AIRBUS

**Aerospace series
Pin, Swage Locking, Pull Type
100° Countersunk Intermediate Head**

"When this standard is applied, a careful check must be made as to whether any
protective rights exist. This standard issuer hereby disclaims any liability for
infringement of patent or design rights resulting from the use of this standard'

Ref. no. ABS0548

Contents

1 Scope

This standard specifies the dimensions and tolerances of a swage locking pin for use in aerospace applications.

2 Normative references

This Airbus Standard incorporates by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this Airbus Standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies (including amendments).

ISO8080	Anodic treatment of Titanium and Titanium alloys – sulphuric acid anodised.
EN 2000	Aerospace series – Quality assurance EN aerospace products – Approval of the quality system of manufacturers.
EN 2424	Aerospace series – Marking of aerospace products.
ASNA2025	Collar, Aluminium alloy.
AMS4967	Titanium alloy, bars, wire, forgings and rings 6AL-4V annealed, heat treatable.
ANSI B46.1	Surface texture (surface roughness, waviness and lay)
MIL-L-87132	Lubricant Cetyl alcohol, 1- hexadecanol, applications to fasteners.
NAS4006	Aluminium coating.
HPS C 2010	Technical specification.

3 Requirements

3.1 Configuration, dimensions, tolerances and mechanical characteristics.

3.1.1   The configuration, dimensions, tolerances and mechanical characteristics shall conform with Figure 1 and Tables 2,3,4 & 5

3.1.2   Shank straightness to be within 'S' values TIR per inch (25,4mm) of shank length.

3.1.3   The conical surface of the countersunk head shall be concentric with the shank diameter 'A' within 0.005 inch (0,127mm).TIR

3.1.4   Pins shall be permanently and legibly marked on the head with at least the manufacturer's part number and trademark and the material code, by depressed characters 0.006 inch (0,15mm) maximum.

3.1.5   Surface texture before coating (Ra max in accordance with ANSI B46.1): conical surface of head, head to shank fillet radius, shank and transition radius, 32 µin (0,8µm) all other surfaces 125µin (3,2µm).

3.1.6   Optional to Omit Aluminium coating from the end 0.250 inch (6,35mm) approx. of pintail.

3.1.7   This portion of the fastener has a variable length and is used for installation only.

3.1.8   When a sealant escape groove is required use parts designated with a 'G' suffix.

3.1.9   Grip lengths shall be measured from the top of the head to the end of the cylindrical portion of the shank.

3.1.10 The use of parts designated with an 'N' suffix are only permissible in areas where access restricted.

3.2   Material and surface treatment

3.2.1   Heat treated to 95 ksi minimum ultimate shear strength.

Table 1: Material and surface treatment

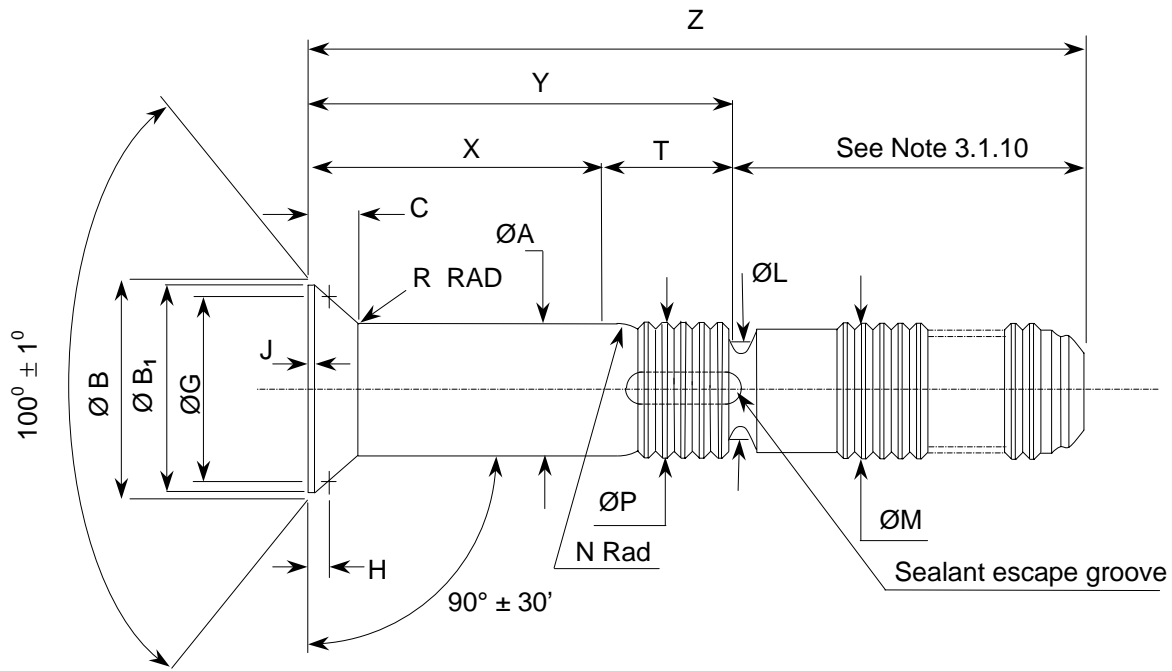| Material	Surface treatment	Code
Titanium alloy AMS4967	Resin bonded aluminium per NAS4006 plus Cetyl alcohol lube per MIL-L-87132	VHK
	Sulphuric acid Anodise plus Cetyl alcohol lube per MIL-L-87132	No code

Figure 1 Configuration

Table 2 Nominal Dimensions   Dimensions in inch (mm)

