Aerospace series — Bolts, normal hexagonal head, coarse tolerance normal shank, long thread, in heat resisting nickel base alloy, aluminium IVD coated — Classification: 1 250 MPa (at ambient temperature) / 425°C

ICS 49.030.20,

BSI British Standards

National foreword

This British Standard is the UK implementation of EN 4134:2009.

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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, normal hexagonal head, coarse tolerance normal shank, long thread, in heat resisting nickel base alloy, aluminium IVD coated - Classification: 1 250 MPa (at ambient temperature) / 425 °C

Série aérospatiale - Vis à tête hexagonale normale, tige normale à tolérance large, filetage long, en alliage résistant à chaud à base de nickel, revêtues aluminium IVD - Classification: 1 250 MPa (à température ambiante)/425 °C

Luft- und Raumfahrt - Sechskantschrauben, langes Gewinde, aus hochwarmfester Nickelbasislegierung, Aluminium IVD beschichtet - Klasse : 1 250 MPa (bei Raumtemperatur) / 425 °C

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Foreword

This document (EN 4134:2009) 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of an identical text or by endorsement, at the latest by October 2009, and conflicting national standards shall be withdrawn at the latest by October 2009.

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1 Scope

This standard specifies the characteristics of bolts, normal hexagonal head, coarse tolerance normal shank, long thread, in heat resisting nickel base alloy, aluminium IVD coated.

Classification: 1 250 MPa [1] / 425 °C [2]

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*

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 $\leq R_m \leq$ 1 550 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]

EN 9100, *Aerospace series — Quality management systems — Requirements (based on ISO 9001:2000) and Quality systems — Model for quality assurance in design, development, production, installation and servicing (based on ISO 9001:1994)*

EN 9133, *Aerospace series — Quality management systems — Qualification procedure for aerospace standard parts*

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

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

ISO 7913, *Aerospace — Bolts and screws, metric — Tolerances of form and position*

ISO 9154, *Aerospace — Bolts, with MJ threads, made of heat-resistant nickel-based alloy, strength class 1 550 MPa — Procurement specification*

TR 3775, *Aerospace series — Bolts and pins — Materials* [4]

MIL-DTL-83488D, *Coating, aluminium, high purity* [5]

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1) Minimum tensile strength of the material at ambient temperature.

2) Maximum that the bolt can withstand without continuous change in its original characteristics, after return to ambient temperature. The maximum temperature is determined by the surface treatment.

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

4) Published as ASD Technical Report at the date of publication of this standard.

5) Published by: Department of Defense (DOD), the Pentagon, Washington, D.C. 20301, USA.

3 Required characteristics

3.1 Configuration — Dimensions — Masses

See Figure 1 and Table 1.

Dimensions and tolerances are expressed in millimetres and apply after surface treatment.

3.2 Tolerances of form and position

ISO 7913

3.3 Materials

EN 2952, EN 3219

or

TR 3775 (heat resisting nickel base alloy, classification 1 250 MPa)

3.4 Surface treatment

MIL-DTL-83488D, type II, class 3, 7 µm to 20 µm

After aluminium deposit:

a) mechanical blasting, followed by a chromate conversion coating within 24 h max [6)];

