

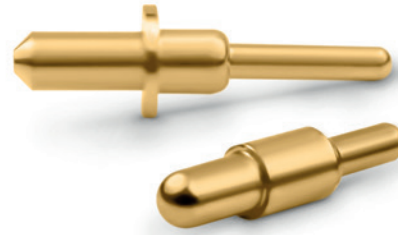
# Spring Probes

Loose Probe & Connector Solutions



# Spring Probe Technology

Smiths Interconnect is the world leader in spring contact probe design and the industry's expert in applying spring probes as connector contacts. Embodied in our connector products, probes are an enabling technology that fundamentally changes the capabilities of the products in which they are incorporated.



## Features

## Benefits

### Low Profile, High Compliance Ratio

Spring probe technology permits a very high compliance-to-length ratio. This allows Smiths Interconnect to design connectors as dense as 2mm, while maintaining 0.5mm of compliance. Spring probe connectors are low profile designs which are forgiving of challenging mating conditions and vibration environments.

### Excellent for Blind Mate

Spring probe connectors are compliant on the surface of their mating half, rather than extending into it as with conventional pin and socket connectors, allowing unique blind-mate capabilities. Designed to engage and disengage at a 90° angle to its target and wiping into position to clear contaminants, probe technology is an ideal approach to quick-disconnect applications.

### High Frequency

A short signal path, combined with design and signal integrity expertise, ensures remarkable connector solutions for both analogue and digital applications.

### Exceptional Misalignment Tolerance

Spring probes require a flat pad for their target; providing contact if the probe's tip touches any point within the target's diameter. This ensures their forgiveness of any X, Y, Z, angular or rotational misalignment.

### Low Stable Resistance

Smiths Interconnect's spring probes feature several innovations for control of DC performance. Advanced biasing techniques provide excellent stability of contact resistance, even under conditions of heavy shock and vibration. Our connectors can be designed to withstand up to 30 A of current.

### Environmentally Sealed

Smiths Interconnect's application expertise and the durable nature of spring probes allows for connectors which are designed for high performance in the harshest conditions. IP68 and MIL810 requirements can be accommodated without sacrificing performance.

### Higher Current Ratings

The design parameters of the contact (e.g., the number, diameter and angle of the wires) may be modified for any requirement. The number of wires can be increased so the contact area is distributed over a larger surface. Thus, the high current carried by each wire, because of its intimate line contact, can be multiplied many times.

### Shock & Vibration

Spring contact probes provide a constant force against the mating contact surface, ensuring uninterrupted contact and easily absorbing and compensating for movement seen during shock and vibration.

### High Insertion Life

Spring contact probes are capable of remarkable longevity from 20K to 300K cycles based on design. Our probes are driven by helical coil springs, which maintain a constant force of contact over millions of cycles. Our extensive plating and materials knowledge combined with engineering expertise, delivers contacts that exceed the highest customer specifications for insertion life.

### Spring Probe Connectors

Spring contact probes provide repeatable contact in the field for modular components, reduce costs and eliminate cable connections by providing a dependable direct connection in rotating or sliding joints.

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## Disclaimer

All of the information included in this catalogue is believed to be accurate at the time of printing. It is recommended, however, that users should independently evaluate the suitability of each product for their intended application and be sure that each product is properly installed, used and maintained to achieve desired results.

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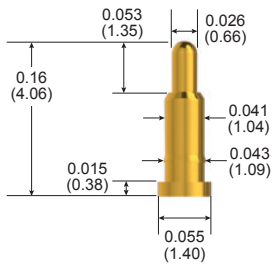
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# PCB Surface Mount

## Dimensions and Specifications

### Probe 101530



#### Probe Specifications

Minimum Centres	0.07 (1.78)
Current Rating	1 A continuous <i>(individual probe in free air @ ambient temperature)</i>
Spring Force	71 g @ 0.042 (1.07) travel
Typical Resistance	<50 mΩ
Maximum Travel	0.05 (1.27)
Working Travel	0.042 (1.07)

#### Materials

Barrel	Brass, gold plated
Spring	Stainless steel
Plunger	Full-hard beryllium copper, gold plated

