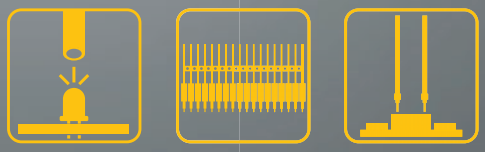
CONTACT SOLUTIONS



AUTOMOTIVE AND INDUSTRIAL CATALOG

General Purpose - Replaceable Probes
General Purpose Non-Replaceable Probes
Step Probes
Switch Probes
High Current Probes
High Frequency Probes
Battery Probes

Everett Charles Technologies
A DOVER COMPANY

Table of Contents

Probe Quick Reference

Contact Solutions

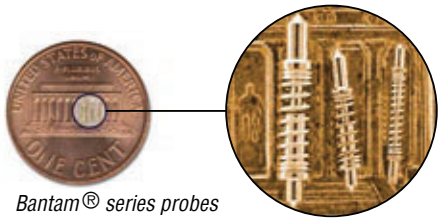
NQA ISO 9001 REGISTERED COMPANY

Since its founding in 1965, Everett Charles Technologies has been the leader in developing new, innovative and cost-effective solutions for all electronic interconnect and test markets. Starting with its invention of the first replaceable spring probe, whose ancestors still define the standard in compliant contact technology today.

New and emerging technologies in networking, mobile devices, automotive, medical and industrial products elevate every aspect of our lives and they require contact solutions of unprecedented quality, miniaturization and integrity to interconnect, test reliably and cost-effectively. Everett Charles Technologies has defined the forefront of product development and quality to meet these requirements with premier industry products which involve more than 100 patents.

As you embark on your future product developments, know that we are ready to work and partner with you to define all of your Contact Solutions.

ECT Headquarters in Pomona, California, U.S.A.



Bantam® series probes on the back of a U.S. penny

ZIP® series probes on the back of a U.S. penny

The ECT Difference

ECT invented the snap-out probe in 1965. It was the first replaceable spring probe available to test engineers when ATE was in its infancy. The hand-assembled probe was simple and rugged.

Modern spring probes retain some fundamental attributes of the original design, but they are far more sophisticated. Mechanical design evolves on CAE/CAD systems, enabling our engineers to program manufacturing equipment to optimize their designs. Custom designed machining equipment, plating processes and automatic assembly systems produce precision probes with ultra-smooth surfaces. Plunger-to-barrel tolerances are tighter. Probe tips are sharper. Springs fabricated from specially-formulated alloys maximize probe life.

Quality checks are made throughout the manufacturing process using computerized statistical process controls (SPC). Final inspection ensures that the probes we ship are defect-free.

Electrical Current Path and Probe Resistance

Figure 1 shows that the primary current path in a probe is through the contact junction of the plunger with the barrel and the barrel with the receptacle. Secondary paths include the contact junction between the spring and plunger and the spring and barrel.

Figure 2 illustrates sources of electrical resistance that must be considered. Resistance is dependent on several factors: conductivity of base metals and plating material, resistance at points of contact between components (which is affected by surface condition), area of contact, force applied at contact junctions, and probe design.

For applications requiring very low, very consistent resistance, such as loaded-board test, ECT's PogoPlus probes employ an enhanced bias ball design that maintains electrical contact between the plunger and the sidewall at all times.

ECT probes are self-biasing, resulting in maximum metal-to-metal contact force between components at critical contact junctions.

Resistance can also be caused by such factors as: receptacle wire terminations, fixture wiring, test interface, incorrect probe selection (wrong tip, inadequate spring force), PCB surface contamination, or high-resistance contacts in the test system.

Electrical resistance is included among probe specifications on each data page.

Figure 1
Typical Spring Probe and Receptacle
Primary electrical current path is via contact junction of plunger with barrel (1), and barrel with receptacle (2). Secondary paths include junctions between plunger, ball and spring (3) and barrel and spring (4).

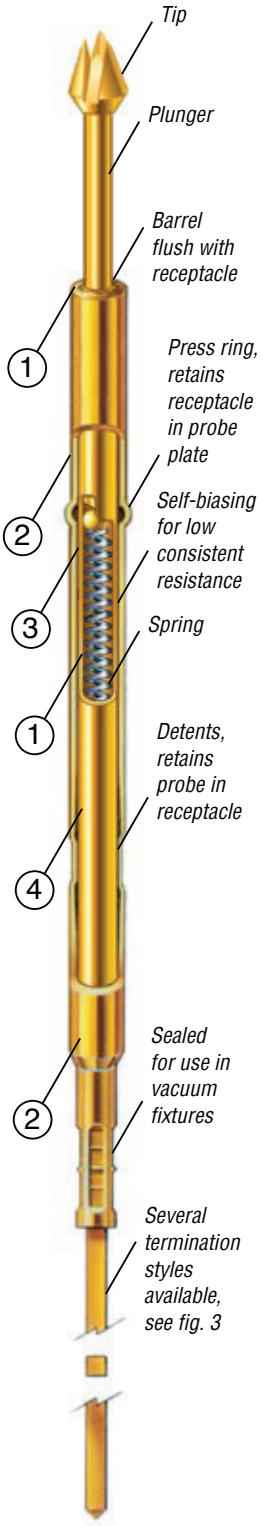


Figure 2
Influence on Contact Resistance
There are several sources of electrical resistance within the test circuit. Management of these is a prerequisite for optimizing test performance.

