

# SPRING PROBES

*Loose Probe & Connector Solutions*



# SPRING PROBE TECHNOLOGY

Smiths Connectors 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

### LOW PROFILE, HIGH COMPLIANCE RATIO

Spring probe technology permits a very high compliance-to-length ratio. This allows Smiths Connectors 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.

### HIGH FREQUENCY

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

### LOW STABLE RESISTANCE

Smiths Connectors' 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 Amps of current.

### 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.

### 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.

## BENEFITS

### 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.

### 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 and rotational misalignment.

### ENVIRONMENTALLY SEALED

Smiths Connectors' 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.

### 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.

### 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.

# TABLE OF CONTENTS

## CONNECTOR SPRING PROBES ..... 4

- ▶ Dimensions & Specifications:
  - 101582 Probe .....4
  - 101438 Probe .....4
  - 100671 Probe .....5
  - 101111 Probe .....5
  - 101506 Probe .....6
  - 101294 Probe .....6
  - 100803 Probe .....7
  - 101190 Probe.....7
  - 100606 Probe .....8
  - 100891 Probe .....8
  - 100410 Probe .....9
  - 101119 Probe.....9
  - 101050 Probe .....10
  - 101247 Probe .....10
  - 101679 Probe .....11
  - 101628 Probe .....11
  - 101402 Probe .....12
  - 100804 Probe .....12
  - 101712 Probe .....13
  - 101530 Probe .....13
  - 101549 Probe .....14

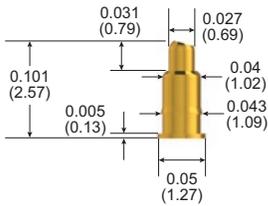
## CONNECTOR TARGET CONTACTS ..... 15

- ▶ Dimensions & Specifications:
  - PI-5328.....15
  - PI-5329.....15
  - PI-5327.....15
  - PI-5330.....15

# STANDARD CONNECTOR PROBES

## Dimensions & Specifications

### ▶ 101582 PROBE



#### PROBE SPECIFICATIONS

<b>Minimum Centers</b>	0.07 (1.78) 0.05 (1.27)) staggered rows
<b>Current Rating</b>	9 A continuous <i>(individual probe in free air @ ambient temperature)</i>
<b>Spring Force</b>	48 g @ 0.03 (0.76) travel
<b>Typical Resistance</b>	< 10 mΩ
<b>Maximum Travel</b>	0.03 (0.76)
<b>Working Travel</b>	0.03 (0.76)

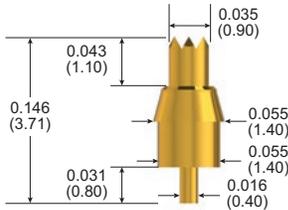
#### MATERIALS

<b>Barrel</b>	Brass, gold plated
<b>Spring</b>	Stainless steel
<b>Plungers</b>	Beryllium copper, gold plated

#### HOW TO ORDER

<b>Part Number</b>	101582-000
--------------------	------------

### ▶ 101438 PROBE



#### PROBE SPECIFICATIONS

<b>Minimum Centers</b>	0.08 (2.03)
<b>Current Rating</b>	1 A continuous <i>(individual probe in free air @ ambient temperature)</i>
<b>Spring Force</b>	99 g @ 0.02 (0.51) travel
<b>Typical Resistance</b>	< 10 mΩ
<b>Maximum Travel</b>	0.039 (0.99)
<b>Working Travel</b>	0.02 (0.51)

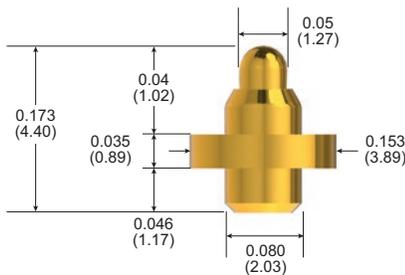
#### MATERIALS

<b>Barrel</b>	Brass, gold plated
<b>Spring</b>	Stainless steel, gold plated
<b>Plunger</b>	Beryllium copper, gold plated

