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T-head bolts with double nib

DIN 188

Hammerschrauben mit Nase

Supersedes January 1971 edition.

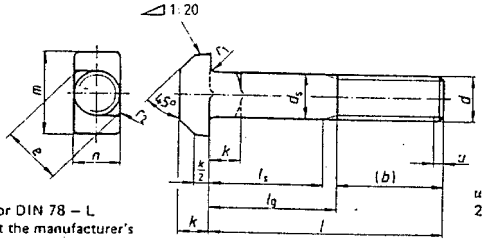
In keeping with current practice in standards published by the International Organization for Standardization (ISO), a comma has been used throughout as the decimal marker.

Dimensions in mm

1 Scope and field of application

This standard specifies M 8 to M 80 × 6 T-head bolts with double nib. 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



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

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

Continued on pages 2 to 6

Thread size d		M 8	M 10	M 12	M 16	M 20	M 24	M 30
P [1]		1,25	1,5	1,75	2	2,5	3	3,5
b (auxiliary size)	[2]	22	26	30	38	46	54	66
	[3]	–	–	–	44	52	60	72
	[4]	–	–	–	–	–	–	–
d_s	Nominal size	8	10	12	16	20	24	30
	max.	8,58	10,58	12,7	16,7	20,84	24,84	30,84
	min.	7,42	9,42	11,3	15,3	19,16	23,16	29,16
e [5]	min.	9,24	11,81	14,17	19,32	24,33	29,48	37,2
k	Nominal size	5,5	7	8	10,5	13	15	19
	max.	5,9	7,45	8,75	11,4	13,9	15,9	20
	min.	5,1	6,55	7,25	9,6	12,1	14,1	18
n	Nominal size	8	10	12	16	20	24	30
	max.	8,75	10,75	12,9	16,9	21	25	31
	min.	7,25	9,25	11,1	15,1	19	23	29
m	Nominal size	18	21	26	30	36	43	54
	max.	18,9	22	27	31	37,25	44,25	55,5
	min.	17,1	20	25	29	34,75	41,75	52,5
r_1	≈	0,5	0,5	1	1	1	1,6	1,6
r_2 [6]	max.	1,2	1,5	1,8	2,4	3	3,6	4,5

Nominal size	l max.	l min.	Shank lengths l_s and l_g													
			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	3,75	10	7,5	15										
(35)	33,75	36,25	3,75	10	7,5	15										
40	38,75	41,25	3,75	10	7,5	15	10,25	19								
(45)	43,75	46,25	16,75	23	7,5	15	10,25	19								
50	48,75	51,25	21,75	28	16,5	24	10,25	19	15	25						
(55)	53,5	56,5	26,75	33	21,5	29	16,25	25	15	25						
60	58,5	61,5	31,75	38	26,5	34	21,25	30	15	25	18,5	31				
(65)	63,5	66,5	36,75	43	31,5	39	26,25	35	15	25	18,5	31				
70	68,5	71,5	41,75	48	36,5	44	31,25	40	22	32	18,5	31	22	37		
(75)	73,5	76,5	46,75	53	41,5	49	36,25	45	27	37	18,5	31	22	37		
80	78,5	81,5	51,75	58	46,5	54	41,25	50	32	42	21,5	34	22	37		
90	88,25	91,75			56,5	64	51,25	60	42	52	31,5	44	22	37	25,5	43
100	98,25	101,75			66,5	74	61,25	70	52	62	41,5	54	22	37	25,5	43
(110)	108,25	111,75					71,25	80	62	72	51,5	64	41	56	25,5	43
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
160	156	164							106	116	95,5	108	85	100	70,5	88
(170)	166	174									105,5	118	95	110	80,5	98
180	176	184									115,5	128	105	120	90,5	108
(190)	185,4	194,6									125,5	138	115	130	100,5	118
200	195,4	204,6									135,5	148	125	140	110,5	128

Lengths above 400 mm shall be graded in 20 mm steps. Bracketed sizes should be avoided if possible. T-head bolts with double nib are normally manufactured in sizes for which shank lengths have been specified.

l_g max. = l (nominal lengths) − b (auxiliary size) shall apply for screws with lengths below the stepped line;
l_s min. = l_g max. − 5 P.

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) For l exceeding 200 mm.

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

6) r_2 max. = 0,15 d.

