

BS EN 6081:2016



BSI Standards Publication

**Aerospace series — Rivet,
universal head, close tolerance
— Inch series**

National foreword

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EUROPEAN STANDARD

EN 6081

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English Version

**Aerospace series - Rivet, universal head, close tolerance -
Inch series**Série aérospatiale - Rivets de précision, tête universelle
- Série en inchesLuft- und Raumfahrt - Vollniet, Universalkopf, enge
Toleranz - Zoll-Reihe

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European foreword

This document (EN 6081:2016) has been prepared by the Aerospace and Defence Industries Association of Europe - Standardization (ASD-STAN).

After enquiries and votes carried out in accordance with the rules of this Association, this European Standard has received the approval of the National Associations and the Official Services of the member countries of ASD, prior to its presentation to CEN.

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1 Scope

This European Standard specifies the dimensions, tolerances and mass of rivets with universal head, close tolerance, inch series, for aerospace application.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN 2115, *Aerospace series — Aluminium alloy 2117-T42 — Wire for solid rivets — $D \leq 10$ mm* ¹⁾

EN 2116, *Aerospace series — Aluminium alloy 2017A-T42 — Wire for solid rivets — $D \leq 10$ mm* ²⁾

EN 2117, *Aerospace series — Aluminium alloy AL-P5056A (5056A)-H32 — Wire for solid rivets — $D \leq 10$ mm* ²⁾

EN 2424, *Aerospace series — Marking of aerospace products*

EN 3115, *Aerospace series — Aluminium alloy 7050-T73 — Wire for solid rivets — $D \leq 10$ mm* ³⁾

EN 6104, *Aerospace series — Rivets, solid, in aluminium or aluminium alloy — Inch series — Technical specification* ³⁾

EN 6118, *Aerospace series — Process specification — Aluminium base protection for fasteners* ¹⁾

ISO 8080, *Aerospace — Anodic treatment of titanium and titanium alloys — Sulfuric acid process*

SAE AMS 4982, *Titanium alloy wire 44.5 Cb* ⁴⁾

MIL-C-5541, *Chemical conversion coatings on aluminium and aluminium alloys* ⁵⁾

NASM 5674, *Rivets, structural, aluminium alloy, titanium columbium alloy, general specification for* ⁶⁾

¹⁾ In preparation at the date of publication of this European Standard.

²⁾ Published as ASD-STAN standard at the date of publication of this European Standard.

³⁾ Published as ASD-STAN Prestandard at the date of publication of this European Standard.

⁴⁾ Published by: Society of Automotive Engineers (SAE), 400 Commonwealth Drive, Warrendale, PA 15096-0001.

⁵⁾ Published by: Department of Defense (DoD), the Pentagon, Washington, D.C. 20301.

⁶⁾ Published by: Aerospace Industries Association of America, Inc. (AIA), 1250 Eye Street, N.W., Washington, D.C. 20005-3924, USA

3 Requirements

3.1 Configuration, dimensions, tolerances and mass

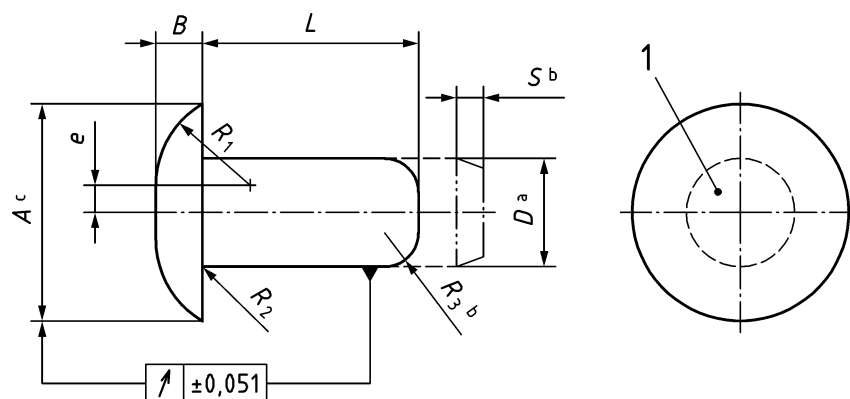
The configuration shall conform with Figure 1.

The dimensions, tolerances and mass shall conform with Figure 1 and Tables 1, 2 and 3.

Dimensions and tolerances are expressed in millimetres.

3.2 Material and surface treatment

See Table 3.



Key

1 marking (see Clause 5)

^a 0,025 mm shank diameter increase is permissible within 2,54 mm of the base of the head.

^b Chamfered ends with radius to the R_3 dimensions or a 20° chamfer to “S” dimension.

^c Maximum head diameters are to theoretical sharp corners as measured by projection.

