

# SLOVENSKI STANDARD

## SIST EN 4072:2016

01-maj-2016

Nadomešča:

SIST EN 4072:2009

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**Aeronavtika - Vijaki, 100° ugreznjena glava, križna zareza, polno steblo, ozka toleranca, kratek navoj, iz titanove zlitine, prevlečene z aluminijem IVD -  
Klasifikacija: 1100 MPa (pri temperaturi okolice) / 425 °C**

Aerospace series - Screws, 100° countersunk normal head, offset cruciform recess, close tolerance shank, short thread in titanium alloy, aluminium IVD coated -  
Classification: 1 100 MPa (at ambient temperature) / 425 °C

Luft- und Raumfahrt - 100° Senkschrauben mit Flügelkreuzschlitz, kurzes Gewinde, aus Titanlegierung, Aluminium IVD beschichtet - Klasse: 1 100 Mpa (bei Raumtemperatur) / 425 °C

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Série aérospatiale - Vis à tête fraisée 100° normale, à empreinte cruciforme déportée, fût à tolérance serrée, filetage court, en alliage de titane, revêtues aluminium IVD -  
Classification: 1 100 MPa (à température ambiante) /425 °C

**Ta slovenski standard je istoveten z: EN 4072:2016**

### **ICS:**

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

**SIST EN 4072:2016**

**en,fr,de**

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EUROPEAN STANDARD

EN 4072

NORME EUROPÉENNE

EUROPÄISCHE NORM

March 2016

ICS 49.030.20

Supersedes EN 4072:2009

English Version

**Aerospace series - Screws, 100° countersunk normal head,  
offset cruciform recess, close tolerance shank, short thread  
in titanium alloy, aluminium IVD coated - Classification: 1  
100 MPa (at ambient temperature) / 425 °C**

Série aéronautique - Vis à tête fraisée 100° normale, à  
empreinte cruciforme déportée, fût à tolérance serrée,  
filetage court, en alliage de titane, revêtues aluminium  
IVD - Classification: 1 100 MPa (à température  
ambiante) / 425 °C

Luft- und Raumfahrt - 100° Senkschrauben mit  
Flügelkreuzschlitz, kurzes Gewinde, aus  
Titanlegierung, Aluminium IVD beschichtet - Klasse: 1  
100 Mpa (bei Raumtemperatur) / 425 °C

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.

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-CENELEC Management Centre has the same status as the official versions.

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 4072:2016) 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 4072:2009.

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.

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**EN 4072:2016 (E)****1 Scope**

This standard specifies the characteristics of screws, 100° countersunk normal head, offset cruciform recess, close tolerance shank, short thread, in titanium alloy, aluminium IVD coated.

Classification: 1 100 MPa<sup>1)</sup> / 425 °C<sup>2)</sup>.

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

EN 4016, *Aerospace series — Oversized bolts*

EN 6118, *Aerospace series — Process specification — Aluminium base protection for fasteners*

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

ISO 9152, *Aerospace — Bolts, with MJ threads, in titanium alloys, strength class 1 100 MPa — Procurement specification*

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*

MIL-DTL-83488, *Coating, aluminum, high purity*

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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 surface treatment.

### 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.

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: titanium alloy, strength class 1 100 MPa.

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## EN 4072:2016 (E)

## 3.4 Surface treatment

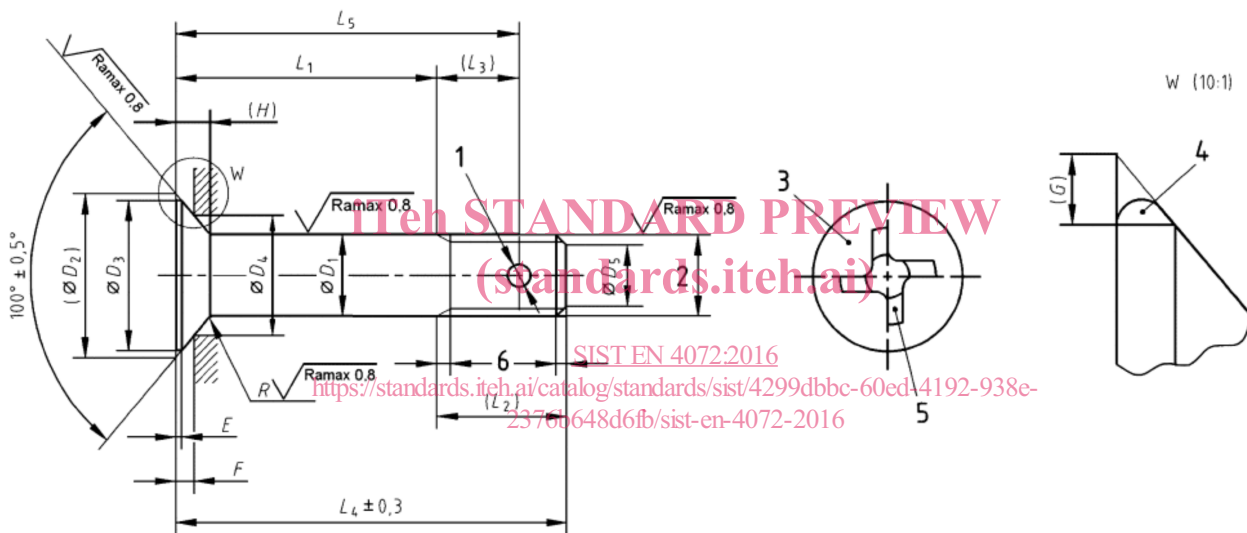
MIL-DTL-83488, type II, class 3, thickness 4 µm to 12 µm, or EN 6118.

