

BS EN ISO 7051:2011



BSI Standards Publication

Cross-recessed raised countersunk (oval) head tapping screws (ISO 7051:2011)

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National foreword

This British Standard is the UK implementation of EN ISO 7051:2011. It supersedes BS EN ISO 7051:1995 which is withdrawn.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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Amendments issued since publication

Date	Text affected
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English Version

**Cross-recessed raised countersunk (oval) head tapping screws
(ISO 7051:2011)**

Vis à tôle à tête fraisée bombée à empreinte cruciforme
(ISO 7051:2011)

Linsensenk-Blechschauben mit Kreuzschlitz (ISO
7051:2011)

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COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

Management Centre: Avenue Marnix 17, B-1000 Brussels

Foreword

This document (EN ISO 7051:2011) 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of an identical text or by endorsement, at the latest by February 2012, and conflicting national standards shall be withdrawn at the latest by February 2012.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN [and/or CENELEC] shall not be held responsible for identifying any or all such patent rights.

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Endorsement notice

The text of ISO 7051:2011 has been approved by CEN as a EN ISO 7051:2011 without any modification.

Foreword

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International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

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ISO 7051 was prepared by Technical Committee ISO/TC 2, *Fasteners*, Subcommittee SC 13, *Fasteners with non-metric thread*.

This second edition cancels and replaces the first edition (ISO 7051:1983), which has been technically revised.

Cross-recessed raised countersunk (oval) head tapping screws

1 Scope

This International Standard specifies the characteristics of cross-recessed raised countersunk (oval) head tapping screws with thread sizes from ST 2,2 to ST 9,5 inclusive.

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 1478, *Tapping screws thread*

ISO 2702, *Heat-treated steel tapping screws — Mechanical properties*

ISO 3269, *Fasteners — Acceptance inspection*

ISO 3506-4, *Mechanical properties of corrosion-resistant stainless steel fasteners — Part 4: Tapping screws*

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

ISO 7721-2, *Countersunk flat head screws — Part 2: Penetration depth of cross recesses*

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

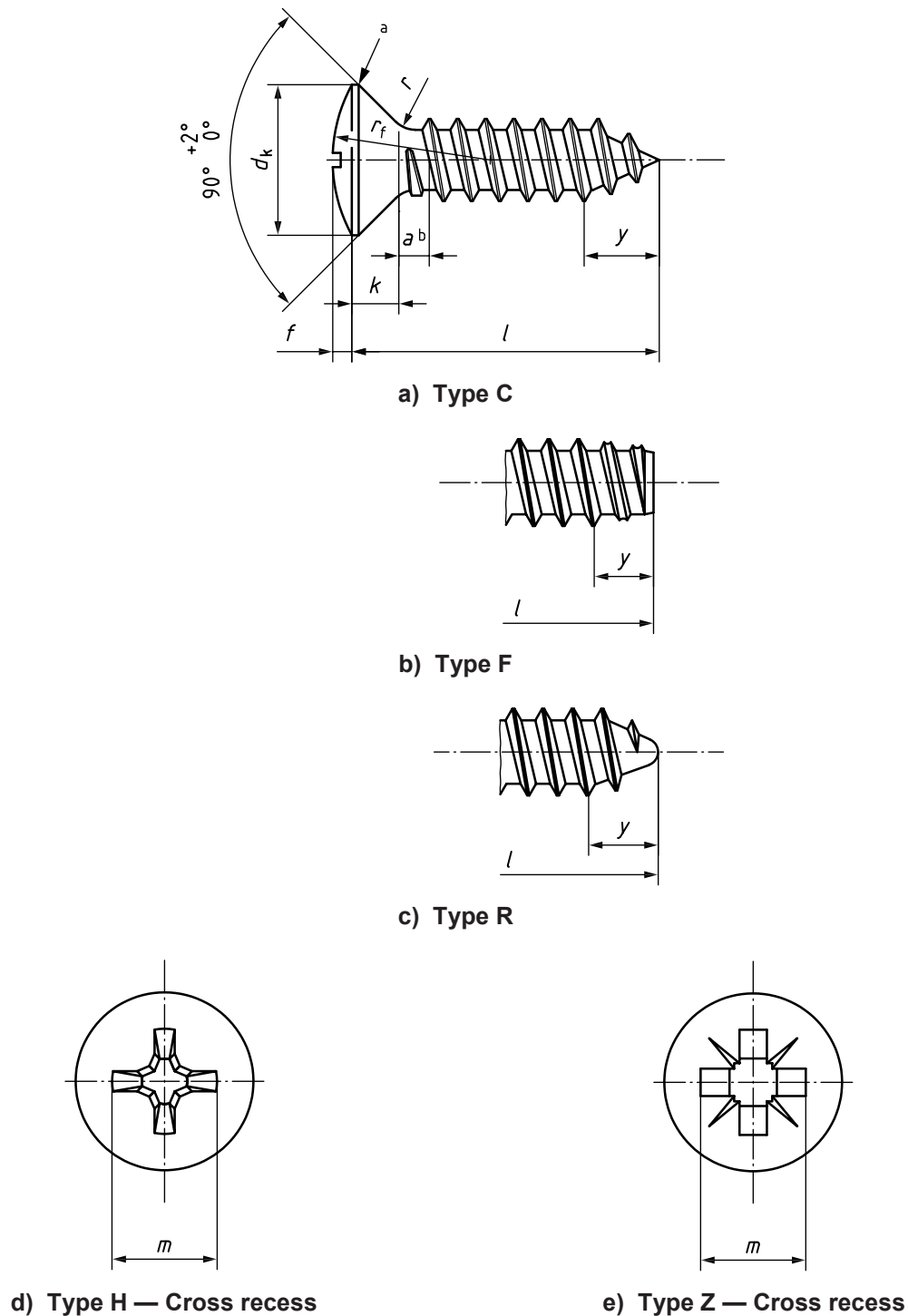
ISO 10683, *Fasteners — Non-electrolytically applied zinc flake coatings*

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.



a Edge rounded or flat.

b Dimension *a* shall be measured at the core diameter of the first full thread.

