

# Incrementally launched bridge A5 Chirk Bypass

**Client:** Welsh Office

**Main Contractor:** Christiani & Nielsen Limited

**Consultant Engineer:** Travers Morgan & Partners



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CIVIL 11



The staged construction cycle allowed launching to take place once a week, which was carried out by two Fagioli PSC L600 strand jacks, aligned horizontally and located at the face of the south abutment, with the jack cables passing beneath the deck and attached to a collar placed at the back of each finished deck section, and driven by an L4/15D powerpack. During launching the structure moved across temporary stainless steel bearings located on each temporary and permanent pier at speeds of up to 7 metres/hour. Each section therefore being launched in just over two hours. Every pier was monitored to ensure that no undue horizontal stresses were being transferred during the launch, and as a final safety precaution a manually operated safety cut off switch linked directly to the power/control unit was located on top of each pier.

The A5 Chirk bypass required for a structure to cross the 450m wide 30m deep Ceirog Valley. Due to the structures constant horizontal and vertical curves, an incremental launch was offered by the contractor as a cost effective alternative to traditional scaffold and falsework construction.

The final design involved the launching of 31 trapezoidal sections across eight temporary and seven permanent piers; each section being 15.25m long and weighing 425 tonnes, with the match cast sections being formed directly behind the south abutment within a site established yard.

The bridge is an eight span structure, consisting of two abutment spans of 50 metres and six mid spans of 61 metres.

Fagioli PSC Limited were awarded a subcontract package for the design, supply and operation of the hydraulic launching system and for supply of the jacks for the final jacking and positioning of the bridge onto the permanent bearings.



**Above:** fixed anchor attached to collar.



**Above:** L600 jacks and L4/15D powerpack performing a launch.