

ISO

INTERNATIONAL ORGANIZATION FOR STANDARDIZATION

ISO RECOMMENDATION R 376

CALIBRATION OF ELASTIC PROVING DEVICES

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BRIEF HISTORY

The ISO Recommendation R 376, *Calibration of Elastic Proving Devices*, was drawn up by Technical Committee ISO/TC 17, *Steel*, the Secretariat of which is held by the British Standards Institution (BSI).

Work on this question by the Technical Committee began in 1957 and led, in 1962, to the adoption of a Draft ISO Recommendation.

In November 1962, this Draft ISO Recommendation (No. 521) 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	Spain
Austria	Germany	Sweden
Belgium	Hungary	Switzerland
Brazil	India	Turkey
Burma	Ireland	United Kingdom
Canada	Italy	U.S.A.
Chile	Japan	U.S.S.R.
Czechoslovakia	Netherlands	Yugoslavia
Denmark	Portugal	
Finland	Romania	

No Member Body opposed the approval of the Draft.

The Draft ISO Recommendation was then submitted by correspondence to the ISO Council, which decided, in August 1964, to accept it as an ISO RECOMMENDATION.

CALIBRATION OF ELASTIC PROVING DEVICES

1. SCOPE

This ISO Recommendation applies to elastic proving devices for the static verification of testing machines. It is intended to cover only those devices in which the load is determined by measurement of the elastic deflection of a loaded member. The measurement of the deflection may be made by mechanical, electrical, optical or other means of sufficient precision and stability.

2. DESIGN REQUIREMENTS FOR ELASTIC PROVING DEVICES

It is recommended that proving devices should be provided with means permitting axial application of load, whether tension or compression. (In other cases, it is essential that the self-aligning device of the machine should be used in conjunction with the proving device).

When the deflection of the device is measured on a scale, the width of the graduation marks on the scale should be uniform, and the width of the index mark or of the pointer should be approximately equal to the width of a graduation mark.

No upper limit is set to the number of scale divisions which may be provided on the deflection, measuring apparatus for the reading corresponding to the full load on the device, but a lower limit is set to the number of divisions corresponding to the minimum load at which the device may be used (see clause 4.2). In general, the lower limit for the number of divisions of deflection will control the minimum load at which the device will be calibrated.

Further, for the purpose of assessing the minimum load at which a device may be used, it will be assumed, for the purposes of this ISO Recommendation, that a scale division may not be subdivided by estimation into more than a specified number of sub-divisions, depending on the type of deflection-measuring apparatus used and the scale spacing.*

In the case of devices incorporating a dial gauge or a micrometer screw, it will be assumed for this purpose that a division may be subdivided with assurance as follows:

to one half of a scale interval, when the scale spacing is less than 1 mm (0.04 in);

to one fifth of a scale interval, when the scale spacing is 1 mm (0.04 in) or more.

The reading limit so defined should be regarded as the smallest interval of scale reading of the device for the purpose of defining the minimum load.

For devices incorporating other forms of deflection measuring apparatus, i.e. microscopes, electrical circuits, etc., the calibrating authority should determine the smallest interval of scale reading which should be used for this purpose, having regard to both the setting and reading of the deflection-measuring apparatus.

The readings of deflection of the proving device should not be subject to variation by outside causes, e.g. by normal variations in power supply required, such as changes in line voltage or frequency.

The device should be suitably identified by the maker's name, serial number and maximum load.

* This does not, of course, impose any restriction on the calibrating authority or the user when reading the device.