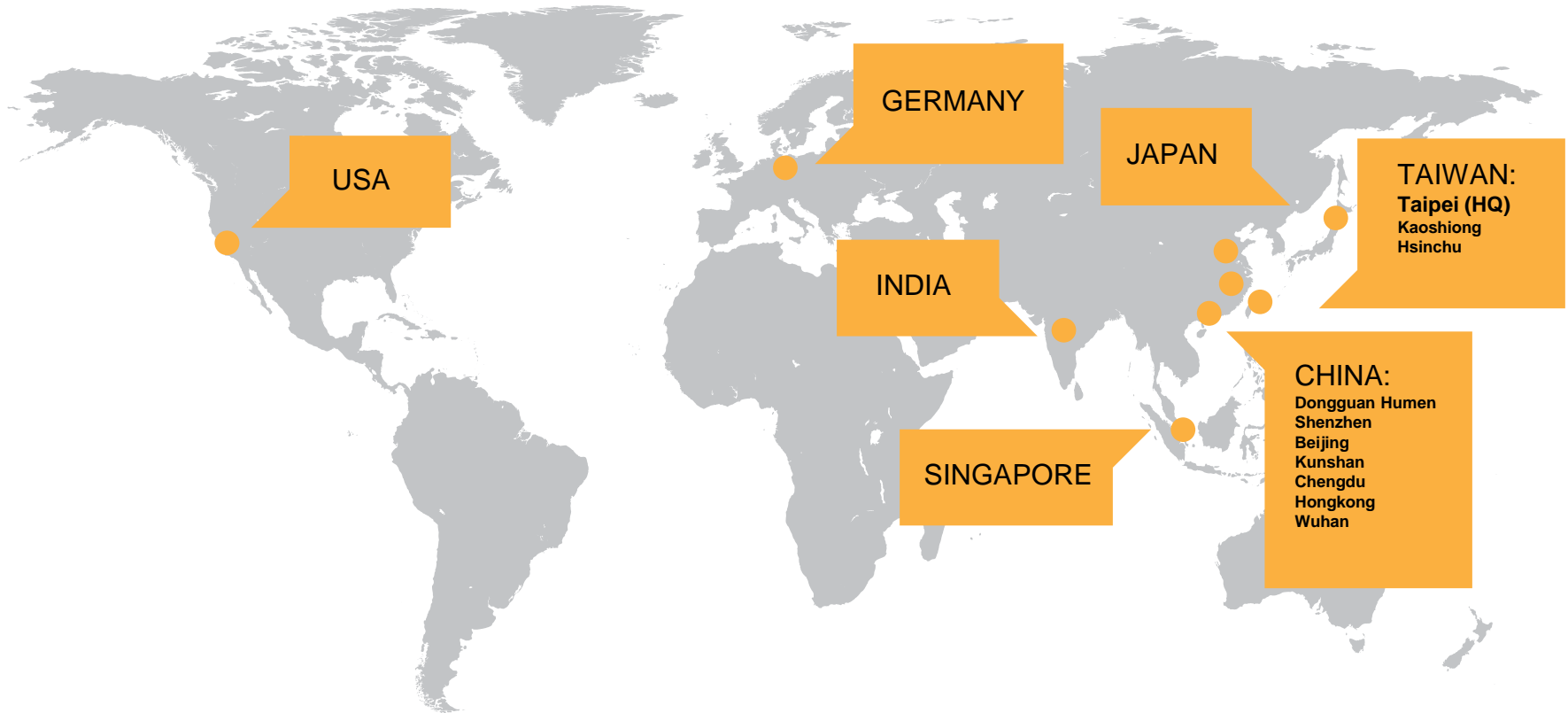




Company Introduction

CCP Contact Probes Co., Ltd.

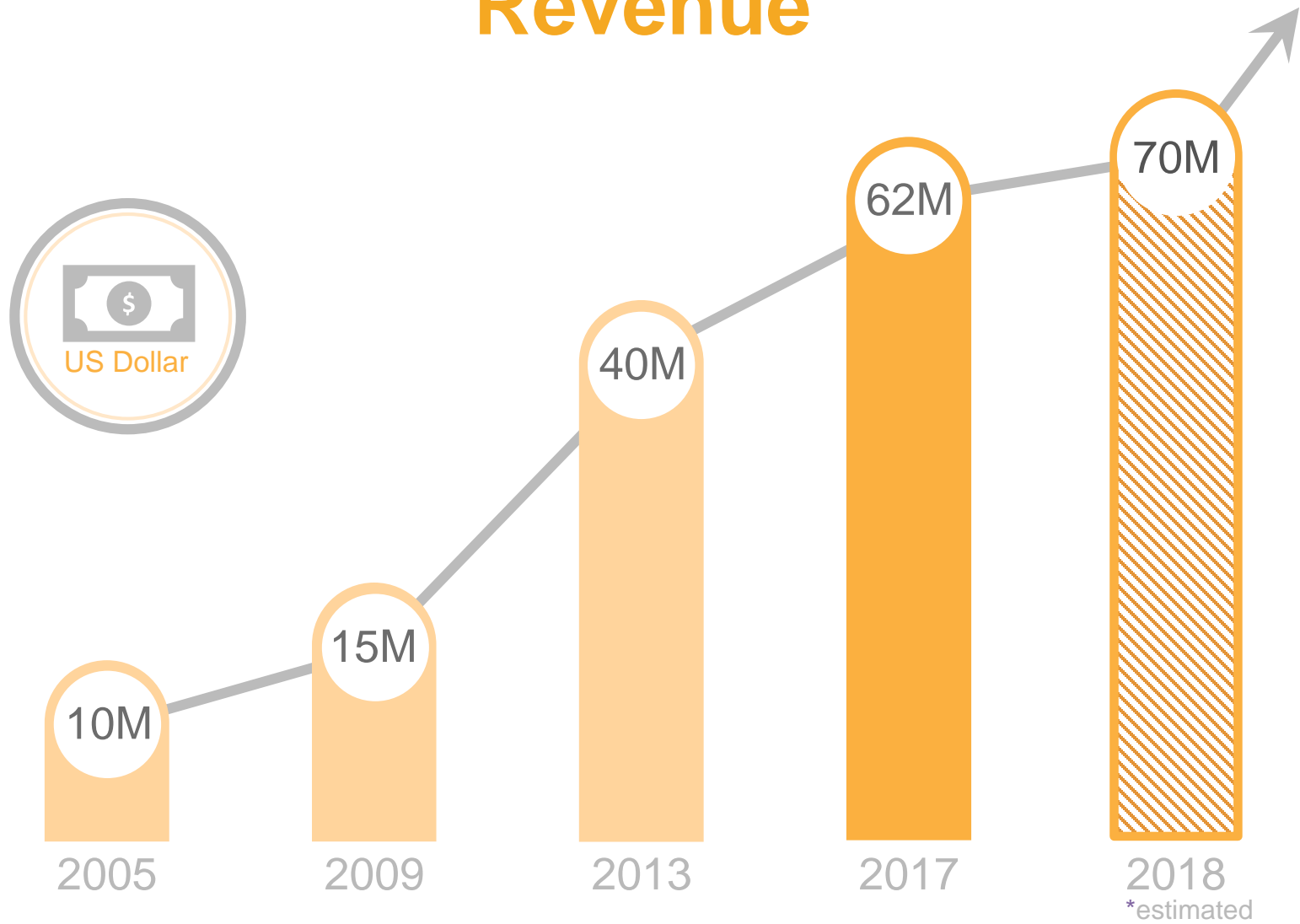
CCP Group



Selected Customers:



