GRIPTESTER

Measure of the longitudinal force coefficient

FINDLAY IRVINE

CEN/TS 15901-7
ICAO Annexe 14

Description

The GripTester measures a longitudinal friction coefficient (LFC) between the pavement surface and a tire, based on the principle of a braked wheel with a constant slip ratio of around 15%. This slip ratio, which generates the grip force, is achieved through mechanical drive between the two supporting wheels and the measuring wheel.

The measuring wheel axle is equipped with a system of strain gauges that allows the measurement of the forces exerted by the ground on the tire: Vertical Force (VF) and Horizontal Force (HF). The longitudinal friction coefficient measured by the GripTester, referred to as GN, is proportional to the ratio of HF to VF.

Measurements are carried out on a wet surface. The longitudinal friction coefficient calculated by the GripTester is displayed in real time and recorded on a laptop computer.

Used in towed mode (roads and highways) for continuous skid resistance assessment.
Measurements are performed at a speed dependent on pavement roughness. For wetting, an additional water tank installed in the towing vehicle increases measurement autonomy.

Measurement principle

The GripTester is a skid resistance measuring device based on the principle of a braked wheel operating at a constant slip ratio.

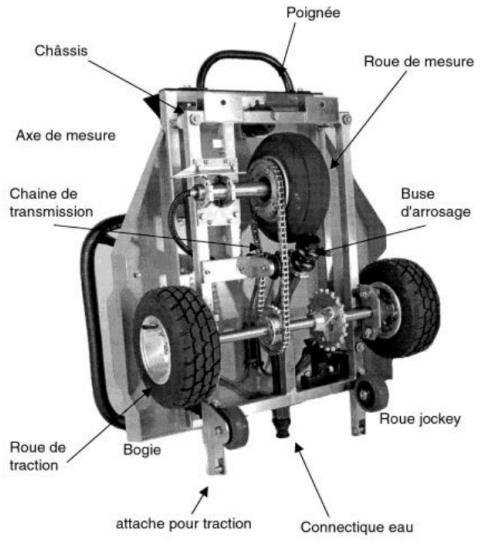
This slip ratio, which generates the grip force, is achieved through mechanical drive between two supporting wheels (or a drive wheel) and a measuring wheel. The measuring wheel is fitted with a tire featuring a smooth tread.

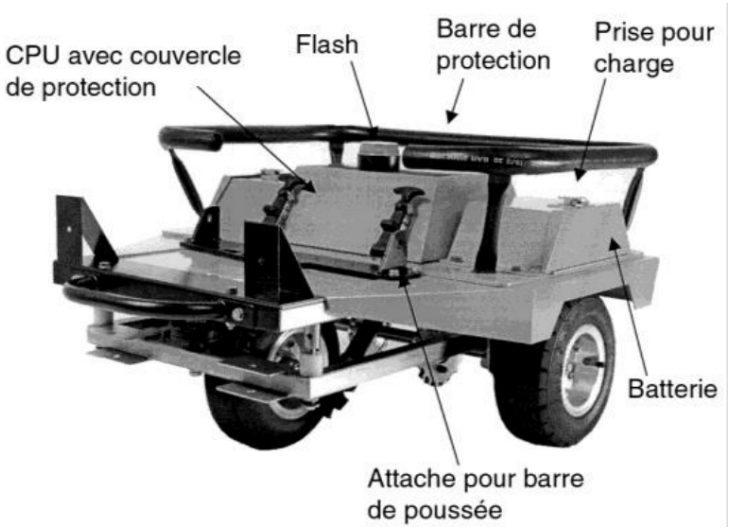
A water spraying system is added to apply a constant film of water in front of the measuring wheel. The film thickness is regulated according to the test speed.

The measuring wheel axle is equipped with a system of strain gauges to measure the forces acting on the wheel (vertical and horizontal forces). The resultant of these forces, after processing by the device's central unit, provides a grip coefficient called GN (GripNumber).

Features

Length	1010 mm
Width	790 mm
Height	510 mm
Weight	85 kg
Measuring wheel	10-inch diameter
Measuring tire	10-inch diameter – Smooth tread. ASTM E1844 specification – Findlay Irvine
Drive wheel	10-inch diameter, Dunlop type 10 × 3.6–5





Conditions d'utilisation

Optional water spraying system consists of:

- an adjustable water tank depending on the vehicle (from 500 to 1000 liters), removable and non-corrosive, designed to prevent load transfer,
- filling connectors for the tank and water supply connections to feed the GripTester,
- associated piping and valves,
- an optional water flow regulation system (pump, regulator),
- autonomy: for 500 liters = 60 km of measurements.

The system is integrated into the vehicle.

Acquisition system:
The acquisition system is separated between the GripTester's central measurement unit (SPU) and the onboard computer installed in the vehicle.

All measurements are managed in real time by the GripTester's central measurement unit.