IS 2269 (2006): Hexagon Socket Head Cap Screws [PGD 31: Bolts, Nuts and Fasteners Accessories]

BLANK PAGE

IS 2269 : 2006
ISO 4762 : 2004

भारतीय मानक

षटकोणी सॉकेट शीर्ष टोपी वाले पेंच

(पाँचवा पुनरीक्षण)

Indian Standard

HEXAGON SOCKET HEAD CAP SCREWS

(Fifth Revision)

ICS 21.060.10

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

January 2006

Price Group 6

Bolts, Nuts and Fasteners Accessories Sectional Committee, PG 31

NATIONAL FOREWORD

This Indian Standard (Fifth Revision) which is identical with ISO 4762 : 2004 'Hexagon socket head cap screws' issued by the International Organization for Standardization (ISO) was adopted by the Bureau of Indian Standards on the recommendation of the Bolts, Nuts and Fasteners Accessories Sectional Committee and approval of the Medical Instruments, General and Production Engineering Division Council.

This standard was originally published in 1963 and subsequently revised in 1967, 1981, 1995 and 2002. The fourth revision was harmonized with ISO 4762 : 1997 by adopting under dual number. Consequent upon the revision of ISO 4762 in 2003, the Sectional Committee decided to revise this Indian Standard to align it with ISO 4762 : 2003 by adoption under dual number.

In this revision the following major changes have made:

a) The details of 'Gauging of hexagon socket' have been deleted as a separate Indian Standard will be formulated on 'Gauging of hexagon socket' reference of which is given in this standard.

b) Figure 1 has been technically revised.

c) The maximum value of s^f (*see* Table 1) for sizes up to M 16 has been made applicable to all property classes.

d) The hardness requirement for screws unsuitable for tensile strength has been deleted from Table 2.

e) 'Black oxide finish' (thermal or chemical) has been replaced by 'As processed finish'.

f) The provision of non-electrolytically applied zinc flake coatings have been made.

The text of ISO Standard has been approved as suitable for publication as an Indian Standard without deviations. Certain terminology and conventions are, however, not identical to those used in Indian Standards. Attention is drawn especially to the following:

a) Wherever the words 'International Standard' appear referring to this standard, they should be read as 'Indian Standard'.

b) Comma (,) has been used as a decimal marker while in Indian Standards, the current practice is to use a point (.) as the decimal marker.

In this adopted standard, reference appears to certain International Standards for which Indian Standards also exist. The corresponding Indian Standards, which are to be substituted in their places, are given below along with their degree of equivalence for the editions indicated:

International Standard	*Corresponding Indian Standard*	*Degree of Equivalence*
ISO 225 : 1983 Fasteners — Bolts, screws, studs and nuts — Symbols and designations of dimensions	IS 8536 : 1987 Fasteners — Bolts, screws, studs and nuts — Symbols and designations of dimensions (*first revision*)	Identical
ISO 261 : 1998 ISO general — purpose metric screw threads — General plan	IS 4218 (Part 2) : 2001 ISO general purpose metric screw threads: Part 2 General plan (*second revision*)	do

