

UDC 621.882.215.1.091.1

August 1990

## Product grade A slotted cheese head screws

DIN  
84

Zylinderschrauben mit Schlitz; Produktklasse A

Supersedes October 1988 edition.

*In keeping with current practice in standards published by the International Organization for Standardization (ISO), a comma has been used throughout as the decimal marker.*

See Explanatory notes for connection with draft International Standard ISO/DIS 1207 published by the International Organization for Standardization.

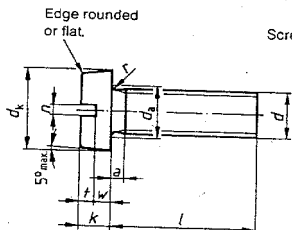
Dimensions in mm

**1 Scope and field of application**

This standard specifies requirements for M 1 to M 10 slotted cheese head screws assigned to product grade A. See DIN 962 (or the standards referred to therein) for special screw types and finishes. If, in special cases, screws are to comply with specifications other than those given in this standard (e.g. regarding property class or material), these shall be selected in accordance with the relevant standards.

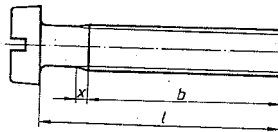
**2 Dimensions**

**Cheese head screw threaded up to the head**  
(specified in table 1 above dashed line)



**Cheese head screw with unthreaded portion of shank**  
(specified in table 1 below dashed line)<sup>1)</sup>

Screws to be provided with DIN 78 – Ko end.



Other dimensions and details as at left.

The shank diameter may be equal to the thread diameter (normal shank) or approximately equal to the pitch diameter (reduced shank), at the manufacturer's discretion.

<sup>1)</sup> If cheese head screws with lengths given below the dashed line are to be supplied with their shank threaded up to the head, letter A shall be included in the designation, in accordance with DIN 962.

Continued on pages 2 to 4

Table 1.

Thread size (d <sup>1)</sup> )			M1	M1,2	M1,4	M1,6	M1,8	M2	M2,5	M3	(M3,5)	M4	M5	M6	M8	M10
P <sup>2)</sup>			0,25	0,25	0,3	0,35	0,35	0,4	0,45	0,5	0,6	0,7	0,8	1	1,25	1,5
a	max.		0,5	0,5	0,6	0,7	0,7	0,8	0,9	1	1,2	1,4	1,6	2	2,5	3
b	min.		25	25	25	25	25	25	25	25	38	38	38	38	38	38
d <sub>k</sub>	max. = nominal size		2	2,3	2,6	3	3,4	3,8	4,5	5,5	6	7	8,5	10	13	16
	min.		1,86	2,16	2,46	2,86	3,22	3,62	4,32	5,32	5,82	6,78	8,28	9,78	12,73	15,73
d <sub>a</sub>	max.		1,4	1,6	1,8	2	2,2	2,6	3,1	3,6	4,1	4,7	5,7	6,8	9,2	11,2
k	max. = nominal size		0,7	0,8	0,9	1	1,2	1,3	1,6	2	2,4	2,6	3,3	3,9	5	6
	min.		0,56	0,66	0,76	0,86	1,06	1,16	1,46	1,86	2,26	2,46	3,12	3,6	4,7	5,7
n	nominal size		0,25	0,3	0,3	0,4	0,4	0,5	0,6	0,8	1	1,2	1,2	1,6	2	2,5
	min.		0,31	0,36	0,36	0,46	0,46	0,56	0,66	0,86	1,06	1,26	1,26	1,66	2,06	2,56
	max.		0,45	0,5	0,5	0,6	0,6	0,7	0,8	1	1,2	1,51	1,51	1,91	2,31	2,81
z	min.		0,1	0,1	0,1	0,1	0,1	0,1	0,1	0,1	0,1	0,2	0,2	0,25	0,4	0,4
f	min.		0,25	0,3	0,4	0,45	0,5	0,6	0,7	0,85	1	1,1	1,3	1,6	2	2,4
w	min.		0,16	0,21	0,21	0,26	0,36	0,36	0,56	0,76	0,96	1,06	1,52	1,6	2,2	2,7
x	max.		0,6	0,6	0,75	0,9	0,9	1	1,1	1,25	1,5	1,75	2	2,5	3,2	3,8
Nominal size l <sup>1), 3)</sup>			Approximate mass (7,85 kg/dm <sup>3</sup> ), per 1000 units, in kg													
	min.	max.														
2	1,8	2,2	0,025	0,038	0,053	0,070	0,109									
3	2,8	3,2	0,030	0,045	0,062	0,082	0,125	0,160	0,272							
4	3,76	4,24	0,035	0,052	0,071	0,094	0,140	0,179	0,302	0,515						
5	4,76	5,24	0,040	0,059	0,080	0,105	0,155	0,198	0,332	0,560	0,786	1,09				
6	5,76	6,24	0,045	0,067	0,089	0,117	0,170	0,217	0,362	0,604	0,845	1,17	2,06			
8	7,71	8,29	0,055	0,081	0,106	0,140	0,200	0,254	0,422	0,692	0,966	1,33	2,30	3,56		
10	9,71	10,29	0,065	0,095	0,124	0,163	0,230	0,291	0,482	0,780	1,08	1,47	2,55	3,92	7,85	
12	11,65	12,35		0,11	0,142	0,186	0,260	0,329	0,542	0,868	1,20	1,63	2,80	4,27	8,49	14,6
(14)	13,65	14,35			0,16	0,209	0,290	0,365	0,602	0,956	1,32	1,79	3,05	4,62	9,13	15,6
16	15,65	16,35				0,232	0,320	0,402	0,662	1,04	1,44	1,95	3,30	4,98	9,77	16,6
(18)	17,65	18,35					0,350	0,440	0,722	1,13	1,56	2,10	3,54	5,34	10,4	17,6
20	19,58	20,42						0,478	0,782	1,22	1,68	2,25	3,78	5,69	11,0	18,6
(22)	21,58	22,42							0,842	1,31	1,80	2,40	4,02	6,04	11,7	19,6
25	24,58	25,42							0,932	1,44	1,98	2,64	4,40	6,56	12,6	21,1
(28)	27,58	28,42								1,57	2,16	2,87	4,67	7,10	13,6	22,6
30	29,58	30,42								1,66	2,28	3,02	5,02	7,45	14,2	23,6
35	34,5	35,5									2,57	3,41	5,62	8,25	15,8	26,1
40	39,5	40,5										3,80	6,25	9,20	17,4	28,6
45	44,5	45,5											6,88	10,0	18,9	31,1
50	49,5	50,5											7,50	10,9	20,6	33,6
(55)	54,05	55,95												11,8	22,1	36,1
60	59,05	60,95												12,7	23,7	38,6
(65)	64,05	65,95													25,2	41,1
70	69,05	70,95													26,8	43,6
(75)	74,05	75,95													28,3	46,1
80	79,05	80,95													29,8	48,6

