

Australian/New Zealand Standard™

**PVC-U maintenance shafts**



## **AS/NZS 4999:2006**

This Joint Australian/New Zealand Standard was prepared by Joint Technical Committee PL-021, PVC, ABS and Polyamide Pipe Systems. It was approved on behalf of the Council of Standards Australia on 14 February 2006 and on behalf of the Council of Standards New Zealand on 24 February 2006.  
This Standard was published on 28 March 2006.

---

The following are represented on Committee PL-021:

Australian Chamber of Commerce and Industry  
CSIRO Manufacturing & Infrastructure Technology  
Energy Networks Association  
Engineers Australia  
Local Government New Zealand  
Master Plumbers, Gasfitters and Drainlayers New Zealand  
New Zealand Water & Waste Association  
Plastics Industry Pipe Association of Australia  
Plastics New Zealand  
Water Services Association of Australia

---

### **Keeping Standards up-to-date**

Standards are living documents which 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 Standards may also be withdrawn.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 which may have been published since the Standard was purchased.

Detailed information about joint Australian/New Zealand Standards can be found by visiting the Standards Web Shop at [www.standards.com.au](http://www.standards.com.au) or Standards New Zealand web site at [www.standards.co.nz](http://www.standards.co.nz) and looking up the relevant Standard in the on-line catalogue.

Alternatively, both organizations publish an annual printed Catalogue with full details of all current Standards. For more frequent listings or notification of revisions, amendments and withdrawals, Standards Australia and Standards New Zealand offer a number of update options. For information about these services, users should contact their respective national Standards organization.

We also welcome suggestions for improvement in our Standards, and especially encourage readers to notify us immediately of any apparent inaccuracies or ambiguities. Please address your comments to the Chief Executive of either Standards Australia or Standards New Zealand at the address shown on the back cover.

---

# Australian/New Zealand Standard™

## PVC-U maintenance shafts

Originated as AS/NZS 4999(Int):2003.  
Revised and designated AS/NZS 4999:2006.

### **COPYRIGHT**

© Standards Australia/Standards New Zealand

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.

Jointly published by Standards Australia, GPO Box 476, Sydney, NSW 2001 and Standards New Zealand, Private Bag 2439, Wellington 6020

ISBN 0 7337 7327 3

## PREFACE

This Standard was prepared by the Joint Standards Australia/Standards New Zealand Committee PL-021 on PVC, ABS and Polyamide Pipe Systems, to replace the interim edition AS/NZS 4999(Int):2003 without technical changes but incorporating some minor editorial adjustments.

This Standard has been developed from a water industry Standard WSA 100: *PVC maintenance shafts*, published by the Water Services Association of Australia.

The objective of this Standard is to provide performance requirements for manufacturers and purchasers of moulded PVC maintenance shafts (MSs) for sewerage systems.

In-service performance of a MS is strongly dependent on a supportive embedment. It should be recognized that it is extremely difficult to anticipate soil types, soil loadings and future soil movement in all possible locations and conditions. Specific types of embedment and backfill materials and compaction standards for various depths and soil types should be adopted in order to minimize the risk of long-term failure. Thus, even with compliance with these performance requirements, installation conditions will have a significant influence on the long-term performance of maintenance shafts.

The design criteria of AS/NZS 2566.1, *Buried flexible pipelines*, Part 1: *Structural design*, provide guidance. Installation should be in accordance with design drawings and the Sewerage Code of Australia—WSA 02, Part 3.

The test criteria specified apply to a maintenance shaft at the time of manufacture, and should not be used to assess the results from tests on maintenance shafts that have been in service.

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.

Statements expressed in mandatory terms in notes to tables and figures are deemed to be requirements of this Standard. Other notes are for information and guidance only.

Australian and New Zealand Standards generally do not—

- (a) restate the duties of employers, employees, designers and installers;
- (b) determine the applicability of regulatory limitations; and
- (c) determine appropriate health and safety practices.

## CONTENTS

	<i>Page</i>
SECTION 1 SCOPE AND GENERAL	
1.1 SCOPE .....	4
1.2 APPLICATION .....	4
1.3 LIMITATIONS .....	4
1.4 REFERENCED DOCUMENTS .....	4
1.5 DEFINITIONS .....	5
SECTION 2 GENERAL REQUIREMENTS	
2.1 GENERAL .....	7
2.2 MATERIAL .....	7
2.3 MATERIAL DATA SHEETS.....	7
2.4 FREEDOM FROM DEFECTS .....	7
2.5 ELASTOMERIC SEALS.....	8
2.6 SOLVENT CEMENTS.....	8
2.7 PACKAGING, STORAGE AND TRANSPORTATION.....	8
SECTION 3 DESIGN	
3.1 GENERAL .....	9
3.2 ACCESSIBILITY .....	9
3.3 CHAMBER WALL THICKNESS.....	9
3.4 STRUCTURAL INTEGRITY .....	10
SECTION 4 MANUFACTURE	
4.1 CONFIGURATIONS .....	11
4.2 DIMENSIONS AND TOLERANCES .....	11
4.3 WELDING .....	11
SECTION 5 PERFORMANCE REQUIREMENTS	
5.1 GENERAL .....	13
5.2 ACCESSIBILITY TEST.....	13
5.3 WELDED JOINTS .....	13
5.4 ELASTOMERIC SEAL JOINTS.....	14
5.5 VACUUM—PRODUCTION TEST .....	14
SECTION 6 MARKING REQUIREMENTS	
6.1 GENERAL .....	15
6.2 ADDITIONAL MARKING WITH ADHESIVE LABEL .....	15
APPENDICES	
A MEANS FOR DEMONSTRATING COMPLIANCE WITH THIS STANDARD .....	16
B REQUIREMENTS FOR STRUCTURAL ANALYSIS.....	20
C METHOD FOR DESIGN VERIFICATION BY TYPE TESTING.....	22
D METHOD FOR VACUUM TESTING .....	26
E METHOD FOR LOAD TESTING.....	28

This is a free preview. Purchase the entire publication at the link below:

**AS/NZS 4999 : 2006 : EN PDF**

- 
- ⊙ Looking for additional Standards? Visit SAI Global Infostore
  - ⊙ Learn about LexConnect, All Jurisdictions, Standards referenced in Australian legislation
- 

Need to speak with a Customer Service Representative - Contact Us