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МЕЖДУНАРОДНАЯ ОРГАНИЗАЦИЯ ПО СТАНДАРТИЗАЦИИ

Hexagon head screws with metric fine pitch thread — Product grades A and B

Vis à tête hexagonale, à filetage métrique à pas fin — Grades A et B

Reference number
ISO 8676 : 1988 (E)

Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

Draft International Standards adopted by the technical committees are circulated to the member bodies for approval before their acceptance as International Standards by the ISO Council. They are approved in accordance with ISO procedures requiring at least 75 % approval by the member bodies voting.

International Standard ISO 8676 was prepared by Technical Committee ISO/TC 2, *Fasteners.*

Users should note that all International Standards undergo revision from time to time and that any reference made herein to any other International Standard implies its latest edition, unless otherwise stated.

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Hexagon head screws with metric fine pitch thread — Product grades A and B

0 Introduction

This International Standard is part of the complete ISO product standard series on hexagon drive fasteners. The series comprises:

a) hexagon head bolts (ISO 4014, ISO 4015, ISO 4016 and ISO 8765);

b) hexagon head screws (ISO 4017, ISO 4018 and ISO 8676);

c) hexagon nuts (ISO 4032, ISO 4033, ISO 4034, ISO 4035, ISO 4036, ISO 8673, ISO 8674 and ISO 8675);

d) hexagon flanged bolts (ISO 4162 and ISO 8102);

e) hexagon flanged screws;[1)]

f) hexagon flanged nuts (ISO 4161, ISO 7043 and ISO 7044);

g) structural bolting (ISO 4775, ISO 7411 to ISO 7414, and ISO 7417).

1 Scope and field of application

This International Standard gives specifications for hexagon head screws with metric fine pitch thread with nominal thread diameters from 8 to 64 mm, of product grade A for nominal thread diameters from 8 to 24 mm and nominal lengths, l, up to and including 10 d or 150 mm, whichever is shorter, and of product grade B for nominal thread diameters over 24 mm or nominal lengths, l, over 10 d or 150 mm, whichever is shorter.

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

Coarse thread screws according to ISO 4017 should be first choice.

1) These will form the subjects of future International Standards.

2 References

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

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

ISO 262, *ISO general purpose metric screw threads — Selected sizes for screws, bolts and nuts.*

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

ISO 898-1, *Mechanical properties of fasteners — Part 1: Bolts, screws and studs.*

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

ISO 3269, *Fasteners — Acceptance inspection.*

ISO 3506, *Corrosion-resistant stainless steel fasteners — Specifications.*

ISO 4042, *Threaded components — Electroplated coatings.* [1)]

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

ISO 4759-1, *Tolerances for fasteners — Part 1: Bolts, screws and nuts with thread diameters* > 1,6 *and* < 150 mm *and 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.*

