

Australian Standard[®]

**Metallic flanges for waterworks
purposes**

This Australian Standard was prepared by Committee WS/25, Flanges for Water Supply Applications. It was approved on behalf of the Council of Standards Australia on 27 February 1996 and published on 5 June 1996.

The following interests are represented on Committee WS/25:

A.C.T.E.W.

Australian Valve Manufacturers Association

Brisbane City Council

Department of Primary Industries, Qld

Department of Public Works and Services, N.S.W.

Master Plumbers Australia

Metal Trades Industry Association of Australia

South Australian Water Corporation

Water Corporation of Western Australia

Review of Australian Standards. To keep abreast of progress in industry, Australian Standards are subject to periodic review and are kept up to date by the issue of amendments or new editions as necessary. It is important therefore that Standards users ensure that they are in possession of the latest edition, and any amendments thereto.

Full details of all Australian Standards and related publications will be found in the Standards Australia Catalogue of Publications; this information is supplemented each month by the magazine 'The Australian Standard', which subscribing members receive, and which gives details of new publications, new editions and amendments, and of withdrawn Standards.

Suggestions for improvements to Australian Standards, addressed to the head office of Standards Australia, are welcomed. Notification of any inaccuracy or ambiguity found in an Australian Standard should be made without delay in order that the matter may be investigated and appropriate action taken.

AS 4087—1996

Australian Standard[®]

**Metallic flanges for waterworks
purposes**

PUBLISHED BY STANDARDS AUSTRALIA
(STANDARDS ASSOCIATION OF AUSTRALIA)
1 THE CRESCENT, HOMEBUSH, NSW 2140

ISBN 0 7337 0458 1

PREFACE

This Standard was prepared by the Standards Australia Committee WS/25 on Flanges for Water Supply Applications to supersede AS 4087—1993.

The principal changes to this edition are as follows:

- (a) Incorporation of Amendment No. 1 to AS 4087—1993.
- (b) Revised thicknesses for steel flanges (see Figures B7 to B9).

The objective of this Standard is to provide manufacturers with requirements for metallic flanges for waterworks purposes.

For applications outside the limits specified in this Standard the appropriate flange details can be determined from AS 2129—1994, *Flanges for pipes, valves and fittings*.

Statements expressed in mandatory terms in notes to figures are deemed to be requirements of this Standard.

The terms 'normative' and 'informative' have been used in this Standard to define the application of the appendix to which they apply. A 'normative' appendix is an integral part of a Standard, whereas an 'informative' appendix is only for information and guidance.

© Copyright — STANDARDS AUSTRALIA

Users of Standards are reminded that copyright subsists in all Standards Australia publications and software. Except where the Copyright Act allows and except where provided for below no publications or software produced by Standards Australia may be reproduced, stored in a retrieval system in any form or transmitted by any means without prior permission in writing from Standards Australia. Permission may be conditional on an appropriate royalty payment. Requests for permission and information on commercial software royalties should be directed to the head office of Standards Australia.

Standards Australia will permit up to 10 percent of the technical content pages of a Standard to be copied for use exclusively in-house by purchasers of the Standard without payment of a royalty or advice to Standards Australia.

Standards Australia will also permit the inclusion of its copyright material in computer software programs for no royalty payment provided such programs are used exclusively in-house by the creators of the programs.

Care should be taken to ensure that material used is from the current edition of the Standard and that it is updated whenever the Standard is amended or revised. The number and date of the Standard should therefore be clearly identified.

The use of material in print form or in computer software programs to be used commercially, with or without payment, or in commercial contracts is subject to the payment of a royalty. This policy may be varied by Standards Australia at any time.

CONTENTS

	<i>Page</i>
FOREWORD	4
SECTION 1 SCOPE AND GENERAL	
1.1 SCOPE	5
1.2 REFERENCED DOCUMENTS	5
1.3 DEFINITIONS	6
1.4 CONFIGURATION	6
1.5 MARKING	7
SECTION 2 WORKING AND TEST PRESSURES	9
SECTION 3 MATERIALS	10
SECTION 4 MANUFACTURING REQUIREMENTS, DIMENSIONS AND TOLERANCES	
4.1 MANUFACTURING METHOD	11
4.2 DIMENSIONS AND TOLERANCES	11
4.3 CONTACT SURFACES	12
4.4 SPOT-FACING AND BACK-FACING OF FLANGES	12
4.5 PREPARATION FOR THE ATTACHMENT OF FLANGES	12
APPENDICES	
A PURCHASING GUIDELINES	14
B DIMENSIONS OF FLANGES	15
C SELECTION OF BOLTING	25
D ASSEMBLY OF FLANGED JOINTS	26

Originated as AS 4087 — 1993.
Second edition 1996.

Incorporating:
Amdt 1—1997

FOREWORD

Limitations on the use of flanges specified in this Standard may be imposed by one or more of the following:

- (a) Material of construction.
- (b) Class.
- (c) Configuration.
- (d) DN (nominal size).
- (e) Whether installed below or above ground and for the latter, the method of support, i.e. beam action.
- (f) Requirements of any relevant product Standard.

The designer of a pipeline or pressure-retaining equipment shall evaluate the possible conditions to which flanges will be exposed. The designer shall determine whether flanges according to this Standard are suitable for the proposed application.

STANDARDS AUSTRALIA

Australian Standard

Metallic flanges for waterworks purposes

SECTION 1 SCOPE AND GENERAL

1.1 SCOPE This Standard specifies requirements for circular flanges manufactured from copper alloy, ductile cast iron, grey cast iron, or steel. It covers nominal sizes (see Table 2.1) with pressure ratings for Classes 14, 16, 21 or 35 at temperatures not exceeding 80°C.

The flanges are for use on pipes, pipe fittings, valves and other equipment that are primarily intended for the conveyance or storage of water or wastewater.

NOTE: Guidelines to purchasers on information that should be supplied at the time of enquiry or order are detailed in Appendix A.

1.2 REFERENCED DOCUMENTS The following documents are referred to in this Standard:

AS

- 1111 ISO metric hexagon commercial bolts and screws
- 1112 ISO metric hexagon nuts, including thin nuts, slotted nuts and castle nuts
- 1214 Hot-dip galvanized coatings on threaded fasteners (ISO metric coarse thread series)
- 1449 Wrought alloy steels—Stainless and heat-resisting steel plate, sheet and strip
- 1565 Copper and copper alloys—Ingots and castings
- 1646 Elastomeric seals for waterworks purposes
- 1830 Iron castings—Grey cast iron
- 1831 Iron castings—Spheroidal or nodular graphite cast iron
- 2074 Steel castings
- 2129 Flanges for pipes, valves and fittings
- 2382 Surface roughness comparison specimens
- 2528 Bolts, studbolts and nuts for flanges and other high and low temperature applications
- 2536 Surface texture
- 3678 Structural steel—Hot-rolled steel plates, floorplates and slabs
- 3855 Suitability of plumbing and water distribution systems products for contact with potable water

AS/NZS

- 2280 Ductile iron pressure pipes and fittings
- 4331 Metallic flanges
 - 4331.1 Part 1: Steel flanges
 - 4331.2 Part 2: Cast iron flanges
 - 4331.3 Part 3: Copper alloy and composite flanges