

Solutions for tunneling and mining

TBM

Expanding Horizons

Underground

 **MEYCO**



Introduction

Cost Effective Solutions

MEYCO Global Underground Construction

MEYCO® Global Underground Construction (MEYCO) is a world leader in the provision of reliable, customer oriented product solutions focused on your needs in the tunneling and mining industries. We are part of BASF, The Chemical Company, a well established multinational company with the extensive support frameworks and resources of a leading worldwide construction chemicals supplier.

MEYCO recognises that your success is founded on delivering solutions that meet or exceed your customers' critical, essential or significant needs. By integrating with you from project start-up and understanding the issues that are important to you, we can contribute to your success.

As many underground projects attract international contractor and design teams, our global presence supports seamless transfer of technology and services to any of your projects, anywhere in the world.





Increase TBM Advance Rate

Complete range of speciality chemicals for soft ground and hard rock tunneling machines

- A one-stop shop offering a comprehensive range of products for shielded TBM excavation in soft ground and for TBM excavation in hard rock
- Professional and competent technical services, provided by a team of international and local tunneling specialists, who are ready to be with you 24 hours a day, 7 days a week, helping you with product training, technical advice, job site supervision, trouble shooting and quality control
- Innovative solutions through Research & Development dedicated to tunneling needs
- Laboratory resources at your disposal to carry out project specific testing, helping you with product selection so that you get it right first time
- Technical consulting at every project stage, from planning to completion, keeping you well informed about all our technologies all the time
- Our world-known reputation and reliability give you the confidence you require from a technology supplier





Solutions

Partnership

- MEYCO SLF range of Foams giving maximum efficiency for every soil type you encounter during EPB tunneling
- MEYCO SLF P range of Polymers to support MEYCO Foams in difficult conditions
- RHEOSOIL® range of anti-clogging agents for reducing clay clogging and adhesion on metal surfaces on soft and hard rock TBMs

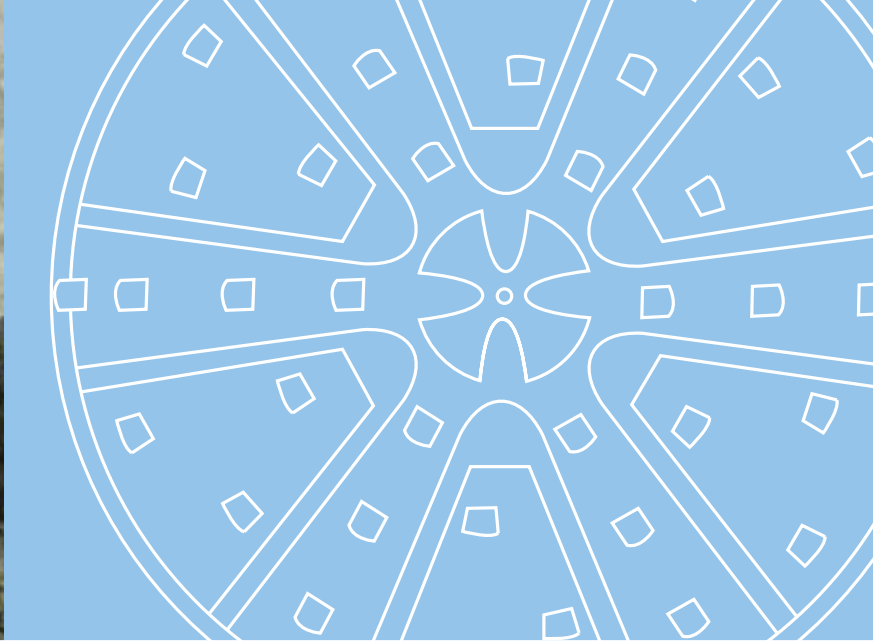
Complete Range of Speciality Products

- MEYCO TSG range of tail sealants: well proven and cost effective
- MEYCO BSG range of main bearing sealing grease for effective main bearing protection with outstanding wash-off properties
- MEYCO ABR range of unique anti-wear and dust suppression technology for hard rock TBM operating in abrasive ground

Consultancy

- Annulus grout behind segment rings: tailor-made solutions from a wide range of admixtures

