INTERNATIONAL STANDARD

ISO 11660-4

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Cranes — Access, guards and restraints —

Part 4: Jib cranes

Appareils de levage à charge suspendue — Moyens d'accès, dispositifs de protection et de retenue

Partie 4: Grues à flèche

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Foreword

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International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. 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.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

ISO 11660-4 was prepared by Technical Committee ISO/TC 96, *Cranes*, Subcommittee SC 8, *Jib cranes*.

ISO 11660 consists of the following parts, under the general title *Cranes — Access, guards and restraints*:

— *Part 1: General*

— *Part 2: Mobile cranes*

— *Part 3: Tower cranes*

— *Part 4: Jib cranes*

— *Part 5: Bridge and gantry cranes*

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Cranes — Access, guards and restraints —

Part 4: Jib cranes

1 Scope

This part of ISO 11660 establishes the particular requirements relating to access, guards and restraints for jib cranes as defined in ISO 4306-1.

ISO 11660-1 establishes the general requirements for access to control stations and other areas of cranes as defined in ISO 4306-1, during normal operations, maintenance, inspection, erection and dismantling. It also deals with guards and restraints in general, concerning the protection of persons on or near the crane with regard to moving parts, falling objects or live parts.

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 11660-1:2008, *Cranes — Access, guards and restraints — Part 1: General*

ISO 13852, *Safety of machinery — Safety distances to prevent danger zones being reached by the upper limbs*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 11660-1 apply.

4 Access

4.1 General

All control stations and other parts of the crane during normal operations, inspection, maintenance, erection or dismantling operations, as necessary, shall be accessible by means of walkways, stairs, ladders, landings or by mobile, ground-mounted access facilities.

4.2 Requirements

4.2.1 General design requirements for access

4.2.1.1 Compliance with ISO 11660-1

The design requirements for access shall comply with the clauses/subclauses of ISO 11660-1:2008 specified in Table 1 below, completed by the corresponding subclauses of this part of ISO 11660 specified in the same table.

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Table 1 — Design requirements for access

Hazard/access means	Applicable clause/subclause of ISO 11660-1:2008	Applicable subclause of this part of ISO 11660
Crushing hazard between moving parts	5.8	4.2.1.2
Stairs	6	4.2.1.3
Rung ladders	7	4.2.1.4
Manholes and hatch apertures	9	4.2.1.5
Access provision along the jib	9	4.2.2.

4.2.1.2 Crushing hazard between moving parts

Where there is a danger of crushing occurring on frequently used access ways (type 1), the transfer points shall be provided with interlocked gates that disable the relevant motion.

For less frequent points of access (type 2), where persons could be present between moving parts, a safety distance of at least 0,5 m should be observed. Where such a distance cannot be obtained, warning labels, highlighting the dangers, and devices to disable the relevant motions, shall be fitted.

4.2.1.3 Stairs

In addition to the dimensions given in ISO 11660-1, the recommended dimensions for steps are as follows:

— rise: 200 mm;

— clear width: 500 mm.

4.2.1.4 Rung ladders

The first flight of the rung ladder shall be no greater than 10 m.

Rung ladders shall be provided with rest landings at least every 10 m of vertical climb.

4.2.1.5 Manholes and hatch apertures

If the crane's construction does not allow larger dimensions:

— for type 1 access according to ISO 11660-1, the minimum dimensions for effective hatch apertures shall be (0,5 m × 0,5 m);

— for type 2 access according to ISO 11660-1, the minimum dimensions for effective hatch apertures shall be (0,5 m × 0,4 m).

4.2.2 Access provided along the inclined jib

4.2.2.1 General

When it is not possible to lower the jib to the ground to carry out inspection and maintenance of the mechanism and/or its components, a walkway along the jib shall be provided with

— side protection, or

— a personal protective device to prevent falls.

4.2.2.2 Walkway

The width of the walkway shall comply with ISO 11660-1:2008, Table 6, type 2 access.

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When the size of the jib is sufficient to allow walking inside the jib (i.e. the dimension between the walkway and the upper member is greater than or equal to 1,8 m), toe boards having a minimum height of 0,03 m shall be provided on each side of the walkway. When the dimension between the walkway and the upper member is less than 1,8 m, a toe board may be provided on one side only (see Figure 1).

Dimension in metres

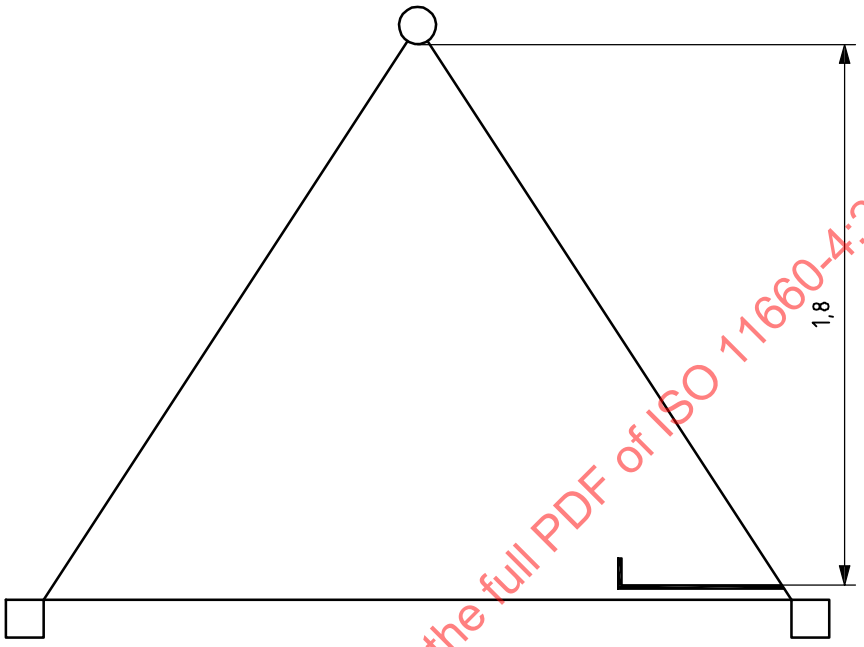

Figure 1 — Walkway with toe board on one side

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5 Guards and restraints

5.1 Guards for moving parts

During access to all the control stations and other parts of the crane, moving parts shall be guarded by safety distances as defined in ISO 13852, or by the provision of removable or fixed guards. Warnings shall be provided for those moving parts without guarding.

Open gears, chain drives and similar power transmissions in permanent access zones shall be guarded. Exceptionally, the guarding of large slewing gears may not be required if the drawing-in points of the pinion/gear are located sufficiently remote from frequently used access ways (type 1), in accordance with ISO 13852.

If the crane construction does not permit such guards, e.g. in top slewing cranes, or areas of limited space within the connection between the slewing ring support, slewing ring and slewing platform, warnings shall be provided.

Guards intended for use on walkways or work platforms shall be designed in accordance with ISO 11660-1 for this use.

Multi-part hook block designs shall be used to minimize the risk of drawing-in of the hand between the rope and the sheave.

NOTE For functional inspection and maintenance reasons, the rope drums, brakes and couplings are not generally covered or guarded, as there will normally be no one near the machinery during normal crane operation.

5.2 Prevention from falling of crane components and tools

Crane parts such as gears, pulleys, covers or boxes shall be designed, assembled and fixed so as to prevent them from falling during normal operation.

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Covers, guards and access closures shall be fitted with hinges or other means to prevent them from falling.

The external gears of slewing assemblies shall be provided with covers or another device to prevent them from falling in case of rupture or jamming.

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