AEROSPATIALE AERONAUTIQUE	SCREW - COUNTERSUNK HEAD	ASNA2001 Issue : U Date : 12.98

SUMMARY

1 - SCOPE AND FIELD OF APPLICATION

This standard specifies the dimensions, tolerances, required characteristics and the masses of a countersunk head screw.

2 - REFERENCES

Referenced documents

AMS 4967 : Titanium alloys bars, wire, forgings, and rings 6.0AL-4.0V annealed, heat treatable.
MIL-C-83488 : Coating, aluminium, ion vapor deposited.
MIL-S-8879 : Screw threads, controlled radius root with increased minor diameter, general specification for.
A/DET 0012 : Process specification - Aluminium base protection for fasteners.
A/DET 0013 : Specification for lubrication of bolts with cethyl alcohol.

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EN 2424 : Aerospace series - Marking of aerospace products.
MS 33781 : Recess - Torq-set, dimensions of recess, gage, and driver for.
NAS621 : Fasteners, titanium alloy procurement specification.

3 - TERMINOLOGY

Not applicable.

4 - REQUIRED CHARACTERISTICS

4.1 - Configuration, dimensions, tolerances, mass

4.1.1 - Configuration shall be in accordance with the figure.

4.1.2 - Dimensions shall be in accordance with the figure and tables 1 and 2.

4.1.3 - General tolerances shall be in accordance with the figure and tables 1 and 2.

Tolerances of concentricity between :
- Head tapered surface and Ø D within the values of 0,127 mm (TIR).
- Ø D and thread root diameter within the values of Y (TIR).
Straightness of the shank within the values of Z per inch of length.

4.1.4 - Mass : calculation of screw mass shall be performed in accordance with indications mentioned hereafter :

CALCULATION OF SCREW MASS

Add the mass of the head and threaded part (invariable masses) to the mass of the smooth part (variable mass).

Total mass of the head and threaded part :
1st mass column of table 1.

Mass of the smooth part :
Multiply the value of the 2nd mass column of table 1 (value according to the diameter code number) by the length code number of the screw.

Example : SCREW ASNA2001V4-12

Invariable mass	:	1,69
Variable mass	: 0,18 x 12 =	2,16
Total mass	:	3,85 g

4.2 - Oversizes

Dimensions, tolerances and mass of screws for oversizes shall be in accordance with table 3.

4.3 - Materials, finishes, lubrications

Materials, finishes and lubrications shall be in accordance with table 4.

