

staad.[®] 23LCR



Electric crawler excavator

Weight	26 tonnes
Bucket capacity	(SAE J296) 1.380 litres
Nominal capacity	137 kW
Swappable battery capacity	400 kWh

groundbreaking
electric earth-moving
machines.

earth
moving.

earth
saving.

emission-free
long lasting performance
high-end

About Staad

Staad is a leading Dutch company that develops innovative earthmoving machines and mobile energy solutions, with a strong focus on sustainability.

With a rich history and a reputation for reliability and customer focus, Staad is further strengthening their position in Europe by launching a new generation of electric earthmoving machines and mobile battery solutions. We gladly share our vision for a zero-emission future, where we work with passion, pride, and dedication to create high-quality earthmoving machines and attachments.

Our goal? Machines that not only meet the highest standards and user demands, but also deliver optimal performance.



Top performance and capacity

Danfoss eDrive, the power to be extra productive

The STAAD 23LCR is powered by an advanced Danfoss electric motor with SRPM-technology (Synchronous Reluctance Assisted Permanent Magnet), which is exceptionally efficient and durable. The liquid cooling system ensures reliability and a long lifespan, even under heavy conditions. The compact design makes the motor lighter and more efficient than conventional motors, optimizing performance and energy savings. With 137 kW of power and a maximum torque of 860 Nm, the motor provides the necessary strength and precision for heavy tasks.



STAAD. 23LCR

What makes the STAAD 23LCR unique

The STAAD 23LCR is not just any electric crawler excavator, but a groundbreaking, innovative and future-proof solution. This excavator is therefore the best choice for a wide range of tasks.

100% electric design

The STAAD 23LCR is not a converted machine, but fully designed and manufactured as a zero-emission solution.

Maximum operating time

The machine provides 9 to 11 hours of continuous operation, without intermediate charging or battery swapping, under average usage (as measured during field tests).

24/7 operational capacity

Thanks to a unique patented battery swapping system, the STAAD 23LCR can operate continuously. Swapping the Powerbox 400 battery takes less than five minutes. The Powerbox 400 battery is supplied with a CCS Type II DC charging connector.

Compact and manoeuvrable

The design of the machine is optimized for working in tight spaces, with a compact swing body and innovative boom design. The total swing radius of the swing body is reduced by 90 cm when compared to a similar standard diesel excavator.

Strict standards

The STAAD 23LCR is CE certified and complies with the Machinery Directive 2006/42/EC and the following standards: ISO 5006, UNECE R10 (EMC), UNECE R100.03, EN 474-1 and EN 474-5, ISO 12509:2023, and ISO 12100:2010.

Work lights

Unmatched sight and visibility. High-quality integrated LED lighting enhances the appearance and provides extra safety in all working conditions.



With the STAAD 23LCR, you choose efficiency, innovation, and maximum reliability.

Unmatched safety

The STAAD 23LCR is one of the safest electric excavators on the market, with advanced safety features and an innovative design.

Cylinder safety valves

Installed on the load-bearing hydraulic cylinders for the boom, dipper arm (stick), and bucket functions

Large heated mirrors and 180° visibility

Thanks to the mirror heating, moisture buildup is a thing of the past.

Increased safety and efficiency

The AI-driven obstacle avoidance system and 360-degree camera system enhance safety and efficiency. Haptic feedback from the joysticks warns the operator of unsafe situations.

Work area illumination

Enhance safety around the STAAD 23LCR with our innovative work area illumination system. This smart lighting projects clear boundary lines onto the ground, making the excavator's working area immediately visible. As soon as someone enters the work zone, the projected lines automatically begin to flash. This instantly attracts the attention of both the operator and the person in the hazard area, significantly reducing safety risks.

Keyless start-stop system

Only authorized operators can start the machine.

Fit for purpose hydraulic system

Unlike traditional diesel-powered excavators, an electric excavator requires a fundamentally different hydraulic control system.

