

# NORMET SMARTDRIVE® OFFERING



DEFINING THE FUTURE  
**UNDERGROUND**

**normet**

[normet.com/smartdrive](https://normet.com/smartdrive)

# NORMET SMARTDRIVE® OFFERING

The latest battery-electric technology combined with our decades-long process expertise takes underground operations to the next level. Our SmartDrive offering allows for increased performance with zero local emissions.

## START YOUR ELECTRIFICATION JOURNEY TODAY!

Normet SmartDrive® is a modular battery-electric vehicle (BEV) architecture designed to optimize energy consumption and performance in underground mining and tunnelling applications.

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

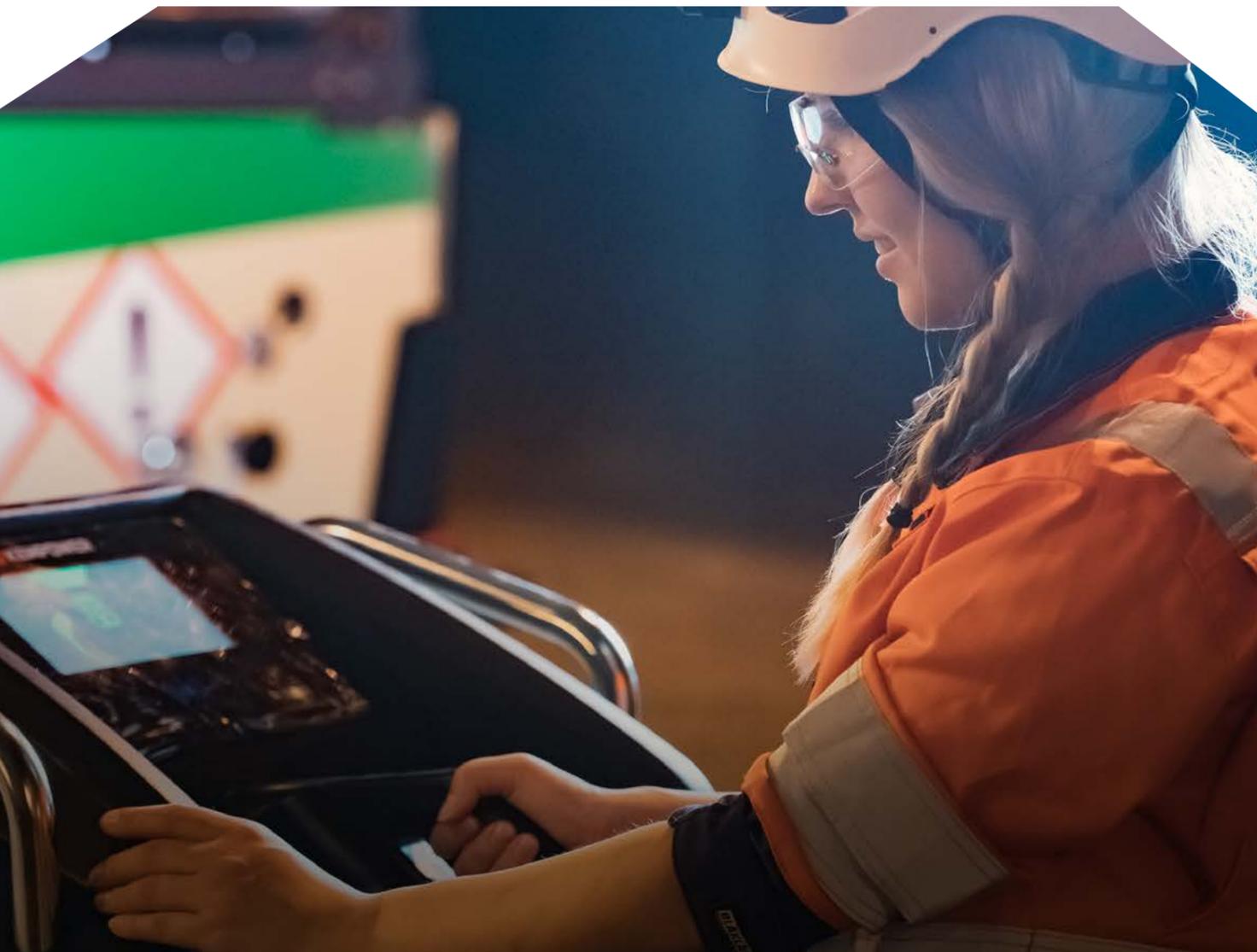
SmartDrive machines are safe and effortless to operate. The electric motors both reduce tramming time to reach work sites faster and recover energy in downhill driving.

