

Product brochure

EV Charging Infrastructure ABB global charging portfolio



ABB is the global leader in EV charging

Supporting all EV charging standards

ABB is leading with Internet connected charging infrastructure, supporting all EV charging standards. ABB offers a total solution: specific charging solutions for any location type and connected services to enhance your business. The chargers easily work together with any service or payment application.

Main features of all ABB chargers

All ABB chargers are created with durability, reliability and maintainability in mind. This results in high-quality products that are future-proof. Main advantages of ABB chargers are:

- **Modular construction** to ensure continued operation.
- **Industry-grade components** to ensure long lifetime and robust operation.
- **Upgradable and future-proof.**
- **Remote maintenance and support** for an effective and timely response to any irregularity in the network.
- **Supporting all open charging standards** globally.
- **Stainless steel powder coated cabinets** for durability, even in salty climates.
- **User centered design** validated by user tests.

Key advantages of Internet connected chargers

ABB's Internet connected chargers enable fast global service and pro-active maintenance. ABB Connected Services offer four key advantages:

- **Flexibility** to connect to any charging network, back-office, payment platform or energy management solution.
- **Upgradability** to benefit from the latest industry standards.
- **High availability** of the service.
- **Cost efficiency** by avoiding development and maintenance costs of proprietary software solutions.

The advantage of an experienced global player

ABB is a global leader in power and automation technologies. Based in Zurich, Switzerland, the company employs 145,000 people and operates in approximately 100 countries.

ABB has years of experience in creating, installing and maintaining charging infrastructure, including several nationwide charger networks. Since 2015 ABB combines this know-how with the globally redundant network and expertise of Microsoft Azure. Customers profit from ABB's global service organizations, ready to respond timely and efficiently with locally available certified service engineers.

Manufacturing and quality system

Key components in ABB DC fast chargers are designed and manufactured by ABB. This ensures full control over hardware and firmware.

Chargers are manufactured in factories with strict quality systems in place. The factories are audited by independent external parties, as well as by car OEM clients.

Partnerships with car OEMs

ABB EVCI has R&D partnerships with many vehicle OEMs to support joint development and testing. This ensures optimal compatibility between charger and vehicle.

Supporting all EV charging standards

ABB supports all currently available open charging standards, which enables providing charging services to widely available electric cars. All chargers can be combined with comprehensive solutions for user authorization, payment and network connectivity.

