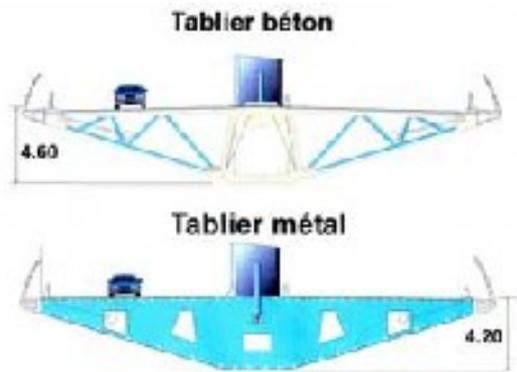


A steel and concrete viaduct



The metal deck is thinner in profile than a concrete deck (document DDE 12 - AIOA)



The first temporary pier

A steel deck and pylons.

There are several advantages to a metal deck:

- it is **thin** (4.2m thick as opposed to 4.6m for concrete) and therefore aesthetically pleasing,
- it is **light**, which means the number of stay cables is reduced and subsequent maintenance is easier,
- it has the **durability** and long-term **stability** of steel
- the members can be **manufactured in advance to a very high standard** in the EIFFEL factories at Lauterbourg and Fos-sur-Mer and then assembly and launching can be performed on the motorway, out of the wind.
- 96% of the man-hours can be worked on platforms and not at height. This greatly **increases worker safety** as the structure reaches a maximum height of 380m above the Tarn.

Piers and abutments made from high performance concrete

- **Constructing the seven concrete piers constituted the other major engineering challenge.** The piers range from 70m to 240m in height below the deck and have the particularity of constantly changing in cross-section: they are hollow and for the top 90m their truncated lozenge shape becomes a narrow fork.
- The surface area of the piers at the base is 200m². At the top the two branches have a total bearing surface of less than 30m². The deck and 90m tall metal pylons are supported by this “tuning fork” structure

- The high performance concrete used is manufactured on the site by two mixing plants. The concrete in the piers is mostly placed by pumping.

Launching on temporary piers

- When the concrete abutments and piers are finished, the deck is launched from the platforms on each side of the Tarn. A metal span, with a pylon at one of its ends and temporary stay cables, is incrementally launched from each side (pushed forward 171m each time).
- In this way, the deck moves towards the definitive supports, resting on temporary piers (these are very high intermediate structures placed between two permanent piers). The two members of the bridge join above the Tarn and are welded together.
- The five other pylons are taken from their manufacturing area to their final position and then tipped up using a device that is used to install distillation columns in refineries. The stay cables are then lifted and tightened.
- Once the structure is adjusted, the temporary piers are removed.