
**Fasteners — Hexagon head bolts —
Product grades A and B**

*Fixations — Vis à tête hexagonale partiellement filetées — Grades A
et B*

STANDARDSISO.COM : Click to view the full PDF of ISO 4014:2022



STANDARDSISO.COM : Click to view the full PDF of ISO 4014:2022



COPYRIGHT PROTECTED DOCUMENT

© ISO 2022

All rights reserved. Unless otherwise specified, or required in the context of its implementation, no part of this publication may be reproduced or utilized otherwise in any form or by any means, electronic or mechanical, including photocopying, or posting on the internet or an intranet, without prior written permission. Permission can be requested from either ISO at the address below or ISO's member body in the country of the requester.

ISO copyright office
CP 401 • Ch. de Blandonnet 8
CH-1214 Vernier, Geneva
Phone: +41 22 749 01 11
Email: copyright@iso.org
Website: www.iso.org

Published in Switzerland

Contents

Page

Foreword	iv
1 Scope	1
2 Normative references	1
3 Terms and definitions	1
4 Dimensions	2
5 Requirements and reference International Standards	9
6 Marking and labelling	10
6.1 Marking on product.....	10
6.2 Labelling on package.....	10
7 Designation	10
Annex A (normative) Dimensions for bolts M1,6 to M14 with product grade B	11
Bibliography	13

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.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular, the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT), see www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 2, *Fasteners*, Subcommittee SC 11, *Fasteners with metric external thread*, in collaboration with the European Committee for Standardization (CEN) Technical Committee CEN/TC 185, *Fasteners*, in accordance with the Agreement on technical cooperation between ISO and CEN (Vienna Agreement).

This fifth edition cancels and replaces the fourth edition (ISO 4014:2011), which has been technically revised.

The main changes are as follows:

- tables for dimensions have been entirely restructured, so that the user can find the specified values in a reliable manner (no risk of picking the wrong dimension), see [Clause 4](#) and [Annex A](#);
- M7 has been added;
- $d_{w,min}$ has been changed for sizes $d \leq M5$ from $s_{min} - IT16$ to $s_{min} - IT15$, in order to have a larger bearing surface area and thus less contact pressure;
- the rules for the shortest and greatest standard lengths have been added, and they have been amended accordingly;
- for steel bolts, property classes 4.8 and 12.9/12.9 have been added;
- for stainless steel bolts, grades D4 and D6 and property class 80 have been added;
- property class 9.8 and non-ferrous metal bolts have been deleted;
- specifications for marking and labelling have been added as [Clause 6](#).

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

Fasteners — Hexagon head bolts — Product grades A and B

1 Scope

This document specifies the characteristics of hexagon head bolts, in steel and stainless steel, with metric coarse pitch threads M1,6 to M64, and with product grades A and B.

If in certain cases other specifications are requested, property classes and stainless steel grades can be selected from ISO 898-1 or ISO 3506-1, and dimensional options from ISO 888 or ISO 4753.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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 descriptions of dimensions*

ISO 888, *Fasteners — Bolts, screws and studs — Nominal lengths and thread lengths*

ISO 898-1, *Mechanical properties of fasteners made of carbon steel and alloy steel — Part 1: Bolts, screws and studs with specified property classes — Coarse thread and fine pitch thread*

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

ISO 1891-4, *Fasteners — Vocabulary — Part 4: Control, inspection, delivery, acceptance and quality*

ISO 3269, *Fasteners — Acceptance inspection*

ISO 3506-1, *Fasteners — Mechanical properties of corrosion-resistant stainless steel fasteners — Part 1: Bolts, screws and studs with specified grades and property classes*

ISO 4042, *Fasteners — Electroplated coating systems*

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 8991, *Designation system for fasteners*

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

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

ISO 10684, *Fasteners — Hot dip galvanized coatings*

3 Terms and definitions

No terms and definitions are listed in this document.