4.4 - General characteristics

Surface condition : - Thread and thread end : $\sqrt{0,4}$,

- Pin and head : $\sqrt{1,6}$,
- Other surfaces : $\sqrt{3,2}$,

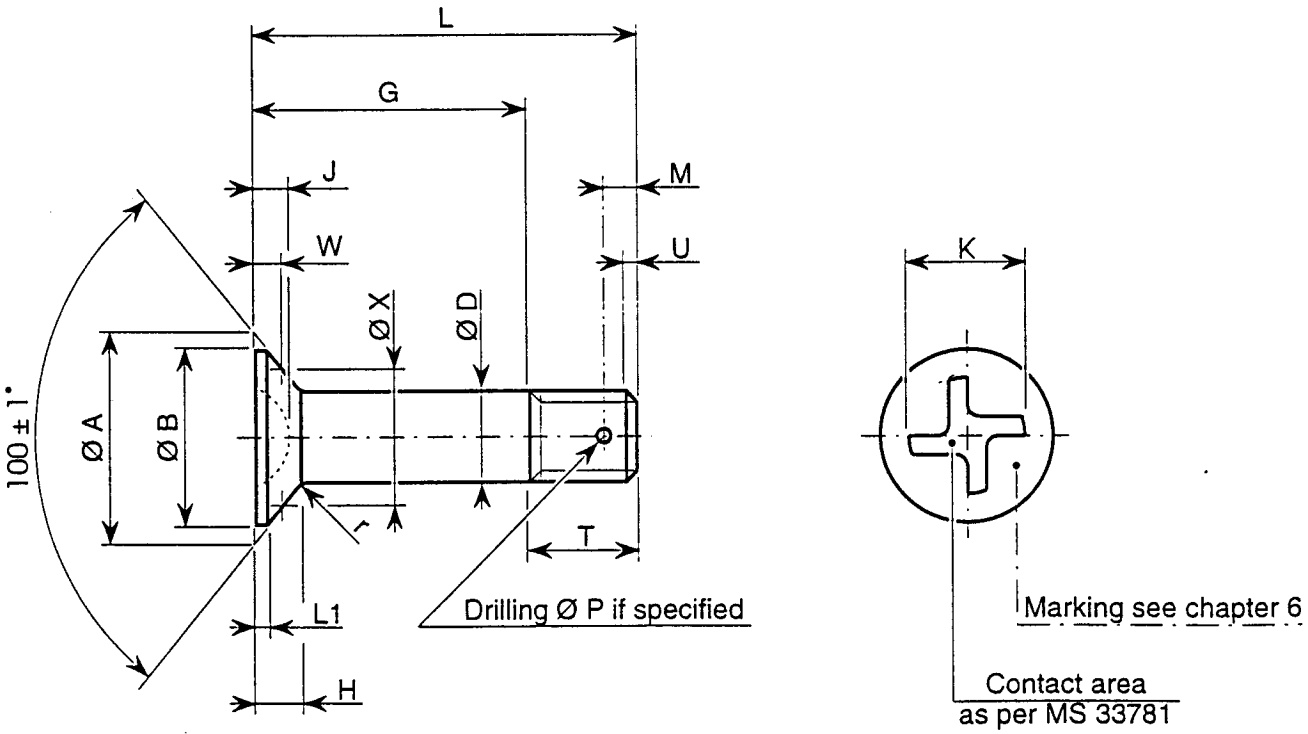


Figure - Configuration, dimensions, tolerances

Table 1 - Dimensions, tolerances, mass

Ø CODE No.	THREAD UNJF-3A AS PER MIL-S-8879	Ø A	Ø B Min.	Ø D	H Ref.	J Max.	K Max.	L_1	M ± 0,254	Ø P $^{+0,254}_{0}$	r
3	0.1900-32	9,779 9,550	8,331	4,813 4,788	2,032	2,286	6,299	0,508 0,254	4,140	1,778	0,508 0,254
4	0.2500-28	12,878 12,624	11,404	6,337 6,312	2,692	2,997	8,255		4,521	1,930	
5	0.3125-24	16,129 15,875	14,656	7,925 7,899	3,378	3,099	9,068		4,572		0,635 0,254
6	0.3750-24	19,354 19,100	17,881	9,512 9,487	4,064	3,683	10,846		5,004	2,692	0,762 0,381
7	0.4375-20	22,606 22,352	21,132	11,100 11,074	4,775	4,293	12,649		5,105		
8	0.5000-20	25,832 25,578	24,358	12,687 12,662	5,461	4,902	14,427		5,486		
9	0.5625-18	29,083 28,753	27,610	14,262 14,237	6,147	5,512	16,205		5,537	3,581	

Ø CODE No.	THREAD UNJF-3A AS PER MIL-S-8879	T Ref.	U Max.	W	Ø X	Y	Z	TEMPLATE PENETRATION (CONTACT AREA)		MASS (g)	
								Max.	Min.	Head and thread	Smooth part
3	0.1900-32	7,010	0,406	0,736 0,668	7,992 7,982	0,114	0,101	1,739	1,422	0,76	0,11
4	0.2500-28	8,030	0,457	0,868 0,802	10,781 10,771		0,076	2,206	1,905	1,69	0,18
5	0.3125-24	9,520	0,533	1,005 0,940	13,687 13,677	0,152		2,184	1,778	3,31	0,27
6	0.3750-24	9,930		1,143 1,082	16,591 16,580		0,063	2,616	2,159	5,49	0,37
7	0.4375-20	11,510	0,635	1,277 1,221	19,496 19,486			3,060	2,552	8,67	0,48
8	0.5000-20			1,414 1,364	22,402 22,392		0,050	3,492	2,933	12,46	0,59
9	0.5625-18	12,979	0,711	1,552 1,504	25,309 25,298			3,924	3,315	17,02	0,70

Dimensions in mm.

