The suspension cables are made up of 40 wire strands, each consisting of 127 wires that are 5.96 millimetres thick. The wire strands are prefabricated with a socket at each end, and come cut-to-length on reels. The cables are pulled by tackles and pulled from Øyjord across to Karistrand. From tower to anchorage there are two additional cables per suspension cable at Karistrand, and four additional cables per suspension cable at Øyjord.

When all cable strands are in place, the strands will be compacted into a circular shape by the use of a hydraulic press. Then the cable bundle is wrapped with a soft galvanised wire to maintain its shape. On the outside of the wrapping wire, a reinforced tape is applied to protect against the elements. Even though the strands are tightly compressed, the cable still contains around 20% air. The cables are dehumidified by the injection of dry air.

The cables are then fitted with clamps, to which the hangers are attached. The hangers are also made from steel wires. On the outside of the hangers there are three layers of z-shaped galvanised wire which in turn are protected by a coat of paint. In both ends of the hanger there is a cast socket. The upper socket is attached to the cable clamp and lower one is attached to the bridge deck.
The bridge towers are built in concrete and are A-shaped. The towers are founded on rock at -31 and -32 metres below sea level. In the tidal zone the two caissons are linked by a pile cap that is up to 5 meters thick, a little more than 42 metres long and almost 16 metres wide.

The caissons are produced by slip-form casting and are sunk to the sea floor. After the pile cap has been cast and hardened, a climbing formwork is rigged and the bottom part of the tower columns is cast in five stages. Immediately below the roadway the tower columns are connected by a crossbeam. When the crossbeam is finished, further casting is done by slip-form casting up to the connection at the top of the tower. The tower top is cast using conventional formwork. Inside the bridge towers, there is a lift in one tower column and stairs in the other.

FACTS

The Hålogaland bridge

Bridge towers

Steel boxes (2 sections of 60 metres) are assembled on the bridge and bolted into place to form piers. The towers are constructed using slip-form casting, with sections stacked on top of each other. The piles are built with piles 45.6 metres long and about 1500 tonnes each. The piles are connected with base plates and concrete foundations. The tower columns are connected by a crossbeam. When the crossbeam is finished, further casting is done by slip-form casting up to the connection at the top of the tower. The tower top is cast using conventional formwork. Inside the bridge towers, there is a lift in one tower column and stairs in the other.

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The stiffening girder is a steel box and constitutes the actual bridge deck in the suspension span. The box is constructed as a closed truss with trapezoidal shaped stiffening boxes and transverse stiffening girders. The top section of the steel box and the stiffening girder are connected by transverse bulkheads, which are attached to the top of the caisson. The middle section is joined into the tower column and the two lower sections are made symmetrically from the middle.

The steel boxes are dehumidified inside by dry air being blown through them. At each pier the whole superstructure is insulated from the roadway, for future inspections and maintenance.

Stiffening girder

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