



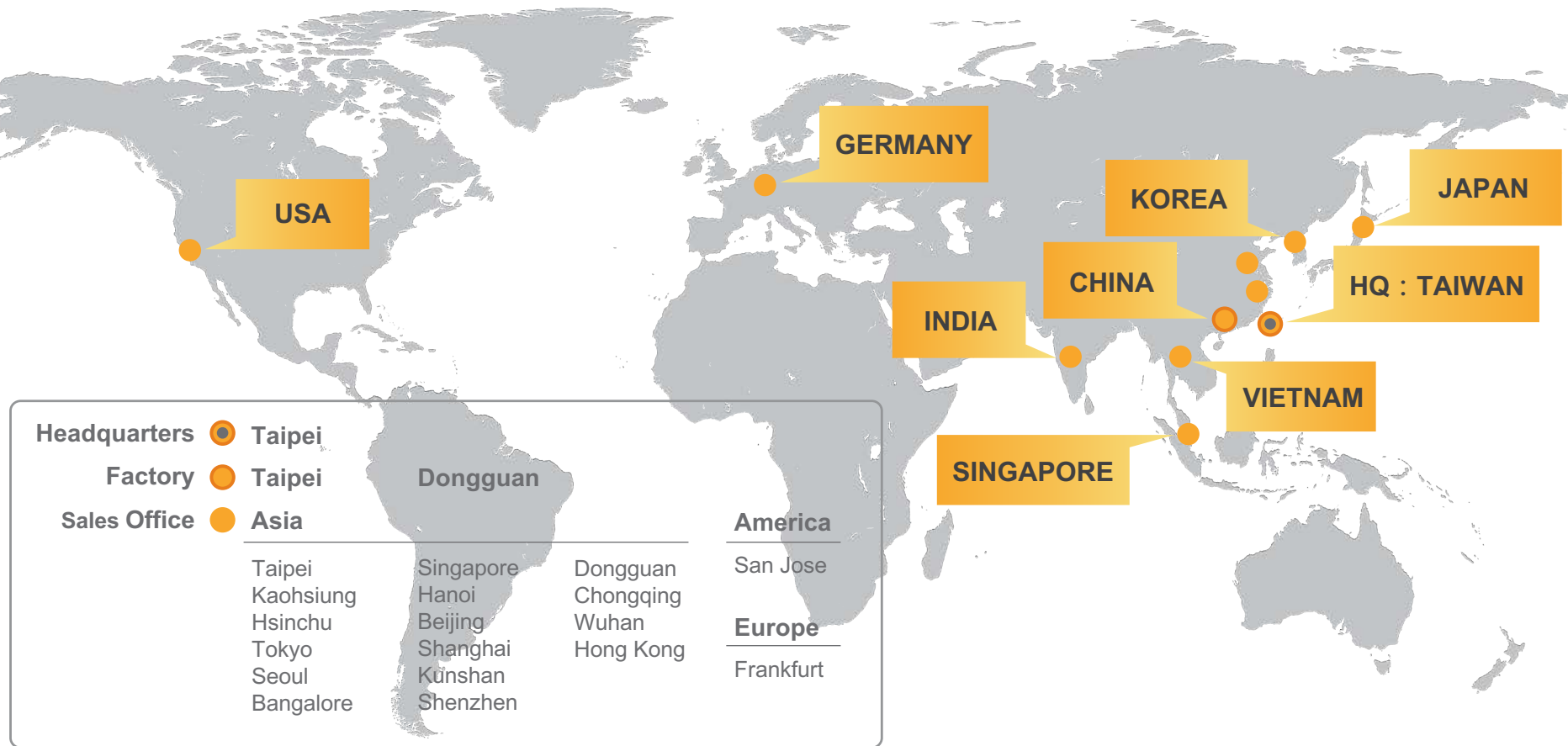
Company Introduction

CCP Contact Probes Co., Ltd.

History



CCP Contact Probes



Selected Customers:



Revenue



#1 in Consumer Product Market

Corporate with Top 10 the World's Most Valuable Brands

Over 860% Growth in the Past 15 Years

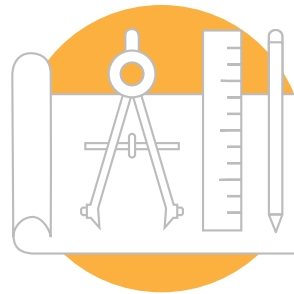


R&D Design Service



Fundamental Research

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



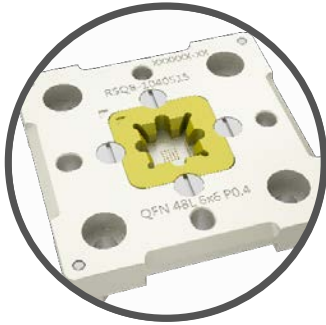
Applied Research

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

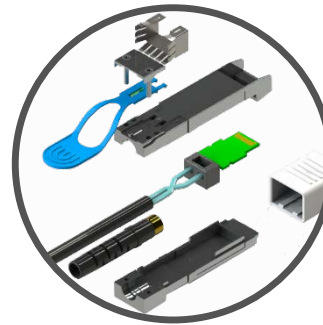
Product Portfolio



Testing

Fine Pitch

IC Testing Probe
PCB Testing Probe
Testing Socket



High Speed

25Gbps~100Gbps

Server
Switch
Telecom



Connector

1A~13A

Pogo Pin Conn.
Waterproof Conn.
Magnetic Conn.



Medical

Environmental Sensitivity

Circular Conn.
Endoscope Conn.



High Current

13A~250A

Electronic Vehicle
High Current Conn.

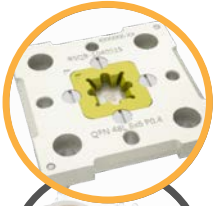


Industrial

Extreme Environment

Aerospace
Military
Transportation
Space

Product Line: Testing



IC Package Test

Burn-In Test

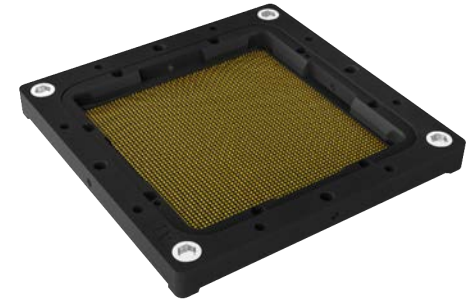
High Frequency Test



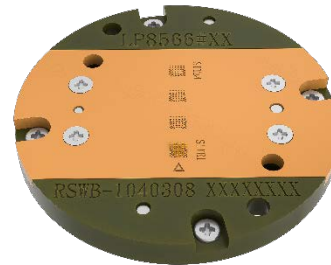
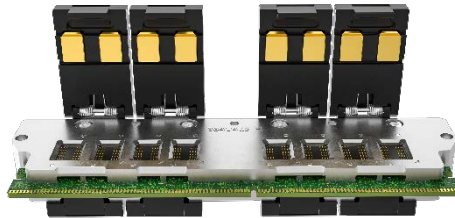
Memory Test



WLCSP Test



Battery Test



Testing: IC Test Probe

General Final Test



Burn-In Test



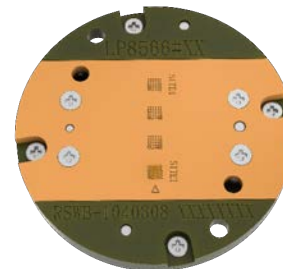
Memory Test



High Frequency Test



Wafer Level Test



Fine Pitch Test



Testing: IC Test Probe

2 Piece Probe
Burn in/ Open Short



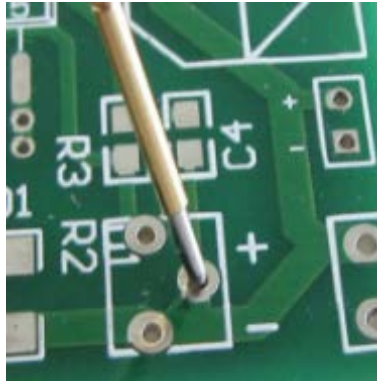
3 Points Crown Tip
CPU / GPU / AI



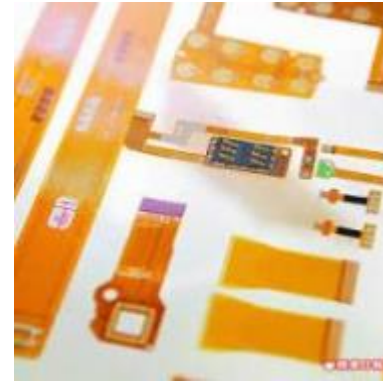
Testing: PCB Test Probe



PCB



FPC



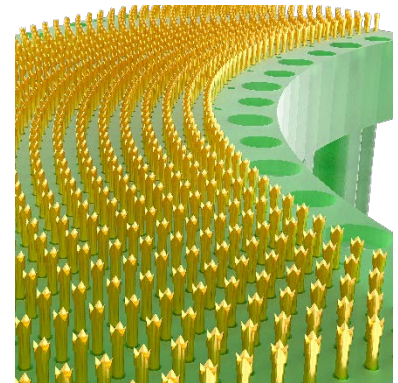
Battery



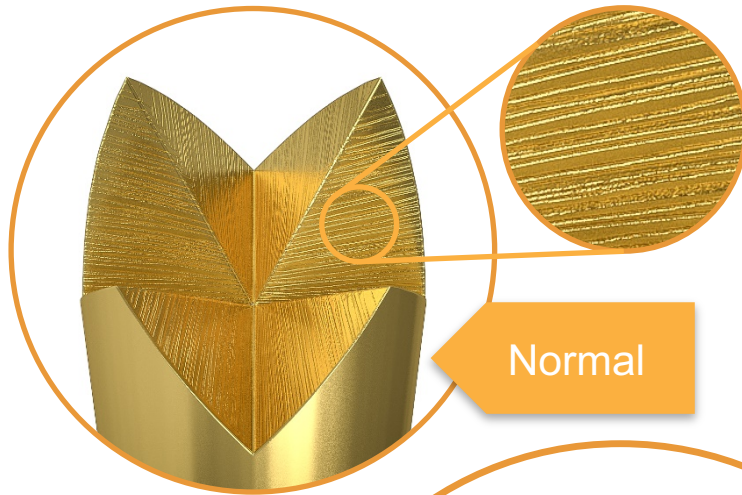
LED



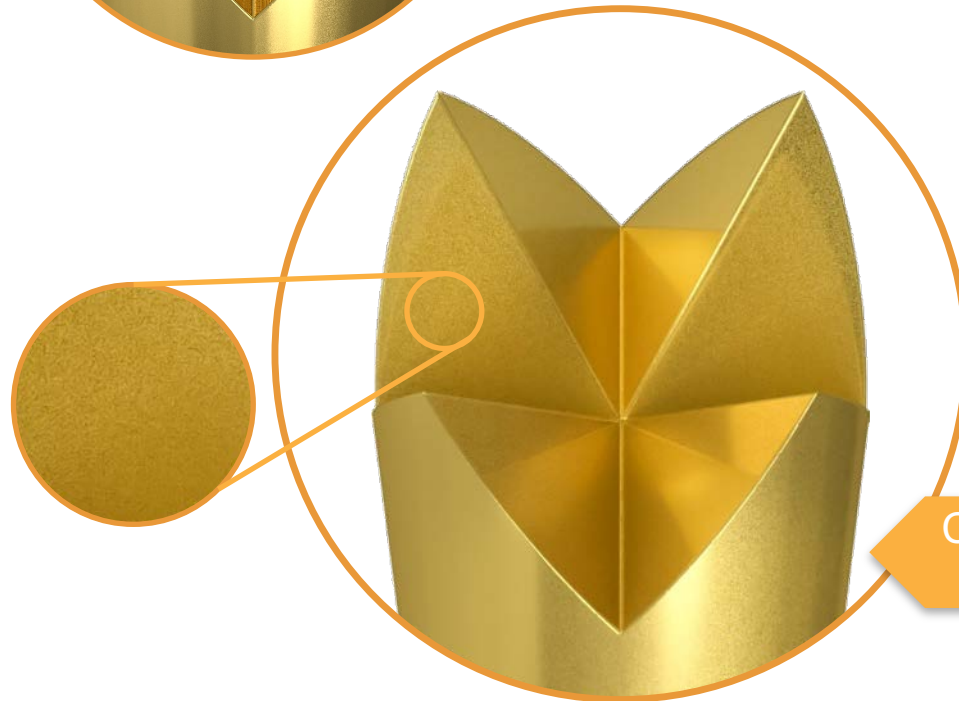
Pogo Tower



Testing: Mirror Process



Normal

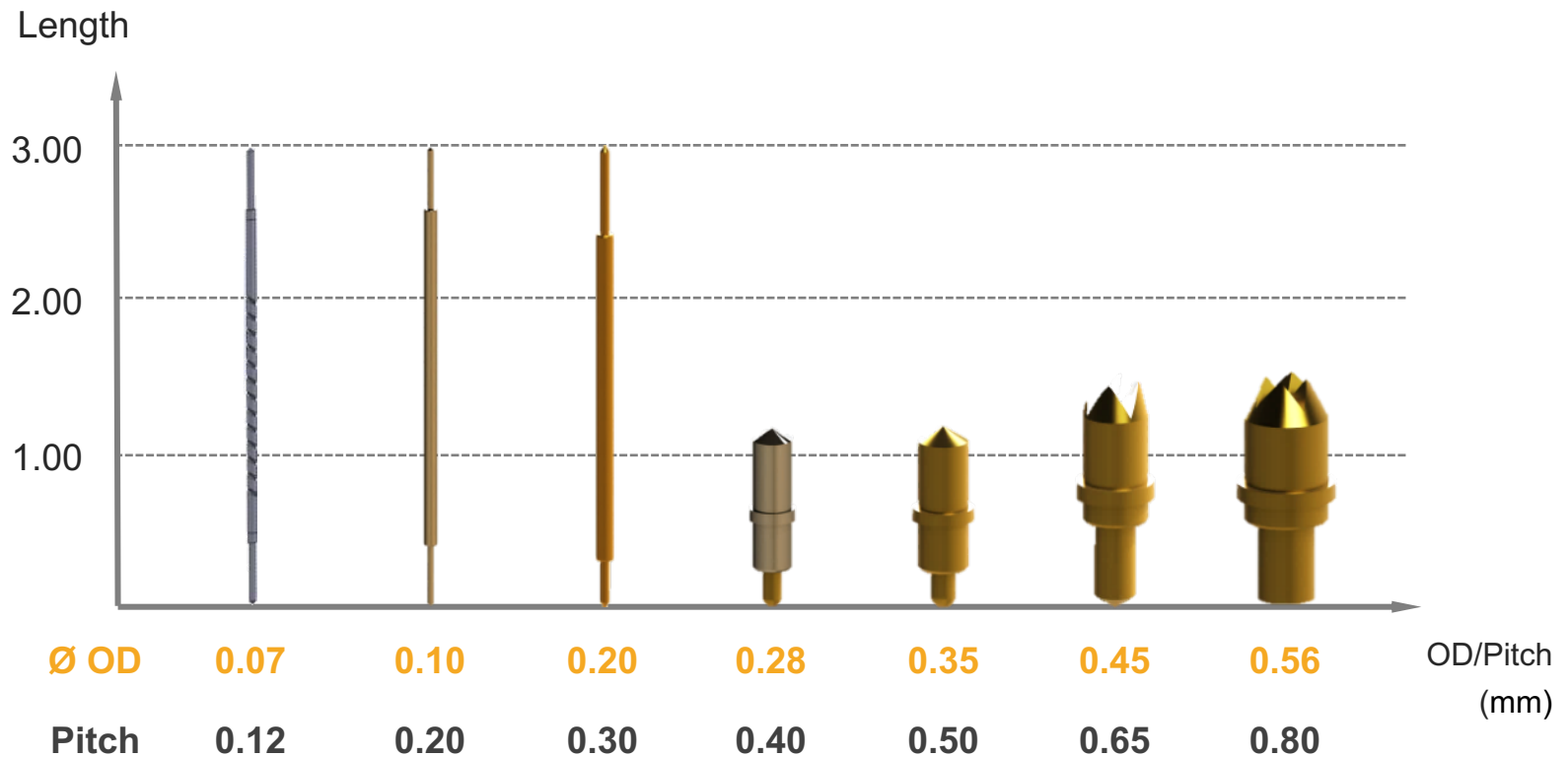


CCP's Mirror Process

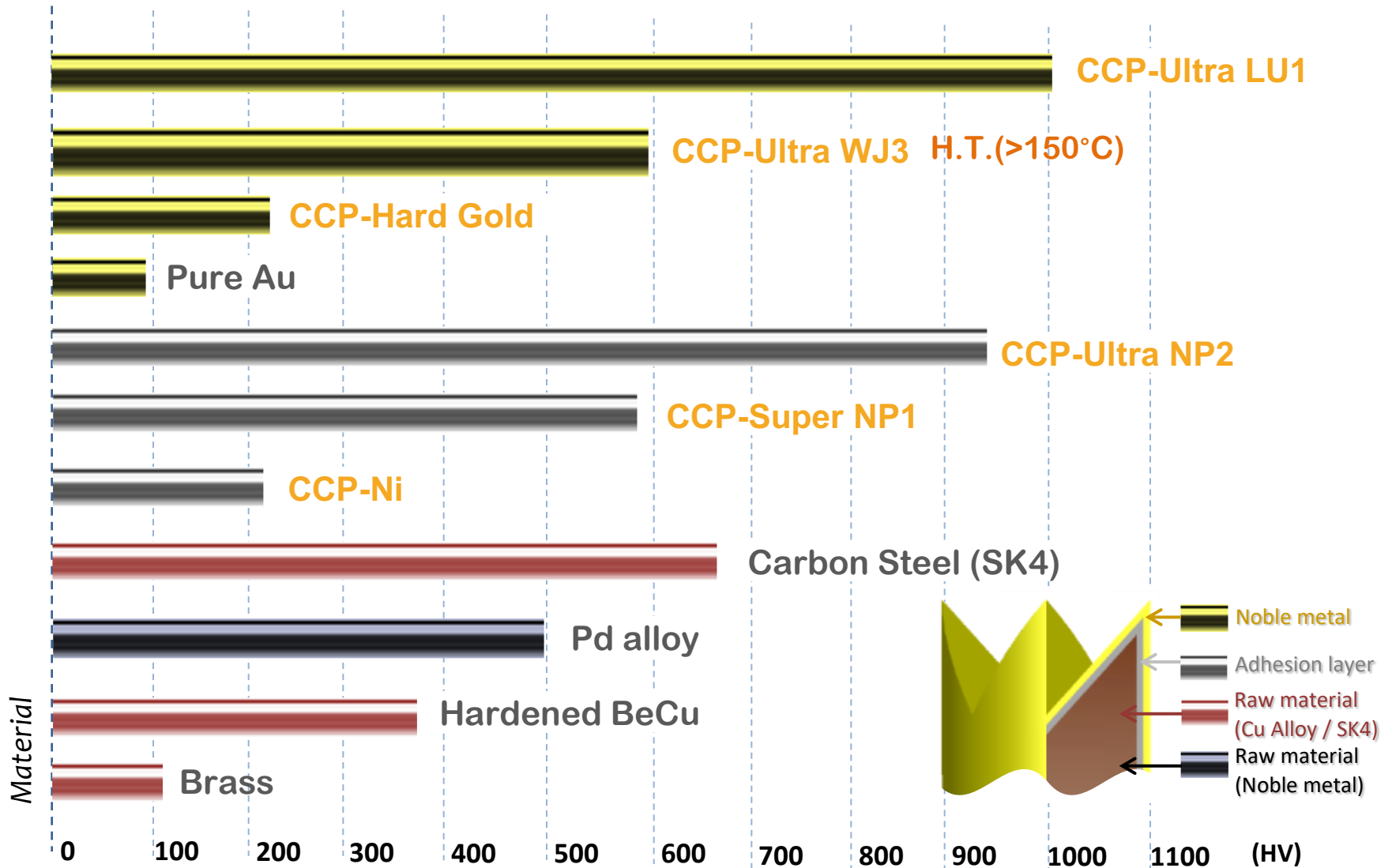
Mirror Process – The Best Probe Protector

