

# Construction of the Bosphorus Strait Tunnel

## 보스포루스 해협 횡단 터널공사

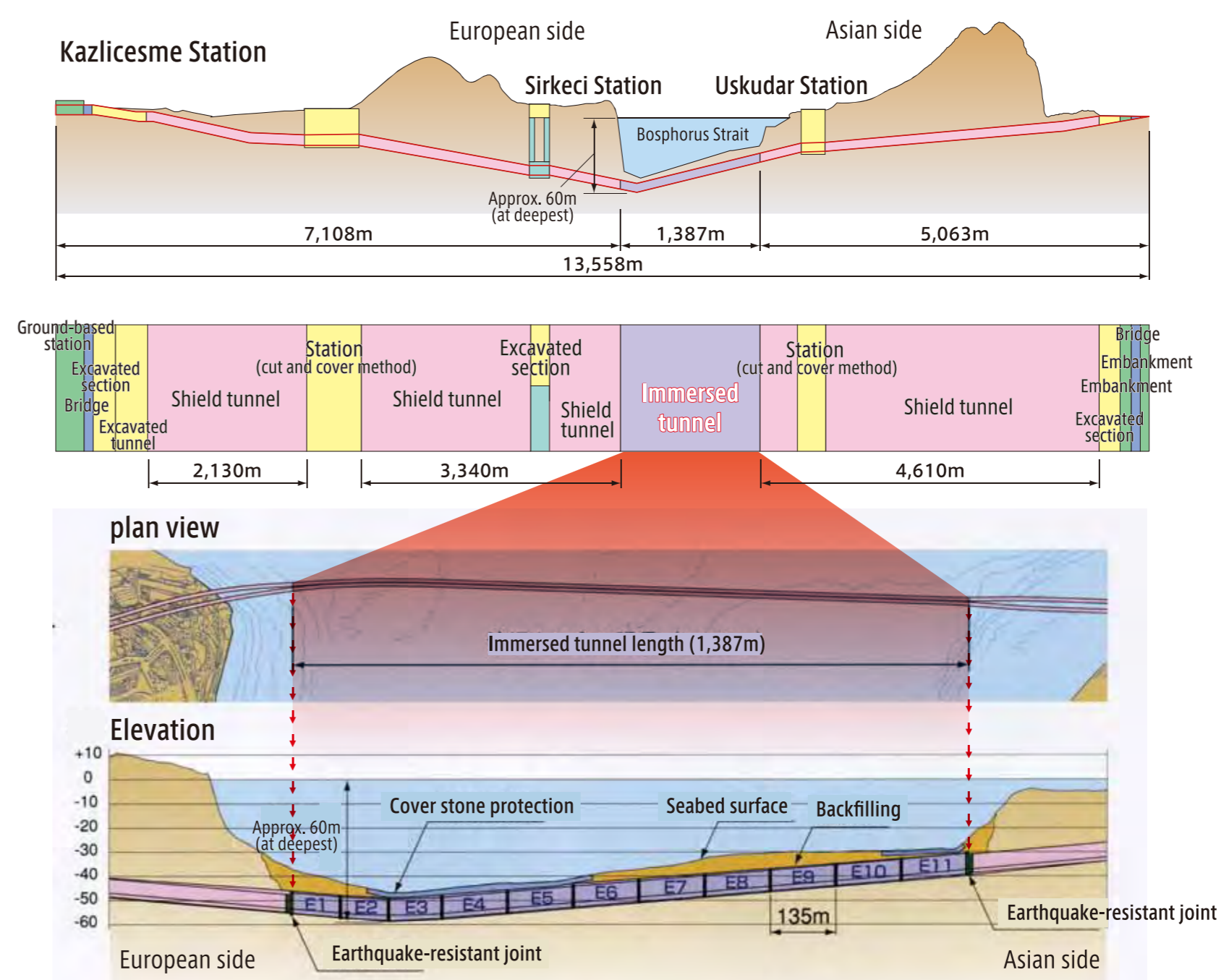
### Immersed tunnel

Installation of massive concrete immersed tube tunnel over 100m in length on the seabed at a depth of 60m (world's deepest), amidst complicated ocean currents



