

International Standard



7046

INTERNATIONAL ORGANIZATION FOR STANDARDIZATION • МЕЖДУНАРОДНАЯ ОРГАНИЗАЦИЯ ПО СТАНДАРТИЗАЦИИ • ORGANISATION INTERNATIONALE DE NORMALISATION

Cross recessed countersunk flat head screws (common head style) — Product grade A and property class 4.8 only

Vis à métaux à tête fraisée à empreinte cruciforme — Grade A et classe de qualité 4,8 uniquement

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ITeH STANDARD PREVIEW
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ISO 7046:1983

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Descriptors : fasteners, bolts, screws, countersunk head screws, dimensions, designation, specifications.

Price based on 4 pages

Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of developing International Standards is carried out through ISO technical committees. Every member body interested in a subject for which a technical committee has been authorized 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.

Draft International Standards adopted by the technical committees are circulated to the member bodies for approval before their acceptance as International Standards by the ISO Council.

International Standard ISO 7046 was developed by Technical Committee ISO/TC 2, *Fasteners*, and was circulated to the member bodies in December 1981.

It has been approved by the member bodies of the following countries:

Australia	Hungary	Poland
Austria	India	Romania
Belgium	Ireland	South Africa, Rep. of
China	Italy	Spain
Czechoslovakia	Korea, Dem. P. Rep. of	Sri Lanka
Denmark	Korea, Rep. of	Sweden
Egypt, Arab Rep. of	Mexico	Switzerland
Finland	Netherlands	USA
France	New Zealand	USSR
Germany, F.R.	Norway	

The member bodies of the following countries expressed disapproval of the document on technical grounds:

Brazil
Japan
United Kingdom

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1 Scope and field of application

This International Standard specifies the characteristics of cross recessed countersunk flat head screws with thread sizes from M 1,6 to M 10 inclusive.

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If other specifications are required, it is recommended that they should be selected from existing International Standards, for example ISO 261, ISO 888, ISO 898, ISO 965, ISO 3506.

2 References

ISO 225, *Fasteners — Bolts, screws, studs and nuts — Symbols and designations of dimensions.*

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

ISO 888, *Bolts, screws and studs — Nominal lengths, and thread lengths for general purpose bolts.*

ISO 898, *Mechanical properties of fasteners.*

ISO 965, *ISO general purpose metric screw threads — Tolerances.*

ISO 3269, *Fasteners — Acceptance inspection.*¹⁾

ISO 3506, *Corrosion-resistant stainless steel fasteners — Specifications.*

ISO 4042, *Threaded components — Electroplated coatings components.*¹⁾

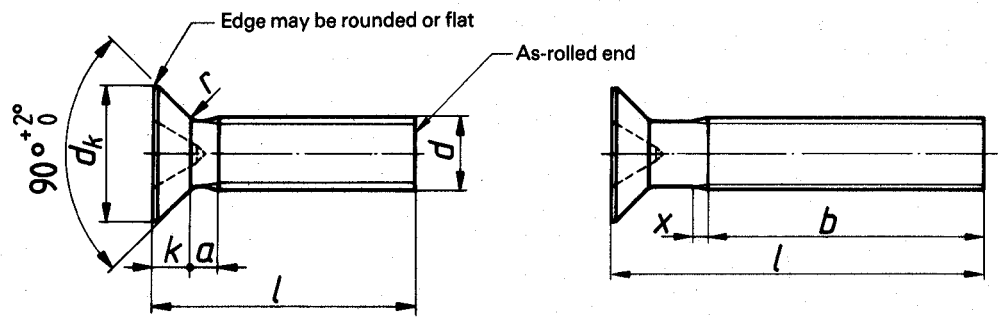
ISO 4757, *Cross recesses for screws.*

ISO 4759/1, *Tolerances for fasteners — Part 1: Bolts, screws and nuts with thread diameters > 1,6 and < 150 mm and product grades A, B and C.*

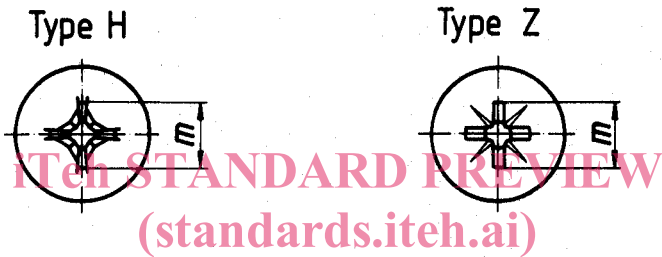
ISO 7721, *Countersunk head screws — Head configuration and gauging.*

¹⁾ At present at the stage of draft.

