UDC 621.882.219.4 December 1972

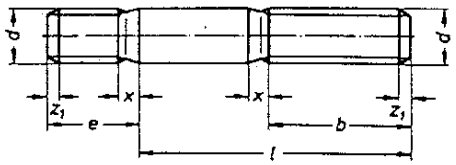
Studs
Threaded End ≈ 1.25 d

DIN 939

Stiftschrauben, Einschraubende ≈ 1,25 d

The studs according to this Standard are mainly used for screwing into cast iron. At the present time, in accordance with DIN 267 Part 2, the 5k 6 tolerance according to DIN 13 and DIN 14 Supplementary Sheet 14 applies to the thread at the threaded 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 939 - 8.8

Designation of the same stud, but without interference thread (Fo):
Stud M 12 Fo x 80 DIN 939 - 8.8

d	M 4 —	M 5 —	M 6 —	(M 7) —	M 8 M 8 x 1	M 10 M 10 x 1,25	M 12 M 12 x 1,25	(M 14) (M 14 x 1,5)	M 16 M 16 x 1,5	(M 18) (M 18 x 1,5)	M 20 M 20 x 1,5	(M 22) (M 22 x 1,5)	M 24 M 24 x 2
b 1)	14	16	18	20	22	26	30	34	38	42	46	50	54
b 2)	20	22	24	26	28	32	36	40	44	48	52	56	60
b 3)	—	—	—	—	—	45	49	53	57	61	65	69	73
e	5	6,5	7,5	9	10	12	15	18	20	22	25	28	30
l	Weight (7,85 kg/dm³) kg/1000 pieces ≈												
12													
(14)													
16													
(18)													
20	2,00												
(22)	2,20	3,60											
25	2,50	4,06	5,75										
(28)	2,80	4,52	6,41	9,2									
30	3,00	4,83	6,85	9,8	12,8								
35	3,50	5,50	7,95	11,3	14,8	23,9							
40	4,00	6,17	9,05	12,7	16,8	27,0	40,2						
45		6,94	10,1	14,3	18,8	30,1	44,6	63,5					
50		7,51	11,2	15,7	20,8	33,2	49,0	69,5	94,3				
55			12,3	17,4	22,8	36,3	53,4	75,6	102	130			
60			13,4	18,8	24,8	39,4	57,8	81,6	110	140	181		
65				20,3	26,8	42,5	62,2	87,7	118	150	193	234	
70				21,8	28,8	45,6	66,4	93,7	126	160	205	249	308
75					30,8	48,7	70,6	100	134	170	217	264	326
80					32,8	51,8	75,0	106	142	180	229	279	344
(85)						54,9	79,4	112	150	190	241	294	362
90						58,0	83,8	118	158	200	253	309	380
(95)						61,1	88,2	124	166	210	265	324	398
100						64,2	92,6	130	174	220	277	340	416
110							102	142	190	240	301	370	448
120							111	154	206	260	326	400	484
130								166	222	280	350	430	520
140								178	238	300	375	460	556
150									254	320	400	490	592
160									270	340	424	520	628
170										360	449	550	664
180										380	474	580	700
190											498	610	736
200											523	640	772

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
[2)]	66	72	78	84	90	96	102	108	116
[3)]	79	85	91	97	103	109	115	121	129
e	35	38	42	45	50	52	58	60	65
l	Weight (7,85 kg/dm³) kg/1000 pieces ≈								
50									
55									
60									
65									
70									
75	430								
80	452								
(85)	475	600							
90	497	628	780						
(95)	520	656	814						
100	542	684	848	1010					
110	587	739	915	1090	1300				
120	632	795	982	1170	1390	1650	1940		
130	677	852	1050	1250	1480	1760	2060	2390	
140	722	908	1120	1330	1580	1870	2190	2530	3040
150	767	965	1180	1410	1670	1980	2310	2670	3210
160	812	1020	1250	1490	1760	2090	2440	2810	3380
170	857	1070	1320	1570	1860	2200	2560	2950	3540
180	892	1130	1380	1650	1940	2310	2690	3090	3710
190	937	1180	1450	1730	2030	2420	2810	3230	3870
200	982	1240	1510	1810	2130	2530	2940	3370	4040
220	1070	1350	1640	1970	2320	2750	3190	3650	4370
240	1160	1460	1780	2130	2510	2970	3440	3930	4700
260	1250	1570	1910	2290	2700	3190	3690	4210	5030
280	1340	1680	2050	2450	2890	3410	3940	4490	5360
300		1790	2180	2610	3080	3630	4190	4770	5690
320			2320	2770	3270	3850	4440	5050	6020
340			2450	2930	3460	4070	4690	5330	6360
360				3090	3650	4290	4940	5610	6690
380					3840	4510	5190	5870	7020
400					4030	4730	5440	6150	7350

1) to 3) See on page 1

Lengths over 200 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 Part 3

Other strength categories or materials by agreement

Type: m according to DIN 267 Part 2

If electroplated surface protection is required, the designation must be augmented according to DIN 267 Part 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 threaded end and nut end, this should be stated in the designation, the sequence being such that the threaded end is named first, e.g.:

Stud M 12 - M 12 x 1.5 x 80 DIN 939 - 8.8

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

Explanations

Studs having a threaded end of ≈1.25 d have so far been covered by DIN 833, DIN 834 and DIN 939 Part 1. These three standards have been combined to form the single Standard DIN 939, and in this process a rationalization of grades has been accomplished. The type having the same thread at both ends (regular or fine thread) has been found to be the usual type, but it is definitely not intended that this should exclude the other types existing hitherto having different threads (DIN 833) and runout (DIN 834). Reference is made to this in Notes.

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 threaded 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 threaded 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 threaded 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 Part 3 and in this process a reduction in grades has been accomplished.

The fine threads have been brought into line with the selected series according to ISO/R 262 (DIN 13 Part 13). The previous fine threads M 10 x 1, M 12 x 1.5, M 18 x 2, M 20 x 2 and M 22 x 2 have been sanctioned for use in exceptional cases.

The sizes with thread diameters above 52 mm have been deleted because it was found that the demand for them was not sufficient to justify standardization.

The content of the Standard has been reformulated.