

## LACROIX DEFLECTOGRAPH - Deflection Measurement -



The Lacroix Deflectograph measures the vertical deflection of a roadway under the action of a heavy weight in motion at constant speed.

### Overview

The Lacroix Deflectograph consists of the following elements:

- A truck with two axles, with a wheelbase of about 5 m (16.4 ft), a simple twin rear axle that can withstand 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.



### Principle

The deflection is measured between each pairing of the vehicle's rear axle by probing arms equipped with rotary sensors and hinged on a reference beam.

This reference beam, disconnected from the vehicle, rests on the pavement at three points outside the load's area of influence. As the vehicle moves forward, the deflection is recorded until pairings appear at the probes level.

The reference beam is moved back towards the front of the vehicle, and repositioned on the pavement for a new measurement, without interruption by the carrying vehicle. The measurement is thus continuous (no measurement  $\leq 5$  m (16.6 ft)).

The correlation with static deflection measurements (using sensors embedded in the pavement) is very good, including very low deformation of the pavement.



## Caractéristiques

- Assessment speed: 3 km/h (1.86 mi/h) +/-0,5 km/h (0.31 mi/h).
- Distance between measurement steps: between 3 and 5 m (10 and 16 ft) depending on the vehicle type and assessment speed. Typically, a measurement step is composed of 81 sampling points spaced every 2 cm (0.8 in) for rendering the deflection basin.
- Distance encoder accuracy: less than 5 mm (0.2 in).



Cabin inside the Lacroix Deflectograph

## Applications

The FLASH Deflectograph is particularly used to:

- Monitor a road network and study its evolution under traffic load,
- Detect defective areas to be strengthened,
- Monitor the implementation and the effectiveness of the reinforcement,
- Monitor the road network in winter conditions (application or removal of thaw barrier).

