



# SLOVENSKI STANDARD

## SIST EN 755-9:2016

01-september-2016

Nadomešča:  
SIST EN 755-9:2008

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### Aluminij in aluminijeve zlitine - Iztiskane palice/drogovi, cevi in profili - 9. del: Profili, tolerance mer in oblike

Aluminium and aluminium alloys - Extruded rod/bar, tube and profiles - Part 9: Profiles, tolerances on dimensions and form

Aluminium und Aluminiumlegierungen - Stranggepresste Stangen, Rohre und Profile - Teil 9: Profile, Grenzabmaße und Formtoleranzen

Aluminium et alliages d'aluminium - Barres, tubes et profilés filés - Partie 9 : Profilés, tolérances sur dimensions et forme

Ta slovenski standard je istoveten z: **EN 755-9:2016**

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#### **ICS:**

77.150.10      Aluminijski izdelki                      Aluminium products

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EUROPEAN STANDARD  
NORME EUROPÉENNE  
EUROPÄISCHE NORM

# EN 755-9

June 2016

ICS 77.150.10

Supersedes EN 755-9:2008

English Version

## Aluminium and aluminium alloys - Extruded rod/bar, tube and profiles - Part 9: Profiles, tolerances on dimensions and form

Aluminium et alliages d'aluminium - Barres, tubes et profilés filés - Partie 9 : Profilés, tolérances sur dimensions et forme

Aluminium und Aluminiumlegierungen - Stranggepresste Stangen, Rohre und Profile - Teil 9: Profile, Grenzabmaße und Formtoleranzen

This European Standard was approved by CEN on 11 April 2016.

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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 755-9:2016) has been prepared by Technical Committee CEN/TC 132 “Aluminium and aluminium alloys”, the secretariat of which is held by AFNOR.

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of an identical text or by endorsement, at the latest by December 2016, and conflicting national standards shall be withdrawn at the latest by December 2016.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 755-9:2008.

The following technical modifications have been introduced during the revision:

- Subclause 4.2, Straightness;
- Subclause 4.3, Convexity-Concavity;
- Table 10;
- Subclause 4.4 Contour;
- Table 11;
- Subclause 4.5, Twist.

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EN 755 comprises the following parts under the general title *Aluminium and aluminium alloys — Extruded rod/bar, tube and profiles*:

- *Part 1: Technical conditions for inspection and delivery;*
- *Part 2: Mechanical properties;*
- *Part 3: Round bars, tolerances on dimensions and form;*
- *Part 4: Square bars, tolerances on dimensions and form;*
- *Part 5: Rectangular bars, tolerances on dimensions and form;*
- *Part 6: Hexagonal bars, tolerances on dimensions and form;*
- *Part 7: Seamless tubes, tolerances on dimensions and form;*
- *Part 8: Porthole tubes, tolerances on dimensions and form;*
- *Part 9: Profiles, tolerances on dimensions and form.*

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,

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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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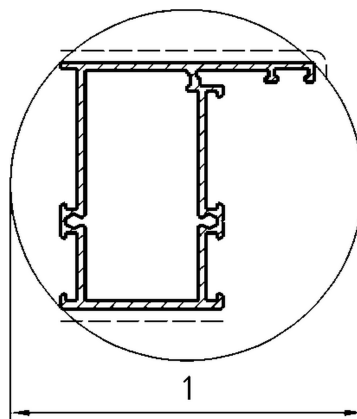
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## 1 Scope

This European Standard specifies the tolerances on dimensions and form for aluminium and aluminium alloy extruded profile with a cross section contained within a circumscribing circle not greater than 800 mm (see Figure 1).

The temper designations used in this part are according to EN 515.

This European Standard applies to extruded profiles for general engineering applications only.



### Key

- 1 circumscribing circle  $CD \leq 800$  mm

Figure 1 — Circumscribing circle  
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## 2 Alloy groups

For the purpose of this document, the alloys are distributed into two groups which correspond to varying degrees of difficulty when manufacturing the products.

The division into group I and group II of the most commonly used general engineering alloys is specified in Table 1. Grouping of other alloys is subject to agreement between supplier and purchaser.

