

WE PROVIDE THE TOOLS - YOU BUILD THE FUTURE.

**Normet's Sprayed Concrete
Equipment Offering for Tunnelling**



DEFINING THE FUTURE
UNDERGROUND

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DEFINING THE FUTURE UNDERGROUND

We are a fast-growing and innovative company with a mission to lead the transformation into a safer and more sustainable tomorrow. We specialize in technologies and solutions for underground mining, tunnelling and civil construction and provide our customers with safe, high-quality equipment, services, construction chemicals and rock reinforcement solutions for projects around the world.

UNDERGROUND EXPERTISE

We support our customers with expertise gained from working on thousands of underground mining and tunnelling projects all over the world. To date, we have delivered more than 14,000 purpose-built underground machines while improving safety and productivity through our range of construction chemicals and rock reinforcement products. We also offer a range of services and support for our customers. Our company employs about 2,000 professionals with more than 50 locations in 30 countries.

SAFETY IS OUR PRIORITY

Safety is our first priority in everything we do. Our goal is to help our customers increase their level of safety while improving their productivity and profitability. We develop our equipment, technologies and solutions with safety, sustainability and the welfare of people as the key drivers, taking the impact on the environment in careful consideration as well.

CONTINUOUS DEVELOPMENT

We constantly develop new equipment, technologies and chemicals to provide additional value for our customers' underground processes. Our development teams consist of world-class experts using state-of-the-art methods and tools. We use our own laboratories to develop our cutting-edge construction chemicals and perform field tests for our entire offering in real-world environments. In all our work, we aim to enhance safety and reduce environmental impact.



EQUIPMENT



SERVICES



CONSTRUCTION
CHEMICALS



ROCK
REINFORCEMENT



Scan the QR code for a video showcasing our expertise in sprayed concrete.

FOR HIGH-QUALITY RESULTS IN CHALLENGING SCHEDULES

Extremely tight schedules and high demands are everyday life for tunnellers around the globe and, therefore, our equipment is designed to always deliver the highest possible efficiency and quality to achieve budget and schedule targets in all processes.

Our dedicated concrete spraying solutions for tunnelling are the result of over 50 years of experience in underground operations and close partnerships with our customers across the globe.

Your holistic underground partner

Tackling difficult underground conditions and finding the best possible solution for every need is at the heart of our business. With our comprehensive process expertise, we are able to deliver the

results you need with strong, high-quality sprayed concrete linings along with improved operating efficiency, reduced costs and maximized productivity. In addition, we can provide you with training, support, problem-solving and technical advice as your holistic expert partner throughout the entire concrete spraying process.

For all tunnelling needs

Our dedicated tunnelling equipment is designed for operation in a wide variety of tunnel and cavern profile sizes – even the most demanding and hard-to-reach targets can be easily covered with our solutions. Our purpose-built process equipment always helps you keep material consumption at a minimum, resulting in the lowest environmental impact and total process cost possible.



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SPRAYMEC 4100 AND 5100 - ENHANCED CAPABILITIES FOR EVERYDAY NEEDS

SPRAYMEC 4100

The Spraymec 4100 is a robust, self-propelled concrete sprayer designed for tunnelling and mining projects with small to medium sized tunnel profiles. Its 4-wheel drive and 4-wheel steering including crab steering enable effortless manoeuvrability in tight spaces and challenging ground conditions, ensuring efficient operation underground.

Precise spraying and control

Equipped with an advanced NorSmart 3 control system, the 4100 fully synchronizes the accelerator dosing with concrete flow. The low-pulsation concrete pump ensures high quality spraying results. The boom, with a vertical reach of 10.5 m, offers excellent rebound protection and precise spraying.

Built for reliability

A high-capacity onboard compressor supports optimal concrete application, while large-diameter steel pipes and hoses minimize blockages. IP65-rated control components, a CAN bus system, and radio remote control provide seamless operation and trouble-shooting. Designed for efficiency, the component layout enables easy access to all maintenance points, and its centralized lubrication points reduce downtime and prolong lifespan.



