



## Snekkestad (NO) Water & Frost Protection

<b>Country</b>	Norway
<b>Type</b>	Railway Tunnel
<b>Client</b>	Jernbaneverket Utbygging (Norwegian National Rail Administration)
<b>Main Contractor</b>	Marti ÍAV DA, Marti Contractors
<b>Execution of the work</b>	Renesco a.s.
<b>Construction Period</b>	2014

## Project Description

The UHN 07 Snekkestad project is the southernmost 2.5km long construction lot of the double track railway line between Holm and Nykirke, which aims to modernize the Vestfold railway system. The main parts of the project consist of:

- 2'100m long (135m<sup>2</sup>) double track railway tunnel
- 400m of double track railway
- 320m long (53m<sup>2</sup>) adit/escape tunnel
- 380m long (24m<sup>2</sup>) escape tunnel

Underground excavation (drill & blast, pipe umbrella advance of 60m), rock support (reinforced shotcrete, steel beams) and grouting work (systematic cementitious pre-grouting).

## Scope of Service

Installation of the Water & Frost Protection system (umbrella seal), specialised drilling service for bolts and anchors, gluing of bolts, testing of bolts, PE-foam installation, reinforcement and installation of precast concrete lining units for the interior lining via vacuum gripper, spray-applied membrane application and shotcrete lining.

Injection and grouting works, pressure injections, systematic curtain sealing during excavation works, execution of injection drill holes (L = 24m) per advance with a drilling jumbo.

Installation of the waterproofing system for the cut & cover tunnel/ portal area, sheet waterproofing, 2mm PVC-P according to Norwegian standard (Håndbok 163).



1. Installation of PE-foam
2. Anchor bolts for the water & frost protection
3. Portal area