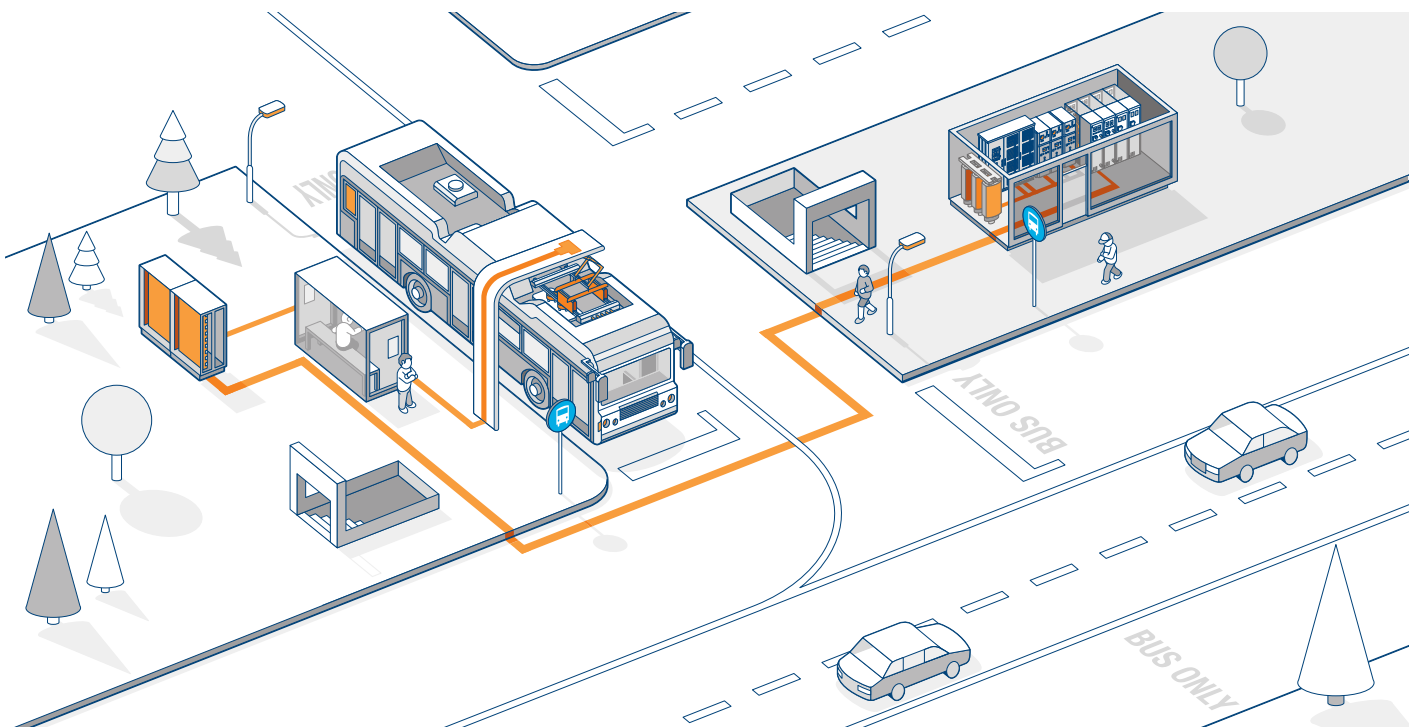
Connected Services

ABB's Connected Services offering is based on a 24/7 monitored platform, which ensures the highest availability. A network operator can select from a modular offering supporting a smooth and seamless integration to back-office processes via APIs, and giving access to value adding Web tools for configuration, advanced monitoring and notification.

Charger Care

Charger Care service agreements are available for all ABB EV chargers, and can be tailored to match the needs of your organization to ensure optimal availability of your charging equipment. Several modules are available, including proactive monitoring, preventive and corrective maintenance, training programs, spare parts, and software updates and upgrades.

Benefit from ABB's experience and expertise installing and servicing 5000+ DC fast chargers world wide.



All you need to run a charging operation

The four key elements

ABB provides all ingredients to run a successful charging operation. One stop for hardware, software, connectivity and services.

DC fast chargers

Reliable, robust, modular hardware.

Products	Applications
Terra 53 series	Highway rest stops, petrol stations, car dealerships, commercial areas.
Bus charger	Charging electric city buses via an automatic connection system.
DC wallbox	Car dealerships, offices, home.

Web tools and APIs

Integrate with back-offices and added value systems.

Web tools	
Driver Care	Status, statistics, access management, etc.
Payment management	Configure and support payment terminals
APIs	
OCPP API	Connect to back-office systems
Service API	Support your call center to help EV drivers
Demand/Response API	Manage input power of a charger dynamically

Payment and Authentication

Global platform to support local payment and authentication solutions:

- RFID
- Smart phone
- PIN code
- Credit card payment module

ABB Charger Care

Configure a service agreement to match the needs of your organization.

- Proactive monitoring and remote diagnosis
- Certified service teams
- Preventive and corrective maintenance
- Over-the-air software updates and upgrades
- Training programs
- Clear communication and overview via ABB Web tools

Infrastructure products

Terra 53 series

The Terra 53 DC charging station is a configurable single, dual or triple outlet 50 kW fast charging station, supporting the charging needs of each customer. The Terra 53 is ideal for use at highway rest stops, petrol stations, car dealerships and busy urban areas.