Revenue

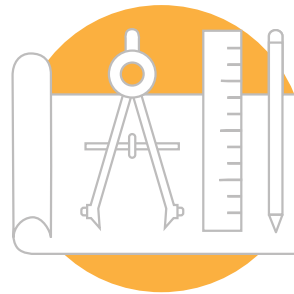


Staff: R&D Design Service



Fundamental Research

| | |
|---------------------------|---|
| IC Testing probe Engineer | 9 |
| MEMS Team | 7 |
| Plating Lab | 6 |
| FAE | 3 |
| Automation Engineer | 4 |
| IC Socket Design | 2 |



Applied Research

| | |
|---------------------|----|
| Pin & Connector R&D | 15 |
| Testing Lab | 2 |
| FAE | 2 |
| Sample Team | 8 |
| Fixture Team | 1 |
| Coating Lab | 2 |

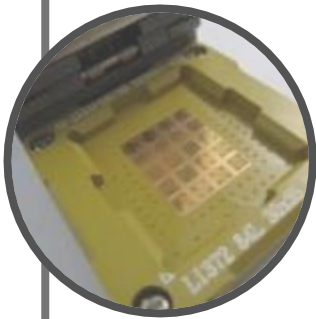
Project Management

| | |
|-----------------|---|
| Project Manager | 7 |
| Engineer PM | 6 |

Plating: Comparison

| Plating | Testing standard | Au(50u") Layer | AP Layer | APII Layer | Super AP Layer |
|----------------------------------|------------------------|---------------------------|---------------------|---------------------|---------------------|
| Color | / | Gold | Silver | Silver | Silver |
| Nickel release | EN 12472:2005+A1 :2009 | Nickel-containing process | Nickel-free process | Nickel-free process | Nickel-free process |
| Plating thickness (micro inch) | XRF | 100~170 | 110-170 | 270~400 | 210~400 |
| Impedance (mΩ) | EIA-364-23 | < 50 | < 50 | < 50 | < 50 |
| Salt Spray resistance (HR) | EIA-362-26 | 96 | 48 | 96 | 168 |
| Artificial Sweat resistance (HR) | ISO-3160 | 96 | 48 | 96 | 168 |
| Surface hardness (HV) | ISO 6507-1:2005 | 200 | 400 | 400 | 400 |
| Electrolysis resistance time | 1mA,5V,Pitch=0.60mm | <1min | 10min | 15min | 60min |
| Cost | Factor to Gold Plating | 1 | x0.9 | x2 | x3 |

Product Portfolio



CCP-Testing

IC Testing Probe
IC Probe Head
PCB Testing Probe
MEMS Probe



CCP-Performance

13A~250A

Electronic Vehicle
High Current Conn.



CCP-Connector

1A~13A

Pogo Pin Conn.
Waterproof Conn.
Magnetic Conn.



