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**Earth-moving machinery — Safety —**  
**Part 7:**  
**Requirements for scrapers**

*Engins de terrassement — Sécurité —*

*Partie 7: Exigences applicables aux décapeuses*

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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 20474-7 was prepared by Technical Committee ISO/TC 127, *Earth-moving machinery*, Subcommittee SC 2, *Safety, ergonomics and general requirements*.

ISO 20474 consists of the following parts, under the general title *Earth-moving machinery — Safety*:

- *Part 1: General requirements*
- *Part 2: Requirements for tractor-dozers*
- *Part 3: Requirements for loaders*
- *Part 4: Requirements for backhoe-loaders*
- *Part 5: Requirements for hydraulic excavators*
- *Part 6: Requirements for dumpers*
- *Part 7: Requirements for scrapers*
- *Part 8: Requirements for graders*
- *Part 9: Requirements for pipelayers*
- *Part 10: Requirements for trenchers*
- *Part 11: Requirements for earth and landfill compactors*
- *Part 12: Requirements for cable excavators*
- *Part 13: Requirements for rollers*
- *Part 14: Information on national and regional provisions [Technical Specification]*

## 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.

Provisions that are applicable for Australia, EU, Japan or the USA, and which are mandatory for compliance with specific governmental laws, directives or regulations in force in the particular country or region, are given in ISO/TS 20474-14.

NOTE Other countries or regions may also have regional requirements.

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# Earth-moving machinery — Safety —

## Part 7: Requirements for scrapers

### 1 Scope

This part of ISO 20474 gives the safety requirements specific to wheeled and crawler scrapers, except for towed scrapers, as defined in ISO 6165. It is intended to be used in conjunction with ISO 20474-1, which specifies general safety requirements common to earth-moving machine families, and with ISO/TS 20474-14, which gives information on provisions that are mandatory in particular countries or regions. The specific requirements given in this part of ISO 20474 take precedence over the general requirements of ISO 20474-1.

This part of ISO 20474 deals with all significant hazards, hazardous situations and events relevant to the earth-moving machinery within its Scope when used as intended or under conditions of misuse reasonably foreseeable by the manufacturer (see also ISO/TS 20474-14). It specifies the appropriate technical measures for eliminating or reducing risks arising from significant hazards, hazardous situations or events during commissioning, operation and maintenance. It is not applicable to machines manufactured before the date of its publication.

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

ISO 6393, *Acoustics — Earth-moving machinery — Determination of sound power level — Stationary test conditions*

ISO 6394, *Earth-moving machinery — Determination of emission sound pressure level at operator's position — Stationary test conditions*

ISO 7096:2000, *Earth-moving machinery — Laboratory evaluation of operator seat vibration*

ISO 7133, *Earth-moving machinery — Tractor-scrapers — Terminology and commercial specifications*

ISO 10268, *Earth-moving machinery — Retarders for dumpers and tractor-scrapers — Performance tests*

ISO 20474-1:2008, *Earth-moving machinery — Safety — Part 1: General requirements*

### 3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 20474-1 and ISO 7133, and the following, apply.

**3.1 scraper**  
self-propelled or towed crawler or wheeled machine, which has a bowl with a cutting edge positioned between the axles and which cuts, loads, transports, discharges and spreads material through a forward motion

NOTE A powered mechanism (elevator) fixed to the scraper bowl can assist the loading through a forward motion.

**3.2 towed scraper**  
non-self-propelled scraper propelled by a towing machine on which the operator's station is located

### 4 Safety requirements and/or protective measures

#### 4.1 General

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

#### 4.2 Operator's seat

ISO 20474-1:2008, 4.4.1, shall apply, with the addition that the seat shall meet ISO 7096:2000, input spectral class EM2 for scrapers without axle or frame suspension.

#### 4.3 Retarder

If a retarder system is installed it shall meet the requirements of ISO 10268.

#### 4.4 Articulated frame lock

ISO 20474-1:2008, 4.14.5 is not applicable to scrapers.

#### 4.5 Towing device

ISO 20474-1:2008, 4.15.5, shall apply with the exception that attachment points (push plates, arc equipment, etc.) on scrapers that are present only to permit two scrapers to assist each other in loading, are not deemed to be towing devices according to ISO 20474-1:2008, 4.15.5.

#### 4.6 Noise

##### 4.6.1 Sound power level

ISO 20474-1:2008, 4.13.2.1, shall apply and the sound power level for scrapers shall be measured in accordance with ISO 6393.

##### 4.6.2 Emission sound pressure level at operator's station

ISO 20474-1:2008, 4.13.2.2, shall apply and the emission sound pressure level at the operator's station for scrapers shall be measured in accordance with ISO 6394.

## 5 Verification of safety requirements and/or protective measures

ISO 20474-1:2008, Clause 5, shall apply.

## 6 Information for use

ISO 20474-1:2008, Clause 6, shall apply with the following additions to the operator's manual (6.2):

- instructions for the use of push-blades;
- instructions for use and maintenance for elevator and auger.

