Aerospace series

Bolt – Protruding tension head short thread, break stem, for interference fit

Published and distributed by :
AIRBUS S.A.S.
ENGINEERING DIRECTORATE
31707 BLAGNAC Cedex
FRANCE

Contents

1 Scope

This standard specifies the dimensions, tolerances required characteristics and mass of a protruding tension head bolt, short thread, break stem, to be used in interference fit holes only.

2 Normative references

This Airbus Standard incorporates by dated or undated reference provisions from other publications. All normative references cited at the appropriate places in the text are listed hereafter. For dated references, subsequent amendments to or revisions of any these publications apply to this Airbus Standard only when incorporated in it by amendment of revision. For undated references, the latest issue of the publication referred to shall be applied.

ISO3161	Aerospace – UNJ threads - General requirements and limit dimensions.
EN2424	Aerospace series - Marking of aerospace products. [1]
EN4473	Aerospace series - Aluminium pigmented coatings - Technical specification. [1]
EN6117	Aerospace series - Specification for lubrication of bolts with Cetyl alcohol. [1]
ABS0876	Aerospace series - Bolt - Protruding tension head pull type - For fatigue applications.
AMS4928	Titanium alloy bars, wire, forgings, and rings 6Al-4V annealed. [2]
AMS4967	Titanium alloy bars, forgings, and rings 6.0Al - 4.0V annealed, heat treatable. [2]
ANSI/ASME-B46-1	Surface texture (surface roughness waviness, and lay).
SAE AS8879	Screw threads – UNJ profile, inch - Controlled radius root with increased minor diameter. [3]

3 Requirements

3.1 Configuration, dimensions and tolerances

The configuration, dimensions and tolerances shall be in accordance with figure 1, table 1 and table 2.

Dimensions to be met after finish.

Concentricity tolerances between Ø A and Ø D within the values of .01 inch (0,254 mm) (TIR).

For diameter codes -6 (9,52 mm), -7 (11,1 mm) and –8 (12,7 mm) only, drill centre dimple in the top of the head to a maximum diameter of .035 inch (0,889 mm) and a maximum depth of .010 inch (0,254 mm).

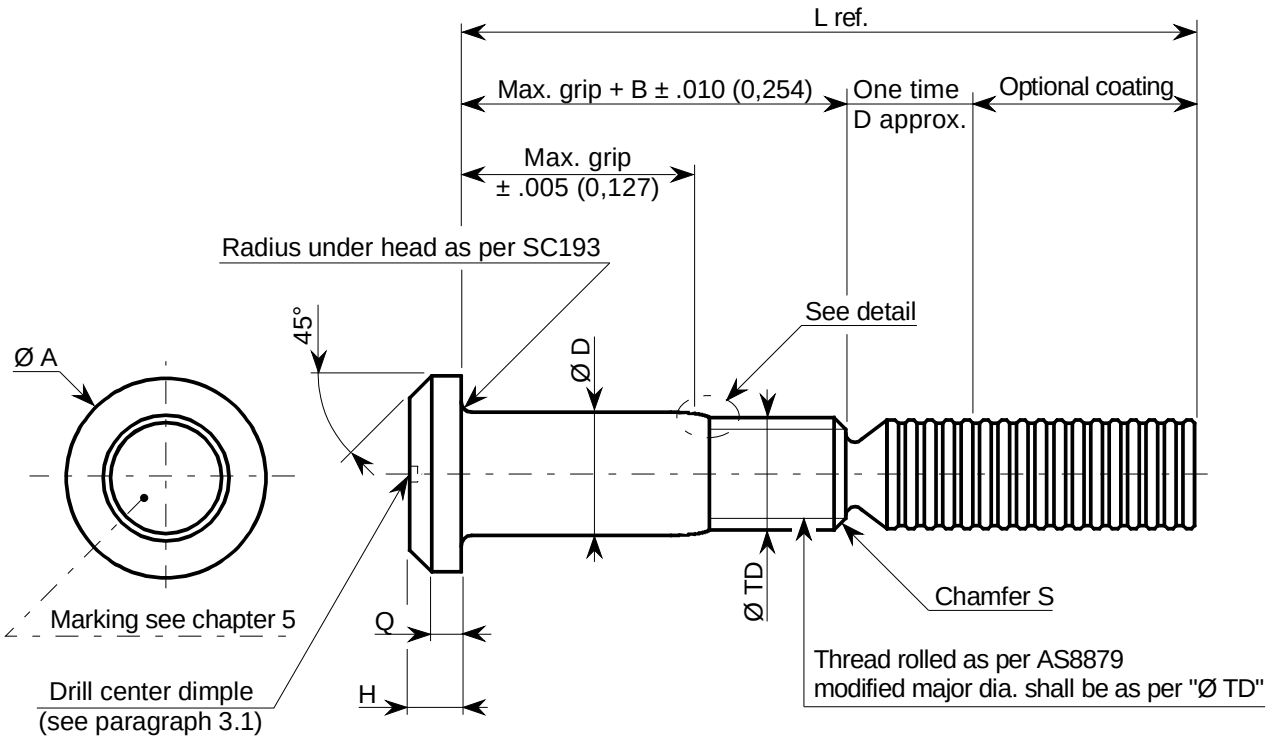
Dimple shall be concentric to “A” within 0.008 inch (0,203 mm).

