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Cranes — Tower cranes — International Standards for design, manufacture, use and maintenance requirements and recommendations

*Appareils de levage à charge suspendue — Grues à tour — Normes
internationales sur les exigences et les recommandations de
conception, de fabrication, d'utilisation et de maintenance*

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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.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. 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.

In exceptional circumstances, when a technical committee has collected data of a different kind from that which is normally published as an International Standard ("state of the art", for example), it may decide by a simple majority vote of its participating members to publish a Technical Report. A Technical Report is entirely informative in nature and does not have to be reviewed until the data it provides are considered to be no longer valid or useful.

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.

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Cranes — Tower cranes — International Standards for design, manufacture, use and maintenance requirements and recommendations

1 Scope

This Technical Report provides a list of International Standards that can be completely or partly applied in the design of tower cranes. A bibliography refers to other useful documents (FEM publications, European standards and national standards).

Annex A gives International Standards which are not applicable to tower cranes, even if the scope does not exclude them explicitly.

2 Requirements

2.1 Particular International Standards for tower cranes

The International Standards marked with an X are also applicable for cranes in use.

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

Abstract: Establishes a general classification of cranes based on the number of operating cycles to be carried out during the expected life of the crane and a load spectrum factor which represents a nominal state of loading. Classification considers only the operating conditions which are independent of the type of crane and the way it is driven.

ISO 4301-3 *Cranes — Classification — Part 3: Tower cranes*

Abstract: Establishes the classification of tower cranes based on the number of operating cycles to be carried out during the expected life of the appliance and its mechanisms, and a load spectrum factor which represents the nominal state of loading.

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

Abstract: Defines terms concerning the main types of cranes, parameters, general concepts and component parts in English, French and Russian.

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

Abstract: Establishes a vocabulary and defines the terms relating to tower cranes.

ISO 4308-1 X *Cranes and lifting appliances — Selection of wire ropes — Part 1: General*

Abstract: Specifies two methods for the selection of wire rope to be used on lifting appliances as designated in ISO 4306-1, one based on the value of the rope selection factor C and the other based on the value of the coefficient of utilisation Z_p .

ISO 4308-1 establishes the minimum requirements for acceptable strength and performance levels of wire ropes with respect to the design, application and maintenance of the lifting appliance. ISO 4308-1 establishes the minimum requirements for the diameters of drums and sheaves that are to be associated with the selected wire rope.

ISO 4309 X

Cranes — Wire ropes — Care, maintenance, installation, examination and discard

Abstract: Details the essential guidelines for examination of wire ropes in service on a lifting appliance, and enumerates discard criteria relating to wire breaks, wear, corrosion and deformation which are to be applied to ensure the efficient and safe usage of the equipment.

ISO 4310

Cranes — Test code and procedures

Abstract: Specifies the tests and procedures to be followed in order to verify that a crane conforms to its operational specifications and is capable of lifting rated loads. Defines test procedures such as conformity tests, visual inspection and lifting competence testing.

ISO 7296-1

Cranes — Graphical symbols — Part 1: General (including amendment 1)

Abstract: Gives 67 symbols and defines the various colours to be used with cranes. Contains the alphabetical indexes in English, French and Russian.

ISO 7296-3

Cranes — Graphic symbols — Part 3: Tower cranes

Abstract: Gives symbols and combination of symbols particular to tower cranes.

ISO 7363

Cranes and lifting appliances — Technical characteristics and acceptance documents

Abstract: Establishes the form of presentation and content of the documents which a manufacturer should provide with the equipment. Documents give technical information and include acceptance documents for the equipment to facilitate its installation, testing and use. Specimen acceptance documents are given in the annex. Applies to all types defined in ISO 4306-1.

ISO 7752-1

Lifting appliances — Controls — Layout and characteristics — Part 1: General principles

Abstract: Deals with the arrangement of those crane controls which are used in positioning loads and serves as a general basis for the elaboration of detailed International Standards for particular types. It defines basic requirements of these controls, safe crane operation conditions and criteria for the layout of control levers and pedals.

ISO 7752-3

Cranes — Controls — Layout and characteristics — Part 3: Tower cranes

Abstract: Establishes the arrangement, requirements and direction of movement of the basic crane controls for travelling, traversing, slewing, cab driving, lifting, hoisting and lowering operations for tower cranes as defined in ISO 4306-3.

ISO 8566-1

Cranes — Cabins — Part 1: General

Abstract: Establishes the general requirements for cabin construction, driver's seat, visibility, control elements, information, noise, vibration, heating and air-conditioning for cranes as defined in ISO 4306-1.