



CCP Contact Probes

High Current Connector



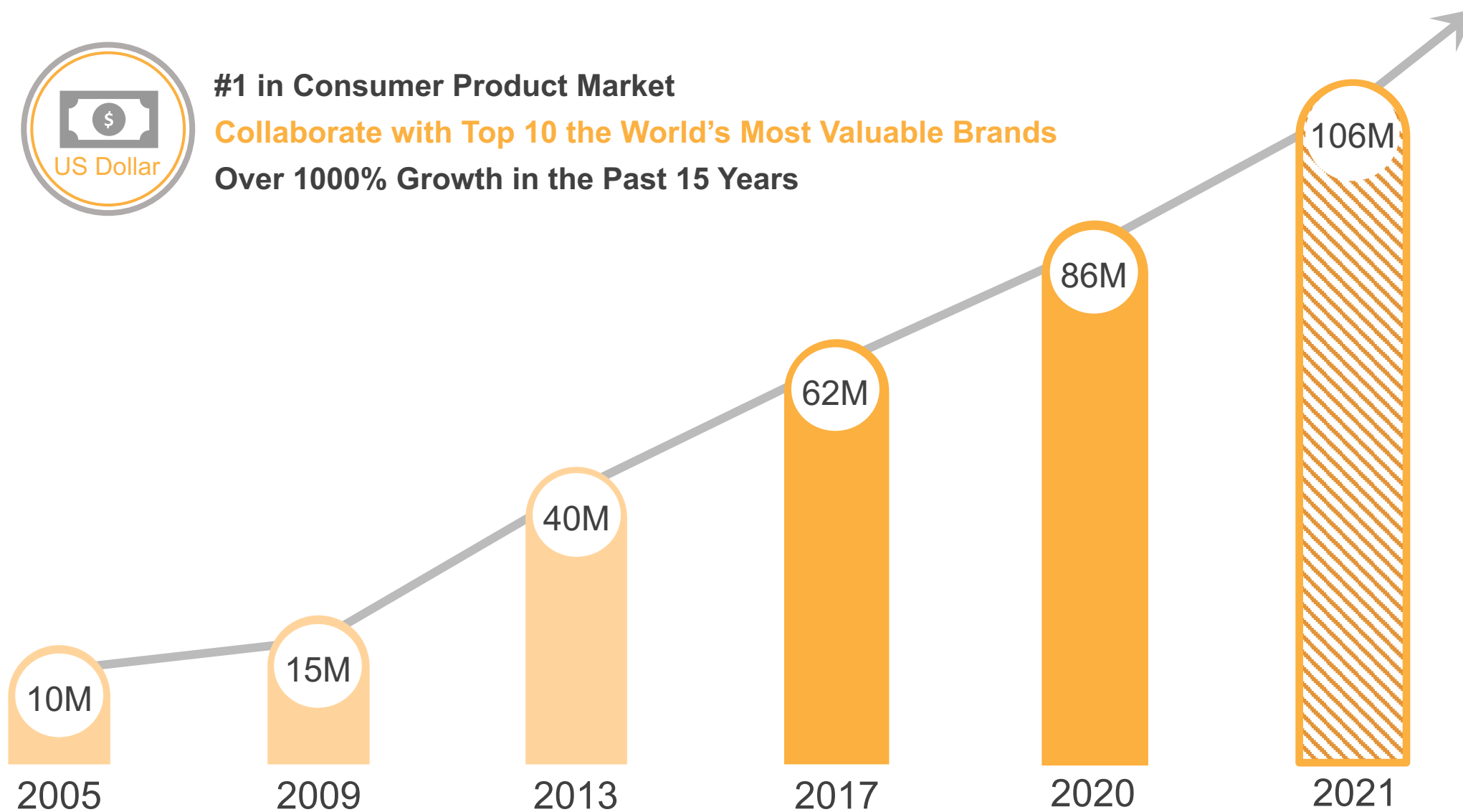
CCP Contact Probes - Growth



#1 in Consumer Product Market

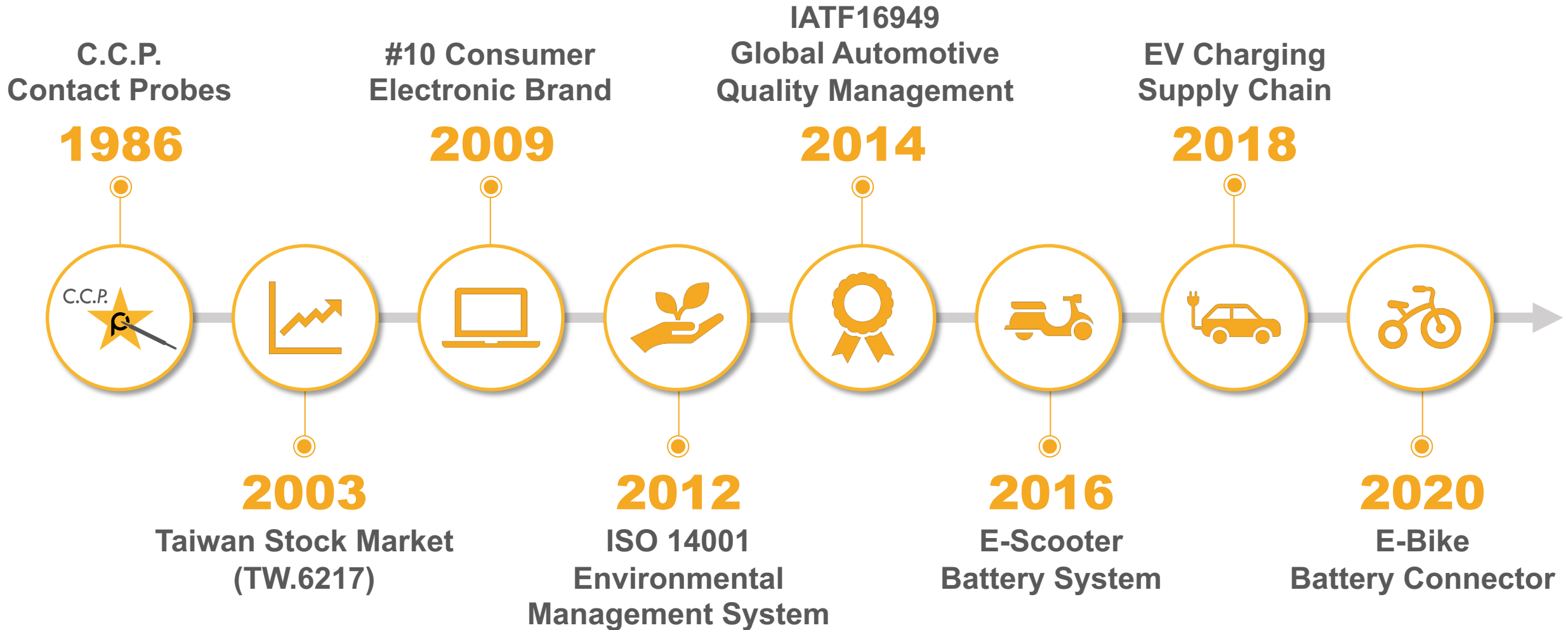
Collaborate with Top 10 the World's Most Valuable Brands

