

Specification for

Linear measuring instruments —

For use on building and civil
engineering constructional works —

Steel measuring tapes, steel bands and
retractable steel pocket rules

Co-operating organizations

The Committee responsible for the preparation of this British Standard consists of representatives from the following Government departments and scientific and industrial organizations:

- Association of Consulting Engineers
- Drawing Office Material Manufacturers and Dealers Association
- Federation of Civil Engineering Contractors
- Incorporated Association of Architects and Surveyors
- Ministry of Public Building and Works
- Ministry of Technology, Building Research Station
- National Federation of Building Trades Employers
- Royal Institute of British Architects
- The Royal Institution of Chartered Surveyors

This British Standard, having been approved by the Building Divisional Council, was published in its present form under the authority of the General Council on 15th July, 1966

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The following BSI references relate to the work on this Standard:
Committee reference B/98
Draft for comment D65/5827

ISBN 0 580 04015 1

Amendments issued since publication

Amd. No.	Date	Comments
725	April 1971	Indicated by a sideline in the margin

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Foreword

This British Standard has been prepared at the request of the National Federation of Building Trades Employers and issued under the authority of the Building Divisional Council. The object of the standard is to ensure, by laying down requirements for materials, manufacture and finish, that each measuring instrument will be capable of passing certain prescribed tests and will give accurate service and satisfactory life under normal conditions of use. Instruments such as tapes made of special alloys of very low thermal expansion coefficient, land chains and steel bands marked with studs or sleeves normally used in surveying, linen tapes and glass fibre tapes have been excluded from consideration.

A test for the abrasion resistance of painted ribbons of measuring instruments is being investigated with a view to its incorporation in a later edition.

NOTE In place of the customary, but incorrect, use of the pound as a unit for force, the unit called the pound-force (abbreviation lbf) has been used in this standard. It is the force which, when acting on a body of mass one pound, gives it an acceleration equal to that of standard gravity.

The metric figuring specified in this standard is based on using metric technical units which were preferred at the time of publication. Subsequently, to meet the requirements for measuring instruments graduated and figured in accordance with the International System of Units (SI), BS 4484-1, was published in July 1969. This supercedes the references in BS 4035 to metric marking and figuring. BS 4035 will be replaced in due course by Part 2 of BS 4484 which is in course of preparation.

The Institution desires to call attention to the fact that this British Standard does not purport to include all the necessary provisions of a contract.

In order to keep abreast of progress in the Industries concerned, British Standards are subject to periodical review. Suggestions for improvements will be recorded and in due course brought to the notice of the committees charged with the revision of the standards to which they refer.

A complete list of British Standards, numbering over 4000, fully indexed and with a note of the contents of each, will be found in the British Standards Yearbook, price 15s. The B.S. Yearbook may be consulted in many public libraries and similar institutions.

A British Standard does not purport to include all the necessary provisions of a contract. Users of British Standards are responsible for their correct application.

Compliance with a British Standard does not of itself confer immunity from legal obligations.

Summary of pages

This document comprises a front cover, an inside front cover, pages i and ii, pages 1 to 10, an inside back cover and a back cover.

This standard has been updated (see copyright date) and may have had amendments incorporated. This will be indicated in the amendment table on the inside front cover.

Section 1. Steel measuring tapes

1 Scope

This British Standard specifies the requirements for steel measuring tapes, steel bands and retractable steel pocket rules for use on building and civil engineering constructional works.

The standard is divided into three sections as follows:

- *Section 1: Steel measuring tapes;*
- *Section 2: Steel bands;*
- *Section 3: Retractable steel pocket rules.*

2 Definitions

For the purposes of this British Standard, the following definitions apply:

steel measuring tape

essentially a graduated steel ribbon, a winding drum, a winding handle and a case or reel. When in use the ribbon is not disconnected from the winding drum

steel band

essentially a graduated steel ribbon fitted at both ends with handles. When not in use the steel band is wound on to a reel

retractable steel pocket rule

essentially a graduated steel blade, a blade tip, a return spring and an enclosing case, so designed that the blade may be quickly and easily extended from the case and retracted either manually or automatically

3 Components

a. Ribbon. The ribbon shall be manufactured in one continuous length and shall be made of carbon steel or stainless steel. Either steel shall have an ultimate tensile strength of not less than 95 tonf/in².

The coefficient of thermal expansion of the steel shall not exceed 0.000 011 9/degC (0.000 006 6/degF).

The width of ribbon shall normally be $\frac{3}{8}$ in, $\frac{1}{2}$ in or $\frac{5}{8}$ in, within a tolerance of ± 0.005 in.

The ribbon shall be manufactured from material having a tolerance on the thickness of ± 0.001 in. The thickness of the ribbon, after processing, shall be not less than 0.006 in nor more than 0.011 in at any point.

The maximum permissible error in edge straightness shall be in accordance with the values shown in Table 1.

Table 1 — Maximum permissible error in edge straightness

Test length	Maximum deviation from a mean true plane
ft	in
10	$\frac{1}{8}$
25	$\frac{1}{4}$
50	$\frac{3}{8}$
100	$\frac{1}{2}$

The outer end of the ribbon shall be fitted with a metal ring, connected to the ribbon by a metal strip of the same width as the ribbon. The ring and connection shall withstand a direct static load of 50 lbf without damage or deformation.

b. Winding drum. The winding drum shall rotate freely but be provided with a frictional device suitable for preventing spin. The ribbon shall be connected to the winding drum directly or by means of a connecting strip of suitable material and length¹⁾. The connection between the winding drum and the ribbon shall withstand a direct static load of 50 lbf.

The diameter of the winding drum shall be not less than $1\frac{1}{8}$ in.

c. Winding handle. The handle shall be hinged to the winding drum to fold into or against the case, reel, or winding drum, and have a winding radius of not less than $1\frac{3}{16}$ in. The winder knob shall be non-detachable, and shall rotate freely on a spindle.

d. Case or reel. All exposed steel parts of the case or reel shall be processed to resist corrosion. The opening in the case for the ribbon shall be provided with rollers or slides forming a bearing. There shall be adequate clearance between the internal peripheral face of the case and the fully wound in tape.

NOTE Recommendations on the care and use of tapes are given in Appendix A.

¹⁾ Known in the industry as a "leader". It permits the ribbon to be disconnected from outside the case.