AIRBUS

SOLID RIVET - ALUMINIUM ALLOY, UNIVERSAL HEAD

SUMMARY

1 - SCOPE AND FIELD OF APPLICATION

This standard specifies the dimensions, tolerances, required characteristics and the masses of aluminium solid rivet with universal head.

2 - NORMATIVE REFERENCES

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the last edition of the referenced document (including any amendments) applies.

EN2115 : Aerospace series - Aluminium alloy 2117-T42 - Wire for solid rivets D ≤ 10 mm.
EN2116 : Aerospace series - Aluminium alloy 2017A-T42 - Wire for solid rivets D ≤ 10 mm.
EN2424 : Aerospace series - Marking of aerospace products.
EN3115 : Aerospace series - Aluminium alloy 7050- T73 - Wire for solid rivets D ≤ 10 mm.
EN6104 : Aerospace series - Rivets, solid, in aluminium or aluminium alloy - Inch series - Technical specification.
MIL-DTL-5541:Chemical conversion coatings on aluminium and aluminium alloys.

3 - TERMINOLOGY

Not applicable.

4 - REQUIRED CHARACTERISTICS

4.1 - Configuration, dimensions, tolerances, solid rivet length and mass

4.1.1 - The configuration shall be in accordance with figure 1.

4.1.2 - The dimensions shall be in accordance with figure 1 and table 1.

4.1.3 - The tolerances shall be in accordance with figure 1, table 1 and table 2.

Coaxial tolerance of head relative to shank is 0,25mm (TIR).
Maximum inclination of head relative to shank axis is 0° 30'.

4.1.4 - The solid rivet lengths shall be in accordance with table 2.

4.1.5 - The mass shall be in accordance with table 2.

4.2 - Materials, finishes

Materials and finishes shall be in accordance with table 3.