#### How to Order

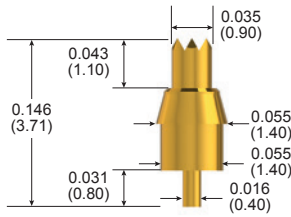
Part Number	101530-000
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# PCB Thru-hole

## Dimensions and Specifications

### 101438 Probe

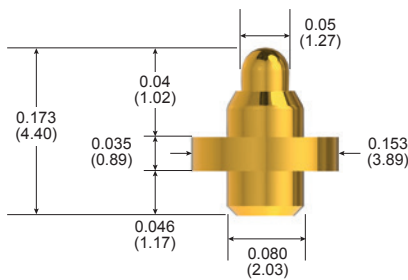
Also available as Connector Probes



Probe Specifications	
Minimum Centres	0.08 (2.03)
Current Rating	1 A continuous <i>(individual probe in free air @ ambient temperature)</i>
Spring Force	99 g @ 0.02 (0.51) travel
Typical Resistance	<10 mΩ
Maximum Travel	0.039 (0.99)
Working Travel	0.02 (0.51)
Materials	
Barrel	Brass, gold plated
Spring	Stainless steel, gold plated
Plunger	Beryllium copper, gold plated
How to Order	
Part Number	101438-000

### 100671 Probe

Also available as Connector Probes

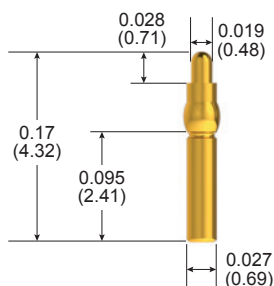


Probe Specifications	
Minimum Centres	0.175 (4.45)
Current Rating	3 A continuous <i>(individual probe in free air @ ambient temperature)</i>
Spring Force	145 g @ 0.027 (0.69) travel
Typical Resistance	<10 mΩ
Maximum Travel	0.04 (1.02)*
Working Travel	0.027 (0.69)
Materials	
Barrel	Nickel/silver, gold plated
Spring	Stainless steel, gold plated
Plunger	Beryllium copper, gold plated
How to Order	
Part Number	100671-000

\*Not recommended for use at maximum travel

## 101506 Probe

Also available as Connector Probes



### Probe Specifications

Minimum Centres	0.05 (1.27)
Current Rating	5 A continuous <i>(individual probe in free air @ ambient temperature)</i>
Spring Force	39 g @ 0.02 (0.51) travel
Typical Resistance	<20 mΩ
Maximum Travel	0.028 (0.71)
Working Travel	0.02 (0.51)

### Materials

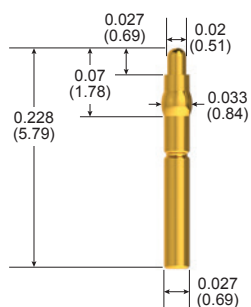
Barrel	Nickel/silver, gold plated
Spring	Stainless steel, gold plated
Plunger	Beryllium copper, gold plated

### How to Order

Part Number	101506-000
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## 101294 Probe

Also available as Connector Probes



### Probe Specifications

Minimum Centres	0.05 (1.27)
Current Rating	5 A continuous <i>(individual probe in free air @ ambient temperature)</i>
Spring Force	26 g @ 0.02 (0.51) travel
Typical Resistance	<20 mΩ
Maximum Travel	0.027 (0.69)
Working Travel	0.02 (0.51)

### Materials

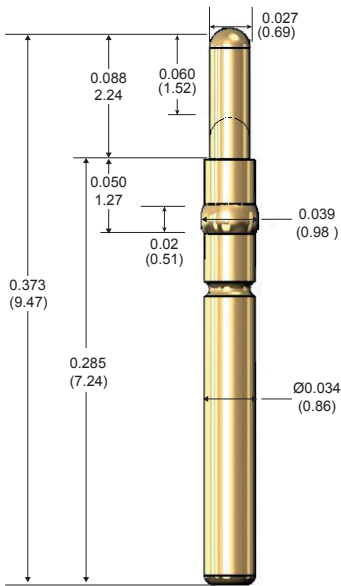
Barrel	Nickel/silver, gold plated
Spring	Stainless steel, gold plated
Plunger	Beryllium copper, gold plated

### How to Order

Part Number	101294-000
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### 100803 Probe

