

Dynatest 3031 LWD

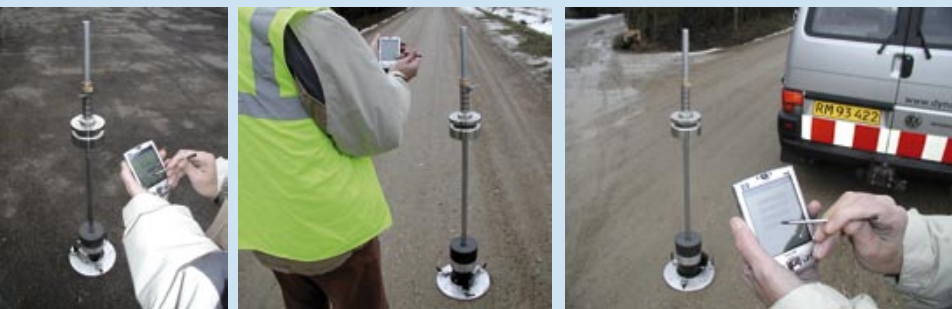
Back in the early 1970's, as mechanistic (or analytical) approaches to pavement engineering found increased support internationally, Dynatest introduced the world's first portable LWD (Light Weight Deflectometer), as a new method to determine the E-modulus of un-bound materials in pavements.

Over recent years demand for an automated device has arisen and this prompted Dynatest to re-design its 1970 device, enhancing and automating the LWD mechanics by means of the latest technology, adding electronics and analysis software that go far beyond what is currently offered in the market place. The new device has been designed to meet international standards that are under development for this type of equipment.

What's new?

- The release handle and drop weights have been redesigned, improving user friendliness and ease of adding and removing weights.
- The buffer system has been developed to optimize the loading impulse while making the change for different weight configurations easier, without the need for tools.
- The centre geophone has a unique lever to ensure that the geophone is centred and seated correctly.
- A Dual Plate System (DPS) has been developed to allow for the testing at the same position with two different plate sizes. The collected data can be used to back-calculate the layer moduli and estimate the top layer thickness, using the (optional) Dynatest LWDmod.
- Dynatest LWDmod – based on the popular and recognized Elmod programme used with FWDs, LWDmod back-calculates layer moduli, confirms the layer thicknesses and calculates overlay thickness to ensure that designs meet specifications.

The Dynatest LWD requires no reference measurements and provides a simple, cost effective alternative to time-consuming and expensive static plate bearing testing.

