

2000 **DIAMECH**

Vibration Diagnostics and Balancing Machines



Rolling Element Bearing Testing Machine SP-180M

Designed for validation of design data of rolling element bearings through actual testing at application loads and speeds by vibration characteristics, also allows to detect defects in the rolling surface, the separator and the geometric distortion of rolling element bearings.



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The measurement results are in line with the bearing vibration assessment on related national technical criteria and are helpful to diagnose the quality of the measured bearing.

Function

The system is designed to control the quality of the bearing in terms of vibrational characteristics. It is also capable of defects detecting, which appear at rolling surfaces and separator and geometrical errors both at brand-new and repaired bearings. The system may be used either at manufacturers or consumers of bearings. Using the SP-180M systems guarantees high quality of assembled bearings.

Parts of the system

The SP-180M systems consists of the drive system and measuring-controlling unit. Drive system automatically allows to provide a grip, centering, rotation and creation of axis and radial load to the bearing.

Measuring-controlling system operates the rotation of the drive, loading devices, measures and analyses the vibration, providing the qualitative and quantitative evaluation of bearing technical condition according to the requirements, set by the documents of the consumer or manufacturer.

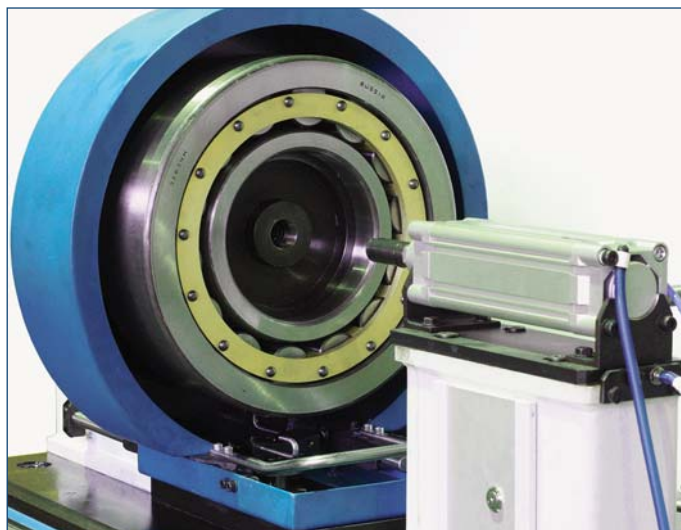


Bearing diagnosis with bore diameter 25 - 220 mm.
24 adapters for bearings with bore diameter 30-180 mm included in standard kit and 4 adapters for bearings with bore diameter 190-220 mm optional

