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, 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.

Electric power, built for the real job

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 30 cm when compared to a similar standard 26-tonne 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 all load-bearing hydraulic cylinders, including the bucket cylinder, to prevent accidents caused by hose bursts.

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.

Keyless start-stop system

Only authorized operators can start the machine.

Fit for purpose hydraulic system

Unlike traditional diesel-powered machines, the electric excavator requires a different hydraulic control system. The electric motor delivers direct torque, allowing the hydraulic pumps to operate more efficiently. To optimize this advantage, STAAD has integrated proprietary software and control systems that meet the highest safety standards. This ensures seamless communication between the electric motor and hydraulic components. This integration guarantees maximum efficiency, improves overall performance, reduces heat generation, and minimizes system wear over time.

Additional functions

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

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 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.

High-end features

The cabin is designed to make work easier, with advanced features that save time and enhance comfort during operation. Just to name a few:

- Spacious cabin entry with ergonomic handrails on both the left and right sides for easy and safe access;
- Anti-slip threshold for added safety when entering and exiting;
- Flat cabin floor for a more comfortable and easy-to-clean workspace;
- More glass surface compared to the current model in its class, offering a clearer, panoramic view and improved safety;
- Transparent roof window for better visibility;
- Tinted windows for increased comfort and reduced glare;
- Large parallel windshield wipers for better visibility in all weather conditions;
- Integrated interior lighting in the ceiling for a well-lit workspace;
- Ambient lighting in the control consoles on both the left and right sides, creating a modern and comfortable cabin atmosphere;
- LED bar with built-in orange LED flashing light at the front top of the cabin, featuring in a durable and streamlined protective spoiler;
- Two warning beacon lights and two work lights integrated into the back of the cabin, stylishly housed in a modern steel cabin spoiler.

Smart features

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

- Space for a large coolbox behind the seat for easy access to refreshments during long work hours;
- Storage compartment behind the seat to keep essentials organized and within reach;
- Seat equipped with a cooling function and a massage function;
- Three coat hooks in the cabin for added convenience;
- Sunglasses holder for safe and easy storage;
- A cup holder to keep drinks in reach, ensuring the operator stays refreshed;
- Storage compartment for the machine's user manual;
- 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 functions (breaker, tilting bucket, and hydraulic arti-boom);
- Keyless start-stop system: No need to carry a key. Start and stop the machine easily for added convenience and security;
- Continental radio with Bluetooth, DAB+, and USB connectivity, controllable directly on the radio and via the display, keeping the operator connected and entertained during work;
- 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.

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 power is 120 kW. At this power level, the charging time from 0% to 100% SOC (State of Charge) is approximately 3 hours and 20 minutes.

Powerbox 400

Staad introduces the Powerbox 400, 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.

Compact and mobile solution

With a weight of approximately 3140 kg, the Powerbox 400 is easy to transport. 8 Powerboxes, with a total capacity of 3.2 MWh, can fit on a single low-loader.

Safety

The Powerbox 400 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.

Power supply with the Powerbox 400

With 400 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.

Simple maintenance

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

Fast relocation and optimal mobility

The Powerbox 400 features a single lifting point for quick and easy relocation (the battery swapping time is just 5 minutes).

Certification

The Powerbox 400 complies with the RESS standard and is officially certified under the UN ECE R100.03 regulation, ensuring safety and quality.

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 three ways:

1. Directly via the dedicated rotary switches in the left console
2. Through the touchscreen display
3. Using the rotary navigation switch in the right console

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 with their thumbs and index fingers. 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;
- 24V power supply: For operating auxiliary tools at the end of the dipper arm;
- 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

5 liters (twice)

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 350 bar);
- Hydraulic shear or tilting bucket function: High volume, two-way auxiliary circuit (350 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.
- Hydraulically adjustable boom can be smoothly operated via a roller-switch on the joystick or with the left foot pedal. This ensures seamless integration with the digging movements of the machine, improving precision and control for the operator.

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;
- The swivel brake for parking is activated by a spring and hydraulically released.

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.