For this electric excavator, an innovative hydraulic system has been developed in collaboration with Bosch Rexroth. This system optimizes energy usage by temporarily allowing the hydraulic pump to operate as a motor during downward movements. The energy released during this process is fed back to the electric motor, which in turn supplies regenerative charging current to the Powerbox 400.

During this phase, the pump acts as the driving force, generating energy instead of consuming it. This regenerative principle enables continuous energy recovery during operation, contributing to a more efficient and sustainable machine.

Additional functions

The additional hydraulic functions can be operated simultaneously via the joysticks using six rollers per joystick and twelve switches, without having to release your hands to reach other controls.

The functionality of the rollers and switches can be individually configured for each operator, ensuring optimum user comfort. For colder days, the joysticks are equipped with standard heating.



The STAAD 23LCR is not only built to perform, but also to impress – a showcase of sustainability, innovation, and the future of excavation technology.

Cabin with exceptional comfort

Discover our high-end excavator cabin, designed with the European operator in mind. This cabin offers a perfect balance of advanced design, innovative technology, and exceptional comfort to meet the highest standards for optimal performance and operator satisfaction.

With a very spacious interior, superior ergonomics, and intuitive controls, the operator works efficiently and comfortably throughout the day. Top-quality materials and a thoughtful design create the ultimate working environment, where every detail contributes to an optimal experience and operator satisfaction.



Smart features

This excavator cabin is packed with smart and standard-included features and possibilities:

- Space for a large coolbox behind the seat for easy access to refreshments during long work hours;
- Seat equipped with a cooling function, a heating function and a massage function;
- Two coat hooks in the cabin for added convenience;
- Sunglasses holder for safe and easy storage;
- A cup holder to keep drinks in reach;
- Universal mounting rail on the right side of the cabin with an optional 'Ram Lock' attachment system for displays, phone holders, and other accessories;
- Adjustable sunshades for the front and rear windows, optimizing sun protection and comfort in all conditions;
- Foot pedal for switching between additional functions;
- Keyless start-stop system: No need to carry a key. Start and stop the machine easily for added convenience and security;
- Radio with Bluetooth, DAB+, and USB connectivity, controllable directly on the radio;
- 12 V connection included for charging your smartphone;
- Conveniently located mute button for the radio on the joystick for easy access;
- Heated mirrors for clear visibility in all weather conditions, enhancing safety and operational efficiency;
- Large transparent tinted roof window with adjustable sunshade for an optimal upward view.



Charging

AC charging via grid connection

The STAAD 23LCR excavator is equipped with two 2 x Type 2 charging connector interfaces and 2 x 22 kW AC-to-DC onboard loaders.

DC charging via a DC charger

The Powerbox 400 can be charged directly using a DC charger via a CCS Type II connector interface, located on the Powerbox 400 in the upper structure of the machine. The DC charging capacity is 120 kW. At this charging rate, the charging time from 0% to 100% SOC (State of Charge) is approximately 3 hours and 20 minutes.

Powerbank

The STAAD 23LCR comes standard with bidirectional charging capability, allowing electric equipment such as a vibratory plate compactor or mini excavator to be charged directly from the excavator on site.



Powerbox 400 or 500

Staad introduces the Powerbox, a robust and compact battery designed to withstand harsh conditions, making it ideal for dusty environments. This Powerbox is primarily used as a changeable battery in electric earthmoving machines but can also function as a stationary battery.

Power supply with the Powerbox 400 or 500

With 400 or 500 kWh packed into a very compact design, the Powerbox is the ideal energy source for construction sites or as a charging solution for other electric drive systems when combined with the Fieldmaster AC or DC.

Fast relocation and optimal mobility

The Powerbox features a single lifting point for quick and easy relocation (the battery swapping time is just 5 minutes).

Certification

The Powerbox complies with the REESS standard and is officially certified under the UN ECE R100.03 regulation, ensuring safety and quality.

