

SLOVENSKI STANDARD
SIST EN 2889:2001**01-januar-2001**

Aerospace series - Bolts, normal hexagonal head, coarse tolerance normal shank, short thread, in alloy steel, cadmium plated - Classification: 900 MPa (at ambient temperature) / 235°C

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

Série aérospatiale - Vis à tête hexagonale normale, tige normale à tolérance large, filetage court, en acier allié, cadmiées - Classification: 900 MPa (à température ambiante) / 235 °C

Ta slovenski standard je istoveten z: EN 2889:1995

ICS:

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

SIST EN 2889:2001**en**

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EUROPEAN STANDARD

EN 2889

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

**Aerospace series - Bolts, normal hexagonal head,
coarse tolerance normal shank, short thread, in
alloy steel, cadmium plated - Classification: 900
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CEN

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

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Ref. No. EN 2889:1995 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of an identical text or by endorsement, at the latest by December 1995, and conflicting national standards shall be withdrawn at the latest by December 1995.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:
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EUROPEAN ASSOCIATION OF AEROSPACE MANUFACTURERS

1 Scope

This standard specifies the characteristics of bolts, normal hexagonal head, coarse tolerance normal shank, short thread, in alloy steel, cadmium plated.

Classification : 900 MPa ¹⁾ / 235 °C ²⁾

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 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 | 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 ³⁾ |
| EN 2424 | Aerospace series - Marking of aerospace products |
| TR 3775 | Aerospace series - Bolts and pins - National materials ⁴⁾ |

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

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 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 μm to 14 μm , 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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Values in micrometres apply prior to surface treatment.
 Break sharp edges 0,1 to 0,4

