



SLOVENSKI STANDARD

SIST EN 12020-2:2008

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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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English Version

**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

This European Standard was approved by CEN on 10 February 2008.

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 CEN 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 CEN 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

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Foreword

This document (EN 12020-2:2008) 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 September 2008, and conflicting national standards shall be withdrawn at the latest by September 2008.

This document supersedes EN 12020-2:2001.

Within its programme of work, Technical committee CEN/TC 132 entrusted CEN/TC 132/WG 5 "*Extruded and drawn products*" to revise EN 12020-2:2001

The following technical modifications have been introduced during the revision:

- Clause 1: The maximum diameter of the circumscribing circle CD is increased to 350 mm
- Subclause 3.2.3, Table 2: The tolerances on wall thickness of solid and hollow profiles have been modified
- Subclause 4.1: Requirements to plane parallelism is included
- Subclause 4.4, Table 6: Requirements to contour tolerances have been modified
- Subclause 4.5, Table 7: Requirements to twist tolerances have been modified

EN 12020 comprises the following parts under the general title "*Aluminium and aluminium alloys — Extruded precision profiles in alloys EN AW-6060 and EN AW-6063*":

- *Part 1: Technical conditions for inspection and delivery*
- *Part 2: Tolerances on dimensions and form*

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.

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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, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and the United Kingdom.

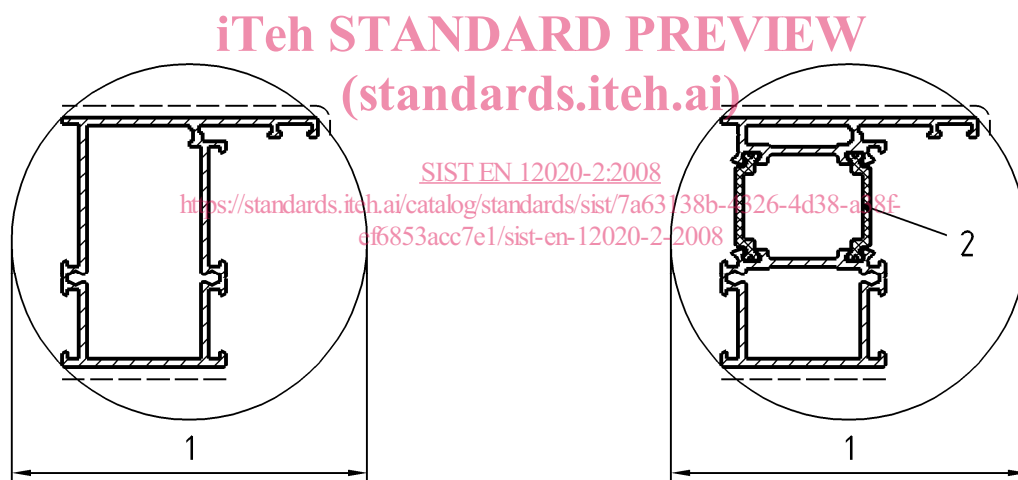
1 Scope

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 standard are distinguished from extruded profiles for general applications covered in EN 755-9 by the following characteristics:

- they are mainly for architectural applications;
- they meet more stringent requirements regarding the surface condition of visible surfaces;
- the maximum diameter of the circumscribing circle *CD* is 350 mm;
- they are made to closer tolerances on dimensions and form.

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

Key

1 *CD* maximum 350 mm
2 thermal barriers

Figure 1 — Profile without thermal barrier

Figure 2 — Profile containing thermal barrier

2 Normative references

The following referenced documents are indispensable for the application 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 1101:2004)*

3 Tolerances on dimensions

3.1 General

If, for compelling reasons, tolerances closer than those specified in 3.2.1 and 3.2.2 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 standard and is subject to a minimum tolerance band of 0,3 mm.

3.2 Cross-sectional dimensions

3.2.1 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;

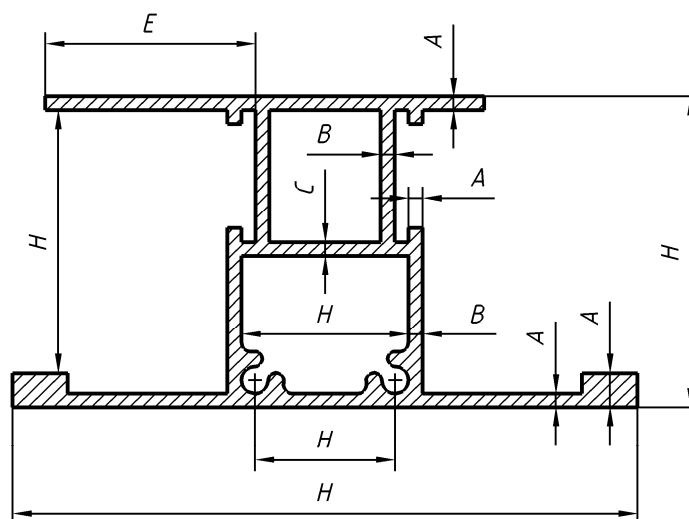


Figure 3 — Definition of dimensions *A*, *B*, *C*, *E*, *H*

3.2.2 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	$\pm 0,15$	$\pm 0,15$	^b
10	15	$\pm 0,20$	$\pm 0,20$	^b
15	30	$\pm 0,25$	$\pm 0,25$	^b
30	45	$\pm 0,30$	$\pm 0,30$	$\pm 0,45$
45	60	$\pm 0,40$	$\pm 0,40$	$\pm 0,55$
60	90	$\pm 0,45$	$\pm 0,45$	$\pm 0,65$
90	120	$\pm 0,60$	$\pm 0,60$	$\pm 0,80$
120	150	$\pm 0,80$	$\pm 0,80$	$\pm 1,0$
150	180	$\pm 1,0$	$\pm 1,0$	$\pm 1,3$
180	240	$\pm 1,2$	$\pm 1,2$	$\pm 1,5$
240	300	$\pm 1,5$	$\pm 1,5$	$\pm 1,8$
300	350	$\pm 1,8$	$\pm 1,8$	$\pm 2,1$
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				

3.2.3 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 $CD \leq 100$	Circumscribing circle $100 < CD \leq 350$	Circumscribing circle $CD \leq 100$	Circumscribing circle $100 < CD \leq 350$
-	2	$\pm 0,15$	$\pm 0,20$	$\pm 0,20$	$\pm 0,30$
2	3	$\pm 0,15$	$\pm 0,25$	$\pm 0,25$	$\pm 0,40$
3	6	$\pm 0,20$	$\pm 0,30$	$\pm 0,40$	$\pm 0,60$
6	10	$\pm 0,25$	$\pm 0,35$	$\pm 0,60$	$\pm 0,80$
10	15	$\pm 0,30$	$\pm 0,40$	$\pm 0,80$	$\pm 1,0$
15	20	$\pm 0,35$	$\pm 0,45$	$\pm 1,2$	$\pm 1,5$
20	30	$\pm 0,40$	$\pm 0,50$	a	a
30	40	$\pm 0,45$	$\pm 0,60$	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.

3.3 Length

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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	$L \leq 2\,000$	$2\,000 < L \leq 5\,000$	$5\,000 < L \leq 10\,000$	$L > 10\,000$
-	100	+5 0	+7 0	+10 0	Subject to agreement between supplier and purchaser
100	200	+7 0	+9 0	+12 0	
200	350	+8 0	+11 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.