Ø Dash No	Nominal Ø	ØA (No Code)		ØA (Code VHK)		ØB Nom	ØB₁		C Nom	ØG Gauge Ø		H Gauge Height	
		Max	Min	Max	Min		Max	Min		Max	Min	Max	Min
3	3/16	0.1895 (4,813)	0.1890 (4,801)	0.1895 (4,813)	0.1885 (4,788)	0.3224 (8,189)	0.3100 (7,874)	0.2921 (7,419)	0.0560 (1,422)	0.2441 (6,200)	0.2439 (6,195)	0.0345 (0,876)	0.0313 (0,795)
3A	7/32	0.2182 (5,542)	0.2177 (5,530)	0.2182 (5,542)	0.2172 (5,517)	0.3715 (9,436)	0.3595 (9,131)	0.3527 (8,959)	0.0646 (1,641)	0.2982 (7,574)	0.2980 (7,569)	0.0323 (0,820)	0.0293 (0,744)
4	1/4	0.2495 (6,337)	0.2490 (6,325)	0.2495 (6,337)	0.2485 (6,312)	0.4234 (10,754)	0.4108 (10,434)	0.3933 (9,990)	0.0732 (1,859)	0.3315 (8,420)	0.3313 (8,415)	0.0402 (1,021)	0.0370 (0,940)
5	5/16	0.3120 (7,925)	0.3115 (7,912)	0.3120 (7,925)	0.3110 (7,899)	0.5305 (13,475)	0.5174 (13,142)	0.5011 (12,728)	0.0919 (2,334)	0.4320 (10,973)	0.4318 (10,968)	0.0432 (1,097)	0.0396 (1,006)
6	3/8	0.3745 (9,512)	0.3740 (9,500)	0.3745 (9,512)	0.3735 (9,487)	0.6357 (16,147)	0.6216 (15,789)	0.6071 (15,420)	0.1098 (2,789)	0.4854 (12,329)	0.4852 (12,324)	0.0649 (1,648)	0.0613 (1,557)
7	7/16	0.4370 (11.100)	0.4365 (11.087)	0.4370 (11.100)	0.4360 (11.074)	0.7360 (18.694)	0.7227 (18,357)	0.6900 (17,526)	0.1257 (3.193)	0.6582 (16.718)	0.6580 (16.713)	0.0347 (0.881)	0.0307 (0.780)

Table 2 (continued)

Ø Dash No	Nominal Ø	J Max	ØL Ref	ØM Max	N Rad Ref	ØP Max	R Rad		S See note 3.1.2	T Ref
							Max	Min		
3	3/16	0.015 (0,38)	0.150 (3,81)	0.184 (4,67)	0.044 (1,12)	0.184 (4,67)	0.030 (0,76)	0.020 (0,51)	0.0045 (0,114)	0.152 (3,86)
3A	7/32	0.010 (0,25)	0.173 (4,39)	0.213 (5,41)	0.1120 (2,84)	0.213 (5,41)	0.030 (0,76)	0.020 (0,51)	0.0045 (0,114)	0.210 (5,33)
4	1/4	0.015 (0,38)	0.187 (4,75)	0.244 (6,20)	0.1120 (2,84)	0.244 (6,20)	0.030 (0,76)	0.020 (0,51)	0.0045 (0,114)	0.210 (5,33)
5	5/16	0.015 (0,38)	0.244 (6,20)	0.306 (7,77)	0.1420 (7,77)	0.306 (7,77)	0.040 (1,02)	0.030 (0,76)	0.0045 (0,114)	0.269 (6,83)
6	3/8	0.015 (0,38)	0.298 (7,57)	0.370 (9,40)	0.1760 (4,47)	0.370 (9,40)	0.040 (1,02)	0.030 (0,76)	0.0060 (0,152)	0.321 (8,15)
7	7/16	0.022 (0,56)	0.312 (7.92)	0.431 (10.95)	0.176 (4,47)	0.431 (10.95)	0.050 (1.27)	0.040 (1,02)	0.0060 (0,152)	0.376 (9.55)

Table 3 Grip Dimensions   Dimensions in inch (mm)

