2	1.4	1.6	2.0	2.2	2.4	3.2	4.0	
viii)	r_f ≈				4.0	6.0	8.5	9.5	9.5	11.0	12.0	16.5	19.5	
ix)	t	Max			1.00	1.45	1.70	1.90	2.40	2.60	2.80	3.70	4.40	
		Min			0.8	1.2	1.4	1.6	2.0	2.2	2.4	3.2	3.8	
x)	y ref.	Type C			2.0	2.6	3.2	3.7	4.3	5.0	6.0	7.5	8.0	
		Type F			1.6	2.1	2.5	2.8	3.2	3.6	3.6	4.2	4.2	
		Type R			—	—	2.7	3.2	3.6	4.3	5.0	6.3	—	
	$l^{4),5)}$													
	Nom	Type C and Type R		Type F										
		Min	Max	Min	Max									

xi)	4.5	3.7	5.3	3.7	4.5		—	—	—	—	—	—	—	—
x)	6.5	5.7	7.3	5.7	6.5			—	—	—	—	—	—	—
xi)	9.5	8.7	10.3	8.7	9.5						—	—	—	—
xii)	13	12.2	13.8	12.2	13.0								—	—
xiii)	16	15.2	16.8	15.2	16.0									—
xiv)	19	18.2	19.8	18.2	19.0									
xv)	22	21.2	22.8	20.7	22.0				Range of preferred length					
xvi)	25	24.2	25.8	23.7	25.0									
xvii)	32	30.7	33.3	30.7	32.0									
xviii)	38	36.7	39.3	36.7	38.0									
xix)	45	43.7	46.3	43.5	45.0									
xx)	50	48.7	51.3	48.5	50.0									

¹⁾ P = pitch of the thread.

²⁾Dimension a shall be measured at the core diameter of the first full thread.

³⁾In accordance with IS 11362.

⁴⁾Sizes with lengths marked with a dash (—) cannot be manufactured.

⁵⁾For lengths greater than 50 mm, the tolerances shall in accordance with product grade A as specified in Table 1 of IS 4206. For nominal lengths other than those specified in the table, the nearest value of the length shall be taken to calculate tolerance.

Table 8 Dimensions of Hexalobular Socket Pan Head Tapping Screws
(Clause 3)

All dimension in millimeters

SI No.	Thread sizes				ST2.9	ST3.5	ST4.2	ST4.8	ST5.5	ST6.3	
(1)	(2)				(3)	(4)	(5)	(6)	(7)	(8)	
i)	P^1				1.1	1.3	1.4	1.6	1.8	1.8	
ii)	a^2				1.1	1.3	1.4	1.6	1.8	1.8	
iii)	d_a, Max				3.5	4.1	4.9	5.6	6.3	7.3	
iv)	d_k			<i>Nom = Max</i>	5.6	7.00	8.00	9.50	11.00	12.00	
				<i>Min</i>	5.3	6.64	7.64	9.14	10.57	11.57	
v)	k			<i>Nom = Max</i>	2.4	2.6	3.1	3.7	4.0	4.6	
				<i>Min</i>	2.15	2.35	2.8	3.4	3.7	4.3	
vi)	r, Min				0.1	0.1	0.2	0.2	0.25	0.25	
vii)	$r_1 \approx$				5	6	6.5	8	9	10	
viii)	y ref.			Type C	2.6	3.2	3.7	4.3	5	6	
				Type F	2.1	2.5	2.8	3.2	3.6	3.6	
				Type R	—	2.7	3.2	3.6	4.3	5	
ix)	Hexalobular socket			Socket No.		10	15	20	25	25	30
				A	Ref.	2.8	3.35	3.95	4.5	4.5	5.6
				t	<i>Max</i>	1.27	1.40	1.80	2.03	2.03	2.42
					<i>Min</i>	1.01	1.14	1.42	1.65	1.65	2.02
x)	$f^{3),4),5)}$										
	Type C and Type R		Type F								
	<i>Nom</i>	<i>Min</i>	<i>Max</i>	<i>Min</i>							<i>Max</i>
xi)	4.5	3.7	5.3	3.7	4.5	—	—	—	—	—	
xii)	6.5	5.7	7.3	5.7	6.5	—	—	—	—	—	

