SLOVENSKI STANDARD
oSIST prEN 12020-2:2021

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Aluminij in aluminijeve zlitine - Precizni iztiskani profili v zlitinah EN AW-6060 in EN AW-6063 - 2. del: Tolerance mer in oblike

Aluminium and aluminium alloys - Extruded precision profiles in alloys EN AW-6060 and EN AW-6063 - Part 2: Tolerances on dimensions and form

Aluminium und Aluminiumlegierungen - Stranggepresste Präzisionsprofile aus Legierungen EN AW-6060 und EN AW-6063 - Teil 2: Grenzabmaße und Formtoleranzen

Aluminium et alliages d'aluminium - Profilés de précision filés en alliages EN AW-6060 et EN AW-6063 - Partie 2 : Tolérances sur dimensions et forme

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Aluminium and aluminium alloys - Extruded precision profiles in alloys EN AW-6060 and EN AW-6063 - Part 2: Tolerances on dimensions and form

Aluminium et alliages d'aluminium - Profilés de précision filés en alliages EN AW-6060 et EN AW-6063 - Partie 2 : Tolérances sur dimensions et forme

Aluminium und Aluminiumlegierungen - Stranggepresste Präzisionsprofile aus Legierungen EN AW-6060 und EN AW-6063 - Teil 2: Grenzabmaße und Formtoleranzen

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

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European foreword

This document (prEN 12020-2:2021) has been prepared by Technical Committee CEN/TC 132 “Aluminium and aluminium alloys”, the secretariat of which is held by AFNOR.

This document is currently submitted to the CEN Enquiry.

This document will supersede EN 12020-2:2016.

1 Scope

This document specifies tolerances on dimensions and form of extruded precision profiles in alloys EN AW-6060 and EN AW-6063, manufactured with and without a thermal barrier (see Figures 1 and 2). It applies to extruded products supplied without further surface treatment. Precision profiles covered in this document are distinguished from extruded profiles for general applications covered in EN 755-9 by the following characteristics:

— they are mainly for architectural applications designed with mostly uniformly wall-thicknesses;

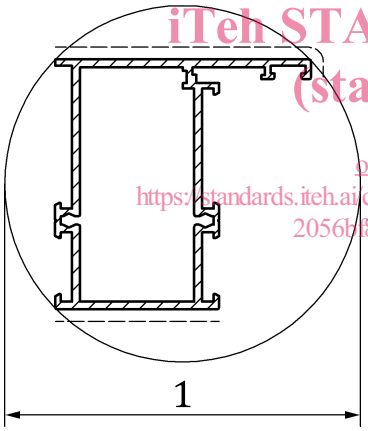
— they are mainly used for architecture, mechanical engineering and automotive applications (except structural-parts and crash-elements);

— the maximum weight per metre of 10 kg/m;

— the max. wall-thickness proportion (S max/S min) of 3,5 mm.

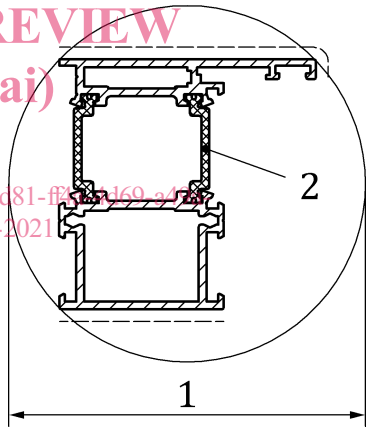
In the case of profiles which, due to the complexity of their design, are difficult to manufacture and specify, then special agreements between supplier and purchaser may need to be reached.

NOTE The effect of the thermal barrier material on the dimensional tolerances is covered by this document although the actual thermal barrier material itself is not (see EN 14024).