Over 1000% Growth in the Past 15 Years



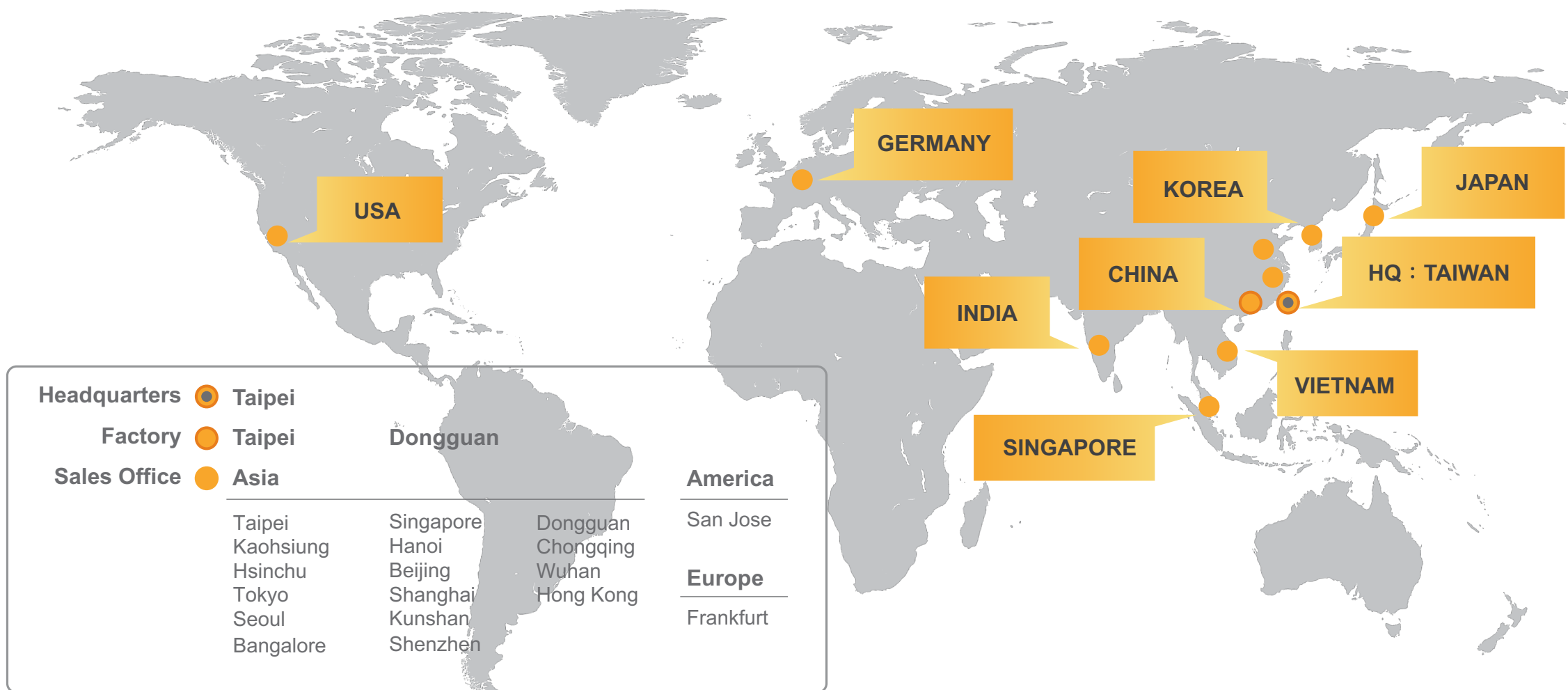


CCP Contact Probes - Milestones





CCP Contact Probes - Worldwide



Google



ADVANTEST

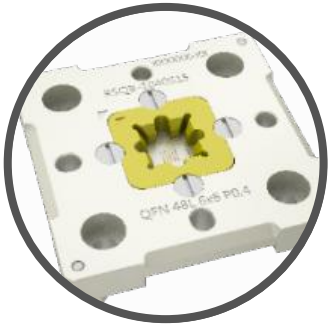
flex



FOXCONN



CCP Contact Probes - Product Portfolio



Testing

Fine Pitch

IC Testing Probe
PCB Testing Probe
Testing Socket



Connector

1A~13A

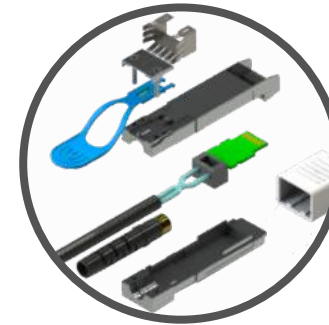
Pogo Pin Conn.
Waterproof Conn.
Magnetic Conn.



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



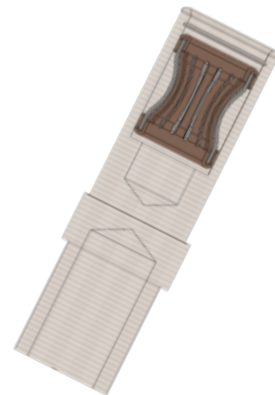
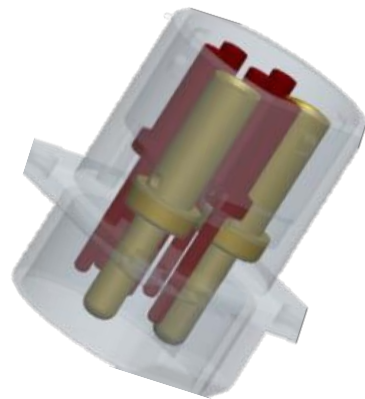
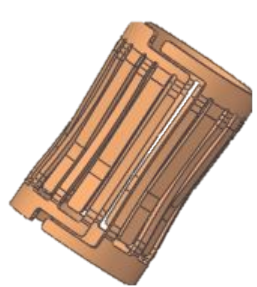
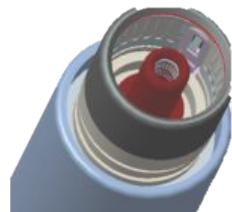
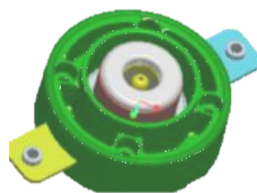
E-Bike Connector





CCP Contact Probes - Patent

專利號	名稱	簡述
CN206893841U	一種多觸點式接觸件	高傳導，低阻抗，高壽命性能優勢越的冠簧
CN108711695A	連接器及使用其的電子設備	小空間立體錯位結構實現多PIN排布
CN 205911468 U	同軸連接器	無插拔方向限制的，傳導穩定可靠換電充電模式同軸連接器
CN 202384538 U	一種冠簧連接器	利用鏤孔，巧妙的將冠簧牢靠的裝配於端子內
CN 108173032A	一種冠簧結構	高傳導，低阻抗，高壽命性能優勢越的美標雙觸點冠簧
CN 110797697A	大電流冠簧插孔	巧妙的懸臂梁結構，有效釋放公針壓力，從而增加插拔壽命。
CN 208423373U	公接頭及與其配合的母接頭	公端(PIN)與母端(冠簧)同在連接器的一端，共同承擔傳導作用， “雙重保障”可以通過大電流。





High Current – Crown Spring Connector

Crown Spring

Copper Alloy with Silver Plating

Min. Size & Max. Contact Points

High Current Up To 400 Amps



Male Terminal

Copper Alloy with Silver Plating

Precise Turning Pin

Low Contact Resistance

= Low Temperature Rise

= Low Energy Loss



Female Terminal

Copper Alloy with Silver Plating

> 20,000 Life Cycles

Low Exertion Force

Patent No: MP1703244
MU1703245



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

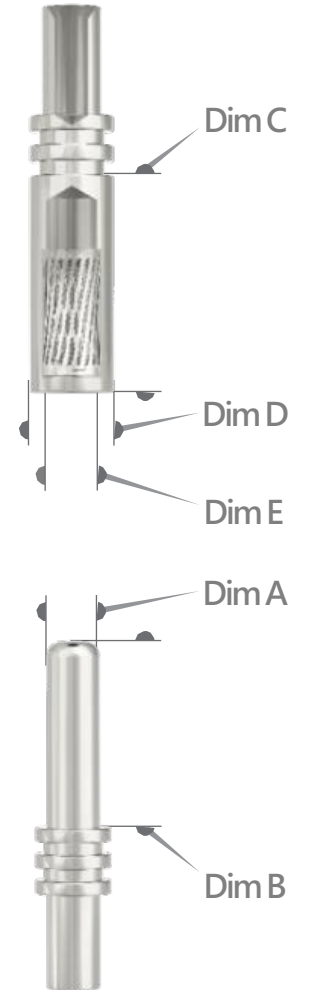


China/ Europe Standard



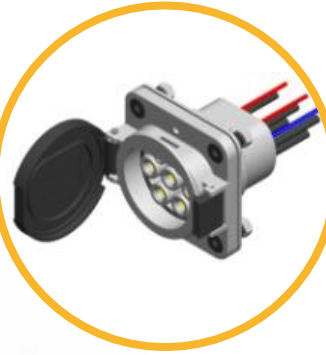
USA Standard

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



GB/T20234.2 – 2015
16A/32A
AC SAE J1772 – 2016
16A/32A/50A/80A
UL Certificate E516931





EV Charging Solution - SAE J1772 Charging Gun

Anti Loose
Safety Lock

Logo

High-Strength
**Integrated
Housing Body**

Crown Spring
Terminal

Cooper Alloys
Silver Plating

Patent No.
MP1703244
MU1703245

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 次
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