Grip Dash No	Grip range		X ±0.005 0,127	Ø Dash No 3				Ø Dash No 3A			
				Y		Z		Y		Z	
	Max	Min		Max	Min	Max	Min	Max	Min	Max	Min
02	0.125 (3,18)	0.063 (1,60)	0.125 (3,18)	----	----	----	----	0.345 (8,76)	0.325 (8,26)	0.958 (24,33)	0.898 (22,81)
03	0.188 (4,78)	0.126 (3,20)	0.188 (4,78)	0.350 (8,89)	0.330 (8,38)	0.997 (25,32)	0.937 (23,79)	0.408 (10,36)	0.388 (9,86)	1.021 (25,93)	0.961 (24,41)
04	0.250 (6,35)	0.189 (4,80)	0.250 (6,35)	0.412 (10,46)	0.392 (9,96)	1.059 (26,90)	0.999 (25,37)	0.470 (11,94)	0.450 (11,43)	1.083 (27,51)	1.023 (25,98)
05	0.312 (7,92)	0.251 (6,38)	0.312 (7,92)	0.474 (12,04)	0.454 (11,53)	1.121 (28,47)	1.061 (26,95)	0.532 (13,51)	0.512 (13,00)	1.145 (29,08)	1.085 (27,56)
06	0.375 (9,52)	0.313 (7,95)	0.375 (9,52)	0.537 (13,64)	0.517 (13,13)	1.184 (30,07)	1.124 (28,55)	0.595 (15,11)	0.575 (14,60)	1.208 (30,68)	1.148 (29,16)
07	0.438 (11,13)	0.376 (9,55)	0.438 (11,13)	0.600 (15,24)	0.580 (14,73)	1.247 (31,67)	1.187 (30,15)	0.658 (16,71)	0.638 (16,21)	1.271 (32,28)	1.211 (30,76)
08	0.500 (12,70)	0.439 (11,15)	0.500 (12,70)	0.662 (16,81)	0.642 (16,31)	1.309 (33,25)	1.249 (31,72)	0.720 (18,29)	0.700 (17,78)	1.333 (33,86)	1.273 (32,33)
09	0.562 (14,27)	0.501 (12,73)	0.562 (14,27)	0.724 (18,39)	0.704 (17,88)	1.399 (35,53)	1.339 (34,01)	0.782 (19,86)	0.762 (19,35)	1.431 (36,35)	1.371 (34,82)
10	0.625 (15,88)	0.563 (14,30)	0.625 (15,88)	0.787 (19,99)	0.767 (19,48)	1.524 (38,71)	1.464 (37,19)	0.845 (21,46)	0.825 (20,96)	1.556 (39,52)	1.496 (38,00)
11	0.688 (17,48)	0.626 (15,90)	0.688 (17,48)	0.850 (21,59)	0.830 (21,08)	1.649 (41,88)	1.589 (40,36)	0.908 (23,06)	0.888 (22,56)	1.681 (42,70)	1.621 (41,17)
12	0.750 (19,05)	0.689 (17,50)	0.750 (19,05)	0.912 (23,16)	0.892 (22,66)	1.774 (45,06)	1.714 (43,54)	0.970 (24,64)	0.950 (24,13)	1.806 (45,87)	1.746 (44,35)
13	0.812 (20,62)	0.751 (19,08)	0.812 (20,62)	0.974 (24,74)	0.954 (24,23)	1.899 (48,23)	1.839 (46,71)	1.032 (26,21)	1.012 (25,70)	1.931 (49,05)	1.871 (47,52)
14	0.875 (22,22)	0.813 (20,65)	0.875 (22,22)	1.037 (26,34)	1.017 (25,83)	2.024 (51,41)	1.964 (49,89)	1.095 (27,81)	1.075 (27,30)	2.056 (52,22)	1.996 (50,70)
15	0.938 (23,83)	0.876 (22,25)	0.938 (23,83)	1.100 (27,94)	1.080 (27,43)	2.149 (54,58)	2.089 (53,06)	1.158 (29,41)	1.138 (28,91)	2.181 (55,40)	2.121 (53,87)
16	1.000 (25,40)	0.939 (23,85)	1.000 (25,40)	1.162 (29,51)	1.142 (29,01)	2.274 (57,76)	2.214 (56,24)	1.220 (30,99)	1.200 (30,48)	2.306 (58,57)	2.246 (57,05)
17	1.062 (26,97)	1.001 (25,43)	1.062 (26,97)	----	----	----	----	1.282 (32,56)	1.262 (32,05)	2.431 (61,75)	2.371 (60,22)
18	1.125 (28,58)	1.063 (27,00)	1.125 (28,58)	----	----	----	----	1.345 (34,16)	1.325 (33,66)	2.556 (64,92)	2.496 (63,40)
19	1.188 (30,18)	1.126 (28,60)	1.188 (30,18)	----	----	----	----	1.408 (35,76)	1.388 (35,26)	2.681 (68,09)	2.621 (66,57)
20	1.250 (31,75)	1.189 (30,20)	1.250 (31,75)	----	----	----	----	1.470 (37,34)	1.450 (36,83)	2.806 (71,27)	2.746 (69,75)
21	1.312 (33,32)	1.251 (31,78)	1.312 (33,32)	----	----	----	----	1.532 (38,91)	1.512 (38,40)	2.931 (74,45)	2.871 (72,92)
22	1.375 (34,92)	1.313 (33,35)	1.375 (34,92)	----	----	----	----	1.595 (40,51)	1.575 (40,01)	3.056 (77,62)	2.996 (76,10)

Table 3 Grip Dimensions (continued)

