
International Standard



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INTERNATIONAL ORGANIZATION FOR STANDARDIZATION • МЕЖДУНАРОДНАЯ ОРГАНИЗАЦИЯ ПО СТАНДАРТИЗАЦИИ • ORGANISATION INTERNATIONALE DE NORMALISATION

Wrought aluminium and aluminium alloys extruded rods/bars, tubes and profiles — Part 1: Technical conditions for inspection and delivery

Barres, tubes et profilés filés en aluminium et alliages d'aluminium corroyés — Partie 1: Conditions techniques de contrôle et de livraison.

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First edition — 1986-11-15

ISO 6362-1:1986

<https://standards.iteh.ai/catalog/standards/sist/01fb4c83-05ac-4917-a889-5b404dda4a21/iso-6362-1-1986>



UDC 669.71-42

Ref. No. ISO 6362/1-1986 (E)

Descriptors : wrought products, aluminium products, extruded products, metal bars, round bars, aluminium tubes, profiles, specifications.

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.

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 6362/1 was prepared by Technical Committee ISO/TC 79, *Light metals and their alloys*.

Users should note that all International Standards undergo revision from time to time and that any reference made herein to any other International Standard implies its latest edition, unless otherwise stated.

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

Part 1: Technical conditions for inspection and delivery

1 Scope and field of application

This part of ISO 6362 specifies the technical conditions for inspection and delivery of wrought aluminium and aluminium alloy rods/bars, tubes and profiles for general engineering applications.

It applies to extruded products.

2 References

ISO/R 209, *Composition of wrought products of aluminium and aluminium alloys — Chemical composition (per cent)*.¹⁾

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

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

ISO 6362, *Wrought aluminium and aluminium alloys extruded rods/bars, tubes and profiles*

— *Part 2: Mechanical properties*.

— *Part 3: Rectangular bars — Dimension and form tolerances*.

— *Part 4: Extruded profiles — Dimension and form tolerances*.

— *Part 5: Extruded round bars — Dimension and form tolerances*.²⁾

ISO 6892, *Metallic materials — Tensile testing*.

3 Definitions

For definitions of the terms *rod/bar*, *tube* and *profile*, see ISO 3134/3.

For definitions of the terms *inspection lot*, *specimen*, *test piece* and *test*, see ISO 2142.

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,
 - the form of the product (rod/bar, tube, profile, etc.);
- 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 number of this International Standard or specification number, or, where none exists, the properties agreed between the supplier and the purchaser;
- d) the dimensions and shape of the product (thickness, width, length, diameter) and/or reference to a drawing defining the product;
- e) tolerances of 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 agreed between the supplier and the purchaser.

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 it is explicitly stated otherwise in the order, no obligation shall be placed on the producer to use the same processes for subsequent and similar orders.

1) Under revision.

2) Actually published as ISO 7273.

5.2 Quality control

The supplier shall be responsible for the performance of all inspection and tests required by the relevant International Standard or specification, 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 as specified in ISO/R 209.

5.4 Mechanical properties

The mechanical properties shall be in conformity with those specified in ISO 6362/2 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 its use. Whilst an operation designed to mask a fault is not permitted, the elimination of a superficial fault is permissible, provided that the dimensional tolerances continue to be observed.

5.6 Dimensional tolerances

The dimensions and form tolerances shall be in conformity with the International Standards listed below or those agreed between the supplier and the purchaser and stated on the order.

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

International Standard	Product
ISO 6362/3	Rectangular bar
ISO 6362/4	Extruded profile
ISO 6362/5	Extruded round bar

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

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 in the longitudinal direction unless otherwise specified (see 6.1.1).

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, referee 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 and 25 °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 any 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, profile, 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 International Standard.

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

6.3.2 Other properties

The retests of other properties shall be agreed upon 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 certifies 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 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 certificate 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 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 this International 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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