LEONI EV charging cables
for conductive charging systems

The Quality Connection

LEONI

LEONI – Your global partner for local solutions

Charging electric cars depends on the electrical power at the connected source, the charging technology fitted to the car and the size of the vehicle's battery. The electric cars available today are normally fully recharged after eight hours at the longest. Technological progress is making it possible to reduce this charging process to just a few minutes.

Efficient charging with cables by LEONI
Be it charging at home in the garage, public charging on America's roads or quick charging in major Asian cities: LEONI EV charging cables can be used anywhere and support all types of conductive charging systems available on the market.

International standards and approvals
Charging cables for electric vehicles are covered under EN 50620, which is the new European standard.

LEONI EV charging cables are approved in accordance with this new EN 50620 standard. Internationally, this is complemented by IEC 62893.

Our cables have the following approvals:
VDE for the European, UL/cUL for the American, PSE for the Japanese and CQC for the Chinese market.

EN 50620 certified

LEONI EcoSense®
◁ VDE-REG 8789 ▷ EVC 07BZ5-F
3x2,5+1x0,5 450/750 V EN 50620 EVC1234
(manufacturing order no.)

More about LEONI EV charging cables
https://www.leoni-cable.com/en/products-applications/charging-cables/

The matching cable for any charging system

Europe decided to use halogen-free materials with the EN 50620 standard. The international IEC 62893 standard also provides insulation materials containing halogen because of the Japanese and US influence. China, on the other hand, uses the European EN standard as a guide.

In Europe, the type of charging operation is described by the individual charging modes 1 – 4, which are listed in the IEC / EN 61851 standard. The voltage levels are defined for a range up to 750 V AC and 1,000 V DC.

In the U.S., charging cables are defined according to NEC Art. 400 and UL category FFSO (UL62) as well as CSA C22.2 No.49.

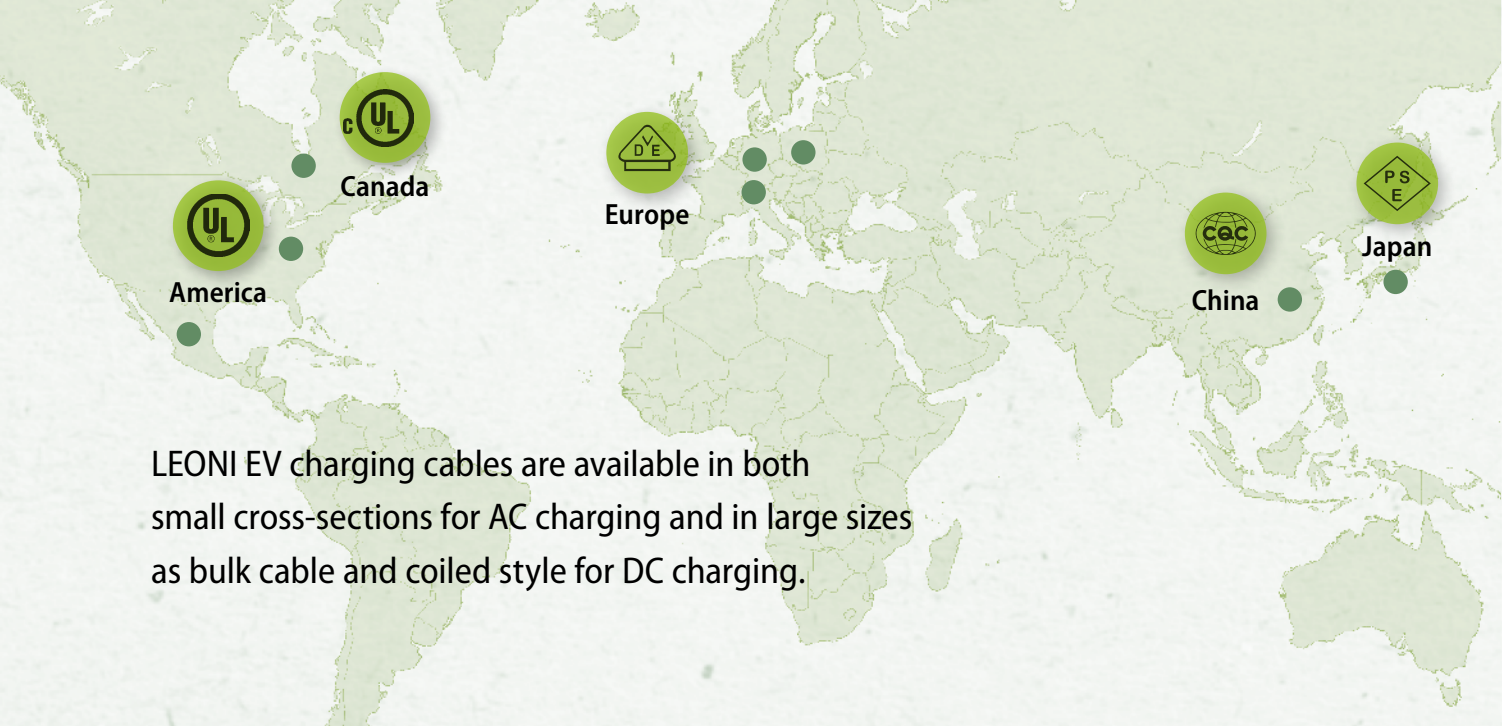
LEONI supplies charging cables for both of the possible voltage levels in the U.S., i.e. 300 V (Type EVJE) and 600 V / 1,000 V (Type EVE):
The 300 V AC voltage level for EVJE cables is mostly used for home charging; similar to charging modes 1 and 2 in Europe. EVE cables with 600 V / 1,000 V DC are used for quick charging. This is comparable with the European charging modes 3 and 4.

