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

GB/T 6075.4-2015

Replacing GB/T 6075.4-2001

**Mechanical vibration -- Evaluation of machine vibration by
measurements on non-rotating parts -- Part 4: Gas turbine sets
with fluid-film bearings**

机械振动 在非旋转部件上测量评价机器的振动 第4部分：具有滑动轴承的燃气轮
机组

(English Translation)

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Foreword

GB/T 6075 "Mechanical vibration Evaluation of machine vibration measurements on non-rotating member" is divided into seven sections.

--- Part 1. General;

--- Part 2. more than 50MW of power, rated speed 1500r/min, 1800r/min, 3000r/min, 3600r/min Lu Mounted turbine and generator;

--- Part 3. rated power above 15kW rated speed in 120r/min to 15000r/min between field measurements Industrial machinery;

--- Part 4. Gas turbine sets with a sliding bearing;

--- Part 5. hydroelectric and pumping plants;

--- Part 6. Reciprocating machines with power more than 100kW of;

--- Part 7. rotary power pumps for industrial applications (including measurements on rotating shafts).

This part of GB/T 46075 Part of.

This section drafted in accordance with GB/T 1.1-2009 given rules.

This Part replaces GB/T 6075.4-2001 "Measurement and Evaluation of the machine on the non-rotating member of the mechanical vibration - Part 4. Does not include Class aircraft gas turbine drive. " this section compared with the GB/T 6074.4-2001, the main modifications are as follows.

- Modify the standard name from the original "Measurement and evaluation of the machine on a non-rotating member of the mechanical vibration - Part 4. Does not include Gas turbine driven aircraft class "to" mechanical vibration measurement Evaluation of machine vibration on non-rotating member of the 4th Parts. a gas turbine having a bearing";
- Increased before the gas turbine installation by the supplier and the user agreed to acceptance;
- Increase in the transient operating conditions of the gas turbine vibration evaluation;
- Increase on a constant vibration velocity criteria at low speed warning (see Appendix C);
- Modify the requirement to use a different zone boundary value example (see 4.2.2.4);
- When the new machine does not have to establish an effective baseline data, recommended its alarm stationary operation under normal operating speed should not exceed area Boundary B/C (see 4.2.3.2);
- Increasing the stop value is set in relation to a second alarm (see 4.2.3.3);
- Increasing the unsteady conditions of vibration values (transient operation) during the "Shutdown amplification factor" concept, built in steady conditions Before legislation, it will automatically enhance the "alarm" and "Stop value" (see 4.2.4); the use of "stop amplification factor", 4.2.4.4 to do a more detailed description;
- Redefined the acceleration, deceleration and vibration values (speeding period, and by deleting the previous version in Figure 2 (see 4.2.4.3);
- Modify the previous edition of "vibration amplitude" translation many will read "vibration magnitude." 2009 "Mechanical vibration measurement and evaluation of the machine vibration on non-rotating parts. This section uses the translation method using equivalent ISO 10816-4 Part 4. Gas turbine sets with a sliding bearing. " Consistency correspondence between this part of international documents and normative references of our files are as follows.
- GB/T 11348.4-20 xx evaluation of mechanical vibration in rotating machinery vibration measurement - Part 4 axis. a slide Bearing gas turbine (ISO 7919-4:2009, IDT) this part of the National mechanical vibration, shock and condition monitoring Standardization Technical Committee (SAC/TC53) and focal points.

This section is drafted. Nanjing Turbine & Electric Machinery (Group) Co., Ltd., Zhengzhou Machinery Research Institute, Hubei Electric Power Research Institute, Southeast University, Dongfang Electric Group, Dongfang Electrical Machinery Co., Ltd., Hangzhou Steam Turbine Co., Ltd.

Introduction

GB/T 6075.1 is GB/T 6075 basic technical document, which sets out a non-rotating parts vibration measurement and evaluation of different types of machines General requirements for moving. GB/T 6075 gives this part of the vibration intensity in a gas turbine bearing housing or supporting base measurement evaluation Specific provisions. Characterization of the vibrational state can be measured quite well in these positions. Evaluation criteria on the basis of past experience, the Director may make Machine for the evaluation of such vibrational state guidelines.

In the steady state running conditions, the provisions of the two criteria evaluation of machine vibration. The first criterion to consider is the measured vibration magnitude; s Changes in these two criteria are vibration magnitude. In addition, transient operating conditions provides different criteria. However, the vibration on non-rotating member Move is not the sole basis for evaluation of machine vibration intensity. For gas turbines, it is usually based measurement and evaluation of vibration in rotating shaft; rotating shaft Vibration measurement and evaluation requirements see ISO 7919-1 and ISO 7919-4.

Evaluation method proposed in this section is based on broadband measurements. However, due to the use of technological progress, or narrow-band spectrum analysis measurements increasingly the more common, especially for vibration evaluation, condition monitoring and diagnostics. Guidelines for the evaluation of these measurements is beyond the scope of this section, it They machine vibration condition monitoring in the ISO 13373 standard in detail (all parts) in.

Measurement and evaluation of mechanical vibration on non-rotating member Machine vibration - Part 4. having a sliding bearing the gas turbine

1 Scope

GB/T 6075 provisions of this part of the site evaluation machine vibration intensity for all main bearing housing or bearing shaft diameter to (ie, transverse) and thrust bearing broadband axial vibration measurements. They include.

- Normal steady-state operating conditions of vibration;
- Transients (including the raising speed or deceleration, plus initial load and load changes) when the other (non-steady-state) conditions during vibration;
- Vibrations occur during normal steady state operation of the change.

This section applies to normal operating speed range at 3000r/min ~ 30000r/min, the output power is greater than 3MW, with a sliding shaft Order of the power generation and mechanical drive with a heavy-duty gas turbines, gas turbine connected directly or through a gearbox rotating equipment. In a Under some circumstances, this section does not apply

to the evaluation of vibration gas turbine connected to other devices.

For example. A single shaft combined cycle units, gas turbines and steam turbines and generators connected together, the gas turbine vibration evaluate the use of this section, the evaluation steamed Vibration generator and turbine respectively using GB/T 6075.1 and ISO 10816-3.

This section does not apply to the vibration of the following devices.

a) aviation turbine variants (including aviation gas turbine power variants with similar characteristics of the gas turbine);

NOTE: ISO 3977-3 defines the unit for the Air variant air power generator for mechanical power, or marine power generation equipment. Heavy duty gas turbine the main difference lies in aviation turbine cylinder variants flexible, bearing design, rotor and stator, and the mass ratio of the mounting structure. therefore, these two types of gas turbine suitable for different vibration evaluation criteria.

b) less than or equal to the output power of 3MW turbine (see ISO 10816-3);

c) gas turbine-driven pumps (see ISO 10816-7);

d) and (or) gas turbine connected to an output power less than or equal to 50MW steam turbine and generator (see ISO 10816-3);

e) and (or) gas turbine connected to an output power greater than 50MW steam turbine and generator (see ISO 10816-2);

f) connecting the gas turbine and a steam turbine or generator synchronized clutch (see ISO 10816-2);

g) driven compressor (see ISO 10816-3);

h) the gearbox;

i) Rolling.

This section applies to other drive means than the equipment listed above.

This section applies to other machines connected through a gearbox, but not against the gear evaluate the vibration condition. Gear vibration Evaluation requires special technical requirements beyond the scope of this section.

Values specified in this section is not the sole basis for evaluation of vibration intensity. For gas turbines, usually with a vibration of the rotating shaft Evaluated. These vibration measurement requirements see ISO 7919-1 and ISO 7919-4.