

# SPRAYED CONCRETE EQUIPMENT FOR MINING



DEFINING THE FUTURE  
**UNDERGROUND**

**normet**

[normet.com](http://normet.com)

## 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

## OUR VALUE PROPOSITION

### I. SECURING A SAFE AND SUSTAINABLE FUTURE

At Normet, a safe workplace is our first priority. We continuously develop new solutions that enable you to work more safely and sustainably, and minimise your impact on the environment. We commit to exceeding industry standards.

### II. INNOVATING FOR PERFORMANCE

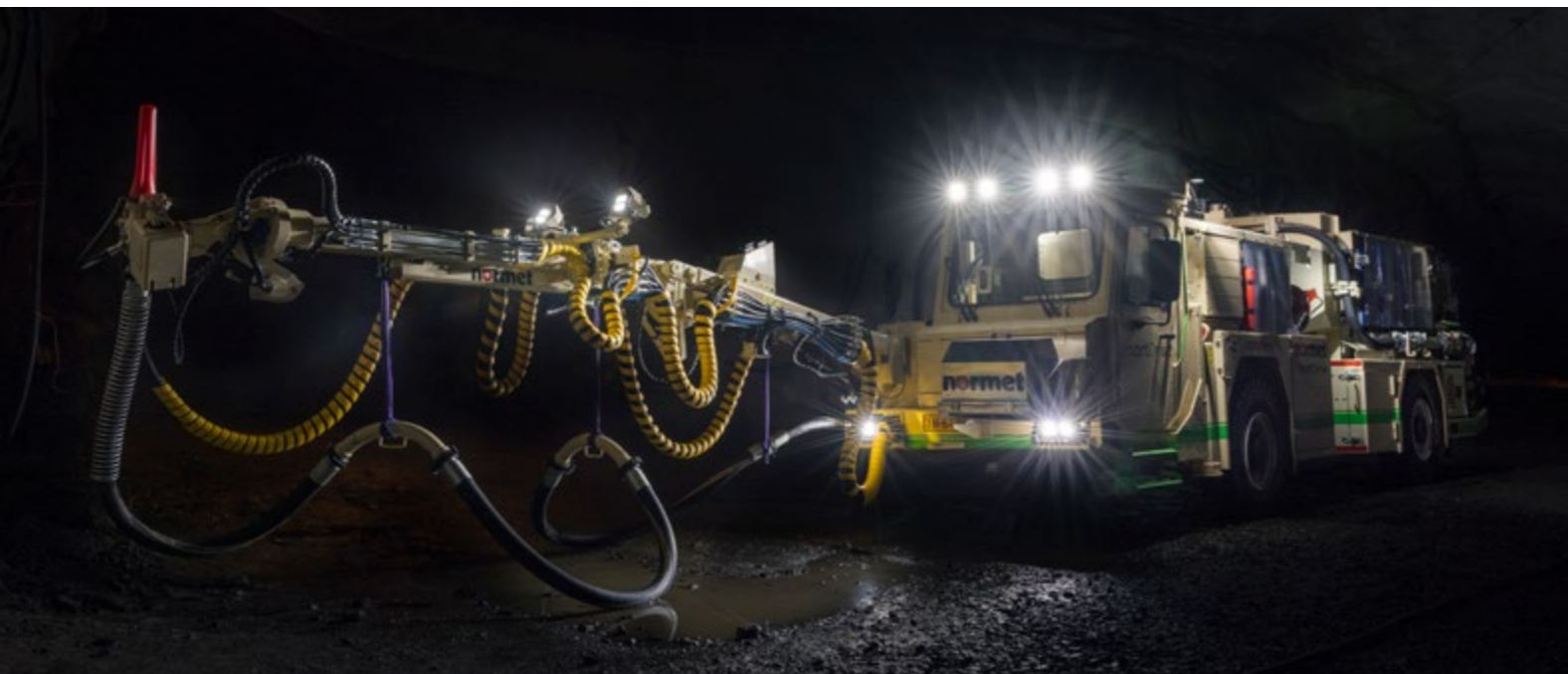
We use leading-edge solutions and technologies to benefit our customers. In addition to innovations that improve our products and services, we also aim to improve our customers' processes continuously. Our commitment to innovation gives you clear results with improved performance and higher productivity.

### III. PARTNERING FOR LIFETIME VALUE

We are committed to long-term partnerships and our team is dedicated to helping you reach your goals. Our expert cooperation, effective solutions and proactive problem-solving gives you superior lifetime value and lets you focus on your own business.



Normet's main production and R&D facility in Iisalmi, Finland.



