VIBRATION DIAGNOSTICS OF
NONSTANDARD DYNAMIC EQUIPMENT

Description
A set of original procedures and know-how for vibration diagnostics of nonstandard dynamic machines and mechanisms includes:

- traditional spectral analysis of vibration produced by dynamic equipment of any design (by existing and original flaw detection systems);
- reconstruction of rotor precession from indirect measurements of vibrations on friction bearings;
- wavelet analysis of percussions in frictionless bearings.

Nonstandard are machines without reliable serviceability standards and flaw detection systems, such as

- important and complex equipment available in single number;
- machines of new series and constructions;
- new or worn out machines;
- machines of mass production used in off-standard environments.

The method has been successfully tested on various power (turbogenerators, pumps, ventilators) and chemical (turbocompressors) devices and proved a high reliability of maintenance check.

Technical appraisal and economic benefits
The method has no analogs in the world vibration diagnostic practice. It provides:

- detailed information on the features of any specific equipment;
- broader opportunities for the development of vibration standards for new equipment;
- possibilities for advanced certification of complex and dangerous equipment;
- time and labor saving in statistical data acquisition and processing.

Application areas
Industrial factories requiring diagnostic assistance and certification of complex and dangerous equipment; producers of hard- and software for vibration diagnostics.

Development stage
The method is now broadly used by the Center of Vibration Diagnostics "VIDIA" (Kemerovo) to assess the maintenance and remaining life of the dynamic equipment in the Kemerovo region (enterprise “Kuzbassenergo”, plant “Azot”, purification structures, colliery “Chernigovets”, etc.)

Patent situation
Some diagnostic algorithms and flaw detection systems may pretend to a “know-how” status.

Commercial offers
- consultancy;
- diagnostics of complex and dangerous industrial equipment;
- certification;
- development of standards for vibration and flaw detection in dynamic equipment;
- staff training programs on vibration diagnostics;
- development of applied software and automated expert systems for vibration diagnostics.

Estimated cost
Under the contract.

Contacts
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