Surface condition as per ANSI/ASME-B46-1 unless otherwise specified.

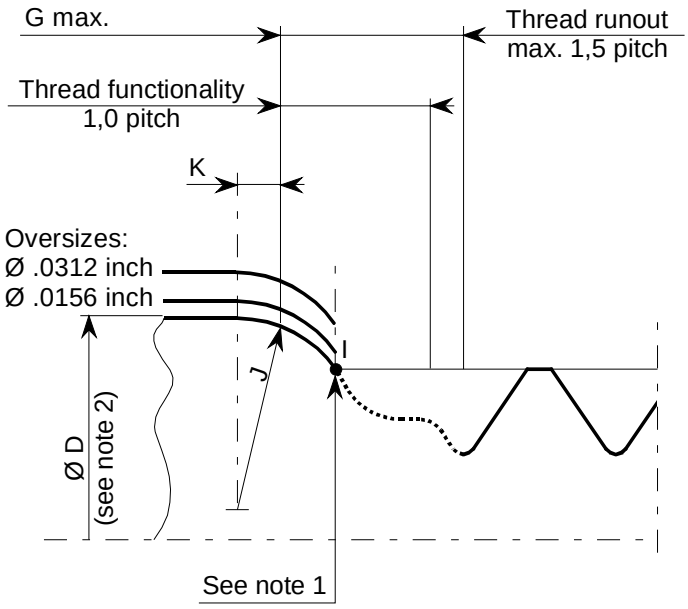
Oversize’s shall be in accordance with table 3 and table 4.

Mass values shall be in accordance with table 7.

[1] Published as ASD Standard at the date of publication of this standard
[2] Superintendent of documents, US Government Printing House, Washington, D.C. 20402, USA
[3] Published by: Society of Automotive Engineers, Inc. (SAE), 400 Commonwealth Drive, Warrendale, PA 15096-0001, USA



DETAIL A



Dimensions in inch (millimeter).

NOTE 1: For nominal diameter: The diameter measured at point I shall be less than or equal to the max. Diameter TD for nominal diameter.
For oversize diameters: Maximum diameter at point I shall be incremented by .0156, .0312 and .0625 inch for respectively 1st, 2nd and 3rd oversize. The TD diameter stays the same as for nominal diameter.

NOTE 2: Check concentricity of diameters D (shank) and TD (thread) to avoid interference between the bolt thread and hole when using tight interference fits.

NOTE 3: The maximum thread run-out and functionality for oversize's is incremented by 0,25 mm.

