

AS 1418.3:2024



STANDARDS  
Australia



# Cranes, hoists and winches

## Part 3: Bridge, gantry, portal (including container cranes) and jib cranes



AS 1418.3:2024

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- Australian Chamber of Commerce and Industry
- Australian Industry Group
- Australian Institute for Non-Destructive Testing
- Better Regulation Division (Fair Trading, SafeWork NSW, TestSafe)
- Bureau of Steel Manufacturers of Australia
- Department of Regional NSW
- Elevating Work Platform Association of Australia
- Engineers Australia
- National Heavy Vehicle Regulator
- Office of Industrial Relations (QLD)
- The Crane Industry Council of Australia
- Transport for NSW
- Victorian WorkCover Authority (WorkSafe Victoria)
- WorkSafe Division — Department of Mines, Industry Regulation and Safety (DMIRS) WA

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# **Cranes, hoists and winches**

## **Part 3: Bridge, gantry, portal (including container cranes) and jib cranes**

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## Preface

This Standard was prepared by the Australian members of the Joint Standards Australia/Standards New Zealand Committee ME-005, Cranes, to supersede AS 1418.3:1997.

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

The objective of this document is to specify requirements for bridge, gantry, semi-gantry, jib cranes, and portal cranes. It also covers container and heavy-duty cranes.

A list of all parts in the AS 1418 series can be found in the Standards Australia online catalogue.

The major changes in this edition are as follows:

- (a) Clause on jib cranes included to cover deflection of jib cranes.
- (b) Clauses on classification and load rating updated to refer to AS 5246.1 and AS 5221.3, respectively.
- (c) Clause on crane structure updated to refer to AS 1418.1.
- (d) Clauses on slenderness ratios of the bridge section, deflection, natural frequency and camber updated to refer to AS 5250.
- (e) Clause on crane mechanisms updated to refer to AS 5227.3.
- (f) Clause on limiting and indicating devices updated to refer to AS 5236.3.
- (g) Clause on out-of-service conditions updated to refer to AS 5226.
- (h) Clauses on multiple hoist/crab combinations and multiple crane combinations updated to refer to AS 5236.3.
- (i) Clauses on access from fixed platforms, access from mobile platforms and clearances updated to refer to AS 5240.3.
- (j) Clause on operational design updated to refer to AS 5234.3 and AS 5238.3.

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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## Introduction

The purpose of this revision was to align the relevant sections of AS 1418.3 with the latest International Standards. This was done in conjunction with the publication of Australian adoptions of those International Standards such that the sections of this document refer to the internationally aligned Australian Standards. This approach was followed in preference to incorporating all the general requirements into this one part (AS 1418.3), so that when new editions of relevant ISO Standards become available, they can be adopted and published within the framework of AS 1418.3 with minimum delay, so maintaining international alignment.

Wherever possible, Committee ME-005 has published a direct text adoption of the relevant International Standard. This also accords with Australia's growing reliance on and participation in the global manufacturing environment and various international trade agreements. A direct text adoption is either an identical (IDT) or modified (MOD) adoption of an International Standard to become an Australian Standard.

Direct text adoption of International Standards introduces some duplication from Part to Part of the AS 1418 series, and involves extensive referencing of ISO Standards. In some cases, the terminology might not be commonly used in Australia. Where necessary, Committee ME-005 has included qualifying or explanatory comment to the International Standard. Such comment does not alter or diminish the technical intent of the International Standard, but simply provides additional clarification within the Australian context. Such changes to the International Standards are added as informative appendices. In some instances, requirements are modified to suit Australian conditions in normative appendices.

This document is one of a series of AS 1418 Standards. The standards in this series pertinent to AS 1418.3 are as follows:

*AS 1418.1, Cranes, hoists and winches, Part 1: General requirements*

This standard outlines specific principles dealing with the design, manufacture, testing and commissioning of cranes in general, including the provision of instructions for safe use and maintenance.

*AS 1418.2, Cranes (including hoists and winches), Part 2: Serial hoists and winches*

This standard outlines specific principles for serial hoists and winches.