xiii)	9.5	8.7	10.3	8.7	9.5					—	—
xiv)	13	12.2	13.8	12.2	13.0						
xv)	16	15.2	16.8	15.2	16.0						
xvi)	19	18.2	19.8	18.2	19.0			Range of preferred lengths			
xvii)	22	21.2	22.8	20.7	22.0						
xviii)	25	24.2	25.8	23.7	25.0						
xix)	32	30.7	33.3	30.7	32.0						
xx)	38	36.7	39.3	36.7	38.0						
xxi)	45	43.7	46.3	43.5	45.0						
xxii)	50	48.7	51.3	48.5	50.0						

¹⁾ P is the pitch of the thread.

²⁾ Dimension a shall be measured at the core diameter of the first full thread.

³⁾Sizes with lengths marked with a dash (—) in this table cannot be manufactured.

⁴⁾ Preferred lengths are the ones between the bold stepped lines.

⁵⁾ For lengths greater than 50 mm, the tolerances shall in accordance with product grade A as specified in Table 1 of IS 4206. For nominal lengths other than those specified in the table, the nearest value of the length shall be taken to calculate tolerance.

Table 9 Dimensions of Hexalobular Countersunk Head Tapping Screws
(Clause 3)

All dimension in millimeters

SI No.	Thread sizes				ST2.9	ST3.5	ST4.2	ST4.8	ST5.5	ST6.3	
(1)	(2)				(3)	(4)	(5)	(6)	(7)	(8)	
i)	$P^{1)}$				1.1	1.3	1.4	1.6	1.8	1.8	
ii)	$a^{2)}$				1.1	1.3	1.4	1.6	1.8	1.8	
iii)	$d_k^{3)}$	Theoretical, <i>Max</i>			6.3	8.2	9.4	10.4	11.5	12.6	
		Actual	<i>Max</i>			5.5	7.3	8.4	9.3	10.3	11.3
			<i>Min</i>			5.2	6.9	8.0	8.9	9.9	10.9
iv)	$k^{3)}, Max$				1.7	2.35	2.6	2.8	3	3.15	
v)	r, Max				1.2	1.4	1.6	2	2.2	2.4	
vi)	y ref.	Type C			2.6	3.2	3.7	4.3	5	6	
		Type F			2.1	2.5	2.8	3.2	3.6	3.6	
		Type R			—	2.7	3.2	3.6	4.3	5	
vii)	Hexalobular socket	Socket No.			10	15	20	25	25	30	
		A	Ref.		2.8	3.35	3.95	4.5	4.5	5.6	
		t	<i>Max</i>		0.91	1.30	1.58	1.78	2.03	2.42	
			<i>Min</i>		0.65	1.00	1.14	1.39	1.65	2.02	
viii)	$l^{4),5),6)}$										
	<i>Nom</i>	Type C and Type R		Type F							
		<i>Min</i>	<i>Max</i>	<i>Min</i>	<i>Max</i>						
ix)	4.5	3.7	5.3	3.7	4.5	—	—	—	—	—	
x)	6.5	5.7	7.3	5.7	6.5	—	—	—	—	—	
xi)	9.5	8.7	10.3	8.7	9.5	—	—	—	—	—	

xii)	13	12.2	13.8	12.2	13.0						
xiii)	16	15.2	16.8	15.2	16.0						
xiv)	19	18.2	19.8	18.2	19.0						
xv)	22	21.2	22.8	20.7	22.0			Range of preferred lengths			
xvi)	25	24.2	25.8	23.7	25.0						
xvii)	32	30.7	33.3	30.7	32.0						
xviii)	38	36.7	39.3	36.7	38.0						
xix)	45	43.7	46.3	43.5	45.0						
xx)	50	48.7	51.3	48.5	50.0						

¹⁾*P* is the pitch of the thread.