ISO and IEC maintain terminology databases for use in standardization at the following addresses:

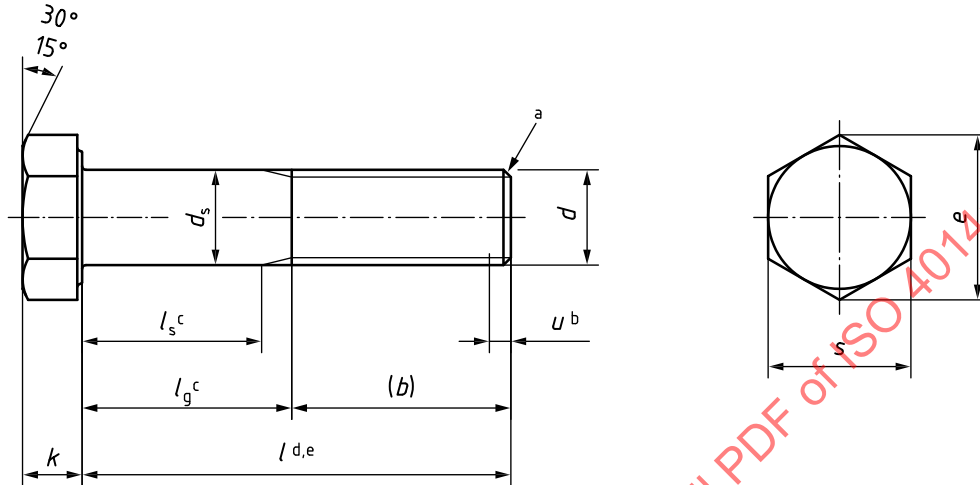
— ISO Online browsing platform: available at <https://www.iso.org/obp>

— IEC Electropedia: available at <https://www.electropedia.org/>

4 Dimensions

Dimensions shall be in accordance with [Figures 1](#) and [2](#) and with [Tables 1](#) to [6](#).

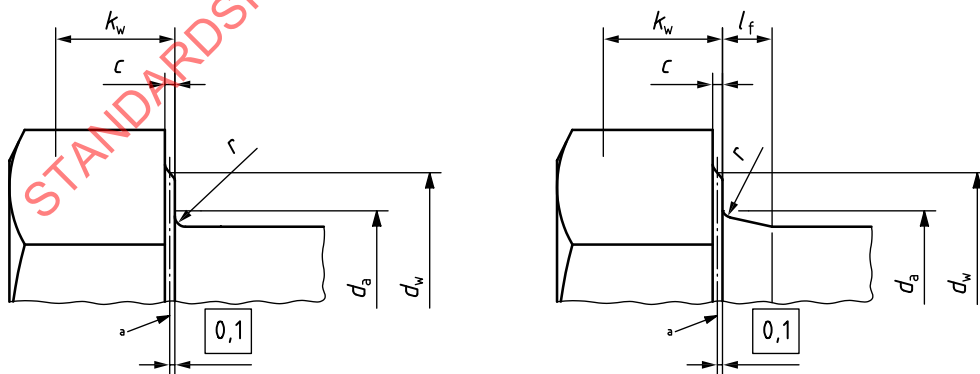
Symbols and descriptions of dimensions are defined in ISO 225.



- a In accordance with ISO 4753: chamfered end (CH), but for sizes $\leq$ M4 as-rolled end (RL) is also allowed.
- b Incomplete thread $u \leq 2P$.
- c $l_{g,max} = l_{nom} - b$ and $l_{s,min} = l_{g,max} - 5P$.
- d Shortest standard length l_{nom} determined with $5d$ for M5 to M8, $4,5d$ for M10, $4d$ for M12 to M22, $3,75d$ for M24 to M60, and rounded (if necessary) to the nearest standard length; shortest standard length $l_{nom} = 220$ mm for M64.
- e Greatest standard length $l_{nom} \leq 10d$ or 500 mm, whichever is the shorter.

Figure 1 — Hexagon head bolt

Dimensions in millimetres



a) Minimum underhead fillet

b) Maximum underhead fillet

- a Reference datum for d_w .

