1. Scope

Studs according to this standard are primarily used for screwing into cast iron. For the thread on the threaded end of the tolerance zone Sk 6 applies to DIN 267-2 DIN 13-51, if not in the name of Fo (= without interference thread) or Sn 4 is specified.

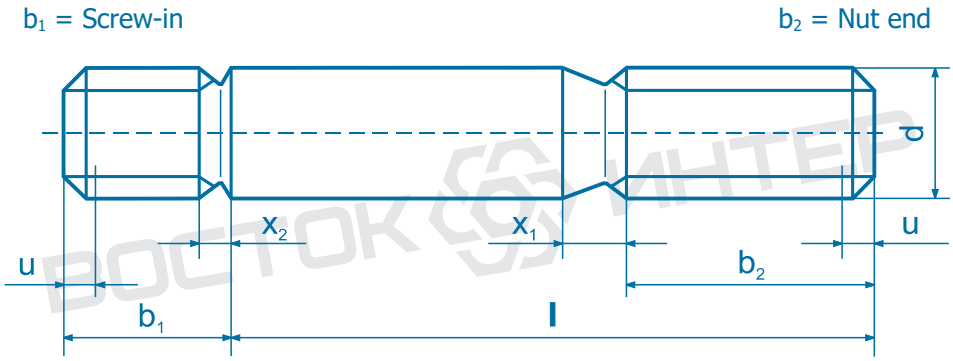
2. Normative References

DIN 13-12
DIN 13-15
DIN 13-51
DIN 78
DIN 267-2
DIN 962
DIN 4000-2
DIN EN 20898-1
DIN EN 26157-3
DIN ISO 3269
DIN ISO 4042
DIN ISO 4759-1
DIN ISO 8992

3. Dimensions

See Figure 1 and Table 1

Threaded end DIN 78-K



u (incomplete thread): max. 1,5 *P*

Figure 1 - Stud

Table 1 - Dimensions

Dimensions in mm

Thread size (d)	M4	M5	M6	(M7)	M8	M10	M12	(M14)	M16	(M18)	M20	(M22)	M24
	-	-	-	-	M8 x 1	M10 x 1,25	M12 x 1,25	(M14 x 1,5)	M16 x 1,5	(M18 x 1,5)	M20 x 1,5	(M22 x 1,5)	M20 x 2
	-	-	-	-	-	-	M12 x 1,5	-	-	-	-	-	-
b_1	5	6,5	7,5	9	10	12	15	18	20	22	25	28	30
b_2 [1])	14	16	18	20	22	26	30	34	38	42	46	50	54
b_2 [2])	20	22	24	26	28	32	36	40	44	48	52	56	60
b_2 [3])	-	-	-	-	-	45	49	53	57	61	65	69	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 / js 15	Mass (7.85kg/dm3), in kg per 1000 units												
12													
(14)													
16													
(18)													
20	2,03												
(22)	2,23	3,65											
25	2,52	4,11	5,85										
(28)	2,82	4,57	6,52	9,49									
30	3,02	4,88	6,96	10,1	13,1								
35	3,51	5,65	8,07	11,6	15,1	24,2							
40	4,01	6,42	9,18	13,1	17,0	27,2	41,0						
45		7,19	10,2	14,6	19,0	30,3	45,4	64,0					
50		7,96	11,4	16,1	21,0	33,3	49,9	70,0	94,9				
55			12,5	17,7	22,9	36,4	54,3	76,1	103	130			
60			13,6	19,2	24,9	39,5	58,8	82,1	111	140	180		
65				20,7	26,9	42,6	63,2	88,2	119	150	192	242	
70				22,2	28,9	45,7	67,6	94,2	126	160	205	257	305
75					30,8	48,8	72,1	100	134	170	217	272	323
80					32,8	51,8	76,5	106	142	180	229	287	341
(85)						54,9	81,0	112	150	190	241	302	358
90						58,0	85,4	118	158	199	254	317	376
(95)						61,1	89,8	124	166	210	266	332	394
100						64,2	94,3	130	174	220	279	346	412
110							103	143	190	240	303	376	447
120							112	155	205	260	328	406	483
130								167	221	280	353	436	518
140								179	237	300	377	466	554
150									253	320	402	496	589
160									269	340	427	525	625
170										360	451	555	660
180										380	476	585	696
190											501	615	731
200											525	645	767

