SLOVENSKI STANDARD
SIST EN 4162:2016

01-maj-2016

Nadomešča:
SIST EN 4162:2010

Aeronavtika - Vijaki, 100° ugrezna glava, križna zareza, polno steblo, ozka toleranca, srednja navojna dolžina, iz legiranega jekla, prevlečeni s kadmijem - Klasifikacija: 1100 MPa (pri temperaturi okolice) / 235 °C

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

Luft- und Raumfahrt - 100° Senkschrauben mit Flügelkreuzschlitz, mittlere Gewindelänge, aus legiertem Stahl, erkadmet - Klasse: 1 100 MPa (bei Raumtemperatur) / 235 °C

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

Ta slovenski standard je istoveten z: **EN 4162:2016**

ICS:

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

SIST EN 4162:2016 **en,fr,de**

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 4162

March 2016

ICS 49.030.20

Supersedes EN 4162:2009

English Version

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This European Standard was approved by CEN on 27 September 2015.

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-CENELEC Management Centre or to any CEN member.

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CEN members are the national standards bodies of Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and United Kingdom.

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

CEN-CENELEC Management Centre: Avenue Marnix 17, B-1000 Brussels

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European Foreword

This document (EN 4162:2016) 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 September 2016 and conflicting national standards shall be withdrawn at the latest by September 2016.

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.

This document supersedes EN 4162:2009.

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, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

1 Scope

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

Classification: 1 100 MPa[1] / 235 °C[2].

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN 2133, *Aerospace series — Cadmium plating of steels with specified tensile strength ≤ 1 450 MPa, copper, copper alloys and nickel alloys*

EN 2137, *Steel FE-PL75 — 1100 MPa ≤ R_m ≤ 1250 MPa — Bars D_e ≤ 100 mm — Aerospace series*

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

EN 2442, *Steel FE-PL711 — 1100 MPa ≤ R_m ≤ 1300 MPa — Bars and wires — D_e ≤ 25 mm*[3]

EN 3514, *Steel FE-PL711 — Hardened and tempered — 1100 MPa ≤ R_m ≤ 1300 MPa — Bar and wire for bolts — D_e ≤ 25 mm*

EN 9100, *Quality Management Systems — Requirements for Aviation, Space and Defense Organizations*

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

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 5856, *Aerospace — Screws, 100 degrees normal countersunk head, internal offset cruciform ribbed or unribbed drive, 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 7689, *Aerospace — Bolts, with MJ threads, made of alloy steel, strength class 1 100 MPa — Procurement specification*

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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) For new design, see EN 3514.

ISO 7913, *Aerospace — Bolts and screws, metric — Tolerances of form and position*

ISO 14275, *Aerospace — Drives, internal, offset cruciform, ribbed — Metric series*

ISO 14276, *Aerospace — Drives, internal, offset cruciform — Metric series*

TR 3775, *Aerospace series — Bolts and pins — Materials*

3 Required characteristics

3.1 Configuration – Dimensions – Masses

See Figure 1 and Table 1.

Dimensions and tolerances are in conformity with ISO 5856, expressed in millimetres and apply after surface treatment.

3.2 Tolerances of form and position

ISO 7913.

