



**SLOVENSKI STANDARD**  
**SIST EN 14219:2004**

**01-januar-2004**

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**Šestroba glava vijaka s krajcem in metričnim finim navojem - Lahka izvedba (ISO 15072:1999, dopolnjen)**

Hexagon bolts with flange with metric fine pitch thread - Small series (ISO 15072:1999, modified)

Sechskantschrauben mit Flansch mit Feingewinde - Leichte Reihe (ISO 15072:1999, modifiziert)

**iTeh STANDARD PREVIEW**  
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Vis a tete hexagonale a embase cylindro-tronçonique a pas fin - Série étroite (ISO 15072:1999, modifiée)

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**Ta slovenski standard je istoveten z: EN 14219:2003**

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**ICS:**

21.040.10	Metrski navoji	Metric screw threads
21.060.10	Sorniki, vijaki, stebelni vijaki	Bolts, screws, studs

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EUROPEAN STANDARD

EN 14219

NORME EUROPÉENNE

EUROPÄISCHE NORM

April 2003

ICS 21.060.10

English version

## Hexagon bolts with flange with metric fine pitch thread - Small series (ISO 15072:1999, modified)

Vis à tête hexagonale à embase cylindro-tronçonnée à pas fin - Série étroite (ISO 15072:1999, modifiée)

Sechskantschrauben mit Flansch mit Feingewinde - Leichte Reihe (ISO 15072:1999, modifiziert)

This European Standard was approved by CEN on 14 February 2003.

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, Hungary, Iceland, Ireland, Italy, Luxembourg, Malta, Netherlands, Norway, Portugal, Slovakia, Spain, Sweden, Switzerland and United Kingdom.

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EUROPEAN COMMITTEE FOR STANDARDIZATION  
COMITÉ EUROPÉEN DE NORMALISATION  
EUROPÄISCHES KOMITEE FÜR NORMUNG

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

**EN 14219:2003 (E)****Foreword**

This document (EN 14219:2003) has been prepared 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 October 2003, and conflicting national standards shall be withdrawn at the latest by October 2003.

Annex A is normative.

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, Hungary, Iceland, Ireland, Italy, Luxembourg, Malta, Netherlands, Norway, Portugal, Slovakia, Spain, Sweden, Switzerland and the United Kingdom.

**Endorsement notice**

The text of the International Standard ISO 15072:1999 was approved by CEN as a European Standard with agreed common modifications as given below.

Bolts in accordance with this European Standard correspond to those specified in the International Standard ISO 15072:1999 with the exception that the width across flats for M12 is 16 mm (instead of 15 mm) and that the property class 9.8 was deleted. Moreover, the option for surface coatings according to ISO 10683 was added.

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## 1 Scope

This European Standard specifies the characteristics of hexagon bolts with flange with metric fine pitch thread, small series, with product grade A, with nominal thread diameters from 8 mm up to and including 16 mm and property classes 8.8, ~~9.8~~, 10.9, 12.9 and A2-70.

If, in special cases, specifications other than those listed in this European Standard are required, they shall be selected from existing European and International Standards, for example ~~ISO 261~~ ISO 724, ISO 888, EN ISO 898-1, ISO 965-2, EN ISO 3506-1.

## 2 Normative references

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 (including amendments).

EN 20225, *Fasteners — Bolts, screws, studs and nuts — Symbols and designations of dimensions (ISO 225:1983)*.

EN 26157-3, *Fasteners — Surface discontinuities — Part 3: Bolts, screws and studs for special requirements (ISO 6157-3:1988)*.

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

EN ISO 3269, *Fasteners — Acceptance inspection (ISO 3269:2000)*.

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

EN ISO 4042, *Fasteners — Electroplated coatings (ISO 4042:1999)*.

EN ISO 4753, *Fasteners — Ends of parts with external ISO metric screw thread (ISO 4753:1999)*.

EN ISO 4759-1, *Tolerances for fasteners — Part 1: Bolts, screws, studs and nuts — Product grades A, B and C (ISO 4759-1:2000)*.

EN ISO 10683, *Fasteners — Non-electrolytically applied zinc flake coatings (ISO 10683:2000)*.

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

ISO 261:1998, *ISO general purpose metric screw threads — General plan*

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

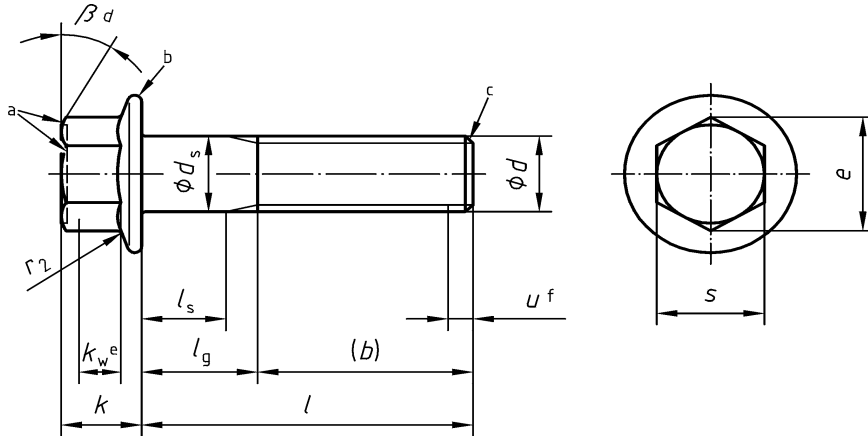
ISO 8992, *Fasteners — General requirements for bolts, screws, studs and nuts*.