Grip Dash No	Grip range		X ±0.005 0,127	Ø Dash No 4			
				Y		Z	
	Max	**Min**		**Max**	**Min**	**Max**	**Min**
02	0.125 (3,18)	0.063 (1,60)	0.125 (3,18)	----	----	----	----
03	0.188 (4,78)	0.126 (3,20)	0.188 (4,78)	0.408 (10,36)	0.388 (9,86)	1.111 (28,22)	1.051 (26,70)
04	0.250 (6,35)	0.189 (4,80)	0.250 (6,35)	0.470 (11,94)	0.450 (11,43)	1.173 (29,79)	1.113 (28,27)
05	0.312 (7,92)	0.251 (6,38)	0.312 (7,92)	0.532 (13,51)	0.512 (13,00)	1.235 (31,37)	1.175 (29,84)
06	0.375 (9,52)	0.313 (7,95)	0.375 (9,52)	0.595 (15,11)	0.575 (14,60)	1.298 (32,97)	1.238 (31,45)
07	0.438 (11,13)	0.376 (9,55)	0.438 (11,13)	0.658 (16,71)	0.638 (16,21)	1.361 (34,57)	1.301 (33,05)
08	0.500 (12,70)	0.439 (11,15)	0.500 (12,70)	0.720 (18,29)	0.700 (17,78)	1.423 (36,14)	1.363 (34,62)
09	0.562 (14,27)	0.501 (12,73)	0.562 (14,27)	0.782 (19,86)	0.762 (19,35)	1.485 (37,72)	1.425 (36,20)
10	0.625 (15,88)	0.563 (14,30)	0.625 (15,88)	0.845 (21,46)	0.825 (20,96)	1.548 (39,32)	1.488 (37,80)
11	0.688 (17,48)	0.626 (15,90)	0.688 (17,48)	0.908 (23,06)	0.888 (22,56)	1.677 (42,60)	1.617 (41,07)
12	0.750 (19,05)	0.689 (17,50)	0.750 (19,05)	0.970 (24,64)	0.950 (24,13)	1.802 (45,77)	1.742 (44,25)
13	0.812 (20,62)	0.751 (19,08)	0.812 (20,62)	1.032 (26,21)	1.012 (25,70)	1.927 (48,95)	1.867 (47,42)
14	0.875 (22,22)	0.813 (20,65)	0.875 (22,22)	1.095 (27,81)	1.075 (27,30)	2.052 (52,12)	1.992 (50,60)
15	0.938 (23,83)	0.876 (22,25)	0.938 (23,83)	1.158 (29,41)	1.138 (28,91)	2.177 (55,30)	2.117 (53,77)
16	1.000 (25,40)	0.939 (23,85)	1.000 (25,40)	1.220 (30,99)	1.200 (30,48)	2.302 (58,47)	2.242 (56,95)
17	1.062 (26,97)	1.001 (25,43)	1.062 (26,97)	1.282 (32,56)	1.262 (32,05)	2.427 (61,646)	2.367 (60,122)
18	1.125 (28,57)	1.063 (27,00)	1.125 (28,57)	1.345 (34,16)	1.325 (33,66)	2.552 (64,821)	2.492 (63,297)
19	1.188 (30,17)	1.126 (28,60)	1.188 (30,17)	1.408 (35,76)	1.388 (35,25)	2.677 (67,996)	2.617 (66,472)
20	1.250 (31,75)	1.189 (30,20)	1.250 (31,75)	1.470 (37,34)	1.450 (36,83)	2.802 (71,171)	2.742 (69,647)
21	1.312 (33,32)	1.251 (31,78)	1.312 (33,32)	1.532 (38,91)	1.512 (38,40)	2.927 (74,346)	2.867 (72,822)
22	1.375 (34,92)	1.313 (33,35)	1.375 (34,92)	1.595 (40,51)	1.575 (40,00)	3.052 (77,521)	2.992 (75,997)

Table 3 Grip Dimensions (continued)

Grip Dash No	Grip range		X ±0.005 0,127	Ø Dash No 5			
				Y		Z	
	Max	Min		Max	Min	Max	Min
05	0.312 (7,92)	0.251 (6,38)	0.312 (7,92)	0.591 (15,01)	0.571 (14,50)	1.339 (34,01)	1.279 (32,49)
06	0.375 (9,52)	0.313 (7,95)	0.375 (9,52)	0.654 (16,61)	0.634 (16,10)	1.402 (35,61)	1.342 (34,09)
07	0.438 (11,13)	0.376 (9,55)	0.438 (11,13)	0.717 (18,21)	0.697 (17,70)	1.465 (37,21)	1.405 (35,69)
08	0.500 (12,70)	0.439 (11,15)	0.500 (12,70)	0.779 (19,79)	0.759 (19,28)	1.527 (38,79)	1.467 (37,26)
09	0.562 (14,27)	0.501 (12,73)	0.562 (14,27)	0.841 (21,36)	0.821 (20,85)	1.589 (40,36)	1.529 (38,84)
10	0.625 (15,88)	0.563 (14,30)	0.625 (15,88)	0.904 (22,96)	0.884 (22,45)	1.652 (41,96)	1.592 (40,44)
11	0.688 (17,48)	0.626 (15,90)	0.688 (17,48)	0.967 (24,56)	0.947 (24,05)	1.715 (43,56)	1.655 (42,04)
12	0.750 (19,05)	0.689 (17,50)	0.750 (19,05)	1.029 (26,14)	1.009 (25,63)	1.803 (45,80)	1.743 (44,27)
13	0.812 (20,62)	0.751 (19.08)	0.812 (20,62)	1.091 (27,71)	1.071 (27,20)	1.928 (48,97)	1.868 (47,45)
14	0.875 (22,22)	0.813 (20,65)	0.875 (22,22)	1.154 (29,31)	1.134 (28,80)	2.053 (52,15)	1.993 (50,62)
15	0.938 (23,83)	0.876 (22,25)	0.938 (23,83)	1.217 (30,91)	1.197 (30,40)	2.178 (55,32)	2.118 (53,80)
16	1.000 (25,40)	0.939 (23,85)	1.000 (25,40)	1.279 (32,49)	1.259 (31,98)	2.303 (58,50)	2.243 (56,97)
17	1.062 (26,97)	1.001 (25,43)	1.062 (26,97)	1.341 (34,06)	1.321 (33,55)	2.428 (61,67)	2.368 (60,15)
18	1.125 (28,58)	1.063 (27,00)	1.125 (28,58)	1.404 (35,66)	1.384 (35,15)	2.553 (64,85)	2.493 (63,32)
19	1.188 (30,18)	1.126 (28,60)	1.188 (30,18)	1.467 (37,26)	1.447 (36,75)	2.678 (68,02)	2.618 (66,50)
20	1.250 (31,75)	1.189 (30,20)	1.250 (31,75)	1.529 (38,84)	1.509 (38,33)	2.803 (71,20)	2.743 (69,67)
21	1.312 (33,32)	1.251 (31,78)	1.312 (33,32)	1.591 (40,41)	1.571 (39,90)	2.928 (74,371)	2.868 (72,847)
22	1.375 (34,92)	1.313 (33,35)	1.375 (34,92)	1.654 (42,01)	1.634 (41,50)	3.053 (77,546)	2.993 (76,022)
23	1.438 (36,53)	1.376 (34,95)	1.438 (36,53)	1.717 (43,61)	1.697 (43,10)	3.178 (80,721)	3.118 (79,197)
24	1.500 (38,10)	1.439 (36,55)	1.500 (38,10)	1.779 (45,19)	1.759 (44,68)	3.303 (83,896)	3.243 (82,372)
25	1.562 (39,67)	1.501 (38,13)	1.562 (39,67)	1.841 (46,76)	1.821 (46,25)	3.428 (87,071)	3.368 (85,547)
26	1.625 (41,28)	1.563 (39,70)	1.625 (41,28)	1.904 (48,36)	1.884 (47,85)	3.553 (90,246)	3.493 (88,722)

