BRITISH STANDARD

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Aerospace series — Bolts, T-head, close tolerance, medium thread length, in heat resisting nickel base alloy NI-P100HT (Inconel 718), uncoated — Classification: 1 275 MPa/650 °C

ICS 49.030.20

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British Standards

National foreword

This British Standard is the UK implementation of EN 3293:2008.

The UK participation in its preparation was entrusted to Technical Committee ACE/12, Aerospace fasteners and fastening systems.

A list of organizations represented on this committee can be obtained on request to its secretary.

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English Version

Aerospace series - Bolts, T-head, close tolerance, medium thread length, in heat resisting nickel base alloy NI-P100HT (Inconel 718), uncoated - Classification: 1 275 MPa/650 °C

Série aérospatiale - Vis de précision à tête anti-rotation T, à filetage moyen en alliage résistant à chaud à base de nickel NI-P100HT (Inconel 718), non revêtu - Classification : 1 275 MPa/650 °C

Luft- und Raumfahrt - T-Kopf-Passschrauben, mittlere Gewindelänge, aus hochwarmfester Nickelbasislegierung NI-P100HT (Inconel 718), blank - Klasse: 1 275 MPa/650 °C

This European Standard was approved by CEN on 3 November 2007.

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

Management Centre: rue de Stassart, 36 B-1050 Brussels

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Foreword

This document (EN 3293:2008) 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of an identical text or by endorsement, at the latest by October 2008, and conflicting national standards shall be withdrawn at the latest by October 2008.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, medium thread length, in heat-resisting nickel base alloy NI-P100HT for aerospace applications.

Maximum test temperature of the parts is 650 °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 2583, *Aerospace series — Bolts, MJ threads, in heat resisting nickel base alloy NI-PH2601 (Inconel 718) — Classification: 1 275 MPa (at ambient temperature)/650 °C — Technical specification*

EN 2952, *Aerospace series — Heat resisting alloy NI-PH2601 — Solution treated and cold worked — Bar for forged fasteners* $D \leq$ *50 mm, 1 270 MPa* $\leq R_m \leq$ *1550 MPa*[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 Figure 1. Dimensions, tolerances and masses shall conform with Tables 1 and 2. Details of form, not stated are at the manufacturer's option.

3.2 Material

Heat resisting nickel base alloy NI-P100HT according to EN 2952.

