



■ Bridges



DSI Network: www.dywidag-systems.com

Reference Details:

Client and Operator DB Netz, Deutsche Bahn Gruppe, Germany +++

Design and Engineer Köhler + Seitz, Nürnberg, Germany +++

Main Contractor JV Ingenieurbau ABS Marienbrücke Dresden, Germany (Walter Bau-AG merged with DYWIDAG as well as Oevermann GmbH) +++

Subcontractor SUSPA-DSI GmbH, Stressing Technique Division, Dresden, Germany

DSI Services DSI GmbH / SUSPA-DSI GmbH: Entire prestressing steel work: Supply and installation of about 435 t prestressing steel St 1570/1770; DSI Group HQ Operations: Supply of the entire equipment for the cantilever construction.



435 t of DYWIDAG Prestressing Steel strengthen the Bridge Marienbrücke in Dresden

Rehabilitation of the Marienbrücke Railway Overpass across the Elbe river, Dresden, Germany

In the course of a comprehensive reconstruction project on the oldest German railway line from Leipzig to Dresden, Deutsche Bahn (German Railways) is currently increasing the capacity of the 1.7 km long section between the center of Dresden and Dresden-Neustadt. An investment volume of EUR 75 million has been assessed for this expensive subproject. The Marienbrücke is the main item of this section. Built in 1901, the 490 m long Marienbrücke crosses the river Elbe. Since the structure no longer meets today's technical and operational requirements - the maximum speed on this four-track bridge is 30-40 km/h - it will be expanded to five tracks throughout the entire line by October 2004. After completion, the maximum speed on the new bridge will be raised to 80 km/h,

increasing the number of trains per day from 330 to 550. The increase in capacity is to meet the projected traffic demand for the foreseeable future.

Extensive tests revealed that the stability and bearing capacity of the piers and the arch of the approach span are currently adequate and will also meet the projected demands of the rehabilitation project. For this reason the bridge need not be rebuilt completely; however, the railway troughs on the approach spans and the superstructure of the Elbe bridge must be replaced.

Since the bridge is to remain open for railway traffic during the reconstruction, the repairs and improvements were carried out in two stages: from March to September 2002 the side towards the city was completed as stage 1. Work on stage 2 began in January 2003 after the opening of stage 1.

The newly renovated bridge is an excellent example of how structural stability can be combined with valid building preservation orders. Instead of being rebuilt as an old steel truss bridge, the structure is executed as a new post-tensioned bridge (specific proposal of DYWIDAG) on historic piers. Since the arches of the new superstructure match the outline of the old structure, the overall impression of the old building structure will hardly be changed.

The bridge spans are 36.96 m, 65.70 m, 65.80 m, 64.86 m and 24 m. The first superstructure (the two-track side towards the city) was built as a single cell box girder, the second superstructure (the three-track line) is being built as a two cell box girder. In each of the two superstructures, four sections are constructed on falsework and 23 sections are built using the free cantilever construction method.

For the first superstructure SUSPA-DSI supplied and installed prestressing steel St 1570/1770 for the bridgedeck, excentric prestressing systems for the webs, the bottom slab as well as external tendons using 27 strands with a total weight of 181 t. For the forthcoming second superstructure approximately 254 t of prestressing steel will be supplied and installed.

Reconstruction will be completed in the spring of 2004.

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