Sika Tunnelling & Mining
Sika AG, based in Baar, Switzerland, is a globally operating specialty chemicals company. Sika is a leader in the field of process materials used for waterproofing and sealing, bonding, damping, strengthening, and protecting of load-bearing structures in construction (buildings and infrastructural works) and in industry (automotives, transportation, marine, building components, appliances, and equipment).

The Sika product range includes high-quality concrete admixtures, accelerators, specialty mortars, sealants, and adhesives, damping and strengthening materials, systems for structural strengthening, industrial floorings, and waterproofing membranes.

World-wide local presence in more than 70 countries, staffs to serve customers directly, and Sika guarantees success for all partners.

With this organization, Sika generates yearly sales of around 4.2 billion Swiss Francs.

- Sika Tunnelling & Mining
  
  Within the operating construction part of the specialty chemicals group Sika AG, all business regarding the field of underground construction is concentrated in the hands of regionally or locally organized Sika Tunnelling & Mining teams, part of the Global Business Unit – Concrete.

- Ecology and economy
  
  Sika is committed to the chemical industry’s world-wide management of environmental resources system “Responsible Care” which lays down the principles regarding safety, health, and pollution control.
Construction Chemical

- Tailor-made Customer Solutions
  By using high-quality Sika admixtures for cast and sprayed concrete, the client profits from enhanced durability of his construction and the tunneling contractor enjoys gains from optimized concrete performance properties.

- Rock Cutting
  Reusable capsules are developed for stabilization of blocking strata in tunnels and mining applications. In drill and blast tunneling, the purpose is to prevent collapse of freshly exposed loose and jointed rocks particularly positioned in dangerous areas such as the tunnel crown on shoulders.

- Sprayed Concrete
  For reasons of safety, flexibility and economy, application of sprayed concrete is continuously gaining in innovation. New developments in the SikaSpray®-AF range of setting accelerators, the superplasticizer Sikaflow® Viscocrete® together with the SikaCrete® retarder range lead to improved application potential and allow production of durable sprayed concrete to the highest quality specifications. Additionally, SikaCrete® treated sprayed concrete applied by either dry or wet methods leaves the pump pressure in order to retain the service life of the machine.

- Cast Concrete
  Making long concrete a durable construction material, while controlling workability life and hardening time has led to the design of self-compacting (SCC) concrete mixtures or mixes for high early strength concrete. Use of Sika concrete admixtures and in particular the Skaflow® Viscocrete®, SikaRapid® and Sika Plast technologies, ensure the desired result.

- Precast Concrete
  Structural design and construction with precast concrete elements form wet, precast production to erection on site requires versatile chemical products. Sika, a full-range supplier, meets the diverse complexity of the entire precast concrete element production and construction process with solutions for all requirements.

- Injection Technology
  Injection products from the Sika® range of injection products are used for the stabilization of perturbed or flawed geological zones, for consolidation, for sealing and waterproofing and also for anchor grouting. Through consulting and advisory services using high-quality products contribute to guaranteed success.

Waterproofing

- Tunnel Waterproofing Membranes
  The protection of underground structures against penetration of water is of great technical and economical importance. Considering the intended purpose of tunnels, it is obvious that their waterproofing must meet particularly high quality and performance requirements. Safety as well as durability and perfect functionality of all technical installations within the tunnel are of great importance. Membrane installation machines for SkaPlan® tunnel waterproofing membranes have a successful track record of use for many years. The efficient method for the installation of SkaPlan® membranes, single rolls or preassembled sheets, adds to higher safety and maximum installation quality.

- Joint Sealing
  Resists waterproofing of the surface system for all kinds of joints is a decision factor for the successful functioning of the whole waterproofing system. Be it section joints, connections to transverse galleries or invert wall joints, there are in many transitions that need reliable sealing. Sika® Waterbars, Sika®-Cembe®, or SikaSil® allow the design and selection of the correct and practical sealing solution for each joint.

- Drainage Systems
  The FlexiDrain, drainage system, used mainly in tunneling, consists of half-shells and matching specially shaped pieces. The half-shells consist of a soft, fibre mesh reinforced membrane, shaped and supported by a steel wire skeleton. The half-shells can usually be fixed directly onto the rock surface by nailing joints. Thanks to the fibre mesh reinforcement of the half shell’s skirt, concrete can then be directly sprayed over the drainage shells ensuring rapid water management.
Equipment Solutions

- **Flexibility regarding design and use of machines and systems**
  Achieving perfect results with sprayed concrete is equally influenced by mix design as well as application. This is exactly the reason why we are offering to the customer concrete spraying systems and admixtures for sprayed concrete, all from a single source.

- **Rotax 3D machines**
  Aliva® Rotax machines are sturdy-built spraying machines suitable for spraying dry as well as wet mixes. The material is conveyed according to the rotor principle. The mix is fed by three-stream method up to the spraying nozzle. Automatically lubricated sealing plates reduce wear, thus optimizing running costs.

- **Concrete spraying systems**
  Big-volume concrete spraying work or applying sprayed concrete to large sections call for mechanisation of the spraying process. Highly mechanised concrete spraying systems are globally offered to the market by the alliance partners Sika and Puzemiet for this purpose. It makes no difference whether it’s for mining, gallery excavation or tunnelling. Sika-Puzemiet systems show their suitability for day-to-day use and their conception adapted to the needs of the customers. High-quality and high-performance concrete systems are created by combining the system components such as spraying boom, dosage unit and above all by choosing the ideal conveyor unit, either a twin-platen concrete pump by Puzemiet or the proven Aliva® Rotax machines.

  When tunnels are driven by tunnel boring machine, sprayed concrete is mostly applied mechanically. The concrete spraying robots used for this and are designed and built to the customers’ specifications and mounted onto the TBM. Performance parameters of the TBM must be observed; available space must be used optimally and the spraying process must be perfectly integrated into the overall logistic concept for advancing the tunnel. Various Aliva® solutions have been conceived on this basis and have been very successfully used all over the world.

Customers & Partners

- **Global partner for concrete spraying machines**
  Sika’s equipment arm Aliva is linked up to its customers and construction sites through a global network of agencies and partners spread over 5 continents. Close cooperation of local Sika Companies with Aliva equipment providers allows high-technology and proven product based solutions for all tunnelling and mining customers. Geographical proximity of Aliva partners assures maintenance and service for systems and machines, thus guaranteeing their permanent operational availability to our customers.

- **Complete customer service**
  The Sika companies and partners offer complete coverage of competent services in the field of our business activities. Our staff have specific specialist knowledge and know-how in various fields. In cooperation with the Sika representatives all over the world we advice our customers and offer the best cost effective product or system solution for a given problem.

- **Services offered by these teams include:**
  - Technical consulting and proposals
  - Method Statements
  - Development of efficient rock support systems
  - Qualification testing for cast and sprayed concrete
  - Instructions for rock and soil consolidation injections
  - Starting up of systems/training courses for systems
Sika – global knowledge with a local presence

Sika Branch Offices: Ahmedabad, Bangalore, Chandigarh, Chennai, Cuttack, Hyderabad, Kolkata, Mumbai, Noida, Pune & Siliguri

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Our most current General Sales Conditions shall apply.
Please consult the Product Data Sheet prior to any use and processing.

An ISO 9001:2008 Company