

EV Charging Gun

SAE J1772

IEC 62196

CCS Combo 1

CCS Combo 2



C.C.P. CONTACT PROBES



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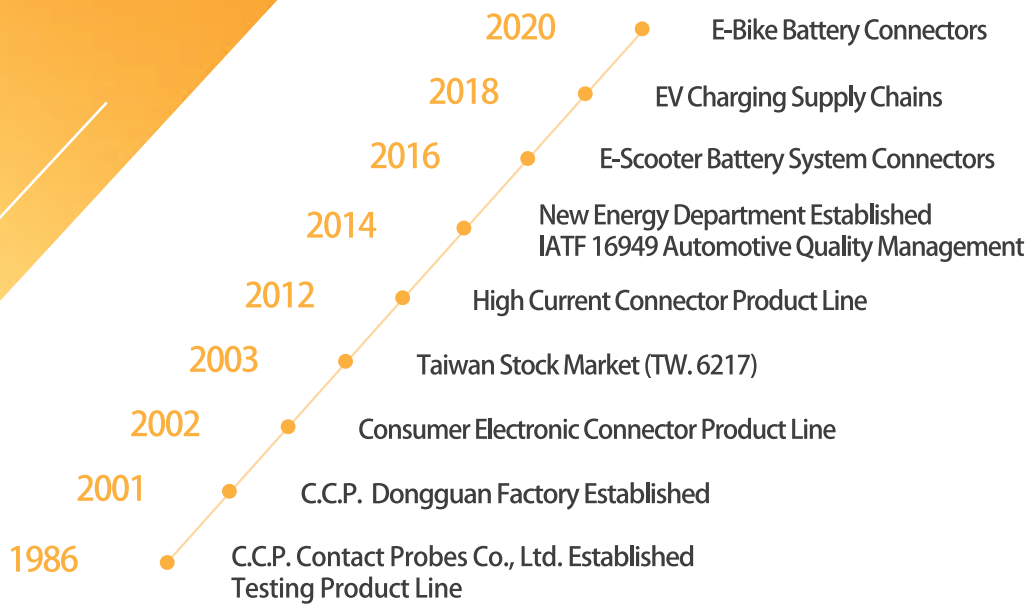


ABOUT US

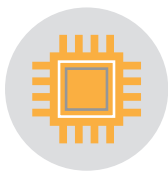
C.C.P. Contact Probes



C.C.P. Contact Probes Co., Ltd.



