



Dynatest is the original commercial developer of the Falling Weight Deflectometer (FWD) technology and is the world's largest supplier of FWD deflection based equipment.

The FWD 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 onto 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 in and radially 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 FWD 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

Wide loading range—900–27,000 lbf (4–120 kN); suitable for testing a variety of paved and unpaved roadways, parking lots and airfield surfaces

Excellent repeatability and stability

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

ASTM D4694-96 compliant

■ 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 photo-logging

On board generator for standalone operation

Towing vehicle

Trailer cover (soft or hard versions)

Trailer mounted light(s) or strobe(s)

Rear or Rear and Transverse Sensor Extension Bars

GSSI Ground Penetrating Radar

Spare parts kit

Tool kit

■ 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 FWD 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

■ FWDWin FIELD SOFTWARE

FWDWin intuitive and user -friendly software facilitates data collection in the field

Supports multiple languages

Stores the FWD data in Access (.mdb) databases for further process

Generates the following legacy formats: .fwd, .f25, .PDDX

Real-time plotting of the surface moduli along the test sections