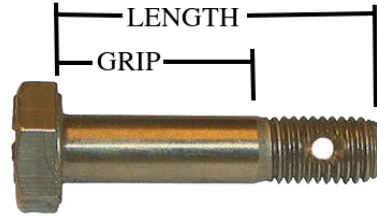


Safety Pin Part #	Length (A)
AN416-1	1-1/16
AN416-2	1-3/8



Hex head aircraft bolts are made of high strength type 4037 or 8740 alloy steel. They are heat treated to a minimum tensile strength of 125,000PSI, cad plated per specification QQ-P-416A

The length of an AN aircraft bolt is measured from under the head to the end of the shank, the grip length is measured from under the head to the start of the thread. AN bolts are made in 1/8 – inch increments in length so that in all cases, either one or two washers can position the nut correctly. Since the shank is acting like a pin, we don't want any of the threaded part of the bolt sitting within the hole. A correct length bolt will have all of the thread section just outside the hole in the metal.

AN6-27A bolt would be;
 AN = Aircraft Quality
 6 = 3/8 Diameter
 45 = 4-1/2 inch grip length
 A = Shank is undrilled

Add (H) instead of (-) for hole in the bolt head
 No (A) at the end of all the numbers to indicate that there is a hole in the threaded section of the bolt shank, as in the image above.

AN #	AN3	AN4	AN5	AN6	AN7	AN8	AN9	AN10
Diameter	3/16	1/4	5/16	3/8	7/16	1/2	9/16	5/8
Threads / inch	32	28	24	24	20	20	18	18
Spanner size	3/8	7/16	1/2	9/16	5/8	3/4	7/8	15/16
Recommended Torque (inch-pounds)	20-25	50-70	100-140	160-190	450-500	480-690	800-1000	1100-1300
Nut suffix	3	4	5	6	7	8	9	10
Flat washer suffix	10	416	516	616	716	816	916	1016
Cotter pin size	AN380-2-2			AN380-3-3			AN380-4-4	

Standard steel self-locking nylon insert nuts are prefixed with the code MS21044N (e.g. MS21044N4)

Thin steel self-locking nylon insert nuts are prefixed with the code MS21083N

Steel self-locking hex nuts are prefixed with the code MS21045- (e.g. MS21045-4)

Standard hex nuts are prefixed with the code AN315- (e.g. AN315-3)

Thin hex nuts (check nut) are prefixed with the code AN316-

Castle nuts are prefixed with the code AN310-

Standard flat washers (1/16" thick) are prefixed with the code AN960-

Thin washers will have the letter L at the end of the code (e.g. AN960-416L)

This document is intended for reference only. As standards are continually updated, ASRA does not guarantee its accuracy.

