FWD – HWD - SHWD
- Weight deflectometer -

The HWD / FWD is a device aimed to determine the bearing capacity of roads. It is composed of a falling weight which generates on the surface of the floor, by means of a rigid plate and a damping system, a pulse-like loading.

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

Description

Flexible and modular system:
- Software platform – SQL
- Modular design – FWD > SHWD
- RoSy Design back/forward calculation for up to 18 geophones
- SHRP Certificate

The modular principle means that there is no need for investment in new equipment if the demands on the equipment change. Upgrading of the equipment from a standard 7-150 kN FWD to a 7-250 kN Heavy Weight Deflectometer (HWD) or even to a 7-350 kN Super Heavy Weight Deflectometer (SHWD) is easy and can be done within a few days. Upgrades can be conducted on a customer's site. The number of geophones can be decided by the customer – choose between 10 to 18 geophones – or even more if needed.

Measurement principle

The analysis of the deflections allows to determine the structural properties of the various layers of pavement by the mean of a digital identification procedure called "reverse calculation" which consists in:
Select a mechanical model to describe the behavior of the pavement under load.

Identify the model parameters for the best timing between the numerical and experimental data. A direct calculation can then be performed, from the same mechanical model, and taking into account the identified parameters for estimating the bearing capacity of the floor and (or) its remaining life.

The FWD system can evolve to a high weight version (HWD) or a super high weight version (SHWD).

Characteristics

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
Certification	SHRP CROW C-marked according to the EU directives

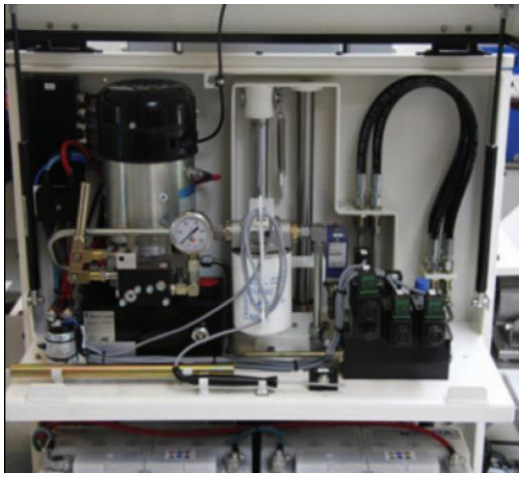
For data treatment, RoSy DESIGN is supplied. It is a back/forward calculation softwaEe for both road and/or airport data analysis. However, files generated from the equipment can be processed in any back/forward calculation program. RoSy DESIGN is software for processing of data from 10 to 18 geophones.

System warnings

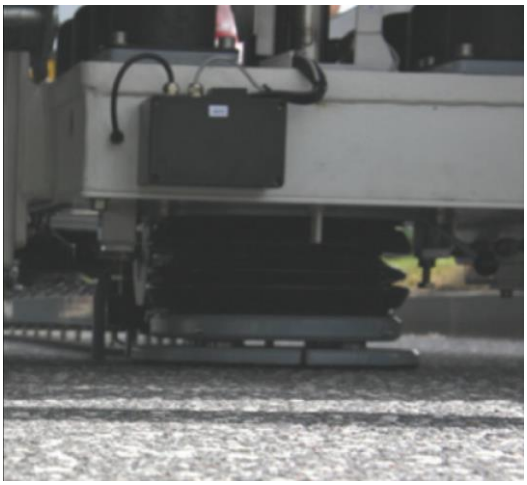
- Temperature measuring at 30 seconds intervals
- Max/min deflection on each sensor
- Max/min force
- Non-decreasing deflection
- Low battery capacity
- Repeatability

Electronical functions

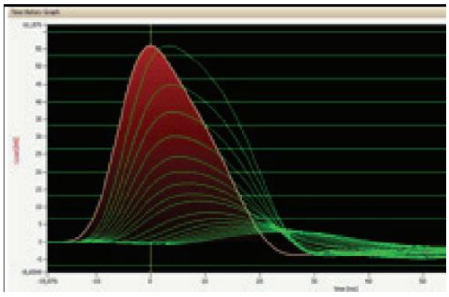
- Standard Ethernet communication
- Wireless or cable communication
- Remote control of FWD via internet – customer support
- 18 geophones and prepared for more
- -40 to +70° Celsius transport range



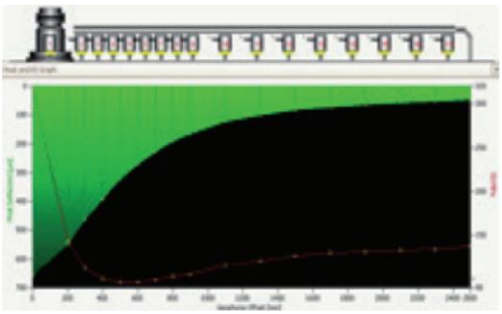
The weight system is 100% hydraulically operated, this gives a good and stable control.



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



Graph from time history file based on 18 geophones



Surface E modulus and deflection basin graph from measurement with 18 geophones

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