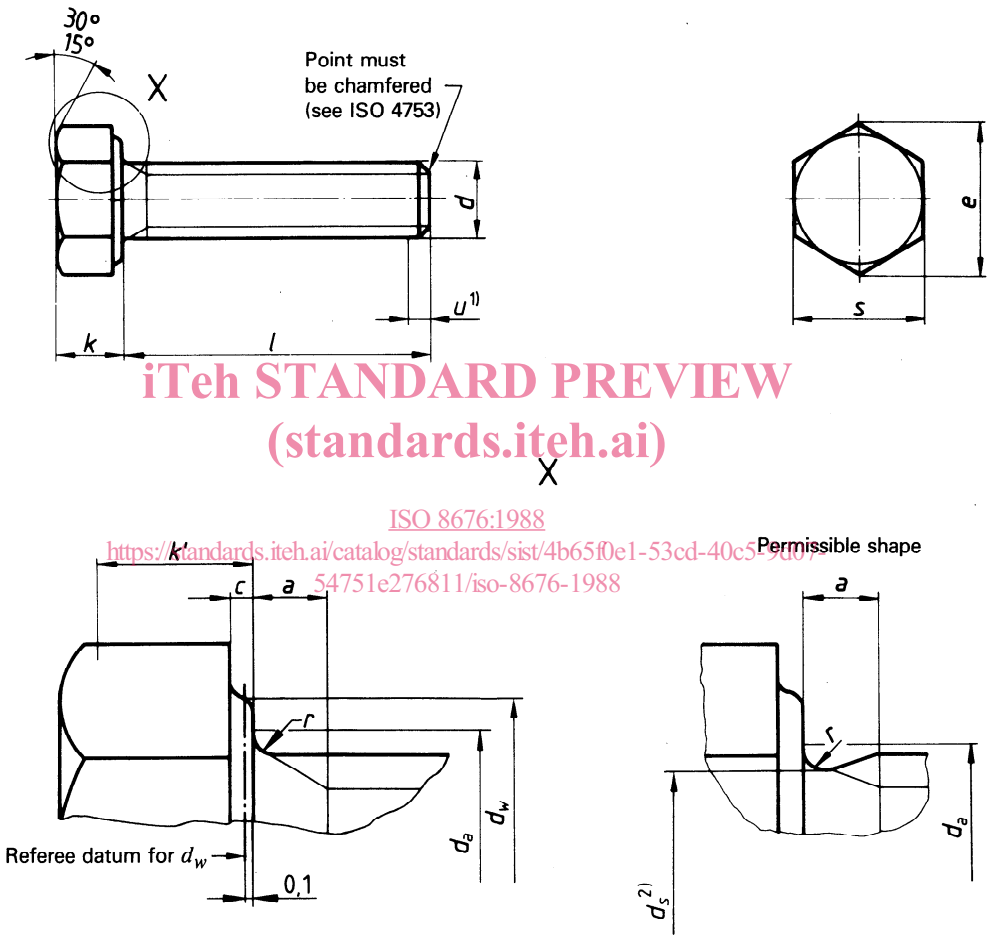
ISO 8992, *Fasteners — General requirements for bolts, screws and nuts.*

1) At present at the stage of draft.

3 Dimensions

NOTE — Symbols and designations for dimensions are specified in ISO 225.

Dimensions in millimetres



1) Incomplete thread $u \leqslant 2P$.

2) $d_s \approx$ pitch diameter.

