

AS 4310:2024



DN 80 piston type vacuum interface valves for municipal sewer systems



AS 4310:2024

This Australian Standard® was prepared by WS-022, Valves for Waterworks Purposes. It was approved on behalf of Standards Australia's Standards Development and Accreditation Committee on 14 October 2024.

This Standard was published on 25 October 2024.

The following are represented on Committee WS-022:

- Australian Building Codes Board
- 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 Services Association of Australia

This Standard was issued in draft form for comment as DR AS 4310:2024.

Keeping Standards up-to-date

Ensure you have the latest versions of our publications and keep up-to-date about Amendments, Rulings, Withdrawals, and new projects by visiting:

www.standards.org.au

ISBN 978 1 76139 885 8

DN 80 piston type vacuum interface valves for municipal sewer systems

First published as AS 4310—2004.
Second edition AS 4310:2024.

© Standards Australia Limited 2024

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 (Cth).

Preface

This Standard was prepared by the Standards Australia Committee WS-022, Valves for Waterworks Purposes, to supersede AS 4310:2004.

The objective of this document is to provide uniform minimum requirements for DN 80 piston-type vacuum interface valves for municipal sewer systems operating up to a maximum temperature of 45 °C and 100 % relative humidity.

The terms “normative” and “informative” are used in Standards 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

Preface	ii
1 Scope and general	1
1.1 Scope	1
1.2 Normative references	1
1.3 Terms and definitions	1
1.4 Freedom from defects	3
2 Materials and components	3
2.1 Materials	3
2.2 Stainless steels	4
2.3 Elastomeric components	4
2.4 Valve and controller tubing	4
3 Design	5
3.1 General	5
3.2 Valve	5
3.2.1 Body	5
3.2.2 Operation	5
3.2.3 Waterway	5
3.2.4 Piston housing assembly	6
3.3 Controller	6
3.3.1 Operation	6
3.3.2 Minimum partial vacuum	6
3.3.3 High humidity environment	6
3.4 Sensor tube	6
3.5 Interchangeability	7
3.5.1 General	7
3.5.2 Dimensions	7
3.5.3 Couplings	7
3.6 Maintenance requirements	8
3.6.1 Valve piston housing	8
3.6.2 Controller	8
3.7 Submergence	8
4 Testing	8
4.1 General	8
4.2 Performance tests	8
4.2.1 General	8
4.2.2 Partial vacuum test (Test 1)	8
4.2.3 High vacuum test (Test 2)	9
4.2.4 Resistance to blockage test (Test 3)	9
4.2.5 Submergence test (Test 4)	9
4.2.6 Valve operating period test (Test 5)	9
4.2.7 Endurance test (Test 6)	9
4.2.8 Valve dimensions and features test (Test 7)	9
4.2.9 Controller self-purging test (Test 8)	10
4.3 Production tests	10
4.3.1 General	10
4.3.2 Low vacuum test (Test 9)	10
4.3.3 Controller sensor pressure test (Test 10)	10
4.3.4 Lower housing and controller vacuum test (Test 11)	10
5 Marking and packaging	11
5.1 Body marking	11
5.2 Packaging	11
Appendix A (normative) Means for demonstrating conformance to this document	12

Appendix B (normative) Resistance to blockage test	14
Appendix C (normative) Submergence test	16
Appendix D (normative) Endurance test	17
Bibliography	19

Australian Standard®

DN 80 piston type vacuum interface valves for municipal sewer systems

1 Scope and general

1.1 Scope

This document specifies requirements for DN 80 piston-type vacuum interface valves for municipal sewer systems operating up to a maximum temperature of 45 °C and 100 % relative humidity.

The valves provide an interface between the vacuum in the sewerage reticulation system and atmospheric pressure in the collection chamber. The valve is designed to activate at a pre-set sewage level in the collection chamber to facilitate transfer of the sewage into the vacuum sewer.

This document is not intended for valves used in vacuum sewage applications for general industry, e.g. ships, commercial premises, industry, aircraft, etc.

NOTE [Appendix A](#) provides means for demonstrating conformance with this document.

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 for informative purposes are listed in the Bibliography.

AS 1646, *Elastomeric seals for waterworks purposes*

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

ISO 8044, *Corrosion of materials and alloys — Vocabulary*

ISO 16365-1, *Plastics — Thermoplastic polyurethanes for moulding and extrusion — Part 1: Designation system and basis for specifications*

ISO 16396-1, *Plastics — Polyamide (PA) moulding and extrusion materials — Part 1: Designation system and basis for specifications*

ISO 19069-1, *Plastics — Polypropylene (PP) moulding and extrusion materials — Part 1: Designation system and basis for specifications*

ASTM A276, *Standard specification for stainless steel bars and shapes*

ASTM A313, *Standard specification for stainless steel spring wire*

1.3 Terms and definitions

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

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- (a) IEC Electropedia: available at <https://www.electropedia.org/>
- (b) ISO Online browsing platform: available at <https://www.iso.org/obp>

1.3.1

batch volume

volume of sewage in the sump corresponding to a level at which the controller level sensor setting activates the vacuum interface valve