CCP-Industrial

Extreme Environment

Aerospace
Military
Transportation
Space

Product Line: Connector



Pogo Pin Connector



Magnetic Connector



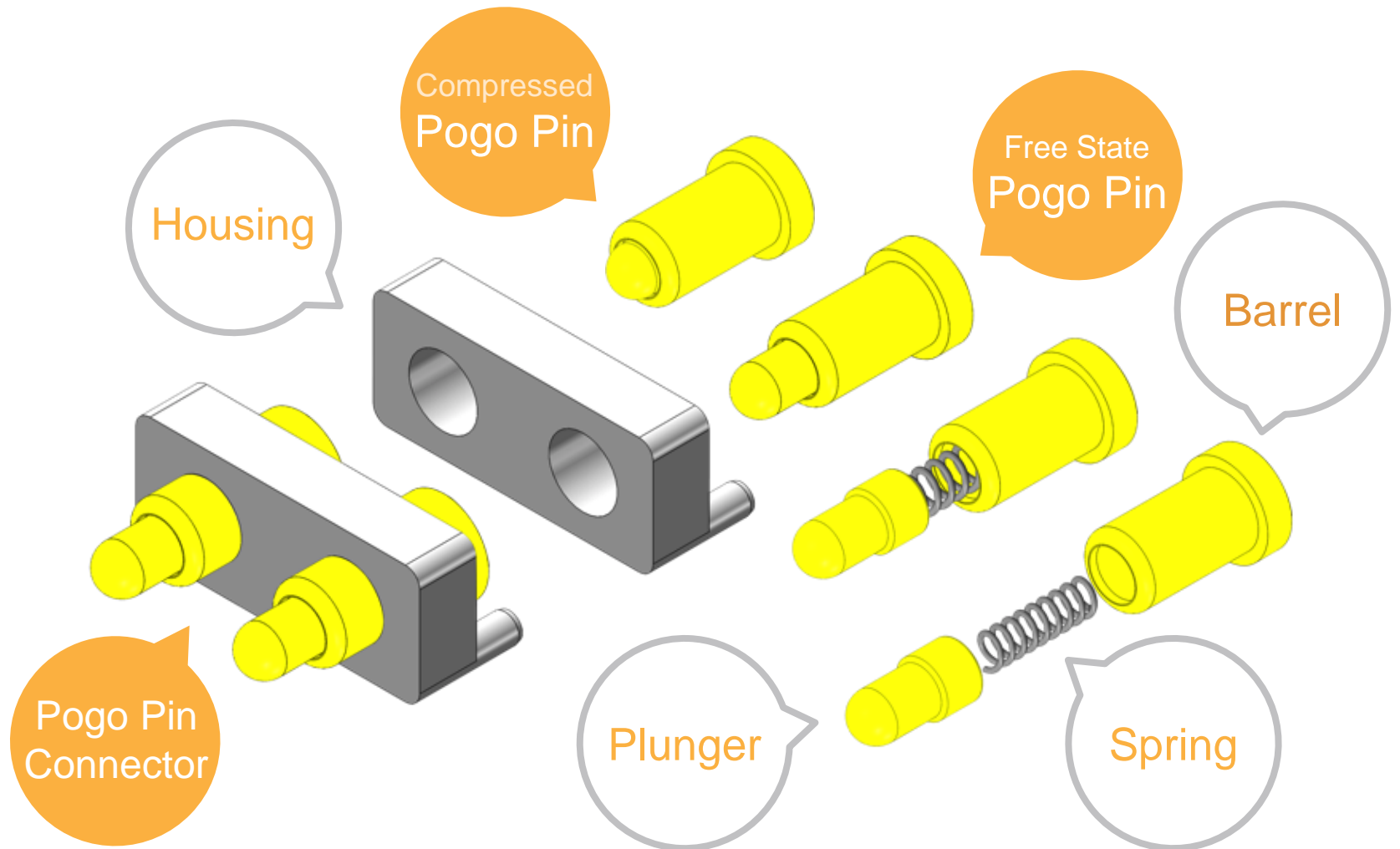
2 in 1 Tablet Connector



Waterproof Connector



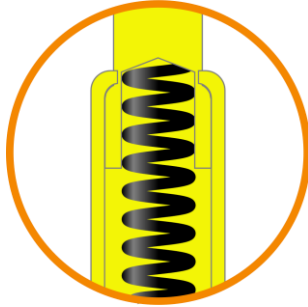
Connector: Basic Structure



Connector: Inner Structure

Back Drill

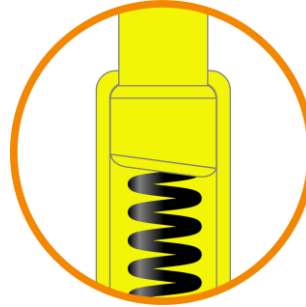
The drilled tail makes extra space for spring and creates a shorter pogo pin.



Pin Length: ≈ 2.5 mm
Current: **1 A**

Bias Tail

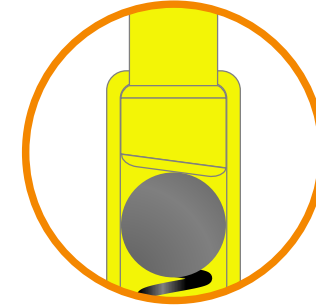
The bias tail of plunger creates lateral force and better contact.



Pin Length: ≈ 3.5 mm
Current: **2 A**

Ball

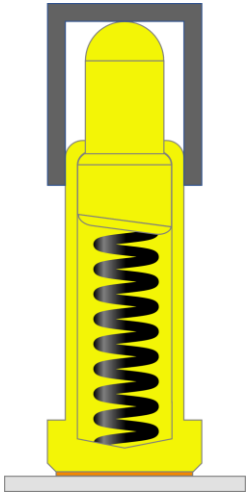
The ball inside stabilizes the contacting areas for a better performance.



Pin Length: ≈ 4.5 mm
Current: **3~5 A**

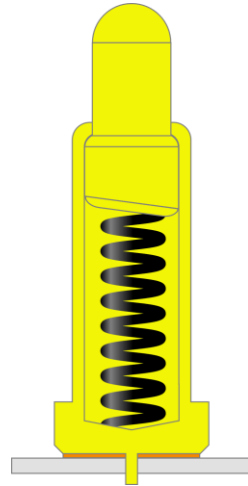
Connector: Installation

SMT with Cap



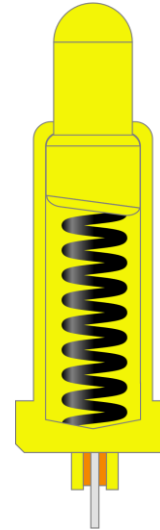
Cap is used for SMT procedure, and it will be removed after being mounted.

Plug-in



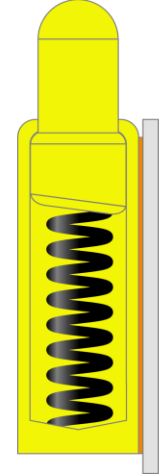
Plug-in tail is used for higher soldering force on PCB when it's needed.

Wired



Wire can be soldered onto a drilled dip for cable module.

Right Angle



Side of square tube can be soldering area for different mechanical structure.