Figure 1: Configuration, dimensions and tolerances

Table 1: Dimensions and tolerances

Dimensions in inch (millimeter)

Dash No.	Nom. size	Thread UNJF-3A modified	Ø A	B Ref.	Ø D	Ø TD	H	J	K max.	Q Ref.	S Chamfer at 37 ° Ref.
3	.1875 (4,76)	.1900-32	.377 .357 (9,57) (9,07)	.290 (7,37)	.1895 .1885 (4,813) (4,788)	.1840 .1810 (4,673) (4,597)	.074 .064 (1,88) (1,63)	.100 .089 (2,540) (2,286)	.015 (0,406)	.035 (0,89)	.031 (0,79)
4	.2500 (6,35)	.2500-28	.440 .415 (11,17) (10,54)	.320 (8,13)	.2495 .2485 (6,337) (6,312)	.2440 .2410 (6,197) (6,121)	.090 .080 (2,28) (2,03)	.139 .126 (3,556) (3,202)	.020 (0,533)	.045 (1,14)	
5	.3125 (7,94)	.3125-24	.505 .475 (12,82) (12,07)	.380 (9,65)	.3120 .3110 (7,925) (7,899)	.3060 .3020 (7,772) (7,670)	.112 .102 (2,84) (2,59)	.169 .159 (4,318) (4,064)	.025 (0,660)	.055 (1,40)	.046 (1,19)
6	.3750 (9,53)	.3750-24	.600 .565 (15,24) (14,35)	.420 (10,67)	.3745 .3735 (9,512) (9,487)	.3680 .3640 (9,347) (9,245)	.140 .130 (3,55) (3,30)	.229 .219 (5,842) (5,588)	.029 (0,762)	.075 (1,90)	
7	.4375 (11,11)	.4375-20	.676 .641 (17,17) (16,28)	.485 (12,32)	.4370 .4360 (11,100) (11,074)	.4310 .4260 (10,947) (10,820)	.160 .150 (4,06) (3,81)	.299 .289 (7,620) (7,366)	.034 (0,889)	.095 (2,41)	
8	.5000 (12,70)	.5000-20	.770 .735 (19,56) (18,67)	.525 (13,34)	.4995 .4985 (12,687) (12,662)	.4930 .4880 (12,522) (12,395)	.188 .178 (4,77) (4,52)	.354 .344 (9,017) (8,763)	.039 (0,991)		
9*	.5625 (14,30)	.5625-18	.877 .842 (22,27) (21,39)	.600 (15,24)	.5615 .5605 (14,262) (14,237)	.5550 .5500 (14,097) (13,970)	.210 .200 (5,33) (5,08)	.379 .369 (9,652) (9,398)		.125 (3,17)	.062 (1,59)

