Australian Standard™

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

Part 1: Thermostatic mixing valves—Materials design and performance requirements

Standards Australia

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 26 October 2001 and published on 8 February 2002.

The following interests are represented on Committee WS-026:

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Australian Industry Group

Business New Zealand

Consumers Federation of Australia

Gas Appliance Manufacturers Association of Australia

Housing Industry Association

Institute of Hospital Engineering Australia

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PREFACE

This Standard was prepared by the Australian members of the Joint Standards Australia/Standards New Zealand Committee WS-026, Valves Primarily for Use in Warm and Hot Water Systems, to supersede AS 4032—1998, *Thermostatic mixing valves*. 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.

The objective of this Standard is to provide manufacturers with requirements for thermostatic mixing valves that give reasonable protection to users against exposure to high or excessive fluctuations in mixed-water temperatures caused by variations, including shut off, in the cold water supply.

This Standard is Part 1 of a suite of Standards that covers valves for the control of hot water temperatures as follows:

AS	
4032	Water supply—Valves for the control of hot water supply temperatures
4032.1	Part 1: Thermostatic mixing valves—Materials, design and performance requirements (this Standard)
4032.2	Part 2: Tempering valves and end-of-line temperature-activated devices

Upon completion, the suite will include the following:

Part 3: Mandatory field testing, maintenance and replacement of thermostatic Elements

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.

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.

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FOREWORD

The type and nominal size of thermostatic mixing valves and ancillary equipment (if any) are selected with the consideration of factors that include the following:

(a) General information that includes—

  (i) nominal size (DN), number and type of water inlets, outlet(s) and connections;

  (ii) minimum and maximum dynamic pressures and operating temperatures for hot and cold water;

  (iii) for one or more water outlets, the minimum and maximum flow rates; and

  (iv) whether provided with integral isolating valves or cross-flow prevention devices, or both.

(b) Ancillary equipment for pressure control devices with respect to—

  (i) maximum dynamic pressure ratio (hot to cold or cold to hot); and

  (ii) maximum continuous working pressures for hot and cold water.

STANDARDS AUSTRALIA

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Part 1: Thermostatic mixing valves—Materials design and performance requirements

SECTION 1 SCOPE AND GENERAL

1.1 SCOPE

This Standard specifies requirements for the design, construction, testing and performance of thermostatic mixing valves of nominal sizes not larger than DN 32, for use with hot water at a supply temperature not exceeding 90°C, and hot and cold water with continuous working pressures not exceeding 1400 kPa.

The principal element of the testing procedures is that the thermostatic mixing valve under test does not permit the discharge of water from the outlet with a temperature more than 2°C in excess of the nominated discharge temperature. Discharges of water with a temperature in excess of 2°C, which comply with the cumulative time/temperature factors given in Table 4.1, are acceptable.

NOTE: Manufacturers may negotiate with the certifying body on hot water supply temperatures up to 99°C, or hot and cold water continuous working pressures greater than 1400 kPa or both, if considered desirable, to assess temperature stability of the mixed water (see Clauses 1.7 and 5.2).

1.2 APPLICATION

This Standard is established to provide manufacturers, system designers, relevant authorities and others with performance requirements for thermostatic mixing valves. When used for ablutionary purposes, thermostatic mixing valves 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 partial and total shut-off of the cold water supply.

The performance criteria and operating range of the valve shall be nominated by the manufacturer (see Clauses 1.7 and 5.2).

NOTE: Diagrams in this Standard are typical and chosen without prejudice.

1.3 REFERENCED DOCUMENTS

The following documents are referred to in this Standard:

AS
2345 Dezincification resistance of copper alloys
3688 Water supply—Copper and copper alloy body compression and capillary fittings and threaded-end connectors

AS/NZS
4020 Products for use in contact with drinking water