Table 3 (continued)

Grip Dash No	Grip range		X ±0.005 0,127	Ø Dash No 6			
				Y		Z	
	Max	Min		Max	Min	Max	Min
05	0.312 (7,92)	0.251 (6,38)	0.312 (7,92)	0.643 (16,33)	0.623 (15,82)	1.459 (37,06)	1.399 (35,53)
06	0.375 (9,52)	0.313 (7,95)	0.375 (9,52)	0.706 (17,93)	0.686 (17,42)	1.522 (38,66)	1.462 (37,13)
07	0.438 (11,13)	0.376 (9,55)	0.438 (11,13)	0.769 (19,53)	0.749 (19,02)	1.585 (40,26)	1.525 (38,74)
08	0.500 (12,70)	0.439 (11,15)	0.500 (12,70)	0.831 (21,11)	0.811 (20,60)	1.647 (41,83)	1.587 (40,31)
09	0.562 (14,27)	0.501 (12,73)	0.562 (14,27)	0.893 (22,68)	0.873 (22,17)	1.709 (43,41)	1.649 (41,88)
10	0.625 (15,88)	0.563 (14,30)	0.625 (15,88)	0.956 (24,28)	0.936 (23,77)	1.772 (45,01)	1.712 (43,48)
11	0.688 (17,48)	0.626 (15,90)	0.688 (17,48)	1.019 (25,88)	0.999 (25,37)	1.835 (46,61)	1.775 (45,08)
12	0.750 (19,05)	0.689 (17,50)	0.750 (19,05)	1.081 (27,46)	1.061 (26,95)	1.897 (48,18)	1.837 (46,66)
13	0.812 (20,62)	0.751 (19,08)	0.812 (20,62)	1.143 (29,03)	1.123 (28,52)	1.959 (49,76)	1.899 (48,23)
14	0.875 (22,22)	0.813 (20,65)	0.875 (22,22)	1.206 (30,63)	1.186 (30,12)	2.022 (51,36)	1.962 (49,83)
15	0.938 (23,83)	0.876 (22,25)	0.938 (23,83)	1.269 (32,23)	1.249 (31,72)	2.160 (54,86)	2.100 (53,34)
16	1.000 (25,40)	0.939 (23,85)	1.000 (25,40)	1.331 (33,81)	1.311 (33,30)	2.285 (58,04)	2.225 (56,52)
17	1.062 (26,97)	1.001 (25,43)	1.062 (26,97)	1.393 (35,38)	1.373 (34,87)	2.410 (61,21)	2.350 (59,69)
18	1.125 (28,58)	1.063 (27,00)	1.125 (28,58)	1.456 (36,98)	1.436 (36,47)	2.535 (64,39)	2.475 (62,86)
19	1.188 (30,18)	1.126 (28,60)	1.188 (30,18)	1.519 (38,58)	1.499 (38,07)	2.660 (67,56)	2.600 (66,04)
20	1.250 (31,75)	1.189 (30,20)	1.250 (31,75)	1.581 (40,16)	1.561 (39,65)	2.785 (70,74)	2.725 (69,22)
21	1.312 (33,32)	1.251 (31,78)	1.312 (33,32)	1.643 (41,73)	1.623 (41,22)	2.910 (73,91)	2.850 (72,39)
22	1.375 (34,92)	1.313 (33,35)	1.375 (34,92)	1.706 (43,33)	1.686 (42,82)	3.035 (77,09)	2.975 (75,56)
23	1.438 (36,53)	1.376 (34,95)	1.438 (36,53)	1.769 (44,93)	1.749 (44,42)	3.160 (80,26)	3.100 (78,74)
24	1.500 (38,10)	1.439 (36,55)	1.500 (38,10)	1.831 (46,51)	1.811 (46,00)	3.285 (83,44)	3.225 (81,92)

Table 3 (Continued)

Grip Dash No	Grip range		X ±0.005 0,127	Ø Dash No 6			
				Y		Z	
	Max	Min		Max	Min	Max	Min
25	1.562 (39,67)	1.501 (38,13)	1.562 (39,67)	1.893 (48,08)	1.873 (47,57)	3.410 (86,614)	3.350 (85,090)
26	1.625 (41,28)	1.563 (39,70)	1.625 (41,28)	1.956 (49,68)	1.936 (49,17)	3.535 (89,789)	3.475 (88,265)
27	1.688 (42,88)	1.626 (41,30)	1.688 (42,88)	2.019 (51,28)	1.999 (50,77)	3.660 (92,964)	3.600 (91,440)
28	1.750 (44,45)	1.689 (42,90)	1.750 (44,45)	2.081 (52,86)	2.061 (52,35)	3.785 (96,139)	3.725 (94,615)
29	1.812 (46,02)	1.751 (44,48)	1.812 (46,02)	2.143 (54,43)	2.123 (53,92)	3.910 (99,314)	3.850 (97,790)
30	1.875 (47,62)	1.813 (46,05)	1.875 (47,62)	2.206 (56,03)	2.186 (55,52)	4.035 (102,489)	3.975 (100,965)
31	1.938 (49,23)	1.876 (47,65)	1.938 (49,23)	2.269 (57,63)	2.249 (57,12)	4.160 (105,664)	4.100 (104,140)
32	2.000 (50,80)	1.939 (49,25)	2.000 (50,80)	2.331 (59,21)	2.311 (58,70)	4.285 (108,839)	4.225 (107,315)

