

# INTERNATIONAL STANDARD

# ISO 7048

First edition  
1998-06-15

Corrected and reprinted  
1999-02-01

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## Cross recessed cheese head screws

*Vis à métaux à tête cylindrique à empreinte cruciforme*

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Reference number  
ISO 7048:1998(E)

## Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established 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. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

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.

International Standard ISO 7048 was prepared by Technical Committee ISO/TC 2, *Fasteners*.

Annex A of this International Standard is for information only.

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Printed in Switzerland

# Cross recessed cheese head screws

## 1 Scope

This International Standard specifies the characteristics of cross recessed cheese head screws in product grade A, with threads from M2,5 to M8 inclusive and with cross recesses type H and Z.

NOTE — The head dimensions of these screws are identical with those of the slotted cheese head screws to ISO 1207:1992.

If, in special cases, specifications others than those listed in this International Standard are required, they should be selected from existing International Standards, for example ISO 261, ISO 888, ISO 898-1, ISO 965-2, ISO 3506-1, ISO 4759-1.

## 2 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this International Standard. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this International Standard are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.

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

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

ISO 888:1976, *Bolts, screws and studs — Nominal lengths and thread lengths for general purpose bolts.*

ISO 898-1:—<sup>1)</sup>, *Mechanical properties of fasteners made of carbon steel and alloy steel — Part 1: Bolts, screws and studs.*

ISO 965-2:1998, *ISO general purpose metric screw threads — Tolerances — Part 2: Limits of sizes for general purpose external and internal screw threads — Medium quality.*

ISO 3269:1988, *Fasteners — Acceptance inspection.*

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

ISO 4042:—<sup>2)</sup>, *Fasteners — Electroplated coatings.*

1) To be published. (Revision of ISO 898-1:1988)

2) To be published. (Revision of ISO 4042:1989)

ISO 4757:1983, *Cross recesses for screws.*

ISO 4759-1:—<sup>3)</sup>, *Tolerances for fasteners — Part 1: Bolts, screws, studs and nuts — Product grades A, B and C.*

ISO 6157-1:1988, *Fasteners – Surface discontinuities — Part 1: Bolts, screws and studs for general requirements.*

ISO 8839:1986, *Mechanical properties of fasteners — Bolts, screws, studs and nuts made of non-ferrous metals.*

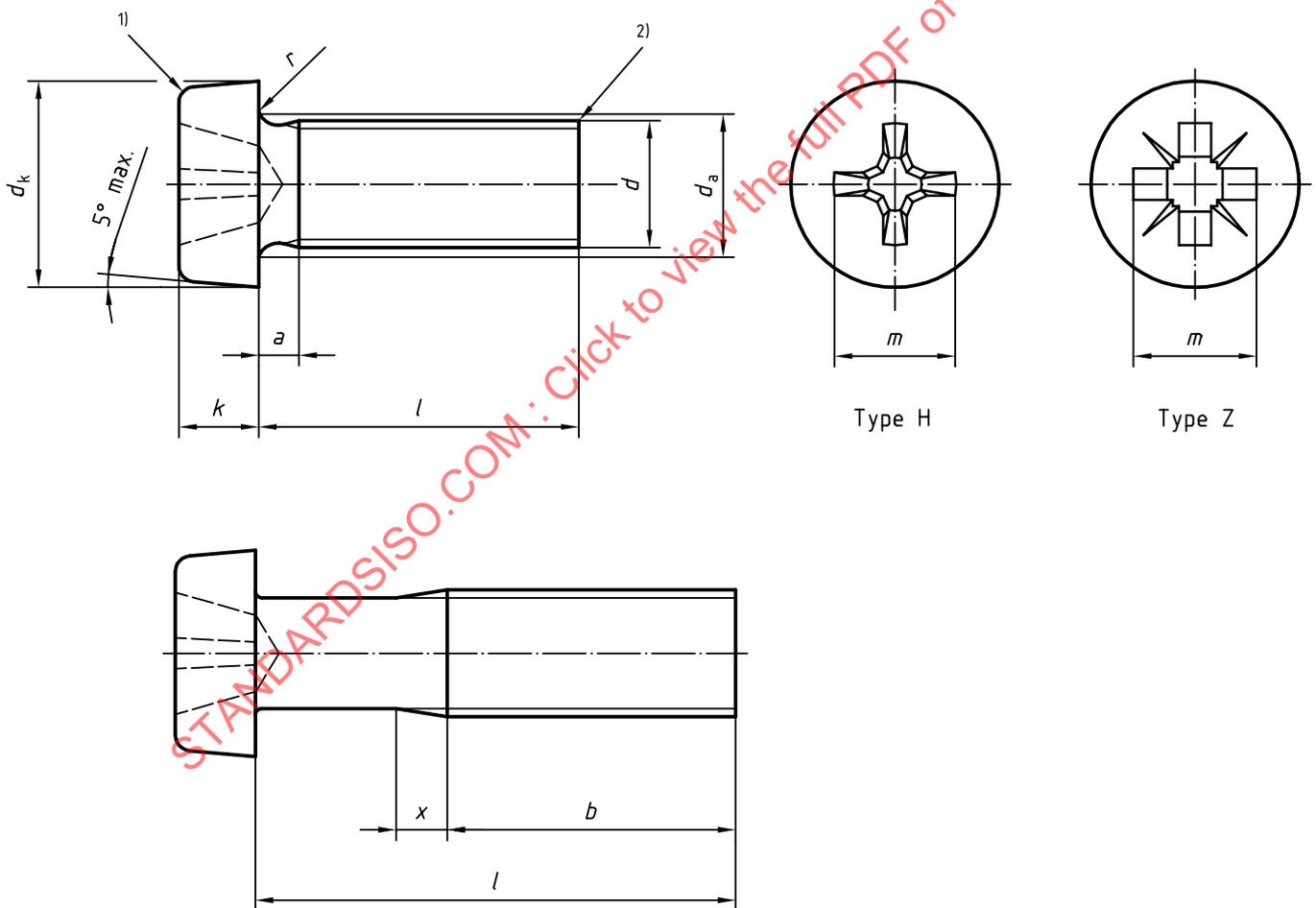
ISO 8992:1986, *Fasteners — General requirements for bolts, screws and nuts.*

### 3 Dimensions

See figure 1 and table 1.

