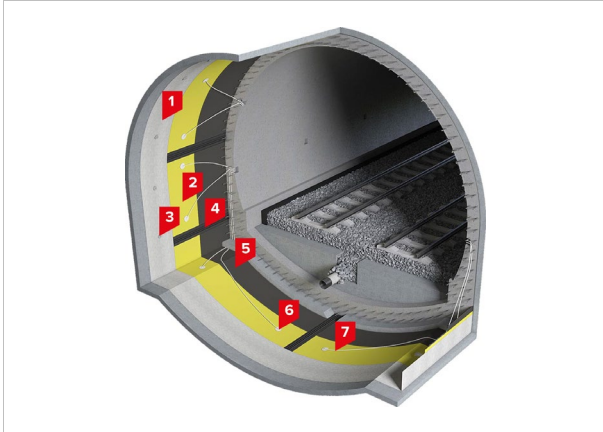




TN TUNNEL PVC PROF NATM

Repairable waterproofing solution for a NATM tunnel with PVC membrane



Area of application

The system is designed for the waterproofing of tunnels constructed by the NATM method in soils with the presence of one or more aquifers of high capacity and hydrostatic pressure.

Advantages



Reliable waterproofing



Loose laid system



High reparability



Signal layer for easy quality control

System composition and material consumption rates

No.	Material	Unit	Thickness, mm	Consumption rate*
1	Needle-punched geotextile	m ²	2.3	1.15
2	LOGICBASE V-SL	m ²	2.0	1.15
3	PVC rondel	pcs	–	acc. to calculation
4	TECHNONICOL EC-320-4 waterstop	m	–	acc. to calculation
5	LOGICBASE V-PT	m ²	1.5, 2.0	1.15
6	Injection flange	pcs	–	5 pcs per 150 m ²
7	Injection hose	m	–	acc. to calculation

*The consumption rates are taken conditionally – according to the manufacturer's recommendations.

Technical description

The repairable waterproofing solution ensures protection of tunnel structure from water ingress and corrosion. It is designed for tunnels constructed by NATM technology.

The reparability is ensured by dividing the waterproofing layer with TECHNOMICOL waterstops into separate sections of up to 150 m² and an injection system, which consists of injection flanges and hoses leading to these isolated segments. Compartmentalization prevents groundwater spread between the waterproofing layer and the tunnel structure in case of damage. The injection system allows repairing the waterproofing by delivering polymeric repair compounds to the damaged section. The repair can be easily done from the inside of the tunnel at any stage of construction or operation.

The single-ply waterproofing system is based on a premium non-reinforced PVC membrane LOGICBASE V-SL with a special yellow signal layer for prompt and easy quality control of works. The material is attached to walls and arches of the primary lining using PVC rondels and is loose laid on horizontal surfaces. The overlaps of the membrane are welded with hot air using automatic welding equipment to form double seams with a central air channel designed to check their tightness. The waterproofing layer is then protected from mechanical damage possible during construction works by means of protective PVC membrane LOGICBASE V-PT, which is placed between waterstops and is point-welded to the main waterproofing membrane by manual hot air equipment.

Needle-punched geotextile with a surface density of 500 g/m² is used as a protective and separating layer on the outer side of the waterproofing membrane.