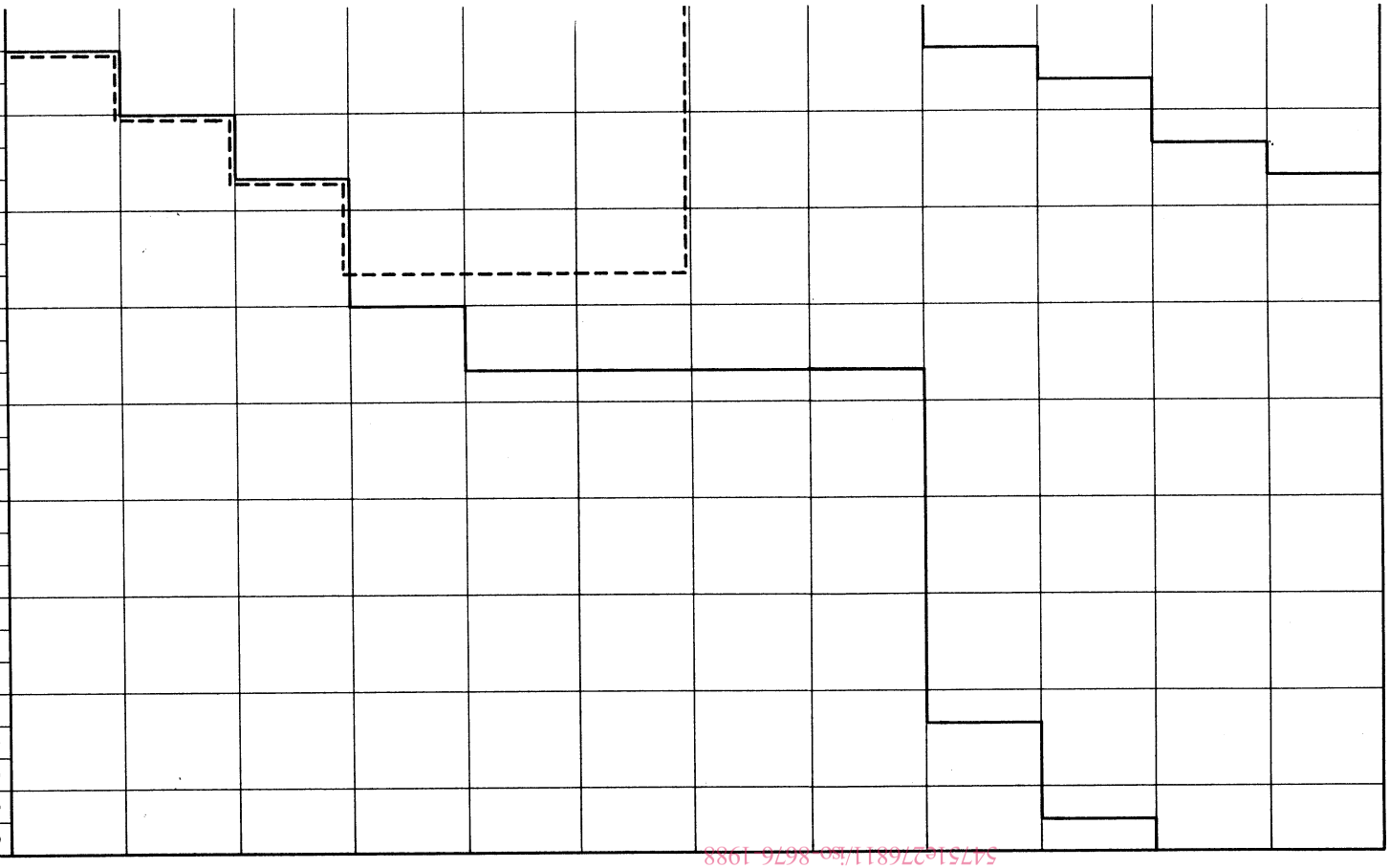
Table 1 — Preferred threads

Dimensions in millimetres

Thread ($d \times P$)			M8 × 1	M10 × 1	M12 × 1,5	M16 × 1,5	M20 × 1,5	M24 × 2	M30 × 2	M36 × 3	M42 × 3	M48 × 3	M56 × 4	M64 × 4
a		max.	3	3	4,5	4,5	6	6	6	9	9	9	12	12
		min.	1	1	1,5	1,5	2	2	2	3	3	3	4	4
c		min.	0,15	0,15	0,15	0,2	0,2	0,2	0,2	0,2	0,3	0,3	0,3	0,3
		max.	0,6	0,6	0,6	0,8	0,8	0,8	0,8	0,8	1	1	1	1
d_a		max.	9,2	11,2	13,7	17,7	22,4	26,4	33,4	39,4	45,6	52,6	63	71
d_w	Product grade A	min.	11,63	14,63	16,63	22,49	28,19	33,61	—	—	—	—	—	—
	Product grade B	min.	—	—	—	22	27,7	33,25	42,75	51,11	59,95	69,45	78,66	88,16
e	Product grade A	min.	14,38	17,77	20,03	26,75	33,53	39,98	—	—	—	—	—	—
	Product grade B	min.	—	—	—	26,17	32,95	39,55	50,85	60,79	71,3	82,6	93,56	104,86
k		nom.	5,3	6,4	7,5	10	12,5	15	18,7	22,5	26	30	35	40
	Product grade A	min.	5,15	6,22	7,32	9,82	12,285	14,785	—	—	—	—	—	—
		max.	5,45	6,58	7,68	10,18	12,715	15,215	—	—	—	—	—	—
	Product grade B	min.	—	—	—	9,71	12,15	14,65	18,28	22,08	25,58	29,58	34,5	39,5
		max.	—	—	—	10,29	12,85	15,35	19,12	22,92	26,42	30,42	35,5	40,5
k' [1]	Product grade A	min.	3,61	4,35	5,12	6,87	8,6	10,35	—	—	—	—	—	—
	Product grade B	min.	—	—	—	6,8	8,51	10,26	12,8	15,46	17,91	20,71	24,15	27,65
r		min.	0,4	0,4	0,6	0,6	0,8	0,8	1	1	1,2	1,6	2	2
s		nom. = max.	13	16	18	24	30	36	46	55	65	75	85	95
	Product grade A	min.	12,73	15,73	17,73	23,67	29,67	35,38	—	—	—	—	—	—
	Product grade B	min.	—	—	—	23,16	29,16	35	45	53,8	63,1	73,1	82,8	92,8

l [2]				
	Product grade A		Product grade B	
nom.	min.	max.	min.	max.
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	38,75	41,25
45	44,5	45,5	43,75	46,25
50	49,5	50,5	48,75	51,25
55	54,4	55,6	53,5	56,5
60	59,4	60,6	58,5	61,5
65	64,4	65,6	63,5	66,5
70	69,4	70,6	68,5	71,5

