

Case Study – Tunnel Monitoring

Brentenberg Tunnel

ASFINAG 
Austria 

Background

Following a truck fire in the Brentenberg Tunnel on the Tauern Motorway (A10), the resulting extreme temperatures caused substantial damage to the tunnel structure. As one of Austria's key transport arteries, the route is of critical importance, placing considerable pressure on the operator, ASFINAG, to resume operations rapidly. Since the extent of the structural impairment could not initially be assessed, the tunnel was closed immediately as a precautionary measure. Without reliable condition data, a full closure lasting several months appeared unavoidable.



Requirements

To enable the tunnel to reopen as quickly as possible, ASFINAG required reliable structural data for an immediate assessment of the tunnel's structural integrity. This called for a continuously operating monitoring system for the damaged sections of the tunnel arch that could be deployed without delay. The system needed to provide precise measurement data via wireless transmission while ensuring automated alerts as part of the overall safety management strategy.



Solution

As an immediate response to the fire, SuessCo 3D-Sensors were installed at the affected tunnel joints. By providing continuous real-time monitoring, the system delivered precise data on the structural behaviour of the damaged sections, enabling ASFINAG's engineers and specialists to assess the stability of the tunnel with confidence. The remote monitoring solution ensured round-the-clock access to critical data and provided a reliable basis for decision-making, including automated alerts whenever predefined movement thresholds were exceeded.



Result

Thanks to the rapid availability of data, the structural integrity could be conclusively verified and the tunnel was cleared for provisional operation after just six days. The operator benefited from maximum cost-effectiveness, as the installation and permanent remote monitoring did not disrupt traffic flow or the ongoing repair works at any point. By providing continuous structural oversight without the need for a permanent on-site presence, the SuessCo sensors supported operational safety and played a key role in the rapid reopening of the tunnel.

"Following a tunnel fire, the 3D-Sensors from SuessCo Sensors FlexCo were deployed to monitor the affected tunnel vault sections. Through permanent measurement, provisional operation could be maintained until the final repair was completed. As part of the safety management plan, alarm thresholds were defined, and a designated group of personnel have been notified by email and SMS upon reaching these thresholds. The system excels through precise measurements and wireless remote data transmission to a portal that experts can access at any time without disrupting operations."

Ing. Reinhold Czizsek, Asset Management, ASFINAG Bau Management GmbH

