
Cranes — Design principles for loads and load combinations —

Part 3: Tower cranes

*Appareil de levage à charge suspendue — Principes de calcul des
charges et des combinaisons de charges —*

Partie 3: Grues à tour



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Published in Switzerland

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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).

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For an explanation of the voluntary nature of standards, 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 www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 96, *Cranes*, SC 7, *Tower cranes*.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

This second edition cancels and replaces the first edition (ISO 8686-3:1998) and ISO 12485:1998 which have been technically revised.

The main changes compared to the previous edition are as follows:

- integration and rules for application of ISO 8686-1;
- integration of special rules regarding the calculation of wind loads on tower cranes in the out-of-service state;
- integration of rules regarding the calculation of rigid body stability in this document;
- integration of rules regarding the calculation of loads on crane support structure;
- integration of rules for the calculation of climbing systems;
- integration of rules for the calculation of mobile self-erecting tower cranes.

A list of all parts in the ISO 8686 series can be found on the ISO website.

Cranes — Design principles for loads and load combinations —

Part 3: Tower cranes

1 Scope

This document establishes the application of ISO 8686-1 to tower cranes for construction work as defined in ISO 4306-3, and gives specific requirements and values for factors to be used at the structural calculation.

Tower cranes for construction work are exclusively equipped with a hook as the load-handling device.

For tower cranes intended to be used for other purposes and/or with other load-handling devices, other values can be necessary according to the tower crane usage specification.

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. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 4302, *Cranes — Wind load assessment*

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

ISO 4310, *Cranes — Test code and procedures*

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

ISO 12488-1:2012, *Cranes — Tolerances for wheels and travel and traversing tracks — Part 1: General*

ISO 20332:2016, *Cranes — Proof of competence of steel structures*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 4306-3 and ISO 8686-1 apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- ISO Online browsing platform: available at <https://www.iso.org/obp>
- IEC Electropedia: available at <https://www.electropedia.org/>

3.1

balancing moment

moment at which the balance of the lifted components of the crane is achieved before starting the climbing operation

3.2

deviation moment

amount by which the *balancing moment* (3.1) may deviate during a climbing sequence