PCB/ Wire

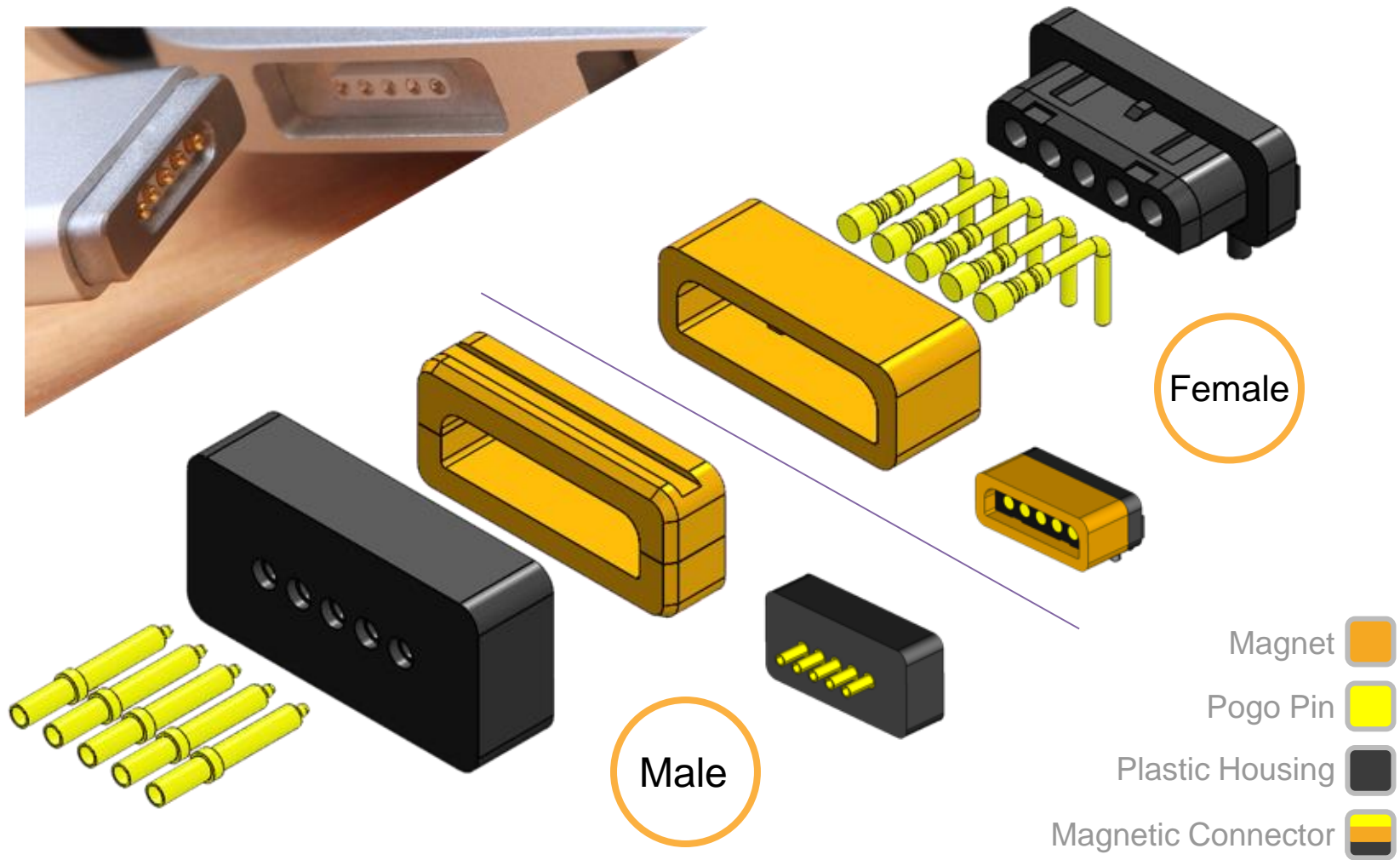


Plastic Cap



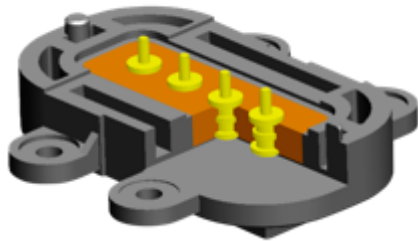
Solder

Connector: Magnetic



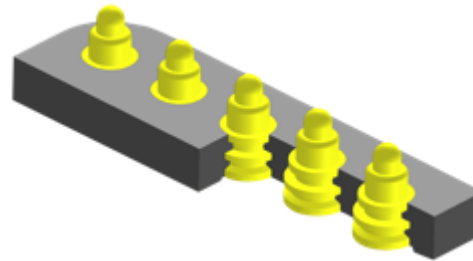
Connector: Waterproof

Sealing



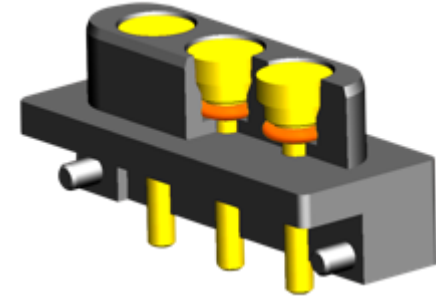
Pitch: Small
Waterproof: IPx7 at best
Production Complexity: Low

Insert-Molding



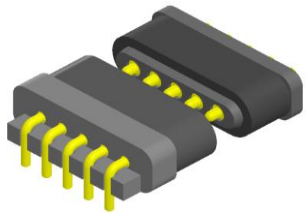
Pitch: Small
Waterproof: IPx7 at best
Production Complexity: Low

O-Ring



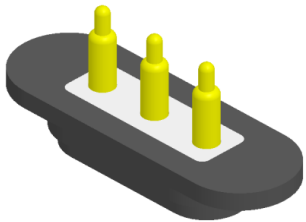
Pitch: Large
Waterproof: IPx8 at best
Production Complexity: High

Connector: Customized



Magnetic Modules

Easy attachable and detachable connectors used for different applications



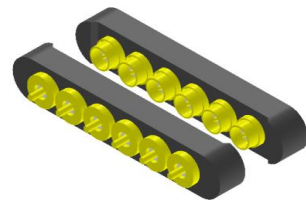
Rugged Modules

Able to achieve IP67 rating and to operate under extreme environments

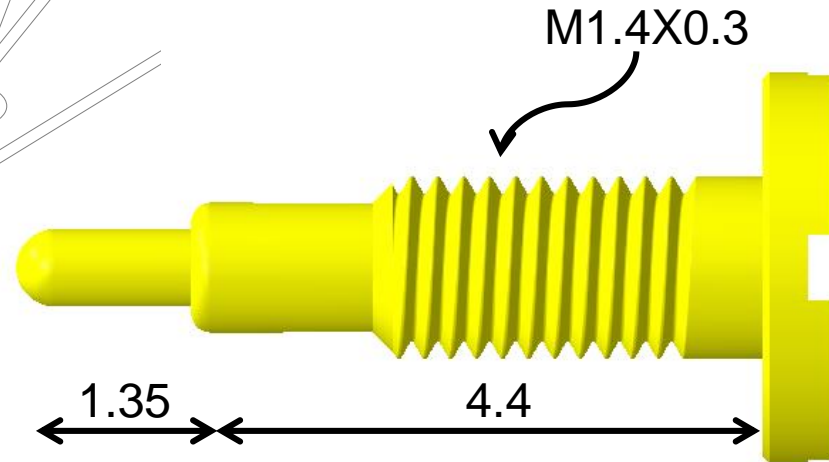
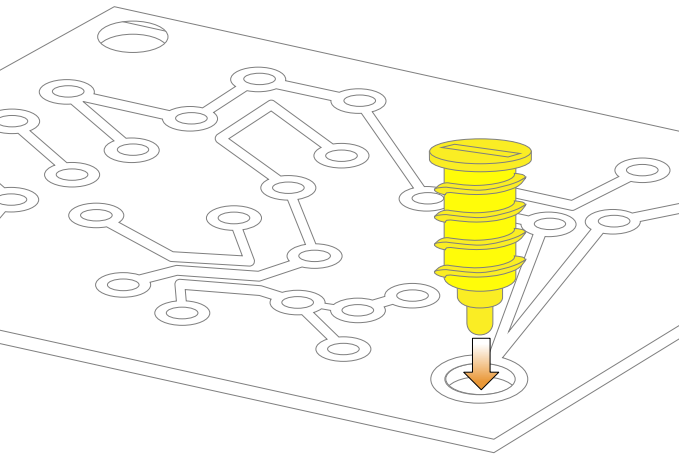


