Zhoushan Island-Mainland Connection Project
Built for a Long and Efficient Life

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Summary

The Zhoushan Island-Mainland Connection Project in China is a grand project with the total length of 64.6 km including 27.3 km-long five major bridges spanning five channels in succession, among which Xihoumen Bridge is a suspension bridge with its main span of 1650m, and Jintang Bridge has a main navigational channel section, a 620m long steel cable-stayed bridge. After aerodynamic investigation and vibration control related to flutter and vortex-shading having been thoroughly carried out for a efficient life of the project, severe sea environment brings about another kind of life-time problem, durability, and some new technologies are employed against chloride corrosion from the sea for a long life of the project.

Keywords: Zhoushan project; suspension bridge; cable-stayed bridge; aerodynamic problem; anti-corrosion; durability; efficient life

1. Introduction

Located in the East China Sea, Zhoushan is an archipelago city composed of 1,390 islands and islets including a land area of 1,257 km^2 among the 22,200 km^2 administrative area under the jurisdiction of Zhejiang Province. The Island of Zhoushan, the capital town of the city, is the fourth largest island in China after Taiwan, Hainan and Chongming Islands, with a land area of 503 km^2. Connecting two large cities, Ningbo in the mainland and Zhoushan in the archipelago, the Zhoushan Island-Mainland Connection Project will provide a main traffic framework in which the islands are connected with the mainland, which will create conditions for improvement of island economy, people's living standard and development of tourism industry. The project starts from Yadan Hill in the Island of Zhoushan in the east, and ends at Ningbo City in the west, linking to Zhejiang Expressway, with the total length of 64.6 km including 27.3 km-long five major bridges spanning Cengang Channel, Xiangjiaomen Channel, Taoyaomen Channel, Xihoumen Channel and Jintang Channel in succession shown in Fig. 1 [1].

After Cengang Bridge, connected Zhoushan Island with Lidiao Islet with the length of 792.5 m, had been finished with the main section of a three-span 50m-long prestressed concrete (PC) continuous bridge and the approach of multi-span 30m-long PC simply supported beams, both with T-shaped girders of the 22.5 m width provided for two lanes in each direction in November 2001, Xiangjiaomen Bridge, linking Lidiao Islet to Fuchi Islet with a total length of 951 m, was built in

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