Safety

The Powerbox utilizes safe Lithium Iron Phosphate (LFP) technology, which meets rigorous testing standards, including the nail penetration test. It features advanced isolation monitoring for enhanced safety.

Simple maintenance

Daily maintenance is quick and easy, with a clean filter in just seconds. Access to key components simplifies inspections and repairs.



Realtime insights

Telematics

Both the STAAD 23LCR and the Powerbox 400 are equipped with an advanced telematics system featuring the latest technology. This system enables operators and planners to access real-time data directly from their smartphones, including key information such as location, machine operating hours, charge status, operating temperatures, maintenance needs, safety alerts, and more. This offers a peace of mind.

Regarding dealer support, the telematics system allows dealers to remotely diagnose fault codes and notifications, as well as perform over-the-air software updates. This significantly enhances machine efficiency and availability, reducing repair and maintenance costs.

Patented Powerbox system design

Staad holds a patent on the innovative system design of the Powerboxes. This unique technical development enables the Powerbox battery to be used both inside and outside the machine. The flexible design allows the battery to be charged and discharged separately from the machine, making it suitable for a wide range of applications. This provides significant versatility and convenience, while greatly enhancing both functionality and efficiency.



Undercarriage redefined

This undercarriage is equipped with lubricated upper and lower rollers, hardened track shoes, and a hydraulic track tensioning mechanism with shock absorption for smooth operation, even under the most demanding conditions. It is assembled using high-quality materials and features a robust welded design that minimizes stress. Below is an overview of what is included as standard with this undercarriage:

- Rollers: The undercarriage is equipped with eight lower track rollers, combined with two chain guides and two upper track rollers.
- Track shoes: standard 900 mm wide and chamfered (only for this width). Optional widths of 600 mm or 800 mm are available.
- Large tool box: Spacious box providing easy access to tools and equipment.
- Wide step access: Large, user-friendly steps for safe access to the cab.
- Idlers and drive sprockets: Equipped with floating seals.
- Hydraulic track tensioner: Featuring a shock-absorbing tensioning mechanism.

Efficient and intelligent

Thanks to efficiency improvements in the hydraulic system, the cooling system has been completely redesigned for high-efficiency, smart cooling. The cooling fans only operate when needed, and their speed can be proportionally increased based on the actual cooling requirements, ensuring optimal performance and energy savings.



High-end cabin

With an exceptionally spacious interior, superior ergonomics, and intuitive controls, the operator can work efficiently and comfortably all day long. High-quality materials and a thoughtful design create the ultimate working environment, where every detail enhances the operator's experience and satisfaction in this high-end cabin.

Automatic climate control

The settings for heating, cooling, and fan speeds can be controlled in two ways:

1. Directly via the dedicated rotary switches in the console
2. Through the touchscreen display

This ensures that the operator always has quick and easy access to the desired comfort, regardless of the working situation.

AI-powered collision avoidance and 360° vision system

- Personnel and equipment safety: Proximity sensors detect nearby workers or obstacles, preventing accidents.
- 360° bird's-eye view cameras provide a seamless, AI-stitched overhead view of the excavator's surroundings.
- Drone view provides an elevated perspective for a better worksite overview.

AI integration

- Real-time recognition and tracking enhance safety and decision-making
- Automatic collision alerts: AI detects humans and triggers warnings via display and haptic joystick feedback.



Maximum control and comfort

Customizable joystick switches

The joysticks are standard equipped with twelve switches (six per joystick) and six rollers (three per joystick). This allows the operator to control these functions simultaneously. All switches are adjustable and can be pre-set, so the operator can manage all functions at once without taking their hands off the controls. This increases productivity and safety, and reduces fatigue.

Ergonomic joystick armrest

The adjustable joystick armrest provides optimal ergonomics, tailored to different hand sizes, and is height adjustable, offering additional comfort during prolonged use.

Joystick heating

As factory standard, the joysticks are equipped with switchable joystick heating, providing a comfortable experience on cold days.



