Saggrenda Bridge

Customer: Maxbo Teknikk

Location: Norway

Products: Rapidshor & Superslim Soldiers

Case Study

NEW CONCRETE ARCH BRIDGE IN NORWAY DELIVERED WITH THE SUPPORT OF RAPIDSHOR

Altrad RMD Kwikform supported Norwegian partner Maxbo Teknikk to deliver a new 310-metre-long concrete arch bridge, part of a critical infrastructure project to improve the E134 Trollerudmoen-Saggrenda road in Norway. A bespoke Rapidshor temporary works solution was developed in response to complex engineering challenges that emerged during construction.

Project Overview

The Saggrenda Bridge is a vital component of Norway's ongoing infrastructure modernisation, designed to enhance connectivity and improve travel efficiency along the E134 Trollerudmoen-Saggrenda road. Spanning 310 metres, this concrete arch bridge forms part of a 4.7km-long route upgrade aimed at increasing road capacity, reducing travel times, and improving safety in the Kongsberg region. Led by the Norwegian Public Roads Administration, this large-scale project required an innovative and robust approach to temporary works to ensure the successful construction of the bridge deck and arch.

Initial attempts to support the structure with an alternative arch system failed, as the solution provided was not capable of taking the required loads during the stressing of the bridge. As a result, Maxbo Teknikk was brought into the project to resolve the issue. In turn, they called upon trusted partner Altrad RMD Kwikform to support the delivery through specialist engineering design, manufacturing, and supply of equipment.

Together, Altrad RMD Kwikform and Maxbo Teknikk delivered a tailored Rapidshor falsework solution, providing critical structural support during the post-tensioning phase. The project's demands included a narrow and high configuration, significant load requirements, and a tight construction schedule.

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The Challenge

The bridge required a highly specialised temporary works solution capable of supporting the structure during construction. With dimensions of 24 metres in height and 19 metres in width, the bridge needed a support structure that was both narrow and tall. The temporary works had to withstand significant loads during the post-tensioning phase while remaining efficient and cost-effective to assemble.

The Solution

A bespoke Rapidshor falsework system from Altrad RMD Kwikform and Maxbo Teknikk was selected to overcome these challenges. Rapidshor, a heavy-duty galvanised modular steel shoring system, was chosen for its ability to provide essential support while reducing component volumes. Rapidshor could handle higher pressures without needing tight grid arrangements. Its adaptable design, which includes eight ledger connections at 45-degree angles, also made it well-suited for curved structures while reducing the number of required components.

In total, more than 200,000 Rapidshor components and accessories, weighing approximately 1,200 tonnes, were used to support the bridge. Superslim Soldiers, Altrad RMD Kwikform's iconic formwork primary beams, were also used to support the main structure.

Meeting tight deadlines required extensive logistical coordination. Using Altrad RMD Kwikform's global supply chain, 700 tonnes of Rapidshor were sourced and shipped from various international locations. Additional parts were manufactured to meet project-specific needs, with the remaining 100 tonnes supplied from Maxbo Teknikk's stock and Altrad RMD Kwikform's local inventory in Norway. Despite the complexity, all deliveries were made on time and in full.

Christoffer Endre Odden, Technical Manager at Maxbo Teknikk, commented: "The Saggrenda Bridge was the largest and most complex project we have delivered using Rapidshor. Designing the system for both the bridge deck and arch support required highly engineered solutions, with close collaboration between our technical teams and Altrad RMD Kwikform's experts. Thanks to the capabilities of Rapidshor and our engineers, we developed a bespoke solution that exceeded the client's expectations."

Evy Bjørnsen, Project Engineer at Maxbo Teknikk, who oversaw the equipment installation, noted:
"The assembly of the Rapidshor falsework system was seamless, with only minimal stiffening adjustments required before the bridge deck could be cast and post-tensioned. This project was particularly exciting—not only due to the technical challenges involved in selecting the right temporary works solution but also because of the scale and significance of the build."

Martyn Henry, UK Export Manager at Altrad RMD Kwikform, highlighted the project's wider importance:
"The new E134 Trollerudmoen-Saggrenda road was a major infrastructure investment for Norway, with 700,000m³ of mass moved, 500,000m³ blasted, and 20,000m³ of structural concrete used throughout the project. The 310-metre-long Saggrenda Bridge was a critical component of this development, and we were proud to have played a key role in its delivery.
Ultimately, Rapidshor was the ideal solution to meet the unique challenges of the Saggrenda Bridge. We are delighted to have contributed to the successful construction of this vital structure on the E134 corridor."