



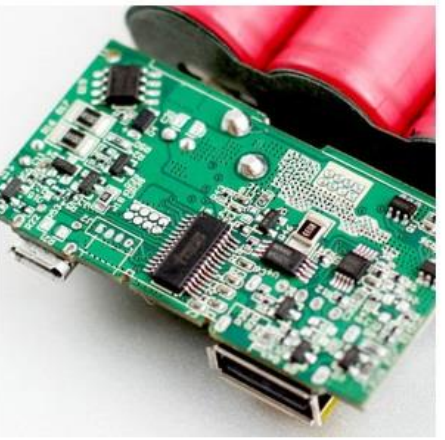
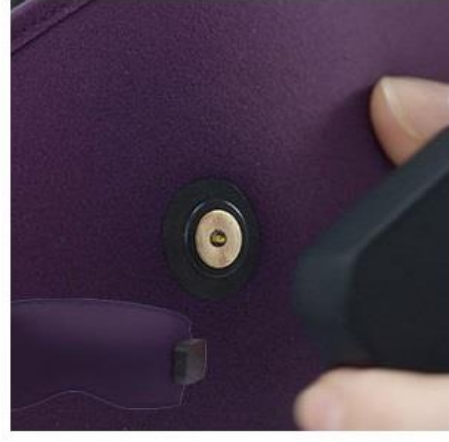
# POGO PIN Connector Solution Designer and Integrator

✦ Pogo Pin ✦



Date: 2024





We are Professional



❖ Shenzhen ZZT Technology Co., Ltd. founded in 2013, is a Chinese technology company that produces high-quality Pogo Pin and Pogo Pin connectors that integrates design, R&D, manufacturing, electroplating, assembly, packaging and sales.



❖ We have been rated as 5A enterprise in the industry. Passed ISO9001&ISO14001&ISO13485&ISO45001&IATF16949 certifications, obtained more than 33 national invention patents, and won the "national high-tech enterprise" certification. We have accumulated a wealth of theoretical and practical experience and can provide customers with complete design and suitable development solutions.





# How Can We Support You?

## R&D System

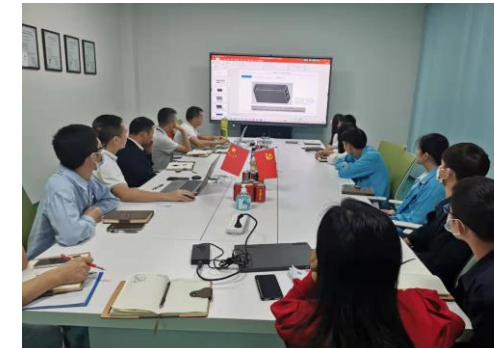
### ✧ Project Department

We adopt a project responsibility system: a project team is established for each project, and the team leader reports to the project manager and has the highest decision-making power over the project. Now our products are used in 5G, Metaverse, Smart home, Smart Medical Electronics, etc.



### ✧ Engineering technicians 工程技术人员

We have a group of high-quality engineering design team of 15 people with rich practical experience. Among them, 2 have postgraduate degrees, 10 have undergraduate degrees, and 3 have junior college degrees.

