AS/NZS 1554.6:2012

Australian/New Zealand Standard™

Structural steel welding

Part 6: Welding stainless steels for structural purposes

STANDARDS Australia

STANDARDS NEW ZEALAND PAEREWA AOTEAROA

This Joint Australian/New Zealand Standard was prepared by Joint Technical Committee WD-003, Welding of Structures. It was approved on behalf of the Council of Standards Australia on 16 February 2012 and on behalf of the Council of Standards New Zealand on 9 May 2012.
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The following are represented on Committee WD-003:

Australasian Corrosion Association
Australian Chamber of Commerce and Industry
Australian Industry Group
Australian Steel Institute
AUSTROADS
Bureau of Steel Manufacturers of Australia
Engineers Australia
New Zealand Heavy Engineering Research Association
New Zealand Non-Destructive Testing Association
Steel Reinforcement Institute of Australia
The University of Sydney
Welding Technology Institute of Australia

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PREFACE

This Standard was prepared by the Joint Standards Australia/Standards New Zealand Committee WD-003, Welding of Structures, to supersede AS/NZS 1554.6:1994.

The objective of this Standard is to provide rules for the welding of a wide range of stainless steel fabrications (other than pressure vessels and pressure piping), and it applies to statically and dynamically loaded welds.

The objective of this revision is to substantially update the Standard to reflect changes in structural welding since the publication of the original edition in 1994. As this is a major revision, changes from the previous edition are not indicated in this Preface.

This Standard requires that weld preparations, welding consumables and welding procedures be qualified before commencement of welding. Prequalified joint preparations, welding consumables and welding procedures are also given in this Standard.

Strength capacity of welds is not covered in this Standard and designers are referred to relevant design codes or specifications for this purpose.

Statements expressed in mandatory terms in notes to tables 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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SECTION 1 SCOPE AND GENERAL

1.1 SCOPE

This Standard specifies requirements for the welding of stainless steel structures made up of combinations of stainless steel plate, sheet, sections, including hollow sections and built-up sections, or castings and forgings, by the following processes:

(a) Manual metal arc welding (MMAW).

(b) Submerged arc welding (SAW).

(c) Gas metal arc welding (GMAW).

(d) Gas tungsten arc welding (GTAW).

(e) Flux cored arc welding (FCAW).

(f) Plasma arc welding (PAW).

The Standard applies to the welding of steelwork in structures complying with appropriate Standards. Where welded joints are governed by dynamic loading conditions, the Standard applies to those welded joints that comply with the fatigue provisions of the relevant application Standards.

The Standard prescribes materials of construction, weld preparations and weld qualities, surface finish, qualification of welding procedures and welding personnel, and fabrication and inspection requirements for welds related to all stainless steel fabrication including aesthetic, hygienic or other non-structural applications.

NOTE: GMAW includes waveform controlled welding such as "synergic", "programmable", and "microprocessor controlled" processes' e.g. pulsed spray transfer, controlled short circuit transfer.

1.2 EXCLUSIONS

The Standard does not cover the selection of grades to suit the corrosion requirements, although an informative appendix is included. The Standard does not cover the design of welded connections or permissible stresses in welds, nor the production, rectification or repair of castings.

The Standard does not apply to the welding of pressure vessels and pressure piping.

NOTE: For further guidance on welding of stainless steel, refer to AWS D1.6, WTIA Technical Note 13, WRC Bulletin 519 and ASSDA Reference Manual. For guidance on selection to suit corrosion requirements, refer to AS/NZS 4673.