Logo

Multi-Texture
Ergonomic Design

Cable

**Crown Spring
Terminal**

Cooper Alloys
Silver Plating



Patent No.
MP1703244
MU1703245

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	$\geq 500\text{M}\Omega$ (500V DC)	
Flammability Class	UL 94-V0	
Operating Temperature	$-30^{\circ}\text{C} \sim +50^{\circ}\text{C}$	
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 Type 1&2 Charging Gun

(*Under development)



SPECIFICATION

Mating Cycle	≥ 10000
Insertion Force	$< 100\text{N}$
Current	80A/ 150A/ 200A/ 500A(Cooled)
Voltage	1000V AC
Contact Resistance	0.5 m Ω
Insulation Resistance	$\geq 1000\text{M}\Omega$
IP Rating	IP55



High Current - E-Scooter Connector



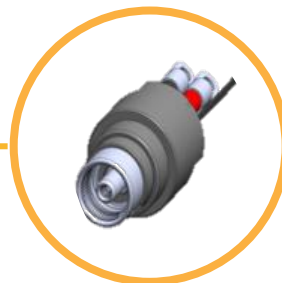
Battery Connector



Charging Gun



Charging Socket



Scooter & Station
Connector





High Current - E-Scooter Connector



載流能力

抗震動

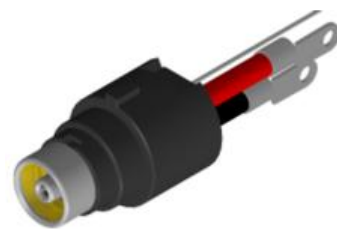
良好插拔體驗



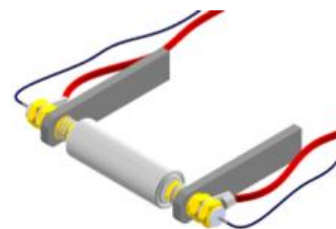
Battery Module



Signal Connector



Battery Charging
Solution



Battery Testing
Solution



High Current - E-Scooter Battery Swappable Connector



SPECIFICATION

Mating Cycle	≥15,000 次
Insertion Force	< 60N
Current	100A (Max)
Voltage	60VAC
Insulation Resistance	0.6MΩ (Max)
Flammability Class	UL 94-V0
Temperature Rise	△ 50℃
IP Rating	IP67



