



Water supply—Metal-bodied and plastic-bodied ball valves for property service connection



This Australian Standard® was prepared by Committee WS-022, Valves for Waterworks Purposes. It was approved on behalf of the Council of Standards Australia on 20 June 2016. This Standard was published on 15 July 2016.

The following are represented on Committee WS-022:

- Australian Chamber of Commerce and Industry
 - Australian Industry Group
 - Australian Stainless Steel Development Association
 - Australian Water Association
 - Engineers Australia
 - Institute of Instrumentation, Control and Automation, Australia
 - Master Plumbers Australia
 - Plastics Industry Pipe Association of Australia
 - Plumbing Products Industry Group
 - Water Industry Alliance
 - Water Services Association of Australia
-

This Standard was issued in draft form for comment as DR AS 4796:2015.

Standards Australia wishes to acknowledge the participation of the expert individuals that contributed to the development of this Standard through their representation on the Committee and through the public comment period.

Keeping Standards up-to-date

Australian Standards® are living documents that reflect progress in science, technology and systems. To maintain their currency, all Standards are periodically reviewed, and new editions are published. Between editions, amendments may be issued.

Standards may also be withdrawn. It is important that readers assure themselves they are using a current Standard, which should include any amendments that may have been published since the Standard was published.

Detailed information about Australian Standards, drafts, amendments and new projects can be found by visiting www.standards.org.au

Standards Australia welcomes suggestions for improvements, and encourages readers to notify us immediately of any apparent inaccuracies or ambiguities. Contact us via email at mail@standards.org.au, or write to Standards Australia, GPO Box 476, Sydney, NSW 2001.

Australian Standard[®]

Water supply—Metal-bodied and plastic-bodied ball valves for property service connection

Originated as AS 4796—2001.
Second edition AS 4796:2016.

COPYRIGHT

© Standards Australia Limited

All rights are reserved. No part of this work may be reproduced or copied in any form or by any means, electronic or mechanical, including photocopying, without the written permission of the publisher, unless otherwise permitted under the Copyright Act 1968.

Published by SAI Global Limited under licence from Standards Australia Limited, GPO Box 476, Sydney, NSW 2001, Australia

ISBN 978 1 76035 533 3

PREFACE

This Standard was prepared by the Joint Standards Australia/Standards New Zealand Committee, WS-022, Valves for Waterworks Purposes, in response to a request from the Water Services Association of Australia (WSAA) to provide a suitable product Standard for ball valves for property service connection for above-ground and below-ground situations.

The objective of this Standard is to specify materials and performance tests for metal-bodied and plastic-bodied ball valves used on property service connections, together with compliance requirements for the use of manufacturers and certification bodies.

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

CONTENTS

	<i>Page</i>
SECTION 1 SCOPE AND GENERAL	
1.1 SCOPE.....	4
1.2 REFERENCED DOCUMENTS.....	4
1.3 DEFINITIONS.....	4
1.4 MARKING	5
1.5 PURCHASING GUIDELINES.....	5
SECTION 2 MATERIALS	
2.1 SCOPE OF SECTION	7
2.2 DEZINCIFICATION-RESISTANT COPPER ALLOY	7
2.3 STAINLESS STEEL.....	7
2.4 PLASTIC MATERIALS.....	7
2.5 CONTAMINATION OF WATER	7
SECTION 3 DESIGN AND MANUFACTURE	
3.1 SCOPE OF SECTION	8
3.2 END CONNECTORS.....	8
3.3 WATER SHUT-OFF DEVICE	8
3.4 OPERATING MECHANISM	8
SECTION 4 PERFORMANCE REQUIREMENTS	
4.1 GENERAL.....	9
4.2 BODY RESISTANCE TO BENDING MOMENT (PLASTIC-BODIED VALVES)...	9
4.3 MINIMUM BORE DIAMETER.....	9
4.4 WATERTIGHTNESS.....	9
4.5 STRENGTH OF METAL-BODIED BALL VALVES	10
4.6 STRENGTH OF PLASTIC-BODIED BALL VALVES	10
4.7 TORQUE TEST FOR CONNECTOR NUTS AND BODY ASSEMBLIES	10
4.8 TORQUE TEST FOR VALVE OPERATION	10
APPENDICES	
A MEANS FOR DEMONSTRATING COMPLIANCE WITH THIS STANDARD	11
B LIST OF REFERENCED DOCUMENTS.....	13
C PURCHASING GUIDELINES.....	14
D PLASTIC MATERIALS USED IN BALL VALVES	15
E BODY RESISTANCE TO BENDING MOMENT (PLASTIC-BODIED VALVES)	17
F DETERMINATION OF WATERTIGHTNESS.....	19
G STRENGTH TEST FOR METAL-BODIED BALL VALVES	22
H TORQUE TEST FOR CONNECTOR NUTS AND VALVE BODY ASSEMBLIES	25
I TORQUE TEST FOR VALVE OPERATION	27

