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Earth-moving machinery — Sustainability — Terminology, sustainability factors and reporting



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Preface

This Standard was prepared by the Standards Australia Committee ME-063, Earthmoving Equipment.

The objective of this document is to set out general principles for addressing the sustainability of the earth-moving machinery defined in ISO 6165. This document establishes a sustainability terminology, identifies significant sustainability factors for earth-moving machines and provides reporting an example of a reporting format for sustainability information.

This document is applicable to the development and manufacturing processes and the useful life and end-of-life of earth-moving machines.

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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 10987 was prepared by Technical Committee ISO/TC 127, *Earth-moving machinery*.

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Introduction

Sustainability has become a global concern for all products, including earth-moving machines. Customers buying the machines are requesting information that can be used to promote sustainability for their work projects. With the increased interest in the subject, many organizations are preparing sustainability guidelines and many manufacturers of earth-moving machinery are beginning to provide general information. This International Standard is the first on sustainability for earth-moving machines: a beginning in the definition of the sustainability information that customers can use for their projects.

Sustainability covers a wide range of areas related to social, environmental and economic considerations for the development, manufacturing, useful life and end-of-life phases for earth-moving machines. This International Standard covers

— general sustainability principles,

— terminology, and

— sustainability factors and formats for summarizing sustainability information.

Further International Standards on sustainability for earth-moving machines are planned to cover other areas, including test methods, performance criteria and means of compliance.

Potential sustainability issues relevant to earth-moving machines include the following:

— greenhouse gas/carbon emissions;

— energy use;

— general processes during design, manufacture, machine life, end-of-life;

— management system for sustainability communication, training, development;

— training for machine use — worksite managers, operators, maintenance;

— social aspect: health, safety, comfort, ergonomics;

— noise and vibration (operator);

— impact on environment — noise, dust, ground disturbance, noise and vibration (spectator);

— manufacturing and remanufacturing;

— dismantling and recycling;

— emissions, after treatment;

— bio fuels and oils;

— hazardous substances.

Other existing International Standards on earth-moving machines, while not dealing with sustainability itself, address many of the areas covered in this International Standard:

— general machine safety, ISO 20474 and the safety standards it references;

— noise, ISO 6393, ISO 6394, ISO 6395, ISO 6396;

— ergonomics, ISO 3411 (operator space), ISO 6682 and 10968 (controls), ISO 11112 (seats), and others;

— recyclability, ISO 16714;

— vibration, ISO 7096 and ISO/TR 25398;

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— electromagnetic compatibility, ISO 13766;

— training, ISO 7130 and ISO 8152.

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1 Scope

This International Standard sets out general principles for addressing the sustainability of the earth-moving machinery defined in ISO 6165. It establishes a sustainability terminology, identifies significant sustainability factors for earth-moving machines and provides an example of a reporting format for sustainability information.

This International Standard is applicable to the development and manufacturing processes and the useful life and end-of-life of earth-moving machines.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 5349-2, *Mechanical vibration — Measurement and evaluation of human exposure to hand-transmitted vibration — Part 2: Practical guidance for measurement at the workplace*

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

ISO 6395, *Earth-moving machinery — Determination of sound power level — Dynamic test conditions*

ISO 6396, *Earth-moving machinery — Determination of emission sound pressure level at operator's position — Dynamic test conditions*

ISO 14040, *Environmental management — Life cycle assessment — Principles and framework*

ISO 14044, *Environmental management — Life cycle assessment — Requirements and guidelines*

ISO 16714, *Earth-moving machinery — Recyclability and recoverability — Terminology and calculation method*

ISO 20474 (all parts), *Earth-moving machinery — Safety*

ISO/TR 25398, *Earth-moving machinery — Guidelines for assessment of exposure to whole-body vibration of ride-on machines — Use of harmonized data measured by international institutes, organizations and manufacturers*

3 Terms and definitions

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

3.1
sustainability
balance between social, environmental and economic needs that optimizes the current quality of life without sacrificing future quality of life

3.2
machine load factor
parameter used to indicate how a machine is working relative to the capability of the machine, defined by the manufacturer for different types of machine applications, generally using three load factor categories — low, medium and high

Note 1 to entry: It is usually expressed as a percentage of maximum machine capability.

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