Dynatest, the original commercial developer of the Falling Weight Deflectometer (FWD) technology and the world’s largest supplier of FWD deflection based equipment has designed the Heavy Weight Deflectometer (HWD) with much higher loading capability to meet the needs of airports and pavement agencies with extra thick, stiff pavement structures. Dynatest HWD can easily simulate and measure the load levels and response of large aircraft such as the Boeing 747/777 and the Airbus A380. The HWD can produce higher and wider range of load levels suitable to both the highway and airfield applications.

Similar to the FWD, the HWD is designed to impart a load pulse to the pavement surface simulating the load produced by a rolling vehicle wheel. The load is produced by dropping a large weight on a set of rubber buffers on a bracket connected to a circular load plate. A load cell mounted on top of the plate measures the imparted load. Deflection sensors (geophones) mounted radially in and from the center of the load plate measure the deformation of the pavement in response to the load. The post processing software, Dynatest ELMOD (Evaluation of layer Moduli and Overlay Design) can be used to back-calculate the pavement layer moduli based on the impact load and surface deflection basin. The results can effectively be used for the evaluation of pavement structural condition and overlay design based on empirical or mechanistic-empirical pavement design guides.

The HWD data can also be used to calculate the degree of load transfer between adjacent concrete slabs, and to detect voids under slabs in rigid pavements.
**KEY FEATURES**

- Nondestructive structural testing device
- Ideal for comprehensive testing for mechanistic-empirical analysis and design
- Very wide loading range—6,750–72,000 lbf (30–320 kN); suitable for testing a variety of paved and unpaved roadways, parking lots and airfield surfaces
- Allowing for simulation of new large aircraft such as A-380 and B-777
- Excellent repeatability
- Single person operation
- Quiet operation
- Accommodating up to 15 deflection sensors
- Up to 60 test points per hour
- AASHTO R32-11 calibration protocol compliant
- Passes TRL correlation trials

**STANDARD EQUIPMENT**

- Four segmented loading plate with swivel accommodates uneven or rutted pavement surfaces
- Air/Pavement Temperature Sensors
- Distance Measuring Instrument (DMI)

**AVAILABLE UPGRADE OPTIONS**

- Folding trailer for ease of shipment
- Global Positioning System (GPS)
- Additional deflection sensors (up to 15)
- Camera system for plate location or Right of Way Imaging
- On board generator for standalone operation
- Towing vehicle
- Trailer mounted light(s) or strobe(s)
- Rear or rear and transverse sensor extension bars
- GSSI or IDS Ground Penetrating Radar
- Spare parts kit
- Tool kit

**FWDWin FIELD SOFTWARE**

- FWDWin intuitive and user-friendly software facilitates data collection in the field
- Supports multiple languages
- Stores the HWD data in Access (.mdb) databases for further processing
- Generates the following legacy formats: .fwd, .f25, .PDDX
- Real-time plotting of the surface moduli along the test sections

**ELMOD SOFTWARE**

- Evaluation of Layer Moduli and Overlay Design
- Dynatest’s ELMOD software may be used for the analysis and design of flexible, rigid, and composite pavements
- Allows quick data reduction and analysis of HWD load/deflection measurements
- Capable of backcalculation of the layer moduli, for a typical drop sequence in less than a second
- Fast calculation of the seasonally adjusted moduli, residual life of the pavement, and required overlay thickness for a given service life
- For maintenance and rehabilitation (M&R), the LCCA (Life Cycle Cost Analysis) module allows the user to select the optimum M&R solution for a pavement section according to cost/benefit ratios
- For analysis of airfield pavements, the optional PCN module calculates PCN in accordance with the ACN/PCN method, as described in the ICAO and FAA design manuals

Dynatest offers 24/7 technical support by phone through a 1-800 number provided to all of our customers.