# HALF A CENTURY OF EXPERTISE

For half a century now, we have been developing innovative, superiorly safe and extremely productive solutions for concrete spraying in underground mining with the help of our decades-long, extensive expertise from the batching plant to the nozzle tip.



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

## DEDICATED FOR UNDERGROUND MINING

### SOLUTION FOR EVERY JOB

Our comprehensive portfolio is based on more than 60 years of underground experience and the delivery of over 15,000 purpose-built machines. We have worked in close partnership with our tunnelling and mining customers when developing our concrete spraying offering and, consequently, Normet's spraying solutions meet and exceed every possible demand for safe and productive underground operations.

Our concrete sprayers are packed with cutting-edge spraying technology, such as our extremely low-pulsation NSP concrete pumps, accurate spray manipulators, an unrivalled synchronized dosing system and our innovative layer thickness monitoring system, allowing you to achieve perfect spraying results every time.

The use of sprayed concrete in mining projects is an important and integral part of successful, highly productive, and safe rock support systems. We are the industry leader in concrete spraying solutions, providing a complete range of state-of-the-art equipment, services, and chemicals to our customers around the world.

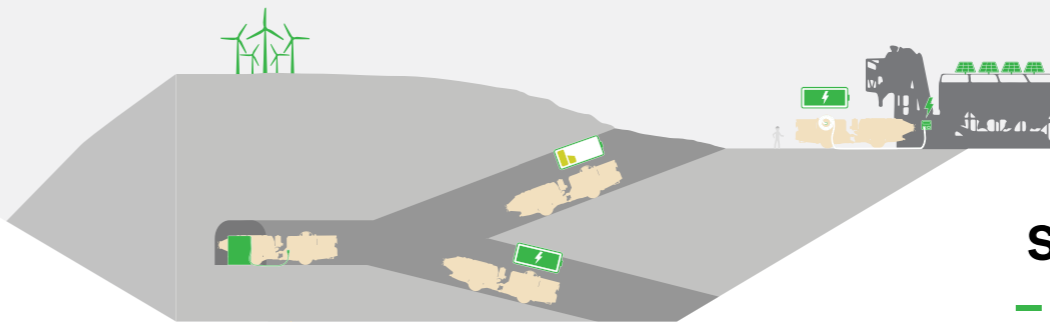
### A HOLISTIC PARTNERSHIP

Normet's unique approach to the Sprayed Concrete Process ensures we can support our customers from tender stages till project completion and beyond. Our capable experts make it their business to understand your needs and then advise on the equipment choice, service and training, and chemical selection best suited to the local conditions and project requirements.

Spraymec MF 050 VC SD



## SPRAYMEC MF AND LF – PROVEN MINING SPRAYERS



## SPRAYMEC MF 050 VC SD – ZERO LOCAL EMISSIONS



### SPRAYMEC MF 050 – A GLOBALLY PROVEN MACHINE

Spraymec MF 050 is tailor-made to offer superior value for modern mining operations in small and medium-sized tunnels. Powered either by a diesel engine or a diesel engine and an electro-hydraulic power pack, it is equipped with state-of-the-art spraying technology and features an output capacity of up to 19 m<sup>3</sup>/h or 27 m<sup>3</sup>/h with diesel-powered or electric operation, respectively.

Available with a useful on-board compressor, the MF 050 offering also includes a model with our local emission-free Normet SmartDrive® battery-electric architecture.

### SPRAYMEC LF 050 – FOR TOUGHER ENVIRONMENTS

Spraymec LF 050 is an extremely capable mining sprayer for more challenging conditions. The compressor can be driven either electrically or hydraulically, enabling fully autonomous operation by using power from the diesel engine. It comes with a FOPS/ROPS cabin and a highly agile and accurate spray manipulator with superb rebound protection. Available with low-emission Stage V engine technology, The LF 050 delivers unmatched performance for tougher spraying jobs.



Spraymec LF 050 DC

### KEY SPECIFICATIONS

Maximum vertical reach: 10.8 m  
Concrete pump output: 19 m<sup>3</sup> / 27 m<sup>3</sup> (diesel / electro-hydraulic)  
Tramming height: 3 m

### NORMET SMARTDRIVE® ARCHITECTURE

Normet SmartDrive® is a modular battery-electric vehicle (BEV) architecture designed to optimize energy consumption and performance in underground mining and tunnelling applications with the latest fast-charging capable Li-ion battery technology. Our SmartDrive equipment allows for higher productivity, lower operating costs and, most importantly – zero local emissions.