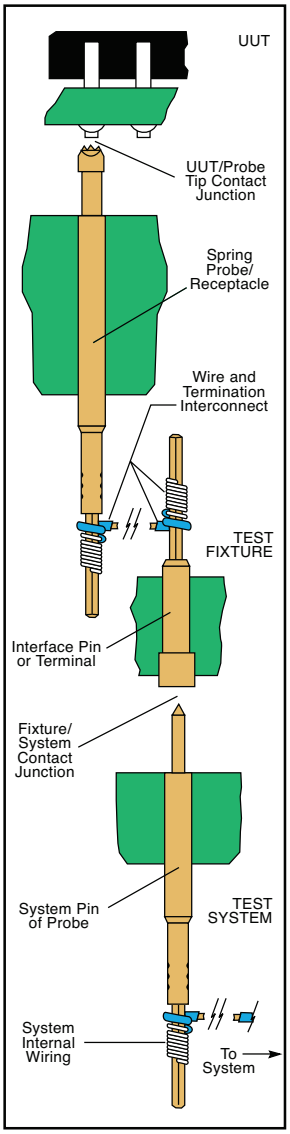


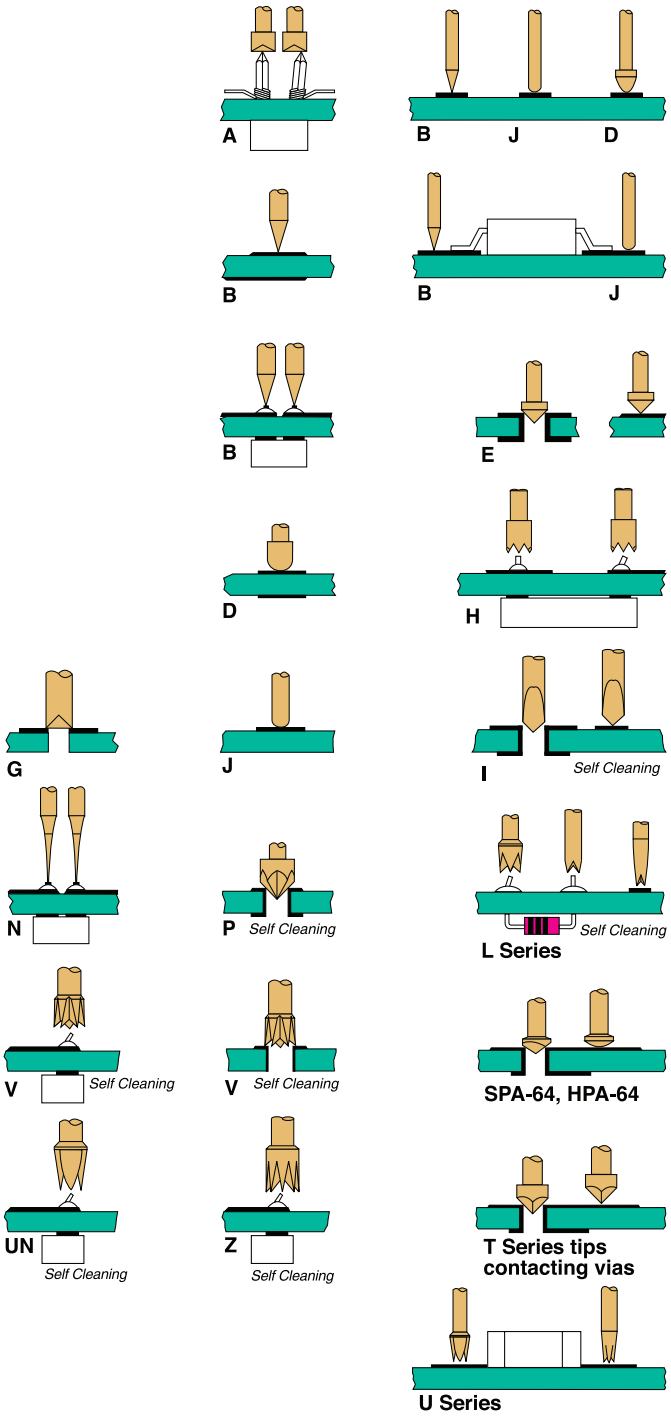
Figure 3
Receptacle Styles
Receptacles also available preterminated for easier installation.

Most tip styles can be used for a variety of different applications. Use the following chart to select appropriate tips for the feature type (pad, via, etc.) you are testing. Several tip styles will probably work for a given application, so experiment with several until you find one that provides the best performance.