Product Lines



Testing
Solutions



Consumer Electronic
Connector Solutions



High Current
Connector Solutions



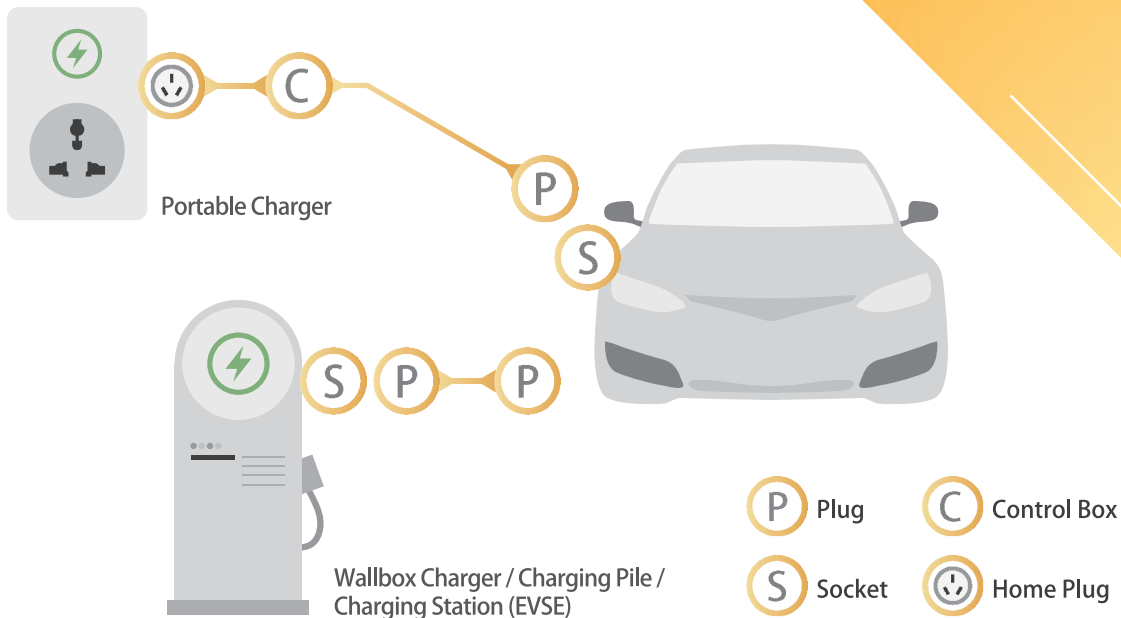
Industrial
Connector Solutions

Locations







CHARGING GUN

Introduction



Charging Mode and Charging Case Definition

Charging Mode	Current	Description	Charging Case
Mode 1	AC Charging	<ul style="list-style-type: none"> - For standard household outlet - Typical charging for e-scooter and e-bike 	 B
Mode 2	AC Charging	<ul style="list-style-type: none"> - For both domestic and industrial sockets - In-cable control and protection device (IC-CPD) 	 B
Mode 3	AC Charging	<ul style="list-style-type: none"> - For AC charging station (EVSE) connected to the power network - Integrated control communication and safety functions 	 B
Mode 4	DC Charging	<ul style="list-style-type: none"> - For DC charging station (EVSE) connected to the power network - Option of CHAdeMO, CCS1, and CCS2 - Fast charging capabilities and higher level safety control system 	 C

SAE J1772 CHARGING GUN

Introduction

New charger design Type 1 AC Charging Gun developed in accordance with SAE J1772 for the US market, used our patented Crown Spring Terminal featuring superior charging performance: High Current, Low Insertion Force, Low Contact Resistance, and Low Temperature Rise.

With high-strength integrated hosing body and anti-loose safety lock, our charging plug is extremely durable and achieves a protection rating of IP67.



SAE J1772
US Standard



Application Field



Residential

- AC Household Charger
- Portable EV Charger
 - Wall-Box Charger



Commercial

- Business or Workplace EVSE
- Business District
 - Shopping Center



Station

- Various Charging Standard EVSE
- Service Station
 - Parking Lot



Public

- Municipal Charging Platform
- Roadway
 - Street or Park

SAE J1772 CHARGING GUN

Introduction



SAE J1772- 2016 Electric Vehicle and Plug-in Hybrid Electric Vehicle Conductive Charge Coupler

Certification



UL Standard Global Safety Certification
UL 2251 Standard for Safety Plugs, Receptacles, and Couplers for Electric Vehicles



TÜV Rheinland (Technical Inspection Association)
Connector (Connector for Conductive Charging of Electric Vehicles)



PSE Law (Product Safety Electrical Appliance & Material)
In accordance with electrical safety requirements for electrical appliances in Japan



Certification Body Scheme (CB Certification)
Assures that the charging gun is tested to allow harmonized international standards

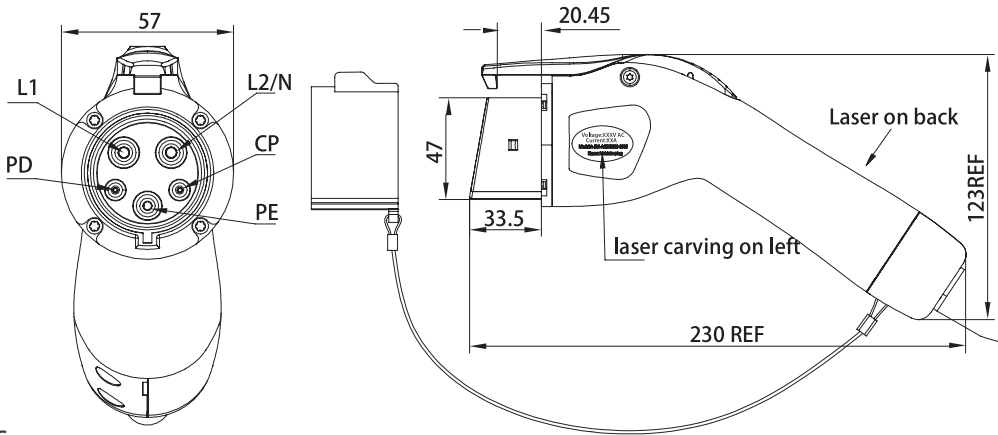
SAE J1772 CHARGING GUN

SAE J1772 - 2016



Type 1 SAE J1772
AC Vehicle Connector

Dimension



Charging Mode 3
Charging Case B/C

Model P/N	Voltage	Current	Cable OD
A-SM-AC016000-001S	120 V	16 A	14.5mm
A-SM-AC032000-001S	240 V	32 A	18.5mm
A-SM-AC050000-001S	240 V	50 A	22.8mm
A-SM-AC080000-001S	240 V	80 A	23.5mm
Insulation Resistance	Insertion Force	IP Rating	Mating Cycle
≥5MΩ (500V DC)	≤100 N	TYPE 4	≥10,000
Withstanding Voltage	Flammability Class	Operating Temperature	
2000V (AC 1 Min)	UL 94-V0	-30° C ~ +50° C	

SAE J1772 CHARGING GUN

SAE J1772 - 2016

Features



High & Stable Current



Safe Design



Long Life Cycle



Flame Retardant



Ergonomic Design



UV Resistance



Low Contact Resistance



High Waterproof Rating



Low Temperature Rise



High Weatherability

Advantages



High-Strength Structure

Integrated Housing Body Design - Excellent Impact Resistance & Waterproof Function



30+ Years Developing Experience

Advanced Development - Anti-Corrosion, Low Contact Resistance & High Energy Performance



Short Lead Time & Low Cost

Manufacturing Integration - Self-Own Plating Labs, CNC & Molding Factories

IEC 62196-1&2 CHARGING GUN

Introduction

New developed Type 2 AC Vehicle Connector in accordance with IEC 62192 standard for the European market.