3.3 Materials

EN 2137 and EN 2442

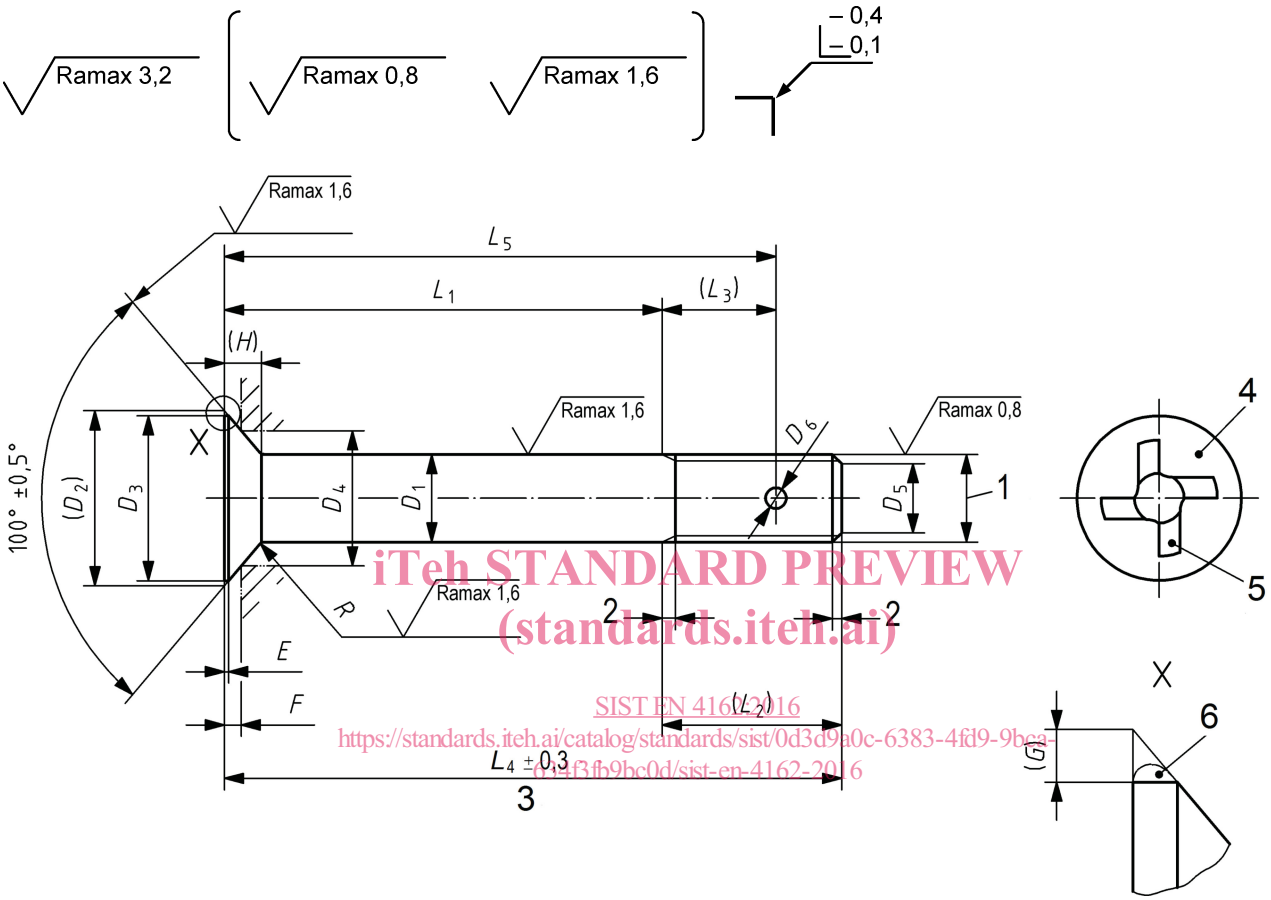
or

TR 3775: alloy steel, classification 1 100 MPa

3.4 Surface treatment

EN 2133, thickness 8 µm to 14 µm on all surfaces 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.

Black colour option: code B.



Key

1 Thread
2 Conforms to ISO 3353-1
3 $L_4 = L_1 + (L_2)$
4 Marking
5 Drive
6 The rounded angle accepted or blended convex form permitted

Figure 1

Table 1

Diameter code	Thread[a]	D_1 h12	D_2 max.	D_3 min.	D_4	D_5 nom.	D_5 Tol.	D_6 h13	E min.	F 0 −0,08
030	MJ3×0,5-4h6h	3	6	5,4	4,50	2,3	0 −0,5	—	0,06	0,63
040	MJ4×0,7-4h6h	4	8	7,2	5,78	3,0		1,1	0,08	0,93
050	MJ5×0,8-4h6h	5	10	9,0	7,71	3,4	±0,5	1,5	0,10	0,96
060	MJ6×1-4h6	6	12	10,8	9,00	4,2				1,26
070	MJ7×1-4h6h	7	14	12,8	10,28	5,2		1,9		1,57
080	MJ8×1-4h6h	8	16	14,8	12,21	6,2				1,60
100	MJ10×1,25-4h6h	10	20	18,8	15,43	7,9		2,4		1,93
120	MJ12×1,25-4h6h	12	24	22,8	18,00	9,8				2,53
140	MJ14×1,5-4h6h	14	28	26,8	20,57	11,5		3,0		3,14
160	MJ16×1,5-4h6h	16	32	30,8	24,43	13,5				3,20
180	MJ18×1,5-4h6h	18	36	34,8	25,71	15,5		3,8		4,35
200	MJ20×1,5-4h6h	20	40	38,8	28,92	17,5				4,68

Diameter code	G	H	$L_1 \pm 0,2$[b c] Length code	$L_1 \pm 0,2$[b c] nom.	L_2	L_3	R max.	R min.	Mass[d] e	Mass[d] f
030	0,3	1,27	003 to 030	3 to 30	7,5	—	0,4	0,2	0,606	0,055
040	0,4	1,69	003 to 040	3 to 40	10,0	6,0			1,324	0,099
050	0,5	2,12	004 to 050	4 to 50	12,0	7,5	0,5	0,3	2,581	0,153
060	0,6	2,54	005 to 060	5 to 60	14,0	8,5	0,7	0,5	4,426	0,222
070		2,96	006 to 070	6 to 70	15,0	9,5			6,825	0,302
080		3,39	006 to 080	6 to 80	16,5	10,5			9,375	0,395
100		4,23	008 to 100	8 to 100	20,5	13,0	0,8	0,6	19,323	0,616
120		5,08	010 to 120	10 to 120	22,5	14,5	0,9		32,516	0,887
140		5,93	010 to 140	10 to 140	26,0	17,0	1,1	0,8	48,123	1,208
160		6,77	010 to 160	10 to 160	28,5	18,5			70,136	1,578
180		7,62	011 to 180	11 to 180	31,0	21,0	1,3	1,0	98,292	1,997
200		8,47	012 to 200	12 to 200	33,5	22,5			133,086	2,466

a In accordance with ISO 5855-2.

b Increments:
1 for $L_1 \leq 30$;
2 for $30 < L_1 \leq 100$;
4 for $L_1 > 100$.

c 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.

d Approximate values (kg/1 000 pieces), calculated on the basis of 7,85 kg/dm^3, given for information purposes only. They apply to screws without holes.

e Value for first L_4.

f Increase for each additional millimetre of L_4.