Table 3 Grip Dimensions (continued)

Grip Dash No	Grip range		X ±0.005 0,127	Ø Dash No 7			
				Y		Z	
	Max	Min		Max	Min	Max	Min
07	0.438 (11,13)	0.376 (9,55)	0.438 (11,13)	0.824 (20,93)	0.804 (20,42)	1.745 (44,32)	1.685 (42,80)
08	0.500 (12,70)	0.439 (11,15)	0.500 (12,70)	0.886 (22,50)	0.866 (22,00)	1.807 (45,90)	1.747 (44,37)
09	0.562 (14,27)	0.501 (12,73)	0.562 (14,27)	0.948 (24,08)	0.928 (23,57)	1.869 (47,47)	1.809 (45,95)
10	0.625 (15,87)	0.563 (14,30)	0.625 (15,87)	1.011 (25,68)	0.991 (25,17)	1.932 (49,07)	1.872 (47,55)
11	0.688 (17,48)	0.626 (15,90)	0.688 (17,48)	1.074 (27,28)	1.054 (26,77)	1.995 (50,67)	1.935 (49,15)
12	0.750 (19,05)	0.689 (17,50)	0.750 (19,05)	1.136 (28,85)	1.116 (28,35)	2.057 (52,25)	1.997 (50,72)
13	0.812 (20,62)	0.751 (19,08)	0.812 (20,62)	1.198 (30,43)	1.178 (29,92)	2.134 (54,20)	2.074 (52,68)
14	0.875 (22,22)	0.813 (20,65)	0.875 (22,22)	1.261 (32,03)	1.241 (31,52)	2.259 (57,38)	2.199 (55,85)
15	0.938 (23,83)	0.876 (22,25)	0.938 (23,83)	1.324 (33,63)	1.304 (33,12)	2.384 (60,55)	2.324 (59,03)
16	1.000 (25,40)	0.939 (23,85)	1.000 (25,40)	1.386 (35,20)	1.366 (34,70)	2.509 (63,73)	2.449 (62,20)
17	1.062 (26,97)	1.001 (25,43)	1.062 (26,97)	1.448 (36,78)	1.428 (36,27)	2.634 (66,90)	2.574 (65,38)
18	1.125 (28,58)	1.063 (27,00)	1.125 (28,58)	1.511 (38,38)	1.491 (37,87)	2.759 (70,08)	2.699 (68,55)
19	1.188 (30,18)	1.126 (28,60)	1.188 (30,18)	1.574 (39,98)	1.554 (39,47)	2.884 (73,25)	2.824 (71,73)
20	1.250 (31,75)	1.189 (30,20)	1.250 (31,75)	1.636 (41,55)	1.616 (41,05)	3.009 (76,43)	2.949 (74,90)
21	1.312 (33,32)	1.251 (31,78)	1.312 (33,32)	1.698 (43,13)	1.678 (42,62)	3.134 (79,60)	3.074 (78,08)

Table 3 Grip Dimensions (concluded)

Grip Dash No	Grip range		X ±0.005 0,127	Ø Dash No 7			
				Y		Z	
	Max	Min		Max	Min	Max	Min
22	1.375 (34,92)	1.313 (33,35)	1.375 (34,92)	1.761 (44,73)	1.741 (44,22)	3.259 (82,78)	3.199 (81,25)
23	1.438 (36,53)	1.376 (34,95)	1.438 (36,53)	1.824 (46,33)	1.804 (45,82)	3.384 (85,95)	3.324 (84,43)
24	1.500 (38,10)	1.439 (36,55)	1.500 (38,10)	1.886 (47,90)	1.866 (47,40)	3.509 (89,13)	3.449 (87,60)
25	1.562 (39,67)	1.501 (38,13)	1.562 (39,67)	1.948 (49,48)	1.928 (48,97)	3.634 (92,30)	3.574 (90,78)
26	1.625 (41,28)	1.563 (39,70)	1.625 (41,28)	2.011 (51,08)	1.991 (50,57)	3.759 (95,48)	3.699 (93,95)
27	1.688 (42,88)	1.626 (41,30)	1.688 (42,88)	2.074 (52,68)	2.054 (52,17)	3.884 (98,65)	3.824 (97,13)
28	1.750 (44,45)	1.689 (42,90)	1.750 (44,45)	2.136 (54,25)	2.116 (53,75)	4.009 (101,83)	3.949 (100,30)
29	1.812 (46,02)	1.751 (44,48)	1.812 (46,02)	2.198 (55,83)	2.178 (55,32)	4.134 (105,00)	4.074 (103,48)
30	1.875 (47,62)	1.813 (46,05)	1.875 (47,62)	2.261 (57,43)	2.241 (56,92)	4.259 (108,18)	4.199 (103,48)
31	1.938 (49,23)	1.876 (47,65)	1.938 (49,23)	2.324 (59,03)	2.304 (58,52)	4.384 (111,35)	4.324 (109,83)
32	2.000 (50,80)	1.939 (49,25)	2.000 (50,80)	2.386 (60,60)	2.366 (60,10)	4.509 (114,53)	4.449 (113,00)
33	2.062 (52,37)	2.001 (50,83)	2.062 (52,37)	2.448 (62,18)	2.428 (61,67)	3.369 (85,57)	3.309 (84,05)
34	2.125 (53,98)	2.063 (52,40)	2.125 (53,98)	2.511 (63,78)	2.491 (63,27)	3.432 (87,17)	3.372 (85,65)
35	2.188 (55,58)	2.126 (54,00)	2.188 (55,58)	2.574 (65,38)	2.554 (64,87)	3.494 (88,75)	3.434 (87,22)

