

Delaware Memorial Bridge (USA)



Project description

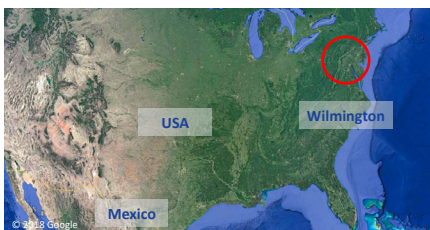
The Delaware Memorial Bridges is a twin suspension bridge crossing the Delaware River. The toll bridges carry Interstate 295 and U.S. Route 40 between Delaware and New Jersey.

It is one of only two crossings of the Delaware River with both U.S. Highway and Interstate Highway designations, the other being the Benjamin Franklin Bridge.

Scope of this project was to replace the existing pin & links, with modern uplift spherical bearings which offer lower friction as well as a robust uplift restraint.

The project's engineers also selected mageba's flexible plug joint to replace existing joints. To get a more in-depth idea about the joint's performance it was decided to execute two trial installations.

The Delaware Memorial Bridge is located in Wilmington, in the state of Delaware



mageba scope

In 2019 mageba supplied 16 RESTON® SPHERICAL bearings, designed to resist frequent service limit state uplift loads of up to 302 kips (1,344 kN). A full scale bearing was tested to 150 % proof tension load, as well as cyclic tension compression loading to simulate the frequent uplift load case.

All bearings are equipped with structural health monitoring, comprising of tiltmeter, displacement sensor and proximity sensors, that measure the rotation, movement and wear of sliding material respectively. The monitoring system is accessible 24/7 by the owner, through a user friendly web interface.

The trial installations of two types of TENSA® POLYFLEX® flexible plug expansion joints have been completed. In the coming years (2022–23) they will replace the bridge's aging and damaged compression seal joints.

Installation of the POLYFLEX joint on two lanes at a time allowing traffic to remain flowing



Highlights & Facts

mageba Products:

Type:	RESTON® SPHERICAL bearings with up-lift control TENSA® POLYFLEX Advanced and RapidCure plug expansion joints
Feature:	SHM for bearings
Installation:	2019 / 2020 / 2021

Structure:

City:	Wilmington, DE
Country:	United States
Type:	Suspension bridge
Span:	2,150 ft. (655 m)
Length:	10,765 ft. (3,281 m)
Owner:	Delaware River and Bay Authority
Contractor:	American Bridge Company
Engineer:	HNTB Corporation

One of the bearings ready for shipping