Easiness of use and carefully engineered controls guarantee that the machines are superiorly safe and pleasant to operate. The fully reversible 4WD ensures sure movement in the most difficult underground conditions, while the high-torque electric motors reduce tramming time to reach work sites faster and recover energy in downhill driving and deceleration – without any harmful diesel particles for a significantly cleaner working environment.



### SPRAYMEC MF 050 VC SD

Purpose-built for modern mining environments and featuring a maximum vertical reach of 10.8 meters, the machine comes with a FOPS/ROPS safety cabin with completely redesigned control features. Enabling a concrete output of 10.5 m<sup>3</sup>/h or 27 m<sup>3</sup>/h (battery or electric-powered operation), an on-board compressor and an extremely accurate spraying boom, the MF 050 VC SD pioneers the transformation into tomorrow's mining operations.



### KEY SPECIFICATIONS

Maximum vertical reach: 9.5 m  
Concrete pump output: 10.5 m<sup>3</sup> / 27 m<sup>3</sup> (battery / plugged into grid)  
Tramming height 2.9 m

Spraying is possible both from the cabin and with a remote controller.



## ROBUST AND DURABLE SPRAYERS FOR EVERYDAY TASKS



### SPRAYMEC 4100

Spraymec 4100 is a robust, self-propelled concrete sprayer designed for tunnelling and mining projects with small to medium sized tunnel profiles. Its 4WD and 4-wheel-steering including crab steering enable effortless manoeuvrability in tight spaces and challenging ground conditions, ensuring efficient operation underground. The low-pulsation concrete pump ensures high quality spraying results as the boom with a vertical reach of 10.5 m offers excellent rebound protection and precise spraying.

A high-capacity onboard compressor supports optimal concrete application, while IP65-rated control components, a CAN bus system, and radio remote control ensure seamless operation and troubleshooting. Designed for efficiency, the component layout allows easy access to all maintenance points, and centralized lubrication points help reduce downtime and extend service life.

### SPRAYMEC 2100

Spraymec 2100 is a compact, self-propelled wet-mix concrete sprayer designed for essential spraying tasks in underground mines with small to medium tunnel profiles. It delivers reliable sprayed concrete performance with a simple, robust design that prioritizes safety, ease of operation, and simplicity.

The Spraymec 2100 is available in two configurations, allowing customers to select the optimal spray boom reach and concrete pump capacity based on application needs. Both models are engineered for sprayed concrete applications with liquid set accelerators and feature a closed-loop control system for synchronized concrete delivery and accelerator dosing.

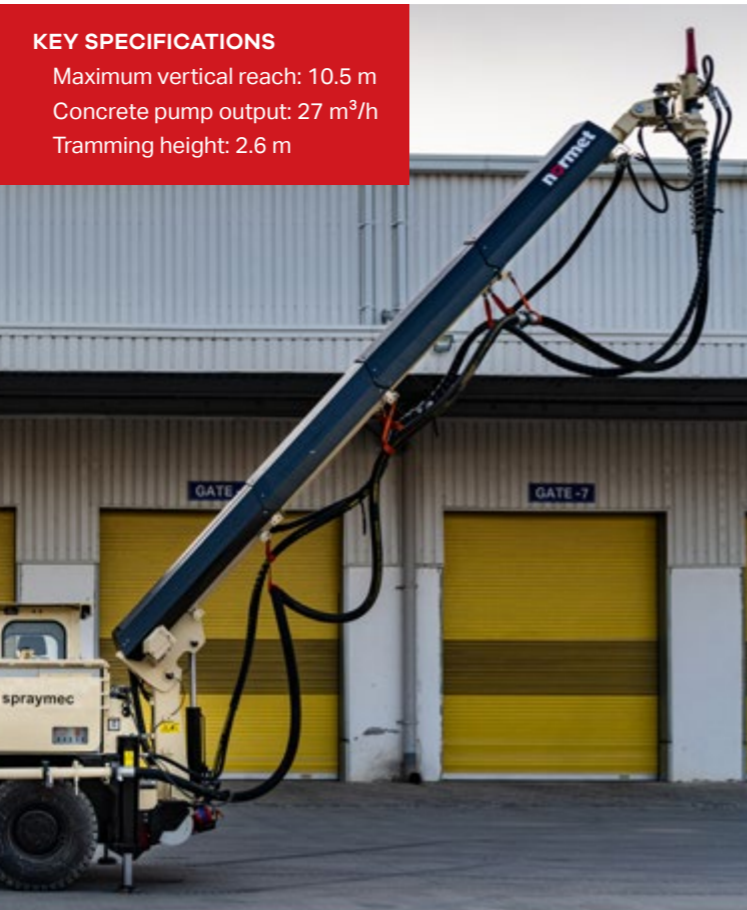
With 4WD, 4-wheel-steering including crab steering, and a proven carrier layout, Spraymec 2100 offers excellent manoeuvrability, operator confidence, and productivity in confined underground environments.