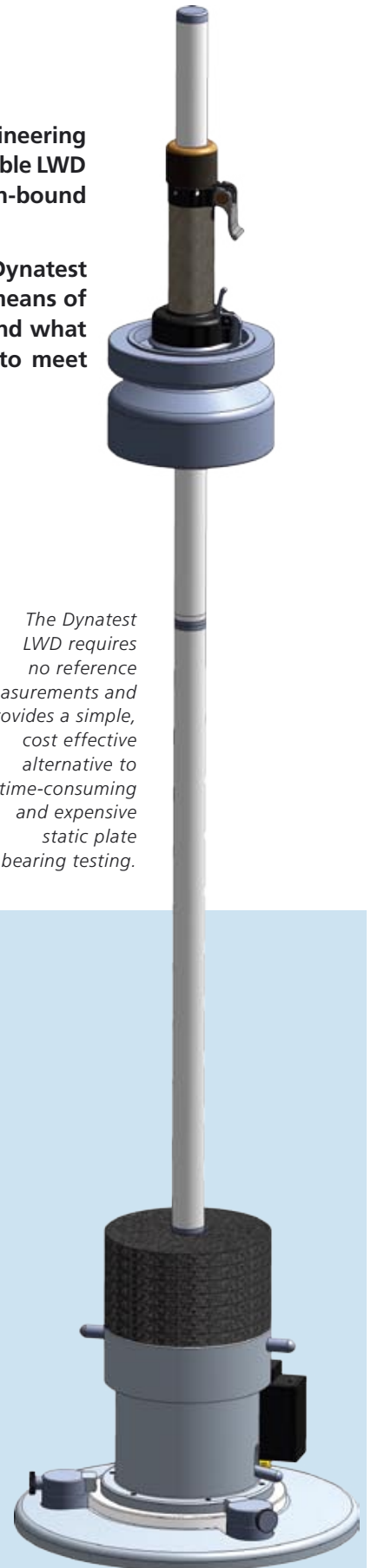


The equipment is precision-engineered, using stainless or anodized material for all metal parts. The system is powered by a pack of four AA alkaline or rechargeable batteries, providing approximately 2000 measurements or the equivalent to more than 12 hours of continuous operation.

With the additional (optional) 2 x 5kg (2 x 11lbs) weights added, the Dynatest LWD can produce up to 15kN (3,300lbf) peak loads. The LWD weighs about 22 kg (48lbs.) (with the standard 10kg (22lbs.) drop weight), and it is highly portable and easily carried around a construction site. There is an optional, specially designed trolley available.

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The LWD is ideal for Quality Assurance / Quality Control on subgrade, subbase and thin flexible pavement constructions to verify that specifications are met. It can also be used to identify weaknesses, leading to further tests using FWDs and other material analysis techniques.



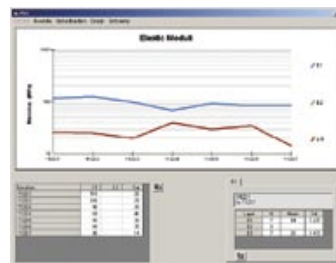
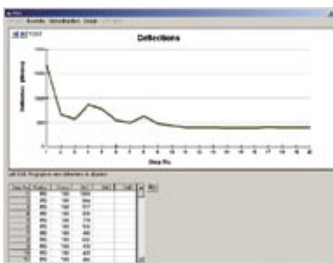
Key Operational Features:

- The Dynatest LWD electronics are interfaced to a handheld PDA via a wireless Bluetooth connection.
- The LWD electronics are dust and splash proof (IP56) for safe outdoor use.
- The drop height is easily and quickly adjusted by a movable release handle.
- A laser engraved scale on the weight guide shaft allows for easy setting of the desired drop height.
- The magnitude of the impact force is determined from actual measurements by a precision load cell, measuring the time history and peak value of the impact force from the standard 10kg (22lbs.) or the optional 15kg (33lbs.) or 20kg (44lbs.) drop weight setups.
- The loading plate diameter can quickly and easily be switched between 300mm (11.8in.) and 150mm (5.9in.). A 100mm (3.9 in.) plate diameter is included, and an optional 200mm (7.8 in.) plate is available.
- The centre deflection time history and peak value is measured through a hole in the loading plate by a highly accurate, seismic transducer (geophone).
- An integrated lever to ensure the centre geophone is correctly centred and seated.
- The field programme can be linked to a GPS.
- Optionally, two more geophones can be added.

Key Dynatest LWDmod Analysis Software Features:

The Dynatest software package LWDmod offers advanced features for data organization, analysis and reporting:

- Imports data into a project database, allowing organization of multiple files into one database.
- Graphical features to view test results, and to eliminate selected drops or points from the file.
- Editing features.
- Automated selection of drops to be used in the analysis.
- Calculation of surface moduli.



- Back-calculation of layer moduli for multi-layer systems, using the results of multiple tests.
- Calculation of subgrade non-linearity.
- Calculation of needed overlay thickness, based on design surface moduli.
- Analysis of load/deflection time histories.
- Graphical presentation of all analysis results.
- Capability to export result tables and graphics.

Key Field Software Features:

- The data collection software, residing on the PDA, displays - in real time - the surface modulus and the time history graph from both the geophone(s) and the load cell.
- Relevant information such as name, place and comments can be added to the data file for each measuring point.
- Poisson's ratio and stress distribution factor parameters may be defined by the operator.
- With the use of a "SmartPhone", data can be collected and e-mailed or sent directly to a server.

