

Yi Sun-sin Bridge: Erection of Girder using Winch-Driven Lifting Gantry

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Summary

The Yi Sun-sin Bridge connects the cities Yeosu and Gwangyang in Korea. The link provides easy access between Yeosu and the Gwangyang Industrial Complex. It is a suspension bridge with the main span of 1545m carrying four traffic lanes. This paper gives a description of the deck erection method adopted for this bridge. Emphasis has been put on the erection of a girder using a winch-driven lifting gantry.

Keywords: suspension bridge; deck erection; lifting gantry.

1. Introduction



Fig. 1: the Yi Sun-sin Bridge

The Yi Sun-sin Bridge is a suspension bridge with a span layout of 357.5m + 1545m + 357.5m. This is the fourth longest suspension bridge following the Akashi-Kaikyo, the Xihoumen and the Great Belt bridges. Due to the proximity of Gwangyang port, a very long span is required in order to minimize the ship collision risk. The central section provides a 76.7m high clearance. It secures enough span length for container ships of 18000 TEU to cross both ways.

A twin box girder is adopted to ensure economic efficiency and aerodynamic stability. The girder has depth of 3.050m at the centerline of the box and a width of 29m. Cross girders are spaced at the hanger anchorage points. Hangers are spaced every 24m longitudinally and 27m transversely. The arrangement of the cross-section is shown in Fig.2. The deck is continuous from one pier to the other, floating in between pylon legs without deck supports.