
Aerospace series - Bolts, hexagon head, relieved shank, long thread, in heat resisting nickel base alloy NI-P100HT (Inconel 718), silver plated - Classification: 1 275 MPa (at ambient temperature)/650°C

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Luft- und Raumfahrt - Sechskantschrauben, Dünnschaft, langes Gewinde, aus hochwarmfester Nickelbasislegierung NI-P100HT (Inconel 718), versilbert - Klasse: 1 275 MPa (bei Raumtemperatur)/650°C

Série aérospatiale - Vis à tête hexagonale, fut dégagé, filetage long, en alliage résistant à chaud à base de nickel NI-P100HT (Inconel 718), argentées - Classification: 1 275 MPa (à température ambiante)/650°C

Ta slovenski standard je istoveten z: EN 3009:1998

ICS:

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

SIST EN 3009:2001

en

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SIST EN 3009:2001

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EUROPEAN STANDARD

EN 3009

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

Aerospace series - Bolts, hexagon head, relieved shank, long thread, in heat resisting nickel base alloy NI-P100HT (Inconel 718), silver plated - Classification: 1 275 MPa (at ambient temperature)/650 °C

Série aéronautique - Vis à tête hexagonale, fût dégagé, filetage long, en alliage résistant à chaud à base de nickel NI-P100HT (Inconel 718), argentées - Classification: 1 275 MPa (à température ambiante)/650 °C

Luft- und Raumfahrt - Sechskantschrauben, Dünnschaft, langes Gewinde, aus hochwarmfester Nickelbasislegierung NI-P100HT (Inconel 718), versilbert - Klasse: 1 275 MPa (bei Raumtemperatur)/650 °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.

STANDARD PREVIEW

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.

SIST EN 3009:2001

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
INŠTITUT ZA TECHNOLŠKI RAZVOJ
INŠTITUT ZA TEHNIŠKI RAZVOJ
LJUBLJANA
.....1998
PREDSTAVNIK REPUBLIKE SLOVENIJE



1 Scope

This standard specifies the characteristics of hexagon headed bolts with relieved shank and long thread, in NI-P100HT, silver plated, for aerospace applications.

Classification: 1 275 MPa ¹⁾ / 650 °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 2583	Aerospace series - Bolts in heat resisting nickel base alloy NI-P100HT (Inco 718) - Classification: 1 275 MPa / 650 °C - Technical specification
EN 2786	Aerospace series - Electrolytic silver plating of fasteners ³⁾
EN 2952	Aerospace series - Heat resisting alloy NI-PH2601 - Solution treated and cold worked - Bar for forged fasteners - $D \leq 50$ mm - $1\ 270\ \text{MPa} \leq R_m \leq 1\ 470\ \text{MPa}$ ³⁾
EN 3219	Aerospace series - Heat resisting nickel base alloy (NI-P100HT) - 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 2952 or EN 3219

3.3 Surface treatment

EN 2786

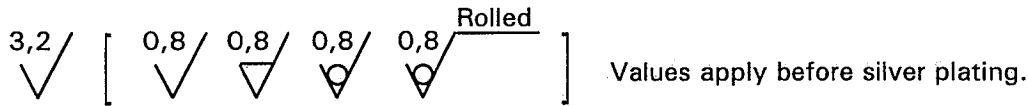
Thickness:

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

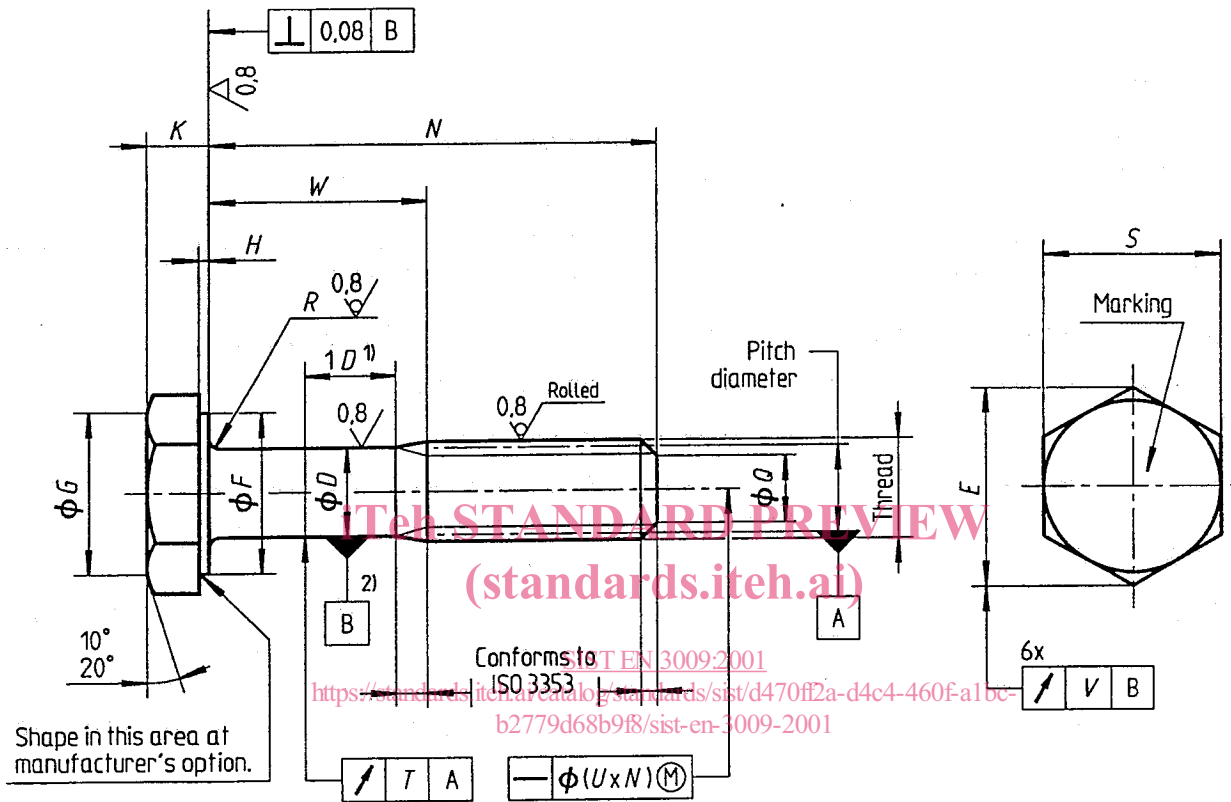
1) Minimum tensile strength of the material at ambient temperature

2) Maximum test temperature of the parts

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



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

Code	Thread 1)	D ± 0,13	E min.	F min.	G min.	H 0 - 0,3	K 0 - 0,3	Q ± 0,5	R		S h13	T	U	V
									max.	min.				
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			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			100			120					
		W max.	W min.	Mass ¹⁾	W max.	W min.	Mass ¹⁾	W max.	W min.	Mass ¹⁾	W max.	W min.	Mass ¹⁾	W max.	W min.	Mass ¹⁾	W max.	W min.	Mass ¹⁾			
008	8			2,76																		
010	10			3,02		4,86			6,69						9,75							
012	12			3,28		5,23			7,22						10,45							
014	14	2,1	1,7	3,54		5,60			7,74						11,15						25,66	
016	16			3,80	2,2	5,96			8,26	2,2					11,85						27,14	
018	18			4,06		6,33			8,78						12,54						28,61	
020	20	4	2,5	4,32		6,70			9,30						13,24						30,09	
022	22	6	4,5	4,58	4	7,07			9,82						13,94						31,56	
024	24	8	6,5	4,84	6	7,44	4	2,5	10,34	4	2,5				14,64					33,04		
026	26	10	8,5	5,10	8	7,81	6	4,5	10,86	6	4,5	4	2,5		15,33					34,51		
028	28	12	10,5	5,35	10	8,18	8	6,5	11,38	8	6,5	6	4,5	16,03						35,98		
030	30	14	12,5	5,61	12	8,55	10	8,5	11,90	10	8,5	8	6,5	16,73						37,46		
032	32	16	14,5	5,87	14	8,92	12	10,5	12,42	12	10,5	10	8,5	17,43						38,93		
034	34	18	16,5	6,13	16	9,29	14	12,5	12,94	14	12,5	12	10,5	18,12								
036	36	20	18,5	6,39	18	9,66	16	14,5	13,46	16	14,5	14	12,5	18,82								
038	38	22	20,5	6,65	20	10,03	18	16,5	13,98	18	16,5	16	14,5	19,52								
040	40	24	22,5	6,91	22	10,40	20	18,5	14,51	20	18,5	18	16,5	20,22								
042	42	26	24,5	7,17	24	10,77	22	20,5	15,03	22	20,5	20	18,5	20,91								
044	44	28	26,5	7,43	26	11,14	24	22,5	15,55	24	22,5	22	20,5	21,61								
046	46	30	28,5	7,69	28	11,51	26	24,5	16,07	26	24,5	24	22,5	22,31								
048	48	32	30,5	7,95	30	11,88	28	26,5	16,59	28	26,5	26	24,5	23,01								
050	50	34	32,5	8,21	32	12,25	30	28,5	17,11	30	28,5	28	26,5	23,71								
052	52	36	34,5	8,46	34	12,62	32	30,5	17,63	32	30,5	30	28,5	24,40								
054	54	38	36,5	8,72	36	12,99	34	32,5	18,15	34	32,5	32	30,5	25,10								
056	56	40	38,5	8,98	38	13,36	36	34,5	18,67	36	34,5	34	32,5	25,80								
058	58	42	40,5	9,24	40	13,73	38	36,5	19,19	38	36,5	36	34,5	26,50								
060	60	44	42,5	9,50	42	14,10	40	38,5	19,71	40	38,5	38	36,5	27,19								
062	62	46	44,5	9,76	44	13,47	42	40,5	20,23	42	40,5	40	38,5	27,89								
064	64	48	46,5	10,02	46	14,84	44	42,5	20,75	44	42,5	42	40,5	28,59								
066	66	50	48,5	10,28	48	15,21	46	44,5	21,27	46	44,5	44	42,5	29,29								
068	68	52	50,5	10,54	50	15,57	48	46,5	21,80	48	46,5	46	44,5	29,98								

