



Water supply—Valves for the control of heated water supply temperatures

Part 4: Thermostatically controlled taps for the control of heated water supply temperatures



This Australian Standard® was prepared by Committee WS-026, Valves Primarily for Use in Warm and Hot Water Systems. It was approved on behalf of the Council of Standards Australia on 9 May 2014.

This Standard was published on 11 June 2014.

The following are represented on Committee WS-026:

- Australian Chamber of Commerce and Industry
 - Australian Industry Group
 - Building Officials Institute of New Zealand
 - Department of Health, South Australia
 - Employers and Manufacturers Association
 - Gas Appliance Manufacturers Association of Australia
 - Institute of Hospital Engineering Australia
 - Master Plumbers and Mechanical Services Association of Australia
 - Master Plumbers Association of NSW
 - Master Plumbers, Gasfitters and Drainlayers, New Zealand
 - NSW Ministry of Health
 - Plumbing Products Industry Group
-

This Standard was issued in draft form for comment as DR AS 4032.4.

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Standards may also be withdrawn.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—Valves for the control of
heated water supply temperatures**

**Part 4: Thermostatically controlled taps
for the control of heated water supply
temperatures**

First published as AS 4032.4:2014.

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 74342 728 6

PREFACE

This Standard was prepared by the Joint Standards Australia/Standards New Zealand Committee WS-026, Valves Primarily for Use in Warm and Hot Water Systems.

After consultation with stakeholders in both countries, Standards Australia/Standards New Zealand decided to develop this Standard as an Australian Standard rather than an Australian/New Zealand Standard.

This Standard includes provision for electronically controlled valves and requirements for heated water shut-off performance.

This is a new Standard which forms Part 4 of a suite of Standards that cover products for the control of heated water temperatures, as follows:

AS

- 4032 Water supply—Valves for the control of heated water supply temperatures
- 4032.1 Part 1: Thermostatic mixing valves—Materials design and performance requirements
- 4032.2 Part 2: Tempering valves and end-of-line temperature-actuated devices
- 4032.3 Part 3: Requirements for field testing, maintenance or replacement of thermostatic mixing valves, tempering valves and end-of-line temperature control devices
- 4032.4 Part 4: Thermostatically controlled taps for the control of heated water supply temperatures

The objective of this Standard is to provide manufacturers, system designers, relevant authorities and others with performance requirements for thermostatic mixing taps, which provide a level of protection to users against exposure to high or excessive fluctuations in mixed water temperatures caused by variations, including shut-off, in the cold or heated water supply.

The term ‘normative’ has been used in this Standard to define the application of the appendix to which it applies. A ‘normative’ appendix is an integral part of a Standard.

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

This Standard necessarily deals with existing conditions, but is not intended to discourage innovation or to exclude material, equipment and methods that may be developed in the future. Revisions will be made from time to time in view of such developments, and amendments to this edition will be made only when absolutely necessary.

CONTENTS

	<i>Page</i>
SECTION 1 SCOPE AND GENERAL	
1.1 SCOPE.....	5
1.2 APPLICATION	5
1.3 NORMATIVE DOCUMENTS	5
1.4 DEFINITIONS.....	7
1.5 PRODUCT DATA.....	7
1.6 MARKING	8
1.7 INSTRUCTIONS.....	8
SECTION 2 MATERIALS	
2.1 SCOPE OF SECTION	9
2.2 CORROSION-RESISTANT METALLIC MATERIALS	9
2.3 COPPER.....	9
2.4 COPPER ALLOY	9
2.5 DEZINCIFICATION-RESISTANT (DR) COPPER ALLOY	9
2.6 STAINLESS STEEL.....	9
2.7 PLASTICS MATERIALS.....	10
2.8 OTHER COMPONENT MATERIALS.....	10
SECTION 3 DESIGN AND MANUFACTURE	
3.1 GENERAL.....	11
3.2 END CONNECTORS.....	11
3.3 LIMITATION OF TEMPERATURE ADJUSTMENT	11
3.4 ELECTRONIC VALVES	11
3.5 CROSS-FLOW PREVENTION DEVICES AND STRAINERS	11
3.6 ISOLATING VALVE.....	11
3.7 WATER SHUT-OFF DEVICE	11
SECTION 4 PERFORMANCE REQUIREMENTS	
4.1 GENERAL.....	12
4.2 PRODUCTS IN CONTACT WITH DRINKING WATER	12
4.3 WATERTIGHTNESS AT AMBIENT TEMPERATURE.....	12
4.4 THERMAL SHUT-OFF	12
4.5 MIXED WATER TEMPERATURE OVERSHOOT ON STARTING FROM AMBIENT	13
4.6 TEMPERATURE STABILITY OF MIXED WATER	13
4.7 WATERTIGHTNESS AT OPERATING TEMPERATURE.....	13
4.8 ENDURANCE OF CONTROL SYSTEM AND OPERATING MECHANISM	13
4.9 SEQUENCE OF PERFORMANCE TESTS.....	13
4.10 PLASTICS MATERIALS USED FOR PLASTICS-BODIED TAPS.....	14
4.11 SURFACE-MOUNTING STRENGTH TEST FOR TAPS	14
4.12 NOMINAL FLOW RATE	14
4.13 TORQUE OF FABRICATED ASSEMBLIES	14
4.14 TORQUE OF HANDLE AND HANDLE ATTACHMENT	14
4.15 TORQUE OF OPERATING MECHANISM	14
4.16 RESISTANCE OF HANDLE TO REMOVAL	14

