



**SLOVENSKI STANDARD**  
**SIST EN 2066:2004**

**01-maj-2004**

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**Aerospace series - Extruded section in aluminium alloys - General tolerances**

Aerospace series - Extruded section in aluminium alloys - General tolerances

Luft- und Raumfahrt - Strangpressprofile aus Aluminiumlegierungen - Allgemeine Toleranzen

Série aérospatiale - Profils filés en alliages d'aluminium - Tolérances générales

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**Ta slovenski standard je istoveten z: EN 2066:2001**

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**ICS:**

49.025.20      Aluminij                                      Aluminium

**SIST EN 2066:2004**                                      **en**

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EUROPEAN STANDARD  
NORME EUROPÉENNE  
EUROPÄISCHE NORM

**EN 2066**

December 2001

ICS 49.025.20

English version

## Aerospace series - Extruded section in aluminium alloys - General tolerances

Série aérospatiale - Profils filés en alliages d'aluminium -  
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This European Standard was approved by CEN on 2 May 2001.

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 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 Management Centre has the same status as the official versions.

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

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

Management Centre: rue de Stassart, 36 B-1050 Brussels

## 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 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 June 2002, and conflicting national standards shall be withdrawn at the latest by June 2002.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom.

## 0 Introduction

This standard is part of the series of EN metallic material standards for aerospace applications. The general organization of this series is described in EN 4258.

## 1 Scope

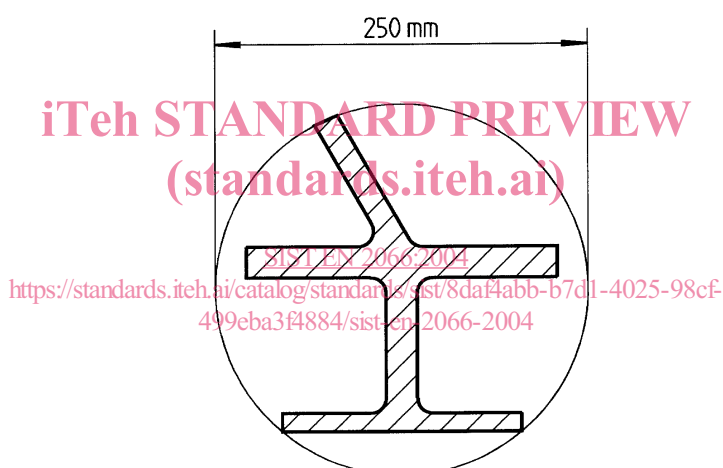
This standard specifies the general tolerances of:

Extruded section  
in aluminium alloys

for aerospace applications.

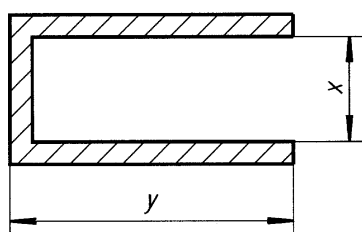
It applies:

- to sections, standardized or defined by a drawing, the cross section of which, regular or irregular, can be inscribed in a circle of 250 mm (see figure 1),



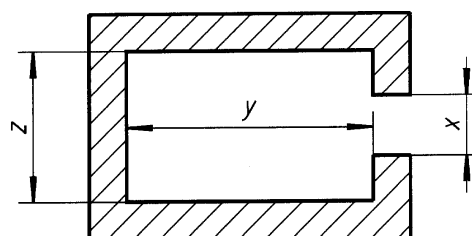
**Figure 1**

- to semi-hollow sections, the dimensional limits of which are indicated in figures 2 and 3.



$$x \cdot y \geq 2,5x^2$$

**Figure 2**



$$y \cdot z \geq 2,5x^2$$

**Figure 3**

For sections with higher dimensions or of more complex forms, the tolerances shall be subject to agreement between the manufacturer and purchaser.

## 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 4258 Aerospace series – Metallic materials – General organization of standardization – Links between types of EN standards and their use

## 3 Dimensional tolerances

### 3.1 Transverse cross section

To obtain the adequate tolerance, the transverse cross section can be divided into elementary rectangles of dimensions  $A$  and  $B$ ; where  $A$  is always the largest dimension of the elementary part and  $B$  can be considered as the thickness of the section (see figure 4).

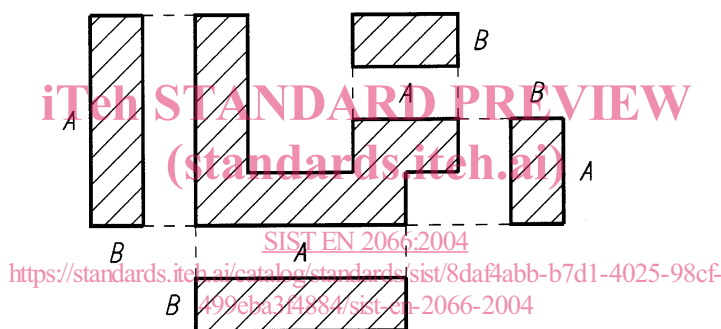


Figure 4

a) Tolerances on  $A$

See table 1.

