

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 2 mm, while maintaining 0.5 mm of compliance. Spring probe connectors are low profile designs which are forgiving of challenging mating conditions and heavy vibration.

HIGH FREQUENCY

Our spring probes' short signal path, combined with Smiths Connectors' industry-leading expertise, ensures remarkable signal integrity 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.

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.

TERMINATIONS

Smiths Connectors offers a wider range of termination options. Our connectors terminate easily to flexible or rigid PCBs via through-hole, surface mount or solderless compression mount. Cable termination is also an available option.

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.

MATING TARGETS

Smiths Connectors' spring contact probes have the unique advantage of requiring only a flat pad as their target. This low profile, environmentally sealed solution greatly simplifies the design and lowers the cost of the complete connector.

EXCEPTIONAL MISALIGNMENT TOLERANCE

Because spring probes are compliant and require only a flat pad for their target, contact is maintained as long as the probe tip touches any point within the target's diameter. This ensures forgiveness of any X, Y, Z, angular and rotational misalignment.

HIGH RELIABILITY IN HARSH ENVIRONMENTS

Smiths Connectors' application expertise and the durable nature of spring probes allows for connectors which are designed for high performance in the harshest conditions. Whether it's harsh environmental factors like shock, vibration, rotation, wipe, salt, sand, dust, heat or the vacuum of space, Smiths Connectors delivers a reliable, fail-safe connection.

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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▶ Dimensions & Specifications:

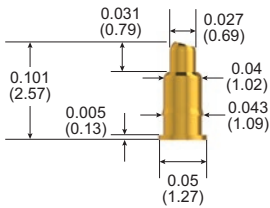
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STANDARD CONNECTOR PROBES

Dimensions & Specifications

▶ 101582 PROBE



PROBE SPECIFICATIONS

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

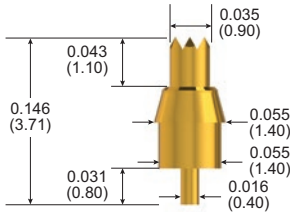
MATERIALS

Barrel	Brass, gold plated
Spring	Stainless steel
Plungers	Beryllium copper, gold plated

HOW TO ORDER

Part Number	101582-000
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▶ 101438 PROBE



PROBE SPECIFICATIONS

Minimum Centers	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)

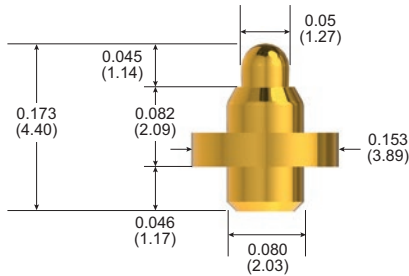
MATERIALS

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

HOW TO ORDER

Part Number	101438-000
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▶ 100671 PROBE



PROBE SPECIFICATIONS

Minimum Centers	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

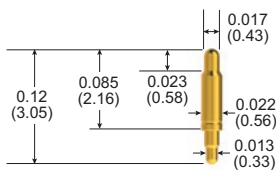
Barrel	Nickel/silver, gold plated
Spring	Stainless steel, gold plated
Plunger	Beryllium copper, gold plated

HOW TO ORDER

Part Number	100671-000
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*Not recommended for use at maximum travel

▶ 101111 PROBE



PROBE SPECIFICATIONS

Minimum Centers	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)

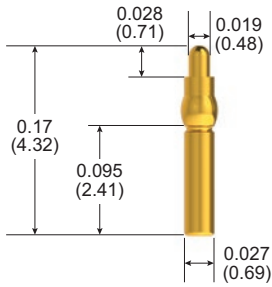
MATERIALS

Barrel	Phosphor bronze, gold plated
Spring	Music wire, gold plated
Plunger	Phosphor bronze, gold plated

HOW TO ORDER

Part Number	101111-000
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► 101506 PROBE



PROBE SPECIFICATIONS

Minimum Centers	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)

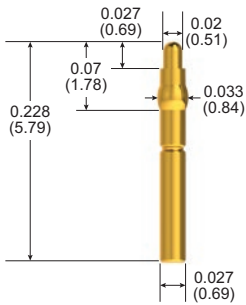
MATERIALS

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



PROBE SPECIFICATIONS

Minimum Centers	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)