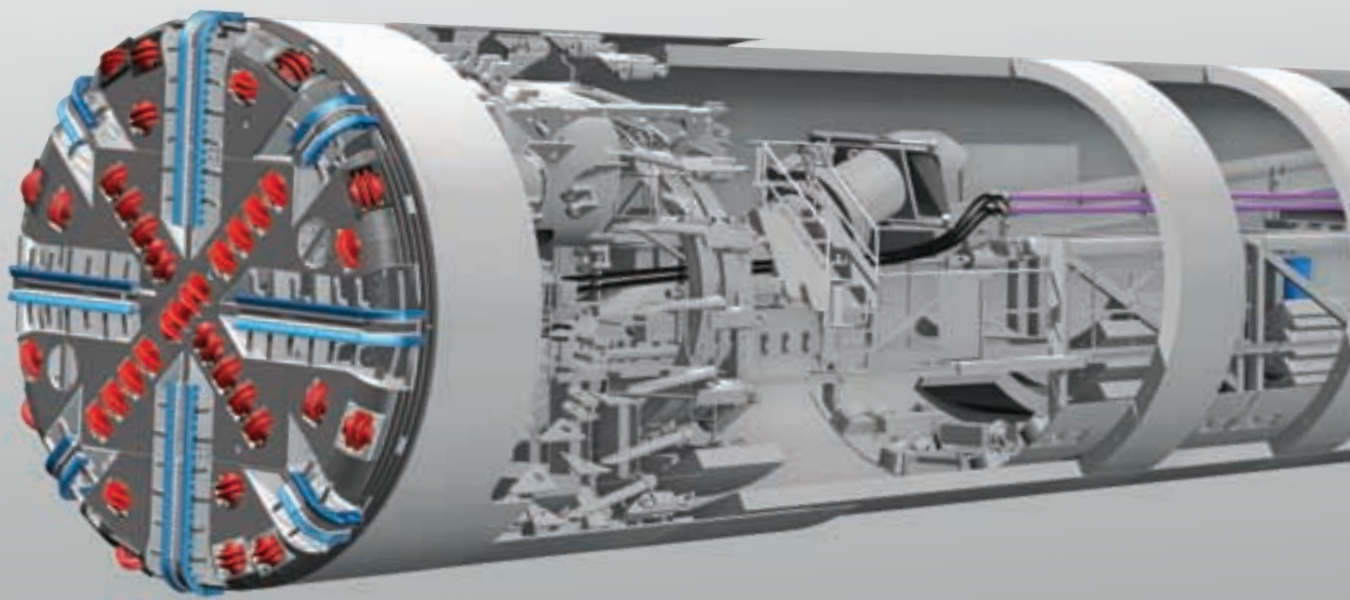




Improve Operational Efficiency

- Wide range of mineral and chemical injection technologies for water sealing, ground consolidation and void filling
- Sprayed concrete: a wide range of alkali-free accelerators and admixtures, plus modular and custom-made robotic manipulators and pumps, for trouble-free concrete spraying
- Thin spray-on liner especially designed for gripper TBMs for surface protection immediately behind the TBM cutterhead
- Precast segments and cast in place concrete: high performance and cost effective concrete admixtures, mold release agents, curing aids, fibers and repair materials
- MASTERSEAL® spray applied waterproofing membrane: perfect bonding makes sprayed concrete single shell lining possible, and is the most cost effective solution for waterproofing cross-passages in twin driven tunnels

