SLOVENSKI STANDARD
SIST EN 3294:2008

01-julij-2008

Aeronavtika - Sorniki, glava T, ozka toleranca, iz toplotnoodporne zlitine na nikljevi osnovi NI-P101HT (Waspaloy), brez prevleke, za visoke matice - Klasifikacija: 1 210 MPa/730 °C

Aerospace series - Bolts, T-head, close tolerance, in heat resisting nickel base alloy NI-P101HT (Waspaloy), uncoated for increased height nuts -Classification: 1 210 MPa/730 °C

Luft- und Raumfahrt - T-Kopf-Passschrauben, aus hochwarmfester Nickelbasislegierung NI-P101HT (Waspaloy), blank für hohe Muttern - Klasse: 1 210 MPa/730 °C

Série aérospatiale - Vis de précision à tête anti-rotation T en alliage résistant à chaud à base de nickel NI-P101HT (Waspaloy), non revêtu pour écrou renforcé - Classification: 1 210 MPa/730 °C

Ta slovenski standard je istoveten z: **EN 3294:2008**

ICS:

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

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EUROPEAN STANDARD

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English Version

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

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Foreword

This document (EN 3294:2008) has been prepared by the Aerospace and Defence Industries Association of Europe - Standardization (ASD-STAN).

After enquiries 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 ASD, 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of an identical text or by endorsement, at the latest by October 2008, and conflicting national standards shall be withdrawn at the latest by October 2008.

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1 Scope

This standard specifies the dimensions of uncoated T-head bolts, close tolerance, with MJ-thread, thread length for increased height nuts, in heat resistant nickel base alloy NI-P101HT for aerospace applications.

Maximum test temperature of the parts is 730 °C.

These bolts are to be used in aerospace fastening systems mainly stressed in shearing force.

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN 2424, *Aerospace series — Marking of aerospace products*[1)]

EN 2582, *Aerospace series — Bolts in heat resisting nickel base alloy NI-P101HT (Waspaloy) — Classification: 1 210 MPa/730 °C — Technical specification*[1)]

EN 2959, *Aerospace series — Heat resisting alloy NI-PH1302 (NiCr20Co13Mo4Ti3Al) — Solution treated and cold worked — Bar for forged fasteners 3 ≤ mm D ≤ 30 mm*[1)]

EN 3220, *Aerospace series — Heat resisting nickel base alloy (Ni-P101 HT) — Cold worked and softened — Bar and wire for continuous forging or extrusion for fasteners 3 ≤ D ≤ 30 mm*[1)]

ISO 3353-1, *Aerospace — Lead and runout threads — Part 1: Rolled external threads*

ISO 5855-1, *Aerospace — MJ threads — Part 1: General requirements*

ISO 5855-2, *Aerospace — MJ threads — Part 2: Limit dimensions for bolts and nuts*

3 Required characteristics

3.1 Configuration, dimensions, tolerances, masses

Configuration shall be in accordance with the figure. Dimensions, tolerances and masses shall conform to Figure 1 and Tables 1 and 2. Details of form, not stated are at the manufacturer's option.

3.2 Material

Heat resisting nickel base alloy NI-P101HT according to EN 2959 or EN 3220.

3.3 Surface treatment

None.

3.4 Thread surface

See Figure 1.