Figure 2 — Head details and permissible shapes

Table 1 — Dimensions for product grade A – M1,6 to M4

Dimensions in millimetres

Thread, d			M1,6	M2	M2,5	M3	(M3,5)	M4							
p^a			0,35	0,4	0,45	0,5	0,6	0,7							
b	ref.	^b	9	10	11	12	13	14							
c	max.		0,25	0,25	0,25	0,40	0,40	0,40							
	min.		0,10	0,10	0,10	0,15	0,15	0,15							
d_a	max.		2,0	2,6	3,1	3,6	4,1	4,7							
d_s	nom. = max.		1,60	2,00	2,50	3,00	3,50	4,00							
	min.		1,46	1,86	2,36	2,86	3,32	3,82							
d_w	min.		2,54	3,34	4,34	4,84	5,34	6,20							
e	min.		3,41	4,32	5,45	6,01	6,58	7,66							
k	nom.		1,1	1,4	1,7	2	2,4	2,8							
	max.		1,225	1,525	1,825	2,125	2,525	2,925							
	min.		0,975	1,275	1,575	1,875	2,275	2,675							
k_w	min.		0,68	0,89	1,10	1,31	1,59	1,87							
l_f	max.		0,6	0,8	1,0	1,0	1,0	1,2							
r	min.		0,10	0,10	0,10	0,10	0,10	0,20							
s	nom. = max.		3,20	4,00	5,00	5,50	6,00	7,00							
	min.		3,02	3,82	4,82	5,32	5,82	6,78							
l			Range of standard lengths between the stepped bold lines												
nom.	min.	max.	l_s min.	l_g max.	l_s min.	l_g max.	l_s min.	l_g max.	l_s min.	l_g max.	l_s min.	l_g max.	l_s min.	l_g max.	
12	11,65	12,35	1,25	3,0	Fully threaded screws specified in ISO 4017										
16	15,65	16,35	5,25	7,0											4,0
20	19,58	20,42				8,0	10,0	6,75	9,0	5,5	8,0	4,0	7,0		
25	24,58	25,42						11,75	14,0	10,5	13,0	9,0	12,0		
30	29,58	30,42	Product grade B in Annex A							15,5	18,0	14,0	17,0	12,5	16,0
35	34,50	35,50										19,0	22,0	17,5	21,0
40	39,50	40,50												22,5	26,0
—	—	—													
NOTE Size shown in brackets is a non-preferred dimension.															
^a P is the pitch of the thread.															
^b For $l_{\text{nom}} \leq 125$ mm.															

