mageba

Golden Ears Bridge (Canada)

Project description

The Golden Ears Bridge, near Vancouver, British Columbia, creates an important new transportation link across the Fraser River. The bridge, with three main spans each 242 m (795 ft) long, features an unusual hybrid cable stayed system designed to ensure a specified performance in the case of defined earthquake events. The bearings and expansion joints for the bridge are also subjected to such demands, making their design and fabrication an interesting challenge.

mageba scope

Main Span Bearings:

mageba supplied four custom-designed uplift bearings, pre-compressed for frequent load reversal. Each bearing weighs a massive 17 tons and can accommodate a wide range of loads from 4,170 kN to −2,790 kN (uplift), longitudinal movements of 3,100 mm (122 in), transverse movements of 50 mm (2 in) and rotations of 0.039 radians about the x-axis and 0.010 radians about the y-axis.

Expansion Joints:

In addition to the bearings, 12 TENSA®MODULAR LR expansion joints were supplied by mageba. The largest, type LR17 with 17 individual gaps, will allow longitudinal movements of 1,350 mm (53 in). The joints are also equipped with 'Fuse-Box' earthquake protection devices which prevent serious damage to the joint, and the connecting bridge structure, in the event of an earthquake. The 'Fuse-Box' also enables the modular expansion joint to continue to allow passage of emergency vehicles after a seismic event.

Highlights & Facts

mageba products:

Type:	12 TENSA®MODULAR expansion joints, with up to 17 gaps, and 4 special uplift bearings
Features:	Uplift bearings
Installation:	2009

Structure:

City:	Vancouver
Country:	Canada
Type:	Hybrid cable stay design
Completed:	2009
Length:	2,410 m 1.45 mi with 3 main spans each 242 m (794 ft) long
Contractor:	GCCJV (Bilfinger Berger and others)
Owner:	TransLink

The bridge crosses the Fraser River near Vancouver, Canada

Preparing the special bearings for transport

Installation of LR17 expansion joint featuring "Fuse-Box" seismic protection