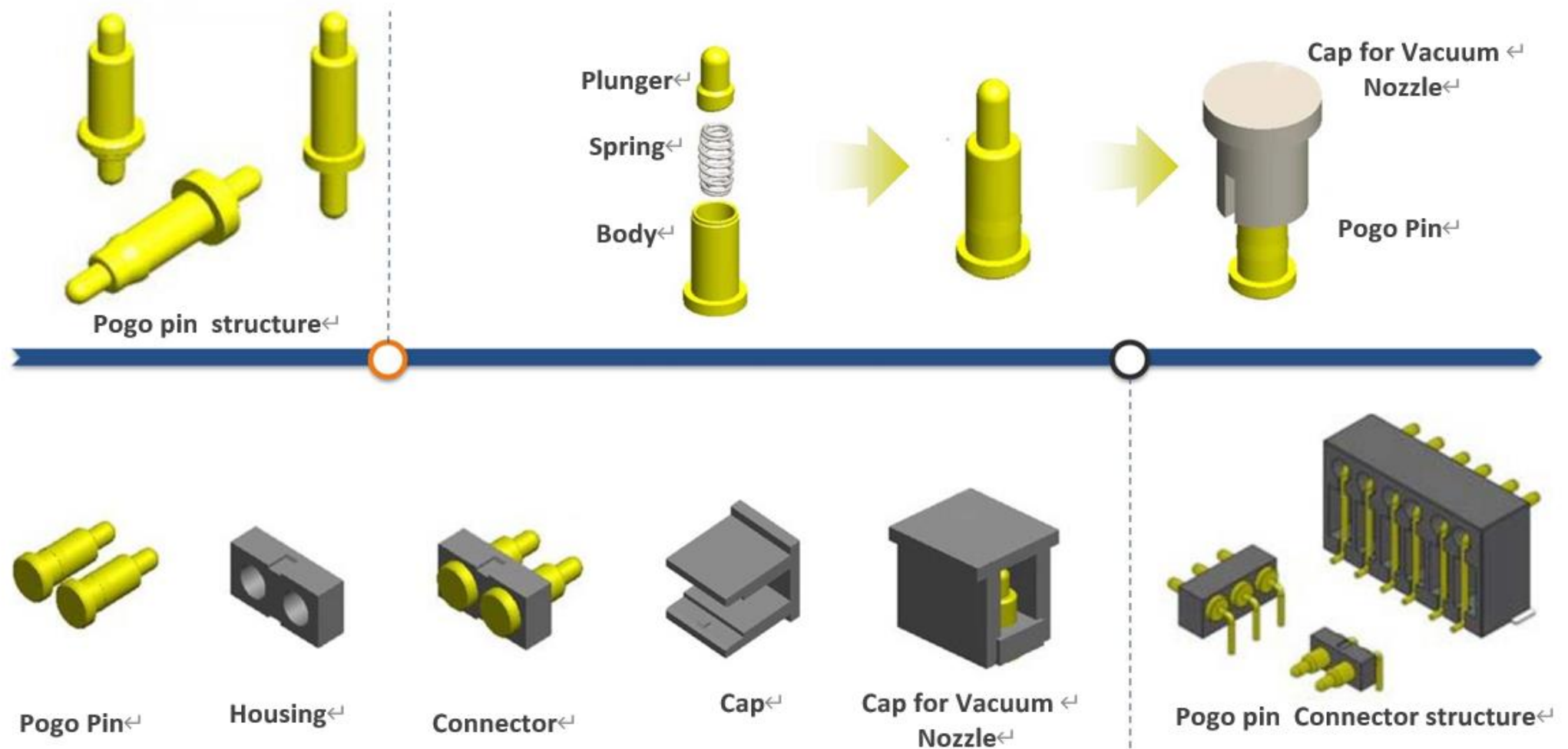




# How Can We Support You?

## Design System

✦ Product Structure and Principle





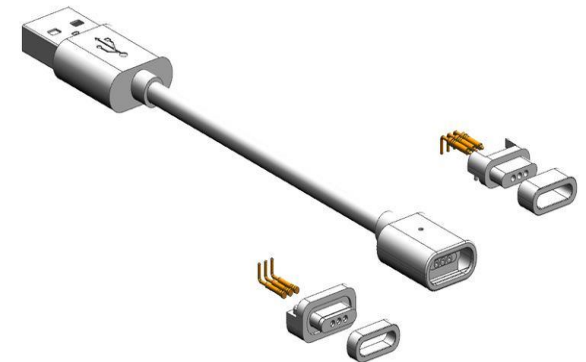
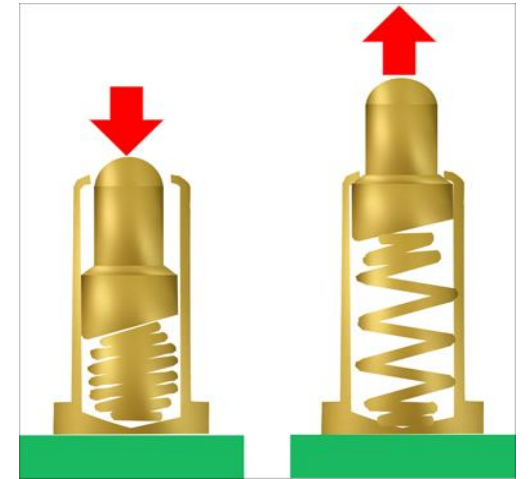
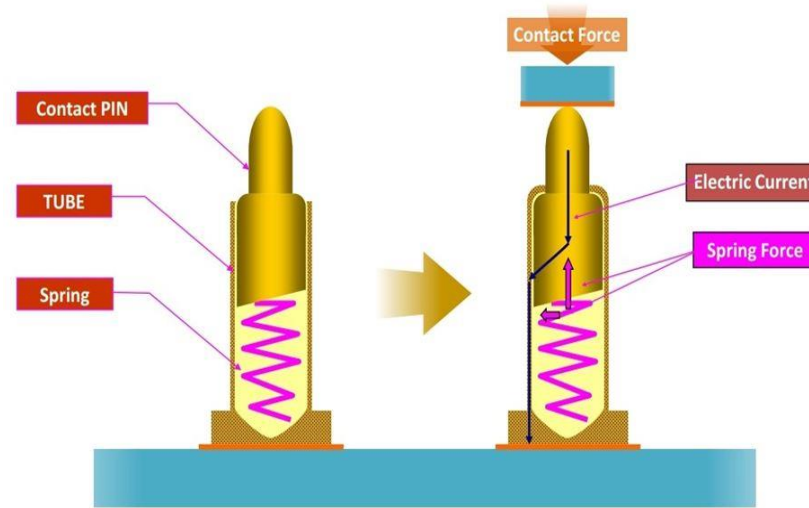
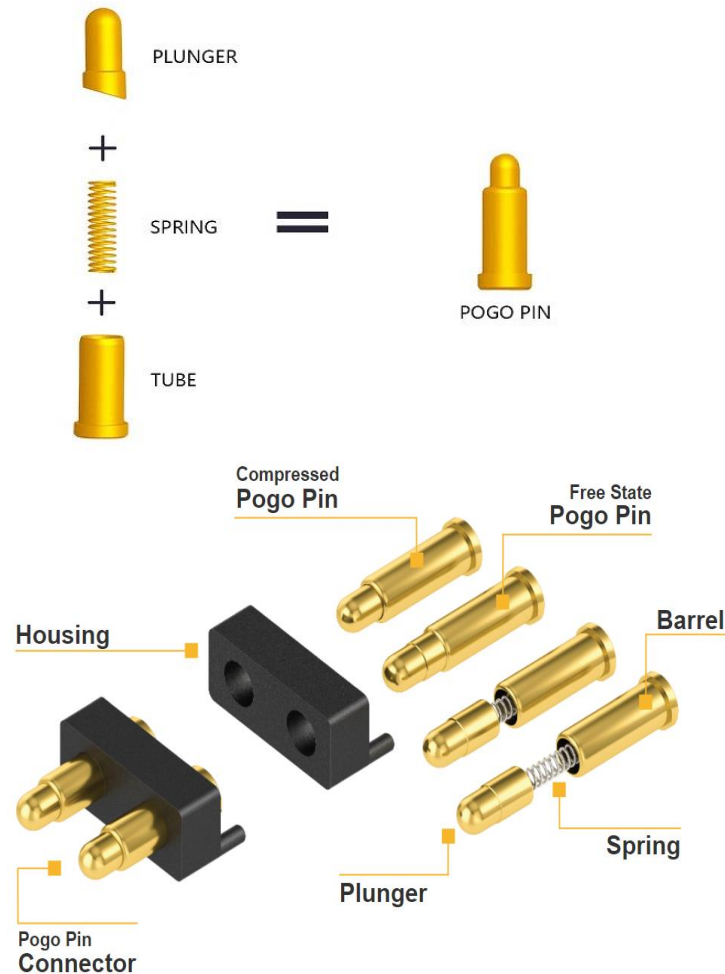


# How Can We Support You?

## R&D System

### ✦ Research and Develop

We have applied for more than 33 patents, including 25 appearance patents and 8 utility models as now completed the "National High-tech Enterprise" certification.





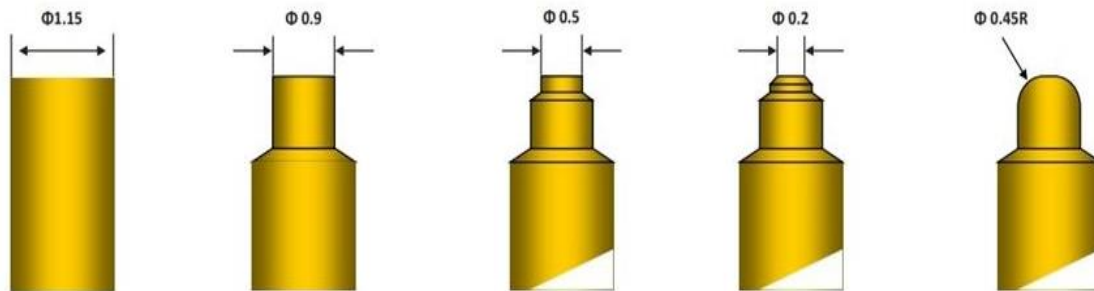
# How Can We Support You?

## R&D System

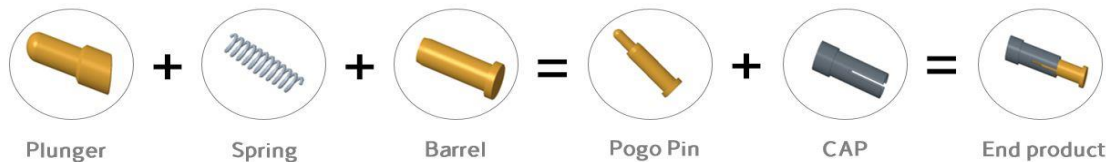
### ❖ Production Technology

Our company has a complete design and development, production and processing, electroplating, assembly, from the turning of the material, to the surface coating treatment, as well as the final product assembly, reliability testing, and packaging can be completed independently, which can be faster and more Efficiently provide customers with products, greatly shortening the product development cycle. With advanced manufacturing equipment, starting from the production details, we strictly control every production process.

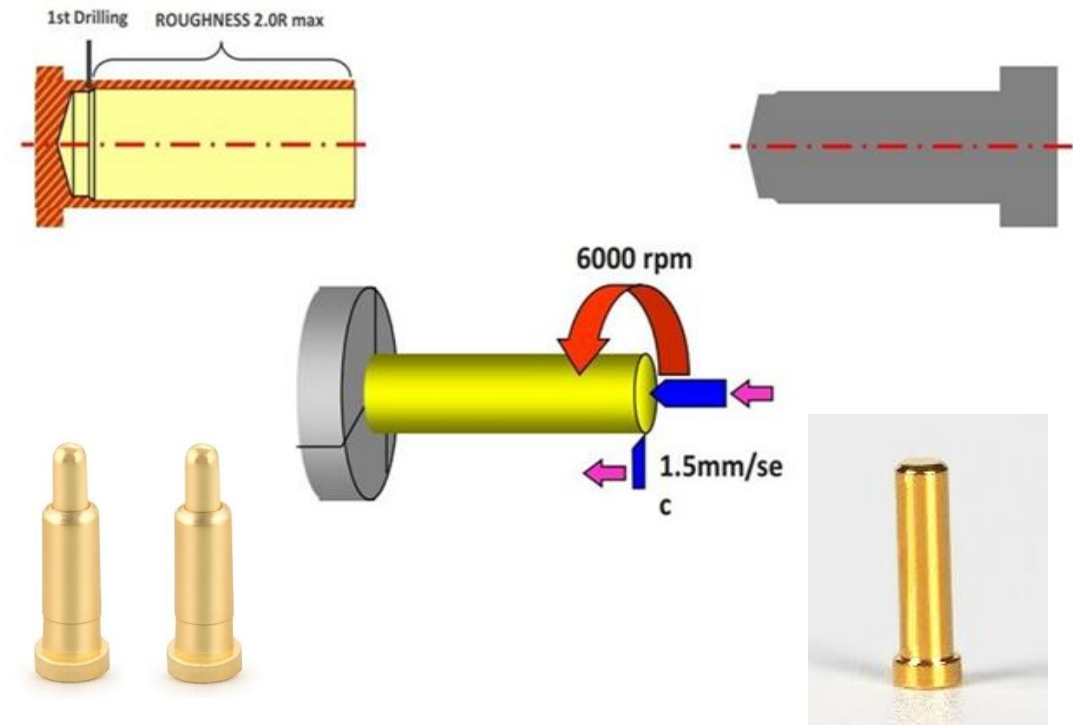
#### Manufacturing Process of Plunger



It needs the Polishing process after Cold Forming in order to remove the edge and to make the radius.