The upper structure, built to top it all



This compact upper structure combines all advanced features, durability, and customization options in a single unit, making it ideal for working in urban environments where space is limited. A superior upper structure designed for both performance and safety in demanding working conditions:

- Integrated LED lighting: For optimal visibility and safety under all conditions;
- Extra lifting eye: Reinforced for better lifting capacity;
- Option: STAAD 23LCR prepared for integrated sensors and cables for easy installation of GPS 3D machine control system;
- Prepared for thumb, powertilt, tilting bucket: Factory settings without extra adjustments;
- The machine comes standard with footboards;
- Preparation for cabin step: Improves accessibility and safety;
- Swing tail spoiler: For adding extra work lights, camera systems, and ambient lighting;

The upper structure offers advanced features, durability, and customization options for demanding work environments.

Technical specifications

Electric motor

The Danfoss electric motor is based on Synchronous Reluctance Assisted Permanent Magnet (SRPM) technology. It is liquid-cooled and designed to operate in harsh working conditions. Due to its compact size, it has a lower weight and higher efficiency compared to conventional electric motors.

Nominal power

137 kW

Maximum torque

850 Nm

Weight

Weight

26 tons

Based on the performance of this machine

Capacity fluids

Hydraulics oil tank

224 liters

Radiator

10 liters

Hydraulic system

- Bosch-Rexroth double variable plunger pump: For proven performance, with a maximum flow rate of 2 x 260 l/min at 2000rpm.
- The maximum system pressure is 370 bar;
- Independent or combined operation: Providing flexibility depending on the task;
- Cross-sensing and energy-saving pump system: This system improves efficiency by adjusting the pump output, optimizing energy consumption, and reducing waste;
- Automatic low-speed system: The system automatically adjusts to a lower motor speed when possible, saving energy and reducing operational costs;
- Four operating modes and four power modes: These modes provide refined control over performance, tailored to different work environments and tasks to maximize efficiency and power;
- Hydraulic volume and pressure control for attachments: The pump volume and working pressure can be adjusted directly from the central 12-inch touchscreen display, providing precise control over hydraulic attachments;
- Smart pump system control: Advanced software technology ensures optimal pump operation, improving overall efficiency, refined handling, and performance in various operational conditions;
- Powerboost function of 370 bar: Provides extra lifting and digging force when needed;
- Hydraulic hose burst valves: All load-bearing hydraulic cylinders, including the bucket cylinder, are standardly equipped with hose burst valves, ensuring safety and stability.

Hydraulic functions

The STAAD 23LCR comes factory standard with additional hydraulic functions:

- Hydraulic breaker function: High volume, single-way auxiliary circuit (370 l/min, max. pressure 370 bar);
- Hydraulic shear or tilting bucket function: High volume, two-way auxiliary circuit (370 l/min, max. pressure 370 bar);
- Rotation function: Low volume auxiliary circuit;
- Hydraulic quick coupler function: Low volume auxiliary circuit for operating the hydraulic quick coupling;
- Return to tank function: High volume line to the hydraulic tank through a low-pressure return filter;
- Easy connection with hydraulic attachments: A factory-installed coupling block with hydraulic couplings and integrated shut-off valves is mounted on both sides of the dipper arm, facilitating easy and quick connection of hydraulic hoses for work tools.

All hydraulic connections in the machine comply with SAE and ORFS (European standards), ensuring reliability and easy maintenance.

Swivel mechanism

For the swivel mechanism, an axial piston motor is used that drives a two-stage planetary gearbox in an oil bath for maximum torque:

- Swivel bearing: Ball bearing of the sliding type, single row, with induction-hardened inner gear;
- Inner gear and pinion submerged in lubricant;
- Increased swivel torque results in a shorter swivel time;

Maximum swivel speed

13.5 rpm

Maximum swivel torque

3565 kgf - m

Technical specifications

Battery

Designed to deliver superior performance and the highest electrical efficiency, the swappable Powerbox fully meets all required safety certifications.	
Model	Powerbox 400
Capacity	400 kWh
Maximum load capacity	120 kW
Charging protocol (charging and discharging)	DIN SPEC 70121 en ISO15118
Nominal voltage system	600 V DC
Certifications	R100.03
Battery type	LFP
Temperatuur	Climate Control System

Charging

Our battery technologies utilise “plug & charge”, DIN SPEC 70121 and ISO 15118 communication protocols for smart charging. This enables communication between vehicles and charging infrastructure, allowing for smart charging and dynamic load management. This advanced process not only optimises the battery during charging and discharging, but also minimises grid load, which is essential for efficiency and sustainability.

