INTERNATIONAL STANDARD

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Cranes — Classification —

Part 3:
Tower cranes

Appareils de levage à charge suspendue — Classification —

Partie 3: Grues à tour

Reference number
ISO 4301-3:1993(E)

Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

International Standard ISO 4301-3 was prepared by Technical Committee ISO/TC 96, *Cranes*, Sub-Committee SC 7, *Tower cranes*.

ISO 4301 consists of the following parts, under the general title *Cranes — Classification*:

— *Part 1: General*

— *Part 2: Mobile cranes*

— *Part 3: Tower crane*

— *Part 4: Jib cranes*

— *Part 5: Overhead travelling and portal bridge cranes*

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Cranes — Classification —

Part 3:
Tower cranes

1 Scope

This part of ISO 4301 establishes a classification of tower cranes as defined in ISO 4306-3, according to their category.

NOTE 1 For the classification of cranes, as defined in ISO 4306-1, based on the number of operating cycles to be carried out during the expected life of the crane and a load spectrum factor which represents a nominal state of loading, see ISO 4301-1.

It applies to the classification of

— tower cranes for building and general construction work that can be dismantled,

— permanently erected tower cranes,

— hammerhead cranes;

— dockside and shipbuilders' tower cranes.

It does not apply to the classification of

— power-driven mobile jib cranes which may be fitted with a tower attachment,

— erection masts, with or without jibs.

2 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this part of ISO 4301. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this part of ISO 4301 are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.

ISO 4301-1:1986, *Cranes and lifting appliances — Classification — Part 1: General.*

ISO 4306-1:1990, *Cranes — Vocabulary — Part 1: General.*

ISO 4306-3:1991, *Cranes — Vocabulary — Part 3: Tower cranes.*

3 Definitions

For the purposes of this part of ISO 4301, the definitions given in ISO 4306-1 and ISO 4306-3 apply.

4 Categories of tower cranes

Tower cranes can be divided into three general categories based on the service they are expected to be subject to, as follows:

Category 1: Tower cranes in irregular use or having a light state of loading

Category 2: Tower cranes for building

Category 3: Tower cranes in regular use or having a heavy state of loading

5 Classification of a tower crane as a whole

A tower crane, as a whole, shall be classed in accordance with table 1. Examples of classifications of a tower crane as a whole are given in table 2.

6 Classification of mechanisms

The mechanisms of a tower crane shall be classed in accordance with table 3. Examples of classifications of mechanisms are given in table 4.

Table 1 — Classification of a tower crane as a whole

Category of crane	Classification of tower crane		
	Class of use	State of loading	Group classification
1	U1 to U4	Q1 and Q2	A1 to A4
2	U3 and U4	Q2	A3 and A4
3	U4 and U5	Q2 and Q3	A4 to A6

Table 2 — Examples of group classification of a tower crane as a whole

Category of crane	Designation of the tower crane	Classification of the tower crane		
		Class of use	State of loading	Group classification
1	Crane for irregular use	U1	Q2	A1
	Storage yard crane for material	U3	Q1	A2
	Maintenance crane for drilling platforms	U3	Q2	A3
	Dockyard repair crane	U4	Q2	A4
2	Automatic self-erecting crane	U3	Q2	A3
	Tower crane erected by parts	U4	Q2	A4
3	Dockyard fitting-out crane	U4	Q2	A4
	Port crane for loading of containers	U4	Q2	A4
	Ship construction crane	U4	Q3	A5
	Grabbing crane	U5	Q3	A6

Table 3 — Classification of mechanisms

Category of crane	Classification of mechanisms														
	Class of use					State of loading					Group classification				
	Movement[1]					Movement[1]					Movement[1]				
	H	S	L	D	T	H	S	L	D	T	H	S	L	D	T
1	T1 to T4	T1 to T4	T1 to T3	T1 to T3	T1 and T2	L1 and L2	L3	L1 and L2	L1 and L2	L3	M1 to M4	M2 to M5	M1 to M3	M1 to M3	M2 and M3
2	T3 and T4	T3 and T4	T2 and T3	T2 and T3	T1 and T2	L2	L3	L3	L2	L3	M3 and M4	M4 and M5	M3 and M4	M2 and M3	M2 and M3
3	T4 and T5	T4 and T5	T3 and T4	T3 to T5	T2 to T5	L2 and L3	L2 and L3	L2 and L3	L2 and L3	L2 and L3	M4 to M6	M4 to M6	M3 to M5	M3 to M6	M2 to M6

1) Key — H: hoisting; S: slewing; L: luffing; D: direction (traversing); T: travelling.

Table 4 — Examples of classification of mechanisms

Category of crane	Designation of the tower crane	Classification of mechanisms														
		Class of use					State of loading					Group classification				
		Movement[1]					Movement[1]					Movement[1]				
		H	S	L	D	T	H	S	L	D	T	H	S	L	D	T
1	Crane for irregular use	T1	T1	T1	T1	T1	L2	L3	L2	L2	L3	M1	M2	M1	M1	M2
	Storage yard crane for material	T3	T3	T2	T2	T1	L1	L3	L1	L1	L3	M2	M4	M1	M1	M2
	Maintenance crane for drilling platforms	T3	T3	T2	T2	T1	L1	L3	L2	L2	L3	M3	M4	M2	M2	M2
	Dockyard repair crane	T4	T4	T3	T3	T2	L2	L3	L2	L2	L3	M4	M5	M3	M3	M3
2	Automatic self-erecting crane	T3	T3	T2	T2	T1	L2	L3	L3	L2	L3	M3	M4	M3	M2	M2
	Tower crane erected by parts	T4	T4	T3	T3	T2	L2	L3	L3	L2	L3	M4	M5	M4	M3	M3
3	Dockyard fitting-out crane	T4	T4	T3	T3	T5	L2	L3	L2	L2	L3	M4	M5	M3	M3	M6
	Port crane for loading of containers	T4	T4	T3	T4	T2	L2	L2	L2	L2	L2	M4	M4	M3	M4	M2
	Ship construction crane	T4	T4	T3	T3	T4	L3	L3	L3	L3	L3	M5	M5	M4	M4	M5
	Grabbing crane	T5	T5	T4	T5	T2	L3	L3	L3	L3	L3	M6	M6	M5	M6	M3

1) Key — H: hoisting; S: slewing; L: luffing; D: direction (traversing); T: travelling.

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