
**SCREW – HEXAGONAL HEAD,
TITANIUM,
LONG THREAD**

Issue : **F**
Date : **Aug 14**
Page : **1/8**

SUMMARY

- 1 - SCOPE AND FIELD OF APPLICATION**
- 2 - REFERENCES**
- 3 - TERMINOLOGYS**
- 4 - REQUIRED CHARACTERISTICS**
- 5 - DESIGNATION**
- 6 - MARKING**
- 7 - TECHNICAL SPECIFICATION**
- 8 - MANUFACTURERS**

AMENDMENT RECORD SHEET

1 - SCOPE AND FIELD OF APPLICATION

Structural fasteners, removable or not, tightening by screw or nut.

2 - REFERENCES

NAS4004	: Fasteners, 6AL4V titanium alloy externally threaded.
MIL-S-8879	: Screw, threads controlled radius root with increased minor diameter, general specification for.....
A/DET 0012	: Process specification – Aluminum base protection for fasteners.
A/DET 0013	: Specification for lubrication of bolts with cetyl alcohol.
EN 2424	: Marking of aerospace products.

3 - TERMINOLOGYS

Not applicable.

4 - REQUIRED CHARACTERISTICS

4.1 - General characteristics

Table 1: Materials, finishes and lubrication

MATERIAL	FINISH CODE	FINISH
Titanium 6AL-4V R = 1100 MPa	-	Sulphur anodized + dry lubricant
	V	Aluminium as per A/DET 0012 + cethyl alcohol as per A/DET 0013

–Surface condition: Thread and thread end:

0,406

Stem and bearing surface of head:

1,5

Other surfaces:

3,175

–Concentricity: ØD and ØA at thread root within the value of Y.

ØC and ØD within the value of X.

–Shank straightness: Within the value of Z per length of 1 inch.

–Perpendicularity of head and shank: 90° to 90.5°.

–Thread as per MIL-S-8879.

CALCULATION OF THE MASS OF A SCREW

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 the table

Mass of the smooth part:

Multiply the value of the 2nd mass column of the table (value is according to the diameter code number) by length code number of the screw.

