



## Tunnel Snekestad (N) Grouting

<b>Employer</b>	Jernbaneverket Utbygging (National Railway Authority)
<b>Designer</b>	Rambol and Norconsult
<b>Execution of works</b>	JV Marti IAV DA: Marti Contractors Ltd., Moosseedorf IVA, Reykjavik
<b>Construction Period</b>	2011 - 2014
<b>Contract Sum</b>	CHF 85 Mio. (NOK 517 Mio.)

## Project Description

The contract includes creation of a double track railway tunnel with an overall length of 2,100 m and cross-section of 135 m and two refuge tunnels. The breakout is carried out by blasting.

## Grouting work performed

Systematic pre-grouting to minimize water intrusion during driving work (full length of tunnel). Grouting takes place in 20 m sections. Grouting alternates with driving using explosives. The bore holes are made by a three boom jumbo drill rig.

## Scope of works

- 1. Drilling time: 2.900 hrs
- 2. Grouting time: 4.900 hrs
- Total metres drilled: 261,000 m
- Quantities injected: 8,830,000l or 10,760,000 kg cement



1. Drill rig for production of blasting and grouting holes
2. Packer installation for grouting
3. Mobile grouting system with four pumps and two mixers