Key
1 *CD* maximum 350 mm

Figure 1 — Profile without thermal barrier



Key
1 *CD* maximum 350 mm
2 thermal barriers

Figure 2 — Profile containing thermal barrier

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 ISO 1101, *Geometrical product specifications (GPS) — Geometrical tolerancing — Tolerances of form, orientation, location and run-out (ISO 1101)*

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:

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

4 Tolerances on dimensions

4.1 General

If, for compelling reasons, tolerances closer than those specified in 4.2.2 are required, these shall only be specified for dimensions that are critical to the function, subject to specific agreement between supplier and purchaser. Any such reduction shall not exceed two-thirds of the values specified in this document and is subject to a minimum tolerance band of 0,3 mm.

4.2 Cross-sectional dimensions

4.2.1 General

The tolerances of the following dimensions (see Figure 3) are specified in Tables 1 and 2.

— *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, including open ends.

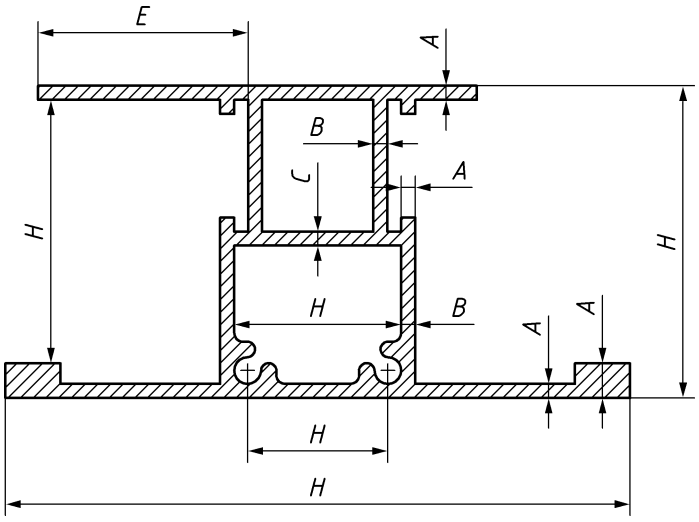


Figure 3 — Definition of dimensions *A, B, C, E, H*

4.2.2 Tolerances on dimensions other than wall thickness

The tolerances for dimension *H* shall be as specified in Table 1.

Table 1 — Tolerances on cross-sectional dimensions

Dimensions in millimetres

Dimension *H*		Tolerances on *H* (except open ends)	Tolerances on *H* (open ends)	
Over	Up to and including		$E \leq 60$	$60 < E \leq 120$ [a]
-	10	±0,15	±0,15	[b]
10	15	±0,20	±0,20	[b]
15	30	±0,25	±0,25	[b]
30	45	±0,30	±0,30	±0,45
45	60	±0,40	±0,40	±0,55
60	90	±0,45	±0,45	±0,65
90	120	±0,60	±0,60	±0,80
120	150	±0,80	±0,80	±1,0
150	180	±1,0	±1,0	±1,3
180	240	±1,2	±1,2	±1,5
240	300	±1,5	±1,5	±1,8
300	350	±1,8	±1,8	±2,1

NOTE Tolerances given in Table 1 do not cover dimensions from a given point inside a closed hollow chamber to any other point outside the chamber.

[a] Tolerances for values of dimension *E* over 120 mm shall be subject to agreement between supplier and purchaser.

[b] Shall be subject to agreement between purchaser and supplier.

4.2.3 Tolerances on wall thickness of solid and hollow profiles

The tolerances on wall thickness (see Figure 3) of solid and hollow profiles shall be as specified in Table 2.

Table 2 — Tolerances on wall thickness of solid and hollow profiles

Dimensions in millimetres

Nominal wall thickness *A*, *B* or *C*		Tolerances on:			
		Wall thickness *A*		Wall thickness *B* and *C*	
Over	Up to and including	Circumscribing circle *CD* ≤ 100	Circumscribing circle 100 < *CD* ≤ 350	Circumscribing circle *CD* ≤ 100	Circumscribing circle 100 < *CD* ≤ 350
-	2	±0,15	±0,20	±0,20	±0,30
2	3	±0,15	±0,25	±0,25	±0,40
3	6	±0,20	±0,30	±0,40	±0,60
6	10	±0,25	±0,35	±0,60	±0,80
10	15	±0,30	±0,40	±0,80	±1,0
15	20	±0,35	±0,45	±1,2	±1,5
20	30	±0,40	±0,50	[a]	[a]
30	40	±0,45	±0,60	[a]	[a]

[a] Shall be subject to agreement between supplier and purchaser.

