CCP Contact Probes

High Current Connector

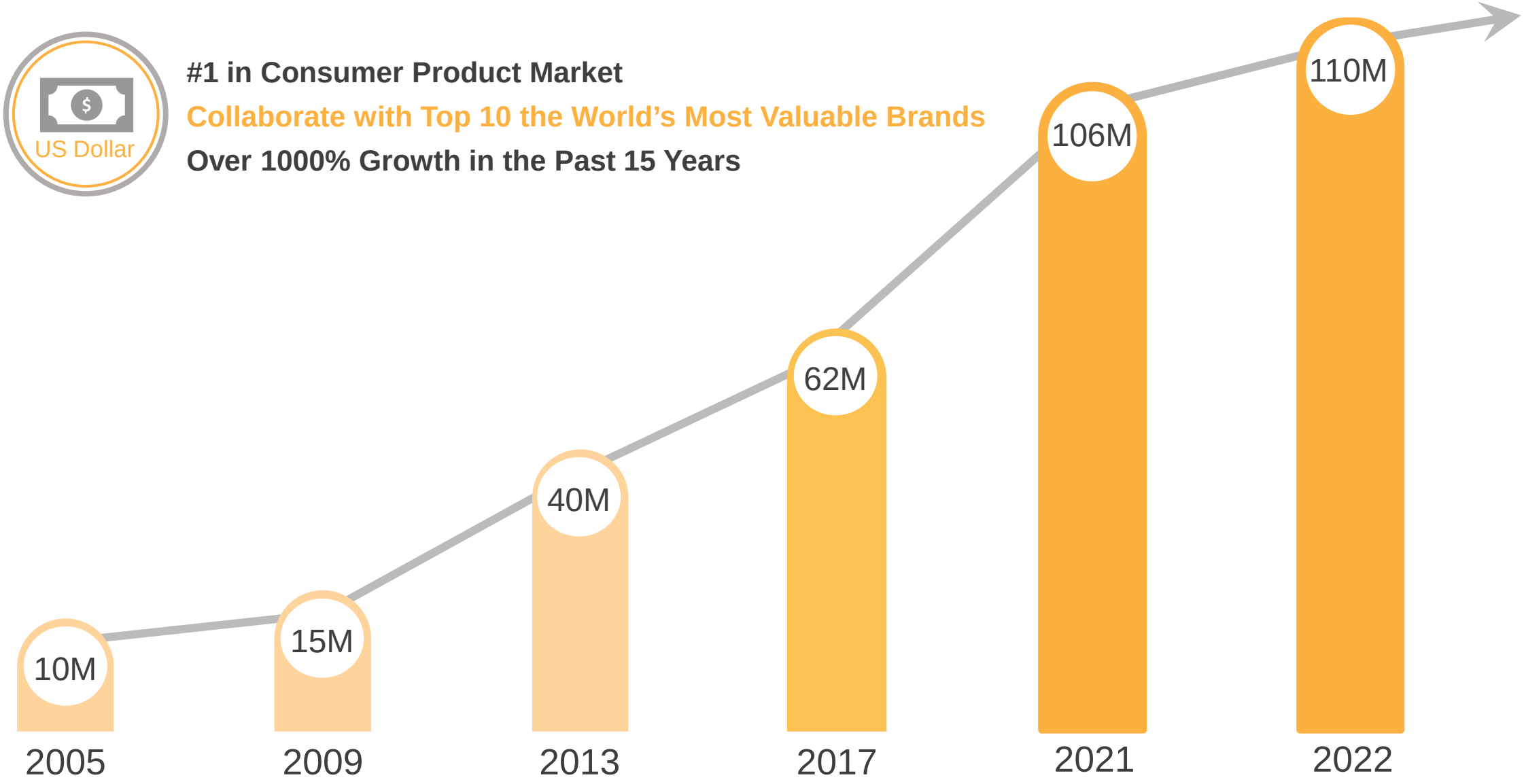
CCP Contact Probes – Growth

US Dollar

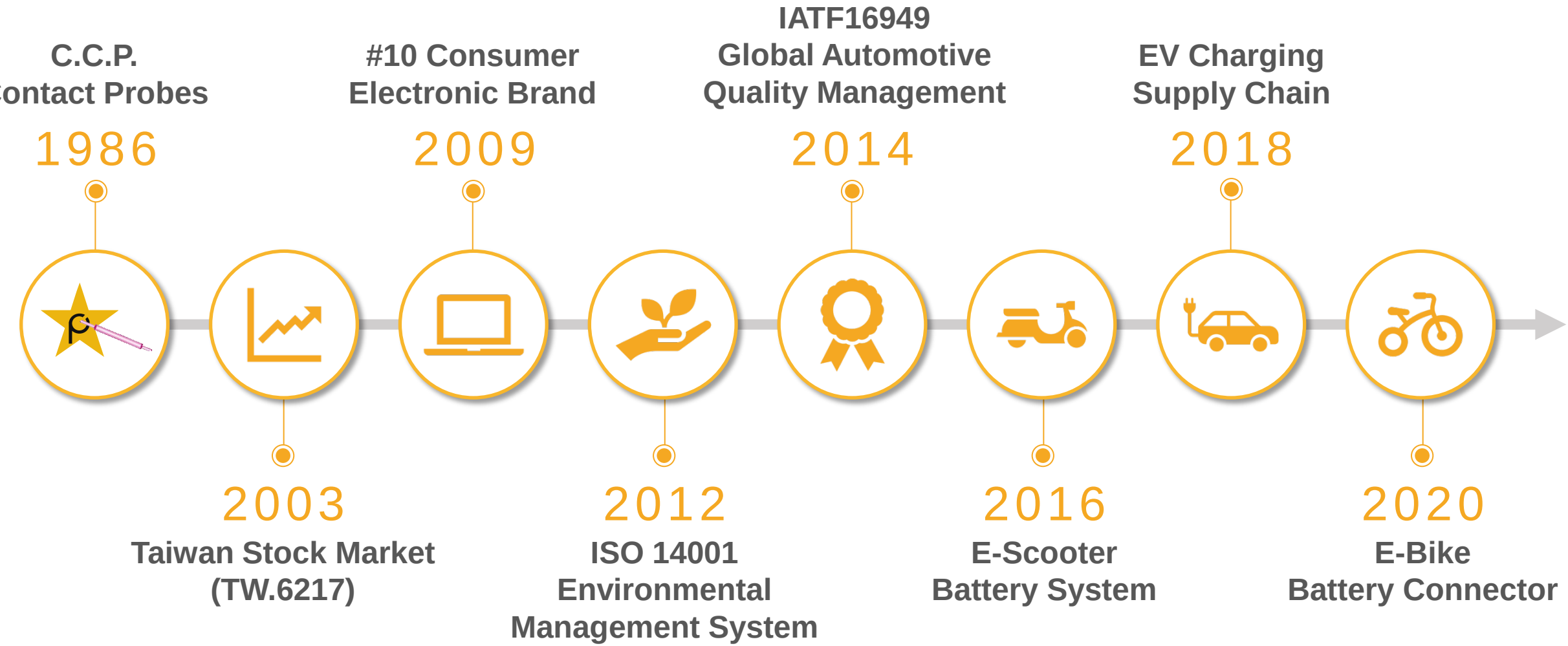
#1 in Consumer Product Market

Collaborate with Top 10 the World's Most Valuable Brands

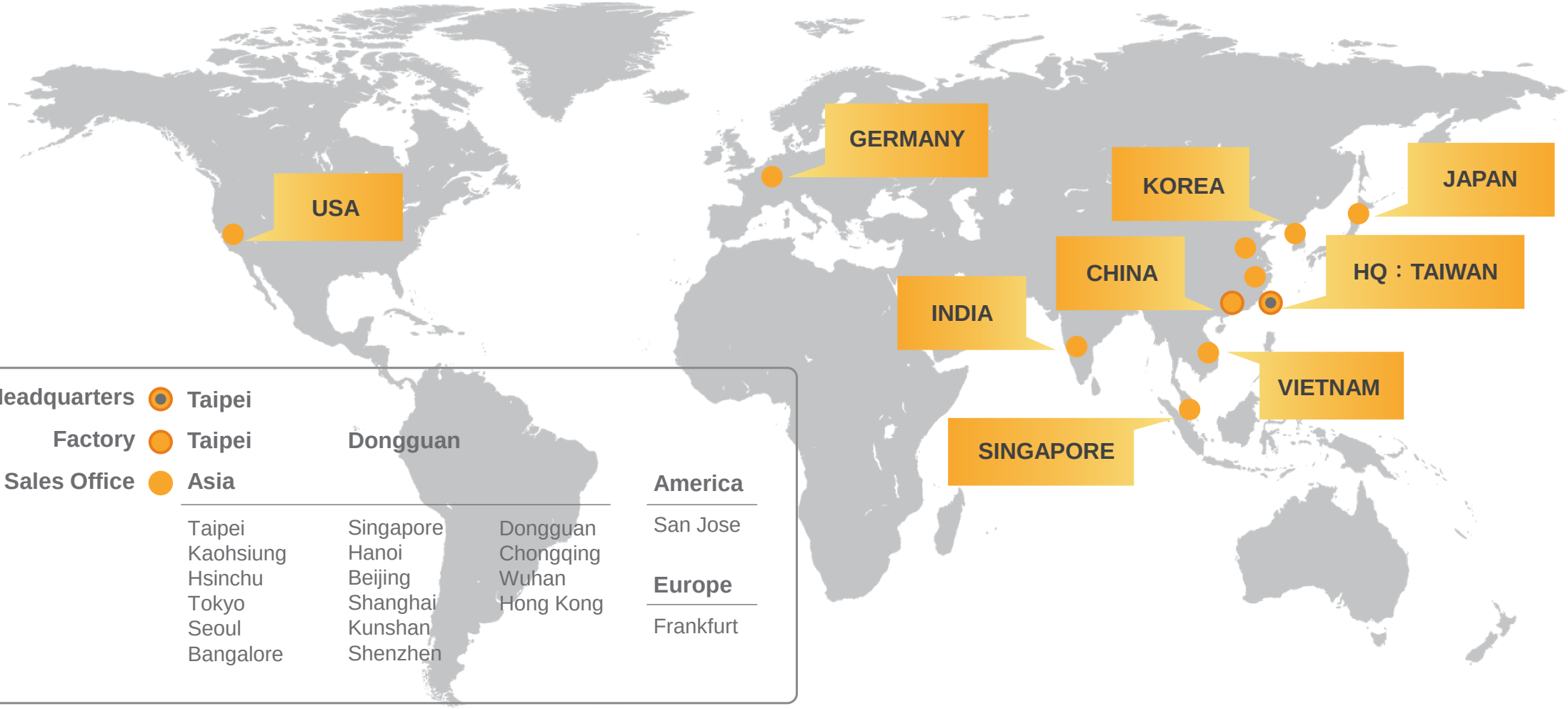
Over 1000% Growth in the Past 15 Years



CCP Contact Probes – Milestones



CCP Contact Probes – Worldwide

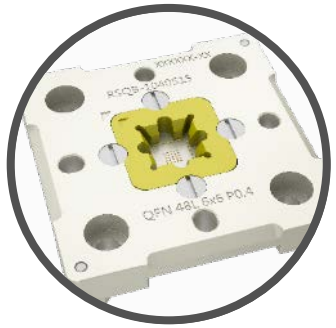


Headquarters	Taipei		
Factory	Taipei	Dongguan	
Sales Office	Asia		
	Taipei	Singapore	Dongguan
	Kaohsiung	Hanoi	Chongqing
	Hsinchu	Beijing	Wuhan
	Tokyo	Shanghai	Hong Kong
	Seoul	Kunshan	
	Bangalore	Shenzhen	

America
San Jose

Europe
Frankfurt

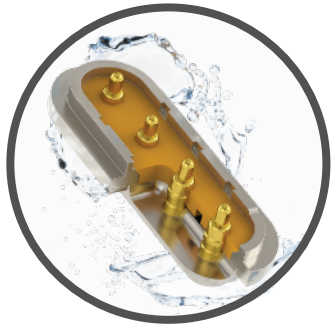
CCP Contact Probes – Product Portfolio



Testing

Fine Pitch

IC Testing Probe
PCB Testing Probe
Testing Socket



Connector

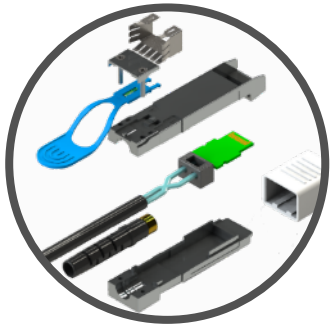
1A~13A

Pogo Pin Conn.
Waterproof Conn.
Magnetic Conn.

High Current

3A~400A

Electronic Vehicle
High Current Conn.



High Speed

25Gbps~100Gbps

Server
Switch
Telecom

Medical

Environmental Sensitivity

Circular Conn.
Endoscope Conn.

CCP Contact Probes – High Current Product Line

EV Charging Station

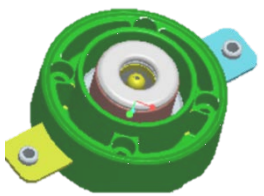
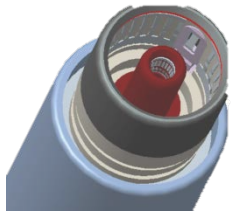
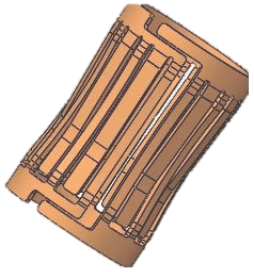
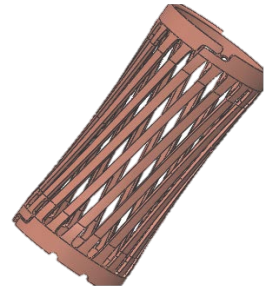
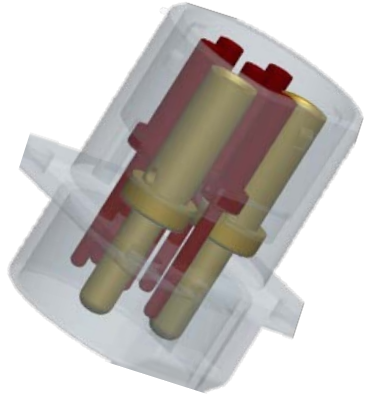
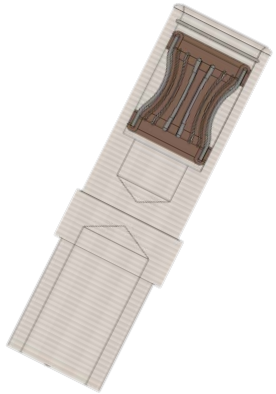
Scooter Battery System

EV Inner Ports

E-Bike Connector

CCP Contact Probes – Patent

Patent No.	Title	Description
CN206893841U	Multiconductor Formula Contact	Crown spring with high conductivity, lower contact resistance, and better lifetime
