

Australian Standard<sup>®</sup>

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

**Part 3 — INCH SCREW THREADS**

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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 Engineers, 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 2 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 screwing dies, circular hand screwing dies, and hexagon die-nuts for cutting parallel screw threads in accordance with the following standards:

- AS B46 British Association (BA) Screw Threads
- AS B47 Parallel Screw Threads of Whitworth Form
- AS B133 Unified Screw 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 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 1364 Circular Machine Screwing Dies Circular Hand Screwing Dies and Hexagon Die-nuts Part 1—General Purpose Metric Screw Threads
- AS B46 British Association (BA) Screw Threads
- AS B47 Parallel Screw Threads of Whitworth Form
- AS B133 Unified Screw Threads

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## STANDARDS ASSOCIATION OF AUSTRALIA

## Australian Standard

for

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

## PART 3—INCH SCREW THREADS

**1 SCOPE.** This standard specifies general dimensions and marking requirements for circular machine screwing dies, circular hand screwing dies and hexagon die-nuts for cutting parallel inch screw threads.

Appendix A gives the basis of the general dimensions and tolerances for circular machine screwing dies for screw threads up to and including 71 mm (2.795 in) diameter to enable the manufacture of screwing dies outside the dimensional range of this standard.

## NOTES:

1. To ensure interchangeability of circular machine screwing dies in related die heads, the external dimensions specified in this standard for imperial circular machine screwing dies are the same as those specified for metric threads.
2. During the transition period to the ISO metric hexagon series, hexagon die-nuts may be supplied with general dimensions in accordance with Appendix B which represents current practices soft-converted into metric units. If the purchaser specifically requires die-nuts with ISO metric hexagons as given in Tables 11 to 15 inclusive, he should indicate this in his enquiry or order.

**2 MATERIAL AND HARDNESS.** The requirements for material and hardness specified in AS 1364, Part 1 for metric screwing dies shall apply to corresponding inch screwing dies.

**3 DIMENSIONS AND TOLERANCES.**

**3.1 General.** The dimensions and limiting values for circular machine screwing dies, circular hand screwing dies and hexagon die-nuts shall be in accordance with Figs 1, 2 and 3, and Tables 1 to 15, as relevant.

**3.2 Chamfer Lead.** The chamfer leads specified in AS 1364, Part 1 for metric screwing dies shall apply to corresponding inch screwing dies.

**4 TEST REQUIREMENTS.** The test requirements specified in AS 1364, Part 1 for metric screwing dies shall apply to corresponding inch screwing dies, except that the screw threads produced by the dies shall be of the following classes:

- (a) Unified coarse series (UNC) (see AS B133) ..... Class 2A.
- (b) Unified fine series (UNF) (see AS B133) ..... Class 2A.
- (c) British standard Whitworth series (BSW) (see AS B47) ..... Medium class.
- (d) British standard fine threads (BSF) (see AS B47) ..... Medium class.
- (e) British Association threads (BA) (see AS B46) ..... Normal class.

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

- (i) Thread designation, e.g. 3/4 UNC, or 3/4-10 UNC.
- (ii) For screwing dies manufactured from high speed steel, the letters HSS.
- (iii) For screwing dies with a left-hand thread, the letters LH.
- (iv) In addition, the packages of screwing dies may also be marked with the number of this Australian standard, i.e. AS 1364, Part 3.

**Example:** A screwing die for a 3/4 in UNC screw thread manufactured from high speed steel would be marked—

3/4 UNC — HSS, or 3/4 - 10 UNC — HSS.

NOTE: Warning is given that the presence of the Australian standard number, AS 1364.3, 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 1364.3'.

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**6 DESIGNATION.** Where screwing dies are being designated for the purpose of an enquiry or order, the following information shall be given:

- (i) The type of screwing die, e.g. hexagon die-nut.
- (ii) Thread designation, e.g. 3/4 - 10 UNC.
- (iii) For screwing dies required to be manufactured from high speed steel, the letters HSS.
- (iv) For screwing dies required with a left-hand thread, the letters LH.