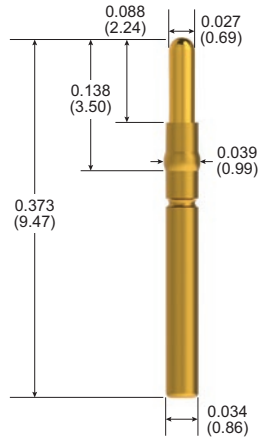
MATERIALS

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



PROBE SPECIFICATIONS

Minimum Centers	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)

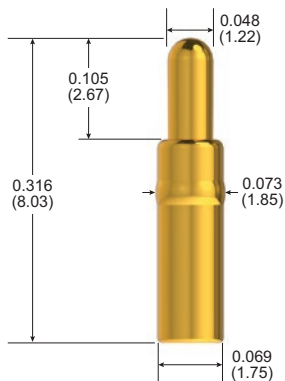
MATERIALS

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



PROBE SPECIFICATIONS

Minimum Centers	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)

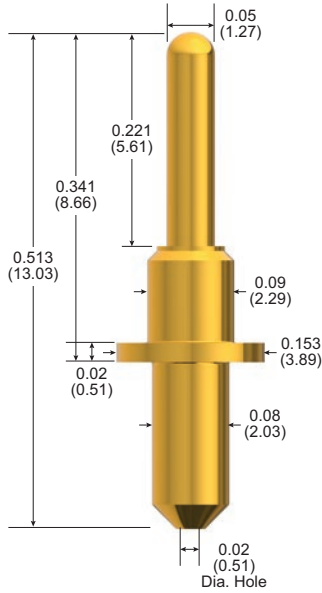
MATERIALS

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

HOW TO ORDER

Part Number	101190-002
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► 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)

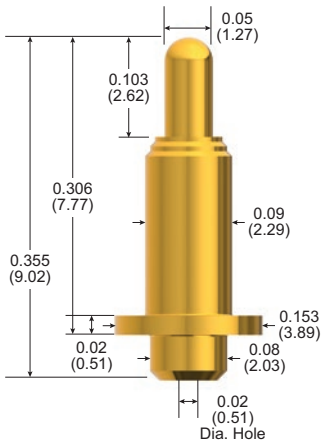
MATERIALS

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
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► 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)

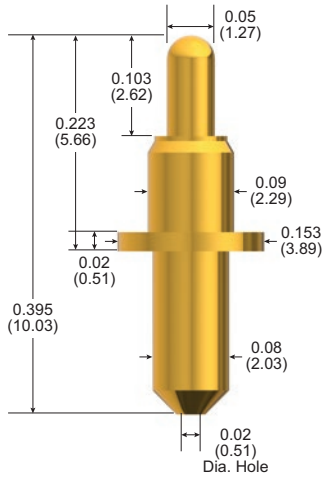
MATERIALS

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

HOW TO ORDER

Part Number	100891-002
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▶ 100410 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	< 5 mΩ
Maximum Travel	0.09 (2.29)
Working Travel	0.06 (1.52)

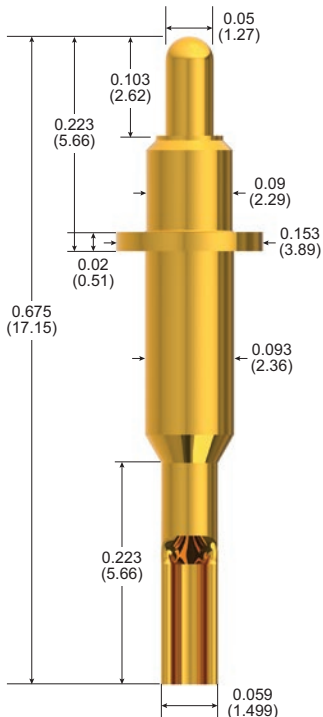
MATERIALS

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

HOW TO ORDER

Part Number	100410-005
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▶ 101119 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)

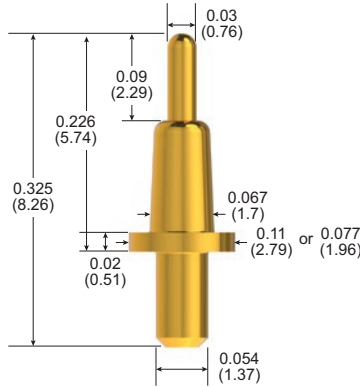
MATERIALS

Barrel	Nickel/silver, gold plated
Spring	Stainless steel
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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► 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)

