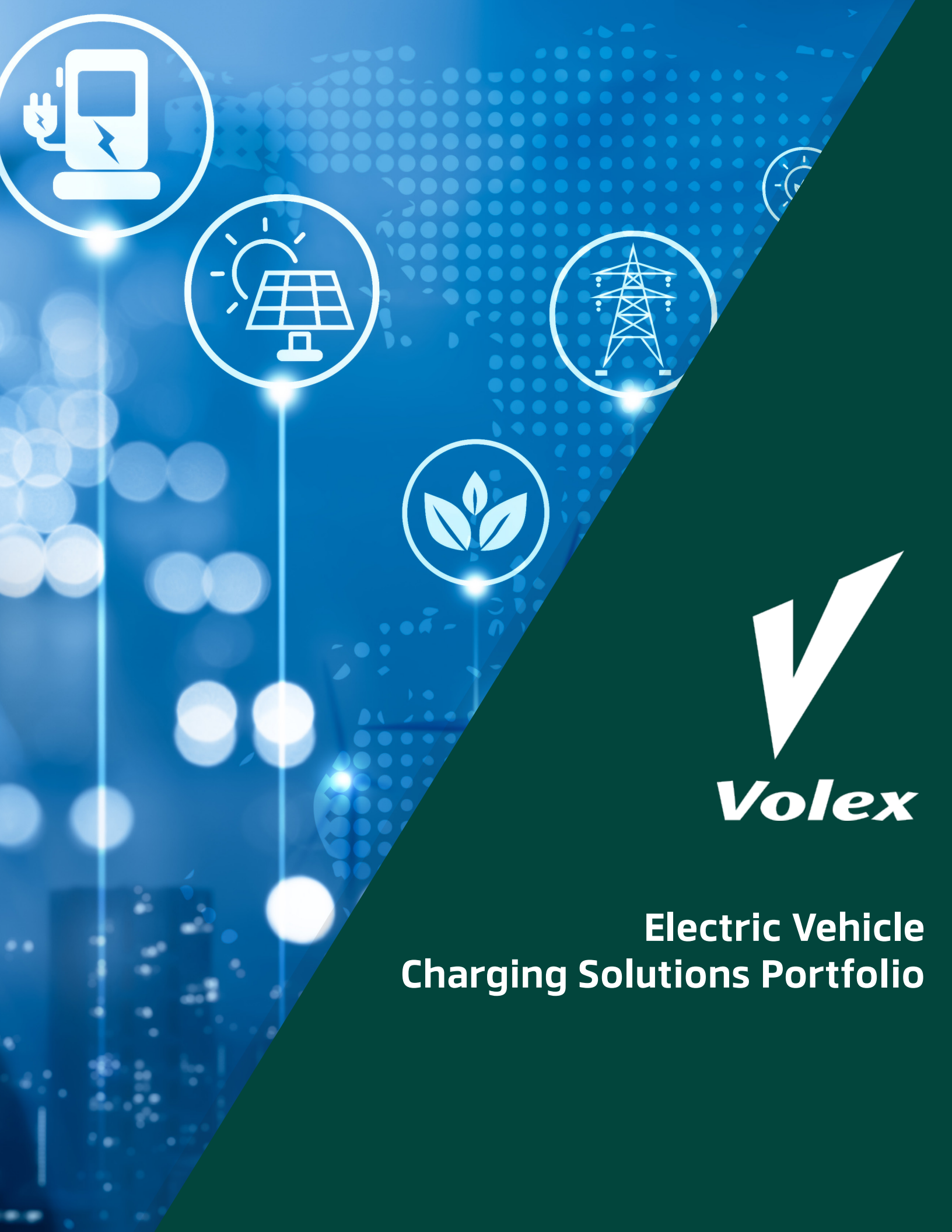

Volex

Electric Vehicle Charging Solutions Portfolio

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Volex Company Summary

Volex is a global leader in integrated manufacturing, specializing in performance-critical applications and the supply of power products.

APPLICATIONS / MARKETS

Through our vertically integrated core competencies across our global manufacturing and production locations, our customers are ensured security of supply as they continue to ramp up volumes to meet EV market demands.

Our Chosen Markets

COMPLEX INDUSTRIAL TECHNOLOGY

Combines our leading high speed data centre products with complex harnesses and complete assemblies for sophisticated industrial technology customers in diverse markets.

CONSUMER ELECTRICALS

We are the partner of choice for premium electronics and domestic appliance manufacturers with a truly global power cord business.

ELECTRIC VEHICLES

We work with leading manufacturers in the Electric Vehicles space who value our significant technical expertise and experience in the sector.

MEDICAL

We deliver complex assemblies that are used to deliver critical power, control and data connectivity for medical devices.

OFF-HIGHWAY

We deliver complex assemblies that connect electric and electronic components to power sensors, control units and batteries.

Worldwide Standard Solutions

Mode 2 AC Charge Cable & Grid Cords

FEATURES

Volex offers world-wide EV grid cord solutions that are designed for electric vehicle charging applications

- Precision Temperature Sensing Embedded on Plug End
- IP67 / IP68 Ingress Protection (SR Cable Entry and Plug Interface)
- Abrasion, Aging, Drive-over
- High Durability (UV and Sunlight Resistant Resin Types for Outdoor Compliance)
- Operating Temperature: -40°C to +90°C
- Ultrasonic Wire Welding – USCAR38 (High Amperage)
- Mechanical Crimping Compliant to USCAR21
- Safety Feature (High-temperature or Overcharge Sensing)
- Custom Reliability and EV Standards Testing

APPLICATIONS / MARKETS

EV charging grid plugs are used around the world for Type 1, Type 2, and GB/T connectivity and charging. Volex grid plugs are custom manufactured to meet the safety needs and specifications of the following countries, regions and charging standards.