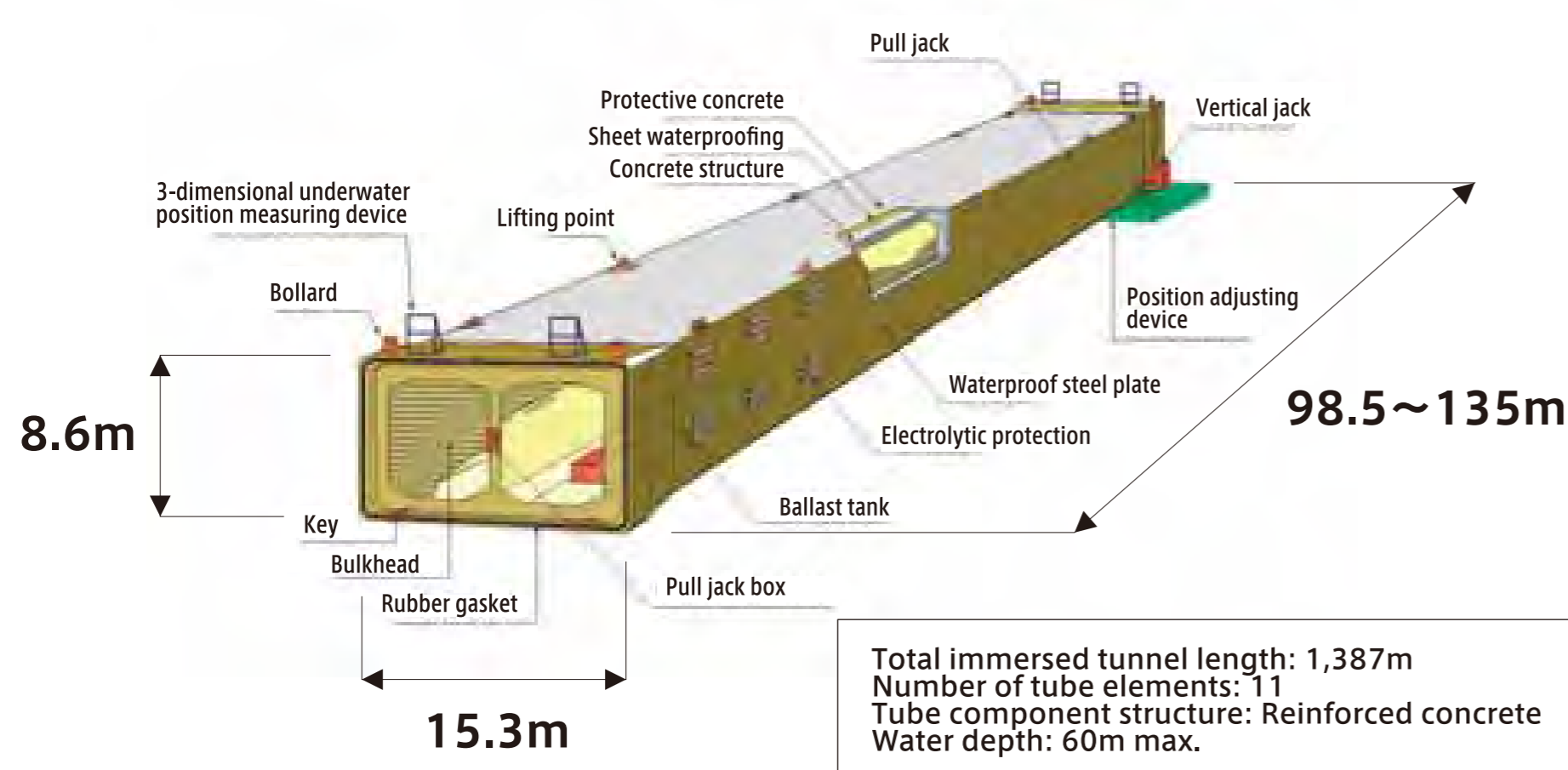
The immersed tunnel construction method is towing tube elements floating on the sea surface to the installation site, repeating the underwater installation process in sequence and connecting the elements to build a continuous tunnel tube on the seabed.

The lower halves of tube elements were built in the Tuzla dry-dock and then the upper halves built on the sea surface. The completed elements were then towed for approx. 40km, immersed and installed on the seabed to be connected together one by one.