The PSE standard applies for the Japanese market. Our PSE cables cover voltages up to 600 V.

The requirements for charging systems for the Chinese market are listed in the GB standards. The used charging cables are described in a CQC standard. Like the European standard, the applicable voltage levels in China range up to 750 V AC and 1,000 V DC.

Cable solutions from LEONI

Straight versions							
Region	**Approval**	**Application**	**Description**	**Current supply**	**Number of cores x cross-section [mm²]**	**Nominal voltage**	**Outer diameter [mm]**
Europe	VDE, EN 50620	AC charging (domestic use)	LEONI EVC 1169	1-phase to 3 kW / 13 A AC connection	3 x 1.5 + signal cores	450 / 750 V AC	9.6
		AC charging (domestic use and public charging station)	LEONI EVC 1203	1-phase to 4.6 kW / 20 A AC connection	3 x 2.5 + signal cores	450 / 750 V AC	10.5
			LEONI EVC 3057	3-phase to 13.8 kW / 20 A AC connection	5 x 2.5 + signal cores	450 / 750 V AC	12.8
			LEONI EVC 1126	1-phase to 7.4 kW / 32 A AC connection	3 x 6.0 + signal cores	450 / 750 V AC	12.8
			LEONI EVC 3058	3-phase to 22 kW /32 A AC connection	5 x 6.0 + signal cores	450 / 750 V AC	17.0
			LEONI EVC 3079	1-phase to 14.5 kW / 63 A AC connection	3 x 16.0 + signal cores	450 / 750 V AC	20.1
			LEONI EVC 3105	3-phase to 43.5 kW / 63 A AC connection	5 x 16.0 + signal cores	450 / 750 V AC	23.1
		DC charging (public charging station)	LEONI EVC 5008	DC connection to 150 kW / 150 A	2 x 50 + 1 x 25 + signal cores	1,000 V DC	28.0
America	UL/cUL	AC charging (domestic use)	LEONI EVC 1137	1-phase to 3 kW / 10 A AC connection	3 x AWG16 (1.3) + signal cores	300 V AC	9.6
			LEONI EVC 1205	1-phase to 4.5 kW / 15 A AC connection	3 x AWG14 (2.1) + signal cores	300 V AC	10.5
		DC charging (public charging station)	LEONI EVC 5069	DC connection to 80 kW / 150 A	2 x AWG1(42.4) +1x AWG3(26.7) + control cores	1,000 V DC	35.3
Japan	PSE	AC charging (domestic use and public charging station)	LEONI EVC 1227	1-phase to 12 kW / 20 A AC connection	3 x 2.5 + signal cores	600 V AC	12.3
			LEONI EVC 1165	1-phase to 18 kW / 30 A AC connection	3 x 5.3 + control cores	600 V AC	16.0
			LEONI EVC 1238	1-phase to 21 kW / 35 A	3 x 6 + control cores	600 V AC	17.0
China	CQC	AC charging (domestic use)	LEONI EVC 1179	1-phase to 3 kW / 13 A AC connection	3 x 1.5 + signal cores	450 / 750 V AC	9.6
		AC charging (domestic use and public charging station)	LEONI EVC 1223	1-phase to 4.6 kW / 20 A AC connection	3 x 2.5 + control cores	450 / 750 V AC	10.5
			LEONI EVC 3078	3-phase to 13.8 kW / 20 A AC connection	5 x 2.5 + signal cores	450 / 750 V AC	12.8
		DC charging (public charging station)	LEONI EVC 5063	DC connection to 50 kW / 63 A	3 x 16 + signal cores	max. 1,000 V DC	25.5
			LEONI EVC 5067	DC connection to 150 kW / 150A	2 x 50 +1 x 25 + signal cores	max. 1,000 V DC	30.9
Multinorm: China Europe	CQC Dekra VDE	AC charging (domestic use and public charging station)	LEONI EVC 1194	1-phase to 4.6 kW / 20 A AC connection	3 x 2.5 + signal cores	450 / 750 V AC	10.2
			LEONI EVC 3087	3-phase to 13.8 kW / 20 A AC connection	5 x 2.5 + signal cores	450 / 750 V AC	12.8
			LEONI EVC 1195	1-phase to 7.4 kW / 32 A AC connection	3 x 6.0 + signal cores	450 / 750 V AC	12.8
			LEONI EVC 3088	3-phase to bis 22 kW / 32 A AC connection	5 x 6.0 + signal cores	450 / 750 V AC	16.5



