AIRBUS INDUSTRIE

STANDARDS MANUAL

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RIVET – TITANIUM BI–METAL
100° COUNTERSUNK CROWN HEAD

Form AIF 8001.2 WS–Norm

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1 Scope and field of application

This standard specifies the dimensions, tolerances of titanium bi–metal 100° Tension crown head rivet for structural use.

2 References

AMS4967	Titanium alloy bars and forgings, 6AL–4V
AMS4982	Titanium alloy wire 44.5Cb
ISO8080	Aerospace, anodic treatment of titanium and titanium alloys
MIL–L–87132	Lubricant cetyl alcohol, 1 hexadecanol application to fasteners
ANSI B46.1	Surface texture
MIL–R–83459	Procurement specification for titanium–alloy rivet

3 Required characteristics

3.1 Configuration – Dimensions – Tolerances

3.1.1 Configuration shall be in accordance with figure 1

3.1.2 Dimensions, tolerances and masses shall conform with figures 1 and 2 and tables 1 and 2

3.2 Material

Body, 6AL–4V titanium alloy according to AMS4967. Heat treat; processed to produce 95 ksi (655 N/mm^2) shear strength and a soft formable tail. Tail, 55Ti–45Cb titanium alloy according to AMS4982. Tail: Annealed

3.3 Surface treatment

Finish; blue anodize in accordance with ISO8080. Lubrication; chlorine–free cetyl alcohol in accordance with MIL–L–87132.

3.4 Surface texture

Rhr max. in accordance with ANSI B46.1; 63 microinches (1,6 µm) on "D" diameter. Head–to–shank radius and bearing surface of head; 125 microinches (3,2 µm) on other surfaces.

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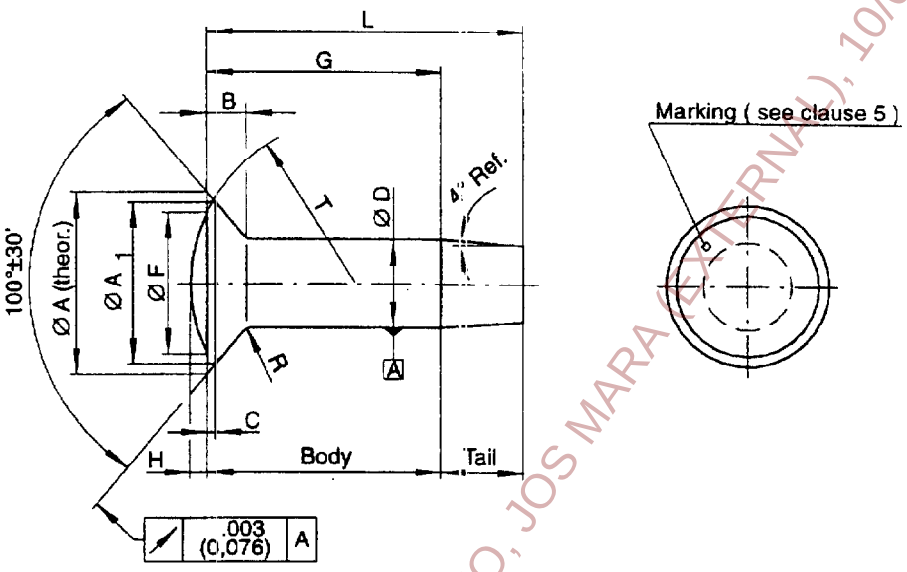

Figure 1 – Configuration

Table 1 [1]

Dimensions in inches (millimetres)

Dia dash–no. [2]			– 5	– 6	– 8
D = Nominal dia	±.0005 (±0,013)		.1640 (4,166)	.1895 (4,813)	.2495 (6,337)
A (theor.)	±.0025 (±0,064)		.286 (7,264)	.353 (8,966)	.476 (12,09)
A_1	min.		.271 (6,883)	.336 (8,534)	.456 (11,582)
B	Ref.		.051 (1,295)	.069 (1,753)	.095 (2,413)
C	±.002 (±0,051)		.004 (0,102)	.005 (0,127)	.006 (0,152)
F	±.005 (±0,127)		.261 (6,629)	.326 (8,280)	.446 (11,328)
H	±.002 (±0,051)		.005 (0,127)	.005 (0,127)	.005 (0,127)
R	±.005 (±0,127)		.020 (0,508)	.025 (0,635)	.025 (0,635)
T	Ref.		1.70 (43,2)	2.66 (67,6)	4.98 (126,5)
Ultimate tensile strength	min.	lbs (N)	1600 (7117)	2100 (9341)	3700 (16458)
Single shear strength	min.	lbs (N)	2007 (8928)	2694 (11982)	4660 (20729)

1) All dimensions apply before application of lubrication
2) Dash–no. indicates nom. dia in 1/32 inch increments

Table 2

Dimensions in inches (millimetres)

