Aerospace series — Bolts, normal hexagonal head, coarse tolerance normal shank, medium length thread, in alloy steel, cadmium plated — Classification: 1 100 MPa (at ambient temperature) / 235 °C

ICS 49.030.20,

BSI British Standards

National foreword

This British Standard is the UK implementation of EN 4129:2009.

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, normal hexagonal head, coarse tolerance normal shank, medium length thread, in alloy steel, cadmium plated - Classification: 1 100 MPa (at ambient temperature) / 235 °C

Série aérospatiale - Vis à tête hexagonale normale, tige normale à tolérance large, filetage moyen, en acier allié, cadmiées - Classification : 1 100 MPa (à température ambiante) / 235 °C

Luft- und Raumfahrt - Sechskantschrauben, mittlere Gewindelänge, aus legiertem Stahl, verkadmet - Klasse : 1 100 MPa (bei Raumtemperatur) / 235 °C

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COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

Management Centre: Avenue Marnix 17, B-1000 Brussels

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Foreword

This document (EN 4129:2009) 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of an identical text or by endorsement, at the latest by October 2009, and conflicting national standards shall be withdrawn at the latest by October 2009.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, medium length thread, in alloy steel, cadmium plated.

Classification: 1 100 MPa [1]/ 235 °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 2133, *Aerospace series — Cadmium plating of steels with specified tensile strength ≤ 1 450 MPa, copper, copper alloys and nickel alloys*

EN 2137, *Steel FE-PL75 — 1 100 MPa ≤ R_m ≤ 1 250 MPa — Bars D_e ≤ 100 mm — Aerospace series* [3]

EN 2424, *Aerospace series — Marking of aerospace products*

EN 2442 [4], *Steel FE-PL711 — 1 100 MPa ≤ R_m ≤ 1 300 MPa — Bars and wires D_e ≤ 25 mm — Aerospace series* [3]

EN 3514, *Aerospace series — Steel FE-PL711 — Hardened and tempered — 1 100 ≤ R_m ≤ 1 300 MPa — Bar and wire for bolts — D_e ≤ 25 mm* [5]

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 3193, *Aerospace — Bolts, normal hexagonal head, normal shank, short or medium length MJ threads, metallic material, coated or uncoated, strength classes less than or equal to 1 100 MPa — Dimensions*

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 7689, *Aerospace — Bolts, with MJ threads, made of alloy steel, strength class 1 100 MPa — Procurement specification*

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

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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 Standard at the date of publication of this standard.

4) Inactive for new designation, see EN 3514.

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

TR 3775, *Aerospace series — Bolts and pins — Materials* [6)]

3 Required characteristics

3.1 Configuration — Dimensions — Masses

See Figure 1 and Table 1.

Dimensions and tolerances are expressed in millimetres, in conformity with ISO 3193, and apply after surface treatment.

3.2 Tolerances of form and position

ISO 7913

3.3 Materials

EN 2137, EN 2442

or

TR 3775 (alloy steel, classification 1 100 MPa).

3.4 Surface treatment

EN 2133, 8 µm to 14 µm, on all surfaces which can be contacted by a 20 mm diameter ball. On all other surfaces, a continuous cadmium plating shall be present, but no value is specified.

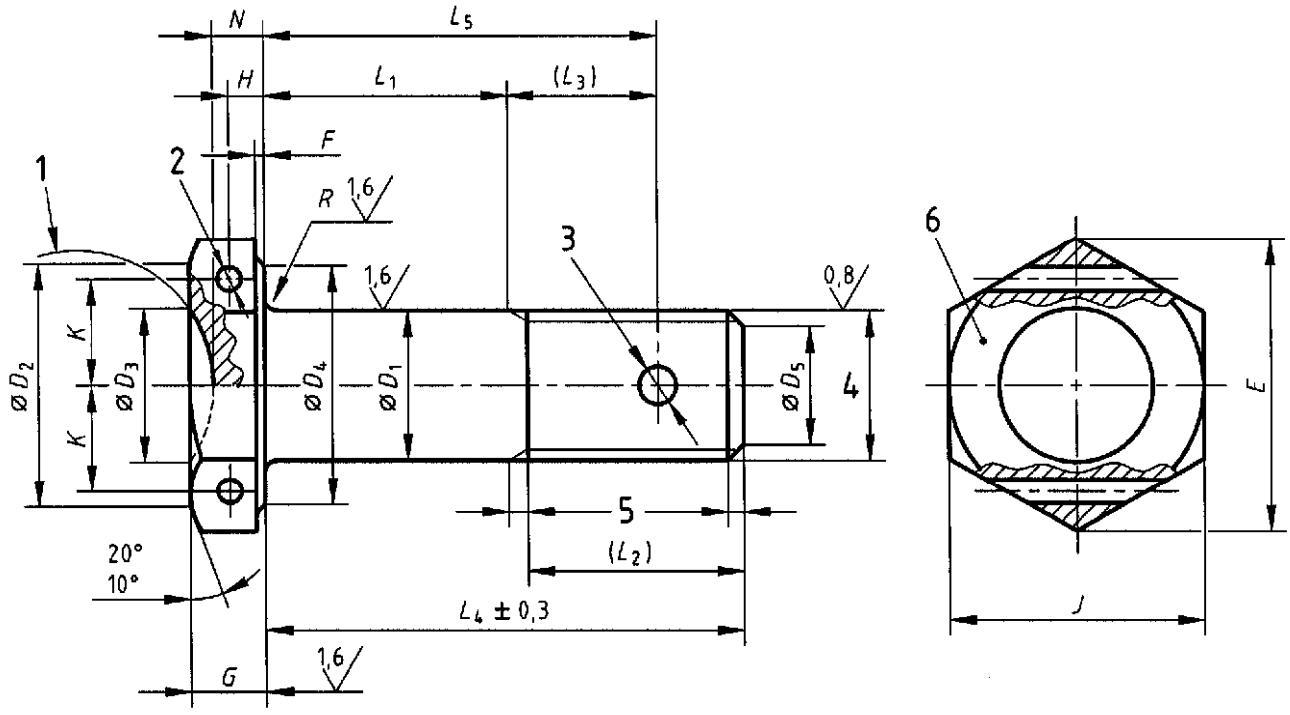
Black colour option: Code B.