APPENDICES

A	MEANS FOR DEMONSTRATING COMPLIANCE WITH THIS STANDARD	15
B	INSTALLATION, COMMISSIONING AND MAINTENANCE INSTRUCTIONS .	19
C	WATERTIGHTNESS TEST.....	21
D	THERMAL SHUT-OFF TEST FOR COLD WATER AND HEATED WATER ISOLATION.....	23
E	MIXED WATER TEMPERATURE OVERSHOOT ON STARTING FROM AMBIENT	29
F	TEMPERATURE STABILITY OF MIXED WATER TEST.....	33
G	ENDURANCE TESTING OF THERMOSTATIC ELEMENT/SENSOR AND OPERATING MECHANISM TEST.....	38
H	RESISTANCE OF PLASTICS-BODIED THERMOSTATIC MIXING TAPS TO CHEMICAL DEGRADATION	41
I	SURFACE-MOUNTING STRENGTH TEST FOR THERMOSTATIC MIXING TAPS	43
J	DETERMINATION OF THE NOMINAL FLOW RATE OF THERMOSTATIC MIXING TAPS FOR USE WITH HIGH PRESSURE	45
K	DETERMINATION OF THE NOMINAL FLOW RATE OF THERMOSTATIC MIXING TAPS FOR USE WITH LOW AND UNEQUAL PRESSURES.....	47
L	TORQUE TEST FOR JOINTS OF FABRICATED ASSEMBLIES	49
M	TORQUE TEST FOR HANDLE AND HANDLE ATTACHMENT	51
N	TORQUE TEST FOR OPERATING MECHANISM OF THERMOSTATIC MIXING TAP	53
O	ENDURANCE TEST FOR FLOW CONTROLLERS	55
P	APPARATUS FOR TEST RIGS	57
Q	PIPEWORK FOR TEST RIGS	58
R	TYPICAL TEST RIG CONFIGURATION FOR PERFORMANCE TESTS	59

STANDARDS AUSTRALIA

Australian Standard

Water supply—Valves for the control of heated water supply temperatures

Part 4: Thermostatically controlled taps for the control of heated water supply temperatures

SECTION 1 SCOPE AND GENERAL

1.1 SCOPE

This Standard specifies requirements for the design, construction, testing performance and means of compliance for thermostatic mixing taps—

- (a) for use with heated water at a supply temperature not exceeding 90°C;
- (b) for use with hot and cold water with working pressures not exceeding 1400 kPa; and
- (c) of nominal sizes not larger than DN 20.

When used for ablutionary purposes, thermostatic mixing taps complying with this Standard provide the user with reasonable protection against scalding or excessive temperature fluctuations due to variations of pressures and temperatures of the hot and cold water supplies, including thermal shut-off.

NOTES:

- 1 Diagrams in this Standard are typical.
- 2 This Standard includes a method for assessing the flow performance of a thermostatic mixing tap but at the time of its publication, the Standard is not referenced in AS/NZS 6400.

1.2 APPLICATION

The operating range of the tap shall be nominated by the manufacturer.

When adjusted to an outlet temperature not exceeding 45°C, thermostatic mixing taps are intended for use in health care, aged care, childcare, care for people with disabilities or any other similar at risk situations.

When adjusted to an outlet temperature not exceeding 50°C, thermostatic mixing taps may be used for other applications.

Means for demonstrating compliance with this Standard shall be as given in Appendix A.

1.3 REFERENCED DOCUMENTS

The following are the normative documents referenced in this Standard:

AS

- | | |
|--------|--|
| 1199 | Sampling procedures for inspection by attributes |
| 1199.1 | Part 1: Sampling schemes indexed by acceptance quality limit (AQL) for lot-by-lot inspection |
| 1432 | Copper tubes for plumbing, gasfitting and drainage applications |
| 1565 | Copper and copper alloys—Ingots and castings |
| 1572 | Copper and copper alloys—Seamless tubes for engineering purposes |