

## Lowering/Lifting of Casting Gantry - Orwell Bridge

**Client:** Department of the Environment

**Main Contractor:** Stevin Construction B.V.

**Erection Contractor:** Sparrows Contract Services



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The Orwell Bridge at Ipswich was constructed as part of the Ipswich Southern By Pass. The bridge is a dual carriageway with a length of 1287 metres. The main contractor decided on the use of two travelling casting gantries for the construction of the east and west approach spans. These gantries each weighed 440 tonnes and were 120 metres long x 13.5 metres wide x 4 metres high.

On completion of the casting of the west approach spans, the gantries had to be lowered to the ground, dismantled, shipped to the east approach, re-erected and lifted into position in order that the east approach could be cast.

This subcontract was awarded to Sparrows Contract Services who had quoted use of Fagioli PSC jacks for the lifting/lowering operations.

Four Fagioli PSC L180 jacks with a 600mm stroke were mounted on two yokes, two jacks on each, which were mounted on the bridge deck at each end of the gantry. Each jack carried a different load, the highest being 160 tonnes, utilising a 12/18 lowering cable, and the lowest being 70 tonnes, utilising a 7/15 lowering cable.

The connection of the cables to the structure was by means of single strand anchors due to the restrictions of the gantry steelwork.

A single L4/15D diesel power pack was mounted on the deck, remotely controlling all 4 No. jacks.

During the lowering operation rate of lowering achieved was 6 metres per hour for the 40 metre operation.

This gantry being lowered enabled the second gantry to continue its casting cycle up to completion. The first gantry was then dismantled, shipped to the east side and re-erected ready for lifting.

The same equipment was utilised for the lifting operation, with the exception that one yoke was mounted on towers tied to a pier, as the deck had obviously not yet been cast at that point.

The lifting operation achieved lift rates of 9 metres per hour during the 14 metre lift.