3.3 Surface treatment

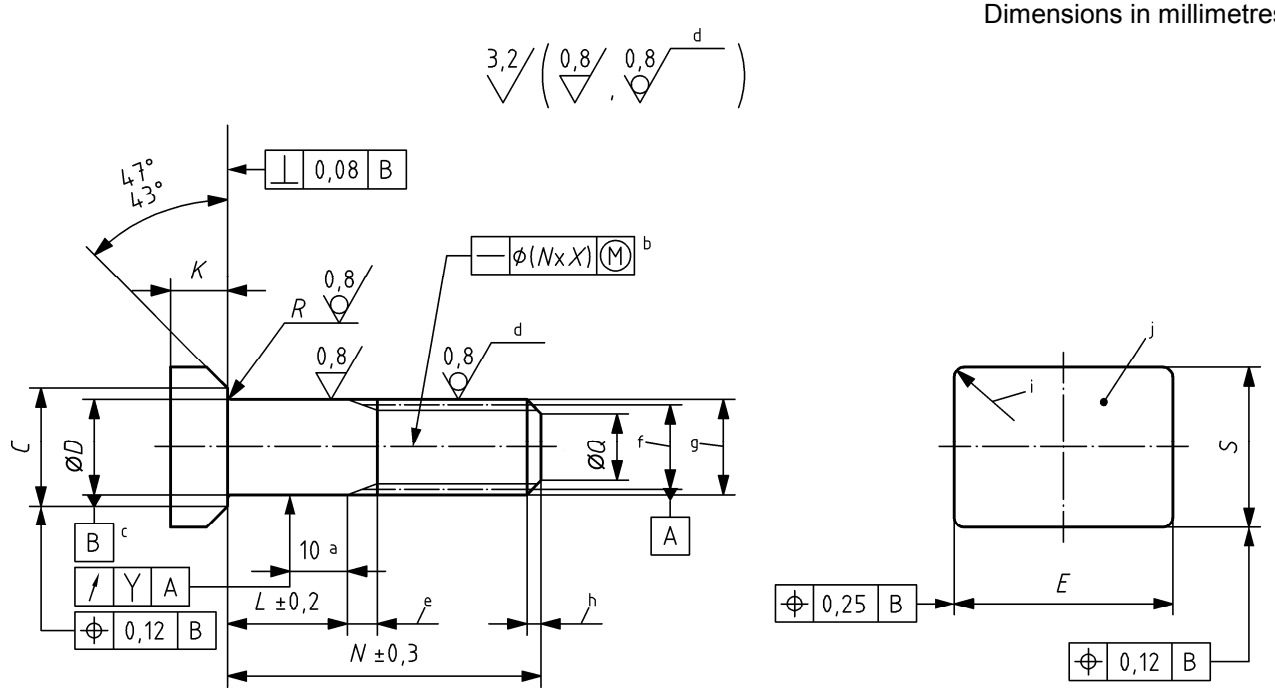
None

3.4 Thread surface

See Figure 1.

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 (8,195 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	16,5	4,52	18,5	6,83	–	–	–	–	–	–
004	4	17,5	4,68	19,5	7,05	20,5	10,30	22	14,03	–	–
005	5	18,5	4,85	20,5	7,29	21,5	10,62	23	14,44	26,5	24,68
006	6	19,5	5,01	21,5	7,52	22,5	10,93	24	14,84	27,5	25,32
007	7	20,5	5,17	22,5	7,75	23,5	11,25	25	15,26	28,5	25,97
008	8	21,5	5,33	23,5	7,98	24,5	11,56	26	15,67	29,5	26,60
009	9	22,5	5,48	24,5	8,22	25,5	11,84	27	16,09	30,5	27,25
010	10	23,5	5,64	25,5	8,44	26,5	12,20	28	16,49	31,5	27,91
011	11	24,5	5,81	26,5	8,67	27,5	12,51	29	16,91	32,5	28,54
012	12	25,5	5,97	27,5	8,91	28,5	12,83	30	17,32	33,5	29,18
013	13	26,5	6,15	28,5	9,14	29,5	13,14	31	17,73	34,5	29,82
014	14	27,5	6,39	29,5	9,37	30,5	13,45	32	18,16	35,5	30,44
015	15	28,5	6,46	30,5	9,59	31,5	13,77	33	18,55	36,5	31,11
016	16	29,5	6,62	31,5	9,84	32,5	14,09	34	18,97	37,5	31,73
017	17	30,5	6,78	32,5	10,06	33,5	14,41	35	19,37	38,5	32,40
018	18	31,5	6,93	33,5	10,30	34,5	14,71	36	19,79	39,5	33,04
019	19	32,5	7,09	34,5	10,53	35,5	15,03	37	20,20	40,5	33,69
020	20	33,5	7,26	35,5	10,76	36,5	15,35	38	20,61	41,5	34,32
021	21	34,5	7,42	36,5	11,00	37,5	15,66	39	21,02	42,5	34,97
022	22	35,5	7,58	37,5	11,23	38,5	15,98	40	21,44	43,5	35,59
023	23	36,5	7,84	38,5	11,45	39,5	16,29	41	21,85	44,5	36,26
024	24	37,5	7,90	39,5	11,69	40,5	16,61	42	22,25	45,5	36,90
025	25	38,5	8,07	40,5	11,92	41,5	16,92	43	22,67	46,5	37,54
026	26	39,5	8,24	41,5	12,15	42,5	17,24	44	23,08	47,5	38,19
027	27	40,5	8,39	42,5	12,38	43,5	17,55	45	23,49	48,5	38,83
028	28	41,5	8,54	43,5	12,62	44,5	17,87	46	23,90	49,5	39,47
029	29	42,5	8,70	44,5	12,85	45,5	18,18	47	24,32	50,5	40,11
030	30	43,5	8,87	45,5	13,07	46,5	18,50	48	24,73	51,5	40,76
032	32	46,5	9,32	48,5	13,72	49,5	19,38	51	25,86	54,5	42,59
034	34	48,5	9,64	50,5	14,19	51,5	20,01	53	26,72	56,5	43,87
036	36	50,5	9,97	52,5	14,64	53,5	20,65	55	27,54	58,5	45,16
038	38	52,5	10,28	54,5	15,11	55,5	21,27	57	28,37	60,5	46,44
040	40	54,5	10,60	56,5	15,58	57,5	21,90	59	29,19	62,5	47,74
042	42	56,5	10,93	58,5	16,04	59,5	22,53	61	30,01	64,5	49,02
044	44	58,5	11,25	60,5	16,50	61,5	23,16	63	30,83	66,5	50,31
046	46	60,5	11,57	62,5	16,97	63,5	23,79	65	31,66	68,5	51,59
048	48	62,5	11,89	64,5	17,43	65,5	24,43	67	32,46	70,5	52,88

