

INTERNATIONAL STANDARD

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Wrought aluminium and aluminium alloy extruded rods/bars, tubes and profiles —

Part 3:

Extruded rectangular bars — Tolerances on
(dimensions and form)

ISO 6362-3:1990

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Barres, tubes et profils filés en aluminium et alliages d'aluminium
corroyés

Partie 3: Barres rectangulaires filées — Tolérances sur dimensions et de
forme



Reference number
ISO 6362-3:1990(E)

Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75% of the member bodies casting a vote.

International Standard ISO 6362-3 was prepared by Technical Committee ISO/TC 79, *Light metals and their alloys*.

ISO 6362 consists of the following parts, under the general title *Wrought aluminium and aluminium alloy extruded rods/bars, tubes and profiles*:

- Part 1: *Technical conditions for inspection and delivery*
- Part 2: *Mechanical properties*
- Part 3: *Extruded rectangular bars — Tolerances on dimensions and form*
- Part 4: *Extruded profiles — Tolerances on shape and dimensions*
- Part 5: *Extruded round, square and hexagonal bars — Tolerances on dimensions and form*
- Part 8: *Extruded tubes — Tolerances on dimensions and form*

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Wrought aluminium and aluminium alloy extruded rods/bars, tubes and profiles —

Part 3:

Extruded rectangular bars — Tolerances on dimensions and form

1 Scope

This part of ISO 6362 specifies the tolerances on dimensions and form of wrought aluminium and aluminium alloy extruded rectangular bars, having thicknesses in the range from 2 mm up to and including 150 mm and widths in the range from 10 mm up to and including 350 mm.

For rectangular bars, the technical conditions for inspection and delivery and the mechanical properties are as specified in ISO 6362-1 and ISO 6362-2.

The ratio of the largest section to the smallest one is

- up to and including 30 for group 1 alloys;
- up to 15 for group 2 alloys.

2 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this part of ISO 6362. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this part of ISO 6362 are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.

ISO 6362-1:1986, *Wrought aluminium and aluminium alloy extruded rods/bars, tubes and profiles — Part 1: Technical conditions for inspection and delivery.*

ISO 6362-2:1990, *Wrought aluminium and aluminium alloy extruded rods/bars, tubes and profiles — Part 2: Mechanical properties.*

3 Materials

Aluminium and aluminium alloys are divided into two groups:

- a) Alloy group 1
 - unalloyed aluminium;
 - Al Mn alloys;
 - Al Mg alloys with a maximum of 2,8 % Mg;
 - Al MgSi alloys.

- b) Alloy group 2

All other aluminium alloys, for example:

- Al Mg alloys with more than 2,8 % Mg;
- Al CuMg alloys;
- Al ZnMg alloys.

4 Tolerance on dimensions and form

4.1 Dimensional tolerances

4.1.1 Tolerances on width and thickness

Tolerances on width and thickness shall be in accordance with table 1 and table 2.

4.1.2 Corner radii

Maximum corner radii shall be in accordance with table 3.

4.1.3 Fixed-length tolerances

If fixed lengths are to be supplied, this shall be stated on the order. The permissible tolerances on fixed lengths are given in table 4.

Table 1 — Tolerances on width and thickness for alloy group 1 (see clause 3) — Plus and minus values

Values in millimetres

over	Width, <i>b</i>		Thickness tolerances for thickness ranges							
	up to and including	Tolerance	from 2 up to and including 6	over 6 up to and including 10	over 10 up to and including 18	over 18 up to and including 30	over 30 up to and including 50	over 50 up to and including 80	over 80 up to and including 120	over 120 up to and including 150
10 (included)	18	0,25	0,20	0,25	0,25	—	—	—	—	—
18	30	0,30	0,20	0,25	0,30	0,30	—	—	—	—
30	50	0,40	0,25	0,25	0,30	0,35	0,40	—	—	—
50	80	0,60	0,25	0,30	0,35	0,40	0,50	0,60	—	—
80	120	0,80	0,30	0,35	0,40	0,45	0,60	0,70	0,80	—
120	180	1,0	0,40	0,45	0,50	0,55	0,60	0,70	0,90	1,0
180	240	1,4	—	0,55	0,60	0,65	0,70	0,80	1,0	1,2
240	350	1,8	—	0,65	0,70	0,75	0,80	0,90	1,1	1,3