Figure 1 — Cross-recessed raised countersunk (oval) head tapping screws

Table 1 — Dimensions

Dimensions in millimetres

Thread size		ST 2,2	ST 2,9	ST 3,5	ST 4,2	ST 4,8	ST 5,5	ST 6,3	ST 8	ST 9,5		
p^a		0,8	1,1	1,3	1,4	1,6	1,8	1,8	2,1	2,1		
a max.		1,6	2,2	2,6	2,8	3,2	3,6	3,6	4,2	4,2		
d_k	Theoretical ^b	max.	4,4	6,3	8,2	9,4	10,4	11,5	12,6	17,3	20,0	
		max.	3,8	5,5	7,3	8,4	9,3	10,3	11,3	15,8	18,3	
	Actual	min.	3,5	5,2	6,9	8,0	8,9	9,9	10,9	15,4	17,8	
f ≈		0,5	0,7	0,8	1,0	1,2	1,3	1,4	2,0	2,3		
k max.		1,10	1,70	2,35	2,60	2,80	3,00	3,15	4,65	5,25		
r max.		0,8	1,2	1,4	1,6	2,0	2,2	2,4	3,2	4,0		
r_f ≈		4,0	6,0	8,5	9,5	9,5	11,0	12,0	16,5	19,5		
Recess No		0	1	2			3		4			
Cross recess	Type H	m ref.	1,9	3,2	4,4	4,6	5,2	6,6	6,8	8,9	10,0	
		Penetration	max.	1,2	2,1	2,4	2,6	3,2	3,3	3,5	4,6	5,7
			min.	0,9	1,7	1,9	2,1	2,7	2,8	3,0	4,0	5,1
	Type Z	m ref.	2,0	3,0	4,1	4,4	4,9	6,3	6,6	8,8	9,8	
		Penetration	max.	1,20	2,01	2,20	2,51	3,05	3,18	3,45	4,60	5,64
			min.	0,95	1,76	1,75	2,06	2,60	2,73	3,00	4,15	5,19
y ref.	Type C	2,0	2,6	3,2	3,7	4,3	5,0	6,0	7,5	8,0		
	Type F	1,6	2,1	2,5	2,8	3,2	3,6	3,6	4,2	4,2		
	Type R	—	—	2,7	3,2	3,6	4,3	5,0	6,3	—		
l^c												
	Type C and Type R		Type F									
nom.	min.	max.	min.	max.								
4,5	3,7	5,3	3,7	4,5		—	—	—	—	—	—	—
6,5	5,7	7,3	5,7	6,5			—	—	—	—	—	—
9,5	8,7	10,3	8,7	9,5					—	—	—	—
13	12,2	13,8	12,2	13,0		Range					—	—
16	15,2	16,8	15,2	16,0				of				
19	18,2	19,8	18,2	19,0					preferred			
22	21,2	22,8	20,7	22,0						lengths		
25	24,2	25,8	23,7	25,0								
32	30,7	33,3	30,7	32,0								
38	36,7	39,3	36,7	38,0								
45	43,7	46,3	43,5	45,0								
50	48,7	51,3	48,5	50,0								
^a P = pitch of the thread. ^b In accordance with ISO 7721. ^c Sizes with lengths marked with a dash (—) cannot be manufactured.												

4 Specifications and reference International Standards

See Table 2.

Table 2 — Specifications and reference International Standards

Material	Steel, in accordance with ISO 2702	Stainless steel
General requirements	ISO 8992	
Thread	ISO 1478	
Cross recess	ISO 4757, ISO 7721-2	
Mechanical property	Steel grade/hardness class	—
	International Standard	ISO 2702
Tolerances	Product grade	A
	International Standard	ISO 4759-1
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. Additional requirements or other finishes or coatings shall be agreed between the supplier and the purchaser.	Requirements for passivation are specified in ISO 16048.
Acceptability	Acceptance inspection is specified in ISO 3269.	

5 Designation

EXAMPLE 1 A cross-recessed raised countersunk (oval) head tapping screw with thread size ST 3,5, nominal length $l = 16$ mm, made of steel (St) in accordance with ISO 2702, rounded end (Type R) and cross recess Type Z is designated as follows:

Tapping screw ISO 7051 - ST 3,5 × 16 - St - R - Z

EXAMPLE 2 A cross-recessed raised countersunk (oval) head tapping screw with thread size ST 3,5, nominal length $l = 16$ mm, made of stainless steel (A4-20H) in accordance with ISO 3506-4, rounded end (Type R) and cross recess Type H is designated as follows:

Tapping screw ISO 7051 - ST 3,5 × 16 - A4-20H - R - H

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