

BS EN ISO 7047:2011



BSI Standards Publication

**Raised countersunk head
screws (common head style)
with type H or type Z cross
recess — Product grade A (ISO
7047:2011)**

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National foreword

This British Standard is the UK implementation of EN ISO 7047:2011. It supersedes BS EN ISO 7047:1995 which is withdrawn.

The UK participation in its preparation was entrusted to Technical Committee FME/9/3, Fasteners - Product Standards.

A list of organizations represented on this committee can be obtained on request to its secretary.

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EUROPEAN STANDARD

EN ISO 7047

NORME EUROPÉENNE

EUROPÄISCHE NORM

September 2011

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Supersedes EN ISO 7047:1994

English Version

Raised countersunk head screws (common head style) with type H or type Z cross recess - Product grade A (ISO 7047:2011)

Vis à métaux à tête fraisée bombée à empreinte cruciforme de type H ou de type Z - Grade A (ISO 7047:2011)

Linsensenkschrauben (Einheitskopf) mit Kreuzschlitz Form H oder Form Z - Produktklasse A (ISO 7047:2011)

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Foreword

This document (EN ISO 7047:2011) has been prepared by Technical Committee ISO/TC 2 "Fasteners" in collaboration with Technical Committee CEN/TC 185 "Fasteners" 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of an identical text or by endorsement, at the latest by March 2012, and conflicting national standards shall be withdrawn at the latest by March 2012.

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Foreword

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ISO 7047 was prepared by Technical Committee ISO/TC 2, *Fasteners*, Subcommittee SC 11, *Fasteners with metric external thread*.

This third edition cancels and replaces the second edition (ISO 7047:1994), of which it constitutes a minor revision.

Raised countersunk head screws (common head style) with type H or type Z cross recess — Product grade A

1 Scope

This International Standard specifies the characteristics of countersunk raised head screws of product grade A, with threads from M1,6 to M10 inclusive and with type H or type Z cross recess.

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 3506-1.

2 Normative references

The following referenced documents are indispensable for the application 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 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 3506-1, *Mechanical properties of corrosion-resistant stainless steel fasteners — Part 1: Bolts, screws and studs*

ISO 4042, *Fasteners — Electroplated coatings*

ISO 4757, *Cross recesses for screws*

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 8839, *Mechanical properties of fasteners — Bolts, screws, studs and nuts made of non-ferrous metals*