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Table 2 — Tolerances on width and thickness for alloy group 2 (see clause 3) — Plus and minus values

Values in millimetres

over	Width, <i>b</i>		Thickness tolerances for thickness ranges							
	up to and including	Tolerance	from 2 up to and including 6	over 6 up to and including 10	over 10 up to and including 18	over 18 up to and including 30	over 30 up to and including 50	over 50 up to and including 80	over 80 up to and including 120	over 120 up to and including 150
10 (included)	18	0,35	0,25	0,30	0,35	—	—	—	—	—
18	30	0,40	0,25	0,30	0,40	0,40	—	—	—	—
30	50	0,50	0,30	0,30	0,40	0,50	0,50	—	—	—
50	80	0,70	0,30	0,35	0,45	0,60	0,70	0,70	—	—
80	120	1,0	0,35	0,40	0,50	0,60	0,70	0,80	1,0	—
120	180	1,3	0,45	0,50	0,55	0,70	0,80	1,0	1,1	1,3
180	240	1,5	—	0,60	0,65	0,70	0,90	1,1	1,3	1,5
240	350	2,0	—	0,70	0,75	0,80	0,90	1,2	1,4	1,6

Table 3 — Maximum corner radii

Values in millimetres

Thickness		Maximum corner radius	
over	up to and including	Alloy group 1	Alloy group 2
2 (included)	6	0,5	1,0
6	10	0,6	1,2
10	18	1,0	2,0
18	30	1,2	2,5
30	50	1,5	3,0
50	80	1,8	3,5
80	120	2,0	4,0
120	150	2,5	5,0

Table 4 — Fixed-length tolerances

Values in millimetres

Width, <i>b</i>		Tolerances on fixed lengths					over 8 000
over	up to and including	up to and including 250	over 250 up to and including 1 000	over 1 000 up to and including 2 000	over 2 000 up to and including 5 000	over 5 000 up to and including 8 000	
10 (included)	30	+2 0	+4 0	+5 0	+5 0	+7 0	By agreement between supplier and purchaser
30	50	+2 0	+4 0	+5 0	+6 0	+7 0	
50	120	+2,5 0	+5 0	+6 0	+7 0	+8 0	
120	240	+3 0	+6 0	+7 0	+8 0	+10 0	
240	350	+3 0	+8 0	+8 0	+10 0	+12 0	

4.2 Form tolerances

The form tolerances specified in 4.2.1 to 4.2.3 apply to all tempers, except tempers M and O.

The deviation shall be measured with the bar supported on a horizontal base plate, such that the deviation is minimized by the weight of the bar.

4.2.1 Flatness tolerances

Flatness tolerances shall be in accordance with table 5.

Table 5 — Flatness tolerances

Values in millimetres

Width, <i>b</i>		Flatness tolerance <i>e</i>
over	up to and including	
10 (included)	30	0,2
30	50	0,3
50	80	0,4
80	120	0,6
120	180	0,9
180	240	1,2
240	350	1,5

The deviation from flatness e_1 shall be measured in accordance with figure 1.

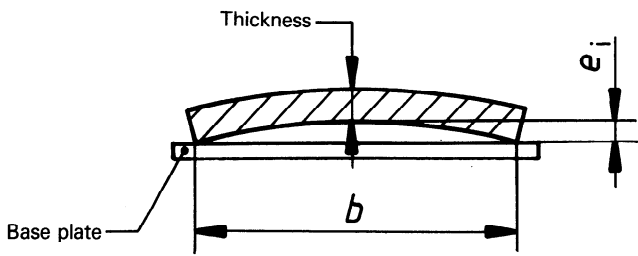


Figure 1 — Measurement of deviation from flatness

For rectangular bars with thickness less than 10 mm, the straightness tolerances shall be agreed upon between supplier and purchaser.

