



Pump Storage Plant Limberg/ Kaprun III (AT) Geomembrane Sealing System

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| Country | Austria |
| Type | Hydro Power |
| Client | Verbund Hydro Power GmbH |
| Main Contractor | G. Hinteregger & Söhne, Marti Tunnel AG, PORR, Marti GmbH |
| Execution of the work | Renesco GmbH |
| Designer | Verbund Hydro Power, Geoconsult ZT, Tractebel Engineering |
| Construction Period | 2022-2023 |

Project Description

The Limberg III is one of the largest hydroelectric power plants in Europe, located in the Zell am See town, Kaprun municipality, to the southwest of the Salzburg city. It will connect the two existing storage lakes (reservoirs) "Mooserboden" and "Wasserfallboden". Part of the project is also a 770m-long and 5.8m-diameter pressure shaft with an incline of 90.04% or 42°, excavated by a Gripper TBM, a 3km-long and 7.3m-diameter headrace tunnel, a new underground cavern, a transformer cavern gallery, a generator discharge tunnel, and several access tunnels.

The cavern system for the project will comprise an underground powerhouse measuring 62m-long, 24m-wide, and 43m-high, located approximately 450m deep in the orographically right slope flank below the existing Limberg dam.

Geology

The Limberg III project area is dominated by the several kilometers thick 'Bündner Schieferserie' in the Glockner facies of the Tauern schist envelope. It consists largely of an alternating bedding of calcareous mica schists with prasinites and dark mica schists. At the Höhenburg, quartzites and dolomites are also intercalated.

Scope of Service

Full-round (360°) sealing of the underwater gallery, the pressure tunnel and pressure shaft via a loose-laid geomembrane system according to ÖBV (Austrian standard).

- Geomembrane, PVC-P, 3mm & 2mm
- Geocomposite, drainage layer, LLDPE, d=5mm
- Geotextile termination strips
- PVC-P protection sheet, 3mm
- PVC-P water barriers, 600/6/30
- Elastomeric waterstops 600mm, d=6mm
- Terminations via adhesive strips
- Penetration devices
- Injection/ grouting system for the passive pre-stressing of the concrete inner-shell
- All kind of injection and grouting works based on cementitious and chemical resins.
- Water & Frost protection system including drilling, bolting.



1. Pressure tunnel
2. Overview
3. Pressure Shaft