Shielded Modules

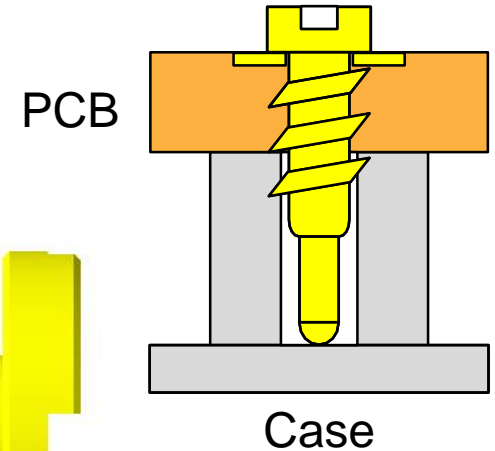
Shielded design for high speed signal transmission



Connector: Pogo Screw Pin

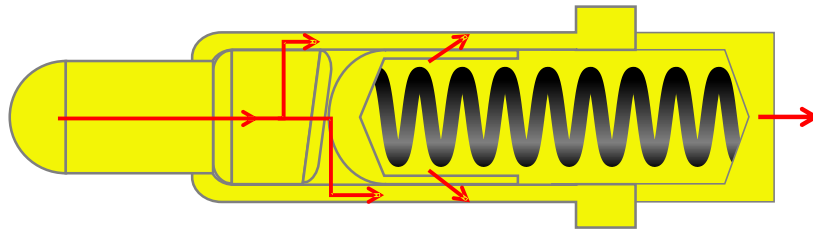


Grounding Purpose



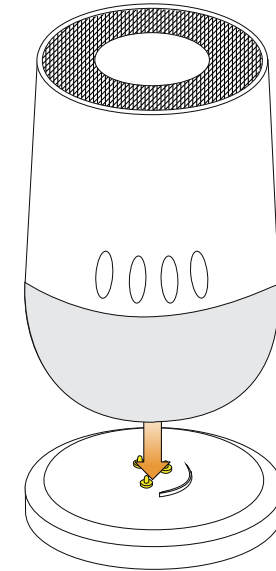
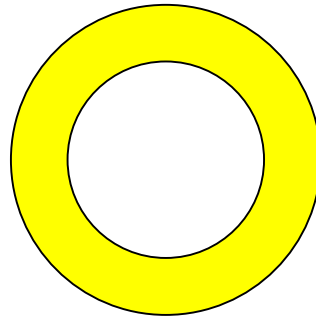
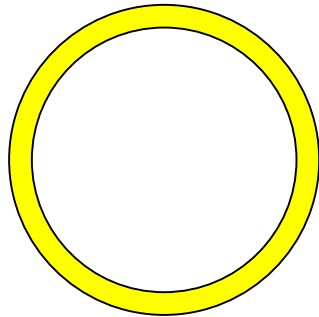
| Diameter | Current | Durability |
|--------------|---|---------------------|
| 3 mm | 1A | 10,000 compressions |
| Spring force | Contact resistance | |
| 120g ± 20g | 200 M Ohm, to customize for grounding pin purpose | |

Connector: High Current Pogo



Normal Design

High Current Design

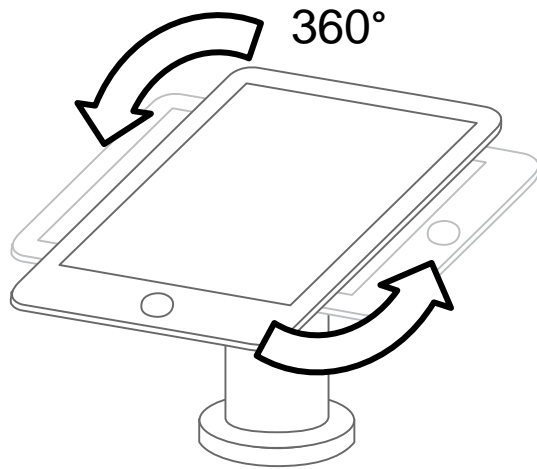


Application:
Any kind of high current transfer request

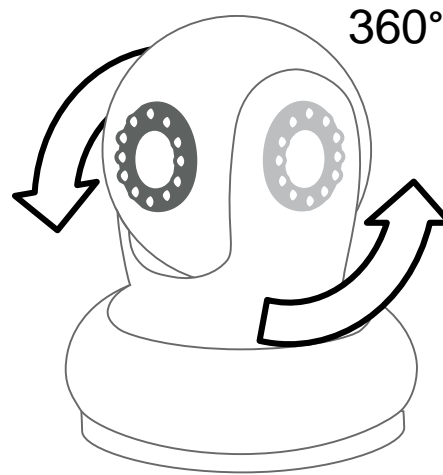
| Diameter | Current | Durability |
|--------------|--------------------|---------------------|
| 2.4 mm | 13A | 10,000 compressions |
| Spring force | Contact resistance | |
| 120g ± 20g | 30 mΩ | |

