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Fast charging on the construction site: Swiss battery-powered excavator on a zero-emission construction site in Oslo

The ZE85 battery-powered electric excavator, which was presented last May at the world's largest construction trade fair, bauma19 in Munich, is now being successfully operated on a zero-emission construction site in Norway. It is the first electric excavator with an integrated CCS fast-charging interface as it is known from electric cars. This enables full charging in under an hour.

Trend zero-emission construction sites

There is an enormous potential to reduce emissions on construction sites. In Oslo, for example, around 21% of CO2 emissions are emitted by construction machinery. Therefore, the authorities in Oslo have defined in their procurement strategy that all public buildings must be built with "fossil-free" construction machinery. The European Commission is also setting the trend, issuing guidelines in the areas of "Buying green" and "Green Public Procurement" and regulating emissions on construction sites. As a result, clean technologies such as battery-powered construction machinery are also finding their way into the construction industry.

In order to be able to tap into this rapidly growing market, more and more construction machinery manufacturers are electrifying their machines. At the R&D site of the Zurich-based start-up company SUNCAR HK AG, excavators and other construction machines are electrified on behalf of major manufacturers such as Hitachi, Liebherr and others. The battery-powered vehicles and machines are successfully in use throughout Europe. The ZE85 electric excavator, developed together with SUNCAR, is in operation in Oslo on a zero-emission construction site, i.e. a construction site where only electrically driven construction machines are used. New and special to the battery-powered ZE85 excavator is the CCS fast charging interface, which is already standard on electric cars.

Fast charging system for construction machines

The electric excavators can be operated both in battery and cable mode. They have an onboard charger and can be charged at a worksite distribution board via a standard CEE three-phase power socket. The ZE85 excavator used in Oslo has a DC charging connection which reduces the charging time to three quarters of an hour.

With the vehicle-side modular DC charging system INTERFLOW, developed by SUNCAR, such a DC fast charging interface can be integrated into a vehicle or machine with little effort. The system enables the DC fast charging of high-voltage batteries up to 280 kW according to the CCS (Combined Charging System) protocol known from electric vehicles. This system can be integrated into any other battery-powered vehicle or machine with a system voltage of up to 800 VDC and a maximum charging current of 350 A and can be combined with an on-board charger.

SUNCAR HK AG

SUNCAR HK is a startup company of the ETH Zurich. The development office consists of a team of fifteen people and specializes in the electrification of construction machines, utility and municipal vehicles.

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Pictures:

Zero Emission Construction Site in Oslo
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INTERFLOW DC fast charging interface
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INTERFLOW DC fast charging interface rendering
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