#### KEY SPECIFICATIONS

Maximum vertical reach: 9 / 10.5 m  
Concrete pump output: 20 / 27 m<sup>3</sup>  
Tramming height 2.6 m

#### KEY SPECIFICATIONS

Maximum vertical reach: 10.5 m  
Concrete pump output: 27 m<sup>3</sup>/h  
Tramming height: 2.6 m



Minimec and Norstreamer work seamlessly in tandem for superior application quality. Scan the QR code for a video.

## 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.

#### KEY SPECIFICATIONS

Concrete pump output: 30 m<sup>3</sup>/h  
Tramming height: 1.9 m  
Different configurations available

### 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

Maximum vertical reach: 7.5 m / 8.5 m  
Tramming height: 2.3 m  
Dual-drive: Diesel + electric





# NORMET SMARTSCAN

Using 3D laser scanning technology, our innovative Normet SmartScan® system eliminates the need for manual probing of the sprayed concrete thickness, significantly increasing the safety and efficiency of your concrete spraying operations.

## 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.

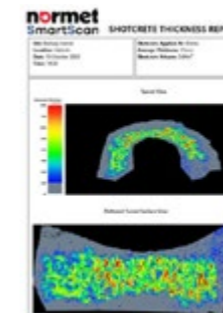
The 3D LiDAR technology eliminates the need for unsafe methods for manual probing of layer thickness by entering under fresh concrete while improving both the efficiency of the concrete spraying process and the safety of underground personnel.

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.

