

Yi Sun-sin Bridge: A Challenging Method for Catwalk Erection

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Summary

The Yi Sun-sin Bridge is a three-span continuous suspension bridge whose main span is 1545m long. The construction of the bridge began in November of 2007 and the erection of the stiffening girder was recently completed. In order to erect the main cable of the suspension bridge, temporary structures such as a catwalk and a hauling system need to be installed. Among these temporary structures, the construction of the catwalk is important and the catwalk rope should be erected accurately like the main cable as well, because the configuration of the catwalk affects the shape of the main cable. In this paper, the catwalk system of the Yi Sun-sin Bridge is introduced, including the erection method, equipment, and improvements. For the erection of the catwalk rope, the advanced free-hang method was used to enable container ships to pass during construction. In comparison with the existing free-hang method, the improved method makes it possible to use the same hauling rope for the catwalk system and the air-spinning, thus reducing the risk and construction time.

Keywords: air-spinning; catwalk; free-hang method; suspension bridge.

1. Introduction

The Yi Sun-sin Bridge is a three-span continuous suspension bridge that is under construction at the Yeosu National Industrial Complex access road construction zone 3. The construction of the bridge began in November of 2007 and the cable work, including the erection of the cable band and hanger, was completed in November of 2011. For the erection of the main cable, the air-spinning method was applied. Fig. 1 shows the general arrangement of the bridge and Fig. 2 shows the construction status.

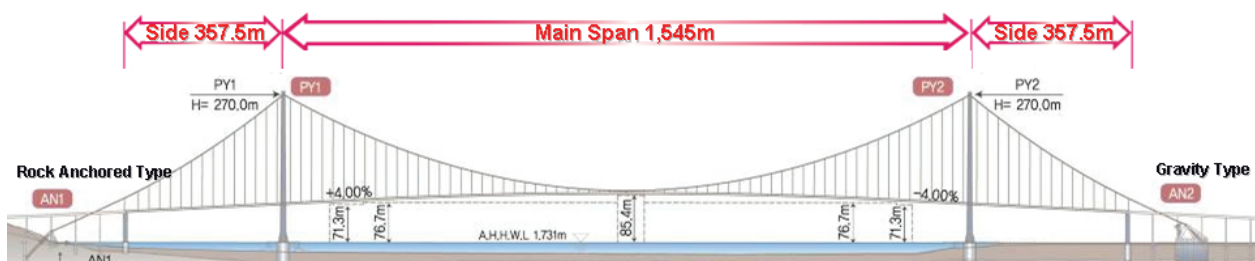


Fig. 1: General arrangement

The cable work of the suspension bridge starts by installing a temporary structure for the air-spinning after the completion of the pylons and anchorages. Unlike other types of bridges, the geometry of a suspension bridge is determined by the shape of the installed cable. Therefore, the