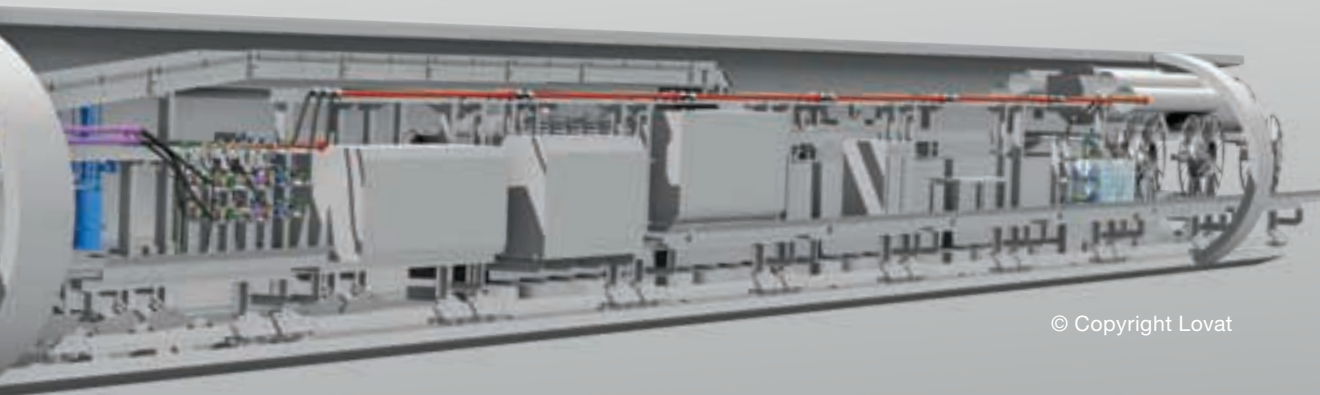




Soft Ground TBM

Application	Products	Benefits
<ul style="list-style-type: none"> • Soil conditioning (EPB) 	<ul style="list-style-type: none"> • MEYCO SLF Foams • MEYCO SLF Polymers • RHEOSOIL® 	<ul style="list-style-type: none"> • Reduce torque; plasticize soil; reduce soil permeability • Reduce the stickiness of soil, minimising clogging risk • Increase TBM advance rates
<ul style="list-style-type: none"> • Slurry TBM 	<ul style="list-style-type: none"> • MEYCO SLF Polymers 	<ul style="list-style-type: none"> • Optimise bentonite characteristics
<ul style="list-style-type: none"> • Tail sealant 	<ul style="list-style-type: none"> • MEYCO TSG 	<ul style="list-style-type: none"> • Excellent sealing performance
<ul style="list-style-type: none"> • Main bearing sealant 	<ul style="list-style-type: none"> • MEYCO BSG 	<ul style="list-style-type: none"> • Highly efficient protection of the main bearing • Excellent pumpability • Outstanding wash-off properties
<ul style="list-style-type: none"> • Annulus grouting 	<ul style="list-style-type: none"> • Superplasticizers: GLENIUM®, RHEOBUILD® • Plasticizers: POZZOLITH®, • Pumping aids: POLYHEED®, RHEOMAC® • Air entrainers: RHEOCELL®, MEYCO GA • Hydration stabilizers: DELVO®CRETE • Accelerators: MEYCO SA • Consistency control agents: MEYCO TCC • Colloidal silica: MEYCO MS 685 	<ul style="list-style-type: none"> • Improve transport and storage stability; improve pumpability and extend pumping time (up to 72 hrs); prevent bleeding, segregation and washout; accelerate setting and achieve high early strength





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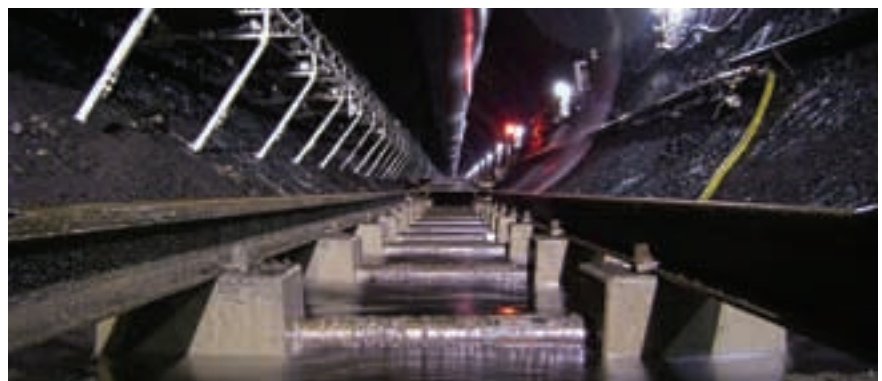
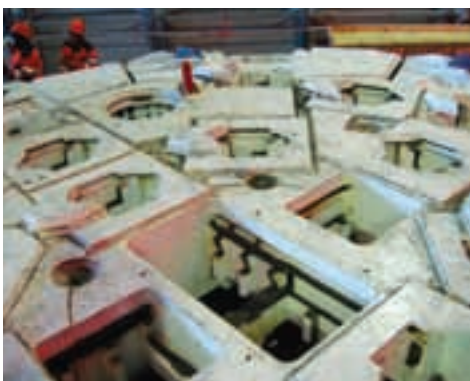
Application	Products	Benefits
<ul style="list-style-type: none"> • Precast segments • Cast in place concrete 	<ul style="list-style-type: none"> • Superplasticizers: GLENIUM®, RHEOBUILD® • Special additives: MEYCO MS range • Mold release agent: RHEOFINISH® • Air entrainers: MICROAIR® • Repair mortars, fibres and crack injection 	<ul style="list-style-type: none"> • Early demolding time • Highly durable concrete
<ul style="list-style-type: none"> • Spray applied waterproofing membrane 	<ul style="list-style-type: none"> • MASTERSEAL® 	<ul style="list-style-type: none"> • Perfect for cross-passages in twin tube driven tunnels • Sprayed with MEYCO Piccola dry spray unit
<ul style="list-style-type: none"> • Injection 	<ul style="list-style-type: none"> • Mineral grout based on colloidal silica: MEYCO MP 320T • Microcements: RHEOCEM® • Acrylic & polyurethane resins: MEYCO MP 	<ul style="list-style-type: none"> • Ground consolidation at TBM start and reception shafts • Sealing leakage behind segment rings • Cavity filling





