

LACROIX DEFLECTOGRAPH : DEFLECTION UNDER THE ACTION OF A ROLLING WHEEL

Measure the deflection of a road surface
Study of bearing capacity problems



NF P98-200-4
NF P98-200-5

Description

The Lacroix Deflectograph is a pavement testing vehicle that is used for the following applications. Measure the deflection basin of a pavement under the action of a heavy vehicle moving at constant speed. It allows the application of the different operating modes of the IFSTTAR method n°39 for measuring surface deformability.

It is used for :

- Monitoring a road network.
- Detection of defective areas to be reinforced.
- Construction site control.
- Winter monitoring (laying or lifting of thaw barriers).



The deflection is measured between each pair of rear axles of the vehicle of the vehicle's rear axle by sensor arms fitted with sensors and articulated on a reference beam.

This reference beam, detached from the vehicle rests on the roadway at three points outside the load influence of the load. As the vehicle moves forward, the the deflection is recorded until the couplings. The reference beam is then brought back to its original position.

The reference beam is then brought back to the front of the vehicle and repositioned on the roadway for a new measurement, without interrupting the measurement, without interruption of the carrier vehicle. The measurement is thus continuous (measurement step $\leq 5m$).

The correlation with static deflection measurements (by means of sensors anchored in the road) is very good, even for very small deformations of the road.

Highlights

◀ **Measurement principle**

- Measurement of deflection of road pavement under a rolling load of a heavy lorry
- Measurement of both right and left wheelpaths

◀ **Measurement principle**

- Direct measurement on 200 points over the travel of the beam.

◀ **Measurement principle**

- Semi-continuous measurement, moving equipment with greater sampling compared to FWD
- Installed on a fixed truck, smaller compared to TSD units for greter access to rural roads and urban areas



Features

Settings	
Condition survey speed	(3 +/- 0,5) km/h
Distance between two measurement steps	Between 3 and 5 m according to the type of vehicle and the speed of condition survey. Typically, a measurement step is composed of 81 sampling points spaced every 2 cm to restore the deflection basin.
Accuracy of the distance encoder	Less than 5 mm.



Standard equipment

The Lacroix Deflectograph consists of the following elements :

- A truck with two axles, minimum wheelbase of 6800 mm,
- The twin rear axle being able to support a load of 13 tons,
- A reference beam equipped with two sensor arms,
- A beam traction and guidance system with electronic controls ensuring against crushing of the beam ends,
- A control panel with the measurement and recording electronic equipment,
- A ballast consisting of pig iron attached to the back of the truck.

Applications

The Lacroix deflectograph is used in particular for :

- Monitoring a road network and studying its evolution under traffic
- Monitoring a road network and studying its evolution under traffic.
- Detection of defective areas to be reinforced.
- Controlling the execution and effectiveness of reinforcements.
- Winter monitoring of the road network (installation or removal of thaw barriers).

