

LOCAPAL

# Fault analysis completed in double quick time

A comprehensive fault analysis carried out quickly and efficiently on a bridge enabled French temporary structures specialist Locapal to make the rights decisions without delay.



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## OUR CUSTOMER

### Corporate name

Locapal

### Turnover

10 million euros in 2020

### Workforce

65 employees, including 10 design office staff

### Business activity

Formed in 1976, the company designs, manufactures, installs and leases temporary structures for construction, public works and civil engineering sites, including temporary foot and road bridges, gantry structures, sea and river piers, etc.

A temporary bridge over a motorway was ready for commissioning when a fractured bolt came to light. As safety is always Locapal's first priority, the site management team immediately returned the bolt to the manufacturer and asked for an explanation. The manufacturer's verdict was that the problem most probably stemmed from incorrect tightening. For Locapal, whose teams of fitters work to strict assembly instructions, this explanation sounded highly implausible. The suspect bolt was then sent to Cetim for a second, independent assessment.

## Extensive analyses

From the very first analyses carried out using the facilities available at the Centre laboratories, it was evident that the fracture surface was not the result of faulty tightening. As Locapal had suspected, the bolt manufacturer's explanation simply didn't hold water. Commissioning of the bridge was suspended with immediate effect while Cetim performed more extensive metallurgical analyses. These analyses revealed a problem of intergranular decohesion; a fault that could clearly not be put down to over-tightening, but was in all likelihood caused by a manufacturing issue, specifically during the heat treatment phase. This meant that all the bolts used in the assembly of the bridge presented a risk of

fracture. On Cetim's advice, Locapal took the decision to replace all the M30 bolts, numbering some 500, in the structure. However, to ensure the safety of the bridge, the company first commissioned the Centre to check the compliance of a number of bolts from the new batch. Both metallurgical characterisation and mechanical testing confirmed their compliance with the relevant requirements. The process of replacing each bolt in the structure one by one took a total of 16 hours.

In the words of David Thibaudeau, Works Director at Locapal, *"The Cetim's experts were highly responsive. Their advice, expertise and detailed responses to our questions were extremely valuable in enabling us to take the right decisions."*

## Cetim's asset



We use our combination of fault analysis expertise, investigative methods based on mechanical testing and metallurgical characterisation and extensive experience to identify the origin and nature of a fault, provide the relevant technical explanations and support both manufacturers and users of parts and systems destined for integration in larger assemblies.