Table 2 — Dimensions for product grade A – M5 to M12

Dimensions in millimetres

Thread, <i>d</i>			M5	M6	(M7)		M8	M10	M12															
<i>P</i> ^a			0,8	1	1		1,25	1,5	1,75															
<i>b</i>	ref.	^b	16	18	20		22	26	30															
<i>c</i>	max.		0,50	0,50	0,60		0,60	0,60	0,60															
	min.		0,15	0,15	0,15		0,15	0,15	0,15															
<i>d</i> _a	max.		5,7	6,8	7,8		9,2	11,2	13,7															
<i>d</i> _s	nom. =	max.	5,00	6,00	7,00		8,00	10,00	12,00															
	min.		4,82	5,82	6,78		7,78	9,78	11,73															
<i>d</i> _w	min.		7,20	8,88	9,63		11,63	14,63	16,63															
<i>e</i>	min.		8,79	11,05	12,12		14,38	17,77	20,03															
<i>k</i>	nom.		3,5	4,0	4,8		5,3	6,4	7,5															
	max.		3,65	4,15	4,95		5,45	6,58	7,68															
	min.		3,35	3,85	4,65		5,15	6,22	7,32															
<i>k</i> _w	min.		2,35	2,70	3,26		3,61	4,35	5,12															
<i>l</i> _f	max.		1,2	1,4	1,4		2,0	2,0	3,0															
<i>r</i>	min.		0,20	0,25	0,25		0,40	0,40	0,60															
<i>s</i>	nom. =	max.	8,00	10,00	11,00		13,00	16,00	18,00															
	min.		7,78	9,78	10,73		12,73	15,73	17,73															
<i>l</i>			Range of standard lengths between the stepped bold lines																					
nom.	min.	max.	<i>l</i> _s min.	<i>l</i> _g max.	<i>l</i> _s min.	<i>l</i> _g max.	<i>l</i> _s min.	<i>l</i> _g max.	<i>l</i> _s min.	<i>l</i> _g max.	<i>l</i> _s min.	<i>l</i> _g max.	<i>l</i> _s min.	<i>l</i> _g max.										
25	24,58	25,42	5,0	9,0	Fully threaded screws specified in ISO 4017																			
30	29,58	30,42	10,0	14,0											7,0	12,0								
35	34,5	35,5	15,0	19,0											12,0	17,0	10,0	15,0						
40	39,5	40,5	20,0	24,0											17,0	22,0	15,0	20,0	11,75	18,0				
45	44,5	45,5	25,0	29,0											22,0	27,0	20,0	25,0	16,75	23,0	11,5	19,0		
50	49,5	50,5	30,0	34,0											27,0	32,0	25,0	30,0	21,75	28,0	16,5	24,0	11,25	20,0
55	54,4	55,6	Product grade B in Annex A												32,0	37,0	30,0	35,0	26,75	33,0	21,5	29,0	16,25	25,0
60	59,4	60,6													37,0	42,0	35,0	40,0	31,75	38,0	26,5	34,0	21,25	30,0
65	64,4	65,6															40,0	45,0	36,75	43,0	31,5	39,0	26,25	35,0
70	69,4	70,6															45,0	50,0	41,75	48,0	36,5	44,0	31,25	40,0
80	79,4	80,6					51,75	58,0	46,5	54,0	41,25	50,0												
90	89,3	90,7					56,5	64,0	51,25	60,0														
100	99,3	100,7					66,5	74,0	61,25	70,0														
110	109,3	110,7											71,25	80,0										
120	119,3	120,7											81,25	90,0										
—	—	—																						
NOTE Size shown in brackets is a non-preferred dimension.																								
^a <i>P</i> is the pitch of the thread.																								
^b For <i>l</i> _{nom} ≤ 125 mm.																								

