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NATIONAL STANDARD OF THE PEOPLE'S REPUBLIC OF CHINA

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Cranes - Principles for seismically resistant design

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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 of Standardization Documents"

drafted.

This document is revised and adopted ISO 11031.2016 "General Principles for Seismic Design of Cranes".

This document has the following structural adjustments compared to ISO 11031.2016.

--- Added the chapter "Terms and Definitions, Symbols", and adjusted the original Chapter 3 "Symbols" to 3.2;

---Appendix B~Appendix E correspond to Appendix C~Appendix F in ISO 11031.2016.

The following editorial changes have been made to this document.

--- Adjust the ISO 4301-1 and ISO 4306 (all parts) of the informative references to the references;

--- According to GB/T 1.1-2020, the reference to Appendix B is added to Chapter 4, and the reference to Appendix D is added to 5.2.1;

--- According to 5.2.1 of ISO 20332.2016, the value of the general resistance coefficient (gammam) in 7.5 is changed from 1.0 to 1.1;

--- Deleted Annex B (informative) in ISO 11031.2016.

Please note that some content of this document may be patented. The issuing agency of this document assumes no responsibility for identifying patents.

1 Scope

This document specifies a general method for the seismic design of cranes, applicable to the calculation of seismic loads as defined in ISO 8686 (all parts),

Proficiency testing of metal structures as defined by ISO 20332 and calculations of mechanical components and structures as defined by ISO 4306 (all parts).

This document evaluates the dynamic response behavior of cranes subjected to seismic excitation - a function of the crane's dynamic characteristics and its supporting structure. Book

The evaluation takes into account not only the dynamic effects of the crane working on the ground under regional and local conditions, but also the working state of the crane

and earthquake hazards to cranes.

This document applies only to service limit states (SLS) where the stress is within the elastic range specified in ISO 20332.

This document does not apply to proficiency testing including plastic deformation. If permitted by an agreement between the crane supplier and the user, refer to

Check other relevant standards or literature.

2 Normative references

The contents of the following documents constitute essential provisions of this document through normative references in the text. Among them, dated citations

documents, only the version corresponding to that date applies to this document; for undated references, the latest edition (including all amendments) applies to

this document.

andloadcombinations)

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

Note. GB/T 30024-2020 Competency Verification of Crane Metal Structures (ISO 20332.2016, IDT)

3.1 Terms and Definitions

There are no terms and definitions that need to be defined in this document.

3.2 Symbols

The following symbols apply to this document.

The main symbols are shown in Table 1.

Table 1 Main symbols

Symbol meaning

Abg normalized base acceleration

Asg normalized ground acceleration

c Vertical influence factor

FH Horizontal Seismic Design Force