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Knife-gate valves for waterworks purposes



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

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Preface

This Standard was prepared by the Australian members of the joint Standards Australia/Standards New Zealand Committee WS-022, Valves for Waterworks Purposes, to supersede AS 6401—2003.

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

The objective of this document is to provide material requirements and performance tests for knife-gate valves in waterworks systems for drinking water, non-drinking water and wastewater and the means for demonstrating conformance to this document.

The major changes in this edition are as follows:

- (a) Inclusion of PN 6 and PN 16 valves.
- (b) Inclusion of DN 225 and DN 375 valve sizes.
- (c) Deletion of valve sizes above DN 900.

The terms “normative” and “informative” are used in Standards to define the application of the appendices or annexes to which they apply. A “normative” appendix or annex is an integral part of a document, whereas an “informative” appendix or annex is only for information and guidance.

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Section 1 Scope and general

1.1 Scope

This document provides material requirements and performance tests for knife-gate valves in waterworks systems for drinking water, non-drinking water and wastewater and the means for demonstrating conformance to this document.

This document applies to valves that are —

- (a) designed for manual operation or power actuation in either dry or submerged installations;
- (b) suitable for cold drinking and non-drinking water supply up to 40 °C and drainage and sewerage systems with continuous flow up to 45 °C or intermittent flow up to 95 °C;
- (c) PN6 in sizes DN 50 to DN 900, PN10 in sizes DN 50 to DN 600 and PN16 in sizes DN 50 to DN 450;
- (d) flanged, wafer or lugged end types;
- (e) rising or non-rising spindles;
- (f) suitable for unidirectional or bidirectional flow;
- (g) bonneted or unbonneted; and
- (h) suitable for installation with the spindle vertical in a horizontal pipeline or the spindle horizontal in a vertical pipeline.

NOTE 1 See [Appendix A](#) for ways that product conformance to this document can be demonstrated.

NOTE 2 See [Appendix B](#) for recommendations on the supply of products and services.

1.2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document.

NOTE Documents referenced for informative purposes are listed in the Bibliography.

AS 681.1, *Elastomeric seals—Material requirements for pipe joint seals used in water and drainage applications, Part 1: Vulcanized rubber*

AS 1111.1, *ISO metric hexagon bolts and screws—Product grade C, Part 1: Bolts*

AS 1111.2, *ISO metric hexagon bolts and screws—Product grade C, Part 2: Screws*

AS 1112.3, *ISO metric hexagon nuts, Part 3: Product grade C*

AS 1275, *Metric screw threads for fasteners*

AS 1646, *Elastomeric seals for waterworks purposes*

AS 1831, *Ductile cast iron*

AS 2205.10.1, *Methods for destructive testing of welds in metal, Method 10.1: Corrosion test for welded austenitic stainless steel*

AS 2317.1, *Lifting points, Part 1: Collared eyebolts and collared eyenuts—Grade 4*

AS 2345, *Dezincification resistance of copper alloys*

AS B202, *General purpose acme screw threads*

AS/NZS 1554.6, *Structural steel welding, Part 6: Welding stainless steels for structural purposes*

AS/NZS 4020, *Testing of products for use in contact with drinking water*

AS/NZS 4087, *Metallic flanges for waterworks purposes*

AS/NZS 4158, *Thermal-bonded polymeric coatings on valves and fittings for water industry purposes*

AS ISO/IEC 17025, *General requirements for the competence of testing and calibration laboratories*

ISO 21920-3, *Geometrical product specifications (GPS) — Surface texture: Profile method — Part 3: Specification operators*

ISO 6957, *Copper alloys — Ammonia test for stress corrosion resistance*

AWS A5.9, *Welding consumables—wire electrodes, strip electrodes, wires, and rods for arc welding of stainless and heat resisting steels—classification*

1.3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

1.3.1

allowable operating pressure

AOP

maximum internal pressure, excluding surge, that a component is capable of withstanding continuously in service

1.3.2

allowable site test pressure

ASTP

maximum internal pressure that may be applied to a component in a newly installed pipeline to test for integrity and tightness of the pipeline

1.3.3

bidirectional

designed to seal against the flow in either direction

1.3.4

bonneted valve

valve fitted with a pressure-retaining containment that fully encloses the moving gate

1.3.5

coating

corrosion-inhibiting medium applied to the surfaces of a valve

1.3.6

coating defect

detectable weakness or discontinuity in a *coating* ([1.3.4](#)) that may be unable to protect the substrate from corrosion during its normal service life

1.3.7

competent person

person who has acquired, through education, training, qualification or experience or a combination of these, the knowledge and skill enabling that person to perform the task required