International Standard	*Corresponding Indian Standard*	*Degree of Equivalence*
ISO 888 : 1976 Bolts, screws and studs — Nominal lengths, and thread lengths for general purpose bolts	IS 4206 : 1987 Dimensions for nominal lengths and thread lengths for bolts, screws and studs (*first revision*)	Identical
ISO 898-1 : 1999 Mechanical properties of fasteners made of carbon steel and alloy steel — Part 1 : Bolts, screws and studs	IS 1367 (Part 3) : 2002 Technical supply conditions for threaded steel fasteners: Part 3 Mechanical properties of fasteners made of carbon steel and alloy steel — Bolts, screws and studs (*fourth revision*)	do
ISO 965-2 : 1998 ISO general purpose metric screw threads — Tolerances — Part 2 : Limits of sizes for general purpose external and internal screw threads — Medium quality	IS 14962 (Part 2) : 2002 ISO general purpose metric screw threads — Tolerances: Part 2 Limits of sizes for general purpose external and internal screw threads — Medium quality	do
ISO 965-3 : 1998 ISO general purpose metric screw threads — Tolerances — Part 3 : Deviations for constructional screw threads	IS 14962 (Part 3) : 2002 ISO general purpose metric screw threads — Tolerances: Part 3 Deviations for constructional screw threads	do
ISO 3269 : 2000 Fasteners — Acceptance inspection	IS 1367 (Part 17) : 2004 Technical supply conditions for threaded steel fasteners: Part 17 Inspection, sampling and acceptance procedure (*fourth revision*)	do
ISO 3506-1 : 1997 Mechanical properties of corrosion-resistant stainless-steel fasteners — Part 1 : Bolts, screws and studs	IS 1367 (Part 14/Sec 1) : 2002 Technical supply conditions for threaded steel fasteners: Part 14 Mechanical properties of corrosion-resistant stainless-steel fasteners, Section 1 Bolts, screws and studs (*third revision*)	do
ISO 4042 : 1999 Fasteners — Electroplated coatings	IS 1367 (Part 11) : 2002 Technical supply conditions for threaded steel fasteners: Part 11 Electroplated coatings (*third revision*)	do
ISO 4753 : 1999 Fasteners — Ends of parts with external ISO metric thread	IS 1368 : 2002 Fasteners — Ends of parts with external ISO metric thread (*fourth revision*)	do
ISO 4759-1 : 2000 Tolerances for fasteners — Part 1 : Bolts, screws, studs and nuts — Product grades A, B and C	IS 1367 (Part 2) : 2002 Technical supply conditions for threaded steel fasteners: Part 2 Tolerances for fasteners — Bolts, screws, studs and nuts — Product grades A, B and C (*third revision*)	do
ISO 6157-1 : 1988 Fasteners — Surface discontinuities — Part 1 : Bolts, screws and studs for general requirements	IS 1367 (Part 9/Sec 1) : 1993 Technical supply conditions for threaded steel fasteners: Part 9 Surface discontinuities, Section 1 Bolts, screws and studs for general applications (*third revision*)	do

International Standard	*Corresponding Indian Standard*	*Degree of Equivalence*
ISO 6157-3 : 1988 Fasteners — Surface discontinuities — Part 3 : Bolts, screws and studs for special requirements	IS 1367 (Part 9/Sec 2) : 1993 Technical supply conditions for threaded steel fasteners: Part 9 Surface discontinuities, Section 2 Bolts, screws and studs for special applications (*third revision*)	Identical
ISO 8992 : 1986 Fasteners — General requirements for bolts, screws, studs and nuts	IS 1367 (Part 1) : 2002 Technical supply conditions for threaded steel fasteners: Part 1 Introduction and general information (*third revision*)	do

The technical committee has reviewed the provisions of following International Standards referred in this adopted standard and has decided that they are acceptable for use in conjunction with this standard:

International Standard	*Title*
ISO 8839 : 1986	Mechanical properties of fasteners — Bolts, screws, studs and nuts made of non-ferrous metals
ISO 10683 : 2003	Fasteners — Non-electrolytically applied zinc flake coatings
ISO 23429 : 2003	Gauging of hexagon sockets

As decided by the Committee additional requirements of Packaging and BIS Certification Marking are given in National Annex A. These additional requirements are part of this standard.

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 'Rules for rounding off numerical values (*revised*)'. The number of significant places retained in the rounded off values should be the same as that of the specified value in this standard.

Indian Standard
HEXAGON SOCKET HEAD CAP SCREWS
(Fifth Revision)

1 Scope

This International Standard specifies the characteristics of hexagon socket head cap screws with coarse pitch thread from M1,6 up to and including M64 and product grade A.

For approximate masses of screws see Annex A.