Main features

- Designed to deliver full output power continuously
- IEC 61000 EMC certified for industrial and residential areas (including petrol stations, retail outlets, offices, etc.)
- Future proof connection via open industry standards
 - Flexible interfacing with added value systems
 - Remote uptime monitoring and assistance
 - Remote updates and upgrades
- Easy to use:
 - Daylight readable touch screen display
 - Graphic visualization of charging progress
 - RFID authorization
- Robust all weather stainless steel enclosure
- Quick and easy installation
- Low operational noise

Key specifications

- 50 kW DC fast charger supporting CCS, CHAdeMO, GB/T
- 43 kW AC cable output or 22 kW AC socket output
- European, US and China versions available

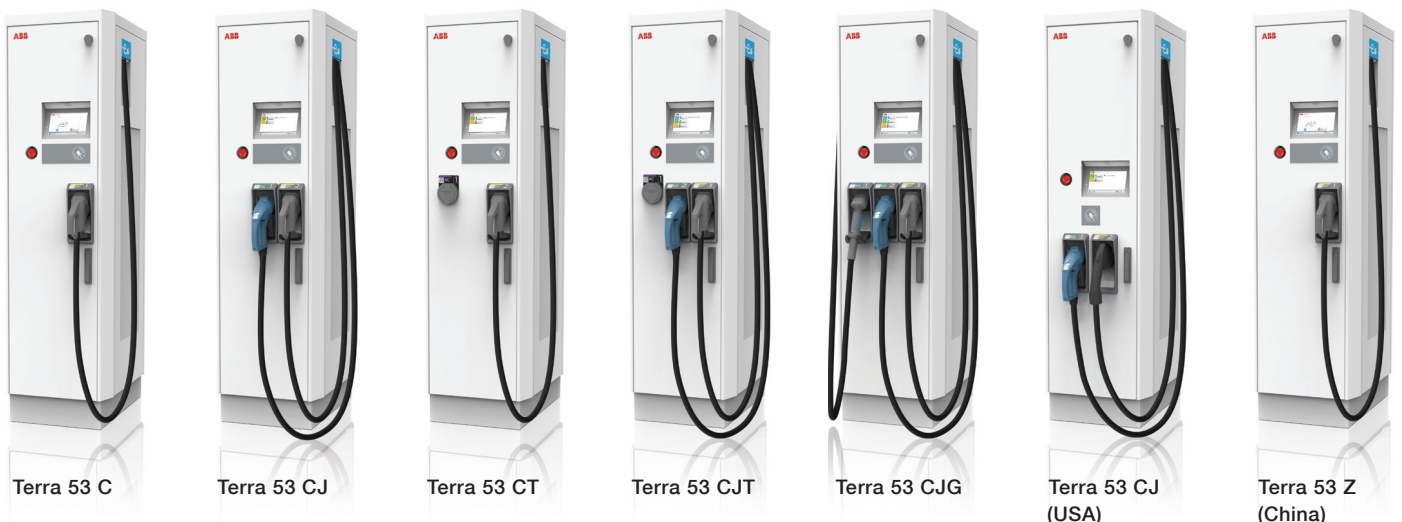
Possible configurations

The Terra 53 is available in several configurations. Optional input power limiting software is available to avoid expensive grid upgrades.

Name	Outputs	Availability	Grid connection
C	CCS	EU, Asia, Aus	80 A, 55 kVA
CJ	CCS, CHAdeMO	EU, Asia, Aus	80 A, 55 kVA
CJ	CCS, CHAdeMO	USA	75 A, 60 kVA
CT	CCS, AC socket	EU, Asia, Aus	112 A, 77 kVA
CG	CCS, AC cable	EU, Asia, Aus	143 A, 98 kVA
CJT	CCS, CHAdeMO, AC socket	EU, Asia, Aus	112 A, 77 kVA
CJG	CCS, CHAdeMO, AC cable	EU, Asia, Aus	143 A, 98 kVA
Z	GB/T	China	80 A, 54 kVA

For a complete list of specifications, features and options, please refer to the Terra 53 product leaflet.

Outlet specifications	C	J	G	T	Z
Charging standard	CCS	CHAdeMO	Type 2 cable	Type 2 socket	GB/T
Maximum output power	50 kW	50 kW	43 kW	22 kW	50 kW
Output voltage range	50 - 500 V _{DC}	50 - 500 V _{DC}	400 V +/- 10%	400 V +/- 10%	220 - 570 V _{DC}
Maximum output current	125 A _{DC}	125 A _{DC}	63 A	32 A	125 A _{DC}



Infrastructure products

HVC: zero emission public transport

ABB Heavy Vehicle Charger (HVC) is an automated fast charging system which allows electric city buses to drive 24/7, thus enabling true zero emission public transport in cities. With its automated rooftop connection and typical charge time of 4–6 minutes the system can easily be integrated in existing bus lines by installing chargers at endpoints, terminals, and/or intermediate stops.