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

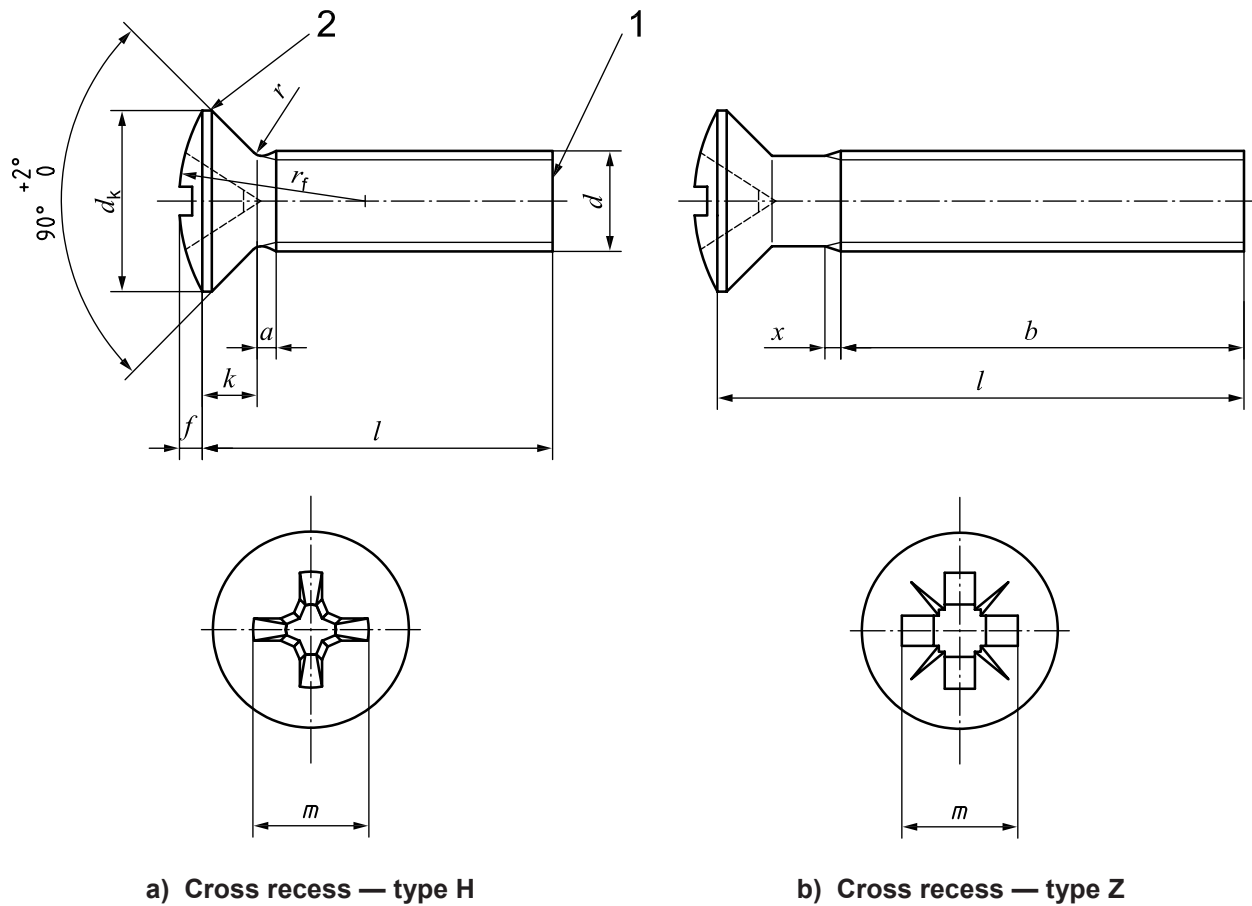
ISO 10683, *Fasteners — Non-electrolytically applied zinc flake coatings*

ISO 16048, *Passivation of corrosion-resistant stainless-steel fasteners*

3 Dimensions

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

The shank diameter is approximately equal to the pitch diameter or equal to the permissible major thread diameter.



Key

- 1 as-rolled end
- 2 edge (rounded or flat)