***** -9 diameter not to be used for new design. Use ABS0876.

Table 2: Grip dimensions and tolerances

Dimensions in inch (millimeter)
Dimensions continued on page 8

Grip dash No.	G ± .005 (± 0,127)	Dash No.							
		3		4		5		6	
		L Ref.	G max. + B ref. ± .010 (± 0,254)	L Ref.	G max. + B ref. ± .010 (± 0,254)	L Ref.	G max. + B ref. ± .010 (± 0,254)	L Ref.	G max. + B ref. ± .010 (± 0,254)
1	-	-	-	-	-	-	-	-	-
2	.125 (3,18)	1.000 (25,4)	-	1.000 (25,4)	-	-	-	-	-
3	.187 (4,76)	1.125 (28,575)	.477 (12,12)	1.125 (28,575)	.507 (12,89)	1.250 (31,750)	.567 (14,41)	-	-
4	.250 (6,35)	1.250 (31,750)	.540 (13,71)	1.250 (31,750)	.570 (14,48)	1.375 (34,925)	.630 (16,00)	1.375 (34,925)	.670 (17,02)
5	.312 (7,94)	1.375 (34,925)	.602 (15,30)	1.375 (34,925)	.633 (16,07)	1.500 (38,100)	.692 (17,59)	1.500 (38,100)	.733 (18,61)
6	.375 (9,52)	1.500 (38,100)	.664 (16,88)	1.500 (38,100)	.695 (17,65)	1.625 (41,275)	.755 (19,17)	1.625 (41,275)	.795 (20,19)
7	.437 (11,11)	1.625 (41,275)	.727 (18,47)	1.625 (41,275)	.757 (19,24)	1.750 (44,450)	.817 (20,76)	1.750 (44,450)	.857 (21,78)
8	.500 (12,70)	1.750 (44,450)	.790 (20,06)	1.750 (44,450)	.820 (20,83)	1.875 (47,625)	.880 (22,35)	1.875 (47,625)	.920 (23,37)
9	.562 (14,29)	1.875 (47,625)	.852 (21,65)	1.875 (47,625)	.883 (22,42)	2.000 (50,800)	.942 (23,94)	2.000 (50,800)	.983 (24,96)
10	.625 (15,88)	2.000 (50,800)	.915 (23,24)	2.000 (50,800)	.945 (24,01)	2.125 (53,975)	1.005 (25,53)	2.125 (53,975)	1.045 (26,55)
11	.687 (17,46)	2.125 (53,975)	.977 (24,82)	2.125 (53,975)	1.007 (25,59)	2.250 (57,150)	1.067 (27,11)	2.250 (57,150)	1.107 (28,13)
12	.750 (19,05)	2.250 (57,150)	1.040 (26,41)	2.250 (57,150)	1.070 (27,18)	2.375 (60,325)	1.130 (28,70)	2.375 (60,325)	1.170 (29,72)
13	.812 (20,64)	2.375 (60,325)	1.102 (28,00)	2.375 (60,325)	1.133 (28,77)	2.500 (63,500)	1.192 (30,29)	2.500 (63,500)	1.233 (31,31)
14	.875 (22,22)	2.500 (63,500)	1.164 (29,58)	2.500 (63,500)	1.195 (30,35)	2.625 (66,675)	1.255 (31,87)	2.625 (66,675)	1.295 (32,89)
15	.937 (23,81)	2.625 (66,675)	1.227 (31,17)	2.625 (66,675)	1.257 (31,94)	2.750 (69,850)	1.317 (33,46)	2.750 (69,850)	1.357 (34,48)
16	1.000 (25,40)	2.750 (69,850)	1.290 (32,76)	2.750 (69,850)	1.320 (33,53)	2.875 (73,025)	1.380 (35,05)	2.875 (73,025)	1.420 (36,07)
17	1.062 (26,99)	2.875 (73,025)	1.352 (34,35)	2.875 (73,025)	1.383 (35,12)	3.000 (76,200)	1.442 (36,64)	3.000 (76,200)	1.483 (37,66)
18	1.125 (28,58)	3.000 (76,200)	1.415 (35,94)	3.000 (76,200)	1.445 (36,71)	3.125 (79,375)	1.505 (38,23)	3.125 (79,375)	1.545 (39,25)

Grip dash Nos continued on page 7

NOTE 4: Intermediate grip lengths may be purchased in .0625 inch (1,5875 mm) increment if necessary.

Table 2: Grip dimensions and tolerances

Dimensions in inch (millimeter)

