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Hexagon head screws — Product grade C

Vis à tête hexagonale entièrement filetées — Grade C

ICS: 21.060.10

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ISO/DIS 4018

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Foreword

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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).

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ISO/DIS 4018

This document was prepared by Technical Committee ISO/TC 2, Fasteners, Subcommittee SC 11, Fasteners with metric external thread.

This fifth edition cancels and replaces the fourth edition (ISO 4018:2011), which has been technically revised.

The main changes compared to the previous edition are as follows:

- M7 has been added;
- tables for dimensions have been restructured;
- $d_{\text{w,min}}$ has been changed for M5 from s_{min} IT16 to s_{min} IT15, as for hexagon head screws of product grades A and B;
- standard smallest length has been corrected by deleting l_{nom} = 120 mm for M64;
- standard greatest lengths (accidentally removed in the fourth edition for M10 and above) have been restored (greatest lengths $l_{\text{nom}} = 10d$ or 200 mm whichever is the shorter);
- specifications for marking and labelling were 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.

Hexagon head screws — Product grade C

1 Scope

This document specifies the characteristics of hexagon head screws, in steel, with metric coarse pitch threads M5 to M64, and with product grade C.

NOTE If in certain cases other specifications are requested, property classes can be selected from ISO 898-1, 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 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 PREVIEW

ISO 4042. Fasteners — Electroplated coating systems

ISO 4753, Fasteners — Ends of parts with external ISO metric thread https://standards.ifeh.avcatalog/standards/sist/ac64/39b-b4eb-49ca-9d01-

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 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 galvanised coatings

3 Terms and definitions

No terms and definitions are listed in this document.

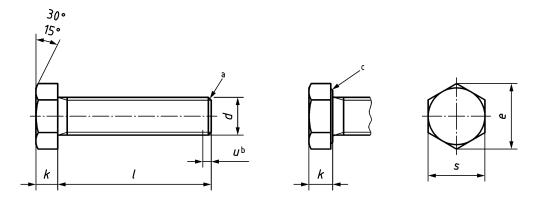
ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- ISO Online browsing platform: available at http://www.iso.org/obp
- IEC Electropedia: available at http://www.electropedia.org/

4 Dimensions

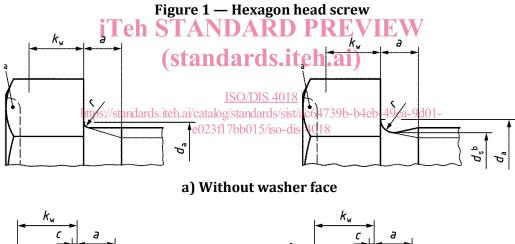
Dimensions shall be in accordance with Figures 1 and 2 and with Tables 1 to 3.

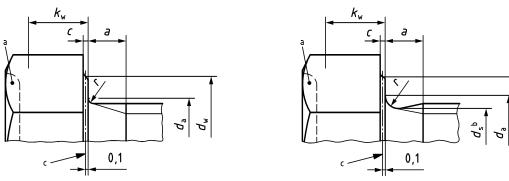
Symbols and descriptions of dimensions are defined in ISO 225.



Key

- ^a Thread end at the discretion of the manufacturer, in accordance with ISO 4753.
- b Incomplete thread $u \le 2P$.
- ^c Washer face at the discretion of the manufacturer, in accordance with Figure 2 b).





b) With washer face

Key

- ^a Indentation at the discretion of the manufacturer, within a maximum diameter of 0.8s and a maximum depth of 0.2k.
- c $d_s \approx \text{pitch diameter.}$
- d Reference datum for $d_{\rm w}$.

