



Machinery Fault Simulator

Mechanical vibration fault diagnosis and testing platform

Motors, bearings, gears, motors, valves, pumps and
customization of rotating machinery simulation test system.

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PT500mini Machinery Fault Simulator

Introduction:

The P500Mini is driven directly by an ABB small three-phase asynchronous motor through a coupling, coupled with a frequency converter to adjust the speed. The adjustable magnetic powder load adds testing load to the test bench. Bearings with different types of faults can be selected to verify the frequency characteristics of bearing defects at different speeds. Fault gear testing, impeller blade testing, rotor dynamic balance testing, start stop testing, and shaft friction testing can also be conducted separately or in combination with various defects in a safe and controllable environment. As an innovative experimental platform for studying the fault characteristics of rotating machinery, it fully meets the extensive needs of teaching simulation and scientific research users.



Configuration:

The test bench is mainly composed of a three-phase asynchronous motor, a frequency converter, dual support bearings, a dynamic balancing rotor disc, impeller blades, a shaft, a single pole transmission gear set, a magnetic powder load torque adjustment mechanism, a shock-absorbing foundation base, and an adjustable magnetic powder load brake assembly.

Function:

- Fault bearing simulation: bearing inner race fault, bearing outer race fault, bearing rolling element fault, bearing cage fault, and comprehensive bearing fault.
- Gear fault simulation: missing gear, broken gear, wear, cracks.
- Blade fault simulation and rotor dynamic balancing.
- Common mechanical failures: mechanical looseness, friction, and misalignment during testing.
- Identification of bearing fault frequency at different speeds.
- Test bench start stop test.
- Research on the vibration characteristics of the test bench under different torque loads.



Basic technical parameters:

Drive motor power	ABB 370W, 220V
Axis size	Diameter 25mm, Chrome plated rust prevention
Rolling bearing	PH205 deep groove ball rolling bearing, inner diameter 25mm, integrated bearing assembly with connected seats, convenient for replacing faulty bearings
Type of faulty bearing	Inner race fault, outer race fault, cage fault, rolling element fault, comprehensive fault
Rotation adjustment range	0-3500 rpm
Size	1000mm*450mm*340mm