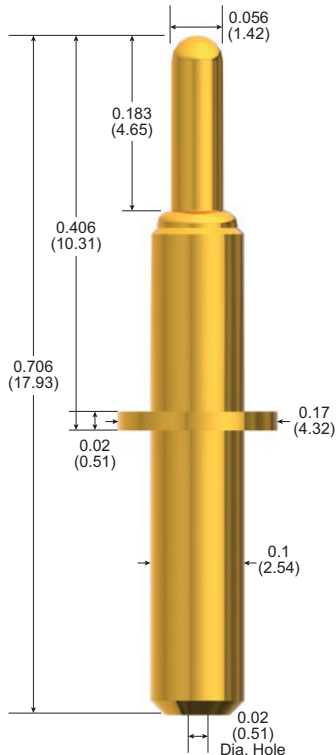
MATERIALS

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)
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► 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)

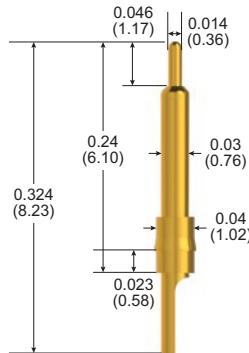
MATERIALS

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

HOW TO ORDER

Part Number	101247-001
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▶ 101679 PROBE



PROBE SPECIFICATIONS

Minimum Centers	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)

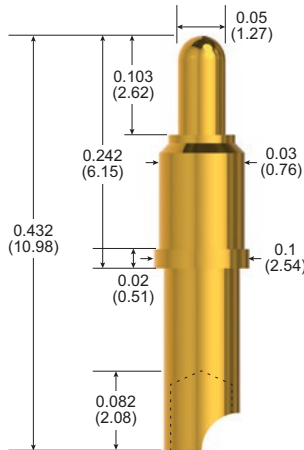
MATERIALS

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

HOW TO ORDER

Part Number	101679-000
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▶ 101628 PROBE



PROBE SPECIFICATIONS

Minimum Centers	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)

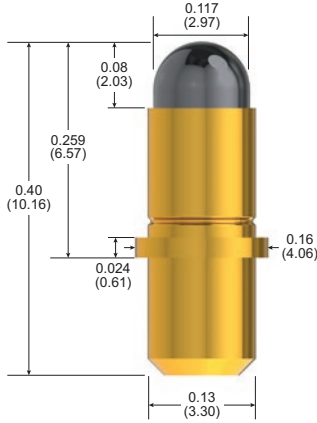
MATERIALS

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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► 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)

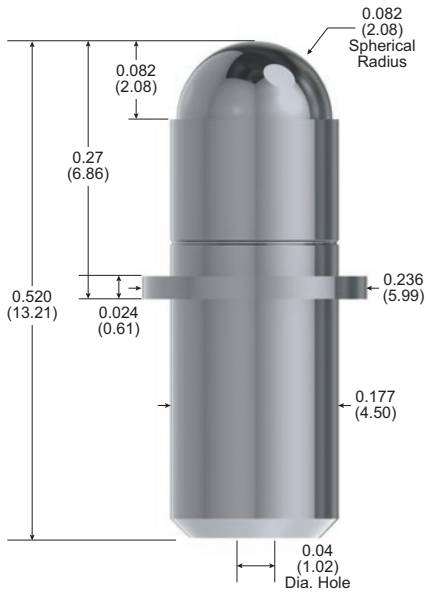
MATERIALS

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

HOW TO ORDER

Part Number	101402-000
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► 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)

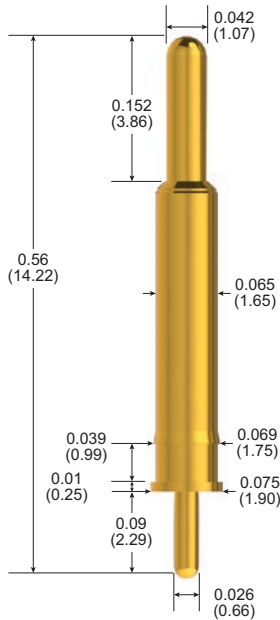
MATERIALS

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

HOW TO ORDER

Part Number	100804-002
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▶ 101712 PROBE



PROBE SPECIFICATIONS

Minimum Centers	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)