Also available as Connector Probes



#### Probe Specifications

Minimum Centres	0.05 (1.27)
Current Rating	5 A continuous <i>(individual probe in free air @ ambient temperature)</i>
Spring Force	34 g @ 0.05 (1.27) travel
Typical Resistance	<50 mΩ
Maximum Travel	0.06 (1.52)
Working Travel	0.05 (1.27)

#### Materials

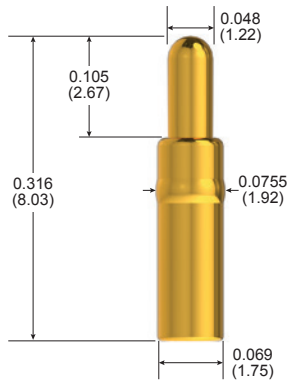
Barrel	Nickel/silver, gold plated
Spring	Stainless steel, gold plated
Plunger	Beryllium copper, gold plated

#### How to Order

Part Number	100803-011
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### 101190 Probe

Also available as Connector Probes



#### Probe Specifications

Minimum Centres	0.10 (2.54)
Current Rating	15 A continuous <i>(individual probe in free air @ ambient temperature)</i>
Spring Force	74 g @ 0.067 (1.70) travel
Typical Resistance	<6 mΩ
Maximum Travel	0.10 (2.54)
Working Travel	0.067 (1.70)

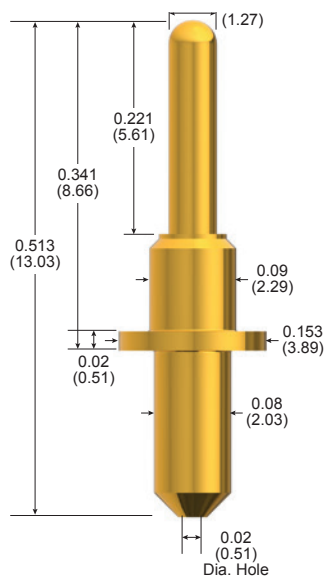
#### Materials

Barrel	Nickel/silver, gold plated
Spring	Stainless steel
Plunger	Beryllium copper, gold plated

#### How to Order

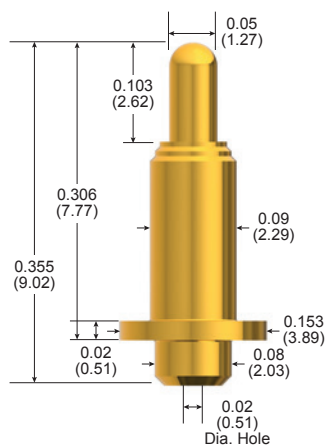
Part Number	101190-002
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### 100606 Probe



Probe Specifications	
Minimum Centres	0.175 (4.45)
Current Rating	15 A continuous <i>(individual probe in free air @ ambient temperature)</i>
Spring Force	176 g @ 0.06 (1.52) travel
Typical Resistance	<10 mΩ
Maximum Travel	0.09 (2.29)
Working Travel	0.06 (1.52)
Materials	
Barrel	Nickel/silver, gold plated
Spring	Stainless steel, gold plated
Plunger	Beryllium copper, gold plated
Bias Ball	Stainless steel
How to Order	
Part Number	100606-000

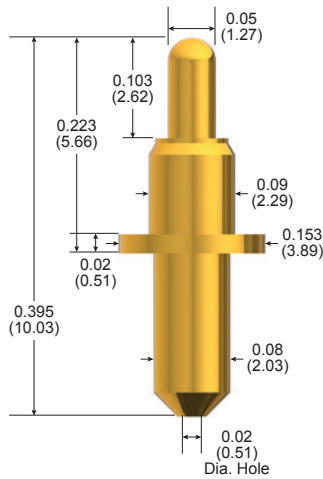
### 100891 Probe



Probe Specifications	
Minimum Centres	0.175 (4.45)
Current Rating	15 A continuous <i>(individual probe in free air @ ambient temperature)</i>
Spring Force	256 g @ 0.067 (1.70) travel
Typical Resistance	<5 mΩ
Maximum Travel	0.10 (2.54)
Working Travel	0.067 (1.70)
Materials	
Barrel	Nickel/silver, gold plated
Spring	Stainless steel, gold plated
Plunger	Beryllium copper, gold plated
How to Order	
Part Number	100891-002

