IS 13834-3 (1995): Cranes - Classification, Part 3: Tower Cranes [MED 14: Cranes, Lifting Chains and Related Equipment]

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ISO 4301-3 : 1993
(Reaffirmed 2006)

भारतीय मानक

क्रेन — वर्गीकरण

भाग 3 टावर क्रेन

Indian Standard

CRANES — CLASSIFICATION

PART 3 TOWER CRANES

ICS 53.020.20

BUREAU OF INDIAN STANDARDS
MANAK BHAVAN, 9 BAHADUR SHAH ZAFAR MARG
NEW DELHI 110002

November 1995

Price Group 2

NATIONAL FOREWORD

This Indian Standard which is identical with ISO 4301-3 : 1993 'Cranes — Classification — Part 3 : Tower cranes', issued by the International Organization for Standardization (ISO), was adopted by the Bureau of Indian Standards on the recommendations of the Cranes, Lifting Chains and Its Related Equipment Sectional Committee and approval of the Heavy Mechanical Engineering Division Council.

This standard is being published in five parts. Other parts of this standard are as follows:

Part 1 General

Part 2 Mobile cranes

Part 4 Jib cranes

Part 5 Overhead travelling cranes and portal bridge cranes

The text of ISO standard has been approved for publication as Indian Standard without deviations. Certain terminology and conventions are, however, not identical to those used in Indian Standards. Accordingly wherever the words 'International Standard' appear referring to this standard, they should be read as 'Indian Standard'.

In this adopted standard, reference appears to certain International Standards for which Indian Standards also exists. The corresponding Indian Standards which are to be substituted in their place are listed below along with their degree of equivalence for the editions indicated:

International Standard	*Corresponding Indian Standard*	*Degree of Equivalence*
ISO 4301-1 : 1986	IS 13834 (Part 1) : 1994 Cranes — Classification: Part 1 General	Identical
ISO 4306-1 : 1990	IS 13473 (Part 1) : 1992 Cranes — Vocabulary : Part 1 General	Identical
ISO 4306-3 : 1991	IS 13473 (Part 3) : 1993 Cranes — Vocabulary : Part 3 Tower cranes	Identical

Indian Standard

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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