

# E-Mobility

**AC and DC charging cables**  
**Vehicle cables**



# BRUGG eConnect, specialist for advanced cables

BRUGG eConnect specializes in high-end cables and has extensive expertise in the engineered-to-order (ETO) segment. The individual parts are designed and manufactured on the basis of developments according to defined customer requirements. BRUGG eConnect applies its full technical knowledge and its experience and is involved in all project stages from development, design, purchasing, production, testing, and logistics to delivery on site in accordance with the customer's specific requirements.

Development Design Production

## Engineer to Order

Assembly Approval Logistics

Products & Solutions



## Charging cable characteristics



Overrolling resistant

- Low adhesion, flexible
- Good oil- and fuel-resistance
- Halogen-free



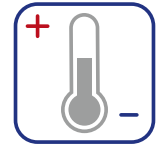
robust

- Flame retardant to IEC 60332-1
- Hydrolysis-, ozone- and weather-resistant
- UV radiation-resistant



flexible

- Temperature range: -40 °C to +90 °C (in case of short-circuit +160 °C for 5 sec.)
- Min. bending radius 4 x D



heat/cold

## Assembled cables

Charging cable data	Values
Mode 3	1- or 3-phase
Cross-section	2.5, 6 and 16 mm <sup>2</sup>
Number of control cores	1 or 2 cores
Plug-in connector	Type 1 or 2
Cable length	2.5 or 5 meters

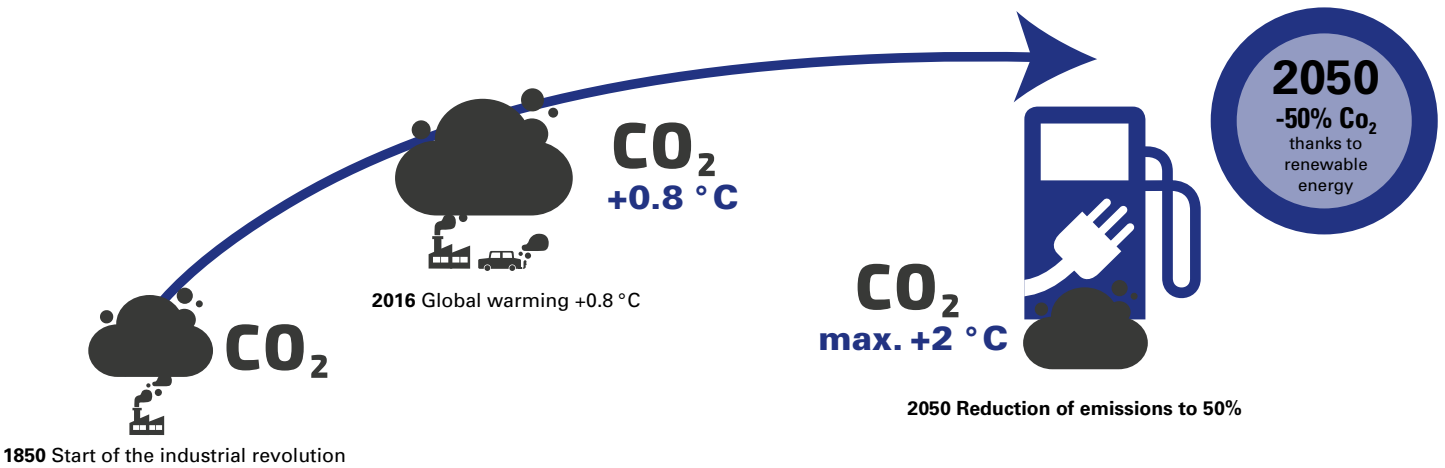
## Clean roads

The changeover from fossil energy production to renewable energy forms is in full swing. The new agreement of the UN Climate Conference COP21 on limiting global temperature rise to +2 °C and reducing CO<sub>2</sub> emissions by 50 percent by 2050 will speed this process and will provide a big boost for the renewable energy market.

The transportation sector is still a huge CO<sub>2</sub> producer, accounting for 25 percent of emissions in Europe. Everyday road transport harms the climate. However, our mobility awareness is changing. Tomorrow's mobility will be energy-saving and climate-friendly.

Until now, limited battery capacity and long charging times were all that hindered the breakthrough of E-mobility. With new standards for charging systems of 300-400 km range within 15 - 20 minutes charging time, these hindrances will also be a thing of the past.