Figure 1 — Configuration

Table 1

Diameter code	D Nominal diameter + 0,03 - 0,03	A		B + 0,25 0	e Ref.	R ₁	R ₂	R ₃ ± 0,25	S ± 0,25
		max.	min.						
2	1,60	3,35	3,05	0,7	0,4	1,4	0,1 to 0,15	0,48	0,41
3	2,38	4,95	4,65	1,0	0,6	2,1		0,74	0,58
4	3,18	6,58	6,22	1,4	0,8	2,7		0,99	0,79
5	3,97	8,18	7,82	1,7	1,0	3,4		1,24	0,99
6	4,76	9,78	9,42	2	1,2	4,2		1,5	1,19
7	5,56	11,41	10,99	2,4	1,4	4,9		1,75	1,37
8	6,36	13,01	12,59	2,7	1,6	5,5		1,98	1,57
10	7,93	16,21	15,79	3,4	2,0	6,9		2,49	1,98
12	9,53	19,51	18,59	4,1	2,4	8,3		2,97	2,39

Table 2 — Length code and masses

Length ^{a,b}		Diameter code								
		2	3	4	5	6	7	8	10	12
code	$L \pm 0,25$	Mass ^c kg/ 1 000 parts								
03	4,76	0,04	0,08	0,15	–	–	–	–	–	–
04	6,35	0,04	0,10	0,19	0,31	–	–	–	–	–
05	7,94	0,05	0,12	0,22	0,37	0,54	0,96	–	–	–
06	9,53	0,06	0,14	0,26	0,42	0,62	1,07	1,45	–	–
07	11,11	0,07	0,16	0,29	0,48	0,70	1,18	1,59	2,19	–
08	12,70	0,08	0,18	0,33	0,53	0,78	1,29	1,74	2,41	3,67
09	14,29	0,09	0,20	0,37	0,59	0,86	1,39	1,88	2,63	3,99
10	15,88	0,10	0,22	0,40	0,65	0,94	1,50	2,02	2,85	4,31
12	19,05	0,12	0,26	0,47	0,76	1,10	1,72	2,31	3,29	4,95
14	22,23	0,14	0,30	0,55	0,87	1,26	1,94	2,59	3,73	5,59
16	25,40	0,16	0,34	0,62	0,98	1,42	2,16	2,87	4,17	6,23
18	28,58	–	–	0,69	1,09	1,58	2,37	3,16	4,61	6,87
20	31,75	–	–	0,72	1,15	1,66	2,48	3,30	4,83	7,19
22	34,93	–	–	0,76	1,20	1,74	2,59	3,44	5,05	7,51
24	38,10	–	–	0,80	1,26	1,82	2,70	3,58	5,27	7,83
28	44,45	–	–	–	1,31	1,90	2,81	3,73	5,50	8,15
32	50,80	–	–	–	1,37	1,98	2,92	3,87	5,72	8,47
40	63,50	–	–	–	–	–	3,03	4,01	5,94	8,79
48	76,20	–	–	–	–	–	–	4,15	6,16	9,11

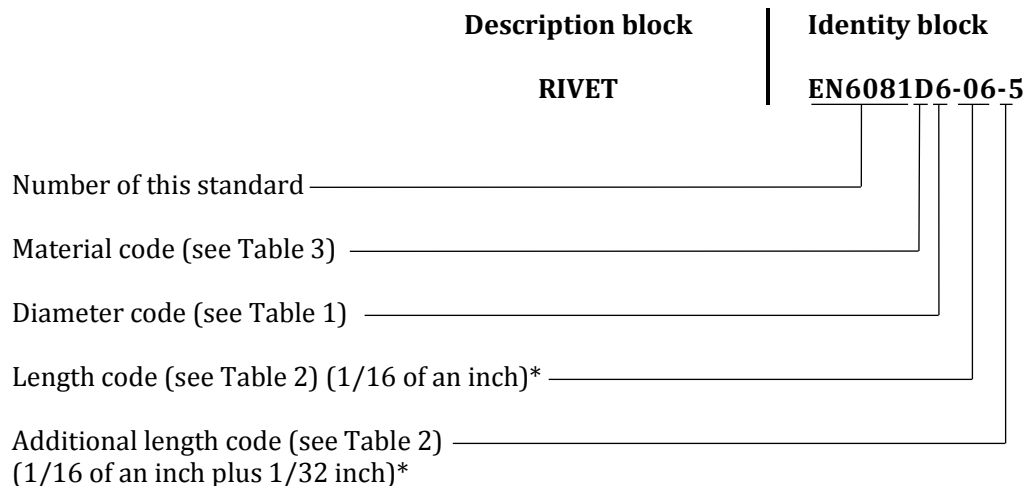
^a Intermediate lengths can be created, e.g. 11/16 inch (11,2 mm) corresponds to length code 11.
^b Additional 0,8 mm (1/32 inch) length increments may be obtained by adding code 5 after the last digit of part number
^c Mass = 2,79 kg/dm³

