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

GB/T 17454.3-2017

Replacing GB/T 17454.3-2008

**Safety of machinery -- Pressure-sensitive protective devices --
Part 3: General principles for design and testing of
pressure-sensitive bumpers, plates, wires and similar devices
(English Translation)**

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Foreword

GB/T 17454 "mechanical safety pressure-sensitive protection device" is divided into three parts.

- Part 1. Design and test of pressure sensitive and pressure sensitive flooring;

- Part 2. Design and test of pressure - sensitive and pressure - sensitive rods;

Part 3. General principles for the design and testing of pressure sensitive buffers, pressure sensitive boards, pressure sensitive lines and similar devices.

This part is part 3 of GB/T 17454.

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

This part of the replacement GB/T 17454.3-2008 "Mechanical safety pressure-sensitive protection device Part 3. Pressure-sensitive buffer, pressure plate, pressure General principles for the design and testing of sensitive lines and similar devices ". Compared with GB/T 17454.3-2008, in addition to editorial changes to the main technical changes as follows.

- a requirement to increase the performance level (PL) of the control system (see 4.15, 4.2.15, 2008);

- a test of performance level (PL) has been added to the control system (see 7.1.1, 1600, 7.1.16).

This part uses the translation method equivalent to ISO 13856-3.:2013 "Mechanical safety pressure-sensitive protection device Part 3. Pressure-sensitive buffer General Design and Test of Pressure Sensitive Boards, Pressure Sensitive Lines and Similar Devices "(English version).

In this part of the normative reference to the international documents have a consistent correspondence between the following documents.

GB/T 2423.3-2006 Environmental testing for electric and electronic products - Part 2. Test methods - Test Cab. constant damp heat test (IEC 60068-2-78.:2001, IDT);

Environmental testing for electric and electronic products - Part 2. Test methods - Test Ea and guidance. shocks - GB/T 2423.5-1995 (idt IEC 68-2-27. 1987);

GB/T 2423.10-2008 Environmental testing for electric and electronic products - Part 2. Test methods - Test Fc. Vibration (sinusoidal) (IEC 60068-2-6.:1995, IDT);

- GB/T 2423.22-2012 Environmental tests - Part 2. Test methods - Test N. Temperature change (IEC 60068-2-14.

2009, IDT);

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

Protection class (IP code) (IEC 60529.:2001, IDT); GB/T 4208-2008;

GB/T 7251.1-2013 Low-voltage switchgear and controlgear - Part 1. General principles (IEC 61439-1.:2011, IDT) General technical requirements for pneumatic systems (ISO 4414.:1998, IDT) GB/T 7932-2003;

Low - voltage switchgear and controlgear - Part 5-1. Control circuit electrical and switching elements - GB/T 14048.5-2008.

Electromechanical control circuit appliances (IEC 60947-5-1.:2003, MOD);

Safety parts for safety control systems - Part 2. Confirmation (ISO 13849-2.

2012, IDT);

Electromagnetic compatibility (EMC) - Test and measurement techniques - Electrostatic discharge immunity test (IEC 61000-4-2.

2001, IDT);

GB/T 17626.3-2006 Electromagnetic compatibility test and measurement technology Radio frequency electromagnetic field radiation immunity test (IEC 61000-4-3.:2002, IDT);

GB/T 17626.4-2008 Electromagnetic compatibility test and measurement technology Electrical fast transient burst immunity test (IEC 61000-4-4.:2004, IDT);

GB/T 17626.5-2008 Electromagnetic compatibility test and measurement technology Surge (impact) immunity test (IEC 61000-4-5.:2005, IDT);

GB/T 17626.6-2008 Electromagnetic compatibility test and measurement techniques Radio frequency field sensing conducted disturbance immunity (IEC 61000-4-6.:2006, IDT);

GB/T 17799.2-2003 Electromagnetic compatibility - General standards - Immunity test in industrial environments (IEC 61000-6-2.

1999, IDT).

This part of the National Machinery Safety Standardization Technical Committee (SAC/TC208) proposed and centralized.

This part of the drafting unit. Rugao Packaging Food Machinery Co., Ltd., in the machine productivity promotion center, the national machine tool quality supervision and inspection Xin, Nanjing Forestry University Institute of optical and electrical engineering, Nanjing Light Machine Packaging Machinery Co., Ltd., Siemens (China) Co., Ltd. Fujian Fujian Rotary Technology Co., Ltd., China Standardization Research Institute, Omron Automation (China) Co., Ltd.

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This part of the previous version of the standard to replace the release of the situation.

--- GB/T 17454.3-2008.

Introduction

The mechanical safety standards are structured as follows.

- Class A standard (basic safety standard), given the basic concepts, design principles and general characteristics applicable to all machinery;
- Class B standard (general safety standard), a safety feature involving a mechanical or a wider range of safety devices.
- Class B1, specific safety features (eg safety distance, surface temperature, noise) standard;
- B2 class, safety devices (such as two-hand control device, interlock device, pressure-sensitive devices, protective devices) standard.
- Class C standards (mechanical product safety standards) that specify a detailed safety requirement for a particular machine or group of machines.

According to GB/T 15706, this part belongs to class B2 standard.

This section relates in particular to the following trade safety-related stakeholders.

- machine manufacturer;
- health and safety institutions.

Other stakeholders affected by the level of mechanical safety are.

- machine use personnel;

- machine owner;
- service provider;
- consumers (for machines intended for use by consumers).

All of these stakeholders are likely to participate in the drafting of this section.

In addition, this part is intended for the standardization of institutions for the drafting of Class C standards.

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

For machines that are designed and manufactured in accordance with Category C standards within the scope of Class C standards, the requirements in Class C standards are preferred.

Many different methods can achieve mechanical safety protection (see GB/T 15076-2012,3.21). These methods include by setting Physical barrier Prevents access to hazardous areas (eg GB/T 18831 interlocking guards, or GB/T 8196 Fixed protective devices), protective devices (for example. GB/T 19436.1 in line with the protection of electrical equipment, or in line with this part of the pressure-sensitive protective equipment Set).

Designers of Class C standards and designers of machinery/equipment are considered to be considered when considering the required level of safety through the best route Use and risk assessment (see GB/T 15076).

The solution required is probably to consider several of these methods, so before deciding which security guards are to be selected, it is advisable for the suppliers and users of the machinery/equipment to carefully examine the risks and limitations.

Pressure-sensitive protection devices are widely used in extreme load, electrical, physical and chemical environments and other related conditions. If the pressure sensitive device is Driven by the interface and the machine controller connected to ensure that the machine back to a safe state.

This part is limited to the design of pressure sensitive protection devices. In this way, the machine manufacturer carries out the risk assessment and/or the relevant C standard (eg If applicable), it is possible to use a pressure-sensitive protection device.

This section does not specify the size and structure of the sensitive area of the pressure sensitive device associated with any particular application. However, any security guard is required the device manufacturer provides sufficient information to allow the user (ie the machine manufacturer and/or the user) to make provision for adequate arrangements.

The driving force of the pressure-sensitive protective device specified in this part is based