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**Annex A**  
(informative)

**Illustrations**

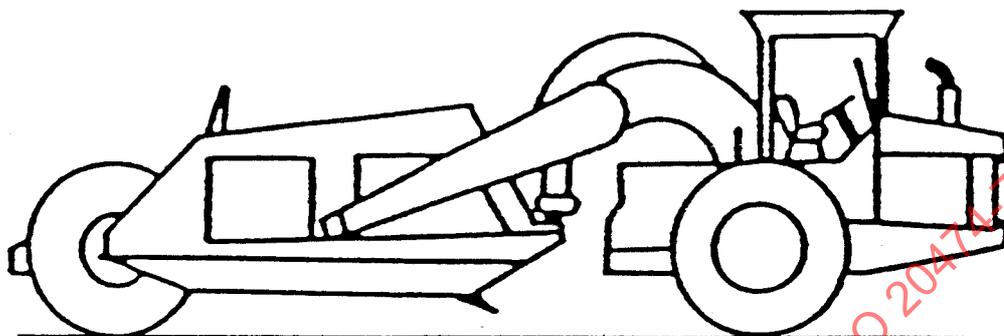


Figure A.1 — Wheeled scraper without elevator

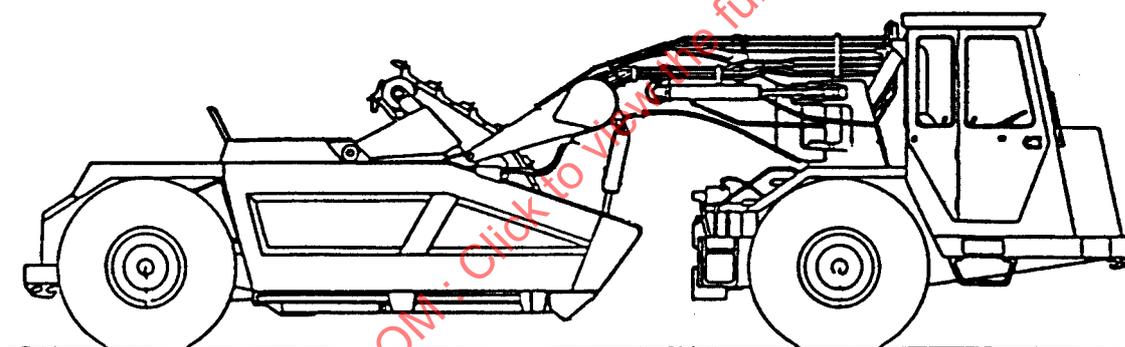


Figure A.2 — Wheeled scraper with elevator

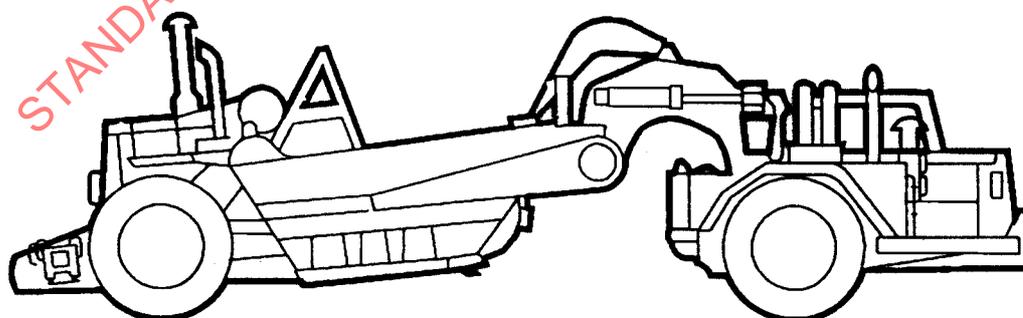


Figure A.3 — Wheeled scraper with two engines

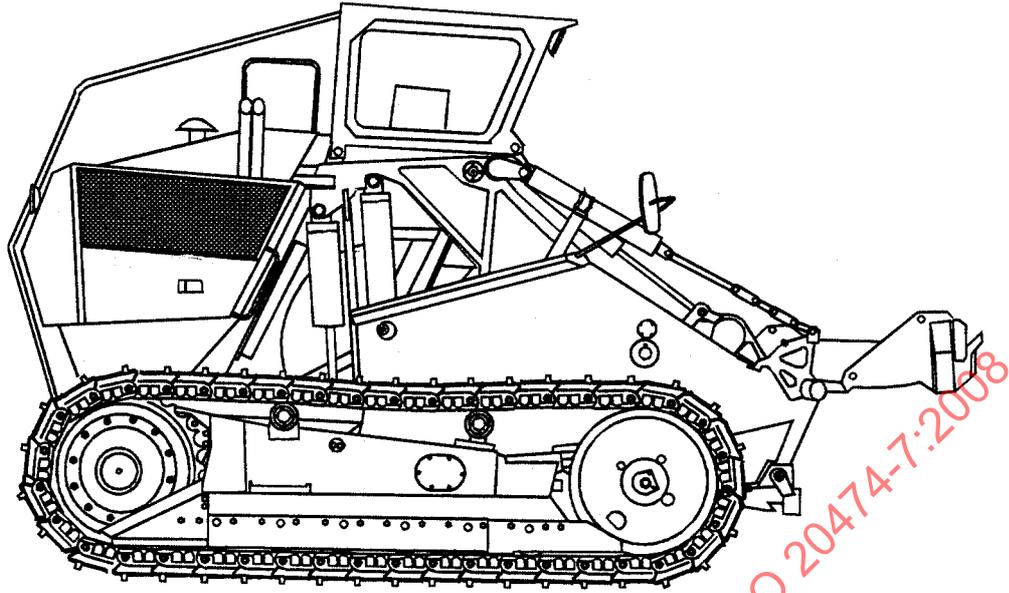


Figure A.4 — Crawler scraper

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