Table 1 — Alloy groups

Group I	EN AW-1050A, EN AW-1070A, EN AW-1200, EN AW-1350 EN AW-3102, EN AW-3003, EN AW-3103 EN AW-5005, EN AW-5005A EN AW-6101A, EN AW-6101B, EN AW-6005, EN AW-6005A, EN AW-6106, EN AW-6008, EN AW-6010A, EN AW-6023, EN AW-6060, EN AW-6360, EN AW-6063, EN AW-6063A, EN AW-6463
Group II	EN AW-2007, EN AW-2011, EN AW-2011A, EN AW-2014, EN AW-2014A, EN AW-2017A, EN AW-2024, EN AW-2030 EN AW-5019, EN AW-5049, EN AW-5051A, EN AW-5251, EN AW-5052, EN AW-5154A, EN AW-5454, EN AW-5754, EN AW-5083, EN AW-5086 EN AW-6012, EN AW-6014, EN AW-6018, EN AW-6351, EN AW-6061, EN AW-6261, EN AW-6262, EN AW-6262A, EN AW-6065, EN AW-6081, EN AW-6082, EN AW-6182 EN AW-7003, EN AW-7005, EN AW-7108, EN AW-7108A, EN AW-7020, EN AW-7021, EN AW-7022, EN AW-7049A, EN AW-7075

### 3 Tolerances on dimensions

#### 3.1 Cross-sectional dimensions

##### 3.1.1 General

The tolerances on the dimensions listed below (see Figures 2, 3 and 4) are specified in the relevant Tables 2 to 9.

- *A*: wall thicknesses except those enclosing the hollow spaces in hollow profiles;
- *B*: wall thicknesses enclosing the hollow spaces in hollow profiles except those between two hollow spaces;
- *C*: wall thicknesses between two hollow spaces in hollow profiles;
- *E*: the length of the shorter leg of profiles with open ends;
- *H*: all dimensions (except wall thickness) between points on the cross section of the profile or the centres of open screw holes. Between points on the outer contour to points inside a hollow chamber so long as they are not identical to wall thickness *B*. Alternatively from the inside of a hollow chamber to the inside of another hollow chamber so long as they are not identical to wall thickness *C* and are not within the definition of dimension *H*. Such dimensions shall be replaced by dimension *H* plus wall thickness *B* or *C* or shall be subject to agreement between supplier and purchaser.

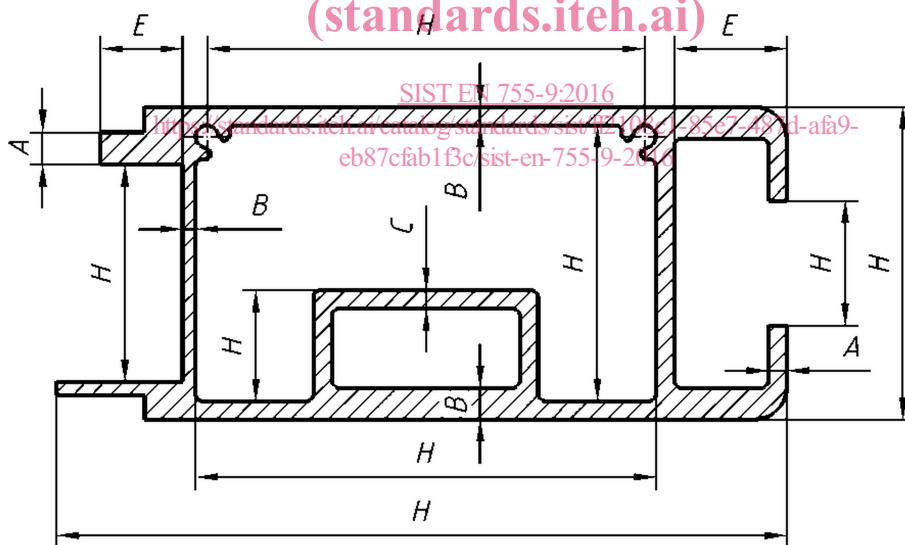


Figure 2 — Definition of dimensions *A*, *B*, *C*, *E*, *H*

##### 3.1.2 Tolerances on dimensions other than wall thickness

The tolerances on dimensions shall be as specified in Tables 2 and 3. For profiles with open ends (see Figures 3, 4 and the relevant examples) the tolerances specified in Table 4 shall be added to those of Tables 2 and 3 for dimension *H* across open ended legs in order to obtain the tolerances on the gap between any opposite points on these ends.