80	79,4	80,6	78,5	81,5
90	89,3	90,7	88,25	91,75
100	99,3	100,7	98,25	101,75
110	109,3	110,7	108,25	111,75
120	119,3	120,7	118,25	121,75
130	129,2	130,8	128	132
140	139,2	140,8	138	142
150	149,2	150,8	148	152
160	—	—	158	162
180	—	—	178	182
200	—	—	197,7	202,3
220	—	—	217,7	222,3
240	—	—	237,7	242,3
260	—	—	257,4	262,6
280	—	—	277,4	282,6
300	—	—	297,4	302,6
320	—	—	317,15	322,85
340	—	—	337,15	342,85
360	—	—	357,15	362,85
380	—	—	377,15	382,85
400	—	—	397,15	402,85
420	—	—	416,85	423,15
440	—	—	436,85	443,15
460	—	—	456,85	463,15
480	—	—	476,85	483,15
500	—	—	496,85	503,15



1) $k'_{min} = 0{,}7\ k_{min}$

2) Range of popular lengths between the stepped line, marked thus ———.
   — Product grade A above the stepped line, marked thus — — — —.
   — Product grade B below this stepped line.

NOTE — The threads M10 × 1 and M12 × 1,5 are popular ones but are not included in ISO 262.

Table 2 — Non-preferred threads

Dimensions in millimetres

Thread ($d \times P$)			M10×1,25	M12×1,25	M14×1,5	M18×1,5	M20×2	M22×1,5	M27×2	M33×2	M39×3	M45×3	M52×4	M60×4
a		max.	4	4	4,5	4,5	4,5	4,5	6	6	9	9	12	12
		min.	1,25	1,25	1,5	1,5	1,5	1,5	2	2	3	3	4	4
c		min.	0,15	0,15	0,15	0,2	0,2	0,2	0,2	0,2	0,3	0,3	0,3	0,3
		max.	0,6	0,6	0,6	0,8	0,8	0,8	0,8	0,8	1	1	1	1
d_a		max.	11,2	13,7	15,7	20,2	22,4	24,4	30,4	36,4	42,4	48,6	56,6	67
d_w	Product grade A/B	min.	14,63	16,63	19,37	25,34	28,19	31,71	—	—	—	—	—	—
			—	—	—	24,85	27,7	31,35	38	46,55	55,86	64,7	74,2	83,41
e	Product grade A/B	min.	17,77	20,03	23,36	30,14	33,53	37,72	—	—	—	—	—	—
			—	—	—	29,56	32,95	37,29	45,2	55,37	66,44	76,95	88,25	99,21
k		nom.	6,4	7,5	8,8	11,5	12,5	14	17	21	25	28	33	38
	Product grade A	min.	6,22	7,32	8,62	11,285	12,285	13,785	—	—	—	—	—	—
		max.	6,58	7,68	8,98	11,715	12,715	14,215	—	—	—	—	—	—
	Product grade B	min.	—	—	—	11,15	12,15	13,65	16,65	20,58	24,58	27,58	32,5	37,5
		max.	—	—	—	11,85	12,85	14,35	17,35	21,42	25,42	28,42	33,5	38,5
k' [1]	Product grade A/B	min.	4,35	5,12	6,03	7,9	8,6	9,65	—	—	—	—	—	—
			—	—	—	7,81	8,51	9,56	11,66	14,41	17,21	19,31	22,75	26,25
r		min.	0,4	0,6	0,6	0,6	0,8	0,8	1	1	1	1,2	1,6	2
s		nom. = max.	16	18	21	27	30	34	41	50	60	70	80	90
	Product grade A/B	min.	15,73	17,73	20,67	26,67	29,67	33,38	—	—	—	—	—	—
			—	—	—	26,16	29,16	33	40	49	58,8	68,1	78,1	87,8

l [2]				
Product grade A			Product grade B	
nom.	min.	max.	min.	max.
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	53,5	56,5
60	59,4	60,6	58,5	61,5
65	64,4	65,6	63,5	66,5
70	69,4	70,6	68,5	71,5
80	79,4	80,6	78,5	81,5

