



Visio-Track*

Tracking of displacement using vision

**marque et brevet déposés*

- Tracking of the displacement of automotive parts (on bench or during running)
- Deformation measurement of tanks, large vessels, ...
- Recording of movement of industrial equipment
- Control of the behaviour of aeronautic structures
- Measurement of the deformation of bridges, building,...

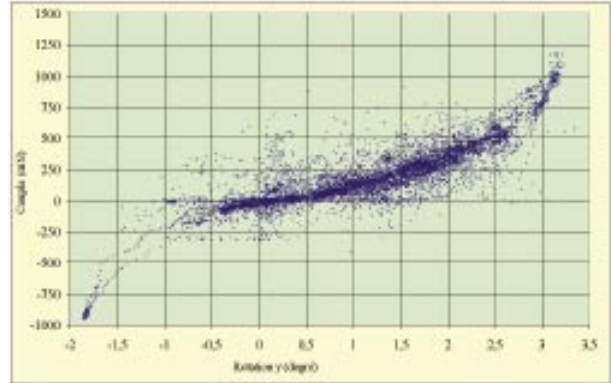


APPLICATION IN AUTOMOTIVE INDUSTRY

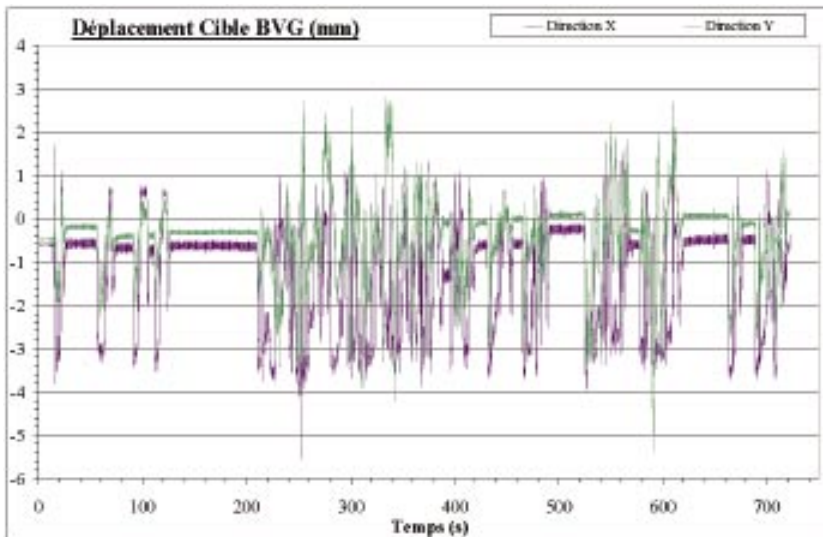
Measurement of engine movement on a prototype vehicle on bench – PSA Peugeot Citroen



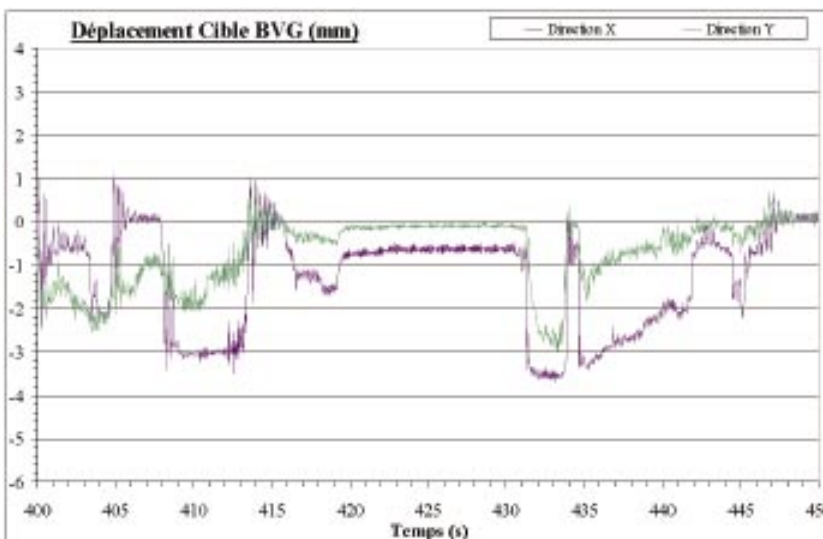
Picture of a VISIO-TRACK system for the measurement of engine movement.



