

Älvsborg Bridge (Sweden)



Project description

The Älvsborg Bridge, built between 1963 and 1966, is a suspension bridge in Gothenburg, Sweden, connecting the north and south parts of the city across the Göta Älv river. The bridge has a total length of 933 m and a main span of 417 m.

To support the planning of bridge renovation works, including the replacement of critical components such as the large sliding finger joints at each abutment, the use of a structural health monitoring system was proposed in 2011 – in particular, to quantify the structure's actual movements and rotations, enabling the selection and design of new expansion joints to be optimised.

In the course of recent renovation works the bridge required to have its many small-movement expansion joints replaced. An expansion joint solution that would reliably meet the project's demanding requirements was needed.

The Älvsborg Bridge crosses the Göta Älv river in Gothenburg, Sweden



mageba scope

A ROBO®CONTROL "Permanent" SHM system was installed in 2011, with a network of sensors providing precise records of all movements and giving a detailed understanding of the bridge's structural behaviour.

The data was used to conclude that bridge movements are less than had been expected. Such information was of great value to the bridge engineer in optimising the planning of the bridge renovation works, particularly in relation to the selection and design of the new expansion joints. The recorded data will also serve as a reference for future analysis and modification work.

From 2016 to 2021 mageba supplied approx. 1'700 m of flexible expansion joints with a movement capacity of 30 mm and adapted to suit the bridge's road surfacing depth of 65 mm.

The ROBO®CONTROL Box – the heart of the monitoring system on the bridge



Highlights & facts

mageba products:

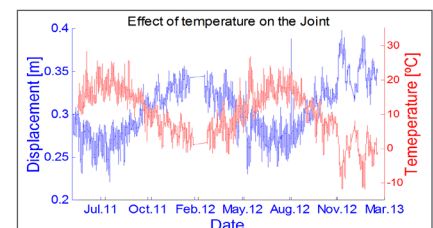
Type: TENSA®POLYFLEX®
Advanced PU flexible
plug expansion joints
ROBO®CONTROL
permanent "Advanced"
SHM system

Installation: 2011 / 2016–2021

Structure:

Country: Sweden
Completed: 1966
Type: Suspension bridge
Main span: 417 m
Length: 933 m
Owner: City of Gothenburg

Movements correlated with temperatures give a detailed understanding of bridge's behaviour



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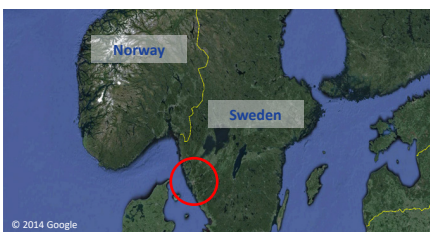
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In 2020 the bridge required to have its many small-movement expansion joints replaced in the course of recent renovation works. An expansion joint solution that would reliably meet the project's demanding requirements was needed.

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In 2020 mageba supplied approx. 1'500 m flexible expansion joints with a movement capacity of 30 mm and adapted to suit the bridge's road surfacing depth of 65 mm.

The ROBO®CONTROL Box – the heart of the monitoring system on the bridge



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