#### HOW TO ORDER

<b>Part Number</b>	101438-000
--------------------	------------

## ▶ 100671 PROBE



### PROBE SPECIFICATIONS

<b>Minimum Centers</b>	0.175 (4.45)
<b>Current Rating</b>	3 A continuous <i>(individual probe in free air @ ambient temperature)</i>
<b>Spring Force</b>	145 g @ 0.027 (0.69) travel
<b>Typical Resistance</b>	< 10 mΩ
<b>Maximum Travel</b>	0.04 (1.02)*
<b>Working Travel</b>	0.027 (0.69)

### MATERIALS

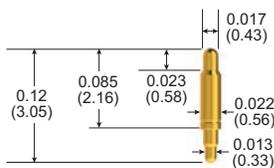
<b>Barrel</b>	Nickel/silver, gold plated
<b>Spring</b>	Stainless steel, gold plated
<b>Plunger</b>	Beryllium copper, gold plated

### HOW TO ORDER

<b>Part Number</b>	100671-000
--------------------	------------

*\*Not recommended for use at maximum travel*

## ▶ 101111 PROBE



### PROBE SPECIFICATIONS

<b>Minimum Centers</b>	0.029 (0.75)
<b>Current Rating</b>	6 A continuous <i>(individual probe in free air @ ambient temperature)</i>
<b>Spring Force</b>	43 g @ 0.022 (0.55) travel
<b>Typical Resistance</b>	< 50 mΩ
<b>Maximum Travel</b>	0.025 (0.58)
<b>Working Travel</b>	0.022 (0.55)

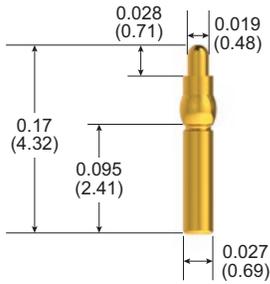
### MATERIALS

<b>Barrel</b>	Phosphor bronze, gold plated
<b>Spring</b>	Music wire, gold plated
<b>Plunger</b>	Phosphor bronze, gold plated