Example: Screw NSA5089V5-10

Invariable mass: 4, 95

Variable mass: 0, 27 x 10 = 2, 70

Total mass: 7, 65 g

4.2 - Dimensional characteristics

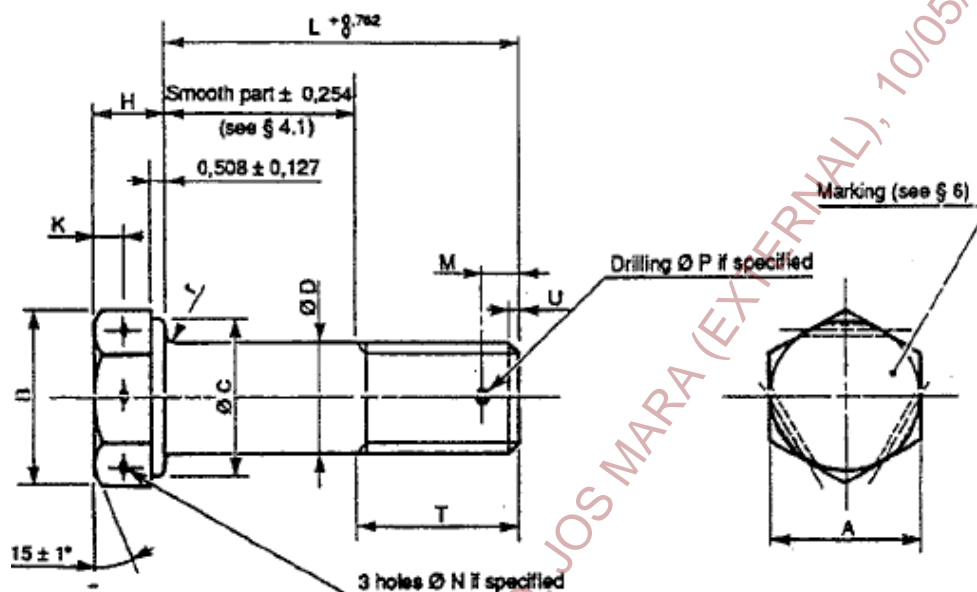


Figure 1 : Configuration, dimensions

Table 2 : Dimensions, tolerances, mass

Ø CODE No.	THREAD UNJF-3A	A	B Ref.	Ø C min.	Ø D		H + 0,381	K	M ± 0,254	N + 0,254
					Finish code “_”	“V”				
3	0.1900-32	9,550 9,322	10,922	9,118	4,813 4,800	4,813 4,788	2,794	1,397	4,140	1,168
4	0.2500-28	11,150 10,922	12,954	10,719	6,336 6,324	6,336 6,312	3,175	1,575	4,521	
5	0.3125-24	12,751 12,497	14,732	12,293	7,925 7,911	7,925 7,899	3,962	1,981	4,597	1,778
6	0.3750-24	14,325 14,046	16,510	13,894	9,511 9,499	9,511 9,487	4,775	2,388	5,004	
7	0.4375-20	17,526 17,246	20,066	17,068	11,100 11,086	11,100 11,074	5,562	2,769	5,105	
8	0.5000-20	19,100 18,821	22,098	18,643	12,686 12,674	12,686 12,662	6,350	3,175	5,486	
9	0.5625-18	22,275 21,971	25,654	21,818	14,275 14,261	14,275 14,250	7,137	3,556	5,537	
10	0.6250-18	23,876 23,571	27,686	23,418	15,861 15,849	15,861 15,836	7,925	3,962	6,324	
12	0.7500-16	27,026 26,721	31,242	26,594	19,036 19,024	19,036 19,011	9,525	4,750	6,401	

continued

NSA5089

Issue: F

Page: 4

Table 2 : Dimensions, tolerances, mass (concluded)

Ø CODE No	THREAD UNJF-3A	P +0,254	r	T min.	U max.	TOLERANCE			MASS (g)	
						X	Y	Z	Head and thread	Smooth part
3	0.1900-32	1,778	0,508 0,254	7,950	0,406	0,127	0,114	0,102	1,59	0,11
4	0.2500-28	1,930	0,635 0,381	10,160	0,457	0,152		0,076	2,95	0,18
5	0.3125-24		0,762 0,508	11,227	0,533	0,203			0,063	4,95
6	0.3750-24	14,046		0,229		8,23	0,37			
7	0.4375-20	2,692		14,452	0,635	0,254	0,152	12,76	0,48	
8	0.5000-20			18,034		0,279		19,22	0,59	
9	0.5625-18	3,581	0,889 0,508	20,700	0,711	0,305		28,51	0,72	
10	0.6250-18		1,016 0,635					22,275	0,381	37,41
12	0.7500-16		1,143 0,762	26,441	0,787	0,457		0,229	60,86	1,28

Table 3 : Length dimension

Grip Length Code No.	Grip	Length								
		Diameter Code No.								
		3	4	5	6	7	8	9	10	12
1	1,58	9,53	11,74	12,80	15,62	16,03	19,61	22,28	23,85	28,02
2	3,18	11,13	13,34	14,40	17,22	17,63	21,21	23,88	25,45	29,62
3	4,78	12,73	14,94	16,00	18,82	19,23	22,81	25,48	27,05	31,22
4	6,35	14,30	16,51	17,58	20,40	20,80	24,38	27,05	28,63	32,79
5	7,93	15,88	18,09	19,15	21,97	22,38	25,96	28,63	30,20	34,37
6	9,53	17,48	19,69	20,75	23,57	23,98	27,56	30,23	31,80	35,97
7	11,13	19,08	21,29	22,35	25,17	25,58	29,16	31,83	33,40	37,57
8	12,70	20,65	22,86	23,93	26,75	27,15	30,73	33,40	34,98	39,14
9	14,28	22,23	24,44	25,50	28,32	28,73	32,31	34,98	36,55	40,72
10	15,88	23,83	26,04	27,10	29,92	30,33	33,91	36,58	38,15	42,32
11	17,48	25,43	27,64	28,70	31,52	31,93	35,51	38,18	39,75	43,92
12	19,05	27,00	29,21	30,28	33,10	33,50	37,08	39,75	41,33	45,49
13	20,62	28,57	30,78	31,85	34,67	35,08	38,66	41,32	42,90	47,07
14	22,23	30,18	32,39	33,45	36,27	36,68	40,26	42,93	44,50	48,67
15	23,83	31,78	33,99	35,05	37,87	38,28	41,86	44,53	46,10	50,27
16	25,40	33,35	35,56	36,63	39,45	39,85	43,43	46,10	47,68	51,84

continued

Table 3 : Length dimension (continued)