Connector: Lateral Movement

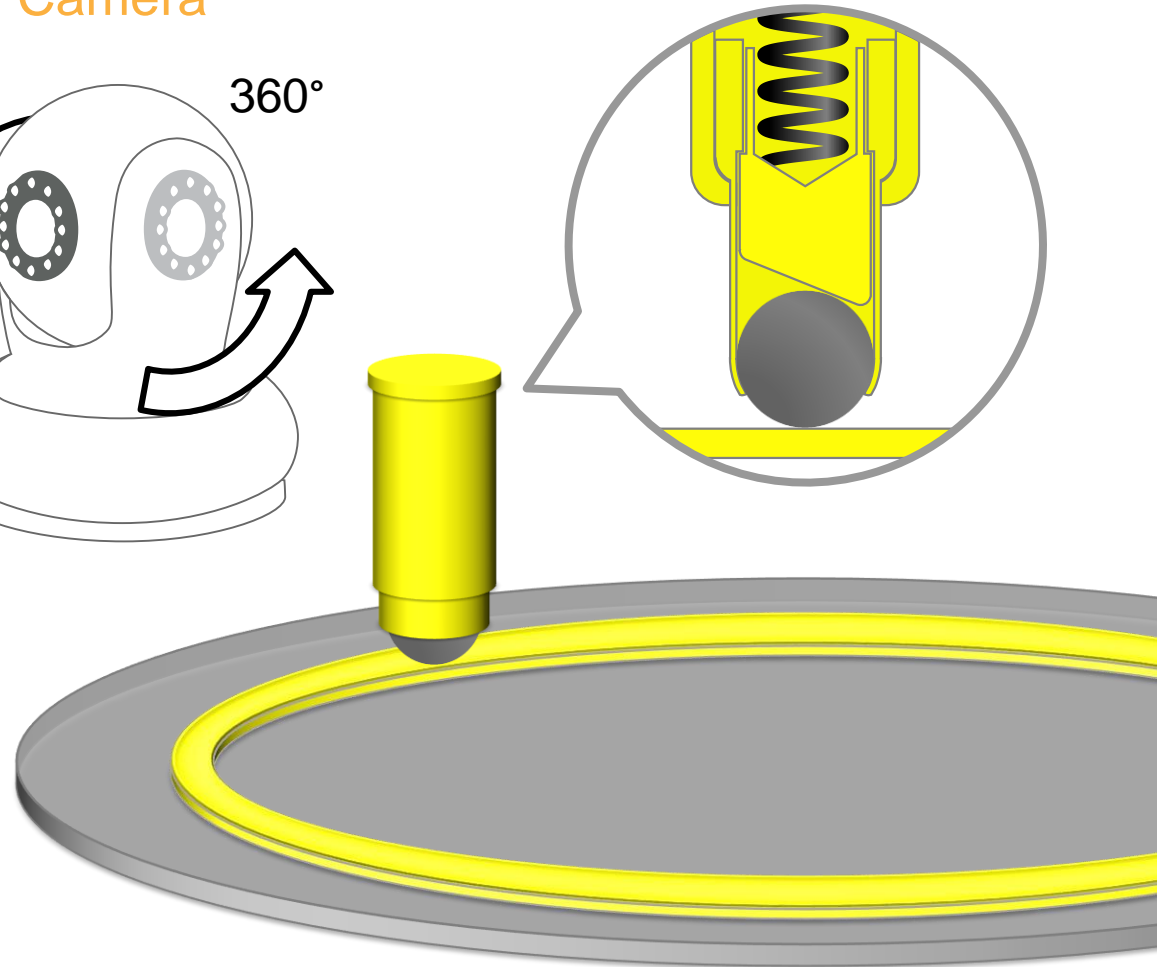
Product Display



Camera



Compression: 10'000 times
Lateral Movement: 25'000'000 mm
Resistance: 100 mOhm
Current: 3 A



