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МЕЖДУНАРОДНАЯ ОРГАНИЗАЦИЯ ПО СТАНДАРТИЗАЦИИ

Wrought aluminium and aluminium alloy cold-drawn rods/bars and tubes —

Part 1 : Technical conditions for inspection and delivery

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Barres et tubes étirés à froid en aluminium et alliages d'aluminium corroyés —

Partie 1 : Conditions techniques de contrôle et de livraison

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 approval before their acceptance as International Standards by the ISO Council. They are approved in accordance with ISO procedures requiring at least 75 % approval by the member bodies voting.

International Standard ISO 6363-1 was prepared by Technical Committee ISO/TC 79, *Light metals and their alloys*.

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ISO 6363 consists of the following parts, under the general title *Wrought aluminium and aluminium alloy cold-drawn rods/bars and tubes*:

- *Part 1: Technical conditions for inspection and delivery*
- *Part 2: Mechanical properties*
- *Part 3: Drawn round bars — Dimension and form tolerances*
- *Part 4: Drawn rectangular bars — Dimension and form tolerances*
- *Part 5: Drawn regular polygonal bars — Dimension and form tolerances*
- *Part 6: Drawn round tubes — Dimension and form tolerances*
- *Part 7: Drawn tubes of other shapes — Dimension and form tolerances*

Wrought aluminium and aluminium alloy cold-drawn rods/bars and tubes —

Part 1 : Technical conditions for inspection and delivery

1 Scope

This part of ISO 6363 specifies the technical conditions for inspection and delivery of wrought aluminium and aluminium alloy rods/bars and tubes for general engineering applications.

It applies to products which are extruded and then cold-drawn. It does not apply to products which are rolled and then cold-drawn, including seam-welded tubes.

2 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this part of ISO 6363. 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 6363 are encouraged to investigate the possibility of applying the most recent editions of the standards listed below. Members of IEC and ISO maintain registers of currently valid International Standards.

ISO/R 209 : 1971, *Composition of wrought products of aluminium and aluminium alloys — Chemical composition (per cent)*.

ISO 2142 : 1981, *Wrought aluminium, magnesium and their alloys — Selection of specimens and test pieces for mechanical testing*.

ISO 3134-3 : 1985, *Light metals and their alloys — Terms and definitions — Part 3 : Wrought products*.

ISO 5193 : 1981, *Wrought aluminium and aluminium alloys — Drawn round bars — Tolerances on shape and dimensions (symmetric plus and minus tolerances on diameter)*.

ISO 6363-2 : —¹⁾, *Wrought aluminium and aluminium alloy cold-drawn rods/bars and tubes — Part 2 : Mechanical properties*.

ISO 6892 : 1984, *Metallic materials — Tensile testing*.

ISO 7274 : 1981, *Wrought aluminium and aluminium alloys — Drawn round bars — Tolerances on shape and dimensions (All minus tolerances on diameter)*.

3 Definitions

For the purposes of this part of ISO 6363, the definitions of ISO 2142 and ISO 3134-3 apply, and also the definitions given in 3.3 and 3.4.

3.1 rod/bar: See 2.2 of ISO 3134-3 : 1985.

3.2 tube: See 2.5 of ISO 3134-3 : 1985.

3.3 cold-drawn rod/bar or tube: Hot-worked wrought product brought to final dimensions by cold working.

3.4 seamless tube: Tube in which there is no split or deliberate longitudinal bonding of two or more edges by pressure, fusion or mechanical interlocking.

3.5 inspection lot: See 3.1 of ISO 2142 : 1981.

3.6 specimen: See 3.3 of ISO 2142 : 1981.

3.7 test piece: See 3.4 of ISO 2142 : 1981.

3.8 test: See 3.5 of ISO 2142 : 1981.

4 Orders or tenders

The order or tender shall define the product required and shall contain the following details:

- a) the type and form of product:
 - the designation of the aluminium or aluminium alloy,

1) To be published.

- the form of the product (rod/bar, tube, etc.) and, if tube, whether seamless or not;
- b) the metallurgical temper of the material for delivery (degree of hardness or heat treatment condition) and, if different, the metallurgical temper for use;
- c) the International Standard or specification number, or, where none exists, the test methods and properties agreed between the supplier and the purchaser;
- d) the dimensions and shape of the product (thickness, width, width across flats, length, diameter) and/or reference to a drawing defining the product;
- e) tolerances on the dimensions and form, with reference to the appropriate International Standard;
- f) quantity;
- g) any requirements for certificates of conformity, test and/or analysis;
- h) any special requirements such as additional testing, marking, surface protection, packaging or inspection prior to delivery, agreed between the supplier and the purchaser and specified at the inquiry stage.

a fault is not permitted, the elimination of a superficial fault is permissible, provided that the dimensional tolerances continue to be observed.

5.6 Dimension and form tolerances

The dimension and form tolerances of products delivered shall be in conformity either with the requirements of the national standards when no International Standards exist on the subject, or with the requirements agreed between the supplier and the purchaser and specified in the order. International Standards are in preparation; they will have the reference numbers indicated in table 1.

Table 1

International Standard	Product
ISO 6363-3	Drawn round bars
ISO 6363-4	Drawn rectangular bars
ISO 6363-5	Drawn regular polygonal bars
ISO 6363-6	Drawn round tubes
ISO 6363-7	Drawn tubes of other shapes

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Unless otherwise agreed, the purchaser may only reject those products having dimensions not complying with the specified tolerances.

