Yi Sun-sin Bridge: Construction of Two Different Anchorage Systems

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Summary

The Yi Sun-sin Bridge is a three-span suspension bridge with a length of 1545m. Two different types of anchorage systems, *i.e.*, the rock-anchored type and the gravity-type, are applied.

For the first time in Korea, the rock-anchored type with minimum rock excavation is applied to reduce environmental damage. In this anchorage system, the accuracy of the drilling inclination for each anchor hole is very important. In order to minimize the error occurred in rock drilling, the stiffness of the drilling rods should be increased using stiffened casings.

For the gravity-type anchorage, a circular slurry wall is used to eliminate the need for an earth support system. During the excavation process, the inner side of the slurry wall is constructed using a top-down method to improve the stability of the wall. The filling material of the inner anchorage was changed from aggregate to RCC (Roller Compacted Concrete) in order to improve its constructability and stability.

Keywords: rock-anchored type anchorage; gravity- type anchorage; circular diaphragm wall; roller compacted concrete.

1. Introduction

In general, suspension bridges are classified into the self-anchored type or the earth-anchored type. The self-anchored type, in which suspension cables are supported by the stiffening girder, is usually applied for a short span suspension bridge. For a long-span suspension bridge, the earth-anchored type, where suspension cables are supported by anchorages, is applied. In Korea, the Yeongjong Bridge and the Sorok Bridge are self-anchored suspension bridges, and the Gwangan Bridge is an earth-anchored suspension bridge.

Fig. 1: Self-anchored suspension bridge

Fig. 2: Earth-anchored suspension bridge

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