- The Mirror Process makes the surface as smooth as a mirror so that solder splashes won't attach on the probe tip. This, in turn, decreases your probe cleaning frequency, as well as machine down time significantly.
- Pin durability increases 1.3~1.5 times as compared to normal process.

Testing Probe Design Capability



Material Development



Integrated Manufacturing



- Automatic CNC lath



- CNC spring coiling machine



- Surface treatment production line



- Semi-automatic assembly machine



- Automatic assembly machine



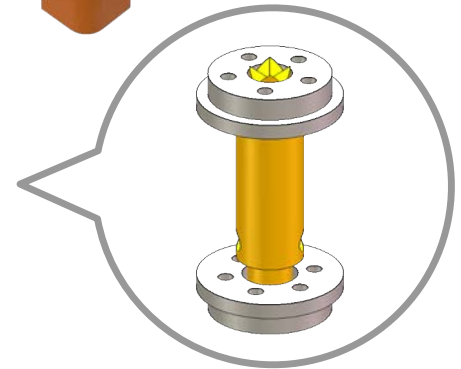
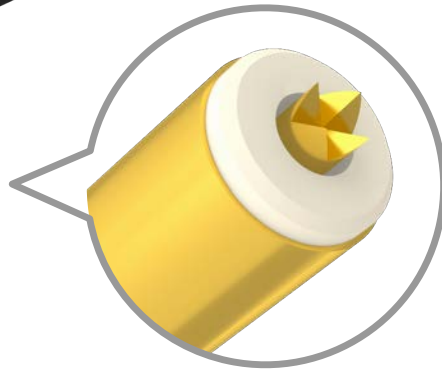
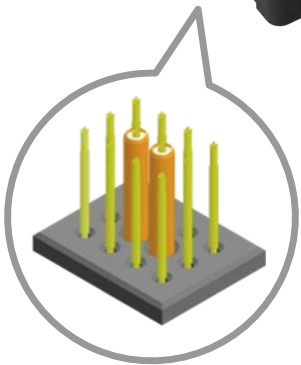
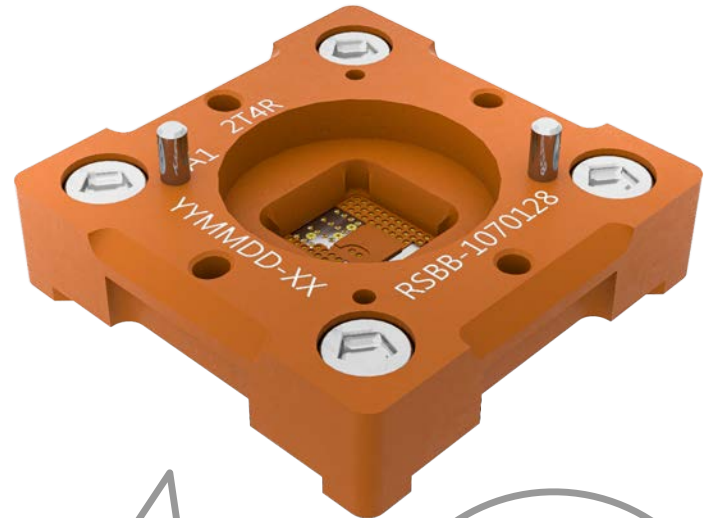
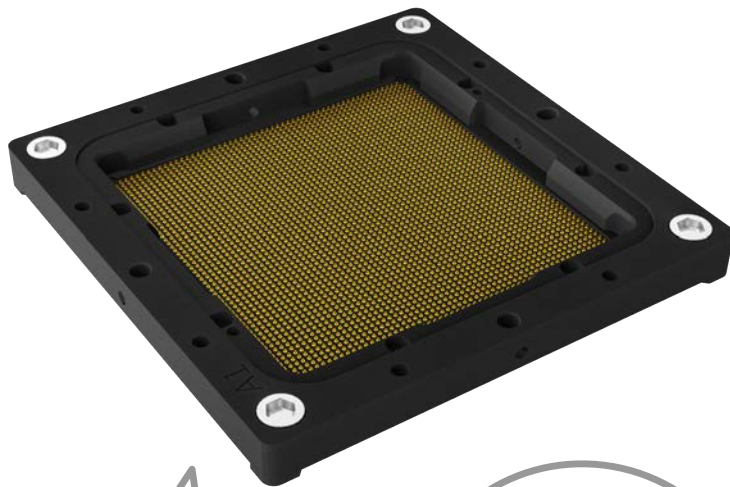
- Automatic probe **full inspection**



High Frequency Solution

Coaxial Probe Socket
5G IC

Hybrid Coaxial Socket
ADAS



Testing: Coaxial Socket for RF

Application

Feature: **Hi-Speed/ Hi-Frequency**

DUT: Bluetooth/ GPS/ LTE/ Wireless IC

Packaging: BGA/ CSP/ QFN/ QFP

Pin Definition

S Signal
G Ground



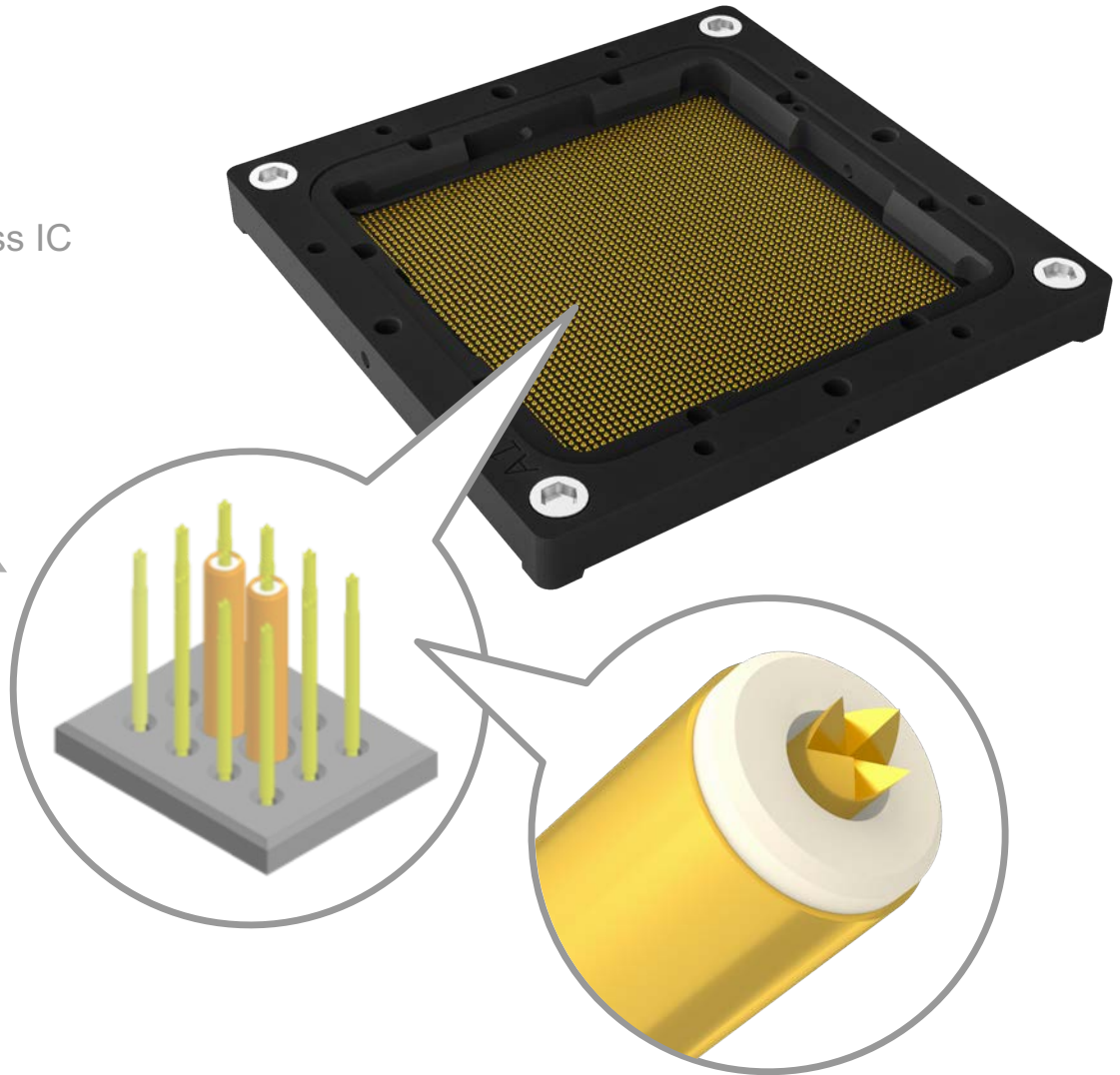
Spec:

Insertion Loss: **-1dB @ >50 GHz**

Return Loss: **-20dB @ >30 GHz**

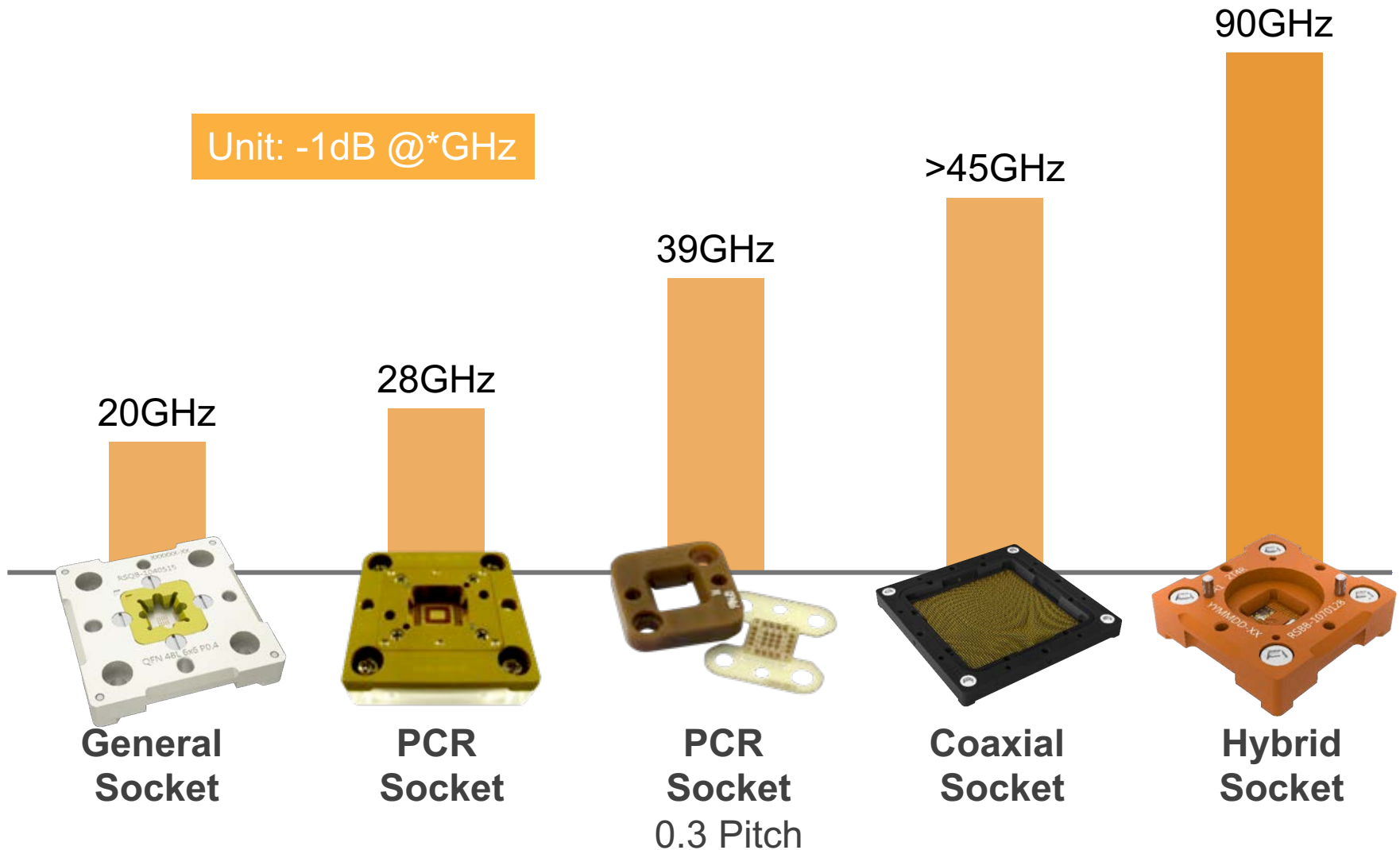
Impedance: 50 Ohm

Pitch: 0.65~1.00 mm

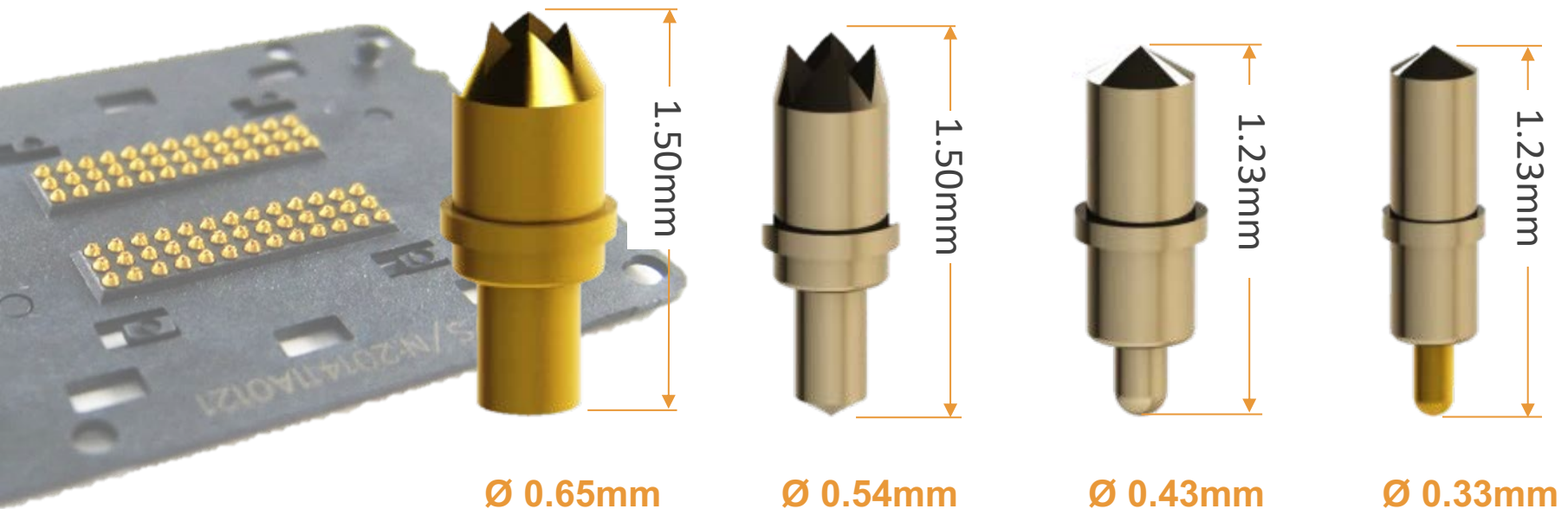


Sockets by Performance

Unit: -1dB @*GHz



High Frequency Test Probes



Spring Force	30g $\pm$ 20% @ 0.40mm	30g $\pm$ 20% @ 0.4mm	12~19g $\pm$ 20% @ 0.18mm	15g $\pm$ 20% @ 0.18mm
Insertion Loss	-1dB>20GHz	-1dB>20GHz	-1dB>20GHz	-1dB>20GHz
Pitch	>0.80mm	0.65mm	0.50mm	0.40mm

Testing: High Current Probe

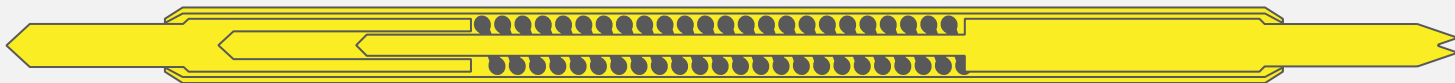
Regular Probe



Current Path of Regular Probe



High Current Probe (Patent: M453149)



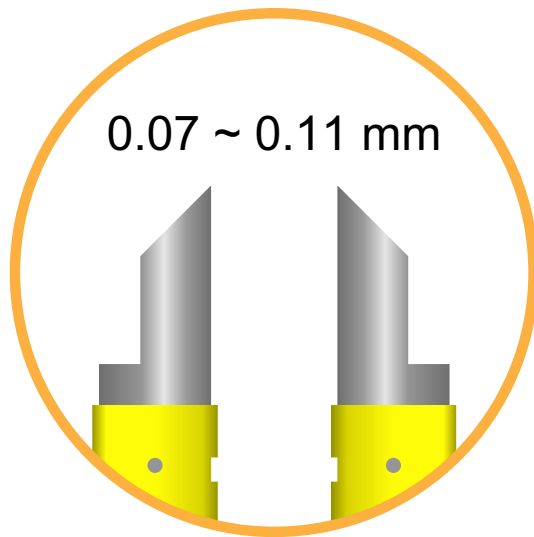
Current Path of CCP's Patented Probe (5A Current)



Testing: Kelvin Bridge Probe

Our testing probe can be in Kelvin bridge style to increase the accuracy of probing.

