



# SLOVENSKI STANDARD

## SIST EN 3112:2001

01-januar-2001

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**Aerospace series - Bolts, normal hexagonal head, threaded to head, in alloy steel, cadmium plated - Classification: 900 MPa (at ambient temperature) / 235 °C**

Aerospace series - Bolts, normal hexagonal head, threaded to head, in alloy steel, cadmium plated - Classification: 900 MPa (at ambient temperature) / 235 °C

Luft- und Raumfahrt - Sechskantschrauben, Gewinde annähernd bis Kopf, aus legiertem Stahl, verkadmet - Klasse: 900 MPa (bei Raumtemperatur) / 235 °C

Série aérospatiale - Vis à tête hexagonale normale, filetées jusqu'à proximité de la tête, en acier allié, cadmiées - Classification: 900 MPa (à température ambiante) / 235 °C

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**Ta slovenski standard je istoveten z: EN 3112:1995**

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**ICS:**

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

**SIST EN 3112:2001**

**en**

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EUROPEAN STANDARD

EN 3112

NORME EUROPÉENNE

EUROPÄISCHE NORM

June 1995

ICS 49.040.20

Descriptors: aircraft industry, aircraft equipment, screw, hexagonal head screw, alloy steel, cadmium, screw thread, specification, characteristic, dimension, mass, dimensional tolerance, surface treatment, designation, marking

English version

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threaded to head, in alloy steel, cadmium plated -  
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# CEN

European Committee for Standardization  
Comité Européen de Normalisation  
Europäisches Komitee für Normung

Central Secretariat: rue de Stassart, 36 B-1050 Brussels

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Ref. No. EN 3112:1995 E

## Foreword

This European Standard has been prepared by the European Association of Aerospace Manufacturers (AECMA).

After inquiries and votes carried out in accordance with the rules of this Association, this Standard has successively received the approval of the National Associations and the Official Services of the member countries of AECMA, prior to its presentation to CEN.

This standard was submitted for Formal Vote, and the result was positive.

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 1995, and conflicting national standards shall be withdrawn at the latest by December 1995.

According to the CEN/CENELEC Internal Regulations, the following countries are bound to implement this European Standard:

Austria, Belgium, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland, United Kingdom.

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## 1. Scope

This standard specifies the characteristics of bolts, normal hexagonal head, threaded to head, in alloy steel, cadmium plated.

Classification : 900 MPa <sup>1)</sup> / 235 °C <sup>2)</sup>

## 2 Normative references

This European Standard incorporates by dated or undated reference provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies.

- ISO 3353 Aerospace - Rolled threads for bolts - Lead and runout requirements
- ISO 5855-2 Aerospace - MJ threads - Part 2 : Limit dimensions for bolts and nuts
- ISO 7689 Aerospace - Alloy steel bolts with strength classification 1 100 MPa and MJ threads - Procurement specification
- ISO 7913 Aerospace - Bolts and screws, metric - Tolerances of form and position
- EN 2000 Aerospace series - Quality assurance - EN aerospace products - Approval of the quality system of manufacturers
- EN 2133 Cadmium plating of steels with maximum specified tensile strength equal to or less than 1 450 MPa and copper and copper alloys - Aerospace series <sup>3)</sup>
- EN 2424 Aerospace series - Marking of aerospace products
- TR 3775 Aerospace series - Bolts and pins - National materials <sup>4)</sup>

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 AECMA Standard at the date of publication of this standard

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

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### 3 Required characteristics

#### 3.1 Configuration - Dimensions - Masses

See figure 1 and table 1.

Dimensions and tolerances are expressed in millimetres and apply after surface treatment.

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

#### 3.2 Tolerances of form and position

ISO 7913

#### 3.3 Materials

TR 3775 (alloy steel, classification : 900 MPa)

#### 3.4 Surface treatment

EN 2133, 8  $\mu\text{m}$  to 14  $\mu\text{m}$ , on all surfaces which can be contacted by a 20 mm diameter ball. On all other surfaces, a continuous deposit shall be present, but no value is specified.

Black colour option : code B

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$\sqrt{3,2}$   $\left[ \sqrt{0,8} \right]$  Values in micrometres apply prior to surface treatment.

