



**SLOVENSKI STANDARD**  
**SIST ISO 7752-1:2012**

**01-oktober-2012**

**Nadomešča:**  
**SIST ISO 7752-1:1997**

---

**Žerjavi - Namestitev in karakteristike kontrolne opreme - 1. del: Splošna načela**

Cranes - Control layout and characteristics - Part 1: General principles

**iTeh STANDARD PREVIEW**  
(standards.iteh.ai)  
Appareils de levage à charge suspendue - Disposition et caractéristiques des commandes - Partie 1: Principes généraux

**Ta slovenski standard je istoveten z: [SIST ISO 7752-1:2012](https://standards.iteh.ai/standards/SIST/7752-1-2012/4-4311-abf8-61ce3ff55177/sist-iso-7752-1-2012) **ISO 7752-1:2010****

---

**ICS:**

53.020.20      Dvigala      Cranes

**SIST ISO 7752-1:2012**      **en**

**iTeh STANDARD PREVIEW**  
**(standards.iteh.ai)**

SIST ISO 7752-1:2012

<https://standards.iteh.ai/catalog/standards/sist/08a91188-36d4-4311-abf8-61ce3ff55177/sist-iso-7752-1-2012>

# INTERNATIONAL STANDARD

**ISO**  
**7752-1**

Second edition  
2010-06-01

---

---

## **Cranes — Control layout and characteristics —**

### **Part 1: General principles**

*Appareils de levage à charge suspendue — Disposition et  
caractéristiques des commandes*

*Partie 1: Principes généraux*

iTeh STANDARD PREVIEW  
(standards.iteh.ai)

[SIST ISO 7752-1:2012](https://standards.iteh.ai/catalog/standards/sist/08a91188-36d4-4311-abf8-61ce3f55177/sist-iso-7752-1-2012)

<https://standards.iteh.ai/catalog/standards/sist/08a91188-36d4-4311-abf8-61ce3f55177/sist-iso-7752-1-2012>



Reference number  
ISO 7752-1:2010(E)

© ISO 2010

## ISO 7752-1:2010(E)

**PDF disclaimer**

This PDF file may contain embedded typefaces. In accordance with Adobe's licensing policy, this file may be printed or viewed but shall not be edited unless the typefaces which are embedded are licensed to and installed on the computer performing the editing. In downloading this file, parties accept therein the responsibility of not infringing Adobe's licensing policy. The ISO Central Secretariat accepts no liability in this area.

Adobe is a trademark of Adobe Systems Incorporated.

Details of the software products used to create this PDF file can be found in the General Info relative to the file; the PDF-creation parameters were optimized for printing. Every care has been taken to ensure that the file is suitable for use by ISO member bodies. In the unlikely event that a problem relating to it is found, please inform the Central Secretariat at the address given below.

## iTeh STANDARD PREVIEW (standards.iteh.ai)

[SIST ISO 7752-1:2012](https://standards.iteh.ai/catalog/standards/sist/08a91188-36d4-4311-abf8-61ce3f55177/sist-iso-7752-1-2012)

<https://standards.iteh.ai/catalog/standards/sist/08a91188-36d4-4311-abf8-61ce3f55177/sist-iso-7752-1-2012>

**COPYRIGHT PROTECTED DOCUMENT**

© ISO 2010

All rights reserved. Unless otherwise specified, no part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from either ISO at the address below or ISO's member body in the country of the requester.

ISO copyright office  
Case postale 56 • CH-1211 Geneva 20  
Tel. + 41 22 749 01 11  
Fax + 41 22 749 09 47  
E-mail [copyright@iso.org](mailto:copyright@iso.org)  
Web [www.iso.org](http://www.iso.org)

Published in Switzerland

## 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.

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 7752-1 was prepared by Technical Committee ISO/TC 96, *Cranes*, Subcommittee SC 7, *Tower cranes*.

This second edition cancels and replaces the first edition (ISO 7752-1:1983), which has been technically revised.

ITih STANDARD PREVIEW  
(standards.iteh.ai)

ISO 7752 consists of the following parts, under the general title *Cranes — Control layout and characteristics*:

- *Part 1: General principles* [SIST ISO 7752-1:2012](https://standards.iteh.ai/catalog/standards/sist/08a91188-36d4-4311-abf8-61ce3ff55177/sist-iso-7752-1-2012)
- *Part 2: Mobile cranes*
- *Part 3: Tower cranes*
- *Part 4: Jib cranes*
- *Part 5: Overhead travelling cranes and portal bridge cranes*

**iTeh STANDARD PREVIEW**  
**(standards.iteh.ai)**

SIST ISO 7752-1:2012

<https://standards.iteh.ai/catalog/standards/sist/08a91188-36d4-4311-abf8-61ce3ff55177/sist-iso-7752-1-2012>

# Cranes — Control layout and characteristics —

## Part 1: General principles

### 1 Scope

This part of ISO 7752 establishes principles and requirements for the controls of cranes. It deals with the arrangement of those controls used in positioning loads and serves as a general basis for the elaboration of detailed standards covering the controls of particular types of cranes.

