

## Road Surface Profiler 5051 Mark III

The **Dynatest Road Surface Profiler (RSP)** is carefully designed to provide an advanced, automated, high quality pavement roughness and related measurements solution for engineers worldwide. The RSP is capable of real time continuous highway-speed measurements of longitudinal profile (International Roughness Index (IRI) and Ride Number (RN)) and transverse profile, rut depth, macro texture, geometrics (crossfall, curvature and gradient).

Measurements can be referenced to linear chainage or Differential Geographical Positioning System (DGPS), allowing easy integration to Geographic Information Systems (GIS). The RSP III is available in several levels of sophistication, ranging from a 1 laser/1 accelerometer, single wheel path version for measuring real-time IRI/RN (and optionally texture) evaluation only, to a top-of-the-line version with 21 lasers. The RSP modular design allows for easy upgrade to all functionality.

### Why a Dynatest Profiling System?

The **Dynatest** Mark III RSP was designed and developed by a team including specialists in pavement engineering who fully understands the requirements and needs of the professional pavement engineer and pavement manager, and who have had many years of experience in developing equipment tailored to meet these needs and requirements.

Additionally, **Dynatest** is committed to produce, and internationally market and support, industry-standard equipment of high durability, user-friendly design and rock-solid performance. Dynatest also provides knowledgeable pavement engineering expertise worldwide for the support of any Dynatest product.

The Mark III RSP can be installed in a variety of automobiles or vans used around the world. It is a PC-based test system. Powerful Digital Signal Processors (DSPs) have been placed onto Dynatest developed proprietary expansion PCB(s) that mount into ISA slots. This results in a simplified system consisting of only two primary components:

- A transducer unit (Rut Bar), carrying up to 21 laser sensors, 2 accelerometers and an IMS (Inertial Motion Sensor).
- An IBM compatible PC with a small Data Processor Unit (DPU).

### Measuring principle:

The longitudinal profile measurement is based on the "South Dakota" method. An accelerometer is used to obtain vertical vehicle body movement, and a laser sensor is used for measuring the displacement between the vehicle body and the pavement. Road profile measurements are then obtained by summing the body movement with the appropriate body-road displacements. IRI is calculated in accordance with World Bank Specifications. The measured longitudinal profile meets the Class 1 precision and bias specifications as defined by ASTM E-950 and also meets the TxDOT TEX-10001-S.



THE DYNATEST ROAD SURFACE PROFILER (RSP) IS CAPABLE OF REAL TIME CONTINUOUS HIGHWAY-SPEED MEASUREMENTS OF LONGITUDINAL PROFILE

### Advantages

- Guaranteed high accuracy according to rigorous standards.
- Measurements taken at all traffic speeds.
- All indices computed in real-time.
- Unique "Stop & Go" feature permits IRI data to be collected in multiple wheel-paths in urban areas.
- Bituminous overlay, half-car index and California profilograph output optionally.
- Easy calibration.
- Dynatest worldwide support network.
- Designed by pavement specialists.

Transverse profile and rut depth are based on a minimum of 3 lasers. An Inertial Motion Sensor (IMS), can be added for measuring crossfall, gradient and curvature.

The RSP constitutes a product line designed to meet needs ranging from high quality measurements "on a budget", to the most sophisticated, rigorous research testing requirements applicable to this type of equipment.

Please contact Dynatest for complete specifications, pricing, and more detailed technical information.