



PAVEFLECT

FALLING WEIGHT DEFLECTOMETER HEAVY WEIGHT DEFLECTOMETER

INTELLITEST'S FWD & HWD FULFILL ALL THE MAJOR STANDARDS

▶ ASTM D4694 – 09 (Reapproved 2020)

▶ IRC 114 & 117

▶ Calibration As Per AASHTO R 32 - 03¹

A Heavy / Falling Weight Deflectometer is used to measure the vertical deflection of a pavement surface to the application of a controlled impulse load. This deflection response is measured and analyzed by multiple geophones. Collected information is used to determine surface material strength, bearing capacity, layer thickness and E moduli of a layered pavement system.

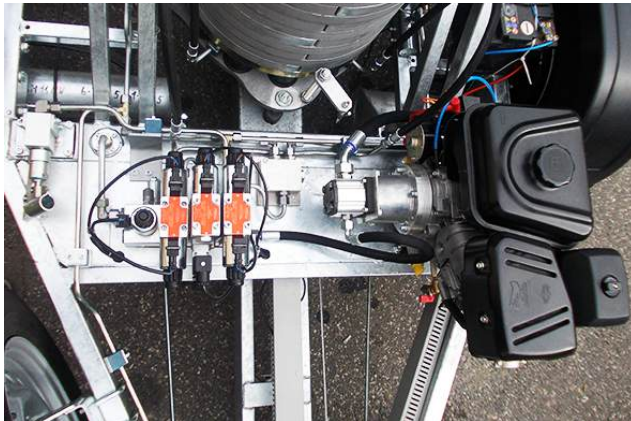
PAVEFLECT HWD/FWD's come with an impulse load range of 130 kN which can be increased to 320 kN for high capacity models and up to 15 geophones.



Features

- ▶ Compact & lightweight construction.
- ▶ Foldable trailer - easy to transport.
- ▶ Non corrosive body and components.
- ▶ User friendly hardware & software.
- ▶ Operation through standard laptop.
- ▶ Complete system operationan by laptop from inside the vehical.
- ▶ Any vehicle can be used for working.
- ▶ Optionally wifi operation.
- ▶ Possibility to change from FWD to HWD to SHWD in minutes.
- ▶ As per ASTM D4694 – 09 (Reapproved 2020).
- ▶ Fulfill IRC 114 & 117.
- ▶ Integrated webcam for precise placement of loading plate.
- ▶ Optional camera for distance triggered RoW pictures.
- ▶ Cake shape of rubber buffers for better load distribution.
- ▶ Standard 9 Geophones.
- ▶ Option to add up to 15 Geophones.
- ▶ Placement of Geophones in longitudinal & transfers directions.
- ▶ Manual operation by panel.
- ▶ Hand Pump operation in case of engine / electronic / laptop failure.
- ▶ Single Axle / Double Axle trailer as per user requirement.
- ▶ Weather proof & theft proof enclosure.
- ▶ Segmented plate load beam 300 / 450 for better contact with Pavement.
- ▶ Warning / beacon light provided.
- ▶ Calibration AASHTO R 32 - 03¹ protocol
- ▶ Fast deflectometer
- ▶ Easy repair and maintenance
- ▶ Handbrake and toeing breaks

Powering



- ▶ Hydraulic system powered by 4 - stroke petrol engine
- ▶ Powering system enables very fast hydraulic operation and high performance of device
- ▶ Engine start and stop is controlled remotely from laptop
- ▶ Independent power system - no power required from towing vehicle

Hardware

- ▶ Warning lights
- ▶ Transport box
- ▶ Cover for water & dust
- ▶ Generator silent / sound proof box
- ▶ Locking arrangement for safety

