



High Power Charging

CCS-based fast charging with up to 500 A

With High Power Charging, electro mobility becomes suitable for everyday use

Drivers and electric vehicle manufacturers are demanding ever shorter charging times, because these contribute significantly to the suitability for everyday use and the acceptance of electro mobility. With High Power Charging (HPC), we have developed a charging technology that charges the battery for a range of 100 km in just three to five minutes. The centerpiece of this technology is a high performance charging connector with intelligent cooling that enables a charging current of 500 A.



Drive off after just a few minutes, thanks to HPC

High Power Charging Technology ^{PH}

Designed by PHOENIX CONTACT

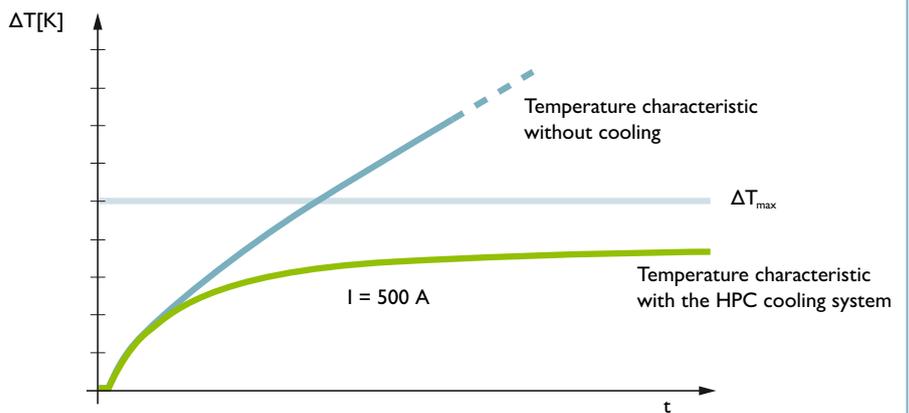
How does High Power Charging work?

Until now, charging currents of up to 200 A were technically possible with the Combined Charging System (CCS). Significantly higher currents are necessary, however, to achieve particularly short charging times. This would lead to dangerous overheating with conventional charging technology – or would require larger and cumbersome cable diameters.

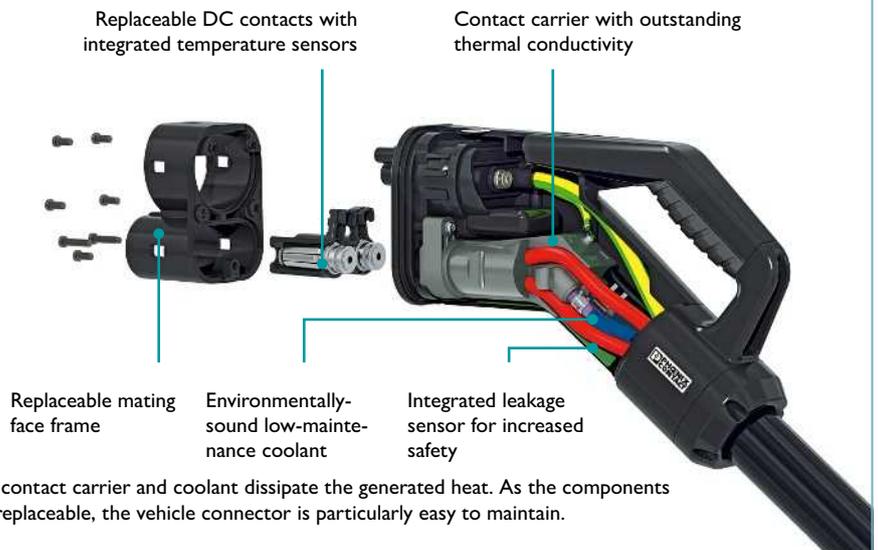
Our intelligent HPC technology is therefore based on a cooling system that makes charging currents of up to 500 A possible – without compromising on safety or manageability.

We use an environmentally-sound and maintenance-friendly water-glycol mixture as coolant. This cools both the charging cable and the DC contacts in the vehicle connector. The contact carrier also acts as a heatsink, thanks to its outstanding thermal conductivity.

Integrated temperature sensors measure the development of heat in real time. A controller evaluates the acquired data and regulates the cooling output accordingly. This reliably prevents overheating and, at the same time, increases energy efficiency.



