

DC Fast Charge Station

ABB Power Electronics moves to deliver advanced offboard vehicle charging solution. High power for rapid recharging, enabling long distance travel and eliminating range anxiety.



ABB DC fast charge stations will allow rapid recharging of electric vehicles. Depending on the battery and vehicle type, recharged range of greater than 100km in less than 10min is readily achievable. As battery technology advances further, recharging will become available with the speed and simplicity of a fuel stop.

Keeping the heavy and expensive power electronics and filters required for high power charging outside of the vehicle and in a common and shared piece of infrastructure allows the vehicle weight and cost to be reduced. The vehicle will still include a low power onboard charger to allow the use of standard existing power outlets and AC charging poles, but this can be optimized in size and cost.

ABB's vast experience with grid infrastructure and power electronics will enable the deployment of infrastructure solutions including fast charging stations at a sustainable cost, enabling e-mobility as a mass market transport solution.

Commitment to E-mobility

ABB develops efficient components and systems to charge electric vehicles. It commits itself:

Towards the driver

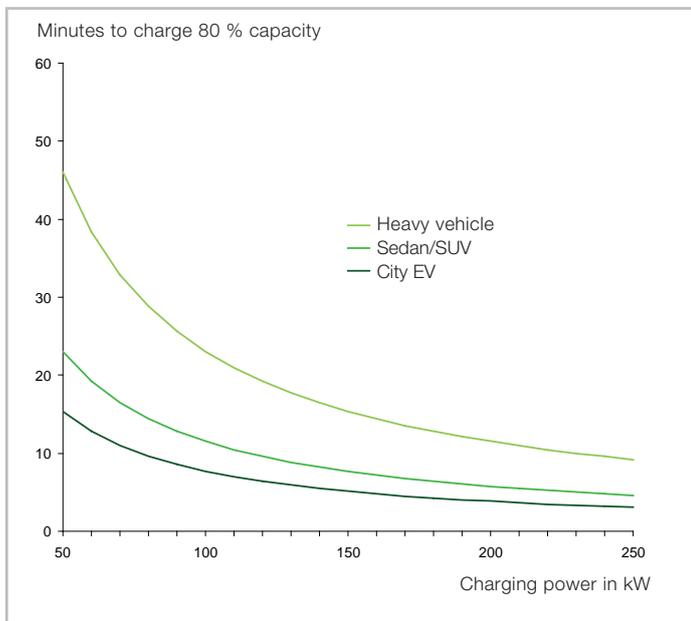
- Enabling safe recharging at the desired speed
- Delivering a simple and intuitive solution for ease of use

Towards utilities and infrastructure providers

- Providing integrated and smart charging solutions
- Preparing the grid for the challenges e-mobility brings

Towards the environment

- Making individual mobility become more sustainable
- Allowing for e-mobility powered by renewables



Charging speed

Power and Speed

The time to charge an electric vehicle depends on the power available from the charger to fill the battery pack. Short charging times, especially for larger vehicles, require high power. ABB's range of DC fast chargers will support very fast charging even for heavy vehicles, and as battery types able to support these rates of charge become widespread the traditional range limitation of electric vehicles will disappear, enabling long distance journeys and high use fleet vehicles. Charging speed is also dependent on vehicle type, with large heavy vehicles requiring more power for a rapid charge due to their larger battery capacity.

Compatibility

A critical requirement, especially with offboard charging systems, is the establishment of a common interface standard between the charger and the vehicle. ABB's fast charger solutions will support the CHAdeMO standard for DC fast charging, allowing every compatible vehicle to charge at a rate suitable to the individual vehicle's battery systems characteristics. This standard is endorsed and supported by an increasingly widespread group of organizations, including multiple leading vehicle OEM's.

In addition to ABB's complimentary range of AC charging stations, ABB's DC fast charging stations will also support AC charging to ensure a viable recharge option for all vehicle types.

Smart Grids

As the number of electric vehicles in the fleet increases, so too do the challenges and opportunities for the electrical grid. With a complete portfolio of solutions covering the entire chain from the power plant through the entire transmission and distribution system to the socket in the wall, together with more than a century of experience in energy systems and delivery, ABB can offer end-to-end solutions for the integration of the new load on the grid that electric vehicles represent. Of particular note is the role the smart grid can play



in mitigating the potential peak load impact of fast charging technology. Careful management of peak loading is required to ensure electric vehicle infrastructure remains economically viable. DC Fast and Ultra-fast charging will work in symbiosis with AC charging to provide maximum convenience with minimal grid impact.

Product Categories

	Power Category		
	50 kW	100 kW	200 kW
Grid supply requirement ^{*)}	3 phase AC 380 - 480 V ^{**)}	3 phase AC 380 - 480 V ^{**)}	3 phase AC 380 - 480 V ^{**)}
	approx. 80 A/phase at 400 V	approx. 160 A/phase at 400 V	approx. 320 A/phase at 400 V
DC voltage range	50 - 600 Vdc	50 - 600 Vdc	50 - 600 Vdc
DC current range	approx. 125 A max	approx. 250 A max	approx. 500 A max

^{*)} can be reduced with local energy storage

^{**) by customer request}

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