Dynatest

8012 Fast Falling Weight Deflectometer (FastFWD)

The Fast Falling Weight Deflectometer (FastFWD) is 5 times faster per drop than the original Falling Weight Deflectometer (FWD). The FastFWD is designed to drop a load pulse to the pavement surface simulating the impact produced by a moving vehicle.

The load pulse is measured by a load cell with a resolution of 0.1 kPa, and the pavement response is recorded by up to 15 deflection sensors with a resolution of 0.1μm.

Fast Falling Weight Deflectometer (FastFWD)

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, ELMOD® 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.

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

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
- ASTM D4694-09 Standard Test Method for Deflections with a Falling-Weight-Type Impulse Load Device
- ASTM D4695-03 Standard Guide for General Pavement Deflection Measurements

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

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

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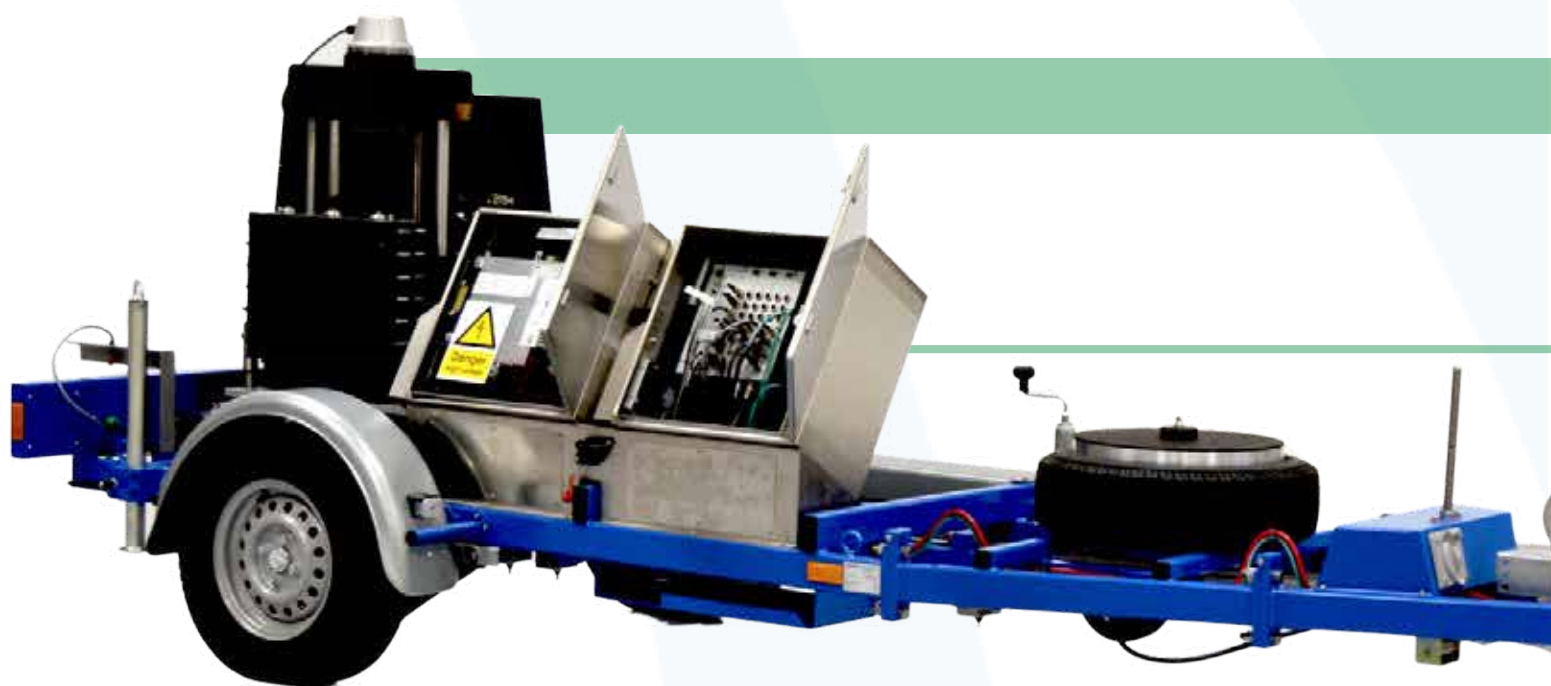**Site Web : www.es-france.com**
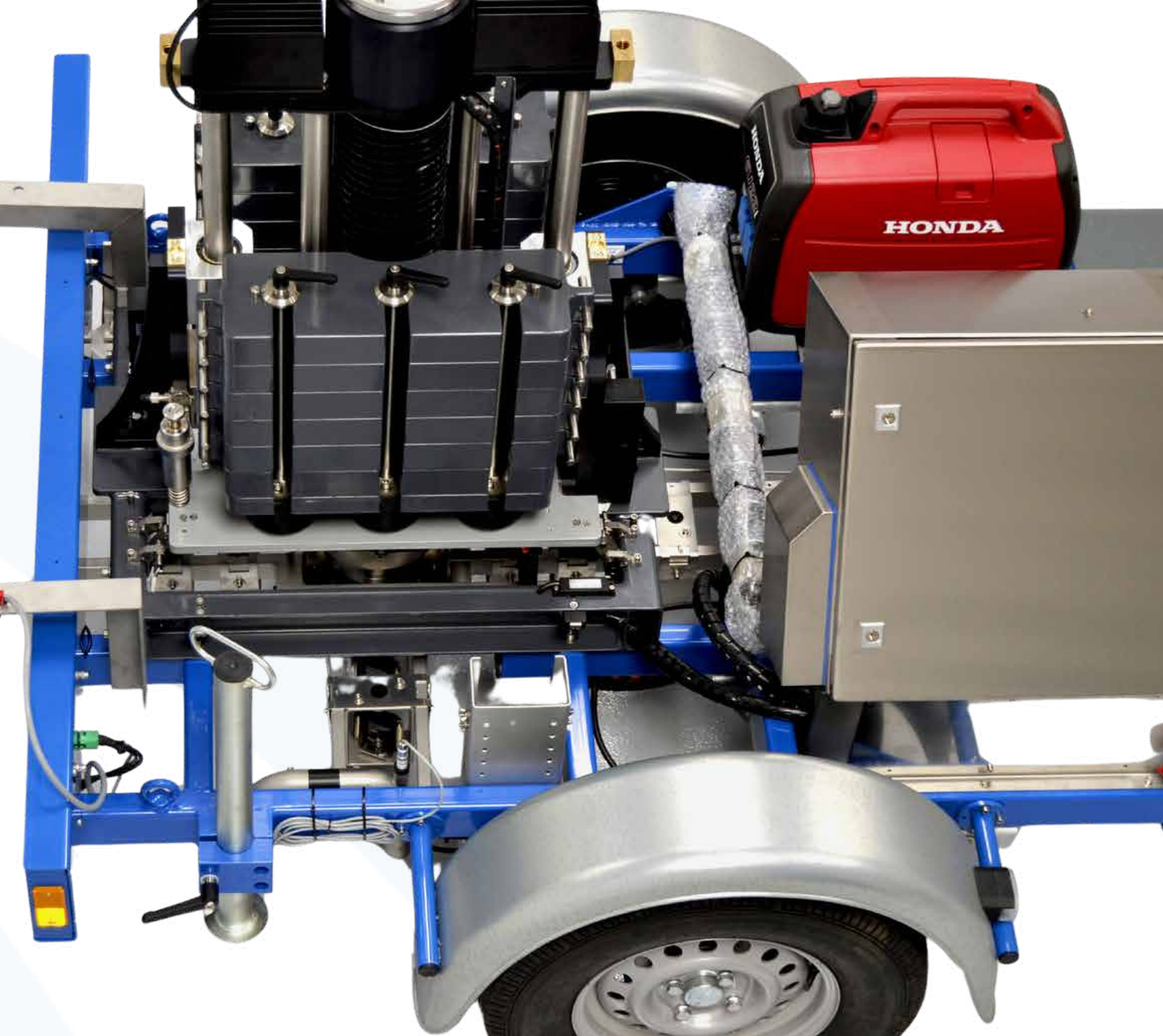
Data Collection Software

- 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
- The 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 back calculation 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
- To analyze the bearing capacity of airfield pavements, the ELMOD® software can calculate both the new ACR/PCR classification and the traditional ACN/PCN values. This dual calculation will be available until November 2024, when the new ACR/PCR system becomes fully applicable under FAA AC150/5335-5D guidelines.

