

Australian Standard[®]

**CIRCULAR MACHINE SCREWING
DIES, CIRCULAR HAND
SCREWING DIES AND HEXAGON
DIE-NUTS**

**Part 2—PIPE THREADS OF
WHITWORTH FORM**

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(Circular Machine Screwing Dies, Hand Screwing Dies
and Hexagon Die-nuts); NSC 5136]

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CSIRO, Division of Materials Science
CSIRO, National Measurement Laboratory
Confederation of Australian Industry
Department of Defence
Department of Productivity
Department of Technical and Further Education
Electricity Supply Association of Australia
Fasteners Institute of Australia
Institution of Production Engineers
Metal Trades Industry Association of Australia
Railways of Australia Committee
Telecom Australia

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PREFACE

This standard was prepared by the Association's Committee on Screw Threads. With AS 1364, Parts 1 and 3, it supersedes AS B96, Circular Screwing Dies and Hexagon Die-nuts, which was the endorsement of BS 1127:1950.

The need for a standard has arisen primarily because Australia has adopted the metric system of units (SI), but it is equally important that Australian practice be aligned with current world practice as given in ISO standards.

AS 1364 covers circular machine screwing dies, circular hand screwing dies and hexagon die-nuts as follows:

Part 1— General Purpose Metric Screw Threads

Part 2— Pipe Threads of Whitworth Form

Part 3— Inch Screw Threads

This standard sets out the requirements of circular machine screwing dies, circular hand screwing dies, and hexagon die-nuts for cutting taper and parallel screw threads in accordance with AS 1722, Pipe Threads of Whitworth Form, Part 1—Sealing Pipe Threads, and Part 2—Fastening Pipe Threads. The general dimensions of circular machine screwing dies are the same as those given in ISO 2568, Hand and Machine-operated Circular Screwing Dies and Hand-operated Die Stocks. With respect to circular hand screwing dies, however, the committee noted that the ISO system would require a larger number of dies to cover a given range of screw thread diameters than is currently needed for inch series threads, and hence would require a larger number of die stocks. There is also no necessity for interchangeability in related die heads as is the case for circular machine screwing dies. This, together with the fact that there are a significant number of inch-based die stocks used

throughout the country generally, led the committee to base the general dimensions for such dies on current practices soft-converted into metric units.

There are no ISO standards giving general dimensions for hexagon die-nuts, although some work is being done by ISO/TC 29/SC 4, Screwing Taps and Dies. It would appear that no agreement will be forthcoming in the near future, and therefore the general dimensions given in this standard have been developed by the committee and are based on ISO 272, Fasteners—Hexagon Products—Widths across Flats, which gives the hexagon sizes for metric fasteners. It is intended that the proposed series be forwarded to ISO/TC 29/SC 4 as an Australian proposal. As an interim measure until stocks of hexagon metric die-nuts become available, the dimensions of inch-based hexagons soft-converted into metric units are given in an appendix. It is intended to withdraw this material when appropriate.

The standard also sets out material and performance requirements which are not given in the ISO standards, and introduces a method of test based on the ability of the die to cut a screw thread of a given tolerance class.

This standard requires reference to the following standards:

- AS 1074 Steel Tubes and Tubulars Threaded or Suitable for Threading with Pipe Threads of Whitworth Form
- AS 1442 Carbon Steels and Carbon-manganese Steels—Hot-rolled Bars and Semi-finished Products
- AS 1654 Limits and Fits for Engineering
- AS 1722 Pipe Threads of Whitworth Form

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STANDARDS ASSOCIATION OF AUSTRALIA

Australian Standard

for

CIRCULAR MACHINE SCREWING DIES, CIRCULAR HAND SCREWING DIES
AND HEXAGON DIE-NUTS

PART 2—PIPE THREADS OF WHITWORTH FORM

SECTION 1. SCOPE AND GENERAL REQUIREMENTS

1.1 SCOPE. This standard specifies requirements for circular machine and hand screwing dies and die-nuts for cutting fastening and sealing pipe threads in accordance with AS 1722.

NOTES:

1. During the transition period of the ISO metric hexagon series, hexagon die-nuts may be supplied with general dimensions in accordance with Appendix A which represents current practices soft-converted into metric units. If the purchaser specifically requires die-nuts with ISO metric hexagons as given in Tables 2.3 and 3.3, he should indicate this in his enquiry or order.
2. The designation of pipe threads comprises the series designation followed by the nominal size (bore) in inches. For further information, see AS 1722, Parts 1 and 2.

1.2 APPLICATION. The dies and die-nuts shall comply with the relevant requirements of this Section and with the requirements of the following Sections, as appropriate:

- (a) Section 2—circular machine screwing dies, hand screwing dies and hexagon die-nuts for parallel pipe threads, i.e. Series G fastening pipe threads and Series RL sealing pipe threads, for nominal size ranges as follows:
 - (i) Circular machine screwing dies, 1/16 to 2¹/₄
 - (ii) Circular hand screwing dies, 1/16 to 3/4
 - (iii) Hexagon die-nuts, 1/16 to 2
- (b) Section 3—circular machine screwing dies, hand screwing dies and hexagon die-nuts for taper sealing pipe threads, i.e. Series R taper sealing pipe threads, for nominal size ranges as follows:
 - (i) Circular machine screwing dies, 1/16 to 2
 - (ii) Circular hand screwing dies, 1/16 to 3/4
 - (iii) Hexagon die-nuts, 1/16 to 2

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

NOTE: For the nomenclature of circular screwing dies, see Fig. 1.1.

1.3.1 Screwing die—a multiple-edged tool used for cutting an external screw thread.

1.3.2 Circular machine screwing die—a screwing die that is cylindrical in form and without provision for the adjustment of the cutting size. These dies are intended for use with die heads in machine-screwing operations.

1.3.3 Circular hand screwing dies—a screwing die that is cylindrical in form, and for dies with parallel threads, has a slit between the outside diameter and a chip clearance hole for the purpose of adjusting the cutting size. These dies are intended for use in die stocks in hand-screwing operations.

1.3.4 Hexagon die-nut—a screwing die that has an external hexagon drive. These dies are intended for use in hand-screwing operations to re-form damaged existing threads.

1.3.5 Chamfer lead—a tapered truncation and relieving of the first few threads to form a bevelled cutting edge.

1.4 MARKING. Screwing dies shall be legibly marked on the face with the following particulars:

- (i) Thread designation, e.g. R1/8 or GA1/8.
- (ii) For screwing dies manufactured from high speed steel, the letters HSS.
- (iii) In addition the packages of screwing dies may also be marked with the number of this Australian standard, i.e. AS 1364, Part 2.

Examples:

- (a) A screwing die for a Series R taper sealing pipe thread, size 1/8, would be marked R1/8.
- (b) A screwing die for a Series GA fastening pipe thread, size 1/8, would be marked GA1/8.

NOTE: Warning is given that the presence of the Australian standard number, AS 1364.2, on a screwing die, its packaging or literature related thereto could be taken as a claim by the manufacturer that the screwing die so marked complies in all respects with this standard.

Attention is particularly drawn, however, to the scheme for independent assurance of compliance with this standard provided by the AS Mark which is a registered certification trademark owned by the Standards Association of Australia. This is shown below enclosed in the words 'Approved to Australian Standard 1364.2'.

This mark can be used only by the manufacturers licensed under the certification mark scheme operated by the SAA, and only when accompanied by the number of the relevant Australian standard.