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**Aeronavtika - Vijaki, 100° ugrezna glava, križna zareza, z navojem do glave, iz titanove zlitine, anodizirani, z aluminijem pigmentiranim premazom, metrska serija - Klasifikacija: 1100 MPa (pri temperaturi okolice)/315 °C**

Aerospace series - Screws, 100 countersunk normal head, offset cruciform recess, threaded to head, in titanium alloy, anodized, with aluminium pigmented coating, metric series - Classification: 1 100 MPa (at ambient temperature) / 315 °C

Luft- und Raumfahrt - 100° Senkschrauben, mit Flügelkreuzschlitz, Gewinde annähernd bis Kopf, aus Titanlegierung, anodisiert, mit Aluminium pigmentierte Beschichtung, metrische Reihe - Klasse: 1 100 MPa (bei Raumtemperatur) / 315 °C

Série aérospatiale - Vis à tête fraisée 100 normale à empreinte cruciforme déportée, filetées jusqu'à proximité de la tête, en alliage de titane, anodisées, avec revêtement aluminio-organique, série métrique - Classification : 1 100 MPa (à température ambiante) / 315 °C

**Ta slovenski standard je istoveten z: EN 4509:2006**

**ICS:**

49.025.20	Aluminij	Aluminium
49.025.30	Titan	Titanium
49.030.20	Sorniki, vijaki, stebelni vijaki	Bolts, screws, studs

**SIST EN 4509:2009****en,de**

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EUROPEAN STANDARD  
 NORME EUROPÉENNE  
 EUROPÄISCHE NORM

**EN 4509**

June 2006

ICS 49.030.20

English Version

**Aerospace series - Screws, 100 countersunk normal head, offset cruciform recess, threaded to head, in titanium alloy, anodized, with aluminium pigmented coating, metric series - Classification: 1 100 MPa (at ambient temperature) / 315 °C**

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

CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the Central Secretariat or to any CEN member.

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  
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<b>Contents</b>		Page
Foreword.....		3
1	Scope .....	4
2	Normative references .....	4
3	Required characteristics.....	5
4	Designation .....	8
5	Marking .....	8
6	Technical specification .....	8

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## Foreword

This European Standard (EN 4509:2006) has been prepared by the European Association of Aerospace Manufacturers - Standardization (AECMA-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 AECMA, 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 December 2006, and conflicting national standards shall be withdrawn at the latest by December 2006.

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 4509:2006 (E)****1 Scope**

This standard specifies the characteristics of screws, 100° countersunk normal head, offset cruciform recess, threaded to head, in titanium alloy, anodized, with aluminium pigmented coating, metric series.

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 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 7994:1985, *Aerospace – Internal drive, offset cruciform recess (Torq-Set®) for rotary fastening devices – Metric series.* <sup>3)</sup>

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 4474, *Aerospace series – Aluminium pigmented coating – Coating methods.* <sup>4)</sup>

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.*

MIL-L-87132B, *Lubricant, Cetyl Alcohol, 1-Hexadecanol, Application to Fasteners.* <sup>5)</sup>

TR 3775, *Aerospace series – Bolts and pins – Materials.* <sup>6)</sup>

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

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

3) Withdrawn standard (2003-09-03)

4) Published as AECMA Prestandard at the date of publication of this standard

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

6) Published as AECMA 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 expressed in millimetres and apply after coating.

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 treatments

See EN 4474.

Lubrication with cetylic alcohol (chlorine free) according to MIL-L-87132

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Table 1

Diameter code	Thread <sup>a</sup>	$D_1$	$D_2$	$D_3$	$D_4$		$E$	$F$	$G$	$H$	$L \pm 0,2$ <sup>b,c</sup>		$R$		Mass <sup>d</sup>		
		max.	min.		nom.	Tol.		min.	$0$ $-0,08$			Code	nom.	nom.	Tol.	e	f
<b>030</b>	MJ3×0,5-4h6h	6	5,4	4,5	2,3	0 -0,5	1,27	0,06	0,63	0,3	006 to 042	6 to 42	0,4		0,22	0,03	
<b>040</b>	MJ4×0,7-4h6h	8	7,2	5,78	3		1,69	0,08	0,93	0,4	008 to 056	8 to 56			0,53	0,06	
<b>050</b>	MJ5×0,8-4h6h	10	9	7,71	3,4	±0,5	2,12	0,1	0,96	0,5	010 to 070	10 to 70	0,5	0 -0,2	1,02	0,09	
<b>060</b>	MJ6×1-4h6h	12	10,8	9	4,2		2,54		1,26	0,6	012 to 084	12 to 84	0,7		1,78	0,13	
<b>070</b>	MJ7×1-4h6h	14	12,8	10,28	5,2		2,96		1,57	0,6	012 to 098	12 to 98	0,7		2,54	0,17	
<b>080</b>	MJ8×1-4h6h	16	14,8	12,21	6,2		3,39		1,6	0,6	014 to 112	14 to 112	0,8		3,86	0,23	
<b>100</b>	MJ10×1,25-4h6h	20	18,8	15,43	7,9		4,23		1,93	0,6	018 to 140	18 to 140	0,8		7,78	0,34	
<b>120</b>	MJ12×1,25-4h6h	24	22,8	18	9,8		5,08		2,53	0,6	020 to 168	20 to 168	0,9		0 -0,3	12,72	0,51

<sup>a</sup> In accordance with ISO 5855-2

<sup>b</sup> Increments:  
2 for  $L \leq 100$   
4 for  $L > 100$

<sup>c</sup> If greater lengths are required, they shall be chosen using the above increments. The length code corresponds to length  $L$ , completed by one or two zeros to the left, where necessary, to obtain a three digit code.

<sup>d</sup> Approximate values (kg/1 000 pieces), calculated on the basis of  $4,45 \text{ kg/dm}^3$ , for information purposes only.

<sup>e</sup> Value for first  $L$ .

<sup>f</sup> Increase for each additional 2 mm of  $L$ .

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