We are on the threshold of an E-boom, and the demand for reliable charging infrastructure will increase strongly. In order to keep pace with this strong demand, manufacturers of charging stations and automobiles need expert, reliable component suppliers that further develop together with the market. As a well-known, established cable manufacturer, BRUGG eConnect offers complete cable solutions together with the corresponding services. We are your ideal partner, from development and test capabilities to customized delivery, offering outstanding quality with an optimal price-performance ratio.



## Charging systems available on the electromobility market

Charging mode	Area	Current, power output	Cable
Mode 2	Domestic connection	1-phase: 230 V AC, 20 A, up to 4.6 kW	3 G 2.5 mm <sup>2</sup>
Mode 3	Domestic connection and public charging station	1- or 3-phase 230 to 400 V AC, 20 to 63 A 4.6 to 43.5 kW	3 or 5 cores 2.5 to 16 mm <sup>2</sup>
Mode 4	Public quick charging station	DC charging: Up to 1000 V DC, up to 200-350 A, up to 350 kW	2 x 35, 50 or 70 mm <sup>2</sup> + PE

# Product portfolio: From the charging station to the battery

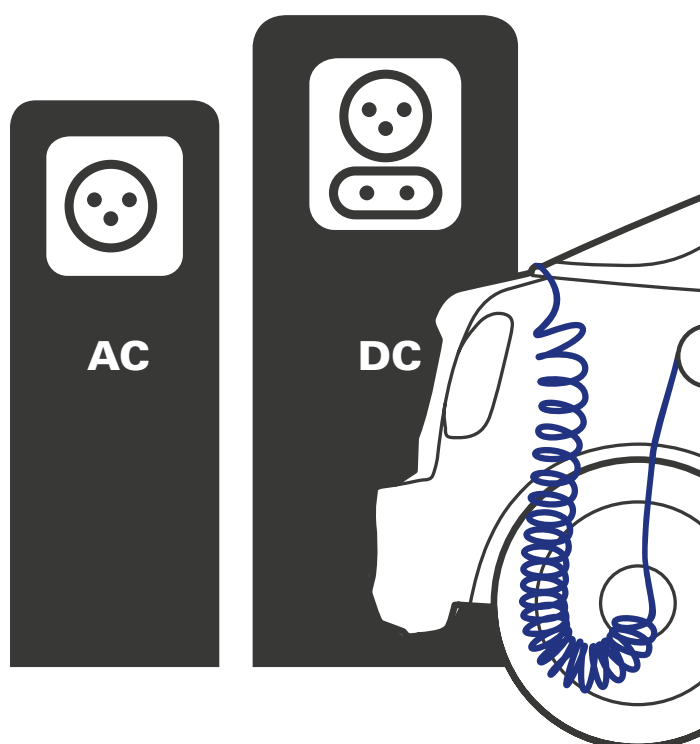
	Charging cable									
Charging mode	Mode 2			Mode 3						
Current	AC			AC						
Application area	Domestic connection			Domestic connection and public charging station						
Connector types	Domestic or industrial connectors, <b>type 1</b> connector			<b>type 2</b> or <b>type 3</b> connector						
Power output	1-phase, up to 4.6 kW		1-phase, up to 7.4 kW		3-phase, up to 43.5 kW					
Voltage	300/500 V			450/750 V						
Load capability (EN 50620)	14 A	25 A	25 A	44 A	25 A	44 A	62 A	82 A	82 A	
Cable construction	3G1.5	3G2.5	3G2.5	3G6	5G2.5	5G6	5G10	5G16	3G16	
Application area	EU								EU	GB (China)
Control cores	1x0.5 or 2x0.5			1x0.5 or 2x0.5				3x2x0.75	2x2.5 +9x0.5	
Cables	CI.5 or CI.6									
Insulation	HEPR									
Shielding	No									
Sheathing	PUR-FRNC									
Operating temperature	-40 ... +90 °C									

