

Australian Standard[®]

**ROLLER-TYPE
SCREW CALLIPER GAUGES**

METRIC UNITS

The following scientific, industrial and governmental organizations and departments were officially represented on the committee entrusted with the preparation of this standard:

American Society of Tool and Manufacturing Engineers
Associated Chambers of Manufactures of Australia
Australian and New Zealand Railways Conferences
CSIRO Division of Applied Physics
Department of the Army
Department of Supply (Defence Standards Laboratories)
Department of Supply (Munitions and Aircraft Factories)
Electricity Supply Association of Australia
Federal Chamber of Automotive Industries
Metal Trades Industry Association of Australia
Postmaster-General's Department
Snowy Mountains Hydro-Electric Authority
The Institution of Engineers, Australia
The Institution of Production Engineers
University of New South Wales
Weapons Research Establishment

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PREFACE

This standard was prepared by a Joint Panel of SAA Committees ME/27—Metrology and ME/28—Screw Threads under the guidance of the Subcommittee on Gauges.

Originally intended to be an extension of AS B129—1968, Geometric Limit Gauges, the draft developed into a comprehensive document incorporating requirements for the design of the gauge as well as for its gauging surfaces.

The Panel decided that a standard should be prepared for the screw calliper gauge with annular thread-type roller anvils, as the type of screw gauge is being produced and commonly used in Australia.

The inclusion of a rigidity test, similar to that used for micrometer frames, induced the Panel to carry out tests of the rigidity of screw calliper gauges of two different makes; these tests served as a basis for the rigidity requirements in the standard.

Whilst the standard is based on metric units, these gauges can also be used for gauging various inch series screw threads. The only difference will be with regard to form and dimensions of the gauging surfaces of the rollers, which are subject to the requirements of corresponding general standards for gauging screw threads and to modifications compensating for the annular shape of roller grooves (see Section 7).

In using this standard, reference may be required to the following Australian standards:

- AS 1014 Gauging of Metric Screw Threads
- AS 1275 Metric Screw Threads for Fasteners
- AS B46 British Association (BA) Screw Threads
- AS B47 Parallel Screw Threads of Whitworth Form
- AS B121 Screw Gauge Limits and Tolerances
 - Part 1: Gauges for Screw Threads of Unified Form
 - Part 4: Limits of Size for Gauges for Screw Threads of Unified Form; Diameters $\frac{1}{4}$ inch and Larger
- AS B129 Designs for Geometric Limit Gauges (Plain and Screwed in Inch Units)
- AS B133 Unified Screw Threads
 - Part 3: Diameters below $\frac{1}{4}$ inch
- AS B233 Screw Thread Measuring Cylinders
 - Parts 1 and 2: Diameters $\frac{1}{4}$ inch and larger

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STANDARDS ASSOCIATION OF AUSTRALIA

**Australian Standard Specification
for
ROLLER-TYPE SCREW CALLIPER GAUGES**

SECTION 1. GENERAL

1.1 SCOPE. This standard specifies the main features and requirements for roller-type screw calliper gauges, covering a range of product thread diameters from 1.6 to 64 mm.

The calliper gauges are recommended for use for product threads having pitch diameter tolerances not smaller than 50 μm .

No firm recommendations are made on details of the design, but certain requirements covering aspects such as rigidity, stability, convenience in operation and accuracy are specified.

The standard also defines specific terms, marking and protection, and deals in detail with the design of gauging surfaces of annular rollers.

The application of the standard to the gauging of inch series screw threads with metric calliper gauges made to the requirements of this standard is dealt with in Section 7.

NOTE: Whilst this standard covers gauges up to 64 mm in diameter, it is recognized that larger calliper gauges may be required and used for specific applications.

When such larger sizes are needed, special care must be exercised with respect to their design and use, but the general principles of this standard may be used as a guide.

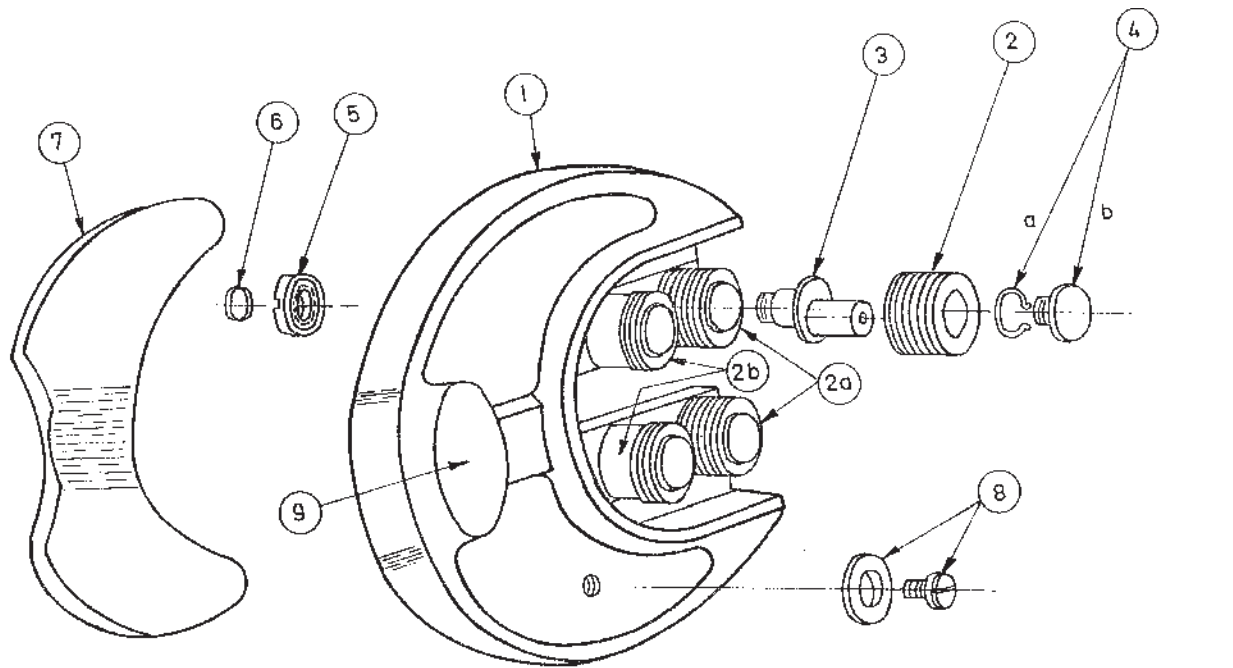
1.2 NOMENCLATURE. Terms relating to the parts of a typical screw calliper gauge of the annular grooved rollers type are shown in Fig. 1.

1.3 DEFINITIONS.* For the purposes of this standard the following definitions apply.

1.3.1 Roller Calliper Gauge—a gauge used for the testing of external product screw threads by means of annular grooved rollers passing in a diametral plane over the product thread. (See Fig. 1 for a typical design.)

1.3.2 Setting Plug Gauge—a type of screw plug gauge used for setting the rollers of screw calliper gauges. The GO setting plug is used for setting the GO rollers and the NOT GO setting plug is used for setting the NOT GO rollers.

* For general terms related to screw threads and screw gauges see AS (in course of preparation).



LEGEND

- | | | |
|--------------------|------------------------------------|---------------------------------------|
| 1. Frame | 4a. Circlip | 7. Insulating Pad |
| 2a. GO Roller | 4b. Retaining Screw } alternatives | 8. Thread Class Disc and Screw |
| 2b. NOT GO Roller | 5. Pin Locking Device | 9. Product Thread Identification Area |
| 3. Pin (eccentric) | 6. Seal | |

Fig. 1. NOMENCLATURE