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September 1986

Slotted set screws with cup point

(modified version of ISO 7436, 1983 edition)

DIN 438

Gewindestifte mit Schlitz und Ringschneide, ISO 7436, Ausgabe 1983; modifiziert

Supersedes February 1972 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.

International Standard ISO 7436, 1983 edition, Slotted set screws with cup point, has been incorporated in the present standard, with national addenda. These are shaded gray.

Dimensions in mm

1 Scope and field of application

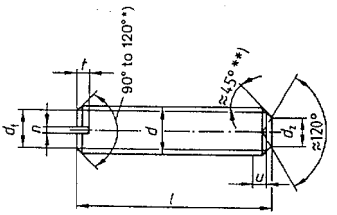
This standard specifies the characteristics of M 1,6 to M 12 slotted set screws with cup point, assigned to product grade A.

Where, for special applications, the screws are to meet requirements differing from those specified in the present standard, e.g. in respect of material (hardness class) or intermediate lengths, specifications of the relevant standards, such as ISO 261, ISO 888, ISO 898 Part 5, ISO 965, ISO 3506, ISO 4759 Part 1, shall be complied with.

2 Reference to other standards

See page 4.

3 Dimensions



u (incomplete thread): $2P$ maximum.

*) The 120° angle is mandatory for set screws with lengths above the dashed stepped line.

**) The 45° angle shall apply only to the portion of the point below the root diameter of the thread.

Continued on pages 2 to 4

Thread size d		~~M 1,6~~	~~M 2~~	~~M 2,5~~	M 3	(M 3,5)[1]	M 4	M 5	M 6	M 8	M 10	~~M 12~~
P [2]		0,35	0,4	0,45	0,5	0,6	0,7	0,8	1	1,25	1,5	1,75
d_f	≈	Minor thread diameter										
d_z	max. = nominal size	0,8	1	1,2	1,4	1,7	2	2,5	3	5	6	8
	min.	0,55	0,75	0,95	1,15	1,45	1,75	2,25	2,75	4,7	5,7	7,7
n	Nominal size	0,25	0,25	0,4	0,4	0,5	0,6	0,8	1	1,2	1,6	2
	min.	0,31	0,31	0,46	0,46	0,56	0,66	0,86	1,06	1,26	1,66	2,06
	max.	0,45	0,45	0,6	0,6	0,7	0,8	1	1,2	1,51	1,91	2,31
t	min. = nominal size	0,56	0,64	0,72	0,8	0,96	1,12	1,28	1,6	2	2,4	2,8
	max.	0,74	0,84	0,95	1,05	1,21	1,42	1,63	2	2,5	3	3,6

Nominal size	l [1], [3] min.	l [1], [3] max.	Mass (7,85 kg/dm³), in kg per 1000 units, approximately									
2	1,8	2,2										
2,5	2,3	2,7										
3	2,8	3,2				0,11						
4	3,75	4,25				0,15		0,25				
5	4,75	5,25				0,19		0,33	0,51			
6	5,7	6,3				0,23		0,41	0,63	0,87		
8	7,7	8,3				0,32		0,56	0,88	1,22	2,2	
10	9,7	10,3				0,41		0,71	1,13	1,57	2,9	4
12	11,6	12,4						0,86	1,38	1,92	3,6	5
(14)	13,6	14,4							1,63	2,27	4,3	6
16	15,6	16,4							1,88	2,62	5	7
20	19,6	20,4								3,32	6,4	9
25	24,6	25,4									8,2	11,5
30	29,6	30,4										14
35	34,5	35,5										
40	39,5	40,5										
45	44,5	45,5										
50	49,5	50,5										
55	54,4	55,6										
60	59,4	60,6										

[1] Bracketed sizes should be avioded if possible.
[2] P = pitch of thread (coarse pitch thread).
[3] Minimum and maximum values as specified in ISO 4759 Part 1, rounded to one decimal place, except for nominal sizes 4 mm and 5 mm.

Set screws are normally manufactured in sizes for which mass values have been specified. The range of commercial lengths is indicated in ISO 7436 by stepped lines. This range does not coincide exactly with the range of commercial lengths available in the Federal Republic of Germany and is given here for information only.

Intermediate lengths should be avoided if possible.

National note. l min. ≈ 1,6 P; l max. ≈ 2,1 P.

4 Technical delivery conditions

Material		Steel	Stainless steel	Non-ferrous metal
General requirements		As specified in DIN 267 Part 1.		
Thread	Tolerance class	6g		
	Standard	ISO 261, ISO 965, DIN 13 Part 15		
Mechanical properties [4]	Property class (material)	14H or 22H	A1–50	CuZn = copper-zinc alloy [1]
	Standard	ISO 898 Part 5	ISO 3506, DIN 267 Part 11 [3]	DIN 267 Part 18 [2]
Permissible dimensional deviations and deviations of form	Product grade	A		
	Standard	ISO 4759 Part 1		
Surface finish		Bright; for property class 22H screws: black oxide (thermally or chemically applied).	Bright.	Bright.
		DIN 267 Part 9 shall apply with regard to electroplating (a different type of electroplating being subject to agreement). DIN 267 Part 2 shall apply with regard to surface roughness. DIN 267 Part 19 shall apply with regard to permissible surface discontinuities. [1]		
Acceptance inspection		DIN 267 Part 5 shall apply with regard to acceptance inspection.		