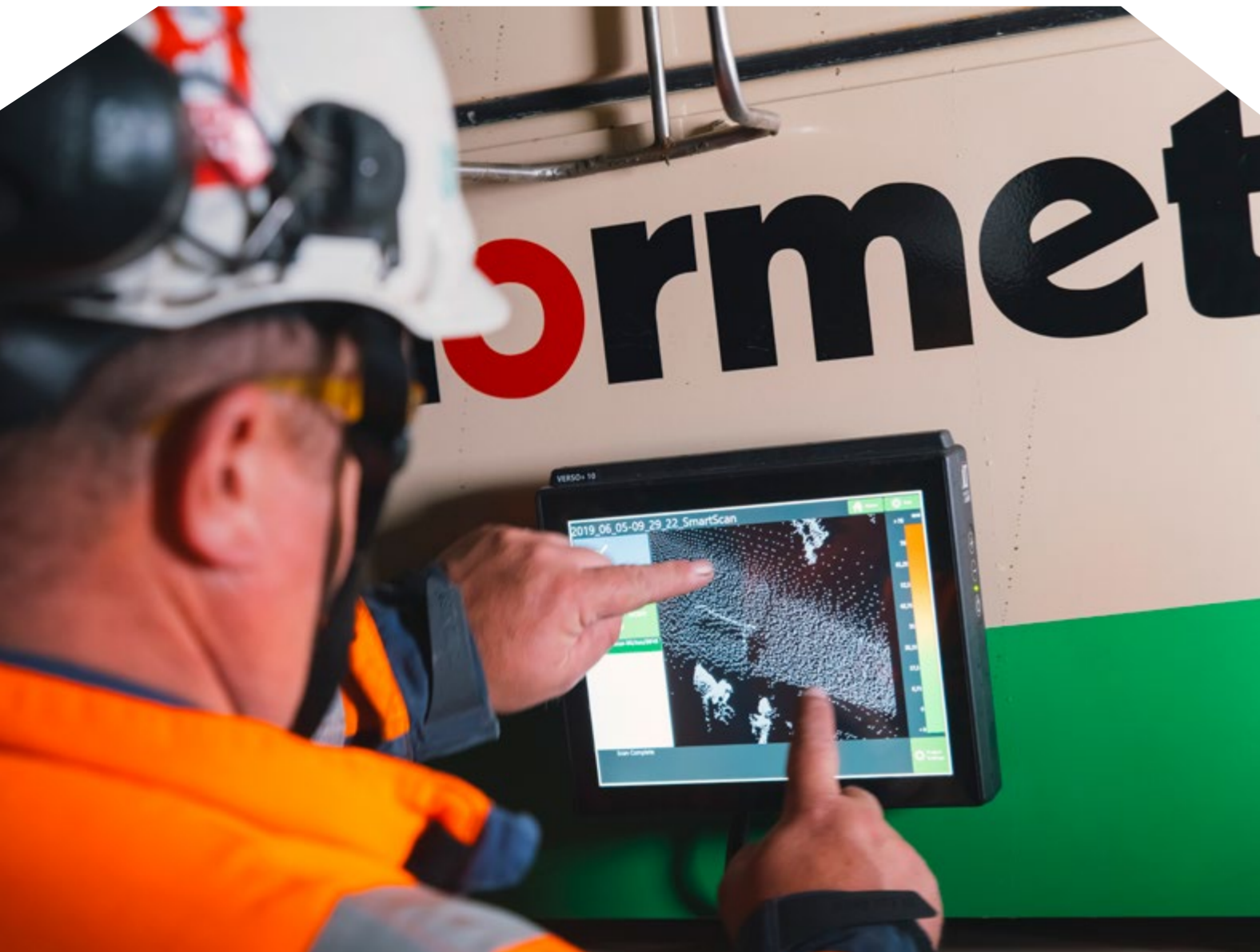
### SMARTSCAN RETROFIT KIT

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.



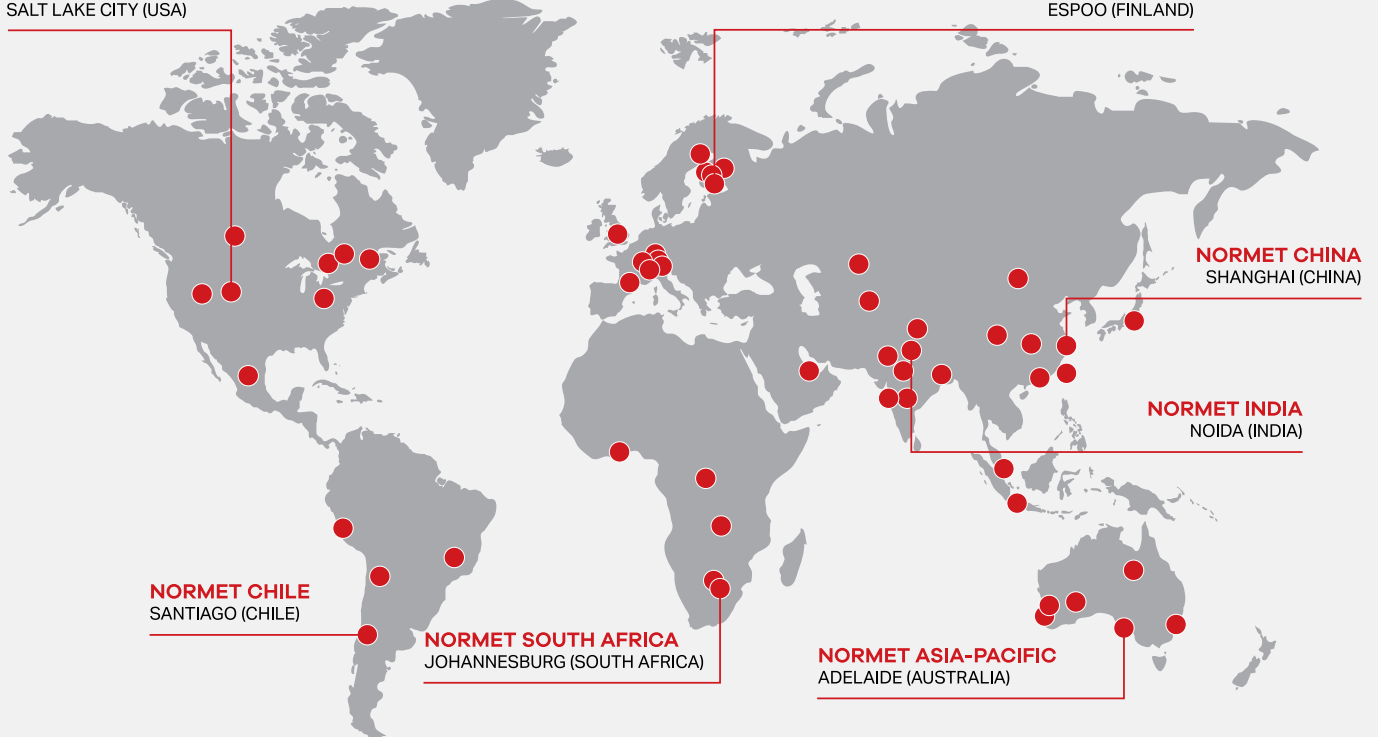


Scan the QR code to find out more about our offering.



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# GLOBAL PRESENCE. LOCAL SUPPORT.

We are looking forward to telling you more. Please contact your local Normet representative, visit [normet.com](http://normet.com) for contact details.