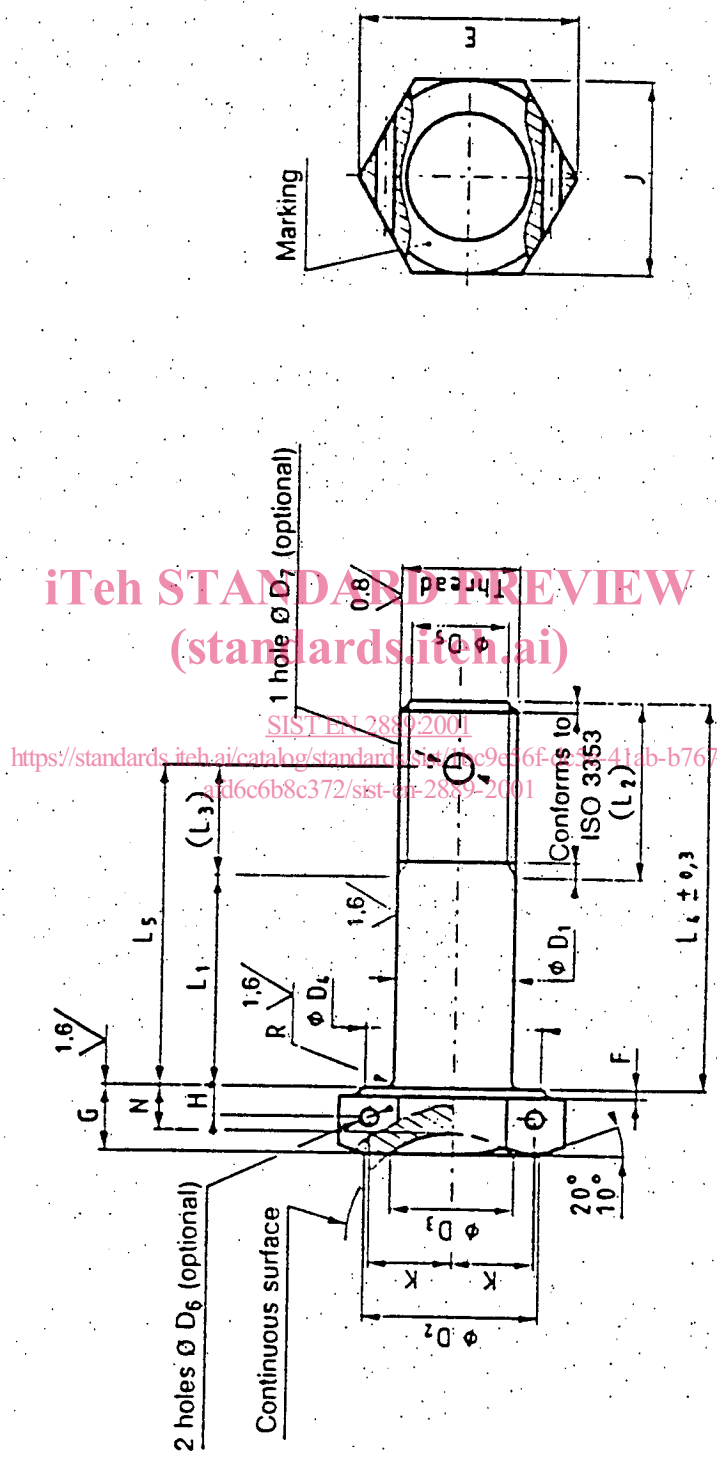


Figure 1

Table 1

| Diameter code | Thread 1) | D ₁ h12 | D ₂ min. | D ₃ 0 - 0,5 | D ₄ 2) min. | D ₅ nom. | D ₅ Tol. | D ₆ H13 | D ₇ H13 | E | | F | | G | H |
|---------------|------------------|-----------------------|------------------------|------------------------------|---------------------------|------------------------|------------------------|-----------------------|-----------------------|------|------|------|------|------|---|
| | | | | | | | | | | min. | max. | min. | max. | | |
| 030 | MJ3x0,5 - 4h6h | 3 | 5,5 | — | 5,4 | 2,3 | 0 | — | — | 6,5 | 0,4 | — | — | 0 | — |
| 040 | MJ4x0,7 - 4h6h | 4 | 6,4 | — | 6,4 | 3 | - 0,5 | — | 1,1 | 7,6 | — | — | 2,5 | — | — |
| 050 | MJ5x0,8 - 4h6h | 5 | 7,4 | 5,25 | 7,4 | 3,4 | — | 1 | 1,5 | 8,7 | 0,5 | 0,2 | 3 | 1,35 | — |
| 060 | MJ6x1 - 4h6h | 6 | 9,4 | 6,25 | 9,3 | 4,2 | — | 1,4 | 1,9 | 10,9 | — | — | 3,5 | 1,6 | — |
| 070 | MJ7x1 - 4h6h | 7 | 10,3 | 7,25 | 10,2 | 5,2 | — | — | — | 12 | — | — | 4 | 1,85 | — |
| 080 | MJ8x1 - 4h6h | 8 | 12,3 | 8,25 | 12,2 | 6,2 | — | — | — | 14,3 | — | — | 4,5 | 2,1 | — |
| 100 | MJ10x1,25 - 4h6h | 10 | 16,3 | 10,25 | 16 | 7,9 | ± 0,5 | — | 2,4 | 18,9 | — | — | 5 | 2,35 | — |
| 120 | MJ12x1,25 - 4h6h | 12 | 18,3 | 12,25 | 18 | 9,8 | — | — | — | 21,1 | — | — | 6 | 2,85 | — |
| 140 | MJ14x1,5 - 4h6h | 14 | 21,3 | 14,25 | 21 | 11,5 | — | 1,6 | 3 | 24,5 | — | — | 7 | 3,35 | — |
| 160 | MJ16x1,5 - 4h6h | 16 | 23,3 | 16,25 | 23 | 13,5 | — | — | — | 26,8 | 0,6 | 0,3 | 8 | 3,85 | — |
| 180 | MJ18x1,5 - 4h6h | 18 | 26,3 | 18,25 | 26 | 15,5 | — | — | 3,8 | 30,2 | — | — | 9 | 4,35 | — |
| 200 | MJ20x1,5 - 4h6h | 20 | 29,3 | 20,25 | 29 | 17,5 | — | — | — | 33,6 | — | — | 10 | 4,85 | — |

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Table 1 (concluded)

| Diameter code | J | | K | $L_1 \pm 0,2 \cdot 3^{ J }$ | | L_2 | L_3 | N | R | | Mass 5) | |
|---------------|------|------|-------|-----------------------------|-----------|-------|-------|-----|------|------|---------|------|
| | nom. | Tol. | | Code | nom. | | | | max. | min. | 6) | 7) |
| 030 | 6 | | — | 002 to 030 | 2 to 30 | 6 | — | — | 0,4 | 0,2 | 0,87 | 0,06 |
| 040 | 7 | h12 | — | 002 to 040 | 2 to 40 | 7,5 | 5 | — | 0,5 | 0,3 | 1,66 | 0,10 |
| 050 | 8 | | 3,25 | 003 to 050 | 3 to 50 | 9 | 6 | 2 | 0,7 | 0,5 | 2,91 | 0,15 |
| 060 | 10 | | 4,1 | 003 to 060 | 3 to 60 | 10 | 7 | 2,3 | 0,7 | 0,5 | 5,44 | 0,22 |
| 070 | 11 | | 4,5 | 004 to 070 | 4 to 70 | 11 | 7 | 2,7 | 0,7 | 0,5 | 7,45 | 0,30 |
| 080 | 13 | | 5,35 | 004 to 080 | 4 to 80 | 11,5 | 7,5 | 3 | 0,8 | 0,6 | 11,22 | 0,39 |
| 100 | 17 | | 7,1 | 005 to 100 | 5 to 100 | 14,5 | 9 | 3,4 | 0,9 | 0,6 | 21,78 | 0,62 |
| 120 | 19 | h13 | 7,9 | 006 to 120 | 6 to 120 | 16 | 10 | 4 | 1,1 | 0,8 | 34,82 | 0,89 |
| 140 | 22 | | 9,2 | 007 to 140 | 7 to 140 | 19 | 12 | 4,7 | 1,3 | 0,8 | 53,61 | 1,21 |
| 160 | 24 | | 10,05 | 008 to 160 | 8 to 160 | 20,5 | 13 | 5,4 | 1,3 | 1 | 78,40 | 1,58 |
| 180 | 27 | | 11,3 | 009 to 180 | 9 to 180 | 22,5 | 14,5 | 6 | 1,3 | 1 | 110,48 | 2,00 |
| 200 | 30 | | 12,6 | 010 to 200 | 10 to 200 | 24,5 | 15 | 6,7 | 1,3 | 1 | 151,14 | 2,47 |

1) In accordance with ISO 5855-2

2) D_4 max. shall be less than J.

3) Increments :

1 for $L_1 \leq 30$ 2 for $30 < L_1 \leq 100$ 4 for $L_1 > 100$ 4) If greater lengths are required, they shall be chosen using the above increments. The length code corresponds to the length L_1 , 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/dm³, given for information purposes only. They apply to bolts without holes.6) Value for head and first L_4 7) Increase for each additional millimetre of L_4 .