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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%**

![Dynatest logo]

Dynaware24

The Fast Falling Weight Deflectometer (FastFWD) now features the innovative DynaWare24, marking a significant advancement in pavement testing technology.

The improvements in user interface, electronics, and hardware, combined with optional modules like offline simulation and GIS integration, offer unparalleled flexibility and functionality.

Experience the power of innovation, precision, and optimization as we pave the way for more efficient and streamlined testing worldwide.

With DynaWare24, the future of pavement management is here, enhancing collaboration between engineers and operators through its intuitive user experience and advanced data collection capabilities.

This project introduces a complete hardware redesign with reduced wiring, making service and calibration faster and simpler.

It also enables quicker calibration of the system and supports testing of thinner pavements.

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New hardware features

Introducing our latest hardware enhancements designed to elevate the user experience and productivity.

The redesigned control unit enhances machine control and user interfacing, offering compatibility with any computer or tablet for operator interaction. Equipped with a 4G router, the system enables cloud functionality for seamless remote data upload and monitoring. It also supports automatic software and firmware updates, ensuring continuous improvement. Notifications can be configured based on desired distance intervals between test locations.

The new and improved cameras, paired with an upgraded camera interface, significantly boost the reliability of your imaging tasks.

Additionally, the robust IP67 housing for the cameras ensures high-quality inspection of the testing surface before the test sequence, or for any other outdoor inspection tasks. As a standard feature, the system includes a complimentary GNSS system, with high-accuracy GNSS systems available as an optional upgrade.

The patent-pending Artificial intelligence (AI) fault detection method ensures that your Fast Falling Weight Deflectometer (FastFWD) is always operationally ready. The unique - Artificial Intelligence (AI) fault detection method - helps identify potential machinery errors and provides timely indications for the required servicing of the FastFWD.

Several advantages of intelligent Geophones

- The geophones can now be configured as either 80mil or 100mil directly through the equipment's software, offering greater flexibility for specific operational needs.
- Using a shared field-bus for geophone communication reduces wiring requirements, simplifying calibrations and servicing while cutting down the time spent on these processes.