- Argentina
- Australia
- Brazil
- China
- Denmark
- Europe
- IEC 60309
- Italy
- Japan
- NEMA 5-15, 5-20, 6-15, 6-20
- NEMA 14-50, 14-30, 6-50, TT-30, 10-30
- South Africa
- Swiss
- Taiwan
- Thailand
- UK

Mode 2 EV Charging Grid Cables with Single Thermistor	Cat. No.	Description	Standard	Max. Rating	IP Rating of Socket	IP Rating of Plug	Cable Type
Denmark 13A EV Charging Cable and Plug	VEDK13TH2A3	Angled 13A Plug	IEC 60884-1and DS60884-2-D1	13A 250V	IP20	IP67	H07BZ5 3×1.5mm + 2×0.5mm H07BZ5 3×2.5mm + 2×0.5mm
Europe 16A EV Charging Cable and Plug	VEEU16THA3	Angled 16A Plug	IEC 60884-1	16A 250V	IP44	IP67	H07BZ5 3×1.5mm + 2×0.5mm H07BZ5 3×2.5mm + 2×0.5mm
Japan 20A EV Charging Cable and Plug	VEJS20TH1A3R	Straight 20A Plug	METI Ordinance Appendix 4 Section 1, Section 6 and Appendix 10 Chapter 5 (JWDS 0033)	20A 250V	IP20	IP67	OOCTF 3×2.5mm + 2×0.5mm
NEMA 5-15 EV Charging Cable and Plug	VEUS15THA3	Angled 15A Plug	UL 817, CSA C22.2 No. 21	15A 125V	IP20	IP67	EVJE 3x14mm + 2x20mm
Swiss 10A EV Charging Cable and Plug	VESW10TH1A3	Angled 10A Plug	SN 441011	10A 250V	IP55	IP67	H07BZ5 3×1.5mm + 2×0.5mm H07BZ5 3×2.5mm + 2×0.5mm
UK 13A EV Charging Cable and Plug	VEUK13THA3	Angled 13A Plug	BS 1363 – 1	13A 250V	IP20	IP67	H07BZ5 3×1.5mm + 2×0.5mm H07BZ5 3×2.5mm + 2×0.5mm
Mode 2 EV Charging Grid Cables with Dual Thermistors	**Cat. No.**	**Description**	**Standard**	**Max. Rating**	**IP Rating of Socket**	**IP Rating of Plug**	**Cable Type**
Argentina 10A EV Charging Cable and Plug	VEAR10TH2A3R	Angled 10A Plug	IRAM 2073	10A 250V	IP20	IP67	H07BZ5 3×2.5mm + 3×0.5mm
Australia 10A EV Charging Cable and Plug	VEAU10TH2A3R	Angled 10A Plug	AS/NZS 3112	10A 250V	IP20	IP67	H07BZ5 3×2.5mm + 3×0.5mm
Brazil 20A EV Charging Cable and Plug	VEBR20TH2A3R	Angled 20A Plug	NBR 14136	20A 250V	IP20	IP67	H07BZ5 3×2.5mm + 3×0.5mm
China 10A EV Charging Cable and Plug	VEGB10TH2A3R	Angled 10A Plug	GB 2099.1, GB 1002	10A 250V	IP20	IP67	EV-EYU 3×2.5mm + 3×0.5mm
Europe 16A EV Charging Cable and Plug	VEEU16TH2A3R	Angled 16A Plug	IEC 60884-1	16A 250V	IP44	IP67	H07BZ5 3×2.5mm + 3×0.5mm
IEC 60309 16A EV Charging Cable and Plug	VEIEC16TH2A3R	Straight 16A Industrial Plug	IEC 60309	16A 250V	IP44	IP67	H07BZ5 3×2.5mm + 3×0.5mm
Italy 10A EV Charging Cable and Plug	VEIT10TH2A3R	Angled 10A Plug	CEI 23-50	10A 250V	IP20	IP67	H07BZ5 3×2.5mm + 3×0.5mm
Japan 20A EV Charging Cable and Plug	VEJS20TH2A3R	Straight 20A Plug	METI Ordinance Appendix 4 Section 1, Section 6 and Appendix 10 Chapter 5 (JWDS 0033)	20A 250V	IP20	IP67	OOCTF 3×2.5mm + 3×0.5mm
NEMA 5-15 EV Charging Cable and Plug	VEUS515TH2A3R	Angled 15A Plug	UL 817, CSA C22.2 No. 21	15A 125V	IP20	IP67	EVJE 3x14AWG + 3x20AWG
NEMA 14-50 EV Charging Cable and Plug	VEUS1450TH2A3	Angled 50A Plug	UL 498, UL 817 and CSA C22.2 No. 21-95	50A 250V	IP20	IP67	EVC-V103 6/2 + 8/1 + 20/3
South Africa 16A EV Charging Cable and Plug	VESA16TH2A3R	Angled 16A Plug	IEC 60884-1, SANS 164-1	16A 250V	IP20	IP67	H07BZ5 3×2.5mm + 3×0.5mm
Swiss 10A EV Charging Cable and Plug	VESW10TH2A3R	Angled 10A Plug	SN 441011	10A 250V	IP55	IP67	H07BZ5 3×2.5mm + 3×0.5mm
Taiwan 15A EV Charging Cable and Plug	VEUS515TH2A3R	Angled 15A Plug	CNS 690, CNS 15767-1	15A 125V	IP20	IP67	OOCTF 3×2.0mm + 3×0.5mm

American Standard Charging Cable

Type 1 AC Charge Cable

SAE J1772 Standard

FEATURES

- Robust Design
- Unibody Housing – Fully Potted and Encapsulated
- High Water Ingress Protection
- No Fasteners, Tamper-Proof
- Light Weight Coupler for Easier Handling