In addition to complete turnkey solutions, we can also offer flexible services to integrate SmartDrive equipment step-by-step into existing operational models.



Scan the QR code to watch a video explaining the SmartDrive architecture in more detail.

**normet**  
SmartDrive®



- 0 % local emissions
- High productivity, up to 25 % faster cycles
- Lower operational costs
- Even 30 % less maintenance costs
- 75 % lower driving energy consumption
- Up to 50 % energy recuperation in downhill driving
- Long-life industrial grade Li-ion batteries with a lifespan of 20 000 full charging cycles
- No hot exhaust gases and very minor heating of surfaces
- Significantly reduced service brake wear
- >100 % increased uphill tramming speed and fast acceleration
- Easy and pleasant one pedal driving
- Low noise levels
- Fast charging capability
- Standardized battery charging interfaces



## INCREASED PERFORMANCE WITH ZERO LOCAL EMISSIONS

### SMARTDRIVE ARCHITECTURE

Normet SmartDrive® battery-electric vehicle (BEV) architecture utilizes the latest fast-charging capable Li-ion battery technology. It is powered by high-torque electric motors, providing instant torque and efficient operation without any local emissions. The fully reversible 4WD ensures safe and sure movement in the most difficult underground conditions while the built-in energy recuperation technology maximizes the storing of regenerative braking

energy during downhill driving and deceleration. In addition, the efficient dual-circuit and oil-immersed hydraulic brakes provide additional braking power when it is needed.

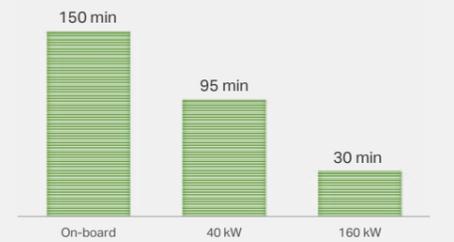
Our experience has taught us the importance of reliability for our customers and, therefore, SmartDrive machines are built with durable industrial grade components for maximum availability.



Normet SmartDrive® architecture for mining and tunnelling machines is optimized for their specific working environments.

### SMARTDRIVE MODELS AVAILABLE

- Charmec MC 605 VE SD
- Charmec MC 605 V SD
- Charmec MF 605 V Long End SD
- Spraymec MF 050 VC SD
- Spraymec 8100 VC SD
- Utimec MF 100 Material SD
- Utimec MF 205 PER SD
- Utimec MF 500 Transmixer SD
- Multimec MF 100 SD
- Utilift MF 330 SD
- Utilift MF 540 SD



Approximate charging times from 0 % to 80 % State-of-Charge for 90 kWh batteries

### BATTERY CHARGING

For demanding operations where tramping distances are long, we provide fast charging solutions. Our optional fast chargers can charge batteries astonishingly quickly during operation or a break – no need for costly battery swapping.

With strategically placed fast chargers, battery charging can become a part of everyday underground operations. We offer easy-to-use fast chargers for on-site installation.

Based on the CCS (Combined Charging System) standard, our fast chargers are specifically designed for challenging underground environments and can be used to charge any CCS capable vehicle. Our CCS compatible battery charger offering includes three chargers that are described in more detail later. SmartDrive batteries can also be charged from typical underground AC sockets at any time.