Enable zero emission bus transport in your city

With increasing air pollution levels in cities and stronger public commitment to clean transportation, electric city buses offer a large opportunity to improve life in cities, while also reducing operational costs. ABB's automated fast charging system solves the key problems for large scale adoption of zero emission electric buses: long charging times and short driving range belong to the past.

ABB's automated fast chargers are designed to the highest international electrical, quality and safety standards, including IEC 61851-23, guaranteeing safe and reliable operation in public areas.

Key benefits

- Charge electric buses in 4–6 minutes
- Easy integration into existing bus lines
- Automated 4-pole rooftop connection
- Based on international IEC 61851-23 standard
- Safe and reliable connection
- Remote diagnostics and management tools

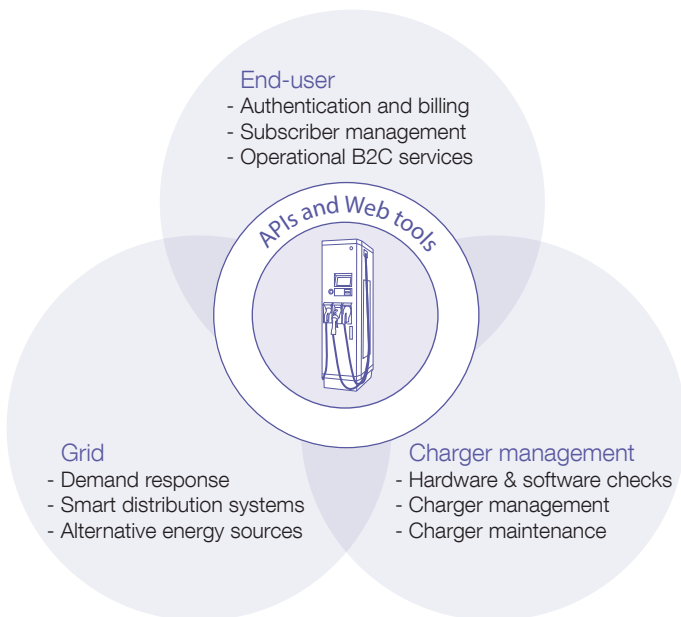
Technical Specifications

Power	Modular: 150 kW, 300 kW, 450 kW
Input AC connection	3P + N + PE
Max. rated input current & power (per 150 kW module)	3 x 250 A, 173 kVA
Input voltage range	400 V _{AC} +/-10% (50 Hz or 60 Hz)
Maximum output current (per 150 kW module)	225 A
Output voltage range	400 – 850 V _{DC} (CCS 2)
DC connection standard	IEC 61851-23 / DIN 70121
Connection method between charger and bus	4-pole automatic connection system or Combo 2 connector
Environment	Indoor / Outdoor
Operating temperature	Standard: -10 °C to +45 °C Optional: -30 °C to +45 °C
Network connection	GSM modem 10/100 base-T Ethernet
Protection	IP54 – IK10



ABB Connected Services APIs and Web tools

Internet connectivity of a charger enables services that are fundamental to operate a network of EV chargers in a flexible, reliable and cost effective way. Choosing ABB as supplier for charging infrastructure means having access to best in class connected services to successfully operate in a dynamic EV charging environment. Now and in the future.



APIs and Web tools to operate successfully in a dynamic environment

Connected Services Platform

ABB chargers are connected via a mobile network to the Connected Services Platform which is the basis for all APIs and Web tools. The connection to the chargers and the platform is monitored 24/7 by the Network Operation Center (NOC).

Thanks to this platform approach, ABB EV chargers are accessible in real time allowing for remote software updates i.e. when new communication standards are introduced, making your network fit for the future.

The connection to the platform is not a standalone service but an integrated part of the offering. Building on that, two models are available to interact with the charger: either via APIs or via Web tools. Both approaches can be combined in a modular way depending on customer needs.