SPRAYMEC 5100

The Spraymec 5100 is a powerful, mobile concrete sprayer tailored for medium to large tunnel profiles. Its durable carrier with 4WD, 4-wheel steering and crab steering enables smooth repositioning even in confined underground environments.

Reliable spraying technology

With an intelligent closed-loop system, the 5100 continuously adjusts accelerator dosage and pump output for optimal spraying results. The low-pulsation concrete pump ensures high quality spraying results. Its highly manoeuvrable spray manipulator delivers exceptional coverage and rebound protection.

A high-volume onboard compressor ensures reliable air supply, while large-diameter piping minimizes blockages. Optional automated cleaning simplifies maintenance, reducing labour demands. IP65-rated controls, CAN bus diagnostics, and bright work lights enhance usability. Designed for easy servicing, its centralized lubrication points and accessible components minimize maintenance time and costs.

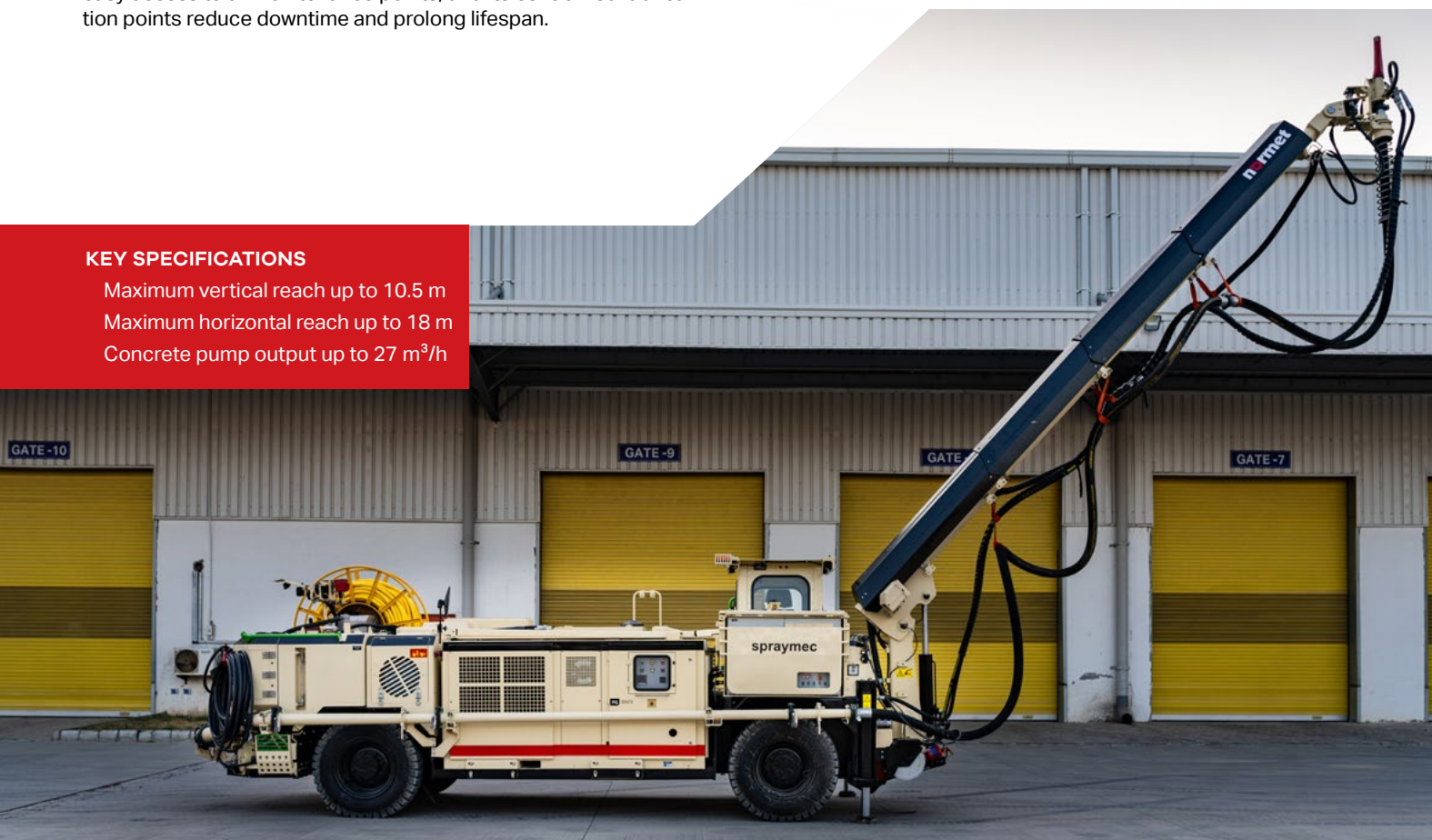
normet *aliva*

Normet's comprehensive offering for concrete spraying also includes Aliva's equipment. Aliva's offering includes durable and high-quality rotor machines, manipulators, and dosing units that maximize productivity in any shotcrete application.



KEY SPECIFICATIONS

Maximum vertical reach up to 10.5 m
Maximum horizontal reach up to 18 m
Concrete pump output up to 27 m³/h



KEY SPECIFICATIONS

Optimal vertical reach 10 m
Optimal horizontal reach 14 m
Concrete pump output: Up to 30 m³/h



SPRAYMEC 8100 AND 9100 - PROVEN MARKET-LEADERS

SPRAYMEC 8100

Spraymec 8100 is a purpose-built, electro-hydraulic concrete sprayer offering unmatched value for tunnelling operations with medium to large cross sections. Proven in countless tunnelling projects all around the globe and delivering superior safety, productivity and configurability with a broad spectrum of options and accessories, the 8100 is the number one solution for your project.

For unparalleled results