SPECIFICATIONS

Ambient Temperature (Operation)	-30°C to +50°C			
Ambient Temperature (Storage / Transport)	-40°C to +80°C			
Max. Altitude	5000 m (above sea level)			
Degree of Protection	IP67 / 3R and above			
Rated Voltage for Power Contacts	250V AC			
Rated Current for Power Contacts	16A	32A	48A	80A
Maximum Charging Power	4 kW	8 kW	12 kW	20 kW
Number of Power Contacts	3 (L1, N, PE)			
Rated Voltage for Signal Contacts	30V AC			
Rated Current for Signal Contacts	2A			
Number of Signal Contacts	2 (CP, PP)			
Temperature Sensor	Optional (NTC or PT1000)			
Note on the Connection Method	Crimp Termination (cannot be disconnected)			
Mating Cycles	> 10,000			
Insertion Force	< 75 N			
Withdrawal	< 75 N			

American Standard Charging Cable

NACS AC Charge Cable

SAE J3400 Standard

FEATURES

- Authorized Supplier of Authentic NACS Coupler
- Ergonomic Design
- Unibody Housing – Fully Potted and Encapsulated
- High Water Ingress Protection
- No Fasteners, Tamper-Proof
- Built-in Temperature Sensor
- Light Weight Coupler for Easier Handling

SPECIFICATIONS

Ambient Temperature (Operation)	-40°C to +50°C		
Ambient Temperature (Storage / Transport)	-40°C to +80°C		
Max. Altitude	4000 m (above sea level)		
Operating Humidity	Up to 95% RH, Condensing		
UV Resistance	F1 per UL 746C		
Degree of Protection	Type 4 / IP67		
Rated Voltage for Power Contacts	250V AC		
Rated Current for Power Contacts	32A / 40A	48A / 50A	80A
Maximum Charging Power	8 kW / 10 kW	12 kW / 12.5 kW	20 kW
Number of Power Contacts	3 (L1, N, PE)		
Temperature Sensor Type	NTC 10K		
Temperature Sensor Threshold	75°C (NTC on PCBA) 90°C (NTC on Terminal)		
Insulation Resistance	≥ 100 MΩ		
Note on the Connection Method	Crimp Termination (cannot be disconnected)		
Resistor Coding (between PE and PP)	480 Ω (lever operated) 150 Ω (lever not operated)		
Mating Cycles	> 10,000		
Insertion Force	< 90 N		
Withdrawal	< 90 N		

American Standard Charging Cable

CCS1 Home DC Charge Cable

SAE J1772 Standard

FEATURES

- Unibody Housing – Fully Potted and Encapsulated
- High Water Ingress Protection
- No Fasteners, Tamper-Proof
- Built-in Temperature sensor
- Replaceable Tips
- Boost Mode Functionality

SPECIFICATIONS

Ambient Temperature (Operation)	-40°C to +50°C	
Ambient Temperature (Storage / Transport)	-40°C to +80°C	
Max. Altitude	5000 m (above sea level)	
Degree of Protection	IP67	
Rated Voltage for Power Contacts	1,000V DC	
Rated Current for Power Contacts	40A	80A
Maximum Charging Power	40 kW	80 kW
Number of Power Contacts	3 (DC+, DC-, PE)	
Rated Voltage for Signal Contacts	30V AC	
Rated Current for Signal Contacts	2A	
Number of Signal Contacts	2 (CP, CS)	
Note on the Connection Method	Crimp Termination (cannot be disconnected)	
Resistor Coding (between PE and CS)	480 Ω (lever operated) 150 Ω (lever not operated)	
Temperature Sensor	2 x Pt1000	
Temperature Sensor Application Range	-50°C to +130°C	
Temperature Sensor Threshold	Pt1000 temperature up to 90 °C	
Mating Cycles	> 10,000	
Insertion Force	< 75 N	
Withdrawal	< 75 N	

American Standard Charging Cable

CCS1 DC Charge Cable

SAE J1772 Standard

FEATURES

- Unibody Housing – Fully Potted and Encapsulated
- High Water Ingress Protection
- No Fasteners, Tamper-Proof
- Built-in Temperature Sensor
- Replaceable Tips
- Boost Mode Functionality

SPECIFICATIONS

Ambient Temperature (Operation)	-40°C to +50°C		
Ambient Temperature (Storage / Transport)	-40°C to +80°C		
Max. Altitude	5000 m (above sea level)		
Degree of Protection	IP67		
Rated Voltage for Power Contacts	1,000V DC		
Rated Current for Power Contacts	250A	300A	350A
Maximum Charging Power	250 kW	300 kW	350 kW
Number of Power Contacts	3 (DC+, DC-, PE)		
Rated Voltage for Signal Contacts	30V AC		
Rated Current for Signal Contacts	2A		
Number of Signal Contacts	2 (CP, CS)		
Note on the Connection Method	Crimp Termination (cannot be disconnected)		
Resistor Coding (between PE and CS)	480 Ω (lever operated) 150 Ω (lever not operated)		
Temperature Sensor	2 x Pt1000		
Temperature Sensor Application Range	-50°C to +130°C		
Temperature Sensor Threshold	Pt1000 temperature up to 90 °C		
Mating Cycles	> 10,000		
Insertion Force	< 75 N		
Withdrawal	< 75 N		

American Standard Charging Cable

NACS Home DC Charge Cable

SAE J3400 Standard

FEATURES

- Unibody Housing – Fully Potted and Encapsulated
- High Water Ingress Protection
- No Fasteners, Tamper-Proof
- Built-in Temperature Sensor
- Replaceable Tips
- Boost Mode Functionality

SPECIFICATIONS

Ambient Temperature (Operation)	-40°C to +50°C		
Ambient Temperature (Storage / Transport)	-40°C to +80°C		
Max. Altitude	4000 m (above sea level)		
Operating Humidity	Up to 95% RH, Condensing		
UV Resistance	F1 per UL 746C		
Flammability Rating	UL94-V0		
Degree of Protection	Type 4 / IP67		
Rated Voltage for Power Contacts	1000V DC		
Rated Current for Power Contacts	32A / 40A	48A / 50A	80A
Maximum Charging Power	32 kW / 40 kW	48 kW / 50 kW	80 kW
Number of Power Contacts	3 (DC+, DC-, PE)		
Temperature Sensor Type	NTC 10K / PT 1000		
Temperature Sensor Threshold	75°C (NTC on PCBA) 90°C (NTC on Terminal)		
Number of Signal Contacts	2 (CP, PP)		
Note on the Connection Method	Crimp Termination (cannot be disconnected)		
Resistor Coding (between PE and PP)	480 Ω (lever operated) 150 Ω (lever not operated)		
UHF Transmitter Voltage	12V		
Withstanding voltage	3000V AC / 4200V DC		
Mating Cycles	> 10,000		
Insertion Force	< 90 N		
Withdrawal	< 90 N		