Pin Gap



Tip Type



Blade Tip



Ladder Tip

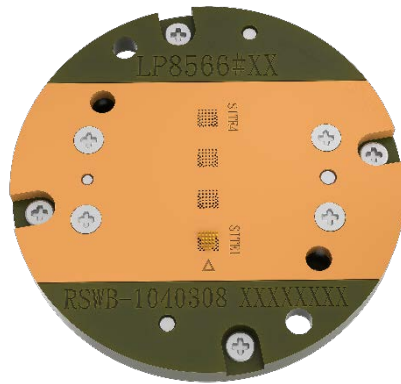


Crown Tip



Half Moon
Tip

Testing: WLCSP



36 Balls
4 Sites
Pitch 0.4mm



4 Balls
16 Sites
Pitch 0.5mm



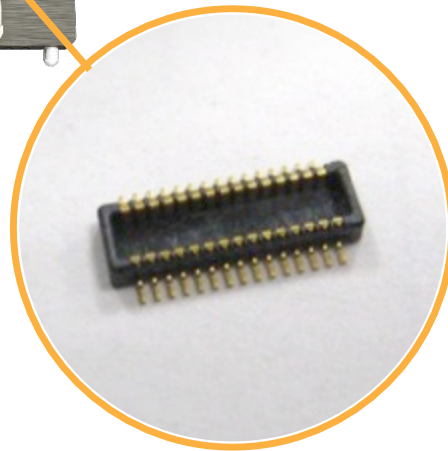
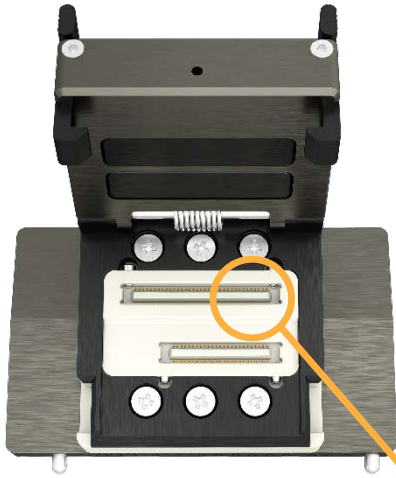
12 Balls
16 Sites
Pitch 0.4mm

Testing: Testing Socket

Dual-Side Pogo Socket

Min Pitch: 0.2

Mechanical Life: 200k

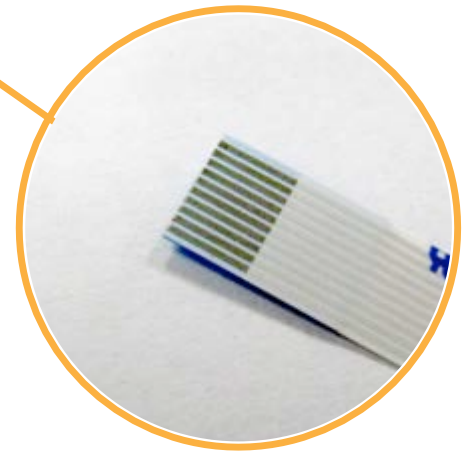
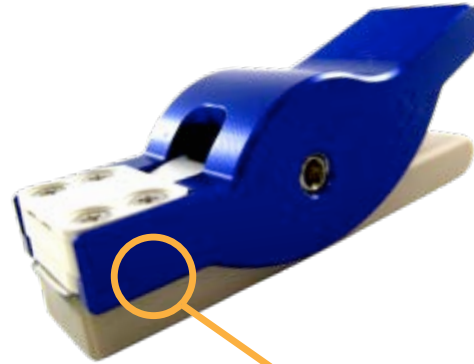


Device Under Test
Fine Pitch Connector

Clip Pogo Socket

Min Pitch: 0.2

Mechanical Life: 200k



Device Under Test
FPC Gold Finger

Testing: IC Final Test Socket

BGA

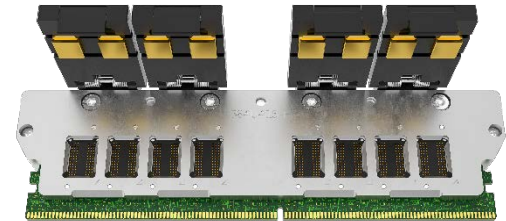


QFN



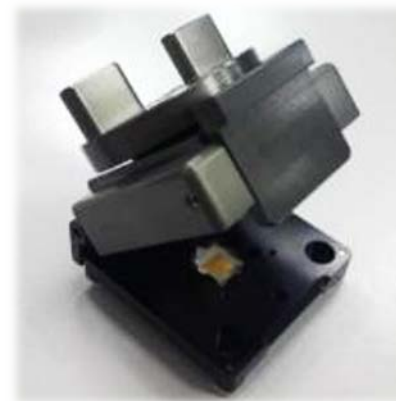
Memory Test

DDR 1~4
eMCP
Flash



Clamping Lid

QFN QFP
<200 pins

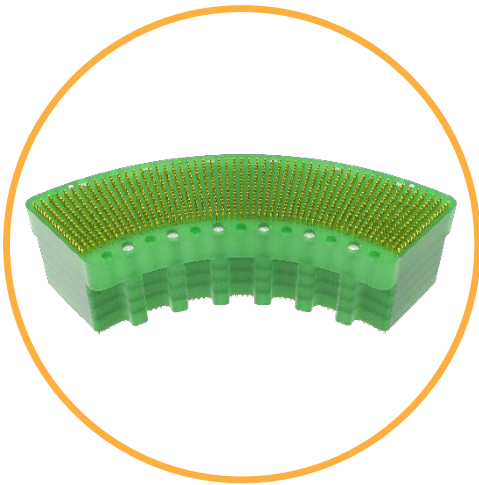


Knob Lid

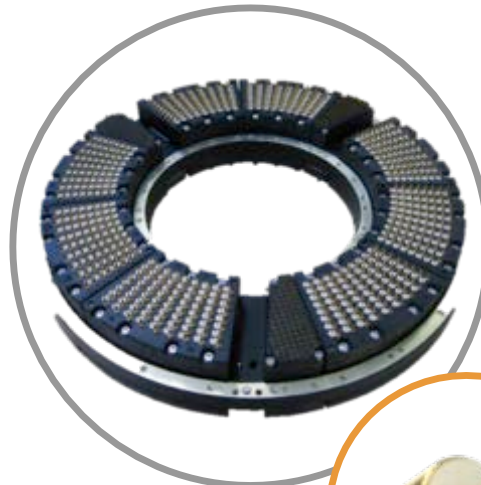
All Kind
>200 pins

Testing: Pogo Tower

A Pogo tower is used to connect **load board** and **mother board** inside the tester.



To fit the structure of clients' tester, we **customize** the design of our pogo tower.

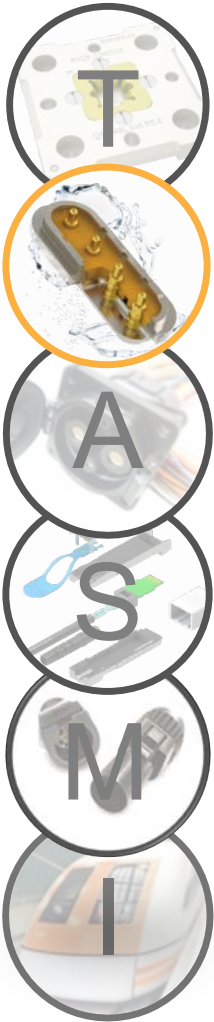


Coaxial probes can be employed for **RF requirement**.



Wired pogo tower provides possibility for flexible connecting structure in testers.

Product Line: Connector



TWS



Smart Doorbell



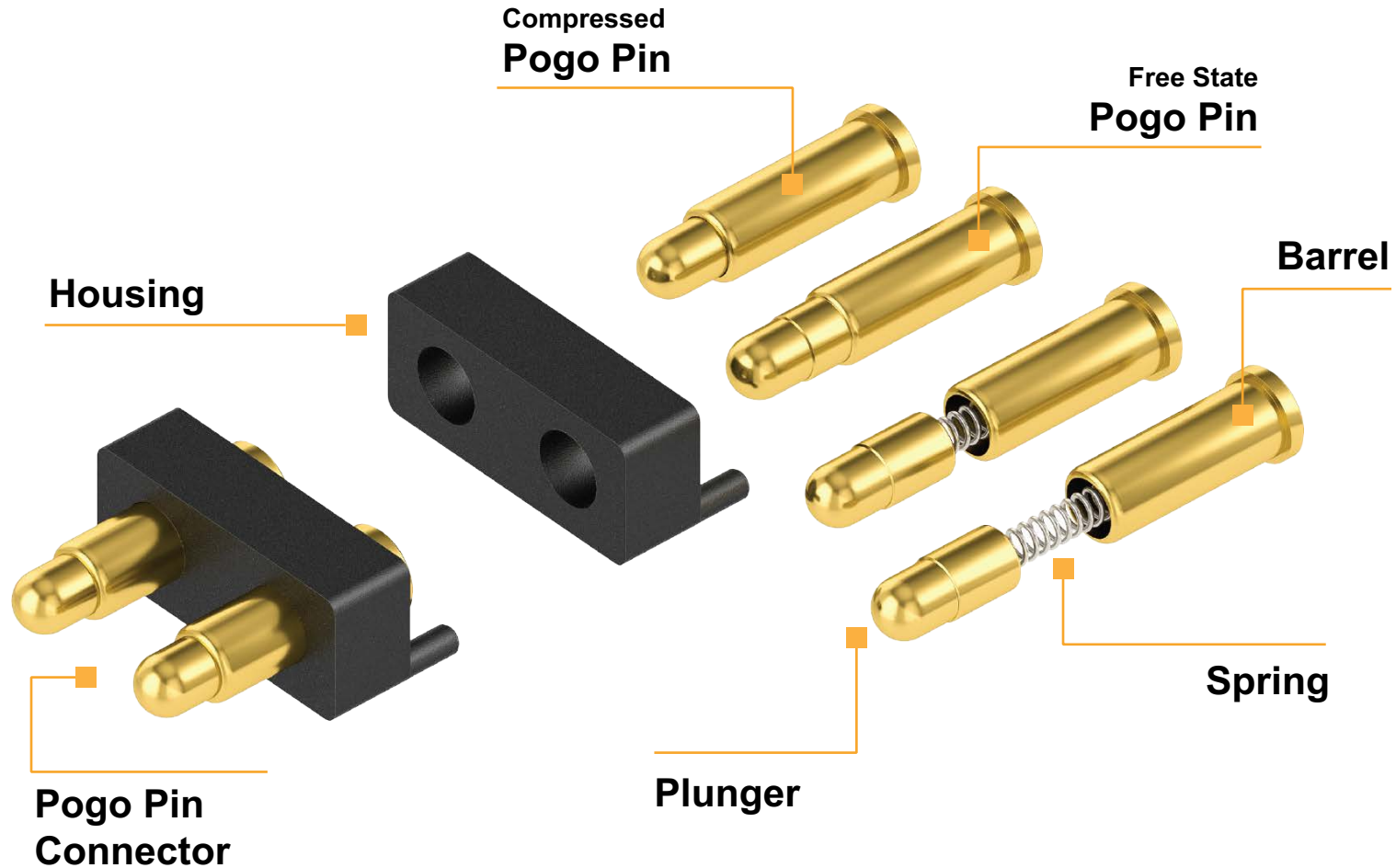
2 in 1 Tablet Connector



E-Cigarette



Connector - Basic Structure



Connector - Material Option

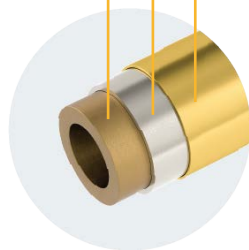
Ball

Stainless Steel

Plunger

Brass (Standard)
Beryllium Copper
Phosphor Bronze
SK4

Surface Plating
Base Plating
Base



Color Options

PdNi 10u" over Ni 100u" (Silver)
Ru 10u" over Ni 100u" (Black)

Housing

Polyoxyethylen (Standard)
PBT Polybutylene Terephthalate
LCP Liquid-Crystal Polymers
HTN Polyphthalamide
PA10T

Barrel

Brass (Standard)
Beryllium Copper
Phosphor Bronze

Spring

Stainless Steel



Connector - 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
Resistance (mΩ)	EIA-364-23	< 50	< 50	< 50	< 50
Salt Spray resistance (HR)	EIA-364-26	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

Connector - Manufacturing

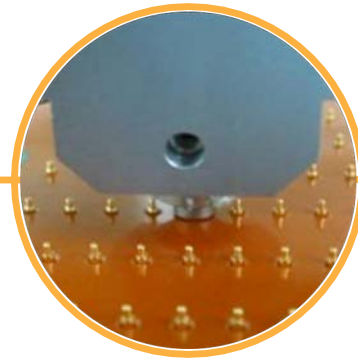
Aligning

Plunger
Spring
Barrel



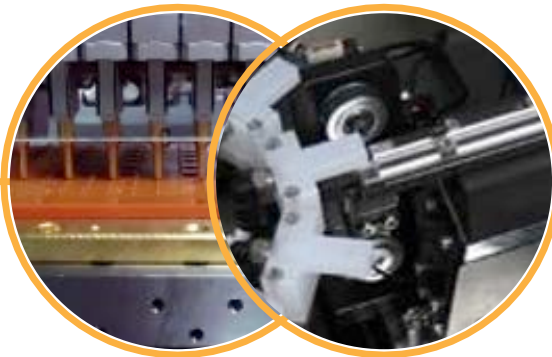
Crimping

Barrel



Inspection

Spring Force
Resistance
Dimension



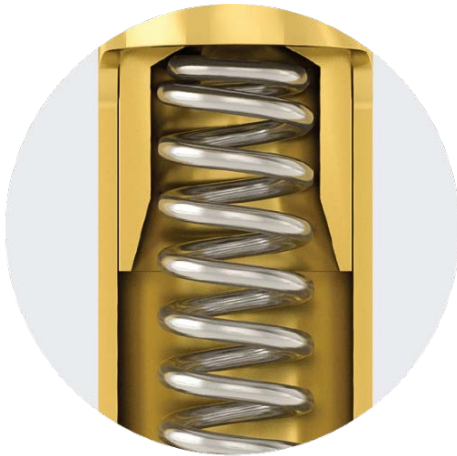
100% inspection can be done in automated production line.
First ever clean room pogo pin production line in industry.



Connector - Inner Structure

Back Drill

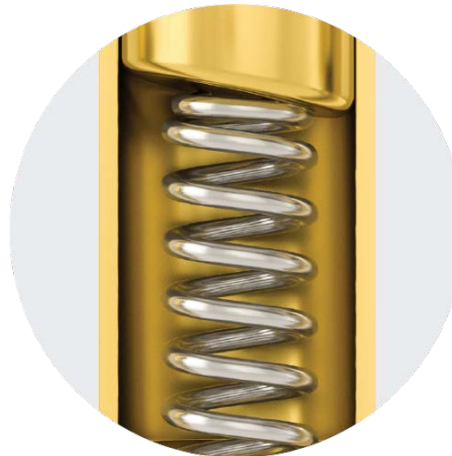
The drilled tail makes extra space for spring and creates a shorter pogo pin.



