

AS/NZS 4327:1995

Australian/New Zealand Standard

**Metal-banded flexible couplings
for low-pressure applications**

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The following interests are represented on Committee WS/10:

Australian Chamber of Commerce and Industry
Brisbane City Council
Concrete Pipe Association of Australia
Master Plumbers Association of Queensland
Metal Trades Industry Association of Australia
New Zealand Contractors Federation
Plastics and Rubber Institute (Australia)
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Australian/New Zealand Standard

Metal-banded flexible couplings for low-pressure applications

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STANDARDS AUSTRALIA
1 The Crescent,
Homebush NSW 2140 Australia

STANDARDS NEW ZEALAND
Level 10, Standards House,
155 The Terrace,
Wellington 6001 New Zealand

PREFACE

This Standard was prepared by the Joint Standards Australia/Standards New Zealand Committee WS/10 on Flexible Jointing Gaskets in response to requests from two importers and an Australian manufacturer. It is issued as a Joint Standard.

In the preparation of this Standard, reference has been made to CAN/CSA—B602—M90, *Mechanical couplings for drain, waste, and vent pipe and sewer pipe*; pr ECN 295.4, *Requirements for special fittings, adaptors and compatible accessories* and WIS No. 4-41-01:1993, *Specification for flexible couplings for gravity sewerage and drainage pipes*. The assistance gained from these sources is acknowledged.

In drawing up this Standard, the Committee has taken account of the need for consistency of format and approach with other Standards dealing with similar subject matter, and of existing policies and experiences of users of the products.

The sleeve of a coupling covered by this Standard can be made from elastomeric flexible materials either listed in, and complying with, AS 1646, *Elastomeric seals for waterworks purposes*, or complying with Appendix B.

The object of this Standard is to provide manufacturers with requirements for metal-banded flexible couplings for use in low-pressure pipeline systems.

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/STANDARDS NEW ZEALAND

Australian/New Zealand Standard**Metal-banded flexible couplings for low-pressure applications**

SECTION 1 SCOPE AND GENERAL

1.1 SCOPE This Standard specifies requirements for metal-banded flexible couplings (referred to in this Standard as flexible couplings) either with or without metal shear rings to be used in below or above ground low-pressure pipeline systems which convey water, waste water or stormwater.

The Standard applies to flexible couplings designed for jointed items having the same or similar nominal internal diameters, made from the same or different materials. It does not apply to adaptor flexible couplings designed for jointed items having significantly different diameters.

Spigot and socket joints with elastomeric seals are not covered by this Standard.

NOTES:

- 1 Flexible couplings with metal shear rings are preferred for applications subject to the effect of soil loads and any superimposed loads, including repairs and post-construction connections to existing pipeline systems.
- 2 Elastomeric joint seals for waterworks purposes are specified in AS 1646.
- 3 Guidelines to purchasers on information to be specified at the time of enquiry or order are given in Appendix A.

1.2 REFERENCED DOCUMENTS The following documents are referred to in this Standard:

AS

1159	Polyethylene pipes for pressure applications
1254	Unplasticized PVC (UPVC) pipes and fittings for storm and surface water applications
1260	Unplasticized PVC (UPVC) pipes and fittings for sewerage applications
1349	Bourdon tube pressure and vacuum gauges
1415	Unplasticized PVC (UPVC) pipes and fittings for soil, waste and vent (SWV) applications
1449	Wrought alloy steels—Stainless and heat-resisting steel plate, sheet and strip
1631	Cast grey and ductile iron non-pressure pipes and fittings
1646	Elastomeric seals for waterworks purposes
1683	Methods of test for elastomers
1683.11	Part 11: Tension testing of vulcanized rubber
1683.12	Part 12: Rubber, vulcanized—Determination of tear strength (trouser, angle and crescent test pieces)
1683.13	Part 13: Compression set of vulcanized rubber under constant deflection
1683.15.1	Part 15.1: International rubber hardness
1683.23	Part 23: Rubber—Vulcanized—Determination of resistance to liquids
1741	Vitrified clay pipes and fittings with flexible joints—Sewer quality