[1]) to [3]) see end of table

Table 1

Thread size (d)		(M27)	M30	(M33)	M36	(M39)	M42	(M45)	M48	(M52)
		(M27 x 2)	M27 x 2	(M33 x 2)	M36 x 3	(M39 x 3)	M42 x 3	(M45 x 3)	M48 x 3	(M52 x 3)
b_1		35	38	42	45	50	52	58	60	65
b_2	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
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		Mass (7.85kg/dm3), in kg per 1000 units								
js 15										
50										
55										
60										
65										
70										
75		430								
80		452								
(85)		475	591							
90		497	619	776						
(95)		520	646	810						
100		542	674	843	1011					
110		587	730	910	1091	1326				
120		632	785	977	1171	1420	1647	1963		
130		677	841	1045	1251	1514	1756	2088	2364	
140		722	896	1112	1331	1607	1865	2213	2506	3027
150		767	952	1179	1411	1701	1973	2338	2648	3194
160		812	1007	1246	1490	1795	2082	2462	2790	3360
170		857	1062	1313	1570	1889	2191	2587	2932	3527
180		902	1118	1380	1650	1982	2300	2712	3074	3694
190		947	1173	1447	1730	2076	2408	2837	3216	3861
200		992	1229	1515	1810	2170	2517	2962	3358	4027
220		1082	1340	1649	1970	2358	2735	3211	3642	4361
240		1172	1450	1784	2130	2545	2952	3461	3927	4694
260		1262	1562	1918	2289	2733	3170	3711	4211	5028
280		1352	1672	2052	2449	2920	3387	3961	4495	5361
300			1784	2186	2609	3108	3605	4210	4779	5694
320				2321	2769	3295	3822	4460	5063	6028
340				2455	2929	3483	4040	4710	5347	6361
360					3088	3670	4257	4959	5631	6695
380						3858	4457	5209	5915	7028
400						4045	4692	5459	6199	7362

Table 1 (concluded)

[1]) $l \leq 125$ mm.
[2]) 125 mm < $l \leq 200$ mm.
[3]) $l > 200$ mm.
Lengths over 400 mm of 20 mm to 20 mm in steps.
Bracketed sizes as well as intermediate lengths shall be minimized.
The standard lengths of studs with coarse thread between the solid step lines.
Stud bolts with lengths above the upper solid line stages can not be produced with the given thread lengths b_2. For these studs is the thread length $b_2 \approx l - (x_1 + 3)$.
For studs with lengths above the dashed step line is $b_2 + x_1 < 1{,}2\ b_1$. Therefore, nut-end up with a rounded end according to DIN 78 must be running for these studs to distinguish the two threaded ends, if not the hallmark of strength class is attached to the end face of the nut end.

4. Technical delivery conditions

Table 2: Technical delivery conditions

Material		Steel	
General requirements		As specified in ISO 8992	
Thread	Tolerance class	Screw-sided thread Sk 6	Nut-sided: 6g
	Standard	DIN 13-51	DIN 13-12 and DIN 13-51
Mechanical properties	Property class (material) [1])	5.6, 8.8, 10.9	
	Standard	DIN EN 20898-1	
Limit deviations and geometrical tolerances	Product grade	A	
	Standard	DIN ISO 4759-1	
Surface		5.6: prepared as 8.8, 10.9: blackened (thermal or chemical) For the surface roughness DIN 267-2. For the limits of the surface error is considered to DIN EN 26157-3. For galvanized surface protection applies to DIN ISO 4042. The procedures established for the threaded ends of thread cross dimensions apply after applying a coating.	
Acceptance inspection		As specified in ISO 3269	

[1]) Other strength classes or materials on request.

5. Designation

Designation of a stud with interference thread M12 to DIN 13-51, nominal length /= 80 mm and property class 8.8:

Stud DIN 939 - M12 x 80 – 8.8

Designation of a stud bolt with thread M12 without interference thread (Fo), nominal length /= 80 mm and property class 8.8:

Stud DIN 939 - M12 Fo x 80 – 8.8

If the studs are supplied with different threads on the screw and nut end, this should be indicated in the name, in the order of the thread is to be mentioned first, for example:

Stud DIN 939 - M12 - M12 x 1,25 x 80 – 8.8

DIN is valid for the description of shapes and designs with additional ordering information 962.
For studs according to this standard list of characteristics applies DIN 4000-2-4.

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