## POWER WHEN AND WHERE YOU NEED IT

Additionally, we also offer a charging service concept to help you maximize the value of your investment. The service includes charging infrastructure design consultancy, installation services, start-up training, spare parts and maintenance services.

### SMARTDRIVE FAST CHARGER OFFERING

Our CC160 charger cabinet with 160 kW power output provides fast charging power where you need it the most. Its robust and durable design is tailor-made for harsh conditions.

In addition to the regular CC160, we also offer a multi-voltage version, the CC160 MV, which is equipped with a step-down transformer to suit typical grid voltages in underground work sites and the CT40, a state-of-the-art fast charging capable DC charging trolley that does not require permanent installation.

### SMARTDRIVE CHARGERS AVAILABLE

- SmartDrive CT40
- SmartDrive CC160
- SmartDrive CC160 MV



## SMARTDRIVE EQUIPMENT OFFERING – LOGISTICS & TRANSPORTATION

Our SmartDrive underground logistics and transportation offering includes a broad range of equipment for the mining and tunnelling industries. All vehicles in the offering feature a FOPS/ROPS approved cabin for improved safety and an advanced suspension system for enhanced driving comfort. Normet SmartDrive® is the ultimate architecture for modern logistics vehicles.



Scan the QR code to watch a video telling more about our battery-electric personnel carrier.



### UTIMEC MF 205 PER SD

The Utimec MF 205 PER SD with a transportation capacity of 20+2 persons is designed for personnel transportation in underground mines and tunnels. All Utimec personnel carriers are designed with our decades-long expertise in underground transportation, making them the safest and most productive solutions in the market. These purpose-built machines have a high transportation capacity with compact outer dimensions and include several safety features as standard.

### UTIMEC MF 500 TRANSMIXER SD

The Utimec MF 500 Transmixer SD offers the highest productivity in its size class. It has a large concrete transportation capacity and extremely high output power to ensure a high tramming speed, even when fully loaded. Our concrete transportation equipment can be equipped with a broad range of optional accessories to support the concrete transportation process.

The SmartDrive architecture suits ideally for underground logistics like concrete transportation. Scan the QR code for a video about its many benefits.



Utimec MF 205 PER SD in Finland.

Utimec MF 500 Transmixer SD in Chile.



### UTIMEC MF 100 MATERIAL SD

The Utimec MF 100 Material SD is designed for efficient bulk material transportation in underground mines and tunnels. It has a payload capacity of 10 tonnes and comes in two different platform versions with either low or high back walls (in the picture). The vehicle can be equipped with an optional crane for effortless loading and unloading of heavy objects.



### MULTIMEC MF 100 SD

The Multimec MF 100 SD offers an innovative and reliable interchangeable cassette system with a powerful carrier to serve in a wide variety of different mining and tunnelling operations. Our Multimec carrier and cassettes offer the possibility to carry out nearly all underground service tasks like personnel, material and concrete transportation, refueling and maintenance jobs, just to mention a few.

## SMARTDRIVE EQUIPMENT OFFERING – LIFTING & INSTALLATIONS

Our SmartDrive underground lifting and installations offering is comprised of a range of equipment for the mining and tunnelling industries. All of our person lifters are designed to improve safety in underground lifting and installation processes by complying with the latest safety standards and being equipped with optional FOPS II safety roofs.

Normet SmartDrive® battery-electric vehicle technology, together with an optional remote-driving system (RDS), allows for increased safety, improved ergonomics and superior productivity in underground lifting and installations.



### UTILIFT MF 540 SD

The Utilift MF 540 SD is a scissor lifter offering reliable performance for all lifting and installation needs in underground mining up to 6.5 m high. A 4.5-tonne maximum lifting capacity and 4.5 meters maximum platform height enables the installation of even the heaviest mine ventilation fans.

### UTILIFT MF 330 SD

The Utilift MF 330 SD with a lifting capacity of up to 3 tonnes and a maximum platform height of 3.5 m is designed to provide a safe working platform for all kinds of installation works in tunnels up to 5.5 m high.