Hard Rock TBM

Application	Products	Benefits
<ul style="list-style-type: none"> • Anti-wear • Dust suppression 	<ul style="list-style-type: none"> • MEYCO ABR 	<ul style="list-style-type: none"> • Reduce cutter abrasive wear • Reduce TBM downtimes and save project cost
<ul style="list-style-type: none"> • Anti-clogging 	<ul style="list-style-type: none"> • RHEOSOIL® 	<ul style="list-style-type: none"> • Eliminate dust in the TBM working area • Reduce clay clogging and adhesion on metal surfaces
<ul style="list-style-type: none"> • Sprayed concrete 	<ul style="list-style-type: none"> • Alkali free accelerators: MEYCO SA • Hydration stabilizer: DELVO®CRETE • Superplasticizers: GLENIUM® • Internal curing agent: MEYCO TCC735 • Fibers and colloidal silica 	<ul style="list-style-type: none"> • Best available admixture system in the market to give high quality and durable sprayed concrete
<ul style="list-style-type: none"> • Sprayed concrete equipment 	<ul style="list-style-type: none"> • MEYCO state-of-the-art spraying systems • Modular, custom-made robotic manipulators and pumps 	<ul style="list-style-type: none"> • Accurate dosing • Less rebound • Compact construction
<ul style="list-style-type: none"> • Thin support liner 	<ul style="list-style-type: none"> • MEYCO TSL 	<ul style="list-style-type: none"> • Spray applied membrane: strong and tough • Simple application equipment • Immediate surface protection behind cutterhead before sprayed concrete application