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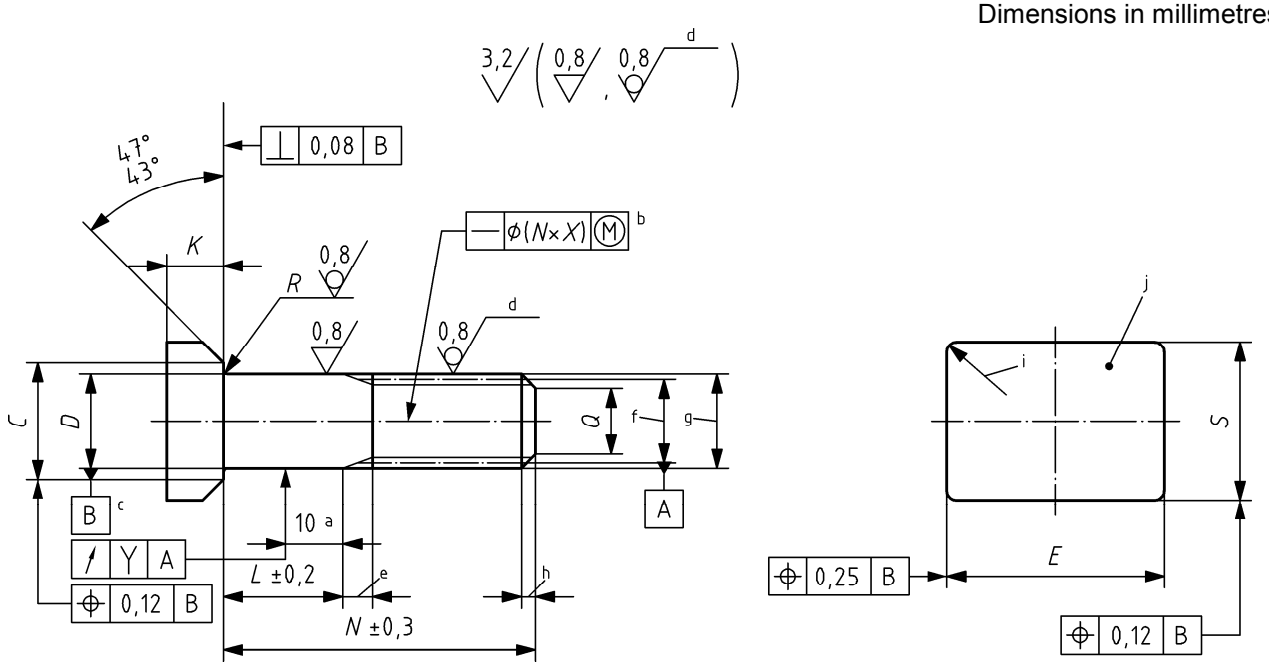
1) Published as AECMA Prestandard at the date of publication of this standard.

Dimensions in millimetres



Break sharp edges 0,1 mm to 0,4 mm

a When the length of the shank is less than one time the nominal value of the shank diameter, D, the run-out is measured at a distance equal to half the actual shank length

b Total straightness with reference to nominal length N

c For bolts having a shank length less than one time the nominal value of the shank diameter, D, the pitch diameter axis shall be used as datum

d Rolled

e Thread runout ISO 3353-1

f Thread pitch diameter

g Thread major diameter – max.: actual shank diameter minus 0,025 mm; min.: defined by 6h tolerance

h Lead thread ISO 3353-1

i $R^{0,9}_{0,4\ \text{typical}}$

j Identity marking

Figure 1 — Configuration

Table 1 — Dimensions

Dimensions in millimetres

Code	Designation[a]	C		D	E		K		Q	R		S		X	Y
		max.	min.	f7	max.	min.	max.	min.	± 0,5	max.	min.	max.	min.		
050	MJ5 × 0,8 – 4h6h[b]	6,3	6,1	∅ 5	11,6	11,1	3,4	2,9	∅ 3,5	0,5	0,3	8,4	8,1	0,002	0,12
060	MJ6 × 1 – 4h6h[b]	7,3	7,1	∅ 6	12,5	12,0	3,9	3,4	∅ 4,2	0,7	0,5	9,5	9,2		
070	MJ7 × 1 – 4h6h[b]	8,4	8,2	∅ 7	13,9	13,4	4,5	4,0	∅ 5,2	0,7	0,5	10,5	10,2		0,15
080	MJ8 × 1 – 4h6h[b]	9,4	9,2	∅ 8	14,5	14,0	5,0	4,5	∅ 6,2	0,7	0,5	11,5	11,2		
100	MJ10 × 1,25 – 4h6h[b]	11,2	11,0	∅ 10	17,0	16,5	5,8	5,3	∅ 7,9	0,8	0,6	13,3	13,0	0,001 5	

a According to ISO 5855-1 and ISO 5855-2.

b The tolerance on the thread major diameter shall be modified as shown in Figure 1.

