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From Bridges across Great Belt and Øresund towards a Femern Belt Bridge

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Summary

In Denmark the construction of three major bridges was initiated in the 1990s: Storebælt Bridge (Great Belt Bridge), Øresund Bridge and Femern Belt Bridge. The first two were completed in 1998 and 2000, respectively, and the third is expected to be constructed during the second decade of the 21 st century. In both design and construction procedures a number of innovative features have been introduced.

Keywords: Box girder bridge, suspension bridge, cable-stayed bridge, wind tunnel test, composite action

1. Introduction

Denmark consists of the peninsula Jutland and 406 islands, out of which 79 are inhabited. The second largest island, Funen, is separated from Jutland by the strait Little Belt and from the largest island, Zealand, by the strait Great Belt. In round figures 45% of the population lives in Jutland 10% on Funen and 45% on Zealand were the capital Copenhagen is situated.

The substitution of ferry services by bridges across the straits separating the different parts of Denmark began in 1935 with the opening of the bridge across the Little Belt and in 1937 with the opening of the Storstrm Bridge between Zealand and Falster. At the opening the 3.2 km long Storstrm Bridge was the longest in Europe.

After the completion during the 1930s of more than ten bridges across a number of the smaller straits in Denmark the country was virtually joined in two

Fig. 1 Map of Denmark