American Standard Charging Cable

NACS DC Charge Cable

SAE J3400 Standard

FEATURES

- Unibody Housing – Fully Potted and Encapsulated
- High Water Ingress Protection
- No Fasteners, Tamper-Proof
- Built-in Temperature Sensor
- Replaceable Tips
- Boost Mode Functionality

SPECIFICATIONS

Ambient Temperature (Operation)	-40°C to +50°C (+55°C for 375A)		
Ambient Temperature (Storage / Transport)	-40°C to +80°C		
Max. Altitude	4000 m (above sea level)		
Operating Humidity	Up to 95% RH, Condensing		
UV Resistance	F1 per UL 746C		
Degree of Protection	Type 4 / IP67		
Flammability Rating	UL94-V0		
Rated Voltage for Power Contacts	1000V DC		
Rated Current for Power Contacts	150A	200A / 250A	375A
Maximum Charging Power	150 kW	200 kW / 250 kW	375 kW
Number of Power Contacts	3 (DC-, DC+, PE)		
Temperature Sensor Type	2 * PT 1000		
Temperature Sensor Threshold	Pt1000 temperature up to 90°C		
Number of signal contacts	2 (CP, PP)		
Note on the Connection Method	Crimp Termination (cannot be disconnected)		
Resistor Coding (between PE and PP)	150 Ω		
UHF Transmitter Voltage (Optional)	3 - 4V or 5~12V		
Withstanding voltage	3000V AC / 4200V DC		
Mating Cycles	> 10,000		
Insertion Force	< 90 N		
Withdrawal	< 90 N		

European Standard Charging Cable

Type 2 Mode 3 AC Charge Cable

IEC 62196 Standard

FEATURES

- EV Ready Certification
- Unibody Housing – Fully Potted and Encapsulated
- High Water Ingress Protection
- No Fasteners, Tamper-Proof
- Compact Design for Easier Handling
- Light Weight and Modular

SPECIFICATIONS

Ambient Temperature (Operation)	-30°C to +50°C			
Ambient Temperature (Storage / Transport)	-40°C to +80°C			
Max. Altitude	2500 m (above sea level)			
Degree of Protection	IP67			
Number of Phases	1		3	
Rated Voltage for Power Contacts	250V AC		480V AC	
Rated Current for Power Contacts	16A	32A	16A	32A
Maximum Charging Power	4 kW	8 kW	11 kW	22 kW
Number of Power Contacts	3 (L1, N, PE)		5 (L1, L2, L3, N, PE)	
Rated Voltage for Signal Contacts	30V AC			
Rated Current for Signal Contacts	2 A			
Number of Signal Contacts	2 (CP, PP)			
Note on the Connection Method	Crimp Termination (cannot be disconnected)			
Resistor Coding (between PE and PP)	220 Ω (32A) / 680 Ω (16A)			
Mating Cycles	> 10,000			
Insertion Force	< 100 N			
Withdrawal	< 100 N			

European Standard Charging Cable

Type 2 AC Charge Cable

IEC 62196 Standard

FEATURES

- EV Ready Certification
- Unibody Housing – Fully Potted and Encapsulated
- High Water Ingress Protection
- No Fasteners, Tamper-Proof
- Compact Design for Easier Handling
- Light Weight and Modular

SPECIFICATIONS

Ambient Temperature (Operation)	-30°C to +50°C			
Ambient Temperature (Storage / Transport)	-40°C to +80°C			
Max. Altitude	2500 m (above sea level)			
Degree of Protection	IP67			
Number of Phases	1		3	
Rated Voltage for Power Contacts	250V AC		480V AC	
Rated Current for Power Contacts	16A	32A	16A	32A
Maximum Charging Power	4 kW	8 kW	11 kW	22 kW
Number of Power Contacts	3 (L1, N, PE)		5 (L1, L2, L3, N, PE)	
Rated Voltage for Signal Contacts	30V AC			
Rated Current for Signal Contacts	2 A			
Number of Signal Contacts	2 (CP, PP)			
Note on the Connection Method	Crimp Termination (cannot be disconnected)			
Resistor Coding (between PE and PP)	220 Ω (32A) / 680 Ω (16A)			
Mating Cycles	> 10,000			
Insertion Force	< 100 N			
Withdrawal	< 100 N			

American Standard Charging Cable

CCS2 Home DC Charge Cable

IEC 62196 Standard

FEATURES

- Unibody Housing – Fully Potted and Encapsulated
- High Water Ingress Protection
- No Fasteners, Tamper-Proof
- Built-in Temperature Sensor
- Replaceable Tips
- Boost Mode Functionality

SPECIFICATIONS

Ambient Temperature (Operation)	-40°C to +50°C	
Ambient Temperature (Storage / Transport)	-40°C to +80°C	
Max. Altitude	5000 m (above sea level)	
Degree of Protection	IP67	
Rated Voltage for Power Contacts	1,000V DC	
Rated Current for Power Contacts	40A	80A
Maximum Charging Power	40 KW	80 KW
Number of Power Contacts	3 (DC+, DC-, PE)	
Rated Voltage for Signal Contacts	30V AC	
Rated Current for Signal Contacts	2A	
Number of Signal Contacts	2 (CP, PP)	
Note on the Connection Method	Crimp Termination (cannot be disconnected)	
Resistor Coding (between PE and PP)	1500 Ω	
Temperature Sensor	2 x Pt1000	
Temperature Sensor Application Range	-50°C to +130°C	
Temperature Sensor Threshold	Pt1000 temperature up to 90°C	
Mating Cycles (NACS Inlet and CCS1 Connector)	> 10,000	
Insertion and Withdrawal Force	< 75 N	
Minimum Latching Mechanism Depression Force	< 75 N	

