
**Reciprocal internal combustion
engines — Recoil starting equipment —
General safety requirements**

*Moteurs alternatifs à combustion interne — Dispositifs de démarrage à
réenrouleur — Exigences générales de sécurité*



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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
Web www.iso.org

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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.

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 14314 was prepared by Technical Committee ISO/TC 70, *Internal combustion engines*.

Introduction

The hierarchy of safety standards in the field of machinery is as follows:

- a) type-A standards (basis safety standards) giving basic concepts, principle for design, and general aspects that can be applied to machinery;
- b) type-B standards (generic safety standards) dealing with one safety aspect or one type of safeguards that can be used across a wide range of machinery;
 - 1) type-B1 standards on particular safety aspects (e.g. safety distances, surface temperature, noise);
 - 2) type-B2 standards on safeguards (e.g. two-hands controls, interlocking devices, pressure sensitive devices, guards);
- c) type-C standards (machinery safety standards) dealing with detailed safety requirements for a particular machine or group of machines.

This document is a type C standard as stated in EN 1070.

The machinery concerned and the extent to which hazards, hazardous situations and events are covered are indicated in the scope of this document.

When provisions of this type C standard are different from those which are stated in type A or B standards, the provisions of this type C standard take precedence over the provisions of the other standards for machines that have been designed and built according to the provisions of this type C standard.

The concept of re-coil starting systems avoids the two main risks inherent in the use of a loose rope to start Reciprocating Internal Combustion (RIC) engines as follows:

- i) by preventing the rope coming loose from the engine starting pulley, in an uncontrolled manner, at the end of the starting operation and injuring the operator;
- ii) by preventing the operator from being in or coming into contact with any rotating parts of the starting system.

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1 Scope

This International Standard specifies the safety requirements for engine re-coil starting equipment intended for use on RIC engines for land, rail and marine use, excluding engines intended for use to propel road vehicles and aircraft. It may be applied to engines intended for use to propel construction and earth-moving machines and for other applications where no other suitable International Standards exist.

In addition to the technical safety requirements, it also contains the method of checking the adherence to these requirements.

This International Standard only addresses the hazards associated with the installation and operation of re-coil starting equipment.

This International Standard is primarily directed at machines which are manufactured after the date of publication of this International Standard.

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 2710-1, *Reciprocating internal combustion engines — Vocabulary — Part 1: Terms for engine design and operation*

ISO 2710-2, *Reciprocating internal combustion engines — Vocabulary — Part 2: Terms for engine maintenance*

ISO 7967-8, *Reciprocating internal combustion engines — Vocabulary of components and systems — Part 8: Starting systems*

EN 292-1, *Safety of machinery — Basic concepts, general principles for design — Part 1: Basic terminology, methodology*

EN 292-2 and EN 292-2/A1, *Safety of machinery — Basic concepts, general principles for design — Part 2: Technical principles and specifications*

EN 1070, *Safety of machinery — Terminology*

EN 1679-1, *Reciprocating internal combustion engines — Safety — Part 1: Compression ignition engines*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 2710-1, ISO 2710-2, ISO 7967-8, EN 1070, and the following apply.