Designed with our patented silver-plated copper alloy crown spring terminal featured low contact resistance and stable high current. Streamline multi-texture body design with low insertion force for effortless handling and meets water protection IP67.

Various charging applications, Type 2 to Type 2 Cable and Portable EV Charger, for different conditions and requirements.



IEC 62196-1&2
EU Standard



Application Field



Residential

AC Household Charger

- Portable EV Charger
- Wall-Box Charger



Commercial

Business or Workplace EVSE

- Business District
- Shopping Center



Station

Various Charging Standard EVSE

- Service Station
- Parking Lot



Public

Municipal Charging Platform

- Roadway
- Street or Park

IEC 62196-1&2 CHARGING GUN

Introduction



IEC 62196 - 2 & 3 Electric Vehicle and Plug-in Hybrid Electric Vehicle Conductive Charge Coupler

Certification



TÜV Rheinland (Technical Inspection Association)
Connector (Connector for Conductive Charging of Electric Vehicles)

IEC 62196-1&2 CHARGING GUN

IEC 62196-1&2 : 2017



1-Phase
5 Pins

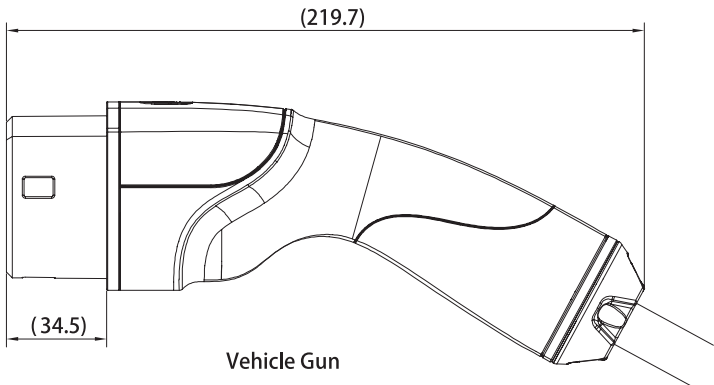
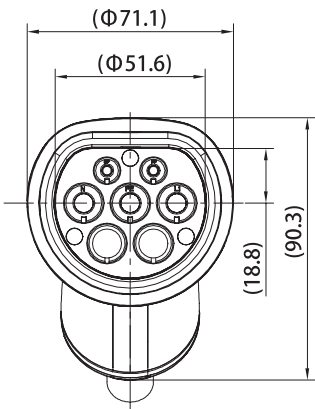


3-Phase
7 Pins

Type 2 IEC 62196
AC Vehicle Connector

Dimension

Charging Mode 3
Charging Case B/C



Vehicle Gun

Model P/N	Number of Phase	Voltage	Current	Cable
A-EM-AC016000-002S	1-Phase	250 V	16 A	3×2.5mm ² +1×0.5mm ²
A-EM-AC032000-001S	1-Phase	250 V	32 A	3×6mm ² +1×0.5mm ²
A-EM-AC016000-003S	3-Phase	480 V	16 A	5×2.5mm ² +1×0.5mm ²
A-EM-AC032000-002S	3-Phase	480 V	32 A	5×6mm ² +1×0.5mm ²

Insulation Resistance	Insertion Force	IP Rating	Mating Cycle
≥5MΩ (500V DC)	≤100 N	IP 54	≥10,000

Withstanding Voltage	Flammability Class	Operating Temperature
2500V (AC 1 Min)	UL 94-V0	-30° C ~ +50° C

IEC 62196-1&2 CHARGING GUN

IEC 62196-1&2 : 2017

Features



High & Stable Current



Safe Design



Long Life Cycle



Flame Retardant



Ergonomic Design



UV Resistance



Low Contact Resistance



High Waterproof Rating



Low Temperature Rise



Safety Protection



Various Charging Mode



High Weatherability

Advantages



Ergonomic Structure Design

Anti-Slip Handheld Design - Multi-Texture Ergonomic Design with Perfect Friction Force



30+ Years Developing Experience

Advanced Development - Anti-Corrosion, Low Contact Resistance & High Energy Performance



