



# SLOVENSKI STANDARD

## SIST EN 4848:2022

01-maj-2022

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Aeronautika - Vijak, valjasta glava, spiralna vdolbina, široka toleranca, srednja navojna dolžina, iz titanove zlitine, anodiziran, mazan z MoS<sub>2</sub> - Klasifikacija: 1 100 MPa (pri temperaturi okolice)/315 °C

Aerospace series - Screw, pan head, Spiral Drive Recess, coarse tolerance normal shank, medium length thread, in titanium alloy, anodized, MoS<sub>2</sub> lubricated - Classification: 1 100 MPa (at ambient temperature)/315 °C

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Luft- und Raumfahrt - Flachkopfschraube mit Spiral Antrieb, grobe Schafttoleranz, mittlere Gewindelänge, aus Titanlegierung, anodisiert, MoS<sub>2</sub> geschmiert - Klasse: 1 100 MPa (bei Raumtemperatur)/315 °C  
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Série aérospatiale - Vis à tête cylindrique, empreinte en spirale, tige normale à tolérance large, filetage moyen, en alliage de titane, anodisée, lubrifiée au MoS<sub>2</sub> - Classification : 1 100 MPa (à température ambiante)/315 °C  
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Ta slovenski standard je istoveten z:      EN 4848:2022

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**ICS:**

49.025.30	Titan	Titanium
49.030.20	Sorniki, vijaki, stebelni vijaki	Bolts, screws, studs

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**en,fr,de**

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**EUROPEAN STANDARD  
NORME EUROPÉENNE  
EUROPÄISCHE NORM**

**EN 4848**

March 2022

ICS 49.030.20

English Version

**Aerospace series - Screw, pan head, Spiral Drive Recess,  
coarse tolerance normal shank, medium length thread, in  
titanium alloy, anodized, MoS2 lubricated - Classification:  
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This European Standard was approved by CEN on 10 January 2022.

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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.

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

**CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels**

Contents	Page
<b>European foreword .....</b>	<b>3</b>
<b>Introduction .....</b>	<b>4</b>
<b>1 Scope.....</b>	<b>5</b>
<b>2 Normative references.....</b>	<b>5</b>
<b>3 Terms and definitions .....</b>	<b>5</b>
<b>4 Requirements.....</b>	<b>6</b>
<b>4.1 Configuration — Dimensions — Masses.....</b>	<b>6</b>
<b>4.2 Tolerances of form and position .....</b>	<b>9</b>
<b>4.3 Materials .....</b>	<b>9</b>
<b>4.4 Surface treatment .....</b>	<b>9</b>
<b>4.5 Lubrication.....</b>	<b>9</b>
<b>5 Designation .....</b>	<b>9</b>
<b>6 Marking .....</b>	<b>9</b>
<b>7 Technical specification .....</b>	<b>10</b>
<b>Bibliography.....</b>	<b>11</b>

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PREVIEW  
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[SIST EN 4848:2022](#)  
<https://standards.iteh.ai/catalog/standards/sist/5e3ed396-9734-4df9-9b4d-4d975acd422f/sist-en-4848-2022>

## European foreword

This document (EN 4848:2022) 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 2022, and conflicting national standards shall be withdrawn at the latest by September 2022.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN 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, 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, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

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## Introduction

Aerospace and Defence Standardisation (ASD-STAN) draws attention to the fact that it is claimed that compliance with this document may involve the use of a patent „Spiral Drive System for Threaded Fasteners“ EP1025370B1.

ASD-STAN takes no position concerning the evidence, validity and scope of this patent right.

The holder of this patent right has assured ASD-STAN that he/she is willing to negotiate licences under reasonable and non-discriminatory terms and conditions with applicants throughout the world. In this respect, the statement of the holder of this patent right is registered with ASD-STAN. Information may be obtained from:

Phillips Screw Company  
301 Edgewater Drive, Suite 320  
Wakefield, Massachusetts 01880  
USA

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights other than those identified above. ASD-STAN shall not be held responsible for identifying any or all such patent rights.

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## 1 Scope

This document specifies the characteristics of externally threaded fasteners, pan head, Spiral Drive Recess, coarse tolerance normal shank, medium length thread, in titanium alloy, anodized, MoS<sub>2</sub> lubricated, for aerospace applications.

Classification: 1 100 MPa<sup>1</sup>/315 °C<sup>2</sup>.