Table 3 — Dimensions for product grade A – M14 to M24

Dimensions in millimetres

Thread, d			(M14)	M16	(M18)	M20	(M22)	M24												
p^a			2	2	2,5	2,5	2,5	3												
b	ref.	^b	34	38	42	46	50	54												
		^c	40	44	48	52	56	60												
c		max.	0,60	0,80	0,80	0,80	0,80	0,80												
		min.	0,15	0,20	0,20	0,20	0,20	0,20												
d_a		max.	15,7	17,7	20,2	22,4	24,4	26,4												
d_s	nom. =	max.	14,00	16,00	18,00	20,00	22,0	24,00												
		min.	13,73	15,73	17,73	19,67	21,67	23,67												
d_w		min.	19,64	22,49	25,34	28,19	31,71	33,61												
e		min.	23,36	26,75	30,14	33,53	37,72	39,98												
k		nom.	8,8	10	11,5	12,5	14	15												
		max.	8,98	10,18	11,715	12,715	14,215	15,215												
		min.	8,62	9,82	11,285	12,285	13,785	14,785												
k_w		min.	6,03	6,87	7,90	8,60	9,65	10,35												
l_f		max.	3	3	3	4	4	4												
r		min.	0,6	0,6	0,6	0,8	0,8	0,8												
s	nom. =	max.	21,00	24,00	27,00	30,00	34,00	36,00												
		min.	20,67	23,67	26,67	29,67	33,38	35,38												
l			Range of standard lengths between the stepped bold lines																	
nom.	min.	max.	l_s min.	l_g max.	l_s min.	l_g max.	l_s min.	l_g max.	l_s min.	l_g max.	l_s min.	l_g max.	l_s min.	l_g max.						
55	54,4	55,6	11,0	21,0	Fully threaded screws specified in ISO 4017															
60	59,4	60,6	16,0	26,0																
65	64,4	65,6	21,0	31,0											17,0	27,0				
70	69,4	70,6	26,0	36,0											22,0	32,0	15,5	28,0		
80	79,4	80,6	36,0	46,0											32,0	42,0	25,5	38,0	21,5	34,0
90	89,3	90,7	46,0	56,0											42,0	52,0	35,5	48,0	31,5	44,0
100	99,3	100,7	56,0	66,0	52,0	62,0	45,5	58,0	41,5	54,0	37,5	50,0	31,0	46,0						
110	109,3	110,7	66,0	76,0	62,0	72,0	55,5	68,0	51,5	64,0	47,5	60,0	41,0	56,0						
120	119,3	120,7	76,0	86,0	72,0	82,0	65,5	78,0	61,5	74,0	57,5	70,0	51,0	66,0						
130	129,2	130,8	86,0	90,0	76,0	86,0	69,5	82,0	65,5	78,0	61,5	74,0	55,0	70,0						
140	139,2	140,8	90,0	100,0	86,0	96,0	79,5	92,0	75,5	88,0	71,5	84,0	65,0	80,0						
150	149,2	150,8	Product grade B in Annex A		96,0	106,0	89,5	102,0	85,5	98,0	81,5	94,0	75,0	90,0						
> 150					Product grade B in Table 4															
NOTE Sizes shown in brackets are non-preferred dimensions.																				
^a P is the pitch of the thread.																				
^b For $l_{\text{nom}} \leq 125$ mm.																				
^c For $125 \text{ mm} < l_{\text{nom}} \leq 200$ mm.																				

Table 4 — Dimensions for product grade B – M16 to M27

Dimensions in millimetres

Thread, d			M16	(M18)	M20	(M22)	M24	(M27)																			
P^a			2	2,5	2,5	2,5	3	3																			
b	ref.	b	—	—	—	—	—	60																			
		c	44	48	52	56	60	66																			
		d	—	—	—	69	73	79																			
c		max.	0,8	0,8	0,8	0,8	0,8	0,8																			
		min.	0,2	0,2	0,2	0,2	0,2	0,2																			
d_a		max.	17,7	20,2	22,4	24,4	26,4	30,4																			
d_s	nom. =	max.	16,00	18,00	20,00	22,0	24,00	27,00																			
		min.	15,57	17,57	19,48	21,48	23,48	26,48																			
d_w		min.	22,00	24,85	27,70	31,35	33,25	38,00																			
e		min.	26,17	29,56	32,95	37,29	39,55	45,20																			
k		nom.	10	11,5	12,5	14	15	17																			
		max.	10,29	11,85	12,85	14,35	15,35	17,35																			
		min.	9,71	11,15	12,15	13,65	14,65	16,65																			
k_w		min.	6,80	7,81	8,51	9,56	10,26	11,66																			
l_f		max.	3	3	4	4	4	6																			
r		min.	0,6	0,6	0,8	0,8	0,8	1,0																			
s	nom. =	max.	24,00	27,00	30,00	34,00	36,00	41,00																			
		min.	23,16	26,16	29,16	33,00	35,00	40,00																			
l			Range of standard lengths between the stepped bold lines																								
nom.	min.	max.	l_s min.	l_g max.	l_s min.	l_g max.	l_s min.	l_g max.	l_s min.	l_g max.	l_s min.	l_g max.	l_s min.	l_g max.													
100	98,25	101,75	Product grade A in Table 3											25,0	40,0												
110	108,25	111,75												35,0	50,0												
120	118,25	121,75												45,0	60,0												
130	128,0	132,0												49,0	64,0												
140	138,0	142,0												59,0	74,0												
150	148,0	152,0												69,0	84,0												
160	158,0	162,0	106	116	99,5	112	95,5	108	91,5	104	85,0	100	79,0	94,0													
180	178,0	182,0	Length by agreement in accordance with ISO 888				119,5	132	115,5	128	111,5	124	105	120	99,0	114											
200	197,7	202,3					135,5		148	131,5	144	125	140	119	134												
220	217,7	222,3																									
240	237,7	242,3									138,5	151	132	147	126	141											
260	257,4	262,6									152	167	146	161													
—	—	—												166	181												
NOTE Sizes shown in brackets are non-preferred dimensions.																											
^a P is the pitch of the thread.																											
^b For $l_{\text{nom}} \leq 125$ mm.																											
^c For $125 \text{ mm} < l_{\text{nom}} \leq 200$ mm.																											
^a For $l_{\text{nom}} > 200$ mm.																											

