

## Installation of the largest stay cable system in Poland – the Rędziński bridge in Wrocław

### Paweł HAWRYSZKÓW

PhD, Civil Engineer  
Wrocław University of  
Technology, Freyssinet  
Poland, Wrocław, Poland  
[pawel.hawryszkow@pwr.wroc.pl](mailto:pawel.hawryszkow@pwr.wroc.pl)

Paweł Hawryszków, born 1979, received his PhD degree from the Wrocław Univ. of Technology in 2009. In 2011 as a works manager was responsible for installation of the stay cable system of the Rędziński bridge in Wrocław.



### Maciej HILDEBRAND

PhD, Civil Engineer  
Wrocław University of  
Technology, Wrocław,  
Poland  
[maciej.hildebrand@pwr.wroc.pl](mailto:maciej.hildebrand@pwr.wroc.pl)

Maciej Hildebrand, born 1971, received his PhD degree from the Wrocław Univ. of Technology in 2000. He was responsible for quality control during installation of the stay cable system of the Rędziński bridge in Wrocław.



## Summary

The City of Wrocław has been surrounded by the highway bypass since the year 2011. There is a large cable-stayed bridge along that way across the Odra River including two main spans each 256 m long. The height of the pylon is 122 m. The deck is supported from 160 stays Freyssinet HD2000 type. Total quantity of steel in stays reached about 1500 tons. The installation of stay cables was arranged according to Freyssinet Isotension procedure, as well as the specialized equipment supplied by Freyssinet was widely used. Time period consumed for installation was extremely short, it lasted about two months. As the result a modern elegant bridge appeared enriching the landscape of Wrocław peripheries.

**Keywords:** cable-stayed bridge, concrete superstructure, stays installation, bridge construction.

## 1. Main characteristic of the investment

The Rędziński bridge (object MA-21') [1], [2], [3] built along highway ring road of Wrocław, Poland, was opened to traffic on 31 of August 2011 (Fig. 1). The bridge is constructed over a flood terrain and the main river-bed, as well as over two artificial, navigable channels. The pylon is located on the island separating the main river-bed and the navigable channels. Theoretical length of cable-stayed part of the Rędziński bridge is  $2 \times 256$  m, what locates this structure in the second position in Poland taking into account the longest span (the bridge of the longest cable-stayed span was built in Płock [4] with a span of 375 m) and in the first position taking into consideration bridges made of concrete. The bridge has the highest pylon, 122 m, among bridges built in Poland and the largest stay cable system – 160 stay cables of the total mass of 1500 t (Fig. 2 and 3).

The superstructure was designed with two separate box girders 2.50 m high, made of prestressed concrete. The decks were built using incremental launching method and both were connected to the concrete, H-shaped pylon. All stay cables are anchored in both decks every 12.0 m, whereas in the pylon they are anchored every 1.80 m.

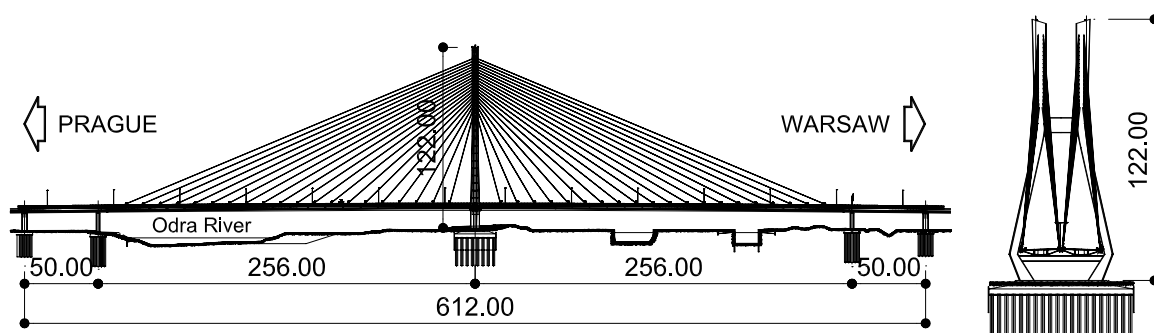


Fig. 1: A scheme of the Rędziński bridge