90	89,3	90,7	88,25	91,75
100	99,3	100,7	98,25	101,75
110	109,3	110,7	108,25	111,75
120	119,3	120,7	118,25	121,75
130	129,2	130,8	128	132
140	139,2	140,8	138	142
150	149,2	150,8	148	152
160	—	—	158	162
180	—	—	178	182
200	—	—	197,7	202,3
220	—	—	217,7	222,3
240	—	—	237,7	242,3
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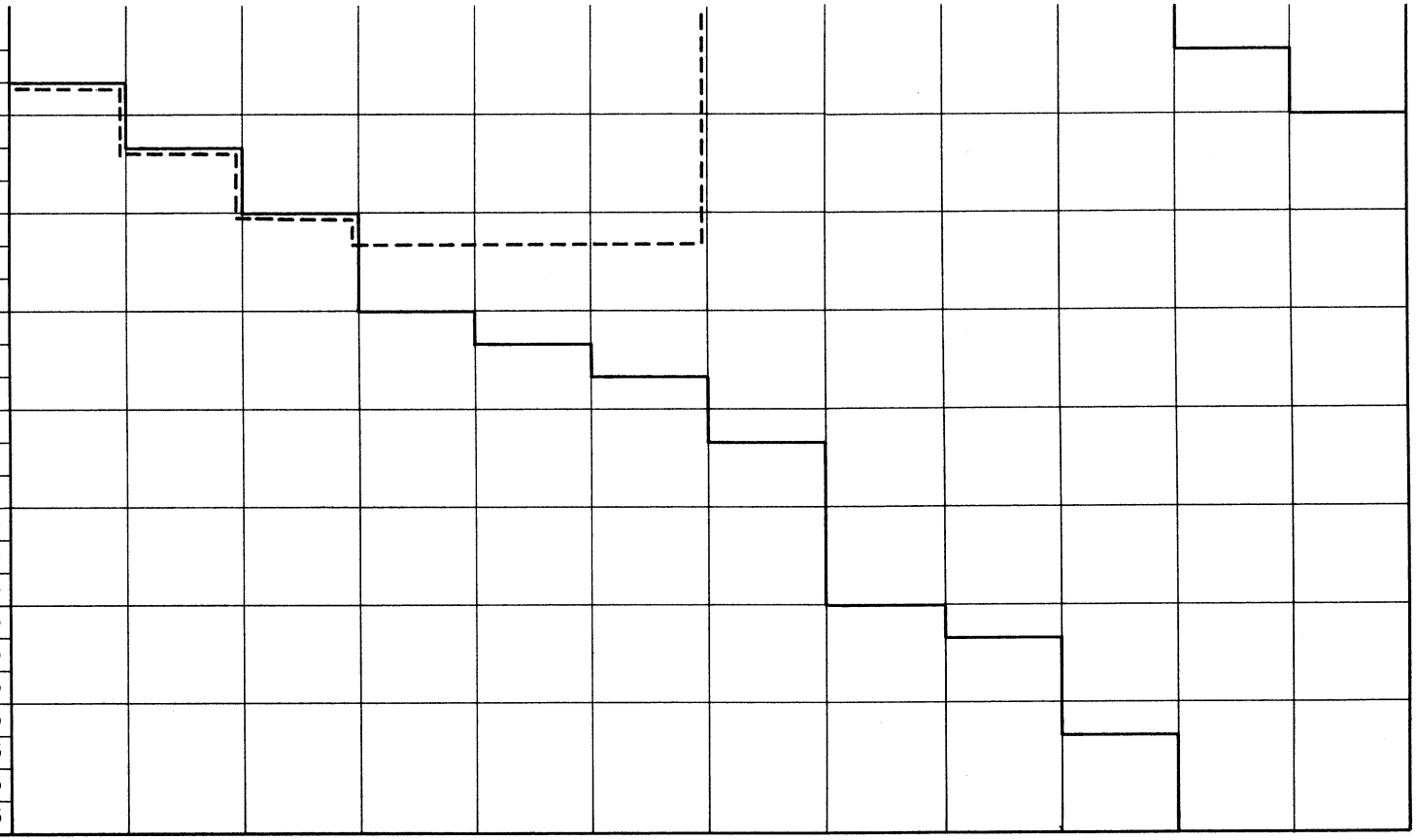

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