Short Lead Time & Low Cost

Manufacturing Integration - Self-Own Plating Labs, CNC & Molding Factories

IEC 62196-1&2 CHARGING GUN

Type 2 to Type 2 Charging Cable

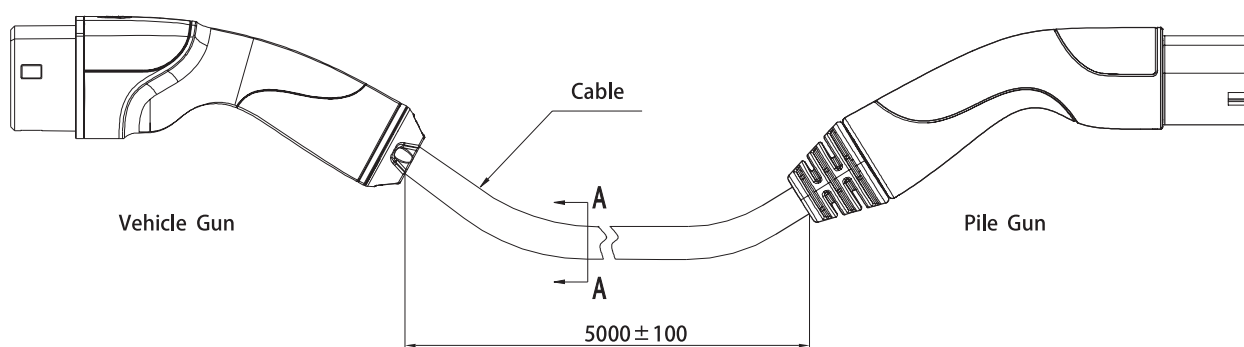


Mobile AC charging cable with protective caps, compatible with all Type 2 (IEC 62196) electric vehicles and universal charging infrastructure for charging mode 3/ case B.

Vehicle charging connector and infrastructure charging plug tested to meet TÜV Rheinland certification requirements.



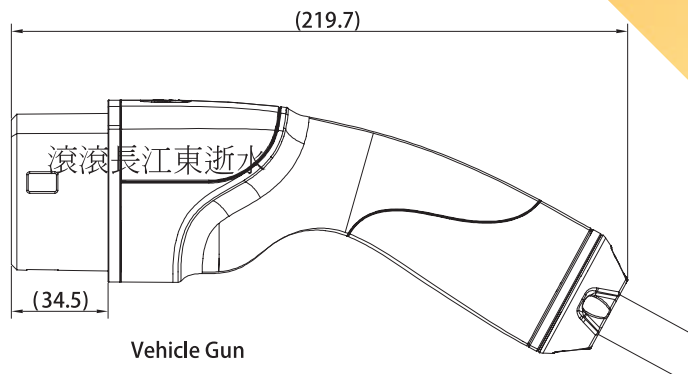
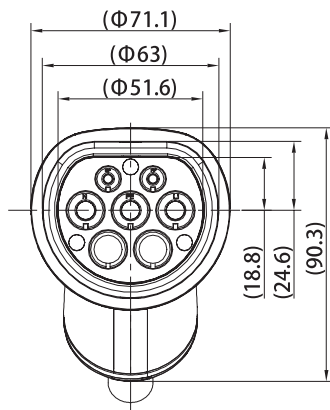
AC Vehicle Connector
AC Infrastructure Plug



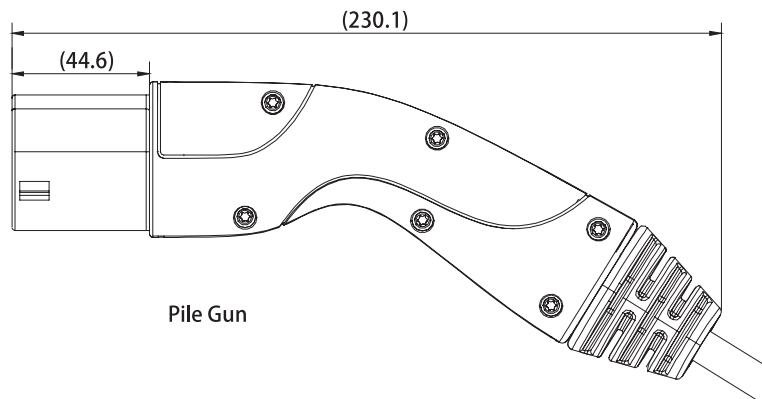
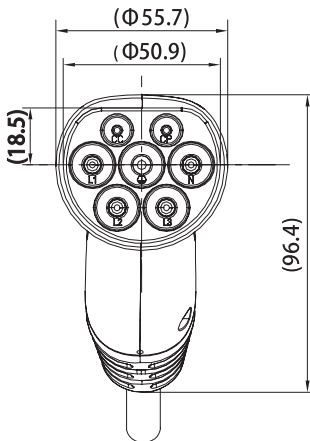
IEC 62196-1&2 CHARGING GUN

