AS 5222:2021

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Cranes — Wind load assessment (ISO 4302:2016, MOD)

AS 5222:2021

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The following are represented on Committee ME-005:

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
Crane Industry Council of Australia
Department of Regional NSW
Elevating Work Platform Association of Australia
Engineers Australia
National Heavy Vehicle Regulator
Office of Industrial Relations, Qld
Transport for NSW
Victorian WorkCover Authority (WorkSafe Victoria)
WorkSafe Division — Department of Mines Industry Regulation and Safety (DMIRS) WA

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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.

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

The objective of this Standard is to specify the assessment of wind loads on cranes.

This Standard is an adoption with national modifications and has been reproduced from ISO 4302:2016, *Cranes — Wind load assessment*. The modifications are additional requirements and are set out in Appendix ZZ, which has been added at the end of the source text.

Appendix ZZ lists the variations to ISO 4302:2016, for the application of this Standard in Australia.

As this Standard is reproduced from an International Standard, the following applies:

(a) In the source text "this International Standard" should read "this Australian Standard".

(b) A full point substitutes for a comma when referring to a decimal marker.

Australian or Australian/New Zealand Standards that are identical adoptions of international normative references may be used interchangeably. Refer to the online catalogue for information on specific Standards.

The terms "normative" and "informative" are used in Standards to define the application of the appendices or annexes to which they apply. A "normative" appendix or annex is an integral part of a Standard, whereas an "informative" appendix or annex is only for information and guidance.

Contents

Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation on the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT) see the following URL: www.iso.org/iso/foreword.html.

The committee responsible for this document is ISO/96, *Cranes*, Subcommittee SC 10, *Design principles and requirements*

This second edition cancels and replaces the first edition (ISO 4302:1981), which has been technically revised. All clauses have been technically revised to be aligned with ISO 20332, in combination with ISO 8686-1, and the informative Annex A, "Wind loads", has been added.

Australian Standard®

Cranes — Wind load assessment (ISO 4302:2016, MOD)

1 Scope

This International Standard specifies the assessment of wind loads on cranes.

It establishes general methods for calculating wind loads (for in-service and out-of-service conditions), which are included in the load combinations stated in ISO 8686-1 and used for proofs of competence such as those given in ISO 20332 for the structural components of cranes.

It provides a simplified method of calculation and assumes that

— the wind may blow horizontally from any direction,

— the wind blows at a constant speed,

— there is a static reaction to the wind load applied to the crane structure.

It includes built-in allowances for the effects of gusting (fluctuations in wind speed) and for dynamic response.

It gives guidance on when to secure the crane for out-of-service conditions.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 8686-1:2012, *Cranes — Design principles for loads and load combinations — Part 1: General*

3 Terms, definitions, symbols and abbreviated terms

For the purposes of this document, the following terms and definitions apply. The main symbols are given in Table 1.

3.1
in-service wind
maximum wind that the crane is designed to withstand under operating conditions

3.2
out-of-service wind
maximum (storm) wind blowing from the least favourable direction that a crane is designed to withstand when in an out-of-service condition

Table 1 — Main symbols

Symbol	Description
A	Characteristic area
A_H	Wind area of the suspended load
C_f, c_H	Shape coefficients
D	Diameter of a circular section
F	Wind load
f_{rec}	Recurrence interval factor
K	Terrain-roughness-coefficient