

Dynatest

8012 Fast Falling Weight Deflectometer (FastFWD)

Dynatest, the original commercial developer of the Falling Weight Deflectometer (FWD), introduces the next generation FWD—the Dynatest FastFWD Model 8012. The FastFWD 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 top of 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 mechanisticempirical pavement design guides. The FastFWD 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 fast, comprehensive testing for mechanistic-empirical analysis and design
- Wide loading range—4–120 kN; suitable for testing a variety of paved and unpaved roadways, parking lots and some airfield surfaces
- Excellent repeatability
- Single person operation
- Quiet operation
- Accommodating up to 15 deflection sensors
- AASHTO R32-11 calibration protocol compliant passes TRL (UK) correlation trials

STANDARD EQUIPMENT

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

ADVANTAGES

- A single direct drive, 3-phase torque motor and ball screw assembly drives the new system replacing the hydraulic system in FWD
- Very fast—up to 160 test points per hour
- 8002 FWD's can be upgraded to the new FastFWD Model 8012 system
- Less maintenance costs—no hydraulic system
- Less impact due to reduced survey time

AVAILABLE UPGRADE OPTIONS

- Folding trailer for ease of shipment
- Global Positioning System (GPS)
- Camera system for plate location or photo-logging
- Trailer mounted light(s) or strobe(s)

- Rear or Rear & Transverse Sensor Extension Bars
- Ground Penetrating Radar
- Spare parts kit

DATA COLLECTION SOFTWARE

- Intuitive and user-friendly software facilitates data collection in the field
- It supports multiple languages, stores FastFWD data in Access (.mdb) databases for further processing and 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

- 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 FastFWD 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 Feet between test point 50

FEET BETWEEN TEST POINTS

50 250 500 1000

Typical four drop production

FastFWD total points per eight hours	1312	1032	904	680
Current FWD total points per eight hours	736	640	584	488
% Improvement	78%	61%	55%	39%

LTPP nineteen drop test

FastFWD total points per eight hours	688	600	552	464
Current FWD total points per eight hours	240	224	216	200
% Improvement	187%	168%	156%	132%



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