APIs for back-office integration

ABB offers standards based APIs supporting smooth integration with back-office systems, energy management solutions, and payment services. Available APIs are:

- Open Charge Point Protocol (OCPP) API to integrate with back-office systems.
- Service API with technical status data from the charger for simpler remote diagnostics, helping to improve availability of a charger and to better support to EV drivers.
- Basic Demand/Response API to dynamically manage the input power of a charger.

ABB APIs are based on OCPP – the industry-wide accepted communication protocol – and therefore ensure seamless integration to customers back-office systems. All ABB APIs have openly available specifications.

Web tools

ABB offers advanced Web tools to operate and monitor chargers. Web tools allow to see the real-time status of a charger, to configure settings related to authentication, notification and case management and to obtain valuable insights into usage statistics. All data is available directly via an Internet browser and can be exported for further processing.

For chargers equipped with a credit card payment terminal, a web module is available to configure the payment device including pricing per session, currency and language.

ABB Charger Care

Optimize charger availability

Secure the availability, performance and safety of your EV chargers with an ABB Charger Care service agreement, according to the needs of your organization. Avoid leaving drivers stranded.



ABB Charger Care

With an ABB Charger Care service agreement matching the customer's needs, ABB can reduce the risk of unplanned downtime and rapidly respond if problems do occur.

ABB Charger Care is available for all ABB EV charging products: Terra 23 and 53 series, DC Wallbox, and HVC bus charger.

Together with your local ABB service organization you can tailor a Service Level Agreement (SLA) matching your organizations wishes. Several modules are available, including proactive monitoring, preventive and corrective maintenance, training programs, spare parts, and software updates and upgrades.

Proactive monitoring and remote diagnosis

Remote condition monitoring and remote troubleshooting are important advantages of ABB chargers. ABB is constantly monitoring over 100 parameters of every charger. We have a geographically separated, redundant server setup with a team of experts in our Network Operations Center (NOC) watching over availability of the server network.

If a charger or the server network signals a problem, depending on the SLA, ABB's service team or your own service team automatically receives a trigger. Some problems can be resolved by the charger automatically without any service engineer intervening. Other problems require a remote or on-site repair. If a repair is required, remote diagnosis enables doing it first-time-right.

Certified service teams

Repairs are exclusively performed by ABB certified personnel. This may be ABB's service organization, or your own service organization after training and certification by ABB. ABB service teams are prepared to offer support 24/7 according your needs and SLA definitions.

Preventive maintenance

ABB provides a complete maintenance schedule to keep your chargers in good health.

Corrective maintenance

Remote diagnosis, modular design and clear procedures ensure quick repairs, reducing inconvenience on your location. Spare parts are available from a central warehouse, minimizing lead time.

Software updates and upgrades

Software updates and upgrades will be installed on all chargers covered by an SLA.

Training programs

Training modules are available for end-users, customer care personnel and service engineers. Trainings can be hosted at your location on request.

Clear communication

Via ABB Web tools you can quickly track service interventions, spare parts orders, and create cases to be handled by ABB.

Global trends and future developments

DC wallbox

The DC wallbox is a compact charger for car dealerships, offices, shopping areas and home.

With EV battery capacity increasing, DC charging will emerge in more and more locations. ABB introduces a DC wallbox supporting public and private use.

Key specifications

- 22.5 kW DC fast charger (NAM version: 20 kW)
- Single or dual outlet
- CCS1, CCS2, CHAdeMO, GB/T
- Output current: 60 A
- Europe/China: 3 phase input. NAM: single phase input.
- Touch screen user interface
- RFID reader
- Connectivity
- Indoor and outdoor use
- OEM customization possible

Availability

The DC wallbox will be available in 2017.



