BRITISH STANDARD

BS EN ISO 4017:2001

Hexagon head screws — Product grades A and B

The European Standard EN ISO 4017:2000 has the status of a British Standard

ICS 21.060.10

National foreword

This British Standard is the official English language version of EN ISO 4017:2000. It is identical with ISO 4017:1999. It supersedes BS EN 24017:1992 which is withdrawn.

The UK participation in its preparation was entrusted by Technical Committee FME/9, Bolts, nuts and accessories, to Subcommittee FME/9/6, General purpose fasteners and accessories, which has the responsibility to:

— aid enquirers to understand the text;

— present to the responsible international/European committee any enquiries on the interpretation, or proposals for change, and keep the UK interests informed;

— monitor related international and European developments and promulgate them in the UK.

A list of organizations represented on this subcommittee can be obtained on request to its secretary.

Cross-references

Attention is drawn to the fact that CEN and CENELEC Standards normally include an annex which lists normative references to international publications with their corresponding European publications. The British Standards which implement these international or European publications may be found in the BSI Standards Catalogue under the section entitled "International Standards Correspondence Index", or by using the "Find" facility of the BSI Standards Electronic Catalogue.

A British Standard does not purport to include all the necessary provisions of a contract. Users of British Standards are responsible for their correct application.

Compliance with a British Standard does not of itself confer immunity from legal obligations.

Summary of pages

This document comprises a front cover, an inside front cover, the EN ISO title page, the EN ISO foreword page, the ISO title page, pages ii and iii, a blank page, pages 1 to 11, the annex ZA page an inside back cover and a back cover.

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EUROPEAN STANDARD

NORME EUROPÉENNE

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EN ISO 4017

November 2000

ICS 21.060.10

Supersedes EN 24017:1991

English version

Hexagon head screws - Product grades A and B (ISO 4017:1999)

Vis à tête hexagonale entièrement filetées - Grade A et B (ISO 4017:1999)

Sechskantschrauben mit Gewinde bis Kopf - Produktklassen A und B (ISO 4017:1999)

This European Standard was approved by CEN on 18 October 2000.

CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the Management Centre or to any CEN member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the Management Centre has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.

EUROPEAN COMMITTEE FOR STANDARDIZATION
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EUROPÄISCHES KOMITEE FÜR NORMUNG

Management Centre: rue de Stassart, 36 B-1050 Brussels

Ref. No. EN ISO 4017:2000 E

Foreword

The text of the International Standard from Technical Committee ISO/TC 2 "Fasteners" of the International Organization for Standardization (ISO) has been taken over as an European Standard by Technical Committee CEN/TC 185 "Threaded and non-threaded mechanical fasteners and accessories", the secretariat of which is held by DIN.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by May 2001, and conflicting national standards shall be withdrawn at the latest by May 2001.

This European Standard supersedes EN 24017:1991.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom.

Endorsement notice

The text of the International Standard ISO 4017:1999 has been approved by CEN as a European Standard without any modification.

NOTE: Normative references to International Standards are listed in annex ZA (normative).

EN ISO 4017:2000

INTERNATIONAL STANDARD

ISO 4017

Third edition
1999-08-15

Hexagon head screws — Product grades A and B

Vis à tête hexagonale entièrement filetées — Grades A et B

Reference number
ISO 4017:1999(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.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 3.

Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

International Standard ISO 4017 was prepared by Technical Committee ISO/TC 2, *Fasteners*.

This third edition cancels and replaces the second edition (ISO 4017:1988) which has been technically revised.

Introduction

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

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

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

c) hexagon nuts (ISO 4032 to ISO 4036, ISO 8673 to ISO 8675);

d) hexagon bolts with flange (ISO 4162 and ISO 15071);

e) hexagon nuts with flange (ISO 4161 and ISO 10663);

f) structural and nuts (ISO 4775, ISO 7411 to ISO 7414 and ISO 7417).

Hexagon head screws — Product grades A and B

1 Scope

This International Standard specifies the characteristics of hexagon head screws with threads from M1,6 up to and including M64, of product grade A for threads M1,6 to M24 and nominal lengths up to and including 10 d or 150 mm, whichever is shorter, and product grade B for threads over M24 or nominal lengths over 10 d or 150 mm, whichever is shorter.

NOTE This type of product is the same as that covered by ISO 4014 with the exception of threading up to head and nominal length up to and including 200 mm as popular lengths.

