# Reggio Emilia Arch Bridge

**Client:** Cimolai Construzioni Metalliche

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The contract to construct a new arch bridge across the Autostrada near Reggio Emilia in Italy was awarded to Cimolai Construzioni Metalliche who elected to build the arch using a similar method to that employed during construction of the arches forming the roofs over the Athens Olympic Stadium.

The chosen method of construction was as follows:

- Sequential launching of the deck with pre-assembled arch sections positioned on the top. This allowed the majority of the assembly works to take place in one area well away from the Autostrada.
- The arch was pre-assembled in six pieces with the four central pieces temporarily pinned together at three points.
- The central four pieces were lifted using strand jacks mounted on top of three support towers.
- Lifting of the central four pieces allowed the arch to take shape and the pin joints to be sequentially locked-out.
- Once the arch had taken shape the lifting operation continued until the arch was at it's final elevation and the two end pieces could be installed by cranes.
- Finally lowering off the strand jacks allowed the arch to become self-supporting.

**Above:** Lifting of the central portion is complete. The temporary pin joint can now be locked out. Note the hangers are already installed.

**Below:** The end pieces are installed by crane.

The strand jacking operations were performed using Fagioli PSC equipment comprising of:

- Two L300 lifting jacks on each of the outer two towers. These jacks were provided with 19 part cables each with a safe working load of 290 tonnes. The maximum load on these jacks was 206 tonnes which was achieved immediately before lowering off.

- Two L180 lifting jacks on the central tower. These jacks were provided with 12 part cables each with a safe working load of 180 tonnes. The maximum load on these jacks was 150 tonnes which occurred before adding in of the two end pieces.

- Hydraulic power packs located on top of each tower.

**Above:** Start of the lifting operation. Note temporary pin joint in centre of arch

**Below:** Views from one of the side towers to the centre tower. Note cantilever jack support arrangement for the two L180 jacks