

ICS 29.160.01

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

中华人民共和国国家标准

GB/T 4942.1-2006/IEC 60034-5: 2000

Replace GB/T 4942.1-2001

**Degrees of protection provided by the integral design of
rotating electrical machined (IP code)—Classification**

旋转电机整体结构的防护

等级（IP 代码） 分级

(IEC 60034-5: 2000, Rotating electrical machines. Degrees of protection provided by the integral design of rotating electrical machines (IP code). Classification IDT)

Issued on March 06, 2006

Implemented on August 01, 2006

**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

We adopt IEC 60034-5: 2000 *Degrees of Protection Provided by the Integral Design of Rotating Electrical Machined (IP Code)* —*Classification* and the modification about Figure 5 in No. 1 Corrigendum published by IEC in June 2001 in this part. The modification about Figure 6 in the Corrigendum isn't adopted, namely the straight length of nozzle outlet is still 8mm to be consistent with the effective *IEC 60529 Degrees of Protection Provided by Enclosure (IP Code)* in current.

The contents in this part constitute the modification to GB/T 4942.1- 2001, and will replace it since the implementation date. Compared with GB/T 4942.1- 2001, the main changes of the technical contents in the Standard include:

- a) The title of the Standard is changed from *Classification of Degrees of Protection Provided by Enclosures of Rotating Electrical Machines (IP Code)* to *Degrees of Protection Provided by the Integral Design of Rotating Electrical Machined (IP Code)*.
- b) The Chapter 3-“Purpose” is incorporated into Chapter 1-“Range”; correspondingly, the serial number after Chapter 2 shall subtract “1” in the GB/T 4942.1- 2001.
- c) The first characterization number increases “6 dust security classification protection grade”.
- d) Add protection grade test and acceptance condition with the first characterization number as 6.

This part is proposed by China Electrical Equipment Industry Association.

This part is under the jurisdiction of National Technical Committee 26 on Electric Rotating Machinery of Standardization Administration of China (SAC/TC26).

This part is drafted by Shanghai Electrical Apparatus Research Institute (Group) Co., Ltd. and other units like Harbin Institute of Large Electrical Machinery, Qinhuangdao Huaye Motor Co., Ltd., Zhejiang Testing Inspection Institute for Mechanical and Electrical Products Quality, Zhejiang Jinlong Motor Limited by Share Ltd., Shandong Qilu Motor Manufacturing Co., Ltd., Testing Center of China Coal Research Institute CCRI Shanghai Branch, Jiangsu Yuan Dong Electric Motor Manufacturing Co., Ltd., Jiangsu Beide

Electrical Motor Co., Ltd. and Huai'an Weiling Qingjiang Electrical Motor Manufacturing Co., Ltd.

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Being firstly published in 1985, this part was revised in 2001 for the first time and revised for the second time hereby.

Degrees of protection provided by the integral design of rotating electrical machines (IP code)—Classification

1 Scope and object

This International Standard applies to the classification of degrees of protection provided by enclosures for rotating electrical machines. It defines the requirements for protective enclosures that are in all other respects suitable for their intended use and which, from the point of view of materials and workmanship, ensure that the properties dealt with in this standard are maintained under normal conditions of use.

This standard does not specify:

- degrees of protection against mechanical damage of the machine, or conditions such as moisture (produced for example by condensation), corrosive dust and vapour, fungus or vermin;
- types of protection of machines for use in a potentially explosive (dust, vapour) environment.

In certain applications (such as agricultural or domestic appliances), more extensive precautions against accidental or deliberate contact may be specified.

This standard gives definitions for standard degrees of protection provided by enclosures applicable to rotating electrical machines as regards the:

- a) protection of persons against contacts with or approach to live parts and against contact with moving parts (other than smooth rotating shafts and the like) inside the enclosure and protection of the machine against ingress of solid foreign objects;
- b) protection of machines against the harmful effects due to ingress of water.

It gives designations for these protective degrees and tests to be performed to check that the machines meet the requirements of this standard.

2 Normative References

The articles contained in the following documents have become this standard when they are quoted herein. For the dated documents so quoted, all the modifications (excluding corrections) or revisions made thereafter shall not be applicable to this Standard. For the undated documents so quoted, the latest editions shall be applicable to this Standard.

GB 755-2000 Rotating electrical machines - Rating and performance (IEC 60034-1: 1996, IDT)

GB/T 1993-1993 Cooling methods for rotating electrical machines (eqv IEC 60034-6: 1991)

3 Designation

The designation used for the degree of protection consists of the letters IP followed by two characteristic numerals signifying conformity with the conditions indicated in the tables of clauses 4 and 5 respectively.

3.1 Single characteristic numeral

When it is required to indicate a degree of protection by only one characteristic numeral, the omitted numeral shall be replaced by the letter X, for example IPX5 or IP2X.

3.2 Supplementary letters

Additional information may be indicated by a supplementary letter following the second characteristic numeral. If more than one letter is used, the alphabetic sequence shall apply.

3.2.1 In special applications (such as machines with open circuit cooling for ship deck installation with air inlet and outlet openings closed during standstill), numerals may be followed by a letter indicating whether the protection against harmful effects due to ingress of water was verified or tested for the machine not running (letter S) or the machine running (letter M). In this case, the degree of protection in either state of the machine shall be indicated, for example IP55S/IP20M.



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