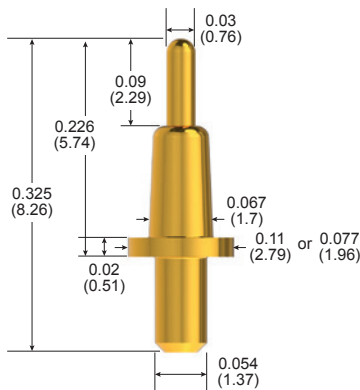


### 100410 Probe



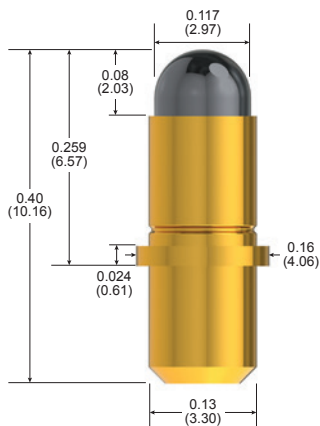
Probe Specifications	
Minimum Centres	0.175 (4.45)
Current Rating	15 A continuous <i>(individual probe in free air @ ambient temperature)</i>
Spring Force	176 g @ 0.06 (1.52) travel
Typical Resistance	<5 mΩ
Maximum Travel	0.09 (2.29)
Working Travel	0.06 (1.52)
Materials	
Barrel	Nickel/silver, gold plated
Spring	Stainless steel
Plunger	Beryllium copper, gold plated
Bias Ball	Stainless Steel
How to Order	
Part Number	100410-005

### 101050 Probe



Probe Specifications	
Minimum Centres	0.125 (3.18)
Current Rating	10 A continuous <i>(individual probe in free air @ ambient temperature)</i>
Spring Force	65 g @ 0.06 (1.52) travel
Typical Resistance	<10 mΩ
Maximum Travel	0.09 (2.29)
Working Travel	0.06 (1.52)
Materials	
Barrel	Nickel/silver, gold plated
Spring	Stainless steel, passivated
Plunger	Beryllium copper, gold plated
Ball	Stainless steel, gold plated
How to Order	
Part Number	101050-003 (0.11 dia. flange) 101050-005 (0.077 dia. flange)

### 101402 Probe High Current

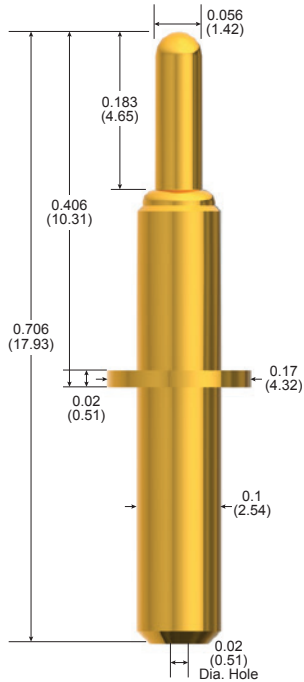


Probe Specifications	
Minimum Centres	0.175 (4.45)
Current Rating	20 A continuous <i>(individual probe in free air @ ambient temperature)</i>
Spring Force	275 g @ 0.05 (1.27) travel
Typical Resistance	<10 mΩ
Maximum Travel	0.08 (2.03)
Working Travel	0.05 (1.27)
Materials	
Barrel	Nickel/silver, gold plated
Spring	Stainless steel, passivated
Plunger	Brass, Duralloy™
How to Order	
Part Number	101402-000

## 101247 Probe

### High Current

Also available as PCB Thru-hole



#### Probe Specifications

Minimum Centres	0.20 (5.08)
Current Rating	20 A continuous <i>(individual probe in free air @ ambient temperature)</i>
Spring Force	332 g @ 0.147 (3.73) travel
Typical Resistance	<10 mΩ
Maximum Travel	0.180 (4.57)
Working Travel	0.147 (3.73)