STANDARDS AUSTRALIA

Australian Standard

Water supply—Metal-bodied and plastic-bodied ball valves for property service connection

SECTION 1 SCOPE AND GENERAL

1.1 SCOPE

This Standard specifies requirements for metal-bodied and plastic-bodied ball valves for installation between the reticulation water main and the property water meter in nominal sizes DN 15, DN 20, DN 25, DN 32, DN 40 and DN 50 at allowable operating pressures of PN 16 and PN 25 and continuous operating temperatures not exceeding 60°C.

This Standard applies to service connection ball valves, service connection termination ball valves and the right angle meter assembly ball valves. It also covers the minimum requirements for health and safety and the protection of the environment.

Means for demonstrating compliance with this Standard are given in Appendix A.

1.2 REFERENCED DOCUMENTS

A list of the documents referred to in this Standard is given in Appendix B.

1.3 DEFINITIONS

For the purpose of this Standard, the definitions given in AS/NZS 3500.0 and those below apply.

1.3.1 Ball valve

A shut-off device, having a ball, that can be turned to move its port or ports relative to the body seat-ports to control the flow of liquid.

1.3.2 Component

A part or a subassembly of parts that contributes to the construction of a total assembly by choice or design and which may offer variations of fitment for the application to the major element of the product, whether produced by the same manufacturer or not.

NOTE: The component is deemed to be a vital part of the total assembly and should not inhibit the product from complying with this Standard and any other relevant Australian Standard, when submitted for type testing.

1.3.3 Distortion

Dimensional change that is obvious to the eye without resorting to dimensional checking or that which physically inhibits the operation of the valve.

1.3.4 Right angle meter assembly ball valve

A below-ground or above-ground valve, having a lockable operating mechanism and for location adjacent to the property water meter. This valve may be installed with the copper riser at the time of the reticulation pipeline installation, laid over at 90° and buried instead of the termination ball valve. When buried, this valve shall be installed in the same manner as the termination ball valve complete with the open-threaded end capped or plugged. This valve may also be installed by the plumber at the time of property connection. See Figure 1.3.

1.3.5 Service connection ball valve

A below-ground valve for insertion into the water reticulation pipeline tapping fixture to deliver water to the property service pipe, and which is shut only for maintenance, failure or disconnection of the downstream installation. See Figure 1.1.

1.3.6 Service connection termination ball valve

A below-ground valve located at the property boundary for the plumber to connect the property riser at the meter assembly. The valve is initially installed, charged, tested and left for the plumber in the closed position with any open threaded ends protected with a plastic cap or plug. See Figure 1.2.

1.4 MARKING

All ball valves complying with this Standard shall be legibly and permanently marked as follows:

- (a) Manufacturer's name or trademark.
- (b) The mark of the conformance assessment body (CAB).
- (c) Nominal size.
- (d) Direction of flow if appropriate.
- (e) Pressure classification, as a pressure number (PN).
- (f) Licence number.
- (g) The number of this Standard, i.e. AS 4796.
- (h) Batch marking.

1.5 PURCHASING GUIDELINES

NOTE: See Appendix C for purchasing guidelines that should be agreed upon at time of enquiry or order.

