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**Aeronavtika - Vijaki, 100° ugrezna glava, križna zareza, polno steblo, ozka toleranca, dolg navoj, iz legiranega jekla, kadmirani - 1100 MPa (pri temperaturi okolice)/235 °C**

Aerospace series - Screws 100° countersunk normal head, offset cruciform recess, coarse tolerance normal shank, long thread, in alloy steel, cadmium plated - 1100 MPa (at ambient temperature)/235 °C

Luft- und Raumfahrt - 100° Senkschrauben mit Flügelkreuzschlitz, langes Gewinde, aus legiertem Stahl, verkadmet - 1100 MPa (bei Raumtemperatur)/235 °C

Série aérospatiale - Vis à tête fraisée 100° normale, à empreinte cruciforme déportée, tige normale à tolérance large, filetage long, en acier allié, cadmiées - 1100 MPa (à température ambiante)/235°C

**Ta slovenski standard je istoveten z: EN 4163:2009**

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**ICS:**

49.025.10	Jekla	Steels
49.030.20	Sorniki, vijaki, stebelni vijaki	Bolts, screws, studs

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EUROPEAN STANDARD  
NORME EUROPÉENNE  
EUROPÄISCHE NORM

**EN 4163**

November 2009

ICS 49.030.10

English Version

**Aerospace series - Screws 100° countersunk normal head, offset cruciform recess, coarse tolerance normal shank, long thread, in alloy steel, cadmium plated - 1 100 MPa (at ambient temperature) / 235 °C**

Série aérospatiale - Vis à tête fraisée 100° normale; à empreinte cruciforme déportée, tige normale à tolérance large, filetage long, en acier allié, cadmiées - 1 100 MPa (à température ambiante) / 235 °C

Luft- und Raumfahrt - 100° Senkschrauben mit Flügelkreuzschlitz, langes Gewinde, aus legiertem Stahl, verkadmet - 1 100 MPa (bei Raumtemperatur) / 235 °C

This European Standard was approved by CEN on 15 September 2009.

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 CEN Management Centre 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 CEN Management Centre has the same status as the official versions.

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**Contents**

Page

Foreword.....	3
1 Scope .....	4
2 Normative references .....	4
3 Required characteristics .....	4
3.1 Configuration – Dimensions – Masses .....	4
3.2 Tolerances of form and position .....	5
3.3 Materials .....	5
3.4 Surface treatment .....	5
4 Designation .....	8
5 Marking .....	8
6 Technical specification .....	8

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## Foreword

This document (EN 4163:2009) 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 May 2010, and conflicting national standards shall be withdrawn at the latest by May 2010.

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, Bulgaria, 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 4163:2009 (E)****1 Scope**

This European Standard specifies the characteristics of screws, 100° countersunk normal head, offset cruciform recess, coarse tolerance normal shank, long thread, in alloy steel, cadmium plated.

Classification : 1 100 MPa<sup>1)</sup> / 235 °C<sup>2)</sup>.

**2 Normative references**

EN 2133, *Aerospace series – Cadmium plating of steels with specified tensile strength  $\leq 1\,450$  MPa, copper, copper alloys and nickel alloys*

EN 2137, *Aerospace series – Steel FE-PL75 –  $1\,100\text{ MP} \leq R_m \leq 1\,250\text{ MPa}$  – Bars –  $D_e \leq 100\text{ mm}^3$*

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

EN 2442, *Aerospace series – Steel FE-PL711 –  $1\,100\text{ MPa} \leq R_m \leq 1\,300\text{ MPa}$  – Bars and wires –  $D_e \leq 25\text{ mm}^3$*

EN 9100, *Quality Management Systems – Requirements for Aviation, Space and Defense Organization*

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

TR 3775, *Aerospace series – Bolts and pins – National materials<sup>4)</sup>*

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*

ISO 7994, *Aerospace – Internal drive, offset cruciform recess, (Torq-Set®) for rotary fastening devices – Metric series*

**3 Required characteristics****3.1 Configuration – Dimensions – Masses**

See Figure 1 and Table 1.

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 surface treatment.

3) Published as ASD-STAN Standard at the date of publication of this standard.

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

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 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 surface 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.