European Standard Charging Cable

CCS2 DC Charge Cable

IEC 62196 Standard

FEATURES

- Unibody Housing – Fully Potted and Encapsulated
- High Water Ingress Protection
- No Fasteners, Tamper-Proof
- Built-in Temperature Sensor
- Replaceable Tips
- Boost Mode Functionality

SPECIFICATIONS

Ambient Temperature (Operation)	-40°C to +50°C		
Ambient Temperature (Storage / Transport)	-40°C to +80°C		
Max. Altitude	5000 m (above sea level)		
Degree of Protection	IP67		
Rated Voltage for Power Contacts	1,000V DC		
Rated Current for Power Contacts	250A	300A	350A
Maximum Charging Power	250 kW	300 kW	350 kW
Number of Power Contacts	3 (DC+, DC-, PE)		
Rated Voltage for Signal Contacts	30V AC		
Rated Current for Signal Contacts	2A		
Number of Signal Contacts	2 (CP, PP)		
Note on the Connection Method	Crimp Termination (cannot be disconnected)		
Resistor Coding (between PE and PP)	1500 Ω		
Temperature Sensor	2 x Pt1000		
Temperature Sensor Application Range	-50°C to +130°C		
Temperature Sensor Threshold	Pt1000 temperature up to 90°C		
Mating Cycles	> 10,000		
Insertion Force	< 100 N		
Withdrawal	< 100 N		

Chinese Standard Charging Cable

GB/T AC Charge Cable

GB/T 20234 Standard

FEATURES

- Unibody Housing – Fully Potted and Encapsulated
- High Water Ingress Protection
- No Fasteners, Tamper-Proof
- Compact Design for Easier Handling
- Light Weight and Modular

SPECIFICATIONS

Ambient Temperature (Operation)	-30°C to +50°C			
Ambient Temperature (Storage / Transport)	-40°C to +80°C			
Max. Altitude	2000 m (above sea level)			
Degree of Protection	IP67			
Number of Phases	1		3	
Rated Voltage for Power Contacts	250V AC		440V AC	
Rated Current for Power Contacts	16A	32A	16A	32A
Maximum Charging Power	4 kW	8 kW	7 kW	14 kW
Number of Power Contacts	3 (L1, N, PE)		5 (L1,L2,L3,N,PE)	
Rated Voltage for Signal Contacts	30V AC			
Rated Current for Signal Contacts	2A			
Number of Signal Contacts	2 (CP, PP)			
Note on the Connection Method	Crimp Termination (cannot be disconnected)			
Mating Cycles	> 10,000			
Insertion Force	< 100 N			
Withdrawal	< 100 N			

Chinese Standard Charging Cable

GB/T DC Charge Cable

GB/T 20234 Standard

FEATURES

- Unibody Housing – Fully Potted and Encapsulated
- High Water Ingress Protection
- No Fasteners, Tamper-Proof
- Built-in Temperature Sensor
- Replaceable Tips
- Boost Mode Functionality

SPECIFICATIONS

Ambient Temperature (Operation)	-30°C to +50°C
Ambient Temperature (Storage / Transport)	-40°C to +80°C
Max. Altitude	2000 m (above sea level)
Degree of Protection	IP67
Rated Voltage for Power Contacts	1,000V DC
Rated Current for Power Contacts	250A
Maximum Charging Power	250 kW
Number of Power Contacts	3 (DC+, DC-, PE)
Rated Voltage for Signal Contacts	30V DC
Rated Current for Signal Contacts	2A
Number of Signal Contacts	4 (CC1, CC2, S+, S-)
Note on the Connection Method	Weld Termination (cannot be disconnected)
Resistor Coding (between PE and PP)	1000 Ω CC1 and PE (lever not operated) 1000 Ω CC2 and PE
Temperature Sensor	2 x Pt1000
Temperature Sensor Application Range	-50°C to +130°C
Temperature Sensor Threshold	Pt1000 temperature up to 90°C
Mating Cycles	> 10,000
Insertion Force	< 140 N
Withdrawal	< 140 N

Infrastructure to Vehicle Charging Adapters

NACS Infrastructure to CCS1 Vehicle Inlet DC Adapter

SAE J1772 Standard

FEATURES

- Fast Charging Speeds up to 350A / 1000V
- Safety & Security
- Interchangeable Locking Prevents Removing During Charging
- Expanded Charging Options
- Exclusive Compatibility

SPECIFICATIONS

Ambient Temperature (Operation)	-30°C to +40°C
Ambient Temperature (Storage / Transport)	-40°C to +80°C
Maximum Altitude	3000 m (above sea level)
Operating Humidity	Up to 95% RH, Condensing
Degree of Protection	IP67 (unmated)
Rated Voltage	1000V DC
Rated Current	350A
Rated Voltage for Signal Contacts	30V DC
Rated Current for Signal Contacts	2A
Insulation Resistance	≥ 100 MΩ
Mating Cycles (NACS Inlet and CCS1 Connector)	≥ 10,000
Insertion Force and Withdrawal Force	< 100 N

Infrastructure to Vehicle Charging Adapters

CCS1 Infrastructure to NACS Vehicle Inlet DC Adapter

SAE J1772 Standard

FEATURES

- Fast Charging Speeds up to 350A / 1000V
- Safety & Security
- Interchangeable Locking Prevents Removing During Charging
- Expanded Charging Options
- Exclusive Compatibility

SPECIFICATIONS

Ambient Temperature (Operation)	-30°C to +40°C
Ambient Temperature (Storage / Transport)	-40°C to +80°C
Maximum Altitude	3000 m (above sea level)
Operating Humidity	Up to 95% RH, Condensing
Degree of Protection	IP67 (unmated)
Rated Voltage	1000V DC
Rated Current	350A
Rated Voltage for Signal Contacts	30V DC
Rated Current for Signal Contacts	2A
Insulation Resistance	≥ 100 MΩ
Mating Cycles (CCS1 Inlet and NACS Connector)	≥ 10,000
Insertion Force and Withdrawal Force	< 100 N

