
Hexagon head screws — Product grade C

Vis à tête hexagonale entièrement filetées — Grade C



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 4018 was prepared by Technical Committee ISO/TC 2, *Fasteners*.

This third edition cancels and replaces the second edition (ISO 4018:1988) which has been technically revised.

STANDARDSISO.COM : Click to view the full PDF of ISO 4018:1999

© ISO 1999

All rights reserved. Unless otherwise specified, no part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from the publisher.

International Organization for Standardization
Case postale 56 • CH-1211 Genève 20 • Switzerland
Internet iso@iso.ch

Printed in Switzerland

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

STANDARDSISO.COM : Click to view the full PDF of ISO 4018:1999

Hexagon head screws — Product grade C

1 Scope

This International Standard specifies the characteristics of hexagon head screws with threads from M5 up to and including M64, of product grade C.

NOTE This type of product is the same as that covered by ISO 4016 with the exception of threading up to head.

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 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*.

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

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

ISO 4759-1:—²⁾, *Tolerances for fasteners — Part 1: Bolts, screws, studs and nuts — Product grades A, B and C*.

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

ISO 10683:—³⁾, *Fasteners — Non-electrolytically applied zinc flake coatings*.

3 Dimensions

See Figure 1 and Tables 1 and 2

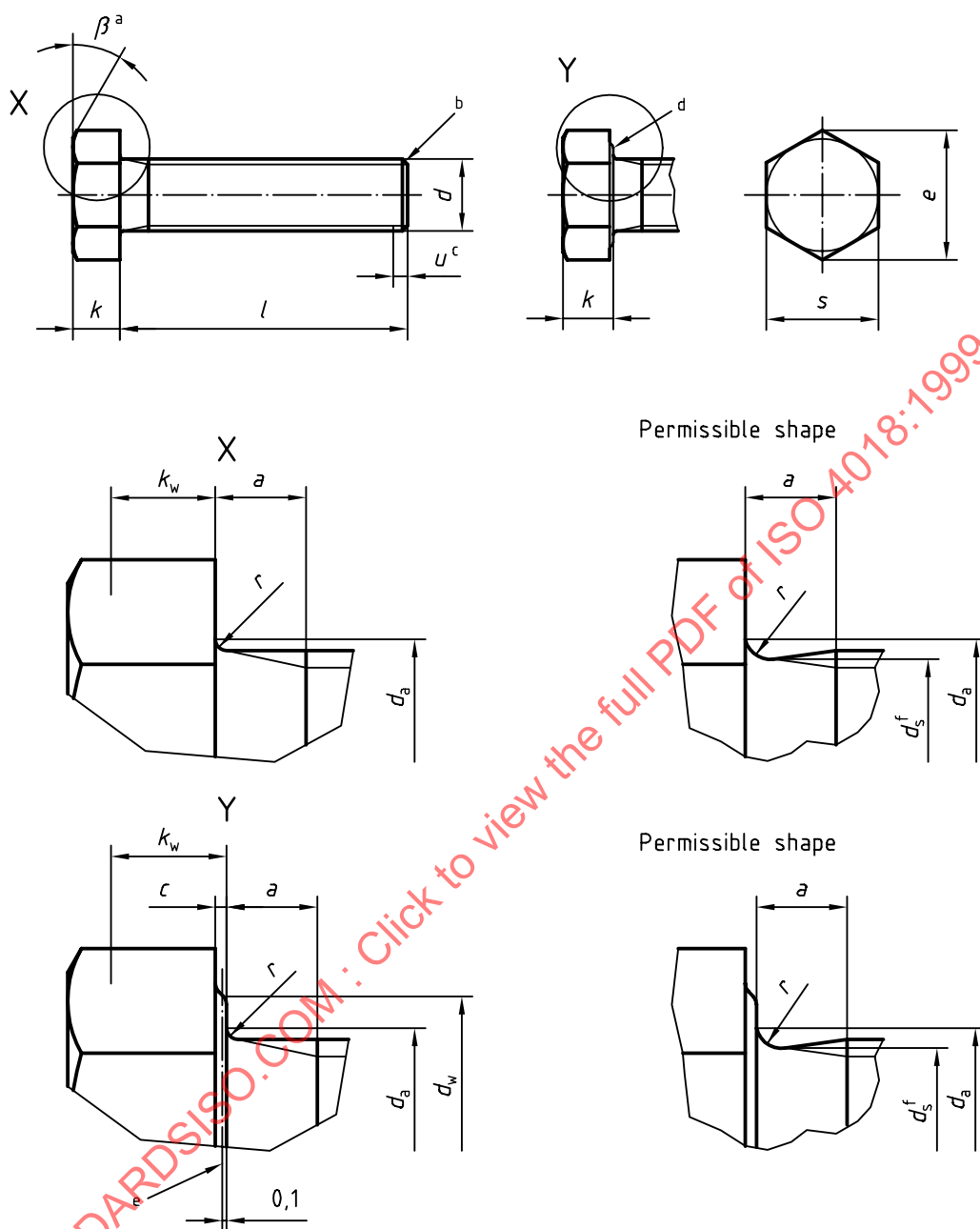
Symbols and description of dimensions are defined in ISO 225.

