BRITISH STANDARD

BS EN 4137:2009

Aerospace series — Bolts, normal bi-hexagonal head, stepped shank, long thread, in titanium alloy, anodized, MoS2 lubricated — Classification: 1 100 MPa (at ambient temperature) / 315 °C

ICS 49.030.20

BSI
British Standards

National foreword

This British Standard is the UK implementation of EN 4137:2009.

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.

This publication does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

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Date	Comments

EUROPEAN STANDARD

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EUROPÄISCHE NORM

EN 4137

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English Version

Aerospace series - Bolts, normal bi-hexagonal head, stepped shank, long thread, in titanium alloy, anodized, MoS2 lubricated - Classification: 1 100 MPa (at ambient temperature) / 315 °C

Série aérospatiale - Vis à tête bihexagonale normale, à tige dégagée, filetage long, en alliage de titane, anodisées, lubrifiées MoS2 - Classification : 1 100 MPa (à température ambiante) / 315 °C

Luft- und Raumfahrt - Zwölfkantschrauben, Dünnschaft, langes Gewinde, aus Titanlegierung, anodisiert, MoS2-geschmiert - Klasse: 1 100 MPa (bei Raumtemperatur) / 315 °C

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COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

Management Centre: Avenue Marnix 17, B-1000 Brussels

Contents

Page

Foreword

This document (EN 4137:2009) 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of an identical text or by endorsement, at the latest by January 2010, and conflicting national standards shall be withdrawn at the latest by January 2010.

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1 Scope

This standard specifies the characteristics of bolts, normal bi-hexagonal head, stepped shank, long thread, in titanium alloy, anodized, MoS_2 lubrificated.

Classification: 1 100 MPa [1] / 315 °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 2491, *Aerospace series — Molybdenum disulphide dry lubricants — Coating methods*.

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 4095, *Aerospace — Bihexagonal drives — Wrenching configuration — Metric series.*

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 9152, *Aerospace — Bolts, with MJ threads, in titanium alloys, strength class 1 100 MPa — Procurement specification.*

TR 3775, *Aerospace series — Bolts and pins — Materials.* [3]

TR 4070, *Aerospace series — Molybdenum disulphide coatings — List of commercial products.* [3]

3 Required characteristics

3.1 Configuration — Dimensions — Masses

See Figure 1 and Table 1.

Dimensions and tolerances are expressed in millimetres and apply after anodizing but before lubricating.

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

2) Maximum temperature 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 Technical Report at the date of publication of this standard.

3.2 Tolerances of form and position

ISO 7913

3.3 Materials

TR 3775 (titanium alloy, classification 1 100 MPa)

3.4 Surface treatment

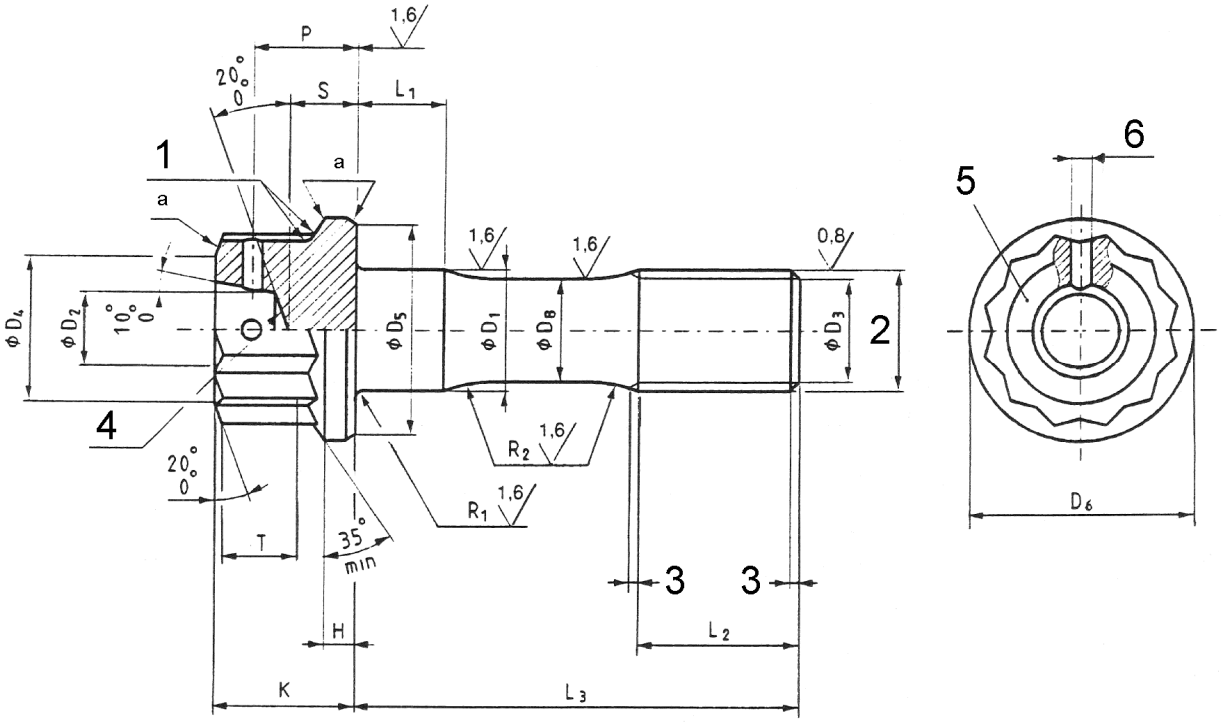
Lubrification:

a) lubricant: see Clause 4;

b) application: EN 2491: 5 µm to 10 µm.