Product Line: Performance



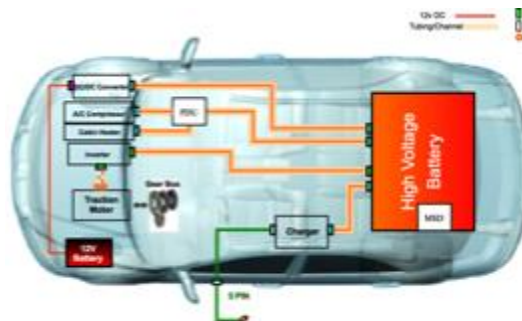
EV Charging



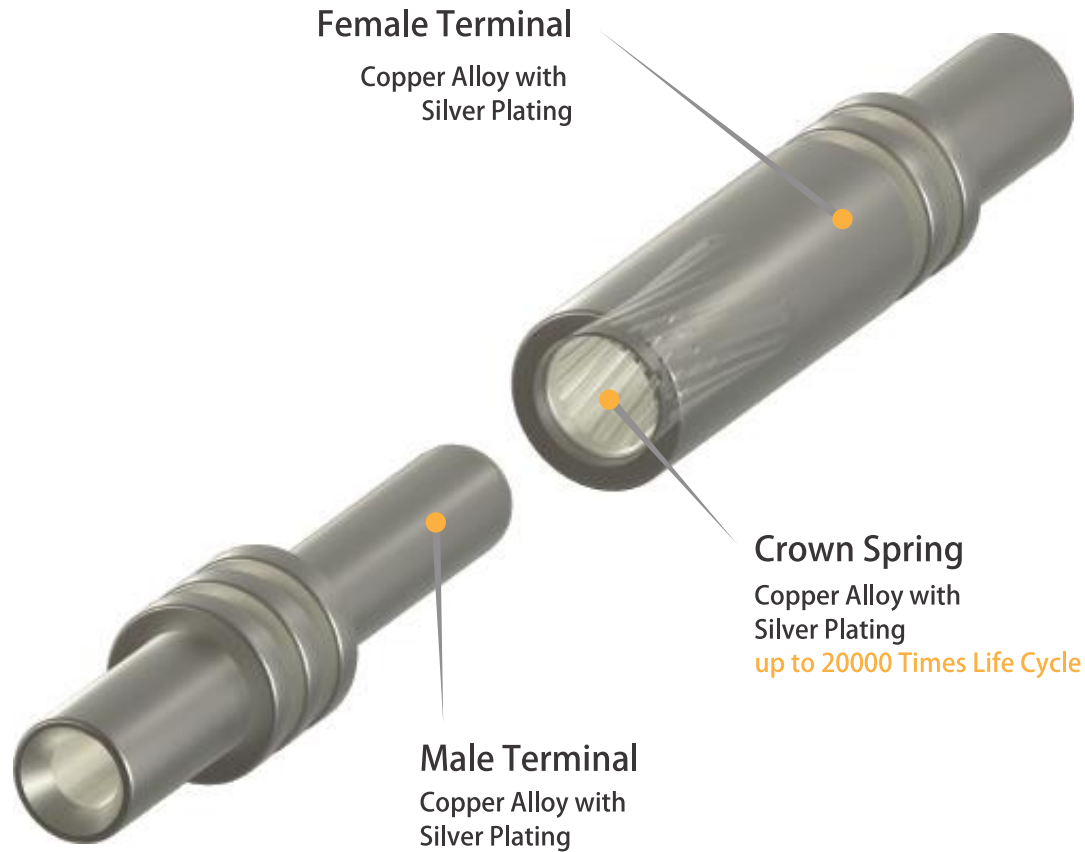
Scooter Battery System



EV Inner Ports



Product Line: Performance



Patent No:
MP1703244
MU1703245

High Current: Applications



Charging module

EV car charging solutions
EV moped battery solutions



Signal connector

Single plug connector
Multiple plug connector
Push-pull connector

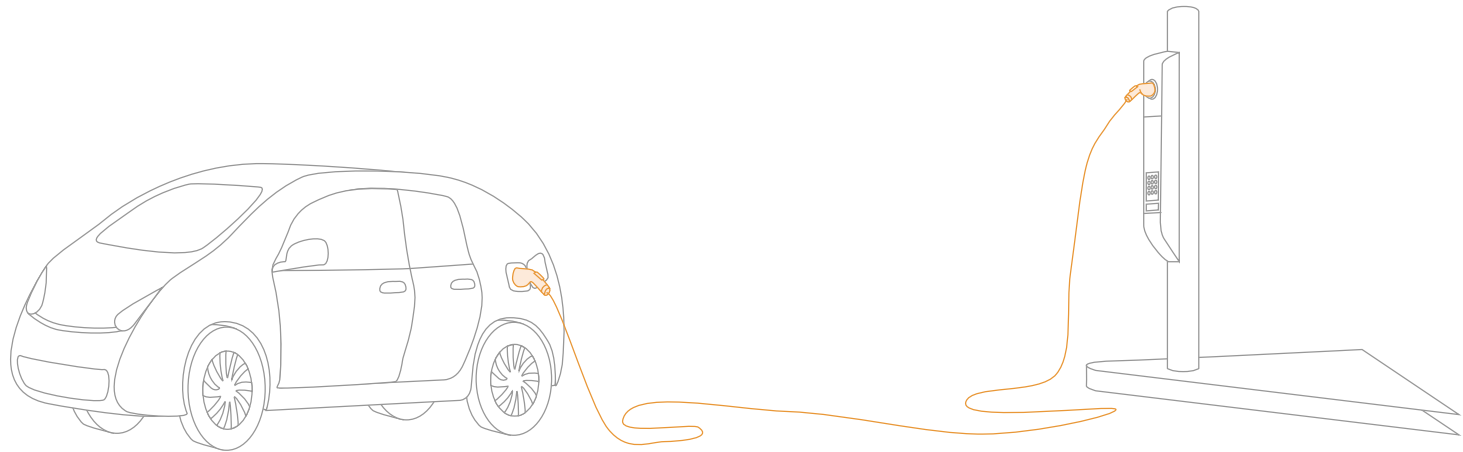


High voltage connector

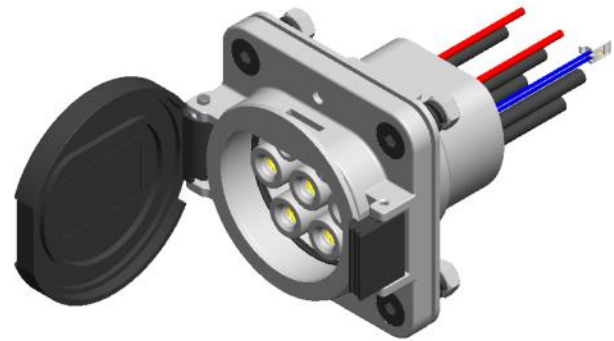
Single plug connector
Multiple plug connector
Push-pull connector



High Current: EV Car Charging

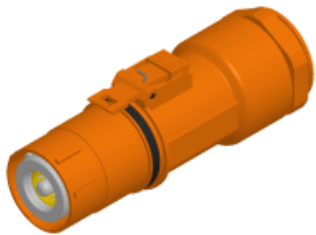
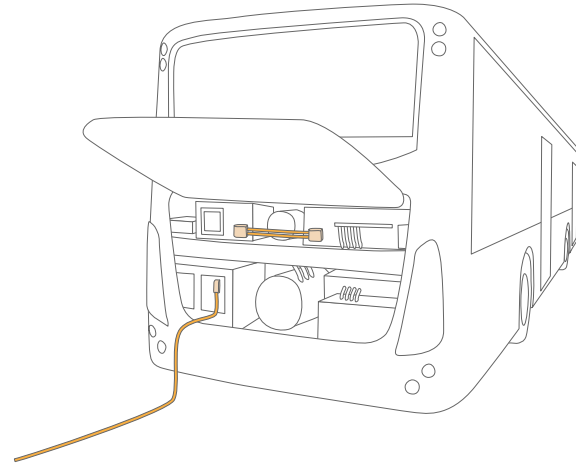
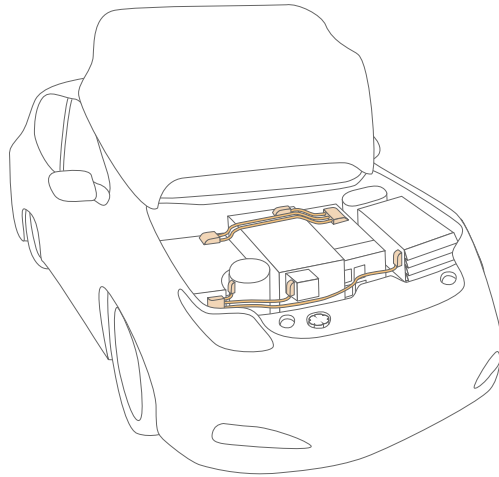


