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

GB/T 17454.1-2017

Replacing GB/T 17454.1-2008

**Safety of machinery -- Pressure-sensitive protective devices --
Part 1: General principles for design and testing of
pressure-sensitive mats and pressure sensitive floors
(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 1 of GB/T 17454.

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

Replacement of GB/T 17454.1-2008 "Mechanical safety pressure sensitive protection devices Part 1. Design of pressure sensitive and pressure sensitive floors General Test and Test ". Compared with GB/T 17454.1-2008, in addition to editorial changes to the main technical changes are as follows.

- a requirement to increase the performance level (PL) of the control system (see 4.15, 2008 version 4.15);
- a test of the performance level (PL) added to the control system (see 7.17, 7.17 of the 2008 edition).

This part uses the translation method equivalent to ISO 13856-1:2013 "Mechanical safety pressure sensitive protection device Part 1. Pressure sensitive pad and pressure Guidelines for the design and testing of sensitive floors "(English version).

This section makes the following editorial changes.

--- modified the editorial errors in international standards. The reference to ISO 13849-1:2006, 5.4 in International Standard 4.7.3 should be ISO 13849-1:2006, 5.2.2, it will be modified to the corresponding GB/T 16855.1-2008,5.2.2;

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);

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);

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

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

1999, IDT);

--- GB/T 19876-2012 Mechanical safety and positioning of safety devices related to human body proximity speed (ISO 13855.:2010, IDT).

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

This part of the drafting unit. in the machine productivity promotion center, the State Machine Tool Quality Supervision and Inspection Center, Nanjing Light Machine Packaging Machinery Co., Ltd., Nanjing Forestry University Institute of Optoelectronics Engineering Research Institute, Siemens (China) Co., Ltd., Fujian Province Min spin Technology Co., Ltd., Omron (China) Co., Ltd., China Standardization Research Institute.

This part of the main drafters. Li Qin, Chen Nengyu, Zhao Qinzhi, Ju Ronghua, Li Liyan, Zhang Xiaofei, Zhang Tianqiang, Chu Weizhong, Cheng Hongbing, Liu Zhiyong, Zhu Bin, Luo Guang, Liu Xia, Chen Genming.

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

--- GB/T 17454.1-1998, GB/T 17454.1-2008.

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 barriers to prevent access to dangerous areas of the protective device (for example. meet the GB 18831 interlock protection device, or in line with GB/T 8196 solid (For example, GB/T 19436.1) or a pressure-sensitive protective device that complies with this part).

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. They pass through the interface