CN108711695A	Connector and Electronic Equipment Using Same	The requirement of the safe creep distance can be met, and the volume of the connector can be effectively reduced
CN205911468U	Coaxial Connector	Battery swapping connector design doesn't have a specific mating direction and provides transmission stability
CN202384536U	Crown Spring Connector	The connector with a clamping groove can be firmer, have higher connectivity, and a prolonged lifetime
CN108173032A	Crown Spring Structure	With higher conductivity, low contact resistance, and better lifetime
CN110797697A	Heavy-Current Crowned Spring Jack	With vibration damping device is particularly suitable for the vibration occasions, lifetime is greatly prolonged
CN208423373U	Male Joint Reaches Rather Than Complex Female Joint	A male joint reaches rather than complex female joint can realize connecting reliable connection within a definite time

High Current – Crown Spring Connector

Crown Spring

Copper Alloy with Silver Plating

Min. Size & Max. Contact Points

High Current Up To 400 Amps

Female Terminal

Copper Alloy with Silver Plating

> 20,000 Life Cycles

Low Exertion Force

Male Terminal

Copper Alloy with Silver Plating

Precise Turning Pin

Low Contact Resistance

= Low Temperature Rise

= Low Energy Loss

Patent No：CN 206893841 U

Crown Spring Connector – Advantage

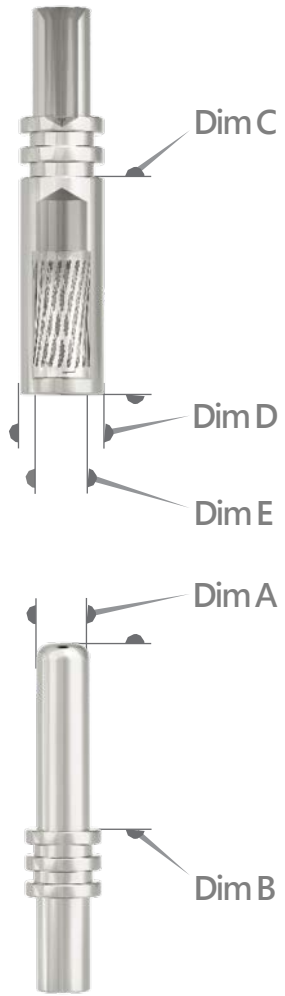
Structure		Manufacturing Process		Manufacture ability	Durability	LLCR	Current Capacity	Cost
		Socket	Contact					
Flat Spring		Lathe	Lathe	Good	Poor	Poor	Poor	Good
Crown Spring		Lathe	Stamp	Good	Good	Good	Good	Good
Wire Spring		Lathe	Wire Spring	Poor	Excellent			Poor
Spring Sets		Lathe	Spring	Poor	Poor	Poor	Poor	Poor