#### Materials

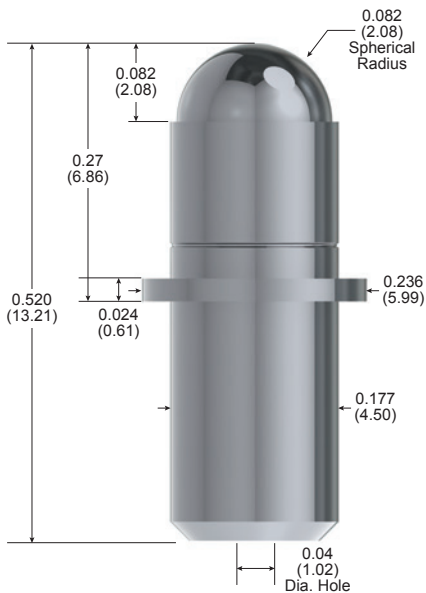
Barrel	Brass, gold plated
Spring	Stainless steel, passivated
Plunger	Beryllium copper, gold plated

#### How to Order

Part Number	101247-001
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## 100804 Probe

Also available as High Current Probes



#### Probe Specifications

Minimum Centres	0.25 (6.35)
Current Rating	30 A continuous <i>(individual probe in free air @ ambient temperature)</i>
Spring Force	252 g @ 0.54 (1.37) travel
Typical Resistance	<5 mΩ
Maximum Travel	0.082 (2.08)
Working Travel	0.054 (1.37)

#### Materials

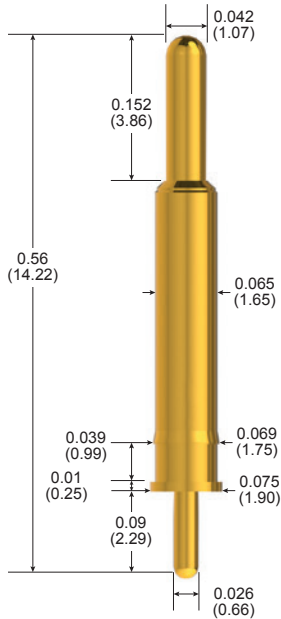
Barrel	Brass, Duralloy™ plated
Spring	Stainless steel, passivated
Plunger	Brass, Duralloy™ plated

#### How to Order

Part Number	100804-002
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## 101712 Probe

Also available as Connector Probes



### Probe Specifications

Minimum Centres	0.10 (2.54)
Current Rating	3 A continuous <i>(individual probe in free air @ ambient temperature)</i>
Spring Force	102 g @ 0.06 (1.52) travel
Typical Resistance	<50 mΩ
Maximum Travel	0.12 (3.05)
Working Travel	0.06 (1.52)

### Materials

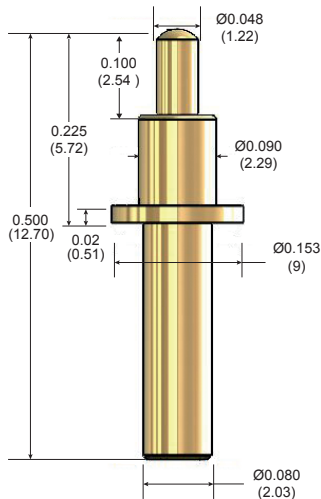
Barrel	Brass, gold plated
Spring	Stainless steel
Plunger	Brass, gold plated

### How to Order

Part Number	101712-000
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## 101602 Probe

Environmentally sealed to IP67 rating



### Probe Specifications

Minimum Centres	.175 (4.44)
Current Rating	10 A with 80° C rise <i>(individual probe in free air @ ambient temperature)</i>
Spring Force	6.7 oz. (190 g) @ .070 (1.77) travel
Typical Resistance	<10 mΩ
Maximum Travel	0.100 (2.54)
Working Travel	0.070 (1.77)

### Materials

Barrel	Nickel silver, gold plated
Spring	Stainless steel
Plunger	Full-hard beryllium copper, gold plated
Bias Ball	Stainless steel
O-ring	Silicone
Cap & Plug	Stainless steel, gold plated

### How to Order

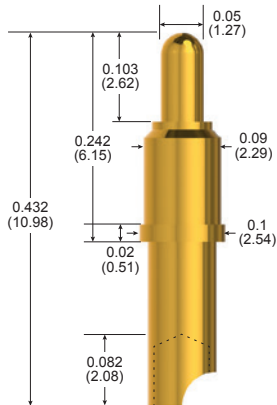
Part Number	101602-000
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# Solder Cup

