

MotoTEC

SELF-PROPELLED TROLLEY FOR TRACK GEOMETRY, RAIL WEAR, AND CORRUGATION MEASUREMENT



The trolley meets requirements of the EN 13848 - 4 standard

The MotoTEC trolley is equipped with the laser-inertial non-contact measurement system. The system measures track geometry parameters and both rail cross-section profiles, calculating the rail head wear. Corrugation measurement is performed with a contactless method using the set of sensors mounted on both sides of the trolley over both rails. A built-in GPS controller provides information on the measurement route.

Dedicated PC software delivered with the system makes it possible to carry out extensive measurement data analysis and reporting.

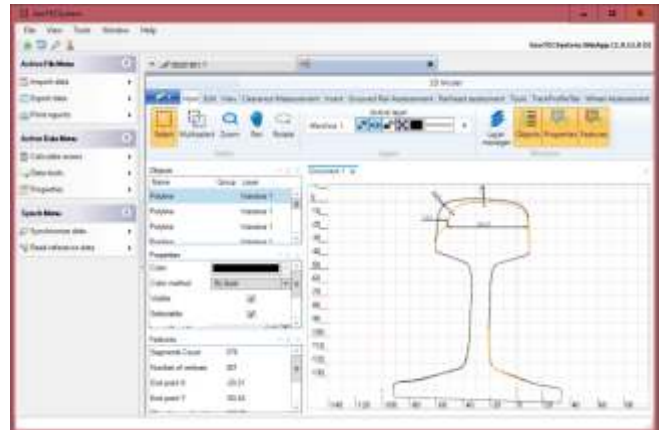
The measurement data is displayed on a weather-resistant and ruggedised PC based control unit providing the operator with comfortable working conditions at night (backlight), day (visibility even in direct sunlight) and with comfortable touch screen display.

Specification

	Measurement range	Measurement accuracy
Track gauge	-15 ÷ +50 mm	±1 mm
Cant (crosslevel)	±225 mm	±3 mm
Vertical versines	±20.0 mm	±2 mm/1 0 m
Horizontal versines	±70.0 mm	±2 mm/1 0 m
Alignment (D1)	±50 mm	±1.5 mm
Longitudinal level (D1)	±50 mm	±1 mm
Railhead profile and wear	Vignole, grooved rails	±0.3 mm
Satellite localisation (GPS)		±5 m
Corrugation	10 mm ≤ λ ≤ 30 mm	100 mm < λ ≤ 300 mm
	30 mm < λ ≤ 100 mm	300 mm < λ ≤ 1000 mm

Based on parameters listed above, the following values are calculated: twist, gradient, and railhead wear. Versines may be obtained for chord lengths of up to 20 m.

System description



Built-in functionality allows the user to compare measurements taken at different periods of time. All measurements are presented in the form of graphs with selected parameters exceeding the specified tolerance, there are also icons showing track defects observed by trolley operators during measurements. Track geometry reports can be saved in Word, Excel, PDF, CSV formats. The software enables exporting data and printing reports. The standard version of the software provides capabilities of generating reports for:

- charting measurement data,
- the report numerical measurement results,
- the report defects,
- the report performance indicators.

By saving the GPS position, measurement results can be displayed on maps.

The system allows the measurement of the rail head cross-section. Measured results are automatically analyzed and parameters of wear are automatically calculated.

The results of these calculations are presented in the form of graphs. The software makes it possible to perform detailed analysis of selected cross-sections and compare them with nominal profiles. Results of railhead wear analyzes can be printed as reports or saved to DXF files.



MotoTEC features

- » Operating speed: max 16 km/h
- » Autonomy -operating distance: 60 km (to be adjusted as per Customer's requirement)
- » Operating temperature: 0 ÷ +45 °C
- » Operating humidity: 15 ÷ 85% (no condensation)

Measurement data analysis and reporting software delivered with the trolley is compatible with Windows XP or higher. Advanced software makes it possible to analyze all measured parameters, show measured parameters on charts, show measured parameters in numerical tables, show measured rail profiles, define set of tolerances, calculate typical track performance indicators, e.g. standard deviation, generate reports, etc. The trolley memory size is big enough to store up to 56 000 km of track geometry data or railhead profiles from 260 km length. Saved measurements are copied to the office system via the USB port.