5 Requirements

5.1 Production and manufacturing processes

Unless otherwise specified in the order, the production and manufacturing processes shall be left to the discretion of the producer. Unless explicitly stated otherwise in the order, no obligation shall be placed on the producer to use the same processes for subsequent and similar orders.

5.2 Quality control

The supplier shall be responsible for the performance of all inspection and tests required by the relevant International Standard, specification or order, prior to shipment of the product. If the purchaser wishes to inspect the product at the supplier's works, he shall notify the supplier at the time of placing the order.

5.3 Chemical composition

The chemical composition shall comply with the requirements specified in ISO/R 209.

5.4 Mechanical properties

The mechanical properties shall be in conformity with those specified in ISO 6363-2 or those agreed upon between the supplier and the purchaser and stated on the order.

5.5 Surface finish

The products shall be free from defects detrimental to their suitable and proper use. Whilst an operation designed to mask

6 Test procedures

6.1 Sampling

6.1.1 Specimens

The selection, identification and preparation of specimens for chemical analysis and for mechanical and physical testing shall be carried out in accordance with ISO 2142.

Specimens shall generally be taken in the longitudinal direction, unless otherwise agreed upon between the supplier and the purchaser and stated in the order.

6.1.2 Number of specimens

Unless otherwise specified, the minimum rate of sampling shall be as follows:

- for products of diameter or thickness up to and including 10 mm, one specimen shall be taken for each lot of 1 000 kg or part thereof;
- for products of diameter or thickness greater than 10 mm up to and including 50 mm, one specimen shall be taken for each lot of 2 000 kg or part thereof;
- for products of diameter or thickness greater than 50 mm, one specimen shall be taken for each lot of 3 000 kg or part thereof.

In addition, not less than one test piece representing any one inspection lot, nor less than one test piece representing any one heat-treatment lot shall be taken.

6.1.3 Test pieces

The selection, identification and preparation, including machining, of test pieces for mechanical and physical testing shall be carried out in accordance with ISO 2142.

6.1.4 Number of test pieces

One test piece shall be taken from each specimen.

6.2 Methods of test

6.2.1 Chemical composition

Methods of analysis shall be at the discretion of the supplier. In case of dispute concerning the chemical composition, reference analysis shall be carried out by the methods specified in the relevant International Standards and the results obtained by these methods shall be accepted.

6.2.2 Mechanical and physical tests

The tensile testing shall be carried out in accordance with ISO 6892.

If other mechanical or physical tests are required, these shall be agreed between the supplier and the purchaser. These tests shall be carried out either in accordance with the existing International Standards or agreed upon by the supplier and the purchaser.

6.2.3 Measurement of dimensions

The dimensions shall be measured by means of measuring instruments which are of the accuracy required by the dimensions and dimensional tolerances.

All dimensions shall be checked at the ambient temperature of the workshop or laboratory, and, in case of dispute, at a temperature between 15 °C and 35 °C.

6.2.4 Surface finish

Unless otherwise specified, examination of surface appearance shall be carried out, without the assistance of magnifying apparatus, on products before delivery.

6.3 Retests

6.3.1 Mechanical properties

If one of the test pieces first selected fails to meet the requirements for the mechanical tests, two further specimens shall be taken from the same lot, one being from the same unit of product (rod/bar, tube, etc.) from which the original specimen was taken, unless that unit of product has been withdrawn by the supplier.

If both test pieces from these additional specimens meet the requirements, the lot which they represent shall be deemed to comply with the requirements of this part of ISO 6363.

Should one test piece fail, the inspection lot shall be deemed not to comply with the requirements of this part of ISO 6363.

6.3.2 Other properties

The retesting procedures shall be determined by consultation between the supplier and the purchaser.

7 Conformity with standards

7.1 Certificate of conformity

If requested by the purchaser on the order, the supplier shall provide a certificate indicating that the material complies with the requirements of the relevant standards and the order. This document shall certify that, according to examinations and results of representative tests, the products for delivery are in conformity with the relevant standards and with the additional requirements in the order, if any.

7.2 Quality control test report

If requested by the purchaser on the order and after being agreed upon by the supplier, the latter shall provide a test report detailing the current production controls carried out on identical products made using the same method as the products for delivery, but not necessarily on the products for delivery themselves.

7.3 Certificate of test

If required on the order, the supplier shall provide a certificate detailing the limits of chemical composition and the results of prescribed mechanical tests. This document shall certify that tests have been carried out on specimens taken from among the products for delivery themselves. The delivery of such a certificate generally implies inspection tests on individual lots or production units.

8 Marking

Marking of products is only undertaken when specified in the product standard or specification or agreed upon between the supplier and the purchaser and stated on the order. This marking shall not adversely affect the final use of the product.

9 Packing

Unless otherwise specified in International Standards relating to special products or specified in the order, the method of packing shall be determined by the supplier who shall take all suitable precautions to ensure that, under the usual conditions of transportation, the products will be delivered in a condition suitable for use.

10 Arbitration tests

In cases of dispute concerning conformity with the requirements of the material standard or specification cited on the order, testing should be carried out by an arbitrator chosen by mutual agreement between supplier and purchaser.

The arbitrator's decision shall be final.

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