AS/NZS 4680:2025

STANDARDS NEW ZEALAND
TE MANA TAUTIKANGA O AOTEAROA

STANDARDS Australia

Australian/New Zealand Standard™

Hot dip galvanized coatings on fabricated iron and steel articles — Specifications and test methods

AS/NZS 4680:2025

This Joint Australian/New Zealand Standard™ was prepared by Joint Technical Committee MT-009, Metal Finishing. It was approved on behalf of Standards Australia's Standards Development and Accreditation Committee on 13 June 2025 and by the New Zealand Standards Approval Board on 4 June 2025.

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The following are represented on Committee MT-009:

Australasian Institute of Surface Finishing
Australian Aluminium Council
Australian Chamber of Commerce and Industry
Australian Industry Group
Australian Paint Manufacturers Federation
Building Research Association of New Zealand (BRANZ)
Bureau of Steel Manufacturers of Australia
CSIRO
Engineers Australia
Galvanizers Association of Australia
Galvanizing Association of New Zealand
Materials Australia
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Australian/New Zealand Standard™

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AS K53—1950 and AS 1650—1974 revised, amalgamated and redesignated as AS 1650—1981.
AS 1650—1989 jointly revised and redesignated as AS/NZS 4680:1999.
Third edition 2025.

How to read this Standard

This page explains the meaning of the language and structure of this Standard.

Refer to Standards Australia's Standardisation Guide 006 for more details about drafting rules.

Australian and Australian/New Zealand Standards are voluntary unless they are referenced in legislation or called up in contracts.

Requirements

To conform to a Standard, all requirements in the Standard need to be met.

A requirement is any statement in the Standard which uses the word "shall".

Recommendations, permissions and possibilities

The following words are commonly used in Standards, but statements using them do not have to be followed to conform to the Standard:

(a) "should" means that something is recommended.

(b) "may" means that something is permitted.

(c) "can" means that something is possible.

Structure of Standards

A Standard always has the following parts:

(i) The Preface states who developed the Standard, what the Standard is aiming to do, and how it relates to other documents.

(ii) The Scope states what the Standard is about, what it covers and what it does not cover.

(iii) The Normative references clause lists other documents that are referenced in the Standard as part of requirements.

(iv) The Terms and definitions clause defines important terms to help with understanding the Standard.

A Standard may also include other parts, such as the following:

(1) A normative appendix sets additional requirements that need to be conformed to.

(2) An informative appendix provides additional information or guidance. An informative appendix provides additional information or guidance. They usually do not contain requirements. If an informative appendix does contain requirements, the Standard will explain when those requirements apply.

(3) A Bibliography lists documents referenced in the Standard but not as part of requirements.

Many Standards include notes. Notes provide recommendations and/or guidance only. They never contain requirements.

Preface

This Standard was prepared by the Joint Standards Australia/Standards New Zealand Committee MT-009, Metal Finishing, to supersede AS/NZS 4680:2006, *Hot-dip galvanized (zinc) coatings on fabricated ferrous articles*.

The objective of this document is to specify the test methods and specifications for hot dip galvanized coatings applied to fabricated iron and steel articles.

In preparation of this document reference was made to AS/NZS 2312.2, SNZ TS 3404, ISO 1461 and ASTM A123.

The Committee MT-009 did not consider ISO 1461 or ASTM A123 fully appropriate for Australian and New Zealand industry conditions and this document, while noting aspects of ATSM A123 and technically more similar to ISO 1461, is not equivalent to either ISO 1461 or ASTM A123.

This document is intended to be read in conjunction with AS/NZS 2312.2, *Guide to the protection of structural steel against atmospheric corrosion by the use of protective coatings, Part 2: Hot dip galvanizing* and, for New Zealand only, SNZ TS 3404, *Durability requirements for steel structures and components*.

The major changes in this edition are as follows:

(a) Title changed to include specifications and test methods, clarifying the purpose of this document, to make it clear that design requirements are covered separately and to be consistent with ISO 1461.

(b) Inclusion of a new informative appendix on hot dip galvanizing of reinforcing steels, which is not dealt with in other Australian or New Zealand Standards.

(c) Expansion of the terms and definitions including terms previously undefined.

(d) Provision of detailed instruction on the assessment of coating thickness consistent with the method and requirements of ISO 1461.

(e) Clarification and expansion on requirements regarding appearance of the coating, including renovation of uncoated and damaged areas of the coating.

The terms "normative" and "informative" are used in Standards to define the application of the appendices 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 document specifies the general properties and test methods for hot dip galvanized coatings applied by dipping fabricated iron and steel articles in a zinc melt.

This document applies to both centrifuged and non-centrifuged articles.

This document does not apply to after-treatment or additional coating of hot dip galvanized articles, or to the following:

(a) Steel strip or sheets that are continuously hot dip galvanized (refer to AS 1397).

(b) Steel wire products that are continuously hot dip galvanized or where the coating has been applied in a specialized continuous process (e.g. for wire netting, refer to AS/NZS 4534).

(c) Steel hollow sections that are hot dip galvanized in a continuous or specialized process or produced by welding pre-galvanized steel strip (refer to AS/NZS 4792).

NOTE 1 Individual product standards may incorporate this document for the galvanized coating by quoting its number or may incorporate it with modifications specific to the product. Different requirements may also be made for galvanized coatings on products intended to meet specific regulatory requirements.

NOTE 2 AS/NZS 2312.2 provides guidance on steels and cast iron for hot dip galvanizing and for the additional coating of hot dip galvanized articles.

1.2 Normative references

The following documents are referred to in the text in such a way that some or all their content constitutes requirements of this document:

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

AS 1627.4, *Metal finishing—Preparation and pretreatment of surfaces, Part 4: Abrasive blast cleaning of steel*

AS/NZS 2312.2, *Guide to the protection of structural steel against atmospheric corrosion by the use of protective coatings, Part 2: Hot dip galvanizing*

AS/NZS 3750.9, *Paints for steel structures, Part 9: Organic zinc-rich primer*

AS/NZS 3750.15, *Paints for steel structures, Part 15: Inorganic zinc silicate paint*

ISO 1461, *Metallic coatings — Hot dip galvanized coatings on ferrous materials — Gravimetric determination of the mass per unit area*

ISO 2063-2, *Thermal spraying — Zinc, aluminium and their alloys — Part 2: Execution of corrosion protection systems*

ISO 2178, *Non-magnetic coatings on magnetic substrates — Measurement of coating thickness — Magnetic method*

ISO 2859-1, *Sampling procedures for inspection by attributes — Part 1: Sampling schemes indexed by acceptance quality limit (AQL) for lot-by-lot inspection*