INTERNATIONAL STANDARD

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Cranes — Training of operators —

Part 3: Tower cranes

Appareils de levage à charge suspendue — Formation des opérateurs —

Partie 3: Grues à tour

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Foreword

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For an explanation on the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the WTO principles in the Technical Barriers to Trade (TBT), see the following URL: Foreword — Supplementary information

The committee responsible for this document is ISO/TC 96, *Cranes*, Subcommittee SC 7, *Tower cranes*.

This second edition cancels and replaces the first edition (ISO 9926-3:2005), which has been technically revised.

ISO 9926 consists of the following parts, under the general title *Cranes — Training of operators:*

— *Part 1: General*

— *Part 3: Tower cranes*

Introduction

ISO 9926-1 specifies the minimum training to be given to trainee operators of lifting appliances with a suspended load in order to develop the person's operational basic skill in operating and to impart the knowledge required for the correct use of these appliances.

Cranes — Training of operators —

Part 3: Tower cranes

1 Scope

This part of ISO 9926 covers the specific subjects considered necessary for training tower crane operators.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. 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*

3 Content of training according to tower crane type

Practical and theoretical training shall take into account the following characteristics, according to tower crane type:

a) positioning of loads;

b) types of hoist controls, e.g. stepless contact, speed;

c) type of jibs, e.g. horizontal jib, gooseneck jib, telescoping jib, articulating boom or luffing jib;

d) type of erection/dismantling, e.g. cranes assembled from component parts, self-erecting tower cranes, travelling or stationary cranes, cranes climbing inside or outside the structure (theoretical procedure);

e) special operating precautions when more than one operator is used on one crane, e.g. the last crane user has to make sure that the crane is put out of service correctly;

f) procedures for taking the crane out of service, parking crane and leaving crane unattended including putting the jib to free slewing, applying rail clamps or any special procedure describing to in the manufacturer's instructions;

g) making the crane ready for road transport, where applicable (theoretical procedure);

h) the role and responsibilities of the crane operator;

i) familiarization with national and local regulations and with special operating procedures;

j) maintaining a safe distance from electrical power lines;

k) operational interferences and proximity hazards;

l) various reeving arrangements for the load block;

m) purpose and operation of safety devices;

n) checking of all motion limiters ;

o) forbidden operations;

p) daily, frequent and periodic inspection and maintenance schedules, and record-keeping requirements;

q) detection and recording malfunctions — notifying a designated person.

4 Illiteracy and language problems

Wherever practicable, pictograms or other visual means, rather than text, should be used.

Part of the training shall familiarize the trainee with the pictograms and other visual means used.

5 Communication systems

Operators shall be trained in the use of communication systems.

For tower cranes, the following hand signals shall be defined, taking into account the national usage and standards, identifying the following controls:

a) start of command;

b) stop;

c) deceleration;

d) hoisting the load;

e) lowering the load;

f) direction of the load;

g) crane travelling;

h) emergency stop.

NOTE ISO 16715 illustrates and gives examples of different signals in usage.

Radios and hard-wired voice communication systems may be used.

6 Load curves

The load curves and the characteristics of the cranes shall be taught, including the manufacturer's information given on the rating plate fixed to the control panel.

7 Operating wind speed limits

7.1 General

Operators shall be trained to establish the maximum wind speed in service when starting the shift, taking into account the crane and its instruction manual.

7.2 Operating limits

The training shall make the operator aware of the following:

— the conditions used to determine the maximum wind speed in service (according to ISO 4302, taking into consideration the suspended load surface, in general 1 m^2/t);

— the need to reduce the maximum wind speed if this surface operated by the crane exceeds the design one;

— the need to control loads against pendulation and spinning;

— the dangers associated with operating tower cranes and of the different sources of information that may be available.

The trainee shall learn how to use an anemometer and to estimate the wind speeds by sight.

7.3 Putting out-of-service

The operators shall be trained to put the crane into the out-of-service conditions specified by the manufacturer. The necessary weathervaning operations shall be carried out and, if necessary, the tightening of the rail clamps.

8 Use with or without radio control

If operating by means of a radio control is required, the operator shall be trained to

a) ensure that he/she is able to see the instructions on the rating plates,

b) keep visual contact with the load or ensure adequate assistance, and

c) know the procedure to take/transfer the control of the crane (in case of several radio control sets).