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

3,2 [1,6 0,8] 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 holes $\varnothing D_6$ (optional)
3 1 hole $\varnothing D_7$ (optional)
4 Thread
5 Conforms to ISO 3353-1
6 Marking

Figure 1 – Configuration and dimensions

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	D_7 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		—	1,1	7,6	0,5		2,5	—
050	MJ5×0,8 - 4h6h	5	7,4	5,25	7,4	3,4	± 0,5	1	1,5	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			1,9	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	2,4	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			3	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			3,8	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	$L_1 \pm 0,2$ [c, d] Length code	$L_1 \pm 0,2$ [c, d] nom.	L_2	L_3	N 0 − 0,3	R max.	R min.	Mass [e] [f]	Mass [e] [g]
030	6	h12	—	002 to 030	2 to 30	7,5	—	—	0,4	0,2	0,928	0,055
040	7		—	002 to 040	2 to 40	10	6	—			1,833	0,099
050	8		3,25	003 to 050	3 to 50	12	7,5	2	0,5	0,3	3,244	0,153
060	10	h13	4,1	003 to 060	3 to 60	14	8,5	2,3	0,7	0,5	6,077	0,222
070	11		4,5	004 to 070	4 to 70	15	9,5	2, 7			8,351	0,302
080	13		5,35	004 to 080	4 to 80	16,5	10,5	3			12,745	0,395
100	17		7,1	005 to 100	5 to 100	20,5	13	3,4	0,8	0,6	24,628	0,616
120	19		7,9	006 to 120	6 to 120	22,5	14,5	4	0,9		39,391	0,887
140	22		9,2	007 to 140	7 to 140	26	17	4,7	1,1	0,8	60,258	1,208
160	24		10,05	008 to 160	8 to 160	28,5	18,5	5,4			88,548	1,578
180	27		11,3	009 to 180	9 to 180	31	21	6	1,3	1	124,279	1,997
200	30		12,6	010 to 200	10 to 200	33,5	22,5	6,7			169,322	2,466

[a] In accordance with ISO 5855-2.

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

[c] Increments:
- 1 for $L_1 \leq 30$;
- 2 for $30 < L_1 \leq 100$;
- 4 for $L_1 > 100$.

[d] If greater lengths are required, they shall be chosen using the above increments. The length code corresponds to the length L_1, completed by one or two zeros to the left, where necessary, to obtain a three digit code.

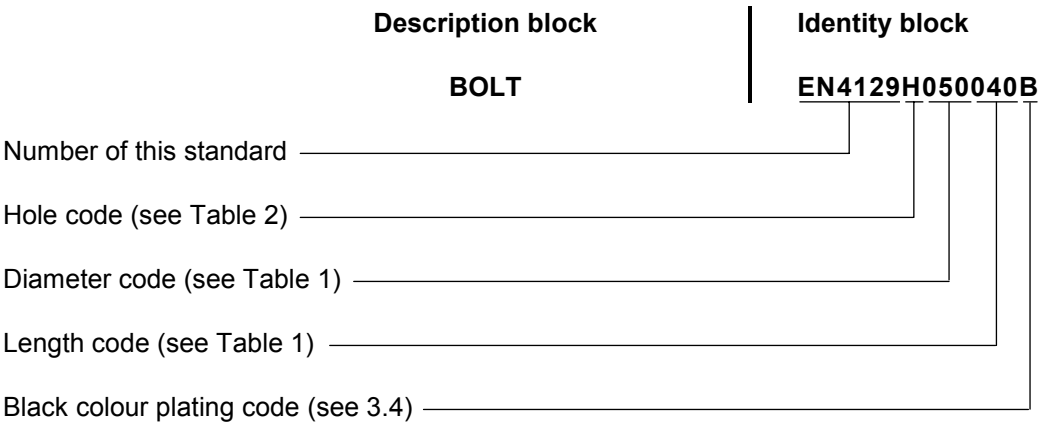
[e] Approximate values (kg/1 000 pieces), calculated on the basis of 7,85 kg/dm^3, given for information purposes only. They apply to bolts without holes.

[f] Value for head and first L_4.

[g] Increase for each additional millimetre of L_4.

4 Designation

EXAMPLE



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

Table 2

Holes	Code
Lockwire	H
Split pin	D
Lockwire and split pin	C
No hole	— (hyphen)

5 Marking

See Table 3 and Figure 1.

Table 3

Diameter code	EN 2424 Style
030 and 040	N
050 to 120	B
140 to 200	A

6 Technical specification

ISO 7689, except for clauses:

a) Approval of manufacturers: see EN 9100;

b) Qualification of bolts: see EN 9133.

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