### HOW TO ORDER

<b>Part Number</b>	101111-000
--------------------	------------

► 101506 PROBE



PROBE SPECIFICATIONS

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

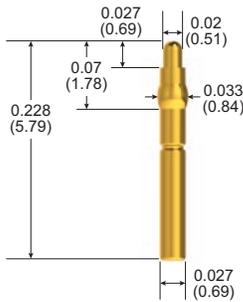
MATERIALS

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

HOW TO ORDER

<b>Part Number</b>	101506-000
--------------------	------------

► 101294 PROBE



PROBE SPECIFICATIONS

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

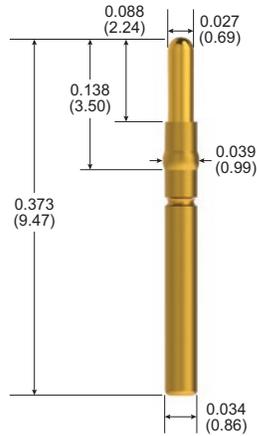
MATERIALS

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

HOW TO ORDER

<b>Part Number</b>	101294-000
--------------------	------------

## ▶ 100803 PROBE



### PROBE SPECIFICATIONS

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

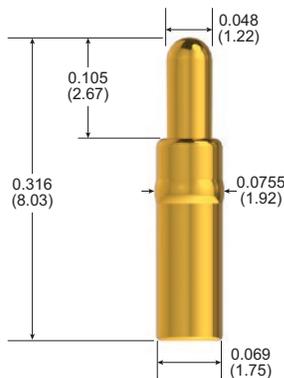
### MATERIALS

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

### HOW TO ORDER

<b>Part Number</b>	100803-011
--------------------	------------

## ▶ 101190 PROBE



### PROBE SPECIFICATIONS

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

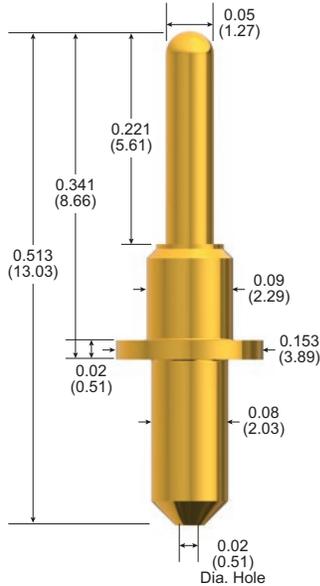
### MATERIALS

<b>Barrel</b>	Nickel/silver, gold plated
<b>Spring</b>	Stainless steel
<b>Plungers</b>	Beryllium copper, gold plated

### HOW TO ORDER

<b>Part Number</b>	101190-002
--------------------	------------

► 100606 PROBE



PROBE SPECIFICATIONS

Minimum Centers	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)

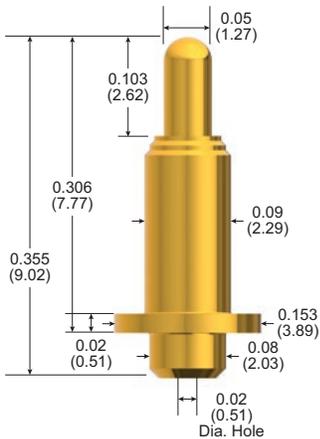
MATERIALS

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

HOW TO ORDER

Part Number	100606-000
-------------	------------

► 100891 PROBE



PROBE SPECIFICATIONS

Minimum Centers	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)

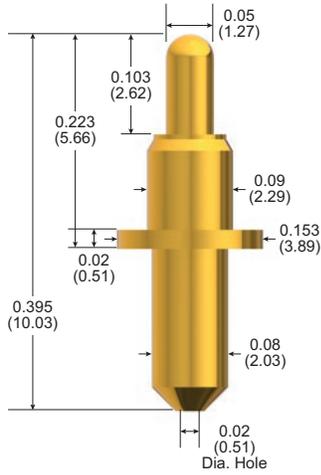
MATERIALS

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

<b>Minimum Centers</b>	0.175 (4.45)
<b>Current Rating</b>	15 A continuous <i>(individual probe in free air @ ambient temperature)</i>
<b>Spring Force</b>	176 g @ 0.06 (1.52) travel
<b>Typical Resistance</b>	< 5 mΩ
<b>Maximum Travel</b>	0.09 (2.29)
<b>Working Travel</b>	0.06 (1.52)

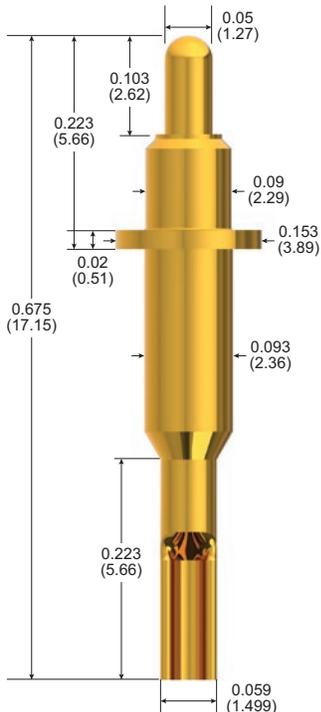
### MATERIALS

<b>Barrel</b>	Nickel/silver, gold plated
<b>Spring</b>	Stainless steel
<b>Plunger</b>	Beryllium copper, gold plated
<b>Bias Ball</b>	Stainless steel

