

INTERNATIONAL STANDARD

ISO
8566-3

First edition
1992-06-15

Cranes — Cabins —

Part 3: Tower cranes

Appareils de levage à charge suspendue — Cabines —
Partie 3: Grues à tour



Reference number
ISO 8566-3:1992(E)

Foreword

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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 8566-3 was prepared by Technical Committee ISO/TC 96, *Cranes*, Sub-Committee SC 7, *Tower cranes*.

ISO 8566 consists of the following parts, under the general title *Cranes — Cabins*:

- *Part 1: General*
- *Part 2: Mobile cranes*
- *Part 3: Tower cranes*
- *Part 4: Jib cranes*
- *Part 5: Overhead travelling and portal bridge cranes*

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International Organization for Standardization
Case Postale 56 • CH-1211 Genève 20 • Switzerland

Printed in Switzerland

Cranes — Cabins —

Part 3: Tower cranes

1 Scope

This part of ISO 8566 specifies the requirements for cabins for tower cranes, as defined in ISO 4306-3. The general requirements for cabins for cranes, as defined in ISO 4306-1, are given in ISO 8566-1.

It also specifies the main characteristics of the control station which may be provided instead of a cabin.

This part of ISO 8566 applies to the operator's position in

- dismountable tower cranes for building and general construction work,
- permanently erected tower cranes,
- hammerhead cranes, and
- dockside and shipbuilders' tower cranes.

It does not apply to the operator's position in

- power-driven mobile jib cranes which may be fitted with a tower attachment, and
- 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 8566. 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 8566 are encouraged to investigate the possibility of applying the most recent edi-

tions 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 6081:1986, *Acoustics — Noise emitted by machinery and equipment — Guidelines for the preparation of test codes of engineering grade requiring noise measurements at the operator's or bystander's position*.

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

ISO 7752-3:—¹⁾, *Cranes — Controls — Layout and characteristics — Part 3: Tower cranes*.

ISO 8566-1:1992, *Cranes — Cabins — Part 1: General*.

3 General requirements

Tower cranes shall be equipped with a rotating cabin or with a control station if the crane is controlled from a position on the crane more than 2 m from the ground.

For the category of dismountable tower cranes for building and general construction work, a cabin rotating with the jib is obligatory for cranes having an effective working moment exceeding 60 t·m, or having the following height characteristics:

1) To be published.

- a horizontal jib (or boom) positioned more than 25 m above the ground;
- a luffing jib (or boom) when the heel on the tower is positioned more than 20 m above the ground.

A cabin rotating with the jib is recommended for cranes in all categories having an effective working moment exceeding 25 t·m, or having the following height characteristics:

- a horizontal jib (or boom) positioned more than 20 m above the ground;
- a luffing jib (or boom) when the heel on the tower is positioned more than 15 m above the ground.

4 Construction of the cabin

4.1 The general requirements given in ISO 8566-1 for the construction of the cabin are applicable.

4.2 The cabin shall not be suspended from a jib.

It may be attached to or positioned in the tower in such a way that it cannot be crushed if the jib accidentally falls.

When the cabin is situated inside the tower, the window sections may protrude through the mast structure.

4.3 The usable internal dimensions of the cabin shall not be less than the values given in table 1.

The dimensions shall be sufficient to permit a second person to be present occasionally in the cabin.

4.4 The cabin ceiling shall be generally smooth and shall not have projections which would reduce the usable height of the cabin.

4.5 The cabin shall

- a) be provided with a roof capable of supporting at any point a mass of 100 kg distributed over an area of 0,3 m × 0,3 m;

- b) afford protection to the crane driver in atmospheric conditions such as rain, or extremes of heat or cold;

- c) be provided with a heating means appropriate to the working location; it shall be fixed in a permanent position;

- d) be ventilated;

- e) be provided with lighting to permit the crane driver to see the controls and operating instructions;

- f) be constructed to allow the window-panes to be cleaned from inside unless outside access is provided; the front window and, if necessary, other windows shall have one or more wind-screen wipers;

- g) be provided with windows of durable transparency; these shall be made of safety glass or of a synthetic material which resists ignition, does not lose transparency under the influence of natural light, and which is resistant to mechanical shock;

- h) have a fixed thermally insulated non-skid vision panel at the footrest position.

4.6 Internal combustion engines shall not be installed in the cabin. Exhaust pipes shall be so constructed and installed as to ensure that the exhaust gases are directed away from the cabin and do not obstruct the driver's visibility.

