

Steel round head rivets with nominal diameters from 10 to 36 mm

DIN 124

Halbrundniete; Nenndurchmesser 10 bis 36 mm

Supersedes July 1977 edition.

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 of steel round head rivets with nominal diameters from 10 to 36 mm.

2 Dimensions

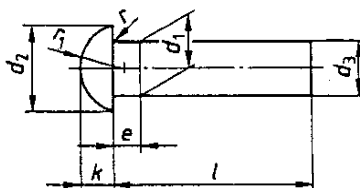


Table 1: Dimensions and mass

d_1	Nominal size Limit deviations	10	12	(14)	16	(18)	20	(22)	24	(27)	30	(33)	36
		$\pm 0,2$							$\pm 0,3$				
d_2	h16	16	19	22	25	28	32	36	40	43	48	53	58
d_3	min.	9,4	11,3	13,2	15,2	17,1	19,1	20,9	22,9	25,8	28,6	31,6	34,6
k	+ IT 16	6,5	7,5	9	10	11,5	13	14	16	17	19	21	23
e	max.	5	6	7	8	9	10	11	12	13,5	15	16,5	18
r	max.	0,5	0,6		0,8		1		1,2		1,6		2
r_1	≈	8	9,5	11	13	14,5	16,5	18,5	20,5	22	24,5	27	30
l		Approximate mass (7,85 kg/dm ³), per 1000 units, in kg											
Nominal size	Limit deviations												
16	+ 0,70 0	16,3											
18		17,6	26,1										
20	+ 0,84 0	18,9	27,9	40,3									
22		20,2	29,7	42,7									
24		21,5	31,5	45,1	61,4								
26		22,8	33,3	47,5	64,6	84,9							
28		24,1	35,1	49,9	67,8	88,9							
30		25,4	36,9	52,3	71,0	92,9	124						

(continued)

Continued on pages 2 to 7

Table 1 (continued)

d_1	Nominal size Limit deviations	10	12	(14)	16	(18)	20	(22)	24	(27)	30	(33)	36
		$\pm 0,2$							$\pm 0,3$				
d_2	$h16$	16	19	22	25	28	32	36	40	43	48	53	58
d_3	min.	9,4	11,3	13,2	15,2	17,1	19,1	20,9	22,9	25,8	28,6	31,6	34,6
k	$+IT 16$	6,5	7,5	9	10	11,5	13	14	16	17	19	21	23
e	max.	5	6	7	8	9	10	11	12	13,5	15	16,5	18
r	max.	0,5	0,6		0,8		1		1,2		1,6		2
r_1	$\approx$	8	9,5	11	13	14,5	16,5	18,5	20,5	22	24,5	27	30
l Nominal size Limit deviations		Approximate mass (7,85 kg/dm ³), per 1000 units, in kg											
32	$+1,0$ 0	26,7	38,7	54,7	74,2	96,9	129						
34		28,0	40,5	57,1	77,4	101	134	177					
36		29,3	42,3	59,5	80,6	105	139	183					
38		30,6	44,1	61,9	83,8	109	144	189	231				
40		31,9	45,9	64,3	87,0	113	149	195	238				
42		33,2	47,7	66,7	90,2	117	154	201	245	299			
45		35,1	50,4	70,3	94,9	123	161	210	256	313			
48		37,0	53,1	73,9	99,6	129	169	219	266	326			
50		38,3	54,9	76,3	103	133	174	225	273	335	441		
52	$+1,2$ 0		56,7	78,7	106	137	179	231	280	344	452		
55			59,4	82,3	111	143	186	240	291	358	469	589	
58			62,1	85,9	116	149	194	249	302	371	485	609	
60			63,9	88,3	119	153	199	255	309	380	496	622	
62				90,7	122	157	204	261	316	389	507	636	784
65				94,3	127	163	211	270	327	403	524	656	808
68				97,9	131	169	218	279	337	416	541	676	832
70				100	134	173	223	285	345	425	552	689	848
72					138	177	228	291	352	434	563	703	864
75					142	183	236	300	362	448	580	723	888
78					147	189	243	309	373	461	596	743	912
80					150	193	248	315	380	470	607	756	928

(continued)

