
Aerospace series - Bolts, hexagon head, relieved shank, long thread, in heat resisting nickel base alloy NI-P101HT (Waspaloy), silver plated - Classification: 1 210 MPa (at ambient temperature)/730°C

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Luft- und Raumfahrt - Sechskantschrauben, Dünnschaft, langes Gewinde, aus hochwarmfester Nickelbasislegierung NI-P101HT (Waspaloy), versilbert - Klasse: 1 210 MPa (bei Raumtemperatur)/730°C

Série aérospatiale - Vis à tête hexagonale, filetage long, en alliage résistant à chaud à base de nickel NI-P101HT (Waspaloy), argentées - Classification: 1 210 MPa (à température ambiante)/730°C

Ta slovenski standard je istoveten z: EN 3011:1998

ICS:

49.030.20 Sorniki, vijaki, stebelni vijaki Bolts, screws, studs

SIST EN 3011:2001

en

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EUROPEAN STANDARD

EN 3011

NORME EUROPÉENNE

EUROPÄISCHE NORM

May 1998

ICS 49.030.20

Descriptors: aircraft industry, screw, hexagonal head screw, nickel alloy, heat resistant material, characteristic, surface treatment, screw thread, code, dimension, designation, marking

English version

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Série aéronautique - Vis à tête hexagonale, fût dégagé, filetage long, en alliage résistant à chaud à base de nickel NI-P101HT (Waspaloy), argentées - Classification: 1 210 MPa (à température ambiante)/730 °C

Luft- und Raumfahrt - Sechskantschrauben, Dünnschaft, langes Gewinde, aus hochwärmfester Nickelbasislegierung NI-P101HT (Waspaloy), versilbert - Klasse: 1 210 MPa (bei Raumtemperatur)/730 °C

This European Standard was approved by CEN on 23 February 1998.

CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the Central Secretariat or to any CEN member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the Central Secretariat has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.



EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

Central Secretariat: rue de Stassart, 36 B-1050 Brussels

Foreword

This European Standard has been prepared by the European Association of Aerospace Manufacturers (AECMA).

After inquiries and votes carried out in accordance with the rules of this Association, this Standard has received the approval of the National Associations and the Official Services of the member countries of AECMA, prior to its presentation to CEN.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by November 1998, and conflicting national standards shall be withdrawn at the latest by November 1998.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom.

REPUBLIKA SLOVENSKA
MINISTRSTVO ZAPOSLOVANJA
IN TRGARSKE ZADNICE
POSREDOVANJE
POSREDOVANJE
POSREDOVANJE

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SLOVENSKA REPUBLIKA



1 Scope

This standard specifies the characteristics of hexagon headed bolts with relieved shank and long thread, in NI-P101HT, silver plated, for aerospace applications.

Classification: 1 210 MPa ¹⁾ / 730 °C ²⁾

2 Normative references

This European 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 European Standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies.

ISO 3353	Aerospace - Rolled threads for bolts - Lead and runout requirements
ISO 5855-2	Aerospace - MJ threads - Part 2: Limit dimensions for bolts and nuts
EN 2424	Aerospace series - Marking of aerospace products
EN 2582	Aerospace series - Bolts in heat resisting nickel base alloy NI-P101HT (Waspaloy) - Classification: 1 210 MPa / 730 °C - Technical specification ³⁾
EN 2786	Aerospace series - Electrolytic silver plating of fasteners ³⁾
EN 2959	Aerospace series - Heat resisting nickel base alloy (NI-P101HT) - Solution treated and cold worked - Bar for hot upset forging for fasteners - $3 \leq D \leq 30$ mm ³⁾
EN 3220	Aerospace series - Heat resisting nickel base alloy (NI-P101HT) - Cold worked and softened - Bar and wire for continuous forging or extrusion for fasteners - $3 \leq D \leq 30$ mm ³⁾

3 Required characteristics

3.1 Configuration - Dimensions - Tolerances - Masses

See figure 1 and tables 1 and 2. Dimensions and tolerances are in millimetres. They apply after silver plating.