DC/AC Charging Gun

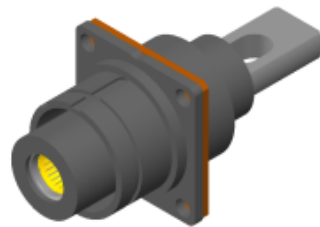


AC/DC Charging Socket

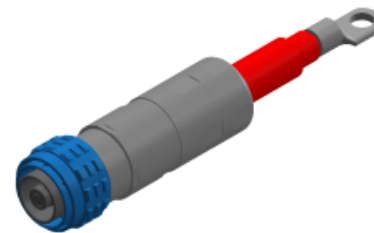
High Current: EV Car Connections



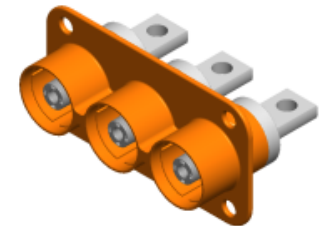
High Voltage
Power Lock Connector



Signal Connector

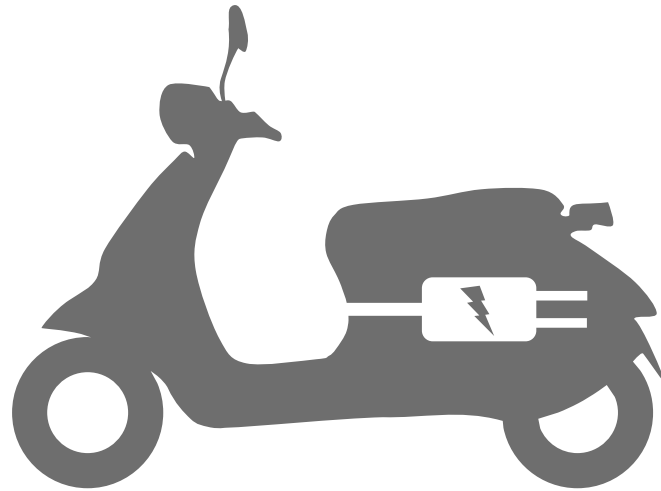


Push-Pull Connector

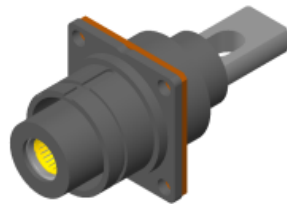


High Voltage
Power Lock Module

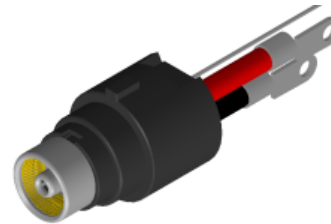
High Current: EV Scooter Solutions



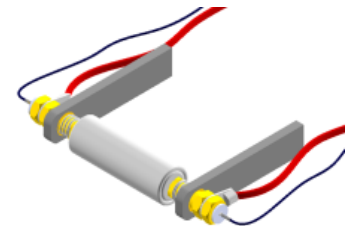
Battery Module



Signal Connector

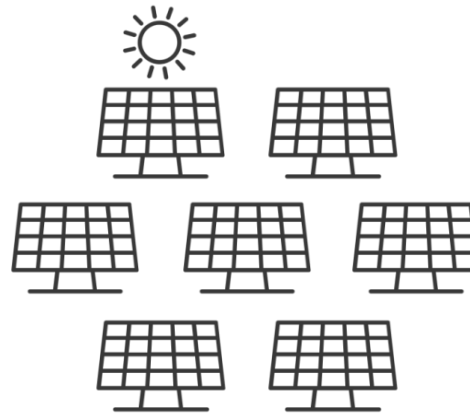


Battery Charging
Solution

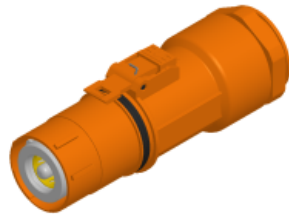


Battery Testing
Solution

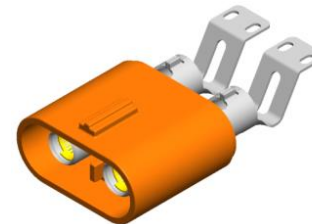
High Current: Solar Panels and Robotics



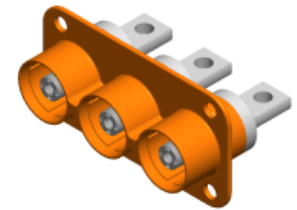
Battery Module



High Voltage
Power Lock Connector

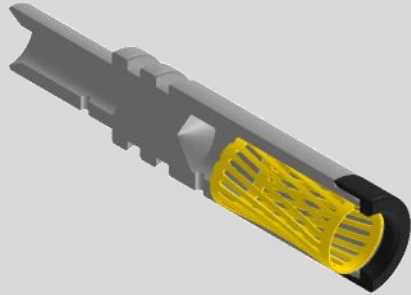


Current Diversion
Connector



High Voltage
Power Lock Module

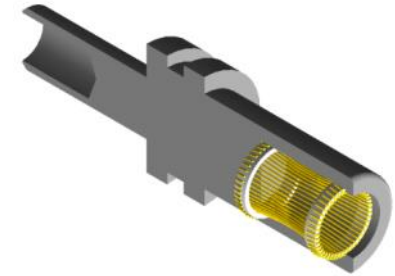
High Current: Comparison



Crown Spring



Flat Spring



Wire Spring

Life cycles



Cost



Current








Temp.

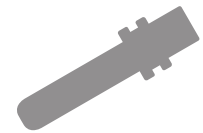
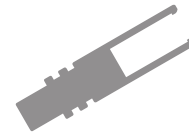


*Up to 600Amp

High Current: Comparison

| 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 |

High Current: Applications



| | Crown spring | Socket | Plug |
|-----------|--|------------------|---------------|
| Material | BeCu | Cu Alloy or Ag | |
| Process | Stamping | Turning by Lathe | |
| Plating | Gold Plating (Ag, Au, Ni..) | | |
| Interface | Tail with Screw or Crimping tail or others | | |
| Head | | | Insulator Cap |
| Remark | Tail with Screw or Crimping tail or others | | |

High Current: Standard Dimensions

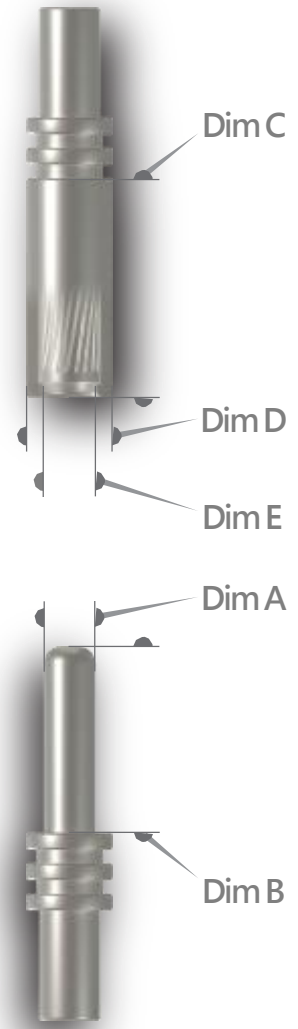


China/ Europe Standard



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 Height Plug) | 14.5 | 28.5 | 30.5 | 12 | 24 | 21 |
| Dim C (mm) (Insertion Height 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 D (mm) (Inner Width Socket) | 3.1 | 6.1 | 12.1 | 1.65 | 2.95 | 3.75 |



Product Line: Industrial



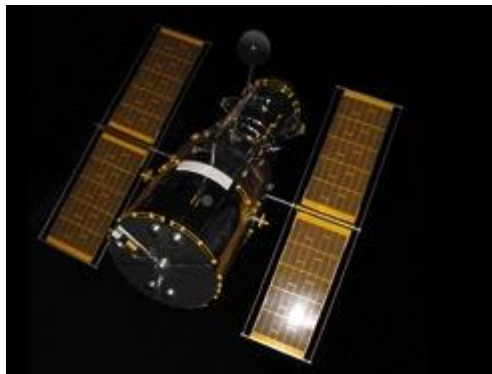
Transportation



Military



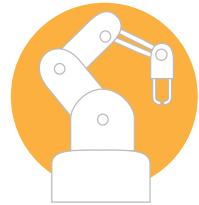
Aerospace



Automation and Mechanical Engineering

Inhouse Machinery Construction

Full automation capability



100% Inspection

Pure Quality

100.000 Clean-Room Production Line

Quality Management

Quality System

ISO 9001: 2015
Quality Management Systems

ISO 14001: 2015
Environmental Management System

IATF 16949: 2016
Automotive Quality Management System

QC 080000
Hazardous Substance Process Management

Quality Assurance



Verification Ability

Testing Items

Environmental

Waterproof
Humidity Test
Salt Spray
Thermal Impact
Resist. to Solder Heat
Vibration

Electrical

Contact Resistance
Insulation
HIPOT
Rated Current

Mechanical

Retention Force
Life Cycle
Vibration
Mechanical Shock

Other

Drop
Soldering Side Force
Solderability

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.



Certificate



ISO 9001
 ISO 14001
 ISO 14064
 IATF 16949
 IECQ QC080000



C.C.P.

