

## **The Fehmarnbelt link – the world's longest immersed tunnel**

The Fehmarnbelt link is one of Europe's most extensive construction projects to date. The 18 km Fehmarnbelt tunnel will connect Rødbyhavn on Lolland in Denmark with the island of Fehmarn in Germany.

In addition to the immersed tunnel Femern A/S is responsible for, the Fehmarnbelt link comprises landworks on the Danish and German sides. The railway - on both sides of the Fehmarnbelt - is being upgraded to two electrified tracks that can handle speeds of up to 200 km/hr. When the tunnel is completed, the train journey from Hamburg to Copenhagen will take well under three hours.

The tunnel will be user-financed – the same model that was used for the Storebælt and Øresund fixed links. The Fehmarnbelt tunnel's payback period is 28 years. The tunnel project funds the investments for upgrading the railway between Ringsted and Rødby.

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Production facilities for the tunnel are currently being established at Rødbyhavn on Lolland. Construction includes a largescale work harbour, a 'town' for the tunnel workers and a tunnel factory to manufacture the tunnel elements. Work in Germany and in the Fehmarnbelt begins in mid-2021. The Fehmarnbelt tunnel is expected to be completed by mid-2029.

## Fehmarnbelt tunnel in figures

- The 500,000 m<sup>2</sup> work harbour will have a navigable depth of 10.3 metres. Up to 80,000 tonnes of sand, stone, cement and steel will be transported there per week during the construction phase.
- The tunnel factory, where the elements will be cast, will measure approx. 1 million m<sup>2</sup>.
- The total construction site at Rødbyhavn is the equivalent of 300 football fields.
- Around 15 million m<sup>3</sup> sand and soil will be dredged from the seabed during the construction phase.
- Reclamation of material from the seabed will result in 300 hectares of new nature and recreational areas corresponding to around 450 football fields.
- 2.2 million tonnes of granite will be used to construct new breakwaters.
- Construction of the Fehmarnbelt tunnel requires 360,000 tonnes of reinforcement bars and 3.2 million m<sup>3</sup> of concrete. Some 2 million m<sup>3</sup> of sand are required for the concrete casting alone.
- The tunnel will have a two-lane motorway in each direction and two electrified train tracks.
- The tunnel will comprise 79 tunnel elements and 10 special elements with a lower floor for equipment for the tunnel's operation and maintenance.
- One standard element weighs 73,000 tonnes, is 217 metres long, 42 metres wide and 10 metres high.
- The tunnel's construction budget is EUR 7.1 billion (DKK 52.6 billion) – including reserves of almost EUR 1 billion (DKK 7 billion).
- The EU Commission has allocated the project EUR 789 million for design and construction.
- The Fehmarnbelt tunnel is expected to be completed in 2029.
- It will take 10 minutes to drive through the tunnel by car and seven minutes by train.
- The speed limit will be 110 km/hr for cars and 200 km/hr for electric trains.