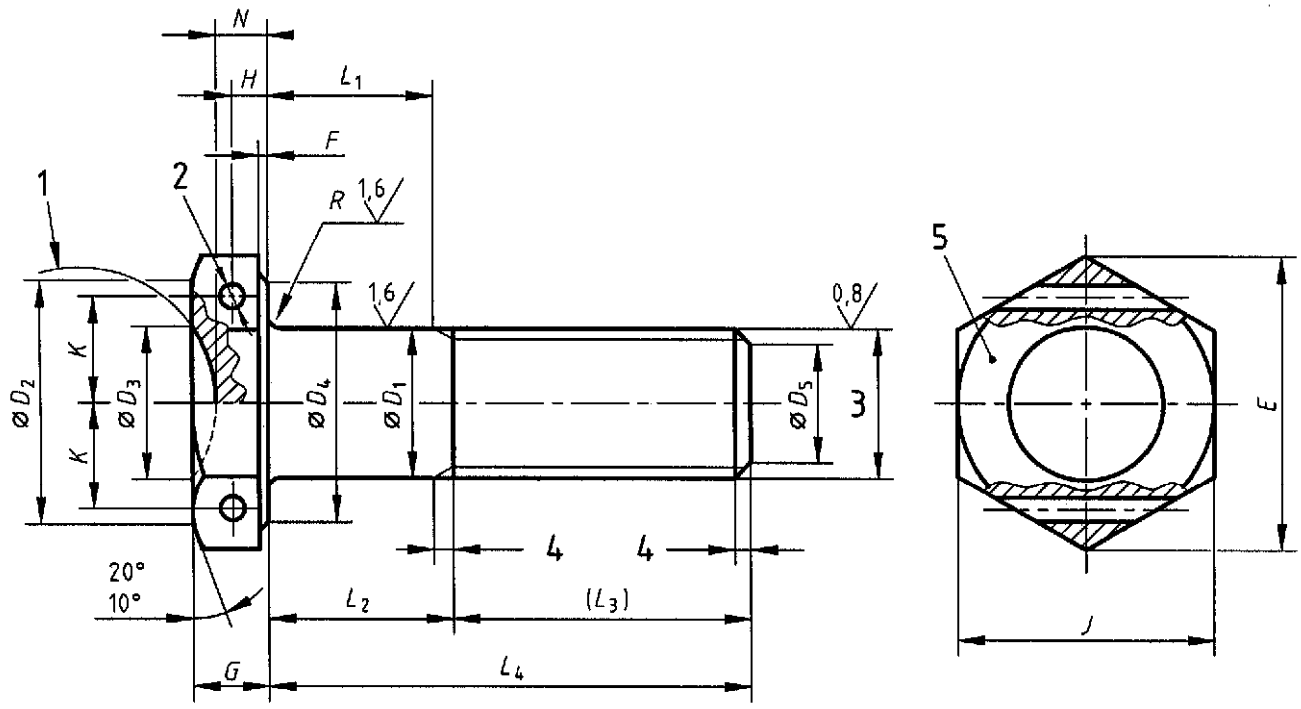
b) optional lubrication with cethylic alcohol (code E).

6) Products used shall be in conformity with national regulation into force.

3,2 [0,8 1,6] Values in micrometres apply prior to surface treatment.

Break sharp edges 0,1 to 0,4.

Details of form not stated are left to the manufacturer's discretion.



Key

1 Continuous surface
2 2 hole $\varnothing D_6$ optional
3 Thread
4 Conforms to ISO 3353-1
5 Marking

Figure 1

Table 1

Diameter code	Thread [a]	D_1 h12	D_2 min.	D_3 0 / − 0,5	D_4 [b] min.	D_5 nom.	D_5 Tol.	D_6 H13	E min.	F max.	F min.	G 0 / − 0,3	H
030	MJ3×0,5 - 4h6h	3	5,5	—	5,4	2,3	0 / − 0,5	—	6,5	0,4	0,2	2	—
040	MJ4×0,7 - 4h6h	4	6,4	—	6,4	3		—	7,6	0,5		2,5	—
050	MJ5×0,8 - 4h6h	5	7,4	5,25	7,4	3,4	± 0,5	1	8,7			3	1,35
060	MJ6×1 - 4h6h	6	9,4	6,25	9,3	4,2		1,4	10,9			3,5	1,6
070	MJ7×1 - 4h6h	7	10,3	7,25	10,2	5,2			12			4	1,85
080	MJ8×1 - 4h6h	8	12,3	8,25	12,2	6,2			14,3			4,5	2,1
100	MJ10×1,25 - 4h6h	10	16,3	10,25	16	7,9		1,6	18,9	0,6	0,3	5	2,35
120	MJ12×1,25 - 4h6h	12	18,3	12,25	18	9,8			21,1			6	2,85
140	MJ14×1,5 - 4h6h	14	21,3	14,25	21	11,5			24,5			7	3,35
160	MJ16×1,5 - 4h6h	16	23,3	16,25	23	13,5			26,8			8	3,85
180	MJ18×1,5 - 4h6h	18	26,3	18,25	26	15,5			30,2			9	4,35
200	MJ20×1,5 - 4h6h	20	29,3	20,25	29	17,5			33,6			10	4,85