4.7 Access to the cabin shall be provided by means of a door, unless this is not possible from a construction point of view (see 4.8). The door shall lead off landings or gangways, and shall be fitted with a mechanical closing device. Where the cabin floor area is 2 m² or less, the door shall not open inwards. However, where the cabin floor area exceeds 2 m², the door may open inwards, and in this case an emergency access may be achieved either through the window in the door or through a trap-door in the roof.

Table 1 — Minimum usable internal dimensions

Values in metres

Self-erecting tower cranes ¹⁾			Tower cranes assembled from component parts ¹⁾		
Length	Width	Height	Length	Width	Height
0,8	0,8	2	1,2	1	2
1) See ISO 4306-3.					

4.8 When, from a construction point of view, it is not possible to have an access door (as provided for in ISO 8566-1:1992, 4.9) it is permissible to provide access to the cabin by means of a trapdoor in the floor or in the ceiling of the cabin.

The dimensions of these trapdoors shall be at least 0,5 m × 0,6 m and they shall be provided with a locking device to maintain them in the open position when required.

When access is gained by means of a trapdoor in the floor

- a minimum floor surface of 0,8 m × 0,5 m shall remain when the trapdoor is in the open position;
- it shall only be possible to open the trapdoor towards the inside of the cabin;
- an emergency exit shall be provided by means of an emergency trapdoor either in the ceiling or in the side of the cabin. This trapdoor shall be reached by an emergency ladder.

When access is gained by means of a trapdoor in the ceiling, the trapdoor shall only open upwards.

4.9 When windows in oblique or vertical walls are situated at a height of less than 1 m above the floor, the glazed portions shall be protected to a height of 1 m by horizontal bars 0,25 m, 0,5 m and 1 m from the floor, or by vertical bars at 0,2 m intervals, or by a suitable arrangement which obstructs the driver's visibility as little as possible.

Each bar shall be capable of withstanding a force of 1 000 N.

4.10 When the floor is provided with windows including inclined elements, these shall be protected in a manner similar to that described in 4.9 for vertical bars.

5 Control station

If a control station takes the place of the operator's cabin and is situated on or inside the crane, it shall

- have a non-skid platform;
- have guard rails consisting of
 - a handrail 0,9 m to 1,1 m above the flooring,
 - an intermediate rail at the half height, and
 - a skirting-board of 0,1 m in height,
 or any arrangement which gives equivalent protection;

- be protected by a roof 1,9 m to 2 m above the platform capable of absorbing the energy of a steel sphere of mass 7 kg falling from a height of 2 m.

6 Control elements

6.1 The general layout and characteristics of the control elements shall be in accordance with ISO 7752-1.

6.2 The specific layout and characteristics of control elements used in tower cranes shall be in accordance with ISO 7752-3.

7 Noise

7.1 In order to reduce the noise at the operator's position in the cabin, the technical possibilities of noise reduction should be taken into consideration. The effect of noise due to different movements of the crane shall be taken into account in relation to the duration of the noise under normal working conditions.

The effects of noise due to electrical equipment such as switches, relays, etc., shall be taken into consideration.

7.2 When the crane is mounted (installed) and running under normal working conditions, the continuous equivalent A-weighted sound pressure level as described in ISO 6081, measured at the level of the driver's ear, shall not exceed 85 dB in the most unfavourable configuration.

The noise shall be measured using the method given in ISO 6081.

The measurement conditions are defined as follows.

- Where the energy generator is attached to the crane, the energy generator and the motion mechanism shall be measured separately if they are not combined.
- Where these two devices are combined, the measurements shall refer to the whole assembly.

For noise measurements, the motion mechanism and the energy generator shall be installed and used in accordance with the manufacturer's instructions. The energy generator incorporated in the crane shall operate at the full power rating indicated by the manufacturer.

The lifting mechanism shall operate as follows in the raising and lowering modes:

- free of load with its drum turning at the rotation speed corresponding to the maximum hook-

displacement speed, which shall be as specified by the manufacturer;

- with a rope tension at the drum corresponding to the maximum load (for the minimum radius) with the hook moving at the maximum speed. The load and speed figures shall be as specified by

the manufacturer. The speed shall be checked during the test.

The test results are taken as those obtained from the movements producing the greatest sound power level.

7.3 Sound-insulating materials and accessories shall be firmly and securely fixed in place.

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