UDC 621.882.213.3

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T-head bolts with square neck

DIN 186

Hammerschrauben mit Vierkant

Supersedes January 1987 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.

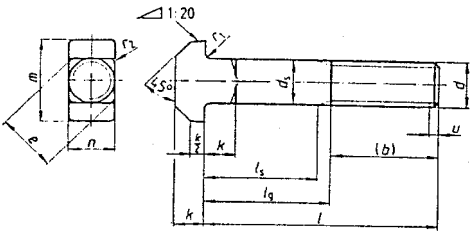
Dimensions in mm

1 Scope and field of application

This standard specifies M 6 to M 48 T-head bolts with square neck. They are designed for use in attaching components to foundations or similar structures by means of T-slots (such as are specified in DIN 649), where T-head bolts with square neck are considered adequate detachable fasteners.

2 Dimensions

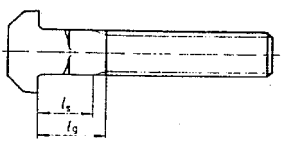
Type A, with thread end



DIN 78 – K or DIN 78 – L thread end, at the manufacturer's discretion.

u (incomplete thread); 2*P* maximum.

Type B, with shank fully threaded



Continued on pages 2 to 4

Thread size (d)		M 6	M 8	M 10	M 12	M 16	M 20	M 24	M 30	M 36	M 42	M 48
P [1]		1	1,25	1,5	1,75	2	2,5	3	3,5	4	4,5	5
b [2]		18	22	26	30	38	46	54	66	78	-	-
(auxiliary size) [3]		-	-	-	-	44	52	60	72	84	96	108
d_s	Nominal size	6	8	10	12	16	20	24	30	36	42	48
	max	6,48	8,58	10,58	12,7	16,7	20,84	24,84	30,84	37	43	49
	min	5,52	7,42	9,42	11,3	15,3	19,16	23,16	29,16	35	41	47
e [4]	min	6,88	9,24	11,61	14,17	19,32	24,33	29,48	37,2	44,57	52,29	60,0
k	Nominal size	4,5	5,5	7	8	10,5	13	15	19	23	26	30
	max	4,9	5,9	7,5	8,75	11,4	13,9	15,9	20	24	27	31
	min	4,1	5,1	6,5	7,25	9,6	12,1	14,1	18	22	25	29
n	Nominal size	6	8	10	12	16	20	24	30	36	42	48
	max.	6,6	8,75	10,75	12,9	16,9	21	25	31	37,25	43,25	49,25
	min.	5,4	7,25	9,25	11,1	15,1	19	23	29	34,75	40,75	46,75
m	Nominal size	16	18	21	26	30	36	43	54	66	80	88
	max.	16,9	18,9	22	27	31	37,25	44,25	55,5	67,5	81,5	89,75
	min	15,1	17,1	20	25	29	34,75	41,75	52,5	64,5	78,5	86,25
r_1	≈	0,5	0,5	0,5	1	1	1	1,6	1,6	2	2	2
r_2 [5]	max	0,9	1,2	1,5	1,8	2,4	3	3,6	4,5	5,4	6,3	7,2
Type B	l_s min. [6]	5	6,75	8,5	10,25	15	18,5	22	25,5	35	31,5	47
	l_g max.	10	13	16	19	25	31	37	43	55	54	72

Nominal size	l min	l max	Shank lengths l_s [6] and l_g [7] for type A bolts																					
			l_s min	l_g max	l_s min	l_g max	l_s min	l_g max	l_s min	l_g max	l_s min	l_g max	l_s min	l_g max	l_s min	l_g max	l_s min	l_g max	l_s min	l_g max	l_s min	l_g max	l_s min	l_g max
30	28,95	31,05																						
(35)	33,75	36,25																						
40	38,75	41,25																						
(45)	43,75	46,25	22	27	16,75	23																		
50	48,75	51,25	27	32	21,75	28	16,5	24																
(55)	53,5	56,5	32	37	26,75	33	21,5	29	16,25	25														
60	58,5	61,5	37	42	31,75	38	26,5	34	21,25	30														
(65)	63,5	66,5			36,75	43	31,5	39	26,25	35														
70	68,5	71,5			41,75	48	36,5	44	31,25	40	22	32												
(75)	73,5	76,5			46,75	53	41,5	49	36,25	45	27	37												
80	78,5	81,5			51,75	58	46,5	54	41,25	50	32	42	21,5	34										
90	88,25	91,75					56,5	64	51,25	60	42	52	31,5	44										
100	98,25	101,75					66,5	74	61,25	70	52	62	41,5	54										
(110)	108,25	111,75							71,25	80	62	72	51,5	64	41	56								
120	118,25	121,75							81,25	90	72	82	61,5	74	51	66	36,5	54						
(130)	128	132									76	86	65,5	78	55	70	40,5	58						
140	138	142									86	96	75,5	88	65	80	50,5	68						
(150)	148	152									96	106	85,5	98	75	90	60,5	78	46	66				
160	156	164									106	116	95,5	108	85	100	70,5	88	56	76	41,5	64		
(170)	166	174											105,5	118	95	110	80,5	98	66	86	51,5	74		
180	176	184											115,5	128	105	120	90,5	108	76	96	61,5	84		
(190)	185,4	194,6											125,5	138	115	130	100,5	118	86	106	71,5	94	57	82
200	195,4	204,6											135,5	148	125	140	110,5	128	96	116	81,5	104	67	92