### HOW TO ORDER

<b>Part Number</b>	100410-005
--------------------	------------

## ▶ 101119 PROBE



### PROBE SPECIFICATIONS

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

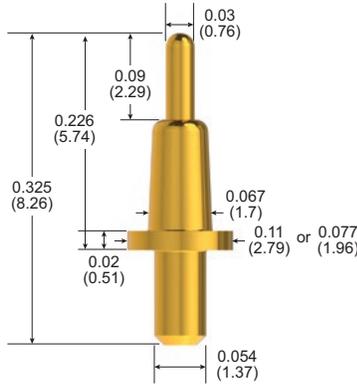
### MATERIALS

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

### HOW TO ORDER

<b>Part Number</b>	101119-001
--------------------	------------

► 101050 PROBE



PROBE SPECIFICATIONS

Minimum Centers	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)

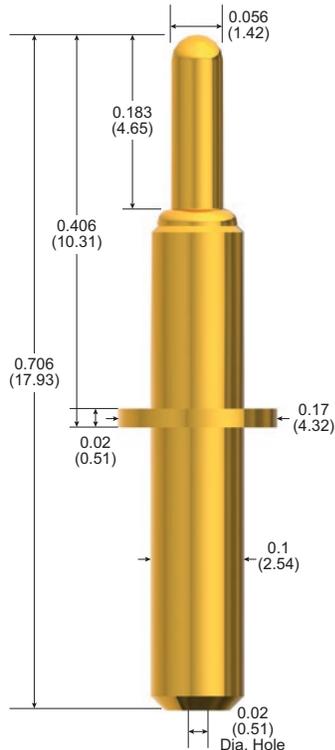
MATERIALS

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)
-------------	---

► 101247 PROBE



PROBE SPECIFICATIONS

Minimum Centers	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)

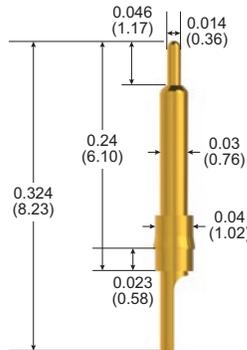
MATERIALS

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

HOW TO ORDER

Part Number	101247-001
-------------	------------

## ▶ 101679 PROBE



### PROBE SPECIFICATIONS

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

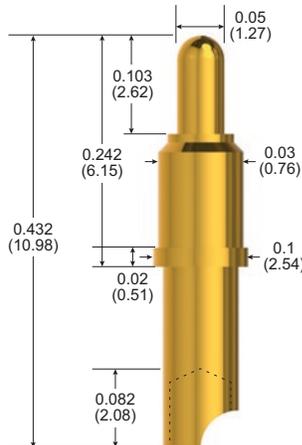
### MATERIALS

<b>Barrel</b>	Brass, gold plated
<b>Spring</b>	Stainless steel
<b>Plunger</b>	Brass, gold plated

### HOW TO ORDER

<b>Part Number</b>	101679-000
--------------------	------------

## ▶ 101628 PROBE



### PROBE SPECIFICATIONS

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

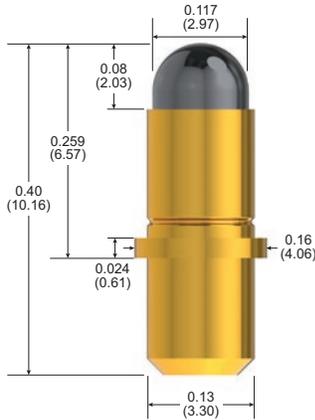
### MATERIALS

<b>Barrel</b>	Brass, gold plated
<b>Spring</b>	Music wire, nickel plated
<b>Plunger</b>	Beryllium copper, gold plated
<b>Ball</b>	Stainless steel

### HOW TO ORDER

<b>Part Number</b>	101628-000
--------------------	------------

► 101402 PROBE



PROBE SPECIFICATIONS

Minimum Centers	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)