Figure 1

Table 1 — Dimensions

Dimensions in millimetres

Thread, d			M1,6	M2	M2,5	M3	(M3,5) ^a	M4	M5	M6	M8	M10	
p^b			0,35	0,4	0,45	0,5	0,6	0,7	0,8	1	1,25	1,5	
a	max.		0,7	0,8	0,9	1	1,2	1,4	1,6	2	2,5	3	
b	min.		25	25	25	25	38	38	38	38	38	38	
d_k^c	Theoretical	max.	3,6	4,4	5,5	6,3	8,2	9,4	10,4	12,6	17,3	20	
	Actual	nom. = max.	3,0	3,8	4,7	5,5	7,30	8,40	9,30	11,30	15,80	18,30	
		min.	2,7	3,5	4,4	5,2	6,94	8,04	8,94	10,87	15,37	17,78	
f	≈		0,4	0,5	0,6	0,7	0,8	1	1,2	1,4	2	2,3	
k^c	nom. = max.		1	1,2	1,5	1,65	2,35	2,7	2,7	3,3	4,65	5	
r	max.		0,4	0,5	0,6	0,8	0,9	1	1,3	1,5	2	2,5	
r_f	≈		3	4	5	6	8,5	9,5	9,5	12	16,5	19,5	
x	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	
		m	ref.	1,9	2	3	3,4	4,8	5,2	5,4	7,3	9,6	10,4
	Type H	Penetration	max.	1,2	1,5	1,85	2,2	2,75	3,2	3,4	4,0	5,25	6,0
			min.	0,9	1,2	1,50	1,8	2,25	2,7	2,9	3,5	4,75	5,5
	Type Z	Penetration	m ref.	1,9	2,2	2,8	3,1	4,6	5	5,3	7,1	9,5	10,3
			max.	1,20	1,40	1,75	2,08	2,70	3,10	3,35	3,85	5,20	6,05
			min.	0,95	1,15	1,50	1,83	2,25	2,65	2,90	3,40	4,75	5,60
	l_{ad}			Approximate mass, in kilograms per 1 000 pieces ($\rho = 7,85 \text{ kg/dm}^3$) (for information only)									
nom.	min.	max.											
3	2,8	3,2	0,067	0,119	0,212								
4	3,76	4,24	0,078	0,138	0,242	0,351							
5	4,76	5,24	0,09	0,156	0,272	0,395	0,669	0,99					
6	5,76	6,24	0,102	0,175	0,302	0,439	0,729	1,07	1,49				
8	7,71	8,29	0,125	0,212	0,362	0,527	0,849	1,23	1,73	2,79			
10	9,71	10,29	0,145	0,249	0,422	0,615	0,969	1,39	1,97	3,14	6,89		
12	11,65	12,35	0,165	0,287	0,482	0,703	1,09	1,54	2,21	3,49	7,53	11,4	
(14)	13,65	14,35	0,185	0,325	0,543	0,791	1,21	1,7	2,45	3,84	8,17	12,5	
16	15,65	16,35	0,205	0,362	0,603	0,879	1,33	1,85	2,69	4,19	8,81	13,5	
20	19,58	20,42		0,436	0,723	1,06	1,57	2,17	3,17	4,89	10,1	15,5	
25	24,58	25,42			0,874	1,28	1,87	2,56	3,77	5,77	11,7	18	
30	29,58	30,42				1,5	2,17	2,95	4,37	6,64	13,3	20,6	
35	34,5	35,5					2,47	3,34	4,97	7,52	14,9	23,1	
40	39,5	40,5						3,73	5,57	8,39	16,5	25,6	
45	44,5	45,5							6,16	9,27	18,1	28,1	
50	49,5	50,5							6,76	10,1	19,7	30,7	

Table 1 (continued)

Dimensions in millimetres

Thread, d			M1,6	M2	M2,5	M3	(M3,5) ^a	M4	M5	M6	M8	M10
l^{ad}			Approximate mass, in kilograms per 1 000 pieces ($\rho = 7,85 \text{ kg/dm}^3$) (for information only)									
nom.	min.	max.										
(55)	54,05	55,95								11	21,3	33,2
60	59,05	60,95								11,9	22,9	35,7
NOTE Preferred lengths are those between the solid, bold, stepped lines.												
^a Sizes in parentheses should be avoided if possible. ^b P is the pitch of the thread. ^c See ISO 7721. ^d Screws with nominal lengths above the bold, discontinuous line are threaded up to the head; $b = l - (k + a)$.												

4 Specifications and reference International Standards

See Table 2.

Table 2 — Specifications and reference International Standards

Material		Steel	Stainless steel	Non-ferrous metal
General requirements	International Standard	ISO 8992		
Thread	Tolerance class	6g		
	International Standard	ISO 261, ISO 965-2		
Mechanical property	Property class	4.8	A2-50, A2-70	—
	International Standard	ISO 898-1	ISO 3506-1	ISO 8839
Tolerance	Product grade	A		
	International Standard	ISO 4759-1		
Cross recess	International Standard	ISO 4757		
Finish — Coating		As processed		
		Requirements for electroplating are specified in ISO 4042.	Requirements for passivation are specified in ISO 16048.	Requirements for electroplating are specified in ISO 4042.
		Requirements for non-electrolytically applied zinc flake coatings are specified in ISO 10683.		
		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 inspection is specified in ISO 3269.		

5 Designation

EXAMPLE A cross-recessed countersunk raised head screw with thread M5, nominal length $l = 20$ mm, property class 4.8 and cross recess type Z is designated as follows:

Countersunk raised head screw ISO 7047 - M5 × 20 - 4.8 - Z

Bibliography

- [1] ISO 888, *Bolts, screws and studs — Nominal lengths, and thread lengths for general purpose bolts*
- [2] ISO 7721, *Countersunk head screws — Head configuration and gauging*

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