



**NEW CONSTRUCTION OF RETHE BRIDGE (LOT 1)
EUROPE'S LARGEST BASCULE BRIDGE**



Loading of the road bridge in Wilhelmshaven



Assembly by floating crane in Hamburg

The new bridge across the Rethe in Hamburg is to replace the existing lift bridge that was built in 1934 on the one hand and to considerably improve the traffic situation for road, rail and ship on the other.

The span between the pivot bearings is 104.20 m, while the bridge width of the road bridge is 14.4 m and that of the harbour train bridge is 10.2 m. Road and railroad bridge consist of two double-leaf bascule bridges each with the counterweight below the deck. The rear arms of the bascule bridges are closed to vehicles or rail traffic as they are located below the carriageway slabs of the leaf piers which were designed as WIB (sectional girders in concrete) construction.

The steel structure of the leafs and the harbour train foreshore bridge were fully preassembled at the preassembly location in Wilhelmshaven and corrosion-protected.

After completing the work in Wilhelmshaven the individual components were loaded onto two transport pontoons via SPMTs and shipped to Hamburg.

The foreshore bridge and the 4 leaves (dimensions: length: 67.1 m, height: 14.5 m, weight: 650 t) were lifted in place using a pontoon crane during a 2-week blockage of the waterways. After an extremely accurate alignment of the leaves upon the pivot bearing consoles the counterweight was installed consisting of heavyweight concrete and steel slabs.

The novelty of the new Rethe bridge is the fact that no mechanical locking unit was installed at the leaf tip. A special finger construction allows positive span moments and shearing forces to be transferred. Furthermore, the leaves are automatically balanced by the finger construction.

Facts & Figures:

Steel weight:	2,700 t	Construction:	Double-winged bascule bridge
Length:	104.2 m	Customer:	HPA Hamburg Port Authority
Width:	14.0 und 10.3 m	Construction period:	2010 - 2016
Steel quality:	S 355M / S 355 NL		