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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 10068–2008/IEC 60034-14: 2007

Replace GB 10068–2000

**Mechanical vibration of certain machines with shaft
heights 56 mm and higher—measurement evaluation
and limits of vibration severity**

轴中心高为 56 mm 及以上电机的机械振动

振动的测量、评定及限值

(IEC 60034-14: 2007, IDT)

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China**

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Foreword

Clause 8 and 9 of this Standard are mandatory, the rest are recommendatory.

This Standard is identical to IEC 60034-14: 2007 Rotating electrical machines – Part 14: Mechanical vibration of certain machines with shaft heights 56 mm and higher - Measurement, evaluation and limits of vibration severity (English version, Edition 3)

This Standard will replace GB 10068-2000, comparison with GB 10068-2000, main changes of this Standard are as follows:

- In the range of application stipulated in Chapter I, the range of revolving speed is enlarged from 600 r/min~ 3600 r/min to 120 r/min~ 15000 /min;
- Stipulation on the place of rigid mounting measuring point of vertically-mounted motor is added.
- Stipulation on test of variable frequency drive motor is added.
- Vibration strength limit is changed from “only testing the vibration velocity” to “testing the vibration displacement, the vibration velocity and vibration acceleration”. Vibration strength is changed from three levels of N, R and S to two levels of A and B.
- For 600 r/min~ 3600 r/min motors, in the check test, only measure the vibration velocity.
- In Table 1, the vibration strength is changed from three levels of N, R and S to two levels of A and B. Test the vibration displacement, the vibration velocity and vibration acceleration. Moreover, limit of the vibration velocity is modified. The standard is lifted.
- In Table 2, relative rotation of the spindle and the limit of maximum radical runout are modified.

This Standard is proposed by China Electrical Equipment Industry Association.

This Standard is under the jurisdiction of National Technical Committee 26 on Electric

Mechanical vibration of certain machines with shaft heights 56 mm and higher—measurement evaluation and limits of vibration severity

1 Scope

This Standard specifies the factory acceptance vibration test procedures and vibration limits for certain electrical machines under specified conditions, when uncoupled from any load or prime mover.

This Standard is applicable to d.c. and three-phase a.c. machines, with shaft heights 56 mm and higher and a rated output up to 50 MW, at operational speeds from 120 r/min up to and including 15 000 r/min.

This standard is not applicable to machines mounted in situ, three-phase commutator motors, single-phase machines, three-phase machines operated on single-phase systems, vertical waterpower generators, turbine generators greater than 20 MW and machines with magnetic bearings or series-wound machines.

NOTE For machines measured in situ refer to applicable parts of ISO 10816 and ISO 7919.

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 755-2008 Rotating electrical machines - Part 1: Rating and performance (IEC 60034-1: 2004, IDT)

GB/T 997 Rotating electrical machines - Part 7: Classification of types of construction, mounting arrangements and terminal box position (IM Code) (GB/T 997-2008, IEC 60034-7: 2001, IDT)

ISO 2954 Mechanical vibration of rotating and reciprocating machinery - Requirements for instruments for measuring vibration severity

ISO 7919-1 Mechanical vibration of non-reciprocating machines - Measurements on rotating shafts and evaluation criteria - Part 1: General guidelines

ISO 8821 Mechanical vibration - Balancing - Shaft and fitment key convention

ISO 10816-1 Mechanical vibration -- Evaluation of machine vibration by measurements on non-rotating parts -- Part 1: General guidelines

ISO 10816-3 Mechanical vibration. Evaluation of machine vibration by measurements on non-rotating parts Industrial machines with nominal power above 15 kW and nominal speeds between 120 r/min and 15000 r/min when measured in situ

ISO 10817-1, Rotating shaft vibration measuring systems - Part 1: Relative and absolute sensing of radial vibration from rotating shafts

3 Terms and definitions

For the purposes of this document, the terms and definitions given in the normative references listed in Clause 2 apply.

4 Measurement quantities

4.1 General

Measurement quantities are the vibration displacement, vibration velocity and vibration acceleration at the machine bearings and the relative shaft vibration displacement within or near to the machine bearings.

4.2 Vibration magnitude

The criterion for the vibration magnitude at the machine bearings shall be the broadband r.m.s. value of the vibration displacement in micrometres, the vibration velocity in millimetres per second and the vibration acceleration in meters per second squared in the frequency range specified in Clause 5. The greatest value, determined at the prescribed measurement positions, according to this standard, characterizes the vibration magnitude

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