February 1995

Studs
with a length of engagement equal to about 1,25 d

DIN 939

ICS 21.060.10

Supersedes December 1972 edition.

Descriptors: Fasteners, studs.

Stiftschrauben; Einschraubende ≈ 1,25 d

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.

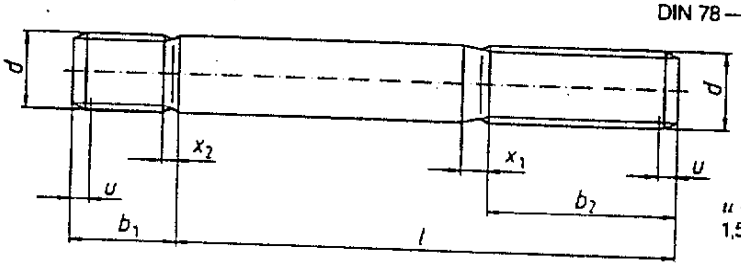
Dimensions in mm

1 Scope and field of application

This standard specifies dimensions and technical delivery conditions for studs intended for use mainly in cast iron. As specified in DIN 267-2, the stud end thread shall be produced to tolerance Sk6 as in DIN 13-51, unless the stud is designated Fo ('without interference-fit thread') or Sn4.

2 Dimensions

DIN 78 — K type nut end



u (incomplete thread): 1,5 P maximum.

b_1 = stud end
b_2 = nut end

Continued on pages 2 to 5.

Table 1: Dimensions

d	M4 — —	M5 — —	M6 — —	(M7) — —	M8 M8×1 —	M10 M10×1,25 —	M12 M12×1,25 M12×1,5	(M14) (M14×1,5) —	M16 M16×1,5 —	(M18) (M18×1,5) —	M20 M20×1,5 —	(M22) (M22×1,5) —	M24 M24×2 —
b_1	5	6,5	7,5	9	10	12	15	18	20	22	25	28	30
b_2 [1] [2] [3]	14 20 —	16 22 —	18 24 —	20 26 —	22 28 —	26 32 45	30 36 49	34 40 53	38 44 57	42 48 61	46 52 65	50 56 69	54 60 73
x_1	1,75	2,0	2,5	2,5	3,2	3,8	4,3	5,0	5,0	6,3	6,3	6,3	7,5
x_2	0,9	1,0	1,25	1,25	1,6	1,9	2,2	2,5	2,5	3,2	3,2	3,2	3,8
l js15	Approximate mass (7,85 kg/dm³) per 1 000 units, in kg												
12 (14) 16													
(18) 20 (22)	2,03 2,23	3,65											
25 (28) 30	2,52 2,82 3,02	4,11 4,57 4,88	5,85 6,52 6,96	9,49 10,1	13,1								
35 40 45	3,51 4,01	5,65 6,42 7,19	8,07 9,18 10,2	11,6 13,1 14,6	15,1 17,0 19,0	24,2 27,2 30,3	41,0 45,4	64,0					
50 55 60		7,96	11,4 12,5 13,6	16,1 17,7 19,2	21,0 22,9 24,9	33,3 36,4 39,5	49,9 54,3 58,8	70,0 76,1 82,1	94,9 103 111	130 140	180		
65 70 75				20,7 22,2	26,9 28,9 30,8	42,6 45,7 48,8	63,2 67,6 72,1	88,2 94,2 100	119 126 134	150 160 170	192 205 217	242 257 272	305 323
80 (85) 90					32,8	51,8 54,9 58,0	76,5 81,0 85,4	106 112 118	142 150 158	180 190 199	229 241 254	287 302 317	341 358 376
(95) 100 110						61,1 64,2	89,8 94,3 103	124 130 143	166 174 190	210 220 240	266 279 303	332 346 376	394 412 447
120 130 140							112	155 167 179	205 221 237	260 280 300	328 353 377	406 436 466	483 518 554
150 160 170									253 269	320 340 360	402 427 451	496 525 555	589 625 660
180 190 200										380	476 501 525	585 615 645	696 731 767

For [1]) to [3]), see page 3.

(continued)

Table 1 (concluded)

d	(M27) (M27×2)	M30 M30×2	(M33) (M33×2)	M36 M36×3	(M39) (M39×3)	M42 M42×3	(M45) (M45×3)	M48 M48×3	(M52) (M52×3)
b_1	35	38	42	45	50	52	58	60	65
b_2 [1] [2] [3]	60 66 79	66 72 85	72 78 91	78 84 97	84 90 103	90 96 109	96 102 115	102 108 121	110 116 129
x_1	7,5	9,0	9,0	10,0	10,0	11,0	11,0	12,5	12,5
x_2	3,8	4,5	4,5	5,0	5,0	5,5	5,5	6,3	6,3
l js15	Approximate mass (7,85 kg/dm³) per 1 000 units, in kg								
50 55 60									
65 70 75	430								
80 (85) 90	452 475 497	591 619	776						
(95) 100 110	520 542 587	646 674 730	810 843 910	1011 1091	1326				
120 130 140	632 677 722	785 841 896	977 1045 1112	1171 1251 1331	1420 1514 1607	1647 1756 1865	1963 2088 2213	2364 2506	3027
150 160 170	767 812 857	952 1007 1062	1179 1246 1313	1411 1490 1570	1701 1795 1889	1973 2082 2191	2338 2462 2587	2648 2790 2932	3194 3360 3527
180 190 200	902 947 992	1118 1173 1229	1380 1447 1515	1650 1730 1810	1982 2076 2170	2300 2408 2517	2712 2837 2962	3074 3216 3358	3694 3861 4027
220 240 260	1082 1172 1262	1340 1450 1562	1649 1784 1918	1970 2130 2289	2358 2545 2733	2735 2952 3170	3211 3461 3711	3642 3927 4211	4361 4694 5028
280 300 320	1352	1672 1784	2052 2186 2321	2449 2609 2769	2920 3108 3295	3387 3605 3822	3961 4210 4460	4495 4779 5063	5361 5694 6028
340 360 380 400			2455	2929 3088	3483 3670 3858 4045	4040 4257 4475 4692	4710 4959 5209 5459	5347 5631 5915 6199	6361 6695 7028 7362