## DC charging

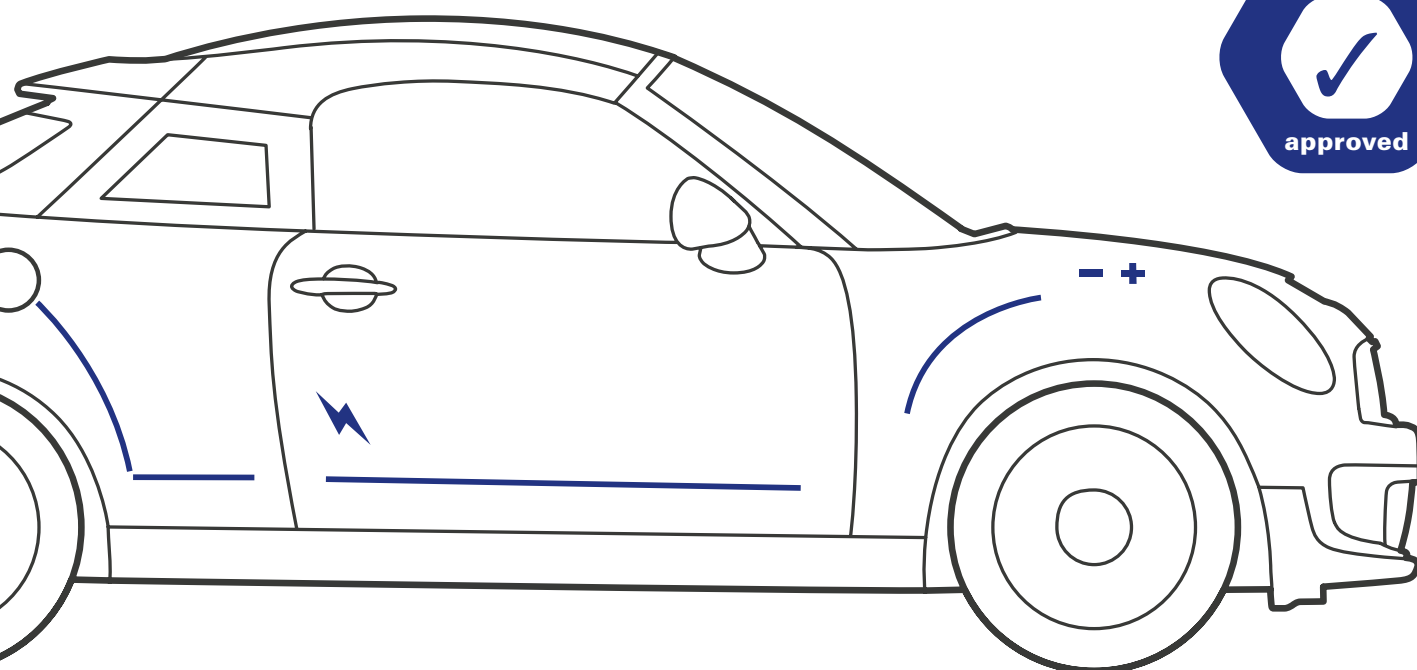
- 15 to 30 min. charging time
- Considerably higher charging capacity with 50 to 350 kW
- Application area: Rapid charging stations at motorway service areas
- DC stands for «direct current»

## AC charging

- 6 to 8 hours charging time, e.g. in own garage, 1-phase with 4 kW
- Only 1 to 3 hours charging time at public charging stations, 3-phase with 43.5 kW
- Charging controller in the vehicle, on the cable or at the charging station
- AC stands for “alternating current”



						Vehicle cable
Mode 4						---
DC						AC/DC
Public charging station						---
<b>CCS Combo connector:</b> DC+Type 1 oder DC+Type 2 <b>CHAdeMO type 2</b>						---
DC, up to 350 kW						---
Max. 1000 V						Max. 1000 V
125 A		172 A		220 A		Up to 220 A
2x35 + 1G25		2x50 + 1G25		2x70 + 1G35		1x10 ... 95 mm <sup>2</sup>   2x2.5 ... 4x6 mm <sup>2</sup>
<b>EU</b>	<b>GB (China)</b>	<b>EU</b>	<b>GB (China)</b>	<b>EU</b>	<b>GB (China)</b>	<b>EU</b>
3x2x0.75	---	3x2x0.75	2x2.5 +9x0.5	3x2x0.75	2x2.5 +9x0.5	---
CI.6						CI. 6, LV112 – ISO 6722
						TPU
						Cu braid + alu foil
						TPU
						-40 ... +150 °C



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