

Solutions for tunneling and mining

Waterproofing

Expanding Horizons

Underground

**MEYCO**



The bonded waterproofing concept

Ideal for Complex Tunnel Geometry

Time For A New Waterproofing Approach

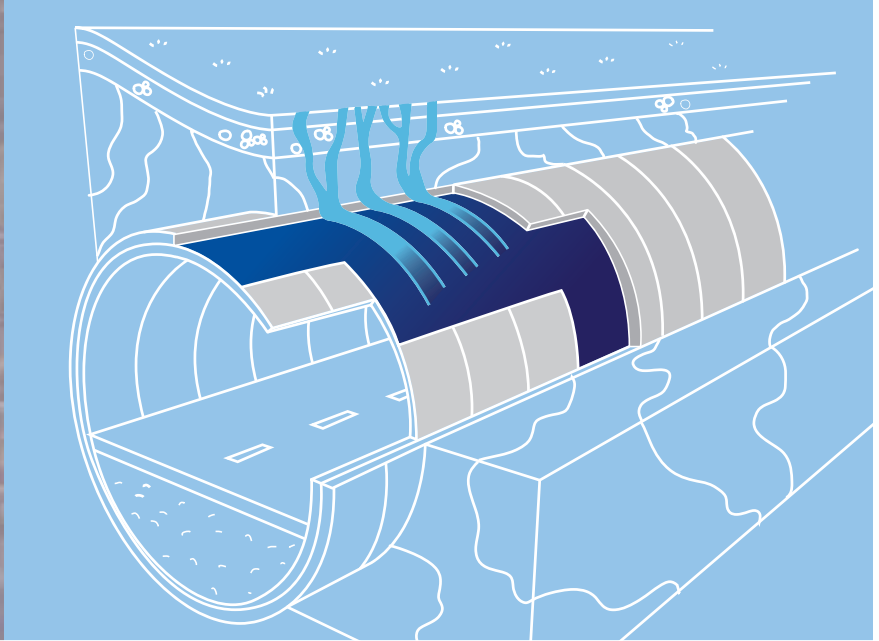
- Technology development in waterproofing of underground structures has remained quite static until recently. Conventional sheet membranes are the norm, but are often susceptible to leakages that are notoriously difficult to rectify.
- Furthermore, sheet membranes are unsuitable for installation in complex tunnel geometries, and for the subsequent applications of a sprayed concrete layer.

Bond Avoids Water Migration along Surface Interfaces

Fast, Easy And Bonded Are The Keys To Success

- In response to industry demands, BASF's MEYCO® Global Underground Construction division (MEYCO) has developed MASTERSEAL® new generation spray applied waterproofing membranes, which can simply be applied in a sandwich construction between permanent sprayed or cast concrete layers.
- The uniqueness of this waterproofing system lies in the bonding properties between the membrane and concrete lining on both sides. This strong bond mitigates the risk of water ingress by eliminating potential groundwater paths.
- A good track record, has already been developed in tunnels worldwide.





MASTERSEAL waterproofing concept has the following features that can assist you throughout your project:

For Designers

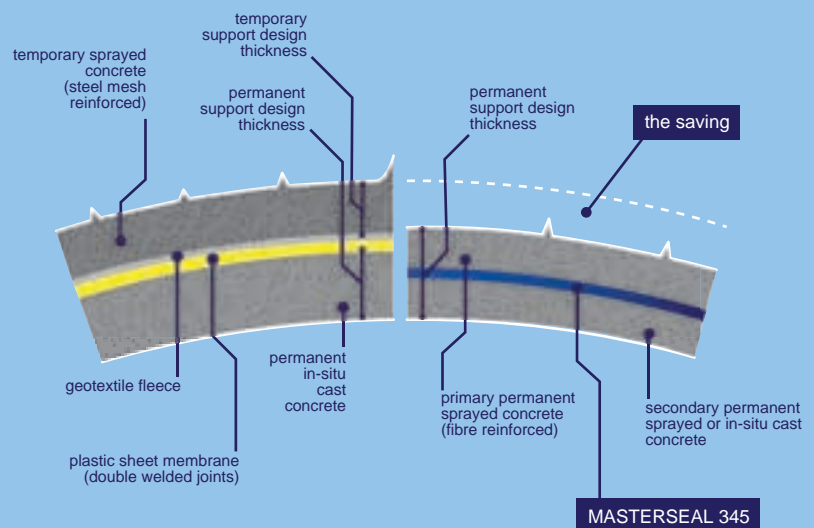
- Significant project savings possible through composite linings
- A reliable waterproofing composite system for complex geometries
- Enables efficient tunnel refurbishment through a thin extra layer

For Contractors

- Uses standard dry spraying equipment
- Simple and safe to apply
- Up to 100m² per hour application rate with three operators
- Can be applied by fully automatic robotic system (MEYCO Logica) at up to 180m² per hour
- Sprayed final lining concrete with fibers is easily applied to membrane

For Owners

- Total construction cost savings
- Extremely low maintenance cost
- Waterproofs your existing tunnels with just 5cm extra sprayed concrete





Design Flexibility

Infinite Opportunities

Ideal for Complex Tunnel Shapes

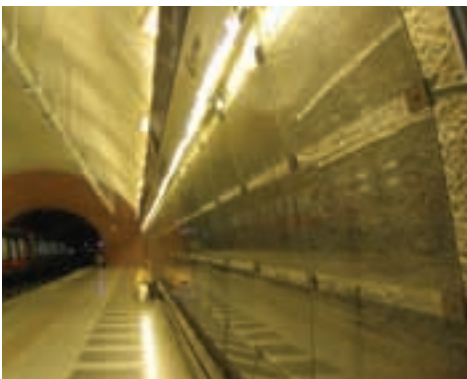
- The MASTERSEAL spray applied system is ideally suited to underground structures with complex geometries, such as lay-by niches, cross passages, turnouts and crossover caverns.
- MASTERSEAL may be applied to limited sections to provide isolated waterproofing, such as in the crown sections of tunnels where conductor cables for electrical train are situated.
- MASTERSEAL is a continuous waterproofing system without discrete joints, and does not require water stops and compartmentalization.