Table 1

Dimensions in millimetres

<b>A</b>	<b>Tolerances</b>
$A \leq 10$	$\pm 0,25$
$10 < A \leq 18$	$\pm 0,30$
$18 < A \leq 30$	$\pm 0,40$
$30 < A \leq 50$	$\pm 0,50$
$50 < A \leq 80$	$\pm 0,60$
$80 < A \leq 120$	$\pm 0,80$
$120 < A \leq 180$	$\pm 1,20$
$180 < A \leq 250$	$\pm 1,40$

These tolerances only apply if  $\frac{A}{B} \leq 20$ .

For  $\frac{A}{B} > 20$ , tolerances shall be the subject of an agreement between the manufacturer and the user.

b) Tolerances on  $B$

See table 2.

**Table 2**

Dimensions in millimetres

$B$	Tolerances on $B$ for:				
	$A \leq 10$	$10 < A \leq 18$	$18 < A \leq 30$	$30 < A \leq 50$	
$B \leq 1,5$	$\pm 0,15$	$\pm 0,20$	$\pm 0,20$	$\pm 0,20$	
$1,5 < B \leq 3$	$\pm 0,20$	$\pm 0,20$	$\pm 0,20$	$\pm 0,25$	
$3 < B \leq 6$	$\pm 0,25$	$\pm 0,25$	$\pm 0,25$	$\pm 0,25$	
$6 < B \leq 10$	$\pm 0,25$	$\pm 0,30$	$\pm 0,30$	$\pm 0,30$	
$10 < B \leq 18$	–	$\pm 0,30$	$\pm 0,35$	$\pm 0,35$	
$18 < B \leq 30$	–	–	$\pm 0,40$	$\pm 0,40$	
$30 < B \leq 50$	–	–	–	$\pm 0,50$	continued

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Table 2 (concluded)

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Dimensions in millimetres

$B$	Tolerances on $B$ for:			
	$50 < A \leq 80$	$80 < A \leq 120$	$120 < A \leq 180$	$180 < A \leq 250$
$B \leq 1,5$	$\pm 0,25$	–	–	–
$1,5 < B \leq 3$	$\pm 0,25$	$\pm 0,30$	–	–
$3 < B \leq 6$	$\pm 0,30$	$\pm 0,30$	–	–
$6 < B \leq 10$	$\pm 0,35$	$\pm 0,35$	$\pm 0,35$	–
$10 < B \leq 18$	$\pm 0,40$	$\pm 0,40$	$\pm 0,40$	$\pm 0,45$
$18 < B \leq 30$	$\pm 0,45$	$\pm 0,45$	$\pm 0,50$	$\pm 0,50$
$30 < B \leq 50$	$\pm 0,50$	$\pm 0,50$	$\pm 0,55$	$\pm 0,60$

These tolerances only apply if  $\frac{B_{\max.}}{B_{\min.}} \leq 4$ .

If  $4 < \frac{B_{\max.}}{B_{\min.}} \leq 8$ , the tolerances are increased by:

- 20 % if  $B \leq 18$  mm
- 10 % if  $B > 18$  mm

### 3.2 Lengths

The tolerance of the sections in fixed length shall be  $(\begin{smallmatrix} + 20 \\ 0 \end{smallmatrix})$  mm.

EN 2066:2001 (E)

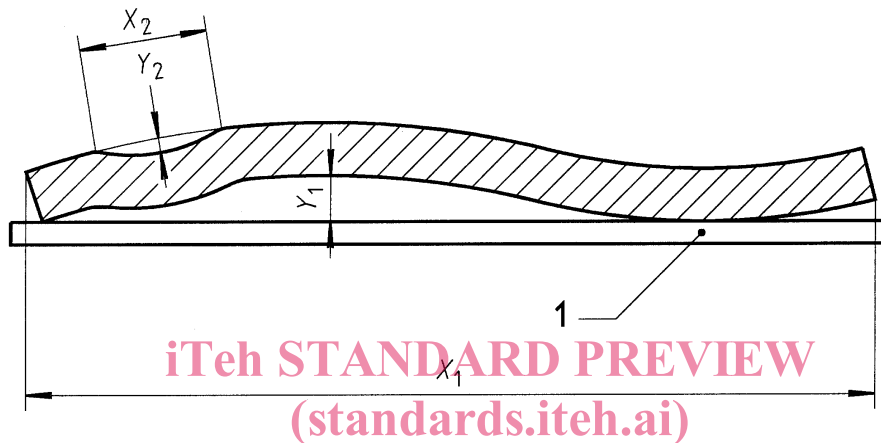
### 3.3 Bead seat radius

The tolerances of the bead seat radius shall be  $\pm 10\%$  of the radius value with a minimum tolerance of  $\pm 0,4$  mm.

