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IS 13558-3 (1995): Cranes - Control - Layout and characteristics, Part 3: Tower cranes [MED 14: Cranes, Lifting Chains and Related Equipment]



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“Knowledge is such a treasure which cannot be stolen”

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भारतीय मानक

क्रेन — नियंत्रण — अभिन्यास और लाक्षणिक

भाग 3 टावर क्रेन

Indian Standard

CRANES — CONTROLS — LAYOUT AND CHARACTERISTICS

PART 3 TOWER CRANES

ICS 53.020.20

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BUREAU OF INDIAN STANDARDS
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NEW DELHI 110002

NATIONAL FOREWORD

This Indian Standard which is identical with ISO 7752-3 : 1993 'Cranes — Controls — Layout and characteristics — Part 3 : Tower cranes', issued by 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 principles
- 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 exist. The corresponding Indian standard which are to be substituted in their place are listed below along with their degree of equivalence for the editions indicated:

<i>International Standard</i>	<i>Corresponding Indian Standard</i>	<i>Degree of Equivalence</i>
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
ISO 7752-1 : 1983	IS 13558 (Part 1) : 1992 Cranes — Controls — Layout and characteristics: Part 1 General	Identical

In reporting the results of a test or analysis made in accordance with this standard, if the final value, observed or calculated, is to be rounded off, it shall be done in accordance with IS 2 : 1960 'Rules for rounding off numerical values (*revised*)'.

Indian Standard

CRANES — CONTROLS — LAYOUT AND CHARACTERISTICS

PART 3 TOWER CRANES

1 Scope

This part of ISO 7752 specifies the particular requirements for controls for tower cranes as defined in ISO 4306-1 and ISO 4306-3 and the arrangement of basic controls used for positioning loads.

NOTE 1 For the general principles and requirements for the controls of cranes, see ISO 7752-1.

It applies to the controls 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 controls 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 7752. 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 7752 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 4306-1:1990, *Cranes — Vocabulary — Part 1: General*.

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

ISO 7752-1:1983, *Lifting appliances — Controls — Layout and characteristics — Part 1: General principles*.

3 Definitions

For the purposes of this part of ISO 7752, the definitions given in ISO 4306-1, ISO 4306-3 and ISO 7752-1 apply.

4 Specific requirements

Additional requirements specific to tower cranes are as follows:

- a) The force necessary to move a handle or control lever shall not exceed 100 N, and that required to move a pedal shall not exceed 200 N.

In any case, the following values are recommended:

- 5 N to 40 N for a right-to-left lever¹⁾;
- 8 N to 60 N for a backwards-to-forwards lever¹⁾;
- 10 N to 150 N for a pedal.

1) 5 N to 10 N are recommended for "joy stick" type controls.

- b) The control devices shall be positioned and designed to reduce the possibility of the crane and the load being inadvertently set in motion.

5 Basic control arrangement

The basic controls shall be arranged as shown in figure 1, following the general rules:

- on the right: hoisting and lowering of the load, travelling of the crane;
- on the left: luffing or movement of the crab, slewing of the crane.

5.1 Control levers of the ball-and-socket or universal joint type

When control levers of the ball-and-socket or universal joint type are used, the movements of the crane shall correspond to the direction of lever movement shown in table 1.

5.2 Wheel control devices

For wheel control devices, the movements of the crane shall correspond to the direction of wheel movement shown in table 2.

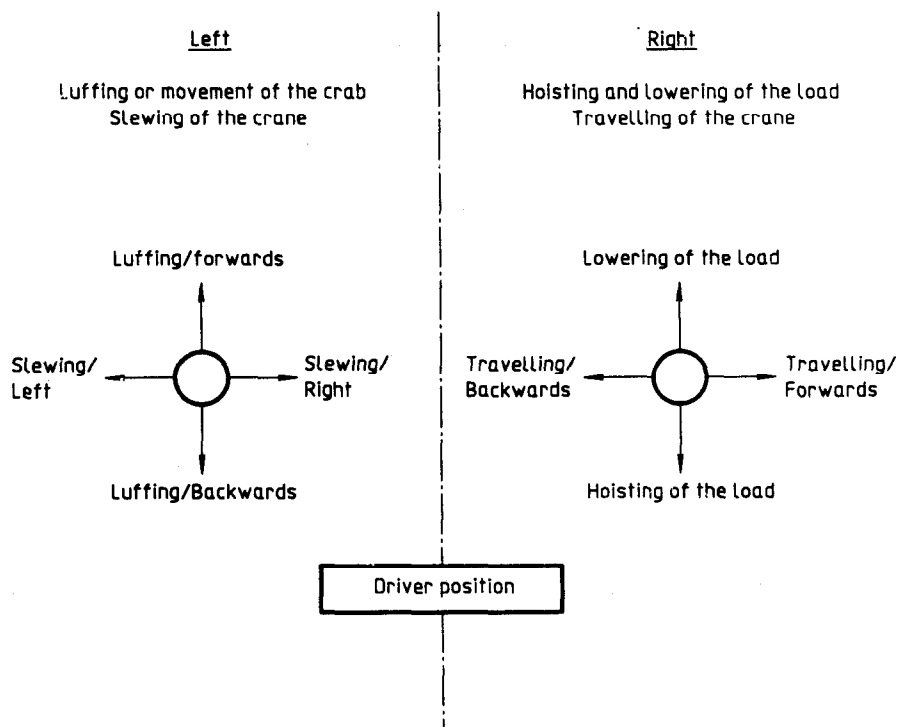


Figure 1 — Layout of controls on tower cranes

Table 1 — Movements of the crane and direction of lever movement

Movement of the crane	Direction of lever movement
Hoisting of the load, luffing in, inward movement of the crab or jib if the latter is capable of moving horizontally	Towards the driver (lever backwards)
Lowering of the load, lowering of the jib, outward movement of the crab or jib if the latter is capable of moving horizontally	Away from the driver (lever forwards)
Slewing to the right	Lever to the driver's right
Slewing to the left	Lever to the driver's left
Travelling of the crane	Lever to the driver's left or right, depending on the position of the driver in relation to the desired direction of travel

Table 2 — Movements of the crane and direction of wheel movement

Movement of the crane	Direction of wheel movement
Hoisting of the load, luffing in, slewing right, inward movement of the crab or jib if the latter is capable of moving horizontally	Rotation clockwise
Lowering of the load, luffing out, slewing left, outward movement of the crab or jib if the latter is capable of moving horizontally	Rotation anticlockwise

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Amendments Issued Since Publication

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