

TESTING FACILITY AVAILABLE IN TRACK LABORATORY/TMM DIRECTORATE

INTRODUCTION



RDSO is the R&D organisation of Indian Railways, functioning as the technical advisor and consultant to the ministry, zonal railways & production units.

Track Machine and Monitoring Directorate is one of the 22 technical directorates of RDSO. It is equipped with a unique modern Track Laboratory having well qualified research and technical staff with static and dynamic testing facilities of track components. Track components can be tested on hard as well as ballasted deck under simulated dynamic loading condition as occurring in the field by actual rolling wheel axle set.

TESTING FACILITIES AVAILABLE IN TRACK LABORATORY

- Static and dynamic testing of track components
- Fatigue testing of track components on hard bed and ballasted bed
- Measurement of toe load for elastic fastenings
- Evaluation of stress at critical locations for track components
- Calibration of helical springs for mechanical toe load measuring device
- Verification of calibrated load cell for electronic toe load measuring device
- Creep resistance test
- Pull-out test for insert and dowels
- Calibration of Oscillation Monitoring System.
- Apart from the testing jobs, training is also imparted to staff and officers of Zonal Railways for proper inspection of ERCs to ensure quality control.

TESTING EQUIPMENTS AVAILABLE IN TRACK LABORATORY

1. RAIL TRACK PANEL FATIGUE TESTING EQUIPMENT



The main functional characteristic of this equipment is to simulate dynamic loading environment as occurring in field by a rolling wheel axle set. The equipment consists of computer controlled hydraulic pulsator system for controlled operation of actuators to generate necessary loading environment. The hydraulic system consists of hydraulic power pack, actuators, servo valves, servo blocks and data acquisition system. Dynamic loading capacity of vertical actuator is ± 250 KN. and lateral actuator is ± 100 KN. The load can be applied up to 20 Hz. Displacement range of both actuators is ± 50 mm.

Technical Feature:

- **TWO VERTICAL ACTUATORS:**
LOADING CAPACITY - ± 250 KN
DISPLACEMENT - ± 50 mm.
- **TWO LATERAL ACTUATORS:**
LOADING CAPACITY - ± 100 KN
DISPLACEMENT - ± 50 mm
FREQUENCY - UPTO 20 Hz

HYDRAULIC POWER PACK:

DELIVERY RATE - 165 lts./minute
MAX OPT. PRESSURE - 280 Bar

CONTROLLED BY PC BASED COMPUTER SYSTEM.

Uses:

- FATIGUE TESTING OF DIFFERENT TRACK COMPONENTS ON HARD BED AS WELL AS BALLASTED BED.
- DYNAMIC AND STATIC TESTING OF RAILS. WELDED JOINTS. SLEEPERS Etc.
- CALIBRATION OF OSCILLATION MONITORING SYSTEM (OMS)

2. UNIVERSAL TESTING MACHINE



● **CAPACITY:**

1. 2.0 MT Least Count – 10 Kg
2. 10.0 MT Least Count – 50 Kg
3. 20.0 MT Least Count – 100 Kg

USES:

- MEASUREMENT OF TOE-LOAD OF DIFFERENT TYPES OF ELASTIC RAIL CLIPS.
- CALIBRATION OF HELICAL SPRINGS FOR MECHANICAL TOE LOAD MEASURING DEVICE.
- VERIFICATION OF CALIBRATION OF LOAD CELLS FOR ELECTRONIC TOE LOAD MEASURING DEVICE.
- OTHER WORKS WHERE COMPRESSIVE AND TENSILE LOADING IS REQUIRED.

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