



## Chained Floating Bridge

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### Summary

Crossing of wide fiords with floating bridges is a relevant topic in Norway. A standard long floating bridge will be greatly affected by lateral forces (such wind and waves); by designing the bridge as a floating chain, the side forces will be transformed in axial forces (easily supported by standard modular steel bridges). This new concept will allow a cost effective crossing of wide channels.

**Keywords:** floating bridges, modular truss bridges, steel bridges, chain static behaviour

### 1. Introduction

The idea of a chained floating bridge was introduced for the first time by MSc. Jan Soldal from the company Akvator AS early 2011 for crossing the Bjørnefjorden south of Bergen. The concept was further developed during 2011 by Akvator AS and Multiconsult AS. The results of these studies were presented in the document “Ferjefri E39 – Bru over Bjørnefjorden” [1]. In parallel with the studies above for the Bjørnefjorden, during winter 2012, it was also conducted a conceptual design proposal for the E39 Sognefjorden crossing.

### 2. Description of the concept

The chained floating bridge is composed by several floating bridge units (Catamaran elements) assembled together by simple bridge girders (Linker elements) to a continuous long chain as shown on figure 1 below.

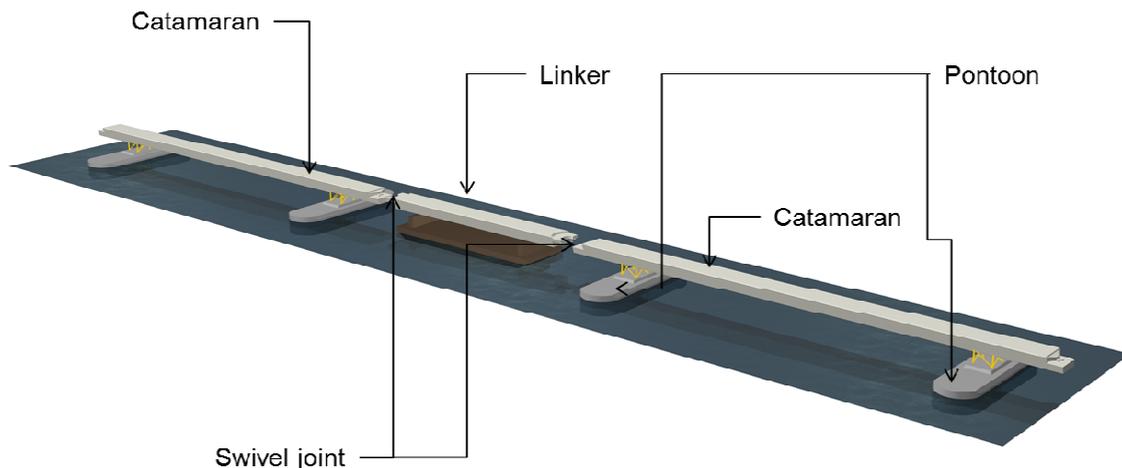


Fig. 1: Elements of a floating bridge