If, in special cases, specifications other than those listed in this International Standard are required, they should be selected from existing International Standards, e.g ISO 261, ISO 888, ISO 898-1, ISO 965-2. ISO 3506-1, ISO 8839 and ISO 4759-1.

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 225, *Fasteners — Bolts, screws, studs and nuts — Symbols and designations of dimensions*

ISO 261, *ISO general-purpose metric screw threads — General plan*

ISO 888, *Bolts, screws and studs — Nominal lengths, and thread lengths for general purpose bolts*

ISO 898-1, *Mechanical properties of fasteners made of carbon steel and alloy steel — Part 1: Bolts, screws and studs*

ISO 965-2, *ISO general purpose metric screw threads — Tolerances — Part 2: Limits of sizes for general purpose external and internal screw threads — Medium quality*

ISO 965-3, *ISO general purpose metric screw threads — Tolerances — Part 3: Deviations for constructional screw threads*

ISO 3269, *Fasteners — Acceptance inspection*

ISO 3506-1, *Mechanical properties of corrosion-resistant stainless-steel fasteners — Part 1: Bolts, screws and studs*

ISO 4042, *Fasteners — Electroplated coatings*

ISO 4753, *Fasteners — Ends of parts with external ISO metric thread*

ISO 4759-1, *Tolerances for fasteners — Part 1: Bolts, screws, studs and nuts — Product grades A, B and C*

ISO 6157-1, *Fasteners — Surface discontinuities — Part 1: Bolts, screws and studs for general requirements*

ISO 6157-3, *Fasteners — Surface discontinuities — Part 3: Bolts, screws and studs for special requirements*

ISO 8839, *Mechanical properties of fasteners — Bolts, screws, studs and nuts made of non-ferrous metals*

ISO 8992, *Fasteners — General requirements for bolts, screws, studs and nuts*

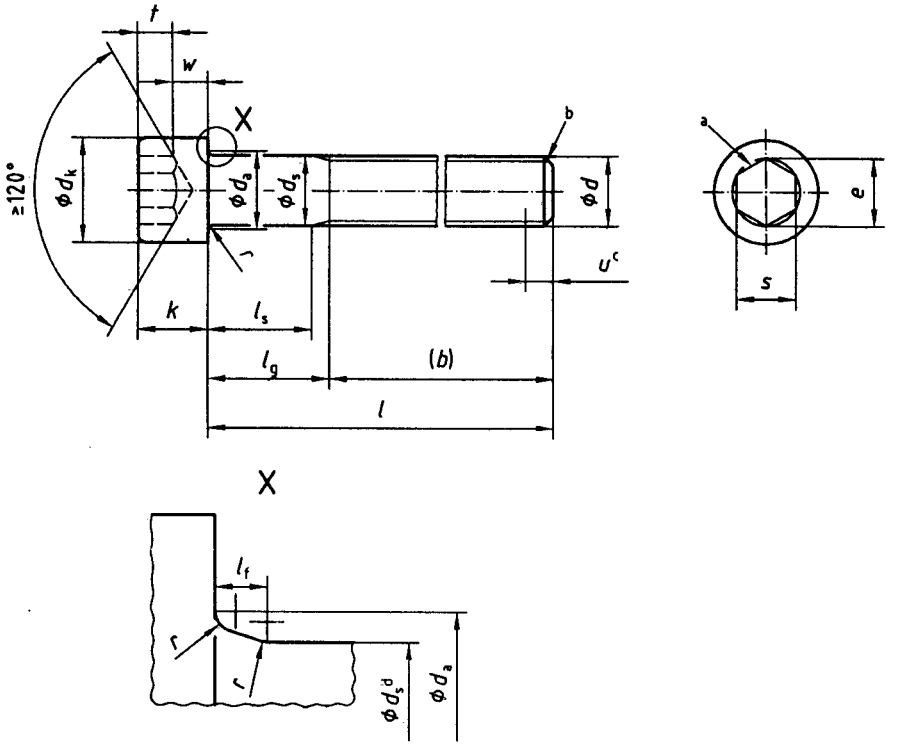
ISO 10683, *Fasteners — Non-electrolytically applied zinc flake coatings*

ISO 23429, *Gauging of hexagon sockets*

3 Dimensions

See Figure 1 and Table 1.