High Current - E-Scooter Charging Connector



SPECIFICATION

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



High Current - E-Bike Connecting Connector

Display Connector

顯示幕連接器

Throttle Connector

節流器連接器

Brake Connector

剎車連接器

Motor Connector

電機連接器

Controller Connector

控制器連接器

Battery Convert

Connector

電池換電連接器

Charging

Connector

充電連接器

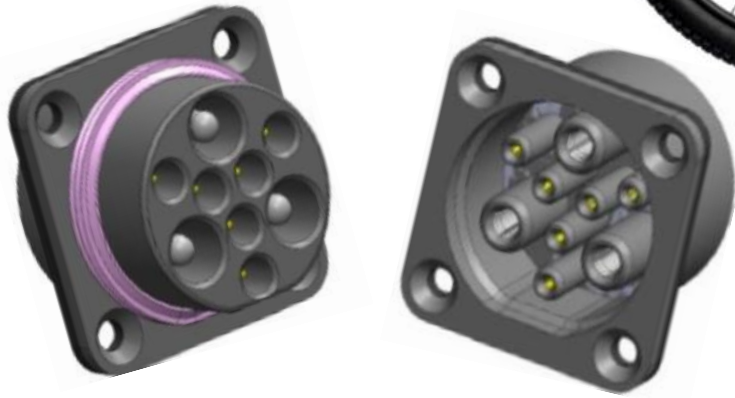
Sensor Connector

感測器連接器





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



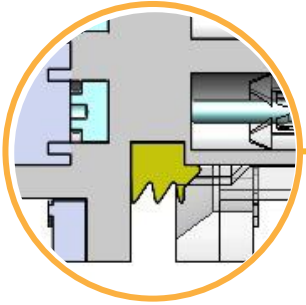
Shock & Vibration



Weatherproof

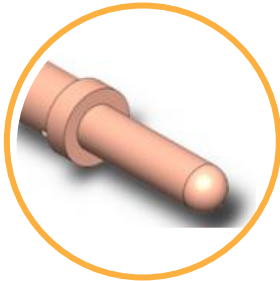


High Current – E-Bike Battery Connector



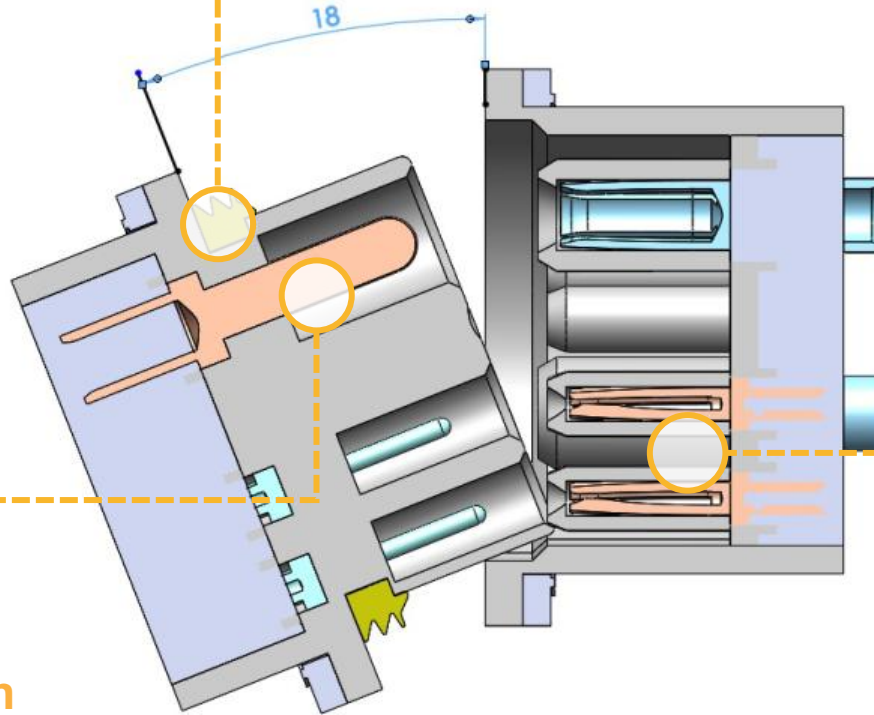
Waterproof Effect > 2 mm

2.5 mm Rubber Ring
IP67 Waterproof Under Vibration



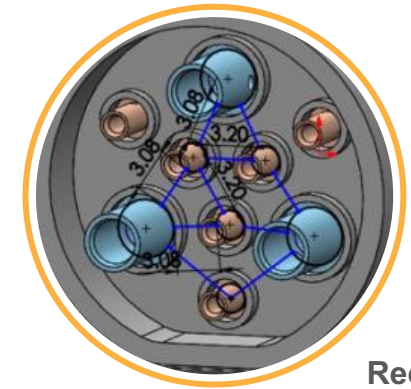
Turning Round Pin

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

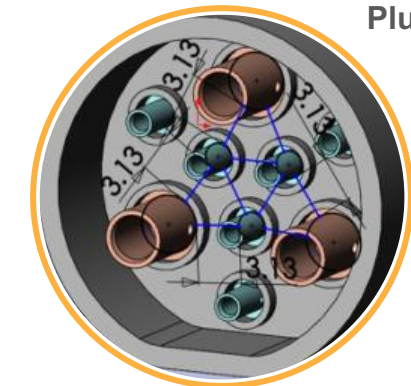


Insulation Distance > 3 mm

Great Insulation Resistance
Prevent Short Circuit



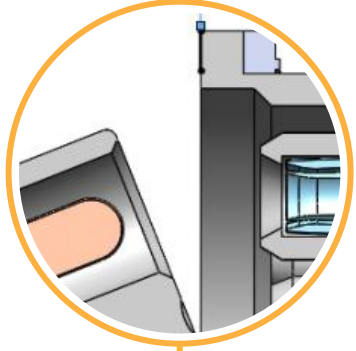
Receptacle



Plug