Type 2 to Type 2 Charging Cable

Dimension



Vehicle Gun



Pile Gun

Charging Mode 3
Charging Case B

Model P/N	Number of Phase	Voltage	Current	Cable
A-EM-AC016000-005S	1-Phase	250 V	16 A	3×2.5mm ² +1×0.5mm ²
A-EM-AC032000-003S	3-Phase	480 V	32 A	5×6mm ² +1×0.5mm ²
Insulation Resistance	Insertion Force	IP Rating	Mating Cycle	
≥5 MΩ (500V DC)	≤100 N	IP 54	≥10,000	
Withstanding Voltage	Flammability Class	Operating Temperature		
2500V (AC 1 Min)	UL 94-V0	-30° C ~ +50° C		

CCS1 DC CHARGING GUN

Introduction

CCS1 (Combo Charging System Type 1) was developed in accordance with SAE J1772 for the US and South Korea markets with superior performance of filling up faster than SAE standard AC charging gun by adopting direct current (DC) up to 200 A.

With reliable control function to prevent overheating by temperature monitoring while charging. Also applicable for the 200 kW EV charging appliance (EVSE) compatible with IEC 62196-3 and SAE J1772.



Combo 1
US Standard



Application Field



Residential

DC Household Charger

- Wall-Box Charger
- Private Carport



Commercial

Business or Workplace EVSE

- Business District
- Shopping Center
- Logistics Center



Station

Various Charging Standard EVSE

- Service Station
- Parking Lot



Public

Municipal Charging Platform

- Roadway
- Highway

CCS1 DC CHARGING GUN

Introduction



SAE J1772- 2016 Electric Vehicle and Plug-in Hybrid Electric Vehicle Conductive Charge Coupler

Certification



UL Standard Global Safety Certification
UL 2251 Standard for Safety Plugs, Receptacles, and Couplers for Electric Vehicles

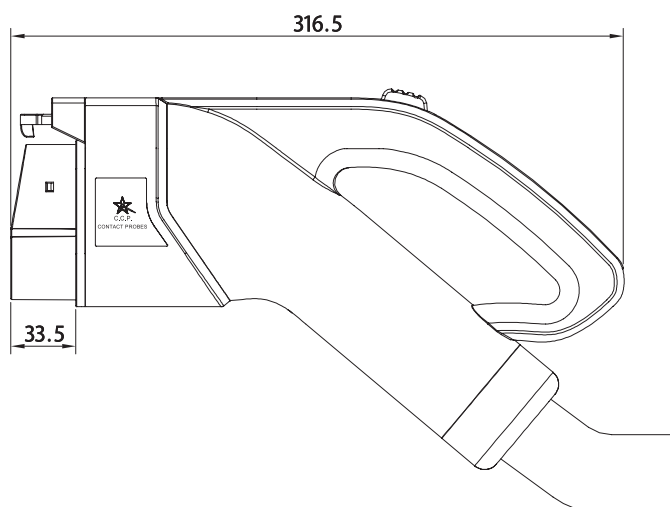
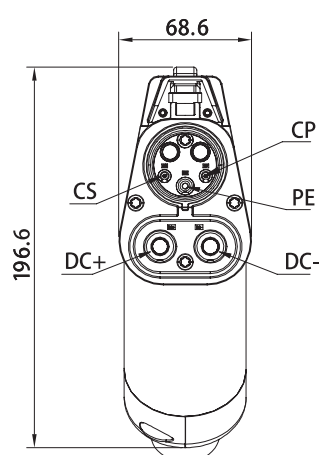
CCS1 DC CHARGING GUN

Combo 1 - SAE J1772



CCS1 SAE J1772
DC Vehicle Connector

Dimension



Charging Mode 3/4

Charging Case C

Model P/N	Voltage	Current	Cable
CCP CCS1 1000V(DC) 80A	1000 V	80 A	2×6AWG+1×8AWG+6×18AWG
CCP CCS1 1000V(DC) 200A	1000 V	200 A	2×1AWG+1×3AWG+6×18AWG
Insulation Resistance	Insertion Force	IP Rating	Mating Cycle
≥5 MΩ (1000 V DC)	≤100 N	TYPE 4	≥10,000
Withstanding Voltage	Flammability Class	Operating Temperature	
3000 V (AC 1 Min)	UL 94-V0	-30° C ~ +50° C	

CCS1 DC CHARGING GUN

Combo 1 - SAE J1772

Features



High & Stable Current



Safe Design



Long Life Cycle



Flame Retardant



Ergonomic Design



UV Resistance



Low Contact Resistance



High Waterproof Rating



Low Temperature Rise



Safety Protection



Temperature Monitoring



High Weatherability

Advantages



Ergonomic Structure Design

Anti-Slip Handheld Design - Multi-Texture Ergonomic Design with Perfect Friction Force



Operating Protection Function

Temperature Control- Temperature Sensor, Overheat Prevention, Safety Protection



Short Lead Time & Low Cost

Manufacturing Integration - Self-Own Plating Labs, CNC & Molding Factories

CCS2 DC CHARGING GUN

Introduction

CCS2 (Combo Charging System Type 2) was developed in accordance with IEC 62196 for Europe and Indian markets with higher charging performance of filling up faster than IEC 62196 standard AC charging gun by adopting direct current (DC) up to 200 A /1000V.

