Project information

**The immersed tunnel under Fehmarnbelt**

*The Fehmarnbelt Tunnel is set to become the world’s longest combined car and rail tunnel. It will measure ca. 18 km and will almost be five times as long as the Øresund tunnel between Copenhagen and Malmø and three times longer than the Transbay Tube Tunnel in San Francisco, currently the world’s longest immersed tunnel.*

**Driving through the tunnel**Crossing the Fehmarnbelt will be one of the world’s longest drives through a tunnel. The experience of future drivers will, therefore, significantly be influenced by the design and appearance of the tunnel’s interior.

Aesthetic effects such as varied lighting will break up the drive through the tunnel into less monotonous sections – like a changing landscape along a normal road. ”Living” motifs on the tunnel walls, powered by LED diodes, will help give drivers the impression of a short and exciting journey through the 18 km tunnel.

The Fehmarnbelt Tunnel will also be safer than equivalent motorways or railways on land. There will be no oncoming traffic, no slip roads or impediments due to weather conditions or darkness. Automatic ventilation systems will ensure permanent air quality and visibility.

**Separate traffic tubes**The two road tubes are each approximately 11 m wide and each road has two driving lanes and an emergency lane.

Between the two road tubes, there is a 2 m wide central gallery. Below the floor, it contains the drainage pipes and water supply lines for hydrants as well as the fire protection system. It can also be used by maintenance personnel and serve as a safety zone. In the upper part of the central gallery there will be sufficient space for installations of other supply systems, which will run in parallel with the tunnel.

The two rail tubes are approximately 6 m wide and each contains a track with emergency walkways on either side. The tubes have space for longitudinal ventilation and are large enough to guarantee the safe passage of trains travelling at speeds of up to 200 km/h.

**Standard and special elements**The section of the Fehmarnbelt Tunnel, which is built as an immersed tunnel will be 17.6 km long with additional sections for the approaches at Puttgarden and Rødbyhavn. These sections will be built on reclaimed land, which will extend 500 m into the sea on both sides of the belt.

The tunnel will consist of individual elements that will be manufactured on land at a production site specifically constructed for the purpose at Rødbyhavn. There are two types of tunnel elements: 79 standard and 10 special elements. Each of the standard elements is approx. 217 m long, approx. 42 m wide and approx. 9 m high. One element weighs around 72,000 tons.

The special elements are approx. 39 m long, approx. 45 m wide and approx.13 m high. In the “basement” part under the road and railway tracks the electrical and mechanical equipment, which is needed for the tunnel’s operation systems, will be situated in installation rooms.

**A new concept**The concept of special elements is new in immersed tunnel technology. The process has several advantages. The entire mechanical and electrical equipment, which takes up space and requires maintenance, is integrated into the special elements.

As a result, the standard elements have a less complex technical design and are more suited to series production. The special elements also provide access to all areas of the tunnel for maintenance work, with only minimal impact on traffic.

Femern A/S is tasked with designing and planning of a fixed link between Denmark and Germany across the Fehmarnbelt. Femern A/S is a subsidiary of the Danish, state-owned Sund & Bælt Holding A/S, which has experience from the construction of the fixed links across the Great Belt and the Øresund.