INTERNATIONAL STANDARD

ISO 17096

First edition
2015-08-01

Cranes — Safety — Load lifting attachments

Appareils de levage à charge suspendue — Sécurité — Accessoires de préhension

Reference number
ISO 17096:2015(E)

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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 WTO principles in the Technical Barriers to Trade (TBT) see the following URL: Foreword - Supplementary information

The committee responsible for this document is ISO/TC 96, *Cranes*, Subcommittee SC 9, *Bridge and gantry cranes*.

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Introduction

This International Standard covers a wide range of non-fixed load lifting attachments which have never previously been standardized by ISO. The lack of previous standards as a starting point, together with the wide scope of the equipment covered and the wide variety of current practices, among the established manufacturers made this International Standard particularly difficult to draft and to get agreement on. Nevertheless, considerable progress has been made up to the point where the parties involved are now sufficiently in agreement to enable the first draft of this International Standard to be prepared. The ISO technical subcommittee SC 9 which is responsible for the preparation of this International Standard is of the view that while further development may be required, this International Standard, in its present form, contains much useful information to guide the manufacturers and it represents an important step forward. Experience of applying this International Standard will doubtless reveal some matters which, with the benefit of hindsight, have not been adequately dealt with and will need to be reconsidered in the next edition. In particular, readers are advised to exercise a degree of caution about the rigour of some of the verification clauses.

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Cranes — Safety — Load lifting attachments

1 Scope

This International Standard specifies safety requirements for the following non-fixed load lifting attachments for cranes, hoists, and manually controlled load manipulating devices as defined in Clause 3:

— plate clamps;

— vacuum lifters;

— self priming,

— non-self-priming (pump, venturi, turbine);

— electric lifting magnets (battery-fed and main-fed);

— permanent lifting magnets;

— electro-permanent lifting magnets;

— lifting beams/spreader beams;

— C-hooks;

— lifting forks;

— clamps.

This International Standard does not specify the additional requirements for the following:

a) load lifting attachments in direct contact with foodstuffs or pharmaceuticals requiring a high level of cleanliness for hygiene reasons;

b) hazards resulting from handling hazardous materials (e.g. explosives, hot molten masses, radiating materials);

c) hazards caused by operation in an explosive atmosphere;

d) hazards caused by noise;

e) electrical hazards;

f) hazards due to hydraulic and pneumatic components.

This International Standard does not cover attachments intended to lift people.

This International Standard does not cover slings, ladles, expanding mandrels, buckets, grabs or grab buckets, and container spreaders.

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 4306-1, *Cranes — Vocabulary — Part 1: General*

ISO 4309, *Cranes — Wire ropes — Care and maintenance, inspection and discard*

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ISO 4778, *Chain slings of welded construction — Grades M (4), S (6) and T (8)*

ISO 7531, *Wire rope slings for general purposes — Characteristics and specifications*

ISO 7593, *Chain slings assembled by methods other than welding — Grade T (8)*

ISO 7731, *Ergonomics — Danger signals for public and work areas — Auditory danger signals*

ISO 8686, *Cranes — Design principles for loads and load combinations*

ISO 11428, *Ergonomics — Visual danger signals — General requirements, design and testing*

ISO 11429, *Ergonomics — System of auditory and visual danger and information signals*

ISO 12100:2010, *Safety of machinery — General principles for design — Part 1: Risk assessment and risk reduction*

ISO 13854, *Safety of machinery — Minimum gaps to avoid crushing of parts of the human body*

ISO 20332, *Cranes — Proof of competence of steel structures*

IEC 60204-32, *Safety of machinery — Electrical equipment of machines — Part 32: Requirements for hoisting machines*

EN 1492-1, *Textile slings — Safety — Part 1: Flat woven webbing slings made of man-made fibres for general purpose use*

EN 1492-2, *Textile slings — Safety — Part 2: Roundslings made of man-made fibres for general purpose use*

EN 1492-4, *Textile slings — Safety — Part 4: Lifting slings for general service made from natural and man-made fibre ropes*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 4306-1, ISO 12100, and the following apply.

3.1
adhesion force
force required to remove the load from a *vacuum lifter* (3.21) at the upper limit of specified pressure range

3.2
C-hook
equipment in the form of a “C” used for lifting hollow loads

EXAMPLE Coils and pipes among others.

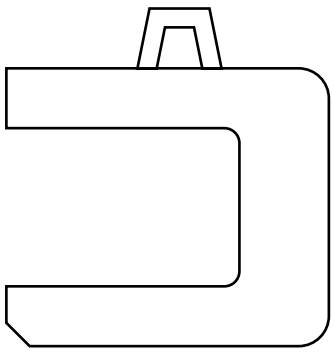


Figure 1 — Example of a C-hook

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