#### Manufacturing Process of Body





# How Can We Support You?

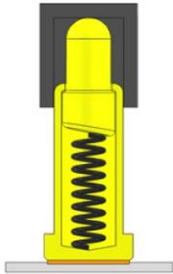
## R&D System

### ✦ Technical advantages

We have digital simulation analysis technology: in the design stage, we conduct analysis and verification based on virtual products to discover design problems in advance; after the product design is completed, we perform necessary virtual simulations on the products to minimize the number of experimental verifications; digital simulation analysis has The following advantages:

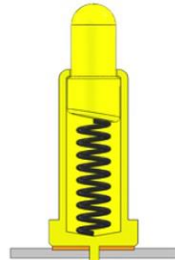
1. Improve product quality;
2. Shorten product development cycle;
3. Reduce product development cost.

SMT with Cap



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

Dip



Dip tail is used for higher soldering force on PCB when it's needed.

Wired



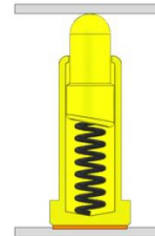
Wire can be soldered onto a drilled dip for cable module.

Right Angle



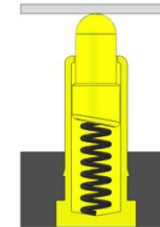
Side of square tube can be soldering area for different mechanical structure.

Board to Board



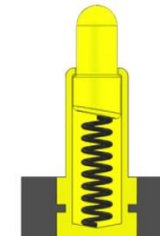
This structure is used to absorb the tolerance in-between PCBs.

Case to Board



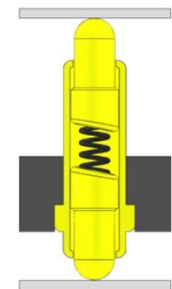
The bottom of pin can also be a cosmetic/contact area if necessary.

Insert-molding



Pins can be insert-molded for waterproofing requirement.

Double Ended



It's possible to have two movable tips.

PCB/ Wire Plastic Cap Solder

PCB Plastic Housing





# How Can We Support You?

## R&D System

✧ **High current Charging Solutions** Our R&D team has always cooperated with brand companies and is unique in high-current charging technology solutions.

Charging Advantages: 1. Good design is fast. 2. Compressible stroke to absorb manufacturing tolerance. 3. No waiting on molds and being flexible between PCBs. 4. Easy to modify the spring force for rapid prototyping.

### Drill Design

This plunger creates extra space for the spring and allowing shorter pogo pin designs.



Pin Length: 2.5 mm  
Current: 1 A~2 A

### Oblique Structure

This design plunger creates a lateral force and better contact.



Pin Length: 3.5 mm  
Current: 2 A~5 A

### Ball Point

The ball inside stabilizes the contacting areas for better performance.



Pin Length: 4.5 mm  
Current: 3~15 A



# How Can We Support You?

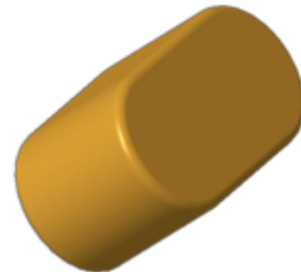
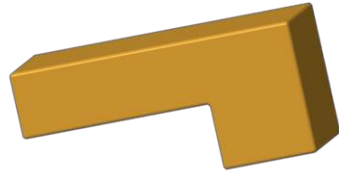
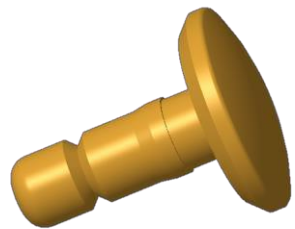
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## ✧ Charging Pad PAD

To meet the requirements of customers for electrolysis resistance and hand sweat resistance, our company has specially developed a composite coating electroplating process to meet customer requirements and achieve cost-effective optimization.

According to the customer's product ID and the test requirements of the whole machine, a cost-effective electrolysis-resistant composite plating solution can be recommended.

At present, our company has applied for a series of related coating patents, maintaining the leading level in the industry, including composite electroplating, partial electroplating and other processes. Main material: lead-free copper, stainless steel.

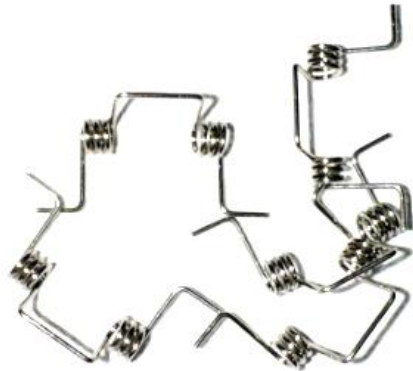




# How Can We Support You?

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✦ Shaft/ Magnetic rod/ Torsion spring



To better serve customers and meet customer needs, our company supports the processing of shafts, torsion springs, magnetic rods, MIM parts and die-casting hardware products.