AS	
1984	Vernier callipers (metric series)
2193	Methods for calibration and grading of force-measuring systems of testing machines
3571	Glass filament reinforced thermosetting plastics (GRP) pipes—Polyester based—Water supply, sewerage and drainage applications
3855	Suitability of plumbing and water distribution systems products for contact with potable water
4058	Precast concrete pipes (pressure and non-pressure)
4115	Hand torque tools
4130*	PE pipes pressure applications
4139	Fibre-reinforced concrete pipes and fittings
AS/NZS	
2280	Ductile iron pressure pipes and fittings
NZS	
3107	Specification for precast concrete drainage and pressure pipes
3302	Specification for ceramic pipes, fittings and joints
7641	Specification for unplasticized PVC waste and ventilating pipe, fittings and accessories. 32 mm, 40 mm, and 50 mm
7642	Specification for unplasticized PVC soil and ventilating pipe, fittings and accessories
7646	Specification for polyethylene pipes and fittings for gas reticulation
7649	Unplasticized PVC sewer and drain pipe and fittings
ASTM	
D1149	Test method for rubber deterioration—Surface ozone cracking in a chamber
BS	
903	Physical testing of rubber
903.A19	Part A19: Heat resistance and accelerated ageing tests

1.3 DEFINITIONS For the purpose of this Standard, the definitions given in AS 1646 and those below apply.

1.3.1 Adaptor bush—a ring of elastomeric material, designed to be installed inside the end of a flexible coupling to enable that end of the coupling to be sealed to smaller outside pipe diameters than would be possible without it.

NOTE: Each flexible coupling with a shear band, which has a difference between its inside diameter and outside diameter of the jointed item greater than 16 mm, should be fitted with an appropriate adaptor bush.

1.3.2 Component—the part, or subassembly of parts, that contributes to the construction of a total assembly by choice or design and which offers variations of fitment for the application of the major element of the product, whether produced by that same manufacturer or not. The component shall be deemed a vital part of the total assembly and shall not inhibit the product from complying with the relevant Australian Standard, or the appropriate specification, when submitted for type-testing.

* First published as an interim Standard.

1.3.3 Nominal size—the nominated maximum outside diameter of the jointed items for which a flexible coupling is designed.

1.4 CLASSIFICATION Flexible couplings are classified, as follows, by the material from which the sleeve is manufactured:

- (a) Type A, for an elastomeric material complying with Appendix B.
- (b) Type B, for an elastomeric material complying with AS 1646.

NOTE: The purchaser may specify the type of elastomeric material.

1.5 MANUFACTURER'S DATA The manufacturer's data packaged with each consignment of flexible couplings shall include the following:

- (a) Name and address of the Australian manufacturer or the relevant Australian agent.
- (b) Specified intermittent and continuous allowable maximum temperatures during storage and operation, in degrees Celsius.
- (c) Elastomeric material.
- (d) Full and comprehensive installation details to include—
 - (i) the tightening torque for each metal band, in newton metres;
 - (ii) for each sleeve and adaptor bush—
 - (A) the product code of the item; and
 - (B) the range of external diameters for the jointed items, in millimetres; and
 - (iii) for each metal shear ring, the product codes of the compatible flexible couplings.
- (e) Whether the flexible coupling is suitable for the conveyance of potable water.
- (f) The statement, 'installation is subject to the requirements of the regulatory authority'.
- (g) Details of any other relevant instructions.

1.6 STORAGE The requirements for the storage of flexible couplings, by a manufacturer, between manufacture and delivery to a purchaser shall comply with the following:

- (a) Protection from ozone from mercury vapour lights, high voltage electrical equipment, electric motors, or other equipment which could cause electrical discharges.
- (b) Storage and handling in a relaxed condition free from compression, tension or other deformation.
- (c) Protection from ultraviolet light.

NOTES:

- 1 The storage temperature should not exceed 35°C and preferably be not more than 25°C and not less than 5°C.
- 2 The storage of flexible couplings by a purchaser, after receipt from a manufacturer and during subsequent use, should comply with the requirements of this Clause.

1.7 MARKING

1.7.1 Sleeve and adaptor bush Each sleeve and adaptor bush shall be clearly and durably marked on the external surface clear of the metal bands with the following:

- (a) The manufacturer's identification mark.
- (b) The product code of the item marked.

- (c) The type, i.e. Type A or Type B.
- (d) Batch number or equivalent identification.

The markings shall be in lettering not less than 3 mm high.

1.7.2 Metal band Each metal band with fastener and housing shall be clearly and durably marked on the external surface with the following:

- (a) The manufacturer's identification mark.
- (b) The grade of stainless steel (see AS 1449).

The markings shall be in lettering not less than 2 mm high.

1.7.3 Metal shear ring Each metal shear ring with fasteners and housings shall comply with the requirements of Clause 1.7.2.