AS/NZS 1477:2006
(Incorporating Amendment No. 1)

AS/NZS 1477:2006

Australian/New Zealand Standard™

PVC pipes and fittings for pressure applications

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 8 June 2006 and on behalf of the Council of Standards New Zealand on 16 June 2006.
This Standard was published on 13 September 2006.

The following are represented on Committee PL-021:

Australian Chamber of Commerce and Industry
Certification Interests (Australia)
CSIRO Manufacturing and Infrastructure Technology
Energy Networks Association
Engineers Australia
Local Government New Zealand
Master Plumbers, Gasfitters and Drainlayers New Zealand
New Zealand Water and Waste Association
Plastics Industry Pipe Association of Australia
Plastics New Zealand
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This Standard was issued in draft form for comment as DR 05509.

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Originated in Australia in part as AS K138-1963.
Previous editions AS 1477.1—1988, AS 1477.2—1990, AS 1477.4—1988,
AS 1477.6—1989, AS 2977.1—1988, AS 2977.2—1988 and AS 2977.3—1989.
Originated in New Zealand as NZS 7648:1987.
AS 1477.1—1988, AS 1477.2—1990, AS 1477.4—1988, AS 1477.6—1989,
AS 2977.1—1988, AS 2977.2—1988, AS 2977.3—1989 and NZS 7648:1987
jointly revised and redesignated AS/NZS 4177:1996.
Third edition 2006.
Reissued incorporating Amendment No. 1 (December 2009).

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Jointly published by Standards Australia, GPO Box 476, Sydney, NSW 2001 and Standards New Zealand, Private Bag 2439, Wellington 6140

ISBN 0 7337 7702 3

PREFACE

This Standard was prepared by the Joint Standards Australia/Standards New Zealand Committee PL-021, PVC, ABS and Polyamide Pipe Systems, to supersede AS/NZS 1477:1999.

This Standard incorporates Amendment No. 1 (December 2009). The changes required by the Amendment are indicated in the text by a marginal bar and amendment number against the clause, note, table, figure or part thereof affected.

The objective of this Standard is to provide a standard specification for manufacturers and purchasers of PVC pipe and fittings for pressure applications.

This revision provides for injection-moulded fittings with main diameters greater than DN 150 with parallel solvent-welded sockets. These fittings are predominantly imported fittings and have no specific requirements for colour or titanium dioxide to provide UV protection.

Additional marking requirements have been specified for these fittings to highlight the parallel sockets, the need for gap-filling solvent cements and additional UV protection when used outdoors.

At the time of publication of this Standard, the AS 1462 series was still in the progress of a joint Standards Australia/Standards New Zealand review. The AS 1462 documents referenced in this Standard may be withdrawn at a future stage and should then be replaced by the relevant superseding AS/NZS documents once these are published.

The test criteria specified in this Standard apply to pipes and fittings at the time of manufacture. They are not be used to assess the results from tests on pipes or fittings that have been in service.

The term ‘normative’ has been used in this Standard to define the application of the appendix to which it applies. A ‘normative’ appendix is an integral part of a Standard.

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

CONTENTS

FOREWORD

This Standard contains dimensions for two ranges of pipe sizes, Series 1 and Series 2. Series 1 pipes are a metric pipe size and Series 2 pipes have dimensions that are compatible with cast iron pressure pipe and fittings.

Pipe dimensions were determined using maximum hoop stresses according to nominal size as follows: a hydrostatic design stress of 11.0 MPa under static hydrostatic conditions for calculating the minimum wall thickness of pipes of nominal sizes up to and including DN 150 and a hydrostatic design stress of 12.3 MPa under static hydrostatic conditions for pipes of nominal size greater than DN 150. The higher hydrostatic design stress for larger diameter pipes is based on test results obtained by the manufacturers and is in accordance with international practice.

The out-of-roundness tolerance on outside diameters is applicable to Classes PN 9, PN 12, PN 15, PN 16, PN 18 and PN 20. No such tolerance is placed on sizes in Classes PN 4.5 and PN 6 because the thinner walled pipes may easily be re-rounded when inserted into sockets.

The formulas used are as follows:

$$T_{min} = \frac{PD_{m\,min}}{2S + P} \text{ with a minimum of 1.4 mm}$$

$$T_{max} = 1.10T_{min} + 0.20$$

where

T_{min} = minimum wall thickness, in millimetres

P = maximum allowable working pressure at 20°C, in megapascals

$D_{m\,min}$ = minimum mean outside diameter, in millimetres

S = hydrostatic design stress, in megapascals, in the static condition at 20°C:

11.0 MPa for nominal sizes DN 10 to DN 150 mm

12.3 MPa for nominal sizes DN 175 to DN 575 mm

T_{max} = maximum wall thickness, in millimetres

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SECTION 1 SCOPE AND GENERAL

1.1 SCOPE

This Standard specifies requirements for PVC pipes and fittings for pressure applications for use below ground or above ground, where they are not exposed to direct sunlight.

NOTES:

1 Pipes and fittings manufactured to this Standard should be used and installed only in accordance with AS/NZS 2032 and AS/NZS 2566.1, as applicable.

1.2 APPLICATION

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

1.3 REFERENCED DOCUMENTS

The following documents are referred to in this Standard:

NOTE: For AS 1462, also refer to Preface.

AS

1199	Sampling procedures for inspection by attributes	
1199.1	Part 1:	Sampling schemes indexed by acceptance quality limit (AQL) for lot-by-lot inspection
1462	Methods of test for unplasticized PVC (UPVC) pipes and fittings	
1462.9	Method 9:	Method for hydrostatic pressure testing of UPVC pressure fittings
1462.17	Method 17:	Method for testing pressure pipe joints with elastomeric seals
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—Specifics by prescription formulation
1646.3	Part 3:	Material requirements for pipe joints 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
1722.2	Part 2:	Fastening pipe threads
2888	Methods of testing plastics waste fittings	
2888.1	Method 1:	Method for determining the suitability of connection threads of BSP form

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1462	Methods of test for plastics pipes and fittings	
1462.1	Method 1:	Method for determining the dimensions of pipes and fittings
1462.3	Method 3:	Method for determining the impact characteristics of plastic pipes
1462.4	Method 4:	Method of determining reversion of UPVC pipes
1462.6	Method 6:	Method for hydrostatic pressure testing of pipes

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