



## E6 Ranheim - Værnes (N) Water & Frost Protection

<b>Country</b>	Norway
<b>Type</b>	Motorway Tunnel
<b>Client</b>	Nye Veier.
<b>Main Contractor</b>	Acciona
<b>Execution of the work</b>	Renesco GmbH
<b>Designer/ Engineering</b>	RA JV (Ramboll, Acciona)
<b>Construction Period</b>	2022-2024

## Project Description

The Ranheim to Værne leg of the E6 highway effectively connects the largest regional center with its most important regional hub, including the regional airport. The project includes the construction of 23 kilometers of four-lane highway along the existing E6 alignment including three tunnels (7.2 kilometers) and five new two-level intersections, improving mobility in the northern part of Trøndelag county.

The new alignment will run almost parallel to the existing tunnel, excavated by drill & blast method including cross-passages and technical buildings.

- Være tunnel: 1.6 km
- Stavsjøfjell Tunnel: 1.7 km
- Hell Tunnel: 3.9 km

## Scope of Work

Supply & Install of the water & frost protection system including all drillings, bolting, anchoring and surveying activities.

- Drilling service for the rock bolts incl. surveying activities
- Rock/ membrane/ wall-element bolts setting
- Full automatized AMV bolting/ drilling-rig, controlled by a navigation technology to ensure accurate (tolerance < 3cm) and systematic drilling of the holes, based on BIM
- LLDPE sheet waterproofing
- PE foam
- Supply & Fixation of reinforcement
- Technical bolts
- Supply & Installation of Wall-Elements



1. Drilling with AMV 236T drill rig and Trimble navigation
2. Tunnel outer lining
3. Water & Frost Protection System