Table 5 — Dimensions for product grade B – M30 to M42

Dimensions in millimetres

Thread, d			M30	(M33)	M36	(M39)	M42							
P^a			3,5	3,5	4	4	4,5							
b	ref.	b	66	72	—	—	—							
		c	72	78	84	90	96							
		d	85	91	97	103	109							
c		max.	0,8	0,8	0,8	1,0	1,0							
		min.	0,2	0,2	0,2	0,3	0,3							
d_a		max.	33,4	36,4	39,4	42,4	45,6							
d_s	nom. =	max.	30,00	33,00	36,00	39,00	42,00							
		min.	29,48	32,38	35,38	38,38	41,38							
d_w		min.	42,75	46,55	51,11	55,86	59,95							
e		min.	50,85	55,37	60,79	66,44	71,30							
k		nom.	18,7	21	22,5	25	26							
		max.	19,12	21,42	22,92	25,42	26,42							
		min.	18,28	20,58	22,08	24,58	25,58							
k_w		min.	12,80	14,41	15,46	17,21	17,91							
l_f		max.	6	6	6	6	8							
r		min.	1,0	1,0	1,0	1,0	1,2							
s	nom. =	max.	46,00	50,00	55,00	60,00	65,00							
		min.	45,00	49,00	53,80	58,80	63,10							
l			Range of standard lengths between the stepped bold lines											
nom.	min.	max.	l_s min.	l_g max.	l_s min.	l_g max.	l_s min.	l_g max.	l_s min.	l_g max.	l_s min.	l_g max.		
110	108,25	111,75	26,5	44,0	Fully threaded screws specified in ISO 4017									
120	118,25	121,75	36,5	54,0									30,5	48,0
130	128,0	132,0	40,5	58,0									34,5	52,0
140	138,0	142,0	50,5	68,0									44,5	62,0
150	148,0	152,0	60,5	78,0	54,5	72,0	46,0	66,0	40,0	60,0				
160	158,0	162,0	70,5	88,0	64,5	82,0	56,0	76,0	50,0	70,0			41,5	64,0
180	178,0	182,0	90,5	108	84,5	102	76,0	96,0	70,0	90,0	61,5	84,0		
200	197,7	202,3	110,5	128	104,5	122	96,0	116	90,0	110	81,5	104		
220	217,7	222,3	117,5	135	111,5	129	103	123	97,0	117	88,5	111		
240	237,7	242,3	137,5	155	131,5	149	123	143	117	137	108,5	131		
260	257,4	262,6	157,5	175	151,5	169	143	163	137	157	128,5	151		
280	277,4	282,6	177,5	195	171,5	189	163	183	157	177	148,5	171		
300	297,4	302,6	197,5	215	191,5	209	183	203	177	197	168,5	191		
320	317,15	322,85	Length by agreement in accordance with ISO 888			211,5	229	203	223	197	217	188,5	211	
340	337,15	342,85				223	243	217	237	208,5	231			
360	357,15	362,85				243	263	237	257	228,5	251			
380	377,15	382,85						257	277	248,5	271			
400	397,15	402,85										268,5	291	
420	416,85	423,15										288,5	311	
—	—	—												
NOTE			Sizes shown in brackets are non-preferred dimensions.											
a	P is the pitch of the thread.				c	For $125 \text{ mm} < l_{\text{nom}} \leq 200 \text{ mm}$.								
b	For $l_{\text{nom}} \leq 125 \text{ mm}$.				d	For $l_{\text{nom}} > 200 \text{ mm}$.								