Figure 2 — Head details and permissible shapes

Table 1 — Dimensions - M5 to M16

Dimensions in millimetres

1	Thread,	d	М5	М6	(M7)	М8	M10	M12	(M14)	M16
P ^a			0,8	1	1	1,25	1,5	1,75	2	2
h		max.	2,40	3,00	3,00	3,75	4,50	5 , 25	6,00	6,00
<i>a</i> ^b		min.	0,80	1,00	1,00	1,25	1,50	1,75	2,00	2,00
С		max.	0,5	0,5	0,6	0,6	0,6	0,6	0,6	0,8
$d_{\rm a}$		max.	6,0	7,2	8,2	10,2	12,2	14,7	16,7	18,7
d_{w}		min.	7,06	8,74	9,47	11,47	14,47	16,47	19,15	22,00
e		min.	8,63	10,89	11,94	14,20	17,59	19,85	22,78	26,17
		nom.	3,5	4	4,8	5,3	6,4	7,5	8,8	10
\boldsymbol{k}		max.	3,875	4,375	5,175	5,675	6,85	7,95	9,25	10,75
		min.	3,125	3,625	4,425	4,925	5,95	7,05	8,35	9,25
$k_{ m w}$		min.	2,19	2,54	3,10	3,45	4,17	4,94	5,85	6,48
r		min.	0,20	0,25	0,25	0,4	0,4	0,6	0,6	0,6
	nom. =	max.	8,00	10,00	11,00	13,00	16,00	18,00	21,00	24,00
S		min.	7,64	9,64	10,57	12,57	15,57	17,57	20,16	23,16
	1			Range of sta	ndardized l	engths betw	een the step	ped disconti	nuous lines	
nom.	min. 9,25	max. 10,75					_			
12	11,10	12,90								
16	15,10	16,90	iΤα	h STA	VDX	גוער חיק גוער חיק	FVIF	Screw Vtoo shoi	s with t length	
20	18,95	21,05	110			· -			0 10 1. gui	
25	23,95	26,05		(sta	ndard	s.iteh.	ai) -			
30	28,95	31,05								
35	33,75	36,25			ISO/DIS	4018				
40	38,75	41,25	https://stanc	lards.iteh.a√cı	italog/standar 123fl 7bb015/	ds/sist/ac6473 iso-dis-4018	9 b-b4eb-49c	a-9d01-		
45	43,75	46,25		eı	12311 / 000113/	ISO-0IS-401 8				
50	48,75	51,25								
55	53,50	56,50								
60	58,50	61,50								
65	63,50	66,50								
70	68,50	71,50								
80	78,50	81,50								
90	88,25	91,75								
100	98,25	101,75								
110	108,25	111,75								
120	118,25	121,75			be agreed b			L		
130	128,0	132,0		purchaser	and the ma	nufacturer				
140	138,0	142,0							! !	
150	148,0	152,0								
160	156,0	164,0								

NOTE Sizes shown in brackets are non-preferred diameters.

a *P* is the pitch of the thread.

Unlike ISO 3508, $a_{\text{max}} = 3P$.

Table 2 — Dimensions - M18 to M36

Thread, d			(M18)	M20	(M22)	M24	(M27)	M30	(M33)	M36
P a			2,5	2,5	2,5	3	3	3,5	3,5	4
b		max.	7,5	7,5	7,5	9,0	9,0	10,5	10,5	12,0
<i>a</i> ^b		min.	2,5	2,5	2,5	3,0	3,0	3,5	3,5	4,0
С		max.	0,8	8,0	8,0	8,0	8,0	8,0	0,8	8,0
$d_{\rm a}$		max.	21,2	24,4	26,4	28,4	32,4	35,4	38,4	42,4
d_{w}		min.	24,85	27,70	31,35	33,25	38,00	42,75	46,55	51,11
e		min.	29,56	32,95	37,29	39,55	45,20	50,85	55,37	60,79
		nom.	11,5	12,5	14	15	17	18,7	21	22,5
k		max.	12,40	13,40	14,90	15,90	17,90	19,75	22,05	23,55
		min.	10,60	11,60	13,10	14,10	16,10	17,65	19,95	21,45
k _w		min.	7,42	8,12	9,17	9,87	11,27	12,36	13,97	15,02
r		min.	0,6	0,8	0,8	0,8	1,0	1,0	1,0	1,0
	nom. =	max.	27,00	30,00	34,00	36,00	41,0	46,0	50,0	55,0
S		min.	26,16	29,16	33,00	35,00	40,0	45,0	49,0	53,8
	1			Range of sta	ndardized l	engths betw	een the sten	ned disconti	inuous lines	
nom.	min.	max.		i i i i i i i i i i i i i i i i i i i	indui dized i	engths betw	cen the step	peu uiscone	inuous inies	
35	33,75	36,25								
40	38,75	41,25			<u> </u>				s with	
45	43,75	46,25	iTo	h CTA	NDA	D PR	FVIE	too shor	rt lengtn	
50	48,75	51,25	110	II SIA		W I I		* *		
55	53,50	56,50		(sta	ndard	s.iteh.	ai) —	L		
60	58,50	61,50					,			
65	63,50	66,50			ISO/DIS	4018				
70	68,50	71,50	https://stanc	lards.iteh.ai/ca		ds/sist/ac6473	9h-h4eh-49a	a-9d01-		
80	78,50	81,50		e()23f17bb015/	iso-dis-4018				
90	88,25	91,75								
100	98,25	101,75								
110	108,25	111,75								
120	118,25	121,75								
130	128,0	132,0								
140	138,0	142,0								
150	148,0	152,0								
160	156,0	164,0								
180	176,0	184,0		·						
200	195,4	204,6					<u> </u>		l	L
	_	—		Lengths to		between the	purchaser a	ınd the man	ufacturer	

NOTE Sizes shown in brackets are non-preferred diameters.