Grip Length Code No.	Grip	Length								
		Diameter Code No.								
		3	4	5	6	7	8	9	10	12
17	26,98	34,93	37,14	38,20	41,02	41,43	45,01	47,68	49,25	53,42
18	28,58	36,53	38,74	39,80	42,62	43,03	46,61	49,28	50,85	55,02
19	30,18	38,13	40,34	41,40	44,22	44,63	48,21	50,88	52,45	56,62
20	31,75	39,70	41,91	42,98	45,80	46,20	49,78	52,45	54,03	58,19
21	33,33	41,28	43,49	44,55	47,37	47,78	51,36	54,03	55,60	59,77
22	34,93	42,88	45,09	46,15	48,97	49,38	52,96	55,63	57,20	61,37
23	36,53	44,48	46,69	47,75	50,57	50,98	54,56	57,23	58,80	62,97
24	38,10	46,05	48,26	49,33	52,15	50,98	56,13	58,80	60,38	64,54
25	39,68	47,63	49,84	50,90	53,72	54,13	57,71	60,38	61,95	66,12
26	41,28	49,23	51,44	52,50	55,32	55,73	59,31	61,98	63,55	67,72
27	42,88	50,83	53,04	54,10	56,92	57,33	60,91	63,58	65,15	69,32
28	44,45	52,40	54,61	55,68	58,50	58,90	62,48	65,15	66,73	70,89
29	46,02	53,97	56,18	57,25	60,07	60,48	64,06	66,72	68,30	72,47
30	47,63	55,58	57,79	58,85	61,67	62,08	65,66	68,33	69,90	74,07
31	49,23	57,18	59,39	60,45	63,27	63,68	67,26	69,93	71,50	75,67
32	50,80	58,75	60,96	62,03	64,85	65,25	68,83	71,50	73,08	77,24
34	53,98	61,93	64,14	65,20	68,02	68,43	72,01	74,68	76,25	80,42
36	57,15	65,10	67,31	68,38	71,20	71,60	75,18	77,85	79,43	83,59
38	60,33	68,28	70,49	71,55	74,37	74,78	78,36	81,03	82,60	86,77
40	63,50	71,45	73,66	74,73	77,55	77,95	81,53	84,20	85,78	89,94
42	66,68	74,63	76,84	77,90	80,72	81,13	84,71	87,38	88,95	93,12
44	69,85	77,80	80,01	81,08	83,90	84,30	87,88	90,55	92,13	96,29
46	73,03	80,98	83,19	84,25	87,07	87,48	91,06	93,73	95,30	99,47
48	76,20	84,15	86,36	87,43	90,25	90,65	94,23	96,90	98,48	102,64
50	79,38	87,33	89,54	90,60	93,42	93,83	97,41	100,08	101,65	105,82
52	82,55	90,50	92,71	93,78	96,60	97,00	100,58	103,25	104,83	108,99
54	85,73	93,68	95,89	96,95	99,77	100,18	103,76	106,43	108,00	112,17
56	88,90	96,85	99,06	100,13	102,95	103,35	106,93	109,60	111,18	115,34
58	92,08	100,03	102,24	103,30	106,12	106,53	110,11	112,78	114,35	118,52
60	95,25	103,20	105,41	106,48	109,30	109,70	113,28	115,95	117,53	121,69
62	98,43	106,38	108,59	109,65	112,47	112,88	116,46	119,13	120,70	124,87
64	101,60	109,55	111,76	112,83	115,65	116,05	119,63	122,30	123,88	128,04
66	104,78	112,73	114,94	116,00	118,82	119,23	122,81	125,48	127,05	131,22
68	107,95	115,90	118,11	119,18	122,00	122,40	125,98	128,65	130,23	134,39
70	111,13	119,08	121,29	122,35	125,17	125,58	129,16	131,83	133,40	137,57
72	114,30	122,25	124,46	125,53	128,35	128,75	132,33	135,00	136,58	140,74

continued

Table 3 : Length dimension (concluded)

