UDC 621.884 : 62-578 : 62-592
: 629.113/.118 : 620.1

August 1993

Brake and clutch lining rivets

DIN 7338

Niete für Brems- und Kupplungsbeläge

Supersedes May 1993 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.

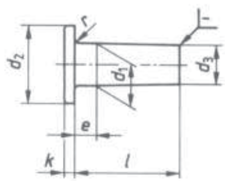
Dimensions in mm

1 Scope and field of application

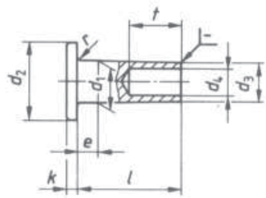
This standard specifies dimensions of, and technical delivery conditions for, steel and nonferrous metal rivets for use with brake and clutch linings as employed in automotive engineering.

2 Dimensions

Type A, solid rivet

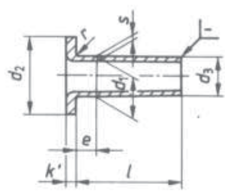


Type B, semitubular rivet



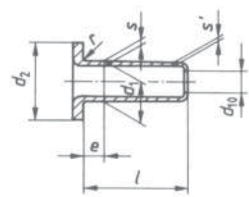
Type C, tubular rivet

Made from wire[1]) (C 1)



$k' \approx k$

Drawn from strip (C 2)



Head height not specified.

1) At the manufacturer's discretion; relevant code number to be included in the standard designation.

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Table 1: Dimensions and mass

		3	4	5	6	8	10
d_1	h13	3	4	5	6	8	10
d_2	Nominal size	5,5	7,5	9,5	11,5	15,5	18
	Tolerance	h14	h15				
d_3	min.	2,85	3,8	4,8	5,8	7,75	9,75
d_4	H13	1,7	2,7	3,5	4,2	6	7,5
d_{10}	$^{0}_{-0,4}$	1,66	2,62	3,42	4,12	5,18	7,18
e	max.	1,5	2	2,5	3	4	5
k	$^{0}_{-0,2}$	0,8	1	1	1,2	1,2	1,4
r	max.	0,2	0,3	0,3	0,4	0,4	0,6
s	± 0,1	0,5	0,5	0,6	0,75	1,2	1,2
s'	min.	0,4	0,4	0,5	0,6	1	1
t	$^{+0,5}_{0}$ 1)	3,5	4	4	6	8	10
	2)	4	5	6	8	10	12

Approximate mass (7,85 kg/dm³), per 1000 units, in kg 3)

l Nominal size	Limit deviations	3 A	3 B	3 C	4 A	4 B	4 C	5 A	5 B	5 C	6 A	6 B	6 C	8 A	8 B	8 C	10 A	10 B	10 C
5	$^{+0,30}_{0}$	0,43	0,36	0,21															
6		0,48	0,41	0,24	0,94	0,76	0,36	1,79	1,41	0,59									
7		0,54	0,47	0,27	1,04	0,86	0,40	1,94	1,56	0,65									
8	$^{+0,36}_{0}$	0,59	0,52	0,30	1,14	0,96	0,44	2,09	1,71	0,71	2,75	2,10	1,12						
10		0,70	0,63	0,36	1,33	1,15	0,53	2,40	2,02	0,83	3,20	2,55	1,31	5,73	3,95	2,55			
12	$^{+0,43}_{0}$				1,53	1,35	0,61	2,71	2,33	0,96	3,64	2,99	1,51	6,52	4,74	2,90			
15					1,83	1,65	0,73	3,17	2,79	1,16	4,31	3,66	1,79	7,71	5,93	3,42	11,6	7,18	5,62
18								3,63	3,25	1,36	4,97	4,32	2,09	8,90	7,12	3,94	13,4	8,93	6,33
20	$^{+0,52}_{0}$										5,42	4,77	2,28	9,69	7,91	4,28	14,6	10,1	6,81
22											5,86	5,21	2,47	10,5	8,71	4,63	15,8	11,4	7,29
25											6,53	5,88	2,76	11,7	9,92	5,15	17,6	13,1	8,00
28											7,19	6,54	3,06	12,9	11,1	5,67	19,4	15,0	8,72
30											7,64	6,99	3,25	13,7	11,9	6,01	20,6	16,2	9,20
32	$^{+0,62}_{0}$										8,08	7,43	3,44	14,4	12,6	6,36	21,8	17,4	9,67
35											8,75	8,10	3,73	15,6	13,8	6,98	23,7	19,2	10,4
40											9,86	9,21	4,22	17,6	15,8	7,74	26,7	22,2	11,6

Rivets are normally manufactured in the sizes for which values of mass have been specified. For type C rivets drawn from strip, commercial sizes are those given above the continuous thick line.

Lengths above 40 mm shall be graded in 5 mm steps.

Use of intermediate lengths should be avoided where possible.

The values of mass specified are for guidance only.

1) For lengths above - - - - stepped dashed line.

2) For lengths below - - - - stepped dashed line.

