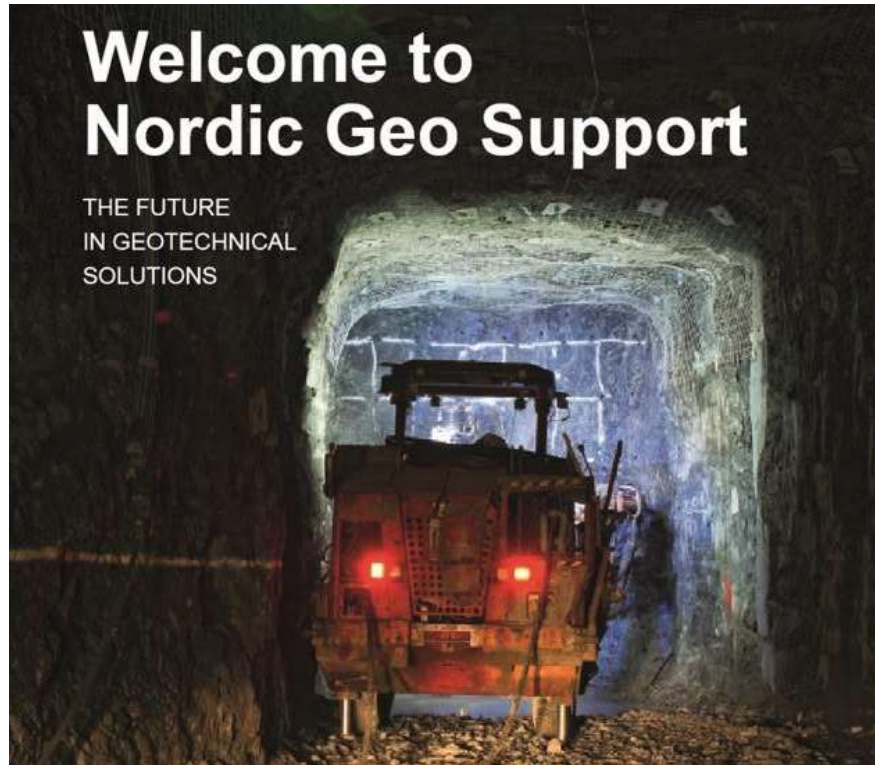


About us

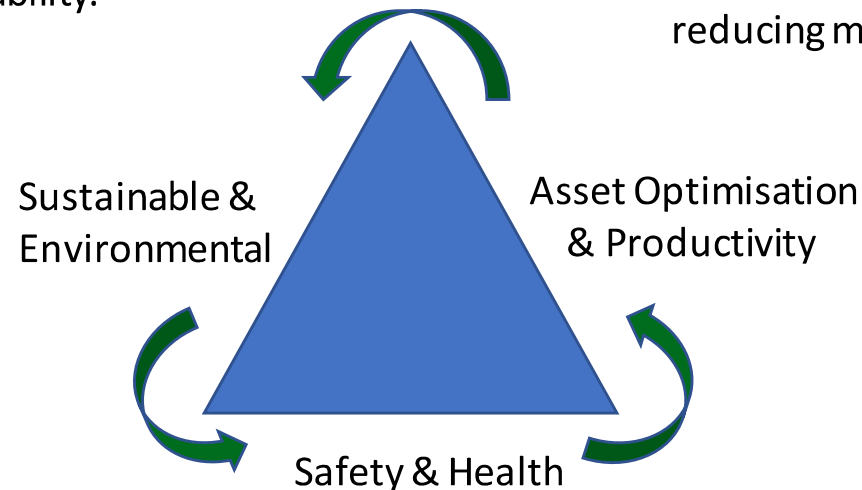


- Originating from the Nordics with leading edge technical solutions for global customers.
- We specialise in innovative products with an emphasis on improving sustainability for mining, tunnelling and construction industries.
- Partnering with leading technology companies globally for improving our world's future.
- Nord Geo Support and its partners are focusing on bringing the production of technology closer to customer, reducing the global CO₂ footprint and reliance on global supply chains.

Reducing Project Impacts

Sustainability & Environmental: Solutions that drastically reduce CO₂ emissions in manufacture and transport and energy usage as well as offering longer life cycles and reusability.

Asset Optimisation & Productivity: Solutions that are faster, more efficient, easier to use and reusable, optimising advance rates and ore recovery as well as reducing maintenance costs.



Safety & Health: Solutions that remove humans and equipment from unsecured ground, faster ground securing, ensuring stability and consolidation, reduce manual operations and weight in manual handling.