Table 3

Diameter code									Surface treatment	Density kg/dm ³	Multiplier of mass (see Table 2)	Material code
2	3	4	5	6	7	8	10	12				
Material												
Aluminium alloy 2117-T4 per EN 2115									-	2,75	0,98	AD
-	Aluminium alloy 2017A-H13 per EN 2116								Yellow chromated per MIL-C-5541, class 1A	2,79	1	D
-		Aluminium alloy 5056A-H32 per EN 2117								2,64	0,95	B
-	Aluminium alloy AL-P7050 per EN 3115									2,82	1,01	KE
-	Titanium alloy 44.5 Cb heat treat: annealed per AMS 4982									-	5,8	2,08
									IVD per EN 6118	V		

4 Designation

EXAMPLE



* For supplying purpose only, see footnotes ^a and ^b in Table 2.

NOTE If necessary, the code I9005 shall be placed between the description block and the identity block.

5 Marking

5.1 Material identification

Symbol on the head see Figure 2.

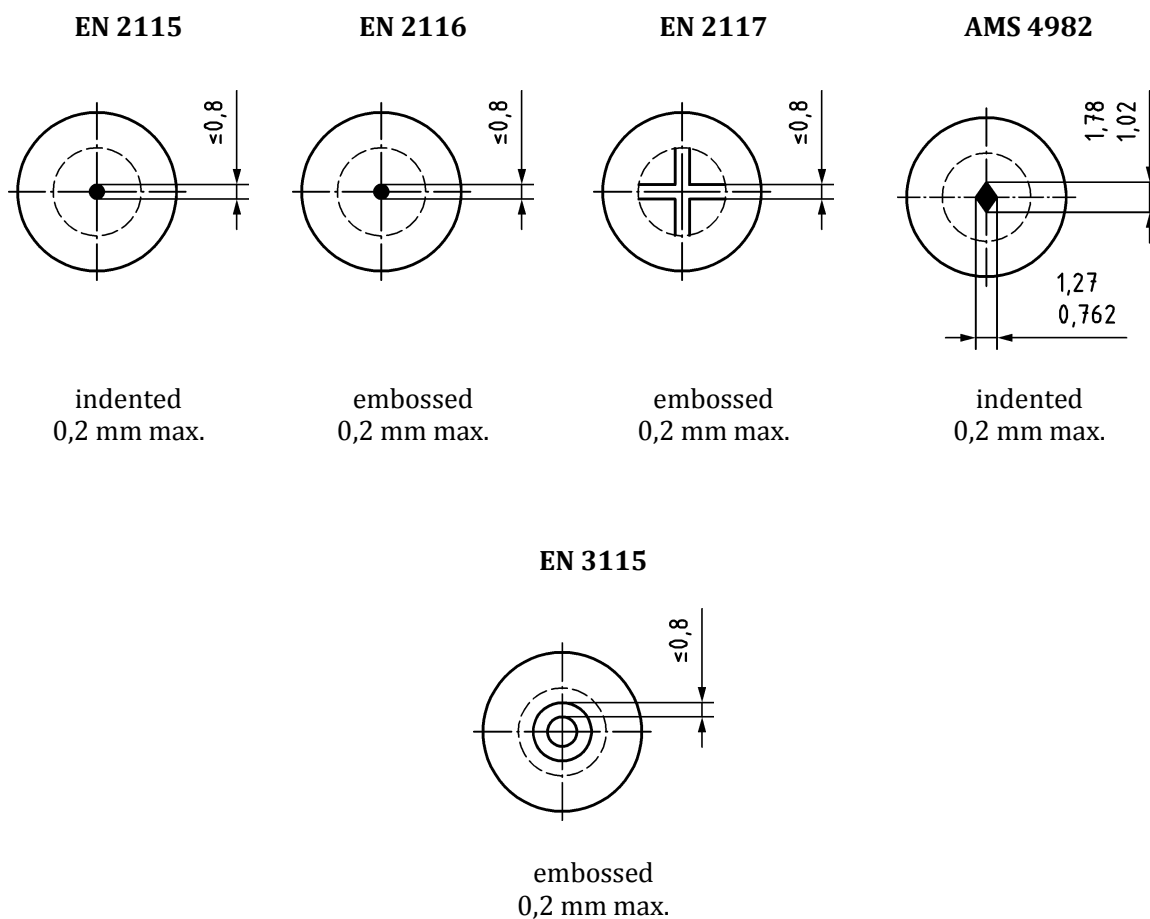


Figure 2 — Material identification

5.2 Manufacturers identification

EN 2424, style F to be embossed or indented on rivet head.

Manufacturer's identification is required on rivet heads for diameter code 4 and larger.

6 Technical specification

6.1 Titanium alloy rivet

TiCb rivets shall conform with the requirements of NASM 5674 except for the finish as stated.

6.2 Aluminium alloy rivet

Aluminium alloy rivets shall conform with the requirements of EN 6104.

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