

# Datasheet

## Heavy Weight Deflectometer (HWD)

### Key Features

- Excellent repeatability
- Ideal for comprehensive testing for mechanistic empirical analysis and design
- Up to 60 test point per hour
- Provides accurate, reproducible and repeatable data
- Accommodating up to 15 deflection sensors
- Passes TRL correlation trial
- Distance Measuring Instrument (DMI)
- Optional new/extra geophone at 130 mm offset

### Key Benefits

- Wide range of loading combination
- Provide accurate, reproducible and repeatable data
- Single person operator request for driving and testing
- Real time deflection analysis
- Load & Deflection time history acquisition
- Data import to ELMOD software for backcalculation
- Result exported in georeferenced format
- Test rigid pavement including joints
- Integrated camera for joint survey

### Introduction to the heavy falling weight deflectometer

Dynatest HWD 8082 is one of the world's most accurate deflectometer systems. This accuracy is crucial for the correct analysis of the deflection bowl. It maintains accuracy criteria with allowable systematic errors of only  $\pm 2\%$  or less for both load and deflection reading. The data obtained has excellent repeatability. The loading subassembly and the falling weight are operated by hydraulic cylinders, pressurized by a hydraulic pump, and driven by a high efficiency 12V DC motor. In the transport position, all cylinder shafts are in their innermost (closed) position to protect them from dirt, corrosion, etc. The loading subassembly is equipped with hydraulically operated, Automated Transport Locks, which will automatically lock the subassembly after each rising of the loading plate.

### Specifications

Load cell	Resolution 0.1 kN / Precision $\pm 1\%$ / Accuracy $\pm 2\% \pm 1,14$ kN
Deflection sensor	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	1791kg
Dimensions	300L x 200W x 157H cm

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

The Dynatest ELMOD is a cutting-edge software designed for pavement analysis and overlay optimization. With a focus on back-calculating pavement layer moduli, it leverages impact load and deflection basin data. ELMOD introduces the ACR/PCR classification, mandated by the International Civil Aviation Organization in November 2024. ACR (Aircraft Classification Rating) estimates the impact of different aircraft on pavements, while PCR (Pavement Classification Rating) signifies the pavement's weight-bearing capacity. This classification system aids airports in bolstering operations, enhancing safety, and planning effective pavement maintenance. ELMOD possesses rapid analysis capabilities, enabling the determination of optimal rehabilitation options. It accommodates innovative materials suited to local conditions, assesses overloading effects for precise rehabilitation cost estimates, and utilizes mechanistic-empirical analysis techniques across diverse pavement scenarios.

## Compliance

- ASTM D4694
- FHWA-HRT-06-132
- FAA AC 150/5370-11B
- AASHTO R32-11 calibration protocol

## ADDITIONAL INFORMATION

More information can be found at:

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



## HWD Trailer Specifications

	8012 HWD 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 and 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

## Included

- 300mm 4 segmented split
- Calibration for max 10 geophones
- Standard RAL Color; Blue
- DDC FWDwin 1 free license
- Laptop with case
- Additional 2 geophones/ deflection transducers etc.
- Infrared Surface Temp Kit for HWD
- Automated Air Temp Kit for HWD
- Automated DMI for HWD
- Rear Extension Bar set HWD (2 geophone holders)

## Additional options

- Geophones 80 mil and 100 mil version
- Generator Kit w. Inverter HWD
- Video monitor and color camera
- ROW Camera
- Side Extension Bar Set, HWD, w. 4 holders
- Single geophone (no holder) 80 mil and 100mil calibrated
- Additional Geophone holder
- Calibration tower up to 16 geophones
- Rear warning sign 12 Volt
- Complete 4-Segment 450mm loadplate w. rubber
- Complete 450mm solid loadplate with rubber
- Software ELMOD 6
- New classification ACR/ PCR module for ELMOD 6

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