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 724, ISO 888, ISO 898-1, ISO 965-1, ISO 3506-1, ISO 4753 and ISO 4759-1.

2 Normative references

The following normative documents contain provisions which, through reference in this text, constitute provisions of this International Standard. For dated references, subsequent amendments to, or revisions of, any of these publications do not apply. However, parties to agreements based on this International Standard are encouraged to investigate the possibility of applying the most recent editions of the normative documents indicated below. For undated references, the latest edition of the normative document referred to applies. Members of ISO and IEC maintain registers of currently valid International Standards.

ISO 225:1983, *Fasteners — Bolts, screws, studs and nuts — Symbols and designations of dimensions.*

ISO 724:1993, *ISO general-purpose metric screw threads — Basic dimensions.*

ISO 888:1976, *Bolts, screws and studs — Nominal lengths, and thread lengths for general purpose bolts.*

ISO 898-1:1999, *Mechanical properties of fasteners made of carbon steel and alloy steel — Part 1: Bolts, screws and studs.*

ISO 965-1:1998, *ISO general purpose metric screw threads — Tolerances — Part 1: Principles and basic data.*

ISO 3269:—[1)], *Fasteners — Acceptance inspection.*

ISO 3506-1:1997, *Mechanical properties of corrosion-resistant stainless steel-fasteners — Part 1: Bolts, screws and studs.*

ISO 3508:1976, *Thread run-outs for fasteners with thread in accordance with ISO 261 and ISO 262.*

ISO 4042:1999, *Fasteners — Electroplated coatings.*

[1)] To be published. (Revision of ISO 3269:1988)

ISO 4753:—[2], *Fasteners — Ends of parts with external metric ISO thread.*

ISO 4759-1:—[3], *Tolerances for fasteners — Part 1: Bolts, screws, studs and nuts — Product grades A, B and C.*

ISO 6157-1:1988, *Fasteners — Surface discontinuities — Part 1: Bolts, screws and studs for general requirements.*

ISO 8839:1986, *Mechanical properties of fasteners — Bolts, screws, studs and nuts made of non-ferrous metals.*

ISO 8992:1986, *Fasteners — General requirements for bolts, screws, studs and nuts.*

ISO 10683:—[4], *Fasteners — Non-electrolytically applied zinc flake coatings.*

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[2] To be published. (Revisioin of ISO 4753:1983)

[3] To be published. (Revision of ISO 4759-1:1978)

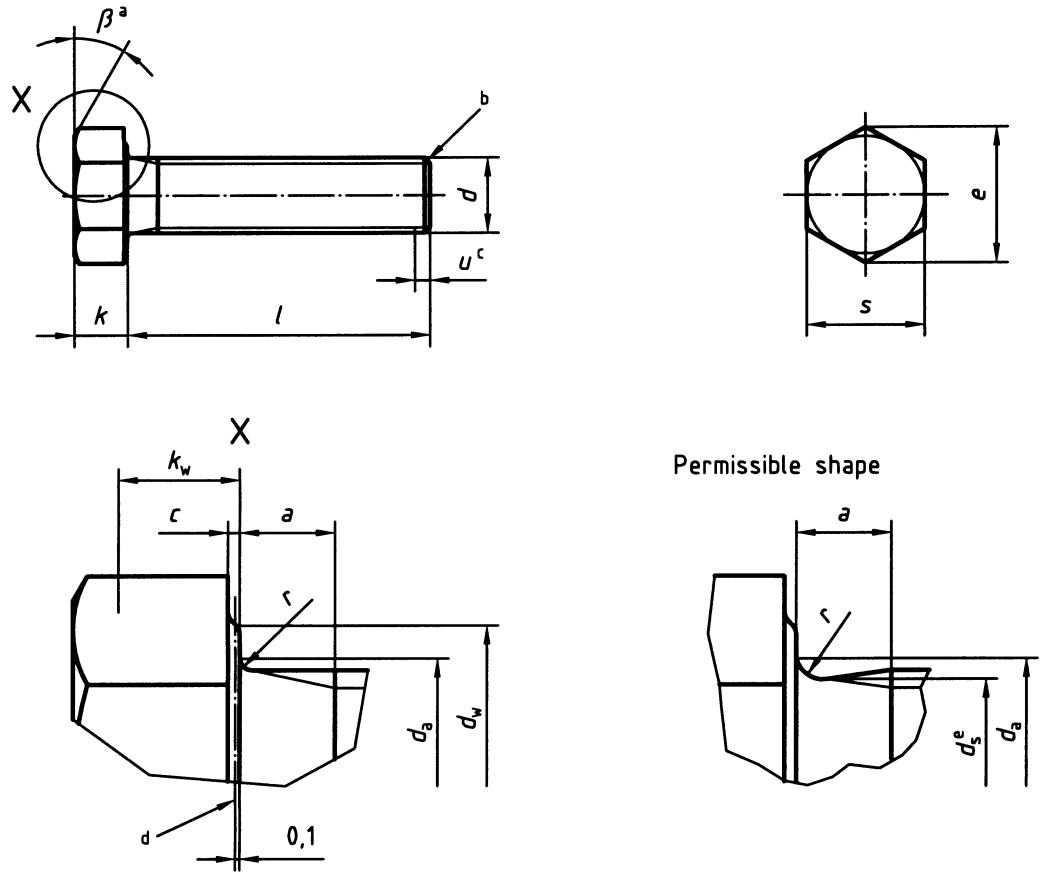
[4] To be published.