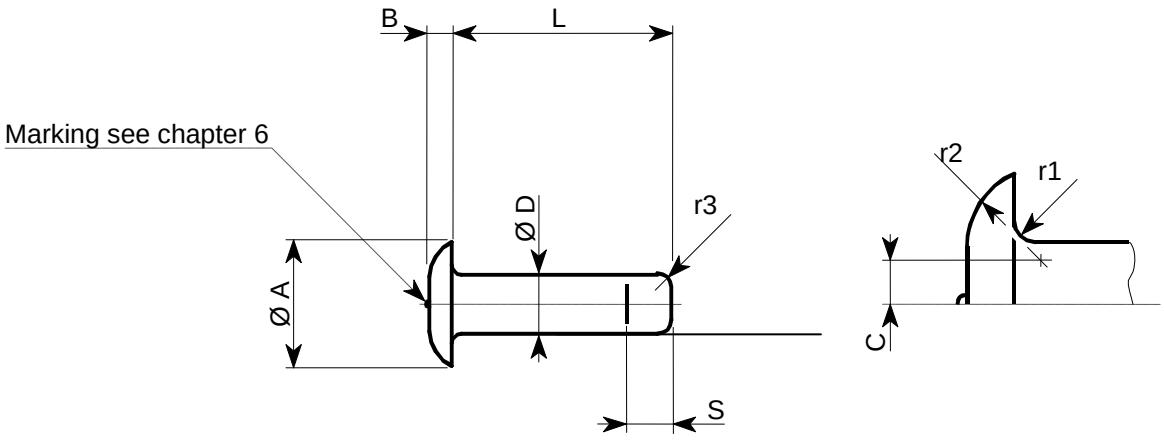


Figure 1 - Configuration

Table 1 – Dimensions and tolerances

DIAMETER CODE	NOMINAL DIAMETER	Ø D*		Ø A		B $^{+0,25}_{0}$	C Ref.	S Ref.	r1	r2 Ref	r3 ± 0,25
		min.	max.	min.	max.						
16	1,6	1,55	1,64	3,05	3,35	0,7	0,4	0,40	0,10 to 0,15	1,4	0,48
24	2,4	2,36	2,42	4,50	4,90	1,0	0,6	0,58		2,1	0,73
32	3,2	3,15	3,21	6,10	6,70	1,4	0,8	0,78		2,7	0,99
36	3,6	3,55	3,61	6,80	7,50	1,6	0,9	0,88		3,0	1,11
40	4	3,94	4,00	7,50	8,30	1,7	1,0	0,99		3,4	1,24
48	4,8	4,73	4,79	9,00	10,00	2,0	1,2	1,19		4,2	1,50
56	5,6	5,53	5,59	10,40	11,60	2,4	1,4	1,37		4,9	1,75
64	6,4	6,33	6,39	12,10	13,30	2,7	1,6	1,57		5,5	1,98
80	8	7,90	7,96	15,10	16,70	3,4	2,0	1,98		6,9	2,49
96	9,6	9,50	9,56	18,10	18,60**	4,1	2,4	2,39		8,3	2,97

Dimensions in mm.

* 0,025mm shank diameter increase is permissible within 2,54mm of the base of the head.
** The modification of the tolerance for diameter code No. 96 is applicable on parts manufactured after October 2005, parts manufactured under previous revision may be procured and used until stocks are depleted.

Table 2 – Solid rivet lengths, tolerances and mass

LENGTH CODE L ± 0,254 mm	DIAMETER CODE									
	16	24	32	36	40	48	56	64	80	96
04	+	+	+							
Mass (g)	0,04	0,15	0,17							
05	+	+	+							
Mass (g)	0,04	0,16	0,23							
06	+	+	+							
Mass (g)	0,05	0,17	0,31							
07	+	+	+	+	+					
Mass (g)	0,05	0,18	0,34	0,43	0,55					
08	+	+	+	+	+					
Mass (g)	0,06	0,20	0,36	0,46	0,58					
09	+	+	+	+	+					
Mass (g)	0,06	0,21	0,38	0,49	0,62					

(Length codes continued on page 4)

Table 2 - (Length codes continued from page 3)

LENGTH CODE L ± 0,254 mm	DIAMETER CODE									
	16	**24**	**32**	**36**	**40**	**48**	**56**	**64**	**80**	**96**
10	+	+	+	+	+	+	+			
Mass (g)	0,07	0,22	0,39	0,52	0,66	0,92	1,31			
11	+	+	+	+	+	+	+			
Mass (g)	0,08	0,23	0,41	0,55	0,69	0,98	1,39			
12	+	+	+	+	+	+	+	+	+	
Mass (g)	0,08	0,25	0,45	0,58	0,73	1,03	1,45	1,97	2,98	
13			+	+	+	+	+	+	+	
Mass (g)			0,48	0,61	0,76	1,08	1,52	2,06	3,13	
14			+	+	+	+	+	+	+	
Mass (g)			0,50	0,64	0,80	1,11	1,59	2,15	3,27	
15			+	+	+	+	+	+	+	
Mass (g)			0,52	0,67	0,84	1,18	1,66	2,25	3,41	
16				+	+	+	+	+	+	+
Mass (g)				0,69	0,87	1,24	1,73	2,34	3,56	5,56
17				+	+	+	+	+	+	+
Mass (g)				0,72	0,91	1,29	1,81	2,43	3,70	5,76
18				+	+	+	+	+	+	+
Mass (g)				0,75	0,94	1,34	1,87	2,52	3,85	5,96
19				+	+	+	+	+	+	+
Mass (g)				0,78	0,98	1,39	1,95	2,61	3,99	6,16
20				+	+	+	+	+	+	+
Mass (g)				0,81	1,02	1,44	2,02	2,70	4,13	6,36
22						+	+	+	+	+
Mass (g)						1,55	2,16	2,89	4,42	6,76
24						+	+	+	+	+
Mass (g)						1,65	2,30	3,07	4,71	7,16
26						+	+	+	+	+
Mass (g)						1,75	2,44	3,25	4,99	7,66
28						+	+	+	+	+
Mass (g)						1,85	2,52	3,44	5,28	8,06
30							+	+	+	+
Mass (g)							2,72	3,62	5,56	8,46
32							+	+	+	+
Mass (g)							2,86	3,80	5,85	8,86
35							+	+	+	+
Mass (g)							3,07	4,08	6,28	9,54
40							+	+	+	+
Mass (g)							3,42	4,54	7,00	10,89

