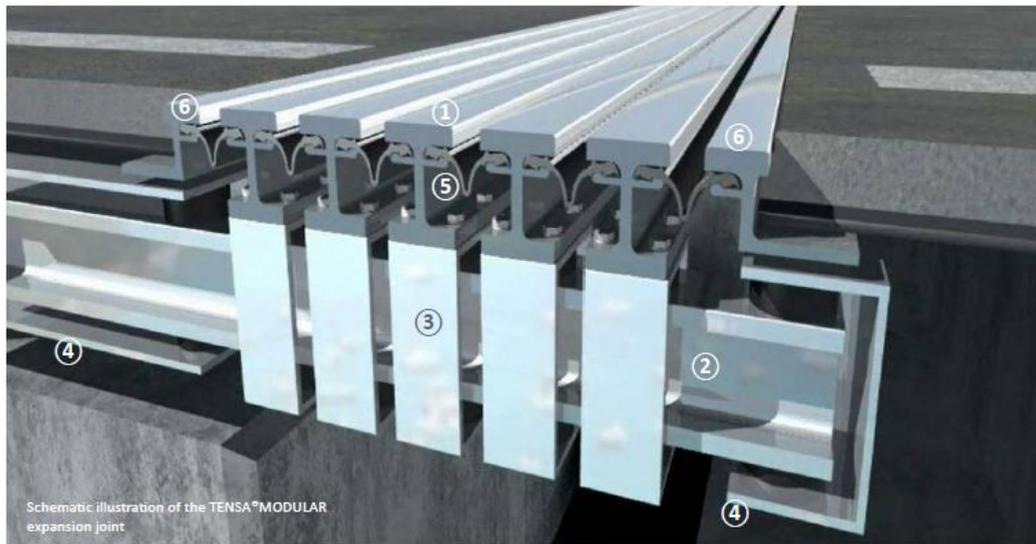


mageba modular expansion joints the benchmark for large movements

TENSA®MODULAR Types LR and LR-LS

Parts and components

The joint's individual lamella beams ① rest on and slide along support bars ②, and are connected to these by stirrups ③ through which the support bars pass. The support bars span between support bar boxes ④ in the deck structures at each side of the movement gap. Both support bars and lamella beams are supported by high-quality polymer elements and prestressed by elastomeric components. The movements of the lamella beams relative to each other and along the support bars are regulated by control springs. Sealing profiles ⑤, which connect the lamella beams to each other and to the joint's edge profiles ⑥, make the system enduringly watertight.

