

FWD/HWD/SHWD : DEFLECTION UNDER STATIC LOAD

Ponctual measurement of the bearing capacity of the pavement (road or airport)

SWECO  **AASHTO R32-11**
ICAO Annexe 14 volume 1

Description

The SHWD/HWD/FWD is a device designed to determine the determination of pavement bearing capacity. It comprises is composed of a falling mass that generates a force surface of the pavement, via a rigid plate plate and a damping system, an impulse-type load and a damping system.

The deflections generated are measured using geophones under and around the plate.

Flexible, modular system :

- SQL software
- FWD → SHWD modular design
- RoSy DESIGN front/back calculation system for up to 18 geophones
- SHRP certificate

The modular principle means there's no need to invest to invest in new equipment if the requirements of existing requirements change. Upgrading FWD (Falling Weight Deflectometer) 7-150 kN to an HWD (Heavy Weight Deflectometer) 7-250kN or even an SHWD (Super Heavy Weight Deflectometer) 7-350 kN is a simple operation that can be completed in a matter of days.

Upgrades can be carried out at the customer's site. The customer can choose the number of geophones (from 10 to 18 or more if required).

Deflection analysis is used to determine the structural properties of the various pavement layers, using a numerical identification procedure known as "inverse calculation" :

- Select a mechanical model to describe pavement behavior under loading.
- Identify the model parameters that provide the best match between numerical and experimental data.

A direct calculation can then be carried out, using the same mechanical model and taking into account the identified parameters, to estimate the pavement's bearing capacity and/or residual service life.



Remorque H/FWD tractée





Features

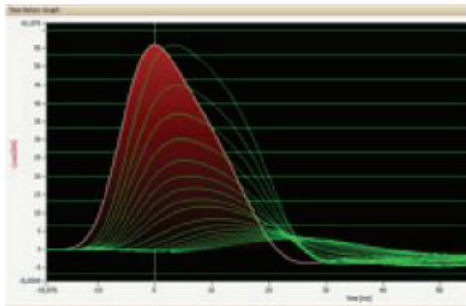
FWD HWD SHWD	
Operation range temperature	-5 to +60 ° Celsius
Shock resistance	Up to 50g
Sample	Increased sampling speed Real time and simultaneous sampling for all channels
Software platform	SQL
Data storage	Standard database Storage of data in all data versions and other manufacturer's data versions



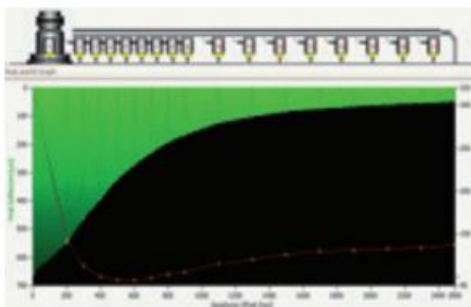
The weight system is 100% hydraulically operated, this gives a good and stable control.



The four-split load plate allows full contact to the surface and accurate measuring.



Graphique extrait du fichier historique de temps basé sur 18 géophones.



Graphique extrait du module de surface E et bassin de déflexion (mesures sur 18 géophones).

For data treatment, RoSy DESIGN is supplied. It is a back/forward calculation software for both road and/or airport data analysis. However, files generated from the equipment can be processed in any back/forward calculation program. RoSy DESIGN is software for processing of data from 10 to 18 geophones.

System warnings:

- Temperature measuring at 30 seconds intervals
- Max/min deflection on each sensor
- Max/min force
- Non-decreasing deflection
- Low battery capacity
- Repeatability

Electronical functions:

- Standard Ethernet communication
- Wireless or cable communication
- Remote control of FWD via internet – customer support
- 18 geophones and prepared for more
- -40 to +70° Celsius transport range