Crown Spring Connector – Standard Dimensions

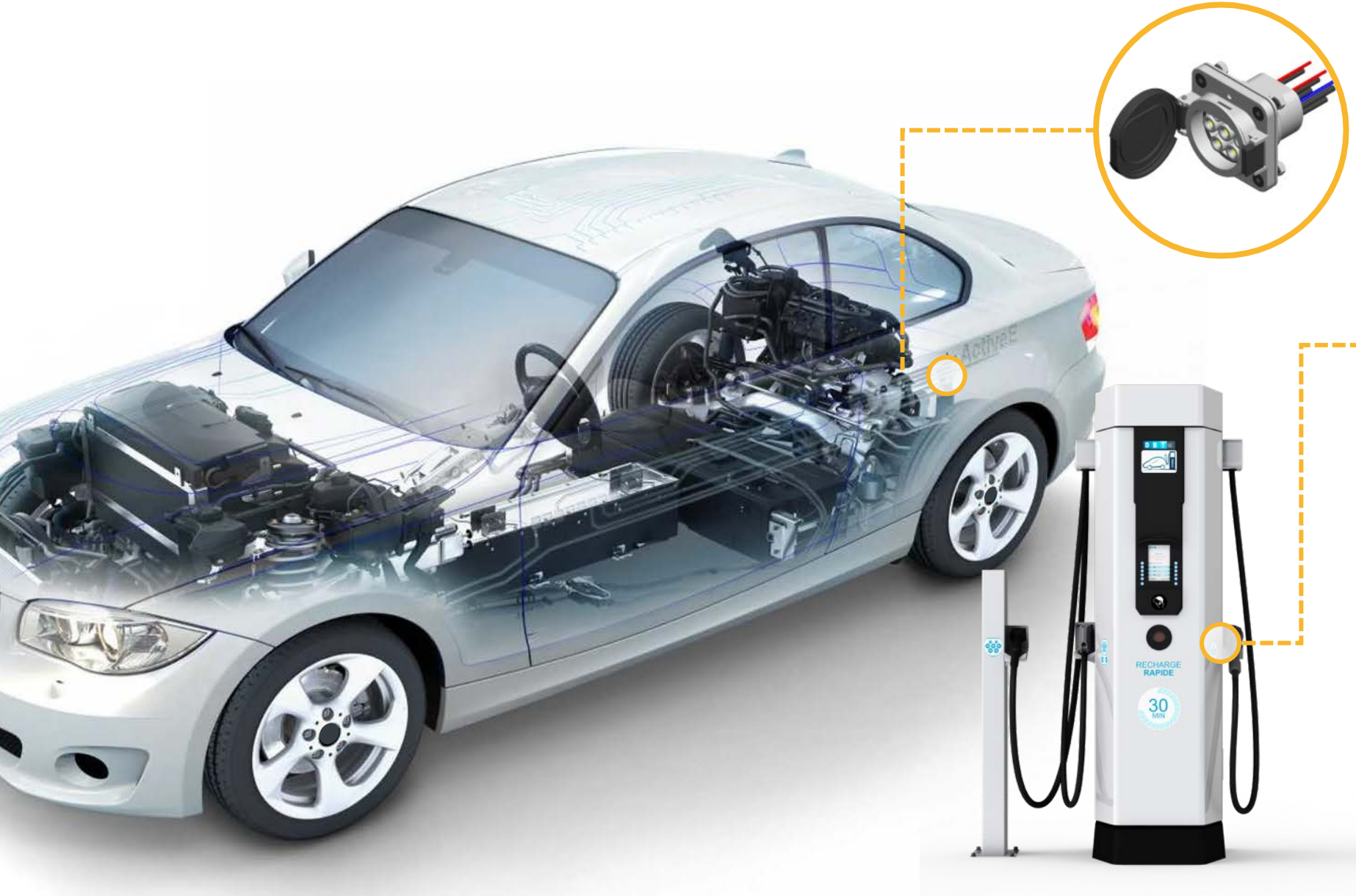
China/ Europe Standard

USA Standard

Current (Amp)	15	30	250	2	40	80
Resistance (mOhm)	0.8	0.3	0.1	1	0.5	0.3
Life Cycles	20,000	20,000	20,000	10,000	10,000	10,000
	Dimensions					
Dim A (mm) (Width Plug)	3	6	12	1.5	2.8	3.6
Dim B (mm) (Insertion Hight Plug)	14.5	28.5	30.5	12	24	21
Dim C (mm) (Insertion Hight Socket)	32	32	42	12.9	18.7	14.6
Dim D (mm) (Width Socket)	4.8	9.8	15.8	3.1	4.9	6.73
Dim E (mm) (Inner Width Socket)	3.1	6.1	12.1	1.65	2.95	3.75



High Current – EV Charging Solution



AC/DC Charging Socket

AC GB/T20234.2 – 2015

16A/32A

AC SAE J1772 – 2016

16A/32A/50A/80A

AC IEC 62196 – 2017

16A/32A

DC CCS Combo 1

80A/200A

DC CCS Combo 2

200A

EV Charging Solution – SAE J1772 Charging Gun

UL Certificate E516931
CB Certificate JPTUV-139864
PSE Certificate JD50579696
VPC Certificate V3F1031500011

Anti Loose
Safety Lock

Logo

High-Strength
Integrated Housing Body

Crown Spring
Terminal

Cooper Alloys
Silver Plating

Patent No.
CN 206893841 U

Cable

EV Charging Solution – SAE J1772 Charging Gun

- High & Stable Current
- Low Temperature Rise
- Low Contact Resistance
- Safe Design
- Long Life Cycle
- Flame Retardant
- Ergonomic Design
- UV Resistance

SPECIFICATION	
Mating Cycle	≧10000
Insertion Force	< 100N
Current	16A/32A/50A/80A
Voltage	120VAC / 240VAC
Insulation Resistance	≧500MΩ
Flammability Class	UL 94-V0
Operating Temperature	-30˚C ~ +50˚C
Withstanding Voltage	1000V (AC 1 Min.)
IP Rating	IP67

EV Charging Solution – IEC 62196 Charging Gun

TUV Certificate R 50559698

Logo

Multi-Texture
Ergonomic Design

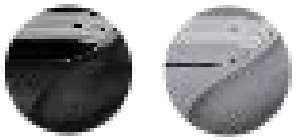
Cable

Crown Spring
Terminal

Cooper Alloys
Silver Plating

Patent No.
CN 206893841 U

Plug Color



EV Charging Solution – IEC 62196 Charging Gun

- High & Stable Current
- Low Temperature Rise
- Low Contact Resistance
- Safe Design
- Long Life Cycle
- Flame Retardant
- Ergonomic Design
- UV Resistance
- Various Charging Mode

SPECIFICATION

	Single-Phase	Three-Phase
Mating Cycle	≧10000	
Insertion Force	<100N	
Current	16A/ 32A	16A/ 32A
Voltage	250V AC	480V AC
Insulation Resistance	≥500MΩ (500V DC)	
Flammability Class	UL 94-V0	
Operating Temperature	-30˚C ~ +50˚C	
Withstanding Voltage	1000V (AC 1 Min)	
IP Rating	IP67 (unplugged)	

EV Charging Solution – IEC 62196 Charging Gun

IEC 62196 Portable Charger

IEC 62196 Type 2 to Type 2

EV Charging Solution – CCS Combo 1 Charging Gun

Anti Loose
Safety Lock

Multi-Texture
Ergonomic Design

Logo Label

Crown Spring
Terminal

Cooper Alloys
Silver Plating

Patent No.
CN 206893841 U

Cable

80A / 200A

EV Charging Solution – CCS Combo 1 Charging Gun

- High & Stable Current
- Low Temperature Rise
- Low Contact Resistance
- Safe Design
- Long Life Cycle
- Flame Retardant
- Ergonomic Design
- UV Resistance
- Temperature Monitoring

SPECIFICATION	
Mating Cycle	≧10000
Insertion Force	< 100N
Current	80A/200A
Voltage	1000V
Insulation Resistance	≧5 MΩ
Flammability Class	UL 94-V0
Operating Temperature	-30˚C ~ +50˚C
Withstanding Voltage	3000V (AC 1 Min.)
IP Rating	TYPE 4

EV Charging Solution – CCS Combo 2 Charging Gun

TUV Certificate R 50559698
CB Certificate JPTUV-144319

Multi-Texture
Ergonomic Design

Logo Label

Crown Spring
Terminal

Cooper Alloys
Silver Plating

Patent No.
CN 206893841 U

Cable

80A / 200A

EV Charging Solution – CCS Combo 2 Charging Gun

- High & Stable Current
- Low Temperature Rise
- Low Contact Resistance
- Safe Design
- Long Life Cycle
- Flame Retardant
- Ergonomic Design
- UV Resistance
- Temperature Monitoring

SPECIFICATION	
Mating Cycle	≧10000
Insertion Force	< 100N
Current	200A
Voltage	1000V
Insulation Resistance	≧5 MΩ
Flammability Class	UL 94-V0
Operating Temperature	-30˚C ~ +50˚C
Withstanding Voltage	3000V (AC 1 Min.)
IP Rating	IP 54

High Current – E-Scooter Connector

Battery Connector

Scooter & Station Connector

Charging Socket

Charging Gun

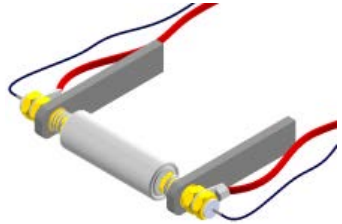
High Current – E-Scooter Connector

- ✓ For The Vibration Occasions
- ✓ Current Up to 100A
- ✓ User Friendly

Battery Module

Signal Connector

Battery Charging Solution



Battery Testing Solution

High Current – E-Scooter Battery Swappable Connector

SPECIFICATION	
Current	100A (Max.)
Voltage	60V DC
Mating Cycle	≧15,000
Insertion Force	< 60N
Withstanding Voltage	≥100MΩ (500V DC)
Insulation Resistance	0.6MΩ (Max.)
Flammability Class	UL 94-V0
Operating Temperature	-40℃ ~ 85℃
Temperature Rise	△ 50˚C
IP Rating	IP67
Insertion Angle	0˚ and 180˚

High Current – E-Scooter Charging Connector

SPECIFICATION	
Current	3A/15A/20A
Voltage	48V DC
Mating Cycle	≧10,000
Insertion Force	< 60N
Withstanding Voltage	≥1000MΩ (500V DC)
Insulation Resistance	0.6MΩ (Max.)
Flammability Class	UL 94-V0
Operating Temperature	-30℃ ~ 80℃
Temperature Rise	△T < 50℃ at 25℃
IP Rating	IP55 (Before Insertion)
Standard	TES-0D-01-01