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**

Waterproof Connector

Sealing



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

Insert-Molding



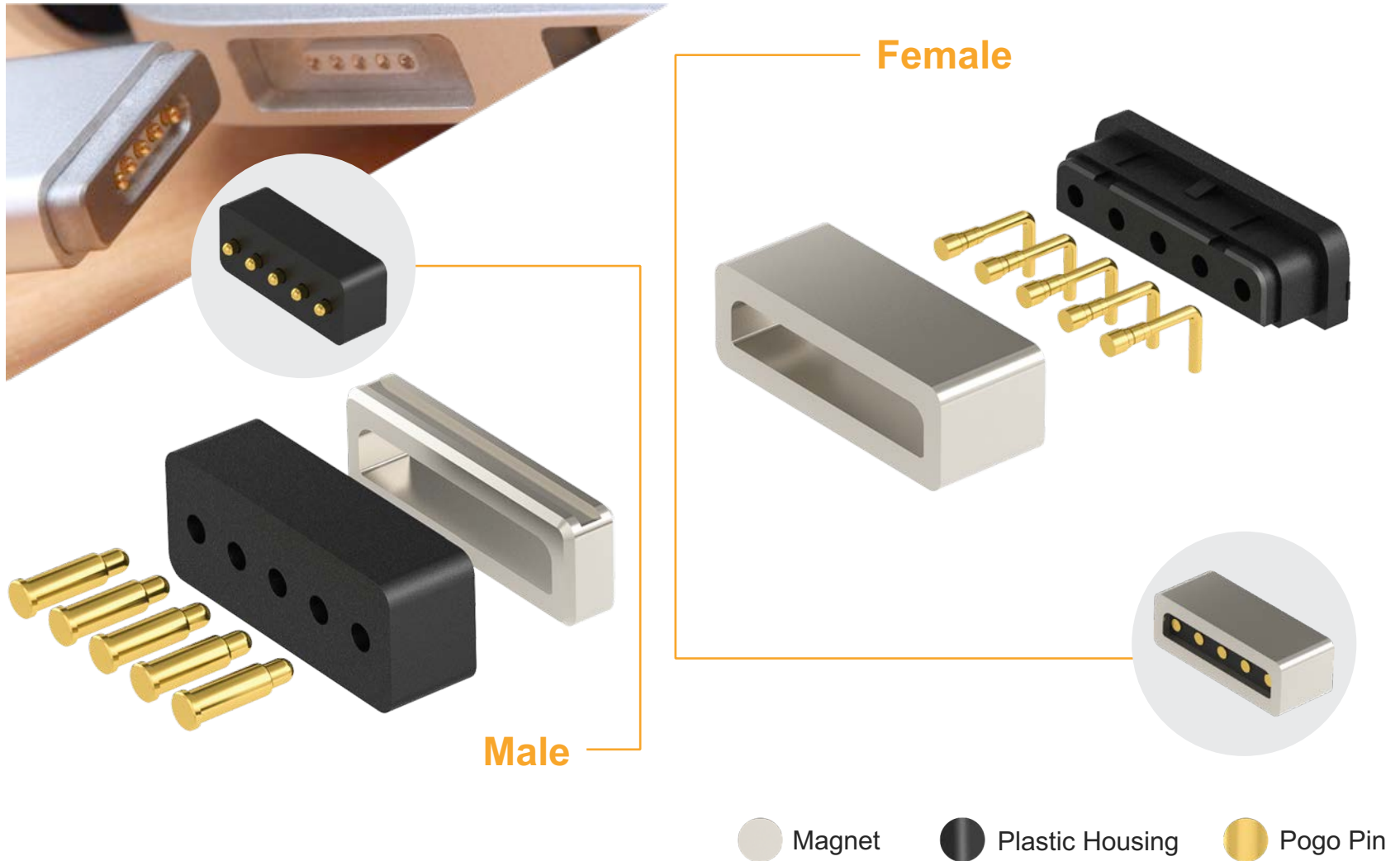
Pitch: Small
Waterproof: IPx7 at best
Production Complexity: Low

O-Ring

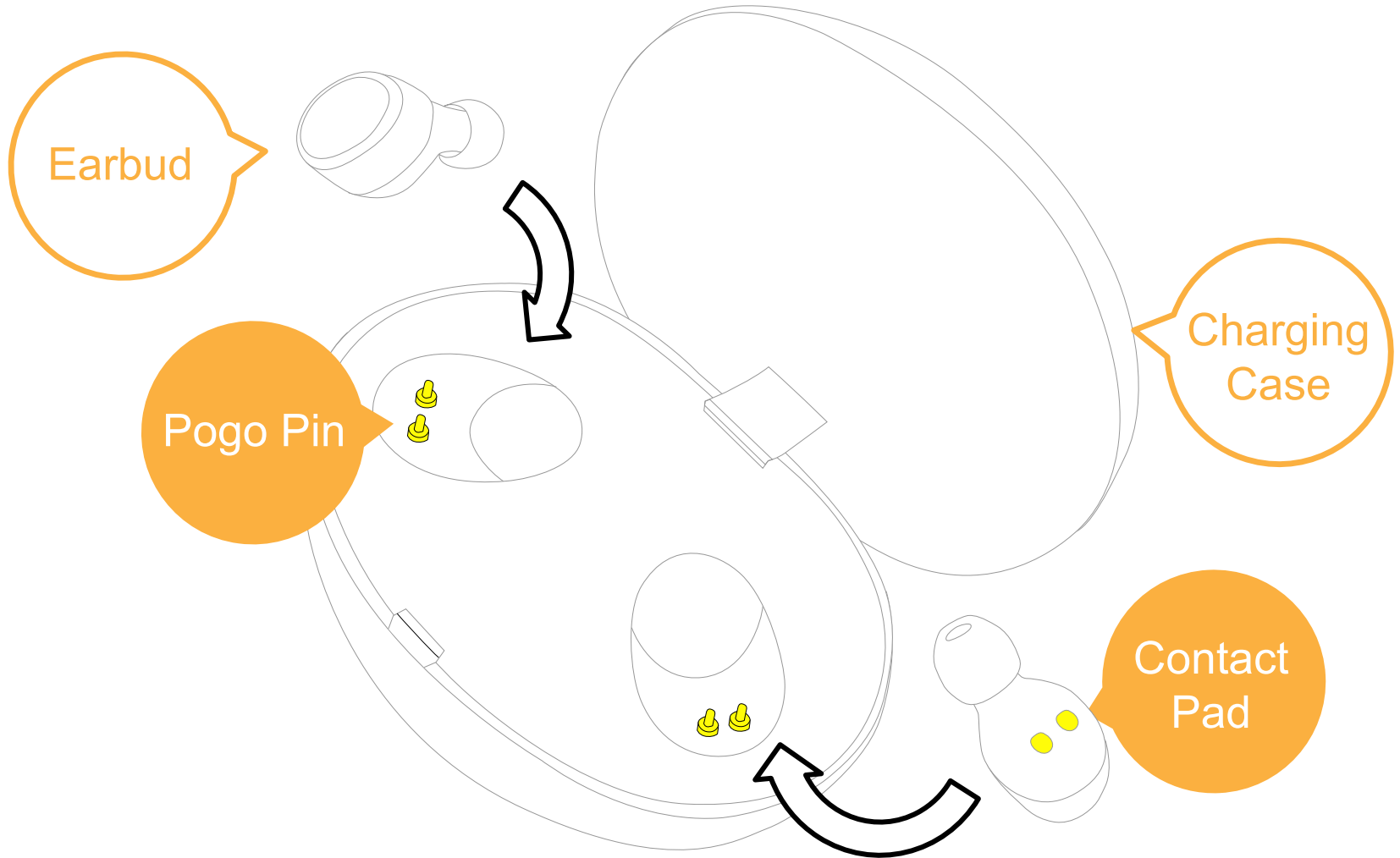


Pitch: Large
Waterproof: IPx8 at best
Production Complexity: High

Magnetic Connector

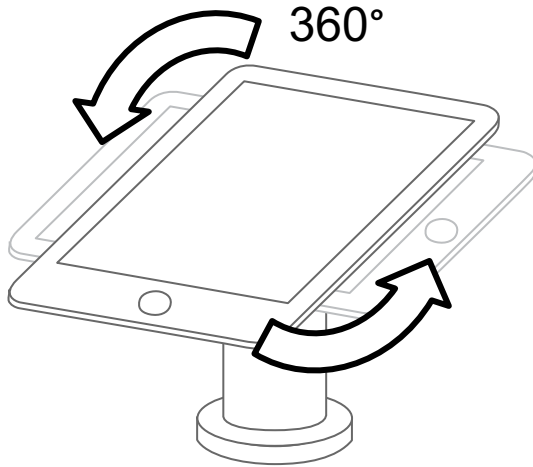


Magnetic Modular Connector

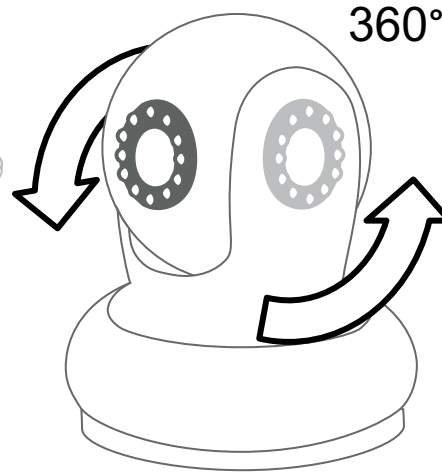


Ball Point Rolling Pin Connector

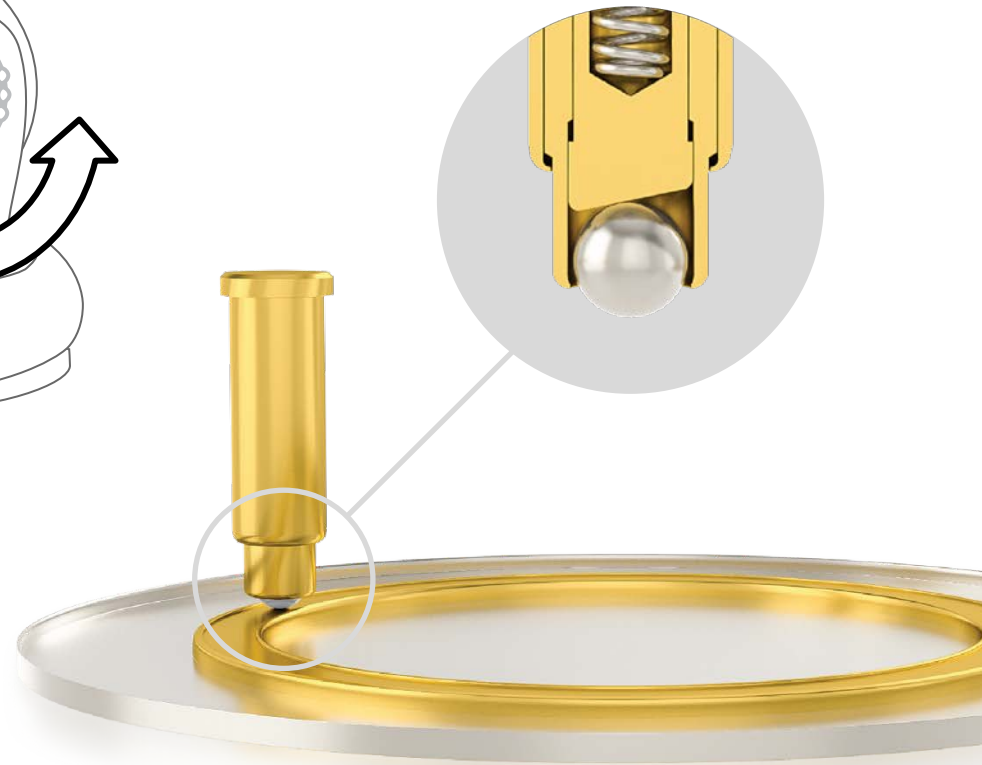
Product Display



Camera

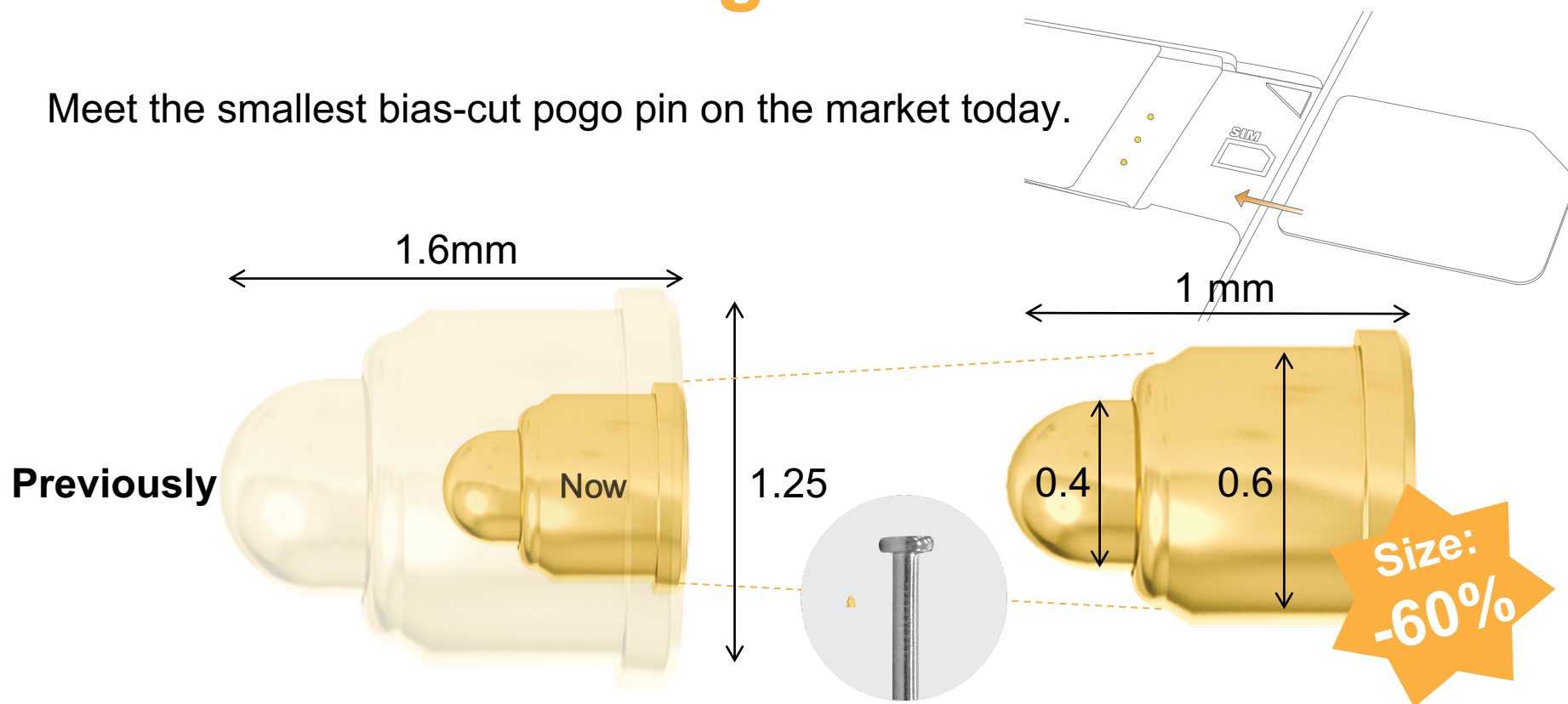


Compression: 10'000 times
Lateral Movement: 25'000'000 mm
Resistance: 100 mOhm
Current: 1-5 A



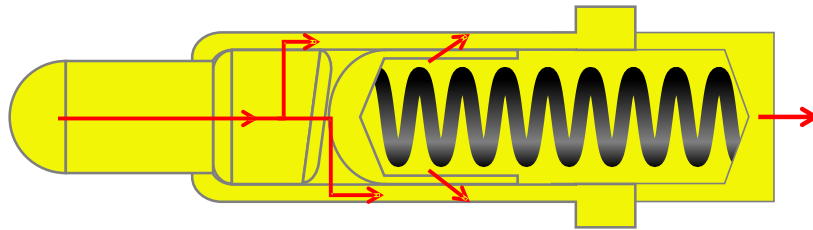
Ultra Short Pogo Pin Connector

Meet the smallest bias-cut pogo pin on the market today.