(Length codes continued on page 5)

Table 2 - (Length codes continued from page 4)

LENGTH CODE L ± 0,254 mm	DIAMETER CODE									
	16	**24**	**32**	**36**	**40**	**48**	**56**	**64**	**80**	**96**
45								+	+	+
Mass (g)								5,00	7,71	12,24
50								+	+	+
Mass (g)								5,45	8,43	13,59
55									+	+
Mass (g)									9,14	14,94
60									+	+
Mass (g)									9,86	16,29

(End)

Lengths missing in table can be created mm by mm, e.g. length code 21 between 20 and 22 mm.

Table 3 – Materials and finishes

DIAMETER CODE	NOMINAL DIAMETER	MATERIAL	MATERIAL CODE	FINISH	FINISH CODE
16 to 48	1,6 to 4,8	Aluminium alloy 2117-T4 as per EN2115	DC	Yellow chromated as per MIL-DTL-5541 class 1A	J
40 to 96	4,0 to 9,6	Aluminium alloy 2017A-T4 as per EN2116	DE *		
			DX		
		Aluminium alloy 7050-T73 as per EN3115	DK		
* Replaced by material code DX.					

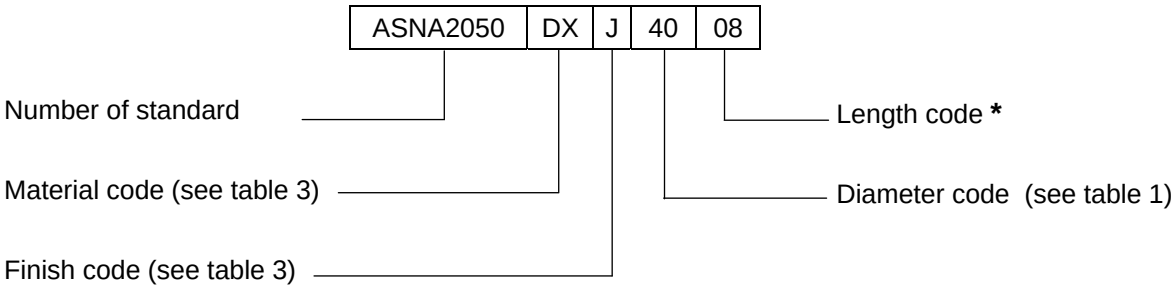
Dimensions in mm.

5 - DESIGNATION

Example of part number identification to be used on drawing schedules:

ASNA2050DXJ40 , Solid rivet

Example of part number construction:



* For supplying purpose only.

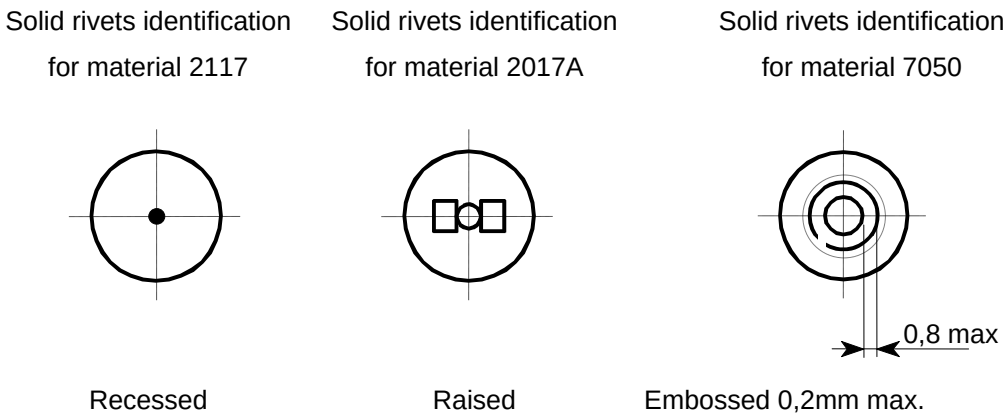
Note: The new designation is interchangeable with the old designation:

- ASNA2050DXJ040-8 (old designation)
- ASNA2050DXJ4008 (new designation)

6 - MARKING

6.1 - Material identification

The symbol on the solid rivet head shall be in accordance with figure 2.



