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ISO

INTERNATIONAL ORGANIZATION FOR STANDARDIZATION

ISO RECOMMENDATION

R 463

DIAL GAUGES READING
IN 0.01 mm, 0.001 in AND 0.0001 in

1st EDITION

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BRIEF HISTORY

The ISO Recommendation R 463, *Dial Gauges Reading in 0.01 mm, 0.001 and 0.0001 in* was drawn up by Technical Committee ISO/TC 3, *Limits and Fits*, the Secretariat of which is held by the Association Française de Normalisation (AFNOR).

Work on this question by the Technical Committee began in 1949 and led, in 1960, to the adoption of a Draft ISO Recommendation.

In March 1963, this Draft ISO Recommendation (No. 561) was circulated to all the ISO Member Bodies for enquiry. It was approved, subject to a few modifications of an editorial nature, by the following Member Bodies:

Australia	France	Portugal
Austria	Germany	Romania
Belgium	Greece	Spain
Burma	Hungary	Switzerland
Canada	India	United Kingdom
Chile	Italy	U.S.S.R.
Czechoslovakia	Japan	Yugoslavia
Denmark	Norway	
Finland	Poland	

Three Member Bodies opposed the approval of the Draft:

Netherlands, Sweden, U.S.A.

The Draft ISO Recommendation was then submitted by correspondence to the ISO Council, wich decided, in December 1965, to accept it as an ISO RECOMMENDATION.

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ISO Recommendation R 463 December 1965

DIAL GAUGES READING IN 0.01 mm, 0.001 in AND 0.0001 in

1. GENERAL

1.1 Scope

The object of this ISO Recommendation is to establish the most important dimensional and functional characteristics of 0.01 mm, 0.001 in and 0.0001 in dial gauges and to give certain recommendations on characteristics of accuracy.

Tests for checking these characteristics are described.

This ISO Recommendation may later be completed to include other indications concerning

(*a*) 0.001 mm dial gauges,

(*b*) a range of recommended contact point radii,

(*c*) establishment of a common range of external diameters of the case,

(*d*) particulars concerning the graduation and numbering of dials.

1.2 Definition

A dial gauge is a measuring instrument in which the displacements of a plunger are transmitted by suitable mechanical means to a pointer which moves in front of a circular dial graduated in equal divisions over the whole of its circumference.

In 0.01 mm dial gauges, each division corresponds to a displacement of the plunger of 0.01 mm. Two types of dial gauges graduated in accordance with the inch system are recognized: the 0.001 in dial gauge, in which each division corresponds to a displacement of the plunger of 0.001 in and which is sometimes subdivided to 0.0005 in, and the 0.0001 in dial gauge in which each division corresponds to a displacement of the plunger of 0.0001 in.

All three types may be provided with a revolution-counting device in which an auxiliary pointer moves in front of a scale which indicates the total number of revolutions of the main pointer or the linear displacement of the plunger.

2. SPECIFICATION

A dial gauge may be regarded as satisfactory, at any time in its service, if it meets the requirements below:

Design features,
Quality characteristics.

2.1 Design features

2.1.1 *General dimensions and designations*

See Figure, page 6.

2.1.2 *Dial*

The dial should be graduated with sharp lines which contrast with the background, permitting ease of reading. The interval between graduations should never be less than 1 mm (0.04 in).

2.1.3 *Pointer*

The pointer should move in a clockwise direction, when the plunger is pressed in.

The dial gauge should be so made, or capable of such adjustment, that when the plunger, in a completely free state, is pressed in, the pointer has a traverse of at least 1/10 of a revolution before its tip passes for the first time over the point of the dial farthest from the contact point of the plunger. At this stage, the pointer of the revolution-counter should indicate zero.

This dead motion is not included in the total useful travel indicated by the manufacturers.