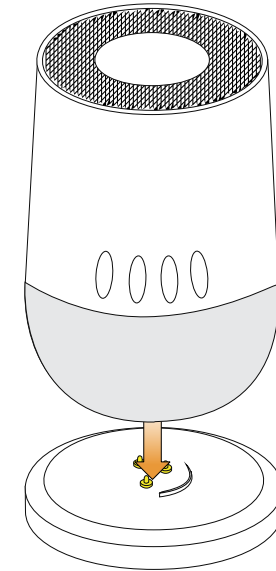
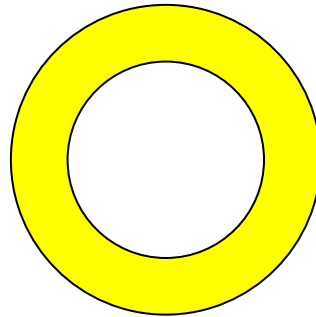
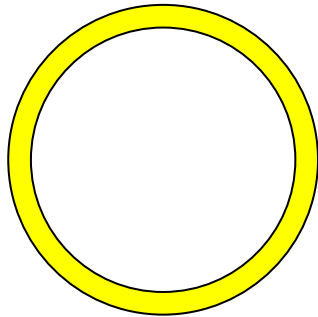
Diameter	Current	Durability
0.6 mm	1A	3,000 compressions
Spring force	Contact resistance	
25g	175 mΩ, to customize for grounding pin purpose	

High Current Pogo Pin Connector



Normal Design

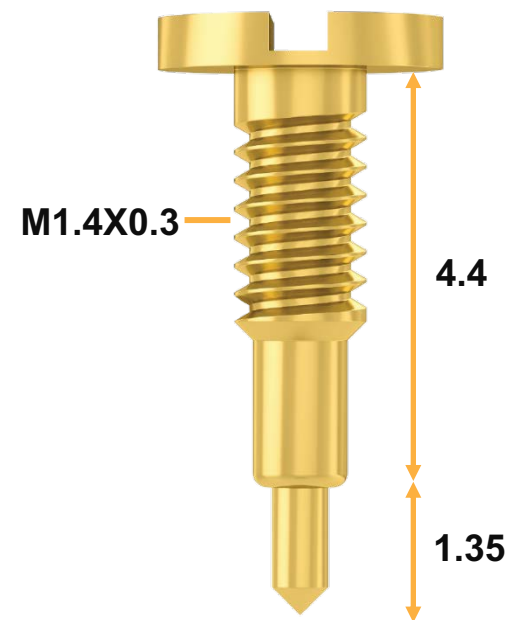
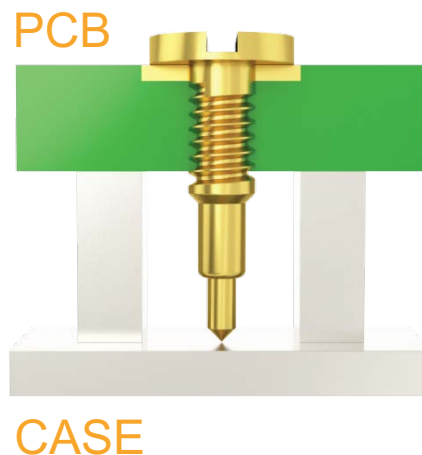
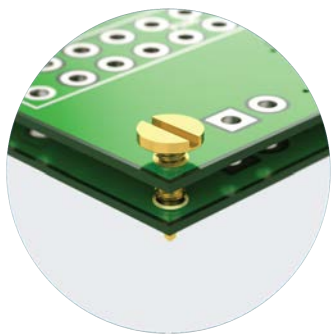
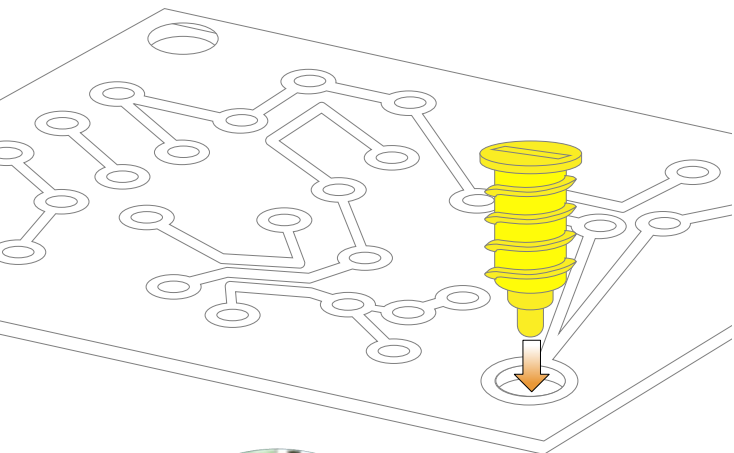
High Current Design



Application:
Any kind of high current transfer
request

Diameter	Current	Durability
2.4 mm	13A	10,000 compressions
Spring force	Contact resistance	
120g $\pm$ 20g	30 m Ω	

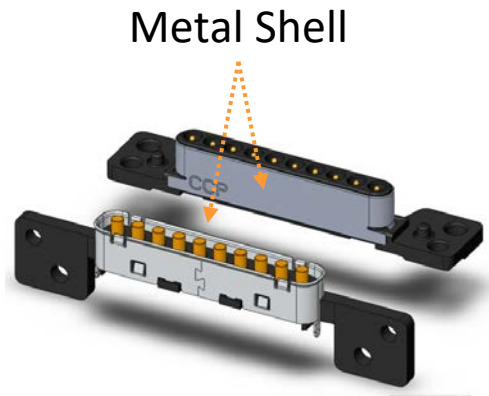
Pogo Screw Pin Connector



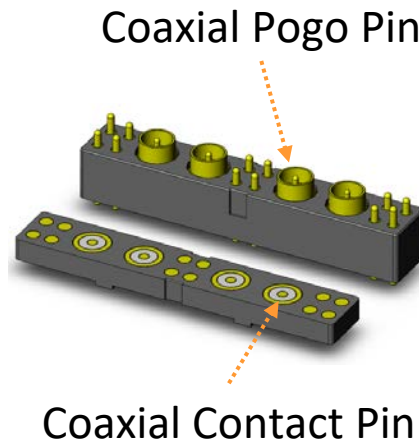
Diameter	Current	Durability
3 mm	1A	10,000 compressions
Spring force	Contact resistance	
120g $\pm$ 20g	200 m Ω , to customize for grounding pin purpose	

High Frequency Connector Design

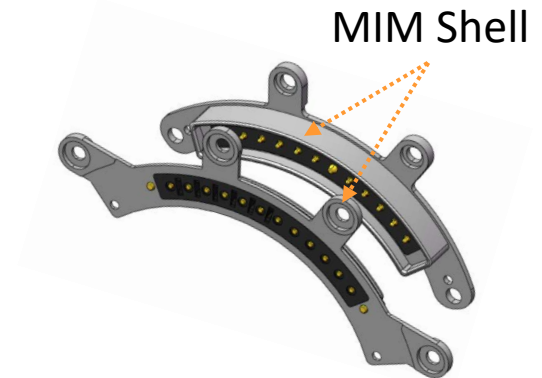
Metal Shell



Coaxial

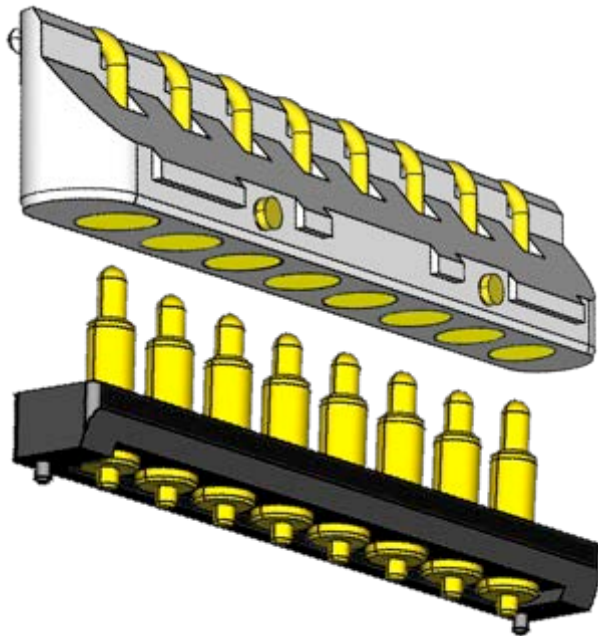


MIM Shell



High Frequency Connector

High Frequency
Magnetic Matting
Desktop Docking

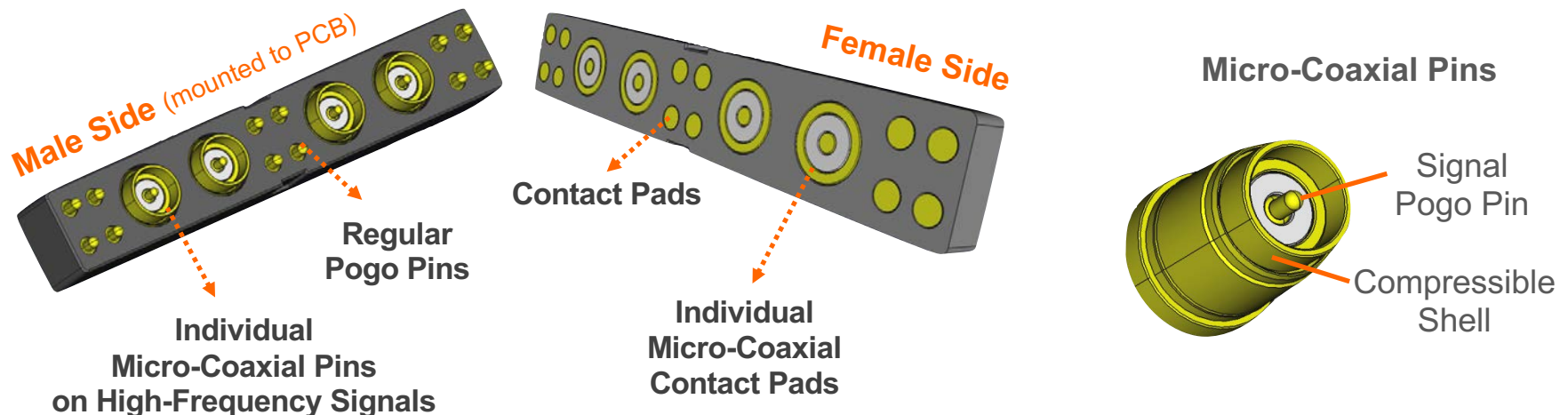


-  Mating Area
-  Tablet Side Female Connector
-  Keyboard Side Male Connector

High Frequency Connector – Coaxial

Pros:

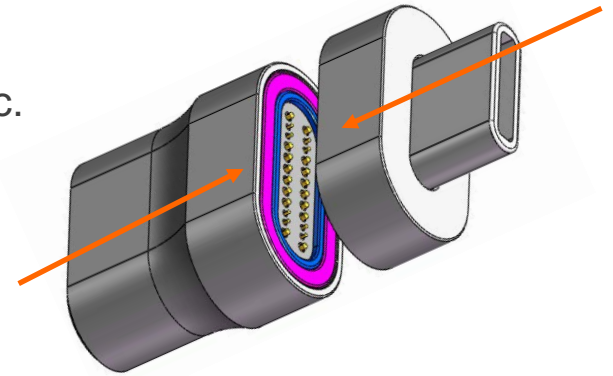
1. RF pins are individually shielded and are capable for USB 3.1 Gen-2 data bandwidth
2. The female side can lay flat on the device for better ID
3. The 2 sides can be mated completely since all the pogo pins and shells are compressible
4. Potentially oriental-free connections



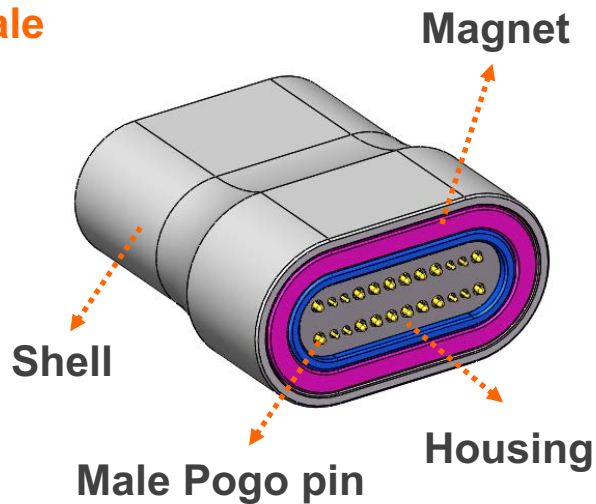
High Frequency Connector - Thunderbolt 3

Pros:

1. Compatible to USB 3.1 Gen-2 and full Thunderbolt 3 spec.
2. Male and female connector docking by magnetic force
3. Oriental-free connections

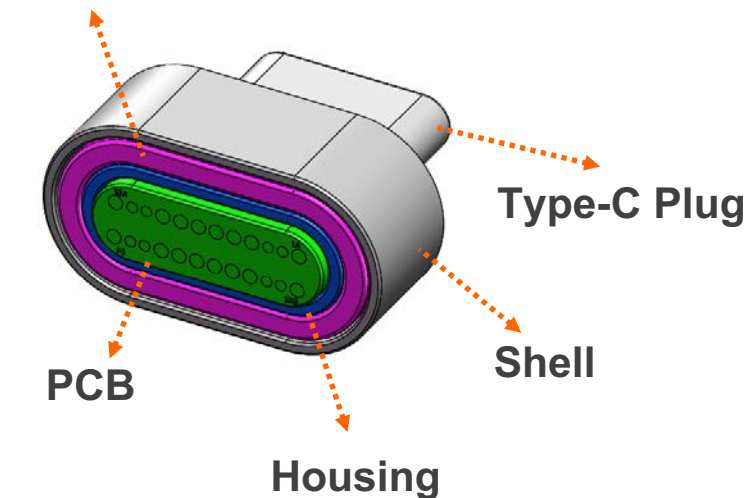


Male

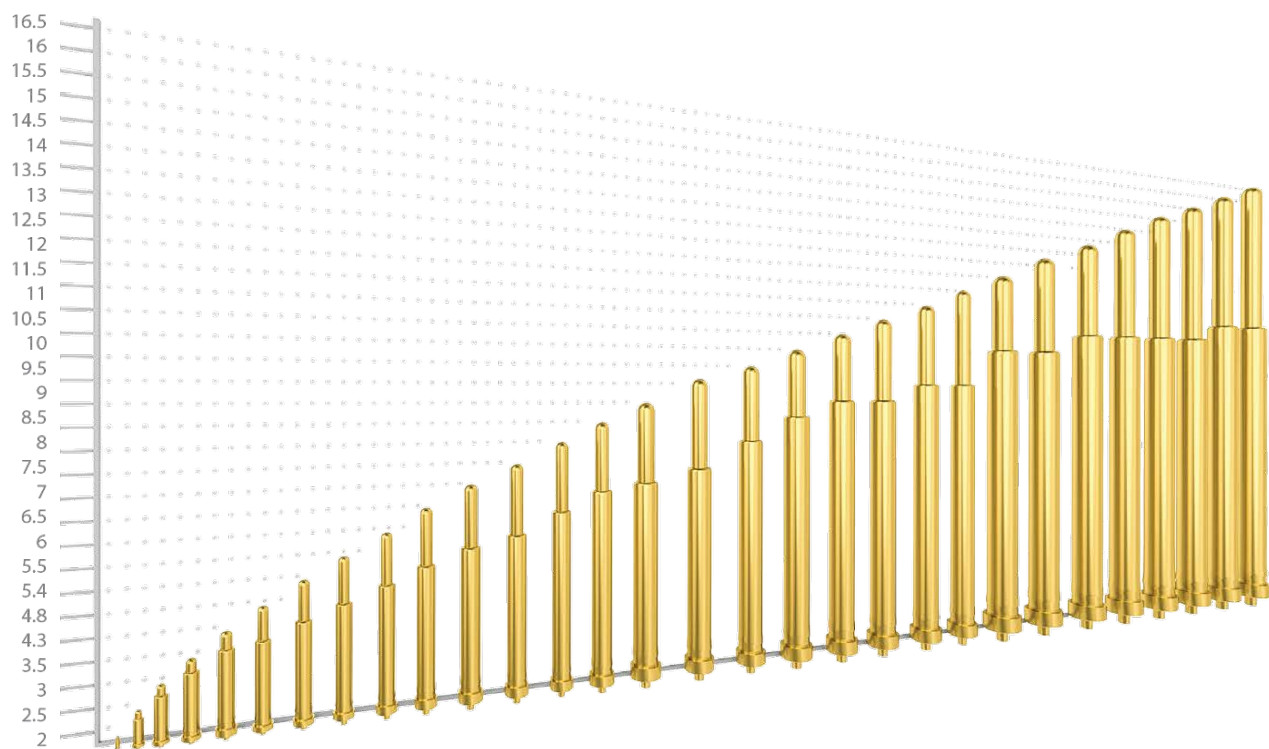


Magnet

Female

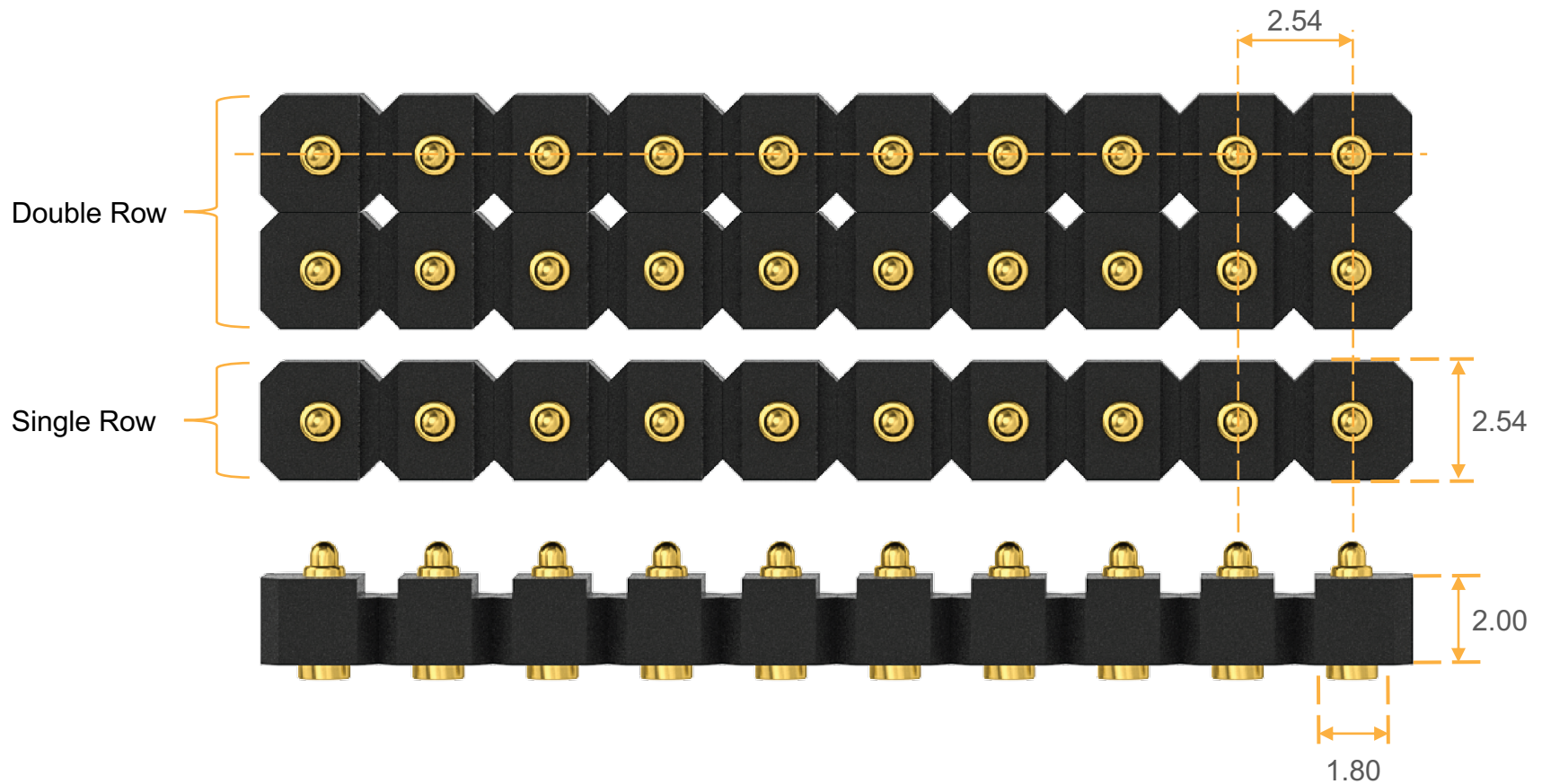


Standard Connector - 2.54mm Pitch



Product Number	Full Hight	Working Hight	Max Compression
P5200FP01	2.0	1.5	1.4
P5200FP02	2.5	2.0	1.8
P5200FP03	3.0	2.5	2.3
P5200FP04	3.5	3.0	2.8
P5200FH05	4.0	3.5	3.3
P5200FP07	4.5	4.0	3.8
P5200FP09	5.0	4.5	4.3
P5200FP11	5.5	5.0	4.8
P5200FP13	6.0	5.5	5.3
P5200FH15	6.5	6.0	5.8
P5200FP17	7.0	6.5	6.3
P5200FP19	7.5	7.0	6.8
P5200FP21	8.0	7.5	7.3
P5200FP23	8.5	8.0	7.8
P5200FH25	9.0	8.5	8.3
P5200FP27	9.5	9.0	8.8
P5200FP29	10.0	9.5	9.3
P5200FP31	10.5	10.0	9.5
P5200FP33	11.5	10.5	10.0
P5200FH35	12.5	11.0	10.5
P5200FP37	13.0	11.5	11.0
P5200FP39	13.5	12.0	11.5
P5200FP51	14.0	12.5	12.0
P5200FP53	14.5	13.0	12.5
P5200FH55	15.0	13.5	13.0
P5200FP57	15.5	14.0	13.5
P5200FP59	16.0	14.5	14.0
P5200FP61	16.5	15.0	14.5