Powerbank

The STAAD 23LCR comes standard with bidirectional charging capability, allowing electric equipment such as a vibratory plate compactor or mini excavator to be charged directly from the excavator on site.

AC charging

Charging connection	2 x Type 2 connection
Charging power	2 x 22 kW AC
Charging time (400 V / 32 A, 0-100% SOC)	Approximately 8 hours 45 minutes



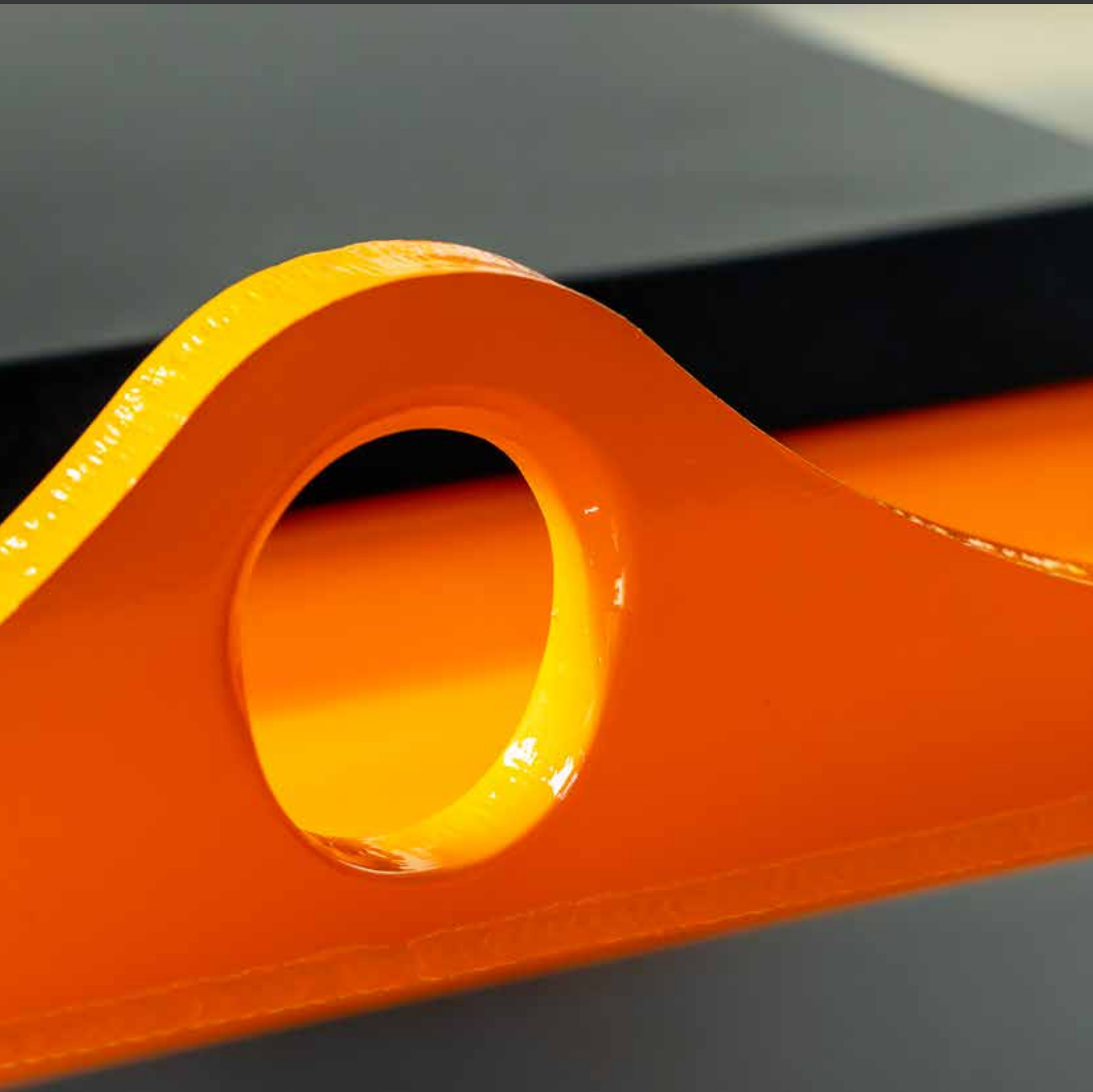
DC charging

Charging connection	Combo CCS Type 2
Charging power	120 kW DC
Charging time (0 - 100%)	Approximately 3 hours and 20 minutes