3 Dimensions



Recess



Shank diameter is approximately equal to pitch diameter or equal to major diameter permissible
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Dimensions in millimetres

Thread size <i>d</i>			M 1,6	M 2	M 2,5	M 3	(M 3,5) ¹⁾	M 4	M 5	M 6	M 8	M 10	
<i>p</i> ²⁾			0,35	0,4	0,45	0,5	0,6	0,7	0,8	1	1,25	1,5	
<i>a</i>	max.		0,7	0,8	0,9	1	1,2	1,4	1,6	2	2,5	3	
<i>b</i>	min.		25	25	25	25	38	38	38	38	38	38	
<i>d_k</i>	theoretical ³⁾	max.	3,6	4,4	5,5	6,3	8,2	9,4	10,4	12,6	17,3	20	
	actual	max.	3	3,8	4,7	5,5	7,3	8,4	9,3	11,3	15,8	18,3	
		min.	2,7	3,5	4,4	5,2	6,9	8	8,9	10,9	15,4	17,8	
<i>k</i>	max.		1	1,2	1,5	1,65	2,35	2,7	2,7	3,3	4,65	5	
<i>r</i>	max.		0,4	0,5	0,6	0,8	0,9	1	1,3	1,5	2	2,5	
<i>x</i>	max.		0,9	1	1,1	1,25	1,5	1,75	2	2,5	3,2	3,8	
Cross recess	Recess No.		0		1		2		3		4		
	Type H	<i>m</i> ref.	1,6	1,9	2,9	3,2	4,4	4,6	5,2	6,8	8,9	10	
		Penetration	min.	0,6	0,9	1,4	1,7	1,9	2,1	2,7	3	4	5,1
			max.	0,9	1,2	1,8	2,1	2,4	2,6	3,2	3,5	4,6	5,7
	Type Z	<i>m</i> ref.	1,8	2	3	3,2	4,3	4,6	5,1	6,8	9	10	
		Penetration	min.	0,7	0,95	1,45	1,6	1,75	2,05	2,6	3	4,15	5,2
			max.	0,95	1,2	1,75	2	2,2	2,5	3,05	3,45	4,6	5,65
	/1), 4), 5)												
nom.	min.	max.											
3	2,8	3,2											
4	3,7	4,3											
5	4,7	5,3											
6	5,7	6,3											
8	7,7	8,3											
10	9,7	10,3											
12	11,6	12,4											
(14)	13,6	14,4											
16	15,6	16,4											
20	19,6	20,4											
25	24,6	25,4											
30	29,6	30,4											
35	34,5	35,5											
40	39,5	40,5											
45	44,5	45,5											
50	49,5	50,5											
(55)	54	56											
60	59	61											

1) Sizes in brackets should be avoided if possible.

2) *P* = pitch of the thread.

3) See ISO 7721.

4) Min. and max. values according to ISO 4759/1, but rounded to one decimal place.

5) Screws with nominal lengths above the stepped line, marked thus — — —, are threaded up to the head [*b* = *l* - (*k* + *a*)].

4 Specifications and reference International Standards

Material		Steel
Thread	Tolerance	6 g
	International Standard	ISO 261, ISO 965
Mechanical properties	Property class	4.8 ¹⁾
	International Standard	ISO 898/1
Tolerances	Product grade	A
	International Standard	ISO 4759/1
Cross recesses		ISO 4757
Finish		Plain Requirements for electroplating are covered in ISO 4042. If different electroplating requirements are desired or if requirements are needed for other finishes, they should be negotiated between supplier and customer.
Acceptability		The acceptance procedure is covered in ISO 3269.

1) Maximum hardness 255 HV permissible.

NOTE — It is still under consideration whether countersunk head screws according to this International Standard with the given penetration depths for the cross recesses are also applicable to property class 8.8 or whether it is necessary to provide other (lower) penetration depths in the case of these screws for reasons of strength.

5 Designation

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Example for the designation of a cross recessed countersunk flat head screw, with thread size $d = M 5$, nominal length $l = 20$ mm, property class 4.8 and cross recess type Z:

Countersunk flat head screw ISO 7046 - M5 × 20 - 4.8 - Z
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