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

Break sharp edges 0,1 to 0,4.



Key

1 Radius 0,3 min.
2 Thread
3 Conforms to ISO 3353-1
4 Shape optional
5 Marking
6 4 holes $\varnothing D_7$ equidistant optional

[a] Rounded or chamfered in this area.

Figure 1

Table 1

Diameter code	**Thread** [a]	D_1 h12	D_2 $^{+0,5}_{0}$	D_3 ± 0,5	D_4 min.	D_5 min.	D_6 max.	D_7 H13	D_8 h12	H min.	K h15	L_1 $^{0}_{-0,5}$	L_2
070	MJ7×1 - 4h6h	7	4,9	5,2	8,8	11,3	12,1	1,4	5,6	1,4	8,2	3,5	20
080	MJ8×1 - 4h6h	8	5,2	6,2	9,8	12,8	13,6		6,6	1,6	8,6		22
100	MJ10×1,25 - 4h6h	10	6,7	7,9	11,8	15,7	16,7	1,6	8,3	2	10,1		26
120	MJ12×1,25 - 4h6h	12	8	9,8	13,7	18,8	19,9		10,3	2,4	11,4		30

Diameter code	$L_3 \pm 0,3$ [b, c]		P	R_1		R_2 $^{+0,3}_{0}$	S $^{+0,4}_{0}$	T min.	**Wrenching dash number** [d]	**Mass** [e]	
	Length code	nom.		max.	min.					[f]	[g]
070	036 to 098	36 to 98	5,9	0,7	0,5	6	3,3	3,8	09	5,508	0,342
080	038 to 112	38 to 112	6,3				3,7	3,9	10	7,911	0,448
100	042 to 140	42 to 140	7,7	0,8	0,6		4,7	4,2	12	14,542	0,698
120	046 to 168	46 to 168	8,8	0,9			5,6	4,5	14	23,999	1,006

[a] In accordance with ISO 5855-2.

[b] Increments:
- 2 for $L_3 \leq 100$;
- 4 for $L_3 > 100$.

[e] If greater lengths are required, they shall be chosen using the above increments. The length code corresponds to the length L_3, completed by one or two zeros to the left, where necessary, to obtain a three digit code.

[f] In accordance with ISO 4095 over T min.

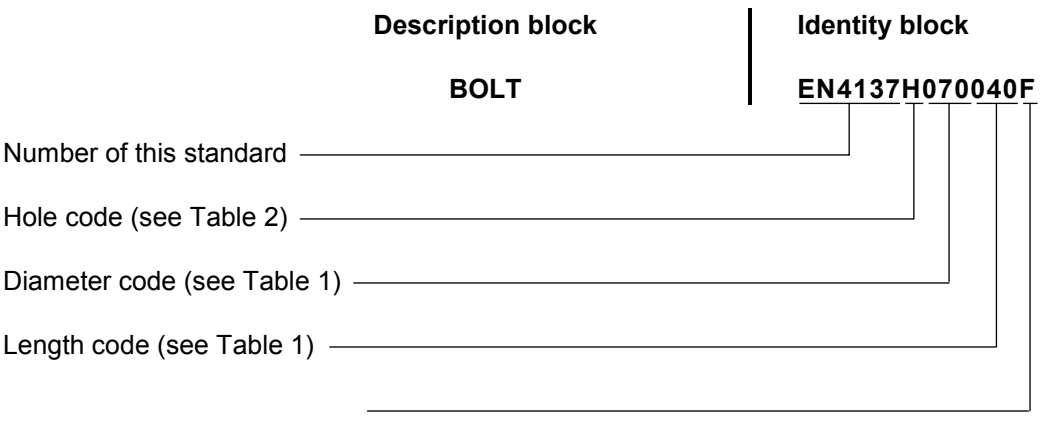
[g] Approximate values (kg/1 000 pieces), calculated on the basis of 4,45 kg/dm^3, given for information purposes only. They apply to bolts without holes.

[h] Value for head and first L_3.

[i] Increase for each additional 2 mm of L_3.

4 Designation

EXAMPLE



Lubricant code (see TR 4070)

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

Table 2

Holes	Code
with	H
without	— (hyphen)

5 Marking

EN 2424, style B (see Figure 1).

6 Technical specification

ISO 9152, except for clauses:

a) Approval of manufacturers: see EN 9100;

b) Qualification of bolts: see EN 9133.

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