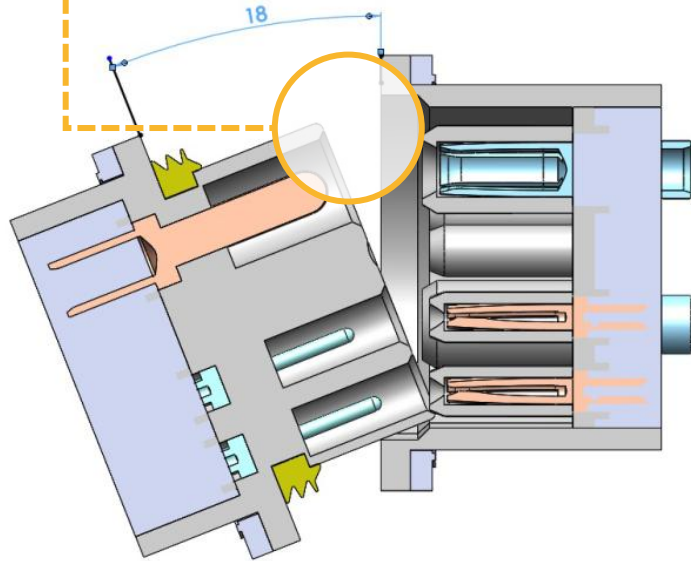


High Current – E-Bike Battery Connector



Mating Angle > 15°

Recessed Receptacle Design
Error Proofing
User Friendly



Safe Connection Design

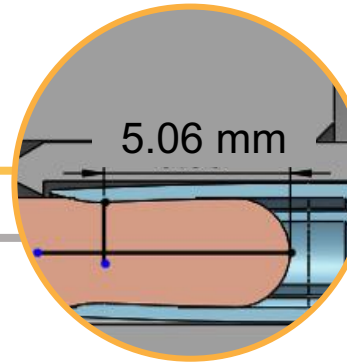
Contact Sequence

Ground Pin

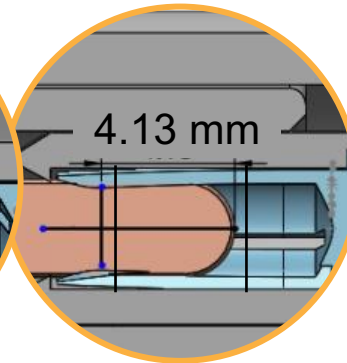
Signal Pin

Power Pin

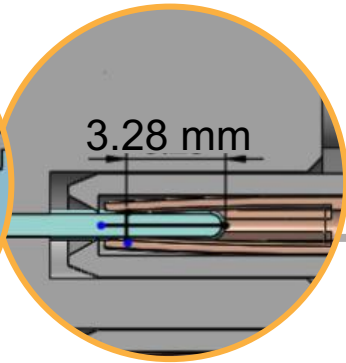
Inserting



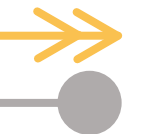
Contact > 5 mm



> 4mm



> 3mm

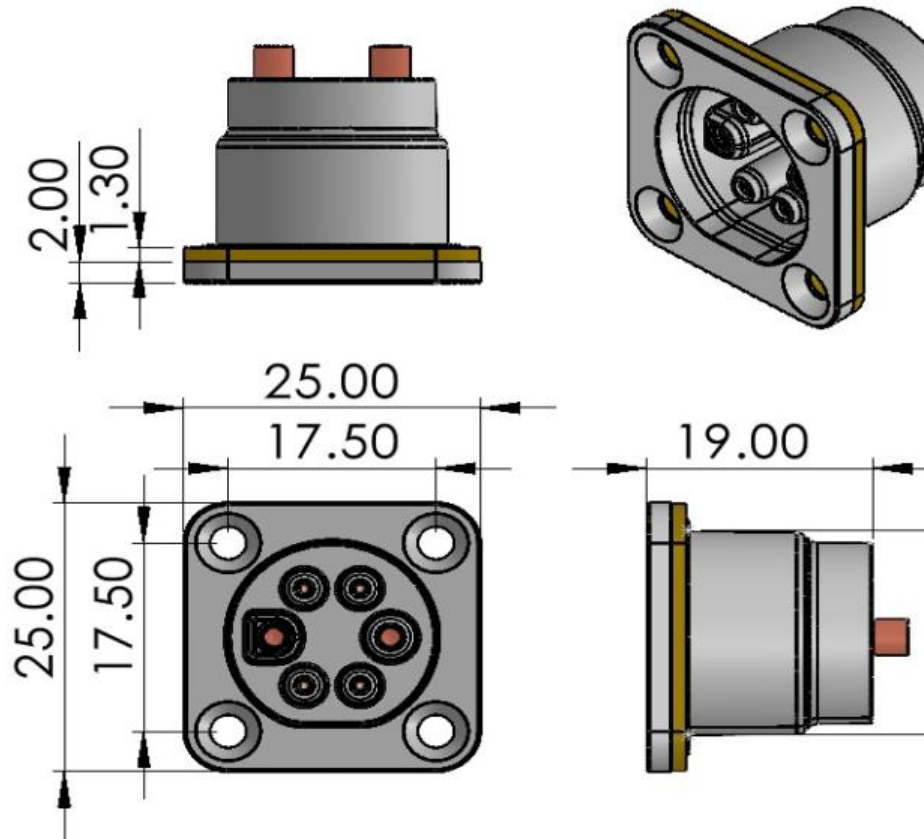


Pulling

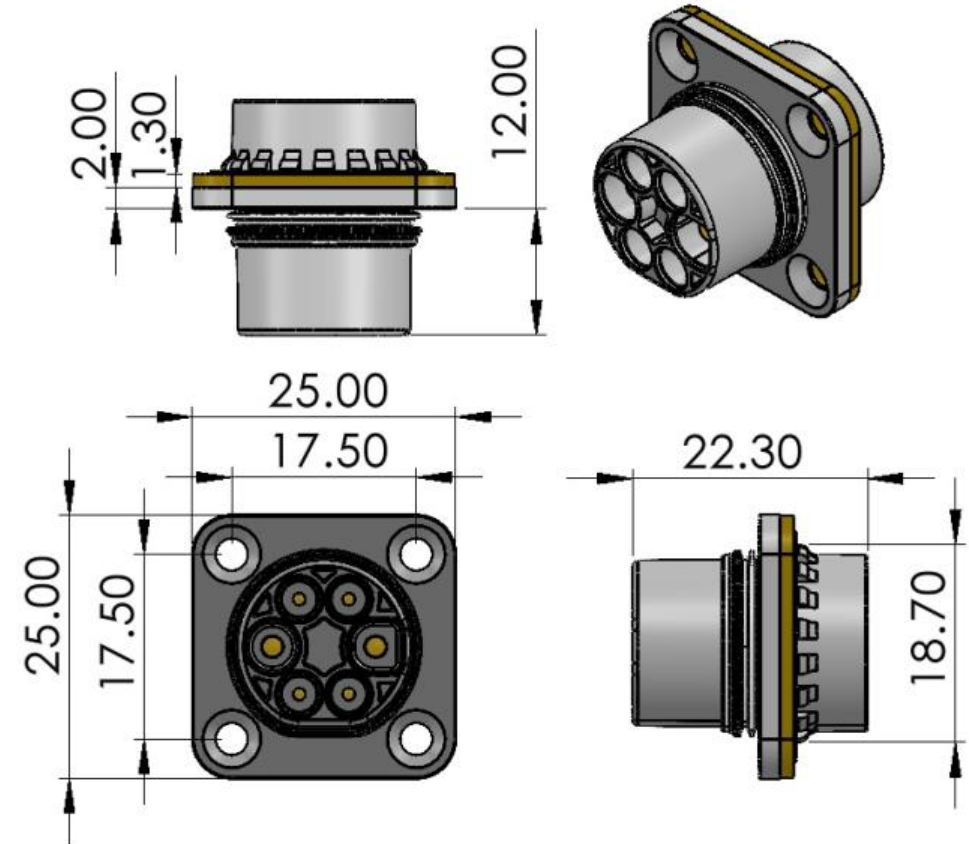


2+4 E-Bike Connector Dimension

Receptacle



Plug

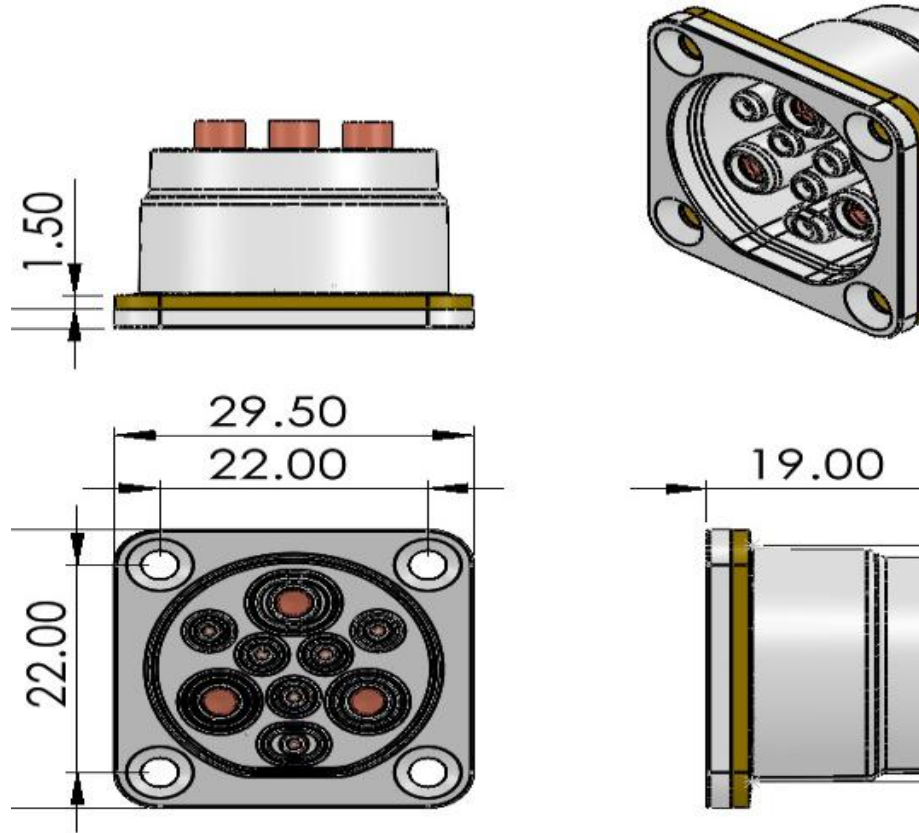


Use M3 countersunk screws to lock

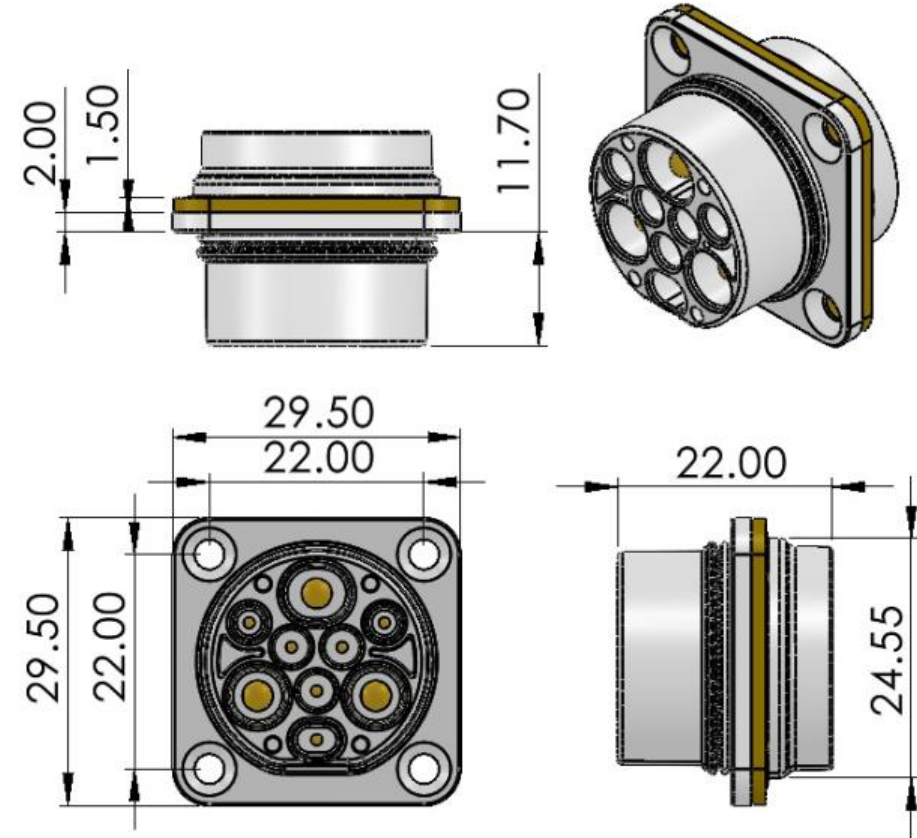


3+6 E-Bike Connector Dimension

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 °C to +85 °C	
Waterproof Class	Waterproof IP67 (Mated/Unmated)	



High Current –E-Bike Magnetic Connector

IPX7 Waterproof

Rubber Design

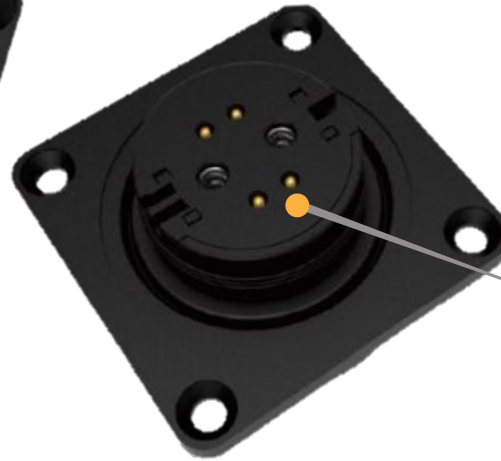
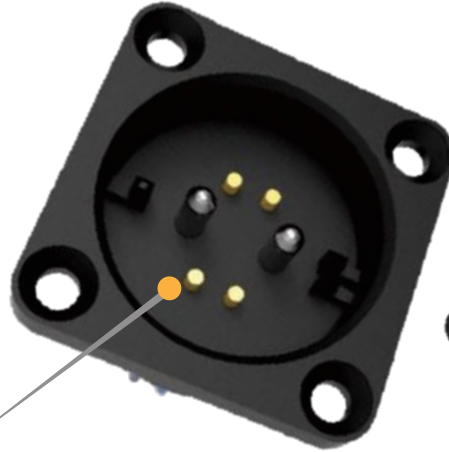
Humidity and Moisture Resistant
Material

