UDC 621.882.219.4

March 1983

Studs

Metal end ≈ 2,5 d

DIN 940

Stiftschrauben; Einschraubende ≈ 2,5 d

Supersedes DIN 940 Part 1, December 1955 edition

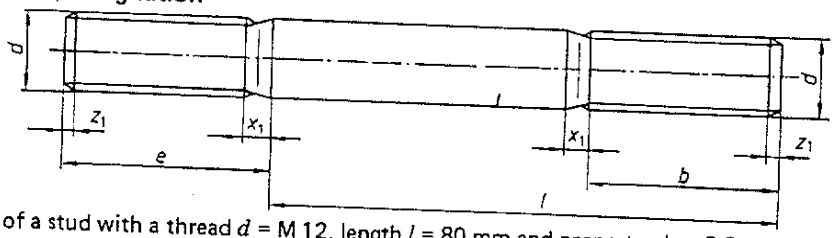
As it is current practice in standards published by the International Organization for Standardization (ISO), the comma has been used throughout as a decimal marker.

1 Field of application

Dimensions in mm

The studs specified in this standard are primarily used for screwing into light metals with low specific strength properties. Tolerance class Sk 6 as defined in Supplement 14 to DIN 13 and DIN 14 applies for the thread on the metal end, unless the designation includes Fo (= without interference fit thread) or Sn 4 (see DIN 962).

2 Dimensions, designation



x_1 as in DIN 76 Part 1

z_1 as in DIN 78

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

Stud DIN 940 – M 12 X 80 – 8.8

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

Stud DIN 940 – M 12 Fo X 80 – 8.8

d		M 4	M 5	M 6	(M 7)	M 8	M 10	M 12	(M 14)	M 16	(M 18)	M 20	(M 22)	M 24
		–	–	–	–	M8X1	M10X1,25	M12X1,25	(M14X1,5)	M16X1,5	(M18X1,5)	M20X1,5	(M22X1,5)	M24X2
b	1)	14	16	18	20	22	26	30	34	38	42	46	50	54
	2)	20	22	24	26	28	32	36	40	44	48	52	56	60
	3)	–	–	–	–	–	45	49	53	57	61	65	69	73
e		10	13	15	18	20	25	30	35	40	45	50	55	60
l		Weight (7,85 kg/dm³) in kg/1000 pieces ≈												
12														
(14)														
16														
(18)														
20		2,54												
(22)		2,73	4,63											
25		3,03	5,10	7,52										
(28)		3,33	5,56	8,18	11,7									
30		3,53	5,87	8,63	12,3	16,9								
35		3,98	6,55	9,74	13,8	18,8	31,0							
40		4,47	7,32	10,9	15,3	20,8	34,1	55,2						
45			8,09	12,0	16,8	22,8	37,2	59,6	83,8					
50			8,86	13,1	18,3	24,8	40,3	64,1	89,8	125				
55				14,0	19,8	26,4	43,4	68,5	95,8	133	173			
60				15,2	21,3	28,4	46,5	73,0	101	141	183	240		
65					22,8	30,4	49,6	77,0	107	149	193	252	319	
70					24,3	32,4	52,7	81,0	114	156	203	264	334	406
75						34,4	55,8	85,5	120	164	213	276	349	423
80						36,4	58,8	90,0	127	172	223	288	364	441
(85)							61,7	94,4	133	180	233	300	379	458
90							64,7	98,7	139	188	243	312	394	475
(95)							67,8	103	145	196	253	324	410	492
100							70,8	108	151	204	263	336	425	500
110								117	163	220	283	360	455	535
120								126	175	236	303	384	485	570
130									187	252	323	408	515	605
140									200	268	343	432	545	635
150										284	363	456	575	670
160										300	383	480	605	705
170											403	504	635	740
180											423	528	665	775
190												550	695	810
200												575	725	845

Lengths exceeding 200 mm shall be graduated at 20 mm intervals.

Sizes and intermediate lengths in brackets should be avoided as far as possible.

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

Continued on pages 2 to 4

These studs are normally manufactured in the lengths lying between the ——— stepped lines.

Studs with lengths above the upper ——— stepped line cannot be manufactured with the threaded lengths b stated. The thread length for these studs is $b \approx l - (x_1 + 3)$.

$b + x_1$ less than 1,2 e applies for studs with lengths above the– – – – –stepped line. Thus, in the case of these studs, in order to distinguish the two threaded ends, the nut end shall be finished with a rounded end, unless the end face of the nut end is marked with the property class.

