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NATIONAL STANDARD OF THE PEOPLE'S REPUBLIC OF CHINA

GB/T 31051-2025

Replacing GB/T 31051.1-2014; GB/T 31051.4-2016

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

起重机 工作和非工作状态下的锚定装置

(English Translation)

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Foreword

This document is in accordance with the provisions of GB/T 1.1-2020 "Guidelines for standardization work Part 1: Structure and drafting rules for standardization documents" Drafting is required.

This document replaces GB/T 31051.1-2014 "Anchoring devices for cranes in working and non-working conditions Part 1: General principles" and GB/T 31051.4-2016 "Anchoring devices for cranes in working and non-working conditions Part 4: Jib cranes", Compared with GB/T 31051.4-2016, in addition to structural adjustments and editorial changes, the main technical changes of GB/T 31051.1-2014 are as follows.

Changed the scope (see Chapter 1, Chapter 1 of GB/T 31051.1-2014 and Chapter 1 of GB/T 31051.4-2016); - Added terms and definitions (see Chapter 3); - Added the design requirement that "the anchoring device can maintain the anchoring state without continuous power supply" (see 4.1); - Added the design requirements for anchoring devices when "the wind speed exceeds the design value of the working state specified in GB/T 45680" (see 4.3); - Changed the requirements for different types of cranes to be equipped with anchoring devices in different situations (see 4.4, GB/T 31051.4-2016 Table 1);

The required information has been changed (see Chapter 5, Chapter 4 of GB/T 31051.1-2014). - This document is modified to adopt ISO 12210:2021 "Anchoring devices for cranes in operating and non-operating states".

This document has the following structural adjustments compared to ISO 12210:2021.

Merge the contents of 4.5 into 4.4.- The technical differences between this document and ISO 12210:2021 and their reasons are as follows.

The normative reference GB/T 6974.1 replaces ISO 4306?1 (see Chapter 3), GB/T 22437 replaces

ISO 8686 (see 4.1, 4.4) and GB/T 45680 replaced ISO 4302 (see 4.1, 4.3) to adapt to my

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country's technology Conditions, increase operability;

The normative reference GB/T 45680 replaces ISO 8686?1 (see 4.3), which clarifies that "the anchoring device should be automatically activated or Specific technical requirements for the design value of the working state of "crane driver start";

The requirements for different types of cranes to be equipped with anchoring devices in different situations (see 4.4) have been changed. This includes changing "should" to "Should" is coordinated with the mandatory equipment requirements below; the requirement that portal/semi-portal cranes be equipped with anchoring equipment when not in operation has been changed.

The requirements for tower cranes to be equipped with anchoring devices are added, which is more in line with the domestic industry situation; the requirements for tower cranes to be equipped with anchoring devices are added, and the requirements for tower cranes to be equipped with anchoring devices are supplemented and improved. Technical requirements for the device.

1 Scope

This document specifies the anchoring devices for cranes and crane components defined in GB/T 6974.1 in both working and non-working states. requirements.

This document applies to the anchoring devices of cranes in both working and non-working conditions.

2 Normative references

The contents of the following documents constitute the essential clauses of this document through normative references in this document.

For referenced documents without a date, only the version corresponding to that date applies to this document; for referenced documents without a date, the latest version (including all amendments) applies. in this document.

GB/T 6974.1 Crane terminology Part 1: General terms (GB/T 6974.1-2008, ISO 4306?1.2007,

GB/T 22437 (all parts) Design principles for crane loads and load combinations [ISO 8686 (all parts)]

Note: GB/T 22437.1-2018 Design principles for crane loads and load combinations Part 1: General (ISO 8686?1..2012, IDT);

GB/T 22437.2-2023 Design principles for crane loads and load combinations Part 2: Mobile cranes (ISO 8686?2.2018, MOD);

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GB/T 22437.3-2008 Design principles for crane loads and load combinations Part 3: Tower cranes (ISO 8686?3.1998, IDT);

GB/T 22437.4-2010 Design principles for crane loads and load combinations Part 4: Jib cranes (ISO 8686?4.2005, MOD);

GB/T 22437.5-2021 Design principles for crane loads and load combinations Part 5: Bridge and gantry cranes (ISO 8686?5.2017, IDT).

GB/T 45680 Calculation of wind loads on cranes (ISO 4302:2016, MOD)

3 Terms and definitions

The terms and definitions defined in GB/T 6974.1 and the following apply to this document.

3.1 Anchoring device

When the wind speed exceeds the design wind speed value, the device needs to be activated to prevent the crane and its components from producing undesirable movements.

Note: When strong winds are expected, use anchoring devices to pre-secure the crane or its components in position.

Examples. Anchoring devices include rail clamps, rail toppers, wheel clamps, brake wedges, safety hooks, anchor pins and windbreaks.

4 Design requirements

4.1

The anchoring device should be able to withstand the forces applied by the crane, taking into account the fixed load and dynamic load, wind load and other environmental The anchoring device shall comply with the requirements of GB/T 45680 and GB/T 22437 (all parts).

The anchoring device should be able to remain anchored without continuous power supply.

4.2

Anchoring devices should be provided to ensure that the position and movement of the crane and its related components are controllable in the following cases. When the crane is in non-operating state and anchored; a)

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