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NATIONAL STANDARD OF THE

PEOPLE'S REPUBLIC OF CHINA

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GB/T 4208-2017 / IEC 60529:2013

Replacing GB/T 4208-2008

Degrees of protection provided by enclosures (IP code)

外壳防护等级（IP 代码）

(IEC 60529:2013, IDT)

[Including Amendment 1 -- 2024XG1]

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Issued by: General Administration of Quality Supervision, Inspection and Quarantine of the People's Republic of China;

Standardization Administration of the People's Republic of China.

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Foreword

This Standard was drafted in accordance with the rules given GB/T 1.1-2009.

This Standard replaces GB/T 4208-2008 “Degrees of protection provided by enclosures (IP code)”. Compared with GB/T 4208-2008 “Degrees of protection provided by enclosures (IP code)”, the main technical changes except for editorial modifications are as follows:

- 4.1, add second characteristic numeral 9 in the arrangement of the IP code;
- 4.2, add the meaning of second characteristic numeral 9;
- 4.3, add the example of 3 markings, i.e., IPX5/IPX7/IPX9, on the enclosure;
- Clause 6, revise the range of application when second characteristic numeral is higher than 6;
- Table 8, add test means and main test conditions for the test for protection against water of second characteristic numeral 9;
- 14.2.9, add test for second characteristic numeral 9: water jetting;
- ADD Figure 7 -- Dimensions of sector nozzle;
- ADD Figure 8 -- Dimensions of sector nozzle hole for test;
- ADD Figure 9 -- Example of sector nozzle with different surface smoothness;
- ADD Figure 10 -- Device to measure impact force of water jets and protection against IPX9 high-temperature/high-pressure water jets;
- ADD Figure 11 -- Distribution of impact force;
- ADD Figure 12 -- Test to verify IPX9 degree of protection provided by small enclosures against high-temperature/high-pressure water jets;
- ADD B.25 in Annex B.

This Standard uses the translation method to be identical with IEC 60529:2013 “Degrees of protection provided by enclosures (IP code)” (English version).

The documents of China that are consistent with the corresponding international documents that are normative references in this Standard are as follows:

- GB/T 311.2-2013 Insulation co-ordination - Part 2: Application guide (IEC 60071-2:1996, MOD)

- GB/T 2900.71-2008 Electrotechnical terminology - Electrical installations (IEC 60050-826:2004, IDT)

- GB/T 2900.73-2008 Electrotechnical terminology - Earthing and protection against electric shock (IEC 60050-195:1998, MOD)

This Standard is proposed and shall be under the jurisdiction of National Technical Committee on Electrical Safety of Standardization Administration of China (SAC/TC 25).

Main drafting organizations of this Standard: Machinery Industry Beijing Electrotechnical Institute of Economic Research, Hangzhou Zhijiang Switch Co., Ltd., Shanghai Electric Tool Research Institute, Vkan Certification &Testing Co., Ltd., Suzhou Electrical Equipment Testing Institute Co., Ltd., Shanghai Testing Institute of Electrical Equipment, Guangdong Product Quality Supervision and Inspection Institute, Dongguan Guang'an Electric Testing Center Co., Ltd., Zhejiang Chint Electric Co., Ltd., Dongguan Kexiang Test Equipment Co., Ltd., Tianshui 213 Electrical Apparatus Co., Ltd., Beijing ABB Low Voltage Electrical Apparatus Co., Ltd., Nanjing Mennekes Electric Co., Ltd., Schneider Electric (Shanghai) Co., Ltd., Beijing Top Electric Co., Ltd.

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The historical versions of the standard replaced by this Standard are as follows:

- GB 4208-1984, GB 4208-1993, GB/T 4208-2008.

Degrees of protection provided by enclosures (IP code)

1 Scope

This Standard applies to the classification of degrees of protection provided by enclosures for electrical equipment with a rated voltage not exceeding 72.5 kV.

The object of this Standard is to give:

a) Definitions for degrees of protection provided by enclosures of electrical equipment as regards:

   1) protection of persons against access to hazardous parts inside the enclosure;

   2) protection of the equipment inside the enclosure against ingress of solid foreign objects;

   3) protection of the equipment inside the enclosure against harmful effects due to the ingress of water.

b) Designations for these degrees of protection.

c) Requirements for each designation.

d) Tests to be performed to verify that the enclosure meets the requirements of this Standard.

It will remain the responsibility of product standard to decide on the extent and manner in which, the classification is used in their standards and to define “enclosure” as it applies to their equipment. However, it is recommended that for a given classification the tests do not differ from those specified in this Standard. If necessary, complementary requirements may be included in the relevant product standard. A guide for the details to be specified in relevant product standards is given in annex B.

For a particular type of equipment, a product standard may specify different requirements provided that at least the same level of safety is ensured.

This Standard deals only with enclosures that are in all other respects suitable for their intended use as specified in the relevant product standard and which, from the point of view of materials and workmanship, ensure that the claimed degrees of protection are maintained under the normal conditions of use.

IPXXC - omitting both characteristic numerals, using additional letter;

IPX1C - omitting first characteristic numeral, using additional letter;

IP3XD - omitting second characteristic numeral, using additional letter;

IP23S - using supplementary letter;

IP21CM - using additional letter and supplementary letter;

IPX5/IPX7/IPX9 - giving 3 markings on the enclosure (indicating that it meets the requirements of three different degrees of protection against water jets, temporary immersion and high-temperature/high-pressure water jets).

5 Degrees of protection against access to hazardous parts and against solid foreign objects indicated by the first characteristic numeral

The designation with a first characteristic numeral implies that conditions stated in both 5.1 and 5.2 are met.

The first characteristic numeral indicates that:

the enclosure provides protection of persons against access to hazardous parts by preventing or limiting the ingress of a part of the human body or an object held by a person;

the enclosure provides protection of equipment against the ingress of solid foreign objects.

An enclosure shall only be designated with a stated degree of protection indicated by the first characteristic numeral if it also complies with all lower degrees of protection.

However, the tests establishing compliance with any one of the lower degrees of protection need not necessarily be carried out provided that these tests would obviously be met if applied.

5.1 Protection against access to hazardous parts

Table 1 gives brief descriptions and definitions for the degrees of protection against access to hazardous parts.

Degrees of protection listed in this table shall be specified only by the first characteristic numeral and not by reference to the brief description or definition.

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