### Underwater installation of immersed tube elements and connection at the world's greatest depth in rapid tidal currents

Approx. 18,000t (≅ 17600kN, weight on land)

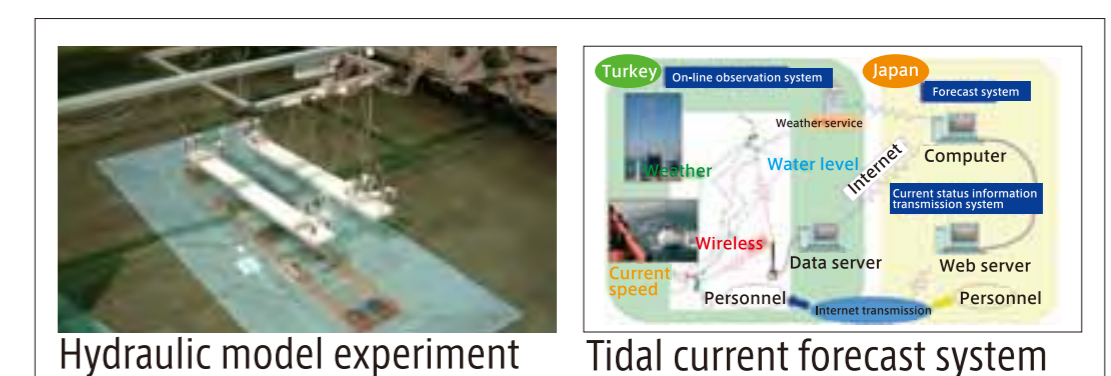


#### Immersing works at the world's greatest depth (60m)

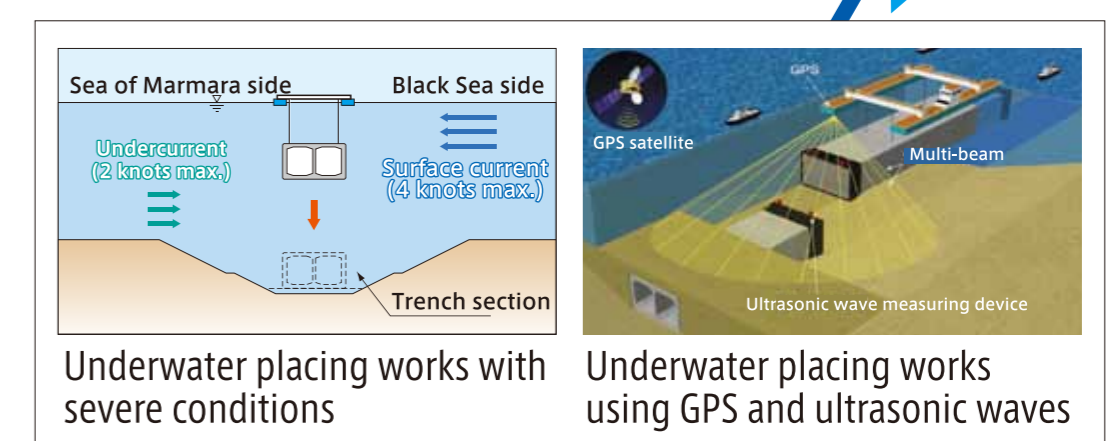
Development of an on-line system that forecasts complicated current situations where rapid tidal current directions differ in the upper and lower levels.

Tidal currents are forecasted in Japan for 36 hours prior to immersing works for safety.

TAISEI Corp. Technology Center (Japan)



Placing work barge (on site, Turkey)



### The world's first construction of an RC immersed tunnel tube elements on the sea

#### Manufacturing a tube component in the Port of Tuzla

4 tube elements are fabricated at the same time in the yard (8 months/1 element)

Construction on land in the dry-dock

Offshore construction on the sea (finishing)

#### Towing of a massive tube element

Placing work barge using a 70t (690kN) winch (reference: up to 30t experienced in Japan)

Towing of the first tube element commenced in March 2007.

Tow route of approximately 40km

Setting off with the tube element in tow

#### Underwater installation work

Placing work barge in preparation

2008 - Completion of installation of the last tube element

Commencement of underwater installation

#### Method of connecting tube elements on the seabed



**TAISEI CORPORATION**