# How Can We Support You?

## Product Show

### ✦ Pogo Pin Connector

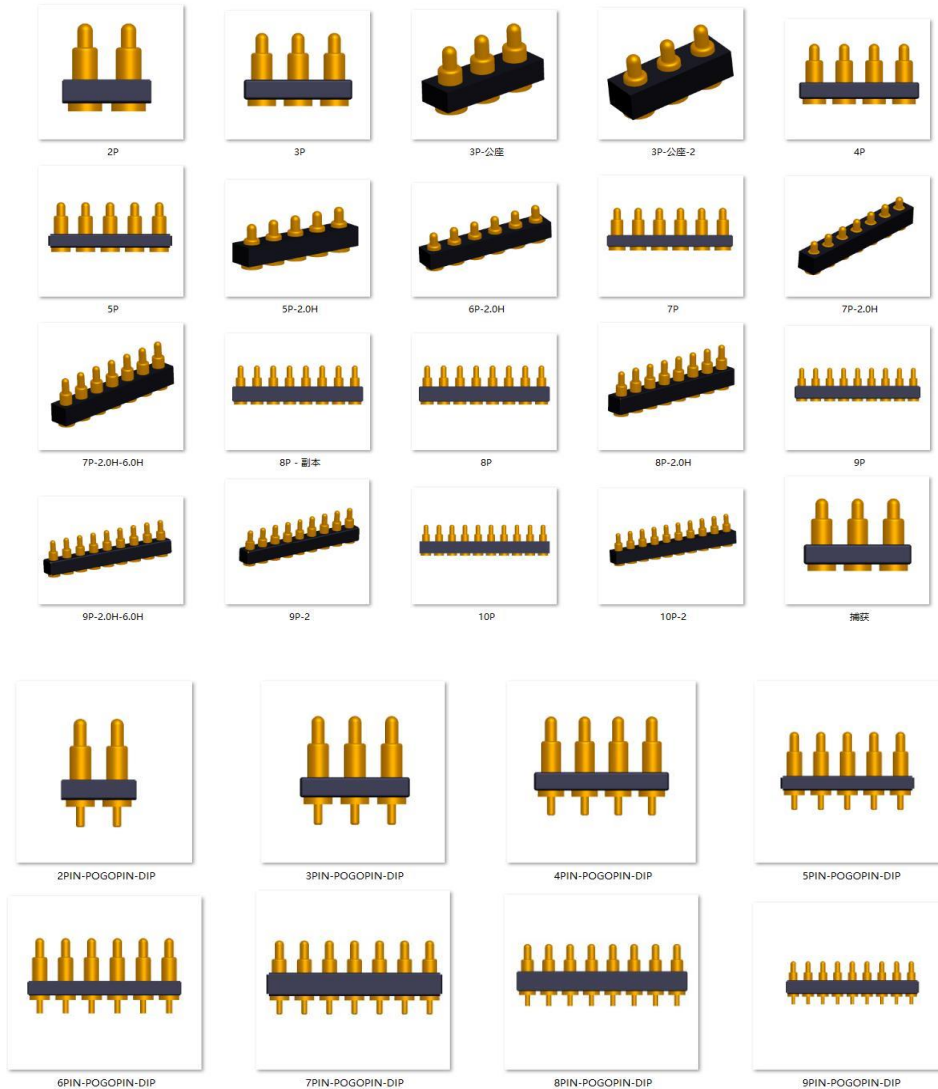




# How Can We Support You?

## Product Show

### ✧ Pogo Pin Male Connector





# How Can We Support You?

## Product Show

### ❖ Pogo Pin Male Connector



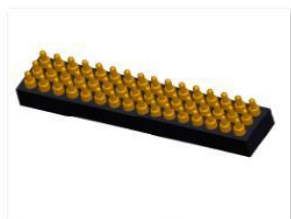
2X18=36P-公座



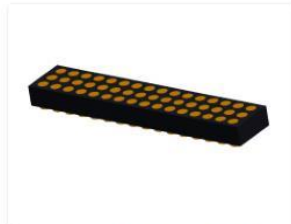
3排-48254PP-弹簧针连接器



3排-48254PP-弹簧针连接器-2



3排-48254PP-弹簧针连接器-3



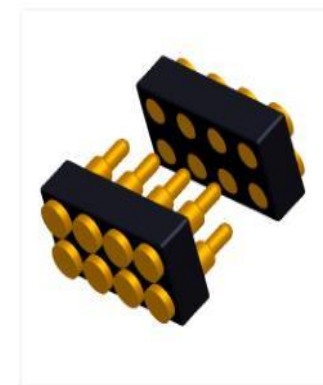
3排-48254PP-弹簧针连接器-母座



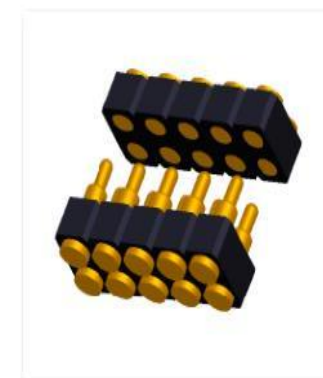
10P-双排



2X3=6P公母座



2X4=8P公母座



2X5=10P公母座



12P-POGO-PIN-音箱充电公母座



12P-POGO-PIN-音箱充电公母座-2



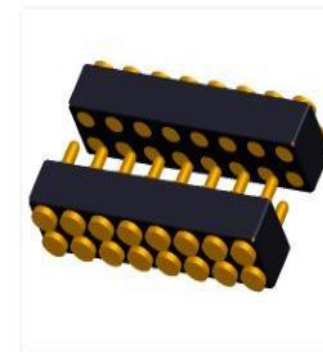
20P-公座



2X6=12P公母座



2X7=14P公母座



2X8=16P公母座

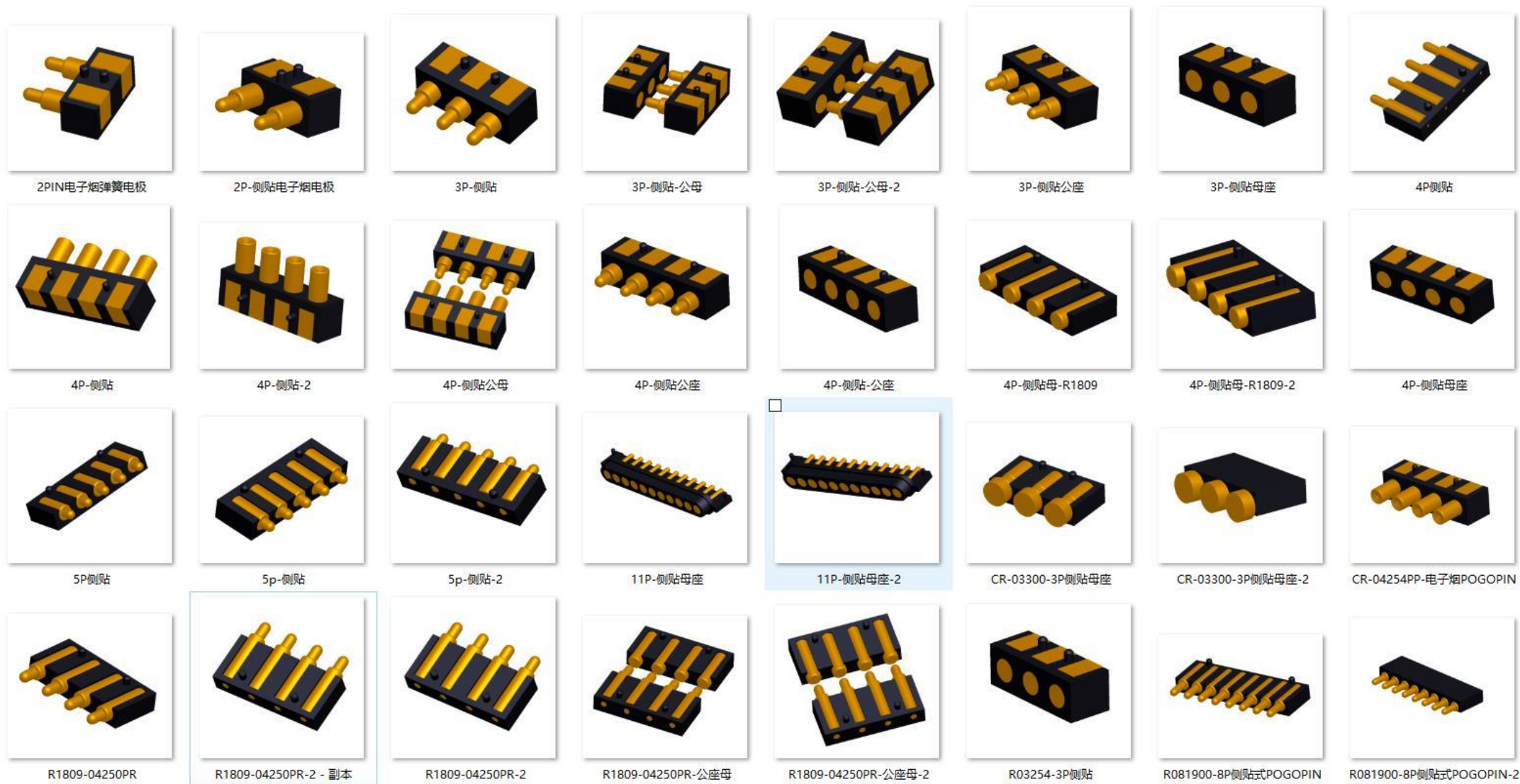




# How Can We Support You?

## Product Show

### ✧ Pogo Pin Male and Female Connector





# How Can We Support You?

## Product Show

### ✧ Pogo Pin Female Connector



2P-2.54PH-母座



3P-2.54PH-母座



3P-2.54PH-母座-2



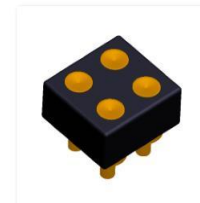
2X2=4P-2.54PH-母座



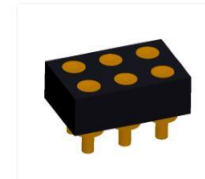
2X3=6P-2.54PH-母座



2X4=8P-2.54PH-母座



C2-2



C2-3



C2-4



4P-2.54PH-母座



4P-2.54PH-母座-2



5P-2.54PH-母座



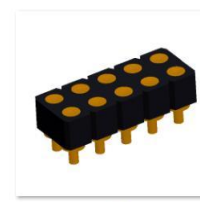
2X5=10P-2.54PH-母座



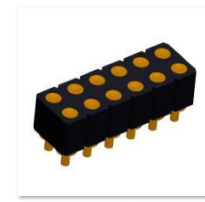
2X6=12P-2.54PH-母座



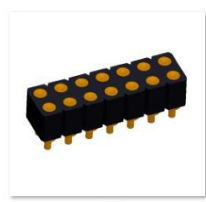
2X7=14P-2.54PH-母座



C2-5



C2-6



C2-7



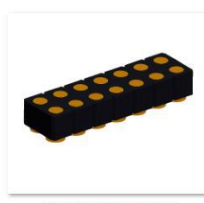
6P-2.54PH-母座



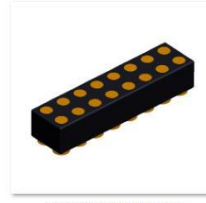
7P-2.54PH-母座



8P-2.54PH-母座



2X7=14P-2.54PH-母座-2.5H



2X8=16P-2.54PH-母座-2.5H



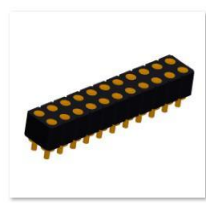
2X9=18P-2.54PH-母座-2.5H



C2-8



C2-10



C2-11



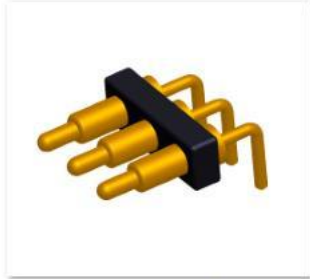
# How Can We Support You?