**Table 2 — Tolerances on cross-sectional dimensions of solid and hollow profiles - Alloy group I**

Dimensions in millimetres

Dimension $H$		Tolerances on $H$ for circumscribing circle $CD$ <sup>a, b</sup>				
Over	Up to and including	$CD \leq 100$	$100 < CD \leq 200$	$200 < CD \leq 300$	$300 < CD \leq 500$	$500 < CD \leq 800$
-	10	±0,25	±0,30	±0,35	±0,40	±0,50
10	25	±0,30	±0,40	±0,50	±0,60	±0,70
25	50	±0,50	±0,60	±0,80	±0,90	±1,0
50	100	±0,70	±0,90	±1,1	±1,3	±1,5
100	150	-	±1,1	±1,3	±1,5	±1,7
150	200	-	±1,3	±1,5	±1,8	±2,0
200	300	-	-	±1,7	±2,1	±2,4
300	450	-	-	-	±2,8	±3,0
450	600	-	-	-	±3,8	±4,2
600	800	-	-	-	-	±5,0

<sup>a</sup> These tolerances do not apply to tempers O and Tx510. For these tempers, the tolerances shall be subject to agreement between supplier and purchaser.

<sup>b</sup> For profiles with open ends, see Figures 3 and 4, the tolerances for  $H$  in the area of the open ends shall be increased by the values specified in Table 4.

**Table 3 — Tolerances on cross-sectional dimensions of solid and hollow profiles - Alloy group II**

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Dimensions in millimetres

Dimension $H$		Tolerances on $H$ for circumscribing circle $CD$ <sup>a, b</sup>				
Over	Up to and including	$CD \leq 100$	$100 < CD \leq 200$	$200 < CD \leq 300$	$300 < CD \leq 500$	$500 < CD \leq 800$
-	10	±0,40	±0,50	±0,55	±0,60	±0,70
10	25	±0,50	±0,70	±0,80	±0,90	±1,1
25	50	±0,80	±0,90	±1,0	±1,2	±1,3
50	100	±1,0	±1,2	±1,3	±1,6	±1,8
100	150	-	±1,5	±1,7	±1,8	±2,0
150	200	-	±1,9	±2,2	±2,4	±2,7
200	300	-	-	±2,5	±2,8	±3,1
300	450	-	-	-	±3,5	±3,8
450	600	-	-	-	±4,5	±5,0
600	800	-	-	-	-	±6,0

<sup>a</sup> These tolerances do not apply to tempers O and Tx510. For these tempers, the tolerances shall be subject to agreement between supplier and purchaser.

<sup>b</sup> For profiles with open ends, see Figures 3 and 4, the tolerances for  $H$  in the area of the open ends shall be increased by the values specified in Table 4.

**Table 4 — Additions to the tolerances on cross-sectional dimensions  $H$  of solid and hollow profiles with open ends - Alloy groups I and II**

Dimensions in millimetres

Dimension $E$		Additions to the tolerances on $H$ in Tables 2 and 3 for dimensions across the ends of open ended profiles
Over	Up to and including	
-	20	-
20	30	$\pm 0,15$
30	40	$\pm 0,25$
40	60	$\pm 0,40$
60	80	$\pm 0,50$
80	100	$\pm 0,60$
100	125	$\pm 0,80$
125	150	$\pm 1,0$
150	180	$\pm 1,2$
180	210	$\pm 1,4$
210	250	$\pm 1,6$
250	-	$\pm 1,8$

Figures 3 and 4 below show open ends on hollow and solid profiles. The determination of tolerances on cross-sectional dimensions  $H$  is shown in the following calculation examples 1 and 2.

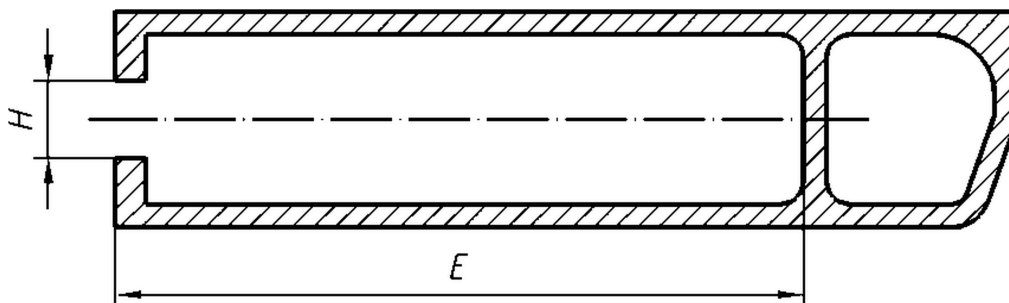
Examples of tolerance calculations across open ended profiles.

