INTERNATIONAL STANDARD

ISO 12210

First edition
2021-11

Cranes — Anchoring devices for in-service and out-of-service conditions

Appareils de levage à charge suspendue — Dispositifs d'ancrage dans des conditions en service et hors service

Reference number
ISO 12210:2021(E)

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Published in Switzerland

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Foreword

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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).

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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*, Subcommittee SC 9, *Bridge and gantry cranes*.

This first edition of ISO 12210 cancels and replaces ISO 12210-1:1998, ISO 12210-4:1998 and ISO 12210-5, which have been technically revised.

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.

Cranes — Anchoring devices for in-service and out-of-service conditions

1 Scope

This document provides specific requirements for anchoring devices for in-service and out-of-service conditions for cranes and crane parts as defined in ISO 4306-1.

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

ISO 8686 (all parts), *Cranes — Design principles for loads and load combinations*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 4306-1 and the following 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
anchoring device
devices which should be actuated when the wind velocity exceeds the in-service design value to prevent crane or its parts from undesirable motion

Note 1 to entry: When storm wind is expected, anchoring devices should be used to hold the crane or its parts at a certain position in advance.

EXAMPLE Anchoring devices include rail clamps, rail brakes, wheel brakes, braking wedges, boom latches, anchor pins, tie-downs and, etc.

4 Design requirements

4.1 Anchoring devices should withstand the forces applied to them by the crane, taking account of dead and live loads, wind and other environmental factors. Anchoring devices shall be in accordance with the requirements of ISO 4302 and the ISO 8686 series.

The holding action of the anchoring devices should not require continuous power supply.

4.2 Such devices should be provided to ensure the position and movement of the crane and appropriate crane parts is controlled in the following conditions:

a) crane is out-of-service and anchored;

b) crane is in-service with parts of the crane anchored during normal operations;

c) crane is in-service, when subjected to a sudden wind velocity which exceeds the in-service design value during normal operations.

4.3 Anchoring devices shall be actuated either automatically or by the crane driver when the wind velocity exceeds the in-service design value in accordance with ISO 8686-1, the mechanism should be equipped with the following:

a) holding devices that can operate at any position of the track; or

b) other means of same function that can hold the crane, trolley, boom and or slewing device in certain anchoring positions.

4.4 Anchoring devices should be fitted for the following typical cranes and motions, if the minimum foreseeable friction or the service brake torque cannot prevent the motion of the mechanism from drifting away in the specified sudden wind or out-of-service wind conditions in accordance with ISO 8686-1.

a) Portal/semi-portal crane out-of-service, travelling, slewing, luffing and traversing are mandatory requirement. In-service of sudden wind, travelling is mandatory requirement. The others are optional requirement or not required.

b) Derrick crane out-of-service, travelling and slewing are mandatory requirement. In-service including sudden wind, travelling is mandatory requirement. The others are optional requirement or not required.

c) Pillar jib crane out-of-service, slewing is mandatory requirement. The others are not required.

d) Gantry crane out-of-service and in-service of sudden wind, travelling is mandatory requirement. The others are optional requirement or not required.

e) Bridge crane out-of-service and in-service of sudden wind, travelling is mandatory requirement. The others are optional requirement or not required.

4.5 Except for the cranes and motions that are already indicated above, the other special requirements should be allowed and agreed between purchaser and manufacturer.

If there is any special requirement from the purchaser, it should be consulted with the manufacturer.

5 Information to be supplied

The anchoring device should be provided with information on design and usage parameters of the component, so that the crane manufacturer is able to choose the component with appropriate safety margins to loads and lifetime.

Information shall be provided regarding the operation, testing, maintenance and repair of the anchoring devices.