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NATIONAL STANDARD OF THE PEOPLE'S REPUBLIC OF CHINA

GB/T 14781-2023

Replacing GB/T 14781-2014

Earth-moving machinery - Wheeled machines - Steering requirements

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Foreword

This document complies with the provisions of GB/T 1.1-2020 "Standardization Work Guidelines Part 1.Structure and Drafting Rules of Standardization Documents"

Drafting.

This document replaces GB/T 14781-2014 "Steering Requirements for Earthmoving Machinery Tire-type Machines" and is consistent with GB/T 14781-2014.

In addition to structural adjustments and editorial changes, the main technical changes are

as follows.

---Changed the scope (see Chapter 1, Chapter 1 of the.2014 edition);

---Changed the definitions of "steering system", "power steering system", "steering control element" and "steering angle" (see 3.1, 3.1.2, 3.6, 3.8,

2014 version 3.1, 3.1.3, 3.3, 3.5);

---Added "main steering system", "auxiliary steering system", "wheels", "track wheel assembly", "wheeled machine", "main steering control element" and "backup"

Use the terms "steering control element", "total wheel width", "outer wheel passing diameter", "wheel passing circle", "maximum machine speed" and

Definition (see 3.1.3, 3.1.4, 3.2, 3.3, 3.4, 3.6.1, 3.6.2, 3.9, 3.10, 3.11, 3.12);

---Deleted "power steering system", "emergency steering system", "tire passing circle", "working circuit pressure", "transmission device" and "steering"

Terms and definitions of "wheel" and "safety state" (see 3.1.2, 3.1.4, 3.6, 3.7, 3.8, 3.9, 3.10 of the.2014 edition);

---Changed the terms and definitions under "steering power source" (see 3.5.1, 3.5.2, 3.5.3, 3.2.1, 3.2.2, 3.2.3 of the.2014 edition);

---Changed the general requirements (see Chapter 4, Chapter 4 of the.2014 edition);

---Changed the requirements for "shifting to the test site" (see Chapter 5, Chapter 7 of the.2014 edition);

---Changed the machine test requirements (see Chapter 6, Chapter 8 of the.2014 edition);

---Changed the requirements for "wheel passing circle test procedure" (see Chapter 7, Chapter 9 of the.2014 edition);

---Changed the requirements for "steering test" (see Chapter 8, Chapter 10 of the.2014 edition);

---Added test report and usage information requirements (see Chapter 9 and Chapter 10).

This document is equivalent to ISO 5010.2019 "Steering Requirements for Wheeled Machinery for Earthmoving Machinery".

Please note that some content in this document may be subject to patents. The publisher of this document assumes no responsibility for identifying patents.

Introduction

This document is a Category C standard specified in ISO 12100.

This document is particularly intended for the following stakeholder groups representing machinery safety market participants.

---Machine manufacturers (small, medium and large enterprises);

---Health and safety agencies (regulators, accident prevention organizations, market surveillance, etc.) and other parties that may be affected by the above-mentioned stakeholders

Influence of the level of machinery safety achieved through documentation.

---Machine users/employers (small, medium and large enterprises);

---Users/employees (e.g., unions, special needs organizations);

---Service providers, such as maintenance services (small, medium and large enterprises);

---Consumer (for machines used by consumers).

All the above-mentioned stakeholders may participate in the drafting process of this document.

The machinery involved and the contents of hazards, hazardous situations or hazardous events are described within the scope of this document.

Since the design and manufacture of machines comply with the requirements of Class C standards, when the requirements of Class C standards are different from those of Class A or Class B standards,

At the same time, the requirements of Category C standards take precedence over other standards.

As this document does not cover the functional safety of steering systems, guidance on the functional safety of steering systems can be found in the following standards.

ISO 15998, ISO /T S15998-2, ISO 13849-1, ISO 19014-1, ISO 19014-2, ISO 19014-3, ISO 19014-4 and

ISO /T S19014-5.

Earthmoving machinery wheeled machine steering requirements

1 Scope

This document specifies the steering system test used to evaluate the steering capabilities of wheeled and ride-on earth-moving machinery defined in GB/T 8498-2017.

test methods and performance criteria. Wheeled machines include machines equipped with wheels, one or more rollers, or track wheel assemblies.

This document addresses the following significant hazards, hazards, and hazards

associated with wheeled machines that are reasonably foreseeable by the manufacturer and are

Hazardous situation or hazardous event.

---Mechanical hazards;

---Ergonomics hazards;

---Hazards caused by maintenance;

---Hazards caused by operating systems;

---Hazards related to driving functions.

This document does not contain content related to the functional safety of the steering system.

This document does not apply to wheeled machines manufactured before the date of this document.

2 Normative reference documents

The contents of the following documents constitute essential provisions of this document through normative references in the text. Among them, the dated quotations

For undated referenced documents, only the version corresponding to that date applies to this document; for undated referenced documents, the latest version (including all amendments) applies to

this document.

GB/T 8592-2001 Determination of steering dimensions of tire-type earthmoving machinery (ISO 7457.1997, IDT)

GB/T 8595-2023 Control devices for drivers of earthmoving machinery (ISO 10968.2020, IDT)

GB/T 21154-2014 Quality measurement methods for complete earthmoving machinery and its working devices and components (ISO 6016.2008,

IDT)

GB/T 39309-2020 Specification for steel wire or fabric reinforced single pressure type rubber hoses and hose assemblies for hydraulic use

(ISO 18752.2014,IDT)

ISO 3450.2011 Performance requirements and test methods for braking systems of earth-moving machinery, wheeled or high-speed rubber-tracked machines