Designed for high-performance sprayed concrete applications with alkali-free accelerators, the robust rigid frame machine is equipped with state-of-the-art spraying technology such as our unrivalled dosing system and our extremely low-pulsation NSP 40 concrete pump with a theoretical pumping capacity of 30 m³/h, both fully synchronized with an integrated control system. In addition, all conveying cylinders of the pump are controlled independently, further reducing pulsation to an absolute minimum.

The 8100 also features our globally proven, highly accurate spray manipulator with vertical and horizontal tracking, automatic movement of the upper boom telescope, nozzle nutation and excellent rebound protection. Moreover, all movements of the boom are pressure compensated and have proportional outputs to ensure smooth operation and constantly uniform spraying results.

Designed to thrive underground

Fitted with a high-capacity on-board compressor, the machine comes with four-wheel steering and 4WD for effortless operation in even the harshest underground conditions. It is powered by ei-

ther a Stage III engine or, alternatively, by the latest low-emission Stage V technology. Furthermore, the 8100 offers best-in-class safety with features like an ergonomic FOPS/ROPS cabin, SAHR brakes and many more.

Innovative technologies for higher productivity

The machine is available with both our innovative SmartSpray spraying automation technology and SmartScan, our state-of-the-art concrete thickness measurement system. In addition, it comes with our advanced wireless remote control system and can be fitted with a myriad of optional features to increase process productivity even further.



SPRAYMEC 8100 VC SD

Spraymec 8100 VC SD is a battery-electric concrete sprayer, specifically tailored to thrive in underground tunnels with medium to large cross sections. Built on our SmartDrive BEV architecture with zero local emissions, the machine is a pioneer on the path to the future of more sustainable concrete spraying operations.

The 8100 VC SD has an impressive vertical reach of 14 meters and supports battery charging during spraying for significantly increased operating efficiency. In addition, it allows for easy access to all service and lubrication points for effortless maintenance.