Standard Connector: 2.54mm Pitch Housing



Available from 1-20 Columns and up to 4 Rows

Product Line: High Current



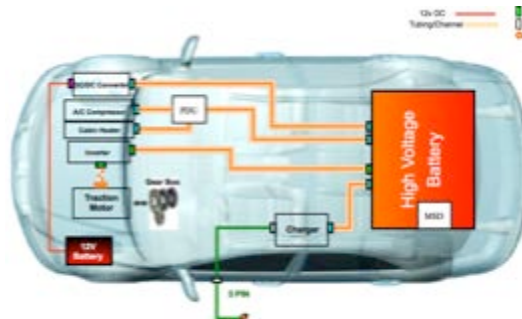
EV Charging



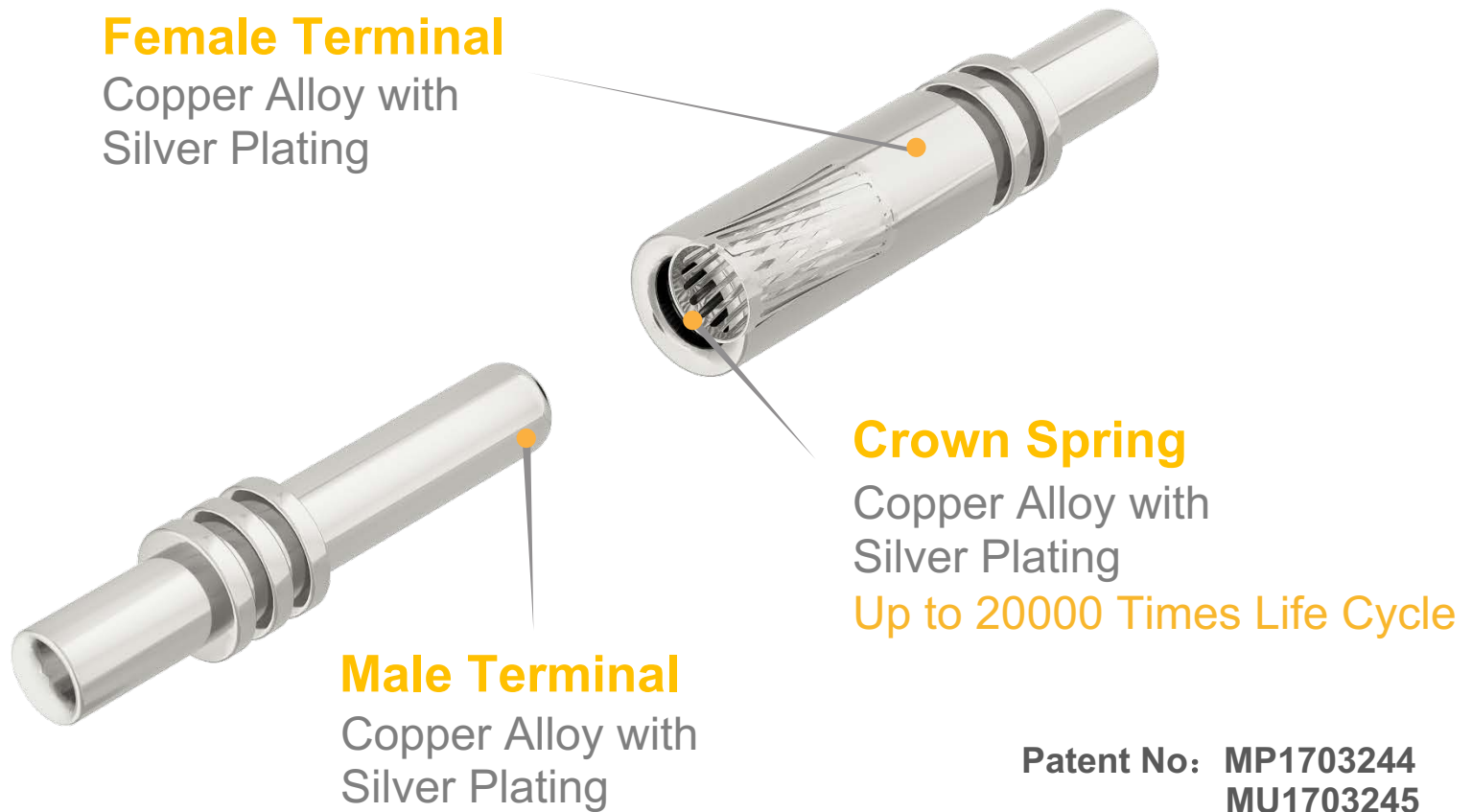
Scooter Battery System



EV Inner Ports



High Current - Crown Spring



High Current Applications



Charging module

EV car charging solutions
EV moped battery solutions



Signal connector

Single plug connector
Multiple plug connector
Push-pull connector

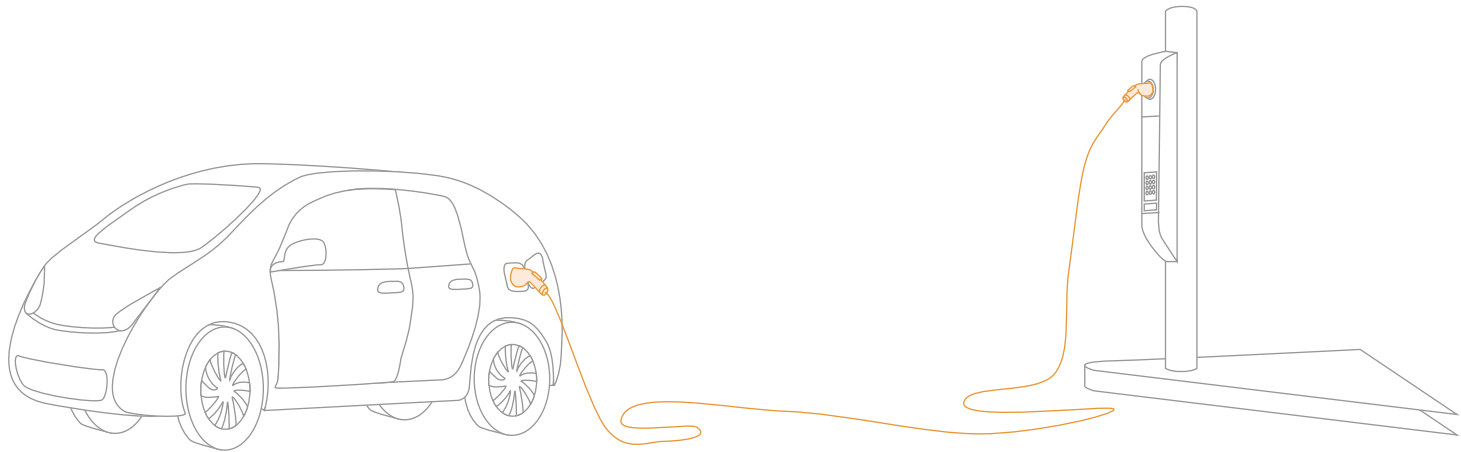


High voltage connector

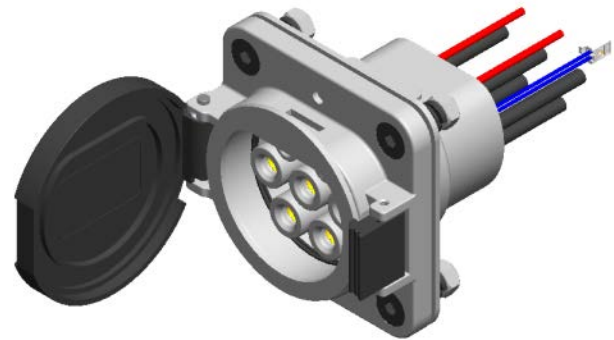
Single plug connector
Multiple plug connector
Push-pull connector



High Current - EV Car Charging

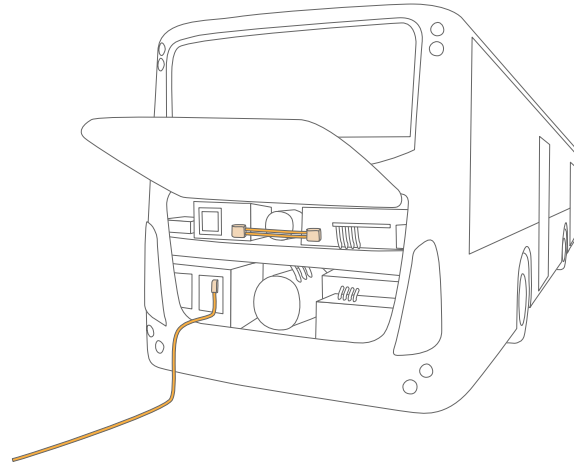
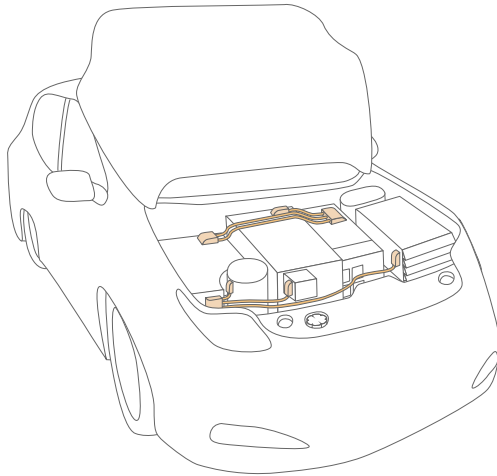


DC/AC Charging Gun



AC/DC Charging Socket

High Current - EV Car Connections



High Voltage
Power Lock Connector



Signal Connector

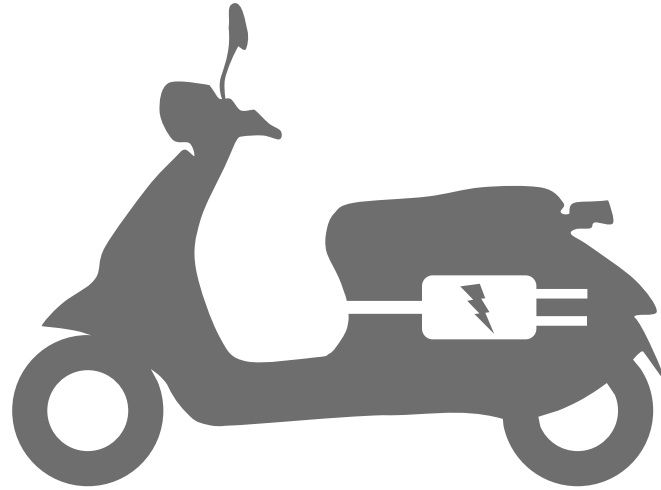


Push-Pull Connector



High Voltage
Power Lock Module

High Current - EV Scooter Solutions



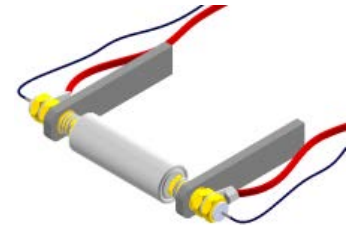
Battery Module



Signal Connector

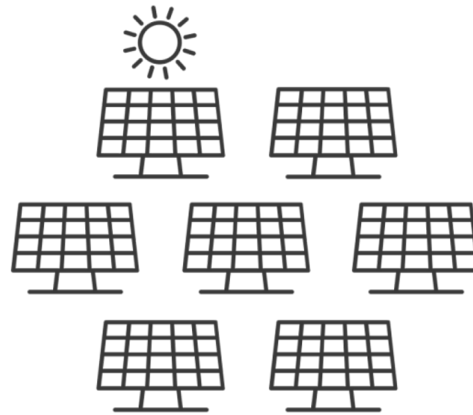


Battery Charging
Solution



Battery Testing
Solution

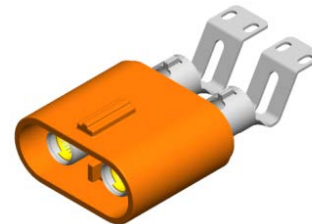
High Current - Solar Panels & Robotics



Battery Module



High Voltage
Power Lock Connector

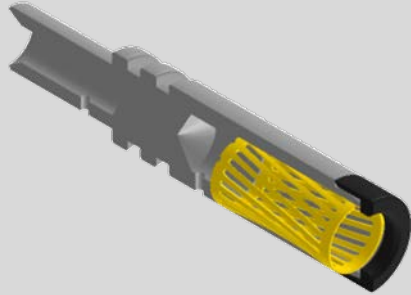


Current Diversion
Connector

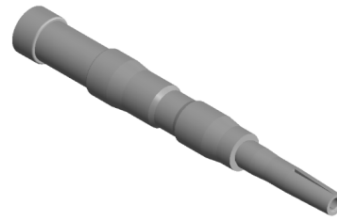


High Voltage
Power Lock Module

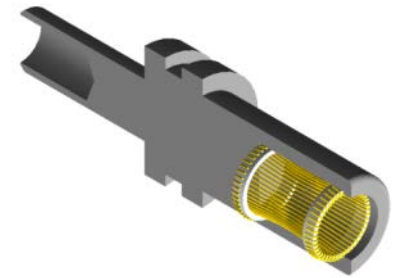
High Current Design Comparison



Crown Spring



Flat Spring



Wire Spring

Life cycles



20k



10k



10k

Cost



1



1



1.5

Current



400A*



100A



300A

Temp.