Integrated temperature sensors measure the development of heat. The cooling system ensures that the normative limit temperature ΔT_{max} is not exceeded.



The contact carrier and coolant dissipate the generated heat. As the components are replaceable, the vehicle connector is particularly easy to maintain.

Vehicle connector technical data and types

- Max. rated voltage: 1,000 V DC
- Max. rated current: 500 A
- Leakage sensor
- Temperature sensors:
 - 1 sensor per DC contact
 - 2 sensors in the charging cable
- Communication interfaces:
 - CAN bus
 - Digital status output
- Conforming to VDE-AR-E 2623-5-3 and IEC TS 62196-3-1
- Protection class: IP54 (plugged in)
- Coolant:
 - 50% water, 50% glycol*
- Cooling capacity: 600 ... 1,000 W*
- Flow rate: 4 ... 6 l/min*
- Operating pressure: approx. 3 bar*
- Flow temperature: approx. 20°C*
- Operating temperature: -30°C ... +65°C



CCS HPC type 1 for North America



CCS HPC type 2 for Europe

*depending on cooling unit and climate

Your advantages

- ✓ Charge in just a few minutes, thanks to high charging currents of up to 500 A and an electric strength of up to 1,000 V DC
- ✓ Fully compatible with the established Combined Charging System (CCS)
- ✓ Maintenance-friendly, thanks to the mating face frame and DC contacts being easily replaceable, without the need to drain the coolant
- ✓ The integrated cooling system allows flexible user-friendly charging cables
- ✓ Safe, thanks to temperature and leakage sensors, as well as a wear indicator in the cable sheath

High Power Charging for your application

In addition to the vehicle connector and charging cable, the Phoenix Contact HPC system also includes an application-specific cooling unit with corresponding controller for the coolant circuit.

One example is a charging facility in which the cooling unit and controller are housed

centrally. Each of the charging stations are supplied with coolant and fitted with a separate heat exchanger.

Another possibility is installing the HPC system in standalone charging stations. In this case, the cooling unit and controller are integrated.

The modular system design provides a high degree of flexibility, meaning that nothing stands in the way of developing your charging infrastructure nationwide.

If you are looking for a solution tailored to your individual needs, just get in touch with us.



Application example 1: Charging facility with several charging stations

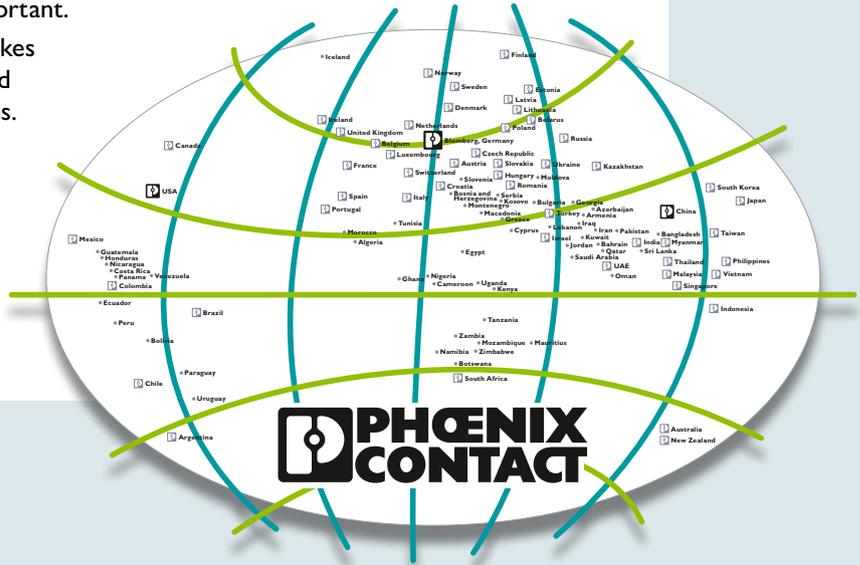


Application example 2: Standalone charging station

In dialog with customers and partners worldwide

Phoenix Contact is a globally present, Germany-based market leader. Our group is synonym for future-oriented components, systems, and solutions in the fields of electrical engineering, electronics, and automation. A global network across more than 100 countries, and 15,000 employees ensure a close proximity to our customers, which we believe is particularly important.

The wide variety of our innovative products makes it easy for our customers to find future-oriented solutions for different applications and industries. We especially focus on the fields of energy, infrastructure, process and factory automation.



You will find our complete product range at:
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