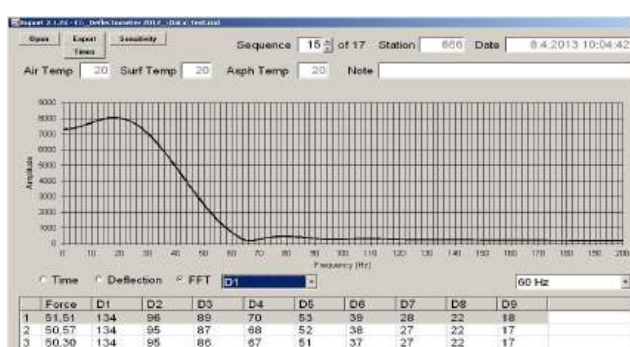
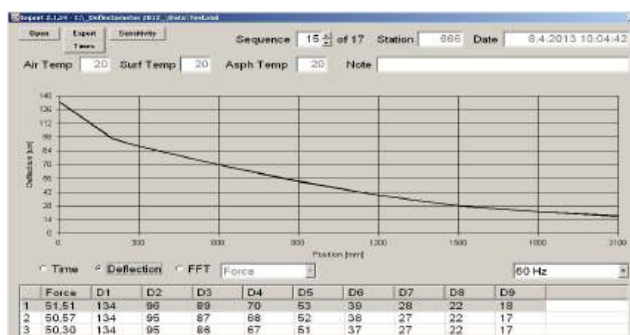
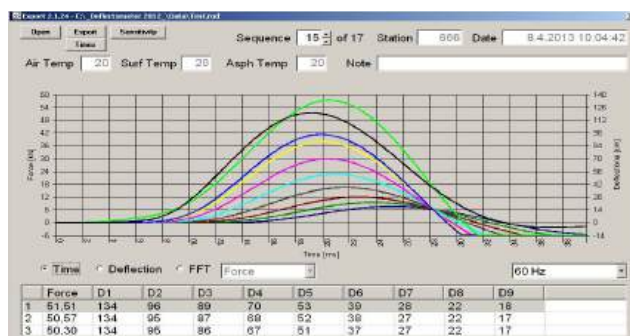
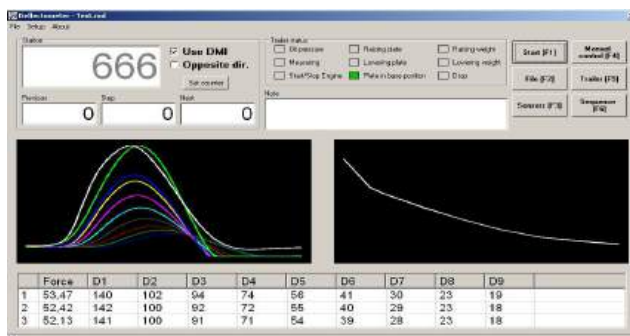
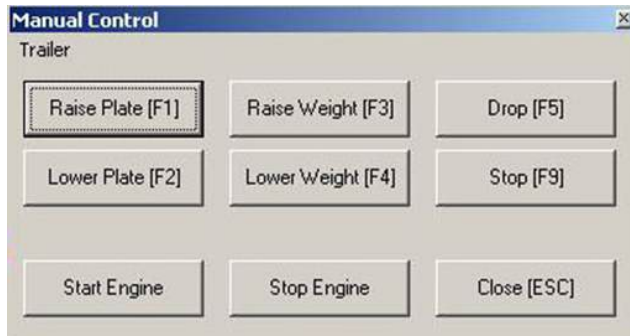