Infrastructure to Vehicle Charging Adapters

Type 1 Infrastructure to NACS Vehicle Inlet AC Adapter

SAE J1772 Standard

FEATURES

- Fast Charging Speeds up to 80A / 250V AC
- Expanded Charging Options
- Safety & Security
- Exclusive Compatibility
- Interchangeable Locking Prevents Removing During Charging

SPECIFICATIONS

Ambient Temperature (Operation)	-30°C to +50°C
Ambient Temperature (Storage / Transport)	-40°C to +80°C
Maximum Altitude	3000 m (above sea level)
Operating Humidity	Up to 90% RH, Condensing
Degree of Protection	IP67 (unmated)
Rated Voltage	250V AC
Rated Current	Up to 80A
Rated Voltage for Signal Contacts	30V
Rated Current for Signal Contacts	2A
Insulation Resistance	≥ 100 MΩ
Mating Cycles (J1772 Inlet and NACS Connector)	≥ 10,000
Insertion Force and Withdrawal Force	< 100 N

Infrastructure to Vehicle Charging Adapters

NACS Infrastructure to Type 1 Vehicle Inlet AC Adapter

SAE J1772 Standard

FEATURES

- Fast Charging Speeds up to 80A / 250V AC
- Expanded Charging Options
- Safety & Security
- Exclusive Compatibility
- Interchangeable Locking Prevents Removing During Charging

SPECIFICATIONS

Ambient Temperature (Operation)	-30°C to +50°C
Ambient Temperature (Storage / Transport)	-40°C to +80°C
Maximum Altitude	3000 m (above sea level)
Operating Humidity	Up to 90% RH, Condensing
Degree of Protection	IP67 (unmated)
Rated Voltage	250V AC
Rated Current	Up to 80A
Rated Voltage for Signal Contacts	30V
Rated Current for Signal Contacts	2A
Insulation Resistance	≥ 100 MΩ
Mating Cycles (NACS Inlet and J1772 Connector)	≥ 10,000
Insertion Force and Withdrawal Force	< 100 N

Vehicle Charging Inlets

NACS Inlet

SAE J3400 Standard

FEATURES

- Protected and Sealed Against Dirt and Water
- High Degree of Protection
- Manual Emergency Release of the Locking Actuator
- Integrated Interlock During Charging
- Safe Against Overheating with Temperature Measurement at Every DC Power Contact
- Uniform, Space-saving Dimensions for the Installation Space

SPECIFICATIONS

Standard Approval Body	UL 2251
Charging Current Type	DC, AC 1 - Phase
Rated Voltage	1000V DC / 250V AC
Rated Current	350V DC / 80V AC
Insulation Resistance	> 200 MΩ
Coding	2.7 KΩ (between PE and PP)
Ambient Temperature (Operation)	-40°C to +50°C
Ambient Temperature (Storage / Transport)	-40°C to +85°C
Maximum Altitude	4000 m (above sea level)
Degree of Protection	Type 3R
Protective Cap	Supplied for DC & AC Contracts

Infrastructure Charging Socket Outlet

Type 2 Socket Outlet

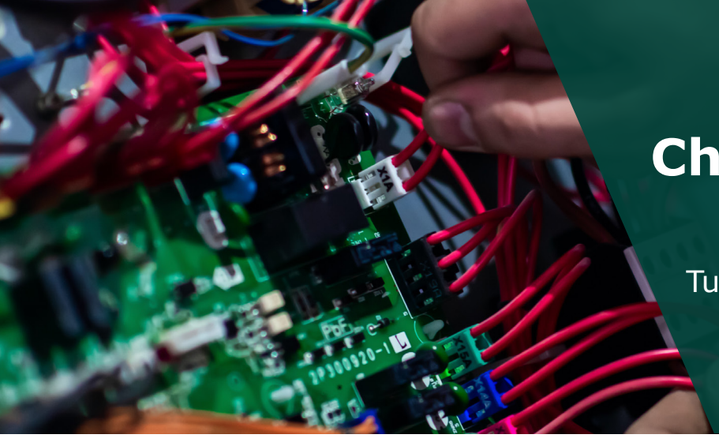
IEC 62196 Standard

FEATURES

- EV Ready Certification
- Protected Against Overheating with Precise Temperature Measurement
- Flexible Mounting and Easy Maintenance with Plug-in Cables
- Customised Logo Options for Consistent Branding
- Universal Mounting Plate (UMP) Design
- Flexible Options for ‘Crimp’ Versus ‘Screw’ Terminations
- Stable Thermal Performance
- Low Contact Resistance
- High Durability / Endurance

SPECIFICATIONS

Type of Signal Transmission	Pulse width modulation
Notes on the Connection Method	Connection via spade connector, separable
Type of Charging Current	AC 1-phase / 3-phase
Charging Power	Max. 22 kW
Charging Current	Max. 32A
Number	3 (L1, N, PE) / (L1, L2, L3, N, PE)
Rated Voltage	250V AC / 480V AC
Rated Current	16A / 32A
Number	2 (CP, PP)
Rated Voltage	30V AC
Rated Current	2A
Cable Length	0.5 m
Cable Structure	3 x 2.5 mm^2 + 2 x 0.5 mm^2 5 x 2.5 mm^2 + 2 x 0.5 mm^2 3 x 6 mm^2 + 2 x 0.5 mm^2 5 x 6 mm^2 + 2 x 0.5 mm^2
Insertion / Withdrawal Cycles	> 10,000
Insertion Force	< 100N
Withdrawal Force	< 100N



Build-to-Print Integrated Management Solutions

Charging Station Box Build & Assembly

Turnkey Box Build Assembly Solutions

Benefits of Volex Box Build Assembly Services:

Outsourcing system assembly and box build manufacturing to Volex simplifies customers supply chains while allowing customers to focus their energy on strategy, marketing and product development.