## Product Show

### ✦ Right Angel Pogo Pin Connector



02254-折弯公座



03254-折弯公座



04254-折弯公座



06254-折弯公座



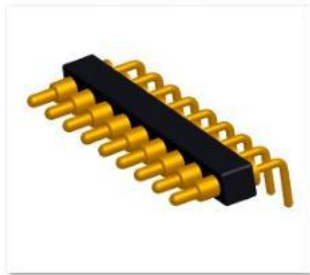
07254-折弯公座



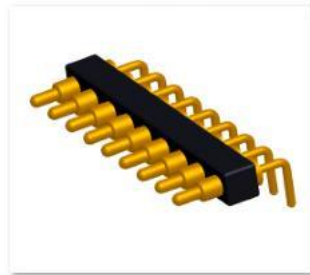
08254-折弯公座



09254-折弯公座 - 副本 - 副本



09254-折弯公座 - 副本 (2)



09254-折弯公座 - 副本



2P-折弯式POGOPIN-穿板焊接式



2P-折弯式POGOPIN-穿板焊接式-2



POGOPIN-单个弹簧针-折弯式



单排-10254PP-POGOPIN弹簧针连接器



单排-10254PP-POGOPIN弹簧针连接器-2



单排-10254PP-POGOPIN弹簧针连接器-3



02254-折弯母座



02254-折弯母座-2



03254-折弯母座



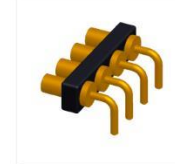
03254-折弯母座-2



04254-折弯母座



04254-折弯母座



04254-折弯母座-2



05254-折弯母座-2



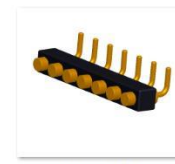
05254-折弯母座-3



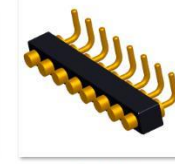
06254-折弯母座



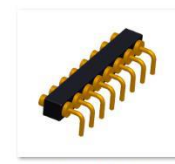
06254-折弯母座-2



07254-折弯母座



08254-折弯母座



08254-折弯母座-2

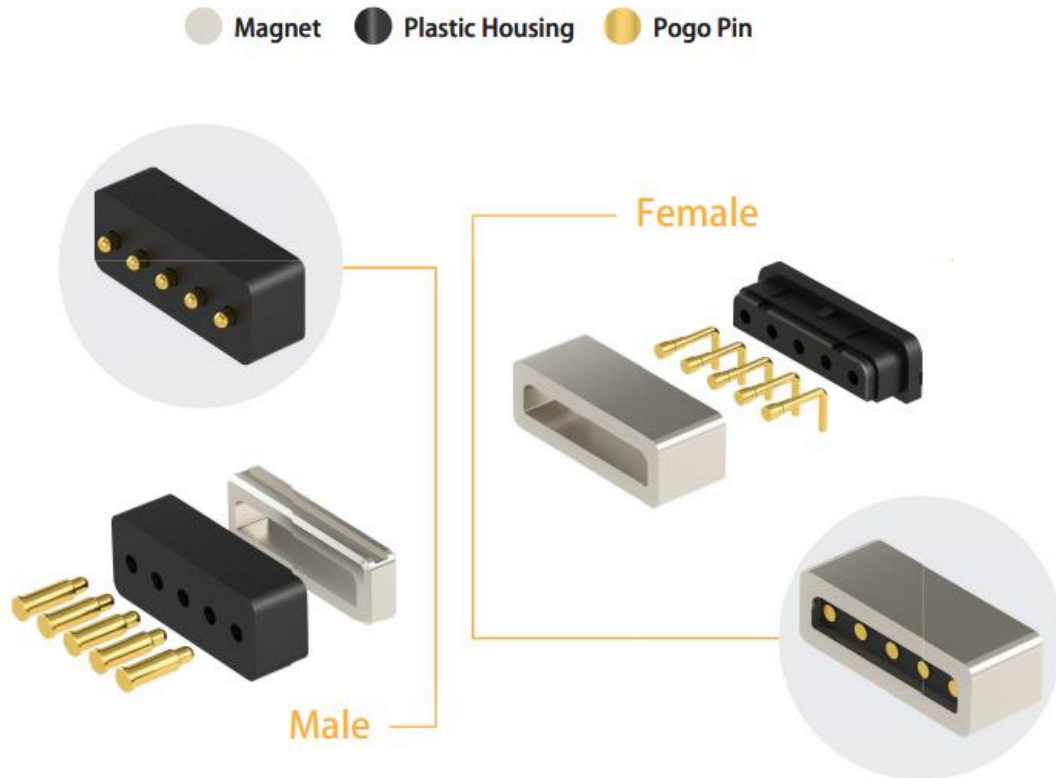








# How Can We Support You?

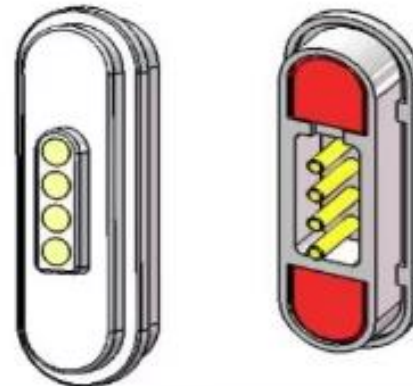
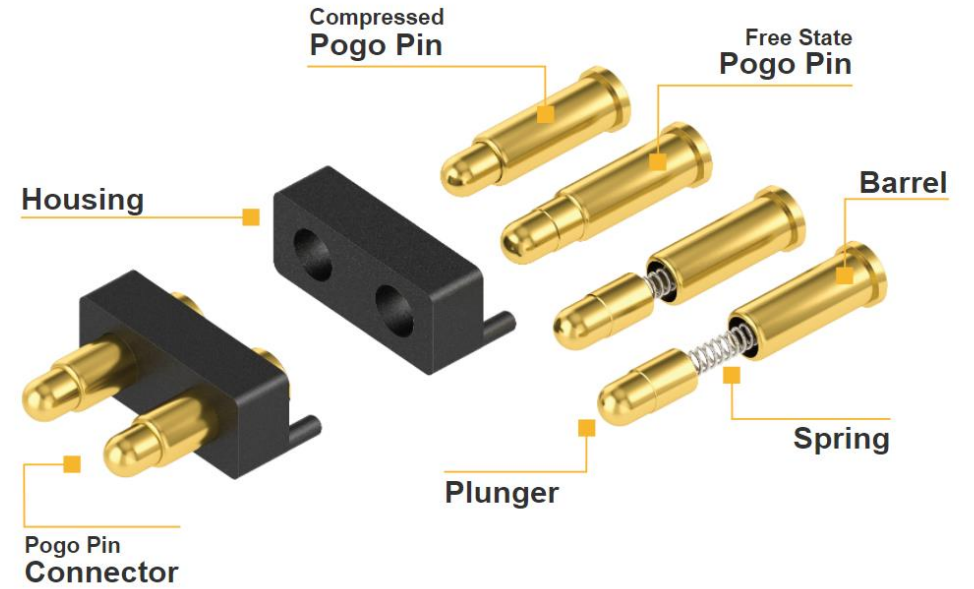
## Product Show