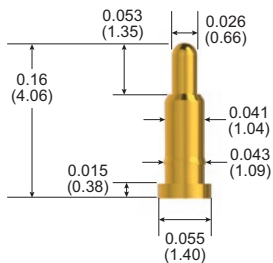
MATERIALS

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

HOW TO ORDER

Part Number	101712-000
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▶ 101530 PROBE



PROBE SPECIFICATIONS

Minimum Centers	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

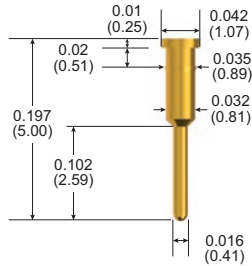
HOW TO ORDER

Part Number	101530-000
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CONNECTOR TARGET CONTACTS

Dimensions & Specifications

▶ PI-5328



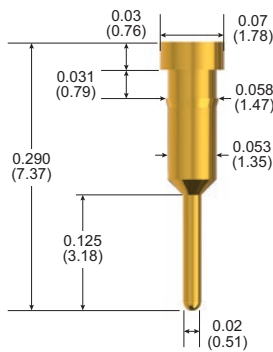
PIN SPECIFICATIONS

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

HOW TO ORDER

Part Number	305328-000
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▶ PI-5329



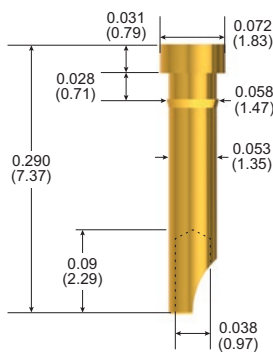
PIN SPECIFICATIONS

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

HOW TO ORDER

Part Number	305329-000
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▶ PI-5327



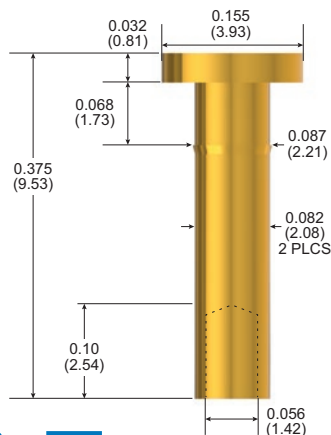
PIN SPECIFICATIONS

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

HOW TO ORDER

Part Number	305327-000
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▶ 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
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MARKETS & APPLICATIONS

Medical



- ▶ MRI and CT scanning equipment
- ▶ Patient monitors
- ▶ Portable applications
- ▶ Catheters
- ▶ Therapeutic devices

Commercial Aviation



- ▶ Avionics and radar equipment
- ▶ Power distributions systems
- ▶ Engine, landing gear and braking control systems
- ▶ In-flight entertainment and cabin equipment

Defense



- ▶ Military aircraft and ground vehicles
- ▶ Land communications
- ▶ Naval systems
- ▶ UAVs/missiles/torpedoes
- ▶ Public safety communications

Industrial



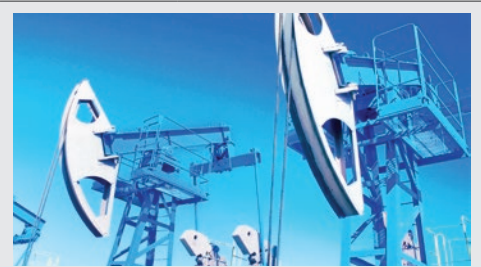
- ▶ Heavy equipment/machinery
- ▶ Servo drivers and encoders
- ▶ Robotics
- ▶ Factory automation
- ▶ Power supplies

Rail



- ▶ High speed trains
- ▶ Main lines
- ▶ Inter-cities/metros
- ▶ Signaling equipment
- ▶ Infrastructures

Oil & Gas



- ▶ Well-head logging recorders
- ▶ Smart PIGs
- ▶ Down hole monitoring systems
- ▶ Offshore exploration
- ▶ Seismic instrumentation

Alternative Energy



- ▶ Wind turbines
- ▶ Solar panels
- ▶ Power systems
- ▶ Energy storage systems

Test & Measurement



- ▶ Telecommunications
- ▶ Electronics testing
- ▶ Automotive testing

Space



- ▶ Spacecraft / satellites
- ▶ Launchers
- ▶ Navigational systems
- ▶ Communications equipment



SMITHS CONNECTORS

GLOBAL SUPPORT

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