INTERNATIONAL STANDARD

ISO 14582

First edition
2013-09-15

Fasteners — Hexalobular socket countersunk head screws, high head

Éléments de fixation — Vis à tête fraisée à six lobes internes, tête haute

Reference number
ISO 14582:2013(E)

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Foreword

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The committee responsible for this document is ISO/TC 2, *Fasteners*, Subcommittee SC 11, *Fasteners with metric external thread*.

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Fasteners — Hexalobular socket countersunk head screws, high head

1 Scope

This International Standard specifies hexalobular socket countersunk head bolts and screws with high head (full loadability), of product grade A, and thread diameters from M3 up to and including M10 and property classes 4.8, 8.8 and 10.9.

NOTE 1 In comparison with ISO common countersunk head, the height of the head has been slightly increased in order to have screws with full loadability, in conformity with the mechanical properties specified in ISO 898-1.

This International Standard also specifies gauge dimensions for the control of the head dimensions.

NOTE 2 Because of the increased head height, these screws are not fully interchangeable with other countersunk ISO metric screws. The assembled parts also need a slightly deeper countersink than those specified in ISO 15065.

If, in special cases, specifications other than those listed in this International Standard are required, they can be selected from existing International Standards, for example ISO 261, ISO 888, ISO 898-1, ISO 965-2 and ISO 4759-1.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. 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 261, *ISO general purpose metric screw threads — General plan*

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

ISO 3269, *Fasteners — Acceptance inspection*

ISO 4042, *Fasteners — Electroplated coatings*

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 10664, *Hexalobular internal driving feature for bolts and screws*

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

ISO 10684, *Fasteners — Hot dip galvanized coatings*

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3 Dimensions

See Figures 1 and 2 and Table 1. Symbols and descriptions of dimensions are specified in ISO 225.

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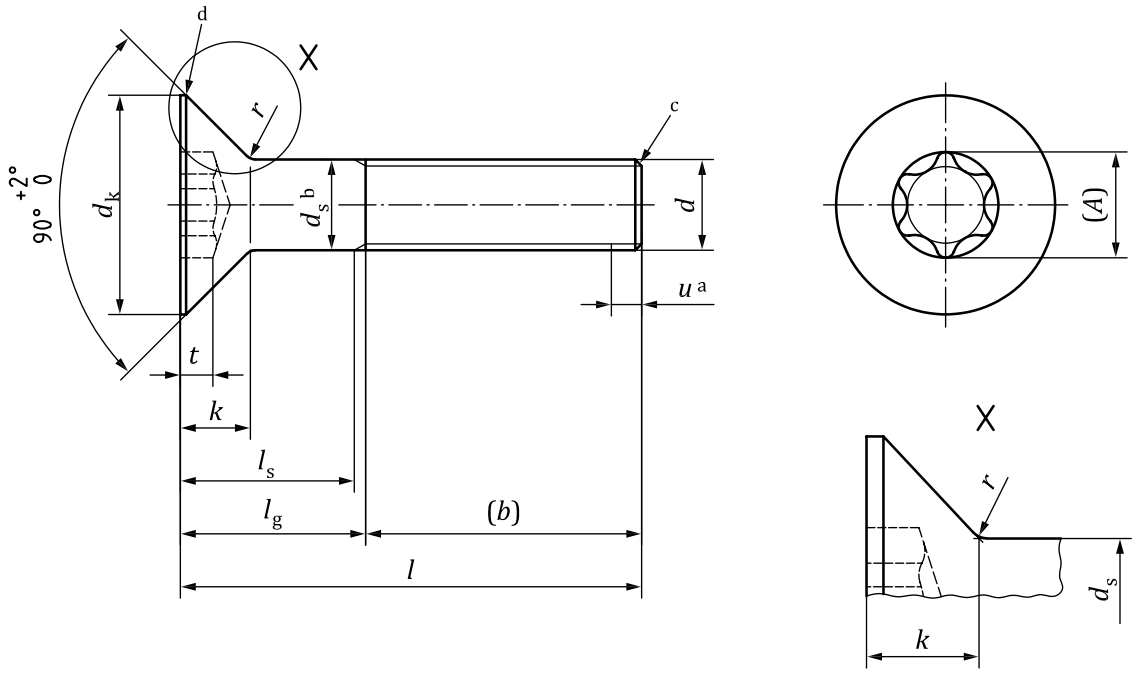
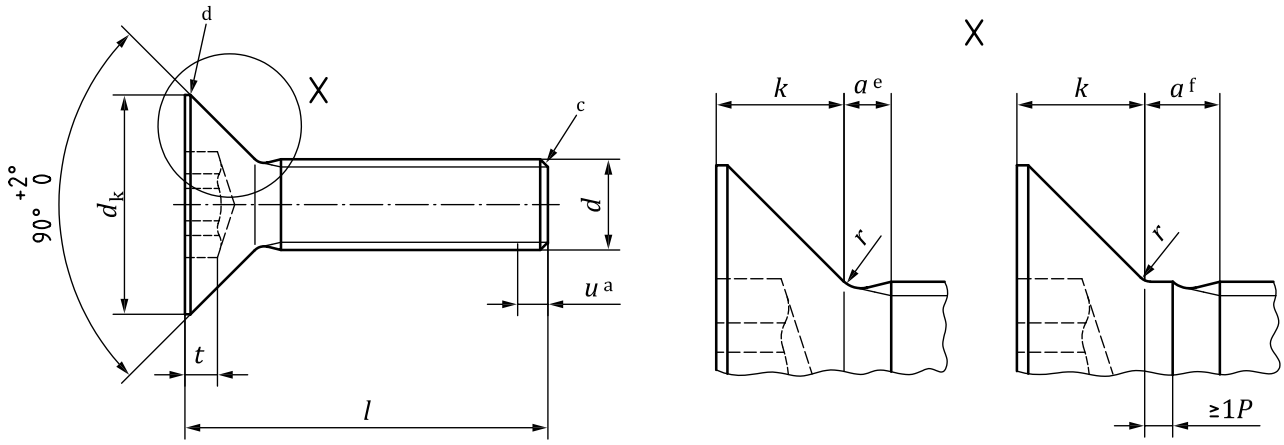