35



80



40

*Up to 600Amp

High Current - Standard Dimensions

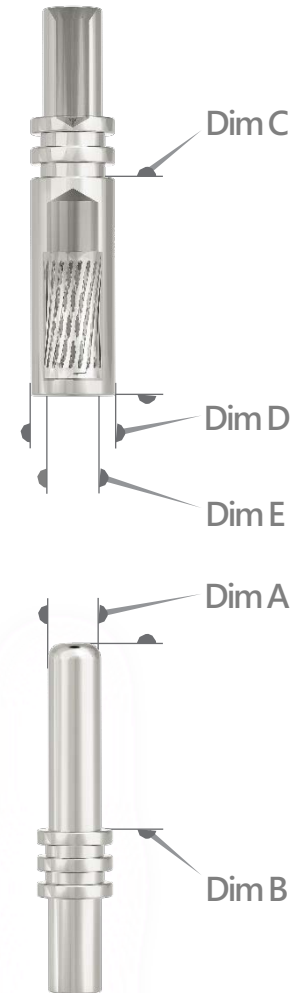


China/ Europe Standard

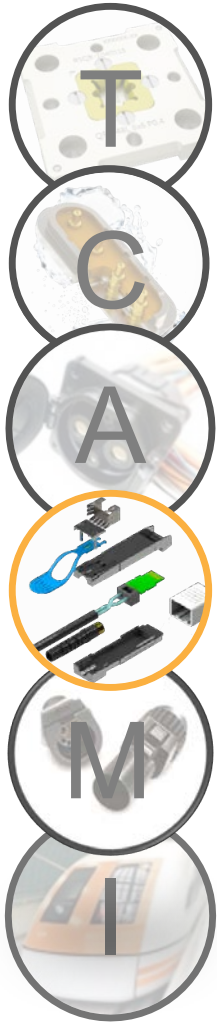


USA Standard

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: High Speed



Data Center Solutions



Telecommunications/Networking



High Speed Cable: External

Enterprise Networking

SFP



QSFP



QSFP to SFP



QSFP to SAS HD



Data Storage

MINISAS



MINISAS HD



MINISAS to HD



High Speed Cable: Internal

Data Storage

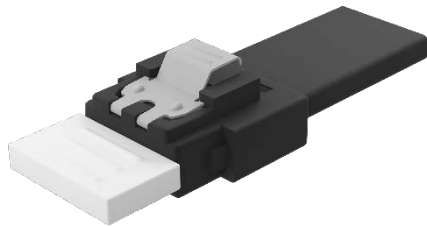
MINISAS



MINISAS HD



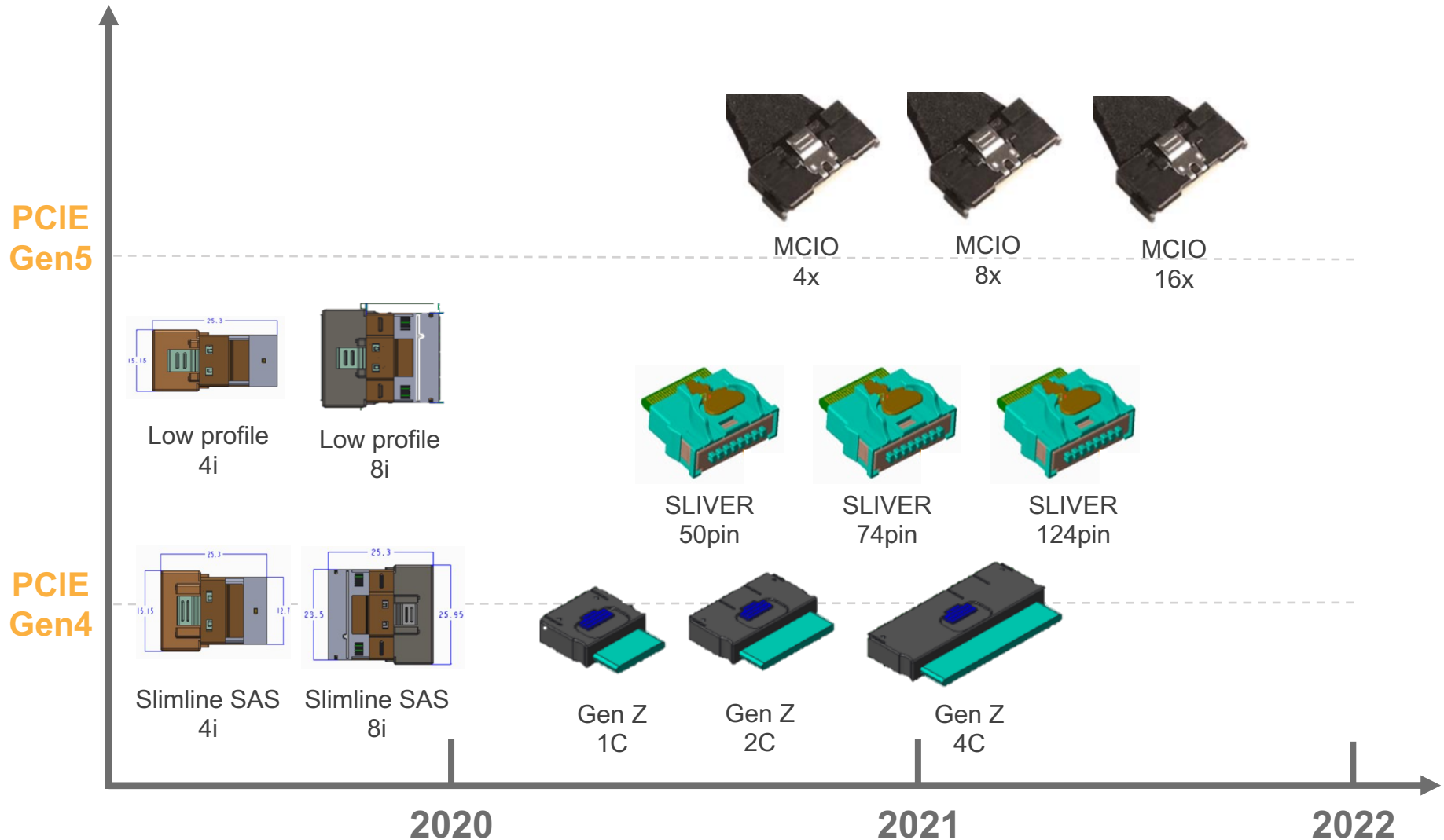
Slimline SAS



Oculink



High Speed Cable: Internal Cable



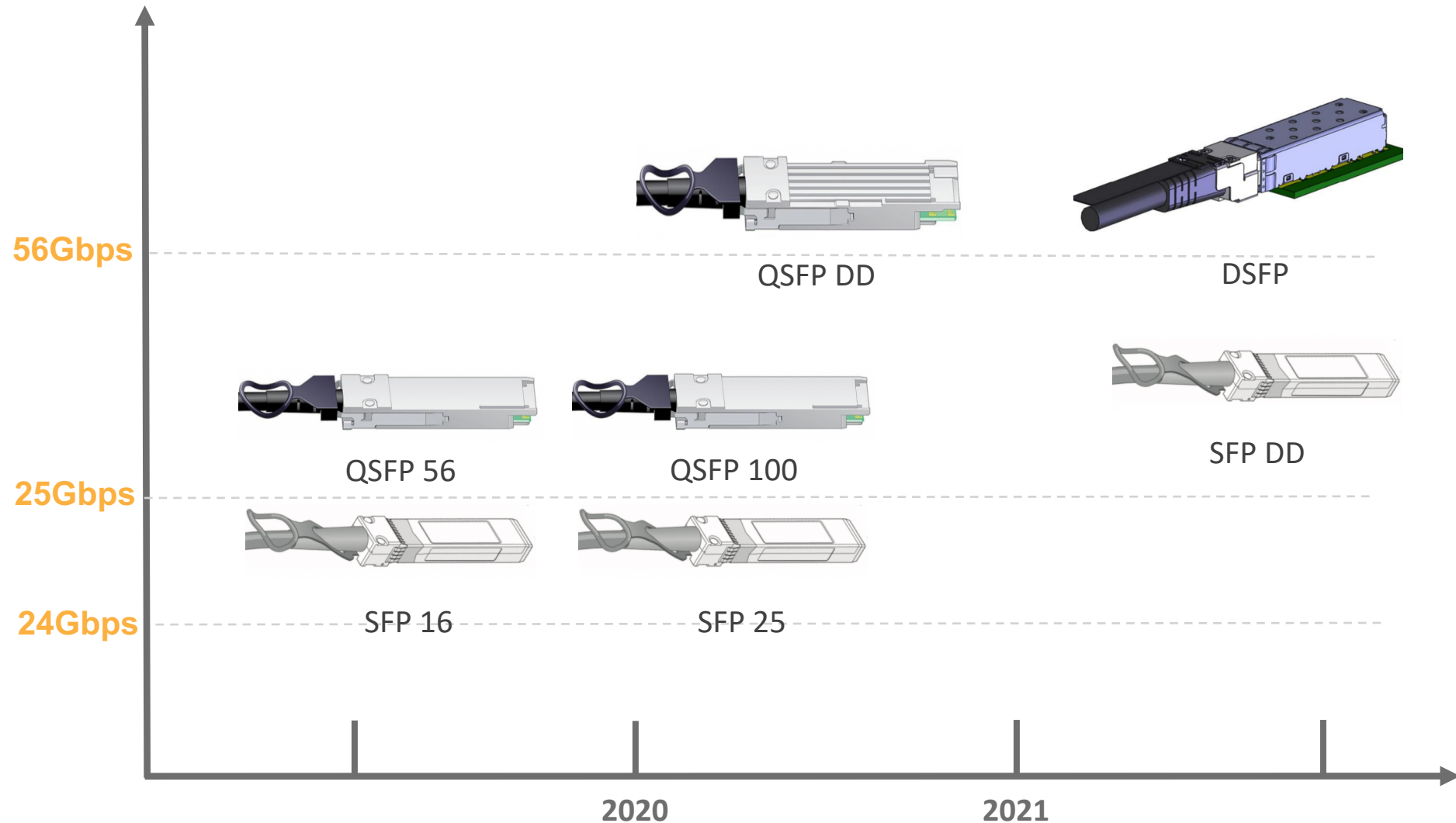
High Speed Cable: Internal Cable

Product	Electrical Spec	High Speed Channel	DIFF PAIR	Side Band	Type	Maximum Length
Gen z	PCIe Gen5	1C	18	YES	STR-STR	1 M
					RAD-RAD	1 M
		2C	26		STR-STR	1 M
					RAD-RAD	1 M
		4C	44		STR-STR	1 M
					RAD-RAD	1 M
		4C+	52		STR-STR	1 M
					RAD-RAD	1 M

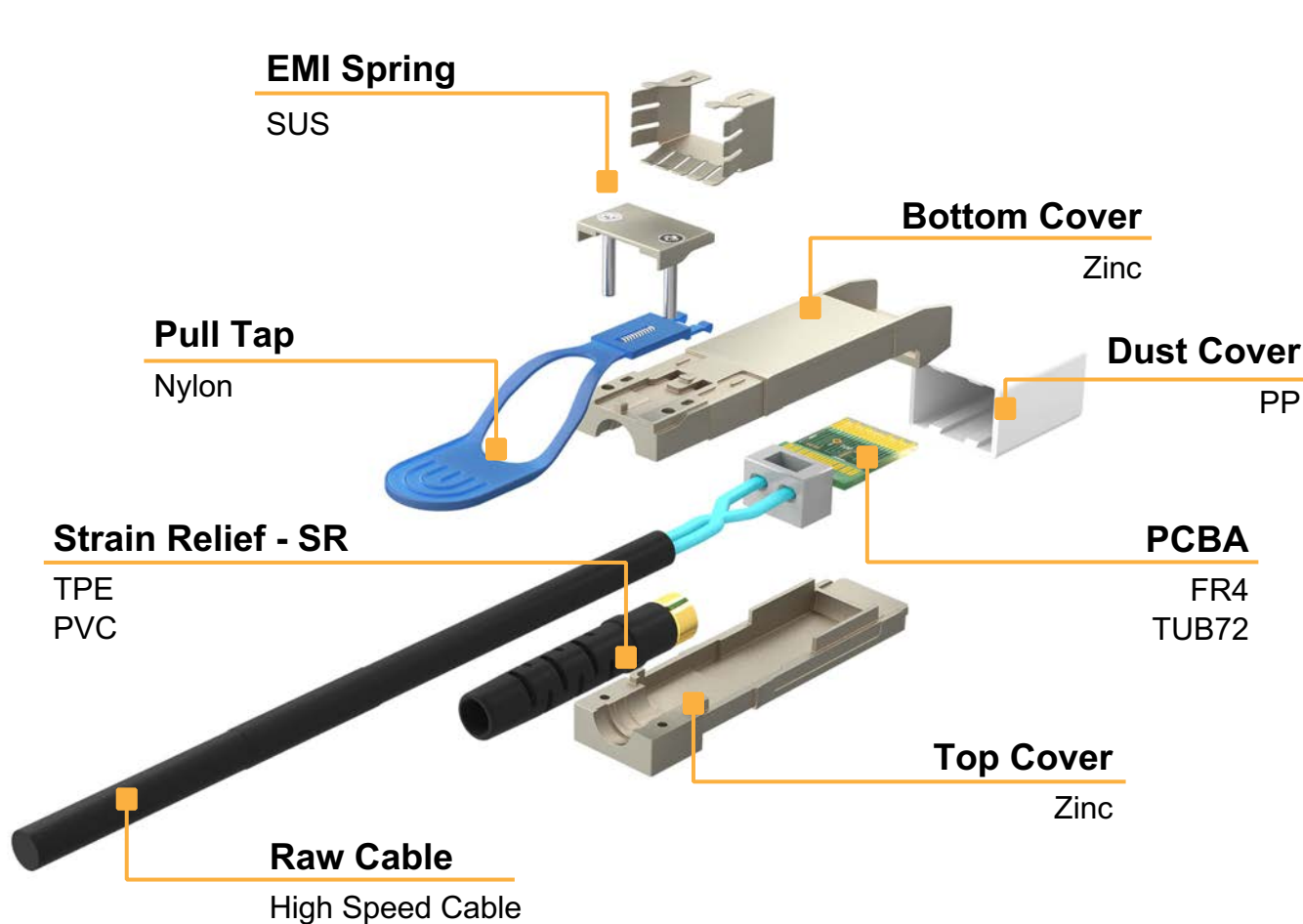
High Speed Cable: Internal Cable

Product	Electrical Spec	High Speed Channel	Side Band	Type	Maximum Length
MCIO	PCIe Gen5	4X	YES	STR-STR	1 M
				RAD-RAD	1 M
		8X		STR-STR	1 M
				RAD-RAD	1 M
		16X		STR-STR	1 M
				RAD-RAD	1 M

