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

**GB/T 14048.14-2019**

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**Low-voltage switchgear and controlgear -- Part 5-5: Control  
circuit devices and switching elements -- Electrical emergency  
stop device with mechanical latching function**

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### Foreword

GB/T 14048 "Low-voltage switchgear and control equipment" consists of the following parts.

--- Part 1. General (GB/T 14048.1);

--- Part 2. Circuit breakers (GB/T 14048.2);

--- Part 3. Switch, isolator, disconnector and fuse combination (GB/T 14048.3);

--- Part 4-1. Contactors and motor starters Electromechanical contactors and motor starters (including motor protectors)

(GB/T 14048.4);

--- Part 4-2. Contactors and motor starters - Semiconductor controllers and starters for AC motors (including soft starters)

(GB/T 14048.6);

--- Part 4-3. Contactors and motor starters - Non-motor load AC semiconductor controllers and contactors

(GB/T 14048.12);

---Part 5-1. Control circuit electrical and switching components electromechanical control circuit electrical appliances (GB/T 14048.5);

---Part 5-2. Control circuit electrical and switching component proximity switches (GB/T 14048.10);

---Part 5-3. Control circuit electrical appliances and switching components have a certain function of the proximity switch (PDDb) under fault conditions

Seeking (GB/T 14048.13);

---Part 5-4. Special test for performance evaluation methods for small-capacity contacts of control circuit and switching elements (GB/T 14048.17);

- Part 5-5. Electrical emergency brake devices with control mechanical and switching elements with mechanical latching function (GB/T 14048.14);
- Parts 5-6. DC interface (NAMUR) for control circuit and switching element proximity sensors and switching amplifiers (GB/T 14048.15);
- Parts 5-7. Requirements for control circuit appliances and switching components for accessing equipment with analogue output (GB/T 14048.19);
- Part 5-8. Control circuit electrical and switching components three-position enable switch (GB/T 14048.20);
- Part 5-9. Control circuit electrical and switching component flow switch (GB/T 14048.21);
- Part 6-1. Multi-function electrical switchgear (GB/T 14048.11);
- Part 6-2. Multi-function electrical appliances (equipment) Control and protection switchgear (equipment) (CPS) (GB/T 14048.9);
- Part 7-1. Terminal block for copper conductors of auxiliary devices (GB/T 14048.7);
- Part 7-2. Protective conductor terminal block for copper conductors of auxiliary devices (GB/T 14048.8);
- Part 7-3. Safety requirements for auxiliary device fuse terminal blocks (GB/T 14048.18);
- Part 7-4. PCB terminal block for auxiliary device copper conductor (GB/T 14048.22);
- Part 8. Mounted thermal protection (PTC) control unit for rotating electrical machines (GB/T 14048.16).

This part is part 5-5 of GB/T 14048.

This part is drafted in accordance with the rules given in GB/T 1.1-2009.

This part replaces GB/T 14048.14-2006 "Low-voltage switchgear and control equipment - Part 5-5. Control circuit electrical appliances and switches

An electrical emergency brake device with a mechanical latching function. Main technical changes in this section compared with GB/T 14048.14-2006

as follows.

- Added the definition of "pull switch" (see 3.10);
- Added the indicator of the emergency brake button (see 4.2.1);
- Modified the requirements and test methods for the design of button type emergency brake devices (see 6.3.2, 6.3.2 of.2006 edition);
- Increased requirements related to functional safety applications (see 6.6);

- Increased specific test parameters for the mechanical strength test of the button actuator (see 7.3.2);
- Increased method of parameter monitoring in durability testing (see 7.3.3);
- Increased exposure to the environmental test of the emergency brake device intended for installation on the enclosure (see 7.4);
- Revised the test parameters and specific requirements of the lock test (see 7.7.3, 7.7.3 of the.2006 edition);
- Increased the requirements related to the contacts in the button type actuator impact test (see 7.7.5);
- Added the normative appendix "Steps for Determining Reliability Data for Electrical Emergency Brakes in Functional Safety Applications" (see Appendix A).

This section uses the translation method equivalent to IEC 60947-5-5:2016 "Low-voltage switchgear and control equipment, part 5-5. Control

Electrical emergency brakes with mechanical latching function for the electrical and switching elements.

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

GB/T 2423.10-2008 Environmental testing for electric and electronic products - Part 2. Test method test Fc. Vibration (sinusoidal)

(IEC 60068-2-6:1995, IDT);

GB/T 2423.52-2003 Environmental testing of electric and electronic products - Part 2. Test methods Test 77. Structural strength and

Impact (IEC 60068-2-27:1999, IDT);

--- GB/T 4798.3-2007 Environmental conditions for the application of electric and electronic products - Part 3

(IEC 60721-3-3:2002, MOD);

--- GB/T 14048.5-2017 Low-voltage switchgear and controlgear - Part 5-1. Control circuit electrical and switching components

Electromechanical control circuit electrical appliances (IEC 60947-5-1:2016, MOD);

---GB/T 16754-2008 Mechanical safety emergency stop design principles (ISO 13850:2006, IDT).

According to the specific situation of our country, this section has made the following editorial changes.

- Deleted the index of terms and definitions;
- Define "(reset brake device) reset resetting (of emergency stop device)", change "a" to "an";
- Fixed the wrong drawing number;
- Clause 4.42 in ISO 13850:2015 cited in 6.4.1 is incorrect and changed to 4.4.2.

This part was proposed by China Electrical Equipment Industry Association.

This part is under the jurisdiction of the National Low Voltage Electrical Appliance Standardization Technical Committee (SAC/TC189).

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## Introduction

This section deals with electrical emergency brakes with mechanical latching and electrical and mechanical requirements for the following international standards.

Added.

- ISO 13850, which specifies requirements for the emergency braking function of the machine (in any form of energy used);
- IEC 60204-1, which sets additional requirements for emergency braking functions implemented by the electrical equipment of the machine;
- IEC 60947-5-1, which specifies the electrical characteristics of electromechanical control circuit appliances.

Low voltage switchgear and control equipment

Part 5-5. Control circuit electrical and switching components

Electrical emergency brake device with mechanical latch function

## 1 Scope

This part of GB/T 14048 specifies the electrical and mechanical structure and test of the emergency brake device with mechanical latching function.

Body requirements.

This section applies to electrical control circuit appliances and switching components that issue emergency brake signals. These appliances can come with their own casings or