With reliable control function to prevent overheating by temperature monitoring while charging. Also applicable for the 200 kW EV charging appliance (EVSE) compatible with IEC 62196-3.



Combo 2
EU Standard



Application Field



Residential

DC Household Charger

- Wall-Box Charger
- Private Carport



Commercial

Business or Workplace EVSE

- Business District
- Shopping Center
- Logistics Center



Station

Various Charging Standard EVSE

- Service Station
- Parking Lot



Public

Municipal Charging Platform

- Roadway
- Highway

CCS2 DC CHARGING GUN

Introduction



IEC 62196 - 2 & 3 Electric Vehicle and Plug-in Hybrid Electric Vehicle Conductive Charge Coupler

Certification



TÜV Rheinland (Technical Inspection Association)
Connector (Connector for Conductive Charging of Electric Vehicles)



Conformité Européenne (CE) & Certification Body Scheme (CB Certification)
Complies with all relevant safety, health, and environmental protection requirements that EU-wide specifications



EN 17186:2019
The consumer's identification information of vehicles and infrastructures compatibility on EV power supply

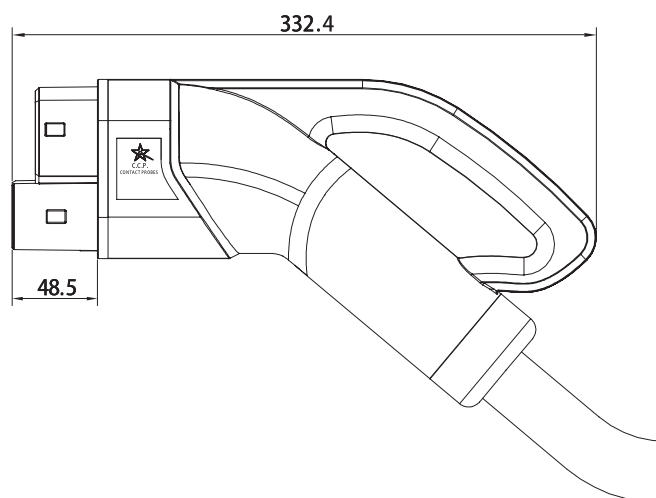
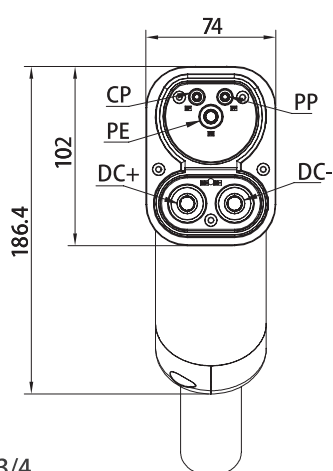
CCS2 DC CHARGING GUN

Combo 2 - IEC 62196



CCS2 IEC 62196
DC Vehicle Connector

Dimension



Charging Mode 3/4
Charging Case C

Model P/N	Voltage	Current	Cable
CCP CCS2 1000V(DC) 200A	1000 V	200 A	$2 \times 50\text{mm}^2 + 1 \times 25\text{mm}^2 + 8 \times 0.75\text{mm}^2$
Insulation Resistance	Insertion Force	IP Rating	Mating Cycle
$\geq 5 \text{ M}\Omega$ (1000 V DC)	$\leq 100 \text{ N}$	IP 54	$\geq 10,000$
Withstanding Voltage	Flammability Class	Operating Temperature	
3000 V (AC 1 Min)	UL 94-V0	$-30^\circ \text{C} \sim +50^\circ \text{C}$	

CCS2 DC CHARGING GUN

Combo 2 - IEC 62196

Features



High & Stable Current



Safe Design



Long Life Cycle



Flame Retardant



Ergonomic Design



UV Resistance



Low Contact Resistance



High Waterproof Rating



Low Temperature Rise



Safety Protection



Temperature Monitoring



High Weatherability

Advantages



Ergonomic Structure Design

Anti-Slip Handheld Design - Multi-Texture Ergonomic Design with Perfect Friction Force