Global trends and future developments

High power charging for cars

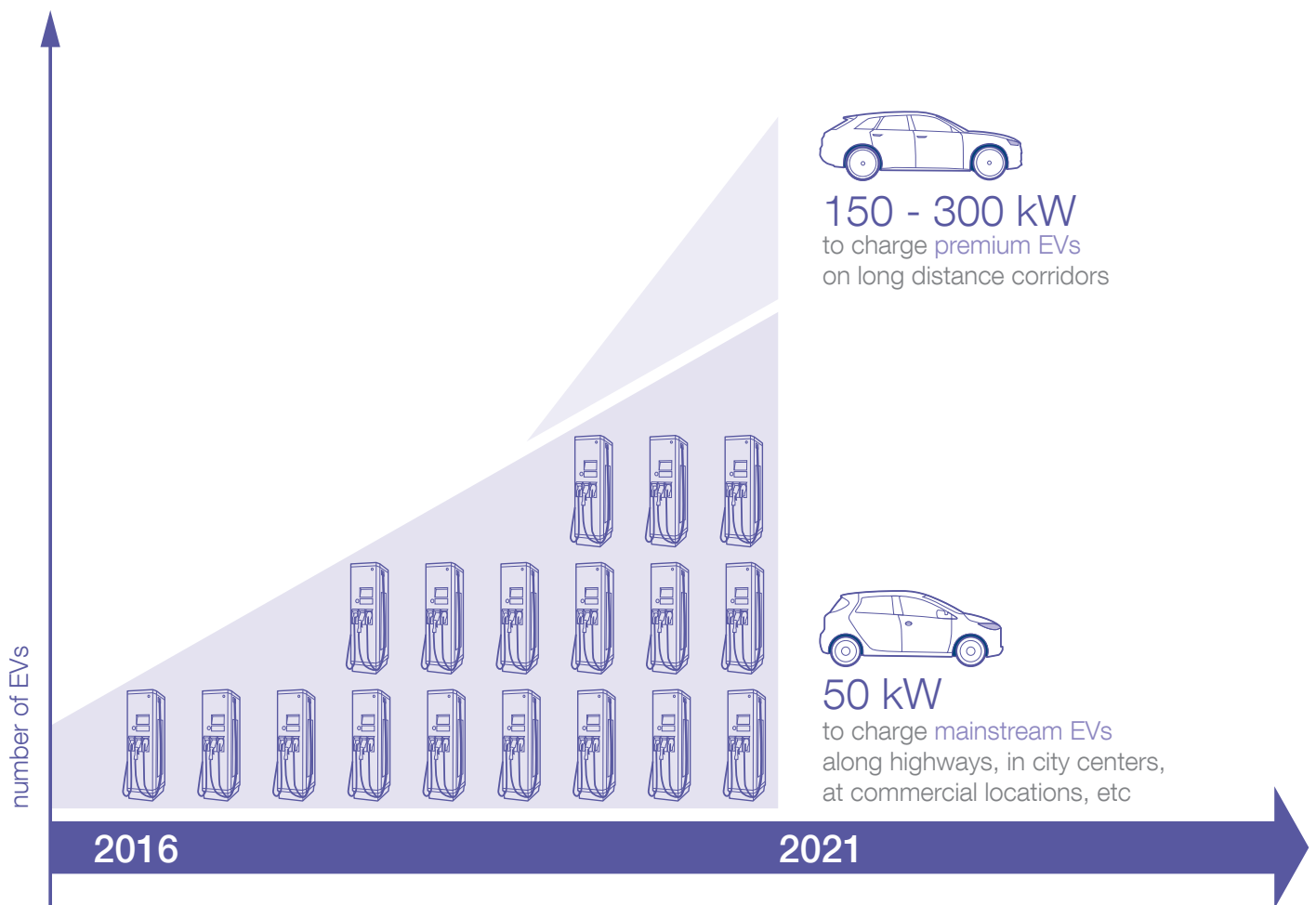
In the next 5 years, 50 kW chargers will support mainstream EVs. Additionally, high power chargers will be introduced to charge premium EVs that will come to the market from 2018 onwards.

Luxury EVs with long distance traveling capability will be introduced by several car OEMs from 2018 onwards. These cars will be supported by 150 – 300 kW DC high power chargers on long distance corridors. ABB is in close cooperation with the OEMs to ensure full compatibility between cars and chargers.

High power chargers and long range EVs, as well as the required standardization are currently under development. Additionally, suppliers are developing the required components to build high power chargers, such as advanced liquid cooled cables to conduct high current in ergonomic form factor.

High power chargers will be available when high power vehicles are introduced. ABB has the right partnerships to be prepared.

Mainstream EVs will keep charging at 50 kW DC chargers, making these a safe investment now and in the future.



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