3 Dimensions

See Figure 1 and Tables 1 and 2.

Symbols and description of dimensions are defined in ISO 225.

Dimensions in millimetres



a β = 15° to 30°

b Point shall be chamfered or for threads ≤ M4 may be as-rolled (sheared end) (see ISO 4753)

c Incomplete thread $u \leq 2P$

d Reference datum for d_w

e $d_s \approx$ pitch diameter

Figure 1

Table 1 — Preferred threads

Dimensions in millimetres

Threads (d)				M1,6	M2	M2,5	M3	M4	M5	M6
p[a]				0,35	0,4	0,45	0,5	0,7	0,8	1
a			max.[b]	1,05	1,2	1,35	1,5	2,1	2,4	3
			min.	0,35	0,4	0,45	0,5	0,7	0,8	1
c			max.	0,25	0,25	0,25	0,40	0,40	0,50	0,50
			min.	0,10	0,10	0,10	0,15	0,15	0,15	0,15
d_a			max.	2	2,6	3,1	3,6	4,7	5,7	6,8
d_w	Product grade	A	min.	2,27	3,07	4,07	4,57	5,88	6,88	8,88
		B		2,30	2,95	3,95	4,45	5,74	6,74	8,74
e	Product grade	A	min.	3,41	4,32	5,45	6,01	7,66	8,79	11,05
		B		3,28	4,18	5,31	5,88	7,50	8,63	10,89
k			nom.	1,1	1,4	1,7	2	2,8	3,5	4
	Product grade	A	max.	1,225	1,525	1,825	2,125	2,925	3,65	4,15
			min.	0,975	1,275	1,575	1,875	2,675	3,35	3,85
	Product grade	B	max.	1,3	1,6	1,9	2,2	3,0	3,74	4,24
			min.	0,9	1,2	1,5	1,8	2,6	3,26	3,76
k_w[c]	Product grade	A	min.	0,68	0,89	1,10	1,31	1,87	2,35	2,70
		B		0,63	0,84	1,05	1,26	1,82	2,28	2,63
r			min.	0,1	0,1	0,1	0,1	0,2	0,2	0,25
s			nom. = max.	3,20	4,00	5,00	5,50	7,00	8,00	10,00
	Product grade	A	min.	3,02	3,82	4,82	5,32	6,78	7,78	9,78
		B		2,90	3,70	4,70	5,20	6,64	7,64	9,64

l				
Product grade A			Product grade B	
nom.	min.	max.	min.	max.
2	1,8	2,2	—	—
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	—	—
16	15,65	16,35	—	—
20	19,58	20,42	18,95	21,05
25	24,58	25,42	23,95	26,05
30	29,58	30,42	28,95	31,05
35	34,5	35,5	33,75	36,25
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