(continued)

Table 2 (concluded)

Length code	N ± 0,3	Thread code																				
		050			060			070			080			100			120					
		W	Mass ¹⁾	W	min.	max.	W	min.	max.	W	min.	max.	W	min.	max.	W	min.	max.	W	min.	max.	Mass ¹⁾
070	70	54	10,80	52	50,5	15,94	50	48,5	22,32	48	46,5	30,68	44	42,5	48,35	40	38,5	40	38,5	40	38,5	70,2
072	72			54	52,5	16,31	52	50,5	22,84	50	48,5	31,38	46	44,5	49,44	42	40,5	42	40,5	42	40,5	71,8
074	74			56	54,5	16,68	54	52,5	23,26	52	50,5	32,08	48	46,5	50,53	44	42,5	44	42,5	44	42,5	73,5
076	76			58	56,5	17,05	56	54,5	23,88	54	52,5	32,77	50	48,5	51,62	46	44,5	46	44,5	46	44,5	75,2
078	78			60	58,5	17,42	58	56,5	24,40	56	54,5	33,47	52	50,5	52,71	48	46,5	48	46,5	48	46,5	76,8
080	80			62	60,5	17,79	60	58,5	24,92	58	56,5	34,17	54	52,5	53,79	50	48,5	50	48,5	50	48,5	78,5
082	82			64	62,5	18,16	62	60,5	25,44	60	58,5	34,87	56	54,5	54,88	52	50,5	52	50,5	52	50,5	80,1
084	84			66	64,5	18,53	64	62,5	25,96	62	60,5	35,56	58	56,5	55,97	54	52,5	54	52,5	54	52,5	81,8
086	86						66	64,5	26,48	64	62,5	36,26	60	58,5	57,06	56	54,5	56	54,5	56	54,5	83,4
088	88						68	66,5	27,00	66	64,5	36,96	62	60,5	58,15	58	56,5	58	56,5	58	56,5	85,1
090	90						70	68,5	27,52	68	66,5	37,66	64	62,5	59,23	60	58,5	60	58,5	60	58,5	86,7
092	92						72	70,5	28,04	70	68,5	38,36	66	64,5	60,32	62	60,5	62	60,5	62	60,5	88,4
094	94						74	72,5	28,56	72	70,5	39,05	68	66,5	61,41	64	62,5	64	62,5	64	62,5	90,0
096	96						76	74,5	29,09	74	72,5	39,75	70	68,5	62,50	66	64,5	66	64,5	66	64,5	91,7
098	98						78	76,5	29,61	76	74,5	40,45	72	70,5	63,59	68	66,5	68	66,5	68	66,5	93,4
100	100									78	76,5	41,15	74	72,5	64,68	70	68,5	70	68,5	70	68,5	95,0
104	104									82	80,5	42,54	78	76,5	66,85	74	72,5	74	72,5	74	72,5	98,3
108	108									86	84,5	43,94	82	80,5	69,03	78	76,5	78	76,5	78	76,5	101,6
112	112									90	88,5	45,33	86	84,5	71,21	82	80,5	82	80,5	82	80,5	104,9
116	116												90	88,5	73,38	86	84,5	86	84,5	86	84,5	108,3
120	120												94	92,5	75,56	90	88,5	90	88,5	90	88,5	111,6
124	124												98	96,5	77,74	94	92,5	94	92,5	94	92,5	114,9
128	128												102	100,5	79,91	98	96,5	98	96,5	98	96,5	118,2
132	132												106	104,5	82,09	102	100,5	102	100,5	102	100,5	121,4
136	136												110	108,5	84,26	106	104,5	106	104,5	106	104,5	124,7
140	140												114	112,5	86,44	110	108,5	110	108,5	110	108,5	128,1
144	144															114	112,5	114	112,5	114	112,5	131,5
148	148															118	116,5	118	116,5	118	116,5	134,7
152	152															122	120,5	122	120,5	122	120,5	138,0
156	156															126	124,5	126	124,5	126	124,5	141,4
160	160															130	128,5	130	128,5	130	128,5	144,7
164	164															134	132,5	134	132,5	134	132,5	148,0
168	168															138	136,5	138	136,5	138	136,5	151,2

1) Mass ≈ quoted in kg/1 000 parts