Grip dash Nos continued from page 6
Dimensions continued on page 9

Grip dash No.	G ± .005 (± 0,127)	Dash No.							
		3		4		5		6	
		L Ref.	G max. + B ref. ± .010 (± 0,254)	L Ref.	G max. + B ref. ± .010 (± 0,254)	L Ref.	G max. + B ref. ± .010 (± 0,254)	L Ref.	G max. + B ref. ± .010 (± 0,254)
19	1.187 (30,16)	3.125 (79,375)	1.477 (37,52)	3.125 (79,375)	1.507 (38,29)	3.250 (82,550)	1.567 (39,81)	3.250 (82,550)	1.607 (40,83)
20	1.250 (31,75)	3.250 (82,550)	1.540 (39,11)	3.250 (82,550)	1.570 (39,88)	3.375 (85,725)	1.630 (41,40)	3.375 (85,725)	1.670 (42,42)
21	1.312 (33,34)	3.375 (85,725)	1.602 (40,70)	3.375 (85,725)	1.633 (41,47)	3.500 (88,900)	1.692 (42,99)	3.500 (88,900)	1.733 (44,01)
22	1.375 (34,92)	3.500 (88,900)	1.664 (42,28)	3.500 (88,900)	1.695 (43,05)	3.625 (92,075)	1.755 (44,57)	3.625 (92,075)	1.795 (45,59)
23	1.437 (36,51)	3.625 (92,075)	1.727 (43,87)	3.625 (92,075)	1.757 (44,64)	3.750 (95,250)	1.817 (46,16)	3.750 (95,250)	1.857 (47,18)
24	1.500 (38,10)	3.750 (95,250)	1.790 (45,46)	3.750 (95,250)	1.820 (46,23)	3.875 (98,425)	1.880 (47,75)	3.875 (98,425)	1.920 (48,77)
25	1.562 (39,69)	-	-	-	-	4.000 (101,600)	1.942 (49,34)	4.000 (101,600)	1.983 (50,36)
26	1.625 (41,28)	-	-	-	-	4.125 (104,775)	2.005 (50,93)	4.125 (104,775)	2.045 (51,95)
27	1.687 (42,86)	-	-	-	-	4.250 (107,950)	2.067 (52,51)	4.250 (107,950)	2.107 (53,53)
28	1.750 (44,45)	-	-	-	-	4.375 (111,125)	2.130 (54,10)	4.375 (111,125)	2.170 (55,12)
29	1.812 (46,04)	-	-	-	-	-	-	4.500 (115,300)	2.233 (56,718)
30	1.874 (47,62)	-	-	-	-	-	-	4.625 (117,475)	2.295 (58,293)
31	1.937 (49,21)	-	-	-	-	-	-	4.750 (120,650)	2.357 (59,868)
32	2.000 (50,80)	-	-	-	-	-	-	4.875 (123,825)	2.420 (61,468)
33	2.062 (52,39)	-	-	-	-	-	-	5.000 (127,000)	2.483 (63,068)
34	2.125 (53,98)	-	-	-	-	-	-	5.125 (130,175)	2.545 (64,643)
35	2.187 (55,56)	-	-	-	-	-	-	-	-
36	2.250 (57,15)	-	-	-	-	-	-	-	-
37	2.312 (58,72)	-	-	-	-	-	-	-	-

Grip dash No's concluded

Table 2: Grip dimensions and tolerances

Dimensions continued from page 6 (concluded) Dimensions in inch (millimeter)

Grip dash No.	G ± .005 (± 0,127)	Dash No.					
		7		8		9	
		L Ref.	G max. + B ref. ± .010 (± 0,254)	L Ref.	G max. + B ref. ± .010 (± 0,254)	L Ref.	G max. + B ref. ± .010 (± 0,254)
1	-	-	-	-	-	-	-
2	.125 (3,18)	-	-	-	-	-	-
3	.187 (4,76)	-	-	-	-	-	-
4	.250 (6,35)	-	-	-	-	-	-
5	.312 (7,94)	1.625 (41,275)	.798 (20,26)	-	-	-	-
6	.375 (9,52)	1.750 (44,450)	.860 (21,84)	1.750 (44,450)	.900 (22,85)	-	-
7	.437 (11,11)	1.875 (47,625)	.922 (23,43)	1.875 (47,625)	.954 (24,24)	2.000 (50,800)	1.037 (26,35)
8	.500 (12,70)	2.000 (50,800)	.985 (25,02)	2.000 (50,800)	1.025 (26,03)	2.125 (53,975)	1.100 (27,94)
9	.562 (14,29)	2.125 (53,975)	1.048 (26,61)	2.125 (53,975)	1.087 (27,62)	2.250 (57,150)	1.162 (29,53)
10	.625 (15,88)	2.250 (57,150)	1.110 (28,20)	2.250 (57,150)	1.150 (29,21)	2.375 (60,325)	1.225 (31,12)
11	.687 (17,46)	2.375 (60,325)	1.172 (29,78)	2.375 (60,325)	1.212 (30,79)	2.500 (63,500)	1.287 (32,70)
12	.750 (19,05)	2.500 (63,500)	1.235 (31,37)	2.500 (63,500)	1.275 (32,38)	2.625 (66,675)	1.350 (34,29)
13	.812 (20,64)	2.625 (66,675)	1.298 (32,96)	2.625 (66,675)	1.337 (33,97)	2.750 (69,850)	1.412 (35,88)
14	.875 (22,22)	2.750 (69,850)	1.360 (34,54)	2.750 (69,850)	1.400 (35,55)	2.875 (73,025)	1.475 (37,46)
15	.937 (23,81)	2.875 (73,025)	1.422 (36,13)	2.875 (73,025)	1.462 (37,14)	3.000 (76,200)	1.537 (39,05)
16	1.000 (25,40)	3.000 (76,200)	1.485 (37,72)	3.000 (76,200)	1.525 (38,73)	3.125 (79,375)	1.600 (40,64)
17	1.062 (26,99)	3.125 (79,375)	1.548 (39,31)	3.125 (79,375)	1.587 (40,32)	3.250 (82,550)	1.662 (42,23)
18	1.125 (28,58)	3.250 (82,550)	1.610 (40,90)	3.250 (82,550)	1.650 (41,91)	3.375 (85,725)	1.725 (43,82)