Shank diameter is approximately equal to pitch diameter or equal to major thread diameter permissible.

The symbols and specifications for dimensions are specified in ISO 225.



- 1) Edge may be rounded or flat
- 2) As rolled end

Figure 1

3) To be published. (Revision of ISO 4759-1:1978)

Table 1 — Dimensions

Dimensions in millimeters

Thread ( <i>d</i> )		M2,5	M3	(M3,5) <sup>1)</sup>	M4	M5	M6	M8		
<i>p</i> <sup>2)</sup>		0,45	0,5	0,6	0,7	0,8	1	1,25		
<i>a</i>	max.	0,9	1	1,2	1,4	1,6	2	2,5		
<i>b</i>	min.	25	25	38	38	38	38	38		
<i>d<sub>k</sub></i>	max.	4,50	5,50	6,00	7,00	8,50	10,00	13,00		
	min.	4,32	5,32	5,82	6,78	8,28	9,78	12,73		
<i>d<sub>a</sub></i>	max.	3,1	3,6	4,1	4,7	5,7	6,8	9,2		
<i>k</i>	max.	1,80	2,00	2,40	2,60	3,30	3,9	5,0		
	min.	1,66	1,86	2,26	2,46	3,12	3,6	4,7		
<i>r</i>	min.	0,1	0,1	0,1	0,2	0,2	0,25	0,4		
<i>x</i>	max.	1,1	1,25	1,5	1,75	2	2,5	3,2		
Cross recess	Recess No.		1	2	2	2	2	3	3	
	Type	<i>m</i> ref.	2,7	3,5	3,8	4,1	4,8	6,2	7,7	
	H	Penetration	min.	1,20	0,86	1,15	1,45	2,14	2,25	3,73
			max.	1,62	1,43	1,73	2,03	2,73	2,86	4,36
	Z	Type	<i>m</i> ref.	2,4	3,5	3,7	4,0	4,6	6,1	7,5
		Penetration	min.	1,10	1,22	1,34	1,60	2,26	2,46	3,88
			max.	1,35	1,47	1,80	2,06	2,72	2,92	4,34
				Approximate mass in kg per 1 000 pieces ( $\rho = 7,85 \text{ kg/dm}^3$ ) (for information only)						
nom.	<i>l</i> <sup>3)</sup> min.	max.								
2	1,8	2,2								
3	2,8	3,2	0,272							
4	3,76	4,24	0,302	0,515						
5	4,76	5,24	0,332	0,560	0,786	1,09				
6	5,76	6,24	0,362	0,604	0,845	1,17	2,06			
8	7,71	8,29	0,422	0,692	0,966	1,33	2,20	3,56		
10	9,71	10,29	0,482	0,780	1,08	1,47	2,55	3,92	7,85	
12	11,65	12,35	0,542	0,868	1,20	1,63	2,80	4,27	8,49	
16	15,65	16,35	0,662	1,04	1,44	1,95	3,30	4,98	9,77	
20	19,58	20,42	0,782	1,22	1,68	2,25	3,78	5,69	11,0	
25	24,58	25,42	0,932	1,44	1,98	2,64	4,40	6,56	12,6	
30	29,58	30,42		1,66	2,28	3,02	5,02	7,45	14,2	
35	34,5	35,5			2,57	3,41	5,62	8,25	15,8	
40	39,5	40,5				3,80	6,25	9,20	17,4	
45	44,5	45,5					6,88	10,0	18,9	
50	49,5	50,5					7,50	10,9	20,6	
60	59,05	60,95						12,7	23,7	
70	69,05	70,95							26,8	
80	79,05	80,95							29,8	

NOTE — Commercial lengths are those between the stepped, continuous bold lines.

- 1) The size in parentheses should be avoided if possible.
- 2) *P* is the pitch of the thread.
- 3) Screws with nominal lengths above the dotted line are threaded up to the head ( $b = l - a$ ).

## 4 Requirements and reference International Standards

See table 2.

Table 2 — Requirements and reference International Standards

Material		Steel	Stainless steel	Non-ferrous metal
<b>General requirements</b>	International Standard	ISO 8992		
<b>Thread</b>	Tolerance	6g		
	International Standards	ISO 261, ISO 965-2		
<b>Mechanical properties</b> <sup>1)</sup>	Property classes	4.8, 5.8	A2-70	materials specified in ISO 8839
	International Standards	ISO 898-1	ISO 3506-1	
<b>Tolerances</b>	Product grade	A		
	International Standard	ISO 4759-1		
<b>Cross recesses</b>		ISO 4757		
<b>Finish</b>		As processed	Plain	Plain
		Requirements for electroplated are covered in ISO 4042.		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 agreed between supplier and customer.		
		Limits for surface discontinuities are covered in ISO 6157-1.		
<b>Acceptability</b>		For acceptance procedure, see ISO 3269.		

1) To meet the requirements of the torsional test, fracture shall occur in the shank or the thread of the screw and not in the junction of the head and shank or the junction of the shank and the recess.

## 5 Designation

EXAMPLE

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

**Cheese head screw ISO 7048 - M5 × 20 - 4.8 - Z**