Table 1 (concluded)

d_1	Nominal size Limit deviations	10	12	(14)	16	(18)	20	(22)	24	(27)	30	(33)	36
		$\pm 0,2$							$\pm 0,3$				
d_2	h16	16	19	22	25	28	32	36	40	43	48	53	58
d_3	min.	9,4	11,3	13,2	15,2	17,1	19,1	20,9	22,9	25,8	28,6	31,6	34,6
k	+ IT 16	6,5	7,5	9	10	11,5	13	14	16	17	19	21	23
e	max.	5	6	7	8	9	10	11	12	13,5	15	16,5	18
r	max.	0,5	0,6		0,8		1		1,2		1,6		2
r_1	max.	8	9,5	11	13	14,5	16,5	18,5	20,5	22	24,5	27	30
l		Approximate mass (7,85 kg/dm ³), per 1000 units, in kg											
Nominal size	Limit deviations												
85	+1,4 0					203	260	330	398	493	635	790	968
90						213	273	345	416	515	663	824	1008
95							285	360	434	538	691	858	1048
100							298	375	452	560	719	892	1088
105								390	470	583	747	926	1128
110								405	488	605	775	960	1168
115									506	628	803	994	1208
120									524	650	831	1028	1248
125	+1,6 0									673	859	1062	1288
130										695	887	1096	1328
135										718	915	1130	1368
140											942	1164	1408
145											970	1198	1448
150											998	1232	1488
155												1266	1528
160												1300	1568
Use of sizes given in brackets and of intermediate lengths should be avoided where possible. Lengths above 160 mm shall be graded in 10 mm steps. Rivets are normally manufactured in the sizes for which values of mass have been specified. The values of mass specified are for guidance only.													

3 Technical delivery conditions

Table 2: Technical delivery conditions

Material ¹⁾		Steel
		St = QSt 32-3 or QSt 36-3, at the manufacturer's discretion.
	Minimum tensile strength, R_m , in N/mm ²	290
	As specified in	DIN 1654 Part 2
Dimensional and geometrical tolerances		As specified in DIN 101.
Surface finish		Standard finish: bright Where a protective coating is required (e.g. an electroplated coating complying with ISO 4042), this shall be agreed when ordering. The tolerances and limit deviations specified in table 1 shall also apply after coating.
Testing of mechanical properties		As specified in DIN 101.
Acceptance inspection		As specified in DIN 101.
1) Use of other materials shall be the subject of agreement.		

4 Designation

Designation of a steel (St) round head rivet with a nominal diameter, d_1 , of 20 mm and a length, l , of 40 mm:

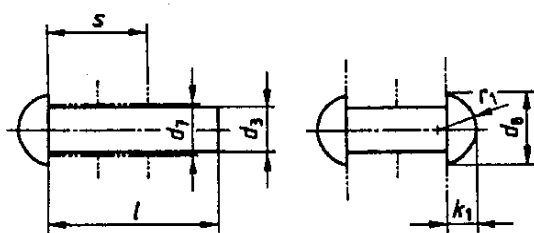
Rivet DIN 124 - 20 × 40 - St

The DIN 4000-9-3 tabular layout of article characteristics shall apply to rivets as covered in this standard.

5 Examples of application

Table 3 specifies hole diameters and gives guide values for upset head dimensions and maximum grip lengths of both round head (A) and countersunk head (B) rivets.

Type A, upset head rounded



Type B, upset head countersunk

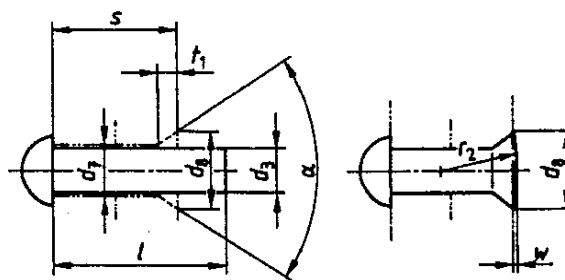


Table 3: Hole diameters and guide values for upset head dimensions and grip lengths

	d_1	10	12	(14)	16	(18)	20	(22)	24	(27)	30	(33)	36											
	d_7 H12	10,5	13	15	17	19	21	23	25	28	31	34	37											
Round head (A)	d_8	16	19	22	25	28	32	36	40	43	48	53	58											
	k_1	6,5	7,5	9	10	11,5	13	14	16	17	19	21	23											
	$r_1 \approx$	8	9,5	11	13	14,5	16,5	18,5	20,5	22	24,5	27	30											
Counter-sunk head (B)	d_8	16	9	22	26	29	31	34,5	37	41,5	44	48	52											
	$r_2 \approx$	32	45	60	85	105	120	75	85	110	120	145	170											
	$w \approx$	1	1	1	1	1	1	2	2	2	2	2	2											
	t_1	4,2	5,1	5,7	7	7,7	10	11,3	11,7	13,1	17,5	18,5	20											
	α	75°						60°				45°												
l	Maximum grip length, $s_{\max}$																							
	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B
16	5	9																						
18	7	11	5	10																				
20	8	13	7	12	4	12																		
22	10	14	8	13	6	13																		
24	12	16	10	15	8	15	6	14																
26	13	17	11	16	9	16	7	15	5	15														
28	15	19	13	18	11	18	9	17	7	17														
30	17	21	15	20	12	20	11	19	9	18	6	18												
32	18	23	16	21	14	21	13	20	11	20	8	20												
34	20	25	18	23	16	23	15	22	13	22	10	22	9	20										
36	21	26	19	24	17	24	16	23	14	23	11	23	10	21										
38	23	28	21	26	19	26	17	25	16	25	13	25	12	23	7,3	23,3								
40	25	29	22	27	21	27	19	27	17	27	15	27	13	25	9	25								
42	27	31	24	29	22	29	21	29	19	29	16	28	15	27	12	27	12	26						
45	29	34	26	31	25	31	23	31	21	31	19	30	18	29	14	29	14	29						
48	32	36	29	34	27	34	26	34	24	34	21	33	20	32	17	32	17	31						
50	33	38	30	36	29	36	27	35	26	35	22	35	22	34	18	34	18	33	15	32				
52			32	37	30	37	29	37	27	37	25	37	24	35	20	35	20	35	17	34				
55			34	38	33	39	31	39	30	39	27	39	26	38	23	38	23	37	20	37	17	36		
58			37	40	35	42	34	42	32	42	30	41	29	40	25	40	25	40	22	39	19	39		
60			38	42	37	43	36	43	34	43	32	43	31	42	27	42	27	42	24	41	21	41		
62					38	45	37	45	36	45	33	45	32	44	29	43	29	43	26	43	23	42	19	42
65					41	48	40	48	38	48	36	48	35	46	31	47	31	46	28	45	25	45	21	44
68					43	50	42	50	41	50	38	50	37	49	34	48	34	49	31	48	28	48	24	47
(continued)																								