Electronics

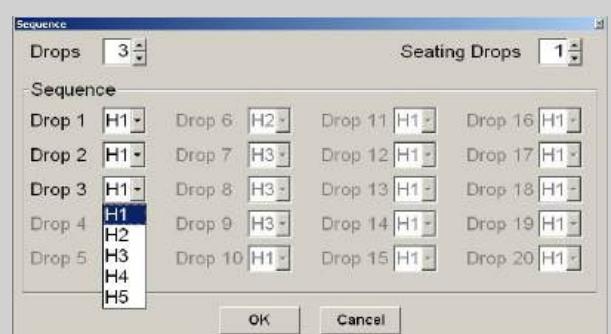


- ▶ Control and Measurement Unit connected with USB cable / wireless to laptop
- ▶ Fatigue rated 300 kN Load Cell with accuracy of 0.25% of reading
- ▶ 4.5 Hz Geophones with range of 4000 microns and accuracy $2\% \pm 1\text{micron}$
- ▶ Distance measurement sensor with accuracy $\pm 20\text{ mm / km}$
- ▶ Air temperature measuring unit, range - 80 to 120°C, accuracy $\pm 0.2^\circ\text{C}$
- ▶ Pavement surface temperature - non-contact IR thermometer, range - 30 to 70°C, accuracy $\pm 1^\circ\text{C}$
- ▶ Loading mass position and oil pressure sensor
- ▶ LCD monitor with camera
- ▶ Global Positioning System (GPS)

Software

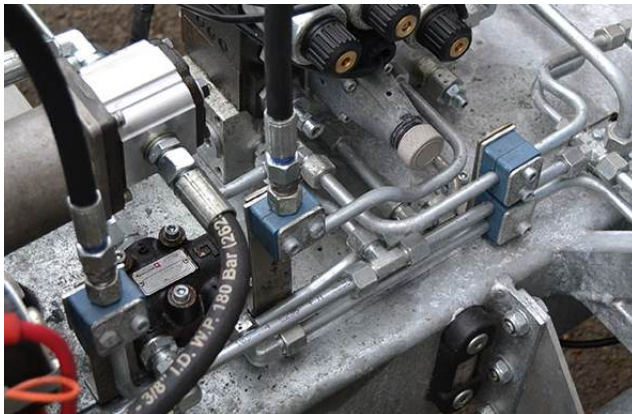


- ▶ User friendly setup screen
- ▶ Selection of Automatic or manual operation
- ▶ Remote start and stop of generator
- ▶ User selectable testing parameters like number and height of each drop
- ▶ Continuous recording of data from temperature sensor, load cell and all geophones
- ▶ Live Display viewing of time behavior of load pulse and each geophone measured deflections
- ▶ Online viewing of deflection curve and all measured maximum value of all active geophones in table
- ▶ Displays air and pavement surface temperature
- ▶ Displays calculated pavement temperature at a depth of 40 mm according to used formula
- ▶ Low pass filter for suppression of unwanted high frequencies
- ▶ Modulus of elasticity
- ▶ Optionally field calibration hardware & software
- ▶ Overlay calculation / requirement
- ▶ Modulus of subgrade reaction for concrete



Specifications

Over all	Folded	Un-Folded	
Dimension	215 x 170 x 100 cm (L x W x H)	365 x 170 x 100 cm (L x W x H)	
	FWD150	HWD250	HWD350
Drop Height Measuring Sensor	Ultra Sonic + / - 0.5 mm Accuracy	Ultra Sonic + / - 0.5 mm Accuracy	Ultra Sonic + / - 0.5 mm Accuracy
3 Drop Sequence Time	10 - 12 Sec.	10 - 15 Sec.	10 - 20 Sec.
Load Range	7-150 kN	12-250 kN	15-350 kN
Capture Duration	0-120 ms	0-120 ms	0-120 ms
Load Pulse Duration	20-40 ms	20-40 ms	20-40 ms
Pulse Rise Duration	15-25 ms	15-25 ms	15-25 ms
Accuracy	1% F.S.D.	1% F.S.D.	1% F.S.D.
Resolution	0.1 kN	0.1 kN	0.1 kN
Geophones			
Total Number	9 to 15	9 to 15	9 to 15
Resolution	+/-0.1µm	+/-0.1µm	+/-0.1µm
Distance Measuring Accuracy			
	0.10%	0.10%	0.10%
Standard Equipment			
Load Plate	300 mm Segmented	450 mm Rigid (Segmented optional)	
Temperature	03 numbers (Air, Surface, Asphalt)		
Video Camera	For Load Plate Location		
Optional Accessories			
Right Of Way Camera	GPS	FWD to HWD Upgrade	
Stainless Steel Cover	360° Camera	Rugged Tough Book	
Ground Penetrating Radar (GPR)	Wifi Operation		



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