

Australian/New Zealand Standard™

Gas distribution networks

Part 3: Plastics pipe systems



AS/NZS 4645.3:2018

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Australian Pipelines and Gas Association
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Energy Networks Australia
Engineers Australia
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PREFACE

This Standard was prepared by the Joint Standards Australia/Standards New Zealand Committee AG-008 Gas Distribution, to supersede AS/NZS 4645.3:2008.

The objective of this Standard is to provide for the protection of the general public, operating personnel and the environment, and to ensure safe and reliable operation of gas distribution networks that reticulate gas to consumers.

This Standard covers plastics pipe systems within gas distribution networks in accordance with AS/NZS 4645.1 for operating pressures up to 1050 kPa.

AS/NZS 4645.1 provides a means by which such systems can be planned, designed, constructed and maintained.

The AS/NZS 4645 series of Standards includes the following parts:

AS/NZS

- 4645 Gas distribution networks
- 4645.1 Part 1: Network management
- 4645.2 Part 2: Steel pipe systems
- 4645.3 Part 3: Plastics pipe systems (this Standard)

This Standard is not a design handbook, nor a manual on distribution practices. It does not remove the need for qualified and experienced engineering design, installation and operation or for competent engineering judgement, and does require interpretation and implementation by competent engineers.

The Australian and New Zealand Technical Regulators have advised that this Standard will only apply to the life cycle of new gas distribution networks and modifications or augmentations to existing assets within gas distribution networks. However, the Sections on operations, maintenance, repair, decommissioning, gas quality and risk assessment may be suitable for application to existing assets in existing networks.

Statements expressed in mandatory terms in notes to tables are deemed to be requirements of this Standard. Alternative means of conformance may be acceptable provided the required safety outcomes can be demonstrated with AS/NZS 4645.1.

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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FOREWORD

This Standard achieves its purpose through five fundamental principles as follows:

- (a) A gas distribution network is designed and constructed to have sufficient controls to withstand the threats to which it may be subjected during construction, testing and operation.
- (b) Before a gas distribution network is placed into operation it needs to be inspected and tested to prove its integrity.
- (c) Important matters relating to safety, engineering design, materials, testing, operation and inspection needs to be reviewed, documented and approved by a responsible person(s). The responsible person(s) is defined in each case.
- (d) Operations and maintenance needs to provide for continued monitoring and safe operation of the gas distribution network.
- (e) Where changes occur in or to a gas distribution network, which alter the design assumptions or affect the original integrity, appropriate steps need to be taken to assess the changes, to ensure continued safe operation of the network.

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Australian/New Zealand Standard
Gas distribution networks

Part 3: Plastics pipe systems

SECTION 1 SCOPE AND GENERAL

1.1 SCOPE

This Standard specifies materials, design, construction, installation, testing and maintenance requirements for below ground plastics gas distribution networks for use in conjunction with AS/NZS 4645.1, for the distribution of fuel gas suitable for domestic, commercial or industrial uses, where—

- (a) plastics gas distribution networks include those constructed from materials including polyamide (PA), polyethylene (PE) and polyvinyl chloride (PVC); and
- (b) the maximum allowable operating pressure (MAOP) of the gas distribution network is not greater than 1050 kPa.

1.2 EXCLUSIONS

This Standard does not apply to new PVC networks.

1.3 NORMATIVE REFERENCES

The following are the normative documents referenced in this Standard:

NOTE: Documents for informative purposes are listed in the Bibliography.

AS

1110	ISO metric hexagon precision bolts and screws—Product grades A and B
1110.1	Part 1: Bolts
1111	ISO metric hexagon bolts and screws—Product grade C
1111.1	Part 1: Bolts
1112	ISO metric hexagon nuts
1112.1	Part 1: Style 1—Product grades A and B
1112.2	Part 2: Style 2—Product grades A and B
1112.3	Part 3: Product grade C
1112.4	Part 4: Chamfered thin nuts—Product grades A and B
1210	Pressure vessels
1464	Plastics pipes and fittings for gas reticulation—Unplasticized PVC (UPVC)
1464.1	Part 1: Pipes
1464.2	Part 2: Fittings
2129	Flanges for pipes, valves and fittings
2528	Bolts, studbolts and nuts for flanges and other high and low temperature applications
2943	Plastics pipes and fittings for gas reticulation—Polyamide compounds