Grip Length Code No.	Grip	Length								
		Diameter Code No.								
		3	4	5	6	7	8	9	10	12
74	117,48	125,43	127,64	128,70	131,52	131,93	135,51	138,18	139,75	143,92
76	120,65	128,60	130,81	131,88	134,70	135,10	138,68	141,35	142,93	147,09
78	123,83	131,78	133,99	135,05	137,87	138,28	141,86	144,53	146,10	150,27
80	127,00	134,95	137,16	138,23	141,05	141,45	145,03	147,70	149,28	153,44
82	130,18	138,13	140,34	141,40	144,22	144,63	148,21	150,88	152,45	156,62
84	133,35	141,30	143,51	144,58	147,40	147,80	151,38	154,05	155,63	159,79
86	136,53	144,48	146,69	147,75	150,57	150,98	154,56	157,23	158,80	162,97
88	139,70	147,65	149,86	150,93	153,75	154,15	157,73	160,40	161,98	166,14
90	142,88	150,83	153,04	154,10	156,92	157,33	160,91	163,58	165,15	169,32
92	146,05	154,00	156,21	157,28	160,10	160,50	164,08	166,75	168,33	172,49
94	149,23	157,18	159,39	160,45	163,27	163,68	167,26	169,93	171,50	175,67
96	152,40	160,35	162,56	163,63	166,45	166,85	170,43	173,10	174,68	178,84

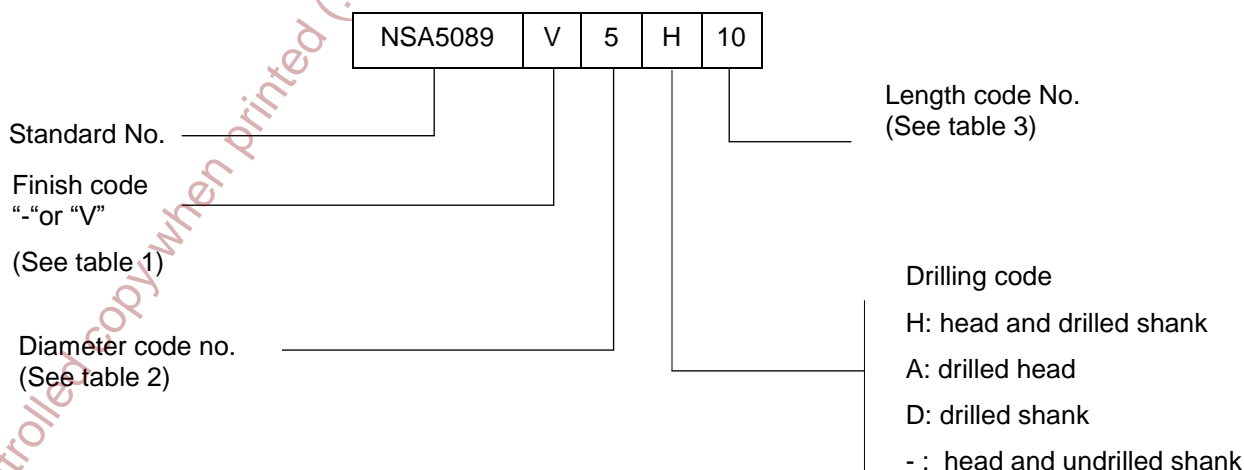
Dimensions in mm.

5 - DESIGNATION

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

NSA5089V5H10, Screw

Example of part number construction:



6 - MARKING

As per EN2424, category A or B as per possibilities.

7 - TECHNICAL SPECIFICATION

NAS4004 except finish and lubrication.

8 - MANUFACTURERS

Refer to the list of qualified manufacturers and products.

Uncontrolled copy when printed (: PAREDES LORENZO, JOS MARA (EXTERNAL), 10/05/2018)

AMENDMENT RECORD SHEET

Issue	Modified paragraph	Modification summary	Justification
A.			
B.			
C.			
D.12.80.			
E.12.91.		Entirely amended standard. In table 2: for ØD: dimensions added for finish code V. Mass added.	DMJ 277.520
F 08.14		Addition of table 3 – Definition of bolt length	

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