Thread (d)				M8	M10	M12	M16	M20	M24
P[a]				1,25	1,5	1,75	2	2,5	3
a			max.[b]	4	4,5	5,3	6	7,5	9
			min.	1,25	1,5	1,75	2	2,5	3
c			max.	0,60	0,60	0,60	0,8	0,8	0,8
			min.	0,15	0,15	0,15	0,2	0,2	0,2
d_a			max.	9,2	11,2	13,7	17,7	22,4	26,4
d_w	Product grade	A	min.	11,63	14,63	16,63	22,49	28,19	33,61
		B		11,47	14,47	16,47	22	27,7	33,25
e	Product grade	A	min.	14,38	17,77	20,03	26,75	33,53	39,98
		B		14,20	17,59	19,85	26,17	32,95	39,55
k			nom.	5,3	6,4	7,5	10	12,5	15
	Product grade	A	max.	5,45	6,58	7,68	10,18	12,715	15,215
			min.	5,15	6,22	7,32	9,82	12,285	14,785
	Product grade	B	max.	5,54	6,69	7,79	10,29	12,85	15,35
			min.	5,06	6,11	7,21	9,71	12,15	14,65
k_w[c]	Product grade	A	min.	3,61	4,35	5,12	6,87	8,6	10,35
		B		3,54	4,28	5,05	6,8	8,51	10,26
r			min.	0,4	0,4	0,6	0,6	0,8	0,8
s			nom. = max.	13,00	16,00	18,00	24,00	30,00	36,00
	Product grade	A	min.	12,73	15,73	17,73	23,67	29,67	35,38
		B		12,57	15,57	17,57	23,16	29,16	35,00

l	Product grade A		Product grade B	
nom.	min.	max.	min.	max.
2	1,8	2,2	—	—
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	—	—
16	15,65	16,35	—	—
20	19,58	20,42	18,95	21,05
25	24,58	25,42	23,95	26,05
30	29,58	30,42	28,95	31,05
35	34,5	35,5	33,75	36,25
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	111,25
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

Table 1 *(continued)*

Thread (d)				M30	M36	M42	M48	M56	M64
P[a]				3,5	4	4,5	5	5,5	6
a			max.[b]	10,5	12	13,5	15	16,5	18
			min.	3,5	4	4,5	5	5,5	6
c			max.	0,8	0,8	1,0	1,0	1,0	1,0
			min.	0,2	0,2	0,3	0,3	0,3	0,3
d_a			max.	33,4	39,4	45,6	52,6	63	71
d_w	Product grade	A	min.	—	—	—	—	—	—
		B		42,75	51,11	59,95	69,45	78,66	88,16
e	Product grade	A	min.	—	—	—	—	—	—
		B		50,85	60,79	71,3	82,6	93,56	104,86
k			nom.	18,7	22,5	26	30	35	40
	Product grade	A	max.	—	—	—	—	—	—
			min.	—	—	—	—	—	—
	Product grade	B	max.	19,12	22,92	26,42	30,42	35,5	40,5
			min.	18,28	22,08	25,58	29,58	34,5	39,5
k_w[c]	Product grade	A	min.	—	—	—	—	—	—
		B		12,8	15,46	17,91	20,71	24,15	27,65
r			min.	1	1	1,2	1,6	2	2
s			nom. = max.	46	55,0	65,0	75,0	85,0	95,0
	Product grade	A	min.	—	—	—	—	—	—
		B		45	53,8	63,1	73,1	82,8	92,8

l				
	Product grade A		Product grade B	
nom.	min.	max.	min.	max.
2	1,8	2,2	—	—
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	—	—
16	15,65	16,35	—	—
20	19,58	20,42	18,95	21,05
25	24,58	25,42	23,95	26,05
30	29,58	30,42	28,95	31,05
35	34,5	35,5	33,75	36,25
40	39,5	40,5	38,75	41,25
45	44,5	45,5	43,75	46,25
50	49,5	50,5	8,75	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

NOTE Range of popular lengths between the solid, boldface stepped line:
— for product grade A, above the dashed, stepped line;
— for product grade B, below this line.

[a] P is the pitch of the thread.

[b] Values in accordance with a_{max}, normal series, in ISO 3508.

