

SPECIAL REPORT

THE MILLAU VIADUCT a World Record Breaker

Designed by the English architect, Lord Norman Foster, the Millau Viaduct cost some 310 million Euros (2.03 Billion French Francs), and is financed and constructed by the Eiffage group as part of a 75-year chartered concession.

An exceptional piece of civil engineering

This bridge sets world records for height, with masts reaching 340 meters (higher than the Eiffel Tower). The Millau Viaduct is multi-span, cablestayed, 2,460 meters long, and provides 2 driving lanes in each direction, skipping over the Tarn Valley touching down at only 9 points. It fits very nicely into the surrounding countryside, thus meeting the requirements of the architect and the local communities. To meet these requirements, however, highly advanced technologies were employed, including a streamlined steel bridge-deck supported by cable-stays and resting upon 7 very slim piers constructed with high-grade concrete. It climbs a gentle slope of 3% from north to south, and has a slight curve on-plan.



Environmentally Friendly Technological Solutions

The Viaduct's trajectory respects the area's major natural sites and the exceptional landscapes of the confluence of the Dourbie and Tarn valleys, whilst providing convenient access to the greater Millau area. Apart from the aesthetic and environmental concerns associated with the project, the technology used to build the steel bridge-deck and concrete piers has several advantages. The first of these is quite simply the lightness of the streamlined bridge deck, which allows for a lighter support structure, as well. The construction method was also beneficial. The factory pre-production of certain parts of the deck reduced the volume of material that had to be worked on-site, something which never would have been possible with an all-concrete structure. Less equipment, less construction material, fewer trucks going back and forth clogging up traffic... in all, it added up to less disturbance to the life of the local population. A wastewater treatment system was even put in place so as to avoid soil pollution. General worksite waste was another issue taken into account by the quality assurance program throughout the construction phase. These same concerns are represented in the very design of the viaduct, with several permanent systems in place for the recuperation and treatment of rainwater and road-surface residues.

Standing up to all Tests

The Viaduct was designed to meet the highest standards, in terms of longevity and resistance to seismic events and the most extreme of meteorological conditions. It was built to work perfectly for the next century and beyond.

Traveller Comfort and Safety

The Millau Viaduct is equipped with safety barriers built to withstand truck impacts, transparent windscreens 3-meters in height and emergency lanes for the travellers' greater comfort and safety. In case of a breakdown or accident, emergency phones are positioned every 400m. Excepting serious accidents or exceptional wind forces, the Viaduct is open 24 hours a day. In addition to national weather information sources, the Viaduct's information centre has its own weather forecasting system.

The Millau Viaduct in Numbers

The bridge will be operated under a 75-years concession contract with the Eiffage group. It was built to specifications requiring perfect operation for a minimum of 120 years. Representing an investment of some 320 million Euros (2.1 billion French Francs) the project was financed with Eiffage's own funds.

Maximum height, measured from the top of the masts:

343m (Eiffel Tower: 320.75m)

Height of bridge-deck relative to the river Tarn:

270m

Overall length: 2,460m

Spans

8 individual spans, with 6 measuring 342m and 2 measuring 204m, resting on 7 piers and suspended by cablestays fixed to 7 masts rising 90m each.

The tallest concrete pier measures

240m from the bottom of the bridge-deck.

The decks contain some 36,000 tons of steel (7 times the Eiffel Tower).

The piers and abutments contain some

85,000 cubic meters of concrete, 50,000 of which are high-grade concrete (equal or superior to B60, for a sum total of over 250,000 tons of concrete).

Concrete pier section area:

- at the foundation top 200m²
- under the deck bearings: 30m²

slope: approximately 3% (climbing to the south)

Tollhouse: 18 lanes covered by a roof created using

BSI concrete technology and 'Ceracem'

(cold-moulded ceramic concrete), patented by Eiffage Construction.

Workers present on the work site:

500 (Eiffage figures).

A Door Opening to the South

The Millau Viaduct is the last link in the "Mériidienne" (A75), a free motorway linking Clermont-Ferrand to Béziers and Narbonne. The Méridienne is now the shortest, least encumbered and the least expensive route between Paris, the Mediterranean and Spain.

A Tourist Motorway Located in the Heart of France

This new artery crosses the magnificent landscapes of the Auvergne, the Margeride, the Aubrac, and the Grands Causses. Buttressed to the north by the Causse Rouge and to the south by the Causse du Larzac, the Millau Viaduct crosses the Tarn Gorges, one of France's greatest natural tourist attractions. It is located near the famous Roquefort Caves, the Templar and Hospitaler Commanderie villages of south Aveyron and the Cistercian abbey of Sylvanès. A few kilometres farther south, one reaches the Pas de l'Escalette and the shelves of the beautiful Mediterranean valley that lead, via Montpellier or Béziers, to the beaches of the Languedoc.

One of France's newest and most exciting monuments

The exceptional dimensions of the Millau Viaduct, the aesthetic decisions of architect Norman Foster and, of course, the natural grandeur of the Aveyronnais landscape and the Gorges du Tarn which surround it, all come together and make the region even more attractive to tourists. All of France's great works of civil engineering, such as the bridges of Normandy and Tancarville, or the Marémoirice factory of the Rance, today make up a group of major destinations for individuals and groups of tourists.

The visiting statistics at their welcome centres are proof of this. The recent increase in technological tourism is undeniable, so much so that major industrial sites are now opening up to the general public. The Millau Viaduct is far more than a simple work of civil engineering used by hurried travellers. Many people take the time to stop and look from a rest area upstream of the Millau tollhouse. As with its prestigious ancestor, the Pont du Gard, or a more recent work such as the Garabit Viaduct (the founding work of the Eiffel company, an affiliate of the Eiffage group and active participant in the viaduct project), the Millau Viaduct has also become a major stop amongst France's major technological and historic heritage sites.