Dynatest FWD/HWD Test Systems

Dynatest, the original commercial developer of the Falling Weight Deflectometer (FWD) technology, is the world's largest supplier of FWD equipment. This highly accurate, well supported, reliable and continuously refined Dynatest product line is a proven load/deflection measurement solution for engineers worldwide.

The Dynatest FWD technology additionally provides a measurement foundation for the proprietary Dynatest "analytical-empirical" pavement engineering methodology, a system of advanced automated pavement measurement, analysis and management engineering services and products available only through Dynatest.

Why a Falling Weight Deflectometer (FWD)?

The **Dynatest Model 8000 FWD** makes it possible to treat pavement structures in the same manner as other civil engineering structures by using mechanistically based design methods.

Selecting the type of rehabilitation to be implemented on a given pavement is of considerable economic significance. To reach that decision without an adequate knowledge of the structural condition of the pavement may have very costly consequences.

The use of a Dynatest FWD enables the engineer to determine a deflection basin caused by a controlled load with accuracy and resolution superior to other existing test methods. The FWD produces a dynamic impulse load that simulates a moving wheel load, rather than a static, semi-static or vibratory load. These developments allow the use of mechanistic approaches to analyse FWD data.

FALLING WEIGHT DEFLECTOMETER

Heavy Weight Deflectometer (HWD)

Dynatest was also the first to introduce a heavier loading FWD, the Dynatest Model 8081 HWD. With an expanded loading range, simulating heavy aircraft such as the Boeing 747 (one wheel), the HWD can properly introduce anticipated load/deflection measurements on even heavy pavements such as airfields and very thick highway pavements. The wider loading range also provides the consultant with a load/ deflection instrument appropriate for both roads and airfields as required.

HEAVY WEIGHT DEFLECTOMETER

Dynatest®
Equipment & Pavement Engineering Specialists

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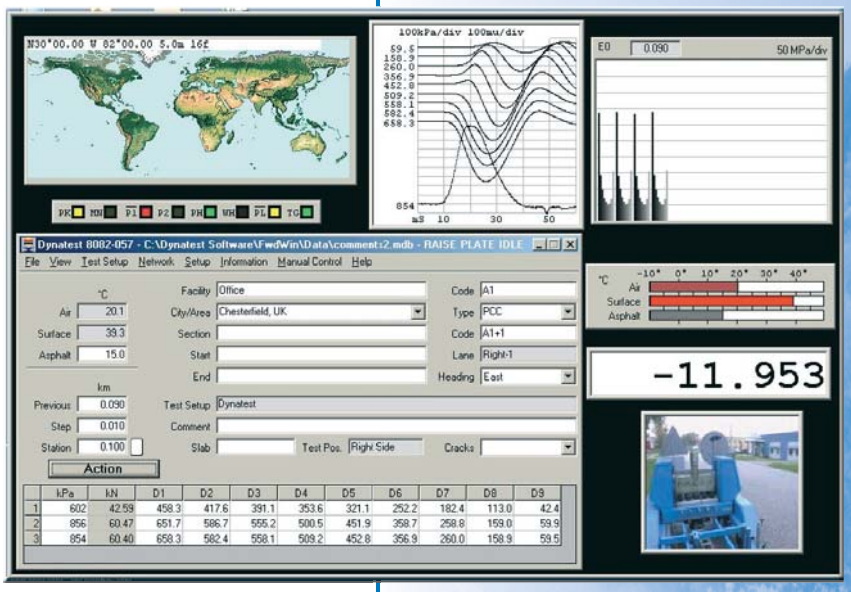
Rev. 010112-15

Dynatest FWD/HWD Test Systems

FWD Data Reduction

FWD/HWD 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, for both flexible and rigid pavements.

This software application allows extremely rapid data reduction and analysis of 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** offers the PCN module, which calculates PCN-values in accordance with the ACN/PCN method, as described in the ICAO design manuals.

FWDWin for Windows™

Support for multiple languages.

Data Files:

- Data is stored in Access(tm) (.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 Sensor Capability (hardware required).
- Surface modulus plots can be graphed real time along road sections under test.
- Real Time Backcalculation.
- Network Database.

Advantages

- A non-destructive test device.
- One man operational.
- Accurate and fast (up to 60 test points/hr).
- Wide loading range.
  FWD: (7-120 kN) or (1,500-27,000 lbf).
  HWD: (30-320 kN) or (6,500-71,800 lbf).
  Allowing for simulation of new large Aircraft such as A-380 and B-777.
- Designed for multi-purpose pavement applications, ranging from unpaved roads to airfields.
- Excellent repeatability.
- Ideal for mechanistic/analytical design approaches.

Requirements

Windows® XP
Windows® 7

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