Grip dash Nos continued on page 9

Table 2: Grip dimensions and tolerances

Dimensions in inch (millimeter)

Grip dash No's continued from page 8
Dimensions continued from page 7 (concluded)

Grip dash No.	G ± .005 (± 0,127)	Dash No.					
		7		8		9	
		L Ref.	G max. + B ref. ± .010 (± 0,254)	L Ref.	G max. + B ref. ± .010 (± 0,254)	L Ref.	G max. + B ref. ± .010 (± 0,254)
19	1.187 (30,16)	3.375 (85,725)	1.672 (42,48)	3.375 (85,725)	1.712 (43,49)	3.500 (88,900)	1.787 (45,40)
20	1.250 (31,75)	3.500 (88,900)	1.735 (44,07)	3.500 (88,900)	1.775 (45,08)	3.625 (92,075)	1.850 (46,99)
21	1.312 (33,34)	3.625 (92,075)	1.798 (45,66)	3.625 (92,075)	1.837 (46,67)	3.750 (95,250)	1.912 (48,58)
22	1.375 (34,92)	3.750 (95,250)	1.860 (47,24)	3.750 (95,250)	1.900 (48,25)	3.875 (98,425)	1.975 (50,16)
23	1.437 (36,51)	3.875 (98,425)	1.922 (48,83)	3.875 (98,425)	1.962 (49,84)	4.000 (101,600)	2.037 (51,75)
24	1.500 (38,10)	4.000 (101,600)	1.985 (50,42)	4.000 (101,600)	2.025 (51,43)	4.125 (104,775)	2.100 (53,34)
25	1.562 (39,69)	4.125 (104,775)	2.048 (52,01)	4.125 (104,775)	2.087 (53,02)	4.250 (107,950)	2.162 (54,93)
26	1.625 (41,28)	4.250 (107,950)	2.110 (53,60)	4.250 (107,950)	2.150 (54,61)	4.375 (111,125)	2.225 (56,52)
27	1.687 (42,86)	4.375 (111,125)	2.172 (55,18)	4.375 (111,125)	2.212 (56,19)	4.500 (114,300)	2.287 (58,10)
28	1.750 (44,45)	4.500 (114,300)	2.235 (56,77)	4.500 (114,300)	2.275 (57,78)	4.625 (117,475)	2.350 (59,69)
29	1.812 (46,04)	4.625 (117,475)	2.298 (58,36)	4.625 (117,475)	2.337 (59,37)	4.750 (120,650)	2.412 (61,28)
30	1.874 (47,62)	4.750 (120,650)	2.360 (59,94)	4.750 (120,650)	2.400 (60,95)	4.875 (123,825)	2.475 (62,86)
31	1.937 (49,21)	4.875 (123,825)	2.422 (61,53)	4.875 (123,825)	2.462 (62,54)	5.000 (127,000)	2.537 (64,45)
32	2.000 (50,80)	5.000 (127,000)	2.485 (63,12)	5.000 (127,000)	2.525 (64,13)	5.125 (130,175)	2.600 (66,04)
33	2.062 (52,39)	5.125 (130,175)	2.548 (64,72)	5.125 (130,175)	2.587 (65,709)	-	-
34	2.125 (53,98)	-	-	5.250 (133,350)	2.650 (67,310)	-	-
35	2.187 (55,56)	-	-	5.375 (136,525)	2.712 (68,884)	-	-
36	2.250 (57,15)	-	-	5.500 (139,700)	2.775 (70,485)	-	-
37	2.312 (58,72)	-	-	5.625 (142,875)	2.837 (72,060)	-	-

Grip dash No's concluded

Table 3: First oversize

Dimensions in inch (millimeter).