Dia dash–no.				–5		–6		–8	
Dash grip–no.	Grip range min.	Grip range max.	G +.015 (+0,381)	L 3) ± .010 (±0,254)	Mass lbs/1000pcs (kg/1000pcs)	L 3) ± .010 (±0,254)	Mass lbs/1000pcs (kg/1000pcs)	L 3) ± .010 (±0,254)	Mass lbs/1000pcs (kg/1000pcs)
–3	.126 (3,200)	.156 (3,962)	.125 (3,175)	.330 (8,382)	1.40 (0,635)	–	–	–	–
–3R	.157 (3,987)	.187 (4,749)	.156 (3,962)	.361 (9,169)	1.51 (0,684)	.378 (9,601)	2.35 (1,065)	–	–
–4	.188 (4,775)	.218 (5,537)	.187 (4,749)	.392 (9,956)	1.62 (0,734)	.410 (10,414)	2.49 (1,129)	.455 (11,557)	4.83 (2,19)
–4R	.219 (5,562)	.250 (6,35)	.218 (5,537)	.423 (10,744)	1.73 (0,784)	.441 (11,201)	2.63 (1,192)	.486 (12,344)	5.08 (2,304)
–5	.251 (6,375)	.281 (7,137)	.250 (6,35)	.455 (11,557)	1.84 (0,834)	.472 (11,988)	2.77 (1,256)	.517 (13,131)	5.32 (2,413)
–5R	.282 (7,162)	.312 (7,924)	.281 (7,137)	.486 (12,344)	1.95 (0,884)	.503 (12,776)	2.91 (1,319)	.548 (13,919)	5.57 (2,526)
–6	.313 (7,95)	.343 (8,712)	.312 (7,924)	.517 (13,131)	2.06 (0,934)	.535 (13,589)	3.05 (1,383)	.580 (14,732)	5.81 (2,635)
–6R	.344 (8,737)	.375 (9,525)	.343 (8,712)	.548 (13,919)	2.17 (0,984)	.566 (14,376)	3.19 (1,446)	.611 (15,519)	6.06 (2,748)
–7	.376 (9,55)	.406 (10,312)	.375 (9,525)	.580 (14,732)	2.28 (1,034)	.597 (15,163)	3.33 (1,51)	.642 (16,306)	6.30 (2,957)
–7R	.407 (10,337)	.437 (11,099)	.406 (10,312)	.611 (15,519)	2.39 (1,084)	.628 (15,951)	3.47 (1,573)	.673 (17,094)	6.55 (2,971)
–8	.438 (11,125)	.468 (11,887)	.437 (11,099)	.642 (16,306)	2.50 (1,133)	.660 (16,764)	3.61 (1,637)	.705 (17,907)	6.97 (3,079)
–8R	.459 (11,912)	.500 (12,7)	.468 (11,887)	.673 (17,094)	2.61 (1,183)	.691 (17,551)	3.75 (1,7)	.736 (18,694)	7.04 (3,193)
–9	.501 (12,73)	.531 (13,49)	.500 (12,7)	.705 (17,91)	2.72 (1,234)	.722 (18,34)	3.89 (1,764)	.767 (19,48)	7.28 (3,302)
–9R	.532 (13,51)	.562 (14,27)	.531 (13,49)	.736 (18,69)	2.83 (1,284)	.753 (19,13)	4.03 (1,828)	.798 (20,27)	7.53 (3,416)
–10	.563 (14,30)	.593 (15,06)	.562 (14,27)	.767 (19,48)	2.94 (1,334)	.785 (19,94)	4.17 (1,891)	.830 (21,08)	7.77 (3,524)
–10R	.594 (15,09)	.625 (15,88)	.593 (15,06)	.798 (20,27)	3.05 (1,383)	.816 (20,73)	4.31 (1,955)	.861 (21,87)	8.02 (3,638)

3) Caution : Do not cut to shorter length

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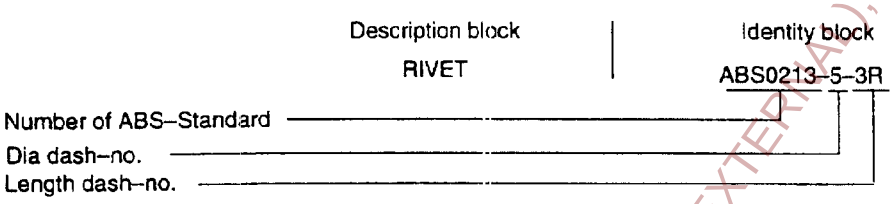
4 Designation

Each rivet shall be designated as in following example



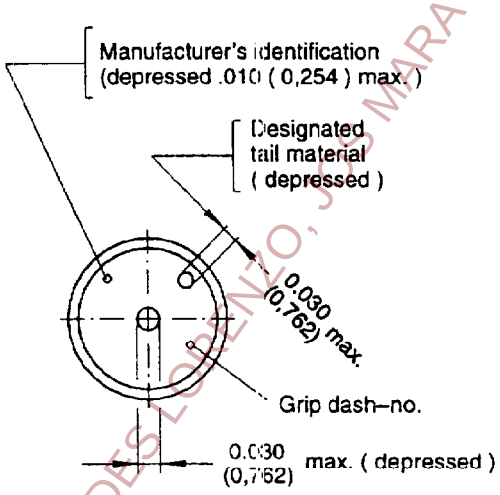


Figure 2

5 Marking

Material identification – Symbol on the head in accordance with figure 2.

6 Technical Specification

The rivets shall conform to the requirements of MIL–R–83459 with the exception of ultimate tensile strength which shall be as quoted in Table 1 and the grip–range and dimension "L" which shall be as stated in Table 2.