Lengths above 200 mm shall be graded in 20 mm steps. For these sizes, b is to be calculated from: $b = 2d + 25$ mm.

Bracketed sizes should be avoided if possible.

The range of commercial sizes has been indicated by continuous stepped lines. The space between the dashed and the upper continuous stepped line applies only to type B bolts, for which l_s and l_g values have been specified in the upper half of the table.

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

2) For l up to and including 120 mm.

3) For l above 120 up to and including 200 mm.

4) e min. = n min. × 1,41 − 0,82 × r_2 max.

5) r_2 max. = 0,15 d.

6) l_s min. = l_g max. − 5 P.

7) l_g max. = l (nominal size) − b.

3 Technical delivery conditions

Material		Steel
General requirements		As specified in DIN 267 Part 1.
Thread	Tolerance class	8g
	As specified in	DIN 13 Part 15.
Mechanical properties	Property class (material)	For sizes up to and including M 36: 3.6 or 4.6, at the manufacturer's discretion. For sizes exceeding M 36: subject to agreement. Other property classes or materials shall be subject to agreement.
	As specified in	ISO 898 Part 1.
Limit deviations, geometrical tolerances	Product grade	C
	As specified in	ISO 4759 Part 1.
Surface finish		As processed. 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 acceptance inspection.

4 Designation

Designation of an M 20 type A T-head bolt, of nominal length l = 120 mm:

T-head bolt DIN 186 – AM 20 x 120

5 Masses

Thread size (d)	M 6	M 8	M 10	M 12	M 16	M 20	M 24	M 30	M 36	M 42	M 48
l	Mass (7,85 kg/dm³) per 1000 units, in kg, approximately										
30	9,9	18,2	30								
(35)	11	19,7	32,5								
40	12,1	20,2	35	55,1							
(45)	13,2	22,2	37,5	58,7							
50	14,3	24,2	40,6	62,3	117						
(55)	15,4	26,2	43,7	66,7	124						
60	16,5	28,2	46,8	71,1	130	220					
(65)		30,2	49,9	74,5	137	230					
70		32,2	53	78,9	145	240	377				
(75)		34,2	56,1	84,3	153	250	392				
80		36,2	59,2	88,7	161	262	407				
90			65,4	97,6	177	287	437	727			
100			71,6	106	193	302	467	773			
(110)				115	209	327	502	819			
120				124	225	351	538	874	1380		
(130)					241	376	583	930	1450		
140					257	401	618	985	1530	2220	
(150)					273	426	654	1040	1610	2310	3180
160					289	450	689	1090	1690	2420	3300
(170)						475	725	1150	1770	2530	3420
180						500	760	1200	1850	2640	3540
(190)						525	796	1260	1930	2750	3680
200						550	831	1310	2010	2860	3820

The values of mass specified are for guidance only and cover the commercial sizes.

Standards referred to

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; 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 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 10	Fasteners; technical delivery conditions; hot-dip galvanized components
DIN 649	T-slots for T-head bolts
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 between 1,6 mm (inclusive) and 150 mm (inclusive) and product grades A, B and C

Previous editions

DIN 186: 02.30, 10.37, 11.70, 01.87; DIN 186 Part 1: 01.42, 07.53.

Amendments

The following amendments have been made to the January 1987 edition.

a) Dimensions l_s and l_g for type B bolts are now covered separately in the relevant table.

b) The range of commercial sizes has been indicated by continuous stepped lines.

International Patent Classification

F 16 B 35/00