a) Partially threaded screw



without shoulder **with shoulder**g

b) Screw threaded to the head

a Incomplete thread $u \leq 2P$.

b d_s applies if values of $l_{s,min}$ are specified.

c Point is to be chamfered or, for sizes ≤ M4, "as rolled" in conformity with ISO 4753.

d Edge of the head flat or rounded.

e $a_{max} \leq 2P$.

f $a_{max} \leq 2{,}5P$.

g Any shape or size of the reinforcing feature is at the discretion of the manufacturer and shall not exceed *d*.

Figure 1 — Hexalobular socket countersunk head screw, high head

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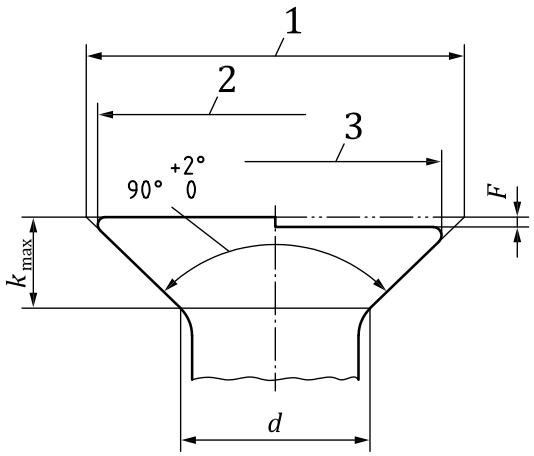


Key

1 $d_{k\ theoretical,max}$

2 $d_{k\ actual,max}$

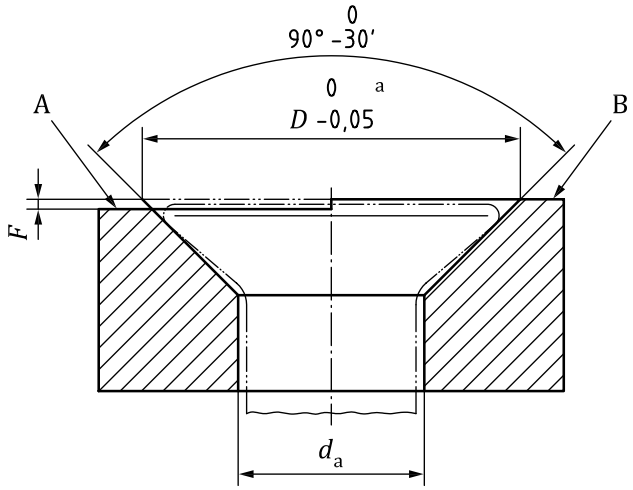
3 $d_{k\ actual,min}$

F flushness tolerance of the gauge (see Table 1)

Figure 2 — Countersunk head configuration

For gauging of the head and for dimensions of the gauge allowing the control of the head dimensions see Figure 3 and Table 1. The top surface of the screw shall be located between the gauge surfaces A and B.