Geophone Improvements

- Embedded intelligence in geophones for automatic identification and location determination
- Faster assembly and disassembly of geophones with reduced wiring
- Optimized geophone locations for measuring thinner pavement
- Redundant seismic sensors and fault detection for enhanced accuracy
- Direct interface with DynaCal calibration system for efficient calibration.
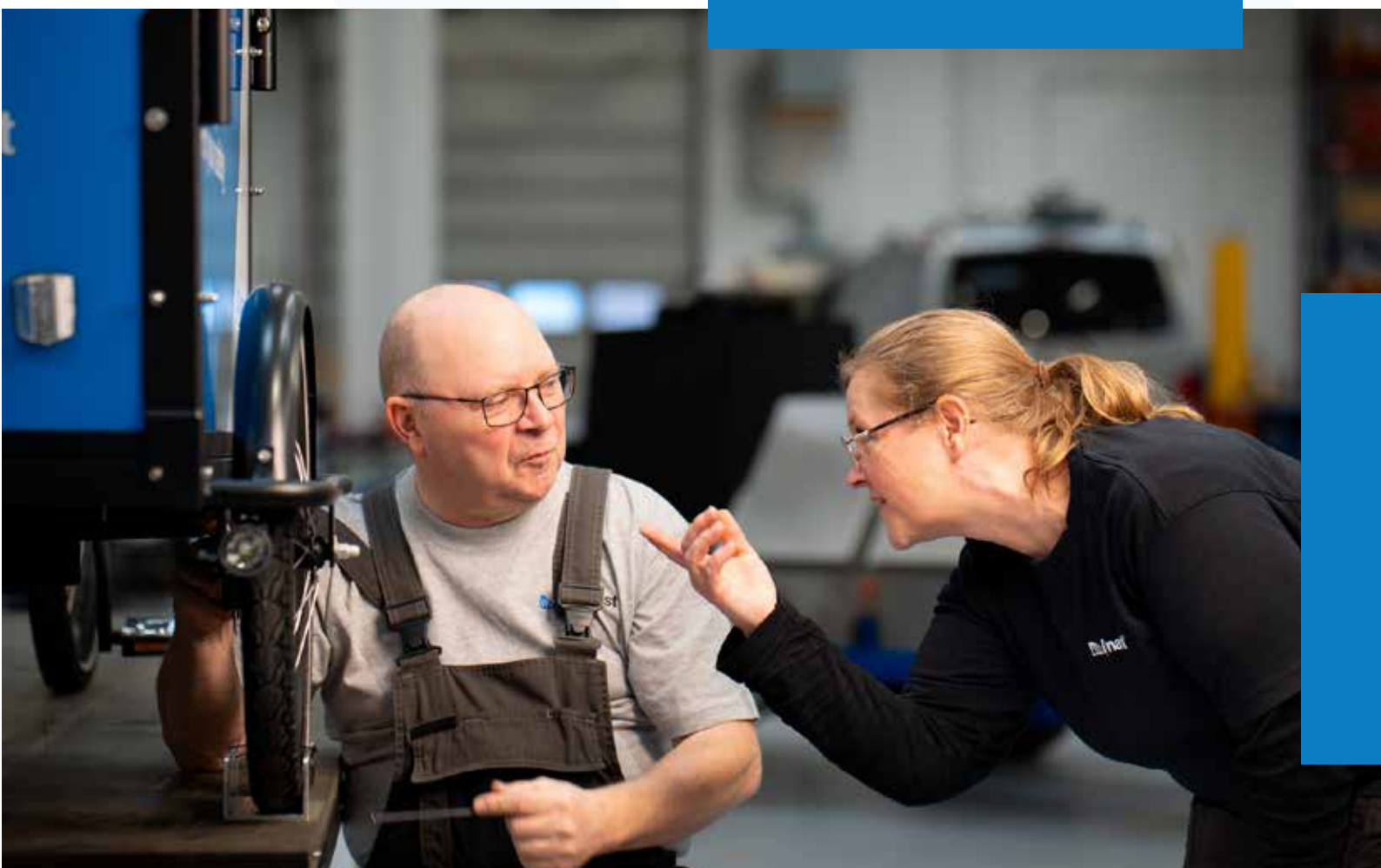
Maintenance, Service & Calibration

Our team of highly trained service technicians is always ready to assist you when it comes to planning your equipment service and maintenance needs.

Let us reduce your workload so you can focus on performing pavement measurements and collecting precise data.

Do you need assistance?

You are always welcome to contact us if you want to know more about how we can help your company.

If you want a non-committal talk or need more information about Dynatest, we are also happy to help.

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Your Dynatest equipment is a sophisticated piece of technology and a significant investment in your business.

Taking good care of your Dynatest equipment is essential to ensure both optimal performance and longevity of the equipment – all of which add to your return on investment.

Neglecting to service and maintain your equipment can lead to costly repairs and uncertain test data and down time.

Eliminate the risks of downtime and defects through regular service, maintenance and calibration of your Dynatest pavement testing equipment.

Service and calibration can be carried out by our team of skilled technicians at our production facilities in Denmark (Ballerup) or Florida (Gainesville) or at your own location.

Our service team will work with you to plan the correct level of service and maintenance for your operational needs and the realities of your budgets and also for your operational timetable.

Regular maintenance, calibration, and service will also contribute to an increased overall lifespan of your equipment.

Contact our service team today

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