[c] $k_{w,\,min} = 0{,}7\ k_{min}$

Table 2 — Non-preferred threads

Dimensions in millimetres

Thread (d)				M3,5	M14	M18	M22	M27
P^a				0,6	2	2,5	2,5	3
a			max.[b]	1,8	6	7,5	7,5	9
			min.	0,6	2	2,5	2,5	3
c			max.	0,40	0,60	0,8	0,8	0,8
			min.	0,15	0,15	0,2	0,2	0,2
d_a			max.	4,1	15,7	20,2	24,4	30,4
d_w	Product grade	A	min.	5,07	19,64	25,34	31,71	—
		B		4,95	19,15	24,85	31,35	38
e	Product grade	A	min.	6,58	23,36	30,14	37,72	—
		B		6,44	22,78	29,56	37,29	45,2
k			nom.	2,4	8,8	11,5	14	17
	Product grade	A	max.	2,525	8,98	11,715	14,215	—
			min.	2,275	8,62	11,285	13,785	—
	Product grade	B	max.	2,6	9,09	11,85	14,35	17,35
			min.	2,2	8,51	11,15	13,65	16,65
k_w[c]	Product grade	A	min.	1,59	6,03	7,9	9,65	—
		B		1,54	5,96	7,81	9,56	11,66
r			min.	0,1	0,6	0,6	0,8	1
s			nom. = max.	6,00	21,00	27,00	34,00	41
	Product grade	A	min.	5,82	20,67	26,67	33,38	—
		B		5,70	20,16	26,16	33,00	40

l				
	Product grade A		Product grade B	
nom.	min.	max.	min.	max.
8	7,71	8,29	—	—
10	9,71	10,29	—	—
12	11,65	12,35	—	—
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

Table 2 *(continued)*

Thread (d)				M33	M39	M45	M52	M60
P^a				3,5	4	4,5	5	5,5
a			max.[b]	10,5	12	13,5	15	16,5
			min.	3,5	4	4,5	5	5,5
c			max.	0,8	1,0	1,0	1,0	1,0
			min.	0,2	0,3	0,3	0,3	0,3
d_a			max.	36,4	42,4	48,6	56,6	67
d_w	Product grade	A	min.	—	—	—	—	—
		B		46,55	55,86	64,7	74,2	83,41
e	Product grade	A	min.	—	—	—	—	—
		B		55,37	66,44	76,95	88,25	99,21
k			nom.	21	25	28	33	38
	Product grade	A	min.	—	—	—	—	—
			max.	—	—	—	—	—
	Product grade	B	max.	21,42	25,42	28,42	33,5	38,5
			min.	20,58	24,58	27,58	32,5	37,5
k_w[c]	Product grade	A	min.	—	—	—	—	—
		B		14,41	17,21	19,31	22,75	26,25
r			min.	1	1	1,2	1,6	2
s			nom. = max.	50	60,0	70,0	80,0	90,0
	Product grade	A	min.	—	—	—	—	—
		B		49	58,8	68,1	78,1	87,8

l				
	Product grade A		Product grade B	
nom.	min.	max.	min.	max.
8	7,71	8,29	—	—
10	9,71	10,29	—	—
12	11,65	12,35	—	—
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

NOTE Range of popular lengths between the solid, boldface stepped line:
— for product grade A, above the dashed, stepped line;
— for product grade B, below this line.

[a] P is the pitch of the thread.
[b] Values in accordance with a_{max}, normal series, in ISO 3508.
[c] $k_{w,\,min} = 0{,}7\ k_{min}$

4 Specifications and reference standards

See Table 3.

Table 3 — Specifications and reference standards

Material		Steel	Stainless steel	Non-ferrous metal
General requirements	International Standard	ISO 8992		
Thread	Tolerance	6g		
	International Standards	ISO 724, ISO 965-1		
Mechanical properties	Property class[a]	$d < 3$ mm: as agreed 3 mm $\leqslant d \leqslant$ 39 mm: 5.6, 8.8, 9.8, 10.9 $d >$ 39 mm: as agreed	$d \leqslant$ 24 mm: A2-70, A4-70 24 mm $< d \leqslant$ 39 mm: A2-50, A4-50 $d >$ 39 mm: as agreed	Materials specified in ISO 8839
	International Standards	$d \leqslant$ 39 mm: ISO 898-1 $d < 3$ mm and $d >$ 39 mm: as agreed	$d \leqslant$ 39 mm: ISO 3506-1 $d >$ 39 mm: as agreed	
Tolerances	Product grade	For $d \leqslant$ 24 mm and $l \leqslant 10\,d$ or 150 mm[b]: A For $d >$ 24 mm or $l > 10\,d$ or 150 mm[b]: B		
	International Standard	ISO 4759-1		
Finish and/or coating		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
		If different electroplating requirements are desired or if requirements are needed for other finishes, they should be agreed between customer and supplier		
		Limits for surface discontinuities are covered in ISO 6157-1		
Acceptability		For acceptance procedure, see ISO 3269.		

[a] For other property classes see ISO 898-1 for steel and ISO 3506-1 for stainless steel respectively.