### ✦ Magnetic Pogo Pin Connector



-  Easy to plug
-  Very durable

-  No accidental breaking
-  Suitable for high frequency transmission





# How Can We Support You?

## Product Show

## ✦ Typical Cases



荣耀X2

Composite plating, silver appearance

Shipment 1KK, shaped PAD



OPPO Enco air

Composite plating, silver appearance

Shipment 2.5KK, shaped PAD



OPPO Enco W31

Composite plating, silver appearance

Shipment 200K, Pogo Pin & PAD



real me Buds Q2

Composite plating, silver appearance

Shipment 200K, Pogo Pin & PAD



real me Buds air3 Neo

Composite plating, silver appearance

Shipment 600K, shaped PAD



vivo tws 3

Composite plating, silver appearance

Shipment 300K, shaped PAD



荣耀X3i

Composite plating, silver appearance

Shipment 2KK, normal PAD



real me T100

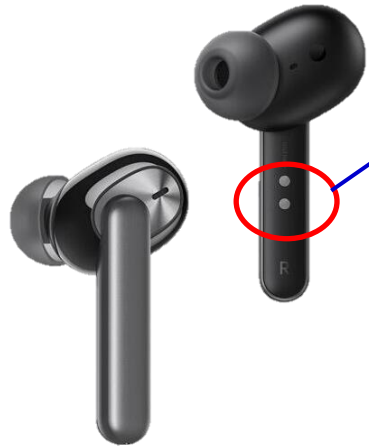
Composite plating, silver appearance

Shipment 2KK, shaped PAD



# How Can We Support You?

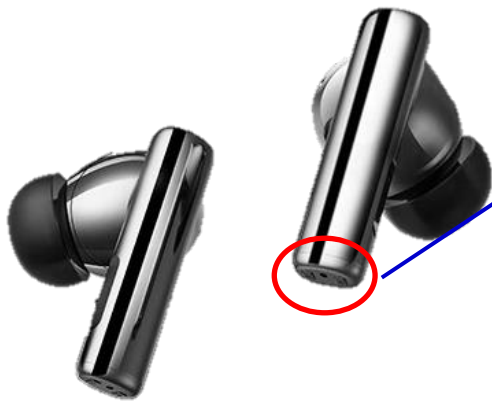
## ✧ Production process



Production process: Injection molding  
Material: 904L  
Electroplating process: partial nickel plating and gold plating  
Appearance color: silver



Assembly process: fixture cold pressing  
Material: Lead-free copper  
Electroplating process: composite coating  
Appearance color: silver



Assembly process: SMT, then assembly  
Material: lead-free copper  
Electroplating process: composite coating  
Appearance color: silver



Assembly process: SMT, then assembly  
Material: lead-free copper  
Electroplating process: composite coating  
Appearance color: silver

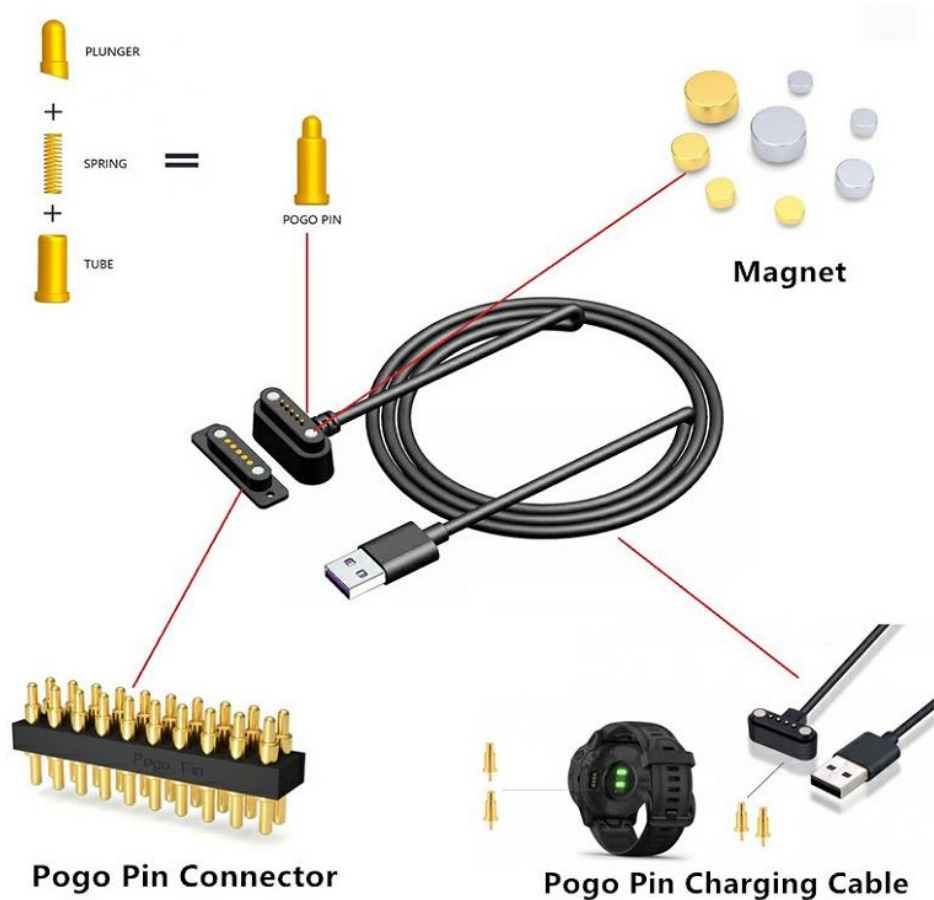




# How Can We Support You?

## Product Show

### ✦ Magnetic Pogo Pin Cable



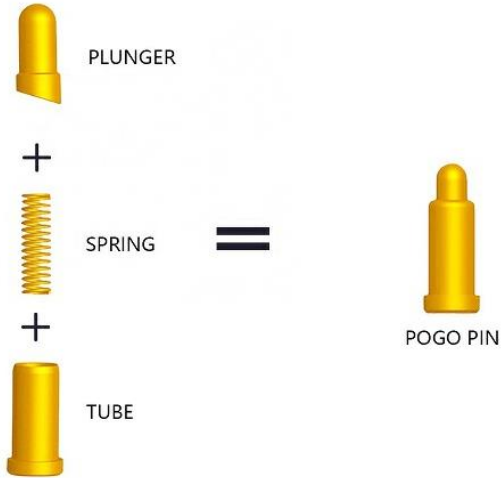
Medical Magnetic Pogo Pin Cable



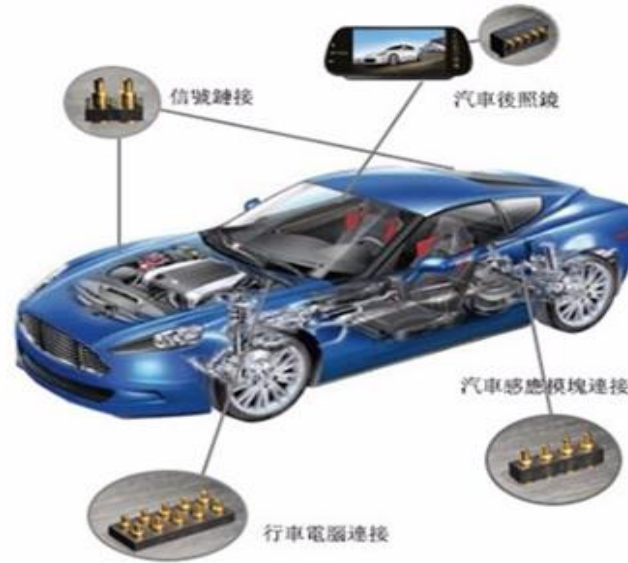
# How Can We Support You?

## Product Show

### ✦ Typical Cases



## Automotive connector





# How Can We Support You?

## Supply System

### Material Choose

**Our Pogo Pins are mainly made of lead-free brass; the springs are mainly SUS304.**

Material	Lead Free Brass	Brass C3602	SUS304	SWP Piano Wire
Material characteristics	<ul style="list-style-type: none"> <li>Tensile strength: 450MPa</li> <li>Hardness: HV115-130</li> <li>Elongation: 15%</li> <li>Machinability: 85%</li> </ul>	<ul style="list-style-type: none"> <li>Tensile strength: 345~620MPa</li> <li>Yield strength: 150MPa</li> <li>Elongation: 5%</li> </ul>	<ul style="list-style-type: none"> <li>Tensile strength: 520MPa</li> <li>Hardness: HB ≤187 HRB ≤90 HV ≤200</li> <li>Elongation: 40%</li> <li>Yield strength: 150MPa</li> </ul>	<ul style="list-style-type: none"> <li>Tensile strength: 2840~3430 MPa</li> <li>Hardness: HB 41-46 HRB</li> <li>Elongation: 50%</li> <li>Yield strength: 260MPa</li> </ul>
	Pb < 0.01%, Cd < 0.001%, meet the latest environmental protection requirements of Europe and the United States and other countries.	Pb < 4% (40000mg/Kg), RoHS exemption;	Meet the latest environmental protection and RoHS requirements of Europe and the United States and other countries.	Meet the latest environmental protection and RoHS requirements of Europe and the United States and other countries.
Electrical conductivity	40%	40%	Resistivity: 0.73 Ω·mm <sup>2</sup> ·m <sup>-1</sup>	
Advantages/Disadvantages	The structure is dense and uniform, the corrosion resistance is good, and the machining performance such as hot forging, cutting and drilling is excellent.	It has high strength, good plasticity, easy processing and electroplating, low cost, and the most common application.	It has high corrosion resistance, high plasticity and toughness at low temperature, room temperature and high temperature, as well as good cold forming and weldability.	Excellent winding ability, excellent corrosion resistance, high tensile strength and excellent formability and elongation, good winding performance; but the cost is expensive.