²⁾Dimension *a* shall be measured at the core diameter of the first full thread.

³⁾Gauging of head dimensions is specified in IS 11362.

⁴⁾Preferred lengths are the ones between the bold stepped lines.

⁵⁾Sizes with lengths marked with a dash (—) cannot be manufactured.

⁶⁾ For lengths greater than 50 mm, the tolerances shall in accordance with product grade A as specified in Table 1 of IS 4206. For nominal lengths other than those specified in the table, the nearest value of the length shall be taken to calculate tolerance.

Table 10 Dimensions of Hexalobular Socket Raised Countersunk (Oval) Head Tapping Screws
(Clause 3)

All dimension in millimeters

Sl No.	Thread sizes				ST2.9	ST3.5	ST4.2	ST4.8	ST5.5	ST6.3
(1)	(2)				(3)	(4)	(5)	(6)	(7)	(8)
i)	$P^{1)}$				1.1	1.3	1.4	1.6	1.8	1.8
ii)	$a^{2)}$				1.1	1.3	1.4	1.6	1.8	1.8
iii)	$d_k^{3)}$	Theoretical, <i>Max</i>			6.3	8.2	9.4	10.4	11.5	12.6
		Actual	<i>Max</i>		5.5	7.3	8.4	9.3	10.3	11.3
			<i>Min</i>		5.2	6.9	8.0	8.9	9.9	10.9
iv)	$f \approx$				0.7	0.8	1	1.2	1.3	1.4
v)	$k^{3)}, Max$				1.7	2.35	2.6	2.8	3	3.15
vi)	r, Max				1.2	1.4	1.6	2	2.2	2.4
vii)	$r_f \approx$				6.0	8.5	9.5	9.5	11	12
viii)	y ref.	Type C			2.6	3.2	3.7	4.3	5	6
		Type F			2.1	2.5	2.8	3.2	3.6	3.6
		Type R			—	2.7	3.2	3.6	4.3	5
ix)	Hexalobular socket	Socket No.			10	15	20	25	25	30
		A	Ref.		2.8	3.35	3.95	4.5	4.5	5.6
		t	<i>Max</i>		1.27	1.40	1.80	2.03	2.03	2.42
			<i>Min</i>		1.01	1.14	1.42	1.65	1.65	2.02
	$l^{4),5),6)}$									
	Nom	Type C and Type R		Type F						
		<i>Min</i>	<i>Max</i>	<i>Min</i>	<i>Max</i>					
x)	4.5	3.7	5.3	3.7	4.5	—	—	—	—	—
xi)	6.5	5.7	7.3	5.7	6.5	—	—	—	—	—

xii)	9.5	8.7	10.3	8.7	9.5					—	—
xiii)	13	12.2	13.8	12.2	13.0						
xiv)	16	15.2	16.8	15.2	16.0						
xv)	19	18.2	19.8	18.2	19.0			Range of preferred lengths			
xvi)	22	21.2	22.8	20.7	22.0						
xvii)	25	24.2	25.8	23.7	25.0						
xviii)	32	30.7	33.3	30.7	32.0						
xix)	38	36.7	39.3	36.7	38.0						
xxi)	45	43.7	46.3	43.5	45.0						
xxii)	50	48.7	51.3	48.5	50.0						

¹⁾*P* is the pitch of the thread.

²⁾Dimension *a* shall be measured at the core diameter of the first full thread.

³⁾Gauging of head dimensions is specified in IS 11362.

⁴⁾Preferred lengths are the ones between the bold stepped lines.

⁵⁾Sizes with lengths marked with a dash (—) cannot be manufactured.

⁶⁾ For lengths greater than 50 mm, the tolerances shall in accordance with product grade A as specified in Table 1 of IS 4206. For nominal lengths other than those specified in the table, the nearest value of the length shall be taken to calculate tolerance.