## SMARTDRIVE EQUIPMENT OFFERING – CONCRETE SPRAYING

### CONCRETE SPRAYING

Many years of experience and process knowledge allows us to offer unique solutions in mechanized underground concrete spraying applications, admixture technologies and after-sales services. Today, we can provide you with a complete range of machines for the concrete spraying process in mining and tunnelling with a high level of mechanization and automatization.

Normet SmartDrive® battery-electric vehicle technology, combined with low-pulsation concrete delivery, enables customers to achieve the highest quality standards for concrete spraying. To increase productivity, SmartDrive batteries can also be charged during spraying when connected to an electric supply.

### SPRAYMEC MF 050 VC SD

The Spraymec MF 050 VC SD is a robust and highly mobile concrete sprayer for mining, developed with decades of concrete spraying experience in the mining environment. The integrated control system continuously monitors and adjusts the unique concrete spraying pump technology and unmatched dosing system for set accelerator for minimal pulsation. Equipped with a proven and highly agile spray manipulator and a low-pulsation concrete spraying pump, it is able to deliver unsurpassed efficiency and application quality.



### SPRAYMEC 8100 VC SD

The Spraymec 8100 VC SD is a mobile concrete sprayer for tunnel construction projects with medium to large tunnel profiles. Its tried and tested spray manipulator with a spray lance is easy to operate and has an impressive working range. The optional SmartSpray system assists the operator in the spray application process by simplifying nozzle guidance, reducing rebound, increasing efficiency and, ultimately, leading to better application quality. The reliable and high-volume on-board compressor allows for a high-quality sprayed concrete application while the conveying and nozzle system with large-diameter steel pipes and hoses minimizes the risk of blockages.

Spraymec 8100 VC SD in Norway.

Spraymec 8100 VC SD in Australia.

## SMARTDRIVE EQUIPMENT OFFERING – EXPLOSIVES CHARGING

### EXPLOSIVES CHARGING

Normet is well-known for its underground charging equipment and we have widest offering of mechanized underground explosive chargers in the market. Our charging equipment has been designed with safety and mechanization as key priorities to fulfill even the most demanding customer needs all over the world.

Normet SmartDrive® BEV technology suits particularly well to emulsion charging applications by not only enabling emission-free operation, but also allowing for a comfortable, quiet and ergonomic work process with a possibility for battery-electric explosive charging without plugging into an electric supply.

### CHARMEC MF 605 V LONG END SD

The Charmec MF 605 V Long End SD provides room for an external emulsion unit in a size capable for both underground development charging and production charging. The new improved cabin provides comfortable and safe operational environment for both the driver and the passenger.



### CHARMEC MC 605 V(E) SD

The Charmec MC 605 V(E) SD marks the start of a new era of explosives charging in underground mines. Normet SmartDrive® battery-electric architecture, integrated into state-of-the-art emulsion charging technology, offers the most value in terms of safety, ergonomics and productivity.

The charging technology of the Charmec MC is proven in the harshest conditions and the machine is well-known on a global scale. The Charmec MC 605 V(E) SD can be equipped with a full range of optional accessories to support and improve modern underground development and production charging operations and to increase the value the machine can provide. It is available both with Normet's own emulsion charging module ECM and as a carrier for a third party emulsion kit.



Scan the QR code to watch a video telling more about the Charmec MC 605 VE SD operating in mine sites in Australia.



Charmec MC 605 V(E) SD in Australia.

Charmec MC 605 VE SD in Finland.



## NORMET'S LIFE CYCLE SERVICES

We offer an extensive range of services to maximize the productivity and safety of your operations. We strive to keep your equipment running at its best throughout its working life and can provide everything from individual parts to personnel training and full service agreements for your entire fleet. With our global service network, we can support you both at our facilities around the world and on-site at your location.

### SERVICE AGREEMENTS

Our service agreements are tailored for your needs to ensure that your fleet is always reliable and productive. We work with you to design the package of services that will support your underground equipment and operations the most. From process performance agreements to parts, maintenance and rebuilds, service agreements from Normet guarantee that you always have the service you need.