Operating Protection Function

Protection Control- Temperature Sensor, Overheat Prevention, Safety Protection

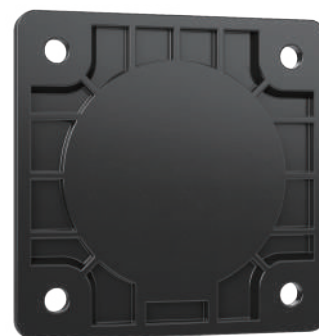


Short Lead Time & Low Cost

Manufacturing Integration - Self-Own Plating Labs, CNC & Molding Factories

SAE AC PLUG HOLDER

Charging Accessory

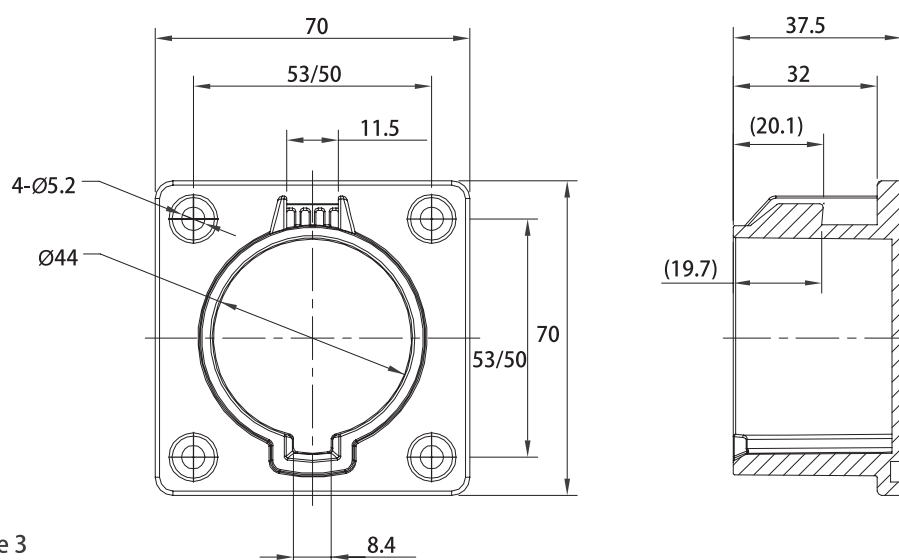


SAE J1772
US Standard

Front

Back

Dimension



Charging Mode 3

Color	Material	Operating Temperature	Flammability Class
Black	PA66	-30°C~ +50°C	UL 94-V0(f1)

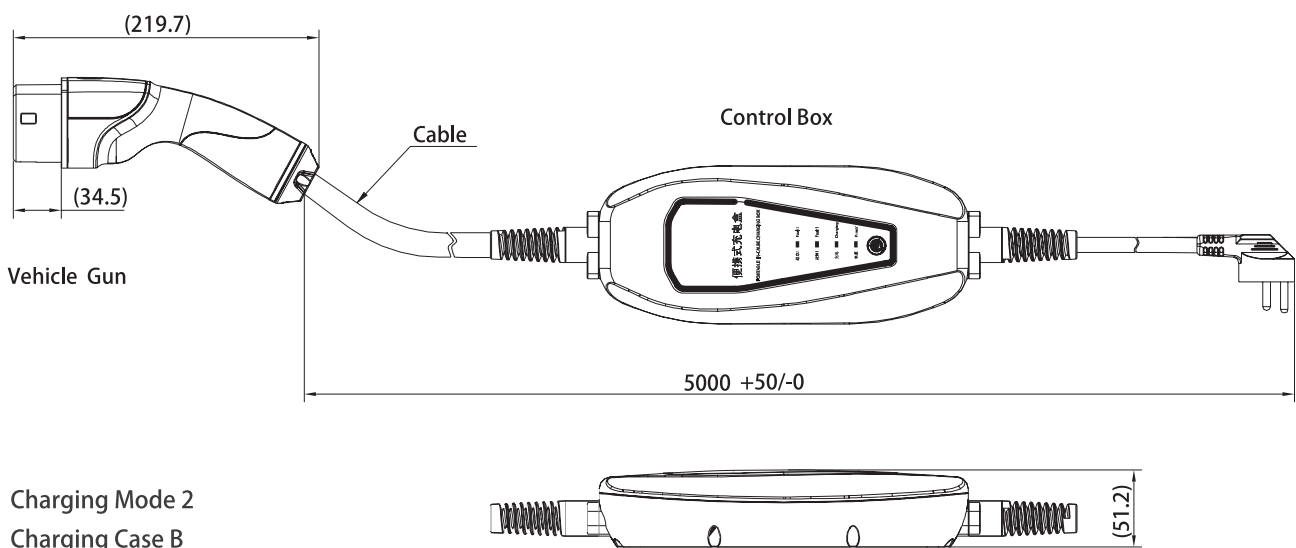
* RoHS Compliant

IEC AC PORTABLE CHARGER

Charging Accessory



Dimension



Model P/N	Number of Phase	Voltage	Current	Cable
A-EM-AC016000-004S	1-Phase	220 V	16 A	3×2.5mm ² +1×0.5mm ²
* Non-Certified Standard				
Insulation Resistance	Insertion Force	IP Rating	Mating Cycle	
≥500MΩ (500V DC)	≤100 N	IP 54	≥10,000	
Withstanding Voltage	Flammability Class	Operating Temperature		
2500V (AC 1 Min)	UL 94-V0	-30° C ~ +50° C		