AN #	AN3		AN4		AN5		AN6		AN7		AN8	
Dia. Pitch	(3/16) #10-32		¼ – 28		5/16 – 24		3/8 – 24		7/16 – 20		½ – 20	
DASH #	GRIP ± 1/64	LENGTH + 1/32 -1/64	GRIP ± 1/64	LENGTH + 1/32 -1/64	GRIP ± 1/64	LENGTH + 1/32 -1/64	GRIP ± 1/64	LENGTH + 1/32 -1/64	GRIP ± 1/64	LENGTH + 1/32 -1/64	GRIP ± 1/64	LENGTH + 1/32 -1/64
3	1/16	15/32	1/16	15/32								
4	1/8	17/32	1/16	17/32	1/16	19/32						
5	1/4	21/32	3/16	21/32	3/16	23/32	1/16	45/64	1/16	23/32		
6	3/8	25/32	5/16	25/32	5/16	27/32	3/16	53/64	3/16	27/32	1/16	27/32
7	1/2	29/32	7/16	29/32	7/16	31/32	5/16	61/64	5/16	31/32	3/16	31/32
10	5/8	1- 1/32	9/16	1- 1/32	9/16	1- 3/32	7/16	1- 5/64	7/16	1- 1/32	5/16	1- 1/32
11	3/4	1- 5/32	11/16	1- 5/32	11/16	1- 7/32	9/16	1-13/64	9/16	1- 7/32	7/16	1- 7/32
12	7/8	1- 9/32	13/16	1- 9/32	13/16	1-11/32	11/16	1-21/64	11/16	1-11/32	9/16	1-11/32
13	1	1-13/32	15/16	1-13/32	15/16	1-15/32	13/16	1-29/64	13/16	1-15/32	11/16	1-15/32
14	1- 1/8	1-17/32	1- 1/16	1-17/32	1- 1/16	1-19/32	15/16	1-37/64	15/16	1-19/32	13/16	1-19/32
15	1- 1/4	1-21/32	1- 3/16	1-21/32	1- 3/16	1-23/32	1- 1/16	1-45/64	1- 1/16	1-23/32	15/16	1-23/32
16	1- 3/8	1-25/32	1- 5/16	1-25/32	1- 5/16	1-27/32	1- 3/16	1-53/64	1- 3/16	1-27/32	1- 1/16	1-27/32
17	1- 1/2	1-29/32	1- 7/16	1-29/32	1- 7/16	1-31/32	1- 5/16	1-61/64	1- 5/16	1-31/32	1- 3/16	1-31/32
20	1- 5/8	2- 1/32	1- 9/16	2- 1/32	1- 9/16	2- 3/32	1- 7/16	2- 5/64	1- 7/16	2- 3/32	1- 5/16	2- 3/32
21	1- 3/4	2- 5/32	1-11/16	2- 5/32	1-11/16	2- 7/32	1- 9/16	2-13/64	1- 6/16	2- 7/32	1- 7/16	2- 7/32
22	1- 7/8	2- 9/32	1-13/16	2- 9/32	1-13/16	2-11/32	1-11/16	2-21/64	1-11/16	2-11/32	1- 9/16	2-11/32
23	2	2-13/32	1-15/16	2-13/32	1-15/16	2-15/32	1-13/16	2-29/64	1-13/16	2-15/32	1-11/16	2-15/32
24	2- 1/8	2-17/32	2- 1/16	2-17/32	2- 1/16	2-19/32	1-15/16	2-37/64	1-15/16	2-16/32	1-13/16	2-19/32
25	2- 1/4	2-21/32	2- 3/16	2-21/32	2- 3/16	2-23/32	2- 1/16	2-45/64	2- 1/16	2-23/32	1-15/16	2-23/32
26	2- 3/8	2-25/32	2- 5/16	2-25/32	2- 5/16	2-27/32	2- 3/16	2-53/64	2- 3/16	2-27/32	2- 1/16	2-27/32
27	2- 1/2	2-29/32	2- 7/16	2-29/32	2- 7/16	2-31/32	2- 5/16	2-61/64	2- 5/16	2-31/32	2- 3/16	2-31/32
30	2- 5/8	3- 1/32	2- 9/16	3- 1/32	2- 9/16	3- 3/32	2- 7/16	3- 5/64	2- 7/16	3- 3/32	2- 5/16	3- 3/32
31	2- 3/4	3- 5/32	2-11/16	3- 5/32	2-11/16	3- 7/32	2- 9/16	3-13/64	2- 9/16	3- 7/32	2- 7/16	3- 7/32
32	2- 7/8	3- 9/32	2-13/16	3- 9/32	2-13/16	3-11/32	2-11/16	3-21/64	2-11/16	3-11/32	2- 9/16	3-11/32
33	3	3-13/32	2-15/16	3-13/32	2-15/16	3-15/32	2-13/16	3-29/64	2-13/16	3-15/32	2-11/16	3-15/32
34	3- 1/8	3-17/32	3- 1/16	3-17/32	3- 1/16	3-19/32	2-15/16	3-37/64	2-15/16	3-19/32	2-13/16	3-19/32
35	3- 1/4	3-21/32	3- 3/16	3-21/32	3- 3/16	3-23/32	3- 1/16	3-45/64	3- 1/16	3-23/32	2-15/16	3-23/32
36	3- 3/8	3-25/32	3- 5/16	3-25/32	3- 5/16	3-27/32	3- 3/16	3-53/64	3- 3/16	3-27/32	3- 1/16	3-27/32
37	3- 1/2	3-29/32	3- 7/16	3-29/32	3- 7/16	3-31/32	3- 5/16	3-61/64	3- 5/16	3-31/32	3- 3/16	3-31/32
40	3- 5/8	4- 1/32	3- 9/16	4- 1/32	3- 9/16	4- 3/32	3- 7/16	4- 5/64	3- 7/16	4- 3/32	3- 5/16	4- 3/32
41	3- 3/4	4- 5/32	3-11/16	4- 5/32	3-11/16	4- 7/32	3- 6/16	4-13/64	3- 9/16	4- 7/32	3- 7/16	4- 7/32
42	3- 7/8	4- 9/32	3-13/16	4- 9/32	3-13/16	4-11/32	3-11/16	4-21/64	3-11/16	4-11/32	3- 9/16	4-11/32