1) A corresponding ISO Standard is in the course of preparation.
2) CuZn = CU2 or CU3 (as specified in DIN 267 Part 18); at the manufacturer's discretion.
3) The content of ISO 3506, 1979 edition, is covered in DIN 267 Part 11.
4) Different property classes or materials or a particular grade of steel shall be subject to agreement.

5 Designation

Designation of an M 5 slotted set screw with cup point, of nominal length $l = 12$ mm and assigned to property class 14H:

Set screw DIN 438 – M 5 × 12 – 14H

The international designation for set screws complying with ISO 7436 may be as follows:

Set screw ISO 7436 – M 5 × 12 – 14H

National note 1: The February 1972 edition of DIN 438 included property classes 5.8 and 8.8. These have been replaced by the property classes (hardness classes) specified in ISO 898 Part 5. In existing documentation, 5.8 shall be regarded as equivalent to 14H, and 8.8 to 22H, thus obviating the need to alter such documentation.

National note 2: Set screws as specified in this standard may also be supplied with hardened cup point. The symbol Rs geh is to be used for this design, and shall be given in the designation, e.g.

Set screw DIN 438 – M 6 × 80 – 14H – Rs geh

The DIN 4000 – 2 – 3 tabular layout of article characteristics shall apply to set screws conforming to this standard.

Standards referred to

DIN 13 Part 15	ISO metric screw threads; fundamental deviations and tolerances for screw threads of 1 mm and larger
DIN 267 Part 1	Fasteners; technical delivery conditions; general requirements
DIN 267 Part 2	Fasteners; technical delivery conditions; types of finish 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; components with electroplated coatings
DIN 267 Part 11	Fasteners; technical delivery conditions (with additions to ISO 3506); corrosion-resistant stainless steel fasteners
DIN 267 Part 18	Fasteners; technical delivery conditions; components made of non-ferrous metals
DIN 267 Part 19	Fasteners; technical delivery conditions; surface discontinuities on bolts and screws
DIN 4000 Part 2	Tabular layouts of article characteristics for bolts, studs and nuts
ISO 225 – 1983	Fasteners; bolts, screws, studs and nuts; symbols and designations of dimensions
ISO 261 – 1973	ISO general purpose metric screw threads; general plan (see DIN 13 Part 12)
ISO 888 – 1976	Bolts, screws and studs; nominal lengths and thread lengths for general purpose bolts (no comparable DIN Standard; the ISO Standard has been taken into consideration in the DIN Standards on bolts and screws concerned.)
ISO 898/5 – 1980	Mechanical properties of fasteners. Part 5: Set screws and similar threaded fasteners not under tensile stresses
ISO 965/1 – 1980	ISO general purpose metric screw threads; tolerances. Part 1: Principles and basic data (see DIN 13 Part 14)
ISO 965/2 – 1980	ISO general purpose metric screw threads; tolerances. Part 2: Units of sizes for general purpose bolt and nut threads; medium quality (see DIN 13 Part 15)
ISO 3269 – 1984	Fasteners; acceptance inspection (see DIN 267 Part 5)
ISO 3506 – 1979	Corrosion-resistant stainless steel fasteners; specifications (see DIN 267 Part 11)
ISO/DIS 4042 – 1985	Threaded components; electroplated coatings (comparable with DIN 267 Part 9)
ISO 4753 – 1983	Fasteners; ends of parts with external metric ISO thread
ISO 4759/1 – 1978	Tolerances for fasteners. Part 1: Bolts, screws and nuts with thread diameters between 1,6 (inclusive) and 150 mm (inclusive) and product grades A, B and C

Previous editions

10.22, 05.24, 02.35, 01.51, 12.56, 02.72.

Amendments

The following amendments have been made in comparison with the February 1972 edition.

a) The content of ISO 7436 – 1983 has been included.

b) The previous design m as specified in DIN 267 Part 2, April 1968 edition, has been replaced by product grade A as specified in ISO 4759 Part 1.

c) Limiting dimensions calculated from the permissible tolerances have been included.

d) The dimensions of the cup point have been amended.

e) The technical delivery conditions have been amended.

f) The previous property classes as specified in DIN 267 Part 3 have been replaced by hardness classes as specified in ISO 898 Part 5.

g) Some values of slot depth have been amended.

International Patent Classification

F 16 B 35/00
F 16 B 23/00