3.2 Materials

EN 2959 or EN 3220

3.3 Surface treatment

EN 2786

Thickness:

- thread: 3 µm to 6 µm shall be measured at the pitch diameter;
- other areas may show complete coverage, without thickness requirement.

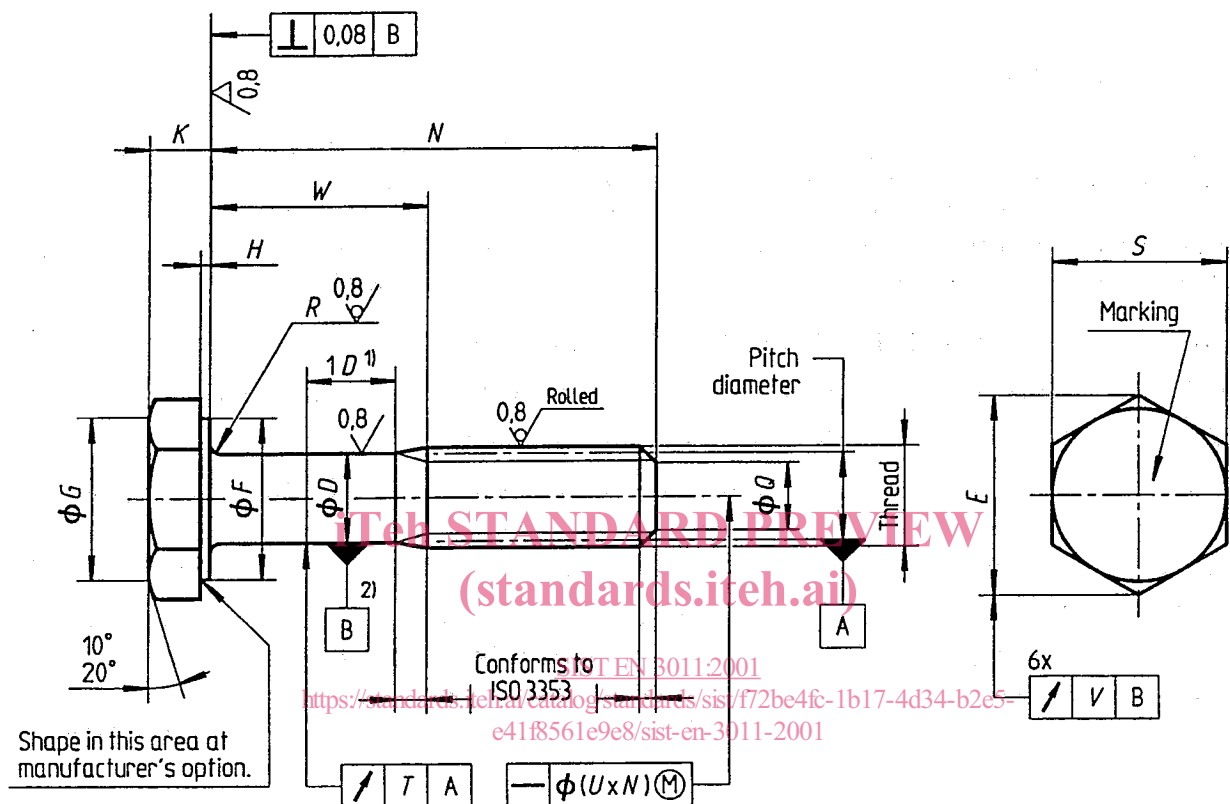
1) Minimum tensile strength of the material at ambient temperature

2) Maximum test temperature of the parts

3) Published as AECMA Prestandard at the date of publication of this standard

$\sqrt{3,2}$ $\left[\sqrt{0,8} \sqrt{0,8} \sqrt{0,8} \sqrt{0,8} \sqrt{0,8} \right]$ Rolled
 Values apply before silver plating.

Remove sharp edges 0,1 to 0,4.



1) When the length of the shank is less than one times the nominal value of the shank diameter D , the runout is measured at a distance equal to half the actual shank length.

2) For bolts having a shank length less than one times the nominal value of the shank diameter D , and for those threaded to head, the pitch diameter axis shall be used as the datum.