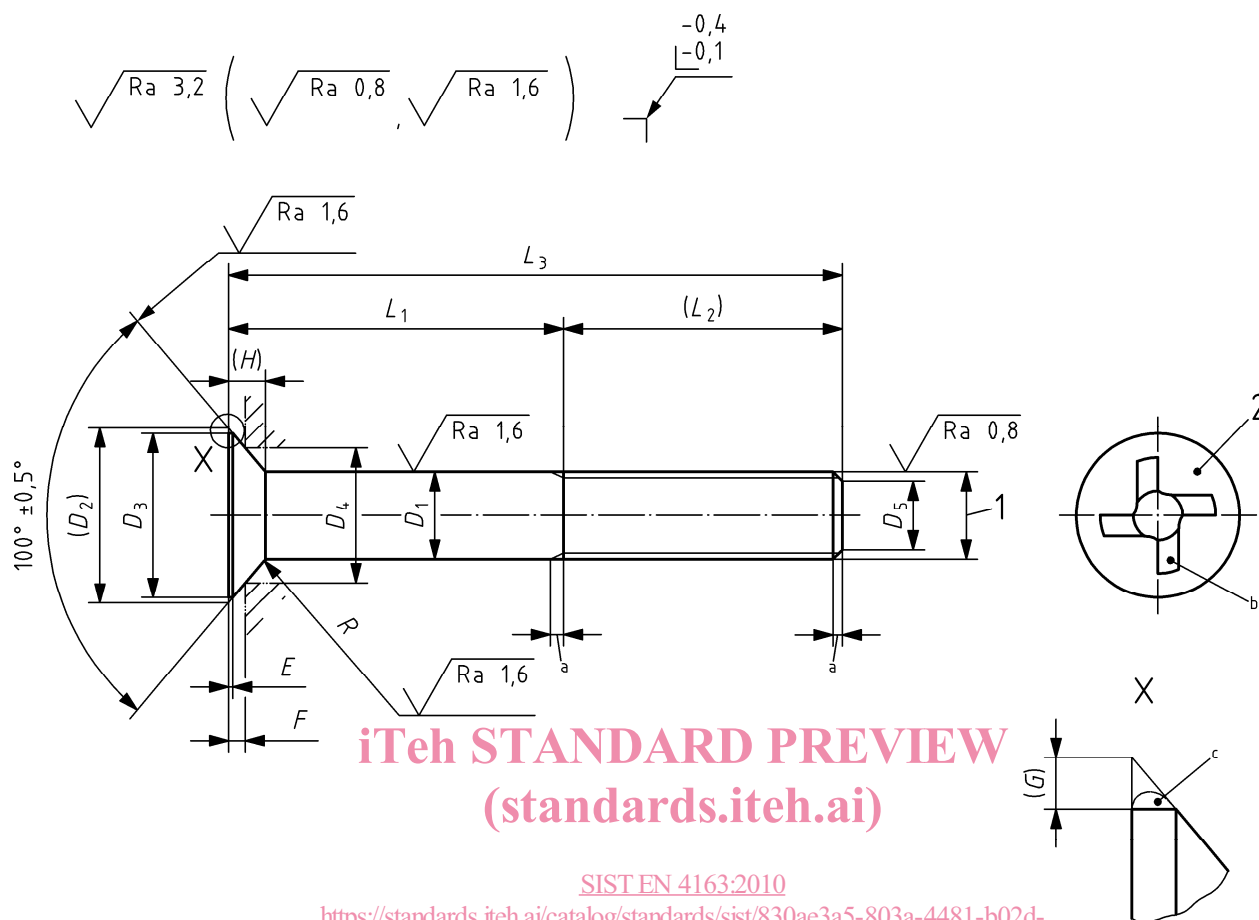
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Dimensions in millimetres



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#### Key

1 Thread

2 Marking

a Conforms to ISO 3353-1

b Drive

c The rounded angle accepted or Blended convex form permitted

Figure 1



Table 1

Diameter code	Thread <sup>1)</sup>	D <sub>1</sub>	D <sub>2</sub>	D <sub>3</sub>	D <sub>4</sub>	D <sub>5</sub>		E	F	G	H	L <sub>1</sub> <sup>2) 3)</sup>		L <sub>2</sub>	L <sub>3</sub> ± 0,3 <sup>3) 4)</sup>		R		Mass <sup>5)</sup>	
		h12		min.		nom.	Tol.	min.	0 -0,08				nom.	Tol.		Length code	nom.	max.	min.	6)
050	MJ5x0,8-4h6h	5	10	9	7,71	3,4	± 0,5	0,1	0,96	0,5	2,12	6	0 - 0,8	16	022 to 070	22 to 70	0,5	0,3	3,009	0,306
060	MJ6x1-4h6	6	12	10,8	9	4,2			1,26	0,6	2,54	6	0 - 1	18	024 to 084	24 to 84	0,7	0,5	4,699	0,444
070	MJ7x1-4h6h	7	14	12,8	10,28	5,2			1,57		2,96	8	0 - 1	20	028 to 098	28 to 98			7,682	0,604
080	MJ8x1-4h6h	8	16	14,8	12,21	6,2			1,6		3,39	8	0 - 1	22	030 to 112	30 to 112			10,535	0,790
100	MJ10x1,25-4h6h	10	20	18,8	15,43	7,9			1,93		4,23	8	0 - 1,25	26	034 to 140	34 to 140	0,8	0,6	19,337	1,232
120	MJ12x1,25-4h6h	12	24	22,8	18	9,8			2,53		5,08	10	0 - 1,25	30	040 to 168	40 to 168			0,9	33,504

1) In accordance with ISO 5855-2.

2) First length corresponding to first L<sub>3</sub> length.

3) Increments:

2 for L<sub>3</sub> ≤ 100;

4 for L<sub>3</sub> > 100.

4) If greater lengths are required, they shall be chosen using the above increments. The length code corresponds to the length L<sub>3</sub>, completed by one or two zeros to the left, where necessary, to obtain a three digit code.

5) Approximate values (kg/1 000 pieces), calculated on the basis of 7,85 kg/dm<sup>3</sup>, given for information purposes only.

6) Value for first L<sub>3</sub>.

7) Increase for each additional 2 mm of L<sub>3</sub>.

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