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



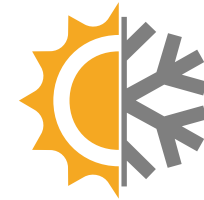
40A High Current



IP67 Waterproof



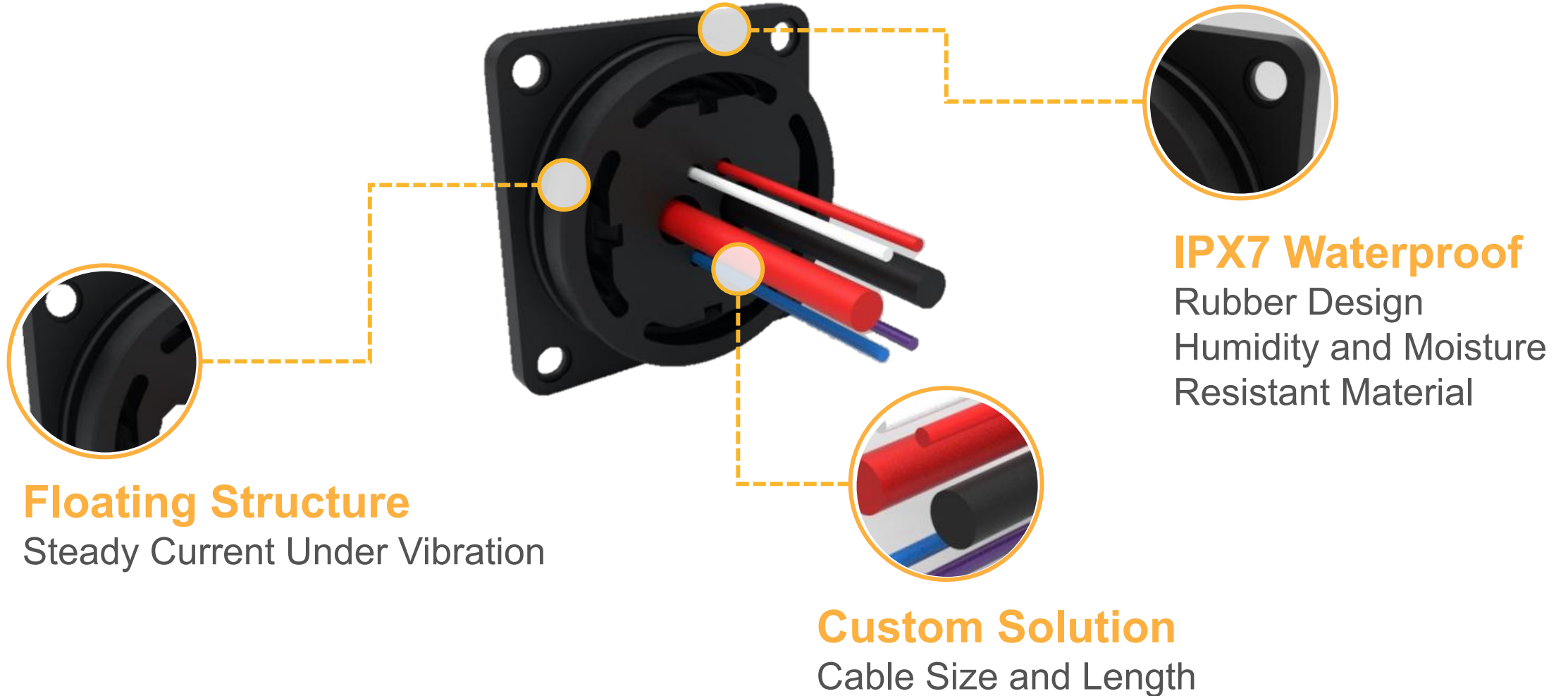
Shock & Vibration



Weatherproof



High Current –E-Bike Magnetic Connector





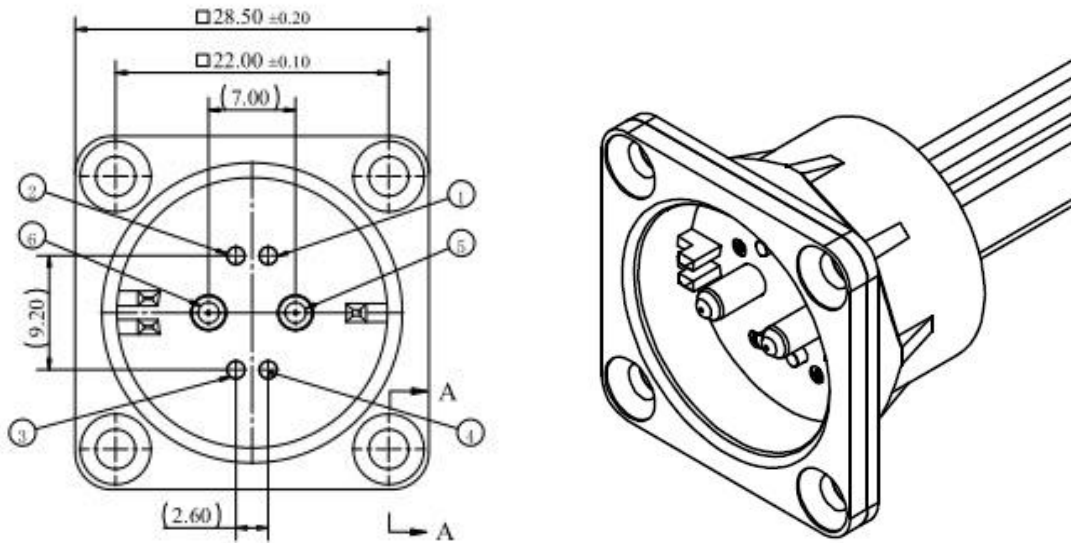
E-Bike Magnetic Connector Specification

	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 °C to +85 °C
Mated Waterproof Class	Waterproof IP67
Unmated Waterproof Class	Waterproof IP65

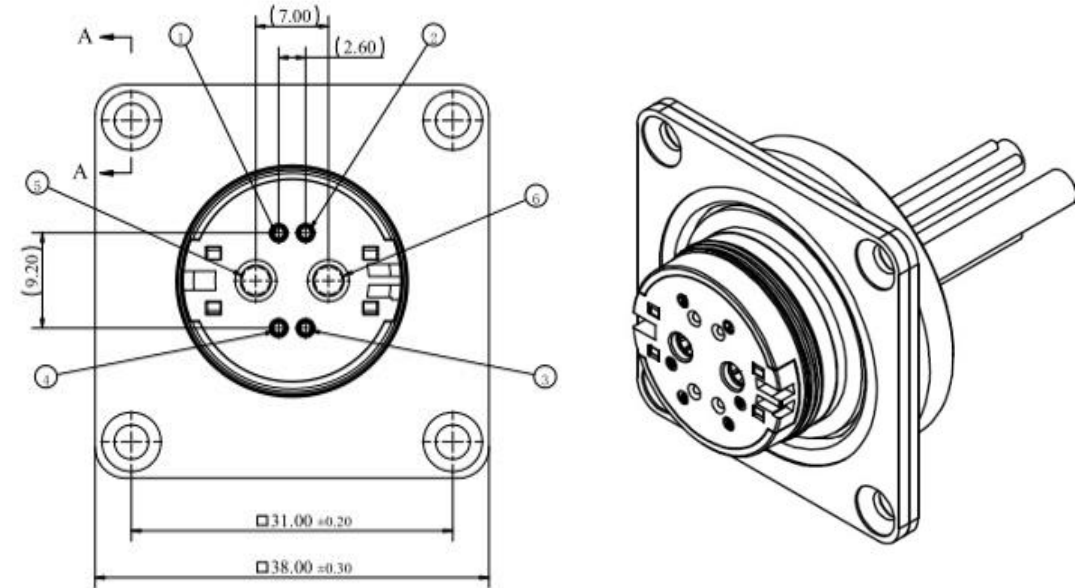


E-Bike Magnetic Connector Dimension

Receptacle



Plug





High Current - E-Bike Battery Connector



端子数量	Power 3	Signal 8
尺寸	29.5*29.5*23mm/ 29.5*29.5*24.6mm	
额定电压	~400V DC最大	
额定电流	~35A最大	~5A最大
匹配线缆	~10AWG最大	~20AWG最大
机械寿命	~10000次	
防护等级	~IP67	
防火等级	UL 94 V-0	
接触阻抗	5mΩ最大	20mΩ最大
绝缘阻抗	100MΩ@500VDC	
耐压	1000V AC	
使用温度	-40℃ ~ +85℃(125℃最高)	

- ✓ 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



技術規格

額定電壓&電流

絕緣電阻

耐壓等級

阻燃等級

機械壽命

插拔力

溫升

工作溫度

防護等級

參數

48V DC/ 50A

100M Ω Min at 500V DC

0.5mA Max at 1000V AC

UL94-V0

≥ 10000

$\leq 80N$

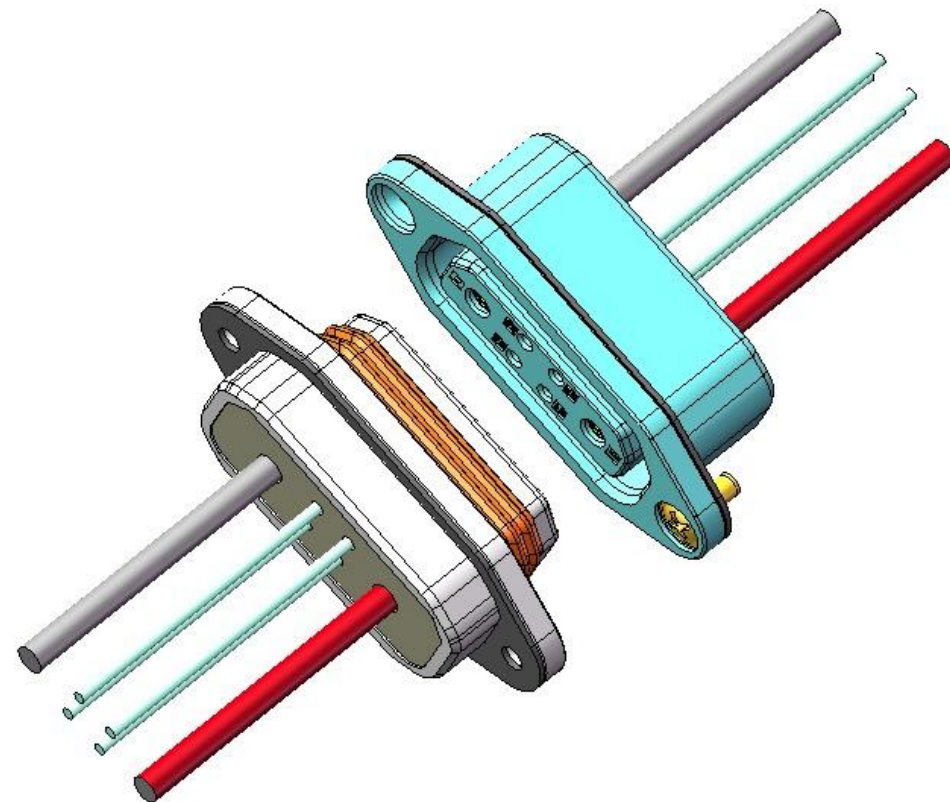
$\Delta T < 50^{\circ}C$ at $25^{\circ}C$

