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Earth-moving machinery — Safety —

Part 13: Requirements for rollers

Engins de terrassement — Sécurité —

Partie 13: Exigences applicables aux compacteurs

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Contents

Page

Foreword ... **iv**

Introduction ... **v**

1 Scope ... **1**

2 Normative references ... **1**

3 Terms and definitions ... **2**

4 Safety requirements and protective measures ... **3**
4.1 General ... 3
4.2 Non-riding machines ... 3
4.2.1 General ... 3
4.2.2 Handle bar ... 3
4.2.3 Protection against crushing ... 4
4.3 Operator station (ride-on machines) ... 5
4.3.1 General ... 5
4.3.2 Operator's position ... 5
4.3.3 Operator's station with cab ... 5
4.3.4 Doors and windows ... 5
4.4 Operator's seat ... 5
4.5 Controls and indicators ... 5
4.5.1 General ... 5
4.5.2 Travel control of non-riding rollers with handle bar ... 5
4.5.3 Controls for towed machines ... 5
4.5.4 Brake systems ... 5
4.5.5 Emergency stop ... 6
4.6 Access system to operator station and to maintenance points ... 6
4.6.1 General ... 6
4.6.2 Guard rail ... 6
4.7 Noise ... 6
4.8 Vibration ... 6

5 Information for use ... **6**
5.1 Warning signals and devices ... 6
5.2 Operator's manual ... 6
5.3 Marking ... 7

Annex A (normative) **Noise-test code for non-riding and remote-control vibratory rollers with working width ≤ 1 m** ... **8**

Annex B (normative) **Test code for hand–arm vibration of non-riding vibratory rollers with working width ≤ 1 m** ... **17**

Bibliography ... **21**

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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).

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

For an explanation on 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 the following URL: www.iso.org/iso/foreword.html

This document was prepared by Technical Committee ISO/TC 127, *Earth-moving machinery*, Subcommittee SC 2, *Safety, ergonomics and general requirements*.

This second edition cancels and replaces the first edition (ISO 20474-13:2008), which has been technically revised with the following changes:

— references to national and regional provisions in the withdrawn ISO/TS 20474-14 have been deleted;

— safety requirements and protective measures have been updated.

It is intended to be used in conjunction with ISO 20474-1.

A list of all parts in the ISO 20474 series, published under the general title, *Earth-moving machinery — Safety,* can be found on the ISO website.

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Introduction

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

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

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

ISO 20474 provides acceptable safety requirements for earth-moving machinery. This standard does not necessarily provide requirements to meet all national and regional regulatory provisions, e.g. Japan does not allow object handling with earth-moving machinery.

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Earth-moving machinery — Safety —

Part 13: Requirements for rollers

1 Scope

This document gives the safety requirements specific to rollers as defined in ISO 6165. It is intended to be used in conjunction with ISO 20474-1, which specifies general safety requirements common to two or more earth-moving machine families. The specific requirements given in this document take precedence over the general requirements of ISO 20474-1.

This document deals with all significant hazards, hazardous situations and events relevant to the earth-moving machinery within its scope (see ISO 20474-1:2017, Annex A) when used as intended or under conditions of misuse reasonably foreseeable by the manufacturer. It specifies the appropriate technical measures for eliminating or reducing risks arising from relevant hazards, hazardous situations or events during commissioning, operation and maintenance.

This document is not applicable to machines 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 3450, *Earth-moving machinery — Wheeled or high-speed rubber-tracked machines — Performance requirements and test procedures for brake systems*

ISO 3744, *Acoustics — Determination of sound power levels and sound energy levels of noise sources using sound pressure — Engineering methods for an essentially free field over a reflecting plane*

ISO 6165, *Earth-moving machinery — Basic types — Identification and terms and definitions*

ISO 6682, *Earth-moving machinery — Zones of comfort and reach for controls*

ISO 8811, *Earth-moving machinery — Rollers and compactors — Terminology and commercial specifications*

ISO 11201, *Acoustics — Noise emitted by machinery and equipment — Determination of emission sound pressure levels at a work station and at other specified positions in an essentially free field over a reflecting plane with negligible environmental corrections*

ISO 13850, *Safety of machinery — Emergency stop function — Principles for design*

ISO 17063, *Earth-moving machinery — Braking systems of pedestrian-controlled machines — Performance requirements and test procedures*

ISO 20474-1:2017, *Earth-moving machinery — Safety — Part 1: General requirements*

ISO 20643, *Mechanical vibration — Hand-held and hand-guided machinery — Principles for evaluation of vibration emission*

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3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 20474-1, ISO 8811, and the following, apply.

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

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

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

3.1
roller
self-propelled or towed machine having a compaction device, consisting of one or more metallic cylindrical bodies (drums) or rubber tyres, which compacts material such as crushed rock, earth, asphalt or gravel through a rolling or vibrating action of the compaction device

Note 1 to entry: The metallic cylindrical bodies can be rubber-coated or fitted with pads.

[SOURCE: ISO 6165:2012, 4.10, modified — By adding Note 1.]

3.1.1
single-drum roller
self-propelled compaction machine with one vibrating metallic cylindrical body (drum) and two rubber tyres or two tracks

3.1.2
tandem roller
self-propelled compaction machine with one metallic cylindrical body (drum) in the front and one in the rear

Note 1 to entry: The cylindrical drums can be static or vibrating and can be split.

3.1.3
combined roller
self-propelled compaction machine with one or more metallic cylindrical body (drum) and more than two rubber tyres

3.1.4
three-wheel roller
self-propelled compaction machine with one metallic cylindrical body (drum) in the front (or rear) and two in the rear (or front)

Note 1 to entry: The drums can be split.

3.1.5
pneumatic tyre roller
self-propelled compaction machine with three or more tyres in the front and the rear

3.2
direct-control machine
self-propelled earth-moving machinery where the machine is controlled by an operator in physical contact with the machine

[SOURCE: ISO 6165:2012, 3.2]

3.2.1
ride-on machine
self-propelled *direct-control machine* (3.2) where the control devices are located on the machine and the machine is controlled by a seated or standing operator

[SOURCE: ISO 6165:2012, 3.2.1]

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3.2.2
non-riding machine
self-propelled *direct-control machine* (3.2) where the control devices are located on the machine and the machine is controlled by a pedestrian operator (neither seated nor standing on the machine)

[SOURCE: ISO 6165:2012, 3.2.2]

3.3
remote-control machine
self-propelled earth-moving machinery where the machine is controlled by the transmission of signals from a control box (transmitter) that is not located on the machine to a receiving unit (receiver) located on the machine

[SOURCE: ISO 6165:2012, 3.3, modified — Note 1 to entry regarding wire and wireless remote control has not been included.]

3.4
towed roller
roller (3.1) that is not self-propelled but which is propelled instead by a towing machine on which the operator station is located

[SOURCE: ISO 6165:2012, 4.10.1]

4 Safety requirements and protective measures

4.1 General

Rollers shall comply with the safety requirements and protective measures of ISO 20474-1, in as far as those are not modified by the specific requirements of this clause.

4.2 Non-riding machines

4.2.1 General

ISO 20474-1:2017, 4.1, shall apply — as applicable — with the additions in 4.2.2 and 4.2.3 below.

4.2.2 Handle bar

To prevent dangerous vertical swinging of the steering element (handle bar) of the single-drum non-riding roller, movement of the handle shall be not less than 0, 2 m and not more than 1, 4 m above the ground (see Figure 1).

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