

Hennaelva Bru

Customer: Teknikk AS

Location: Norway

Products: R800 Girders, Megashor, Rapidshor

Case Study

ALTRAD RMD KWIKFORM SUPPORTS CONSTRUCTION OF BRIDGE IN NORWAY

Altrad RMD Kwikform (Altrad RMDK) recently assisted with the construction of the Hennaelva Bru in Norway, by supplying partner Teknikk AS with a bespoke temporary works solution. The project involved utilising advanced engineering techniques to help build the three-span bridge, which is situated in a valley.

Project Overview

Located in a region known for its rugged terrain and natural beauty, the bridge provides a vital link for local communities and industries. The construction of Hennaelva Bru was a technical challenge that required a complex design solution. Altrad RMD Kwikform was called upon to supply temporary works equipment and technical support, ensuring the bridge could be constructed safely and efficiently.

The Challenge

The Hennaelva Bru project presented a series of challenges that required specific engineering solutions. One of the significant challenges was managing the complex span requirements. The bridge featured three spans, each with different structural needs, which challenged the planning and execution phases.

The bridge's support structures needed to handle significant loads, which required precise engineering to ensure stability and safety. Additionally, the project's location in a valley added complexity to the support structure as the bridge deck needed to be cambered, preventing vehicles from going over the edge.

The Solution

To manage the central span of the bridge, Altrad RMD Kwikform supplied Teknikk with four triple R800 girders and two twin girders. This marked the first use of these girders in Europe. Teknikk invested in the R800 girders due to its large spanning capability with a significant distance off 34 metres.
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These girders were prefabricated on-site and lifted into position with a large mobile crane.

Supporting the R800 girders were Megashor towers at each end of the bridge, with heights ranging from 9.5 to 11 metres. These towers were designed to handle a vertical load of up to 750 kN per leg. In places where it was feasible, the towers were plumbed directly into abutments. Where this was not possible, additional Megashor towers were constructed to bear the load. This dual approach ensured complete stability and safety under significant pressure.



Traditional Rapidshor falsework was provided to support spans 1-2 and 3-4 to manage leg loads. Rapidshor was chosen for this project due to its flexible and strong support system, which was perfect for the uneven valleys where Hennaelva Bru was situated, and it provided a stable base for bridge spans.

To accommodate the road's curvature and ensure that the bridge deck aligned correctly, the deck had to be pre-cambered. This involved engineering the deck to have a slight upward curve before construction, which would settle into a flat plane once the concrete was poured and set. This required a complex set of calculations and careful execution to ensure that the final alignment was accurate.



By integrating girders and using support towers, the structure was able to successfully cope with the large 34m span and the falsework above. By utilising 2D and 3D engineering tools, Altrad RMD Kwikform was able to support Teknikk with overcoming the challenges presented by this project in this remote Norwegian region, and aid in the smooth delivery of the project.

