
**Wrought aluminium and aluminium
alloys — Cold-drawn rods/bars, tubes
and wires —**

Part 3:

**Drawn round bars and
wires — Tolerances on form and
dimensions (symmetric plus and minus
tolerances on diameter)**

*Aluminium et alliages d'aluminium corroyés — Barres, tubes et fils
étirés à froid —*
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*Partie 3: Barres rondes et fils étirés — Tolérances sur forme et
dimensions (tolérances de diamètre symétriques en plus et en moins)*



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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.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. 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.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

ISO 6363-3 was prepared by Technical Committee ISO/TC 79, *Light metals and their alloys*, Subcommittee SC 6, *Wrought aluminium and aluminium alloys*.

ISO 6363-3 cancels and replaces ISO 5193:1981 which has been technically revised.

ISO 6363 consists of the following parts, under the general title *Wrought aluminium and aluminium alloys — Cold-drawn rods/bars, tubes and wires*:

- Part 1: *Technical conditions for inspection and delivery*
- Part 2: *Mechanical properties*
- Part 3: *Drawn round bars and wires — Tolerances on form and dimensions (symmetric plus and minus tolerances on diameter)*
- Part 4: *Drawn rectangular bars and wires — Tolerances on form and dimensions*
- Part 5: *Drawn square and hexagonal bars and wires — Tolerances on form and dimensions*
- Part 6: *Drawn round tubes — Tolerances on form and dimensions*

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Wrought aluminium and aluminium alloys — Cold-drawn rods/ bars, tubes and wires —

Part 3:

Drawn round bars and wires — Tolerances on form and dimensions (symmetric plus and minus tolerances on diameter)

1 Scope

This part of ISO 6363 specifies tolerances on form and dimensions for wrought aluminium and aluminium alloy drawn round bars and wires having diameters in the range of from 1 mm to 100 mm inclusive. The tolerances on diameter specified in this part of ISO 6363 are symmetric plus and minus tolerances.

For wires, this part of ISO 6363 does not apply to electrical, welding and aeronautical purposes.

For drawn bars, 4.1 to 4.5 apply, and only 4.1 and 4.2 apply to drawn wires.

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.

ISO 6363-1, *Wrought aluminium and aluminium alloys — Cold-drawn rods/bars, tubes and wires — Part 1: Technical conditions for inspection and delivery*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 6363-1 apply.

4 Tolerances on shape and dimensions

4.1 Diameter

Tolerances on diameter shall be in accordance with the plus and minus tolerance or the minus tolerance given in Table 1. The choice of tolerances depends on the agreement between the purchaser and the supplier.

Table 1 — Tolerances on diameter and circularity

Dimensions in millimetres

Diameter <i>b</i> Range	Plus and minus tolerances		Minus tolerances	
	Tolerances on diameter	Permissible circularity	Tolerances on diameter	Permissible circularity
$1 \leq b \leq 3$	±0,03	0,03	-0,06	0,030
$3 < b \leq 6$	±0,04	0,04	-0,08	0,040
$6 < b \leq 10$	±0,05	0,05	-0,09	0,045
$10 < b \leq 18$	±0,06	0,06	-0,11	0,055
$18 < b \leq 30$	±0,07	0,07	-0,13	0,065
$30 < b \leq 50$	±0,10	0,10	-0,16	0,080
$50 < b \leq 65$	±0,15	0,15	-0,19	0,095
$65 < b \leq 80$	±0,18	0,18	-0,30	0,150
$80 < b \leq 100$	±0,20	0,20	-0,35	0,180

4.2 Circularity

Circularity is measured by the difference between the maximum and minimum diameters measured in one cross-section.

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The permissible circularity is included in the tolerance on diameter and shall not exceed half the tolerance on diameter specified in Table 1.

4.3 Straightness

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The straightness tolerances apply to bars having diameters from 10 mm up to and including 100 mm, in all tempers except tempers O and TX51 type tempers.

Deviations from straightness shall be measured with the bar placed on a horizontal plate so that its mass decreases the deviation.

The permissible deviation from straightness in the total length, or in any 300 mm or longer section of the total length, shall be 2 mm per metre.

4.4 Fixed lengths

Fixed lengths shall be agreed between the supplier and purchaser.

The tolerances on fixed lengths, given in Table 2, apply to diameters from 10 mm up to and including 100 mm.

Table 2 — Tolerances on fixed length

Dimensions in millimetres

Diameter <i>b</i>	Tolerance on fixed lengths over			
	$2\ 000 < L$	$2\ 000 < L \leq 5\ 000$	$5\ 000 < L \leq 10\ 000$	$10\ 000 < L \leq 15\ 000$
$10 < b \leq 100$	$\begin{matrix} +4 \\ 0 \end{matrix}$	$\begin{matrix} +6 \\ 0 \end{matrix}$	$\begin{matrix} +9 \\ 0 \end{matrix}$	$\begin{matrix} +12 \\ 0 \end{matrix}$

4.5 Squareness of cut ends

The squareness of cut ends shall be within half of the fixed length tolerance range (see Table 2) for both fixed and random lengths. For example for a fixed length tolerance of $^{+12}_0$ mm, the squareness of cut ends shall be within 6 mm.

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