3) Conversion factors for values of mass:

Material	St	Cu	CuZn	Al
Conversion factor	1	1,134	1,070	0,344

3 Technical delivery conditions

Table 2: Technical delivery conditions

Material[1]	Steel: Material designation	Steel: As specified in	Steel: Minimum tensile strength, R_m, in N/mm²	Nonferrous metal: Material designation	Nonferrous metal: As specified in	Nonferrous metal: Minimum tensile strength, R_m, in N/mm²
Types A and B	St = QSt 32-3 or QSt 36-3, at the manufacturer's discretion	DIN 1654 Part 2	290	Cu = SF-Cu CuZn = CuZn37 Al = Al99,5	DIN 17 677 Part 1 DIN 17 677 Part 1 DIN 1790 Part 1	200 290 65
Type C	St = QSt 32-3 or QSt 36-3, at the manufacturer's discretion	DIN 1654 Part 2	290	Cu = SF-Cu	DIN 17 677 Part 1	200
				CuZn = CuZn37	DIN 17 670 Part 1 DIN 17 677 Part 1	290
	St = USt 3 or St 4, at the manufacturer's discretion	DIN 1624	270	Al = Al99,5	DIN 1790 Part 1	65
Dimensional and geometrical tolerances[2]	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 limit deviations specified in table 1 shall also apply for the coated rivet.					
Testing of mechanical properties	As specified in DIN 101.					
Acceptance inspection[3]	As specified in DIN 101.					

1) Other materials shall be the subject of agreement.

2) DIN 101 shall apply with regard to the dimensional and geometrical tolerances unless otherwise specified in clause 2 of this standard.

3) For acceptance inspection, wall thickness s shall be deemed a major characteristic.

4 Designation

Designation of a type C (C) steel (St) rivet with a nominal diameter, d_1, of 6 mm and a length, l, of 20 mm:

Rivet DIN 7338 – C 6 x 20 – St

Designation of the same rivet, indicating the manufacturing process (here: made from wire (C 1)):

Rivet DIN 7338 – C 1 – 6 x 20 – 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 guideline values for the lengths of projection, z_1 to z_3, d_9 required for riveting, as a function of the shank diameter, d_1.

Type A **Type B** **Type C**

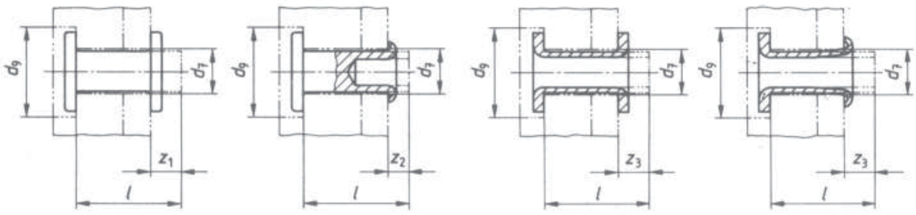

Table 3: Hole diameters, countersink diameters and guideline values for length of projection

Shank diameter, d_1		3	4	5	6	8	10
Clearance hole, d_7 (H12)		3,1	4,2	5,2	6,3	8,4	10,5
Countersink diameter, d_9 (H14)		6,5	8,5	10,5	12,5	16,5	19
Approximate length of projection, z_1 for	$l =$ 5 to 20	2,5	3	4,5	5	5	6
	$l =$ 22 to 40	–	–	–	6	6	7
Approximate length of projection, z_2 for	$l =$ 5 to 20	2	2	2,5	3	4	5
	$l =$ 22 to 40	–	–	–	3,5	4,5	5,5
Approximate length of projection, z_3		2,5	3	3,5	4	4,5	5

Since z_1, z_2 and z_3 are for guidance only, trial riveting is recommended, especially if automated procedures are used.

Standards referred to

DIN 101	Rivets; technical delivery conditions
DIN 1624	Steel flat products; cold reduced mild unalloyed steel strip in widths not exceeding 650 mm; 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 1790 Part 1	Wrought aluminium and aluminium alloy wire; properties
DIN 4000 Part 9	Tabular layout of article characteristics for bolts, pins, rivets, split pins and keys
DIN 17 670 Part 1	Wrought copper and copper alloy plate, sheet and strip; properties
DIN 17 677 Part 1	Wrought copper and copper alloy wire; properties
ISO 4042 : 1989	Threaded components; electroplated coatings

Previous editions

DIN 74 268 Fl: 03.42, 09.44; DIN 7338: 05.55, 07.64, 12.83, 05.93.

Amendments

The following amendments have been made to the December 1983 and May 1993 editions.

a) Specifications for type C tubular rivets made from tube are no longer included.
b) Dimension d_{10} has been included.
c) Clauses 3 to 8 have been replaced by clause 3 'Technical delivery conditions'
d) The specifications for materials have been amended.
e) It is now permitted to use symbol Cu as a substitute for SF-Cu.
f) The standard has been editorially revised and printing errors corrected.

International Patent Classification

B 60 T 001/00
F 16 B 019/04
F 16 B 019/08
F 16 D 069/04