After aluminium deposit:

- mechanical blasting, followed by a chromate conversion coating within 24 h max.<sup>3)</sup>;
- optional lubrication with cethylic alcohol (code E).

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

Break sharp edges 0,1 to 0,4.



## Key

- 1 One hole diameter  $D_6$  (optional, see Table 2)
- 2 Thread
- 3 Marking
- 4 Blended convex form permitted
- 5 Drive: see Table 3.
- 6 Conforms to ISO 3353-1

Figure 1

<sup>3)</sup> Products used shall be in conformity with national regulation into force.



Table 1

Diameter code	Thread <sup>a</sup>	$D_1$		$D_2$	$D_3$	$D_4$	$D_5$		$D_6$	$E$	$F$
		nom.	Tol.	max.	min.		nom.	Tol.	H13	min.	0 -0,08
030	MJ3×0,5 - 4h6h	3	-0,006 -0,031	6	5,4	4,50	2,3	0 -0,5	—	0,06	0,63
040	MJ4×0,7 - 4h6h	4	-0,010 -0,035	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 - 4h6h	6		12	10,8	9,00	4,2		1,57		
070	MJ7×1 - 4h6h	7	-0,013 -0,038	14	12,8	10,28	5,2		1,9		1,60
080	MJ8×1 - 4h6h	8		16	14,8	12,21	6,2		1,93		
100	MJ10×1,25 - 4h6h	10	20	18,8	15,43	7,9	2,4		2,53		
120	MJ12×1,25 - 4h6h	12	-0,016 -0,041	24	22,8	18,00	9,8		3,0		3,14
140	MJ14×1,5 - 4h6h	14		28	26,8	20,57	11,5				3,20
160	MJ16×1,5 - 4h6h	16		32	30,8	24,43	13,5		3,8		4,35
180	MJ18×1,5 - 4h6h	18		36	34,8	25,71	15,5				4,68
200	MJ20×1,5 - 4h6h	20	-0,020 -0,045	40	38,8	28,92	17,5				

Diameter code	$G$	$H$	$L_1 \pm 0,2^{b,c}$		$L_2$	$L_3$	$R$	Mass <sup>d</sup>	
			Length code	nom.				nom.	Tol.
030	0,3	1,27	003 to 030	3 to 30	6,0	—	0,4	0,31	0,03
040	0,4	1,69	003 to 040	3 to 40	7,5	5,0		0,64	0,06
050	0,5	2,12	004 to 050	4 to 50	9,0	6,0	0 -0,2	1,26	0,09
060	0,6	2,54	005 to 060	5 to 60	10,0	7,0		2,12	0,13
070		2,96	006 to 070	6 to 70	11,0			0,7	3,32
080		3,39	006 to 080	6 to 80	11,5	7,5	4,39	0,23	
100		4,23	008 to 100	8 to 100	14,5	9,0	0,8	9,23	0,34
120	5,08	010 to 120	10 to 120	16,0	10,0	0,9	0 -0,3	15,68	0,51
140	5,93	010 to 140	10 to 140	19,0	12,0			1,1	23,26
160	6,77	010 to 160	10 to 160	20,5	12,5	1,3	33,63	0,91	
180	7,62	011 to 180	11 to 180	22,5	14,5		47,37	1,14	
200	8,47	012 to 200	12 to 200	24,5	15,0	64,41	1,40		

<sup>a</sup> In accordance with ISO 5855-2. Except the thread major diameter " $d$  max." which shall be equal to  $D_1$  min. - 0,025.

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

<sup>c</sup> 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.

<sup>d</sup> Approximate values (kg/1 000 pieces), calculated on the basis of 4,45 kg/dm<sup>3</sup>, for information purposes only. They apply to screws without holes.

<sup>e</sup> Value for head and first  $L_4$ .

<sup>f</sup> Increase for each additional millimetre of  $L_4$ .