Table 11 Dimensions of Hexagon Head Tapping Screws
(Clause 3)

All dimension in millimeters

Sl No.	Thread size		ST2.2	ST2.9	ST3.5	ST4.2	ST4.8	ST5.5	ST6.3	ST8	ST9.5
(1)	(2)		(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
i)	P^1		0.8	1.1	1.3	1.4	1.6	1.8	1.8	2.1	2.1
ii)	a^2	Max	0.8	1.1	1.3	1.4	1.6	1.8	1.8	2.1	2.1
iii)	d_a		2.8	3.5	4.1	4.9	5.5	6.3	7.1	9.2	10.7
iv)	s	Max	3.20	5.00	5.00	7.00	8.00	8.00	10.00	13.00	16.00
		Min	3.02	4.82	5.32	6.78	7.78	7.78	9.78	12.73	15.73
v)	e		3.38	5.40	5.96	7.59	8.71	8.71	10.95	14.26	17.62
vi)	k	Max	1.6	2.3	2.6	3.0	3.8	4.1	4.7	6.0	7.5
		Min	1.3	2.0	2.3	2.6	3.3	3.6	4.1	5.2	6.5
vii)	k_w		0.9	1.4	1.6	1.8	2.3	2.5	2.9	3.6	4.5
viii)	r		0.10	0.10	0.10	0.20	0.20	0.25	0.25	0.40	0.40
ix)	y ref.	Type C	2.0	2.6	3.2	3.7	3.7	5.0	6.0	7.5	8.0
		Type F	1.6	2.1	2.5	2.8	2.8	3.6	3.6	4.2	4.2
		Type R	—	—	2.7	3.2	3.2	4.3	5.0	6.3	—
	$f^{3),4),5)}$										
	Nom	Type C and Type R		Type F							
		Min	Max	Min	Max						
x)	4.5	3.7	5.3	3.7	4.5		—	—	—	—	—
xi)	6.5	5.7	7.3	5.7	6.5			—	—	—	—
xii)	9.5	8.7	10.3	8.7	9.5				—	—	—
xiii)	13	12.2	13.8	12.2	13.0						—
xiv)	16	15.2	16.8	15.2	16.0			Range of preferred lengths			
xv)	19	18.2	19.8	18.2	19.0						

xvi)	22	21.2	22.8	20.7	22.0									
xvii)	25	24.2	25.8	23.7	25.0									
xviii)	32	30.7	33.3	30.7	32.0									
xix)	38	36.7	39.3	36.7	38.0									
xx)	45	43.7	46.3	43.5	45.0									
xxi)	50	48.7	51.3	48.5	50.0									

¹⁾*P* is the pitch of the thread.

²⁾ Dimension *a* shall be measured at the core diameter of the first full thread.

³⁾ Sizes with lengths marked with a dash (—) cannot be manufactured.

⁴⁾ For lengths greater than 50 mm, the tolerances shall in accordance with product grade A as specified in Table 1 of IS 4206. For nominal lengths other than those specified in the table, the nearest value of the length shall be taken to calculate tolerance.

⁵⁾ Preferred lengths are the ones between the bold stepped lines.

Table 12 Dimensions of Hexagon Washer Head
(Clause 3)

