AS/NZS 1554.1:2004 Structural steel welding - Part 1: Welding of steel structures

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Abbreviation
AS/NZS 1554.1:2004
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Description

Specifies requirements for the welding of steel structures made up of combinations of steel plate, sheet or sections, including hollow sections and built-up sections, or castings and forgings. It is limited to the welding of steel parent material with a specified minimum yield strength not exceeding 500 MPa. It does not apply to oxyacetylene, friction, thermoset or resistance welding processes or to the welding of pressure vessels or pressure piping.

Scope

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

- (a) Manual metal-arc welding (MMAW).
- (a) Submerged arc welding (SAW).
- (b) Gas metal-arc welding (GMAW or MIG), including pulsed mode.
- (c) Gas tungsten-arc welding (GTAW or TIG).
- (d) Flux-cored arc welding (FCAW).
- (e) Electroslag (including consumable guide) welding (ESW).
- (f) Electrogas welding (EGW).

The Standard is limited to the welding of steel parent material with a specified minimum yield strength not exceeding 500 MPa.

The Standard applies to the welding of steelwork in structures complying with AS 3990, AS 4100, AS/NZS 4600 or NZS 3404.1. Where welded joints in these structures are governed by dynamic loading conditions, the Standard applies only to those welded joints that comply with the fatigue provisions of AS 3990, AS 4100 or NZS 3404.1, as limited by Item (ii) below, or the directly equivalent fatigue provisions of other application Standards.

Welded joints complying with the above requirements are those that are —

- (i) not subject to fatigue conditions; or
- (ii) subject to fatigue conditions, where—

  (A) the stress range in the welded joint complies with the permissible stress range of stress categories C, D, E or F of AS 3990, or weld categories lower than or equal to detail category 112 of AS 4100 or NZS 3404.1; or

  (B) the stress range in the welded joint is not more than 80% of the permissible stress range of stress category B of AS 3990.

In addition to the abovementioned structures the Standard applies to the welding of cranes, hoists and other dynamically loaded structures, the welding of road and pedestrian bridges and the welding of steelwork in applications other than structural.

Note: Further information on this Standard, which the drafting committee could not incorporate, is given in WTIA Technical Note 11.

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