### FIELD SERVICES

At Normet, we understand how important it is to keep your equipment running and performing at its optimal level. To support our customers' needs, we have built a global support network with hundreds of highly trained service engineers who provide on-site support throughout the entire life cycle of your equipment, ensuring all environmental, health and safety standards are maintained.

A certified Normet service engineer's tasks can vary from occasional on-call help to agreement-based services or working as a resident service engineer, permanently available at your site. A full on-site Normet-operated service workshop is also a common and effective way to ensure the availability of your critical underground equipment.

Normet auditing is an individual customer focused, tailored service, creating clear and measurable value for your business. The end-to-end service covers the process, the equipment, the operator and maintenance operations, ensuring that the equipment's performance can be guaranteed. This continuous improvement package can be anything from a single inspection to an annual end-to-end audit.

Like in medicine, a thorough diagnosis is crucial before any treatment is prescribed. At Normet, we undertake a rigorous, documented audit, provide you with a full review during a comprehensive debriefing session and follow up with recommendations and an implementation schedule.

### GENUINE PARTS

Genuine parts from Normet ensure that you always have the highest-quality parts available to keep your equipment up and running. Depending on your needs, we can offer everything from individual parts to complete part contracts. Our professionals around the world have the experience to ensure that you have all the parts you need whenever you need them.

We ensure high availability of genuine, high quality Normet parts, including all process-critical parts as well as wearing parts, consumables and parts for periodical maintenance.

Genuine Normet spare parts ensure maximal availability of your underground equipment.

## 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 over 1,600 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 the latest methods and tools. We use our own laboratories to develop our 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 TRAINING OFFERING

