International Standard

ISO 16625

Cranes and hoists — Selection of wire ropes, drums and sheaves

Appareils de levage à charge suspendue et treuils — Choix des câbles, tambours et poulies

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Foreword

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This document was prepared by Technical Committee ISO/TC 96, *Cranes*, Subcommittee SC 3, *Selection of ropes.*

This second edition cancels and replaces the first edition (ISO 16625:2013), which has been technically revised.

The main changes are as follows:

— rope selection has been based on working cycles as opposed to the previous time-based concept;

— different proofs of competence for running ropes (static, fatigue, multilayer spooling) and stationary ropes (static, fatigue) have been incorporated;

— the substantial innovation of this document lies in a new mathematical approach for the proof of fatigue strength of running steel wire ropes. A new reference point has been introduced as a characteristic value for the fatigue strength, from which the S-N curves of the fatigue strength of steel wire ropes at different D/d-ratios are described;

— additional annexes have been introduced:

  — Annex A (normative) Number of relevant bending cycles;

  — Annex B (informative) Determination of the maximum tensile force in the ropes of multi-rope grabs (holding and closing);

  — Annex C (informative) Comparison of the minimum design factor according to ISO 16625:2013 and safety level according current version;

  — Annex D (informative) Selection of a rope by minimum design factor Z_p ;

  — Annex E (informative) Assumed number of hoist ropes l_r during life of a crane.

This document is intended to be used together with the ISO 4301-1 or other applicable part of the ISO 4301 series, ISO 4309, ISO 8686-1 or applicable part of the ISO 8686 series.

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 and hoists — Selection of wire ropes, drums and sheaves

1 Scope

This document provides a proof of competence and criteria for the selection of steel wire ropes used in cranes as defined in ISO 4306-1.

The influence of the geometry of the rope drive, as well as drum and sheave geometry, are incorporated in the proof of competence.

This document does not apply to fibre ropes.

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 2408, *Steel wire ropes — Requirements*

ISO 4301-1, *Cranes — Classification — Part 1: General*

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

ISO 4309, *Cranes — Wire ropes — Care and maintenance, inspection and discard*

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

ISO 8686-2, *Cranes — Design principles for loads and load combinations — Part 2: Mobile cranes*

ISO 8686-3, *Cranes — Design principles for loads and load combinations — Part 3: Tower cranes*

ISO 8686-4, *Cranes — Design principles for loads and load combinations — Part 4: Jib cranes*

ISO 8686-5, *Cranes — Design principles for loads and load combinations — Part 5: Overhead travelling and portal bridge cranes*

ISO 8793, *Steel wire ropes — Ferrule-secured eye terminations*

ISO 17558, *Steel wire ropes — Socketing procedures — Molten metal and resin socketing*

ISO 17893, *Steel wire ropes — Vocabulary, designation and classification*

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

EN 13411-3, *Terminations for steel wire ropes — Safety — Part 3: Ferrules and ferrule-securing*

EN 13411-4, *Terminations for steel wire ropes — Safety — Part 4: Metal and resin socketing*

EN 13411-6, *Terminations for steel wire ropes — Safety — Part 6: Asymmetric wedge sockets*

EN 13411-8, *Terminations for steel wire ropes — Safety — Part 8: Swage Terminals and Swaging*