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**MICROMETER HEADS—
METRIC SERIES**

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CSIRO, Division of Applied Physics
CSIRO, National Measurement Laboratory
Department of Defence
Department of Productivity
Department of Technical and Further Education, N.S.W.
Federal Chamber of Automotive Industries
Institute of Technology, South Australia
Institution of Engineers, Australia
Institution of Production Engineers
Metal Trades Industry Association of Australia
Railways of Australia Committee
Society of Manufacturing Engineers
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University of Queensland

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METRIC SERIES**

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PREFACE

This standard was prepared by the Association's Committee on Metrology as part of a program to provide standards for a comprehensive range of instruments in the metric series.

This standard supersedes AS B140 which was an endorsement of BS 1734:1951 and covered both imperial and metric micrometer heads. BS 1734 was imperial based with corresponding metric units given as supplementary information, and the need for an Australian standard for micrometer heads in the metric series arose first from the necessity to provide a standard with a metric base, and secondly to revise and update information given in AS B140 because much of the material was obsolescent. Imperial-unit micrometer heads will be covered in Supplement No 1* to this standard.

In preparing this standard the committee also took into account JIS B7505, and the technical requirements of this standard are in agreement with the Japanese standard. There is currently no international standard, or draft proposal, covering these types of measuring instrument although the work has been proposed as a work item for ISO/TC 3.

The standard specifies requirements for design, materials, properties, accuracy and performance of micrometer heads with both rotating and non-rotating spindles. An appendix provides notes on recommended tests on the more important metrological features.

This standard may require reference to AS 1514, Glossary of Terms used in Metrology.

*In course of preparation.

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Australian Standard
for
MICROMETER HEADS—METRIC SERIES

SECTION 1. SCOPE AND GENERAL

1.1 SCOPE. This standard specifies micrometer heads having measuring ranges of 13 mm or 25 mm respectively, and applies to micrometer heads with either rotatable or non-rotatable spindles.

NOTE: Whilst specific reference is not made to digital-readout micrometer heads such micrometer heads should meet the accuracy and performance requirements given in Clause 2.2 and Table 2.2.

1.2 CLASSIFICATION. Micrometer heads are classified into types in accordance with Table 1.1.

TABLE 1.1
TYPES OF MICROMETER HEADS

Type	Thimble diameter
1	Up to and including 25 mm
2	Over 25 mm and up to and including 60 mm
3	Over 60 mm

1.3 NOMENCLATURE. The terms relating to the important features of micrometer heads are given in Fig. 2.1.

1.4 DEFINITIONS. For the purpose of the standard the following definition and the definitions given in AS 1514 apply.

Micrometer head—a measuring instrument normally used as a component in a measuring system such as a bench micrometer.

NOTE: The micrometer head basically comprises a spindle with an accurate integral ground screw thread with a mating thimble and barrel (see Fig. 2.1). The spindle may be either of the rotating or non-rotating type.

1.5 MATERIALS AND HARDNESS.

1.5.1 Materials. The barrel and thimble of Type 1 micrometer heads shall be manufactured from a

suitable quality steel. The barrel and thimble of Types 2 and 3 micrometer heads may be made from either a suitable quality steel or a suitable light alloy.

The micrometer spindle shall be manufactured from a high grade tool steel.

1.5.2 Hardness. The micrometer spindle after heat treatment shall have a hardness of not less than 800 HV. The measuring face may be tipped with tungsten carbide or other suitable hard material.

1.6 FINISH. The micrometer heads shall be cleanly finished and all sharp edges removed.

NOTE: It is recommended that for ease of reading, the thimble and barrel should be finished by dull chromium plating or an equivalent matt finish.

1.7 REFERENCE TEMPERATURE. The reference temperature to which the accuracy of micrometer heads is referred is 20°C.

1.8 MARKING. Each micrometer head shall be permanently and legibly marked with the manufacturer's name or trademark. It is also recommended that the thimble be marked with the minimum scale value.

1.9 PROTECTION AGAINST DAMAGE AND CORROSION.

1.9.1 Protection Case. Each micrometer head shall be supplied in a case or box of substantial construction and of non-corrosive material. The case shall be designed to restrain lateral and vertical displacement of the micrometer head when the lid is securely closed.

1.9.2 Packaging. During transit the micrometer head shall be protected against the effect of adverse climatic conditions with a suitable corrosive inhibitor, e.g. vapour phase inhibitor (VPI) paper.

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