

Australian Standard™

**Non-return valves for waterworks
purposes—Swing check and tilting disc**



S t a n d a r d s Australia

This Australian Standard was prepared by Committee WS-022, Valves for Water Supply Purposes. It was approved on behalf of the Council of Standards Australia on 21 December 2000 and published on 27 February 2001.

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Australian Chamber of Commerce and Industry
Australian Chamber of Manufactures
Australian Valve Manufacturers Association
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NOTES

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PREFACE

This Standard was prepared by the Joint Standards Australia/Standards New Zealand Committee WS-022, Valves for Water Supply Purposes.

The objective of this Standard is to provide design and performance requirements for manufacturers of non-return valves. It includes Class 16 and 35 valves for use in water and sewerage systems.

Attention is drawn to the proposed publication of SAA/SNZ Rul PL/2, *Rulings to the Joint Australian/New Zealand non-return valves for waterworks purposes*. Where rulings of public significance are issued, they will be available from Standards Australia through a subscription service. When rulings are included in an amendment, the specific ruling will be withdrawn at the time of publication of the amendment. Enquiries should be directed to Standards Australia.

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

Support and contribution is acknowledged from the Water Services Association of Australia (WSAA).

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.

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STANDARDS AUSTRALIA

Australian Standard

Non-return valves for waterworks purposes—
Swing check and tilting disc

SECTION 1 SCOPE AND GENERAL

1.1 SCOPE

This Standard specifies requirements for the material, design and performance requirements for metal-bodied flanged non-return valves (swing check and tilting disc types) for use in water supply and pressure sewerage systems (swing check only) suitable for operation in both horizontal and vertical positions.

Classification includes Class 16 and 35 valves in the size range DN 80 to DN 750, inclusive, with the maximum temperature of the medium flowing through the valve not exceeding 60°C.

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

The products covered by this Standard include the following:

- (a) Non-return, free-acting valve.
- (b) Non-return valve with extended hinge pin suitable for position indication, micro-switches, counterweight lever arm and counterweight.
- (c) Non-return valve fitted with position indicator and/or counterweight lever arm and counterweight.
- (d) Counterweight lever and counterweight for retrofit to valve with extended hinge pins.
- (e) Non-return valve with resilient seated disc.

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

1.2 REFERENCED DOCUMENTS

The following documents are referred to in this Standard:

AS	
1199	Sampling procedures and tables for inspection by attributes
1565	Copper and copper alloys—Ingots and castings
1646	Elastomeric seals for waterworks purposes
1646.1	Part 1: General requirements
1646.2	Part 2: Material requirements for pipe joint seals used in water and wastewater applications—Specified by prescriptive formulation
1646.3	Part 3: Material requirements for pipe joint seals used in water and wastewater applications with the exception of natural rubber and polyisoprene compounds
1722	Pipe threads of Whitworth form
1722.1	Part 1: Sealing pipe threads
1830	Iron castings—Grey cast iron

AS	
1831	Iron castings—Spheroidal or nodular graphite cast iron
1833	Iron castings—Austenitic cast iron
2345	Dezincification resistance of copper alloys
3855	Suitability of plumbing and water distribution system products for contact with potable water
4087	Metallic flanges for waterworks purposes
AS/NZS	
1111	ISO metric hexagon commercial bolts and screws
1252	High strength steel bolts with associated nuts and washers for structural engineering
1567	Copper and copper alloys—Wrought rods, bars and sections
2280	Ductile iron pressure pipes and fittings
3678	Structural Steel —Hot-rolled plates, floor plates and slabs
3679	Structural steel
3679.1	Part 1: Hot rolled bars and sections
4020	Products for use in contact with drinking water
4158	Thermal-bonded polymeric coatings on valves and fittings for water industry purposes
4331	Metallic flanges
ASTM	
A276	Standard specification for stainless steel bars and shapes
SAA	
HB18	Guidelines for third-party certification and accreditation
HB18.28	Guide 28: General rules for a model third-party certification scheme for products

1.3 DEFINITIONS

For the purpose of this Standard, the definitions below apply.

1.3.1 Non-return valve

A valve that prevents reversal of flow by automatic closure of a flap, a tilting disc, or other mechanism.

1.3.2 Allowable operating pressure

The allowable internal pressure, excluding surge, that a component can safely withstand in service.

1.3.3 Allowable maximum operating pressure

The maximum internal pressure, including surge, that a component can safely withstand in service.

1.3.4 Allowable test pressure

The maximum internal hydrostatic pressure which can be applied on site to a component in a newly installed pipeline.

1.3.5 Bulk head test

A test where the testing machine provides external restraint to make a watertight joint at each end of the valve.

1.3.6 Class

The allowable operating pressure of the valve expressed in hundreds of kilopascals.

1.3.7 Coating

A corrosion inhibiting medium applied to the surface of a valve.

1.3.8 Coating defect

A detectible weakness or discontinuity in a coating which deems it to be suspect in its ability to protect the substrate from corrosion during its normal service life.

1.3.9 Face to face dimensions

The distance between the two planes perpendicular to the valve axis located at the extremities of the body end ports.

1.3.10 Free end test

A test where the valve ends are blanked off so that the axial hydraulic force is not externally restrained.

1.3.11 Free acting

A valve without any means of external influence on opening or closing the disc.

1.3.12 Type test

A test intended to prove suitability and performance of a new design, size of valve, material type, manufacturing technique or joint configuration.

NOTE: Type tests are generally carried out when a change is made in the design, materials, the method or place of manufacture.

1.4 VALVE TYPE

Valves shall be of the straight line type designed for use with the axis of the body and ports in either the horizontal or vertical position.

1.5 DESIGNATION OF SIZE

Valve size shall be designated by the nominal size as follows: DN 80, DN 100, DN 150, DN 200, DN 225, DN 250, DN 300, DN 375, DN 450, DN 500, DN 600, and DN 750

1.6 ALLOWABLE PRESSURES

Allowable pressures are given in Table 1.1.

TABLE 1.1
ALLOWABLE PRESSURES

Class of valve	Allowable operating pressure, kPa	Allowable maximum operating pressure,*kPa	Allowable test pressure, kPa
16	1 600	1 920	2 400
35	3 500	4 200	5 250

* Seat leakage may occur at allowable maximum operating pressure.