Suspension bridge on floating foundations

When is the technology ready?
Multispan suspension bridge on floating foundations

Introduction
Multispan suspension bridge on floating foundations

TLP characteristics
Multispan suspension bridge on floating foundations

Sognefjorden
Multispan suspension bridge on floating foundations

Tension legged platform (TLP) foundations
Multispan suspension bridge on floating foundations
Bokna fjorden
Multispan suspension bridge on floating foundations

Halsafjorden

2 x 1200 m
Multispans suspension bridge on floating foundations

Bjørnafjorden

22/09/2015
Teknologidagene 2015
Multispan suspension bridge on floating foundations

Bjørnafjorden
Multispan suspension bridge on floating foundations

Conceptual design

Objectives that apply to the process of designing the bridge:

• Lowering risk and increase the robustness to obtain a high degree of safety in all aspects

• Develop a solution which emphasis good architecture for the surroundings, for travelers and the road as an attraction.

• Lowering costs of construction, maintenance and operation

• Low impact on environment

• Low impact on marine traffic
Multispan suspension bridge on floating foundations

Conceptual design

- 5 km wide
- Maximum depth of 550 m
- Two Land based concrete towers & two floaters (steel/concrete)
- Three main spans of 1385 m
Single aerodynamic steel box bridge girder. Two main cables with hanger-connection to the deck. Roadway with two lanes in each direction. In addition cycle and pedestrian lane.
Multispan suspension bridge on floating foundations

Tendons

Lower connector: Tendon pipe made of 1.118 mm * 38 mm steel
Wires with a diameter of 5.96 mm assemble the strands. The main cable is assembled of 94 strands, each consisting of 127 wires.

\[ D = 0.725m \]
Multispan suspension bridge on floating foundations

Central node / cable locker
Multispan suspension bridge on floating foundations

Tower saddle
Multispan suspension bridge on floating foundations

Landing, north side
Multispan suspension bridge on floating foundations
Landing, south side
Multispan suspension bridge on floating foundations

Complete bridge
Multispan suspension bridge on floating foundations

Steel floater alternative
Multispan suspension bridge on floating foundations

Concrete floater alternative with steel tower
Multispan suspension bridge on floating foundations

TLP–suspension bridges – when is the technology ready?