Start-up training & commissioning

Continuous training for different types of personnel

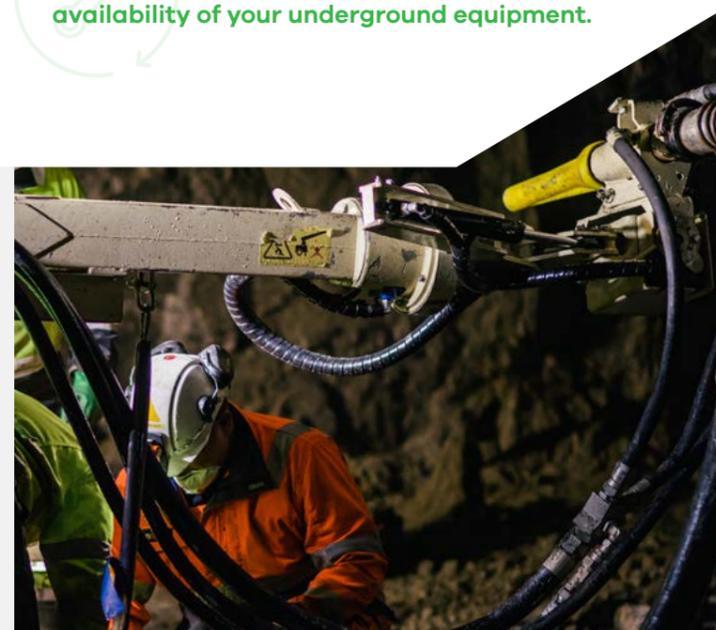
Safety aspects

General operator overview and introduction

Functions and main components

Principles of the operation

Moving and transporting



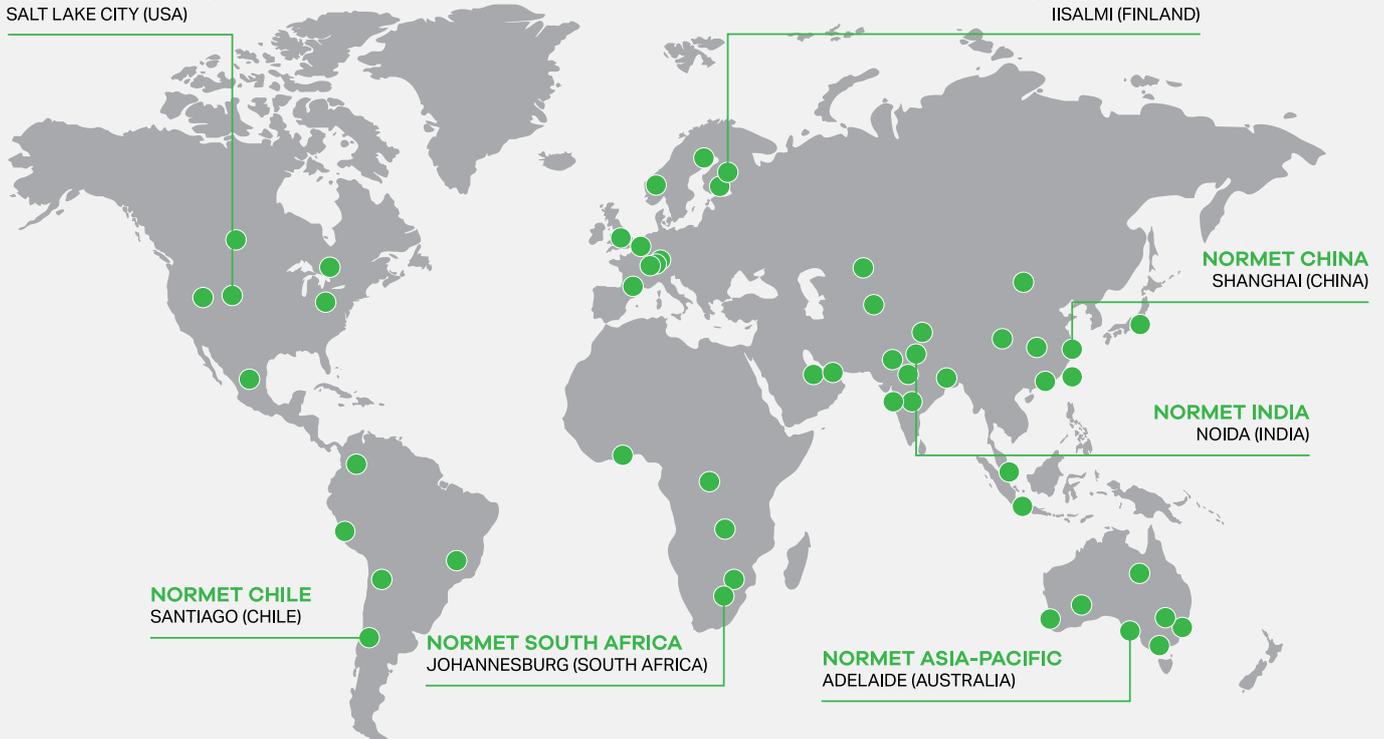


Scan the QR code to learn more about our offering.



**NORMET AMERICAS**  
SALT LAKE CITY (USA)

**NORMET FINLAND**  
IISALMI (FINLAND)



**NORMET CHINA**  
SHANGHAI (CHINA)

**NORMET INDIA**  
NOIDA (INDIA)

**NORMET CHILE**  
SANTIAGO (CHILE)

**NORMET SOUTH AFRICA**  
JOHANNESBURG (SOUTH AFRICA)

**NORMET ASIA-PACIFIC**  
ADELAIDE (AUSTRALIA)

**NORTH AMERICA**  
Canada  
Mexico  
USA

**SOUTH AMERICA**  
Brazil  
Chile  
Colombia  
Peru

**EUROPE**  
Finland  
France  
Germany  
Norway  
Sweden  
Switzerland  
United Kingdom

**AFRICA**  
Democratic Republic of Congo  
Ghana  
South Africa  
Zambia

**MIDDLE EAST**  
Qatar  
United Arab Emirates

**EURASIA**  
Kazakhstan  
Mongolia  
Uzbekistan

**INDIA**  
**CHINA**

**APAC**  
Australia  
Hong Kong  
Indonesia  
Japan  
Singapore  
Taiwan

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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.

