1. Scope

This document specifies studs with a screw thread length b_m side of about 1d in product grade A with metric thread M3 to M52 metric fine thread M8x1 to M52x3 of proof.
Studs according to this standard are primarily used for screwing into steel.

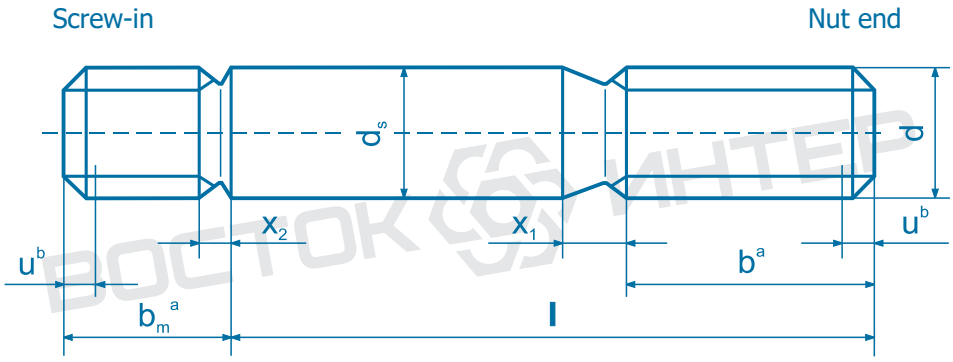
2. Normative References

Documents that are cited in this document in part or as a whole, are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references the latest edition of the referenced document (including any amendments).
DIN 13-51
DIN 76-1
DIN 267-2
DIN 962
DIN 4000-160
DIN EN 26157-3
DIN EN ISO 225
DIN EN ISO 898-1
DIN EN ISO 3269
DIN EN ISO 4042
DIN EN ISO 4753
DIN EN ISO 4759-1
DIN EN ISO 10683
DIN ISO 261
DIN ISO 965-1
DIN ISO 8992

3. Dimensions

See Figure 1 and Table 1

Dimensional letters and their description are defined in DIN EN ISO 225.



[a] For performance and labeling of the threaded ends, see explanation in Table 1
[b] $u \leq 1{,}5\ P$

Figure 1 - Stud - Example with threaded end FL to DIN EN ISO 4753

Table 1 - Dimensions

Dimensions in mm

Thread size (d)		M3	M4	M5	M6	(M7)	M8	M10	M12	(M14)	M16	(M18)	M20
		-	-	-	-	-	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
		-	-	-	-	-	-	-	M12 x 1,5	-	-	-	-
b_m		3	4	5	6	7	8	10	12	14	16	18	20
b	a	12	14	16	18	20	22	26	30	34	38	42	46
	b	18	20	22	24	26	28	32	36	40	44	48	52
	c	-	-	-	-	-	-	45	49	53	57	61	65
d_s	max	3	4	5	6	7	8	10	12	14	16	18	20
	min	2,86	3,82	4,82	5,82	6,78	7,78	9,78	11,73	13,73	15,73	17,73	19,67
x_1^d		1,25	1,75	2,0	2,5	2,5	3,2	3,8	4,3	5,0	5,0	6,3	6,3
x_2^d		0,7	0,9	1,0	1,25	1,25	1,6	1,9	2,2	2,5	2,5	3,2	3,2
l		Mass (7.85kg/dm3), in kg per 1000 units											
js 15													
12													
(14)													
16													
(18)		0,981											
20		1,09	1,95										
(22)		1,20	2,15	3,47									
25		1,37	2,44	3,93	5,68								
(28)		1,53	2,74	4,39	6,35	8,99							
30		1,64	2,94	4,70	6,79	9,59	12,5						
35			3,43	5,47	7,90	11,1	14,8	23,2					
40			3,93	6,24	9,01	12,6	16,4	26,3	38,8				
45				7,01	10,1	14,1	18,4	29,4	43,2	60,0			
50				7,78	11,2	15,6	20,4	32,4	47,7	66,0	89,6		
55					12,3	17,1	22,4	35,5	52,1	72,1	97,5	123	
60					13,4	18,7	24,3	38,6	56,6	78,1	105	133	170
65						20,2	26,3	41,7	61,0	84,2	113	143	182
70						21,7	28,3	44,8	65,4	90,2	121	153	185
75							30,3	47,9	69,9	96,3	129	163	207
80							32,2	50,9	74,3	102	137	173	219
(85)								54,0	78,8	108	145	183	232
90								57,1	83,2	114	153	193	244
(95)								60,2	87,6	120	161	203	256
100								63,3	92,1	126	169	213	269
110									101	139	184	233	293
120									110	151	200	253	318
130										163	216	273	342
140										175	232	293	367
150											247	313	392
160											263	333	417
170												353	441
180												373	466
190													491
200													515

