

Europa Bridge, Zurich (Switzerland)



Project description

The Europa Bridge in Zurich was built in 1961/1962 to provide a new crossing of the Limmat river and a number of the growing city's important railway tracks and roads. With its overall length of over one kilometre it is one of Zurich's most important bridge structures.

In order to aid the planning of renovation works, relating to the bridge's expansion joints in particular, it was decided to install a structural health monitoring (SHM) system at one abutment in 2009, to survey the bridge's behaviour – in particular its movements and rotations. Temperature and humidity data was also required in order to calibrate and allow for the impact that changes in these variables might have.

mageba scope

A ROBO®CONTROL SHM system was installed in 2009. In a first phase of operation, high-frequency analysis at 200 Hz was carried out to assess the influence of traffic on the bridge's behaviour – which was found to be negligible. Rotations were also measured, and found to be very low about all axes - well within the range of sliding finger expansion joints, the type preferred by the owner for the easy maintenance, driver comfort and low noise benefits they offer.

The SHM system was then adapted to measure thermal movements during one complete year. With conditions in all seasons assessed, it was then possible to accurately determine the movement requirements of the new expansion joints.

Highlights & facts

mageba products:

Type: ROBO®CONTROL SHM system
Sensors: Displacements, rotations, structural temperature, humidity
Installation: 2009

Structure:

City: Zurich
Country: Switzerland
Completed: 1963
Renovated: 2010
Length: 1100 m

The bridge is located in Zurich, Switzerland's largest city.



Installed movement measuring sensor with an accuracy of 0.1 mm.



Presentation of measured data on mageba's web interface of Europabrücke monitoring system.

