



# SLOVENSKI STANDARD

## SIST EN 2648:2001

01-januar-2001

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### Aerospace series - Washers, concave, in alloy steel, cadmium plated

Aerospace series - Washers, concave, in alloy steel, cadmium plated

Luft- und Raumfahrt - Scheiben, für Neigungsausgleich, aus legiertem Stahl, verkadmet

Série aérospatiale - Rondelles concaves, en acier allié, cadmiées

Ta slovenski standard je istoveten z: **EN 2648:1995**

[SIST EN 2648:2001](https://standards.iteh.ai/catalog/standards/sist/79eef76b-2218-4723-bda9-9e324004b43d/sist-en-2648-2001)

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#### **ICS:**

49.030.50	Podložke in drugi blokirni elementi	Washers and other locking elements
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**SIST EN 2648:2001**

**en**

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EUROPEAN STANDARD

EN 2648

NORME EUROPÉENNE

EUROPÄISCHE NORM

July 1995

ICS 49.040.20

Descriptors: aircraft industry, fastener, nut : fastener, washer, alloy steel, cadmium plating, dimension, surface treatment, designation

English version

### Aerospace series - Washers, concave, in alloy steel, cadmium plated

Série aérospatiale -  
acier allié, cadmiées

Rondelles concaves, en

Luft- und Raumfahrt - Scheiben, für  
Neigungsausgleich, aus legiertem Stahl,  
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This European Standard was approved by CEN on 1995-01-14. 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 Central Secretariat or to any CEN member.

The European Standards exist 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 Central Secretariat has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.

## CEN

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

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

Foreword

**iTeh STANDARD PREVIEW**

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

After inquiries and votes carried out in accordance with the rules of this Association, this draft 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 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 January 1996, and conflicting national standards shall be withdrawn at the latest by January 1996.

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 and the United Kingdom.

## 1 Scope

This standard specifies the characteristics of concave washers, in alloy steel, cadmium plated, maximum operating temperature 235 °C.

They are intended to be used with nuts to EN 2647.

## 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.

- 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>1)</sup>
- EN 2424 Aerospace series - Marking of aerospace products
- EN 2542 Aerospace series - Steel FE-PL43S - Annealed - Bar and wire -  $D_o \leq 40$  mm for prevailing torque nuts <sup>2)</sup>
- EN 2647 Aerospace series - Nuts, hexagonal, self-locking, ball seat, in alloy steel, cadmium plated, MoS<sub>2</sub> lubricated - Classification : 900 MPa (at ambient temperature) / 235 °C

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## 3 Required characteristics

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### 3.1 Configuration - Dimensions - Masses

See figure 1 and table 1. Dimensions and tolerances are expressed in millimetres and apply after surface treatment.

### 3.2 Material

Steel FE-PL43S, chemical composition in conformity with EN 2542, characteristics after manufacture :  
 $1\ 250\ \text{MPa} \leq R_m \leq 1\ 400\ \text{MPa}$ ,  $40 \leq \text{HRC} \leq 43$

### 3.3 Surface treatment

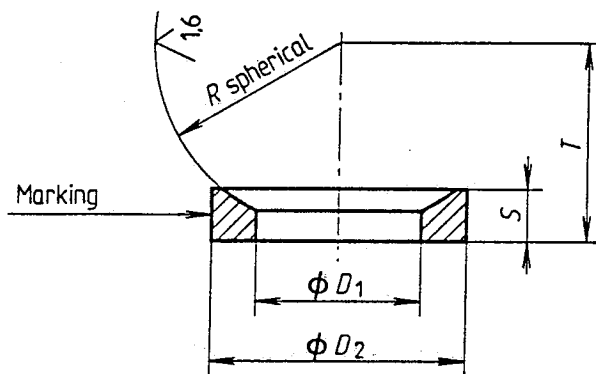
EN 2133, 8  $\mu\text{m}$  to 14  $\mu\text{m}$

1) Published as AECMA Standard at the date of publication of this standard

2) Published as AECMA Prestandard at the date of publication of this standard

6,3 / [ 1,6 ] Values in micrometres apply prior to surface treatment.

Remove sharp edges 0,1 to 0,4



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Figure 1  
(standards.iteh.ai)

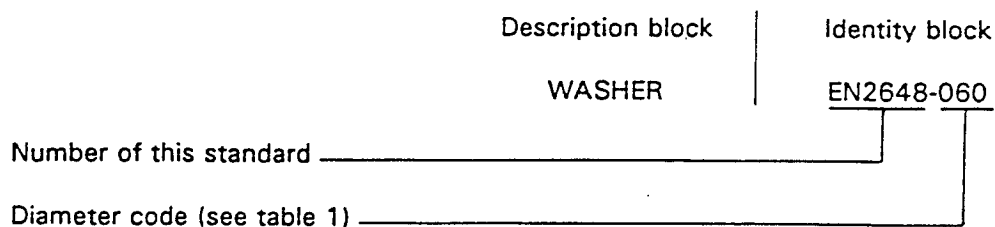
Table 1  
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Diameter code <sup>1)</sup>	$D_1$	$D_2$	$R$	$S$	$T$	Mass <sup>2)</sup>
	+ 0,2 0	$\pm 0,2$	+ 0,5 0	$\pm 0,1$		
050	7	10,3	8	2	8,5	0,8
060	8,2	13	9	2,5	9,2	1,4
080	11	17	12,5	3,5	13,25	3,3
100	13,8	21	16	4	16,9	6,5
120	16,5	24	18	5	19,5	8,9

1) Corresponds to the diameter code of the nut EN 2647.  
2) Approximate values (kg/1 000 pieces), calculated on the basis of 7,85 kg/dm<sup>3</sup>, given for information purposes only

#### 4 Designation

EXAMPLE :



NOTE : If necessary, the code I9005 shall be placed between the description block and the identity block.

#### 5 Marking

EN 2424, style F plus diameter code. See figure 1.

#### 6 Qualification

See EN 2647.

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