

5 YfcbUj h\_U!`A Yff] b]`gcfb]\_žbcfa UbUýYgffcVU[ `Uj Užý]fc\_Ufc`YfUbWŁž\_fUHy\_  
bUj c`ž]n`h]Hbcj Yn`]HbYžUbcX]n]fUb]žbUa UnUb]`n`AcG&!`?`Ug]Z\_UW]U`%\$\$`ADU  
ftf]`hYa dYfUi f]`c\_c`]WŁ#`%`š7

Aerospace series - Metric bolts, normal hexagon head, coarse tolerance normal shank, short thread, in titanium alloy, anodized, MoS2 lubricated - Classification: 1 100 MPa (at ambient temperature)/315 °C

Luft- und Raumfahrt - Metrische Sechskantschrauben, kurzes Gewinde, aus Titanlegierung, anodisiert, MoS2-geschmiert - Klasse 1100 MPa (bei Raumtemperatur)/315 °C

Série aérospatiale - Vis métriques à tête hexagonale normale, fût normal à tolérance large, filetage court, en alliage de titane, anodisées, lubrifiées MoS2 - Classification: 1 100 MPa (à température ambiante)/315 °C

**Ta slovenski standard je istoveten z: EN 3820:2006**

**ICS:**

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

**SIST EN 3820:2009****en,de**

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EUROPEAN STANDARD  
NORME EUROPÉENNE  
EUROPÄISCHE NORM

**EN 3820**

July 2006

ICS 49.030.20

English Version

**Aerospace series - Metric bolts, normal hexagon head, coarse tolerance normal shank, short thread, in titanium alloy, anodized, MoS2 lubricated - Classification: 1 100 MPa (at ambient temperature)/315 °C**

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This European Standard was approved by CEN on 13 January 2006.

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This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the Central Secretariat has the same status as the official versions.

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

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## Foreword

This European Standard (EN 3820:2006) has been prepared by the AeroSpace and Defense 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 2007, and conflicting national standards shall be withdrawn at the latest by January 2007.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN [and/or CENELEC] shall not be held responsible for identifying any or all such patent rights.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and the United Kingdom.

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**EN 3820:2006 (E)****1 Scope**

This standard specifies the characteristics of bolts, normal hexagonal head, coarse tolerance normal shank, short thread, in titanium alloy, anodized, MoS<sub>2</sub> lubricated.

Classification: 1 100 MPa<sup>1)</sup> / 315 °C<sup>2)</sup>.

**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.

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 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*

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*

TR 3775, *Aerospace series — Bolts and pins — National materials<sup>3)</sup>*

TR 4070, *Aerospace series — Molybdenum disulphide dry lubricants — List of commercial products<sup>3)</sup>*

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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 Required characteristics

#### 3.1 Configuration — Dimensions — Masses

See Figure 1 and Table 1.

Dimensions and tolerances are: in conformity with ISO 3193, expressed in millimetres and apply after anodizing but before lubricating.

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

#### 3.2 Tolerances of form and position

See ISO 7913.

#### 3.3 Materials

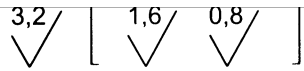
TR 3775 (titanium alloy, strength class 1 100 MPa)

#### 3.4 Surface treatment

Lubrication:

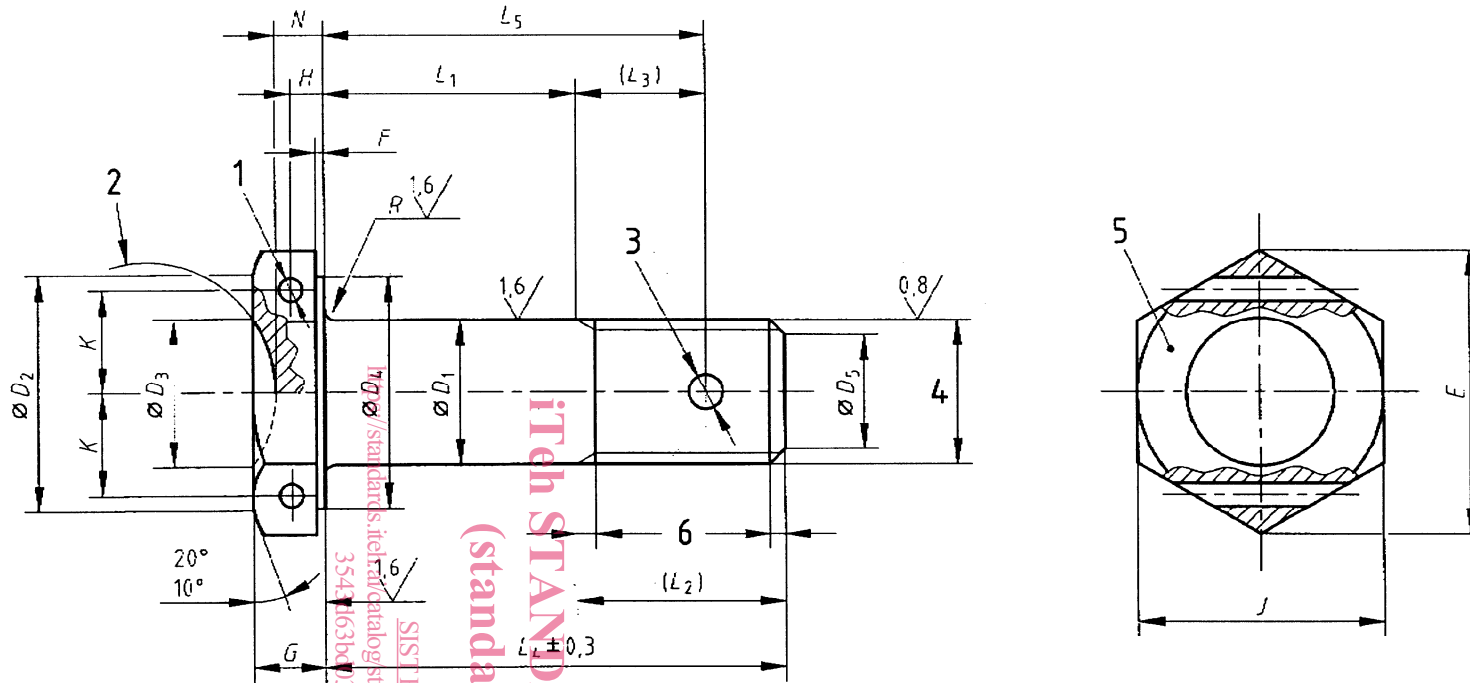
- lubricant: see TR 4070;
- application: EN 2491: 5 µm to 10 µm.

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Values in micrometres apply prior to surface treatment.

Break sharp edges 0,1 to 0,4.



- Key**
- 1 Two holes diameter  $D_6$  (optional)
  - 2 Continuous surface
  - 3 One hole diameter  $D_1$  (optional)
  - 4 Thread
  - 5 Marking
  - 6 Conforms to ISO 3353

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Figure 1



Table 1

Diameter code	Thread <sup>a</sup>	$D_1$	$D_2$	$D_3$	$D_4^b$	$D_5$		$D_6$	$D_7$	$E$	$F$		$G$	$H$
		h12	min.	$\begin{matrix} 0 \\ -0,5 \end{matrix}$	min.	nom.	Tol.	H13	H13	min.	max.	min.	$\begin{matrix} 0 \\ -0,3 \end{matrix}$	
030	MJ3×0,5 — 4h6h	3	5,5	—	5,4	2,3	$\begin{matrix} 0 \\ -0,5 \end{matrix}$	—	—	6,5	0,4	0,2	2	—
040	MJ4×0,7 — 4h6h	4	6,4	—	6,4	3		—	1,1	7,6			2,5	—
050	MJ5×0,8 — 4h6h	5	7,4	5,25	7,4	3,4	$\pm 0,5$	1	1,5	8,7	0,5	0,2	3	1,35
060	MJ6×1 — 4h6h	6	9,4	6,25	9,3	4,2		1,4		10,9			12	3,5
070	MJ7×1 — 4h6h	7	10,3	7,25	10,2	5,2			1,9	14,3			18,9	4
080	MJ8×1 — 4h6h	8	12,3	8,25	12,2	6,2		2,4		21,1			24,5	4,5
100	MJ10×1,25 — 4h6h	10	16,3	10,25	16	7,9			1,6	26,8			30,2	5
120	MJ12×1,25 — 4h6h	12	18,3	12,25	18	9,8		3		33,6			36,8	6
140	MJ14×1,5 — 4h6h	14	21,3	14,25	21	11,5			3,8	30,2			33,6	7
160	MJ16×1,5 — 4h6h	16	23,3	16,25	23	13,5		0,6		30,2			33,6	8
180	MJ18×1,5 — 4h6h	18	26,3	18,25	26	15,5			0,3	30,2			33,6	9
200	MJ20×1,5 — 4h6h	20	29,3	20,25	29	17,5		10		4,85				

continued