(continued)

Table 3 (concluded)

d_1	10	12	(14)	16	(18)	20	(22)	24	(27)	30	(33)	36												
d_7 H12	10,5	13	15	17	19	21	23	25	28	31	34	37												
Round head (A)	d_8	16	19	22	25	28	32	36	40	43	48	53	58											
	k_1	6,5	7,5	9	10	11,5	13	14	16	17	19	21	23											
	$r_1 \approx$	8	9,5	11	13	14,5	16,5	18,5	20,5	22	24,5	27	30											
Counter-sunk head (B)	d_8	16	9	22	26	29	31	34,5	37	41,5	44	48	52											
	$r_2 \approx$	32	45	60	85	105	120	75	85	110	120	145	170											
	$w \approx$	1	1	1	1	1	1	2	2	2	2	2	2											
	t_1	4,2	5,1	5,7	7	7,7	10	11,3	11,7	13,1	17,5	18,5	20											
	α	75°					60°					45°												
l	Maximum grip length, $s_{\max}$																							
	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B
70					45	52	44	52	42	52	40	52	39	51	35	51	35	50	33	50	29	49	25	49
72							45	53	44	53	42	53	41	52	38	52	38	52	34	51	31	51	27	50
75							48	56	46	56	44	56	43	55	40	55	39	55	37	54	34	54	30	53
78							50	59	49	59	47	59	46	58	43	57	43	57	40	56	36	56	32	56
80							52	60	51	60	48	60	48	59	44	59	44	59	41	58	38	58	34	57
85									55	64	53	64	52	64	48	64	48	63	46	62	42	62	38	62
90									59	68	57	68	56	68	52	68	52	68	50	67	47	66	43	66
95											61	72	60	72	57	72	56	72	54	71	51	71	47	70
100											65	76	65	76	61	76	60	76	58	75	55	75	51	75
105													69	81	65	81	65	80	63	80	60	79	56	79
110													73	85	69	85	69	85	67	84	64	84	60	83
115															74	89	73	89	71	88	68	88	64	87
120															78	94	77	93	76	93	72	92	68	92
125																	81	98	80	97	77	97	73	96
130																	86	102	84	101	81	101	77	100
135																	90	106	89	105	85	105	81	105
140																			93	110	90	109	86	109
145																			97	114	94	114	90	113
150																			101	118	98	118	94	118
155																					103	122	99	122
160																					107	127	103	126

Since the grip lengths specified are for guidance only, trial riveting is recommended, especially if automated procedures are used.

Standards referred to

- DIN 101 Rivets; technical delivery conditions
DIN 1654 Part 2 Cold heading and cold extruding steel; technical delivery conditions for killed unalloyed steel not intended for heat treatment
DIN 4000 Part 9 Tabular layout of article characteristics for bolts, pins, rivets, split pins and keys
ISO 4042:1989 Threaded components; electroplated coatings

Previous editions

DIN 124 Part 1: 09.21, 07.48, 06.56; DIN 124 Parts 2 and 3: 10.23, 02.52; DIN 124: 07.77.

Amendments

The following amendments have been made to the July 1977 edition.

- a) Clauses 2 to 7 have been replaced by clause 3 'Technical delivery conditions'.
- b) The specifications for materials have been amended.
- c) The value specified for the minimum tensile strength, R_m , has been amended.
- d) The standard has been editorially revised.

International Patent Classification

F 16 B 019/04