## EN 14219:2003 (E)

## 3 Dimensions

Dimensions shall be in accordance with Figures 1 to 4 and Table 1.

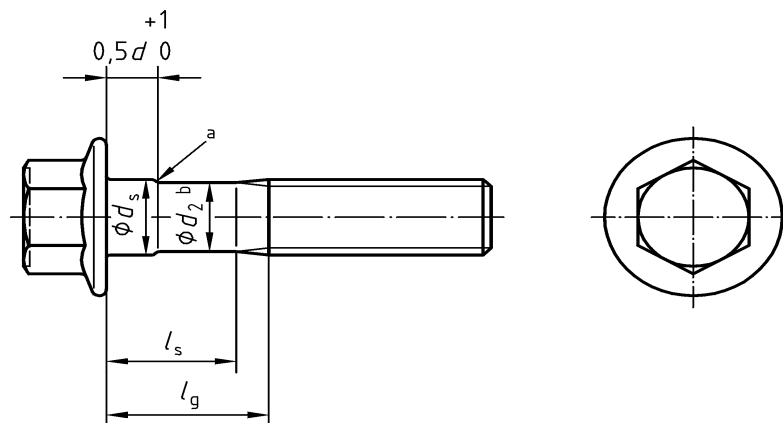
NOTE — Symbols and designations of dimensions are specified in EN 20225.

**Key**

- a The top of the head shall be either full form or indented at the manufacturer's discretion option and shall be either chamfered or rounded. The minimum diameter of the chamfer circle or start of rounding shall be equal to the maximum width across flats minus 15 %. If the top of the head is indented, the periphery may be rounded.
- b Edge contour optional.
- c Chamfered end (see EN ISO 4753).
- d  $\beta = 15^\circ$  to  $30^\circ$
- e  $k_w$  is the wrenching height; see the note to Table 1.
- f Incomplete thread  $u \leq 2 P$

Figure 1 — Hexagon bolt with flange — Full shank (standard type)

Tolerances in millimetres

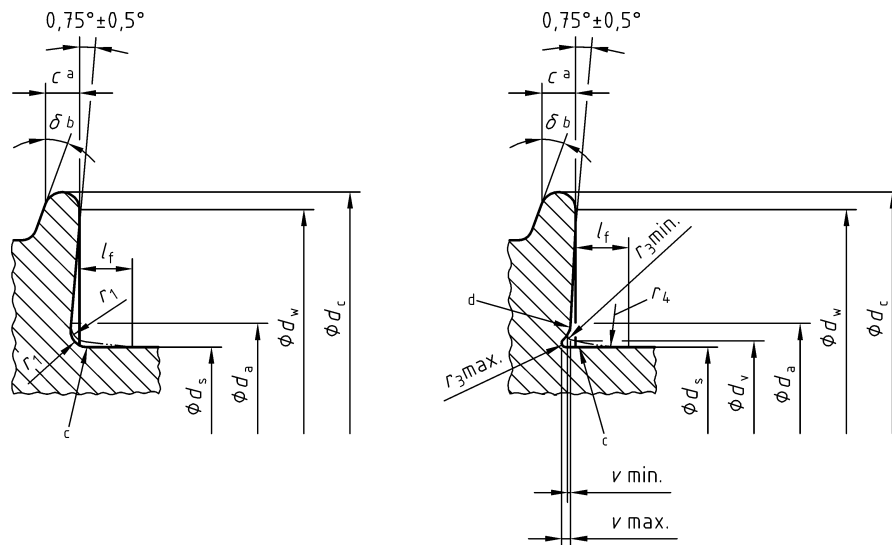


NOTE For other dimensions, see Figure 1

**Key**

- a Rounded or chamfered or conical.
- b  $d_2$  is approximately equal to the pitch diameter (rolling diameter).

Figure 2 — Hexagon bolt with flange — Reduced shank, type R (upon request)



Type F without undercut (upon request or optional)

Type U with undercut (upon request or optional)

**Key**

- a  $c$  is measured at  $d_w$  min.
- b  $\delta = 15^\circ$  to  $25^\circ$
- c Maximum and minimum underhead fillet.
- d Junction of fillet with bearing surface to be a smooth blend.

