
International Standard



7863

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Height setting micrometers and riser blocks

Micromètres verticaux et rehausses

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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 developing International Standards is carried out through ISO technical committees. Every member body interested in a subject for which a technical committee has been authorized 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 7863 was developed by Technical Committee ISO/TC 3, *Limits and fits*, and was circulated to the member bodies in March 1983.

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

Australia	Italy	Switzerland
Belgium	Netherlands	Thailand
Canada	New Zealand	United Kingdom
Czechoslovakia	Poland	USA
Germany, F.R.	South Africa, Rep. of	USSR
Hungary	Spain	
India	Sweden	

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

France
Japan

Height setting micrometers and riser blocks

1 Scope and field of application

This International Standard specifies the characteristics of height setting micrometers with a measuring capacity up to 600 mm and a minimum scale value not greater than 2 μm together with riser blocks up to 600 mm in height.

Test methods for the accuracy of these instruments are given in annexes A and B for general information only.

2 References

ISO 1, *Standard reference temperature for industrial length measurements*.

ISO 3650, *Gauge blocks*.

ISO 5459, *Technical drawings — Geometrical tolerancing — Datums and datum-systems for geometrical tolerances*.

ISO 8512/1, *Surface plates — Part 1: Cast iron surface plates*.¹⁾

ISO 8512/2, *Surface plates — Part 2: Granite surface plates*.¹⁾

3 Terms and definitions

3.1 Terms

For the terms relating to height setting micrometers see figure 1, and for riser blocks see figure 3.

3.2 Definitions

3.2.1 height setting micrometer: A measuring instrument comprising a substantial housing which carries a vertical movable column, positioned by a micrometer screw, with measuring elements provided with regularly spaced, alternative or coplanar measuring faces.

3.2.2 scale mark: One of the marks constituting a scale.

3.2.3 scale division: A part of the scale delimited by two adjacent scale marks.

3.2.4 minimum scale value: The smallest value of the measurand which the scale is graduated to indicate.

3.2.5 repeatability: The property which characterizes the ability of a measuring instrument to give identical indications, for repeated measurements of the same quantity, over a short interval of time, under stated conditions of use.

3.2.6 datum plane: A simulated datum feature (see ISO 5459), here represented, for example, by a surface plate of grade 0 (see ISO 8512/1 and ISO 8512/2).

4 Specifications for height setting micrometers

4.1 Housing and column

The housing and column shall be made of material with a linear thermal coefficient of $(11 \pm 1) \times 10^{-6} \text{ K}^{-1}$ and suitably heat-treated to stabilize their lengths.

The stabilizing process for the elements of the measuring column shall ensure that the rate of change in the length of the elements due to residual instability of the material is not greater than

$$\pm (0,05 + 0,001 L) \mu\text{m/year}$$

where L is the nominal length in millimetres.

The column shall move freely within the housing and shall be free from stickiness.

1) At present at the stage of draft.