

# Composites are the door to the future

The platform doors of Lille's automated metro are safety equipment that must withstand crowds and potential abuse by users. They therefore need to be absolutely solid.

In an unmanned metro network, the doors at the edges of the platforms are their fastenings are essential equipment for safety. During maintenance at the Lille metro, a fault was discovered in one of the composite-material bases on which the doors stand.

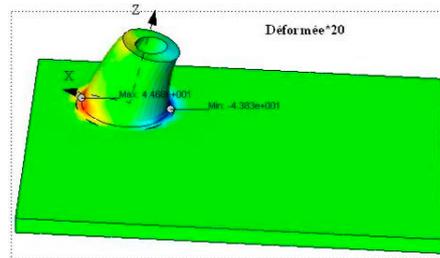
## Calculation for reassurance

Although this fault could have been due to poor replacement of one of the doors, it was an opportunity to investigate whether the durability of the bases in normal service met expected safety requirements. A calculation taking into account

the modes of possible wear and the anisotropic characteristics of the composite showed that the base should theoretically withstand a shearing force of at least 680 daN.

## And tests for confirmation

To confirm this result, a test bench reproducing the door mounted on its base and the shearing force was set up at the Cetim laboratory. The test that was carried out, which reproduced what could happen in real life when the door was pushed heavily, showed that the base withstood a force of up to 655 daN.



## OUR CUSTOMER

**The company:**  
Ineo

**Activity:**  
Electrical installation works

**Turnover:**  
28 million euros

**Country:**  
France

**Context:**  
Ineo, created up in 2001 from the merger of the companies GTMH, L'Entreprise Industrielle, SEEE and Verger Delporte is an integrator of electrical solutions and information and communication systems in France and internationally.

These values, consistent with others and fully conforming to the technical specifications, reassured the client. And the supplier did not have to replace all the bases already installed.

## Cetim's asset

It is Cetim's experience in engineering tests on composite structures and in simulations by calculation, that allows design and testing to be correlated, and validates a reassuring convergence of results.