Symbols and designations of dimensions are defined in ISO 225.



Maximum underhead fillet

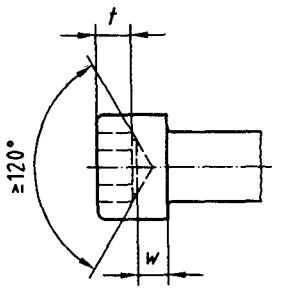
$l_{f,\,max} = 1{,}7\, r_{max}$

$r_{max} = \frac{d_{a,\,max} - d_{s,\,max}}{2}$

r_{min}, see Table 1

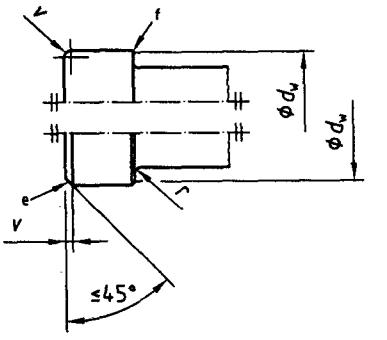
Figure 1

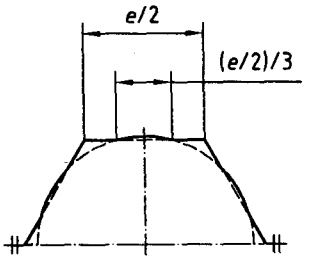
Permissible alternative form of socket



For broached sockets which are at the maximum limit of size the overcut resulting from drilling shall not exceed 1/3 of the length of any flat of the socket which is $e/2$.

Top and bottom edge opf the head





[a] A slight rounding or countersink at the mouth of the socket is permissible.

[b] Point chamfered or for sizes M4 and below "as rolled" according to ISO 4753.

[c] Incomplete thread $u \leqslant 2P$.

[d] d_s applies if values of $l_{s,\,min}$ are specified.

[e] Top edge of head may be rounded or chamfered as shown at the option of the manufacturer.

[f] Bottom edge of head may be rounded or chamfered to d_w but in every case shall be free from burrs.

Figure 1 (*continued*)

Table 1 — Dimensions

Dimensions in millimetres

Thread (d)		M1,6	M2	M2,5	M3	M4	M5	M6	M8	M10	M12
P[a]		0,35	0,4	0,45	0,5	0,7	0,8	1	1,25	1,5	1,75
b[b]	ref.	15	16	17	18	20	22	24	28	32	36
d_k	max.[c]	3,00	3,80	4,50	5,50	7,00	8,50	10,00	13,00	16,00	18,00
	max.[d]	3,14	3,98	4,68	5,68	7,22	8,72	10,22	13,27	16,27	18,27
	min.	2,86	3,62	4,32	5,32	6,78	8,28	9,78	12,73	15,73	17,73
d_a	max.	2	2,6	3,1	3,6	4,7	5,7	6,8	9,2	11,2	13,7
d_s	max.	1,60	2,00	2,50	3,00	4,00	5,00	6,00	8,00	10,00	12,00
	min.	1,46	1,86	2,36	2,86	3,82	4,82	5,82	7,78	9,78	11,73
e[e, f]	min.	1,733	1,733	2,303	2,873	3,443	4,583	5,723	6,863	9,149	11,429
l_f	max	0,34	0,51	0,51	0,51	0,6	0,6	0,68	1,02	1,02	1,45
k	max.	1,60	2,00	2,50	3,00	4,00	5,00	6,0	8,00	10,00	12,00
	min.	1,46	1,86	2,36	2,86	3,82	4,82	5,7	7,64	9,64	11,57
r	min.	0,1	0,1	0,1	0,1	0,2	0,2	0,25	0,4	0,4	0,6
s[f]	nom.	1,5	1,5	2	2,5	3	4	5	6	8	10
	max.	1,58	1,58	2,08	2,58	3,08	4,095	5,14	6,14	8,175	10,175
	min.	1,52	1,52	2,02	2,52	3,02	4,020	5,02	6,02	8,025	10,025
t	min.	0,7	1	1,1	1,3	2	2,5	3	4	5	6
v	max.	0,16	0,2	0,25	0,3	0,4	0,5	0,6	0,8	1	1,2
d_w	min	2,72	3,48	4,18	5,07	6,53	8,03	9,38	12,33	15,33	17,23
w	min.	0,55	0,55	0,85	1,15	1,4	1,9	2,3	3,3	4	4,8