TEST CAPABILITY & VERIFICATION

Testing Items

Environmental

- Waterproof
- Humidity
- Impact
- Storage
- Resistance to Corrosion

Electrical

- Hipot
- Insulation Resistance
- Dielectric Withstand
- Temperature Rise

Mechanical

- Insertion/Extraction Life
- Withdrawal Force
- Vibration
- Vehicle Drive Over

Other

- Drop
- Cable Force
- Air Leakage

Testing Equipment

Rated Current

Max Rating: 1000Amp



Waterproof Test Level

Test Level: IPx8 Up



Thermal Impact

Range: -60~120°C
Resolution: 0.01°C



Vibration

Frequency: 3500 Hz Max
Acceleration: 50G Max



QUALITY MANAGEMENT

ISO 9001: 2015

Quality Management Systems

ISO 14001: 2015

Environmental Management Systems

IATF 16949: 2016

Automotive Quality Management Systems

QC 080000

Hazardous Substance Process Management

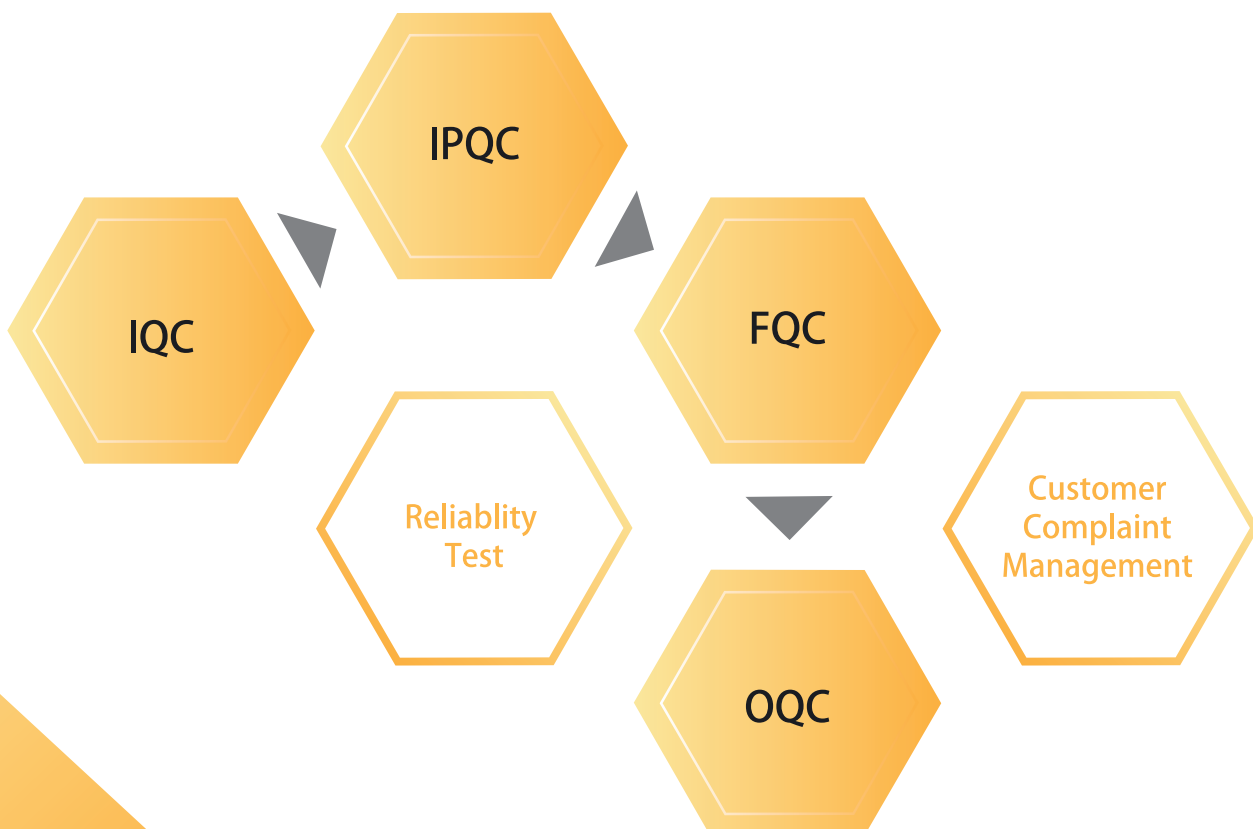
ISO 13485: 2016

Medical Devices - Quality Management Systems

CNAS LAB

China National Accreditation Service for Conformity Assessment

Quality Assurance





C.C.P. CONTACT PROBES



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