Table 4 Grip Dimensions

Grip Dash No	Grip range		X ±0.005 0,127	Ø Dash No 3				Ø Dash No 3A			
				Y		Z		Y		Z	
	Max	Min		Max	Min	Max	Min	Max	Min	Max	Min
09N	0.562 (14,27)	0.501 (12,73)	0.562 (14,27)	0.724 (18,39)	0.704 (17,88)	1.371 (34,82)	1.311 (33,30)	0.782 (19,86)	0.762 (19,35)	1.395 (35,43)	1.335 (33,91)
10N	0.625 (15,88)	0.563 (14,30)	0.625 (15,88)	0.787 (19,99)	0.767 (19,48)	1.434 (36,42)	1.374 (34,90)	0.845 (21,46)	0.825 (20,96)	1.458 (37,03)	1.398 (35,51)
11N	0.688 (17,48)	0.626 (15,90)	0.688 (17,48)	0.850 (21,59)	0.830 (21,08)	1.497 (38,02)	1.437 (36,50)	0.908 (23,06)	0.888 (22,56)	1.521 (38,63)	1.461 (37,11)
12N	0.750 (19,05)	0.689 (17,50)	0.750 (19,05)	0.912 (23,16)	0.892 (22,66)	1.559 (39,60)	1.499 (38,07)	0.970 (24,64)	0.950 (24,13)	1.583 (40,21)	1.523 (38,68)
13N	0.812 (20,62)	0.751 (19,08)	0.812 (20,62)	0.974 (24,74)	0.954 (24,23)	1.621 (41,17)	1.561 (39,65)	1.032 (26,21)	1.012 (25,70)	1.645 (41,78)	1.585 (40,26)
14N	0.875 (22,22)	0.813 (20,65)	0.875 (22,22)	1.017 (25,83)	1.037 (26,34)	1.684 (42,77)	1.624 (41,25)	1.095 (27,81)	1.075 (27,30)	1.708 (43,38)	1.648 (41,86)
15N	0.938 (23,83)	0.876 (22,25)	0.938 (23,83)	1.080 (27,43)	1.100 (27,94)	1.747 (44,37)	1.687 (42,85)	1.158 (29,41)	1.138 (28,91)	1.771 (44,98)	1.711 (43,46)
16N	1.000 (25,40)	0.939 (23,85)	1.000 (25,40)	1.142 (29,01)	1.162 (29,51)	1.809 (45,95)	1.749 (44,42)	1.220 (30,99)	1.200 (30,48)	1.833 (46,56)	1.773 (45,03)
17N	1.062 (26,97)	1.001 (25,43)	1.062 (26,97)	----	----	----	----	1.282 (32,56)	1.262 (32,05)	1.895 (48,13)	1.835 (46,61)

Table 4 Grip Dimensions (continued)

Grip Dash No	Grip range		X ±0.005 0,127	Ø Dash No 3				Ø Dash No 3A			
				Y		Z		Y		Z	
	Max	Min		Max	Min	Max	Min	Max	Min	Max	Min
18N	1.125 (28,58)	1.063 (27,00)	1.125 (28,58)	----	----	----	----	1.345 (34,16)	1.325 (33,66)	1.958 (49,73)	1.898 (48,21)
19N	1.188 (30,18)	1.126 (28,60)	1.188 (30,18)	----	----	----	----	1.408 (35,76)	1.388 (35,26)	2.021 (51,33)	1.961 (49,81)
20N	1.250 (31,75)	1.189 (30,20)	1.250 (31,75)	----	----	----	----	1.470 (37,34)	1.450 (36,83)	2.083 (52,91)	2.023 (51,38)
21N	1.312 (33,32)	1.251 (31,78)	1.312 (33,32)	----	----	----	----	1.532 (38,91)	1.512 (38,40)	2.145 (54,48)	2.085 (52,96)
22N	1.375 (34,92)	1.313 (33,35)	1.375 (34,92)	----	----	----	----	1.595 (40,51)	1.575 (40,01)	2.208 (56,08)	2.148 (54,56)

Table 4 Grip Dimensions (continued)