Diameter code	J nom.	J Tol.	K	L_1 [c, d, e] min.	L_2 [c, d, e] max.	L_3	L_4 [e, f] Length code	L_4 [e, f] nom.	N 0 / − 0,3	R max.	R min.	Mass [g] h	Mass [g] i
030	6	h12	—	0,4	2	12	014 to 042	14 to 42	—	0,4	0,2	1,254	0,114
040	7		—			14	016 to 056	16 to 56	—			2,193	0,202
050	8		3,25	0,5	4	16	020 to 070	20 to 70	2	0,5	0,3	3,938	0,316
060	10	h13	4,1	0,7		18	022 to 084	22 to 84	2,3	0,7	0,5	7,123	0,456
070	11		4,5			20	024 to 098	24 to 98	2, 7			9,792	0,622
080	13		5,35			22	026 to 112	26 to 112	3			14,961	0,814
100	17		7,1	0,8	6	25	032 to 140	32 to 140	3,4	0,8	0,6	28,741	1,270
120	19		7,9	0,9		30	036 to 168	36 to 168	4	0,9		46,437	1,830
140	22		9,2	1,1		34	040 to 196	40 to 196	4,7	1,1	0,8	69,365	2,490
160	24		10,05			38	044 to 224	44 to 224	5,4			101,783	3,256
180	27		11,3	1,3		42	048 to 252	48 to 252	6	1,3	1	142,691	4,118
200	30		12,6			46	052 to 280	52 to 280	6,7			194,120	5,082

[a] In accordance with ISO 5855-2.

[b] D_4 max. shall be less than J.

[c] First length corresponding to first L_4 length.

[d] Condition L_1 min. and L_2 max. cannot be obtained simultaneously.

[e] Increments:
- 2 for $L_4 \leq 100$;
- 4 for $L_4 > 100$.

[f] If greater lengths are required, they shall be chosen using the above increments. The length code corresponds to the length L_4, completed by one or two zeros to the left, where necessary, to obtain a three digit code.

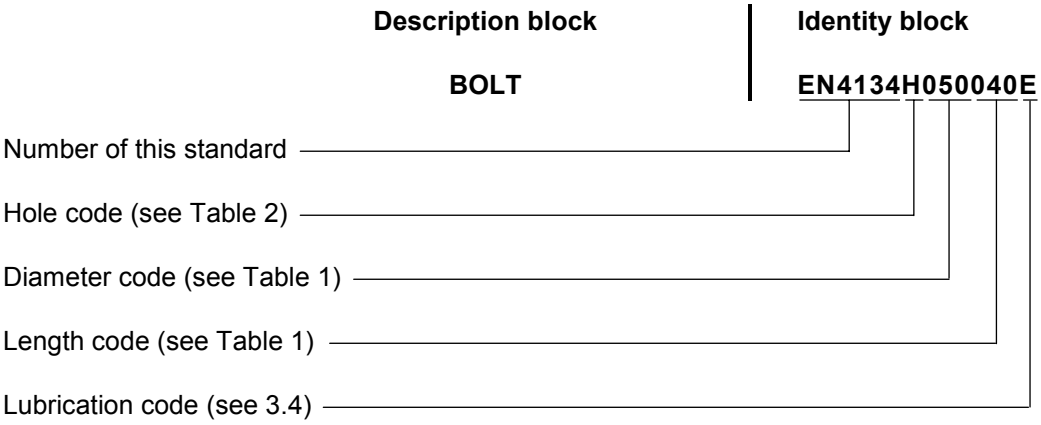
[g] Approximate values (kg/1 000 pieces), calculated on the basis of 8,195 kg/dm^3, given for information purposes only. They apply to bolts without holes.

[h] Value for head and first L_4.

[i] Increase for each additional 2 mm of L_4.

4 Designation

EXAMPLE



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

Table 2

Holes	Code
with	H
without	— (hyphen)

5 Marking

See Table 3 and Figure 1.

Table 3

Diameter code	EN 2424 Style
030 and 040	N
050 to 200	C + MJ

6 Technical specification

6.1 General

ISO 9154, with the following modifications.

6.2 Approval of manufacturers

EN 9100

6.3 Qualification of bolts

EN 9133

6.4 Other modified requirement

Test loads: Apply the coefficient 0,81.

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