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World première:

Revolution in the underground car park – Volkswagen lets its charging robots loose

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- Volkswagen Group Components presents a new and visionary charging concept
 - Mobile robots will charge electric vehicles completely autonomously in future
 - Every parking space can become a charging point
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Wolfsburg – Volkswagen provides a glimpse into the future in which the search for charging stations for electric cars comes to an end. Volkswagen Group Components’ mobile charging robot takes over this task – and drives to the electric car completely autonomously.

After it is started via app or V2X communication, the mobile robot drives itself to the vehicle that needs charging and communicates with it. From opening the charging socket flap to connecting the plug to decoupling – the entire charging process occurs without any human interaction. The highlight: the mobile robot brings a trailer in the form of a mobile energy storage device to the vehicle and connects them; it then uses this energy storage device to charge the battery of the electric vehicle. The mobile energy storage device stays with the vehicle during the whole charging process. The robot, in the meantime, charges other electric vehicles. Once the charging service is complete, the robot collects the energy storage device and brings it back to the charging station.



Compact and autonomous: Volkswagen Group Components’ mobile charging robot

“The mobile charging robot will spark a revolution when it comes to charging in different parking facilities, such as multistorey car parks, parking spaces and underground car parks because we bring the charging infrastructure to the car and not the other way around. With this, we are making almost every car park electric, without any complex individual infrastructural measures”, summarises Mark Möller, Head of

Development at Volkswagen Group Components. “It’s a visionary prototype, which can be made into reality quite quickly, if the general conditions are right”, Möller continues. Volkswagen Group Components is researching different approaches to the assembly of charging infrastructure and has already developed several successful products. The flexible quick charging station and DC wall boxes are already part of a future charging family. Customer-oriented, intelligent and

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flexible approaches to charging are at the centre of the research. Other innovative products such as the charging robot are currently being developed.

Autonomous, compact and flexible

The prototype consists of a compact, self-driving robot as well as flexible and agile energy storage devices, also known as battery wagons. When fully charged, these are equipped with an energy content of around 25 kWh each. A charging robot can move several battery wagons at the same time. When called via app or V2X communication, it brings the energy storage device to the electric vehicle and connects them both autonomously. With its integrated charging electronics, the energy storage device allows for DC quick charging with up to 50 kW on the vehicle.

The robot, which can drive autonomously, is fitted with cameras, laser scanners and ultrasonic sensors. The combination of these systems not only allows the robot to carry out the charging process completely autonomously but also to move around freely in the parking area, to recognise possible obstacles and to react to these. Depending on the size of the parking area or the underground car park, several charging robots can be employed simultaneously so that several vehicles can be attended to.



Volkswagen Group Components' mobile charging robot brings a trailer in the form of a mobile energy storage device to the vehicle*



The mobile energy storage device stays with the car* during the charging process. The robot uses this time to charge other electric vehicles.

Every car park can become a flexible charging point

The mobile charging robot can be put to use in various ways. It isn't just a robot arm that connects a car to a fixed charging station. Instead, drivers have the choice to park in any available space, independent of whether a charging station is free or not. The robot brings the charging station in the form of a mobile energy storage device directly to the vehicle. For operators of different parking facilities this is a quick and easy solution to electrify every parking space. "This approach has an enormous economic potential", says Möller. "The constructional work as well as the costs



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for the assembly of the charging infrastructure can be reduced considerably through the use of the robots.”

The compact design of the charging robot is perfectly suited for use in restricted parking areas without charging infrastructures, such as underground car parks. Möller continues: “Even the well-known problem of a charging station being blocked by another vehicle will no longer exist with our concept. You simply choose any parking space as usual. You can leave the rest to our electronic helper.”

The mobile charging robot is a prototype by Volkswagen Group Components, which gives an insight into the future of charging infrastructure. A possible date for the market launch of the charging robot has not been set yet.

Volkswagen engages in initiatives to establish a charging infrastructure at many levels. Together with its dealers, the company is installing a total of 36,000 charging points throughout Europe by 2025. A large proportion of these will be publicly available. Volkswagen is also launching its own wallbox for home charging called the ID.Charger. And as a co-founder of the IONITY joint venture, Volkswagen participates in installing 400 fast-charging parks on major European highways. Medium-term, charging an EV is to become as easy as charging a smartphone.

[The mobile charging robot in video.](#)

¹⁾ ID.3. – The vehicle is not yet available for sale in Europe

This is Volkswagen Group Components.

As an entrepreneurially independent business unit under the umbrella of Volkswagen AG, Volkswagen Group Components is responsible for the development and production of strategic components for the Group's vehicle-producing brands. 80,000 employees work in over 60 plants at 47 production sites worldwide in five business areas – Engine and Foundry, Gearbox and Electric Drive, Chassis, Seats and Battery Cells. They develop and manufacture vehicle components, shape future topics such as charging infrastructure and battery recycling – and thus make a decisive contribution to the value of the Volkswagen Group, its brands and products. Thomas Schmall is Chairman of the Board of Management of Group Components.

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