



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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PT650 Motor Fault Diagnosis Simulator

Introduction:

PT650 Motor Fault Diagnosis Simulator is an experimental device that simulates various motor defects and common mechanical faults on an experimental platform. It can simultaneously test electrical and mechanical faults to obtain valuable data under the same operating conditions. It is an experimental platform that can be applied to various fields, such as in-depth research on motor faults, training for vibration courses in scientific research institutions, vibration analysis research for equipment diagnostic personnel, training, and certification testing for noise and vibration engineers. It is an experimental platform that can reproduce various fault characteristics, which is essential for engineers and maintenance personnel. It is a specially designed product that is easy to analyze and learn motor faults in addition to general machine fault characteristics.



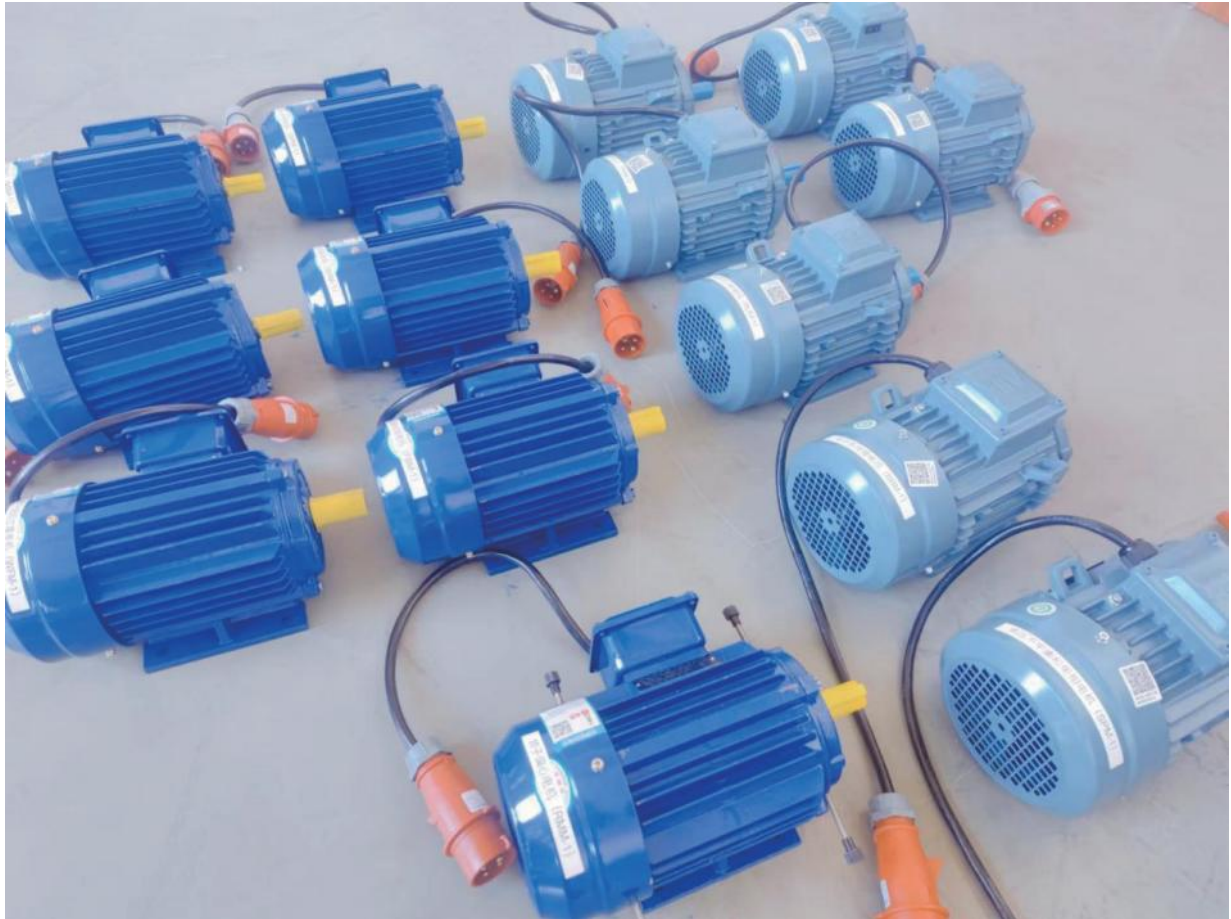
Configuration:

The PT650 Motor Fault Diagnosis Simulator mainly consists of a three-phase asynchronous motor, coupling, double support test bearing seat unit, dynamic balance correction unit, planetary gearbox, magnetic powder brake, speed regulation and display module, load display regulation module, speed pulse output module, current measurement sensor, current display unit, three-phase voltage external wire, two power drive modes of variable frequency drive and direct drive, and RUF frequency converter communication module.

Function:

- Comparison between the current signals of motors with different fault types, as well as the vibration spectrum signals, and the signals of normal motors.
- The impact of load on the vibration phenomenon of faulty motors.
- The sensitivity of different types of motor defects to vibration signals.
- Identification of interference in vibration spectrum signals in frequency converter mode.
- Identification of rotor imbalance and its impact on vibration.
- Using vibration spectrum analysis to identify bearing faults.
- Research and identification of equipment foundation looseness phenomenon.
- The impact of misalignment on equipment vibration and noise.
- Comparison of vibration signals of motors operating in different modes (direct drive and frequency converter drive);
- Learning about spectrum analysis and signal processing.

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Basic technical parameters:

Drive motor	High efficiency and energy-saving ABB three-phase AC motor, power 1.5 kW, 380V
AC Frequency Converter	Frequency range of frequency converter, 0-599Hz, rated input: 380-480V, 1.5KW
7 types of faulty motors	Rotor unbalanced AC motor (RUM-1), Rotor eccentric AC motor (RMM-1), Axial bending AC motor (BRM-1), Bearing fault AC motor (FBM-1), Rotor bar fault AC motor (BBM-1), Stator winding fault AC motor (WFM-1), Voltage imbalance and single-phase AC motor (SPM-1)
Rotational speed measurement	Using diffuse reflection laser tachometer for pulse signal acquisition
Laser signal transmitter	Power supply voltage, 12-24VDC
Speed display module	Real time numerical display, display range 0-99999, measurement accuracy error less than 0.05%
Faulty bearings	Ball bearing, PH206, inner diameter 30mm, 5 types of faults (bearing inner ring, outer ring, ball, cage, comprehensive fault)
Magnetic powder control display module	7-segment LED displays current values and loading voltage values
Size	1200mm x500mm x450mm