REFERENZ HARBOUR CONSTRUCTION AND MARINE ENGINEERING

Construction new Rethe-bascule-bridge, Hamburg

The port of Hamburg gets one of Europe's largest bascule bridge, accommodating both, railway and road traffic. The bridge spans a branch of the River Elbe and is an important link inside the port. It replaces an existing lift bridge following 75 years of service.

The double wing bascule bridge consists of two parallel structures, a 10.20 m wide railway bridge, and a 14.00 m wide road bridge, both measuring 104 m between the rotating bearings.

The main structure comprises four truss girders on the bridge sides, which taper to the middle of the bridge. The cross section of the road bridge is an orthotropic deck, while that of the railway bridge is an open grid deck. The new bridge is being built alongside the existing bridge, which will be demolished afterwards.

A finger system at the end of the wings allows the connection of the wings without any mechanical locking system. The opening time of the bridge is approx. four and a half minutes and the closing time is less than 8 minutes. Owing to the heavy ship traffic, the bridge has to be opened approx. 3,000 times a year.

The two abutments carrying the rotating bearings of the bridge are double chamber concrete box structures, 31 m wide, 26 m long and 21 m high. When the bridge is open, they accommodate the rear section of the bascule bridge together with the counterweights below.

Contract value:
65,8 € Mio

Executed by:
FZ Baugesellschaft (KGF 32,94%)

Employer: HPA Hamburg Port Authority

Construction Period: 2010 – End of 2017
Structural hydraulic engineering finished 2015
Location: Hamburg

Services: Construction of a 104 m long bascule bridge for railway and road traffic

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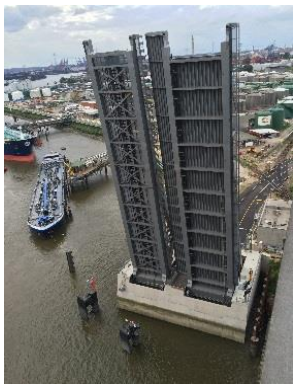
The abutments are built in the river, inside a construction pit formed by sheet pile walls. To keep the pit dry, the base consists of an underwater concrete slab set on bored piles. The piles provide uplift protection during construction and will later serve as the foundation to the abutments.

Four companies were integrated into a single joint venture to cover all aspects of the works. Among these companies are the two affiliates of Bilfinger, F+Z Baugesellschaft of Hamburg with their waterfront construction experience including their own jack-up platform and floating equipment, and Bilfinger MCE of Linz, Austria with their expertise in fabrication and installation of steel structures.