

BRIDGE-MONITORING

Case study: bridge between Krems/Stein and Mautern NÖ



Initial situation

The Danube bridge in Lower Austria between Krems/Stein and Mautern is a historic steel bridge that requires renovation and maintenance work. The bridge is to remain in operation during the maintenance work; traffic will only be temporarily regulated on one side.

In addition to the age of the bridge, this maintenance work could potentially lead to critical situations. SuessCo was therefore commissioned to record the condition of the bridge and monitor it on an ongoing basis. This data will be used to document the safety of the bridge.



Requirements

The monitoring system must permanently measure absolutely reliable movement data and position changes in order to ensure that the bridge can be used safely at all times.

For capacity reasons on the part of the client, ongoing on-site checks cannot be carried out to the required extent.

The bridge is to be monitored in a cost-efficient and cost-neutral manner for the client.



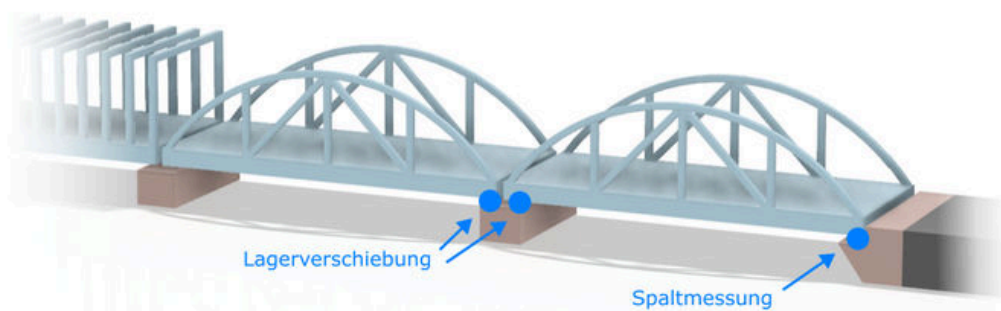
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SOLUTION

For the cost-efficient acquisition of movement data, bridge temperature and weather data, a customized combination of different sensors was used and networked together.

SuessCo 6D-sensors for monitoring the bridge bearings and abutments
Temperature sensors

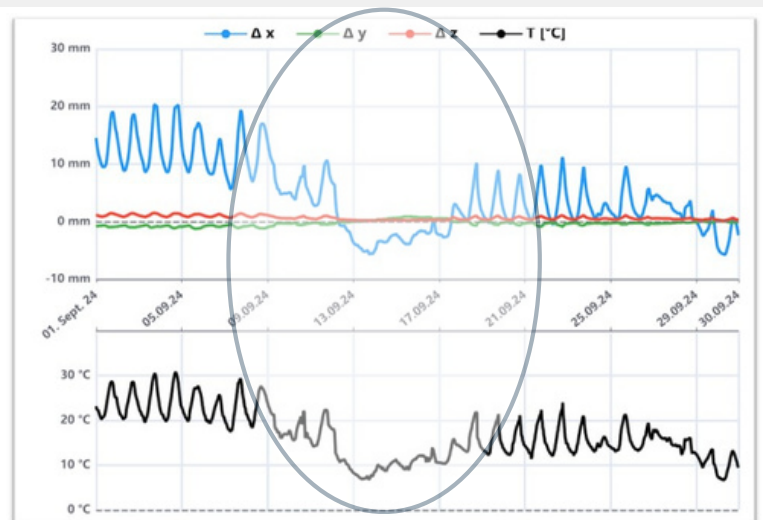
SuessCo 6D sensors for bearing displacement and gap measurements



The patented SuessCo 6D-sensor is the first and only sensor in the world that can measure 6 dimensions with just 1 structure. LTE-m data connection ensures the continuous transfer of data to the SuessCo monitoring portal. The results are correlated using special AI and clearly displayed in a graphical dashboard. The client therefore has up-to-date and precise data on the condition of the bridge from his desk at all times. The installation of the SuessCo sensors is uncomplicated and can be carried out by the customer himself. This also increases flexibility.

RESULT

- Cost reduction due to less effort for on-site inspections
- Increased security through continuous monitoring
- digital data complies with documentation requirements
- Better planning basis for project management
- Sound documentation of the bridge's movement data for better assessment of safety and maintenance



"The measurement data documents the flood situation in Lower Austria in September 2024. Due to the heavy rainfall, the structure temperature dropped noticeably and led to a shortening of the bridge segment by 15 mm. At the same time, the bridge pier was exposed to considerable flow forces. Subsequent measurements show a return to the usual diurnal cycle, which indicates the undisturbed function of the bridge bearing. The comparison with another sensor in the cross-section confirms that no displacement of the bearing took place. The bridge therefore remained safe for traffic during the entire period."