Table 1

Thread size (d)		(M22)	M24	(M27)	M30	(M33)	M36	(M39)	M42	(M45)	M48	(M52)
		(M22 x 1,5)	M24 x 2	(M27 x 2)	M30 x 2	(M33 x 2)	M36 x 3	(M39 x 3)	M42 x 3	(M45 x 3)	M48 x 3	(M52 x 3)
b_m		22	24	25	30	32	35	38	42	45	48	52
b	a	50,	54	60	66	72	78	84	90	96	102	110
	b	56	60	66	72	78	84	90	96	102	108	116
	c	69	73	79	85	91	97	103	109	115	121	129
d_s	max	22	24	27	30	33	36	39	42	45	48	52
	min	21,67	23,67	26,67	29,67	32,61	35,61	39,61	41,61	44,61	47,61	51,54
x_1^d		6,3	7,5	7,5	9,0	9,0	10,0	10,0	11,0	11,0	12,5	12,5
x_2^d		3,2	3,8	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		226										
70		241	287									
75		256	305	392								
80		271	323	414								
(85)		286	340	437	553							
90		301	358	459	580	718						
(95)		316	376	482	608	752						
100		330	394	504	636	785	942					
110		360	429	4549	691	852	1022	1228				
120		390	465	594	747	919	1102	1322	1550	1822		
130		420	500	639	802	986	1182	1416	1659	1947	2216	
140		450	536	684	858	1054	1262	1509	1767	2072	2358	2867
150		480	571	729	913	1121	1342	1603	1876	2197	2500	3004
160		509	607	774	969	1188	1421	1697	1985	2321	2642	3170
170		539	642	819	1024	1255	1501	1791	2094	2446	2784	3337
180		569	678	864	1080	1322	1581	1884	2202	2571	2926	3504
190		599	713	909	1135	1389	1661	1978	2311	2696	3068	3671
200		629	749	953	1191	1456	1741	2072	2420	2821	3210	3837
220				1043	1302	1591	1901	2259	2637	3071	3494	4171
240				1133	1413	1725	2061	2447	2855	3320	3779	4504
260				1223	1524	1859	2220	2635	3072	3570	4063	4838
280				1313	1635	1994	2380	2822	3290	3820	4347	5171
300					1746	2128	2540	3010	3507	4069	4631	5504
320						2262	2700	3197	3725	4319	4915	5838
340						2396	2860	3385	3942	4569	5199	6171
360							3019	3572	4160	4819	5483	6505
380								3760	4377	5086	5767	6838
400								3947	4595	5318	6051	7172

Table 1 (concluded)

[a] $l \leq 125$ mm.
[b] 125 mm < $l \leq 200$ mm.
[c] $l > 200$ mm.
[d] According to DIN 76-1.
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. For these studs is the thread length $b \approx l - (x_1 + 3)$.
For studs with lengths above the dashed step line is $b + x_1 < 1{,}2\ b_m$. Therefore, nut-end up with a rounded end according to DIN EN ISO 4753 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 [a] Sk 6, Sn 4 The set for the thread thread limit dimensions are for the finished part after coating.	Nut-sided: 6g
	Standard	DIN 13-51	DIN ISO 261 and DIN ISO 965-1
Mechanical properties	Property class (material) [b]	M3 ≤ d ≤ M39: 5.6, 8.8, 10.9 d > M39: by appointment	
	Standard	DIN EN ISO 898-1	
Limit deviations and geometrical tolerances	Product grade	A	
	Standard	DIN EN ISO 4759-1	
Surface finish		prepared as For the surface roughness DIN 267-2. Requirements for galvanized surface protection are specified in DIN EN ISO 4042. Requirements for non-electrolytically applied zinc flake coatings are specified in ISO 10683.	
Surface condition		Limits of the surface defects are defined in DIN EN 26157-3.	
Acceptance inspection		As specified in ISO 3269	

[a] For the screw thread side applies to DIN 267-2, the tolerance class Sk 6, if not in the description (see Section 5) Fo (= without interference thread) or Sn 4 is specified.
[b] Other strength classes or materials on request.

5. Designation

Designation of a stud with hard seat and screw thread M12 sided thread tolerance class Sk 6, nominal length /= 80 mm and property class 8.8:

Stud DIN 938 - M12 x 80 – 8.8

Designation of a stud with interference thread M12 x 1.25 and Screw-sided thread tolerance class Sn 4, nominal length /= 80 mm and property class 8.8:

Stud DIN 938 - M12 x 1.25 Sn 4 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 938 - M12 Fo x 80 – 8.8

If the studs are screwing each other and nut side supplied with different thread pitches, so this must be indicated in the name, in the order the Screw-page thread has to be mentioned first, for example:

Stud DIN 938 - M12 - M12 x 1,25 x 80 – 8.8

DIN is valid for the description of shapes and designs with additional ordering information 962

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