High Current – E-Bike Connecting Connector

Display Connector
Throttle Connector
Brake Connector

Motor Connector

Controller Connector

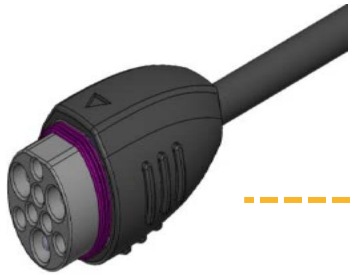
Battery Convert Connector

Charging Connector

Sensor Connector

High Current – E-Bike Battery Connector

Battery Connector



Battery Charger

High Current – E-Bike Battery Connector

Turning Pin
Stronger One-Part Structure
Compared To Stamping
> 5,000 Mating Cycles

Ag Plating
High Electrical Conductivity
Low Contact Resistant
High Current
Up To 40 Amps

Patented Design
Compact Connector
Small Size : High Current

Independent Plastic Component
Great Insulation Resistance
Short Circuit Prevention
Insulation Distance > 3mm

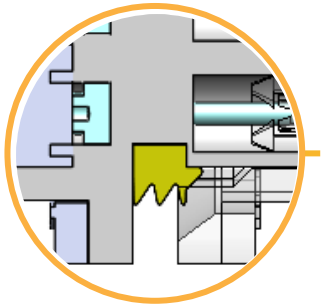
40A High Current

IP67 Waterproof

Shock & Vibration

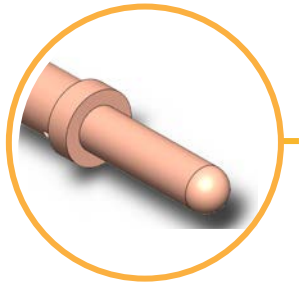
Weatherproof

High Current – E-Bike Battery Connector



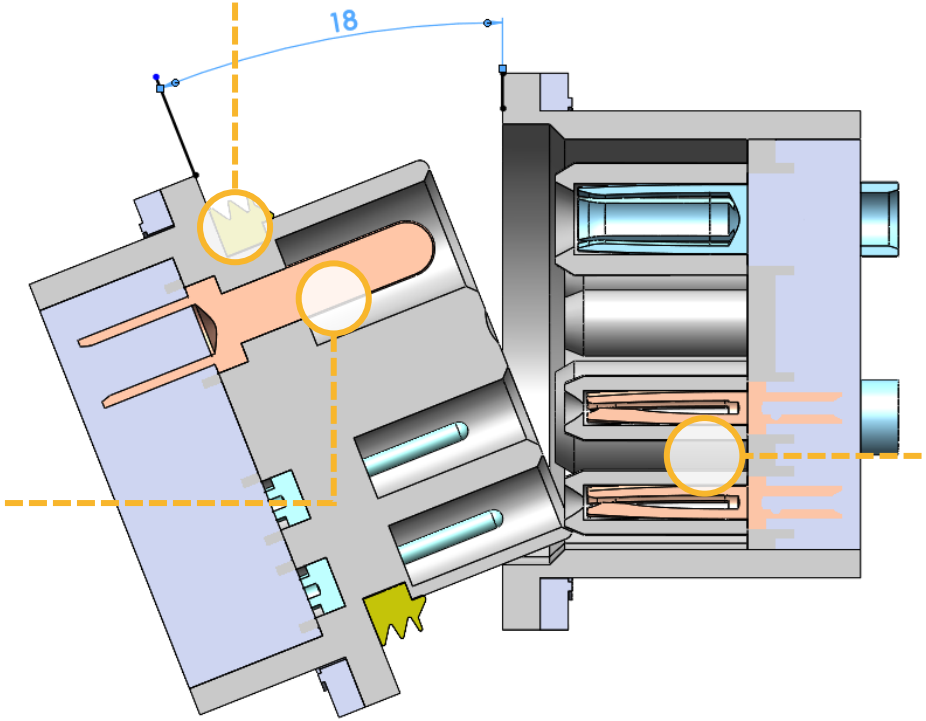
Waterproof Effect > 2 mm

2.5 mm Rubber Ring
IP67 Waterproof Under Vibration



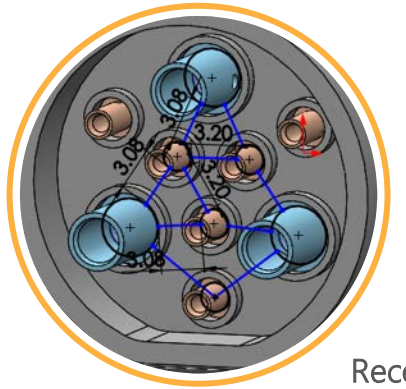
Turning Round Pin

Multi-Dimension Mating
Low Contact Resistance
Low Exertion Force
Low Temperature Rise