Figure 3 — Hexagon bolt with flange — Underhead configuration (bearing area)

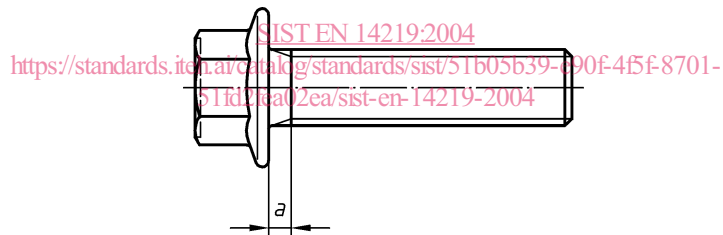


Figure 4 — Hexagon bolt with flange threaded to the head

Table 1 - Dimensions

Dimensions in millimetres

Thread $d \times P^a$		M8 $\times$ 1	M10 $\times$ 1 M10 $\times$ 1,25	M12 $\times$ 1,25 M12 $\times$ 1,5	(M14 $\times$ 1,5) <sup>b</sup>	M16 $\times$ 1,5
$a$	max.	3	3	4,5	4,5	4,5
	min.	1	1	1,5	1,5	1,5
$b$ ref.	c	22	26	30	34	38
	d	28	32	36	40	44
	e	—	—	—	—	57
$c$	min.	1,2	1,5	1,8	2,1	2,4
$d_a$ Types	F max.	9,2	11,2	13,7	15,7	17,7
	U max.	10	12,5	15,2	17,7	20,5
$d_c$	max.	17	20,8	24,7	28,6	32,8
$d_s$	max.	8,00	10,00	12,00	14,00	16,00
	min.	7,78	9,78	11,73	13,73	15,73
$d_v$	max.	8,8	10,8	12,8	14,8	17,2
$d_w$	min.	14,9	18,7	22,5	26,4	30,6
$e$	min.	10,95	14,26	17,62 16,50	19,86	23,15
$k$	max.	8,5	9,7	12,1	12,9	15,2
$k_w$	min.	3,8	4,3	5,4	5,6	6,8
$l_f$	max.	2,1	2,1	2,1	2,1	3,2
$r_1$	min.	0,4	0,4	0,6	0,6	0,6
$r_2^f$	max.	0,5	0,6	0,7	0,9	1
$r_3$	max.	0,36	0,45	0,54	0,63	0,72
	min.	0,16	0,20	0,24	0,28	0,32
$r_4$	ref.	5,7	5,7	5,7	5,7	8,8
$s$	max.	10,00	13,00	16,00 15,00	18,00	21,00
	min.	9,78	12,73	15,73 14,73	17,73	20,67
$v$	max.	0,25	0,30	0,35	0,45	0,50
	min.	0,10	0,15	0,15	0,20	0,25



Table 1 (continued)

Dimensions in millimetres

Thread $d \times P^a$			M8 $\times$ 1		M10 $\times$ 10 M10 $\times$ 1,25		M12 $\times$ 1,25 M 12 $\times$ 1,5		(M14 $\times$ 1,5) <sup>b</sup>		M16 $\times$ 1,5	
$g, h$			$l_s$ and $l_g^{i,j}$									
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.
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	6,75	13	—	—	—	—	—	—	—	—
40	39,5	40,5	11,75	18	6,5	14	—	—	—	—	—	—
45	44,5	45,5	16,75	23	11,5	19	6,25	15	—	—	—	—
50	49,5	50,5	21,75	28	16,5	24	11,25	20	6	16	—	—
55	54,4	55,6	26,75	33	21,5	29	16,25	25	11	21	7	17
60	59,4	60,6	31,75	38	26,5	34	21,25	30	16	26	12	22
65	64,4	65,6	36,75	43	31,5	39	26,25	35	21	31	17	27
70	69,4	70,6	41,75	48	36,5	44	31,25	40	26	36	22	32
80	79,4	80,6	51,75	58	46,5	54	41,25	50	36	46	32	42
90	89,3	90,7	—	—	56,5	64	51,25	60	46	56	42	52
100	99,3	100,7	—	—	66,5	74	61,25	70	56	66	52	62
110	109,3	110,7	—	—	—	—	71,25	80	66	76	62	72
120	119,3	120,7	—	—	—	—	81,25	90	76	86	72	82
130	129,2	130,8	—	—	—	—	—	—	80	90	76	86
140	139,2	140,8	—	—	—	—	—	—	90	100	86	96
150	149,2	150,8	—	—	—	—	—	—	—	—	96	106
160	159,2	160,8	—	—	—	—	—	—	—	—	106	116

NOTE If the product passes the gauging in annex A, the requirements for dimensions  $c$ ,  $e$  and  $k_w$  are satisfied.

a  $P$  is the pitch of the thread.

b The size in parentheses should be avoided if possible.

c For lengths  $l_{nom} \leq 125$  mm.

d For lengths  $125 \text{ mm} < l_{nom} \leq 200$  mm.

e For lengths  $l_{nom} > 200$  mm.

f Radius  $r_2$  applies both at the corners and at the flats of the hexagon.

g Screws with lengths shown above the thick stepped line are threaded to the head.

h Reduced shank type (type R) only below the dashed stepped line.

i  $l_g$  is the minimum grip length.

j  $l_{g \max} = l_{nom} - b$

$l_{s \min} = l_{g \max} - 5 P$  ( $P$  is the pitch of the coarse thread with the corresponding diameter, specified in ISO 724/ISO 264).