

Queensferry Crossing (UK)



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Project description

The Queensferry Crossing, formerly known as the Forth Replacement Crossing, is a unique bridge built across the Forth River Estuary near Edinburgh in eastern Scotland. The structure, with a length of 2.7 km including approaches and a height of 207 metres above high tide, is the longest three-tower, cable-stayed bridge in the world and also by far the largest to feature cables which cross mid-span.

This innovative design provides extra strength and stiffness, allowing the towers and the deck to be more slender and elegant. The bridge was opened to traffic in September 2017.

mageba scope

RESTON®SPHERICAL bearings support the structure's deck. For the viaducts, bearings weighing as much as 16 tons each facilitate movements of up to $\pm 1,250$ mm, vertical loads of up to 95 MN (weight of Eiffel Tower) and horizontal loads of up to 13 MN. The flanking towers are each equipped with two vertically-aligned spherical bearings to allow deck movements and transfer horizontal loads of up to 17 MN. To facilitate axial expansion / contraction, the bearings are preloaded using disc springs. During construction, the deck is restrained at each tower by 8 huge LASTO®BLOCK bearings (up to 46 MN each).

The bridge is also equipped with four TENSA®MODULAR expansion joints with a movement capacity of up to 2,300 mm. These are among the largest expansion joints ever manufactured and a world record for modular expansion joints with noise-reducing sinus plates.

Highlights & facts

mageba products:

Type: RESTON®SPHERICAL bearings (up to 95 MN, preloaded by springs)
LASTO®BLOCK bearings
TENSA®MODULAR SILENT expansion joints of type LR17-LS100 and LR23-LS100
ROBO®MUTE lower noise reduction system

Installation: 2013–2017

Structures:

Location: Edinburgh, Scotland
Completed: 2017
Length: 2.7 km incl. approaches
Contractor: FCBC JV (Hochtief, Dragados, American Bridge, Morrison)

The bridge crosses the Forth River Estuary near Edinburgh, Scotland



The finished bearings ready for shipment



TENSA®MODULAR LR23-LS expansion joint during installation