Product range

Drilling Consumables

High Performance rock drilling tools and consumables:

- DTH Hammers
- Bits
- Shanks
- Rods
- Drill Pipes
- Adapters
- Augers, Accessories

Injection Grouts

Leading edge resin injection technology for demanding cases:

- Water Stopping
- Sealing
- Ground Consolidation
- Ground Stabilisation
- Construction and structural repairs

Anchoring & Bolting Grouts

Grouting technologies offering ease of use, clean and fast setting:

- Capsules
- Cartridges
- Pumpable grouts
- Additives

Anchoring & Bolting

A broad range of rock bolting and anchoring technologies:

- Double and single coated protected steel
- Steel Self Drilling Anchors
- GFRP bolrs of all types
- Standard bolts and meshes

Cement-Based Additives

Cement based admixtures and additives:

- Concrete Repair
- Admixtures
- Modifiers
- Waterproofing
- Joint Sealants

Pumps & Accessories

Cement and resin mixing and pumping technologies:

- Cement Pumps
- Resin Pumps
- Transfer systems
- Dataloggers
- Hoses, lances, packers

Water control

Waterproofing, drainage and pumping:

- TunnelDrain innovative strip drainage system
- Drainage pipes
- Waterproofing grouts, additives and sealants
- A broad range of dewatering pumps

Ventilation

Air quality, ventilation and safety solutions:

- Ventilation bags and systems, including Mecanica's rigid ducts
- Fans & inline coolers
- Water atomisers

Re-usable Hangers

Developed in the Nordics, fast, easy to use & reuse:

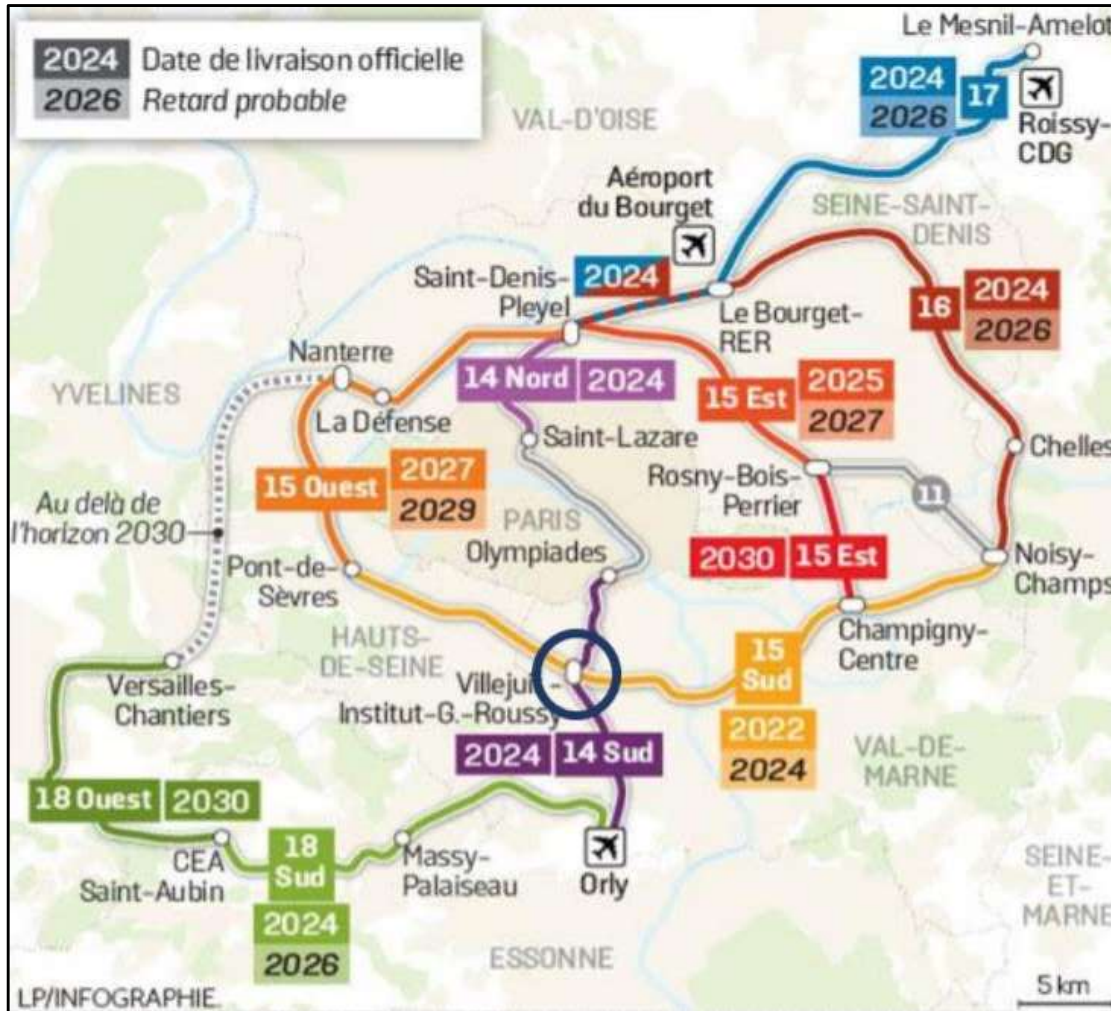
- Services Hooks for ventilation systems, water and pneumatic lines, electrical cables and distribution boards
- Blasting hooks