Dimensions in mm.

Figure 2 – Material identification

6.2 - Manufacturer’s identification

EN2424, category F to be embossed or intended on solid rivets head.

Manufacturer’s identification is required on solid rivet heads for diameter code 32 and larger.

7 - TECHNICAL SPECIFICATION

Aluminium solid rivet shall conform with the requirements of EN6104.

8 - MANUFACTURERS

Refer to the list of qualified manufacturers and products.

AMENDMENT RECORD SHEET

Issue	Modified paragraph	Modification summary	Justification
A.09.84		New standard.	
B.12.84		Standard fully amended.	
C.01.87		Marking and coded part number modified. Classification page numbering modified.	
D.03.87		Coded part number modified.	Following mistake
E.05.88		Rounded end rivet (optional shape) changed to normal rivet. Note for Procurement Departments deleted.	Ref. 437.056/88
F.11.88		Code "R" restored for Procurement Departments.	CMS
G.04.89		Min. shear strength modified for Ø 4 to 8: 280 MPa changed to 270 to 310 MPa.	Memo. A/DET/EG-ST of 03.04.89
H.07.89		"Example of designation to be used by Product Support Division only" added.	Ref. 721.313/89/TC
J.10.92		On drawing: dimension r 0,1 to 0,25 changed to r 0,1 to 0,15. In table: tolerance for dimension B added.	A/DET/CG request Memo. 531.112/92
K.04.93		Amended standard. Material modified for Ø 4 to 8: 2017-T4 changed to 2017A-T4.	Memo. A/DET/CG 531.032/93
L.09.96	Table 1	Finish: Alochrome 1 200 gold color for 2017A and 2117 materials and Alochrome 1 200 light color for 7050 material changed to Alochrome 1 200 gold color or Alochrome 1 200 light color for 2017A, 2117 and 7050 materials.	Request A/BTE/CD/MP
M.11.97		DX code and 9,6 mm diameter added. Specific requirements for 2017A rivets attached on delivery condition added.	WBI
N.10.04		Chapter TECHNICAL SPECIFICATION updated.	In accordance with technical specification ASNA2841
P.10.05		In table 2: tolerance for dimension RT added. In table 2: dimension Ø A max. for diameter code No. 096 modified: 19,90 mm changed to 18,60 mm.	Manufacturer request

AMENDMENT RECORD SHEET

Issue	Modified paragraph	Modification summary	Justification
Q 08.09		Shear value for 2117-T4 changed: 195 MPa instead of 180 MPa. Title “Rivet – aluminium alloy, round flat head, for automatic or not installation” changed to “Solid rivet – aluminium alloy, round flat head”	
	2	Technical specification ASNA2841 deleted and replaced by EN6104. References EN2115, EN2116, EN3115 and MIL-DTL-5541 added. Reference NFL21207 deleted and replaced by EN2424. Reference ASTM-E-112 deleted and indicated in the technical specification EN6104.	
	Table 1	References “C” changed to “C Ref.”, “S” to “S Ref.”	
	Table 2	Mass for diameter 9,6mm defined.	
	Table 3	Diameter 40 and 48 added for DC material. Diameter 24, 32 and 36 added for DE,DC and DK material. Material and finish specifications added. Material code DE replaced by DX. Min. shear strength deleted. Installation mode deleted.	
	5	Information regarding Procurement Department and Support division deleted and replaced by « For supplying purpose only » Designation modified. The “O (zero)” in front of the diameter code has been deleted. Reference NF L 21 207 has been replaced by the EN2424.	
	6	Marking for 7050 aluminium harmonized with EN standard. Squeezing test has been deleted form the chapter 7 of the issue P.	
R 07.12	6.1	Correction of typo for identification of 7050 material in figure 2	