### 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 12100, *Safety of machinery — General principles for design — Risk assessment and risk reduction*

IEC 60068-2-27, *Environmental testing — Part 2-27: Tests — Test Ea and guidance: Shock*

IEC 60068-2-31, *Environmental testing — Part 2-31: Tests — Test Ec: Rough handling shocks, primarily for equipment-type specimens*

IEC 60204-32:2008, *Safety of machinery — Electrical equipment of machines — Part 32: Requirements for hoisting machines*

### 3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

#### 3.1

##### **operator**

person operating the crane for the purposes of positioning loads

#### 3.2

##### **address code**

number used by a receiver to differentiate the frames sent by its transmitter

NOTE The receiver only carries out commands received from a transmitter having the same address code.

#### 3.3

##### **wireless control**

means by which the crane operator's commands are transmitted without any physical connection for at least part of the distance between the console and the crane

#### 3.4

##### **console**

fixed or moveable arrangement of controls

**ISO 7752-1:2010(E)****3.5****control**

actuating device which forms an interface between the crane operator and crane control system

**3.6****control station**

permanent position of controls on or off the crane

**3.7****error detection code**

number added to each frame to enable the receiver to detect transmission errors

**NOTE** The receiver redefines the error detection code using an algorithm similar to the one used in the transmitter. The commands are only carried out if the error detection code so defined by the receiver is identical to the error detection code it received with the frame.

**3.8****frame**

“package” of bits which the transmitter sends to the receiver

**EXAMPLE** Address code, operating command signals, other control signals, error detection (and correction) code.

**NOTE** The frame is formed out of the above-mentioned parts by coding them into a serial form. After this coding, the frame is sent to a circuit called a *modulator* which transforms it into a suitable form for sending.

**3.9****hamming distance**

number of positions in which two code words of the same length differ from one another

[IEC/TR 60870-1-3]

**iTeh STANDARD PREVIEW**  
(standards.iteh.ai)

[SIST ISO 7752-1:2012](https://standards.iteh.ai/catalog/standards/sist/08a91188-36d4-4311-abf8-61ce3ff55177/sist-iso-7752-1-2012)

**3.10****operating command**

control signal intended to initiate, modify or maintain a crane function/movement

<https://standards.iteh.ai/catalog/standards/sist/08a91188-36d4-4311-abf8-61ce3ff55177/sist-iso-7752-1-2012>

**3.11****receiver**

part of a wireless control system which receives the commands from the transmitter

**3.12****transmitter**

part of a wireless control system which sends the crane operator's commands to the receiver

**4 Controls****4.1 General**

**4.1.1** The function of the controls of power-operated cranes is to permit an operator to position a load from a control station that could be remote from the machinery powering the motions of the crane.

**4.1.2** Controls and control stations shall conform to the safety requirements and/or protective measures of this clause. In addition, controls and control stations shall be designed according to the principles of ISO 12100.

**4.1.3** Where applicable and desirable for safety (for example with certain electric cranes), an emergency stop shall be provided close to each control station.

In particular, when a remote control station is provided, an emergency stop covering all motions shall be provided.



**4.1.4** Controls for crane movements, when released, shall automatically return to the “off” position. An exception to this is the “stop” control.

Control levers shall, where necessary and appropriate, be provided with stops, detents or any other mechanism to facilitate operation. All control levers shall return to their neutral positions automatically upon release, when not knuckled or toggled in.

**4.1.5** In order to prevent unintended movement of a crane motion, the motion shall only be able to be initiated from the neutral position of the control. Where this is not practicable, other means shall be provided as specified in the International Standards for particular crane types.

**4.1.6** Protection against electric shock for direct or indirect contact shall be as specified in IEC 60204-32:2008, Clause 6.

**4.1.7** The temperature of controls, as generated by the crane's operation, shall not exceed 43 °C.

## 4.2 Operator fatigue

**4.2.1** The controls of a crane shall, consistent with the duty of the crane, be designed and positioned on ergonomic principles to minimize operator fatigue.

**4.2.2** The force required to actuate the control levers shall lie between the following values:

- forwards or backwards: between 5 N and 60 N;
- sideways, to the left or to the right: between 5 N and 20 N, with a maximum actuating force of 40 N being acceptable for levers at control stations subjected to substantial accelerations.

**4.2.3** For pedals, the force shall not exceed the following maximum values:

- pedals actuated by a movement of the ankle: 50 N;
- pedals actuated by a movement of the leg: 100 N, excepting the hydraulic brake pedal.

**4.2.4** For pushbuttons actuated by finger or thumb, the force shall not exceed a value of 10 N, excepting

- double-action pushbuttons, for which the force needed to maintain the “on” position shall not exceed 10 N,
- emergency pushbuttons, and
- buttons for direct control of power.

**4.2.5** For pushbuttons actuated by foot, the force shall not exceed a value of 100 N.

**4.2.6** The maximum force required to operate hand-driven movements shall not exceed the following values:

- vertical force on a hauling chain: 250 N;
- horizontal force when pushing against or hauling on the load: 250 N;
- force applied to the handle of a crank or hand-wheel: 150 N;
- force applied to a lever with horizontal movement: 250 N.