All dimension in millimeters

SI No.	Thread size					ST2.2	ST2.9	(ST3.5)	ST3.9	ST4.22	ST4.8	(ST5.5)	ST6.3	ST8
(1)	(2)					(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
i)	P^1					0.8	1.1	1.3	1.3	1.4	1.6	1.8	1.8	2.1
ii)	a^2, Max					0.8	1.1	1.3	1.3	1.4	1.6	1.8	1.8	2.1
iii)	c, Min					0.25	0.4	0.6	0.6	0.8	0.9	1.0	1.0	1.2
iv)	d_a, Max					2.8	3.5	4.1	4.6	4.9	5.6	6.3	7.3	9.2
v)	d_c	Max				4.2	6.3	8.3	8.3	8.8	10.5	11.0	13.5	18.0
		Min				3.8	5.8	7.6	7.6	8.1	9.8	10.0	12.2	16.7
vi)	e, Min					3.20	4.28	5.96	5.96	7.59	8.71	8.71	10.95	14.26
vii)	k, Max	$Nom = Max$				2.0	2.8	3.4	3.4	4.1	4.3	5.4	5.9	7.0
		Min				1.7	2.5	3.0	3.0	3.6	3.8	4.8	5.3	6.4
viii)	k_w, Min					0.9	1.3	1.5	1.5	1.8	2.2	2.7	3.1	3.3
ix)	r_1, Min					0.1	0.1	0.1	0.2	0.2	0.2	0.25	0.25	0.4
x)	r_2, Max					0.15	0.2	0.25	0.25	0.3	0.3	0.4	0.5	0.6
xi)	s	$Nom = max$				3.00	4.00	5.50	5.50	7.00	8.00	8.00	10.00	13.00
		Min				2.86	3.82	5.32	5.32	6.78	7.87	7.78	9.78	12.73
xii)	y ref.	Type C				2.0	2.6	3.2	3.5	3.7	4.3	5.0	6.0	7.5
		Type F				1.6	2.1	2.5	2.7	2.8	3.2	3.6	3.6	4.2
		Type R				—	—	2.7	3.0	3.2	3.6	4.3	5.0	6.3
xiii)	$l^{(3),(4),(5)}$													
	Nom	Type C and type R		Type F										
		Min	Max	Min	Max									
xiv)	4.5	3.7	5.3	3.7	4.5	Screws with too short lengths								
xv)	6.5	5.7	7.3	5.7	6.5									
xvi)	9.5	8.7	10.3	8.7	9.5									

xvii)	13	12.2	13.8	12.2	13.0									
xviii)	16	15.2	16.8	15.2	16.0									
xix)	19	18.2	19.8	18.2	19.0				Range of preferred lengths					
xx)	22	21.2	22.8	20.7	22.0									
xxi)	25	24.2	25.8	23.7	25.0									
xxii)	32	30.7	33.3	30.7	32.0									
xxiii)	38	36.7	39.3	36.7	38.0		Lengths to be agreed between the purchaser and the manufacturer							
xxiv)	45	43.7	46.3	43.5	45.0									
xxv)	50	48.7	51.3	48.5	50.0									

¹⁾*P* is the pitch of the thread.

²⁾Dimension *a* shall be measured at the core diameter of the first full thread.

³⁾Preferred lengths are the ones between the bold stepped lines.

⁴⁾Sizes with lengths marked with a dash (—) cannot be manufactured.

⁵⁾ For lengths greater than 50 mm, the tolerances shall in accordance with product grade A as specified in Table 1 of IS 4206. For nominal lengths other than those specified in the table, the nearest value of the length shall be taken to calculate tolerance.

NOTES — Thread sizes shown in brackets are non-preferred diameters.

Table 13 Dimensions of Hexagon Flange Head Screws
(Clause 3)

All dimensions are in millimeters.

