

Australian Standard™

**Pressure equipment—Examination and
testing**

This Australian Standard was prepared by Committee ME/1, Pressure Equipment. It was approved on behalf of the Council of Standards Australia on 16 August 1999 and published on 5 September 1999.

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Australian Standard™

Pressure equipment—Examination and testing

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PREFACE

This Standard was prepared by the Joint Standards Australia/Standards New Zealand Committee ME/1, Pressure Equipment to supersede AS 4037—1992, *Boilers and pressure vessels—Examination and testing*.

This Standard is the result of a consensus among representatives on the Joint Committee to produce it as a Joint Australian/New Zealand Standard. Consensus means general agreement by all parties. Consensus includes an attempt to remove all objections and implies much more than the concept of a simple majority, but not necessarily unanimity. It is consistent with this meaning that a member may be included in the Committee list and yet not be in full agreement with all clauses of this Standard.

The objective of this Standard is to reduce misunderstanding, costs and delays in non-destructive examination, improve safety, prevent unnecessary duplication of tests and promote greater confidence in reciprocal acceptance of approved procedures.

This Standard is one of the 'core' documents which form part of the revised arrangement of the pressure equipment Standards under the umbrella of AS/NZS 1200, *Pressure equipment*.

The first issue of the Standard unified and replaced the requirements for the non-destructive examination methods of test and the qualification of non-destructive examination personnel specified in AS 1210, *Pressure vessels*, AS 1228, *Pressure equipment—Boilers* and AS 4041, *Pressure piping*. This revised issue is utilized by direct reference in the above Standards.

The main changes in this revision are as follows:

- Incorporation of Amendment No.1 to AS 4037—1992.
- Updated referenced documents.
- Recognition of moves to self-regulation in the pressure equipment industry.
- Replacement of inspection authority with inspection body and introduction of testing body.
- Alignment with AS/NZS 3992 and AS 4458.
- Recognition for automatic non-destructive examination (NDE).
- Introduction of time of flight diffraction (ToFD) ultrasonic examination.
- Introduction of requirements for acoustic emission.
- Editorial improvements and clarification in various areas.
- Clarification of NDE for boiler tube.
- Provision for non-destructive examination of non-metallic materials.

Statements referred in mandatory terms in notes to tables and figures are deemed to be requirements of this Standard.

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**Pressure equipment—Examination and testing**

SECTION 1 SCOPE AND GENERAL

1.1 SCOPE This Standard sets out requirements for non-destructive examination (NDE) and testing of pressure equipment as specified in AS 1210, AS 1228, AS/NZS 3509, AS/NZS 3788, AS 4041 and AS 4458. It also specifies requirements for testing and qualification of non-destructive examination personnel.

This Standard provides specific details for the NDE of welded joints, acceptance criteria for weld joint imperfections, NDE of production and welder qualification test welds, NDE for construction in specific materials, NDE of specific purpose construction, forgings and castings; and reports and records.

NDE and testing of pressure equipment constructed of non-metallic or composite materials is not specified in this Standard and should be agreed by the parties concerned.

In this Standard and in other Australian or Australian/New Zealand pressure equipment Standards, ‘examination’ and ‘testing’ are quality control activities carried out by, or for, the manufacturer. ‘Inspection’ refers to those activities of, or for, the owner or user to determine conformity and may include some examination and testing.

1.2 APPLICATION This Standard is intended for use by designers, manufacturers, fabricators, testing bodies, NDE personnel, inspecting bodies, inspectors and all persons concerned with the non-destructive examination of pressure equipment.

This Standard may be applied to plant under pressure that is not covered by AS/NZS 1200.

1.3 REFERENCED DOCUMENTS A list of the documents referred to in this Standard is given in Appendix A.

1.4 DEFINITIONS For the purposes of this Standard, the definitions below apply.

1.4.1 Examination—a detailed review, check or assessment by visual or other non-destructive means of one or more characteristics of a given product, process or service, for conformity with the specified requirements.

NOTE: It includes various NDE methods in this Standard and examination of personnel.

1.4.2 Image quality indicator (IQI)—a device used for judging, from the appearance of its image in a radiograph, the overall quality of that radiograph.

1.4.3 Inspector—a person able to inspect pressure equipment.

1.4.4 Manufacturer—a body corporate, firm or person who manufactures pressure equipment.

NOTE: In this Standard, ‘manufacturer’ includes ‘fabricator’, ‘constructor’, ‘assembler’, ‘installer’ and ‘erector’, and is used to embrace all or some of these terms and is applicable to all locations, on or off site, where pressure equipment may be manufactured. It is recognized that different operations may be carried out by different organizations.

1.4.5 Parties concerned—the purchaser, designer, manufacturer, inspection body, testing body, NDE personnel, inspector and owner as appropriate.