l^g			Shank length l_s and grip length l_g																			
			l_s	l_g	l_s	l_g	l_s	l_g	l_s	l_g	l_s	l_g	l_s	l_g	l_s	l_g	l_s	l_g	l_s	l_g	l_s	l_g
nom.	min.	max.	min.	max.	min.	max.	min.	max.	min.	max.	min.	max.	min.	max.	min.	max.	min.	max.	min.	max.	min.	max.
2,5	2,3	2,7																				
3	2,8	3,2																				
4	3,76	4,24																				
5	4,76	5,24																				
6	5,76	6,24																				
8	7,71	8,29																				
10	9,71	10,29																				
12	11,65	12,35																				

Table 1 — Dimensions (*continued*)

16	15,65	16,35																				
20	19,58	20,42			2	4																
25	24,58	25,42					5,75	8	4,5	7												
30	29,58	30,42							9,5	12	6,5	10	4	8								
35	34,5	35,5									11,5	15	9	13	6	11						
40	39,5	40,5									16,5	20	14	18	11	16	5,75	12				
45	44,5	45,5											19	23	16	21	10,75	17	5,5	13		
50	49,5	50,5											24	28	21	26	15,75	22	10,5	18		
55	54,4	55,6													26	31	20,75	27	15,5	23	10,25	19
60	59,4	60,6													31	36	25,75	32	20,5	28	15,25	24
65	64,4	65,6															30,75	37	25,5	33	20,25	29
70	69,4	70,6															35,75	42	30,5	38	25,25	34
80	79,4	80,6															45,75	52	40,5	48	35,25	44
90	89,3	90,7																	50,5	58	45,25	54
100	99,3	100,7																	60,5	68	55,25	64
110	109,3	110,7																			65,25	74
120	119,3	120,7																			75,25	84
130	129,2	130,8																				
140	139,2	140,8																				
150	149,2	150,8																				
160	159,2	160,8																				
180	179,2	180,8																				
200	199,075	200,925																				
220	219,075	220,925																				
240	239,075	240,925																				
260	258,95	261,05																				
280	278,95	281,05																				
300	298,95	301,05																				

Table 1 — Dimensions (*continued*)