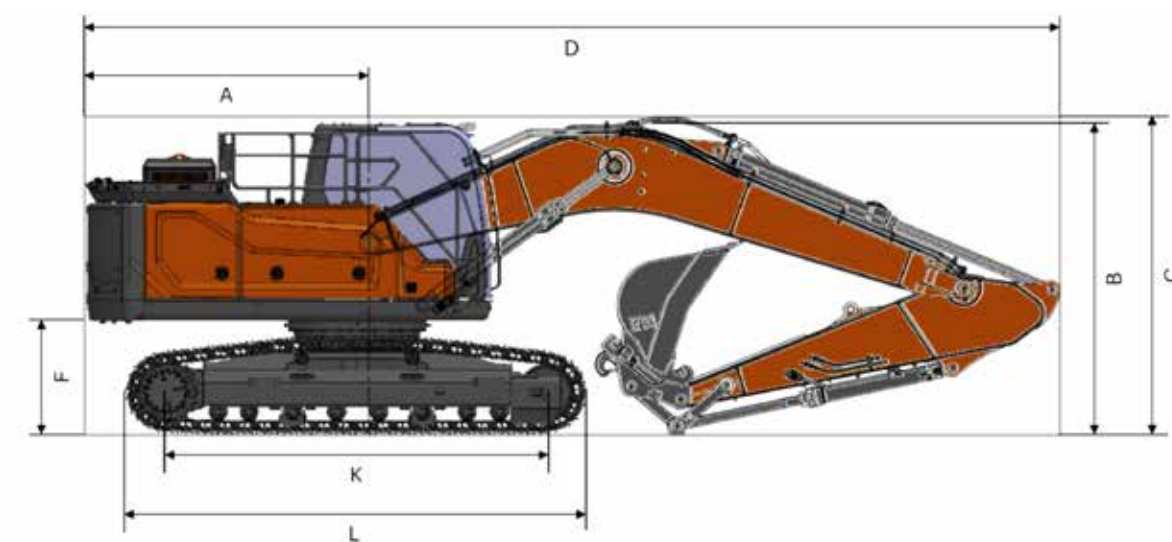
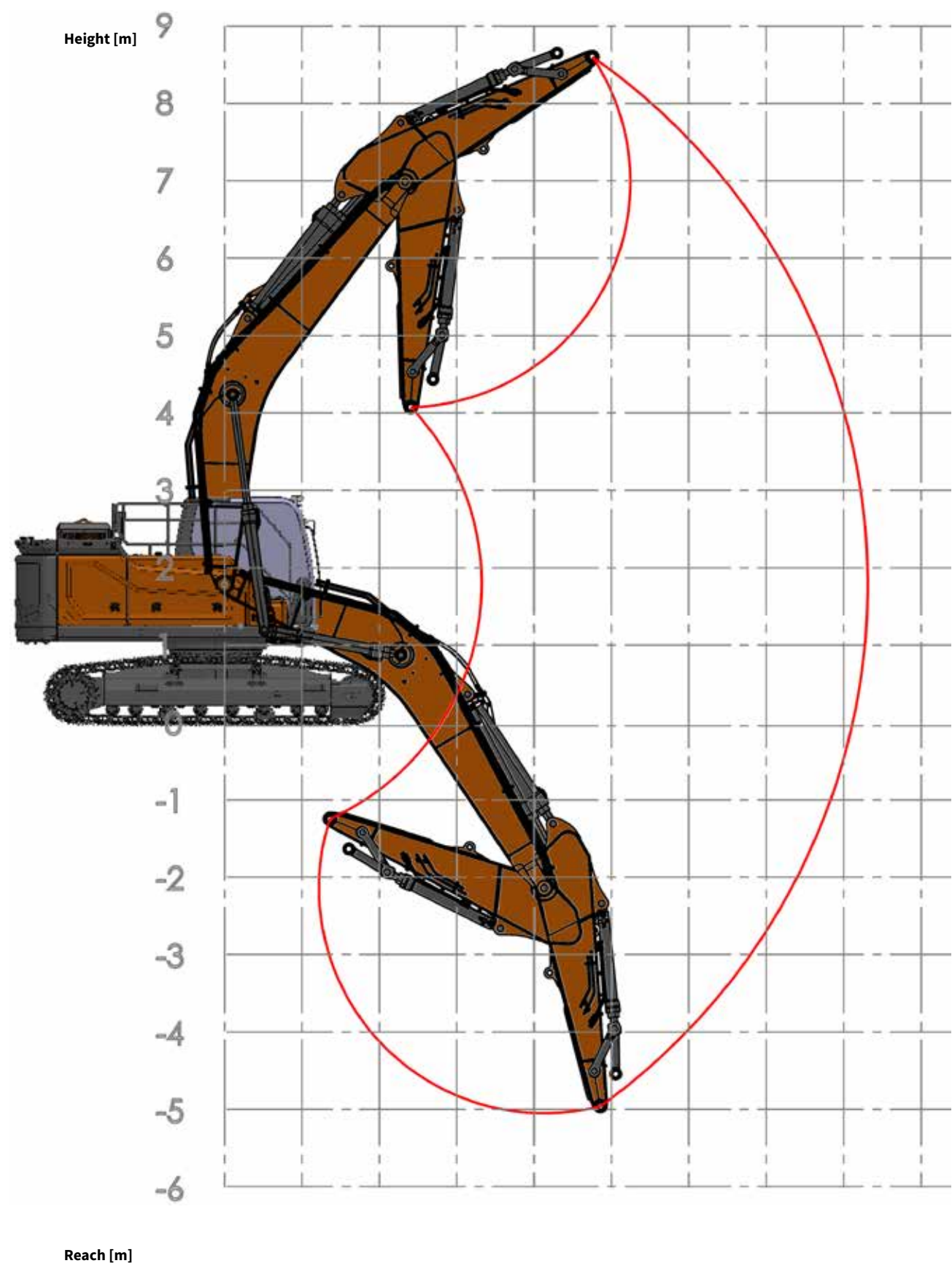


Patent

The granted patent applicable to our Powerboxes is a unique technical design that allows the battery to be used within the machine, but it can also be deployed as a standalone battery. This means that the battery can be charged and discharged independently of the machine. The flexible nature of the battery ensures it can be charged and discharged separately from the machine.



Technical specifications



Dimensions (mm)	boom
Boom length	5700
Arm length	2900
D Transport length	9325
Transport width	3290
B Transport height (boom)	2890
C Transport height (hose)	3040
Height to top of cabin	2985
Height above cabin (railing)	3250
A Swing radius rear	2600
Ground clearance	475
F Ground clearance counterweight	1096
Hood height	2709
K Width upper carriage	3650
L Wheelbase	4446

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