Dash No.	Oversize code	Pin Nom. Dia.	B Ref.	Ø D	
				Max.	Min.
3	X	.203 (5,16)	.300 (7,62)	.2026 (5,146)	.2016 (5,121)
4	X	.266 (6,75)	.330 (8,38)	.2651 (6,734)	.2641 (6,708)
5	X	.328 (8,33)	.390 (9,91)	.3276 (8,321)	.3266 (8,296)
6	X	.391 (9,92)	.430 (10,92)	.3901 (9,909)	.3891 (9,883)
7	X	.453 (11,51)	.495 (12,57)	.4526 (11,496)	.4516 (11,471)
8	X	.516 (13,10)	.535 (13,59)	.5151 (13,084)	.5141 (13,058)
9	X	.578 (14,68)	.610 (15,49)	.5771 (14,658)	.5761 (14,633)

Table 4: Second oversize

Dimensions in inch (millimeter).

Dash No.	Oversize code	Pin Nom. Dia.	Ø A		B Ref.	Ø D	
			Max.	Min.		Max.	Min.
3	Y	.219 (5,56)	.390 (9,91)	.370 (9,40)	.300 (7,62)	.2182 (5,542)	.2172 (5,517)
4	Y	.281 (7,14)	.460 (11,68)	.435 (11,05)	.330 (8,38)	.2807 (7,130)	.2797 (7,104)
5	Y	.344 (8,73)	.520 (13,21)	.490 (12,45)	.390 (9,91)	.3432 (8,717)	.3422 (8,692)
6	Y	.406 (10,32)	.620 (15,75)	.585 (14,86)	.430 (10,92)	.4057 (10,305)	.4047 (10,279)
7	Y	.469 (11,91)	.695 (17,65)	.660 (16,76)	.495 (12,57)	.4682 (11,892)	.4672 (11,867)
8	Y	.531 (13,49)	.790 (20,07)	.755 (19,18)	.535 (13,59)	.5307 (13,480)	.5297 (13,454)
9	Y	.598 (15,08)	.900 (22,86)	.865 (21,97)	.610 (15,49)	.5927 (15,055)	.5917 (15,029)

3.2 Materials, surface treatment and lubrication

The material, surface treatment and lubrication shall be in accordance with table 5.

Table 5: Materials, surface treatment and lubrication

Material	Surface treatment code	Surface treatment	Lubrication
Titanium alloy 6Al-4V as per AMS4928 or AMS4967 Rc min. = 650 MPa	K	Aluminium coating as per specification EN4473	Cetyl alcohol as per EN6117

4 Mechanical characteristics

Mechanical characteristics shall be in accordance with table 6.

Table 6: Mechanical characteristics

Dimensions in inch (millimeter).

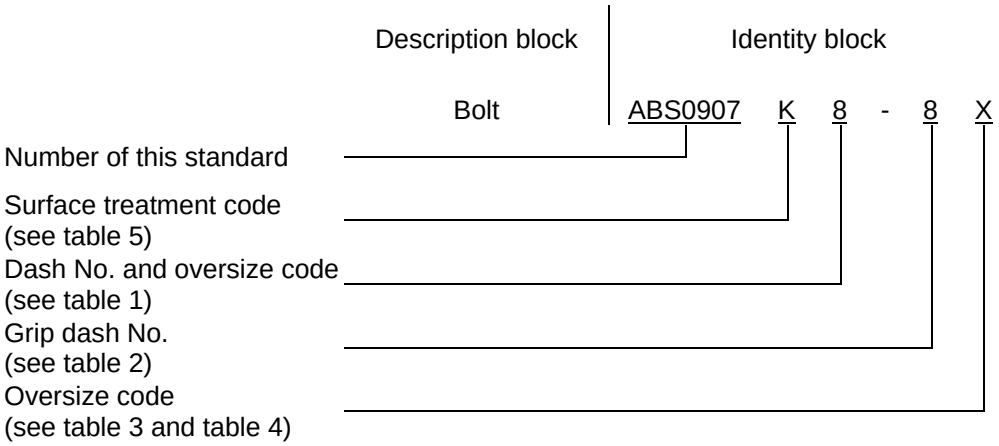
Dash No.	Nom. size	Thread UNJF-3A modified	Min. double shear strength (N)	Min. tensile strength (N)	Max. fatigue load (N)	Min. pull-stem capability (N)
3	.1875 (4,76)	.1900-32	23 931	14 145	4 670	9 200
4	.2500 (6,35)	.2500-28	41 368	25 889	8 674	13 800
5	.3125 (7,94)	.3125-24	64 944	40 924	13 967	22 700
6	.3750 (9,53)	.3750-24	93 413	62 275	21 573	35 000
7	.4375 (11,11)	.4375-20	127 219	84 071	29 091	44 000
8	.5000 (12,70)	.5000-20	165 919	113 874	39 589	54 500
9	.5625 (14,30)	.5625-18	209 956	144 122	50 624	