Dimensions in millimetres

Thread (d)		(M14)[h]	M16	M20	M24	M30	M36	M42	M48	M56	M64
P[a]		2	2	2,5	3	3,5	4	4,5	5	5,5	6
b[b]	ref.	40	44	52	60	72	84	96	108	124	140
d_k	max.[c]	21,00	24,00	30,00	36,00	45,00	54,00	63,00	72,00	84,00	96,00
	max.[d]	21,33	24,33	30,33	36,39	45,39	54,46	63,46	72,46	84,54	96,54
	min.	20,67	23,67	29,67	35,61	44,61	53,54	62,54	71,54	83,46	95,46
d_a	max.	15,7	17,7	22,4	26,4	33,4	39,4	45,6	52,6	63	71
d_s	max.	14,00	16,00	20,00	24,00	30,00	36,00	42,00	48,00	56,00	64,00
	min.	13,73	15,73	19,67	23,67	29,67	35,61	41,61	47,61	55,54	63,54
e[e, f]	min.	13,716	15,996	19,437	21,734	25,154	30,854	36,571	41,131	46,831	52,531
l_f	max	1,45	1,45	2,04	2,04	2,89	2,89	3,06	3,91	5,95	5,95
k	max.	14,00	16,00	20,00	24,00	30,00	36,00	42,00	48,00	56,00	64,00
	min.	13,57	15,57	19,48	23,48	29,48	35,38	41,38	47,38	55,26	63,26
r	min.	0,6	0,6	0,8	0,8	1	1	1,2	1,6	2	2
s[f]	nom.	12	14	17	19	22	27	32	36	41	46
	max.	12,212	14,212	17,23	19,275	22,275	27,275	32,33	36,33	41,33	46,33
	min.	12,032	14,032	17,05	19,065	22,065	27,065	32,08	36,08	41,08	46,08
t	min.	7	8	10	12	15,5	19	24	28	34	38
v	max.	1,4	1,6	2	2,4	3	3,6	4,2	4,8	5,6	6,4
d_w	min	20,17	23,17	28,87	34,81	43,61	52,54	61,34	70,34	82,26	94,26
w	min.	5,8	6,8	8,6	10,4	13,1	15,3	16,3	17,5	19	22

l^g			Shank length l_s and grip length l_g																			
			l_s	l_g	l_s	l_g	l_s	l_g	l_s	l_g	l_s	l_g	l_s	l_g	l_s	l_g	l_s	l_g	l_s	l_g	l_s	l_g
nom.	min.	max.	min.	max.	min.	max.	min.	max.	min.	max.	min.	max.	min.	max.	min.	max.	min.	max.	min.	max.	min.	max.
2,5	2,3	2,7																				
3	2,8	3,2																				
4	3,76	4,24																				
5	4,76	5,24																				
6	5,76	6,24																				
8	7,71	8,29																				
10	9,71	10,29																				
12	11,65	12,35																				

Table 1 — Dimensions (*continued*)

16	15,65	16,35																				
20	19,58	20,42																				
25	24,58	25,42																				
30	29,58	30,42																				
35	34,5	35,5																				
40	39,5	40,5																				
45	44,5	45,5																				
50	49,5	50,5																				
55	54,4	55,6																				
60	59,4	60,6	10	20																		
65	64,4	65,6	15	25	11	21																
70	69,4	70,6	20	30	16	26																
80	79,4	80,6	30	40	26	36	15,5	28														
90	89,3	90,7	40	50	36	46	25,5	38	15	30												
100	99,3	100,7	50	60	46	56	35,5	48	25	40												
110	109,3	110,7	60	70	56	66	45,5	58	35	50	20,5	38										
120	119,3	120,7	70	80	66	76	55,5	68	45	60	30,5	48	16	36								
130	129,2	130,8	80	90	76	86	65,5	78	55	70	40,5	58	26	46								
140	139,2	140,8	90	100	86	96	75,5	88	65	80	50,5	68	36	56	21,5	44						
150	149,2	150,8			96	106	85,5	98	75	90	60,5	78	46	66	31,5	54						
160	159,2	160,8			106	116	95,5	108	85	100	70,5	88	56	76	41,5	64	27	52				
180	179,2	180,8					115,5	128	105	120	90,5	108	76	96	61,5	84	47	72	28,5	56		
200	199,075	200,925					135,5	148	125	140	110,5	128	96	116	81,5	104	67	92	48,5	76	30	60
220	219,075	220,925													101,5	124	87	112	68,5	96	50	80
240	239,075	240,925													121,5	155	107	132	88,5	116	70	100
260	258,95	261,05													141,5	164	127	152	108,5	136	90	120
280	278,95	281,05													161,5	184	147	172	128,5	156	110	140
300	298,95	301,05													181,5	204	167	192	148,5	176	130	160

Table 1 — Dimensions (*continued*)

[a] P is the pitch of the thread.