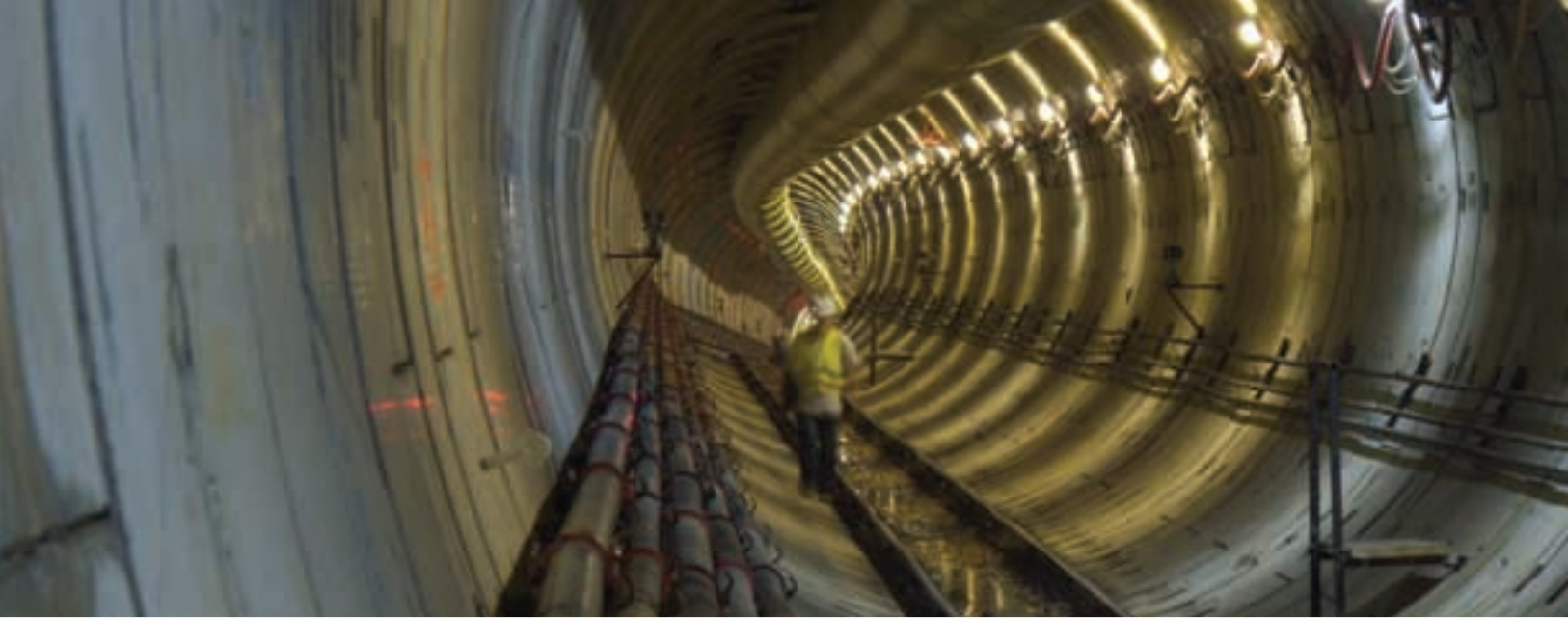




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Application	Products	Benefits
<ul style="list-style-type: none"> • Rock injection 	<ul style="list-style-type: none"> • Microcement: RHEOCEM® • Acrylic & polyurethane resins: MEYCO MP • Mineral grout based on colloidal silica: MEYCO MP 320T 	<ul style="list-style-type: none"> • Fast setting pre-injection systems • Cavity filling • Ground stabilization
<ul style="list-style-type: none"> • Spray applied waterproofing membrane 	<ul style="list-style-type: none"> • MASTERSEAL® 	<ul style="list-style-type: none"> • Perfect bonding with concrete, metal and plastic • Single shell tunnel lining concept • Perfect for complex geometry, such as cross-passages • Sprayed with MEYCO Piccola dry spray unit
<ul style="list-style-type: none"> • Precast segments • Cast in place concrete 	<ul style="list-style-type: none"> • Superplasticizers: GLENIUM®, RHEOBUILD® • Special additives: MEYCO MS range • Mold release agent: RHEOFINISH® • Air entrainers: MICROAIR® • Repair mortars, fibers and crack injection 	<ul style="list-style-type: none"> • Early demolding time • Highly durable concrete
<ul style="list-style-type: none"> • Anchoring 	<ul style="list-style-type: none"> • MEYCO Flowcable 	<ul style="list-style-type: none"> • Perfect for vertical and overhead grouting





Soil Conditioning Examples

EPB excavation with MEYCO SLF Foams and Polymers in running sand under 3 bar water pressure



EPB excavation with RHEOSOIL® in sticky clay



Pumping out sticky clay with RHEOSOIL®





Documentation available on request:

- Reference list
- Project reports
- Method statements
- And more



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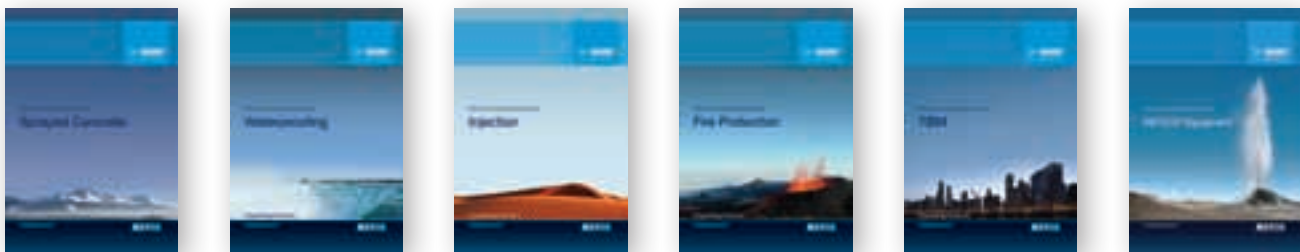
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Certified quality

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