Table 2 - Dimensions, tolerances

LENGTH CODE No.	G ± 0,254	L ± 0,38						
		3	4	5	6	7	8	9
1	1,58							
2	3,18	10,18	11,20					
3	4,78	11,78	12,80	14,30				
4	6,35	13,36	14,38	15,88	16,28	17,86		
5	7,92	14,94	15,95	17,45	17,86	19,43	19,43	20,90
6	9,52	16,54	17,55	19,05	19,46	21,03	21,03	22,50
7	11,12	18,14	19,15	20,65	21,06	22,63	22,63	24,10
8	12,70	19,71	20,73	22,22	22,63	24,21	24,21	25,68
9	14,28	21,28	22,30	23,80	24,21	25,78	25,78	27,26
10	15,88	22,88	23,90	25,40	25,81	27,38	27,38	28,86
11	17,48	24,48	25,50	27,00	27,41	28,98	28,98	30,46
12	19,05	26,06	27,08	28,58	28,98	30,56	30,56	32,03
13	20,62	27,64	28,65	30,15	30,56	32,13	32,13	33,60
14	22,22	29,24	30,25	31,75	32,16	33,73	33,73	35,20
15	23,82	30,84	31,85	33,35	33,76	35,33	35,33	36,80
16	25,40	32,41	33,43	34,93	35,33	36,91	36,91	38,38
17	26,98	33,98	35,00	36,50	36,91	38,48	38,48	39,96
18	28,58	35,58	36,60	38,10	38,51	40,08	40,08	41,56
19	30,18	37,18	38,20	39,70	40,11	41,68	41,68	43,16
20	31,75	38,76	39,78	41,28	41,68	43,26	43,26	44,73
21	33,32	40,34	41,35	42,85	43,26	44,83	44,83	46,30
22	34,92	41,94	42,95	44,45	44,86	46,43	46,43	47,90
23	36,52	43,54	44,55	46,05	46,46	48,03	48,03	49,50
24	38,10	45,11	46,13	47,63	48,03	49,61	49,61	51,08
25	39,68	46,68	47,70	49,20	49,61	51,18	51,18	52,66
26	41,28	48,28	49,30	50,80	51,21	52,78	52,78	54,26
27	42,88	49,88	50,90	52,40	52,81	54,38	54,38	55,86
28	44,45	51,46	52,48	53,98	54,38	55,96	55,96	57,43
29	46,02	53,04	54,05	55,55	55,96	57,53	57,53	59,00
30	47,62	54,64	55,65	57,15	57,56	59,13	59,13	60,60
31	49,22	56,24	57,25	58,75	59,16	60,73	60,73	62,20
32	50,80	57,81	58,83	60,33	60,78	62,31	62,31	63,78

(length code Nos continued on page 6)

Dimensions in mm.

Table 2 - (length code Nos continued from page 5)

