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RETRACTABLE STEEL POCKET RULES

STANDARDS ASSOCIATION OF AUSTRALIA
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THE FOLLOWING SCIENTIFIC, INDUSTRIAL, PROFESSIONAL AND GOVERNMENTAL organizations were officially represented on the committee entrusted with the preparation of this standard:

Association of Consulting Engineers, Australia

Australian Institute of Steel Construction

CSIRO National Measurement Laboratory

Department of Housing and Construction

Department of Lands, N.S.W.

Department of Public Works, N.S.W.

Master Builders Federation of Australia Incorporated

Manufacturers and importers

National Association of Australian State Road Authorities

Royal Australian Institute of Architects

The Institution of Surveyors, Australia

University of Sydney

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AUSTRALIAN STANDARD

RETRACTABLE STEEL POCKET RULES

AS 1293—1980

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PREFACE

This standard was prepared by the Association's Committee on Linear Measuring Instruments. It supersedes the first (1972) edition which was issued in one volume with other standards in the series under the designation AS 1290 to 1298, Linear Measuring Instruments for Use in Construction. Except for AS 1296 which is now withdrawn each of these standards is the subject of a new edition, issued separately.

The method of graduation is consistent with decisions on units, their multiples and submultiples made by the Metric Conversion Board and the Standards Association of Australia Metric Standards Advisory Committee.

In the preparation of this standard reference was made to a number of sources including—

BS 3693 Recommendations for the Design of Scales and Indexes
Part 1—Instruments of Bold Presentation and for Rapid Reading

BS 4484 Measuring Instruments for Constructional Works
Part 1—Metric Graduation and Figuring of Instruments for Linear Measurement

and acknowledgment is made of the assistance obtained therefrom.

In this edition, the following clauses and figure have been amended:

1 Scope
3.1 Blade
4.1 Form of Graduation
4.3 Form of Figuring
4.4 Durability and Readability
5 Accuracy
6 Marking
Fig. 1

This standard requires reference to AS 1290, General Requirements for Linear Measuring Instruments Used in Construction.

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STANDARDS ASSOCIATION OF AUSTRALIA

Australian Standard
for
RETRACTABLE STEEL POCKET RULES

1 SCOPE. This standard specifies the requirements for retractable steel pocket rules 1 m or greater in length.

2 GENERAL REQUIREMENTS. For the purpose of this standard the definitions and requirements for presentation, graduation, figuring and other markings set out in AS 1290 shall apply.

3 COMPONENTS.

3.1 Blade. The blade shall comply with the following requirements:

(a) The blade shall be manufactured in one continuous length and shall be made from carbon steel or stainless steel, having a tensile strength of not less than 1450 MPa.

The coefficient of thermal expansion of the steel shall not exceed $11.9 \times 10^{-6}/°C$.

(b) The width of the blade shall be not less than 10 nor more than 25 mm and shall be uniform within $\pm$ 0.15 mm.

(c) The thickness of the blade after processing, shall be not less than 0.12 mm nor more than 0.25 mm at any point.

(d) The maximum permissible error in edge straightness shall conform to the values given in Table 1.

TABLE 1
EDGE STRAIGHTNESS

In any interval with test length m	Maximum permissible error in edge straightness mm
1	1.3
2	2.6
3	3.9
5 and over	6.5

(e) The blade shall be so formed as to be self-supporting when extended horizontally for a distance of not less than 1.0 m. It shall also be sufficiently flexible to enable measurements to be taken around 180 degrees of a curved surface of 13-mm radius, without damage or permanent distortion.

3.2 Blade Tip. The outer end of the blade shall be fitted with a flat surface hook to facilitate measurements from the edge of an object. The hook shall be of a non-corrodible material or of a material processed to resist corrosion and shall be fitted to the end of the blade by two or more rivets along the blade axis. It shall possess a short sliding action to allow for the thickness of the hook when used for taking either internal or external measurements.

The assembly of blade tip to blade shall be capable of withstanding a pull of 50 N.

3.3 Return Spring. The blade shall be secured to the case by a return spring to assist partial or complete retraction of the blade automatically and/or manually. The connection of the blade to the case shall be capable of withstanding a pull of 50 N.

The blade spring assembly shall be secured against accidental disengagement during service, but shall also permit a simple disengagement to facilitate the fitting of a replacement blade.

3.4 Case. The case shall be manufactured from a non-corrodible material or from materials processed to resist corrosion, or from a combination of both. The case shall be sufficiently shock resistant to protect the rule from damage when it is dropped freely from a height of 1.5 m on to a concrete floor. The case may be so shaped as to form an integral part of the measurement.

4 GRADUATION AND FIGURING.

4.1 Form of Graduation. Graduation of the rule shall comply with the following requirements:

(a) The outer or inner face of the sliding blade tip shall constitute the zero of the instrument when used for internal or external measurement respectively.

(b) The upper face of the instrument shall be graduated along one edge with major graduation marks at 1-m intervals (second order of magnitude); with intermediate graduation marks at 100-mm and 10-mm intervals (both second order of magnitude) and at 5-mm intervals (third order of magnitude); and with minor graduation marks at 1-mm intervals (fourth order of magnitude); provided however that for a pocket rule of length 1 m, the graduation marks at 100-mm intervals shall constitute the major graduation marks.

(c) The other edge shall be similarly graduated, except that the 1-mm graduation marks may be omitted (coarse graduation).

(d) The choice of edge for fine graduation and coarse graduation, if any, is optional.

Instruments graduated in a manner similar to that illustrated in Fig. 1(a), (b), (c) or (d) shall be deemed to satisfy the above requirements.

NOTE: The instrument should be graduated on the upper face only. The shape of the blade necessary to satisfy Clause 3.1(e) generally results in the lower face being convex and therefore susceptible to wear. If it is desired to graduate the lower face of the blade in addition to the upper face, it is recommended that such graduation and associated figuring be carried out in accordance with this Clause 4.

4.2 Graduation Marks. The graduation marks shall be clear lines of uniform thickness, normal to the edges of the blade.

The width of the graduation marks shall be not less than 0.1 mm nor more than 0.3 mm.