Table 7 : Mass values

Length code	Diameter Grams						
	3	**4**	**5**	**6**	**7**	**8**	**9**
2	1,23	2,24	3,85	---	---	---	---
3	1,35	2,47	4,20	---	---	---	---
4	1,48	2,69	4,54	7,45	---	---	---
5	1,61	2,91	4,89	7,95	11,85	---	---
6	1,74	3,13	5,24	8,45	12,53	18,44	---
7	1,87	3,35	5,59	8,95	13,21	19,32	25,54
8	1,99	3,58	5,94	9,45	13,89	20,20	26,66
9	2,12	3,80	6,29	9,95	14,57	21,09	27,79
10	2,25	4,02	6,64	10,45	15,25	21,97	28,91
11	2,38	4,24	6,98	10,95	15,93	22,85	30,03
12	2,51	4,46	7,33	11,45	16,61	23,73	31,16
13	2,63	4,69	7,68	11,95	17,29	24,61	32,28
14	2,76	4,91	8,03	12,45	17,97	25,50	33,40
15	2,89	5,13	8,38	12,95	18,65	26,38	34,53
16	3,02	5,35	8,73	13,45	19,33	27,26	35,65
17	3,14	5,58	9,08	13,95	20,01	28,14	36,77
18	3,27	5,80	9,42	14,45	20,69	29,02	37,90
19	3,40	6,02	9,77	15,45	21,37	29,91	39,02
20	3,53	6,24	10,12	15,95	22,05	30,79	40,14
21	3,66	6,46	10,47	16,45	22,73	31,67	41,27
22	3,78	6,69	10,82	16,95	23,41	32,55	42,39
23	3,91	6,91	11,17	17,45	24,09	33,43	43,51
24	4,04	7,13	11,52	17,95	24,77	34,32	44,63
25	---	---	11,87	18,45	25,45	35,20	45,76
26	---	---	12,21	18,95	26,13	36,08	46,88
27	---	---	12,56	19,45	26,81	36,96	48,00
28	---	---	12,91	19,95	27,49	37,84	49,13
29	---	---	---	20,45	28,17	38,73	50,25
30	---	---	---	20,95	28,85	39,61	51,37
31	---	---	---	21,45	29,53	40,49	52,50
32	---	---	---	21,95	30,21	41,37	53,62
33	---	---	---	22,45	30,89	42,25	---
34	---	---	---	22,95	---	43,14	---
35	---	---	---	---	---	44,02	---
36	---	---	---	---	---	44,90	---
37	---	---	---	---	---	45,78	---

5 Designation

This type of Standard shall be designated according to the philosophy of the following example:



6 Marking

Marking shall be recessed to a maximum depth of .01 inch (0,25 mm) as per EN2424, category P.

7 Technical specification

As per EN6116.

8 Example of installation

Not applicable.

RECORD OF REVISIONS

Issue	Clause modified	Description of modification
1 05/97		New Standard.
2 10/06		Oversize's added. Drill center dimple added. Dash No. 10 deleted. Template updated. Min. pull-stem capability added in table 6. Oversize's added in figure 1 (detail A).
3 06/11		Grip dash No's 29 to 32 added for dash No. 6. Grip dash No's 33 to 37 added for dash No. 8.
4 02/12		Grip dash No's 33 and 34 added for dash No. 6 in table 2. Grip dash No. 33 added for dash No. 7 in table 2.