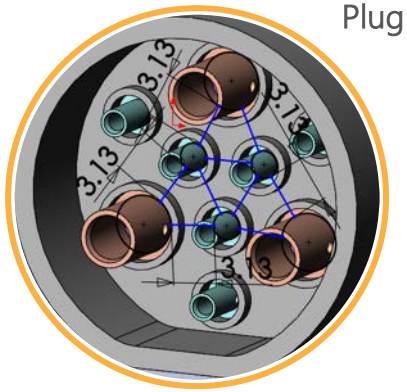
Insulation Distance > 3 mm

Great Insulation Resistance
Prevent Short Circuit

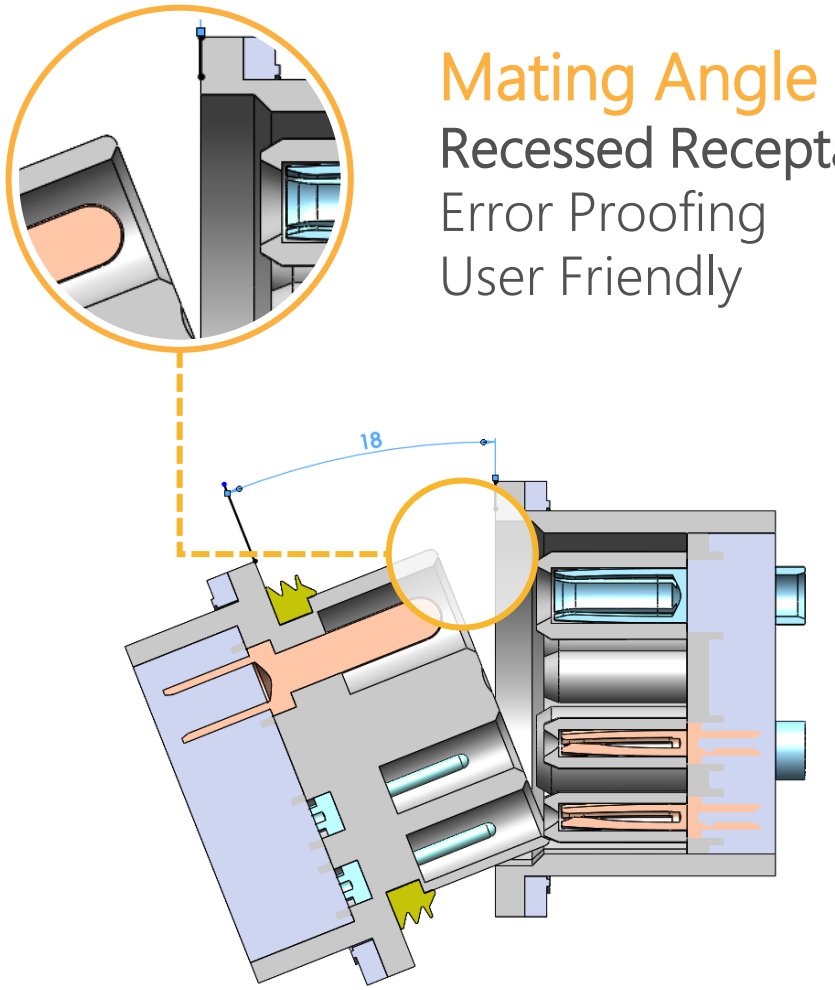


Receptacle

Plug



High Current – E-Bike Battery Connector



Mating Angle > 15°

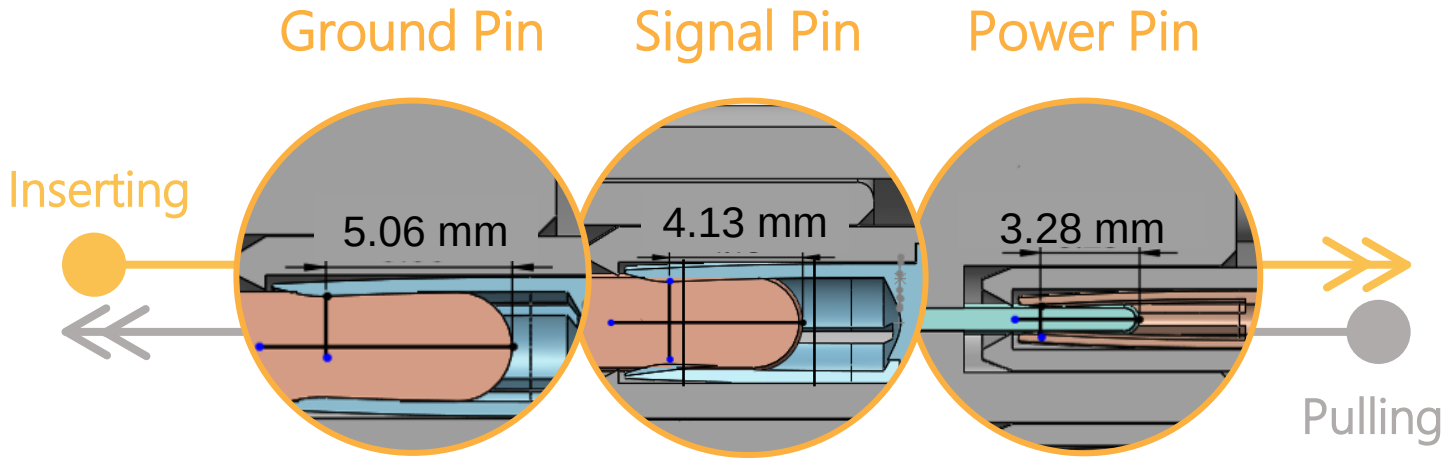
Recessed Receptacle Design

Error Proofing

User Friendly

Safe Connection Design

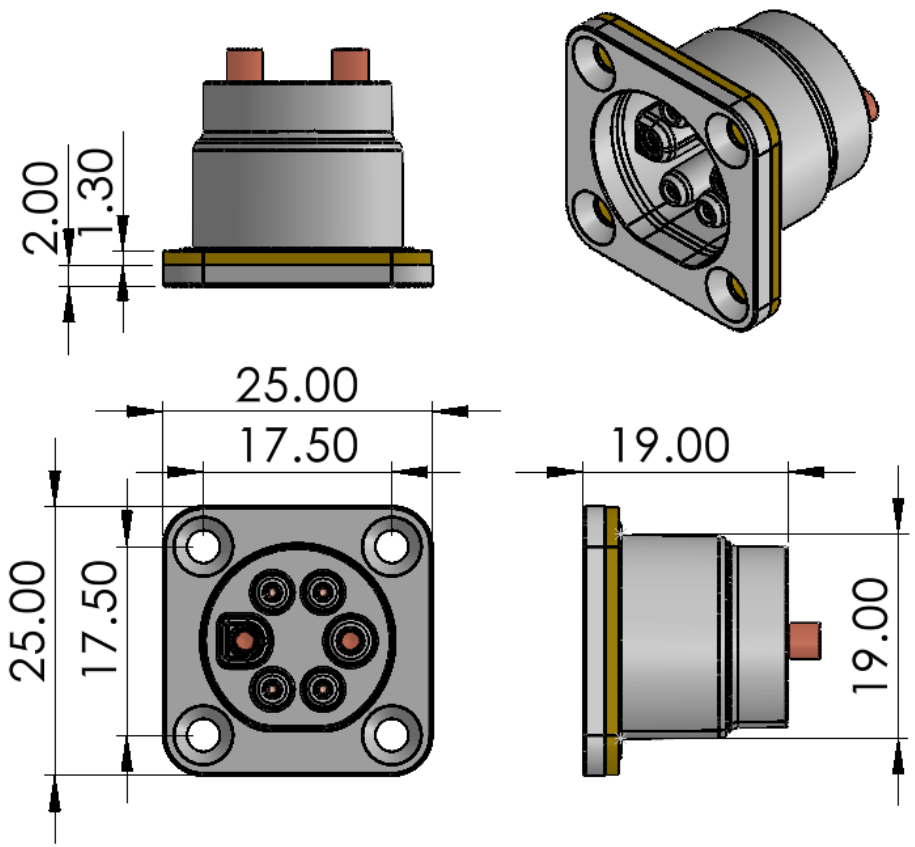
Contact Sequence



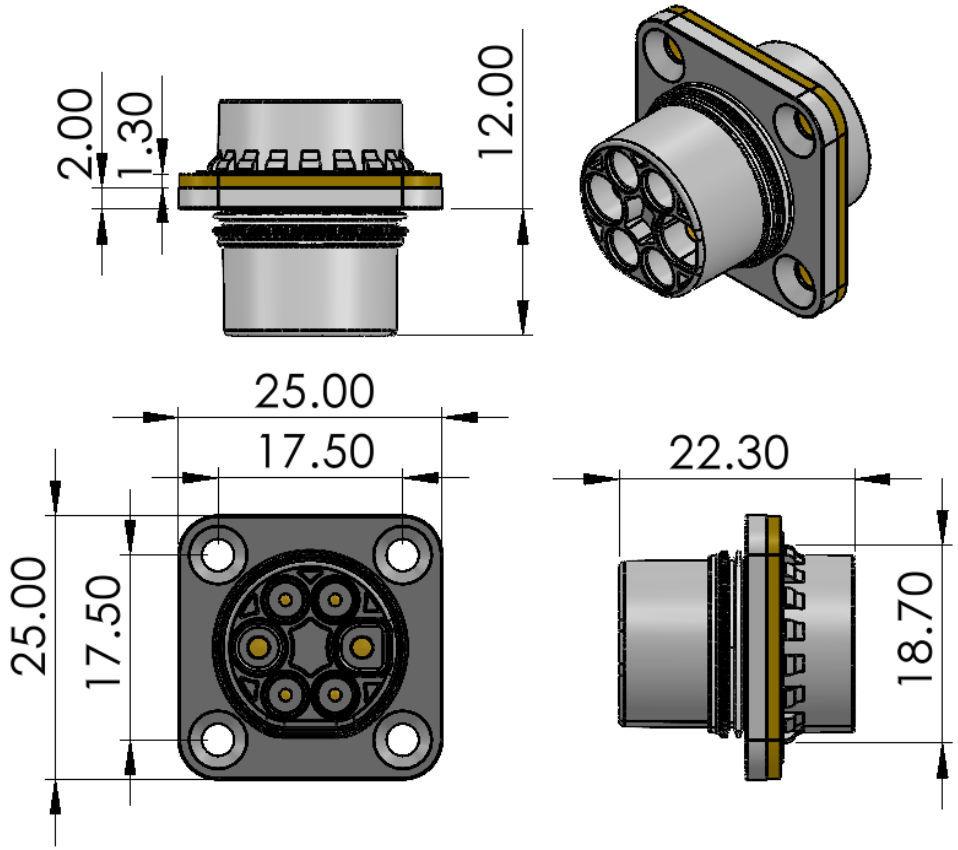
Contact	> 5 mm	> 4mm	> 3mm

2+4 E-Bike Connector Dimension

Receptacle



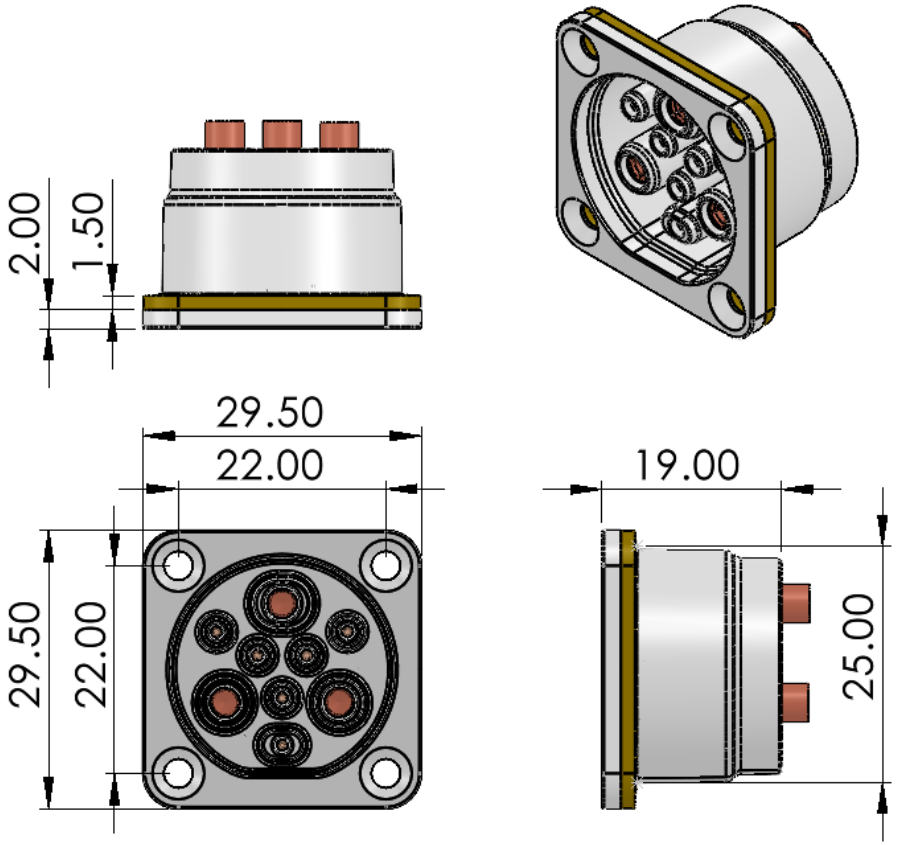
Plug



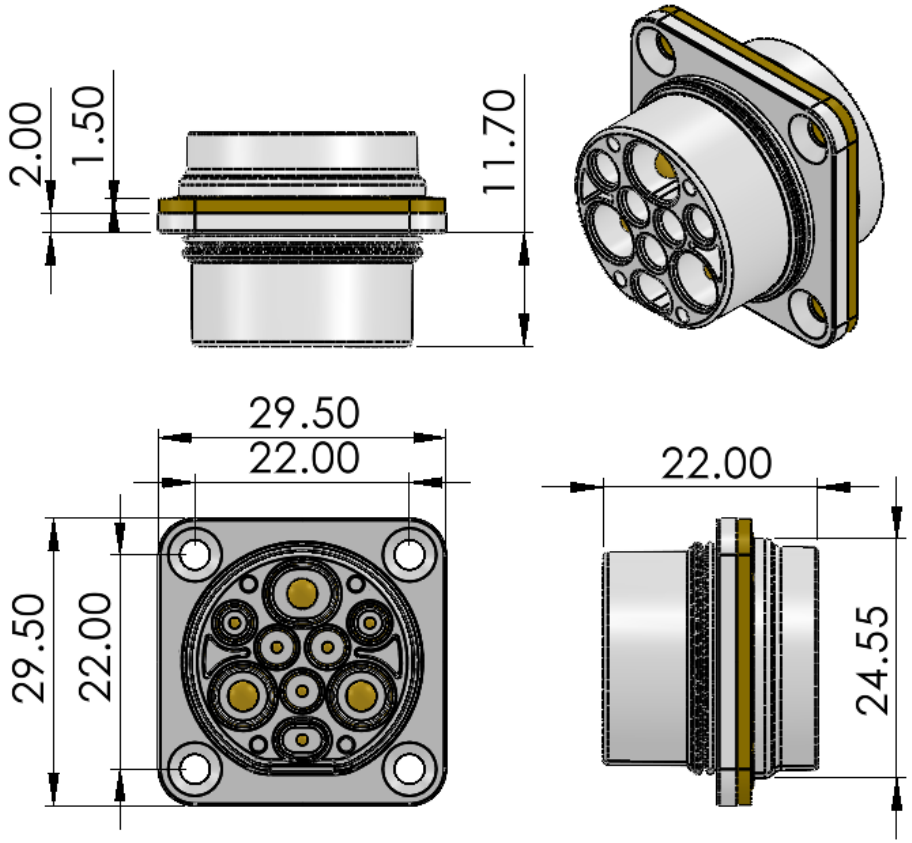
Use M3 countersunk screws to lock

3+6 E-Bike Connector Dimension

Receptacle



Plug



Use M3 countersunk screws to lock

E-Bike Connector Specification

E-Bike Connector	3 Power + 6 Signal	2 Power + 4 Signal
Power Pin Voltage	VDC 60 V Max.	
Power Pin Current	40A / 30A / 20A	20A / 10A
Signal Pin Voltage	VDC 12V	VDC 12V
Signal Pin Current	2 A	
Temperature Rise	△ 30℃	
LCR	Power 5mΩ / Signal 30mΩ	Power 5mΩ / Signal 30mΩ
Mating Cycles	> 5000 Cycles	
Male Mounting Cut-Out	Φ 25.5 mm	Φ19.5 mm
Wire Spec.	Power 10 / 12 / 14 AWG Signal 26 AWG	Power 14 / 18 AWG Signal 26 AWG