3 Technical delivery conditions

Material		Steel
General requirements		in accordance with DIN 267 Part 1
Thread	Tolerance	metal end: Sk 6; nut end: 6g
	Standard	Supplement 14 to DIN 13 and DIN 14, DIN 13 Part 12 and Part 15
Mechanical properties	Property class (material) [1]	5.6, 8.8
	Standard	DIN ISO 898 Part 1
Permissible dimensional deviation and deviation of form	Product class	A (previously m)
	Standard	DIN ISO 4759 Part 1
Surface		5.6: as manufactured 8.8: blackened (thermally or chemically) DIN 267 Part 2 *) shall apply for the peak-to-valley heights of the surfaces DIN 267 Part 19 shall apply for the permissible surface defects DIN 267 Part 9 shall apply for the galvanic surface protection
Acceptance testing		DIN 267 Part 5 *) shall apply for acceptance testing

[1] Other property classes or materials subject to agreement

Forms and types with additional ordering information in accordance with DIN 962 *)

If it is intended that the studs are to be supplied with different threads in the metal and nut ends, this shall be stated in the designation, the thread at the metal end being the first stated, e.g.:

Stud DIN 940 – M 12 – M 12 X 1,25 X 80 – 8.8

In exceptional cases studs can be ordered in accordance with this standard with M 10 X 1, M 12 X 1,5, M 18 X 2, M 20 X 2 and M 22 X 2 fine screw threads.

The tabular layout of article characteristics DIN 4000 – 2 – 4 shall apply for studs complying with this standard.

*) At present at the stage of draft

Fax:062084389 Aug 16 2001 12:00 P.03/04

Standards referred to and other documents

DIN 13 Part 12	ISO metric screw threads; coarse and fine threads from 1 to 300 mm diameter, selection of diameters and pitches
DIN 13 Part 15	ISO metric screw threads; basic deviations and tolerances for threads from 1 mm diameter
Supplement 14 to DIN 13 and DIN 14	Metric screw thread; thread for interference fit, fastenings without sealing action (metal ends of studs)
DIN 76 Part 1	Thread runouts, undercuts for ISO metric screw threads as defined in DIN 13
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 2 *)	Fasteners; technical delivery conditions, design and dimensional accuracy
DIN 267 Part 5 *)	Fasteners; technical delivery conditions, acceptance testing
DIN 267 Part 9	Fasteners; technical delivery conditions, components with electroplated coatings
DIN 267 Part 19	Fasteners; technical delivery conditions, surface defects on bolts and studs
DIN 962 *)	Screws, bolts, studs and nuts; designations, forms and design
DIN 4000 Part 2	Tabular layouts of article characteristics for bolts, studs and nuts
DIN ISO 898 Part 1	Mechanical properties of fasteners; bolts and studs
DIN ISO 4759 Part 1	Fasteners; tolerances for bolts, screws and nuts with thread diameters from 1,6 to 150 mm, product grades A, B and C

Previous editions

DIN 412: 08.21, 10.23; DIN 422: 08.21, 10.23; DIN 943 Part 1: 01.26, 01.48; DIN 943 Part 2: 01.26; DIN 940 Part 1: 01.26, 02.48, 02.54, 12.55

Amendments

The following amendments have been made in comparison with DIN 940 Part 1, December 1955 edition:

a) Sizes above M 24 and below M 4 have been deleted. Fine screw threads have been included.

b) The specifications with regard to property classes and finish have been modified.

c) The technical delivery conditions have been supplemented.

d) Thread lengths *b* at the nut end have been enlarged.

e) The content of the standard has been revised and aligned with the other DIN Standards dealing with studs. See Explanatory notes for details.

Explanatory notes

The following applies for this standard being the revised edition of DIN 940 Part 1:

a) The representation of the studs has been changed. It now shows the type with rolled thread which may be considered usual. This is not intended to exclude a type with a cut thread which may be supplied as an option.

b) The foreword and the designation of the studs has been aligned with Standards DIN 835, DIN 938 and DIN 939.

c) Sizes M 3, M 3,5, and M 27 to M 52 have been deleted as it was not possible to establish any significant demand for these.

d) In consideration of the rationalization of production, the distinction previously employed, metal end = chamfered end, nut end = rounded end, has only been specified for cases where the two ends cannot be distinguished with certainty by the thread lengths (longer thread length = nut end), and the property class has not been marked on the rounded portion of the nut end as a distinguishing mark.

e) Sk 6 as specified in Supplement 14 to DIN 13 and DIN 14 continues to apply for the thread tolerance on the metal end. Since, however, studs with identical tolerance ranges for both threads are frequently used nowadays, an example designation with the abbreviation Fo has been included, in conformity with DIN 962, which is intended to demonstrate that the tolerance range 6 g for the thread which is normal for the nut end also applies at the metal end.

*) At present at the stage of draft

This specification was the subject of some discussion when the revised version of the standard was prepared. However, it was not possible to find a better solution, as long as the final decisions concerning the interference fit thread have not been taken at either the international or the national level, and as long as various types of locking are practised, which are essentially

locking at the pitch diameter,

locking at the external diameter,

locking at the thread runout.

f) The lengths of thread at the nut end have been aligned with International Standard ISO 888.

g) The 15 mm nominal length has been replaced by 14 and 16 mm, by analogy with this international standard, 16 mm being the preferred length.

h) The range normally manufactured has been delimited by stepped lines, yet it is not intended to exclude lengths outside this range.

j) The property classes have been renumbered in accordance with DIN ISO 898 Part 1; the number of grades was reduced at the same time.

k) The standard has been editorially revised.

l) The type of design previously specified, m, has been replaced by product class A as defined in DIN ISO 4759 Part 1.

m) The fine screw thread as defined in DIN 13 has been included.

International Patent Classification

F 16 B 35/00·