43	4	4-13/32	3-15/16	4-13/32	3-15/16	4-15/32	3-13/16	4-29/64	3-13/16	4-15/32	3-11/16	4-15/32
44	4- 1/8	4-17/32	4- 1/16	4-17/32	4- 1/16	4-19/32	3-15/16	4-37/64	3-15/16	4-19/32	3-13/16	4-19/32
45	4- 1/4	4-21/32	4- 3/16	4-21/32	4- 3/16	4-23/32	4- 1/16	4-45/64	4- 1/16	4-23/32	3-15/16	4-23/32
46	4- 3/8	4-25/32	4- 5/16	4-25/32	4- 5/16	4-27/32	4- 3/16	4-53/64	4- 3/16	4-27/32	4- 1/16	4-27/32
47	4- 1/2	4-29/32	4- 7/16	4-29/32	4- 7/16	4-31/32	4- 5/16	4-61/64	4- 5/16	4-31/32	4- 3/16	4-31/32
50	4- 5/8	5- 1/32	4- 9/16	5- 1/32	4- 9/16	5- 3/32	4- 7/16	5- 5/64	4- 7/16	5- 3/32	4- 5/16	5- 3/32
51	4- 3/4	5- 5/32	4-11/16	5- 5/32	4-11/16	5- 7/32	4- 9/16	5-13/64	4- 9/16	5- 7/32	4- 7/16	5- 7/32
52	4- 7/8	5- 9/32	4-13/16	5- 9/32	4-13/16	5-11/32	4-11/16	5-21/64	4-11/16	5-11/32	4- 9/16	5-11/32
53	5	5-13/32	4-15/16	5-13/32	4-15/16	5-15/32	4-13/16	5-29/64	4-13/16	5-15/32	4-11/16	5-15/32
54	5- 1/8	5-17/32	5- 1/16	5-17/32	5- 1/16	5-19/32	4-15/16	5-37/64	4-15/16	5-19/32	4-13/16	5-19/32
55	5- 1/4	5-21/32	5- 3/16	5-21/32	5- 3/16	5-23/32	5- 1/16	5-45/64	5- 1/16	5-23/32	4-15/16	5-23/32
56	5- 3/8	5-25/32	5- 5/16	5-25/32	5- 5/16	5-27/32	5- 3/16	5-53/64	5- 3/16	5-27/32	5- 1/16	5-27/32
57	5- 1/2	5-29/32	5- 7/16	5-29/32	5- 7/16	5-31/32	5- 5/16	5-61/64	5- 5/16	5-31/32	5- 3/16	5-31/32
60	5- 5/8	6- 1/32	5- 9/16	6- 1/32	5- 9/16	6- 3/32	5- 7/16	6- 5/64	5- 7/16	6- 3/32	5- 5/16	6- 3/32
61	5- 3/4	6- 5/32	5-11/16	6- 5/32	5-11/16	6- 7/32	5- 9/16	6-13/64	5- 9/16	6- 7/32	5- 7/16	6- 7/32
62	5- 7/8	6- 9/32	5-13/16	6- 9/32	5-13/16	6-11/32	5-11/16	6-21/64	5-11/16	6-11/32	5- 9/16	6-11/32
63	6	6-13/32	5-15/16	6-13/32	5-15/16	6-15/32	5-13/16	6-19/64	5-13/16	6-15/32	5-11/16	6-15/32
64	6- 1/8	6-17/32	6- 1/16	6-17/32	6- 1/16	6-19/32	5-15/16	6-37/64	5-15/16	6-19/32	5-13/16	6-19/32
65	6- 1/4	6-21/32	6- 3/16	6-21/32	6- 3/16	6-23/32	6- 1/16	6-45/64	6- 1/16	6-23/32	5-15/16	6-23/32
66	6- 3/8	6-25/32	6- 5/16	6-25/32	6- 5/16	6-27/32	6- 3/16	6-53/64	6- 3/16	6-27/32	6- 1/16	6-27/32
67	6- 1/2	6-29/32	6- 7/16	6-29/32	6- 7/16	6-31/32	6- 5/16	6-61/64	6- 5/16	6-31/32	6- 3/16	6-31/32
70	6- 5/8	7- 1/32	6- 9/16	7- 1/32	6- 9/16	7- 3/32	6- 7/16	7- 5/64	6- 7/16	7- 3/32	6- 5/16	7- 3/32
71	6- 3/4	7- 5/32	6-11/16	7- 5/32	6-11/16	7- 7/32	6- 9/16	7-13/64	6- 9/16	7- 7/32	6- 7/16	7- 7/32
72	6- 7/8	7- 9/32	6-13/16	7- 9/32	6-13/16	7-11/32	6-11/16	7-21/64	6-11/16	7-11/32	6- 9/16	7-11/32
73	7	7-13/32	6-15/16	7-13/32	6-15/16	7-15/32	6-13/16	7-19/64	6-13/16	7-15/32	6-11/16	7-15/32
74	7- 1/8	7-17/32	7- 1/16	7-17/32	7- 1/16	7-19/32	6-15/16	7-37/64	6-15/16	7-19/32	6-13/16	7-19/32
75	7- 1/4	7-21/32	7- 3/16	7-21/32	7- 3/16	7-23/32	7- 1/16	7-45/64	7- 1/16	7-23/32	6-15/16	7-23/32
76	7- 3/8	7-25/32	7- 5/16	7-25/32	7- 5/16	7-27/32	7- 3/16	7-53/64	7- 3/16	7-27/32	7- 1/16	7-27/32
77	7- 1/2	7-29/32	7- 7/16	7-29/32	7- 7/16	7-31/32	7- 5/16	7-61/64	7- 5/16	7-31/32	7- 3/16	7-31/32
80	7- 5/8	8- 1/32	7- 9/16	8- 1/32	7- 9/16	8- 3/32	7- 7/16	8- 5/64	7- 7/16	8- 3/32	7- 5/16	8- 3/32

This document is intended for reference only. As standards are continually updated, ASRA does not guarantee its accuracy.