INTERNATIONAL STANDARD

ISO 20607

First edition
2019-06

Safety of machinery — Instruction handbook — General drafting principles

Sécurité des machines — Notice d'instructions — Principes rédactionnels généraux

Reference number
ISO 20607:2019(E)

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Published in Switzerland

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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.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular, the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

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. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT) see www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 199, *Safety of machinery*.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

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Introduction

This document is a type-B standard as stated in ISO 12100.

This document is of relevance, in particular, for the following stakeholder groups representing the market players with regard to machinery safety:

— machine manufacturers (small, medium and large enterprises);

— health and safety bodies (regulators, accident prevention organisations, market surveillance etc.).

Others can be affected by the level of machinery safety achieved with the means of the document by the above-mentioned stakeholder groups:

— machine users/employers (small, medium and large enterprises);

— machine users/employees (e.g. trade unions, organizations for people with special needs);

— service providers, e. g. for maintenance (small, medium and large enterprises);

— consumers (in case of machinery intended for use by consumers).

The above-mentioned stakeholder groups have been given the possibility to participate at the drafting process of this document.

In addition, this document is intended for standardization bodies elaborating type-C standards.

The requirements of this document can be supplemented or modified by a type-C standard.

For machines which are covered by the scope of a type-C standard and which have been designed and built according to the requirements of that standard, the requirements of that type-C standard take precedence.

The structure of safety standards in the field of machinery is as follows.

a) **Type-A standards** (basic safety standards) give basic concepts, principles for design and general aspects that can be applied to machinery;

b) **Type-B standards** (generic safety standards) dealing with one or more safety aspect(s), or one or more type(s) of safeguards that can be used across a wide range of machinery:

   — type-B1 standards on particular safety aspects (for example, safety distances, surface temperature, noise);

   — type-B2 standards on safeguards (for example, two-hand control devices, interlocking devices, pressure-sensitive devices, guards);

c) **Type-C standards** (machine safety standards) dealing with detailed safety requirements for a particular machine or group of machines.

This type-B standard is written to provide guidance to machine manufacturers on how to provide an instruction handbook. According to ISO 12100:2010, 6.4.1.1, drafting information for use is an integral part of the design of a machine. Information for use consists of communication links, such as texts, words, signs, signals, symbols or diagrams, used separately or in combination to convey information to the user. Information for use is intended for professional and/or non-professional users. Instructions are a key part of the information for use of a machine. This document provides safety specifications for machinery that is more specific than IEC/IEEE 82079-1.

The instruction handbook drafted in accordance with this document is intended to inform the user in such a manner that after reading it, he/she is aware of how the machine can be used safely according to its intended use during its life cycle, considering also aspects of reasonably foreseeable misuse.

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The objective fulfilled by this document is to improve the safety specifications and readability/ease of use of the instruction handbook of the machine.

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Safety of machinery — Instruction handbook — General drafting principles

1 Scope

This document specifies requirements for the machine manufacturer for preparation of the safety-relevant parts of an instruction handbook for machinery.

This document:

— provides further specifications to the general requirements on information for use given in ISO 12100:2010, 6.4.5; and

— deals with the safety-related content, the corresponding structure and presentation of the instruction handbook, taking into account all phases of the life cycle of the machine.

NOTE 1 The strategy for risk reduction at the machine is given in ISO 12100:2010, Clause 6, and includes inherently safe design measures, safeguarding and complementary risk reduction measures as well as information for use.

NOTE 2 Annex A contains a correspondence table between ISO 12100:2010, 6.4, and this document.

NOTE 3 Information for conception and preparation of instructions in general is available in IEC/IEEE 82079-1.

This document establishes the principles which are indispensable to provide information on residual risks.

This document does not address requirements for declaration of noise and vibration emissions.

This document is not applicable to machinery manufactured before the date of its publication.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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 12100:2010, *Safety of machinery — General principles for design — Risk assessment and risk reduction*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 12100 and the following apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

— ISO Online browsing platform: available at https://www.iso.org/obp

— IEC Electropedia: available at http://www.electropedia.org/

3.1
instruction handbook
part of the information for use provided by a machine manufacturer to the machine user that contains instructions and advice concerning the use of the machinery during all phases of its life cycle

Note 1 to entry: Instruction handbook is a subset of information for use. For more information, see ISO 12100:2010, 6.4.

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3.2
integrator
entity who designs, provides, manufactures or assembles an integrated manufacturing system and is in charge of the safety strategy, including the protective measures, control interfaces and interconnections of the control system

Note 1 to entry: The integrator may be a manufacturer, assembler, engineering company or the user.

[SOURCE: ISO 11161:2007, 3.10]

3.3
risk reduction measure
action or means to eliminate hazards or reduce risks

Note 1 to entry: The term "risk reduction measure"used in this document corresponds to the term "protective measure" used in ISO 12100.

EXAMPLE Inherently safe design; protective devices; personal protective equipment; information for use and installation; organization of work; training; application of equipment; supervision.

[SOURCE: ISO/IEC Guide 51:2014, 3.13, modified — The synonymous term has been deleted and Note 1 to entry has been added.]

3.4
vulnerable user
user at greater risk of harm from products or systems, due to age, level of literacy, physical or mental condition or limitations, or inability to access product safety information

[SOURCE: ISO/IEC Guide 51:2014, 3.16, modified — The term "consumer" has been replaced by "user" in the term and in the definition.]

4 Principles and general information

4.1 General

The purpose of the instruction handbook is to provide the user with such information that the machinery concerned can be effectively and safely used during the life cycle of the machine, also considering reasonably foreseeable misuse. When the instruction handbook is being prepared, the communication process “read – think – use” should be followed in order to achieve the maximum effect for the reader.

NOTE For general principles of design of instruction handbooks see also IEC/IEEE 82079-1:2019, 6.3.

The instruction handbook shall follow sequential operations, as applicable.

The instruction handbook shall provide the target group(s) with information on:

— intended use;

— the machine itself and, as appropriate, its parts and components;

— relevant phases of the life cycle of the machine according to ISO 12100;

— hazards that have been identified and risk reduction measures that have been applied in conjunction with activities the user is expected to perform (human machine interaction); and

— residual risks, as these can require risk reduction by the user of the machine.

4.2 Target group for the instruction handbook

Target groups consisting of persons who interact directly with the machine and the task(s) they perform shall be identified.

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