Temperature Range	-40 ℃ to +85 ℃	
Waterproof Class	Waterproof IP67 (Mated/Unmated)	

High Current – E-Bike Magnetic Connector

IPX7 Waterproof

Rubber Design
Humidity and Moisture Resistant Material

Magnetic Force >25N

Self Mating
Error Proofing
Life Cycle >2500 times

Patented Design

Compatible with R connectors

Signal Transmission

Pogo Pin Male Part
Low Exertion Force

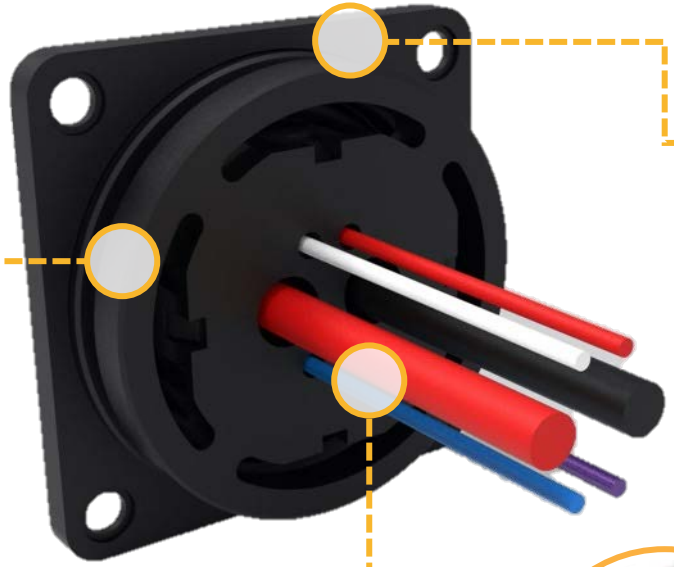
40A High Current

IP67 Waterproof

Shock & Vibration

Weatherproof

High Current –E-Bike Magnetic Connector



Floating Structure
Steady Current Under Vibration

IPX7 Waterproof
Rubber Design
Humidity and Moisture
Resistant Material

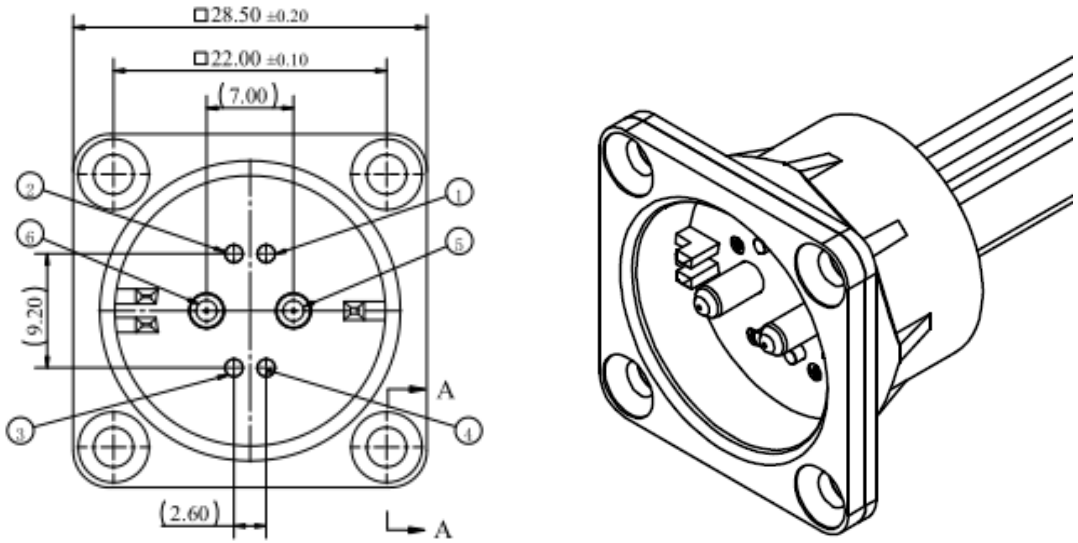
Custom Solution
Cable Size and Length

E-Bike Magnetic Connector Specification

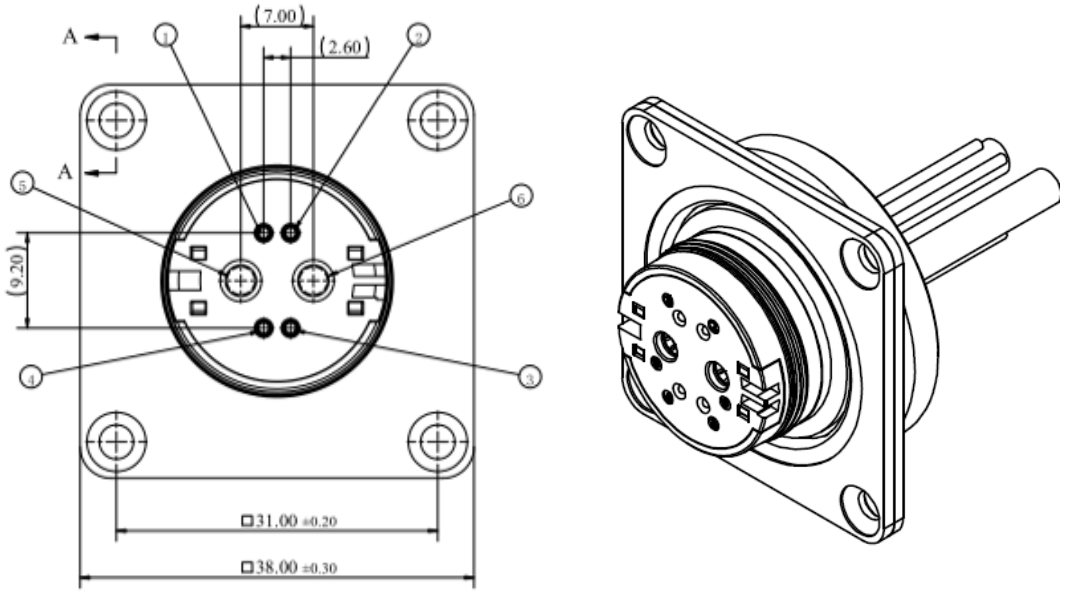
	2 Power + 4 Signal
Power Pin Voltage	VDC 60 V
Power Pin Current	40A / 30A / 25A / 10A
Signal Pin Voltage	VDC 12V
Signal Pin Current	2A
Locking Mechanism	Magnetic Self-Mating
Mating Cycles	>2500 Cycles
Mating Force	>25N
Power Pin Wire Cross Section	$6mm^2$/ $4mm^2$/ $2.5mm^2$/ $1mm^2$
Temperature Range	-40 ℃ to +85 ℃
Mated Waterproof Class	Waterproof IP67
Unmated Waterproof Class	Waterproof IP65