LEONI EV charging cables are available in both small cross-sections for AC charging and in large sizes as bulk cable and coiled style for DC charging.

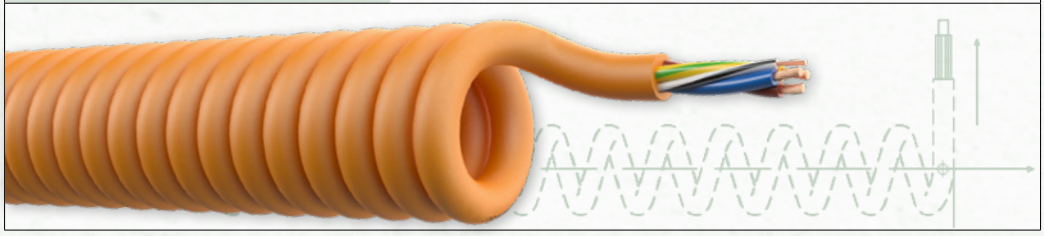
Cable characteristics

- Media-resistant
- Abrasion-resistant
- Hydrolyse-resistant
- Bending cycles-resistant
- Coilable (predominantly for modes 2 and 3)
- Thermal stress-resistant
- Halogen-free
- Flame-resistant

Advantages

- Long-standing production know how
- Country specific approvals for all charging systems in Europe, America and Asia
- Global production and sales network
- Customer specific cable solutions
- Additional product portfolio: cord sets, cables for internal wiring and LEONI Hivocar high voltage cables for HV harness application

Coiled versions	
Maximum block length of the coil	appr. 1,200 mm
Maximum diameter of the coil	appr. 80 mm
Maximum cable diameter	appr. 20 mm (larger and smaller version on request)
Open cable end	tangential or axial



LEONI has a large number of charging cable versions.
More information is provided upon request.

MODE 1

The vehicle is charged with single-phase alternating current directly from a domestic socket. The maximum current is 20 A.

MODE 2

In contrast to charging with mode 1, mode 2 uses an additional in-cable control box. This has a control and protection facility, monitors for residual current and communicates with the charging system. The maximum current is 20 A.

MODE 3

Charging takes place with alternating current at public or private charging stations. In contrast to mode 2, the control electronics are integrated in the charging station, which takes over the communication with the vehicle. Three-phase charging with up to 63 A accelerates the charging process.

MODE 4

This type of operation now provides for direct current up to 200 A and is suited for quick charging of electric vehicles. It involves high charging capacity being transferred within minutes. The DC charging technology is going to high power charging with active liquid cooling. LEONI provides solutions up to 500 A.

LEONI HPC cables: fast charging with high performance

LEONI's High Power Charging (HPC) cables enable drivers to recharge their electric vehicles in minutes and travel much further distances than before.

Advantages and properties

- Fast charging at charging stations, for example in about five minutes for a range of 100 kilometres
- Allow much longer ranges than befor
- High charging power up to 500 KW
- Transporting high charging currents
- Small diameter, highly flexible and lightweight, therefore easy to handle at the charging station
- Active liquid cooling as protection against overheating
- Increased safety in the design as an intelligent charging cable iHPC: In combination with intelligent technology sensory monitoring and digital evaluation of parameters such as temperature, tightness, mechanical load
- Can be used anywhere, supporting all types of line charging available on the market
- Approvals for the European, American, Japanese and Chinese markets

Automotive & Commercial Vehicles

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