Break sharp edges 0,1 to 0,4

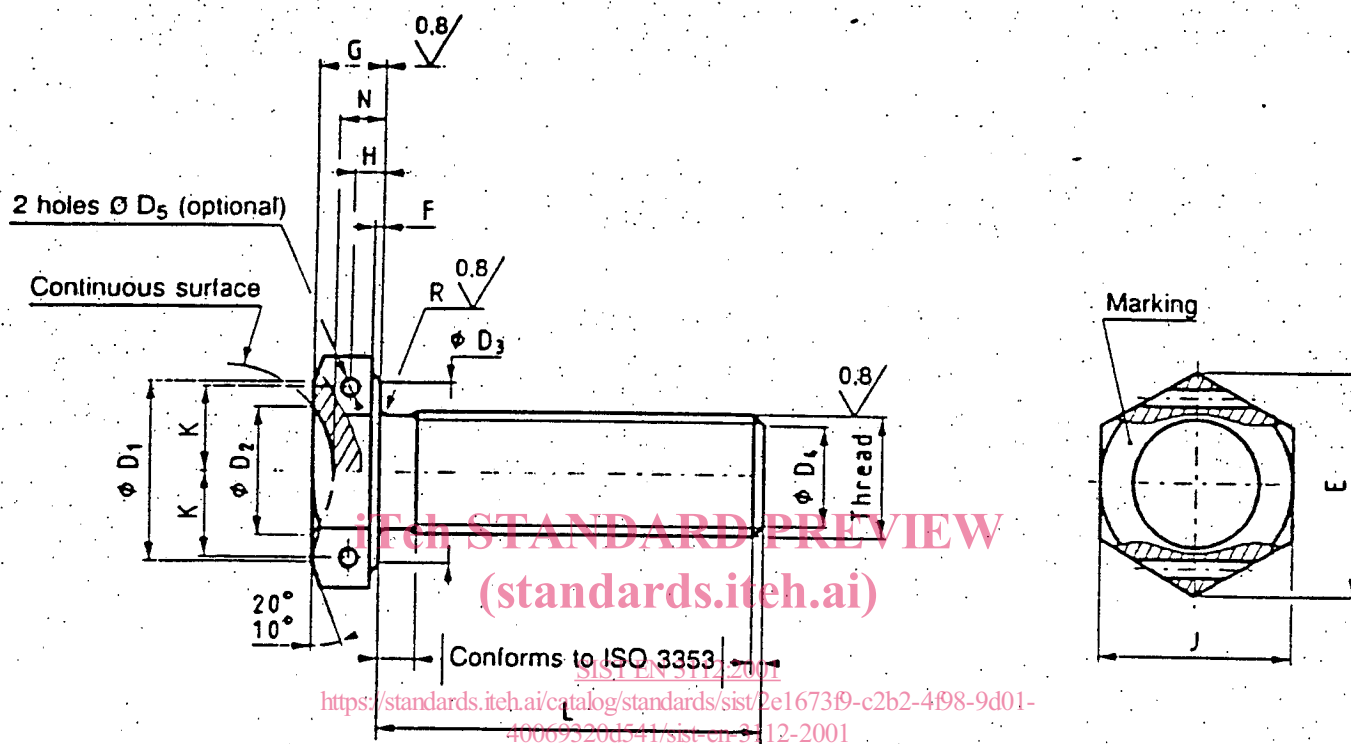


Figure 1

Table 1

Diameter code	Thread <sup>1)</sup>	$D_1$	$D_2$	$D_3$ <sup>2)</sup>	$D_4$		$D_5$	$E$	$F$		$G$
		min.	0 - 0,5	min.	nom.	Tol.	H13	min.	max.	min.	0 - 0,3
030	MJ3x0,5 - 4h6h	5,5	—	5,4	2,3	0	—	6,5	0,4		2
040	MJ4x0,7 - 4h6h	6,4	—	6,4	3	- 0,5	—	7,6			2,5
050	MJ5x0,8 - 4h6h	7,4	5,25	7,4	3,4		1	8,7			3
060	MJ6x1 - 4h6h	9,4	6,25	9,3	4,2			10,9	0,5	0,2	3,5
070	MJ7x1 - 4h6h	10,3	7,25	10,2	5,2		1,4	12			4
080	MJ8x1 - 4h6h	12,3	8,25	12,2	6,2			14,3			4,5
100	MJ10x1,25 - 4h6h	16,3	10,25	16	7,9			18,9			5
120	MJ12x1,25 - 4h6h	18,3	12,25	18	9,8	± 0,5		21,1			6
140	MJ14x1,5 - 4h6h	21,3	14,25	21	11,5			24,5			7
160	MJ16x1,5 - 4h6h	23,3	16,25	23	13,5		1,6	26,8	0,6	0,3	8
180	MJ18x1,5 - 4h6h	26,3	18,25	26	15,5			30,2			9
200	MJ20x1,5 - 4h6h	29,3	20,25	29	17,5			33,6			10

(concluded)

Diameter code	$H$	nom.	$J$	$K$	$L \pm 0,3$ <sup>3) 4)</sup>		$N$	$R$		Mass <sup>5)</sup>	
					Code	nom.		0 - 0,3	max.	min.	6)
030	—	6	h12	—	004 to 042	4 to 42	—	0,4	0,2	0,59	0,09
040	—	7		006 to 056	6 to 56	—	—	—	—	1,17	0,15
050	1,35	8		3,25	008 to 070	8 to 70	2	0,5	0,3	2	0,25
060	1,6	10	h13	4,1	010 to 084	10 to 84	2,3	—	—	3,63	0,36
070	1,85	11		4,5	010 to 098	10 to 98	2,7	0,7	0,5	5,1	0,5
080	2,1	13		5,35	010 to 112	10 to 112	3	—	—	7,59	0,67
100	2,35	17		7,1	014 to 140	14 to 140	3,4	0,8	0,6	15,55	1,04
120	2,85	19		7,9	016 to 168	16 to 168	4	0,9	—	24,76	1,54
140	3,35	22		9,2	018 to 196	18 to 196	4,7	—	—	38,36	2,09
160	3,85	24		10,05	020 to 224	20 to 224	5,4	1,1	0,8	54,55	2,79
180	4,35	27		11,3	022 to 252	22 to 252	6	—	—	77,70	3,58
200	4,85	30	12,6	022 to 280	22 to 280	6,7	1,3	1	102,24	4,46	

1) In accordance with ISO 5855-2

2)  $D_3$  max. shall be less than  $J$ .

3) Increments :

2 for  $L \leq 100$ 4 for  $L > 100$ 4) If greater lengths are required, they shall be chosen using the above increments. The length code corresponds to the length  $L$ , 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  $7,85 \text{ kg/dm}^3$ , given for information purposes only. They apply to bolts without holes.6) Value for head and first  $L$ 7) Increase for each additional 2 mm of  $L$ .