AS 5227.1:2021

Australian STANDARD®

STANDARDS Australia

Cranes — Requirements for mechanisms

Part 1: General (ISO 10972-1:1998, MOD)

AS 5227.1:2021

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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
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 establish requirements which apply generally to mechanisms and related components of cranes and lifting appliances as specified in ISO 4306-1, ISO 4306-2 and ISO 4306-3.

This document does not cover rules for proof of competence calculation regarding different limit states (yield strength, fatigue, wear).

This Standard is an adoption with national modifications, and has been reproduced from ISO 10972-1:1998, *Cranes — Requirements for mechanisms, Part 1: General*. The modifications are set out in Appendices ZZ, ZA, ZB and ZC, which have been added at the end of the source text.

Appendix ZZ lists the variations to ISO 10972-1:1998 for the application of this Standard in Australia.

Appendix ZA specifies drum and flange thicknesss — proof of competence calculation.

Appendix ZB specifies proof of competence calculation for drums.

Appendix ZC provides reeved systems — allowance for frictional effects.

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

(a) In the source text "this part of ISO 10972" 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 to which they apply. A "normative" appendix is an integral part of a Standard, whereas an "informative" appendix 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.

Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

International Standard ISO 10972-1 was prepared by Technical Committee ISO/TC 96 *Cranes,* Subcommittee SC 9, *Bridge and gantry cranes.*

ISO 10972 consists of the following parts, under the general title *Cranes — Requirements for mechanisms:*

— *Part 1: General*

— *Part 2: Mobile cranes*

— *Part 3: Tower cranes*

— *Part 4: Jib cranes*

— *Part 5: Overhead travelling and portal bridge cranes*

Introduction

This part of ISO 10972 establishes requirements and gives guidance and design rules that reflect the present state of the art in the field of crane machine design. The rules given represent good design practice that provides guidance for the fulfilment of essential safety requirements and adequate service of components. Deviation from these rules normally may lead to increased risks or reduction of service life, but it is acknowledged that new technical innovations, materials, etc., may enable new solutions that result in equal or improved safety and durability.

NOTES

Australian Standard®

Cranes — Requirements for mechanisms

Part 1: General (ISO 10972-1:1998, MOD)

1 Scope

This part of ISO 10972 establishes requirements which apply generally to mechanisms and related components of cranes and lifting appliances as described in ISO 4306-1, ISO 4306-2 and ISO 4306-3.

Requirements concern:

a) general layout and design of mechanisms;

b) selection and/or design requirements of components;

c) instructions for manufacture, mounting, installation and testing.

Rules for proof of competence calculation regarding different limit states (yield strength, fatigue, wear) are excluded from this part of ISO 10972.

2 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this part of ISO 10972. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this part of ISO 10972 are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.

ISO 1328-1:1995, *Cylindrical gears — ISO system of accuracy — Part 1: Definitions and allowable values of deviations relevant to corresponding flanks of gear teeth.*

ISO 2408:1985, *Steel wire ropes for general purposes — Characteristics.*

ISO 3077:—[1)], *Short link chain for lifting purposes — Grade T (8), calibrated, for chain hoists and other lifting appliances.*

ISO 4301-1:1986, *Cranes and lifting appliances — Classification — Part 1: General.*

ISO 4306-1 ;*1990, Cranes — Vocabulary — Part 1: General.*

ISO 4306-2:1994, *Cranes — Vocabulary — Part 2: Mobile cranes.*

ISO 4306-3:1994, *Cranes — Vocabulary — Part 3: Tower cranes.*

ISO 4308-1 ;1988, *Cranes and lifting appliances — Selection of wire ropes — Part 1: General.*

ISO 4309:1990, *Cranes — Wire ropes — Code of practice for examination and discard.*

ISO 4310:1981, *Cranes — Test code and procedures.*

ISO 4347:1992, *Leaf chains, clevises and sheaves.*

ISO 4413:—[2)], *Hydraulic fluid power— General rules for the application of equipment to transmission and control systems.*

1) To be published. (Revision of ISO 3077:1984)

2) To be published. (Revision of ISO 4413:1979)