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AS 1275—1972
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Australian Standard 1275—1972

METRIC SCREW THREADS FOR FASTENERS

(BASED ON ISO RECOMMENDATIONS)

METRIC UNITS

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

Associated Chambers of Manufactures of Australia

Australian and New Zealand Railways Conferences

Department of Defence, Defence Standardization Committee

Department of Supply, Defence Standards Laboratories, Ammunitions Factory

Department of Technical Education, N.S.W.

Division of Applied Physics, CSIRO

Electricity Supply Association of Australia

Fasteners Institute of Australia

Federal Chamber of Automotive Industries

Metal Trades Industry Association of Australia

Petroleum Refinery Engineers Advisory Committee

Postmaster-General's Department

Society of Automotive Engineers—Australasia

The Institution of Engineers, Australia

The Institution of Production Engineers

Sydney Metropolitan Water, Sewerage and Drainage Board.

This standard, prepared by Committee ME/28, Screw Threads, was approved by the Mechanical Engineering Industry Standards Committee on behalf of the Council of the Standards Association of Australia on 23 May 1972.

To keep abreast of progress in industry, Australian standards are regularly reviewed. Suggestions for improvements to published standards, addressed to the head office of the Association, are welcomed.

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AUSTRALIAN STANDARD

METRIC SCREW THREADS FOR FASTENERS

(BASED ON ISO RECOMMENDATIONS)

AS 1275—1972

First published (as AS B275)	1968
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PREFACE

This standard was prepared by the Association's Committee on Screw Threads, in order to meet early demand for basic information on ISO metric screw threads for fasteners, and was first issued as AS B275—1968.

As AS B275, the standard was the first to be completed of five standards relating to ISO metric screw threads, which are being given first priority by the committee. Also published is AS 1014, Gauging of Metric Screw Threads. The remaining three standards in the series are in course of preparation and will cover—

- general purpose metric screw threads
- verification of screw gauges (applicable to all types of screw threads)
- machine taps (intended for issue in three parts).

The standard on general purpose metric screw threads is being prepared as a comprehensive source of information on the ISO metric screw thread system. It will incorporate brief notes on the development of ISO screw threads, description of the system and its intended use, terminology of screw thread engineering, basic geometry and formulas related to basic and design forms, fits and tolerances; also, properties of threaded connections, defects of geometry, coating of threaded products, etc. This standard will provide the necessary data for the design of standard metric screw threads for any conditions and for any diameter-pitch combination.

Until the standard on general purpose threads is available the committee has decided to include certain basic information on ISO metric screw threads in this standard; such data (see Appendix A) will be useful for an understanding of the system and for determining parameters for screw threads of non-standard diameter-pitch combinations.

AS B275—1968 provided only for the coarse series and one class of fit (6H/6g). Developments in the use of metric fasteners in Australia since 1968 have caused the committee to add another class of fit (6H/8g) and re-assess some technical aspects.

Particular attention is drawn to the following changes in this revision:

- Tables 1 and 2 have been expanded to provide for data related to Class 8g external threads.
- The form of the root at MMC and the upper limit of minor diameter of external threads have been modified to correspond to those in ISO/R 965, Part 1—1969; this has affected Clause 6, Figs 2 and A2, related formulas, and tabulated values for minor diameters.
- Former Clause 9.1 dealing with thin electroplating of external threads has been modified and Table 3 has been deleted.
- Clause 12 and Paragraph A7, dealing with tensile and fatigue stress areas, have been altered to convey more accurately the position with regard to stress area calculation.

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- A new Table A3 has been introduced giving relation between tolerance values of various grades of accuracy (former Tables A3 and A4 have been renumbered).

The standard is based on the following ISO Recommendations:

ISO/R 68 ISO Screw Threads; Basic Profile

ISO/R 261 ISO Metric Screw Threads; General Plan, dia. range 0·25-300 mm

ISO/R 262 ISO Metric Screw Threads for Screws, Bolts and Nuts

ISO/R 724 ISO Metric Screw Threads; Basic dimensions

ISO/R 965 ISO Metric Screw Threads; Tolerances: Part 1—Principles and basic data

ISO/R 965 ISO Metric Screw Threads; Tolerances: Part 2—Limits of sizes for medium quality commercial bolt and nut threads.

Because the final text of ISO/R 965, Part 1—1969, was more acceptable to the SAA committee than the draft ISO proposals considered by the committee when AS B275—1968 was being drafted, most of the provisions of ISO/R 965, Part 1, have been incorporated in this revised edition. The only significant exceptions are the terms and symbols of ISO/R 965, which were not adopted because they either duplicate other symbols (e.g. fundamental deviation and allowance) or were considered not so acceptable as those already widely used in English-speaking countries (e.g. designation of major, pitch and minor diameters).

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

AS 1014 Gauging of ISO Metric Screw Threads

AS 1214 Hot-dip Galvanized Coating on Fasteners (Metric Coarse Thread Series)

AS B232 Guide to Design Considerations on the Strength of Screw Threads

AS K132 Electroplated Coatings on Threaded Fasteners†

Part 1 Cadmium on Steel Fasteners

Part 2 Zinc on Steel Fasteners

Part 7 Thicker Coatings for Threaded Fasteners

AS K173 Methods of Testing Electroplated Coatings†

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†These standards are in imperial units, but may serve as a guide until metric versions (now in course of preparation) become available.

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