

Facts & Figures: The Immersed Tunnel

20 January 2012

- Total length of the immersed tunnel: 17.6 kilometres from tunnel mouth to tunnel mouth
- Tunnel element length: 217 metres
- Number of tunnel elements: 89, of which 79 standard elements and 10 special elements
- Emergency exits: every 108 metres
- Maximum element weight: 73,500 tonnes
- Tunnel cross-section – Height: 8.9 metres
- Tunnel cross-section – Width: 42.2 metres
- Excavation volume: 15.5 million cubic metres
- The tunnel is planned for the following speeds:
 - Passenger rail traffic: 200 km/h
 - Goods rail traffic: 140 km/h
 - Road traffic: 130 km/h (Maximum allowed speed limit: 110 km/h)
- The tunnel consists of a four-lane motorway and a twin-track railway which run in separate tubes.
- Costing for the immersed tunnel:

Immersed tunnel	Cost estimate June 2011
Construction costs	EUR 3.8 billion
Other works	EUR 0.3 billion
Total construction costs	EUR 4.1 billion
Project management, preparation for operation, etc.	EUR 0.7 billion
Reserves	EUR 0.6 billion

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.

Total gross costs	EUR 5.5 billion
Expected EU subsidy	EUR 0.6 – 1.2 billion
Total net costs	EUR 4.3 – 4.9 billion

- Comparison with other immersed tunnels:

The longest immersed tunnels in the world	Length
Fehmarnbelt Tunnel	17.6 kilometres
Transbay Tube (San Francisco, California, USA)	5.7 kilometres
Drogden Tunnel (Øresund, Denmark/Sweden)	3.5 kilometres
Busan-Geoje Tunnel (Busan, South Korea)	3.2 kilometres
Hampton Roads Tunnel (Hampton, Virginia, USA)	2.3 kilometres
Cross Harbour (Hong Kong)	1.9 kilometres
Tama River Tunnel (Tokyo, Japan)	1.5 kilometres
Marmaray Tunnel (Bosporus, Turkey)	1.4 kilometres