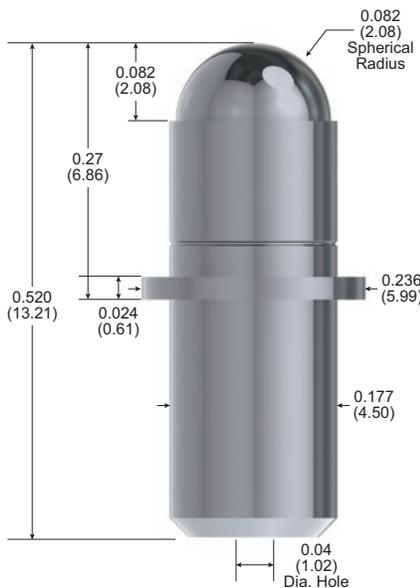
MATERIALS

Barrel	Nickel/silver, gold plated
Spring	Stainless steel, passivated
Plunger	Brass, Duralloy™

HOW TO ORDER

Part Number	101402-000
-------------	------------

► 100804 PROBE



PROBE SPECIFICATIONS

Minimum Centers	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)

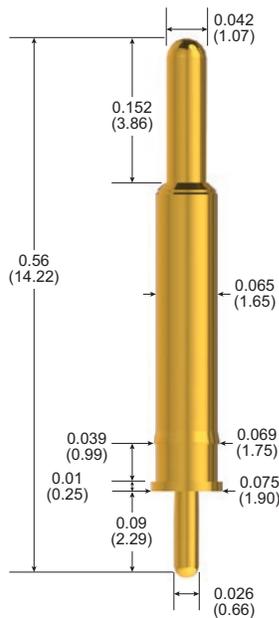
MATERIALS

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

HOW TO ORDER

Part Number	100804-002
-------------	------------

## ▶ 101712 PROBE



### PROBE SPECIFICATIONS

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

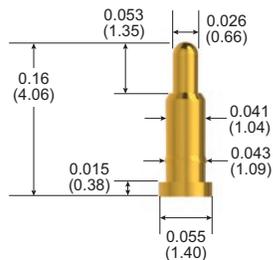
### MATERIALS

<b>Barrel</b>	Brass, gold plated
<b>Spring</b>	Stainless steel
<b>Plunger</b>	Brass, gold plated

### HOW TO ORDER

<b>Part Number</b>	101712-000
--------------------	------------

## ▶ 101530 PROBE



### PROBE SPECIFICATIONS

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

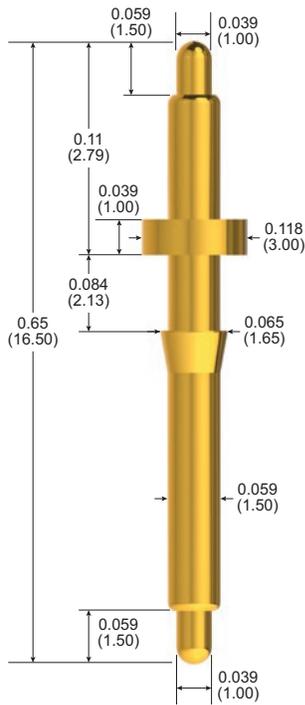
### MATERIALS

<b>Barrel</b>	Brass, gold plated
<b>Spring</b>	Stainless steel
<b>Plunger</b>	Full-hard beryllium copper, gold plated

### HOW TO ORDER

<b>Part Number</b>	101530-000
--------------------	------------

► 101549 PROBE



PROBE SPECIFICATIONS

<b>Minimum Centers</b>	0.125 (3.18)
<b>Current Rating</b>	3 A continuous with 80°C rise <i>(individual probe in free air @ ambient temperature)</i>
<b>Spring Force</b>	100 g @ 0.039 (1.00) travel, each end
<b>Typical Resistance</b>	< 50 mΩ
<b>Maximum Travel</b>	0.059 (1.50), each end
<b>Working Travel</b>	0.039 (1.00), each end

MATERIALS

<b>Barrel</b>	Nickel/silver, gold plated
<b>Spring</b>	Stainless steel
<b>Plunger</b>	Full-hard beryllium copper, gold plated

