

NORMET SMARTDRIVE® OFFERING



ELECTRIFYING THE
FUTURE UNDERGROUND.

normet

normet.com/smartdrive

DESIGNED FOR THE FUTURE UNDERGROUND.

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 battery-electric machinery has been leading the transformation of underground spaces to fully electric zero-emission operations since 2019. With a growing fleet across six continents, SmartDrive continues to play a key role in making a sustainable future a reality today.

SmartDrive offering includes modular battery-electric vehicle (BEV) architectures designed to optimize energy consumption and performance in underground mining and tunnelling applications. Our SmartDrive equipment delivers higher productivity, lower operating costs and, most importantly, zero local emissions.

We offer comprehensive turnkey solutions to support the electrification journey - from planning to the equipment's end-of-life. Electrification impacts various aspects of operations; the Normet team can help identify your needs and support you in conducting pre-studies, selecting the right equipment, planning charging infrastructure, training operational teams, and mapping facility and infrastructure requirements.



Scan the QR code to get to the Normet SmartDrive Vimeo showcase with all our SmartDrive related videos.



0 % local emissions

Low noise levels

Easy and pleasant one-pedal driving

No hot exhaust gases and very minor heating of surfaces

Up to 75 % lower driving energy consumption

Up to 50 % energy recuperation in downhill driving

Even 30 % less maintenance costs and longer service intervals

Significantly reduced service brake wear

Modular design reduces spare part inventory need

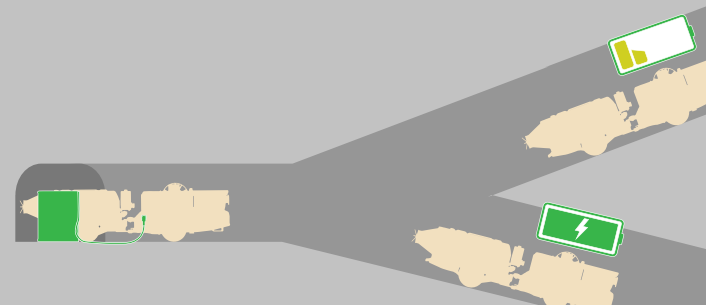
No need for diesel fuel transportation and storing

Decreased need for ventilation and cooling

Long-life industrial grade Li-ion batteries

Standardized battery charging interfaces

Fast charging capability



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SMARTDRIVE DESIGN PRINCIPLES
AND ARCHITECTURES

The key SmartDrive design principle have always been safety, followed by operator comfort, modularity, efficiency, durability, maintainability and fast charging capability. All SmartDrives utilize safe and robust battery designs and have been meticulously analysed for safety. They are modular, meaning that within specific platform sizes – XS-, M- and L-series, and tunnelling sprayer Spraymec



XS-series SD architecture is designed for light logistics needs.



M-series SD architecture is ideal for process equipment.



L-series SD architecture is built for heavy transportation needs.



Spraymec 8100 VC SD architecture is optimized for short tramming distances.

8100 VC SD - all the different applications utilize the same SmartDrive architecture providing streamlined maintenance operations and reduced spare part inventories.

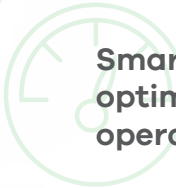
All SmartDrives are built for high efficiency to achieve maximum range, high energy regeneration capability and low operation costs. They are built utilizing durable industrial grade components and tested thoroughly. Every SmartDrive comes with CCS fast-charging and on-board charging support, eliminating the need for battery swapping.

Normet SmartDrive® battery-electric (BEV) architectures utilize the latest fast-charging capable Li-ion battery technologies and are powered by high-voltage 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 regeneration of 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.



Scan the QR code to watch a video and learn more about SmartDrive platforms and technology.

Normet's
full range of
applications
is now
available with
SmartDrive
architecture.



SmartDrive platforms are optimized for different operational needs.

OPERATOR WELL-BEING

SmartDrive equipment provides operators with an emission-free workspace with significantly reduced noise and heat, which greatly improves comfort during for example lifting and installation works, concrete spraying, and explosives charging.

Our FOPS and ROPS-approved front cabins, used in XS-, M-, and L-series SmartDrives, reflect decades of experience in underground equipment design - setting new industry standards for visibility, comfort, ergonomics, and serviceability.

Operator safety and comfort were top priorities in the design process, resulting in intuitive controls, strategically placed for ease of use, and an ergonomically optimized overall design. An advanced Normet control system, including machine condition monitoring and data recording, ensures that the equipment is always safe to operate.



Scan the QR code to watch a video about Utimec MF 500 Transmixer SD and SmartDrives' driver assisting features.



