UDC 621.882.219.4

December 1972

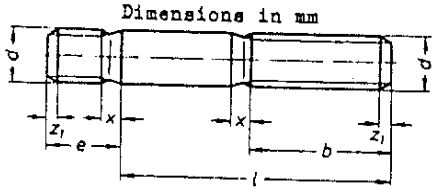
Studs
Metal end ≈ 1 d

DIN 938

Stiftschrauben, Einschraubende ≈ 1 d

The studs according to this Standard are mainly used for screwing into steel. At the present time, in accordance with DIN 267 Part 2, the 8k 6 tolerance according to DIN 13 and DIN 14 Supplementary Sheet 14 applies to the thread at the metal end unless the designation states Fo (= without interference thread) or Sn 4.

Dimensions in mm



x according to DIN 76

z_1 according to DIN 78

Designation of a stud with thread d = M 12, length l = 80 mm and strength category 8.8:

Stud M 12 x 80 DIN 938 - 8.8

Designation of the same stud, but without interference thread (Fo):

Stud M 12 Fo x 80 DIN 938 - 8.8

d	M3	M4	M5	M6	(M7)	M8	M10	M12	(M14)	M16	(M18)	M20	(M22)	M24
	—	—	—	—	—	M8×1	M10×1,25	M12×1,25	(M14×1,5)	M16×1,5	(M18×1,5)	M20×1,5	(M22×1,5)	M24×2
b 1)	12	14	16	18	20	22	26	30	34	38	42	46	50	54
b 2)	18	20	22	24	26	28	32	36	40	44	48	52	56	60
b 3)	—	—	—	—	—	—	45	49	53	57	61	65	69	73
e	3	4	5	6	7	8	10	12	14	16	18	20	22	24
l	Weight (7,85 kg/dm³) kg/1000 pieces ≈													
12														
(14)														
16														
(18)	0,95													
20	1,06	1,90												
(22)	1,17	2,10	3,40											
25	1,34	2,40	3,86	5,50										
(28)	1,51	2,70	4,32	6,16	8,8									
30	1,62	2,90	4,63	6,60	9,4	12,2								
35		3,40	5,30	7,70	10,9	14,2	22,7							
40		3,90	5,97	8,80	12,4	16,2	25,8	38,0						
45			6,74	9,90	13,9	18,2	28,9	42,4	60,0					
50			7,31	11,0	15,4	20,2	32,0	46,8	66,0	89,0				
55				12,1	16,8	22,2	35,1	51,2	72,1	96,9	123			
60				13,2	18,4	24,2	38,2	55,6	78,1	105	133	170		
65					19,9	26,2	41,3	60,0	84,2	113	143	182	220	
70					21,4	28,2	44,4	64,4	90,2	121	153	194	235	290
75						30,2	47,5	68,8	96,3	129	163	206	250	308
80						32,2	50,6	73,2	102	137	173	218	265	326
(85)							53,7	77,6	108	145	183	230	280	344
90							56,8	82,0	114	153	193	242	295	362
(95)							59,9	86,4	120	161	203	254	310	380
100							63,0	90,8	126	169	213	266	325	398
110								99,7	138	185	233	290	355	434
120								109	150	201	253	315	385	470
130									162	217	273	339	415	506
140									174	233	293	364	445	542
150										249	313	389	475	578
160										265	333	413	505	614
170											353	438	535	650
180											373	463	565	686
190												487	595	722
200												512	625	758

1) For lengths l up to 125 mm
2) For lengths l over 125 to 200 mm
3) For lengths l over 200 mm

Continued on pages 2 and 3
Explanations on page 3

d	(M 27) (M 27 × 2)	M 30 M 30 × 2	(M 33) (M 33 × 2)	M 36 M 36 × 3	(M 39) (M 39 × 3)	M 42 M 42 × 3	(M 45) (M 45 × 3)	M 48 M 48 × 3	(M 52) (M 52 × 3)
b 1)	60	66	72	78	84	90	96	102	110
b 2)	66	72	78	84	90	96	102	108	116
b 3)	79	85	91	97	103	109	115	121	129
e	25	30	32	35	38	42	45	48	52
l	Weight (7,85 kg/dm³) kg/1000 pieces ≈								
50									
55									
60									
65									
70									
75	390								
80	412	535							
(85)	435	563							
90	457	591	725						
(95)	480	619	759	900					
100	502	647	793	940					
110	547	702	860	1020	1200	1450			
120	592	757	927	1100	1290	1560	1800	2100	
130	637	812	994	1180	1380	1670	1920	2240	
140	682	867	1060	1260	1480	1780	2050	2380	2850
150	727	922	1130	1340	1570	1890	2170	2520	3020
160	772	977	1200	1420	1660	2000	2300	2660	3190
170	817	1030	1260	1500	1750	2110	2420	2800	3350
180	862	1080	1320	1580	1840	2220	2550	2940	3520
190	907	1140	1390	1660	1930	2330	2670	3080	3680
200	952	1190	1460	1740	2030	2440	2800	3220	3850
220	1040	1300	1590	1900	2220	2660	3050	3500	4180
240	1130	1410	1720	2060	2410	2880	3300	3780	4510
260	1220	1520	1850	2220	2600	3100	3550	4060	4840
280	1310	1630	1990	2380	2790	3320	3800	4340	5170
300		1740	2120	2540	2980	3540	4050	4620	5500
320			2260	2700	3170	3760	4300	4900	5830
340			2390	2860	3360	3980	4550	5180	6170
360				3020	3550	4200	4800	5460	6500
380					3740	4440	5050	5720	6830
400					3930	4660	5300	6000	7160

