INTERNATIONAL STANDARD

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

Part 3: Tolerances on form and dimensions for drawn rods/bars and wires

Aluminium et alliages d'aluminium corroyés — Barres, tubes et fils étirés à froid —

Partie 3: Tolérances sur la forme et les dimensions pour les barres et fils étirés

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Foreword

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The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular, the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

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Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT), see www.iso.org/iso/foreword.html.

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

This second edition cancels and replaces the first edition (ISO 6363-3:2012), which has been technically revised. The main changes are as follows:

— the title has been changed to align with the series;

— errors have been corrected and expressions modified throughout.

A list of all parts in the ISO 6363 series can be found on the ISO website.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

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

Part 3: Tolerances on form and dimensions for drawn rods/bars and wires

1 Scope

This document 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 document are symmetric plus and minus tolerances.

For wires, this document 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 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.

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.

ISO and IEC maintain terminology databases for use in standardization at the following addresses:

— ISO Online browsing platform: available at https://www.iso.org/obp

— IEC Electropedia: available at https://www.electropedia.org/

4 Tolerances on form 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, *b*, range	Plus and minus tolerances		Minus tolerances	
	Tolerances on diameter	Permissible circularity	Tolerances on diameter	Permissible circularity
$1 \le b \le 3$	±0,03	0,03	−0,06	0,030
$3 < b \le 6$	±0,04	0,04	−0,08	0,040
$6 < b \le 10$	±0,05	0,05	−0,09	0,045
$10 < b \le 18$	±0,06	0,06	−0,11	0,055
$18 < b \le 30$	±0,07	0,07	−0,13	0,065
$30 < b \le 50$	±0,10	0,10	−0,16	0,080
$50 < b \le 65$	±0,15	0,15	−0,19	0,095
$65 < b \le 80$	±0,18	0,18	−0,30	0,150
$80 < b \le 100$	±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.

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

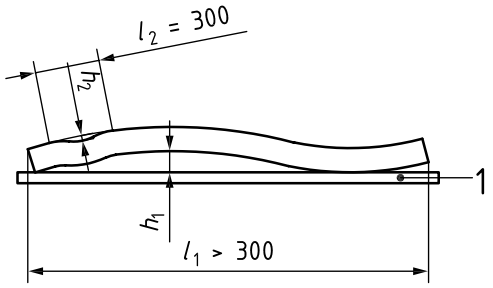
4.3 Straightness

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 maximum allowable straightness tolerance, h_1, for the total length, l_1, shall be 2 per 1 000 mm of length (see Figure 1). In addition, h_2 shall not exceed 0,6 mm for each section of 300 mm length, (l_2).

Dimensions in millimetres



Key

1 base plate

Figure 1 — Measurement of deviation from straightness

4.4 Fixed lengths

The tolerances on fixed lengths are given in Table 2.

Table 2 — Tolerances on fixed length

Dimensions in millimetres

Diameter b	Tolerance on fixed lengths over			
	$2\,000 < L$	$2\,000 < L \leq 5\,000$	$5\,000 < L \leq 10\,000$	$10\,000 < L \leq 15\,000$
$10 < b \leq 100$	$^{+4}_{0}$	$^{+6}_{0}$	$^{+9}_{0}$	$^{+12}_{0}$

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.