Global manufacturing footprint with low cost manufacturing in North America, Europe and Asia

Extensive engineering resources for value engineering to develop new manufacturing methods, materials and best value sourcing options

Volex's core strategy around vertical integration can minimize or eliminate the effect of margin stacking. Vertical integration capabilities include:

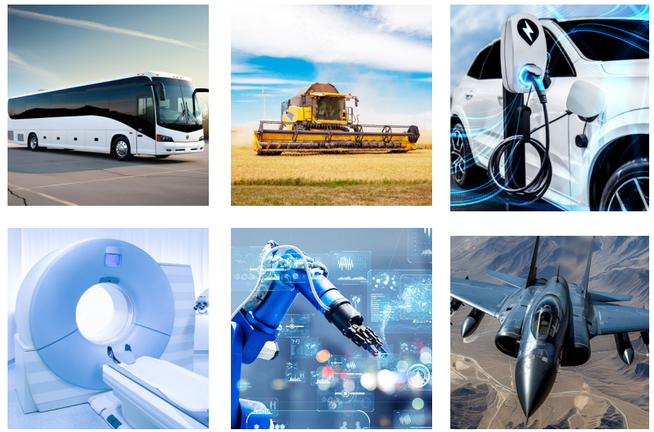
- Polymer Compounding
- Wire and Cable Manufacturing
- Power Cord Manufacturing
- Wire Harness Assembly
- Printed Circuit Board Assembly
- Low and High Pressure Injection Moulding
- Option to Use Injection Moulded Plastics, Hybrid Composites, Stamped or Machined Metal, Powder Coated and Finished Metals, Rubber, Overlays, Commercial Off-The-Shelf (COTS) and Custom Materials
- Various Inventory Management and Logistic Solutions

Volex Manufacturing Expertise Include:

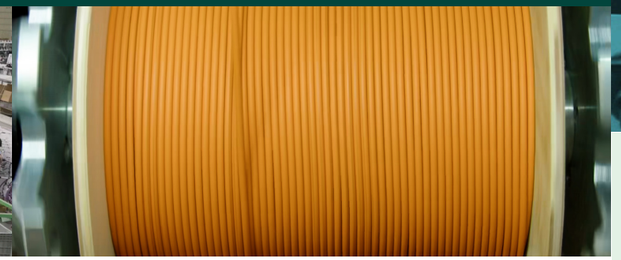
- Multi-modal integration of mechanical and electrical systems to your exact requirements
- Turnkey solutions including backplanes, wiring harnesses, PCBAs and more
- Integrated assemblies with other manufacturer's keyboards, monitors and embedded controllers.
- Highly skilled, complex assemblies and sub-assemblies
- New product integration and design for manufacturing assistance

Applications of Volex Box Build Assembly Solutions:

- Aerospace / Defence / Space
- Electric Vehicles (EV)
- Industrial Manufacturing
- Medical
- Off-Highway / Specialist Automotive
- Robotics and Automation



High Voltage Cable & Wire Harness



Technical Information

Volex manufactures battery cable for high voltage and low voltage applications

Capability to produce high temperature, high abrasion resistant materials with temperature resistance up to 200°C

Vertically-integrated high voltage and battery cable production

Polymer compounding, wire extrusion and cable manufacturing

Cable materials include Silicone, XLPO, XLPE, PVC, TPU and PA

Braided & aluminum shielding capabilities for single and multi-core cables up to 120 mm²

Volex EV and Off-Highway Harness Applications

With our advanced manufacturing and assembly capabilities, Volex can provide solutions for very complex harnesses including:

Auxiliary Harnesses (e.g. electrical HVAC and Heater)

Battery Harnesses (high voltage / low current battery monitoring and high voltage / high current wiring)

Charging Harnesses for AC and DC applications (vehicle charger inlet towards Onboard Charger and Battery Pack)

E-Motor Harnesses

VOLEX SYSTEM SOLUTIONS AND SERVICES

ENABLING AN EXCEPTIONAL USER INTERFACE

A user interface needs to provide clear and concise information, be able to monitor and display the progress of charging and enable easy-to-use user interaction. Environmental conditions dictate that display information must remain easily viewable in all situations.

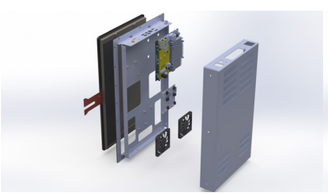
DEVELOPING AND DESIGNING THE EV CHARGERS FOR TODAY AND TOMORROW

Volex has a wealth of experience in designing and developing advanced, robust industrial systems with integrated displays that will meet and exceed the challenges of electric vehicle charging stations. RDS can supply, design and integrate all components and sub-systems for EV chargers including power management, embedded computing, displays, network connectivity, cabling and mechanical fixtures and fittings.

Volex can provide fully integrated display solutions with outstanding optical performance utilising:

- High-performance IPS TFT displays, complying with IP65 standards
- Optical bonding to enhance optical performance and increased system robustness
- Integration of optical filters including UV & IR Protection
- Up to IK10 rated Touch-Focused user interfaces
- Multi-touch capacitive and resistive touchscreens
- Complete display sub-assemblies

Volex can support both new and existing customers with an extensive range of display technology, embedded computing systems, cabling and manufacturing capabilities. From Concept to Production, Volex can provide design, development and manufacturing services for EV charging and infrastructure solutions.