## Dimensions and Specifications

### 101628 Probe High Current

Also available as PCB Thru-hole



#### Probe Specifications

Minimum Centres	0.125 (3.18)
Current Rating	25 A continuous <i>(individual probe in free air @ ambient temperature)</i>
Spring Force	150 g @ 0.04 (1.02) travel
Typical Resistance	<5 mΩ
Maximum Travel	0.04 (1.02)
Working Travel	0.04 (1.02)

#### Materials

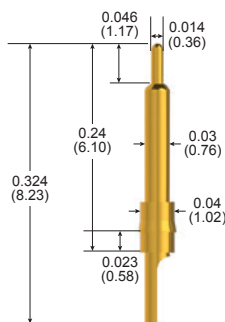
Barrel	Brass, gold plated
Spring	Music wire, nickel plated
Plunger	Beryllium copper, gold plated
Ball	Stainless steel

#### How to Order

Part Number	101628-000
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### 101679 Probe

Also available as Press-Fit



#### Probe Specifications

Minimum Centres	0.055 (1.40)
Current Rating	3 A continuous <i>(individual probe in free air @ ambient temperature)</i>
Spring Force	37 g @ 0.023 (0.58) travel
Typical Resistance	<25 mΩ
Maximum Travel	0.023 (0.58)
Working Travel	0.023 (0.58)

#### Materials

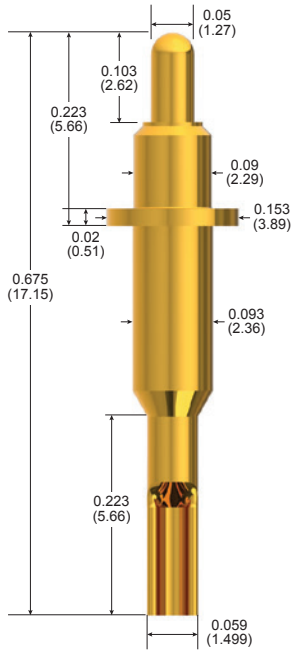
Barrel	Brass, gold plated
Spring	Stainless steel
Plunger	Brass, gold plated

#### How to Order

Part Number	101679-000
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### 101119 Probe

Also available as PCB Thru-hole



#### Probe Specifications

Minimum Centres	0.175 (4.45)
Current Rating	15 A continuous <i>(individual probe in free air @ ambient temperature)</i>
Spring Force	176 g @ 0.06 (1.52) travel
Typical Resistance	<10 mΩ
Maximum Travel	0.09 (2.29)
Working Travel	0.06 (1.52)

#### Materials

Barrel	Nickel/silver, gold plated
Spring	Stainless steel
Plunger	Beryllium copper, gold plated
Bias Ball	Stainless steel
Receptacle	Nickel/silver, gold plated

#### How to Order

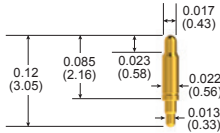
Part Number	101119-001
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# Interposer

## Dimensions and Specifications

### 101111 Probe

Also available as Solderless



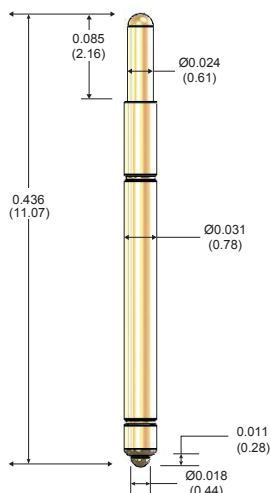
Probe Specifications	
Minimum Centres	0.029 (0.75)
Current Rating	6 A continuous <i>(individual probe in free air @ ambient temperature)</i>
Spring Force	43 g @ 0.022 (0.55) travel
Typical Resistance	<50 mΩ
Maximum Travel	0.025 (0.58)
Working Travel	0.022 (0.55)
Materials	
Barrel	Phosphor bronze, gold plated
Spring	Music wire, gold plated
Plunger	Phosphor bronze, gold plated
How to Order	
Part Number	101111-008

### 102197 Probe



Probe Specifications	
Minimum Centres	0.040 (1.02)
Current Rating	6 A continuous <i>(individual probe in free air @ ambient temperature)</i>
Spring Force	1.4 oz (40 g) @ 0.014 (0.36) travel
Typical Resistance	<75 mΩ
Maximum Travel	0.020 (0.51)
Working Travel	0.014 (0.36)
Materials	
Barrel	Nickel silver, gold plated
Spring	Stainless steel, gold plated
Plunger & Post	Beryllium copper, gold plated
How to Order	
Part Number	102197-000

