

Railways

L-RAIL

The Pavemetrics LRAIL™ system is an advanced 3D railway inspection solution that captures high-resolution 2D images and 3D profiles of rails, ties, and ballast in a single pass at speeds up to 120 km/h. Powered by AI-based analysis, it automatically detects and evaluates critical track components such as ties, clips, joints, switches, crossings, and rail surface wear, enabling accurate and objective condition assessment. Built on proven LCMS® technology, the LRAIL provides reliable, field-validated data that helps railway operators optimize maintenance, improve safety, and reduce operational costs.



Sleeper Testing Machine

The High-Stiffness Hydraulic Test Frame is a versatile and robust system designed for advanced static and dynamic testing, featuring a 3-point bending setup and integrated safety-protected side doors for easy specimen handling. It incorporates the EcoHydraulic system, offering improved efficiency, adaptive flow and pressure control, reduced maintenance, and lower oil consumption, along with closed-loop force and displacement control via a high-response servo valve. The system uses advanced MD5i control electronics with 24-bit resolution and 10 kHz loop frequency for highly precise test control. High-performance sensors, including a force transducer and a non-contact magnetostrictive stroke sensor, ensure accurate measurements during testing. Comprehensive safety systems, including interlocked doors, real-time alarms, and hydraulic piston locking, provide maximum operational safety and reliability.



Wheel-Rail Contact Simulation Test Rig

The high-speed wheel & rail contact simulation system is designed to analyze and measure all aspects of the wheel and rail contact surface during high-speed rotation. This system facilitates various tests including rolling contact (RCF) tests, adhesive strength tests, wear tests, etc., applicable across subway to high-speed train operations.



Rail Fatigue & Rail-Fastening Test Rig

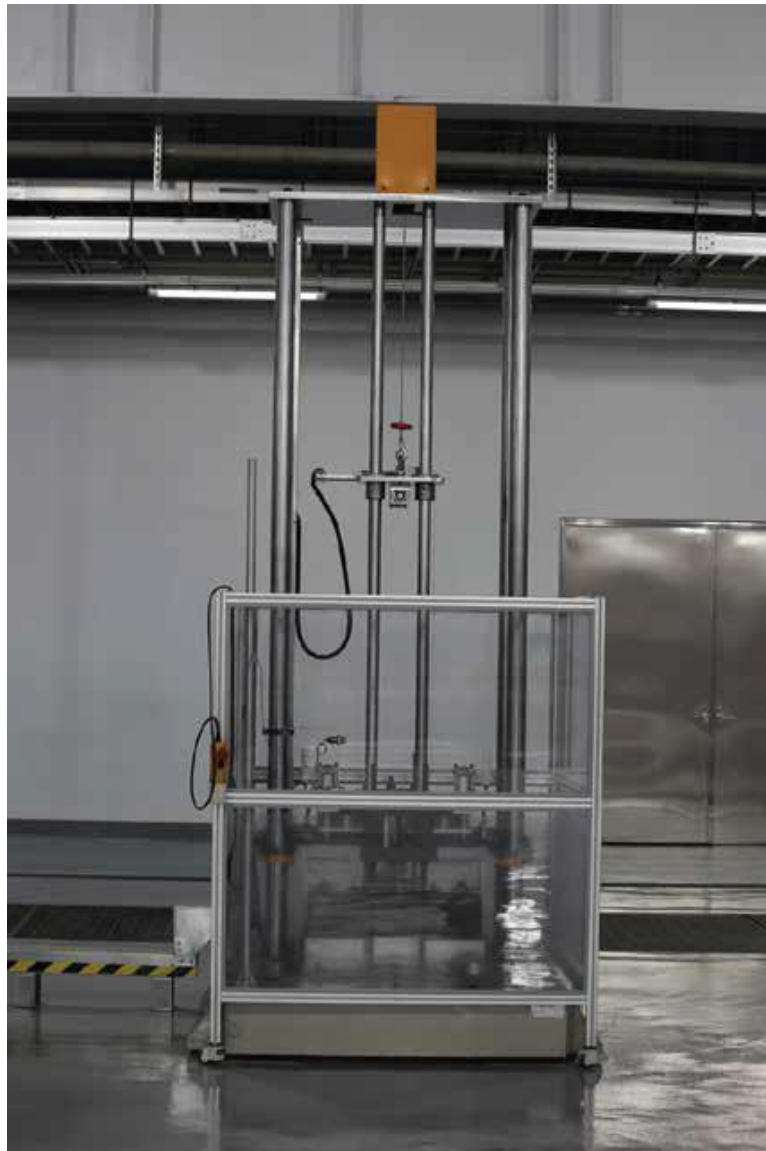
The rail fatigue & rail-fastening test rig is designed to apply loads from various angles to simulate the stresses experienced by the track during train travel. Therefore, it is necessary to design and incorporate various jigs based on the specific track products that will be tested in the future.

The testing system can perform a comprehensive range of evaluations to assess the mechanical performance and durability of rail fastening and related components. It supports longitudinal rail resistance tests, torsion resistance tests, and fatigue loading tests to determine the behavior of components under static and cyclic loading conditions. The system can also measure initial clamping force, determine stiffness characteristics, evaluate pull-out resistance, and calculate the vertical spring coefficient. These tests provide critical data for ensuring the safety, reliability, and long-term performance of rail fastening systems and other structural components.



Rail Drop Impact Test Rig

The rail drop impact test rig is primarily used to apply impact loads to the track composite base sheet, testing its impact resistance. It can also be expanded for the development and performance testing of various track components, including rails, concrete sleepers, supports, and fasteners, based on the testing processes and results of different specimen types.



Large-Scale Triaxial Test Rig

The purpose of the large-scale triaxial test rig is to obtain static and dynamic characteristics such as static strength, dynamic characteristics, and elastic modulus of assembled materials such as gravel and rock soil materials.



Six Degree of Freedom Earthquake Simulation

It is used for various civil engineering applications including fundamental research for seismic isolation of buildings and bridges, seismic qualification of components, piping systems and nuclear power facilities. The seismic test systems are used worldwide and include many different types of earthquakes shaking table configurations with specimen capacities ranging from small test articles to full scale buildings.