Table 6 — Dimensions for product grade B – M45 to M64

Dimensions in millimetres

Thread, d			(M45)	M48	(M52)	M56	(M60)	M64								
P^a			4,5	5	5	5,5	5,5	6								
b	ref.	^b	102	108	116	—	—	—								
		^c	115	121	129	137	145	153								
c		max.	1,0	1,0	1,0	1,0	1,0	1,0								
		min.	0,3	0,3	0,3	0,3	0,3	0,3								
d_a		max.	48,6	52,6	56,6	63,0	67,0	71,0								
d_s	nom. =	max.	45,00	48,00	52,00	56,00	60,00	64,00								
		min.	44,38	47,38	51,26	55,26	59,26	63,26								
d_w		min.	64,70	69,45	74,20	78,66	83,41	88,16								
e		min.	76,95	82,60	88,25	93,56	99,21	104,86								
k		nom.	28	30	33	35	38	40								
		max.	28,42	30,42	33,50	35,50	38,50	40,50								
		min.	27,58	29,58	32,50	34,50	37,50	39,50								
k_w		min.	19,31	20,71	22,75	24,15	26,25	27,65								
l_f		max.	8	10	10	12	12	13								
r		min.	1,2	1,6	1,6	2,0	2,0	2,0								
s	nom. =	max.	70,00	75,00	80,00	85,00	90,00	95,00								
		min.	68,10	73,10	78,10	82,80	87,80	92,80								
l			Range of standard lengths between the stepped bold lines													
nom.	min.	max.	l_s min.	l_g max.	l_s min.	l_g max.	l_s min.	l_g max.	l_s min.	l_g max.	l_s min.	l_g max.	l_s min.	l_g max.		
160	158,0	162,0	35,5	58	Fully threaded screws specified in ISO 4017											
180	178,0	182,0	55,5	78											47	72
200	197,7	202,3	75,5	98											67	92
220	217,7	222,3	82,5	105	74	99	66	91	55,5	83	47,5	75	37	67		
240	237,7	242,3	102,5	125	94	119	86	111	75,5	103	67,5	95	57	87		
260	257,4	262,6	122,5	145	114	139	106	131	95,5	123	87,5	115	77	107		
280	277,4	282,6	142,5	165	134	159	126	151	115,5	143	107,5	135	97	127		
300	297,4	302,6	162,5	185	154	179	146	171	135,5	163	127,5	155	117	147		
320	317,15	322,85	182,5	205	174	199	166	191	155,5	183	147,5	175	137	167		
340	337,15	342,85	202,5	225	194	219	186	211	175,5	203	167,5	195	157	187		
360	357,15	362,85	222,5	245	214	239	206	231	195,5	223	187,5	215	177	207		
380	377,15	382,85	242,5	265	234	259	226	251	215,5	243	207,5	235	197	227		
400	397,15	402,85	262,5	285	254	279	246	271	235,5	263	227,5	255	217	247		
420	416,85	423,15	282,5	305	274	299	266	291	255,5	283	247,5	275	237	267		
440	436,85	443,15	302,5	325	294	319	286	311	275,5	303	267,5	295	257	287		
460	456,85	463,15			314	339	306	331	295,5	323	287,5	315	277	307		
480	476,85	483,15			334	359	326	351	315,5	343	307,5	335	297	327		
500	496,85	503,15					346	371	335,5	363	327,5	355	317	347		
—	—	—	Length by agreement in accordance with ISO 888													
NOTE Sizes shown in brackets are non-preferred dimensions.																
^a	P is the pitch of the thread.															
^b	For 125 mm < l_{nom} ≤ 200 mm.															
^c	For l_{nom} > 200 mm.															