### 101367 Probe



Probe Specifications	
Minimum Centres	0.039 (0.99)
Current Rating	5 A continuous <i>(individual probe in free air @ ambient temperature)</i>
Spring Force	3.7 oz (105 g) @ 0.030 (0.76) travel
Typical Resistance	<25 mΩ
Maximum Travel	0.057 (1.45)
Working Travel	0.030 (0.76)
Materials	
Barrel	Nickel silver, gold plated
Spring	Stainless steel, gold plated
Plunger & Post	Beryllium copper, gold plated
How to Order	
Part Numbers	101367-001 (OAL: 0.436 in.)
	101367-002 (OAL: 0.455 in.)

Dimensions are in inches [mm].

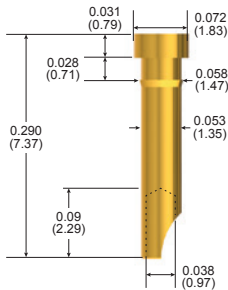
# Target Contacts

## Dimensions and Specifications

### PI-5327

Also available as Press-fit

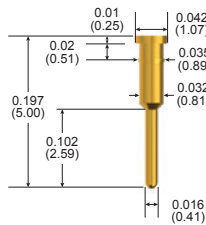
Solder Cup



Pin Specifications	
Mounting Hole	0.057 (1.45)
Pin Material	Brass
Plating Material	Gold over nickel
How to Order	
Part Number	305327-000

### PI-5328

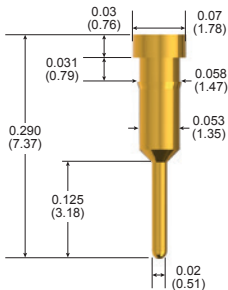
Also available as Press-fit



Pin Specifications	
Mounting Hole	0.034 (0.86)
Pin Material	Brass
Plating Material	Gold over nickel
How to Order	
Part Number	305328-000

### PI-5329

Also available as Press-fit

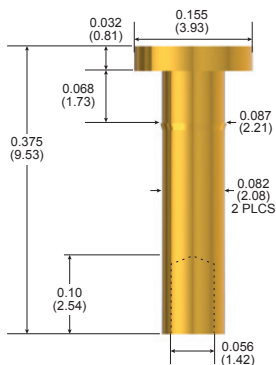


Pin Specifications	
Mounting Hole	0.057 (1.45)
Pin Material	Brass
Plating Material	Gold over nickel
How to Order	
Part Number	305329-000

### PI-5330

Also available as Press-fit

Solder Cup



Pin Specifications	
Mounting Hole	0.084 (2.15)
Pin Material	Brass
Plating Material	Gold over nickel
How to Order	
Part Number	305330-000

# Worldwide Support

## Connectors

### Americas

#### Sales

connectors.uscsr@smithsinterconnect.com

#### Technical Support

connectors.ustechsupport@smithsinterconnect.com

### Europe

#### Sales

connectors.emeacsr@smithsinterconnect.com

#### Technical Support

connectors.emeatechsupport@smithsinterconnect.com

### Asia

#### Sales

asiacsr@smithsinterconnect.com

#### Technical Support

asiatechsupport@smithsinterconnect.com

## Fibre Optics & RF Components

### Americas

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focom.uscsr@smithsinterconnect.com

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focom.techsupport@smithsinterconnect.com

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focom.techsupport@smithsinterconnect.com

### Asia

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#### Technical Support

focom.techsupport@smithsinterconnect.com

## Semiconductor Test

### Americas

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semi.uscsr@smithsinterconnect.com

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semi.techsupport@smithsinterconnect.com

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semi.emeacsr@smithsinterconnect.com

#### Technical Support

semi.techsupport@smithsinterconnect.com

### Asia

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semi.asiacsr@smithsinterconnect.com

#### Technical Support

semi.techsupport@smithsinterconnect.com

## RF/MW Subsystems

### Americas, Europe & Asia

#### Sales

subsystems.csr@smithsinterconnect.com

#### Technical Support

subsystems.techsupport@smithsinterconnect.com

# Connecting Global Markets

smithsinterconnect.com