LENGTH CODE No. *	G ± 0,254	L ± 0,38						
		3	4	5	6	7	8	9
34	53,98	60,98	62,00	63,50	63,91	65,48	65,48	66,96
36	57,15	64,16	65,18	66,68	67,08	68,66	68,66	70,13
38	60,32	67,34	68,35	69,85	70,26	71,83	71,83	73,30
40	63,50	70,51	71,53	73,02	73,43	75,01	75,01	76,48
42	66,68	73,68	74,70	76,20	76,61	78,18	78,18	79,66
44	69,85	76,86	77,88	79,38	79,78	81,36	81,36	82,83
46	73,02	80,04	81,05	82,55	82,96	84,53	84,53	86,00
48	76,20	83,21	84,23	85,72	86,13	87,71	87,71	89,18
50	79,38	86,38	87,40	88,90	89,31	90,88	90,88	92,36
52	82,55	89,56	90,58	92,08	92,48	94,06	94,06	95,53
54	85,72	92,74	93,75	95,25	95,66	97,23	97,23	98,70
56	88,90	95,91	96,93	98,42	98,83	100,41	100,41	101,88
58	92,08	99,08	100,10	101,60	102,01	103,58	103,58	105,06
60	95,25	102,26	103,28	104,78	105,18	106,76	106,76	108,23
62	98,43	105,44	106,46	107,95	108,36	109,94	109,94	111,41
64	101,60	108,61	109,63	111,12	111,53	113,11	113,11	114,58
66	104,78	111,79	112,81	114,30	114,71	116,29	116,29	117,76
68	107,95	114,96	115,98	117,47	117,88	119,46	119,46	120,93
70	111,13	118,14	119,16	120,65	121,06	122,64	122,64	124,11
72	114,30	121,31	122,33	123,82	124,23	125,81	125,81	127,28
74	117,48	124,49	125,51	127,00	127,41	128,99	128,99	130,46
76	120,65	127,66	128,68	130,17	130,58	132,16	132,16	133,63
78	123,83	130,84	131,86	133,35	133,76	135,34	135,34	136,81
80	127,00	134,01	135,03	136,52	136,93	138,51	138,51	139,98
82	130,18	137,19	138,21	139,70	140,11	141,69	141,69	143,16
84	133,35	140,36	141,38	142,87	143,28	144,86	144,86	146,33
86	136,52	143,53	144,55	146,04	146,45	148,03	148,03	149,50
88	139,70	146,71	147,73	149,22	149,63	151,21	151,21	152,68
90	142,88	149,89	150,90	152,40	152,81	154,38	154,38	155,86
92	146,05	153,06	154,08	155,58	155,98	157,56	157,56	159,03
94	149,23	156,24	157,25	158,75	159,16	160,73	160,73	162,21
96	152,40	159,41	160,43	161,93	162,33	163,91	163,91	165,38

(end)

Dimensions in mm.

* Note : Intermediate grip lengths may be purchased in 1,5875 mm (1/16 inch) increment if necessary.

Table 3 - Dimensions, tolerances, mass of screws for oversizes

1st repair, screw Ø D + 1/64					2nd repair, screw Ø D + 1/32				
Ø CODE No.	Ø D	H Ref.	MASS (g)		Ø CODE No.	Ø D	H Ref.	MASS (g)	
			Head and thread	Smooth part				Head and thread	Smooth part
3X	5,146 5,120	1,892	0,76	0,13	3Y	5,542 5,517	1,726	0,74	0,15
4X	6,733 6,709	2,525	1,67	0,21	4Y	7,129 7,103	2,359	1,65	0,24
5X	8,321 8,295	3,211	3,27	0,31	5Y	8,717 8,692	3,045	3,23	0,34
6X	9,908 9,882	3,897	5,42	0,42	6Y	10,304 10,278	3,731	5,37	0,45
7X	11,496 11,470	4,608	8,68	0,52	7Y	11,892 11,867	4,442	8,61	0,57
8X	13,083 13,057	5,294	12,44	0,64	8Y	13,479 13,453	5,128	12,36	0,69
9X	14,659 14,639	5,981	17,47	0,75	9Y	15,056 15,031	5,814	17,91	0,80

Dimensions in mm.