## 2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. 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 2491, *Aerospace series — Molybdenum disulphide dry lubricants — Coating methods*

EN 2808, *Aerospace series — Anodizing of titanium and titanium alloys*

EN 3021, *Aerospace series — Molybdenum disulphide dry film lubricants graphite and halogen free — Technical specification*

EN 3813, *Aerospace series — Titanium alloy Ti-P64001 (Ti-6Al-4V) — Annealed — Bar and wire for forged fasteners — De ≤ 50 mm*

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ISO 3353-1, *Aerospace — Lead and runout threads — Part 1: Rolled external threads*

SIST EN 4848:2022

ISO 5855-2, *Aerospace — MJ threads — Part 2: Limit dimensions for bolts and nuts*

9734-4df9-9b4d-4d975acd422f/sist-en-4848-2022

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*

## 3 Terms and definitions

No terms and definitions are listed in this document.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- ISO Online browsing platform: available at <https://www.iso.org/obp>
- IEC Electropedia: available at <https://www.electropedia.org/>

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<sup>1</sup> Minimum tensile strength of the material at ambient temperature.

<sup>2</sup> Maximum temperature that the externally threaded fastener can withstand without continuous change in its original characteristics, after return to ambient temperature. The maximum temperature is determined by the material.

## 4 Requirements

### 4.1 Configuration — Dimensions — Masses

See Figure 1 and Table 1.

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

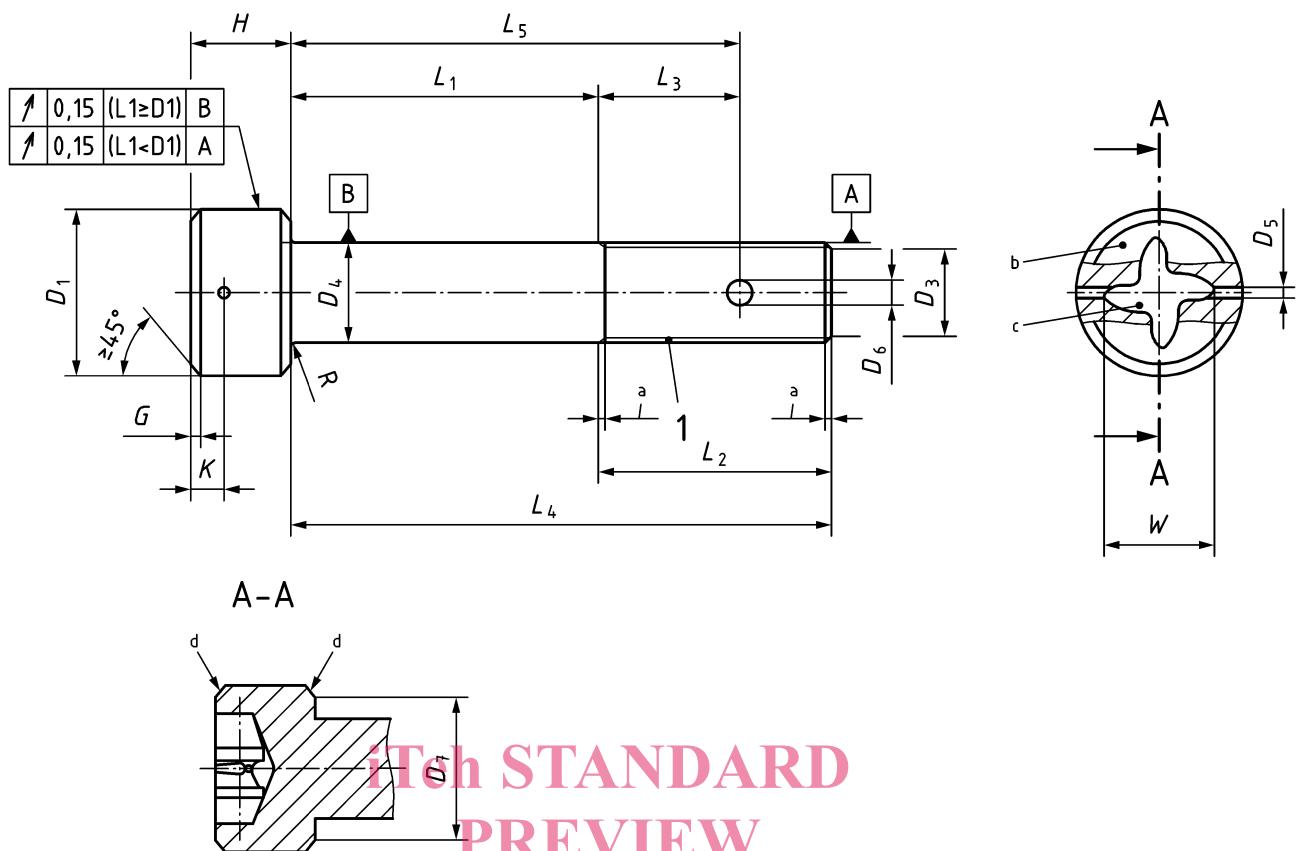
Roughness shall be as follows:

- bearing surfaces (underhead face, fillet radius, shank, thread): Ramax = 0,8 µm;
- all other surfaces: Ramax = 3,2 µm;
- break sharp edges 0,1 to 0,4.

