AS 2885.1—2012

Australian Standard®

Pipelines—Gas and liquid petroleum

Part 1: Design and construction

This Australian Standard® was prepared by Committee ME-038, Petroleum Pipelines. It was approved on behalf of the Council of Standards Australia on 27 July 2012.
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- APIA Research and Standards Committee
- Australasian Corrosion Association
- Australian Chamber of Commerce and Industry
- Australian Institute of Petroleum
- Australian Petroleum Production and Exploration Association
- Australian Pipeline Industry Association
- Bureau of Steel Manufacturers of Australia
- Department of Labour New Zealand
- Department for Manufacturing, Innovation, Trade, Resources and Energy (SA)
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- Energy Networks Association
- Energy Safe Victoria
- Gas Association of New Zealand
- NSW Department of Trade and Investment, Regional Infrastructure and Services
- Petroleum Exploration and Production Association New Zealand
- Primary Industries and Resources SA
- Welding Technology Institute of Australia

This Standard was issued in draft form for comment as DR AS 2885.1.

Standards Australia wishes to acknowledge the participation of the expert individuals that contributed to the development of this Standard through their representation on the Committee and through the public comment period.

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Part 1: Design and construction

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PREFACE

This Standard was prepared by the Joint Standards Australia/Standards New Zealand Committee ME-038, Petroleum Pipelines, to supersede AS 2885—2007, *Pipeline—Gas and liquid petroleum*.

After consultation with stakeholders in both countries, Standards Australia and Standards New Zealand decided to develop this Standard as an Australian Standard rather than an Australian/New Zealand Standard.

The objective of this Standard is to provide requirements for the design and construction of steel pipelines and associated piping and components that are used to transmit single-phase and multi-phase hydrocarbon fluids.

This Standard provides guidelines for use of pipe manufactured from certain non-steel or corrosion-resistant materials.

This Standard is part of a series that covers high pressure petroleum pipelines, as follows:

AS		
2885	Pipelines—Gas and liquid petroleum	
2885.0	Part 0:	General requirements
2885.1	Part 1:	Design and construction (this Standard)
2885.2	Part 2:	Welding
2885.3	Part 3:	Operation and maintenance
2885.4	Part 4:	Submarine pipelines
AS/NZS		
2885.5	Part 5:	Field pressure testing

2012—Minor revision (harmonization with other parts)

This minor revision of AS 2885.1—2007 has been prepared to incorporate the revision/amendment to AS 2885.0, AS 2885.3 and AS 2885.5 to resolve inconsistencies between the Parts and update the referenced documents.

Significant changes to this edition include the following:

1 The requirements for specific items to be ‘approved’ have been deleted from this Standard unless the item is considered of sufficient importance to require specific approval of the licensee. AS 2885.0 requires approval of all documents by the authority designated by the Licensee, except those specifically nominated for approval by the Licensee, or so nominated in this Standard.

2 Draws attention to the need to properly specify line pipe, to the limits of some commonly used pipe, and a requirement is introduced to address these matters in the design basis.

3 Requirements for design of a pipeline for hydrostatic test developed for AS 2885.5 have been incorporated in this Standard.

4 Requirements for commissioning of a pipeline developed for AS 2885.3 have been incorporated in this Standard in recognition of the fact that commissioning is almost always a responsibility of the design and construction project and, after successful commissioning, the pipeline is handed over to operations in accordance with AS 2885.3.

5 A new appendix (Appendix BB), addressing issues that need to be considered when applying this Standard to the design of pipelines transporting CO_2, either pure or anthropogenic, has been included. This appendix was prepared in response to an initiative of the Carbon Capture Taskforce of the Australian Government Department of Resources Energy and Tourism.

6 Changes have been made to achieve consistency between AS 2885.1, AS 2885.3 and AS 2885.5.

7 Section 11 has been revised to recognize the intent in the 2007 edition to transfer some requirements to the next revision of AS/NZS 2885.5.

8 Minor changes, the result of requests for clarification, have been included. Only minor clarifications have been addressed. Complicated clarifications have been reserved for the next revision of AS 2885.1.

9 Correction of an error in Equation S2(1).

2008 Amendment No. 1

Amendment No. 1 to AS 2885.1—2007 was prepared to correct errors in the 2007 revision and to clarify items identified as being potentially confusing. The amendment includes guidance on specifying fracture toughness when purchasing line pipe and includes a simplified calculation for energy release from leaks.

The requirements for the control of fracture initiation in components other than line pipe have been clarified.

2007 Revision

The comprehensive revision of AS 2885.1 is the result of extensive work by subcommittee ME-038-1 in response to a request from the industry that it consider increasing the design factor from 0.72 to 0.80. This request prompted a detailed review of each section and each clause of the Standard, resulting in the preparation of some 70 ‘issue papers’ that considered the underlying technical issues (in relation to an increased design factor) and recommended changes to the Standard. These issue papers were debated within the subcommittee and published on the Industry web site to allow consideration by the Industry. The results of these deliberations form the basis of this revision. The revision also reflects the results of a significant and ongoing industry funded research program undertaken by the Australian Pipeline Industry Association and its research contractors, and through its association with the Pipeline Research Council International and the European Pipeline Research Group.

This revision provides a basis for Industry to benefit through the application of an increased factor for pressure design (for new pipelines) and a structured basis for increasing the MAOP of a qualifying existing pipeline. These benefits are supported by robust requirements for safety, structural design, construction, testing and record keeping.

Significant changes in this revision include the following:

(a) A restructure of the sections of the document to separate pipeline general, pipeline, stations, and instrumentation and control.

(b) The incorporation of a section defining the minimum requirements for a pipeline whose maximum allowable operating pressure is proposed to be raised.

(c) Section 2 (Safety) has been rewritten, to reflect experience gained in the seven years since it was revised to provide a mandatory requirement for risk assessment. This revision provides more explicit guidance on the obligation to undertake safety assessments with the integrity required for compliance with this Standard. Material is provided in normative and informative appendices.