E-Bike Magnetic Connector Dimension

Receptacle



Plug



High Current - E-Bike Battery Connector

	Power	Signal
Number of Terminal	**3**	**8**
Dimension	29.5*29.5*23mm/ 29.5*29.5*24.6mm	
Voltage	MAX. ~400V DC	
Current	MAX. 35A	MAX. 5A
Cable	MAX. 10AWG	MAX. 20AWG
Life Cycle	**≥ 10000**	
IP Rating	**IP67**	
Flammability Class	**UL 94 V-0**	
Contact Resistance	MAX. 5mΩ	MAX. 20mΩ
Insulation Resistance	100MΩ@500VDC	
Withstanding Voltage	1000V AC	
Operating Temperature	**-40℃ ~ +85℃(MAX. 125℃)**	

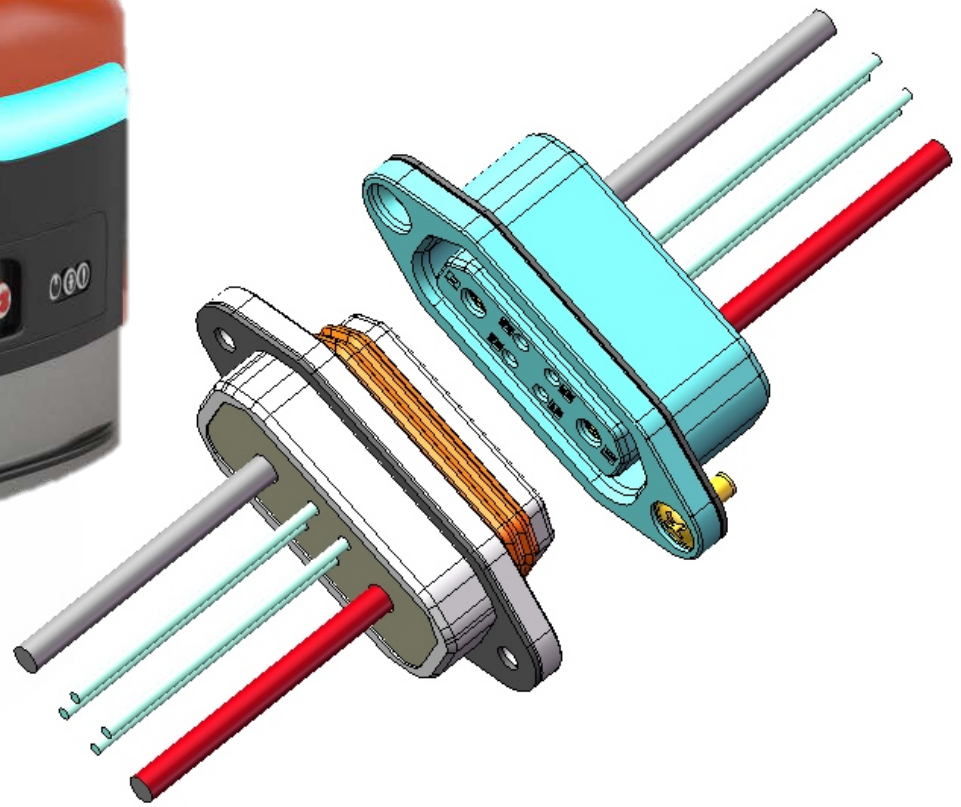
- ✓ **Customized Designs**
- ✓ **High Quality Manufacturing**
- ✓ **Design Experience and Know-How**

E-Bike Connector Specification

E-Bike Connector	Power	Signal
Number of Terminal	3	8
Dimension	29.5*29.5*23mm / 29.5*29.5*24.6mm	
Voltage	VDC 400V Max.	
Current	35A Max.	5A Max.
Temperature Rise	△ 30℃	
Temperature Range	-40 ℃ to +85 ℃ (125℃ Max.)	
Mating Cycles	> 10,000 Cycles	
Contact Resistance	5mΩ Max.	20mΩ Max.
Wire Spec.	10AWG Max.	20AWG Max.
Withstanding Voltage	1000V AC	
Insulation Resistance	100MΩ@500VDC	
Flammability Class	UL 94 V-0	
Waterproof Class	Waterproof IP67	

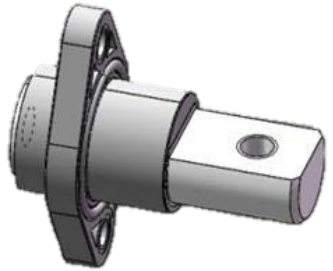
Automated Guided Vehicle Solution

- ✓ With Small Size, and Z-axis height within 30mm after comparing
- ✓ Mating Cycle > 10,000



SPECIFICATION	
Voltage	48V DC/
Current	50A
Insulation Resistance	100MΩ Min. at 500V DC
Withstanding Voltage	0.5mA Max. at 1000V AC
Flammability Class	UL94-V0
Mating Cycle	≥10000
Mating Force	≤80N
Temperature Range	△T＜50℃ at 25℃
Operating Temperature	-40℃ to 85℃
IP Rating	IP55