High Speed Cable: Internal Cable



High Speed Cable - SFP 25Gbps



PN

Length and AWG

S25-005-A-011

- 0.5 meter 30#

S25-010-A-011

- 1 meter 30#

S25-020-A-011

- 2 meter 30#

S25-030-A-011

- 3 meter 30#

S25-010-A-012

- 1 meter 28#

S25-020-A-012

- 2 meter 28#

S25-030-A-012

- 3 meter 28#

S25-040-A-012

- 4 meter 28#

S25-030-A-013

- 3 meter 26#

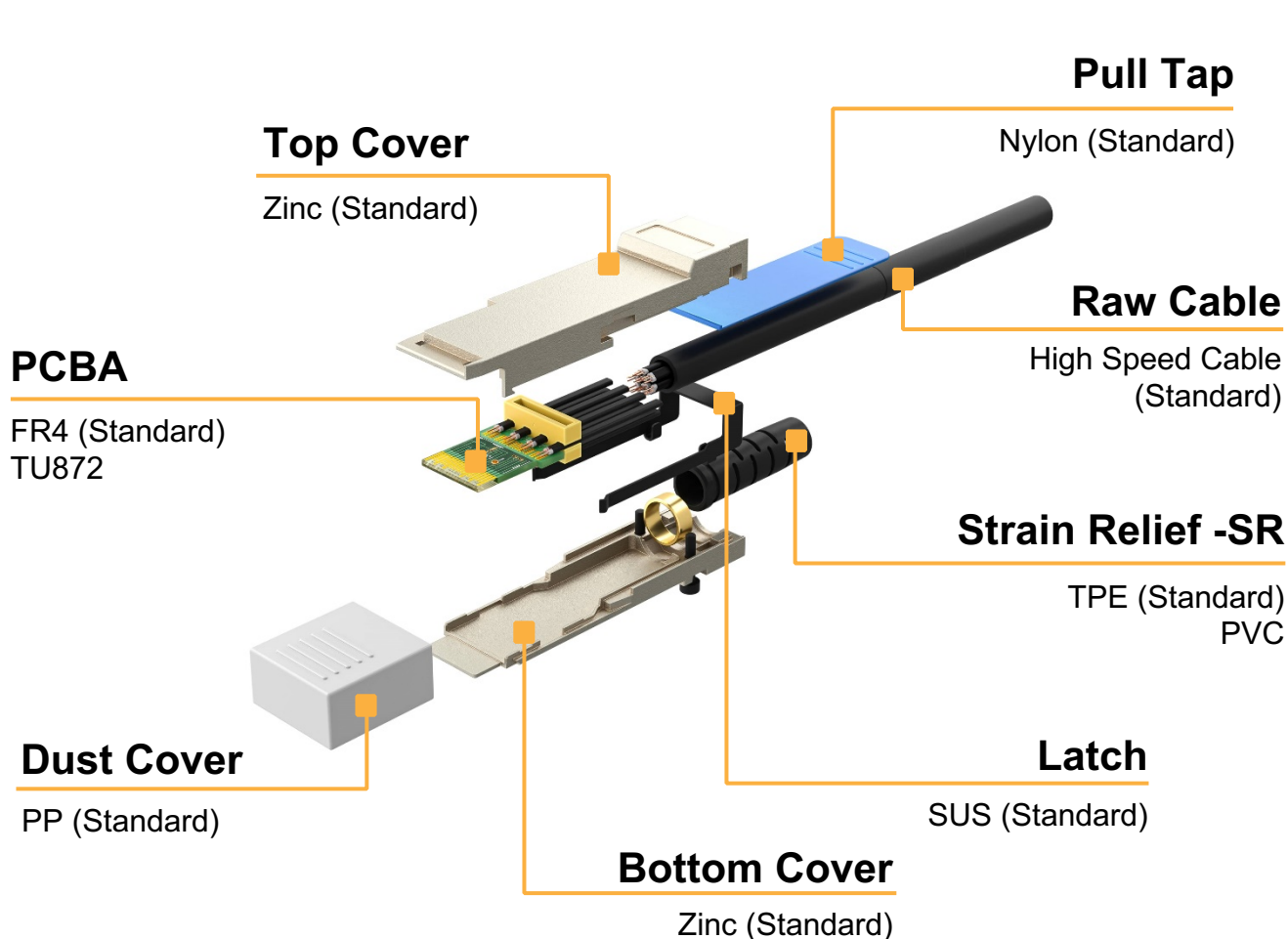
S25-040-A-013

- 4 meter 26#

S25-050-A-013

- 5 meter 26#

High Speed Cable - QSF 25Gbps



PN

Length and AWG

Q25-005-A-011

- 0.5 meter 30#

Q25-010-A-011

- 1 meter 30#

Q25-020-A-011

- 2 meter 30#

Q25-030-A-011

- 3 meter 30#

Q25-010-A-012

- 1 meter 28#

Q25-020-A-012

- 2 meter 28#

Q25-030-A-012

- 3 meter 28#

Q25-040-A-012

- 4 meter 28#

Q25-030-A-013

- 3 meter 26#

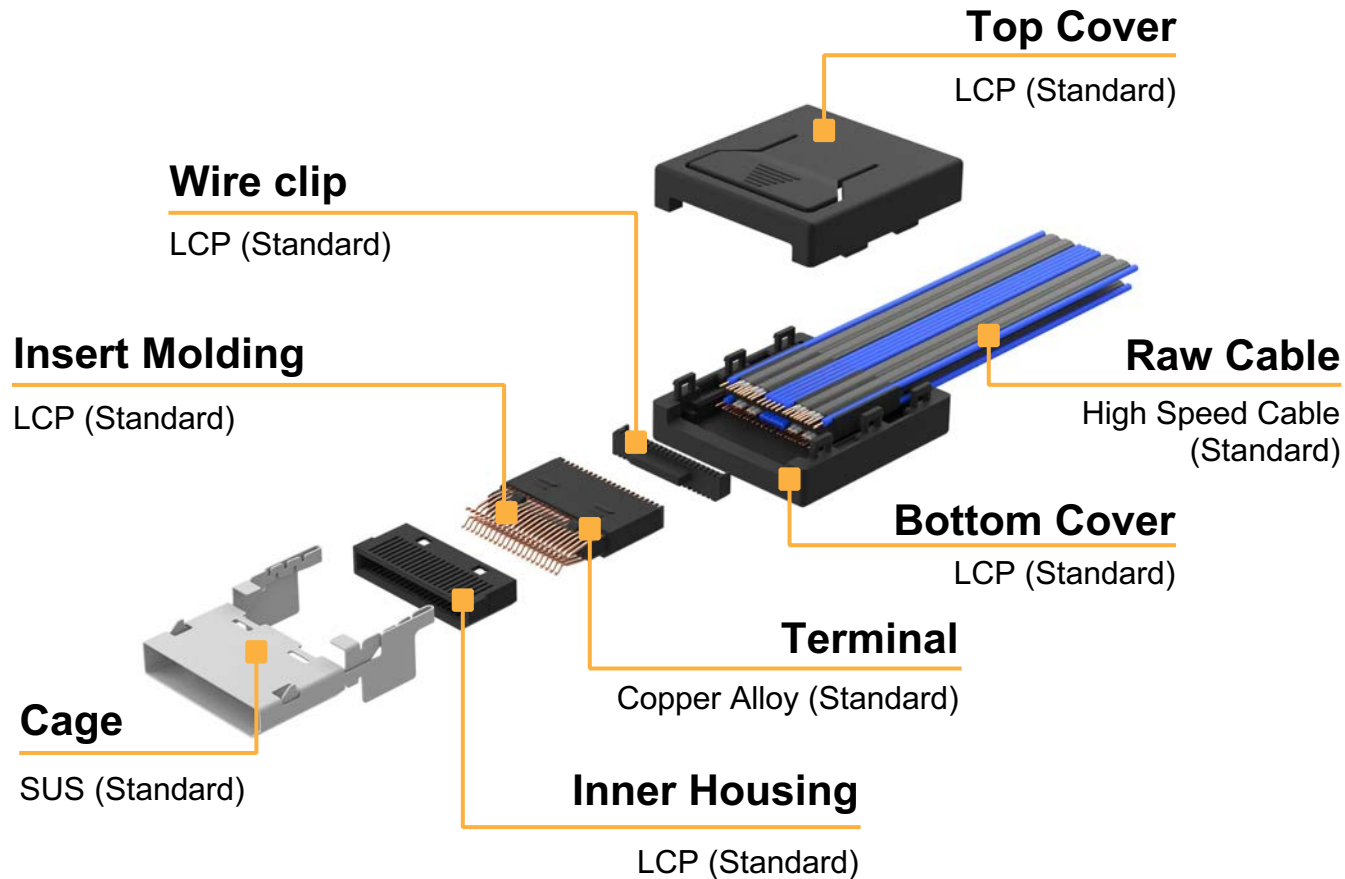
Q25-040-A-013

- 4 meter 26#

Q25-050-A-013

- 5 meter 26#

High Speed Cable - Oculink 1.0



PN

Length and AWG

O16-005-A-015

- 0.5 meter 32#

O16-006-A-015

- 0.6 meter 32#

O16-007-A-015

- 0.7 meter 32#

O16-005-A-011

- 0.5 meter 30#

O16-006-A-011

- 0.6 meter 30#

O16-007-A-011

- 0.7 meter 30#

O16-008-A-011

- 0.8 meter 30#

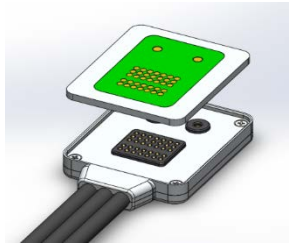
O16-009-A-011

- 0.9 meter 30#

O16-010-A-011

- 1.0 meter 30#

High Speed Cable – Customized 8K HDMI



Pogo pin

PCBA

FR4 (standard)

High Speed Cable

Copper (standard)

PCBA

FR4 (standard)

Top Cover

Zinc (standard)

Mid Cover

Zinc (standard)

Bottom Cover

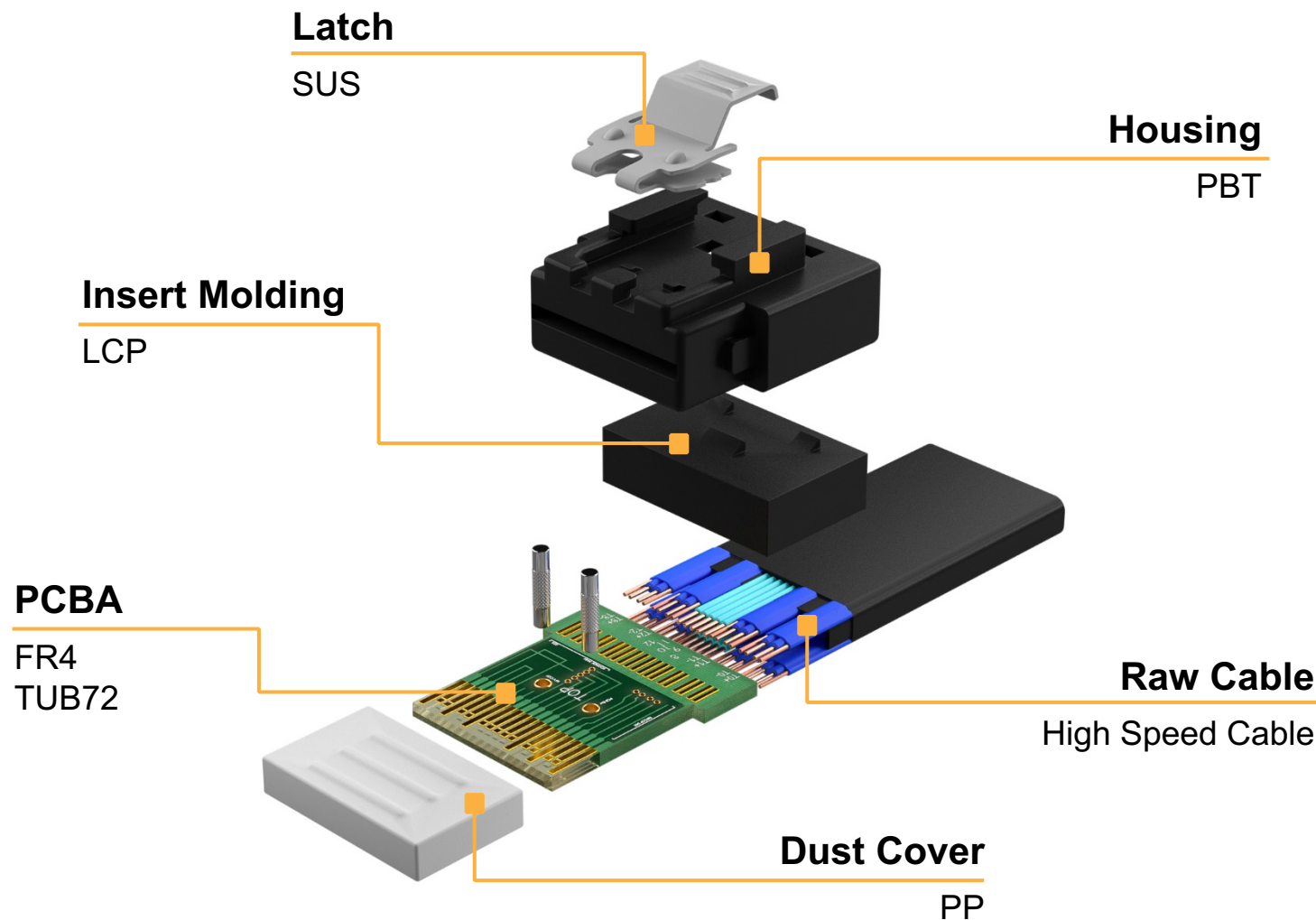
Zinc (standard)

PN

Length and AWG

- HD48-005-A-011
 - 0.5 meter 30#
- HD48-006-A-011
 - 0.6 meter 30#
- HD48-007-A-011
 - 0.7 meter 30#
- HD48-008-A-011
 - 0.8 meter 30#
- HD48-009-A-011
 - 0.9 meter 30#
- HD48-010-A-011
 - 1.0 meter 30#
- HD48-011-A-011
 - 1.1 meter 30#
- HD48-015-A-011
 - 1.5 meter 30#
- HD48-016-A-011
 - 1.6 meter 30#
- HD48-020-A-011
 - 2.0 meter 30#

High Speed Cable – Slimline SAS 24Gbps



Thunderbolt 4 Magnetic Adapter



Product Line: Medical



Critical Care System



Brainwave Headband



Catheter



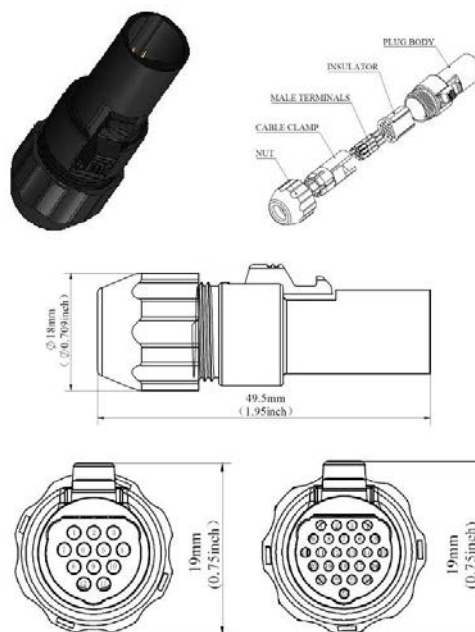
Endoscope



Medical Connector - 12/25 Pin

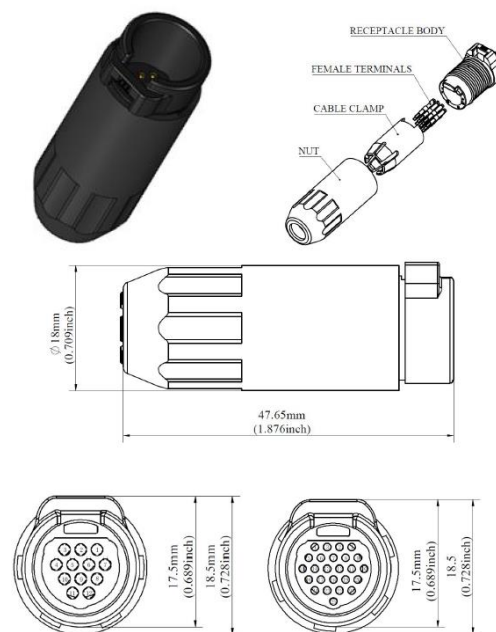
Product type		12 pin	25 pin
MECHANICAL PERFORMANCE			
Contact diameter		0.5mm(0.018inch)	0.4mm(0.016inch)
Extraction force (per contact)		0.2 N~0.8N	0.1 N~0.6N
Contact mating cycles life	Normal socket	10000 MAX	10000 MAX
	Wire spring socket	30000 MAX	30000 MAX
Cable diameter		5~8mm	5~8mm
ELECTRICAL PERFORMANCE			
Current rating		2.5A	1.0A
Withstand voltage		750V DC	750V DC
Breakdown voltage		1000V DC min	1000V DC min
Contact resistance		< 20mΩ	< 20mΩ
Insulation resistance		≥1000MΩ AT 500V DC	≥1000MΩ AT 500V DC
Solder wire		UP TO 22 AWG	UP TO 26 AWG
Crimp wire		22 TO 26 AWG	26 TO 28 AWG
ENVIRONMENTAL PERFORMANCE			
Temperature range		-40°C ~ +80°C	-40°C ~ +125°C
Contacts salt spray		48h	48h

Plug



P/N: A-CM-DQ003000-001S

Receptacle



P/N: A-CF-DQ003000-003S

Metal Waterproof Type-C Connector

- Application: Medical / Military
- High Speed Transmission
- Customized Size: M8, M10, M12, M16, M18 (Type-C: min. M14)
- Customized Plating Color



Waterproof Level: IP57



Product Lines: Product Number

High Demand Product Numbers

Connector

Ultra Small Pins

CS97175M7
CS97175M2
P6925FP03

Ultra Thin Pins

DE4-050DG37-01C1
DE4-035DG37-01C1

Ball Point Connectors

P6353PP02
P07404FP8
P07404FP6
P07404FP3
P5079FP01

High Current Pins

P5650FH01
P07408PH1
P3001PP01

Testing

Battery Test Probes

QT-T06-200A
H150001M1

Test Sockets

RSBB-1060802
RSAB-1040705
RNZB-991010-A
RSBB-1050617
RSQB-1061105

IC Test Probes

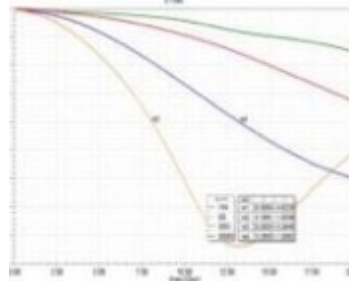
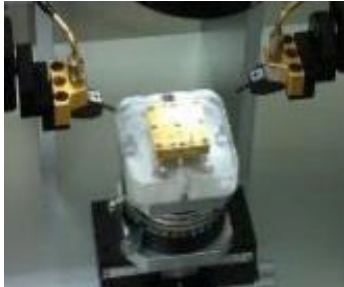
DE1-028EF40-06A0
PE4-031DF24-01F0
DE1-031BF32-01C0
PE4-056DF20-10F0

ICT Test Probes

S-1D-0510
P-1H-0513
P-111A-0515

Core Advantages

High Frequency Simulation



HFSS

Material Development

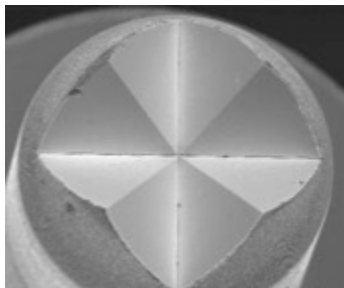


Plating Lab

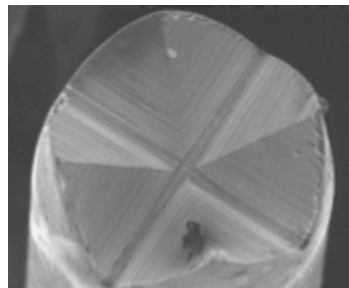


Self-owned
Plating Factory

Mirror Process

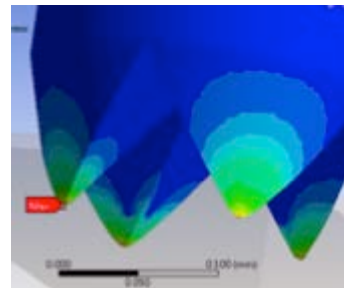


CCP's Product



Other Provider

Finite Element Analysis

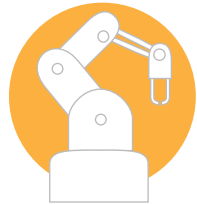


ANSYS

Automation and Mechanical Engineering

Inhouse Machinery Construction

Full automation capability



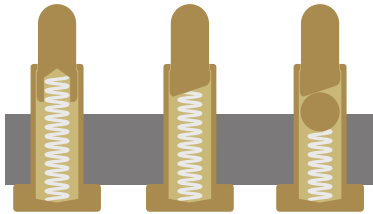
100% Inspection

Pure Quality

Clean-Room Production Line

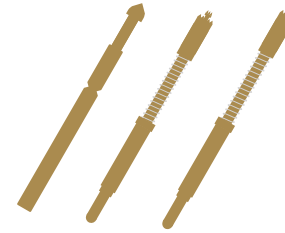
Manufacturing Capacity

Pogo Pin Connectors



60 Mio pins / month

Testing Probes



2 Mio pins / month



Quality Management

Quality System

ISO 9001: 2015

Quality Management Systems

ISO 13485: 2016

Medical devices - 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

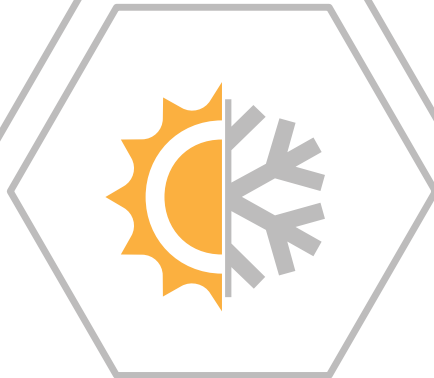
Rated Current
Max Rating : 1000Amp



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 13485
ISO 14001
ISO 14064
IATF 16949
IECQ QC080000