The deviations from straightness h_{1i} and h_{2i} shall be measured in accordance with figure 2.

4.2.2 Straightness tolerances

For rectangular bars with thickness equal to or greater than 10 mm, the straightness tolerances shall be in accordance with table 6.

4.2.3 Twist tolerances

Twist tolerances shall be in accordance with table 7.

The twist v_i shall be measured in accordance with figure 3.

Table 6 — Straightness tolerances

Values in millimetres

over	Width, b up to and including	Thickness		Straightness tolerances	
		over	up to and including	per 1 000 mm of length (l_1) h_1	in any 300 mm (l_2) h_2
10 (included)	80	10 (included)	80	2	1
80	120	10 (included)	50	2	1
		50	120	3	1,5
120	180	10 (included)	50	3	1,5
		50	150	4	2
180	350	10 (included)	50	4	2
		50	150	6	4

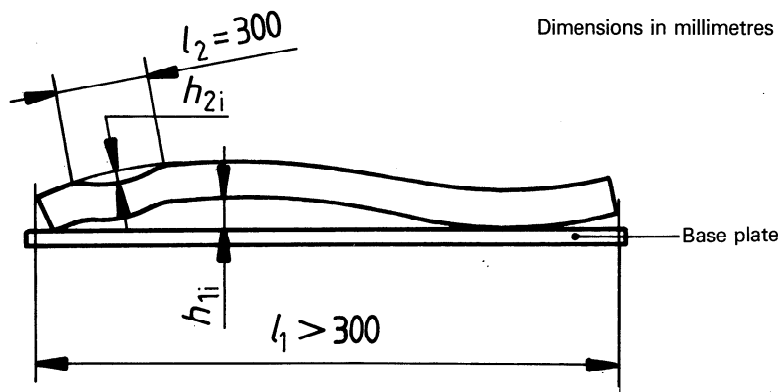


Figure 2 — Measurement of deviation from straightness

Table 7 — Twist tolerances

Values in millimetres

Width, b		per metre of length	Twist tolerance, ν over the total length	
over	up to and including		up to and including 5 000	over 5 000
10 (included)	30	1,5	3	By agreement between supplier and purchaser
30	50	2	5	
50	120	3	7	
120	240	4	10	
240	350	5	12	

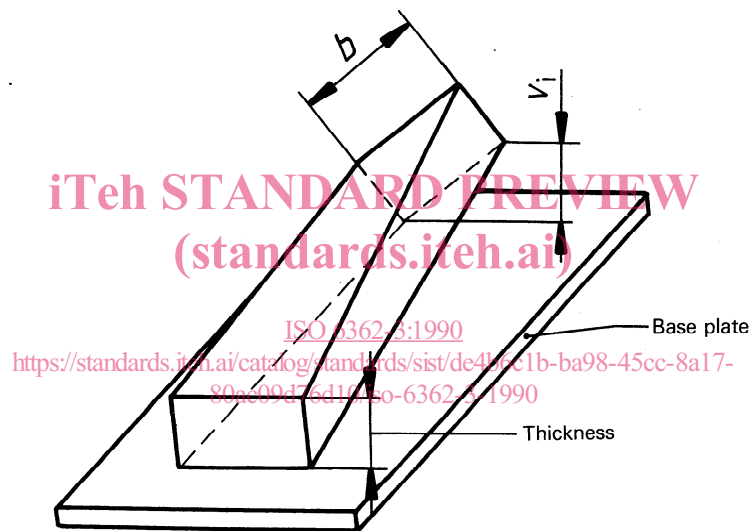


Figure 3 — Measurement of twist

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