High Current - Power Storage Connector



Feed Through Terminal

Current Diversion Connector

High Voltage Power Lock Connector

High Voltage Power Lock Module

Vertical Integration - Precision Machining

CAM Turing Machine: 105 Units
Capacity: 20KK
Precision: 0.005mm

CNC Turing Machine：42 Units
Capacity: 2KK
Precision: 0.001mm

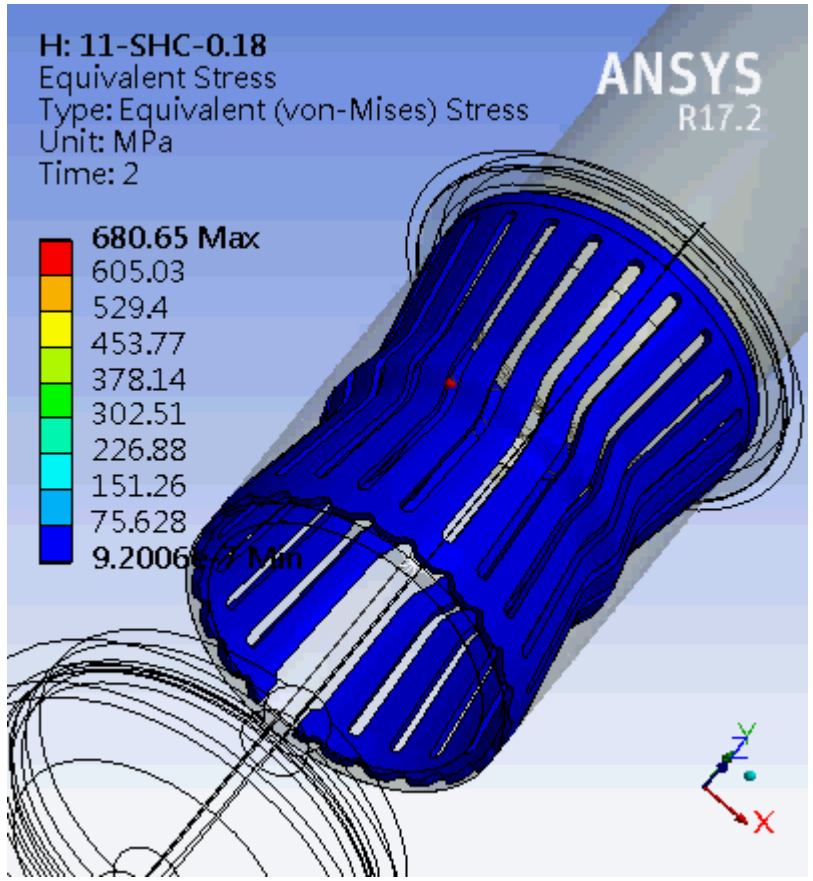
IC Test Probe

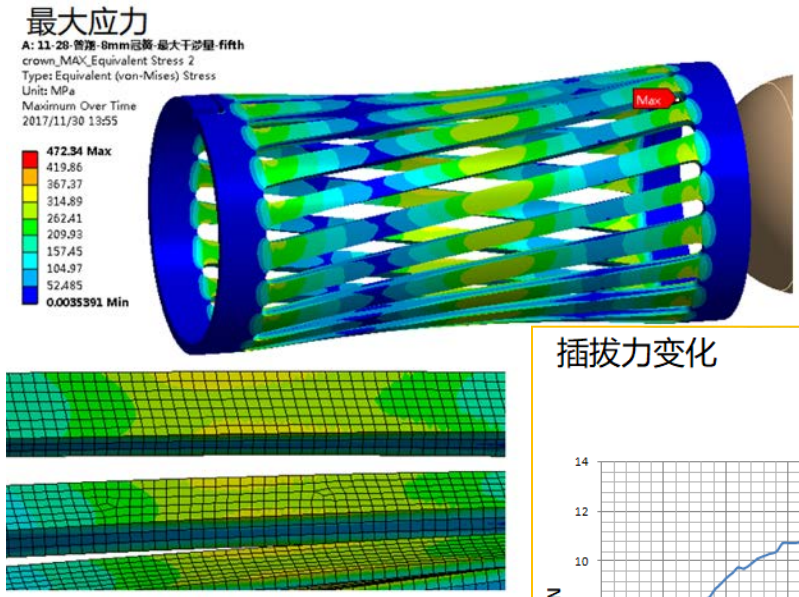
Pogo Pin

High Current
Pin & Socket

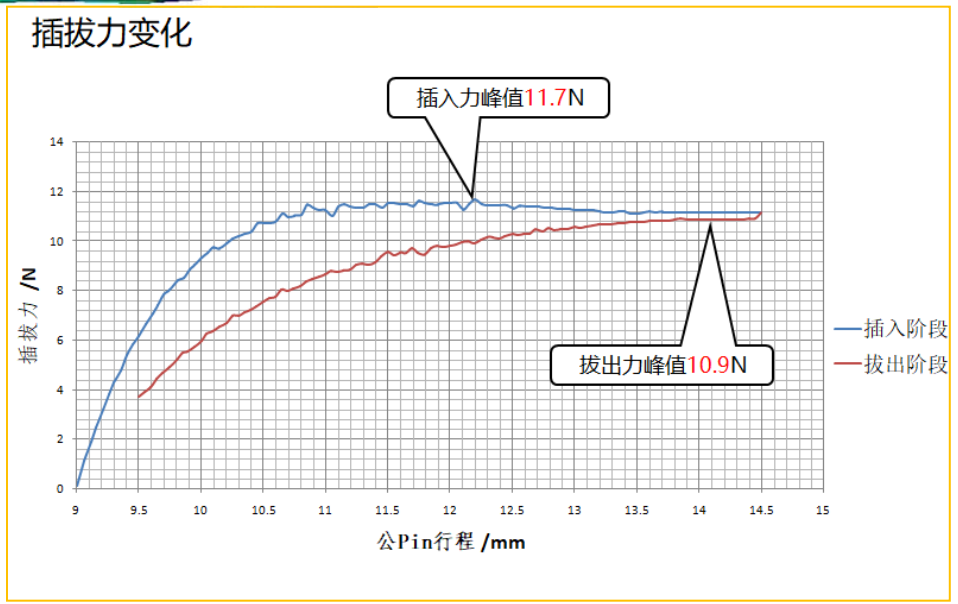
Customized

CCP Advantages - Design & Simulation





冠簧屈服强度500MPa，
故本项目应力pass，零件可用



CCP Advantages - Testing Equipment

Rated Current

Max Rating :1000Amp

Waterproof

Test Level : IPX7 Up

Thermal Impact

Range : -60~120˚C

Resolution : 0.01˚C

Vibration

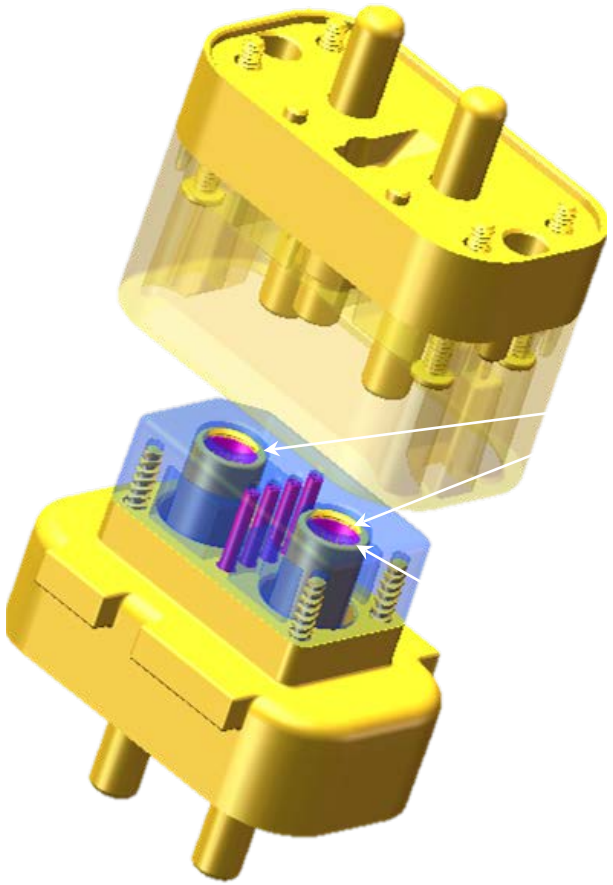
Frequency : 3500Hz Max.

Acceleration : 50G Max.

CCP Advantages - Certificates

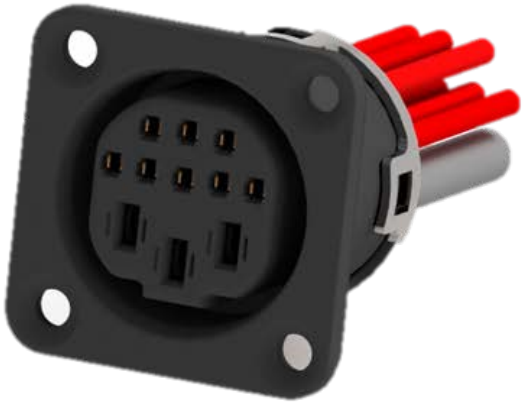
ISO 9001
ISO 13485
ISO 14001
IATF 16949
ISO 14064
IECQ QC080000

CCP Advantages - Customized Solution



Contact Pad:
Crown Spring Terminal

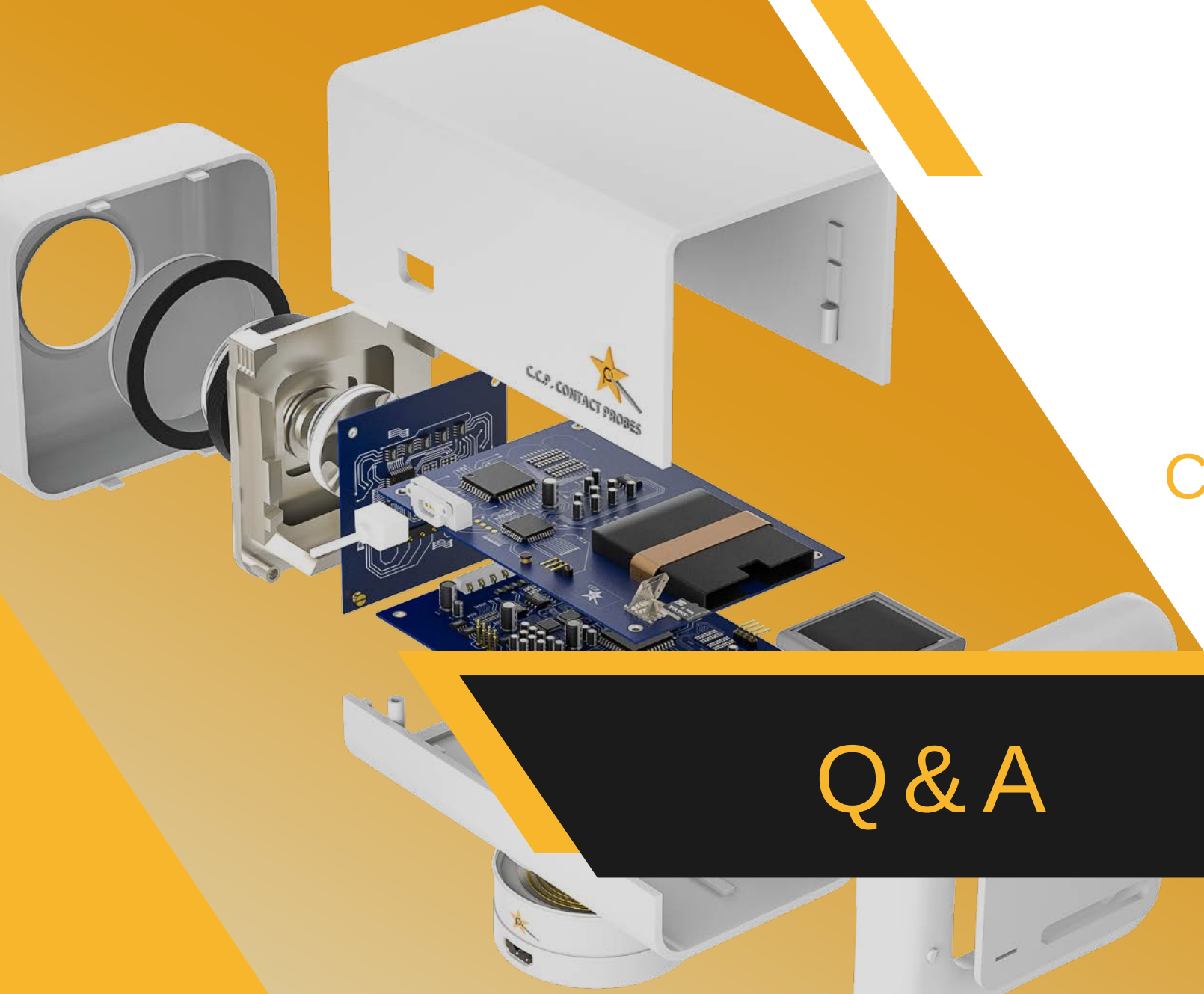
Contact Pad (X4):
Claw Spring Terminal



CCP Advantages - Quality Certificates

Approved by

- ✓ CATARC Automotive Test Center (Tianjin)
- ✓ CVC Testing Technology
- ✓ CQC Certification
- ✓ Taiwan Electric Research & Testing Center



CCP Contact Probes

Q&A

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