Figure 1

Table 1

Thread ¹⁾		D	E	F	G	H	K	Q	R		S	T	U	V
Code	Designation	$\pm 0,13$	min.	min.	min.	0 $- 0,3$	0 $- 0,3$	$\pm 0,5$	max.	min.	h13			
050	MJ5x0,8-4h6h	4,48	9,8	8,3	8,4	0,5	3	3,4	0,5	0,3	9	0,12	0,003	0,25
060	MJ6x1-4h6h	5,35	12	10,2	10,3		3,5	4,2	0,7	0,5	11			0,3
070	MJ7x1-4h6h	6,35	13,2	11,2	11,3		4	5,2			12			0,35
080	MJ8x1-4h6h	7,35	15,5	13,2	13,3	0,6	4,5	6,2	0,8	0,6	14	0,15	0,0025	0,4
100	MJ10x1,25-4h6h	9,19	18,9	16	16,3		5	7,9			17			0,5
120	MJ12x1,25-4h6h	11,19	21,1	18	18,3		6	9,8	0,9		19	0,18		0,6

1) In accordance with ISO 5855-2

Table 2

Length code	N ± 0,3	Thread code											
		050			060			070			080		
		W	max.	min.	W	max.	min.	W	max.	min.	W	max.	min.
008	8			2,76									
010	10			3,02									
012	12			3,28									
014	14			3,54									
016	16			3,80									
018	18			4,06									
020	20			4,32									
022	22			4,58									
024	24			4,84									
026	26			5,10									
028	28			5,35									
030	30			5,61									
032	32			5,87									
034	34			6,13									
036	36			6,39									
038	38			6,65									
040	40			6,91									
042	42			7,17									
044	44			7,43									
046	46			7,69									
048	48			7,95									
050	50			8,21									
052	52			8,46									
054	54			8,72									
056	56			8,98									
058	58			9,24									
060	60			9,50									
062	62			9,76									
064	64			10,02									
066	66			10,28									
068	68			10,54									

(continued)

Table 2 (concluded)

Length code	N ± 0,3	Thread code											
		050			060			070			080		
		W max.	W min.	Mass ¹⁾	W max.	W min.	Mass ¹⁾	W max.	W min.	Mass ¹⁾	W max.	W min.	Mass ¹⁾
070	70	54	52,5	10,80	52	50,5	15,94	50	48,5	22,32	48	46,5	30,68
072	72				54	52,5	16,31	52	50,5	22,84	50	48,5	31,38
074	74				56	54,5	16,68	54	52,5	23,26	52	50,5	32,08
076	76				58	56,5	17,05	56	54,5	23,88	54	52,5	32,77
078	78				60	58,5	17,42	58	56,5	24,40	56	54,5	33,47
080	80				62	60,5	17,79	60	58,5	24,92	58	56,5	34,17
082	82				64	62,5	18,16	62	60,5	25,44	60	58,5	34,87
084	84				66	64,5	18,53	64	62,5	25,96	62	60,5	35,56
086	86							66	64,5	26,48	64	62,5	36,26
088	88							68	66,5	27,00	66	64,5	36,96
090	90							70	68,5	27,52	68	66,5	37,66
092	92							72	70,5	28,04	70	68,5	38,36
094	94							74	72,5	28,56	72	70,5	39,05
096	96							76	74,5	29,09	74	72,5	39,75
098	98							78	76,5	29,61	76	74,5	40,45
100	100										78	76,5	41,15
104	104										82	80,5	42,54
108	108										86	84,5	43,94
112	112										90	88,5	45,33
116	116												
120	120										94	92,5	75,56
124	124										98	96,5	77,74
128	128										102	100,5	79,91
132	132										106	104,5	82,09
136	136										110	108,5	84,26
140	140										114	112,5	86,44
144	144												
148	148										118	116,5	134,7
152	152										122	120,5	138,0
156	156										126	124,5	141,4
160	160										130	128,5	144,7
164	164										134	132,5	148,0
168	168										138	136,5	151,2

1) Mass ≈ quoted in kg/1 000 parts