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

Type 2

DC charging

Charging connection
Combo CCS Type 2

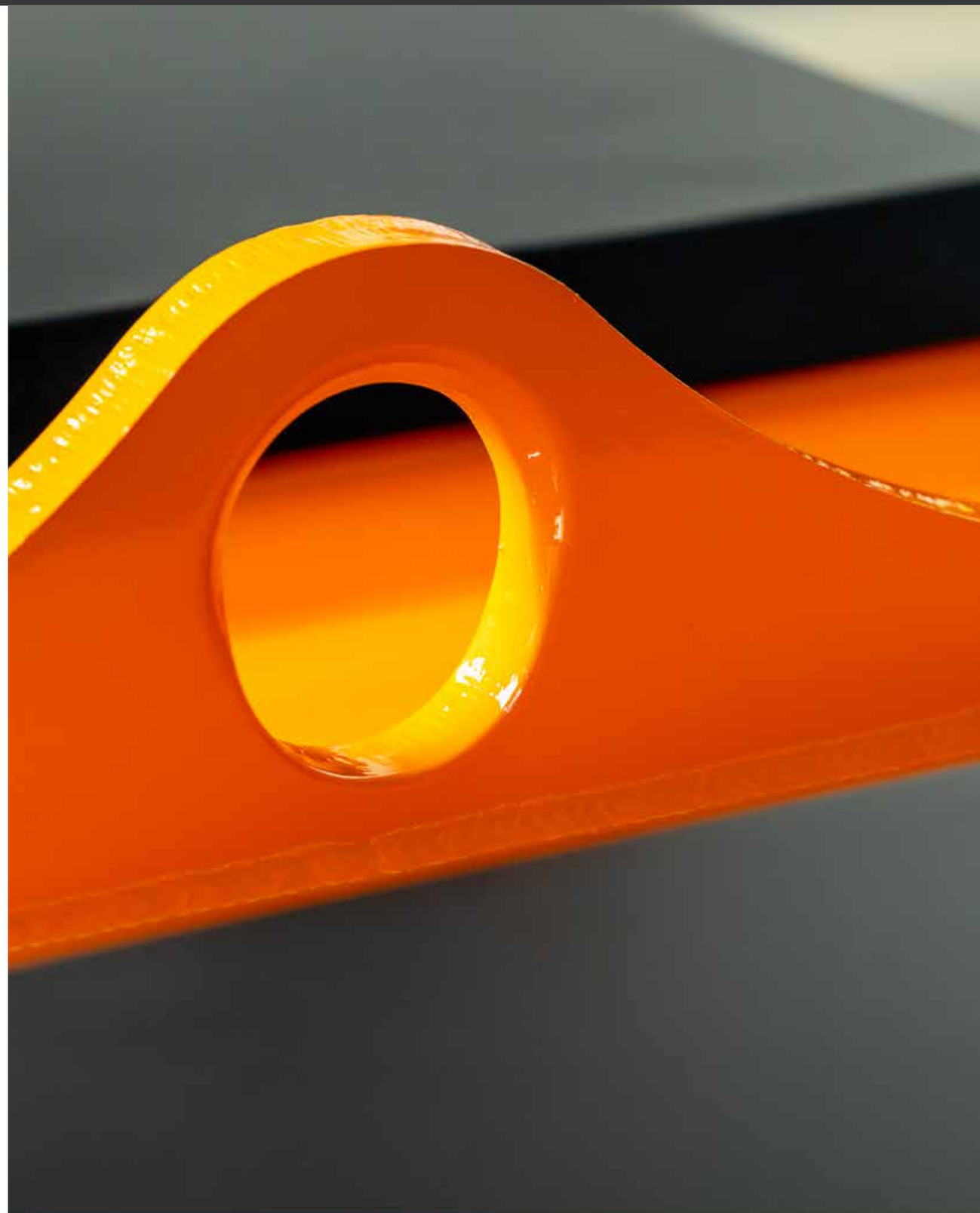
Charging power
120 kW DC

Charging time (0 - 100%)
Approximately 3 hours and 20 minutes

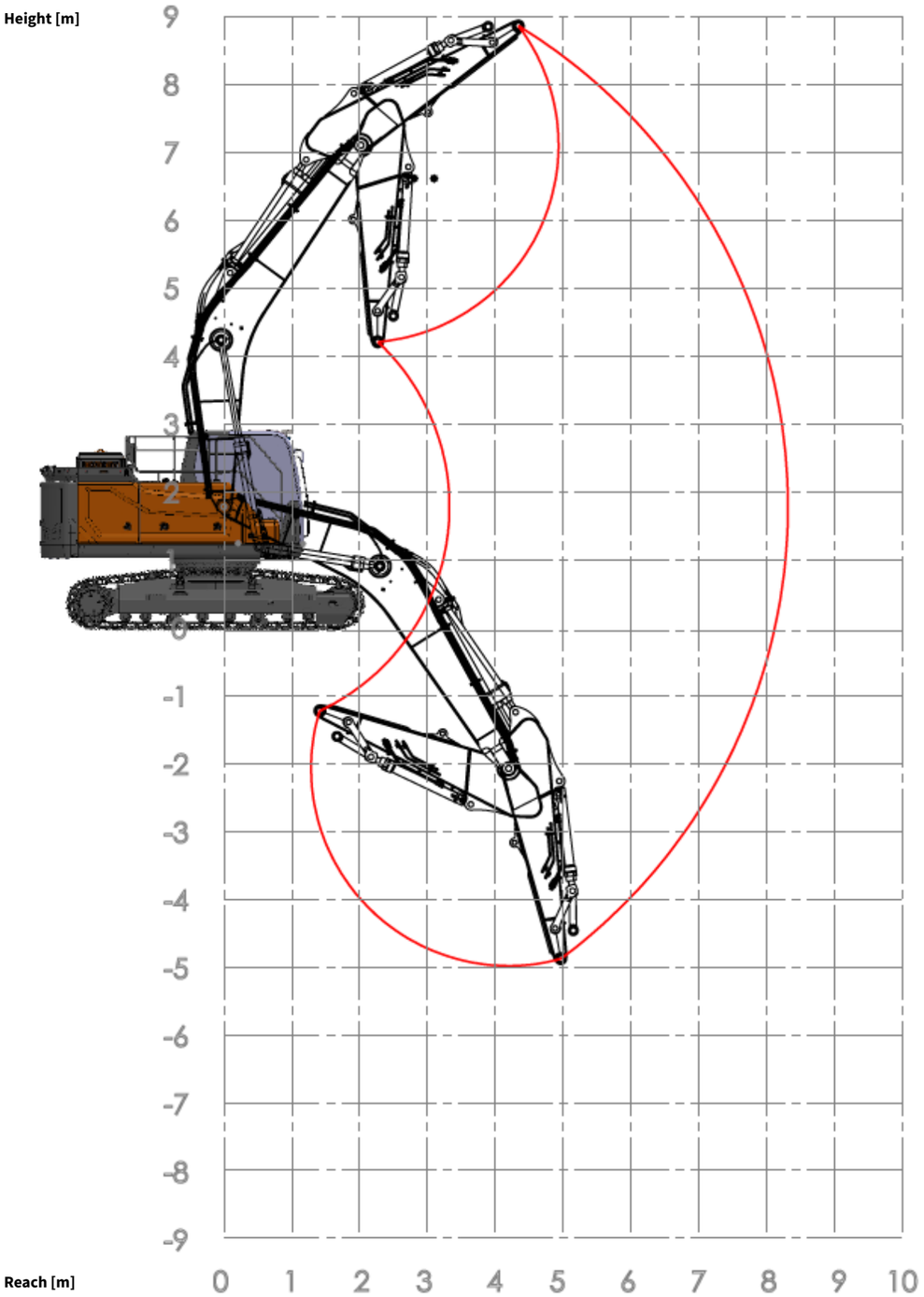
Combo CCS Type 2

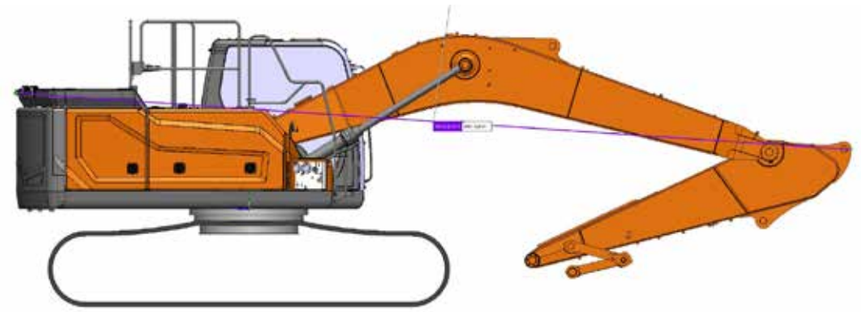
Patent

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	-
Arm length	-
Transport length	9400
Transport width	3290
Transport height (boom)	3195
Transport height (hose)	-
Height to top of cabin	-
Height above cabin (railing)	-
Swing radius rear	-
Ground clearance	-
Ground clearance counterweight	-
Hood height	-
Width upper carriace	-
Wheelbase	-

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Preliminary

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