When, for functional reasons, tolerances are specified for both the outside and inside dimensions of hollow sections, then the deviations given in Table 2 shall not apply as a wall thickness tolerance, but as a tolerance on the difference in wall thickness. This difference shall be determined by measuring the maximum and minimum wall thickness in the same plane.

4.3 Length

If fixed lengths are to be supplied, this shall be stated on the order. The fixed length tolerances shall be as specified in Table 3.

Table 3 — Tolerances on fixed length

Dimensions in millimetres

Circumscribing circle *CD*		Tolerances on fixed length *L*			
Over	Up to and including	*L* ≤ 2 000	2 000 < *L* ≤ 5 000	5 000 < *L* ≤ 10 000	*L* > 10 000
-	100	+5 0	+7 0	+1 0 0	Subject to agreement between supplier and purchaser
100	200	+7 0	+9 0	+12 0	
200	350	+8 0	+ 1 1 0	+14 0	

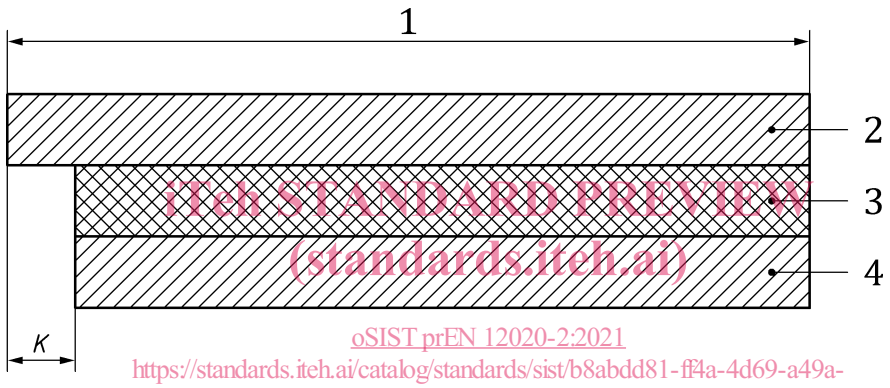
If no fixed or minimum length is specified in the order, profiles may be delivered in random lengths. The length range and the tolerances on the random lengths shall be subject to agreement between supplier and purchaser.

4.4 Squareness of cut ends

The squareness of cut ends shall be within half of the fixed length tolerance range specified in Table 3 for both fixed and random lengths, e.g. for a fixed length tolerance of $^{+10}_{0}$ mm the deviation from squareness of cut ends shall be within 5 mm measured over all the complete cross sectional width of the profile.

4.5 Length offset for profiles with a thermal barrier

Length offset *K*, see Figure 4, for profiles with a thermal barrier shall be within the tolerance range for the fixed length specified in Table 3, e.g. for a fixed length tolerance of $^{+10}_{0}$ mm the length offset shall be within 10 mm.



Key

1 length of profile
2 profile 1
3 thermal barrier
4 profile 2

Figure 4 — Length offset *K*

5 Tolerances on form

5.1 Parallelism

Requirements on parallelism // of opposite outer planes shall be subject of agreement between supplier and purchaser and shall be specified on the drawing.

Parallelism shall be marked on the drawing as specified in Figure 5, using the // symbol as in EN ISO 1101.

Tolerances on parallelism shall not increase tolerances on dimensions, i.e. shall always lie within dimensional tolerances or tolerance ranges.

Where outer planes are of unequal length, the longer one shall be taken as contact reference.

Two clearly defined reference points shall specify the width of the parallelism measurement.