[b] Whichever is shorter.

5 Designation

EXAMPLE

A hexagon head screw with thread size M12, nominal length $l = 80$ mm and property class 8.8 is designated as follows:

Hexagon head screw ISO 4017 - M12 × 80 - 8.8

Bibliography

[1] ISO 4014:1999, *Hexagon head bolts — Product grades A and B.*

[2] ISO 4015:1979, *Hexagon head bolts — Product grade B — Reduced shank (shank diameter approximately equal to pitch diameter).*

[3] ISO 4016:1999, *Hexagon head bolts — Product grade C.*

[4] ISO 4018:1999, *Hexagon head screws — Product grade C.*

[5] ISO 4032:1999, *Hexagon nuts, style 1 — Product grades A and B.*

[6] ISO 4033:1999, *Hexagon nuts, style 2 — Product grades A and B.*

[7] ISO 4034:1999, *Hexagon nuts — Product grade C.*

[8] ISO 4035:1999, *Hexagon thin nuts (chamfered) — Product grades A and B.*

[9] ISO 4036:1999, *Hexagon thin nuts (unchamfered) — Product grade B.*

[10] ISO 4161:1999, *Hexagon nuts with flange — Coarse thread.*

[11] ISO 4162:—[5)], *Hexagon bolts with flange — Small series — Product grade combination A/B.*

[12] ISO 4775:1984,*Hexagon nuts for high-strength structural bolting with large width across flats — Product grade B — Property classes 8 and 10.*

[13] ISO 7411:1984, *Hexagon bolts for high-strength structural bolting with large width across flats (thread lengths according to ISO 888) — Product grade C — Property classes 8.8 and 10.9.*

[14] ISO 7412:1984, *Hexagon bolts for high-strength structural bolting with large width across flats (short thread length) — Product grade C — Property classes 8.8 and 10.9.*

[15] ISO 7413:1984, *Hexagon nuts for structural bolting, style 1, hot-dip galvanize (oversize tapped) — Product grades A and B — Property classes 5, 6 and 8.*

[16] ISO 7414:1984, *Hexagon nuts for structural bolting with large width across flats, style 1 — Product grade B — Property class 10.*

[17] ISO 7417:1984, *Hexagon nuts for structural bolting, style 2, hot-dip galvanize (oversize tapped) — Product grade A — Property class 9.*

[18] ISO 8673:1999, *Hexagon nuts, style 1, with metric fine pitch thread — Product grades A and B.*

[19] ISO 8674:1999, *Hexagon nuts, style 2, with metric fine pitch thread — Product grades A and B.*

[20] ISO 8675:1999, *Hexagon thin nuts (chamfered) with metric fine pitch thread — Product grades A and B.*

[21] ISO 8676:1999, *Hexagon head screws with metric fine pitch thread — Product grades A and B.*

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5) To be published. (Revision of ISO 4162:1990)

[22] ISO 8765:1999, *Hexagon head bolts with metric fine pitch thread — Product grades A and B.*

[23] ISO 10663:1999, *Hexagon nuts with flange — Fine pitch thread.*

[24] ISO 15071:1999, *Hexagon bolts with flange —Small series — Product grade A.*

Annex ZA (normative)
Normative references to international publications with their relevant European publications

This European Standard incorporates by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies.

Publication	Year	Title	EN	Year
ISO 225	1983	Fasteners - Bolts, screws, studs and nuts - Symbols and designations of dimensions	EN 20225	1991
ISO 898-1	1999	Mechanical properties of fasteners made of carbon steel and alloy steel - Part 1: Bolts, screws and studs	EN ISO 898-1	1999
ISO 3269	2000	Fasteners - Acceptance inspection	EN ISO 3269	2000
ISO 3506-1	1997	Mechanical properties of corrosion-resistant stainless-steel fasteners - Part 1: Bolts, screws and studs	EN ISO 3506-1	1997
ISO 4042	1999	Fasteners - Electroplated coatings	EN ISO 4042	1999
ISO 4753	1999	Fasteners - Ends of parts with external ISO metric	EN ISO 4753	1999
ISO 6157-1	1988	Fasteners - Surface discontinuities - Part 1: Bolts, screws and studs for general requirements	EN 26157-1	1991
ISO 8839	1986	Mechanical properties of fasteners - Bolts, screws, studs and nuts made of non-ferrous metals screw thread	EN 28839	1991

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