STANDARDSISO.COM : Click to view the full PDF of ISO 4018:1999

²⁾ To be published. (Revision of ISO 4759-1:1978)

³⁾ To be published.

Dimensions in millimetres



- a $\beta = 15^\circ$ to 30°
- b End without special requirements
- c Incomplete thread $u \leq 2 P$
- d Washer face permissible
- e Reference datum for d_w
- f $d_s \approx$ pitch diameter

Figure 1

Table 1 — Preferred threads

Thread (d)		Dimensions in millimetres													
p ^a		M5	M6	M8	M10	M12	M16	M20	M24	M30	M36	M42	M48	M56	M64
a	max.	0,8	1	1,25	1,5	1,75	2	2,5	3	3,5	4	4,5	5	5,5	6
	min.	2,4	3	4,00	4,5	5,30	6	7,5	9	10,5	12	13,5	15	16,5	18
c	max.	0,8	1	1,25	1,5	1,75	2	2,5	3	3,5	4	4,5	5	5,5	6
	min.	0,5	0,5	0,6	0,6	0,6	0,8	0,8	0,8	0,8	0,8	1	1	1	1
d _a	max.	6	7,2	10,2	12,2	14,7	18,7	24,4	28,4	35,4	42,4	48,6	56,6	67	75
d _w	min.	6,74	8,74	11,47	14,47	16,47	22	27,7	33,25	42,75	51,11	59,95	69,45	78,66	88,16
e	min.	8,63	10,89	14,2	17,59	19,85	26,17	32,95	39,55	50,85	60,79	71,3	82,6	93,56	104,86
k	nom.	3,5	4	5,3	6,4	7,5	10	12,5	15	18,7	22,5	26	30	35	40
	max.	3,875	4,375	5,675	6,85	7,95	10,75	13,4	15,9	19,75	23,55	27,05	31,05	36,25	41,25
k _w ^b	min.	3,125	3,625	4,925	5,95	7,05	9,25	11,6	14,1	17,65	21,45	24,95	28,95	33,75	38,75
	min.	2,19	2,54	3,45	4,17	4,94	6,48	8,12	9,87	12,36	15,02	17,47	20,27	23,63	27,13
r	min.	0,2	0,25	0,4	0,4	0,6	0,6	0,8	0,8	1	1	1,2	1,6	2	2
s	nom. = max.	8,00	10,00	13,00	16,00	18,00	24,00	30,00	36	46	55,0	65,0	75,0	85,0	95,0
	min.	7,64	9,64	12,57	15,57	17,57	23,16	29,16	35	45	53,8	63,1	73,1	82,8	92,8
l ^c															
nom.	min.														
10	max.														
12	9,25														
16	11,1														
20	15,1														
25	18,95														
30	21,05														
35	23,95														
40	26,05														
45	28,95														
50	31,05														
55	33,75														
60	36,25														
65	38,75														
70	41,25														
75	43,75														
80	46,25														
85	48,75														
90	51,25														
95	53,5														
100	56,5														
105	58,5														
110	61,5														
115	63,5														
120	66,5														
125	68,5														
130	71,5														
135	78,5														
140	81,5														
145	88,25														
150	91,75														
155	98,25														
160	101,75														
165	108,25														
170	111,75														

STANDARDSISO.COM : Click to view the full PDF of ISO 4018:1999

solid, boldface, stepped lines.