	XS	M	L	8100 SD
Minimum envelope width	3.5 m	4 m	4.5 m	5 m
Payload	3.5 tn	10 tn	15 tn	N/A
Gross weight	13 tn	24 tn	36 tn	16.5 tn
Speed (1:7 uphill) without load	LR: 20 km/h SR: 13 km/h	20 km/h	16 km/h	7 km/h
Speed (1:7 uphill) fully loaded	LR: 15 km/h SR: 10 km/h	15 km/h	10.5 km/h	N/A
Range (1:7 uphill) without load	LR: 16 km SR: 7.8 km	7.8 km	11.3 km	2.1 km
Range (1:7 uphill) fully loaded	LR: 12 km SR: 6 km	4.9 km	7.1 km	N/A
Fast charging time from 0 % to 80 % SOC	43 min	25 min	49 min	11 min
Fast charging time 1:7 uphill range, without load	LR: 3.1 min / km SR: 6.3 min / km	3.7 min / km	5 min / km	6 min / km
AC charging time from 0 % to 80 % SOC	LR: 266 min SR: 133 min	127 min	280 min	42 min
AC charging time 1:7 uphill range, without load	LR: 19.3 min / km SR: 19.3 min / km	18.4 min / km	28.2 min / km	20 min / km
Applications	Material transportation Fluid transportation Personnel transportation Service vehicle Emergency vehicle	Concrete spraying Explosives charging Personnel lifting Multipurpose vehicle Concrete transportation Material transportation Fluid transportation Personnel transportation	Multipurpose vehicle Concrete transportation Material transportation Fluid transportation	Tunnelling sprayer



XS-SERIES - FOR LIGHT LOGISTICS NEEDS

The XS-series SmartDrive is a compact and agile SmartDrive architecture designed for the most challenging mining operations. The core of the XS product family is a standard platform with a 3 500 kg payload capacity, and a variety of application modules to cover all light logistics needs underground.

The XS SmartDrive platform is available in standard-range and long-range versions to provide best fit for any operation. Standard range model has an optimized battery capacity and motor pow-



Variomec XS 035 Crew SD is a compact mine service vehicle with 3 000 kg carrying capacity, a roomy material platform, and space for a 3-person crew, plus seating for 2-3 people in the cabin.

er to serve tunnelling site demands or mine site demands with moderate driving between mine levels. The long-range version is designed for more demanding operations, offering a significantly longer range and higher ramp speed - making it the longest-range SmartDrive model.

XS SmartDrive machines can be equipped with a unique power bank feature that powers external electric devices, such as power tools, directly from the machine.

The Variomec XS product line offers logistics solutions for personnel, material, and fluid transport, along with specialized vehicles for equipment servicing and transport of injured personnel.

KEY SPECIFICATIONS

Payload capacity: 3 500 kg
Range (level ground) empty: LR: 56 km / SR: 28.3 km
Range (1:7 uphill) fully loaded: LR: 16 km / SR: 7.8 km

MORE APPLICATIONS AVAILABLE ON REQUEST

All Variomec XS models are available on demand with an extended lead time. Visit normet.com to see the full offering.

M-SERIES - IDEAL FOR PROCESS EQUIPMENT

The M-series SmartDrive platform is specifically engineered for emission-free process equipment. It was the first Normet SmartDrive platform, with deliveries starting in 2019. Today, we have dozens of M-series SmartDrives operating on six continents.

The M-series SmartDrive platform is ideal for process equipment, providing operators with an emission-free workspace with significantly reduced noise and heat — greatly improving comfort during lifting, installation, concrete spraying, or explosives charging.

With a payload capacity of 10 000 kg, the M-series SmartDrive is also suitable for medium-heavy logistics, such as transporting concrete, materials, or up to 32 people.



Scan the QR code to watch a video about the Charmec Revo – a semi-autonomous explosives charger, also available with SmartDrive architecture.

KEY SPECIFICATIONS

Payload capacity: 10 000 kg
Range (level ground) empty: 27.7 km
Range (1:7 uphill) fully loaded: 7.8 km



Spraymec MF 050 VC SD



Charmec MC 605 V(E) SD



Charmec MF 605 V LE SD



Utitec MF 100 Material SD



Multimec MF 100 SD



Utitec MF 205 PER SD



Utitec MF 540 SD



Utitec MF 330 SD



Utitec MF 500 Transmixer SD

L -SERIES - FOR HEAVY TRANSPORTATION NEEDS

The L-series SmartDrive platform is positioned at the heavy end of our electric offering. Designed to carry 15 000 kg payloads in demanding mining ramps, its powertrain is built with heavy-duty components to ensure durability and effectiveness in long-ramp operations.

The extended battery capacity enables long driving ranges, and the high motor power ensures optimal speed in steep ramps. The L-series SmartDrive is ideal for transporting concrete, materials, and fluids in underground operations.

KEY SPECIFICATIONS

Payload capacity: 15 000 kg
Range (level ground) empty: 39 km
Range (1:7 uphill) fully loaded: 11.3 km



Utimec LF 600 Transmixer SD with a practical concrete carrying capacity of 5.6 m³.



MORE APPLICATIONS AVAILABLE ON REQUEST

Selected L-series logistics machines are available on demand with an extended lead time. Visit normet.com to see the full offering.

