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GB/T 16754-2021 / ISO 13850:2015

Replacing GB/T 16754-2008

Safety of machinery - Emergency stop function - Principles for design

机械安全 急停功能 设计原则

(ISO 13850:2015, IDT)

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Standardization Administration of the PRC.

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Foreword

This document is drafted in accordance with GB/T 1.1-2020 "Directives for standardization - Part 1: Rules for the structure and drafting of standardizing documents".

This document replaces GB/T 16754-2008 "Safety of machinery - Emergency stop - Principles for design". Compared with GB/T 16754-2008, in addition to structural adjustments and editorial changes, the main technical changes are as follows:

- Add the terms "emergency stop equipment", "span of control of emergency stop device(s)", "protective shroud", "emergency situation" and "operator control station" and their definitions (see 3.2, 3.6, 3.7, 3.8 and 3.9);

- Clarify and refine the safety requirements of the emergency stop function; add the requirements for the span of control of emergency stop device (see 4.1; 4.1 of the 2008 edition);

- Modify the safety requirements of emergency stop device (see 4.3; 4.4 of the 2008 edition);

- Add requirements for prevention of unintended actuation of an emergency stop device (see 4.5);

- Add requirements for portable operator control stations (see 4.6).

This document, using translation method, is identical to ISO 13850:2015 "Safety of machinery - Emergency stop function - Principles for design".

China’s documents which have a consistent correspondence with the international documents normatively referenced in this document are as follows:

- GB/T 3766-2015 Hydraulic fluid power - General rules and safety requirements for systems and their components (ISO 4413:2010, MOD);

- GB/T 5226.1-2019 Electrical safety of machinery - Electrical equipment of machines - Part 1: General requirements (IEC 60204-1:2016, IDT);

- GB/T 7932-2017 Pneumatic fluid power - General rules and safety requirements for systems and their components (ISO 4414:2010, IDT);

- GB/T 14048.14-2019 Low-voltage switchgear and controlgear - Part 5-5: Control circuit devices and switching elements - Electrical emergency stop device with mechanical latching function (IEC 60947-5-5:2016, IDT);

- GB/T 16855.1-2018 Safety of machinery - Safety-related parts of control

systems - Part 1: General principles for design (ISO 13849-1:2015, IDT);

- GB 28526-2012 Electrical safety of machinery - Functional safety of safety-related electrical, electronic and programmable electronic control systems (IEC 62061:2005, IDT).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. The issuing authority of this document shall not be held responsible for identifying any or all such patent rights.

This document was proposed by and shall be under the jurisdiction of National Technical Committee 208 on Safety of Machinery of Standardization Administration of China (SAC/TC 208).

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Safety of machinery - Emergency stop function - Principles for design

1 Scope

This document specifies functional requirements and design principles for the emergency stop function on machinery, independent of the type of energy used.

This document apply to all machines, with exception to:

- machines where an emergency stop would not reduce the risk;

- hand-held or hand-operated machines.

This document does not deal with functions such as reversal or limitation of motion, deflection of emissions (e.g. radiation, fluids), shielding, braking or disconnecting, which can be part of the emergency stop function.

Note: The requirements for the realization of the emergency stop function based on electrical/electronic technology are described in IEC 60204-1.

2 Normative references

The contents of the following documents, through normative references in this text, constitute indispensable provisions of this document. Among them, for dated references, only the edition corresponding to that date applies to this document. For undated references, the latest edition (including all amendments) applies to this document.

GB/T 15706-2012 Safety of machinery - General principles for design - Risk assessment and risk reduction (ISO 12100:2010, IDT)

ISO 4413 Hydraulic fluid power - General rules and safety requirements for systems and their components

ISO 4414 Pneumatic fluid power - General rules and safety requirements for systems and their components

ISO 13849-1 Safety of machinery - Safety-related parts of control systems - Part 1: General principles for design

IEC 60204-1:2005 Safety of machinery - Electrical equipment of machines - Part 1: General requirements

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