SPRAYMEC 8100 VC SD - ZERO LOCAL EMISSIONS



Spraymec 8100 VC SD

KEY SPECIFICATIONS

- Optimal vertical reach up to 10 m
- Optimal horizontal reach up to 14 m
- Best-in-class NSP40 low pulsation concrete pump with output up to up to 30 m³/h



SPRAYMEC 9100

The Spraymec 9100 is a robust, self-propelled concrete sprayer engineered for large-profile tunnels and caverns. Combining the best features from all of our sprayers to one, the Spraymec 9100 offers superior productivity and extended spraying reach. With an optimal spraying reach of up to 15 meters in height and 20 meters in width, it ensures efficient sprayed concrete application across wide and tall tunnel profiles. Its 4-wheel-drive and 4-wheel-steering provide excellent manoeuvrability in demanding underground spaces.

Ease-of-use features for operators

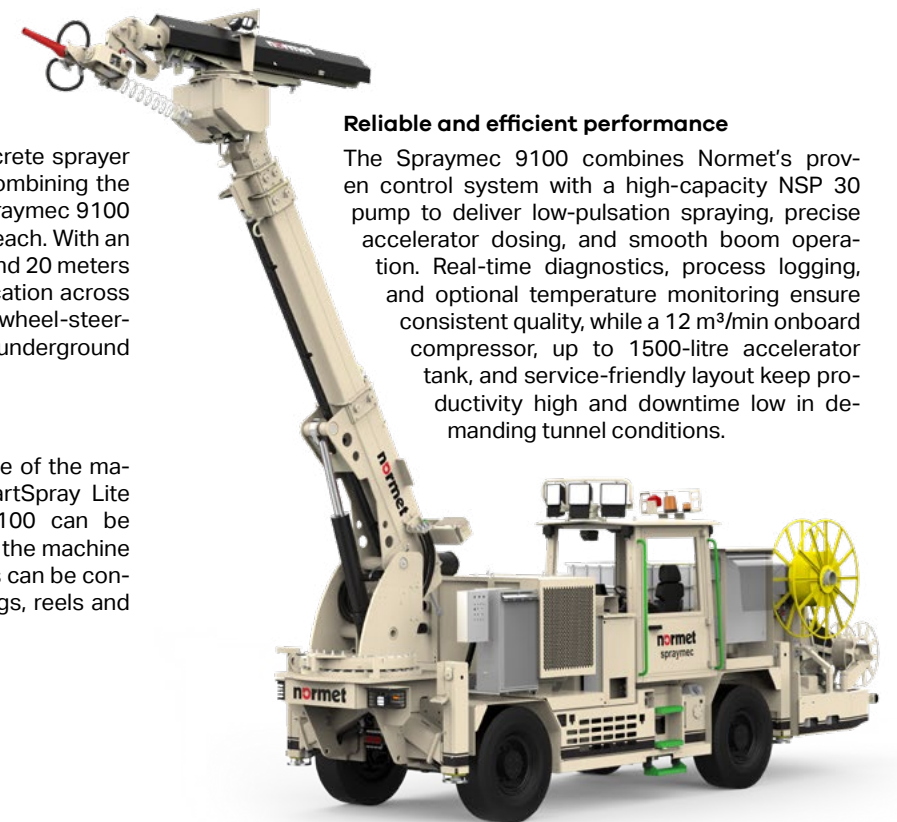
To further improve operator comfort and ease of use of the machine, it comes equipped with the innovative SmartSpray Lite boom control system as standard. Spraymec 9100 can be equipped with Remote Driving System for relocating the machine from the ground level – all the necessary movements can be controlled from the remote control including support legs, reels and driving.

KEY SPECIFICATIONS

- Optimal vertical reach up to 15 m
- Optimal horizontal reach up to 20 m
- Concrete pump output up to 30 m³/h

Reliable and efficient performance

The Spraymec 9100 combines Normet's proven control system with a high-capacity NSP 30 pump to deliver low-pulsation spraying, precise accelerator dosing, and smooth boom operation. Real-time diagnostics, process logging, and optional temperature monitoring ensure consistent quality, while a 12 m³/min onboard compressor, up to 1500-litre accelerator tank, and service-friendly layout keep productivity high and downtime low in demanding tunnel conditions.



