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**NATIONAL STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA**

GB/T 25686-2018

Replacing GB/T 25686-2010

**Earth-moving machinery -- Safety requirements for remote
operator control systems**

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Foreword

This standard was drafted in accordance with the rules given in GB/T 1.1-2009.

This standard replaces GB/T 25686-2010 "Safety requirements for remote control of earth-moving machinery drivers", this standard and GB/T 25686-2010

In contrast to the editorial changes, the main technical changes are as follows.

---Modified standard name;

--- Modified the relevant content of the scope. (See Chapter 1, Chapter 1 of the.2010 edition);

--- Chapter 2 "normative references" to add and remove some of the reference standards (see Chapter 2, Chapter 2 of the.2010 edition);

--- Chapter 3 adds some terms and definitions (see Chapters 3.2, 3.3, 3.4 and 3.11);

--- Revised the title of Chapter 4 (see Chapter 4, Chapter 4 of the.2010 edition);

--- Added, modified and deleted part of the driver's remote control requirements (see Chapter 4, Chapter 4 of the.2010 edition);

--- Revised the relevant content of the forward direction mark (see Chapter 5, Chapter 5 of the.2010 edition);

---Modified part of the manual (see Chapter 6, Chapter 6 of the.2010 edition);

--- Added informative Appendix A (see Appendix A).

This standard uses the translation method equivalent to ISO 15817.2012 "Safety Requirements for Remote Control Devices for Earth-moving Machinery Drivers".

The documents of our country that have a consistent correspondence with the international documents referenced in this standard are as follows.

---GB/T 4208-2017 enclosure protection grade (IP code) (IEC 60529..2013, IDT);

---GB/T 8498-2017 Basic type identification, terminology and definition of earth-moving

machinery (ISO 6165.2012, IDT);

--- GB/T 8593.1-2010 Earth-moving machinery driver operating devices and other display devices with symbols - Part 1. General

No. (ISO 6405-1.2004, IDT);

--- GB/T 8593.2-2010 Earth-moving machinery driver operating devices and other display devices with symbols - Part 2.

Special symbols for devices and accessories (ISO 6405-2.1993, IDT);

---GB .20178-2014 General Rules for Safety Labels for Earth-moving Machinery (ISO 9244.2008, IDT);

---GB/T 22359-2008 Earthmoving machinery electromagnetic compatibility (ISO 13766.2006, IDT);

---GB/T 16754-2008 Mechanical safety emergency stop design principles (ISO 13850.2006, IDT).

This standard was proposed by the China Machinery Industry Federation.

This standard is under the jurisdiction of the National Earthmoving Machinery Standardization Technical Committee (SAC/TC334).

This standard was drafted. Nan'an Zhongji Standardization Research Institute Co., Ltd., Xiamen Xiagong Machinery Co., Ltd., Xugong Group Engineering

Machinery Co., Ltd. Jiangsu Xuzhou Engineering Machinery Research Institute, Tianjin Engineering Machinery Research Institute Co., Ltd.

1 Scope

This standard applies to the basic safety requirements for driver remote controls for earth moving machinery as defined in ISO 6165.

This standard does not apply to autonomous control systems that allow the machine to work on its own without the assistance of the driver, nor on non-remote controlled machines.

Remote control of the accessory device.

2 Normative references

The following documents are indispensable for the application of this document. For dated references, only dated versions apply to this article.

Pieces. For undated references, the latest edition (including all amendments) applies to this document.

ISO 6165 earthmoving machinery basic type identification, terminology and definition
(Earth-moving machinery - Basic types - Identification and terms and definitions)

ISO 6405-1 Ground-moving machinery - Drivers and other display devices - Part 1. General symbols (Earth-

moving machinery - Symbols for operator controls and other displays - Part 1. Common symbols)

ISO 6405-2 Earth-moving machinery - Drivers and other display devices - Part 2. Machines, work equipment and accessories

Special symbol (Earth-moving machinery - Symbols for operator controls and other displays - Part 2. Special symbols for machines, equipment and accessories)

ISO 9244 Earth-moving machinery - Machine safety labels -

General principles)

ISO 13766 Earth-moving machinery - electromagnetic compatibility
(Earth-moving machinery - Electromagnetic compatibility)

ISO 13850 Mechanical Safety Emergency Stop Design Principle
(Safety of machinery - Emergency stop - Principles for

Design)

ISO 15998 Earthmoving Machinery Mechanical Control System (MCS) with Electronic Components Functional Safety Guidelines and Tests (Earth-

Moving machinery - Machine control systems
(MCS) using electronic components - Performance

Criteria and tests for functional safety)

IEC 60068-2-31 Environmental Test Part 2-31. Test Test Ec. Rough treatment impact
(mainly for equipment type specimens)

(Environmental testing - Part 2-31. Tests - Test Ec. Rough handling shocks,
primarily for equipment -

Type specimens)

IEC 60529 enclosure protection rating (IP code)
[Degrees of protection provided by enclosures (IP code)]

3 Terms and definitions

The following terms and definitions apply to this document.

3.1

Control cable controlcable

A wire that transmits signals between a remote control box and a receiving device.

3.2

Direct manipulation of directcontrol

Manipulation of the machine in contact with the driver's body.