Thread size d		M 36	M 42	M 48	M 56	M 64	M 72 × 6	M 80 × 6
P [1]		4	4,5	5	5,5	6	–	–
b (auxiliary size)	[2]	78	–	–	–	–	–	–
	[3]	84	96	108	124	130	156	172
	[4]	97	109	121	137	143	169	185
d_s	Nominal size	36	42	48	56	64	72	80
	max.	37	43	49	57,2	65,2	73,2	81,2
	min.	35	41	47	54,8	62,8	70,8	78,8
e [5]	min.	44,57	52,29	60,0	69,96	80,25	90,55	100,85
k	Nominal size	23	26	30	35	40	45	50
	max.	24	27	31	36,25	41,25	46,25	51,25
	min.	22	25	29	33,75	38,75	43,75	48,75
m	Nominal size	36	42	48	56	64	72	80
	max.	37,25	43,25	49,25	57,5	65,5	73,5	81,5
	min.	34,75	40,75	46,75	54,5	62,5	70,5	78,5
m	Nominal size	66	80	88	102	115	128	140
	max.	67,5	81,5	89,75	103,75	116,75	130	142
	min.	64,5	78,5	86,25	100,25	113,25	126	138
r_1	≈	2	2	2	3	3	4	4
r_2 [6]	max.	5,4	6,3	7,2	8,4	9,6	10,8	12

Nominal size	l min.	l max.	Shank lengths l_s and l_g															
			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.
120	118,25	121,75	35	55														
(130)	128	132	35	55														
140	138	142	36	56	31,5	54												
(150)	148	152	46	66	31,5	54	47	72										
160	156	164	56	76	41,5	64	47	72										
(170)	166	174	66	86	51,5	74	47	72										
180	176	184	76	96	61,5	84	47	72	55,5	83								
(190)	185,4	194,6	86	106	71,5	94	57	82	55,5	83								
200	195,4	204,6	96	116	81,5	104	67	92	55,5	83	65	95	75	105	85	115		
220	215,4	224,6	103	123	88,5	111	74	99	55,5	83	65	95	75	105	85	115		
240	235,4	244,6	123	143	108,5	131	94	119	75,5	103	65	95	75	105	85	115		
260	254,8	265,2			128,5	151	114	139	95,5	123	77	117	75	105	85	115		
280	274,8	285,2					134	159	115,5	143	107	137	81	111	85	115		
300	294,8	305,2							135,5	163	127	157	101	131	85	115		
320	314,3	325,7									147	177	121	151	105	135		
340	334,3	345,7									167	197	141	171	125	155		
360	354,3	365,7											161	191	145	175		
380	374,3	385,7													165	195		
400	394,3	405,7													185	215		

Lengths above 400 mm shall be graded in 20 mm steps. Bracketed sizes should be avoided if possible. T-head bolts with double nib are normally manufactured in sizes for which shank lengths have been specified.

l_g max. = l (nominal lengths) − b (auxiliary size) shall apply for screws with lengths below the stepped line;

l_s min. = l_g max. − 5 P.

For [1] to [6], see page 2.

3 Technical delivery conditions

Material		Steel
General requirements		As specified in DIN 267 Part 1.
Thread	Tolerance class	8g
	Standard	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.
	Standard	ISO 898 Part 1
Permissible deviations, geometrical tolerances	Product grade	C
	Standard	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 T-head bolt, of nominal length l = 120 mm:

T-head bolt DIN 188 – M 20 × 120

5 Masses

Thread size d	M 8	M 10	M 12	M 16	M 20	M 24	M 30	M 36	M 42	M 48	M 56	M 64	M 72 × 6	M 80 × 6
l	Mass (7,85 kg/dm^3), in kg per 1000 units, approximately													
30	18,2	30,0												
(35)	19,7	32,5												
40	20,2	35,0	55,1											
(45)	22,2	37,5	58,7											
50	24,2	40,6	62,3	117										
(55)	26,2	43,7	66,7	124										
60	28,2	46,8	71,1	130	220									
(65)	30,2	49,9	74,5	137	230									
70	32,2	53,0	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	4640			
(190)					525	796	1260	1930	2750	3680	4820			
200					550	831	1310	2010	2860	3820	5000	6 800	8 100	10 200
220								2170	3080	4080	5360	7 300	8 730	11 000
240								2330	3300	4360	5720	7 800	9 360	11 800
260									3520	4640	6080	8 300	9 990	12 600
280										4920	6440	8 800	10 620	13 400
300											6800	9 300	11 250	14 200
320												9 800	11 900	15 000
340												10 300	12 500	15 800
360													13 100	16 600
380														17 400
400														18 200

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 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 188: 09.23, 04.24, 04.27, 04.31, 10.37, 01.71; DIN 188 Part 1: 01.42, 08.53.

Amendments

The following amendments have been made in comparison with the January 1971 edition.

a) The previous design g as specified in DIN 267 Part 2 has been replaced by product grade C as specified in ISO 4759 Part 1.

b) The technical delivery conditions have been amended and harmonized with the relevant basic standards.

c) The limits of size calculated from the permissible deviations have been included.

d) The shank lengths, l_s and l_g, have been included.

e) The width across corners, e, has been included.

f) The edge radius, r_2, has been included.

g) The standard has been editorially revised.

International Patent Classification

F 16 B 35/04