Note : for calculation of screws masses for oversizes see chapter 4.1.4

Table 4 - Materials, finishes, lubrications

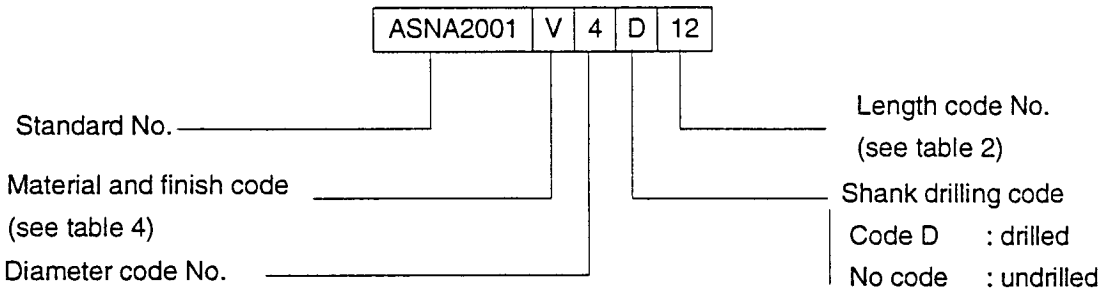
MATERIAL	FINISH	CODE	LUBRICATION
Titanium alloy 6AL-4V as per AMS 4967 or equivalent. R = 1 100 to 1 240 MPa Rc = 650 MPa min.	Aluminium as per A/DET 0012	V	As per A/DET 0013
	Sulfuric-acid anodizing	T	
	(Valid BAe only) Aluminium IVD as per MIL-C-83488 Type II, class 3 or A/DET 0012	VN	None

5 - DESIGNATION

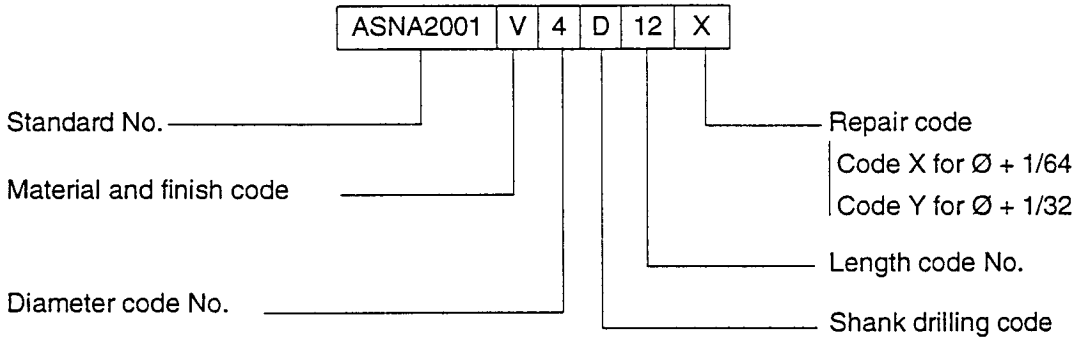
Example of part number identification to be used on drawing schedules :

ASNA2001V4D12 , Screw

Example of part number construction :



Example of part number construction of screws for oversizes :



6 - MARKING

Parts shall be marked as per EN 2424, category C.
Unless otherwise specified by contract, marking shall include :

- The identification X or Y of screws for oversizes.

7 - TECHNICAL SPECIFICATION

NAS621.

8 - MANUFACTURERS

Refer to the list of qualified manufacturers and products.

AMENDMENT RECORD SHEET

Issue	Modified paragraph	Modification summary	Justification
A.		New standard.	
K.06.86		Standard amended. Oversizes added.	 ATR 72 wings
L.11.86		Tolerance of dimension L deleted. Dimension T modified in table : T min. changed to T Ref.	
M.02.87		Dimension T added on figure.	
N.11.89		Text modified in chapter CONCENTRICITY. Length code Nos 62 to 88 added.	
P.03.91		Length code Nos 90 to 96 added.	AA/AS 22143
R.03.94		Standard fully amended. Tolerance of dimension L deleted on english version.	Mod. 9999
S.04.95		Marking modified : EN 2424 category B changed to EN 2424 category C.	In accordance with AECMA resolution C3 No. 11 of 6.11.94
T.04.97	4.4	In table 1 : Ø B changed to Ø B Min.	Note from DBAA of 11.04.97
U.12.98		Resistances added in table 4 : R = 1 100 to 1 240 MPa and Rc = 650 MPa min. Note added for table 2 : Intermediate grip lengths ..... if necessary. AMS 4928 deleted. Ø code No. 9 added.	Note A/BTE/CC/SC No. 574.0959/98 A 340/500-600

NOTE : Modification to the last standard issue are indicated by a vertical line in the margin.