[1]) For lengths, l, of 125 mm or less

[2]) For lengths, l, above 125 mm up to 200 mm

[3]) For lengths, l, exceeding 200 mm

Lengths above 400 mm shall be graded in 20 mm steps

Bracketed sizes and intermediate lengths should be avoided if possible

The zone between the continuous thick lines indicates the range of commercial sizes of studs with coarse pitch thread

Studs of sizes above this range cannot be manufactured with a nut end thread length b_2, as specified in the table. In such cases, b_2 will be approximately equal to $l - (x_1 + 3)$. For sizes above the dashed line, $b_2 + x_1$ will be less than 1,2 b_1. The nut end of these studs shall be rounded (i.e. given a DIN 78 - E type end), unless the end is already marked with the property class

3 Technical delivery conditions

Table 2: Technical delivery conditions

Material		Steel	
General requirements		As specified in ISO 8992.	
Thread	Tolerance	Stud end: Sk6.	Nut end: 6g.
	As specified in	DIN 13-51	DIN 13-12 and DIN 13-15.
Mechanical properties	Property class (material)[1])	5.6, 8.8 or 10.9	
	As specified in	DIN EN 20 898-1.	
Limit deviations, geometrical tolerances	Product grade	A	
	As specified in	ISO 4759-1.	
Surface finish		Property class 5.6: as processed. Property classes 8.8 and 10.9: (thermally or chemically) blackened. DIN 267-2 shall apply with regard to surface roughness. DIN EN 26 157-3 shall apply with regard to limits for surface discontinuities. ISO 4042 shall apply with regard to electroplating. The limits of thread size shall also apply after coating.	
Acceptance inspection		As specified in ISO 3269.	

[1]) Use of other property classes or materials shall be subject to agreement.

4 Designation

Designation of an M12 stud with interference-fit thread as in DIN 13-51, with a nominal length, *l*, of 80 mm, and assigned to property class 8.8:

Stud DIN 939 — M12 × 80 — 8.8

Designation of an M12 stud without interference-fit thread (Fo), with a nominal length, *l*, of 80 mm, and assigned to property class 8.8:

Stud DIN 939 — M12 Fo × 80 — 8.8

Where studs are to be supplied with a different thread on either end, this shall be indicated in the designation, with the symbol for the thread of the stud end preceding that for the nut end, e.g.:

Stud DIN 939 — M12 — M12 × 1,25 × 80 — 8.8

DIN 962 shall apply to the designation of type and finish, with additional information to be given on ordering.

The DIN 4000 — 2 — 4 tabular layout of article characteristics shall apply to studs as covered in this standard.

Standards referred to

DIN 13-12	ISO metric screw threads; coarse and fine pitch threads with diameters from 1 to 300 mm; selected diameters and pitches
DIN 13-15	ISO metric screw threads; fundamental deviations and tolerances for screw threads of 1 mm diameter and larger
DIN 13-51	ISO metric screw threads; external threads for transition fits; tolerances, limit deviations and limits of size
DIN 78	Stud ends and lengths of projection of bolt ends for ISO metric screw threads in accordance with DIN 13
DIN 267-2	Fasteners; technical delivery conditions; design and dimensional accuracy
DIN 962	Bolts, screws, studs and nuts; designation of types and finishes
DIN 4000-2	Tabular layouts of article characteristics for screws and nuts
DIN EN 20 898-1	Mechanical properties of fasteners; bolts, screws and studs (ISO 898-1 : 1988)
DIN EN 26 157-3	Fasteners; surface discontinuities; bolts, screws and studs for special requirements (ISO 6157-3 : 1988)
ISO 3269 : 1988	Fasteners; acceptance inspection
ISO 4042 : 1989	Threaded components; electroplated coatings
ISO 4759-1 : 1978	Tolerances for fasteners; bolts, screws and nuts with thread diameters from 1.6 to 150 mm; product grades A, B and C
ISO 8992 : 1986	Fasteners; general requirements for bolts, screws, studs and nuts

Previous editions

DIN 833 : 1943-12, 1952-12; DIN 834 : 1943x-12, 1953-03; DIN 939-1 : 1926-01, 1943-12, 1951-09, 1953-02, 1953-11; DIN 939 : 1972-12.

Amendments

The following amendments have been made to the December 1972 edition.

a) By analogy with ISO 4759-1, the length of the stud end is now designated b_1.
b) Symbol b has been replaced by b_2.
c) By analogy with DIN 78, symbol z_1 has been replaced by u.
d) By analogy with DIN 76-1, symbol x has been replaced by x_1.
e) The stud end shall be provided with a run-out, x_2, conforming to DIN 76-1.
f) The standard has been editorially revised.