#### EXAMPLE 1

Dimension  $H$ : 20 mm

Dimension  $E$ : 100 mm Circumscribing circle  $CD$  100 mm to 200 mm Alloy Group I

The tolerance on  $H$  according to Table 2 is  $\pm 0,40$  mm; plus the additional tolerance according to Table 4 which is  $\pm 0,60$  mm; total tolerance on  $H$  is  $\pm 1,0$  mm.



**Figure 3 — Hollow profile with open end**

## EXAMPLE 2

Dimension  $H$ : 40 mm

Dimension  $E$ : 50 mm Circumscribing circle  $CD$  100 mm to 200 mm Alloy group II

The tolerance on  $H$  according to Table 3 is  $\pm 0,90$  mm; plus the additional tolerance according to Table 4 which is  $\pm 0,40$  mm; total tolerance on  $H$  is  $\pm 1,3$  mm.

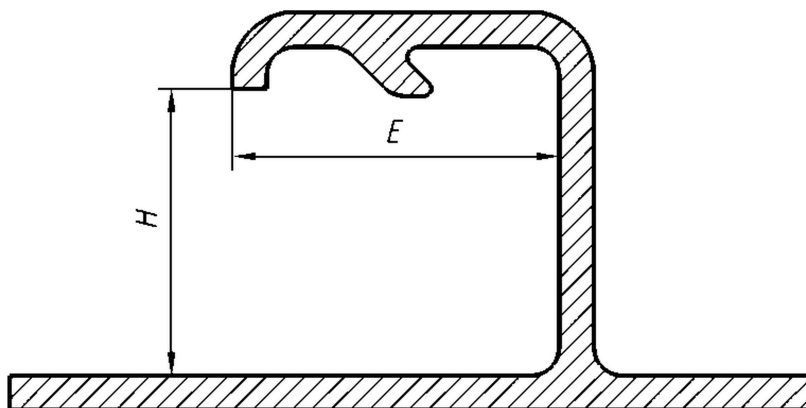


Figure 4 — Solid profile with open end

### 3.1.3 Tolerances on wall thickness of solid and hollow profiles

The tolerances on wall thickness of solid and hollow profiles shall be as specified in Tables 5, 6, 7 and 8.

Table 5 — Tolerances on wall thickness for profiles with a circumscribing circle up to and including 300 mm Alloy group I

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Dimensions in millimetres

Nominal wall thickness $A, B$ or $C$		Tolerances on wall thickness					
		Wall thickness $A$ Circumscribing circle		Wall thickness $B^a$ Circumscribing circle		Wall thickness $C$ Circumscribing circle	
Over	Up to and including	$CD \leq 100$	$100 < CD \leq 300$	$CD \leq 100$	$100 < CD \leq 300$	$CD \leq 100$	$100 < CD \leq 300$
-	1,5	$\pm 0,15$	$\pm 0,20$	$\pm 0,20$	$\pm 0,30$	$\pm 0,25$	$\pm 0,35$
1,5	3	$\pm 0,15$	$\pm 0,25$	$\pm 0,25$	$\pm 0,40$	$\pm 0,30$	$\pm 0,50$
3	6	$\pm 0,20$	$\pm 0,30$	$\pm 0,40$	$\pm 0,60$	$\pm 0,50$	$\pm 0,75$
6	10	$\pm 0,25$	$\pm 0,35$	$\pm 0,60$	$\pm 0,80$	$\pm 0,75$	$\pm 1,0$
10	15	$\pm 0,30$	$\pm 0,40$	$\pm 0,80$	$\pm 1,0$	$\pm 1,0$	$\pm 1,2$
15	20	$\pm 0,35$	$\pm 0,45$	$\pm 1,2$	$\pm 1,5$	$\pm 1,5$	$\pm 1,9$
20	30	$\pm 0,40$	$\pm 0,50$	$\pm 1,5$	$\pm 1,8$	$\pm 1,9$	$\pm 2,2$
30	40	$\pm 0,45$	$\pm 0,60$	-	$\pm 2,0$	-	$\pm 2,5$
40	50	-	$\pm 0,70$	-	-	-	-

<sup>a</sup> For seamless hollow profiles the tolerances given for wall thickness  $C$  shall apply.