



Millau Viaduct, France

World's highest cable-stayed bridge

MAURER Structural Protection Systems



Figures and Facts

Location: A 75 / France,
Clermont-Ferrand - Béziers

Owner: Republic of France

Concessionaire: Compagnie Eiffage du Viaduc de Millau / 75 years

Contractor: Groupe Eiffage

Design: Foster&Partners, SETRA, EEG Simecsol, Sogelerg, Serf, M. Virlogeux
8 span cable stayed bridge

Consultant: Bureau Greisch D'Etudes, Setec

Total investment costs: 300 million Euros
Eiffage runs the bridge for 75 years before it will be returned to the Republic of France

Utilisation: National Highway

Total Bridge Length: 2.460m

Main spans: 6 x 342 m + 2 x 204 m

Width of superstructure: 28 m

Maximum height: 343 m

Height of roadway above river Tharn: 270 m

Involvement of Maurer Söhne

64 Incremental Launching Bearings, ("Balancelles"), with a step size of 600 mm, to forward the superstructure from the abutments to its final position without inducing any horizontal forces into the piers

32 Spherical Bearings, vertical load = 120.000 kN each, equipped with special sliding material

2 Swivel Joist Expansion joints, DS 1040 and DS 1200, length = 27,75 m each, movement = ± 520 mm and ± 600 mm each



Involvement of Maurer Söhne

The extreme height of the piers required special launching devices to avoid the transfer of horizontal loads into the substructure (Fig. 1, 2). These devices, temporarily arranged between substructure and bridge deck, generated a

step-by-step shifting of the deck with a step-size of 600 mm. The so-called "Balancelles" worked self-contained, i.e. no horizontal forces, resulting from launching, were transmitted into the piers.



Fig. 1, 2: Installed launching device to forward the superstructure

The bearing system is based on spherical bearings with a vertical load of up to 120.000 kN. On each pier, 4 bearings are installed, two of them fixed and two of them with a transverse movement capacity of 20 mm. The longitudinal movement is accommodated by the elastic deformation of the high piers. On the abutments, moveable bearings with a longitudinal movement capacity of 1.330 mm are installed. The bearings are equipped with a special sliding material to accommodate the high stress of more than 100 MPa.

At each abutment, a 27,75 m long MAURER Swivel Joist Expansion Joint with a movement capacity of ± 520 mm and ± 600 mm respectively is installed. The system is based on a geometrical motion control system for the centre beams, i.e. no control springs are required. That way, an equal distribution of the total movement to the single strip seals can be guaranteed.

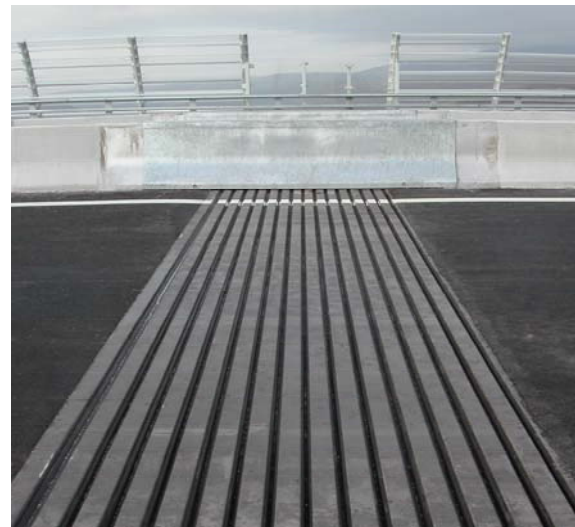


Fig. 3, 4: MAURER spherical bearing, installed MAURER Swivel Joist expansion joint