8012 FAST TRUCK MOUNTED DEFLECTOMETER (FastTMD)

Dynatest, the original commercial developer of the Falling Weight Deflectometer (FWD) technology, introduces the next generation Truck Mounted Falling Weight Deflectometer. Building on our wealth of experience with the Model 8000 FWD, we now offer the Model 8012 FastTMD. Over 500,000 drops were made in the development phase to insure the level of reliability that Dynatest customers expect.

Dynatest®

As with all members of the Dynatest Model 8000 and Model 8081 Falling and Heavy Weight Deflectometer product lines (FWD and HWD), the FastTMD provides fully automated, fast, highly accurate and precise measurements suitable for use with standard analysis and design procedures including especially rigorous mechanistic-empirical analysis of pavement structures such as the proprietary Dynatest ELMOD (Evaluation of Layer Moduli and Overlay Design) program.

The FastTMD is part of the reliable, proven, always evolving and well supported Dynatest line of products and services designed to enable a proprietary analytical/empirical understanding and management of pavement systems and networks referred to as the Dynatest Methodology. This methodology scientifically addresses pavement structures in an engineering manner similar to other standard civil engineering structures. The use of a Dynatest FastTMD enables the engineer to determine a deflection basin generated by a simulated controlled traffic load with absolute and relative load/deflection measurement accuracy unsurpassed in the industry and guaranteed on a measurement by measurement basis.

KEY FEATURES

Fits into standard Ford F-350 single or dual rear wheel pickup truck with a utility body

Powered by the vehicle alternator(s)

The hydraulic system is replaced with a single DC motor and ball screw assembly

The new subframe assembly fits in the same space as the existing subframe

Data gathered is indistinguishable from existing Dynatest FWDs

AASHTO R32-11 calibration protocol compliant

Air temperature, pavement surface temperature, Distance Measuring Instrument (DMI) and 4 segmented 300 mm loading plate with swivel (to accommodate uneven or rutted pavement surfaces) are standard on the Dynatest FastTMD

PRODUCTIVITY IMPROVEMENT

The chart below illustrates the dramatic improvement in the speed of testing. Shown are examples of typical production testing, as well as research testing. This allows for less traffic disruption, less traffic management, improved safety for public and operator and more testing during the day, reducing overall project survey costs.

ADVANTAGES

A non-destructive test device

One person operational

Simple design, with no hydraulic system

Less maintenance

Quiet operation

Accurate and fast (up to 160 test points/hr)

Customers can realize between a 39%–78% productivity increase over the existing FWD (see chart)

Wide loading range 1,000–27,000 lbf (4–120 kN)

Designed for multi-purpose pavement applications, ranging from unpaved roads to general aviation airfields

Excellent repeatability

Ideal for mechanistic/analytical design approaches

Feet between test point		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%**

DATA REDUCTION

FastTMD generated data, combined with layer thickness, can be confidently used to obtain the “in-situ” resilient E-moduli of a pavement structure. This information can in turn be used in a structural analysis to determine the bearing capacity, estimate expected life, and calculate an overlay requirement, if applicable (over a desired design life).

SOFTWARE PRODUCTS FOR STRUCTURAL ANALYSIS AND DESIGN

For routine analysis purposes, Dynatest has developed a software system ELMOD 6 (Evaluation of Layer Moduli and Overlay Design), for flexible, rigid, and composite pavements. This software application allows extremely rapid data reduction and analysis of FastFWD measurements, calculating the layer E-moduli for a typical drop sequence in one second or less. Seasonally adjusted E-moduli, residual life, and required overlay (if applicable) are also calculated within seconds.

FWDWin FIELD SOFTWARE

Support for multiple languages

Data is stored in Access (.mdb) databases for ease of processing, and the program can simultaneously generate the following legacy formats: .fwd, .f25, .PDDX

15 active deflector capability (hardware required)

Network Database