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## iTech STANDARD PREVIEW (standards.iteh.ai)

### Key

1 Thread

a According to ISO 3353-1.

b Marking

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c MORTORQ® Spiral Drive Recessed <https://standards.iteh.ai/catalog/standards/sist/5e3ed396-9734-4df9-9b4d-4d975acd422f/sist-en-4848-2022>

d Radius or chamfer [9734-4df9-9b4d-4d975acd422f/sist-en-4848-2022](https://standards.iteh.ai/catalog/standards/sist/5e3ed396-9734-4df9-9b4d-4d975acd422f/sist-en-4848-2022)

NOTE Dimensions not specified are at the manufacturer's option provided that the qualification and acceptance requirements of EN 4609 and technical specification are met.

Figure 1 — Externally threaded fastener, pan head

<sup>3</sup> MORTORQ® is the trade name of a product supplied by licensees of the Phillips Screw Company. This information is given for the convenience of users of this document and does not constitute an endorsement by ASD-STAN nor CEN of the product named. Equivalent products may be used if they can be shown to lead to the same results.

Table 1 — Dimensions and masses

Diameter code <sup>a</sup>	Thread <sup>a</sup>	<i>D</i> <sub>1</sub>	<i>D</i> <sub>3</sub>		<i>D</i> <sub>4</sub>	<i>D</i> <sub>5</sub>	<i>D</i> <sub>6</sub>	<i>D</i> <sub>7</sub>	<i>G</i>	<i>H</i>	<i>K</i>	<i>L</i> <sub>1</sub> ± 0,2 <sup>b,c</sup>		<i>L</i> <sub>2</sub>	<i>L</i> <sub>3</sub>	Recess Code	<i>W</i>	Gauge Penetration		<i>R</i>	Mass <sup>d</sup>			
		<i>h</i> 13	nom.	Tol.	<i>h</i> 12	<i>H</i> 13	<i>H</i> 13	min.		nom.	Tol.	±0,1	Length Code	nom.		ref	max.	min.	max.	min.	e	f		
030	MJ3 × 0,5 4h6h	5,5	2,3	0 -0,5	3	1	—	5,07	0,3	3	h13	0,9	006 to 042	6 to 42	7,5	—	00	3,07	1,07	0,89	0,4	0,2	1,04	0,055
	MJ4 × 0,7 4h6h	7,0	3,0		4		1,1	6,53	0,4	4		1,4	008 to 056	8 to 56	10,0	6,0	0	4,33	1,52	1,29			2,26	0,100
050	MJ5 × 0,8 4h6h	8,5	3,4	±0,5	5	1,4	8,03	iTeh STANDARD	0,5	5	h14	1,6	010 to 070	10 to 70	12,0	7,5	1	6,11	1,65	1,12	0,5	0,3	4,55	0,153
	MJ6 × 1 4h6h	10,0	4,2		6		9,38	0,6	6	2,0		012 to 084	12 to 84	14,0	8,5	1	6,11	2,13	1,91	0,7	0,5	6,95	0,222	
080	MJ8 × 1 4h6h	13,0	6,2	±0,5	8	1,4	12,33	(iTeh PREVIEW standards.itech.ai)	0,8	8	h14	2,4	012 to 098	12 to 98	16,5	10,5	2	7,82	2,74			2,51	15,44	0,395
	MJ10 × 1,2 5 4h6h	16,0	7,9		10		15,33	1,0	10	https://standards.itech.ai/catalog/standards/sist/5e3ed396-9734-4df9-9b4d-4d975acd422f/sist-en-4848-2022	SIST EN 4848:2022	0,14 to 112	14 to 112	20,5	13,0	3	8,98	3,15	2,92	0,8	0,6	0,5	29,30	0,616
120	MJ12 × 1,2 5 4h6h	18,0	9,8	±0,5	12	1,6	17,23	1,2	12			0,18 to 140	18 to 140	22,5	14,5	4	10,88	3,86	3,50	0,9			43,10	0,887

<sup>a</sup> In accordance with ISO 5855-2.<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  $L$ , 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 7,85 kg/dm<sup>3</sup>, given for information purposes only.<sup>e</sup> Value for first  $L_4$ .<sup>f</sup> Increase for each additional millimetre of  $L_4$ .