Table 2 — Non-preferred threads

Dimensions in millimetres

Thread (d)			M14	M18	M22	M27	M33	M39	M45	M52	M60
p^a			2	2,5	2,5	3	3,5	4	4,5	5	5,5
a	max.		6	7,5	7,5	9	10,5	12	13,5	15	16,5
	min.		2	2,5	2,5	3	3,5	4	4,5	5	5,5
c	max.		0,6	0,8	0,8	0,8	0,8	1	1	1	1
d_a	max.		16,7	21,2	26,4	32,4	38,4	45,4	52,6	62,6	71
d_w	min.		19,15	24,85	31,35	38	46,55	55,86	64,7	74,2	83,41
e	min.		22,78	29,56	37,29	45,2	55,37	66,44	76,95	88,25	99,21
k	nom.		8,8	11,5	14	17	21	25	28	33	38
	max.		9,25	12,4	14,9	17,9	22,05	26,05	29,05	34,25	39,25
	min.		8,35	10,6	13,1	16,1	19,95	23,95	26,95	31,75	36,75
k_w^b	min.		5,85	7,42	9,17	11,27	13,97	16,77	18,87	22,23	25,73
r	min.		0,6	0,6	0,8	1	1	1	1,2	1,6	2
s	nom. = max.		21,00	27,00	34	41	50	60,0	70,0	80,0	90,0
	min.		20,16	26,16	33	40	49	58,8	68,1	78,1	87,8
l^c											
nom.	min.	max.									
30	28,95	31,05									
35	33,75	36,25									
40	38,75	41,25									
45	43,75	46,25									
50	48,75	51,25									
55	53,5	56,5									
60	58,5	61,5									
65	63,5	66,5									
70	68,5	71,5									
80	78,5	81,5									
90	88,25	91,75									
100	98,25	101,75									
110	108,25	111,75									
120	118,25	121,75									
130	128	132									
140	138	142									
150	148	152									
160	156	164									
180	176	184									
200	195,4	204,6									
220	215,4	224,6									
240	235,4	244,6									
260	254,8	265,2									
280	274,8	285,2									
300	294,8	305,2									
320	314,3	325,7									
340	334,3	345,7									
360	354,3	365,7									
380	374,3	385,7									
400	394,3	405,7									
420	413,7	426,3									
440	433,7	446,3									
460	453,7	466,3									
480	473,7	486,3									
500	493,7	506,3									

^a p is the pitch of the thread.^b $k_{w, \min} = 0,7 k_{\min}$ ^c Range of popular lengths between the solid, boldface, stepped lines.

4 Specification and reference standards

See Table 3.

Table 3 — Specifications and reference standards

Material		Steel
General requirements	International Standard	ISO 8992
Thread	Tolerance	8g
	International Standards	ISO 724, ISO 965-1
Mechanical properties	Property class ^a	$d \leq 39$ mm: 3.6, 4.6, 4.8 $d > 39$ mm: as agreed
	International Standard	$d \leq 39$ mm: ISO 898-1 $d > 39$ mm: as agreed
Tolerances	Product grade	C
	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 If different electroplating requirements are desired or if requirements are needed for other finishes, they should be agreed between the customer and the supplier.
Acceptability		For acceptance procedure, see ISO 3269.
^a For other property classes see ISO 898-1.		

5 Designation

EXAMPLE

A hexagon head screw, product grade C, with thread M12, nominal length $l = 80$ mm and property class 4.6 is designated as follows:

Hexagon head screw ISO 4018 - M12 × 80 - 4.6