# How Can We support you?

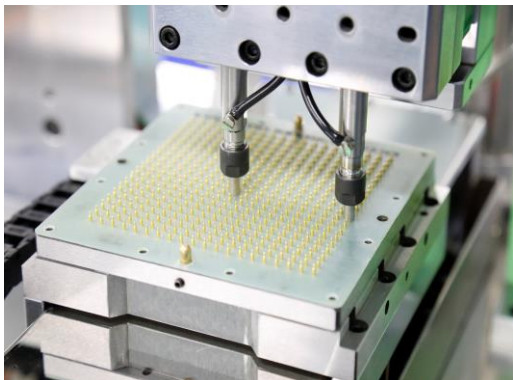
## Production Management System

### ✧ Manufacturing and Assembly Department

Have an independent machining and turning workshop to control every production process of the product from the source. Independent research and development of bevel pogo pin cutting technology, high processing precision and stable products. Our company has an independent spring processing workshop, which is clean and dust-free, and controls every production process of the product from the source. The independent processing has high precision, strict control, stable performance and quality assurance.



With advanced manufacturing equipment, starting from the production details, we strictly control every production process. Our Assembly workshop: skilled assembly process, under the guidance of SOP operating instructions, strictly abide by the assembly production process and operating specifications to ensure that each link is controllable.





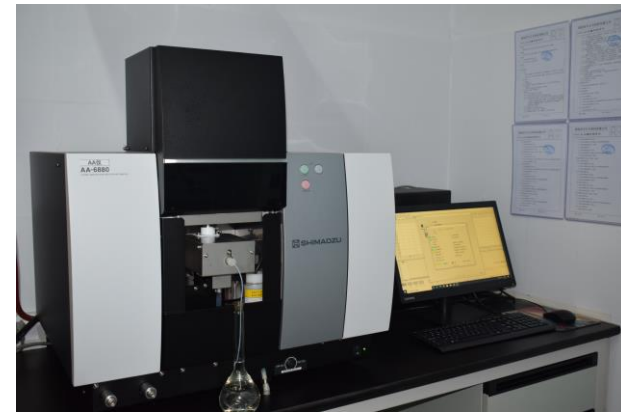
# How Can We Support You?

## Production Management System

### ❖ Electroplating Department

**1. Quality 品质** In order to better serve customers and ensure quality, the electroplating department has set up a special space, and more than ten years of skilled technicians will configure electroplating solutions and reagents to ensure the high quality and high level of electroplating and electrolysis.

**2. Production 生产** Provide the most suitable electroplating solutions for the requirements of different customers and different products. At present, there are mature and stable coating processes. Mass-produced coatings such as copper plating, pogo pin plating, tin plating, gold plating, palladium plating, rhodium plating, ruthenium plating, etc. Process and electroplating patents.





# How Can We Support You?

## Production Management System

### ✧ Electroplating Characteristics

#### Electrical Properties of Common Coatings and Specific Gravity Specifications:

Materials	Conductivity: M/W	Resistivity: Xmm <sup>2</sup> W	Specific gravity g/cm <sup>3</sup>	Melting temperature °C
Sn 锡	9 (9×10 <sup>6</sup> )	11.0 Ω.m	7.2	230°C
Ag 银	62 (62×10 <sup>6</sup> )	1.586 Ω.m	10.5	960°C
Au 金	41 (41×10 <sup>6</sup> )	2.4 Ω.m	19.3	1000°C
Pd 钯	9.1 (9.1×10 <sup>6</sup> )	11.5 Ω.m	12.0	1552°C
Ni 镍	14 (14×10 <sup>6</sup> )	6.84 Ω.m	8.9	1450°C
Cu 铜	57 (57×10 <sup>6</sup> )	1.678 Ω.m	8.9	1084°C
Pt 铂	95 (95×10 <sup>6</sup> )	(20 °C) 10.6 Ω·m	21.35	170°C

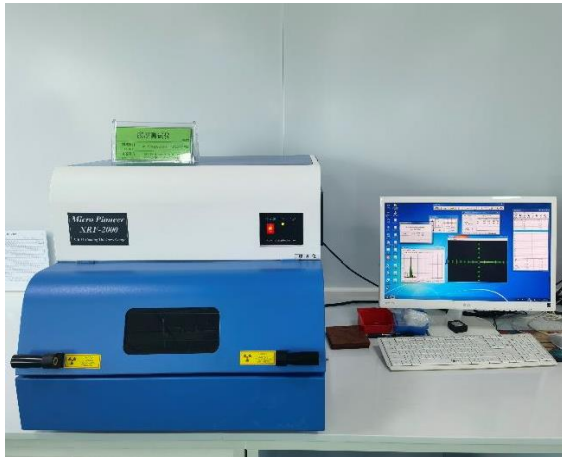




# How Can We Support You?

## Quality Assurance System

### ✦ Quality Department



#### 2. Reliability test equipment:

##### A. Electrical properties

Resistance test

High current and temperature rise test

##### B. Environmental test performance

Thermal shock test

Salt spray test

solar radiation test

High temperature and high humidity test

HS test, boiled test

UV weather resistance test



##### C. Mechanical/Structural

Properties life test

Hardness Testing

Film thickness test

Metallographic test

Bend Test

Wear test

Vibration wear test

Tensile Strength Test

Pull/Pressure Elasticity Test

#### 1. Quality system and process control:

- 1) The system documents are complete, and each process is identified and defined in the form of program documents;
- 2) IQC incoming materials have normative documents for various raw material sources and key control points, and there are monitoring records;
- 3) The production documents and quality control documents are complete, and the product size and key parameters of the first article and inspection are operated, confirmed and recorded in accordance with the requirements of SIP and SOP;
- 4) Molds, fixtures, and inspection tools have a complete quality monitoring process and record output;
- 5) Process stability and process verification have a complete quality monitoring process and record output;
- 6) Product protection, reliability testing, HSF hazardous substance control, labeling and traceability have complete quality monitoring processes and record output;



# How Can We Support You?

## Testing & Reports System

Project Feasibility Report

Acknowledgment

warehousing record

Outbound record

Material inspection report

Size inspection report

Appearance inspection report

Film Thickness Test Report

Salt spray test report

Electroplating report

Electrolysis test report

Artificial sweat resistance test report

Spring full test report

Resistance and Impedance Testing

ROHS test

Constant temperature and humidity test report

Current Test Report

shipment Report

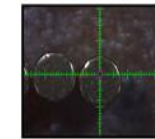
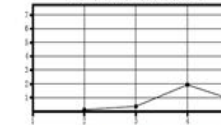
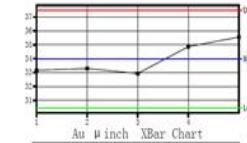
Product Manual

### Thickness Test Report

Application : Au/Ni//Brass

Date No 5 5  
Max 35.556 87.936  
Min 32.936 57.138  
Range 2.620 30.798  
Mean 33.966 70.875  
Std. Dev. 1.172 11.661  
CV% 3.451 16.452

2021/9/29  
11:33



### Resistor Resistance Test Report

日期		2021-9-18	温度	25	湿度	85%
料号	ZK200035-DK-1	规格	PIN-2.0-0.5-1.5-2.5-3.5			
Test Speed	6 mm/min	Std.	GB9341-88			
行程 方向 弹力 阻值						
0.2	Down	37.4	39.0			
	Up	33.8	39.6			
0.4	Down	69.7	27.4			
	Up	63.3	30.7			
0.5	Down	56.5	24.7			
	Up	63.4	26.2			
0.6	Down	70.0	11.2			
	Up	50.4	25.2			
0.7	Down	77.6	8.7			
	Up	53.8	20.3			

Test by	<input type="checkbox"/>	Review	
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# How Can We Support You?