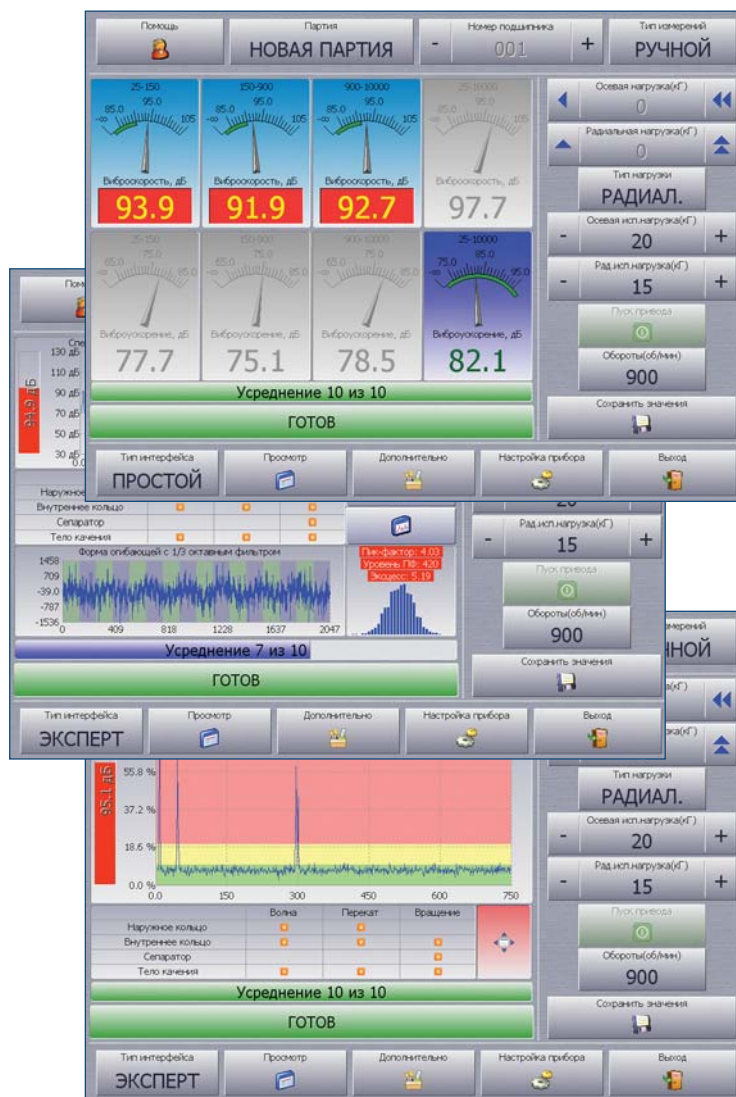
Type of bearings for diagnosis

Type of bearings	Radial load	Axial load
Deep groove ball bearing (DGBB) (single and double row)	—	+
Self aligning ball bearing (SABB)	+	—
Angular contact ball bearing (ACBB)	+	+
Roller bearing with cylindrical rollers (single and double row)	+	—
Spherical roller bearing (SRB)	+	+
Roller bearing with conical rollers	+	+

- Fully automatic control of the measurement process
- Measurement of the separator rotation frequency with automatic data transfer to measuring instrument:
- Temperature control spindle with automatic shut-off spindle when it is overheating:
- Stethoscope function:
- Automatic self-test



Bearing diagnosis with outer diameter up to 420 mm



Measuring unit

These equipments have low band, medium band and high band vibration measuring facility, which enables to identify the control of quality parameters of various bearing components.

Measuring unit provides automated control of vibration parameters of the tested bearing, forms the protocols of the tests and stores them. Results of the measurements are displayed in both analogue and digital way at the touch-screen. According to the result, the evaluation is provided – “Normal” or “Failure”.

- Automatic control of the rotary drive of the bearing.
- Automatic control of the magnitude and type of test loads.
- Vibration measurement in accordance with ISO 15242
- In-depth diagnostics mode, which uses analysis functions: direct spectra of velocity and acceleration, envelope spectrum, the peak factor, kurtosis, 1/3 octave filters.

Using these functions it is possible to determine the geometric defects, leading to increased vibration: waviness of bodies and the raceways, the high roughness of the contactee of the rolling contact surfaces, the defect separator, etc.

- Statistical processing of measurement results, the formation of acceptable levels of vibration on party tested bearings.
- Reports in MS Word format
- Built-in database of bearings with the rules of manufacturers (Russian). Saving of measurement results in the database for archiving, analysis and report creation.
- English software



TECHNICAL PARAMETERS

Bearing bore diameter	25 ... 220 mm
Bearing outer diameter:	40 ... 420 mm
Bearing width:	4 ... 125 mm
Measuring sensors:	1 — vibration sensor 1 — speed sensor 1 — sensor for measuring the rotational speed of the separator
Frequency range of the vibration sensor:	5 ... 10000 Hz
Bearing rotation speed	0 ... 3000 rev/min
Load range Axial: Radial:	0 ... 2800 N 0 ... 2800 N
Load system	Pneumatic
The adjustment of the load	Automatic / Manual
Measurement of the separator rotation frequency with automatic data transfer to measuring instrument:	Yes
Temperature control spindle with automatic shut-off spindle when it is overheating:	Yes
Stethoscope function:	Yes
Automatic self-test	Yes
Bearing testing time	0.5 ... 2 min
The range of contact pressure of the vibration sensor to the tested bearing:	5 ... 100 N, adjustable
Control console	With touch-screen display
Compressed air (included portable compressor):	5 ... 9 bar
Power supply:	380 V / 50 Hz
Motor power	1,5 kW
Machine dimensions	1400 x 700 x 1800 mm
Machine weight:	400 kg

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