^a *P* is the pitch of the thread.

b Unlike ISO 3508, $a_{\text{max}} = 3P$.

Table 3 — Dimensions - M39 to M64

Dimensions in millimetres

Thread, d			(M39)	M42	(M45)	M48	(M52)	M56	(M60)	M64
P a			4	4,5	4,5	5	5	5,5	5,5	6
а b		max.	12,0	13,5	13,5	15,0	15,0	16,5	16,5	18,0
ав		min.	4,0	4,5	4,5	5,0	5,0	5,5	5,5	6,0
C		max.	1,0	1,0	1,0	1,0	1,0	1,0	1,0	1,0
$d_{\rm a}$		max.	45,4	48,6	52,6	56,6	62,6	67,0	71,0	75,0
$d_{\rm w}$		min.	55,86	59,95	64,70	69,45	74,20	78,66	83,41	88,16
e		min.	66,44	71,30	76,95	82,60	88,25	93,56	99,21	104,86
		nom.	25	26	28	30	33	35	38	40
k		max.	26,05	27,05	29,05	31,05	34,25	36,25	39,25	41,25
		min.	23,95	24,95	26,95	28,95	31,75	33,75	36,75	38,75
$k_{ m w}$		min.	16,77	17,47	18,87	20,27	22,23	23,63	25,73	27,13
r		min.	1,0	1,2	1,2	1,6	1,6	2,0	2,0	2,0
	nom. =	max.	60,0	65,0	70,0	75,0	80,0	85,0	90,0	95,0
S		min.	58,8	63,1	68,1	73,1	78,1	82,8	87,8	92,8
l		Range of standardized lengths between the stepped discontinuous lines								
nom.	min.	max.				<u> </u>	•	•		
80	78,50	81,50								
90	88,25	91,75	iTo	LCTA	NIDAI	נתרחל			Screws with o short leng	
100	98,25	101,75	116	II STA	NDAI	XD F N			Short leng	LII
110	108,25	111,75		(sta	ndard	s.iteh.	ai)			
120	118,25	121,75		(3333			,			
130 140	128,0 138,0	132,0 142,0			ISO/DIS	4018				
150	148,0	152,0	https://stanc	lards.itch.ai/ea	talog/standar	ds/sist/ac6473	9b-b4cb-49c	a-9d01-		
160	156,0	164,0		el	123f17bb015/	iso-dis-4018				
180	176,0	184,0								
200	195,4	204,6								
200	173,4	204,0		Longthat	o ho agreed	hotwoon the	nurchasar	and the mer	ufacturer	
MOTE			1 1 .	Lengths t		between the	purchaser a	mu me man	uiacturer	

NOTE Sizes shown in brackets are non-preferred diameters.

P is the pitch of the thread.

b Unlike ISO 3508, $a_{\text{max}} = 3P$.

5 Requirements and reference International Standards

The requirements specified in the International standards listed in Table 4 shall apply.

Table 4 — Requirements and reference International Standards

Material		Steel				
General requirements	International Standard	ISO 89	92			
Thread	Tolerance class	8g a				
Tiffeau	International Standard	ISO 965-1				
Mashaniaal	Property class	$M5 \le d \le M39$	4.6, 4.8			
Mechanical properties	Symbol	<i>d</i> > M39	As agreed			
properties	International Standard	ISO 898-1				
Tolerances	Product grade	C (except for size M5 where $d_{w,min} = s_{min} - IT15$)				
Tolerances	International Standard	ISO 4759-1				
		As processed (no coating)				
		Electroplated coatings as specified in ISO 4042				
Finish - Coating	g	Non-electrolytically applied zinc flake coatings as specified in ISO 10683				
	5	Hot dip galvanized coatings as specified in ISO 10684				
	Tolo CTA	Additional requirements or other finishes or coatings shall be agreed between the supplier and the purchaser				
Surface integri	ty II ell SIA	Limits for surface discontinuities as specified in ISO 6157-1				
Acceptability	(sta	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.

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6 Marking and labelling

6.1 Marking on product

Marking shall be as specified in ISO 898-1.

6.2 Labelling on package

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

- the reference to this document, i.e. ISO 4018,
- the thread size *d* and nominal length *l*,
- the symbol of the property class,
- the type of "Finish Coating",
- the manufacturer's and/or distributor's name,
- the manufacturing lot number as specified in ISO 1891-4,
- the quantity of pieces in the package.