

# International Standard 7049

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

## Cross recessed pan head tapping screws

*Vis à tôle à tête cylindrique bombée large à empreinte cruciforme*

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## 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 7049 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	Germany, F.R.	Norway
Austria	Hungary	Poland
Belgium	India	Romania
Brazil	Ireland	South Africa, Rep. of
Canada	Italy	Spain
China	Japan	Sri Lanka
Czechoslovakia	Korea, Dem. P. Rep. of	Sweden
Denmark	Korea, Rep. of	Switzerland
Egypt, Arab Rep. of	Mexico	USA
Finland	Netherlands	
France	New Zealand	

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

United Kingdom  
USSR

## Cross recessed pan head tapping screws

### 1 Scope and field of application

This International Standard specifies the characteristics of cross recessed pan head tapping screws with thread sizes from ST 2,2 to ST 9,5 inclusive.

### 2 References

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

ISO 1478, *Tapping screws thread.*

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

ISO 3269, *Fasteners — Acceptance inspection.*<sup>1)</sup>

ISO 4042, *Threaded components — Electroplated coatings components.*<sup>1)</sup>

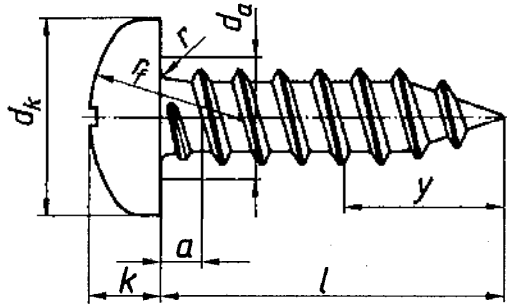
ISO 4757, *Cross recesses for screws.*

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.*

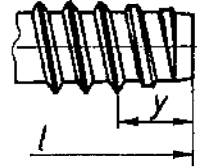
1) At present at the stage of draft.

### 3 Dimensions

Type C

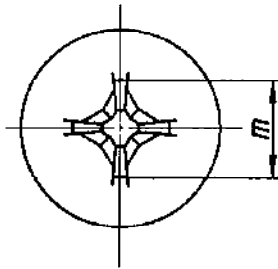


Type F

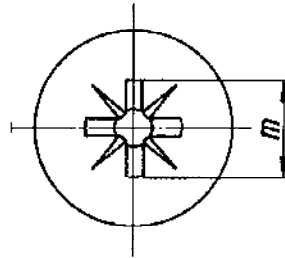


Recess

Type H



Type Z



Dimensions in millimetres

Thread size		ST 2,2	ST 2,9	ST 3,5	ST 4,2	ST 4,8	ST 5,6	ST 6,3	ST 8	ST 9,5		
$p^1)$		0,8	1,1	1,3	1,4	1,6	1,8	1,8	2,1	2,1		
$a^2)$	max.	0,8	1,1	1,3	1,4	1,6	1,8	1,8	2,1	2,1		
$d_a$	max.	2,8	3,5	4,1	4,9	5,6	6,3	7,3	9,2	10,7		
$d_k$	max.	4	5,6	7	8	9,5	11	12	16	20		
	min.	3,7	5,3	6,64	7,64	9,14	10,57	11,57	15,57	19,48		
$k$	max.	1,6	2,4	2,6	3,1	3,7	4	4,6	6	7,5		
	min.	1,4	2,15	2,35	2,8	3,4	3,7	4,3	5,6	7,1		
$r$	min.	0,1	0,1	0,1	0,2	0,2	0,25	0,25	0,4	0,4		
$r_f$	$\approx$	3,2	5	6	6,5	8	9	10	13	16		
Cross recess	Recess No.		0	1	2		3		4			
	Type H	$m$ ref.	1,9	3	3,9	4,4	4,9	6,4	6,9	9	10,1	
		Penetration	min.	0,85	1,4	1,4	1,9	2,4	2,6	3,1	4,15	5,2
			max.	1,2	1,8	1,9	2,4	2,9	3,1	3,6	4,7	5,8
	Type Z	$m$ ref.	2	3	4	4,4	4,8	6,2	6,8	8,9	10,1	
		Penetration	min.	0,95	1,45	1,5	1,95	2,3	2,55	3,05	4,05	5,25
			max.	1,2	1,75	1,9	2,35	2,75	3	3,5	4,5	5,7
	$y$ ref. 3)	Type C	2	2,6	3,2	3,7	4,3	5	6	7,5	8	
Type F		1,6	2,1	2,5	2,8	3,2	3,6	3,6	4,2	4,2		
		4)										
nom.	Type C		Type F									
	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								
16	15,2	16,8	16,2	16								
19	18,2	19,8	18,2	19								
22	21,2	22,8	20,7	22								
25	24,2	25,8	23,7	25								
32	30,7	33,3	30,7	32								
38	36,7	39,3	36,7	38								
45	43,7	46,3	43,5	45								
50	48,7	51,3	48,5	50								

- 1)  $P$  = pitch of the thread.
- 2) Distance from the underside of the head to the first major diameter of the thread within specified limits.
- 3) Length of incomplete thread.
- 4) Sizes with lengths marked with a dash (—) in the table shall not be manufactured.

#### 4 Specifications and reference International Standards

Material	Steel, according to ISO 2702	
Thread	According to ISO 1478	
Mechanical properties	According to ISO 2702	
Tolerances	Product grade	A
	International Standard	ISO 4759/1
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.	

#### 5 Designation

Example for the designation of a cross recessed pan head tapping screw with thread size ST 3,5, nominal length  $l = 16$  mm, cone end type C and recess type Z:

**Tapping screw ISO 7049 - ST 3,5 × 16 - C - Z**