Tolerances in millimetres



Key

F flushness tolerance of the gauge (see Table 1)

a $D = d_{k\ theoretical,max}$

Figure 3 — Flushness gauge

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Table 1 — Dimensions for hexalobular socket countersunk head screws, high head

Dimensions in millimetres

Thread, d			M3	M4	M5	M6	M8	M10
P[a]			0,5	0,7	0,8	1	1,25	1,5
b		ref.	18	20	22	24	28	32
d_a		max.	3,30	4,40	5,50	6,60	8,54	10,62
		min.[b]	3,20	4,30	5,40	6,50	8,44	10,52
d_k	theoretical	max.	7,40	10,02	12,00	14,44	19,38	23,00
	actual	max.	6,57	9,02	10,90	13,20	17,90	21,30
		min.	6,17	8,52	10,27	12,46	17,09	20,49
d_s		max.	3,00	4,00	5,00	6,00	8,00	10,00
		min.	2,86	3,82	4,82	5,82	7,78	9,78
F[c]		max.	0,25	0,25	0,30	0,35	0,40	0,40
k[d]		max.	2,20	3,01	3,50	4,22	5,69	6,50
r		min.	0,10	0,20	0,20	0,25	0,40	0,40
Hexalobular socket	Socket No.		**10**	**20**	**25**	**30**	**45**	**50**
	A	ref.	2,8	3,95	4,5	5,6	7,93	8,95
	t	max.	1,18	1,69	1,89	2,22	2,99	3,30
		min.	0,92	1,30	1,50	1,83	2,60	2,91

l[e]			l_s and l_g											
			l_s	l_g	l_s	l_g	l_s	l_g	l_s	l_g	l_s	l_g	l_s	l_g
nom.[f]	min.	max.	min.	max.	min.	max.	min.	max.	min.	max.	min.	max.	min.	max.
8	7,71	8,29												
10	9,71	10,29												
12	11,65	12,35												
(14)	13,65	14,35												
16	15,65	16,35												
20	19,58	20,42												
25	24,58	25,42												
30	29,58	30,42	9,5	12	6,5	10								
35	34,5	35,5			11,5	15	9	13						
40	39,5	40,5			16,5	20	14	18	11	16				
45	44,5	45,5					19	23	16	21				
50	49,5	50,5					24	28	21	26	15,75	22		
55	54,4	55,6							26	31	20,75	27	15,5	23
60	59,4	60,6							31	36	25,75	32	20,5	28
65	64,4	65,6									30,75	37	25,5	33
70	69,4	70,6									35,75	42	30,5	38
80	79,4	80,6									45,75	52	40,5	48
90	89,3	90,7											50,5	58
100	99,3	100,7											60,5	68

a P is the pitch of the thread.

b Values for $d_{a,min}$ are based on a radius $r = 0{,}25d$.

c The flushness tolerance of the gauge, F, has the tolerance $^{0}_{-0{,}01}$.

d The dimensions of the gauges defined in ISO 7721 are not adapted to this countersunk head.

e Preferred lengths are between the bold, stepped lines. Lengths above the discontinuous, stepped line are threaded to the head within $3P$. Lengths below the discontinuous, stepped line have values of l_g and l_s in accordance with the following formulae:

$l_{g,max} = l_{nom} - b$

$l_{s,min} = l_{g,max} - 5P$

f Dimensions in parentheses should be avoided.

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4 Requirements and reference International Standards

See Table 2.

Table 2 — Requirements and reference International Standards

Material		Steel
General requirements	International Standard	ISO 8992
Thread	Tolerance class	6g
	International Standards	ISO 261, ISO 965-2
Mechanical properties	Property class	4.8, 8.8, 10.9
	International Standard	ISO 898-1
Tolerance	Product grade	A
	International Standard	ISO 4759-1
Hexalobular socket	International Standard	ISO 10664
Finish — Coating		As processed Requirements for electroplating are specified in ISO 4042. Requirements for non-electrolytically applied zinc flake coatings are specified in ISO 10683. Requirements for hot dip galvanizing are specified in ISO 10684. Additional requirements or other finishes or coatings shall be agreed between the supplier and the purchaser.
Surface integrity		Limits for surface discontinuities are specified in ISO 6157-1.
Acceptability		Acceptance procedure is specified in ISO 3269.

5 Marking

When requested, screws of diameter M5 and above shall be marked in accordance with ISO 898-1.

6 Designation

The designation requirements shall apply as specified in ISO 898-1.

EXAMPLE A hexalobular socket countersunk head screw, high head, with thread M10, nominal length l = 40 mm and property class 10.9 is designated as follows:

Countersunk head screw ISO 14582 - M10 × 40 – 10.9

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Bibliography

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

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

[3] ISO 7721, *Countersunk head screws — Head configuration and gauging*

[4] ISO 15065, *Countersinks for countersunk head screws with head configuration in accordance with ISO 7721*

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