Certifications

Key Certifications:

- ISO 9001 – Quality Management System
- ISO 14001 – Environmental Management System
- ISO 45001 – Occupational Health and Safety Management System
- IECQ QC 080000 – Hazardous Substance Process Management (HSPM) System
- ISO 13485 – Medical Devices – Quality Management System
- ISO/IEC 27001 – Information Security Management System
- MedAccred – Cable & Wire Harness Accreditation
- CGP (Controlled Goods Program of Canada)
- TL 9000 – Quality Management System for ICT Industry
- AS9100D – Quality Management Systems for Aviation, Space and Defense Organizations
- IATF 16949 – Automotive Quality Management System
- ESD20.20 – Electrostatic Discharge Control Program
- ISO 14064 – Greenhouse Gas (GHG) Accounting and Verification Standard
- UL / CSA
- ASEFA E.V. READY
- RBA Certificates

Sustainability - Our Net Zero Roadmap

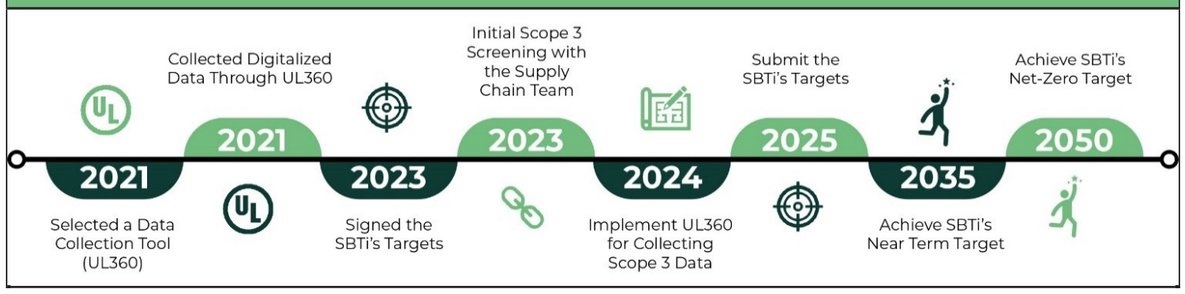
The future of the planet depends on our ability to create a sustainable, low-carbon environment. Volex is committed to this mission and will use its innovation and global collaboration to make it a reality.

Decarbonise our operations by 2035	Decarbonise our total business including our value chain by 2050	Reduce our waste to landfill and increase our recycling rates	Increase our resource efficiency particularly energy, water and waste	Use our employee power to create a positive impact on the environment

2025
Road Map to Net Zero
(According to SBTi)

2035
Achieve Net Zero
(Scope 1 & 2)

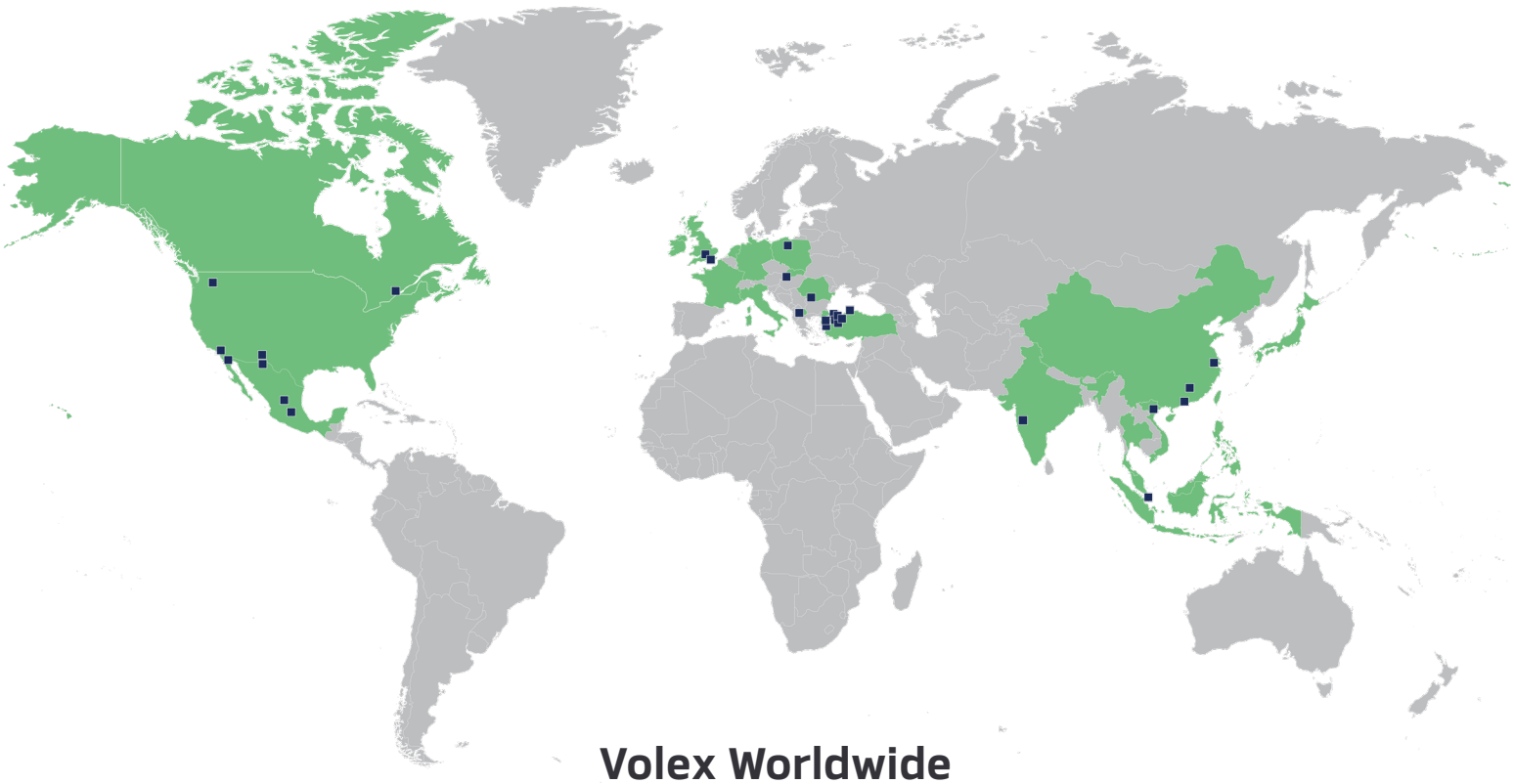
2050
Achieve Net Zero
(Scope 3)



NOTES

NOTES

GLOBAL SUPPORT



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