NORRUNNER – BUILT ON A TRUCK CHASSIS

Packed with cutting-edge spraying technology

The NorRunner offering is comprised of extremely capable concrete sprayers built on a road-legal truck chassis, enabling fast transits on public roads.

Specifically tailored for the needs of modern tunnelling operations, the offering includes two models – the 140 DVC with a jointed boom and the 160 DVC with a straight boom. Both machines are designed to offer superior value for projects with medium to large tunnel profiles.



NorRunner 140 DVC

Allowing for efficient spraying with both the diesel engine and the electro-hydraulic power pack or, alternatively, completely local emission-free by plugging the machine into an underground mains supply, the machines feature agile spray manipulators with excellent rebound protection and some of the largest working ranges in the market.

NorRunners are filled to the brim with state-of-the-art spraying technology. They come with our unrivalled dosing system and our extremely low-pulsation, up to 30 m³/h concrete pump with independent conveying cylinder control, both working in tandem through an integrated closed-loop control system for superior spraying results. In addition, machines in the NorRunner offering can be equipped with both our innovative Normet SmartSpray® spraying automation system and our Normet SmartScan® system for advanced concrete thickness measurement.



NorRunner 160 DVC

KEY SPECIFICATIONS

- Optimal vertical reach up to 15 m
- Optimal horizontal reach up to 20 m
- Concrete pump output up to 30 m³/h
- Dual-drive process: Diesel + electric



MINIMEC AND NORSTREAMER – THE PERFECT COUPLE



NORSTREAMER 30 V

Norstreamer 30 V is our mobile concrete pump – a compact pocket rocket specifically engineered for the needs of slope stabilization, tunnel construction, TBM installations etc.

Built on our low-pulsation NSP 30 double-piston concrete pump and our advanced accelerator dosing system, together offering unmatched durability and the best possible application quality, the Norstreamer is available in multiple different configurations to meet all customer needs and thrive in all climates.



MINIMEC

Minimec is a mobile concrete spraying solution, ensuring high-quality results in even the most restricted spaces such as small tunnels, cross passes, shafts, slopes and working pits. It is available with the standard boom with a max. vertical reach of 7.5 m, or as a longer reach version, Minimec L, with an 8.5 m reach.

The machine consists of an extremely agile carrier and a field-tested, accurate spray manipulator with an impressive working range and nozzle nutation. It is powered by the latest Stage V / Tier 4 engine technology and equipped with features like a remote-control system, independent drive hub motors for turning while stationary and hydraulic support legs along with additional foot blocks for maximum operating stability.

KEY SPECIFICATIONS

- Concrete pump output up to 30 m³/h
- Different configurations available



KEY SPECIFICATIONS

- Maximum vertical reach 7.5 m / 8.5 m
- Lightweight and agile
- Dual-drive: Diesel + electric



TOWARDS AUTOMATED SPRAYING

NORMET SMARTSPRAY®

As talented operators are becoming increasingly difficult to find and the quality of applied sprayed concrete can critically vary between operators, we developed the SmartSpray system to minimize the effect of the operator's performance to the end result and increase the productivity of the spraying process.

Through innovative automation technology, SmartSpray decreases the ergonomic strain of the spraying process and significantly improves the overall quality of the application by both beginners and experienced operators. It supports the operator in achieving the desired layer thickness easily while also reducing concrete waste for more sustainable operation and lower operating costs.

Currently, SmartSpray is available for a variety of our underground equipment. We offer two different versions of the SmartSpray system: SmartSpray Lite and ProPlus.

SmartSpray Lite

With SmartSpray Lite, the operator only controls the spray nozzle instead of all joints of the spray arm, meaning that instead of the traditional way of using two or four joysticks, the operator can successfully maneuver the spray arm with only one.

In the Lite version, nozzle alignment is kept constant in relation to the sprayed surface, allowing the operator to achieve high-quality results both consistently and effortlessly. Furthermore, the operator can select predefined spraying nozzle speeds via the remote control or, additionally, switch between standard operation and assisted spraying modes.