Graph showing all position of a part during the running test



The curves show the displacement in (XY plane) of a part of the car, as a function of time.



Zooming on a temporal window

Measurement of rigid body motion

By using 3 cameras and 3 targets, it is possible to measure the 3 translations and 3 rotations of an object. Then, the displacement of every single point of the object can be determined.

OTHER APPLICATIONS

Temporal control of aeronautic structures

This kind of equipment is well adapted for the mechanical testing of large scale structure as in aeronautics.

The lens is selected based on two parameters: working distance and measurement range. Once installed, the equipment is directly measuring the displacement, after the automatic calibration procedure.



© Airbus

Holo3 has realized for EADS – Launch Vehicles a complete equipment for the control of the deformation of the tank of a launch vehicle during pressure test.

Due to the size of the tank (25 m³), 20 cameras are used to track the displacement of 20 different points of the vessel.

Once the cameras are installed, an automatic calibration phase take place that has a duration of a few minutes.

Then the system is able to record the data directly in millimeters.



© EADS

Measurement of displacement of industrial equipment

Measurement may be done in industrial environment.

The installation of equipment is quick and easy.

Once the equipment is calibrated, the measurement are recorded in real time.



Example : Study of the dynamic behaviour of a textile machine TEKMATEx - Ets BURKLE S.A.

EQUIPMENT DESCRIPTION

The objective is to follow the in plane displacement of one point. To that purpose, a target is fixed to the object to be studied. Image processing is done using a specific software.

Equipment

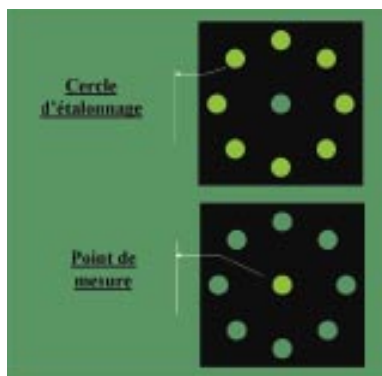


Measurement of engine movement of an air compressor.



An active (LED illumination) or passive target is viewed by a camera. A specific software is used for the image grabbing and data processing.

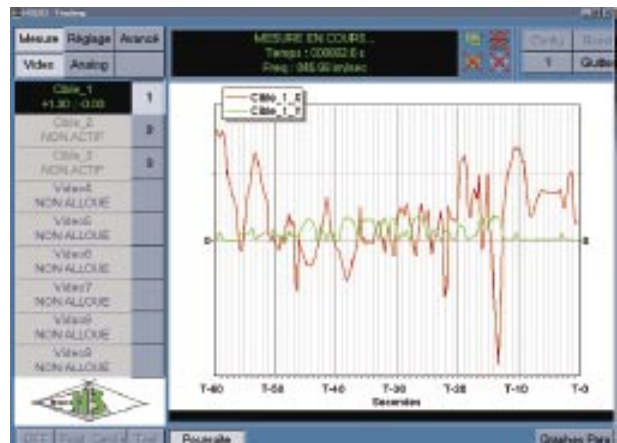
The system is self-calibrated. LEDs positioned on a circle are used to calibrate the system. The central LED is used for the measurement



Software

A dedicated software take in charge up to 9 cameras, corresponding to 18 measurement channels. A simple man-machine interface enables camera set-up, calibration, measurement and data recording.

In the measurement mode the displacement of each target is displayed in real time and a graph shows the displacement as a function of time. The data may be transmitted to a distant computer using ethernet link. The results are stored in ASCII file and may be then post-processed using MATLAB or EXCEL.



Technical features

- Displacement range : 0 to 250 mm
- Each camera gives two directions of displacement
- Resolution: 1/1000 of the field of view (± 0.1 mm for 100×100 mm²)
- Recording rate : from 50 to 100 Hz full field of view, up to 400 Hz in reduced field of view
- Determination of rigid body motion in 3D using the association of two cameras

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