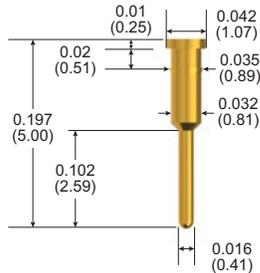
HOW TO ORDER

<b>Part Number</b>	101549-000
--------------------	------------

# CONNECTOR TARGET CONTACTS

## Dimensions & Specifications

### ▶ PI-5328



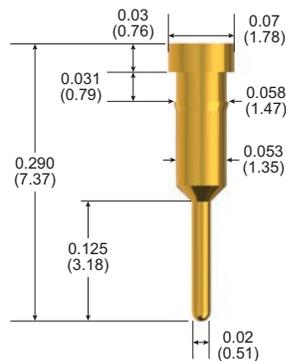
#### PIN SPECIFICATIONS

Mounting Hole	0.034 (0.86)
Pin Material	Brass
Plating Material	Gold over nickel

#### HOW TO ORDER

Part Number	305328-000
-------------	------------

### ▶ PI-5329



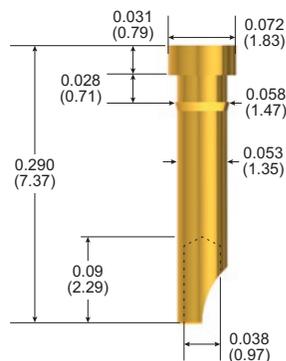
#### PIN SPECIFICATIONS

Mounting Hole	0.057 (1.45)
Pin Material	Brass
Plating Material	Gold over nickel

#### HOW TO ORDER

Part Number	305329-000
-------------	------------

### ▶ PI-5327



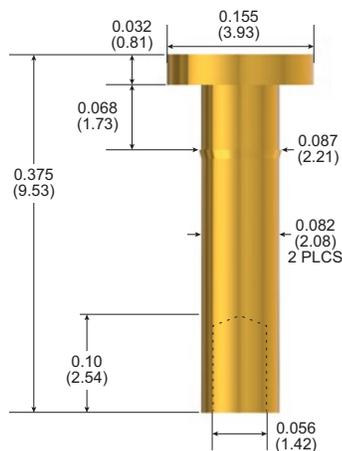
#### PIN SPECIFICATIONS

Mounting Hole	0.057 (1.45)
Pin Material	Brass
Plating Material	Gold over nickel

#### HOW TO ORDER

Part Number	305327-000
-------------	------------

### ▶ PI-5330



#### PIN SPECIFICATIONS

Mounting Hole	0.084 (2.15)
Pin Material	Brass
Plating Material	Gold over nickel

#### HOW TO ORDER

Part Number	305330-000
-------------	------------



# SMITHS CONNECTORS GLOBAL SUPPORT

## AMERICAS

[info.us@smithsconnectors.com](mailto:info.us@smithsconnectors.com)

### Costa Mesa, CA

1.714.371.1100

### Hudson, MA

1.978.568.0451

### Kansas City, KS

1.913.342.5544

## EUROPE

### France

33.2.3296.9176

[info.fr@smithsconnectors.com](mailto:info.fr@smithsconnectors.com)

### Germany

49.991.250.120

[info.de@smithsconnectors.com](mailto:info.de@smithsconnectors.com)

### Italy

39.10.60361

[info.it@smithsconnectors.com](mailto:info.it@smithsconnectors.com)

### United Kingdom

44.208.236.2400

[info.uk@smithsconnectors.com](mailto:info.uk@smithsconnectors.com)

## ASIA

[asiainfo@smithsconnectors.com](mailto:asiainfo@smithsconnectors.com)

### Shanghai, China

86.21.3318.4650

### Suzhou, China

86.512.6273.1188

### Singapore

65.6846.1655

visit us at | [smithsconnectors.com](http://smithsconnectors.com) |     