

# Datasheet

## Fast Falling Weight Deflectometer (FastFWD)

### Key Features

- Excellent repeatability
- Wide loading range—7–120 kN;
- With the iAPT package 2400 drops pr. hour or approx 60000 drops pr. day can be achieved
- Quiet operation
- Accommodating up to 15 deflection sensors
- Less impact due to reduced survey time
- Distance Measuring Instrument (DMI)
- Optional new/extra geophone at 100 mm offset

### Key Benefits

- Nondestructive structural testing device (not for applied iAPT package)
- Single person operations
- No hydraulics
- 75% more test points per hour
- 45% less traffic exposure
- Up to 160 test points per hour
- Data can be used for determination of structural capacity of in-service pavements to analyze the physical properties of the pavement.

### Introduction to the falling weight deflectometer

The Dynatest Fast Falling Weight (FastFWD) is the last model of the Dynatest FWD family, 5 times faster than any previous version. The FastFWD is completely electric, with no more hydraulic parts, which allows to increase the durability of the components and reduce the maintenance costs. Based on the same principles of any traditional FWD applying an impulsive load to the pavement, but thanks to the introduction of an electric spindle can raise and drop the mass up to 2400 times per hour. Dynatest developed a dedicated cooling system that allows the FastFWD to run tests continuously for several days, enabling Accelerated Pavement Testing (APT) using the FastFWD.

### Specifications

Load cell	Resolution 0.1 kN / Precision $\pm 1\%$ / Accuracy $\pm 2\% \pm 1,14$ kN
Deflection sensor	No. max 15 / Precision $1 \mu\text{m}$ / Absolute accuracy $\pm 2\% \pm 2 \mu\text{m}$ / Relative accuracy $\pm 1\% \pm 1 \mu\text{m}$
Temperature sensors	Up to 3 (air, surface and asphalt) Precision $\pm 0.1^\circ\text{C}$ / Accuracy $\pm 0.4^\circ\text{C}$
DMI	Accuracy $\pm 0.4\%$
Cameras	Color camera for inspecting the location and ROW Camera 2.3MP
GPS	Option 1: GPS with 5m cable (SBAS) / Option 2: DGPS (worldwide)
Drop Sequence	15 seconds (placing 3 drops)
Volume weight	1550kg
Dimensions	298L x 188W x 158H cm

### Included

- 300mm 4 segmented split plate
- Calibration for max 10 geophones
- Standard RAL Color; Blue
- DDC FWDwin 1 free license
- FastFWD generator Kit
- Laptop with case
- Infrared Surface Temp Kit
- Automated Air Temp Kit
- Automated DMI kit

### ELMOD - Evaluation of Layer Moduli and Overlay Design

Dynatest's ELMOD software is a versatile tool for analyzing and designing flexible, rigid, and composite pavements. It swiftly processes FastFWD load and deflection data, enabling quick back calculation of layer moduli and assessment of pavement performance. The software efficiently calculates seasonally adjusted moduli, residual pavement life, and overlay thickness for a specified service life. With a Life Cycle Cost Analysis (LCCA) module, users can optimize maintenance and rehabilitation strategies based on cost/benefit ratios. Additionally, The FEM (Finite Element Module) makes use of an axial symmetric finite element program. The LET (Linear Elastic Theory) option makes use of the Waterways Experiment Station's program (WESLEA), and MET is similar to the method used in ELMOD with improved adjustment factors.

## Compliance

- AASHTO R 32
- UK Correlation trial approved
- ASTM D-4694
- ASTM D-4695

## ADDITIONAL INFORMATION

More information can be found at:

[www.dynatest.com](http://www.dynatest.com)



## FastFWD Trailer Specifications

	8012 FastFWD Trailer
Max. permissible weight	1350 kg
Tire size	165-13"
Tire pressure	2.8 bar (40 psi) cold
Max. recommended driving speed	90 km/h (55 mph)
Total length (max.)	4.35 m (171")
Total width (max.)	1.65 m (65") (single axle)
Total height (max. during driving)	1.55 m (61")
Towing ball diameter (of towing vehicle hitch)	50 mm OR 50.8 mm (1-31/32" OR 2")
Optimum height of tow ball (ground to ball centre), loaded with 100 kg (220 lb)	480 mm - 500 mm (19 - 20")
Approx. falling height range of the drop weight	50-390 mm (2-15.3")
Loading plate diameter(s)	300 & 450 mm (11.8 & 17.7")
Range of distances of movable raise/lower bar deflector holders (from loading centre)	185-2450 mm
Max. tilt of loading plate	6 degrees
Storage temperature range	-30 to 70°C
Operating temperature range	5 to 50°C

## Additional options

- Geophones – 80mils and 100mils version
- GPS with 5m TNC/TNC T cable
- DGPS
- Video monitor and color camera
- Single geophone (no holder) calibrated
- ROW Camera
- Geophone holder
- Calibration tower for 1 to 16 geophones
- Rear warning sign 24 Volt
- 150 kN upgrade kit
- APT module with cooling

## Accelerated Pavement Testing (APT)

FastFWD can be used as an intermediate tool, between the small scale laboratory tests and full scale APT tests.

### Benefits

- Available for small budgets
- Easy to move from site to site
- Simulates a pavement life cycle within short time
- 24/7 operational
- Daily analysis of deterioration
- Able to test on small sites
- Guidance and assistance in model development and calibrations

### Features

- Economical
- Highly mobile
- Operated unattended / remotely
- Recording deflections continuously
- Compact
- 30 years experience with HVS

[www.dynatest.com](http://www.dynatest.com)

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