

# International Standard



# 5193

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

## **Wrought aluminium and aluminium alloys — Drawn round bars — Tolerances on shape and dimensions (Symmetric plus and minus tolerances on diameter)**

*Aluminium et alliages d'aluminium corroyés — Barres rondes étirées — Tolérances sur forme et dimensions (Tolérances de diamètre symétriques en plus et en moins)*

**First edition — 1981-09-15**

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**UDC 669.71-422.2**

**Ref. No. ISO 5193-1981 (E)**

**Descriptors :** aluminium, aluminium alloys, metal bars, dimensions, dimensional tolerances.

## Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards institutes (ISO member bodies). The work of developing International Standards is carried out through ISO technical committees. Every member body interested in a subject for which a technical committee has been set up 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.

International Standard ISO 5193 was developed by Technical Committee ISO/TC 79, *Light metals and their alloys*, and was circulated to the member bodies in August 1980.

It has been approved by the member bodies of the following countries :

|                     |                        |                |
|---------------------|------------------------|----------------|
| Austria             | India                  | Spain          |
| Brazil              | Japan                  | Sweden         |
| Canada              | Korea, Dem. P. Rep. of | Switzerland    |
| Czechoslovakia      | Netherlands            | United Kingdom |
| Egypt, Arab Rep. of | Norway                 | USA            |
| France              | Romania                | USSR           |
| Hungary             | South Africa, Rep. of  |                |

The member bodies of the following countries expressed disapproval of the document on technical grounds :

Australia  
Italy

# Wrought aluminium and aluminium alloys — Drawn round bars — Tolerances on shape and dimensions (Symmetric plus and minus tolerances on diameter)

## 1 Scope and field of application

This International Standard specifies tolerances on shape and dimensions for wrought aluminium and aluminium alloy drawn round bars having diameters in the range from 1 to 65 mm inclusive. The tolerances on diameter specified in this International Standard are symmetric plus and minus tolerances.

NOTE — For all minus tolerances on diameter, see ISO 7274, *Wrought aluminium and aluminium alloys — Drawn round bars — Tolerances on shape and dimensions (All minus tolerances on diameter)*.

## 2 Tolerances on shape and dimensions

### 2.1 Diameter

See table 1.

Table 1

Dimensions in millimetres

| Diameter    |                     | Tolerance on diameter | Permissible circularity |
|-------------|---------------------|-----------------------|-------------------------|
| over        | up to and including |                       |                         |
| including 1 | 3                   | $\pm 0,03$            | 0,03                    |
| 3           | 6                   | $\pm 0,04$            | 0,04                    |
| 6           | 10                  | $\pm 0,05$            | 0,05                    |
| 10          | 18                  | $\pm 0,06$            | 0,06                    |
| 18          | 30                  | $\pm 0,07$            | 0,07                    |
| 30          | 50                  | $\pm 0,10$            | 0,10                    |
| 50          | 65                  | $\pm 0,15$            | 0,15                    |

### 2.2 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 specified in table 1.

### 2.3 Straightness

The straightness tolerances apply to bars having diameters from 10 up to and including 65 mm, in all tempers except tempers O and M.

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.

### 2.4 Fixed lengths

See table 2.

Fixed lengths shall be agreed between supplier and purchaser.

The tolerances on fixed lengths, given in table 2, apply to diameters from 10 up to and including 65 mm.

Table 2

Dimensions in millimetres

| Diameter                       | Tolerance on fixed lengths |       |        |        |
|--------------------------------|----------------------------|-------|--------|--------|
|                                | over                       |       |        |        |
|                                | 2 000                      | 5 000 | 10 000 |        |
| up to and including            |                            |       |        |        |
|                                | 2 000                      | 5 000 | 10 000 | 15 000 |
| from 10 up to and including 65 | + 4                        | + 6   | + 9    | + 12   |