Other products

A range of other products:

- Coatings & sealants
- Personal protective products
- Mining accessories

Case - Anchoring



International Project – Grand Paris Express

- Creation of a metro line system into the suburbs
- Connections with existing Paris Metro system
- Around 20 TBMs in operation

Anchoring & Sealing

Where: Villejuif (94) – Parisian Suburb

Work to be done :

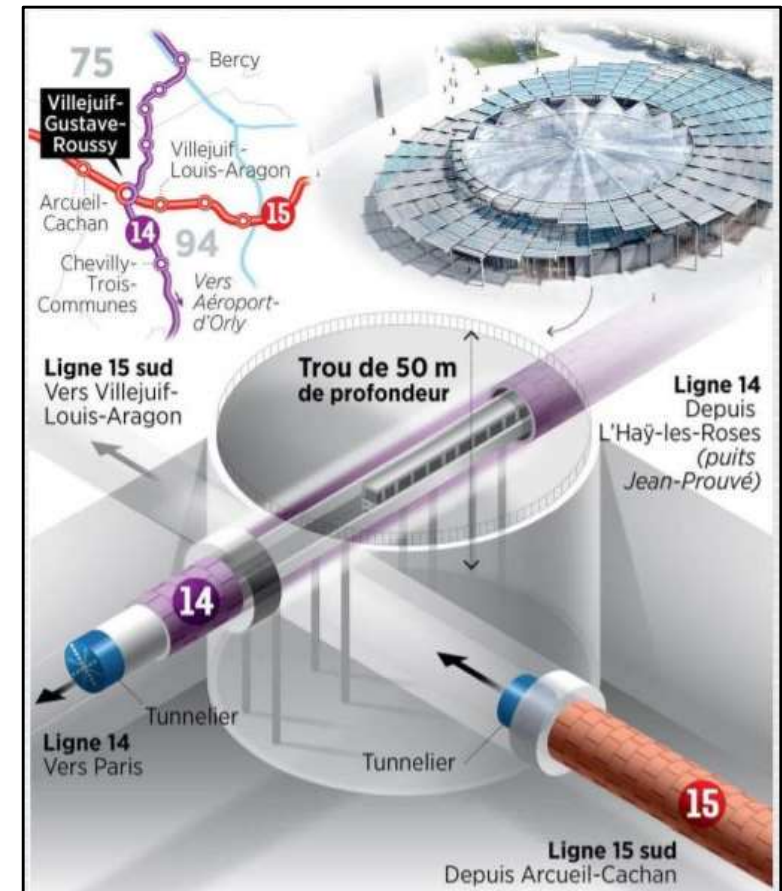
- Construction of underground station
- Gallery leader

End goal :

- Expansion of the Paris metropolitan network

Crossing of lines L14 and L15 with two TBM's
4 galleries (Amorces) to be created in advance

Main contractor : Vinci Construction France – Spie
Batignolles



Anchoring & Sealing



Production of Diaphragm Walls



- 63 meters of diameter
- 50 meters of depth
- Open excavation
- Creation of 4 galleries



Project Challenges

- Delay in soil studies and access to information
- Delay not acceptable due to incoming 2 TBM's crossing
- Poor result during tensile tests on different anchors (self drilling anchor – fiberglass – rebar bolts...)
- Very bad soil composed of clay loam soil saturated with water (no circulation)
- No or slow reaction with grouting cement to seal
- Loss of grouting cement in the ground
- Poor result with socket anchor



Technical Solution

Solution: Extend the length of anchors to improve soil penetration with silicate grout

- The design increased the amount of anchors to solve situation
- Grout with Silicate resin Seal

Detail: Drilling hole \varnothing 46 mm on 5 meters length with fully thread bar \varnothing 25 mm

Hose material polymer PEHD \varnothing 13 x 2 mm

Grout - Sealing with silicate resin injected via grout pump. Mixing head with static mixer.



Benefits

Benefits to project:

- Recovered lost time and avoid losses of material
- Pull the anchor after 1 hour instead of 24h with grouting cement
- High return on advancement
- Ability to move to continuous production in 3 workstations (24h/24h and 7 days/7 days)
- Total Cost savings estimated at 1.2M€



Time	Compressive Strength (N/mm ²)
15 mins	11
30 mins	16
60 mins	20
120 mins	22
1 day	30
3 days	31

Thank you!

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