1) Use of sizes given in brackets should be avoided where possible.

2) P = pitch of coarse thread.

3) Screws with lengths above the dashed line are threaded up to the head ( $h = l - n$ ).

Lengths over 80 mm shall be graded in 10 mm steps.

For commercial lengths (given between stepped lines), values of mass have been specified.

Note. With regard to existing documentation, M 1,7, M 2,3 and M 2,6 screws may still be ordered in accordance with the October 1970 edition of this standard.

**3 Technical delivery conditions**

Table 2.

Material		Steel	Stainless steel	Non-ferrous metal
General requirements		As specified in DIN 267 Part 1.		
Thread	Tolerance	< M 1,6: 6h; ≥ M 1,6: 6g <sup>1)</sup>		
	As specified in	DIN 13 Parts 13 and 15.		
Mechanical properties <sup>3)</sup>	Property class (material)	4.8, 5.8 or 8.8	For sizes up to M 2: A 1-50; for sizes larger than M 2: A2-70 or A4-70.	CuZn = Copper-zinc alloy <sup>2)</sup>
	As specified in	ISO 898 Part 1.	DIN 267 Part 1.	DIN 267 Part 18.
Limit deviations and geometrical tolerances	Product grade	A		
	Standard	ISO 4759 Part 1 <sup>4)</sup>		
Surface finish		As processed. Property class 8.8 (thermally or chemically) blackened.	Bright.	Bright.
		DIN 267 Part 2 shall apply with regard to surface roughness. DIN 267 Part 19 shall apply with regard to permissible surface discontinuities. DIN 267 Part 9 shall apply with regard to electroplating, other types of surface protection being subject to agreement.		
Acceptance inspection		DIN 267 Part 5 shall apply with regard to acceptance inspection.		

<sup>1)</sup> Only for screws without surface protection, the 6g tolerance makes it possible for normal coating thicknesses to be applied in accordance with DIN 267 Part 9, the reference line not being exceeded. Depending on the coating thickness required, a larger fundamental deviation shall be selected than that for the g position. This might, however, impair the resistance to stripping of the bolt/nut assembly.

<sup>2)</sup> CuZn = CU2 or CU3, at the manufacturer's discretion.

<sup>3)</sup> Other property classes or materials, or a particular grade of material, e.g. CU3, shall be subject to agreement.

<sup>4)</sup> ISO 4759 Part 1 applies only to thread size M 1,6 or more. For smaller sizes, tolerances have been adopted as appropriate, except for 6g tolerance, which has been replaced by 6h tolerance.

