TRUCK MOUNTED DEFLECTOMETER (TMD)

The Model 8000 Truck Mounted Falling Weight Deflectometer Test System (TMD). The Dynatest TMD is particularly suitable for test environments requiring overall shorter length testing platforms (without losing deflection bowl coverage) or in which stand-alone vehicle purchases or vehicle-trailer operations are problematic. The TMD 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.

Dynatest®

As with all members of the Dynatest Model 8000 and Model 8081 Falling and Heavy Weight Deflectometer product lines (FWD and HWD), the TMD 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.

Selecting from many possible types of rehabilitation to be implemented on a given pavement, or throughout a pavement network, is of considerable economic significance to society. To reach such decisions without adequate knowledge of the structural condition and performance of the pavement system under traffic loading, as provided by the Dynatest TMD, can have very costly consequences over time.

KEY FEATURES

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

FHWA 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 TMD

ADVANTAGES

Non-destructive test device

One person operational

Accurate and fast (up to 60 test points/hr)

Wide loading range FWD/TMD 1,500–27,000 lbf (7–120 kN)

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

Excellent repeatability

Ideal for mechanistic/analytical design approaches

OPTIONAL

Differential Global Positioning System (GPS)

Right of Way and/or pavement video in standard or high definition

Forward or transverse and forward deflector extension bars for joint testing

Automated transport locks

15 active deflectors (7 are standard)

Safety lighting to customer specifications

SOFTWARE PRODUCTS FOR STRUCTURAL ANALYSIS AND DESIGN

For routine analysis purposes, Dynatest has developed a software system, ELMOD 6, for both flexible and rigid pavements. This software application allows extremely rapid data reduction and analysis of TMD/ FWD/HWD 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. For analysis of airfield pavements, Dynatest provides a program, which quickly calculates PCN values in accordance with the ACN/PCN method, as described in the ICAO design manuals.

TMD DATA REDUCTION

TMD/FWD/HWD generated data, combined with layer thickness, can be confidently used to obtain the “insitu” 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).

FWDWin FOR WINDOWS

Support for multiple languages

Data is stored in Access (.mdb) databases for ease of processing. The program can simultaneously generate various formats: fwd, *.f20, *.f25, *.*PDDX Pavement Deflection Data eXchange (PDDX by AASHTO), *.XML eXtensible Markup Language (XML by W3C)

15 active deflector capability (hardware required)

Surface modulus plots can be graphed real time along road sections under test