[b] For lengths between the bold stepped lines in the unshaded area.

[c] For plain heads.

[d] For knurled heads.

[e] $e_{min} = 1{,}14\ s_{min}$

[f] Combined gauging of socket dimensions e and s, see ISO 23429.

[g] The range of commercial lengths is between the bold stepped lines. Lengths in the shaded area are threaded to the head within 3 P. Lengths below the shaded area have values of l_g and l_s in accordance with the following formulae:

$$l_{g,\,max} = l_{nom} - b$$

$$l_{s,\,min} = l_{g,\,max} - 5\ P$$

[h] The size in brackets should be avoided if possible.

4 Requirements and reference International Standards

See Table 2.

Table 2 — Requirements and reference International Standards

Materials		Steel	Stainless steel	Non-ferrous metal
General requirements	International Standard	ISO 8992		
Thread	Tolerances	5g6g for property class 12.9; for other property classes: 6g		
	International Standards	ISO 261, ISO 965-2, ISO 965-3		
Mechanical properties	Property class	M3: as agreed ⩾ M3 and ⩽ M39: 8.8, 10.9, 12.9 > M39: as agreed	⩽ M24: A2-70[a], A3-70, A4-70, A5-70 > M24 and ⩽ M39: A2-50[b], A3-50, A4-50, A5-50 > M39: as agreed	As agreed
	International Standards	ISO 898-1	ISO 3506-1	ISO 8839
Tolerances	Product grade	A		
	International Standard	ISO 4759-1		
Finish		As processed Requirements for electroplating are covered in ISO 4042. Requirements for non-electrolytically applied zinc flake coatings are covered in ISO 10683.	Plain —	Plain Requirements for electroplating are covered in ISO 4042.
Surface discontinuities		Limits for surface discontinuities are covered in ISO 6157-1 and ISO 6157-3 for property class 12.9.	—	—
Acceptability		Acceptance procedure is covered in ISO 3269.		

[a] For stainless steel screws machined from bat it is permissible to use grade A1-70 for sizes ⩽ M12 and the product shall be marked accordingly.

[b] For stainless steel screws machined from bar it is permissible to use grade A1-50 and the product shall be marked accordingly.

5 Designation

EXAMPLE A hexagon socket head cap screw with thread M5, nominal length $l = 20$ mm and property class 12.9 is designed as follows:

Hexagon socket head cap screw ISO 4762-M5×20-12.9

Annex A
(informative)

Masses

In Table A.1 approximate masses of screws with commercial lengths are given for information only.