5 Requirements and reference International Standards

The requirements specified in the International Standards listed in [Table 7](#) shall apply.

Table 7 — Requirements and reference International Standards

Material		Steel	Stainless steel
General requirements	International Standard	ISO 8992	
Thread	Tolerance class	6g ^a	
	International Standard	ISO 965-1	
Mechanical properties	Property class	M1,6 ≤ d ≤ M39	4.8, 5.6, 8.8, 10.9, 12.9/ <u>12.9</u> ^b
	Symbol	d > M39	As agreed
	Grade ^c and property class Symbol	—	M1,6 ≤ d ≤ M24 A2-70, A4-70, A4-80, D4-80, D6-80
			M24 < d ≤ M39 A2-50, A2-70, A4-50, A4-70, D4-70, D6-70
			d > M39 As agreed
	International Standard	ISO 898-1	ISO 3506-1
Tolerances	Product grade	For d ≤ M24 and l ≤ 10d or 150 mm ^d : A (except for sizes d ≤ M5 where d _{w,min} = s _{min} - IT15) For d > M24 or l > 10d or 150 mm ^d : B	
	International Standard	ISO 4759-1	
Surface condition		As processed (no coating) Electroplated coatings as specified in ISO 4042 Non-electrolytically applied zinc flake coatings as specified in ISO 10683 Hot dip galvanized coatings as specified in ISO 10684 Additional requirements or other finishes or coatings shall be agreed between the purchaser and the supplier	Clean and bright and/or Passivated ^e
Surface integrity		Limits for surface discontinuities as specified in ISO 6157-1, and in ISO 6157-3 for property class 12.9/ <u>12.9</u>	As agreed ^f
Acceptability		Acceptance inspection as specified in ISO 3269	

^a Depending on the type of coating to be applied, another tolerance position of the thread may be specified for the uncoated fastener in accordance with the relevant coating standard.

^b Fasteners of property class 12.9/12.9 are susceptible to hydrogen embrittlement: see ISO/TR 20491.

^c The most common stainless steel grades are A2 and A4; however, depending on the application, it can be necessary to select other grades in ISO 3506-1 suitable for the service corrosive environment. For use at high temperatures (up to 800 °C), mechanical properties are specified in ISO 3506-5. See also ISO 3506-6 for the selection of suitable stainless steel grades.

^d Whichever is the shorter.

^e See e.g. ISO 16048.

^f See e.g. ISO 6157-1.

6 Marking and labelling

6.1 Marking on product

Marking shall be:

- for steel fasteners, as specified in ISO 898-1,
- for stainless steel fasteners, as specified in ISO 3506-1.

6.2 Labelling on package

Labelling on the package shall be in accordance with ISO 898-1 or ISO 3506-1, and shall include at least:

- the reference to this document, i.e. ISO 4014,
- the thread size d and nominal length l ,
- the symbol of the property class for steel fasteners,
- the grade and symbol of the property class for stainless steel fasteners,
- the type of surface condition (finish and/or coating),
- the manufacturer's and/or distributor's identification and/or name,
- the manufacturing lot number as specified in ISO 1891-4,
- the quantity of pieces in the package.

7 Designation

The designation requirements as specified in ISO 8991 shall apply for all sizes, with:

- the symbol of the property class for steel fasteners, as specified in ISO 898-1,
- the grade and symbol of the property class for stainless steel fasteners, as specified in ISO 3506-1.

When no specific surface condition (finish and/or coating) is specified in the designation, steel fasteners are delivered in the "as processed" condition, and stainless steel fasteners in the "clean and bright" condition.

EXAMPLE A hexagon head bolt, with thread size M12, nominal length $l = 80$ mm, product grade A, property class 8.8, as processed, is designated as follows:

Hexagon head bolt ISO 4014 – M12 × 80 – 8.8