*AS 1418.3, Cranes, hoists and winches, Part 3: Bridge, gantry, portal (including container cranes) and jib cranes (this standard)*

This standard outlines specific principles for bridge, gantry, semi-gantry and portal cranes.

*AS 1418.12, Cranes (including hoists and winches), Part 12: Crane collector systems*

This standard outlines specific principles for crane collector systems incorporating a sliding or rolling contact device, intended for use on —

- (a) alternating current systems, the rated voltage of which is greater than 32 V and does not exceed 1 000 V, at frequencies from 25 Hz to 60 Hz; and
- (b) direct current systems, the rated voltage of which is greater than 115 V and does not exceed 1 500 V.

The standard does not cover direct-connected systems such as slip rings, cable reelers or flexible cable systems.

*AS 1418.17, Cranes (including hoists and winches), Part 17: Design and construction of workboxes*

This standard outlines principles relating to the design and construction of work boxes generally having one working deck level, to accommodate a maximum of three persons.

*AS 1418.18, Cranes, hoists and winches, Part 18: Crane runways and monorails*

This standard outlines principles for crane runway girders and monorails constructed of structural steel.

[Sections 2](#) to [13](#) of this document make reference to new Australian Standards, which have been developed to provide individual technical documents to support this document. These new documents are direct text adoptions of ISO Standards. While AS 1418 series standards are mandatory, use of referenced standards, such as the AS 52XX series, may depend on the application. For example, another AS 1418 series standard may make normative reference to a standard other than this document for a requirement. The referenced document to be used depends on the particular application.

In accordance with Australian legislation, these standards, in setting out a reasonably practicable framework of minimum requirements, do not prevent a designer or user from implementing another strategy, provided that it affords an equal or better level of safety.

# Australian Standard®

## Cranes, hoists and winches

### Part 3: Bridge, gantry, portal (including container cranes) and jib cranes

## 1 Scope and general

### 1.1 Scope

This document specifies requirements for bridge, gantry, semi-gantry, portal and jib cranes. It also covers container cranes.

This document does not cover the design of rubber tyred mounted portal gantry cranes.

NOTE 1 When enquiring about or ordering a bridge, gantry or jib crane, guidance on information to be supplied with the enquiry, order, or tender is given in AS 5249.3.

### 1.2 Normative references

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

AS 1418.1, *Cranes, hoists and winches, Part 1: General requirements*

AS 2549, *Cranes, hoists and winches — Glossary of terms*

AS 5221.3, *Cranes — Design principles for loads and load combinations, Part 3: Overhead travelling and portal bridge cranes (ISO 8686-5:2017, MOD)*

AS 5226, *Cranes — Anchoring devices for in-service and out-of-service conditions (ISO 12210:2021, MOD)*

AS 5227.1, *Cranes — Requirements for mechanisms, Part 1: General (ISO 10972-1:1998, MOD)*

AS 5227.3, *Cranes — Requirements for mechanisms, Part 3: Bridge and gantry cranes (ISO 10972-5:2006, MOD)*

AS 5234.3, *Cranes — Control layout and characteristics, Part 3: Bridge and gantry cranes (ISO 7752-5:2021, MOD)*

AS 5236.3, *Cranes — Limiting and indicating devices, Part 3: Overhead travelling and portal bridge cranes (ISO 10245-5:1995, MOD)*

AS 5238.3, *Cranes — Cabins and control stations, Part 3: Overhead travelling and portal bridge cranes (ISO 8566-5:2017, MOD)*

AS 5240.3, *Cranes — Access guards and restraints, Part 3: Bridge and gantry cranes (ISO 11660-5:2001, MOD)*

AS 5246.1, *Cranes — Classification, Part 1: General (ISO 4301-1:2016, MOD)*

AS 5250, *Cranes — Stiffness — Bridge and gantry cranes (ISO 22986:2007, MOD)*

ISO 1161, *Series 1 freight containers — Corner and intermediate fittings — Specifications*

### 1.3 Terms and definitions

For the purposes of this document, the terms and definitions given in AS 2549 and the following apply.

#### 1.3.1

##### **access isolator**

manually operated device that prevents a motion from operating