Grip Dash No	Grip range		X ±0.005 0,127	Ø Dash No 4				Ø Dash No 5			
				Y		Z		Y		Z	
	Max	Min		Max	Min	Max	Min	Max	Min	Max	Min
11N	0.688 (17,48)	0.626 (15,90)	0.688 (17,48)	0.908 (24,74)	0.888 (24,23)	1.611 (41,17)	1.551 (39,65)	----	----	----	----
12N	0.750 (19,05)	0.689 (17,50)	0.750 (19,05)	0.970 (24,64)	0.950 (24,13)	1.673 (42,49)	1.613 (40,97)	1.029 (26,14)	1.009 (25,63)	1.777 (45,14)	1.717 (43,61)
13N	0.812 (20,62)	0.751 (19,08)	0.812 (20,62)	1.032 (26,21)	1.012 (25,70)	1.735 (44,07)	1.675 (42,54)	1.091 (27,71)	1.071 (27,20)	1.839 (46,71)	1.779 (45,19)
14N	0.875 (22,22)	0.813 (20,65)	0.875 (22,22)	1.095 (27,81)	1.075 (27,30)	1.798 (45,67)	1.738 (44,15)	1.154 (29,31)	1.134 (28,80)	1.902 (48,31)	1.842 (46,79)
15N	0.938 (23,83)	0.876 (22,25)	0.938 (23,83)	1.158 (29,41)	1.138 (28,91)	1.861 (47,27)	1.801 (45,75)	1.217 (30,91)	1.197 (30,40)	1.965 (49,91)	1.905 (48,39)
16N	1.000 (25,40)	0.939 (23,85)	1.000 (25,40)	1.220 (30,99)	1.200 (30,48)	1.923 (48,84)	1.863 (47,32)	1.279 (32,49)	1.259 (31,98)	2.027 (51,49)	1.967 (49,96)
17N	1.062 (26,97)	1.001 (25,43)	1.062 (26,97)	1.282 (32,56)	1.262 (32,05)	1.985 (50,42)	1.925 (48,90)	1.341 (34,06)	1.321 (33,55)	2.089 (53,06)	2.029 (51,54)
18N	1.125 (28,58)	1.063 (27,00)	1.125 (28,58)	1.345 (34,16)	1.325 (33,66)	2.048 (52,02)	1.988 (50,50)	1.404 (35,66)	1.384 (35,15)	2.152 (54,66)	2.092 (53,14)
19N	1.188 (30,18)	1.126 (28,60)	1.188 (30,18)	1.408 (35,76)	1.388 (35,26)	2.111 (53,62)	2.051 (52,10)	1.467 (37,26)	1.447 (36,75)	2.215 (56,26)	2.155 (54,74)
20N	1.250 (31,75)	1.189 (30,20)	1.250 (31,75)	1.470 (37,34)	1.450 (36,83)	2.173 (55,19)	2.113 (53,67)	1.529 (38,84)	1.509 (38,33)	2.277 (57,84)	2.217 (56,31)
21N	1.312 (33,32)	1.251 (31,78)	1.312 (33,32)	1.532 (38,91)	1.512 (38,40)	2.235 (56,77)	2.175 (55,24)	1.591 (40,41)	1.571 (39,90)	2.339 (59,41)	2.279 (57,89)

Table 4 Grip Dimensions (concluded)

Grip Dash No	Grip range		X ±0.005 0,127	Ø Dash No 6			
	Max	Min		Y		Z	
				Max	Min	Max	Min
15N	0.938 (23,83)	0.876 (22,25)	0.938 (23,83)	1.269 (32,23)	1.249 (31,72)	2.085 (52,96)	2.025 (51,44)
16N	1.000 (25,40)	0.939 (23,85)	1.000 (25,40)	1.331 (33,81)	1.311 (33,30)	2.147 (54,53)	2.087 (53,01)
17N	1.062 (26,97)	1.001 (25,43)	1.062 (26,97)	1.393 (35,38)	1.373 (34,87)	2.209 (56,11)	2.149 (54,58)
18N	1.125 (28,58)	1.063 (27,00)	1.125 (28,58)	1.456 (36,98)	1.436 (36,47)	2.272 (57,71)	2.212 (56,18)
19N	1.188 (30,18)	1.126 (28,60)	1.188 (30,18)	1.519 (38,58)	1.499 (38,07)	2.335 (59,31)	2.275 (57,78)
20N	1.250 (31,75)	1.189 (30,20)	1.250 (31,75)	1.581 (40,16)	1.561 (39,65)	2.397 (60,88)	2.337 (59,36)
21N	1.312 (33,32)	1.251 (31,78)	1.312 (33,32)	1.643 (41,73)	1.623 (41,22)	2.459 (62,46)	2.399 (60,93)
22N	1.375 (34,92)	1.313 (33,35)	1.375 (34,92)	1.706 (43,33)	1.686 (42,82)	2.522 (64,05)	2.462 (62,53)
23N	1.438 (36,53)	1.376 (34,95)	1.438 (36,53)	1.769 (44,93)	1.749 (44,42)	2.585 (65,66)	2.525 (64,14)
24N	1.500 (38,10)	1.439 (36,55)	1.500 (38,10)	1.831 (46,51)	1.811 (45,99)	2.647 (67,23)	2.587 (65,71)

Table 5 Mechanical Characteristics

Ø Dash No	Nominal Ø		Minimum double shear		Minimum ultimate tensile with collar **	
	in	mm	lbf	N	lbf	N
3	0.190	4,83	5380	23931	1600	7117
3A	0.219	5,56	7200	32027	2250	10008
4	0.250	6,35	9300	41368	3000	13345
5	0.312	7,92	14600	64944	5000	22241
6	0.375	9,53	21000	93413	7000	31138
7	0.437	11,11	28600	127219	9500	42256

** Minimum Ultimate Tensile Strengths obtained using ASNA2025 Aluminium Alloy Collars.

4 Designation

EXAMPLE:

	Description block	Identity block
	Pin,Swage Locking	ABS0548 V HK 3 04 N(G)

Number of this standard

Material code

Finish code

Diameter Dash Number

Grip Dash Number

Standard pintail length
Sealant escape groove
(see notes 3.1.8 & 3.1.10)

5 Marking

Parts to be marked in accordance with EN 2424 and paragraph 3.1.4

6 Technical specification

HPS C 2010

RECORD OF REVISIONS

Issue	Clause modified	Description of modification
1 09/89		New Standard for A320 Aircraft
5 10/04		Size code −7 added and Standard amended in accordance with manufacturers drawing
6 02/07	Table 4	Table 4 amended to add grip lengths 17N to 21N due to restricted access problems.