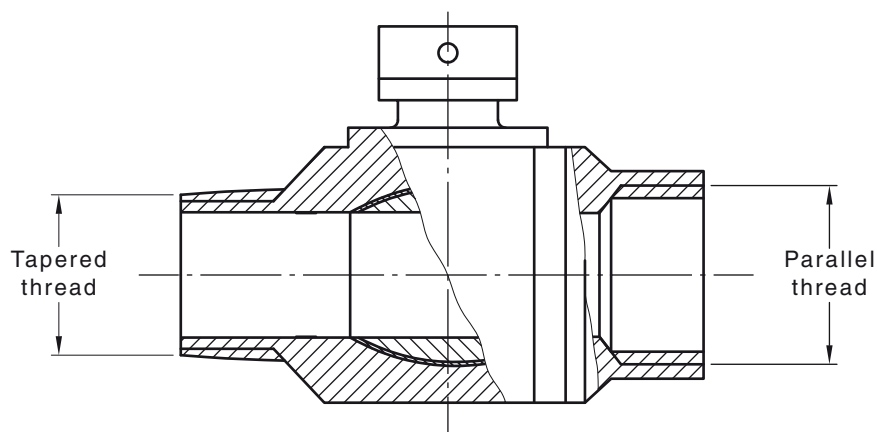


FIGURE 1.1 SERVICE CONNECTION BALL VALVE

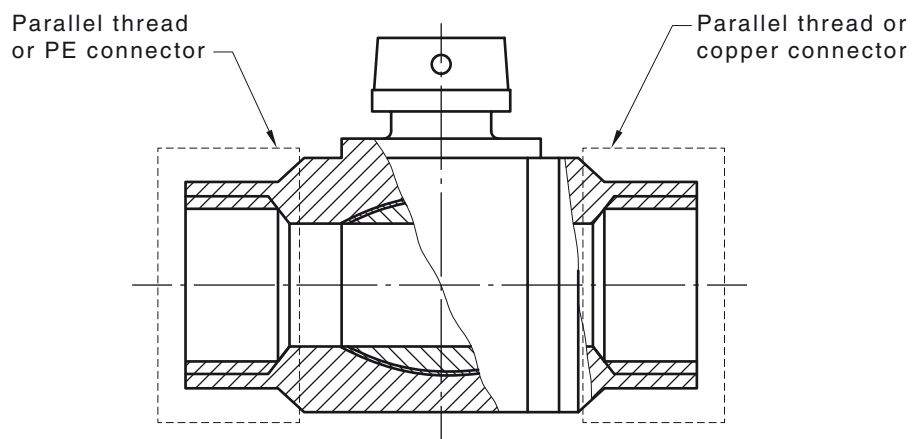


FIGURE 1.2 SERVICE CONNECTION TERMINATION BALL VALVE

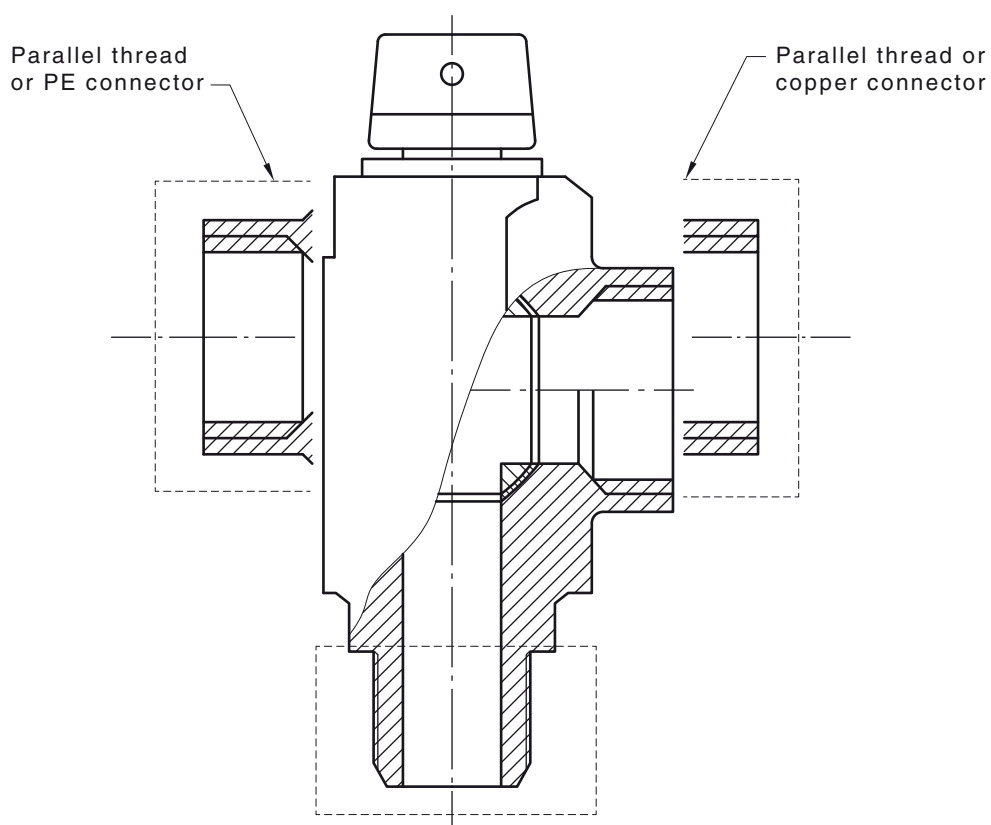


FIGURE 1.3 RIGHT ANGLE METER ASSEMBLY BALL VALVE MALE COPPER CONNECTOR OR FEMALE PARALLEL THREAD

S E C T I O N 2 M A T E R I A L S

2.1 SCOPE OF SECTION

This Section specifies requirements for the materials for valve bodies and component parts.

2.2 DEZINCIFICATION-RESISTANT COPPER ALLOY

Copper alloy, regardless of whether it is in contact with water, shall comply with AS 2345.

2.3 STAINLESS STEEL

Stainless steel, regardless of whether it is in contact with water, shall have a minimum pitting resistance equivalent number (PREN) of 22.

NOTE: The PREN may be calculated as follows: $PREN = \%Cr + (3.3 \times \%Mo) + (16 \times \%N)$.

2.4 PLASTIC MATERIALS

Plastic materials shall comply with the requirements given in Appendix D.

2.5 CONTAMINATION OF WATER

When tested utilizing a scaling factor of 0.01 for cold water applications, the valves shall comply with the requirements of AS/NZS 4020.

SECTION 3 DESIGN AND MANUFACTURE

3.1 SCOPE OF SECTION

This Section specifies requirements for the design and manufacture of ball valves. The design criteria of these valves shall be based on a minimum service life expectancy of 50 years.

3.2 END CONNECTORS

3.2.1 Threaded-end connectors

Metallic threaded-end connectors for connection to either pipes or fittings shall comply with AS ISO 7.1 Series R or RP, as applicable.

Non-metallic threaded-end connectors shall comply with the torque requirements of Clause 4.7.

3.2.2 Union-end connectors

Union-end connectors shall comply with AS 3688.

3.2.3 Compression ends

Ends for connections to copper tubes by compression joint shall comply with the relevant requirements of AS 3688. Ends for connections of polyethylene pipe shall comply with AS/NZS 4129.

3.2.4 Other end connections

Other end connections that are to be used for connecting to other pipe system types shall comply with the requirements of the Standard relevant to the connection end.

3.3 WATER SHUT-OFF DEVICE

The water shut-off device (ball unit) may be of the manufacturer's own design. If the device is metallic, it shall comply with Clause 2.3.

3.4 OPERATING MECHANISM

Ball valves shall be fitted with an operating mechanism either permanently attached or integral with the operating spindle, or by means of a lock nut or similar locking mechanism.

The operating mechanism shall clearly indicate the valve open position.

Metallic operating mechanisms (including retaining nuts) shall comply with either Clauses 2.2 or 2.3.