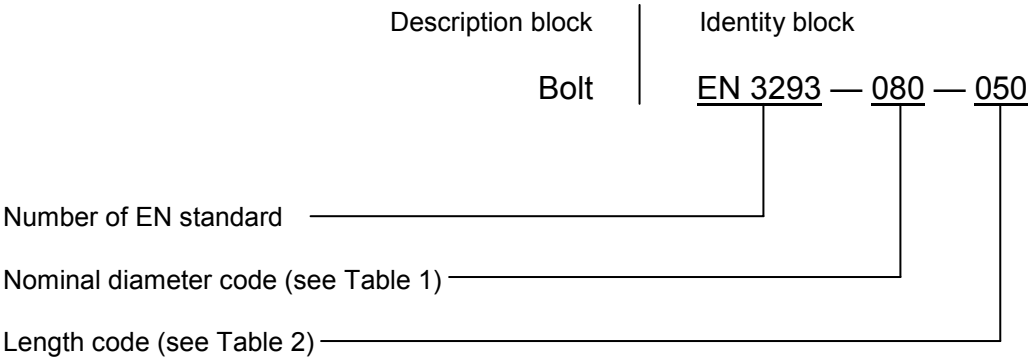
Table 2 *(continued)*

Masses (8,195 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	64,5	12,21	66,5	17,89	67,5	25,05	69	33,31	72,5	54,16
052	52	–	–	68,5	18,35	69,5	25,69	71	34,13	74,5	55,45
054	54	–	–	70,5	18,82	71,5	26,31	73	34,96	76,5	56,74
056	56	–	–	72,5	19,28	73,5	26,95	75	35,78	78,5	58,03
058	58	–	–	74,5	19,74	75,5	27,57	77	36,60	80,5	59,31
060	60	–	–	76,5	20,21	77,5	28,21	79	37,42	82,5	60,60
062	62	–	–	–	–	79,5	28,84	81	38,25	84,5	61,78
064	64	–	–	–	–	81,5	29,46	83	39,06	86,5	63,27
066	66	–	–	–	–	83,5	30,10	85	39,90	88,5	64,45
068	68	–	–	–	–	85,5	30,72	87	40,71	90,5	65,75
070	70	–	–	–	–	87,5	31,34	89	41,54	92,5	67,03
072	72	–	–	–	–	–	–	91	42,37	94,5	68,32
074	74	–	–	–	–	–	–	93	43,19	96,5	69,60
076	76	–	–	–	–	–	–	95	44,01	98,5	70,89
078	78	–	–	–	–	–	–	97	44,83	100,5	71,17
080	80	–	–	–	–	–	–	99	45,65	102,5	73,45
082	82	–	–	–	–	–	–	–	–	104,5	74,74
084	84	–	–	–	–	–	–	–	–	106,5	75,08
086	86	–	–	–	–	–	–	–	–	108,5	77,32
088	88	–	–	–	–	–	–	–	–	110,5	78,61
090	90	–	–	–	–	–	–	–	–	112,5	79,89
092	92	–	–	–	–	–	–	–	–	114,5	81,19
094	94	–	–	–	–	–	–	–	–	116,5	82,46
096	96	–	–	–	–	–	–	–	–	118,5	83,75
098	98	–	–	–	–	–	–	–	–	120,5	85,04
100	100	–	–	–	–	–	–	–	–	122,5	86,33

4 Designation

Each T-head bolt, close tolerance, shall only be designated as in the following example:



If necessary the originator code I9005 shall be placed between the description block and the identity block.

5 Marking

Each T-head bolt, close tolerance, shall be marked in accordance with EN 2424, Style A.

6 Technical specification

The T-head bolts, close tolerance, shall conform to the requirements of EN 2583.

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