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## Testing & Reports System

### ✦ Performance Parameters

- **Key performance parameters:**

- ✦ **Working voltage:** Less than 12 Volts DC
- ✦ **Rated current:** 1.0 Amperes /Pin
- ✦ **Operating temperature:** -40°C to 85°C.
- ✦ **Storage temperature:** 25°C +/-3°C.
- ✦ **Working Environment Humidity:** 10%R.H. to 90% R.H.
- ✦ **Durability (lifetime):** 20,000 cycles.
- ✦ **Pogo pin Elastic Value:** 15gf ±5gf (within the working height range)
- ✦ **Soldering resistance temperature:** 260 °C. / 3 minutes.
- ✦ **Contact resistance:** 200mohm Max. @working stroke (during working stroke: 200mOhm/Max)
- ✦ **Material environmental protection item:** lead-free brass (≤100ppm).





# How Can We Support You?

## Testing & Reports System

### ✦ Reliability test

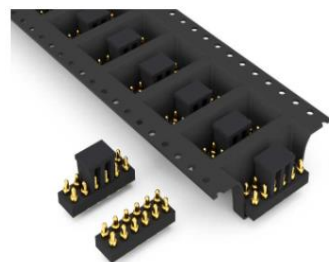
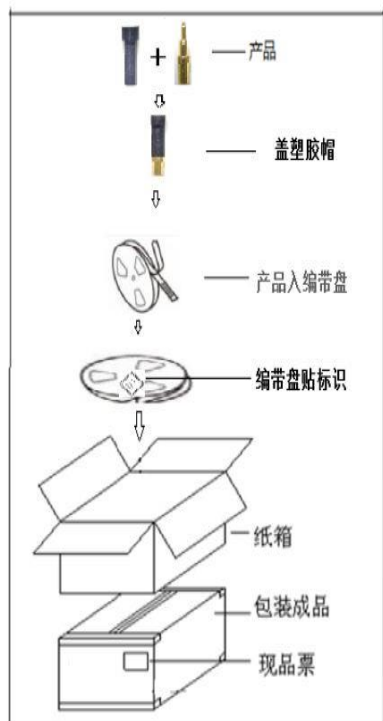
No	Test items	Features and Requirements	Test Procedures and Conditions
1	<b>Appearance And Size</b>	Meet applicable requirements specified on customer/product drawing; application specification and packaging specification	Visual, dimensional and functional per applicable inspection plan.
2	<b>Forward force</b>	Refer to product drawing	Specify deflection distance; Normal force test; EIA-364-04
3	<b>Durability</b>	10,000 cycles Min. No physical damage Resistance after test 50mohm Max.	Durability test; EIA-364-09
4	<b>Salt spray test</b>	No physical damage , No oxidation	Salt spray for 48hrs; EIA-364-26 condition B
5	<b>Electrolysis experiment</b>	Immerse the product in artificial sweat, set: 5V80mA(Ref), 1 minute test period	The surface of the product has no defects such as oxidation, corrosion, discoloration, etc.



# How Can We Support You?

## Packing & Delivery System

### ❖ 1. Carrier Tape Packaging



Tape and reel4



Tape and reel

- ❖ Material: PS/transparent, black; PET/transparent
- ❖ Main use: Packaging SMT Pogo pins and connectors

### ❖ 2. PE Bag / ESD Packaging



PE bags



- ❖ Material: PE/silver grey
- ❖ Main use: Packing Pogo pins and subassemblies and solid pins



# How Can We Support You?

## Sales and After sale-service system

### ✦ Smile Service is Always There



### ✦ 12 Professional sales managers

We serve customers from more than 100 different neighborhoods around the world every year, many of which are well-known brands in the industry. They have very high requirements for quality, but we continue to serve and obtain customer satisfaction.

### ✦ 7\*24 hours service Online

### ✦ Sales department





# How Can We Support You?

## Sales and After sale-service system

### ✧ Our Exhibitions

We serve customers from more than 100 different neighborhoods around the world every year, many of which are well-known brands in the industry. They have very high requirements for quality, but we continue to serve and obtain customer satisfaction.





# How Can We Support You?

## ✦ Product Applications







## ✧ Product Applications

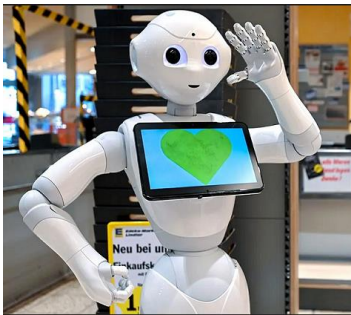
### 5G communication



### PDA Device



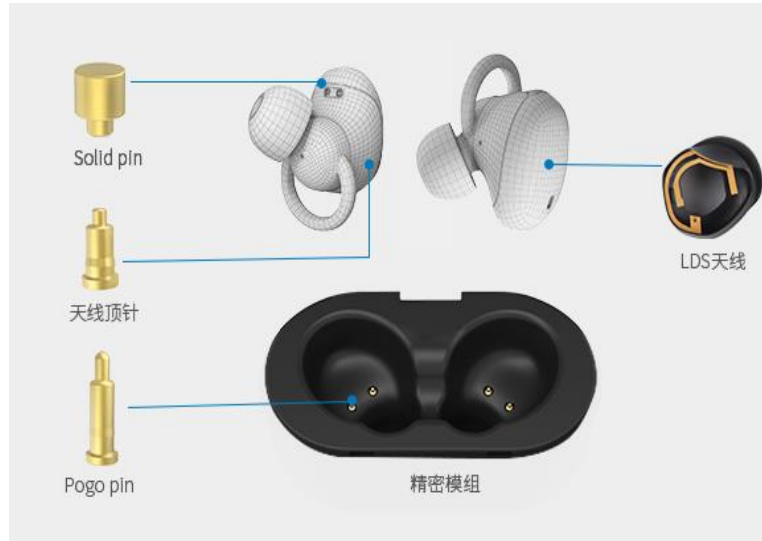
### Robots



### Touch-pencil



### TWS Earbuds



### VR+AR



### 车载充





# Product Applications

## Drone



## Magnetic Charging Cable



美容仪



手电筒



纹身机



榨汁杯



智能穿戴



智能手表





## ✦ Product Applications

### Electronic cigarette



### Aviation connector



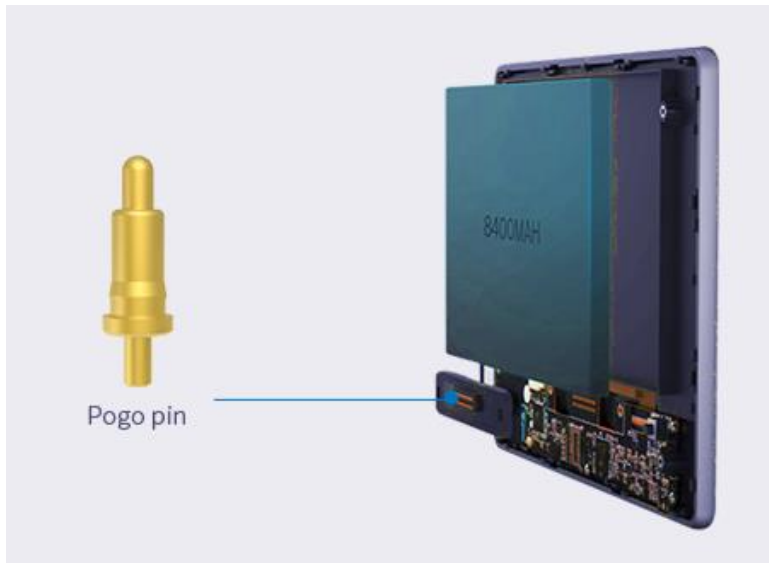
### Hearing Aid



### Hearing Aids



### Smart Home



### Smart Home Connectors





# How Can We Support You?

## Our Qualifications

Our company has applied for 33 patents, including 10 appearance patents and 23 utility models.

Now we have completed the "National High-tech Enterprise" certification, passed ISO9001, ISO14001, IATF16949, ISOQC080000, ISO45001 and ISO13485 quality management systems and obtained relevant certificates.