$-40^{\circ}C$ to $85^{\circ}C$

IP55

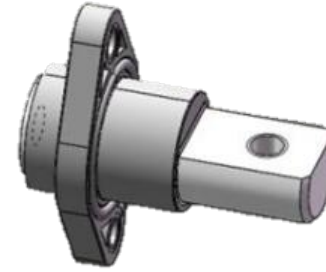
產品優點：

- ◆ 外形尺寸小巧，公母對配後Z軸高度在30mm以內
- ◆ 10000次插拔壽命，遠高於其他同類型產品





High Current - Power Storage Connector



**Feed Through
Terminal**



**Current Diversion
Connector**



**High Voltage
Power Lock Connector**



**High Voltage
Power Lock Module**

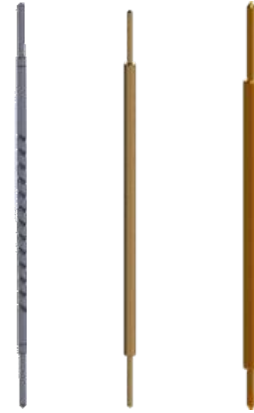


Vertical Integration - Precision Machining



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

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



IC Test Probe



Pogo Pin



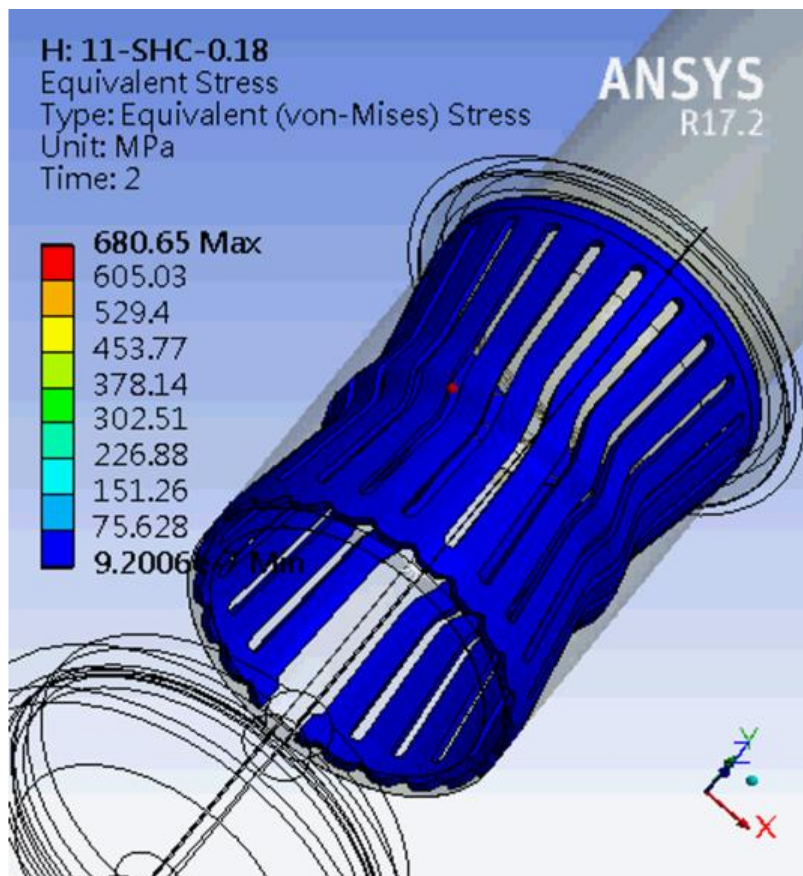
High Current
Pin & Socket



Customized



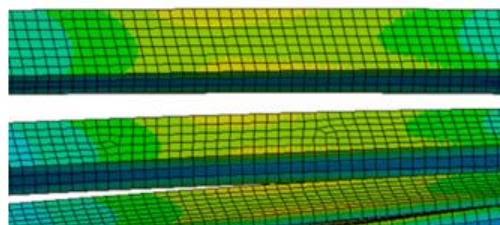
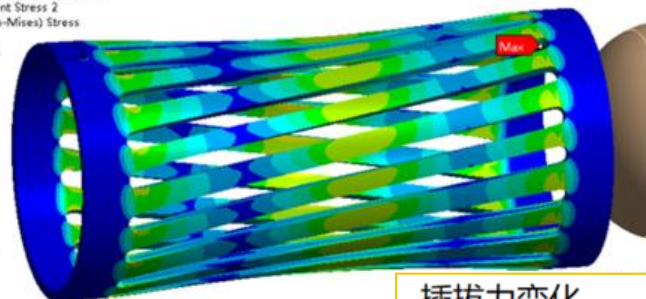
CCP Advantages - Design & Simulation



最大应力

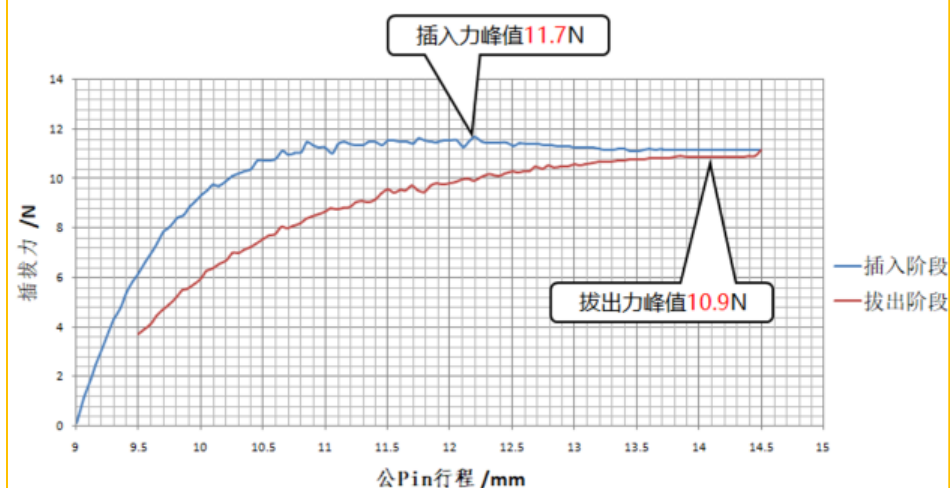
A: 11-28-管座-8mm起落-最大干涉量-有值
crown_MAX_Equivalent Stress 2
Type: Equivalent (von-Mises) Stress
Unit: MPa
Maximum Over Time
2017/11/30 13:55