1) to 3) See on page 1

Lengths over 400 mm are to be stepped in rises of 20 mm.

Bracketed sizes and intermediate lengths should be avoided wherever possible.

Normally, these studs with regular thread are manufactured in the lengths lying between the ———— stepped lines.

Studs with lengths above the upper ———— stepped line cannot be made with the stated thread lengths b. For these studs the thread length is $b \approx l - (x + 3)$.

For studs with lengths above the -------- stepped line $b + x < 1.2\ e$. Therefore, in the case of these studs, to differentiate the two threaded ends, the nut end must be made with an oval point unless the identification symbol for the strength category is marked on the end face at the nut end.

Technical conditions of delivery according to DIN 267

Strength category or material:

5.6, 8.8, 10.9 according to DIN 267 Sheet 3

Other strength categories or materials by agreement

Type: m according to DIN 267 Sheet 2

If electroplated surface protection is required, the designation must be augmented according to DIN 267 Sheet 9.

If one of the types listed in DIN 962 with additional order details is required, the designation must be augmented according to DIN 962.

If the studs are to be supplied with different threads at the metal end and nut end, this should be stated in the designation, the sequence being such that the metal end thread is named first, e. g.:

Stud M 12 - M 12 × 1.5 × 80 DIN 938 - 8.8

In exceptional cases, studs with M 10 × 1, M 12 × 1.5, M 18 × 2, M 20 × 2 and M 22 × 2 fine thread may be ordered according to this Standard.

Explanations

Compared with the March 1953 issue of DIN 938 Sheet 1, the following amendments and additions in the new Standard should be noted:

The representation of the studs has been changed. It now depicts the version with rolled thread which is to be deemed the usual type. It is not intended, however, that this should exclude the type with machine cut thread, which can be supplied at option.

In the interests of rationalized production, the distinction so far adopted of flat point at the metal end and oval point at the nut end is now only specified for cases in which the two ends cannot be positively differentiated by the thread lengths (the longer length of thread denoting the nut end), and when the identification symbol for the strength category is not provided as a differentiating feature on the point of the stud at the nut end.

The thread tolerance at the metal end continues to be Sk 6 according to DIN 13 and DIN 14 Supplementary Sheet 14. However, because nowadays studs having the same tolerance zones for both threads are widely used, an example of a designation incorporating the symbol Fo and agreeing with DIN 962 has been included, the meaning of this symbol being that the usual 6 g tolerance zone for the nut end is to apply also to the thread at the metal end.

During the formulation of the new version of this Standard there was some controversy about this ruling. However, it proved impossible to find any better solution so long as final decisions are still awaited - both internationally and nationally - on the interference thread with ISO profile, and so long as different types of grip are used, these being mainly

gripping on the effective diameter

gripping on the outside diameter

gripping on the thread runout.

The thread lengths at the nut end have been brought into line with ISO Recommendation ISO/R 888.

In keeping with this ISO Recommendation, the nominal length 15 mm has been replaced by 14 and 16 mm, the 16 mm length being preferred.

The usual manufacturing range has been bounded by stepped lines, but this is not intended to exclude the manufacture of lengths outside this range.

The strength categories have been renamed in accordance with DIN 267 Sheet 3 and in this process a reduction in grades has been accomplished.

The range of fine threads has been extended in the downward direction to M 8 × 1, the selected series according to ISO/R 262 having been adopted from DIN 13 Sheet 13. The previous fine threads M 10 × 1, M 12 × 1.5, M 18 × 2, M 20 × 2 and M 22 × 2 have been sanctioned for use in exceptional cases.

In agreement with the new issues of DIN 835 and DIN 939 a type with different threads, e. g. regular thread at the metal end and fine thread at the nut end, has been sanctioned.

The content of the Standard has been reformulated.