Drained and Undrained Solutions Are Possible

- MASTERSEAL can be used in combination with sheet membranes, and standard joint details between MASTERSEAL and sheet membranes have been established, making the system totally flexible.
- Both undrained and drained lining designs are possible. For drained solutions, geotextile or systematic drainage pipes are used.
- MEYCO can supply you with generic specification compiled by an international tunnel consultant.

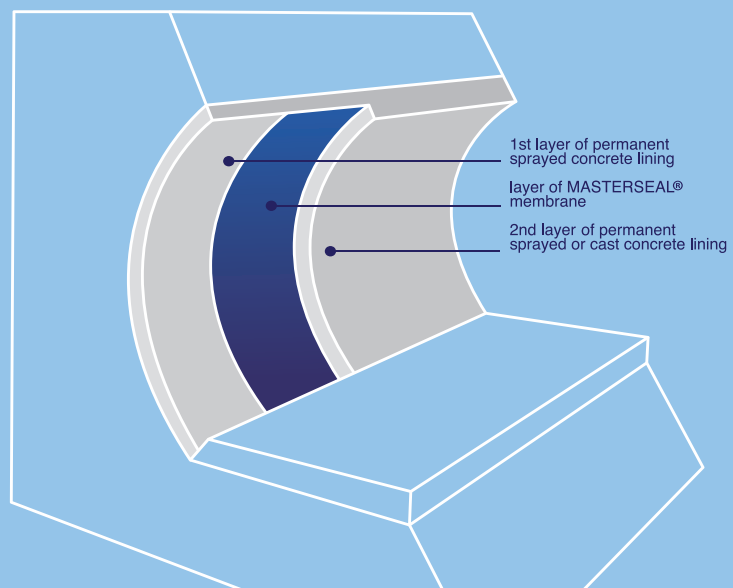
Design Economical Single Shell Sprayed Concrete Linings

- The spray applied membrane facilitates the construction of monolithic, single shell tunnel linings using permanent sprayed concrete. Recent projects adopting this approach have shown significant project savings over the double shell method. MEYCO can assist you with this design concept.
- MASTERSEAL 345 in combination with sprayed concrete offers unique advantages in refurbishment projects such as the maintenance of the existing tunnel profile.





Bond on both sides of MASTERSEAL



Easy application

Simply Sprayed in Challenging Conditions

Minimal Surface Preparation

Fast, Safe Application by a Small Team

- Entirely safe for your tunneling team and the environment
- Application rates can be up to 100m² per hour in any complex tunnel structure, up to 180 m² per hour with MEYCO Logica.
- Fast setting characteristics allow it to be over sprayed with concrete within hours
- Only a small team of 3 operators is required
- Application is by a simple dry spraying unit such as a MEYCO PICCOLA
- No need for additional sprayed concrete to smooth out excessive voids and over-breaks, making it the ideal choice for rock tunnels.
- No need to cut-off or smooth-over rock bolt and anchor heads as the MASTERSEAL seals steel too.
- As a fully bonded solution, spraying concrete against the MASTERSEAL is trouble-free
- MASTERSEAL can be used in conjunction with fiber reinforced sprayed concrete
- Unlike some spray applied systems, MASTERSEAL does not have to be applied to 100% dry surfaces
- MEYCO is there to support you with all your pre-construction testing and training requirements, and can assist in any technical back-up you require for your project
- Free training for your team





Operational Security

Increased Reliability!

Less Water Ingress Risk

MASTERSEAL provides a dry tunnel that remains dry over the design life of the underground facility.

The development goal of the MASTERSEAL waterproofing membrane was to ensure that it was a fully bonded solution and that the material composition maintained integrity and had no adverse effects on the concrete tunnel lining structure or surrounding environment.

New Life to Old Tunnels

Its unique asset is the bonding characteristics of the MASTERSEAL membrane to both the outer and inner concrete layer. This ensures that the migration of water along the concrete membrane interface cannot develop.





Documentation available on request:

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



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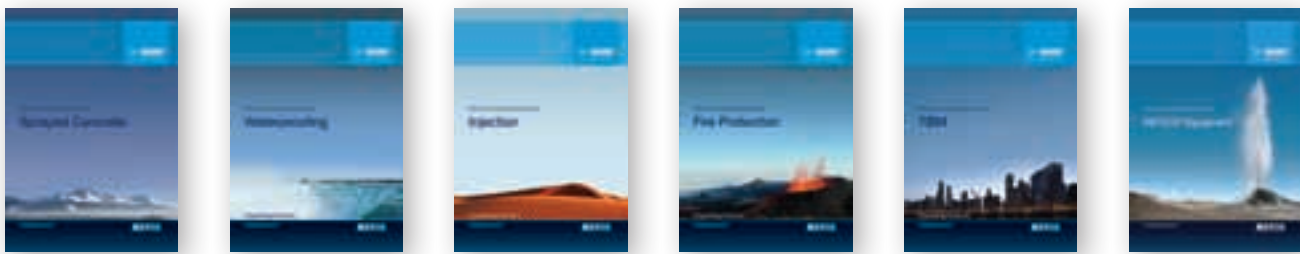
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Certified quality

Product Development Process
is certified according to