Table A.1 — Masses

Thread	M1,6	M2	M2,5	M3	M4	M5	M6	M8	M10	M12	(M14)	M16	M20	M24	M30	M36	M42	M48	M56	M64
Nominal length l mm	Approximate mass, in kilograms per 1 000 pieces (ρ = 7,85 kg/dm^3) (for information only)																			
2,5	0,085																			
3	0,090	0,155																		
4	0,100	0,175	0,345																	
5	0,110	0,195	0,375	0,67																
6	0,120	0,215	0,405	0,71	1,50															
8	0,140	0,255	0,465	0,80	1,65	2,45														
10	0,160	0,295	0,525	0,88	1,80	2,70	4,70													
12	0,180	0,355	0,585	0,96	1,95	2,95	5,07	10,9												
16	0,220	0,415	0,705	1,16	2,25	3,45	5,75	12,1	20,9											
20		0,495	0,825	1,36	2,65	4,01	6,53	13,4	22,9	32,1										
25			0,975	1,61	3,15	4,78	7,59	15,0	25,4	35,7	48,0	71,3								
30				1,86	3,65	5,55	8,30	16,9	27,9	39,3	53,0	77,8	128							
35					4,15	6,32	9,91	18,9	30,4	42,9	58,0	84,4	139							
40					4,65	7,09	11,0	20,9	32,9	46,5	63,0	91,0	150	270						
45						7,86	12,1	22,9	36,1	50,1	68,0	97,6	161	285	500					
50						8,63	13,2	24,9	39,3	54,5	73,0	106	172	300	527					
55							14,3	26,9	42,5	58,9	78,0	114	183	316	554	870				
60							15,4	28,9	45,7	63,4	84,0	122	194	330	581	910	1 370			
65								31,0	48,9	67,8	90,0	130	205	345	608	950	1 420			
70								33,0	52,1	71,3	96,0	138	216	363	635	990	1 470	2 040		
80								37,0	58,5	80,2	108	154	241	399	690	1 070	1 580	2 180	3 340	
90									64,9	89,1	120	170	266	435	745	1 150	1 680	2 320	3 530	5 220
100									71,2	98,0	132	186	291	471	800	1 230	1 790	2 460	3 720	5 470
110										107	144	202	316	507	855	1 310	1 890	2 600	3 920	5 730
120										116	156	218	341	543	910	1 390	2 000	2 740	4 110	5 980
130											168	234	366	579	965	1 470	2 100	2 880	4 300	6 230
140											180	250	391	615	1 020	1 550	2 210	3 020	4 490	6 490
150												266	416	651	1 080	1 630	2 320	3 160	4 680	6 740
160												282	441	687	1 130	1 710	2 420	3 300	4 880	6 900
180													491	759	1 240	1 870	2 640	3 590	5 270	7 250
200													541	831	1 350	2 030	2 860	3 870	5 650	7 750
220														903	1 460	2 190	3 080	4 150	6 040	8 250
240														975	1 570	2 250	3 300	4 430	6 420	8 750
260															1 680	2 410	3 520	4 710	6 810	9 260
280															1 790	2 570	3 740	4 990	7 200	9 760
300															1 900	2 730	3 960	5 270	7 580	10 300

NATIONAL ANNEX A

(*National Foreword*)

A-1 PACKAGING

The packaging of hexagon socket set screws shall be in accordance with IS 1367 (Part 18) : 1996 'Industrial fasteners — Threaded steel fasteners — Technical supply conditions: Part 18 Packaging (*third revision*)'.

A-2 BIS CERTIFICATION MARKING

Details available with the Bureau of Indian Standards.

Bureau of Indian Standards

BIS is a statutory institution established under the *Bureau of Indian Standards Act*, 1986 to promote harmonious development of the activities of standardization, marking and quality certification of goods and attending to connected matters in the country.

Copyright

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 latest issue of 'BIS Catalogue' and 'Standards: Monthly Additions'.

This Indian Standard has been developed from Doc: No. PG/BP 33 (0495).

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.org.in

Regional Offices: Telephones

Central : Manak Bhavan, 9 Bahadur Shah Zafar Marg, NEW DELHI 110002 — 2323 7617, 2323 3841

Eastern : 1/14 C.I.T. Scheme VII M, V.I.P. Road, Kankurgachi, KOLKATA 700054 — 2337 8499, 2337 8561, 2337 8626, 2337 9120

Northern : SCO 335-336, Sector 34-A, CHANDIGARH 160022 — 260 3843, 260 9285

Southern : C.I.T. Campus, IV Cross Road, CHENNAI 600113 — 2254 1216, 2254 1442, 2254 2519, 2254 2315

Western : Manakalaya, E9 MIDC, Marol, Andheri (East), MUMBAI 400093 — 2832 9295, 2832 7858, 2832 7891, 2832 7892

Branches: AHMEDABAD. BANGALORE. BHOPAL. BHUBANESHWAR. COIMBATORE. FARIDABAD. GHAZIABAD. GUWAHATI. HYDERABAD. JAIPUR. KANPUR. LUCKNOW. NAGPUR. NALAGARH. PATNA. PUNE. RAJKOT. THIRUVANANTHAPURAM. VISAKHAPATNAM.

Printed at Simco Printing Press, Delhi