Table 2 — Lengths and masses

Masses (8,25 kg/dm^3): kg/1 000 pieces

Length code	L ±0,2	Nominal diameter code									
		050		060		070		080		100	
		N	Mass	N	Mass	N	Mass	N	Mass	N	Mass
	mm	mm	kg	mm	kg	mm	kg	mm	kg	mm	kg
003	3	18	4,74	20	7,15	–	–	–	–	–	–
004	4	19	4,90	21	7,38	22	10,75	23	14,47	–	–
005	5	20	5,07	22	7,62	23	11,07	24	14,88	27	25,11
006	6	21	5,23	23	7,85	24	11,38	25	15,29	28	25,76
007	7	22	5,39	24	8,08	25	11,70	26	15,71	29	26,41
008	8	23	5,55	25	8,31	26	12,02	27	16,12	30	27,05
009	9	24	5,71	26	8,55	27	12,34	28	16,54	31	27,70
010	10	25	5,87	27	8,78	28	12,66	29	16,95	32	28,35
011	11	26	6,04	28	9,01	29	12,97	30	17,36	33	29,00
012	12	27	6,20	29	9,25	30	13,29	31	17,78	34	29,64
013	13	28	6,36	30	9,48	31	13,61	32	18,20	35	30,29
014	14	29	6,52	31	9,71	32	13,92	33	18,63	36	30,93
015	15	30	6,69	32	9,93	33	14,24	34	19,02	37	31,59
016	16	31	6,85	33	10,18	34	14,56	35	19,44	38	32,23
017	17	32	7,01	34	10,41	35	14,88	36	19,85	39	32,88
018	18	33	7,17	35	10,65	36	15,19	37	20,27	40	33,53
019	19	34	7,33	36	10,88	37	15,51	38	20,68	41	34,18
020	20	35	7,50	37	11,11	38	15,83	39	21,10	42	34,82
021	21	36	7,66	38	11,35	39	16,14	40	21,51	43	35,47
022	22	37	7,82	39	11,58	40	16,46	41	21,93	44	36,12
023	23	38	7,98	40	11,81	41	16,78	42	22,34	45	36,77
024	24	39	8,14	41	12,05	42	17,10	43	22,75	46	37,41
025	25	40	8,31	42	12,28	43	17,41	44	23,17	47	38,06
026	26	41	8,48	43	12,51	44	17,73	45	23,58	48	38,71
027	27	42	8,63	44	12,74	45	18,05	46	24,00	49	39,36
028	28	43	8,79	45	12,98	46	18,37	47	24,41	50	40,00
029	29	44	8,95	46	13,21	47	18,68	48	24,83	51	40,65
030	30	45	9,12	47	13,44	48	19,00	49	25,24	52	41,30
032	32	48	9,57	50	14,08	51	19,85	52	26,38	55	43,15
034	34	50	9,89	52	14,56	53	20,53	54	27,24	57	44,44
036	36	52	10,22	54	15,02	55	21,17	56	28,07	59	45,74
038	38	54	10,54	56	15,49	57	21,80	58	28,90	61	47,03
040	40	56	10,86	58	15,96	59	22,43	60	29,73	63	48,33
042	42	58	11,19	60	16,42	61	23,07	62	30,56	65	49,62
044	44	60	11,51	62	16,89	63	23,70	64	31,38	67	50,92
046	46	62	11,84	64	17,36	65	24,34	66	32,21	69	52,21
048	48	64	12,16	66	17,82	67	24,97	68	33,04	71	53,51

Table 2 *(continued)*

Masses (8,25 kg/dm^3): kg/1 000 pieces

Nominal diameter code		050		060		070		080		100	
Length code	L ±0,2 mm	N mm	**Mass** kg	N mm	**Mass** kg	N mm	**Mass** kg	N mm	**Mass** kg	N mm	**Mass** kg
050	50	66	12,48	68	18,29	69	25,61	70	33,87	73	54,80
052	52	–	–	70	18,75	71	26,24	72	34,70	75	56,10
054	54	–	–	72	19,22	73	26,88	74	35,53	77	57,39
056	56	–	–	74	19,69	75	27,51	76	36,36	79	58,69
058	58	–	–	76	20,15	77	28,15	78	37,19	81	59,98
060	60	–	–	78	20,62	79	28,78	80	38,03	83	61,28
062	62	–	–	–	–	81	29,42	82	38,85	85	62,47
064	64	–	–	–	–	83	30,05	84	39,67	87	63,97
066	66	–	–	–	–	85	30,68	86	40,50	89	65,16
068	68	–	–	–	–	87	31,32	88	41,33	91	66,46
070	70	–	–	–	–	89	31,95	90	42,16	93	67,75
072	72	–	–	–	–	–	–	92	42,99	95	69,05
074	74	–	–	–	–	–	–	94	43,82	97	70,34
076	76	–	–	–	–	–	–	96	44,65	99	71,64
078	78	–	–	–	–	–	–	98	45,48	101	72,93
080	80	–	–	–	–	–	–	100	46,30	103	74,23
082	82	–	–	–	–	–	–	–	–	105	75,52
084	84	–	–	–	–	–	–	–	–	107	76,82
086	86	–	–	–	–	–	–	–	–	109	78,11
088	88	–	–	–	–	–	–	–	–	111	79,41
090	90	–	–	–	–	–	–	–	–	113	80,70
092	92	–	–	–	–	–	–	–	–	115	82,00
094	94	–	–	–	–	–	–	–	–	117	83,29
096	96	–	–	–	–	–	–	–	–	119	84,59
098	98	–	–	–	–	–	–	–	–	121	85,88
100	100	–	–	–	–	–	–	–	–	123	87,18