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

GB/T 19671-2022

Replacing GB/T 19671-2005

**Safety of machinery - Two-hand control devices - Principles for
design and selection**

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foreword

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

This document replaces GB/T 19671-2005 "Functional conditions and design principles of two-hand controls for mechanical safety". With GB/T 19671-

Compared with.2005, except for structural adjustment and editorial changes, the main technical changes are as follows.

- a) Changed the term "mobile two-hand control device" to "repositionable THCD" (see 3.10, 3.10 of the.2005 edition);
- b) Changed the selection and type of THCD (see Chapter 4, Chapter 4 of the.2005 edition);
- c) Added the general requirements for the design requirements of THCD (see 5.1);
- d) Added the requirement of "preventing deprecation" (see 5.6);
- e) Changed the requirements for "synchronous operation" (see 5.8, 5.7 of the.2005 edition);
- f) Changed the requirements for "two-hand operation safety function" (see Chapter 6, Chapter 6 of the.2005 edition);
- g) Delete the requirements when using programmable electronic systems (see Chapter 7 of the.2005 edition).

This document is equivalent to ISO 13851.2019 "Principles for Design and Selection of Two-Hand Control Devices for Mechanical Safety".

Please note that some contents of this document may refer to patents. The issuing agency

of this document assumes no responsibility for identifying patents.

Introduction

The safety standard system in the mechanical field consists of the following types of standards.

--- Class A standard (basic safety standard), giving basic concepts, design principles and general characteristics applicable to all machinery.

---Class B standards (general safety standards), involving a safety feature of machinery or a type of safety device with a wider range of use.

* Category B1, specific safety features (such as safety distance, surface temperature, noise) standards;

* B2 category, safety device (such as two-hand control device, interlock device, pressure-sensitive device, protective device) standard.

---Class C standard (mechanical product safety standard), a standard that specifies detailed safety requirements for a specific machine or a group of machines.

According to GB/T 15706, this document belongs to category B2 standards.

This document is particularly relevant to the following stakeholders related to machinery safety.

--- machine manufacturer;

---Health and safety agencies.

Other stakeholders affected by the level of machinery safety are.

--- machine users;

--- machine owner;

--- service provider;

--- Consumers (for machinery intended to be used by consumers).

All of the above stakeholders are likely to participate in the drafting of this document.

In addition, this document is intended to be used by standardization bodies drafting Category C standards.

The requirements specified in this document may be supplemented or modified by Category C standards.

For machines that are within the scope of the C-type standard and have been designed and manufactured in accordance with the C-type standard, the requirements in the C-type

standard are preferred.

The two-hand control device (THCD) is a protective device that installs the manipulation actuator at a specific position at a certain distance from the danger zone.

Provide protection for the operator to prevent him from touching the danger zone in a dangerous state.

As a safety device, the choice of THCD depends on the risk of designers, standard developers and others according to GB/T 15706.

risk assessment.

The definition of THCD given in 3.1 of this document takes precedence over the definition given in GB/T 15706.

In some applications, enabling devices (see GB/T 15706) and/or keep-running devices (see GB/T 15706) may also comply with this document

The definition of THCD in the document. In addition, some special operating devices that require two-handed use, such as certain crane controls, also comply with the requirements of this document.

Definition of THCD.

Two-hand controls for mechanical safety

Design and Selection Principles

1 Scope

This document specifies the safety requirements for a two-hand control device (THCD) and the dependence between the output signal and the manually operated actuating device. relationship.

This document presents the main characteristics of THCD used to achieve a safe state, and also presents the functional characteristics of the three types of THCD

combination. This document does not apply to devices intended to be used as enabling devices, keep-run devices or special control devices.

This document does not specify which machines require the use of THCD, nor does it specify what type of THCD is used in a specific application. In addition, as much as possible

Although guidelines are given, this document does not specify the distance between THCD and the danger zone (see 8.8).

This document presents THCD design requirements and selection guidelines based on risk assessment, including prevention of deprecation, failure avoidance, and compliance

verify.

Note 1. THCD only provides protection to its operator.

Note 2. For a specific machine, it may be specified in the Class C standard whether it is appropriate to use a two-handed control device as a protective device. If there is no standard or inappropriate,

The machine manufacturer is then responsible for carrying out a risk assessment and determining the applicable protective measures.

This document applies to all THCDs using various energy sources, including.

--- THCD is fully assembled and ready to install;

--- THCD assembled by machine builder or integrator is required.

2 Normative references

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

For documents, only the version corresponding to the date is applicable to this document; for undated reference documents, the latest version (including all amendments) is applicable to

this document.

GB/T 15706-2012 Risk Assessment and Risk Reduction of Machinery Safety Design General Principles (ISO 12100:2010, IDT)

GB/T 16855.1-2018 Safety-related components of machinery safety control systems Part 1. General principles for design (ISO 13849-1.

2015, IDT)

GB/T 16855.2-2015 Safety-related components of machinery safety control systems Part 2. Confirmation (ISO 13849-2:2012,

IDT)

GB/T 19876-2012 The safety of machinery and the positioning of safety guards related to the approach speed of human body parts (ISO 13855.

2010, IDT)

IEC 62061 Functional safety of electrical, electronic and programmable electronic control systems related to the safety of machinery and electrical safety (Safety of

control systems)1)