SPRAYMEC 8100 VC SD - OPTIMIZED FOR TUNNELLING

The Spraymec 8100 VC SD, an advanced concrete sprayer, is designed for tunnelling operations, featuring a single-motor powertrain and an optimized battery capacity. This configuration ensures reliable spraying performance and smooth travel between spraying locations. The sprayer comes with cutting-edge spraying technologies like an unrivalled dosing system and the extremely low-pulsation concrete pump with a theoretical maximum pumping capacity of 30 m³/h - synchronized with an integrated closed-loop control system.

The 8100 VC SD can be fitted with an optional SmartSpray system that assists the operator in the spray application process by simplifying nozzle guidance, reducing rebound, increasing efficiency and, ultimately, leading to better application quality. Additionally, it can be equipped with the SmartScan 3D LiDAR system for precise concrete thickness measurement. All these features and more make the 8100 VC SD the most capable concrete sprayer on the market today.

KEY SPECIFICATIONS

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



POWER WHEN AND WHERE YOU NEED IT

BATTERY CHARGING

M- and L-series equipment, as well as Spraymec 8100 VC SD can be charged from typical underground AC sockets at any time, for example, during concrete spraying or explosives charging. The XS SD can be AC charged using typical electric vehicle charging equipment (EVSE) or directly from suitable AC sockets with Type 2 adapter cables. For demanding operations where tramming distances are long, all Normet SmartDrive machines can be fast-charged through universal CCS (Combined Charging System) Type 2 socket. Fast chargers can charge batteries astonishingly quickly with minimum stoppage time needed and without the

need for costly battery swapping. With strategically placed fast chargers, battery charging is easy to integrate into everyday underground operations.

Optimized charging solutions for different operations can be found based on process cycle simulations, and a charging service concept is offered to maximize the value of the investment. The service includes charging infrastructure design consultancy, fast-charging installation services, training, spare parts, and maintenance services.



SMARTDRIVE FAST CHARGERS

We offer easy-to-use fast chargers for on-site installation with various options to suit different needs. Based on the CCS standard, our fast charger portfolio offers options from small workshop chargers to cabinets for locations with high power demands.

Our comprehensive fast-charger offering includes a mobile trolley charger suitable for service workshops, which can be easily moved when needed. For fixed installations, we offer charging cabinets and supply cabinets with modular structures that support better availability and easier maintenance. The charging cabinets are integrated, all-in-one solutions for typical charging needs, while supply cabinets offer flexibility to create multiple charging bays with one charger unit. With supply cabinets, the power is distributed via charging satellites, and one supply cabinet can support four satellites as a standard, with charging power dynamically allocated between them. All our charger solutions are compatible with any CCS-capable vehicles. Additionally, all the chargers can be connected online, enabling unique functions for data analytics, operation follow-up and power management.

For extra harsh underground conditions, we offer additional protection for charger units with the SmartDrive Extreme charger container. The Extreme container meets the electrical and mechanical safety requirements for most demanding usage. With active cooling, it allows use in hot conditions and the complete unit is designed to be moved as one piece without the need for fixed installation base.

NORMET'S LIFE CYCLE SERVICES

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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 a global service network, support is available both at Normet facilities around the world and on-site at the customer's location.

DIGITAL SOLUTIONS

Connectivity-enabled analytics and remote monitoring services provide insights and ensure the highest uptime and productivity. Connectivity-enabling hardware is included in all Normet equipment and chargers. The analytics service gives access to detailed dashboards showing equipment condition and performance. With the remote monitoring service, the Normet team monitors the machine condition and makes actionable recommendations for maintenance teams, enabling proactive equipment care. The recommendations are based on data and years of experience.



SERVICE AGREEMENTS

Our service agreements are tailored to ensure that the fleet is always reliable and productive. The package of services is designed to support underground equipment and operations effectively. The scope of an agreement can vary from a support type agreement, including parts, periodic maintenance, on-call services, and audits, up to guaranteed fleet availability or process performance agreement which includes parts, all maintenance activities, operator training, and process audits.

FIELD SERVICES

At Normet, we understand how important it is to keep equipment running and performing at its optimal level. To support our customers' needs, we have built a global support network of BEV-trained service engineers who provide on-site support throughout the entire life cycle of the SmartDrive equipment. From equipment health checks to on-site supervision by Normet experts, safety, productivity, and lower operating costs are ensured. Flexible contracts allow customers to choose one or multiple services that best benefit their business.

GENUINE PARTS

Normet's genuine parts ensure the highest-quality parts are always available to keep the fleet up and running. Depending on customer needs, we offer everything from individual parts to complete parts contracts. Experienced professionals worldwide ensure all the necessary parts are available whenever needed. We guarantee high availability of genuine, high-quality Normet parts, including all process-critical parts, wear components, consumables, and parts required for periodic maintenance.

OUR BEV TRAINING OFFERING

Commissioning and extended commissioning training packages

BEV maintenance and safety training

BEV fast charger training

Advanced troubleshooting and diagnostics training

Empower your team with comprehensive Normet training packages.





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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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