**4 Designation**

Designation of an M5 cheese head screw, of length  $l$  (nominal size) = 20 mm and assigned to property class 4.8:

Cheese head screw DIN 84 – M5 × 20 – 4.8

DIN 962 shall apply for the designation of type and finish, with additional information to be given on ordering.

DIN 6900 shall apply for screws with captive washers (screw assemblies), DIN 7500 Part 1, for thread rolling screws and DIN 7513, for thread cutting screws.

The DIN 4000 – 2 – 1 tabular layout of article characteristics shall apply for screws as covered in this standard.

**Standards referred to**

DIN 13 Part 13	ISO metric screw threads; series of preferred sizes for screws, bolts and nuts from 1 mm to 52 mm diameter and limits of size
DIN 13 Part 15	ISO metric screw threads; fundamental deviations and tolerances for screw threads of 1 mm diameter and larger
DIN 78	Thread ends and lengths of projection of bolt ends for ISO metric screw threads in accordance with DIN 13
DIN 267 Part 1	Fasteners; technical delivery conditions; general requirements
DIN 267 Part 2	Fasteners; technical delivery conditions; design and dimensional accuracy
DIN 267 Part 5	Fasteners; technical delivery conditions; acceptance inspection (modified version of ISO 3269, 1984 edition)
DIN 267 Part 9	Fasteners; technical delivery conditions; electroplated parts
DIN 267 Part 11	Fasteners; technical delivery conditions with addenda to ISO 3506; stainless and acid resistant steel components

## Page 4 DIN 84

DIN 267 Part 18	Fasteners; technical delivery conditions; nonferrous metal components
DIN 267 Part 19	Fasteners; technical delivery conditions; surface discontinuities on bolts
DIN 962	Bolts, screws, studs and nuts; designations, types and designs
DIN 4000 Part 2	Tabular layouts of article characteristics for screws and nuts
DIN 6900	Screw and washer assemblies
DIN 7500 Part 1	Thread rolling screws for ISO metric threads; dimensions, requirements and testing
DIN 7513	Hexagon head and slotted head thread cutting screws; dimensions, requirements and testing
ISO 898 Part 1	Mechanical properties of fasteners; bolts, screws and studs
ISO 4759 Part 1	Tolerances for fasteners; bolts, screws and nuts with thread diameters from 1,6 to 150 mm; product grades A, B and C

## Previous editions

DIN 83 Parts 1 and 2; 03.24; DIN 83: 11.38; DIN 84 Part 1: 08.21, 03.24, 01.37, 10.42; DIN 84 Part 2: 08.21, 03.24, 04.43; DIN 84: 10.42X, 12.52, 04.64, 07.68, 10.70, 10.88.

## Amendments

The following amendments have been made to the October 1988 edition.

- For M 3,5, M 4 and M 5 screws,  $k_{min}$  values have been corrected.
- $w_{min}$  values have been amended.
- The mass given for M 5 screws, 8 mm long, has been amended.
- The standard has been editorially revised.

## Explanatory notes

Most of the screw dimensions specified in this standard are the same as those specified in ISO 1207 (at present at the stage of draft), the only significant deviation that might impair their interchangeability being the head height,  $k$ , of screws smaller than M 3. ISO heads are somewhat higher, which permits these heads to be used both for slotted and cross recessed head screws. A standard on the latter is in preparation. There are also slight differences with regard to dimension  $w_{min}$ , these being, however, of no significance for the user of this standard.

The following tables compare dimensions  $k_{max}$  and  $w_{min}$  as specified here and the proposed revised edition of ISO 1207.

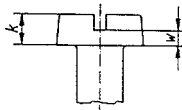


Table 3.

Values given in mm

Thread size ( $d$ )		M 1	M 1,2	M 1,4	M 1,6	(M 1,8)	M 2	M 2,5	M 3	(M 3,5)	M 4	M 5	M 6	M 8	M 10
$k_{max}$	DIN 84	0,7	0,8	0,9	1	1,2	1,3	1,6	2	2,4	2,6	3,3	3,9	5	6
	ISO 1207 (rev.)	—	—	—	1,1	—	1,4	1,8	2	2,4	2,6	3,3	3,9	5	6
$w_{min}$	DIN 84	0,16	0,21	0,21	0,26	0,36	0,36	0,56	0,76	0,96	1,06	1,52	1,6	2,2	2,7
	ISO 1207 (rev.)	—	—	—	0,4	—	0,5	0,7	0,75	1	1,1	1,3	1,6	2	2,4

This standard will be superseded by ISO 1207, once published, an appropriate transition period being granted.

## International Patent Classification

F 16 B 35/00