

## Construction of the Funder Valley Bridge using the Match-Cast-Construction Method (longest land bridge of Denmark)

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1994 MSc of Structural Engineering at the University of Surrey/GB

1995 – 2000 Consulting office in Hamburg afterwards technical bridge design office of DYWIDAG in München

2000 – 2005 Site manager or Project manager on various construction sites

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The bridge construction division of DYWIDAG Bau GmbH is realizing the Funder Valley Bridge in a consortium together with ZÜBLIN Scandinavia A / S (DYWIDAG 90%, ZÜBLIN 10%). The bridge is part of the 12 km long motorway section that is closing the gap between East – West connection Herning - Århus. The bridge consists of two separate superstructures, each having a length of 730 m and a maximum span of 85 m. With a bridge surface of approximately 21,000 m<sup>2</sup>, this is the largest land bridge that has ever been built in Denmark.

The solid piers are founded on spread footings and have a maximum height of 25 m. The cross section of the box girder is prestressed. The top and bottom slab are prestressed centrally, whereas the webs feature an eccentric prestressing.

For the construction of the superstructure, the match-cast incremental launching method – which is patented by DYWIDAG Bau GmbH – is applied. Using this construction method it is possible to realize a variable curved gradient profile of the superstructure. For this purpose it is necessary to rotate the launching port and to allow transverse movements at the launching bearings at the top of the piers. The north and south superstructure are launched using 26 respectively 27 segments with a maximum segment length of 28.40m.

Another feature used in this project is the divided launching port, meaning that the manufacturing facility consists of two parts. In part A the trough of each section is produced. In part B the deck slab is casted. Due to this arrangement variable cross-section heights become technically feasible. During the construction stage additional temporary piers between the main piers are required.

However, in the area of the Funder River temporary supports are not allowed. Therefore, DYWIDAG designed a special temporary steel structure to support the superstructure during the launching process over the river without touching the ground.

After the completion of the north superstructure the launching port, the temporary piers and the temporary steel structure will be shifted transversely to be used for the production of the south superstructure.



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