472.34 Max
419.86
367.37
314.89
262.41
209.93
157.45
104.97
52.485
0.0035391 Min



冠簧屈服强度500MPa.
故本项目应力pass. 零件可用

插拔力变化





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

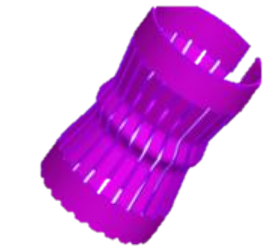
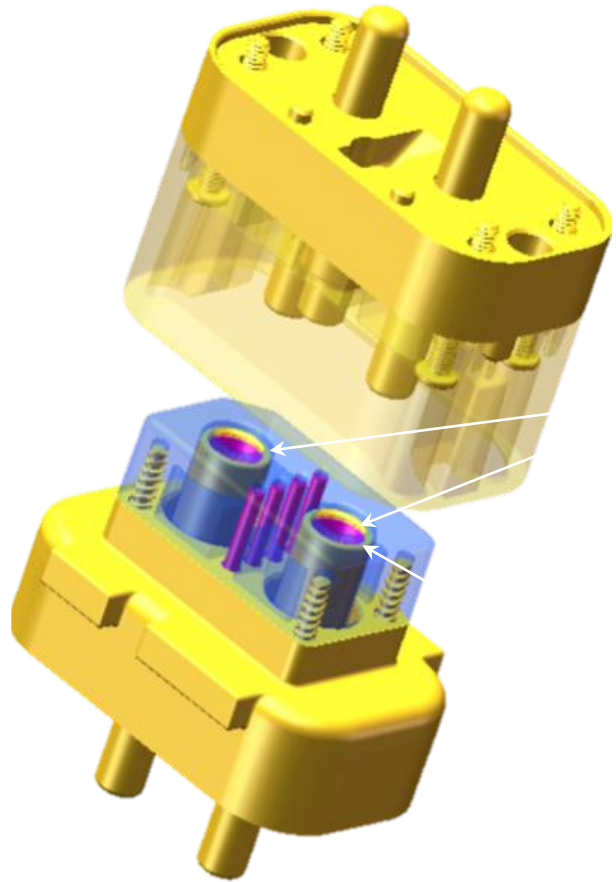


ISO 9001
ISO 13485
ISO 14001
IATF 16949
ISO 14064
IECQ QC080000





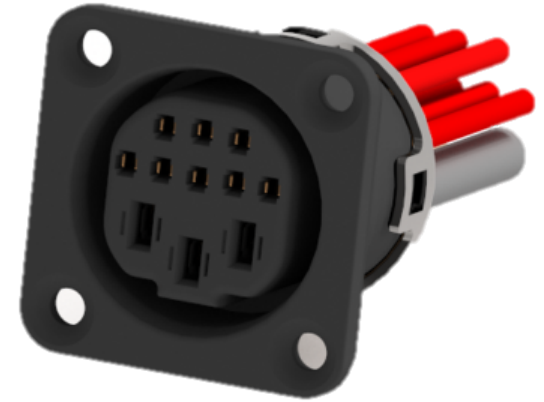
CCP Advantages - Customized Solution



Contact Pad:
Crown Spring Terminal



Contact Pad (X4):
Claw Spring Terminal





CCP Advantages - Quality Certificates

1. 汽車產品系列通過中心

天津汽車檢測中心

廣州威凱檢測技術有限公司

CQC認證機構

2. 臺灣TES標準系列通過：

台灣大電力研究試驗中心

報告編號: QAT60XTE3

   中國認可
質量
TESTING
CNAS L1835

CQC 标志认证
2015003533A

试验报告

☒ 新申请 ☐ 变更 ☐ 监督 ☐ 复审 ☐ 其他:

申请编号: V2016CQC029001-284872

产品名称: 交流车辆接口 (车辆插头+车辆插座)

型号: CQPGM-AC0320XX-50X 32A 250VAC
CQPGF-AC0320XX-50XX 32A 250VAC
CQPGM-AC0160XX-50X 16A 250VAC
CQPGF-AC0160XX-50XX 16A 250VAC

检测机构: 天津汽车检测中心

   中國認可
質量
TESTING
CNAS L1835

共 14 页 第 1 页
No: WTS2018-14932

检测报告

TEST REPORT

产品名称: 交流车辆接口(车辆插头)
NAME OF SAMPLE

受检单位: 东莞中联保研有限公司
CLIENT

检测类别: 委托检测
CLASSIFICATION OF TEST

威凱檢測技術有限公司
Guangzhou Vika Certification & Testing Co., Ltd.

公正 服務 創新 進步



電動車輛傳導式充電系統 試驗報告

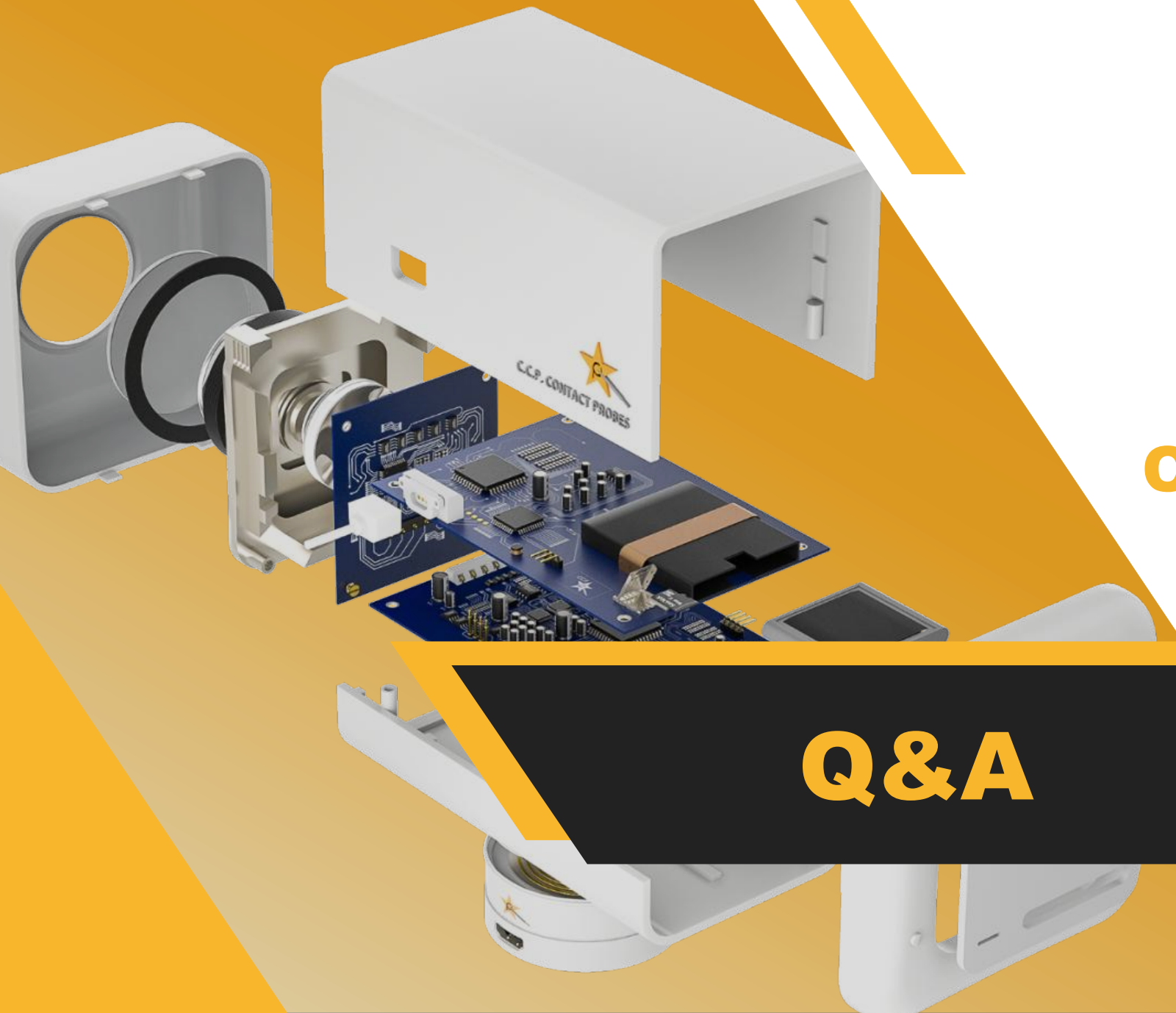
報告編號: EVR20190006
發證日期: 108年7月10日
試驗室名稱: 再生能源實驗室
試驗室地址: 328 桃園市龍潭區草漯產業二路6-6號

大電力

財團法人台灣大電力研究試驗中心
Taiwan Electric Research & Testing Center
地址: 328 桃園市龍潭區草漯產業二路6-6號
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電子郵件: ccs@taiwan-erdc.com.tw
網址: www.taiwan-erdc.com.tw

第 1 頁, 共 1 頁

- 本報告僅供電動車輛傳導式充電系統測試使用。
- 本報告試驗設備均經國家認可, 報告不作為產品合格之證明。
- 本報告所載數據, 不得作為廣告、出版或產品說明書之用。
- 本報告所載數據未經本中心核對者概不負責。
- 諮詢電話: (03) 483-9000 轉電話諮詢。



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Q&A

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