## 4 Form tolerances

### 4.1 Straightness

See figure 5.



#### Key

1 Plane surface

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Figure 5

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On total length  $X_1$ , the difference in straightness  $Y_1$  shall satisfy:  $Y_1 \leq 0,002 \times X_1$ .

Locally, on each portion  $X_2 = 400$  mm:  $Y_2 \leq 0,8$  mm.

### 4.2 Transverse flatness

See figure 6.

The maximum difference of the transverse flatness  $f$  shall satisfy the following conditions:

- $f \leq 0,006 \times A$
- $f \leq 0,2$  mm

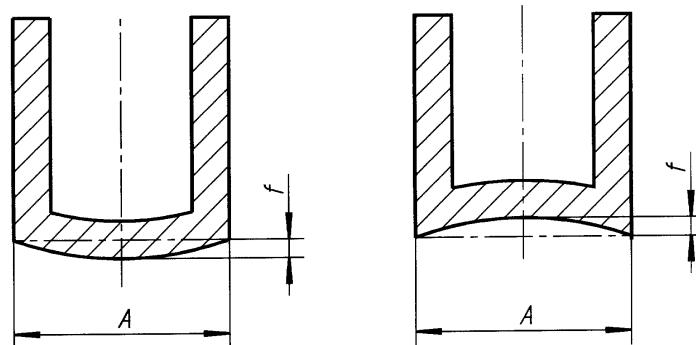


Figure 6



### 4.3 Angular dimensions

The angular dimensions  $\alpha$  shall be measured at the point of origin of the angle, as indicated in figure 7.

The angular tolerance  $\Delta\alpha$  between the two faces is given in table 3:

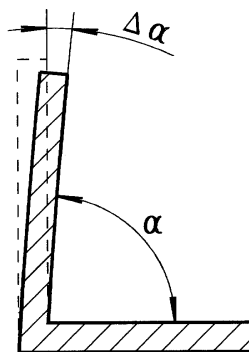


Figure 7

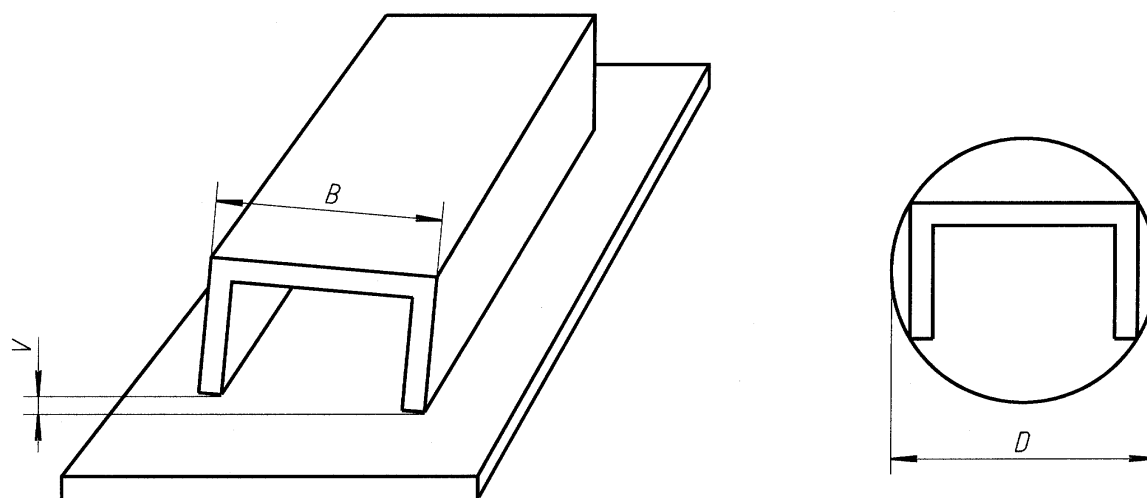
Table 3

Thickness $B^a$ mm	Angular tolerance $\Delta\alpha$
$\leq 1,5$	$\pm 1,5^\circ$
$> 1,5$	$\pm 1^\circ$

<sup>a</sup> In the case of a section with two different thicknesses  $B$ , the angular tolerance applicable to the greatest thickness  $B$  shall be applied.

### 4.4 Twist

The twist  $V$  shall be measured as indicated in figure 8.



$$V \leq k \times B$$

Figure 8