UDC 621.882.213.082.1

February 1985

Square head bolts with collar and oval half dog point

DIN 480

Vierkantschrauben mit Bund und Ansatzkuppe

Supersedes March 1968 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.

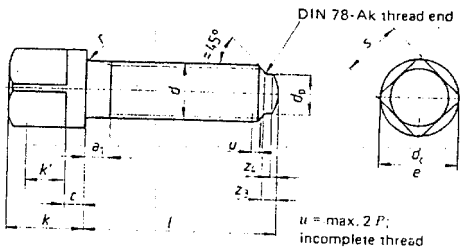
Dimensions in mm

1 Scope and field of application

This standard specifies product grade A square head bolts with collar and oval half dog point, and M 8 to M 24 coarse thread.

Where, for special purposes, the bolts are to meet requirements differing from those specified in the present standard, e.g. in respect of nominal length or property class, the specifications of the relevant standards shall be complied with.

2 Dimensions



u = max. 2 P; incomplete thread

k' is the minimum wrenching height.

a_1 as in DIN 76 Part 1, d_b, z_3 and z_4 as in DIN 78.

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Thread size d		M 8	M 10	M 12	M 16	M 20	M 24
P[1]		1,25	1,5	1,75	2	2,5	3
d_3	max	4	4,5	5,3	6	7,5	9
e	min	2,88	2,88	3,85	3,85	4,85	5,85
	max	3,12	3,12	4,15	4,15	5,15	6,15
d_k	max = nominal dimension	10	13	17	21 22	27 28	32
	min	9,42	12,3	16,3	20,16 21,16	26,16 27,16	31
d_s	max = nominal dimension	5,5	7	8,5	12	15	18
	min	5,32	6,78	8,28	11,73	14,73	17,73
	Nominal dimension	11	13	16	20	25	28
k	min	10,78	12,78	15,78	19,74	24,74	27,74
	max	11,22	13,22	16,22	20,26	25,26	28,26
k'	min	5,5	6,9	8,3	11,1	13,8	15,2
r	min	0,4	0,4	0,6	0,6	0,8	0,8
s	max = nominal dimension	8	10	13	16[2] 17	21[2] 22	24
	min	7,78	9,78	12,73	15,73 16,73	20,67 21,67	23,67
z_3	min = nominal dimension	2	2,5	3	4	5	6
	max	2,25	2,75	3,25	4,3	5,3	6,3
z_4	≈	1	1	1,25	1,75	2	2,5

Nominal size	l min	l max	Mass (7,85 kg/dm³), in kg per 1000 units ≈					
16	15,65	16,35	10,1					
20	19,58	20,42	11,3	20,6				
25	24,58	25,42	12,9	23,1	40,5			
30	29,58	30,42	14,4	25,5	44,1			
35	34,5	35,5	16,0	28,0	47,7			
40	39,5	40,5	17,6	30,5	51,3	99,3		
50	49,5	50,5		35,4	58,5	113		
60	59,4	60,6		40,4	65,7	126	222	313
70	69,4	70,6				139	243	343
80	79,4	80,6				152	263	372
90	89,3	90,7					284	402
100	99,3	100,7					304	431
110	109,3	110,7					324	460
120	119,3	120,7					344	489
140	139,2	140,8						547

Intermediate lengths shall be avoided as far as possible.

Lengths over 140 mm shall be graded in 20 mm steps. For these lengths, the permissible deviations specified in ISO 4759 Part 1 shall apply.

1) P = pitch of thread (coarse thread).

2) See clause 4.

3 Technical delivery conditions

Material		Steel
General requirements		As in DIN 267 Part 1.
Thread	Tolerance	6g
	Standard	DIN 13 Part 15
Mechanical properties [1]	Property class (material)	5.6; 5.8; 8.8
	Standard	ISO 898 Part 1
Permissible dimensional deviations and deviations of form	Product grade	A (previously m).
	Standard	ISO 4759 Part 1
Surface		As processed. Property class 8.8 bolts: (thermally or chemically) blackened. 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. DIN 267 Part 10 shall apply with regard to hot dip galvanizing.
Acceptance inspection		DIN 267 Part 5 shall apply with regard to the acceptance inspection.

[1] Other property classes, materials or hardened thread ends are subject to agreement.

4 Designation

Designation of an M 12 square head bolt with collar and oval half dog point, of length *l* (nominal size) = 40 mm and assigned to property class 5.6:

Square head bolt DIN 480 – M 12 × 40 – 5.6

If it is intended to supply the M 16 and M 20 screws with the new widths across flats 16 mm and 21 mm, as specified in ISO 272, the width across flats (SW) shall be incorporated in the designation, e.g.:

Square head bolt DIN 480 – M 16 × 50 – SW 16 – 5.6

If it is required that the bolts be supplied with a hardened oval half dog point, then the symbol geh (hardened) shall be incorporated in the designation, e.g.:

Square head bolt DIN 480 – M 12 × 40 – 5.6 geh

For ordering purposes, the designation of types and designs not specified here shall conform to DIN 962.

Standards referred to

DIN 13 Part 15	ISO metric screw thread; fundamental deviations and tolerances for threads from 1 mm diameter
DIN 76 Part 1	Thread runouts; undercuts for ISO metric screw threads as defined in DIN 13
DIN 78	Thread ends; lengths of projection of thread ends for ISO metric screw threads as defined in 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
DIN 267 Part 9	Fasteners; technical delivery conditions; electroplated components
DIN 267 Part 10	Fasteners; technical delivery conditions; hot-dip galvanized parts
DIN 267 Part 19	Fasteners; technical delivery conditions; surface discontinuities on bolts and screws
DIN 962	Screws, bolts, studs; designations, types and designs
ISO 272	Fasteners; hexagon products, widths across flats
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 480 Part 1: 10.26, 05.42x, 06.53
DIN 480: 03.68

Amendments

The following amendments have been made in comparison with the March 1968 edition:

a) Additions have been made to the technical delivery conditions, which have also been brought into line with the relevant standards.
b) The previous design m as specified in DIN 267 Part 2 has been replaced by product grade A as specified in ISO 4759 Part 1.
c) Limits of size calculated from the permissible dimensional tolerances have been included.
d) The content of the standard has been editorially revised.
e) The dimensioning of the head height has been extended to include the collar ($k + c$).
f) For sizes M 16 and 20, the widths across flats 16 mm and 21 mm as specified in ISO 272 have been added.
g) The dimensions of the oval half dog point have been brought into line with DIN 78 (≙ ISO 4753).

International Patent Classification

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