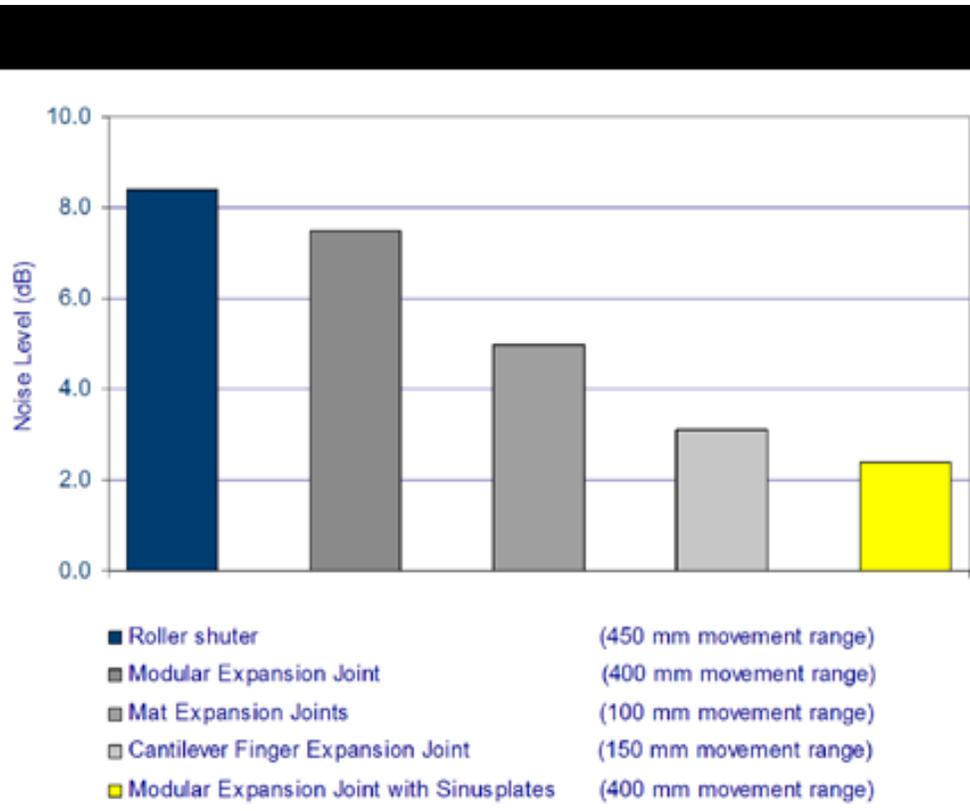


Sinus plates

The use of “sinus plates” reduces the noise from over-rolling traffic by up to 80 % by covering the straight transverse gaps in the carriageway. The wheels of over-rolling vehicles thus maintain constant contact with the expansion joint’s surface, **eliminating the noise caused by impacts with the gap edges**. The special shape of the sinus plates also enables motorcycles and bicycles to cross the joint safely. TENSA®MODULAR expansion joints **featuring sinus plates are ideal for use on bridges near residential areas or in other noisesensitive zones**.

The bolting (rather than welding) of the sinus plates to surface of the joint enables the sealing profiles beneath to be easily and quickly replaced if necessary.





Comparison of noise levels generated by traffic crossing joints of different types (yellow: a modular joint featuring sinus plates) - **reduces the noise from over-rolling traffic by up to 80 %**

Related products

The following mageba products can be used in combination with TENSA®MODULAR expansion joints:

- **ROBO®MUTE: Noise-protection system, consisting of mats placed beneath and at the ends of the joint to reduce noise emissions**

Reference Projects

A1 Motorway Bridges, Pyrzowice - POLAND

Project description

Autostrada A1, the Polish part of European route E75, stretches the length of Poland from the northern Baltic coast to the Czech border in the south with a length of 568 km. The motorway was newly constructed or re-constructed along its entire length in recent years, and mageba played a part in the construction of many of its bridges. The section between the towns of Pyrzowice and Piekary Śląskie in southern Poland contains many bridges, a number of which were constructed using mageba products.



mageba scope

mageba supplied a large number of TENSA-MODULAR expansion joints for the construction of the bridges on this motorway. These included 16 large joints with eight movement gaps or more.

The expansion joints, of types LR8-LS and LR9-LS, **feature noise-reducing surface plates ("sinus plates")**. They also feature **ROBO-MUTE noise-reducing mats underneath**, to minimise the noise escaping from beneath the joints during the passage of traffic. And **to minimise impacts and noise also in the future**, each joint features **ROBO-DUR asphalt-reinforcing ribs at each side**.

Key data

Products:	TENSA-MODULAR expansion joints of types LR8-LS and LR9-LS
Features:	Noise-reducing surface, ROBO-MUTE noise--reducing mats, ROBO-DUR asphalt-reinforcing ribs
Installed:	2011
Country:	Poland
Structures:	Highway bridges
Located on:	A1 motorway
Completed:	2011

A7 Fulda Valley Bridge – GERMANY

Project description

The A7 is the longest German autobahn and also the longest national motorway in Europe, with a length of 963 km. It bisects Germany almost evenly between east and west, extending all the way from the Danish border in the north to the Austrian border in the south.

One of the motorway's many viaducts is the Fulda Valley Bridge at Welkers, near the city of Fulda in central Germany. The multi-span, prestressed concrete structure has a length of 931 m. During the course of renovation works in 2009, the expansion joints at each end of its deck were renewed.



mageba scope

In replacing the viaduct's expansion joints, it was decided to install new TENSA-MODULAR joints of type LR-LS. In contrast to standard TENSA-MODULAR joints of type LR, **these feature noise-reducing sinus plates on their surface**, which bridge the joint's individual movement gaps, preventing wheel impacts. **The use of Type LR-LS joints thus minimises the noise caused by vehicles crossing the joints, WHICH CAN BE A CAUSE OF SIGNIFICANT DISTURBANCE TO THE LOCAL COMMUNITY.** It also increases driver comfort and minimises wear and tear, both on the expansion joint and on crossing vehicles.

Key data

Products:	TENSA-MODULAR expansion joints
Features:	Noise-reducing surface, ROBO-MUTE noise--reducing mats, ROBO-DUR asphalt-reinforcing ribs
Installed:	2009
Country:	Germany (Welkers / Fulda)
Structures:	Motorway viaduct
Renovated:	2009