SmartSpray ProPlus

With SmartSpray ProPlus, a predefined area can be sprayed fully automatically. In this mode, the control system calculates a path for the nozzle movement, maintains the set distance between the spray nozzle and the surface while automatically maintaining the correct speed – fully synchronized with the concrete pump output – to achieve the desired concrete thickness. In addition, the spraying area can be effortlessly defined by simply pointing with the nozzle.

Easy, fast and accurate, the SmartSpray ProPlus technology turns your novice sprayer into an experienced master.



Our customer in Norway is using the SmartSpray system. Scan the QR code to watch a testimonial video.



A NEW ERA IN PROJECT DOCUMENTING

The Normet SmartScan® system enables immediate thickness control and documentation of the sprayed concrete layer. It utilizes state-of-the-art scanning technology and is specifically designed for the harsh underground environment.

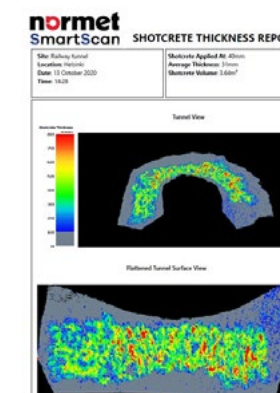
The 3D LiDAR technology eliminates the need for unsafe methods for manual probing of layer thickness by entering under fresh concrete while improving both the efficiency of the concrete spraying process and the safety of underground personnel.

With the touch of one button, the on-board computer can measure concrete thickness and display a color-coded 3D model of it the user-friendly touch screen interface, giving the nozzle operator immediate feedback on the freshly sprayed area. The required concrete layer thickness can be quickly achieved before the concrete spraying machine is moved, thus preventing the time-consuming need to come back and re-spray the area. This significantly increases efficiency, maintains excellent spraying quality and, at the same time, reduces the waste of material.

SmartScan desktop

The desktop software enables advanced analysis of the profile data in e.g. a site office, allowing the raw data to be analyzed further by cropping and reprocessing it for documentation and reports.

By including project information and the customer logo, meaningful reports can be created for QA/QC purposes and for archiving or client submission.



SmartScan Align

SmartScan Align enables transferring captured profile data from SmartScan's local coordinate system into any coordinate system used in surveying. Allocating the profile data even after the concrete sprayer has been moved makes data exchange with other equipment and systems operating in the same project possible.

Thanks to a simple calibration process, the distance between the two measurement systems is determined with minimal effort using the known position of retroreflective targets in the tunnel profile. This process is only required when the measuring devices have been detached or otherwise moved or, alternatively, to ensure that the systems are still aligned perfectly.

With the request for a new profile scan, the second LiDAR sensor, installed on the spraying carrier facing backwards, locates the targets attached to the tunnel walls, allowing the system to transform the profile data into the project coordinator data system.

SmartScan retrofit kit

The SmartScan retrofit kit allows both new and existing sprayers to be equipped with the latest LiDAR technology to measure and monitor applied sprayed concrete layer thickness in underground construction projects.

Simple and quick to install, the kit includes all the necessary components to increase the technological level of your concrete spraying fleet, making it possible to utilize even older equipment in demanding projects. It does not require calibration after installation and is ready for immediate use. In addition, we also offer installation and training services for the system. SmartScan retrofit kits are currently available for all of our underground sprayers.

Normet SmartScan® helps you control concrete layer thickness fast and accurately and significantly reduce costs.

Integrated SmartScan hardware.





Scan the QR code to find out more about our offering.



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ESPOO (FINLAND)

NORMET CHINA
SHANGHAI (CHINA)

NORMET INDIA
NOIDA (INDIA)

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SANTIAGO (CHILE)

NORMET SOUTH AFRICA
JOHANNESBURG (SOUTH AFRICA)

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ADELAIDE (AUSTRALIA)

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GLOBAL PRESENCE. LOCAL SUPPORT.

We are looking forward to telling you more. Please contact your local Normet representative, visit normet.com for contact details.

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