SI No.	Thread size		ST2.2	ST2.9	ST3.5	ST4.2	ST4.8	ST5.5	ST6.3	ST8	ST9.5
(1)	(2)		(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
i)	P^1		0.8	1.1	1.3	1.4	1.6	1.8	1.8	2.1	2.1
ii)	a^2 , Max		0.8	1.1	1.3	1.4	1.6	1.8	1.8	2.1	2.1
iii)	d_a , Max		2.8	3.5	4.1	4.9	5.6	6.3	7.3	9.2	10.7
iv)	d_c	Max	4.5	6.4	7.5	8.5	10.0	11.2	12.8	16.8	21.0
		Min	4.1	5.9	6.9	7.8	9.3	10.3	11.8	15.5	19.3
v)	c , Min		0.3	0.4	0.5	0.6	0.6	0.8	1.0	1.2	1.4
vi)	s	Nom=Max	3.00	4.00	5.00	5.50	7.00	7.00	8.00	10.00	13.00
		Min	2.86	3.82	4.82	5.32	6.78	6.78	7.78	9.78	12.73
vii)	e , Min		3.16	4.27	5.36	5.92	7.55	7.55	8.66	10.89	14.16
viii)	k , Max		2.2	3.2	3.8	4.3	5.2	6.0	6.7	8.6	10.7
ix)	k_w , Min		0.85	1.25	1.60	1.80	2.20	2.50	2.80	3.70	4.60
x)	r_1 , Min		0.1	0.1	0.1	0.2	0.2	0.2	0.3	0.4	0.4
xi)	r_2 , Max		0.1	0.2	0.2	0.2	0.3	0.3	0.4	0.5	0.6
xii)	y ref.	Type C	2.0	2.6	3.2	3.7	4.3	5.0	6.0	7.5	8.0
		Type F	1.6	2.1	2.5	2.8	3.2	3.6	3.6	4.2	4.2
		Type R	—	—	2.7	3.2	3.6	4.3	5.0	6.3	—
	$l^{3),4),5)}$										
	Nom	Type C and type R		Type F							
		Min	Max	Min	Max						
xiii)	4.5	3.7	5.3	3.7	4.5		—	—	—	—	—
xiv)	6.5	5.7	7.3	5.7	6.5			—	—	—	—
xv)	9.5	8.7	10.3	8.7	9.5				—	—	—

xvi)	13	12.2	13.8	12.2	13.0									—	—
xvii)	16	15.2	16.8	15.2	16.0										—
xviii)	19	18.2	19.8	18.2	19.0										
xix)	22	21.2	22.8	20.7	22.0				Range of preferred length						
xx)	25	24.2	25.8	23.7	25.0										
xxi)	32	30.7	33.3	30.7	32.0										
xxii)	38	36.7	39.3	36.7	38.0										
xxiii)	45	43.7	46.3	43.5	45.0										
xxiv)	50	48.7	51.3	48.5	50.0										

¹⁾*P* is the pitch of the thread.

²⁾Dimension *a* shall be measured at the core diameter of the first full thread.

³⁾Preferred lengths are the ones between the bold stepped lines.

⁴⁾Sizes with lengths marked with a dash (—) cannot be manufactured.

⁵⁾ For lengths greater than 50 mm, the tolerances shall in accordance with product grade A as specified in Table 1 of IS 4206. For nominal lengths other than those specified in the table, the nearest value of the length shall be taken to calculate tolerance.

ANNEX A*(Clause 2)***LIST OF REFERRED STANDARDS**

<i>IS No.</i>	<i>Title</i>
IS 1367 (Part 1) : 2014/ ISO 8992 : 2005	Technical supply conditions for threaded steel fasteners: Part 1 General requirements for bolts, screws, studs and nuts (<i>fourth revision</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 11) : 2024/ ISO 4042 : 2022	Technical supply conditions for threaded steel fasteners: Part 11 Electroplated coating systems (<i>fifth revision</i>)
IS 1367 (Part 13) : 2020/ ISO 10684 : 2004	Technical supply conditions for threaded steel fasteners: Part 13 Hot dip galvanized coatings on threaded fasteners (<i>third 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 screw
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 4206 : 2012/ ISO 888 : 2012	Dimensions for nominal lengths and thread lengths for bolts, screws and studs (<i>second revision</i>)
IS 5957 : 2003/ ISO 1478 : 1999	Screw threads for thread forming tapping screws dimensions (<i>second revision</i>)
IS 7178 : 2018/ ISO 2702 : 2011	Heat treated steel tapping screws — Mechanical properties (<i>fourth revision</i>)
IS 7478 : 2011/ ISO 4757 : 1983	Cross recesses for screws (<i>second revision</i>)
IS/ISO 10683 : 2018	Fasteners — Non-electrolytically applied zinc flake coating systems
IS 11362 : 1985/ ISO 7721 : 1983	Head configuration and gauging of countersunk head screws
IS 19056 : 2024/ ISO 16048 : 2003	Passivation of corrosion-resistant stainless-steel fasteners
ISO 10664 : 2014	Hexalobular internal driving feature for bolts and screws