For testing loaded boards, tip selection factors to consider are lead length (bent or straight), surface cleanliness and pad size. In general, tips with sharp points and internal cutting edges which trap leads (such as the Trident® or crown tip) are excellent choices for most loaded board requirements.

In bare board applications, tips with sharp external cutting edges (such as fluted and pyramid tips) are usually best for penetrating through contamination, but these may leave marks on the contact surface. For applications where marking is undesirable, bullet nose or conical tips may be used on clean boards.

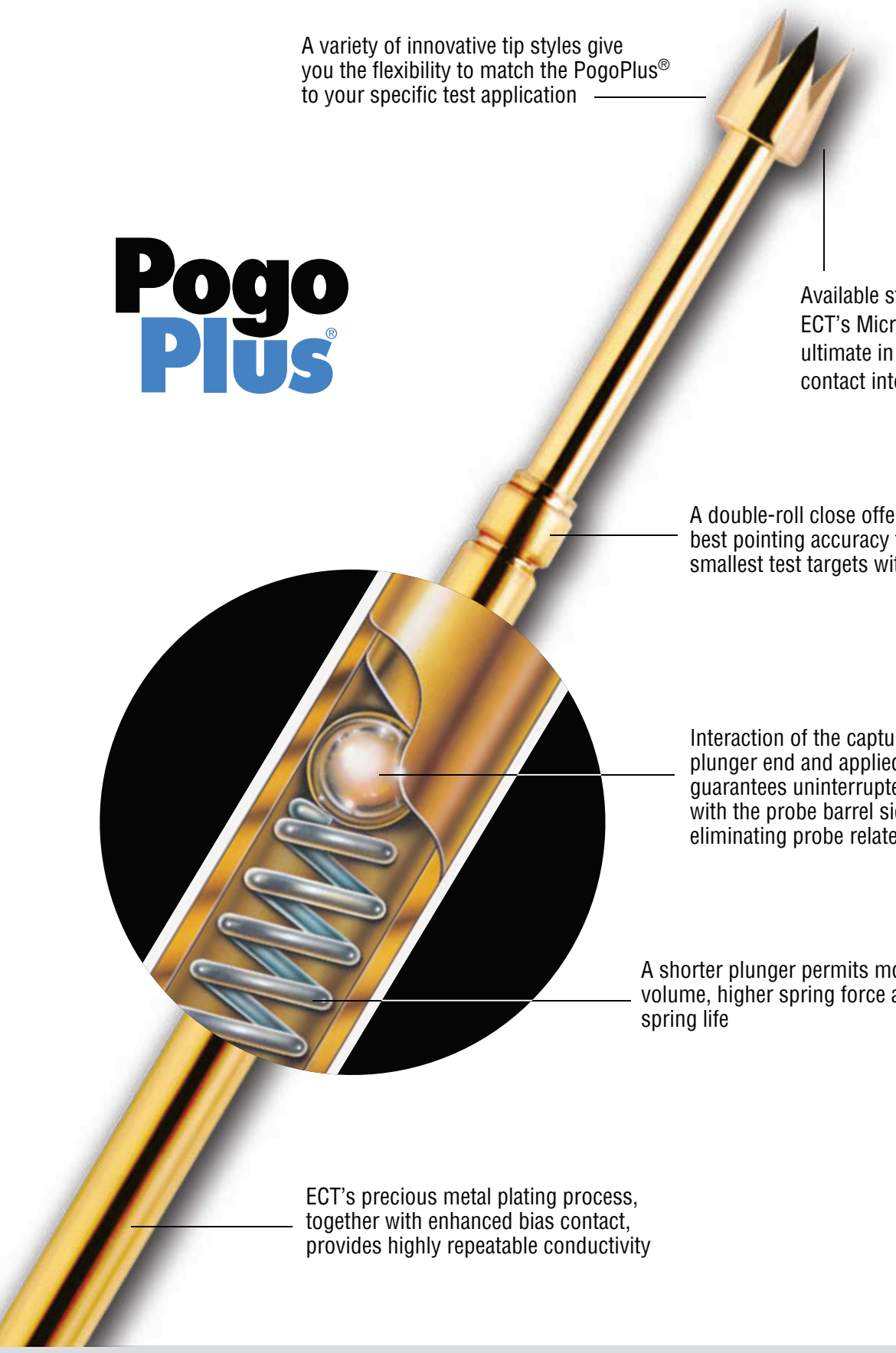
A *Cup*	**B** *Point*	**C** *Flat Shaft*	**D** *Bullet Nose*	**E** *Conical*
F *Flat Head*	**FL** *Flat Crown*	**FP** *Flat Pyramid*	**G** *Cup Shaft*	**H** *Serrated*
H-INS *Insulated*	**HC** *Serrated Bead Shaft*	**HF** *Serrated Bead Head*	**HL** *Serrated Bead Head*	**HM** *Serrated*
HM-INS *Insulated*	**I** *Blade*	**I15** *Blade*	**I18** *Blade*	**I35** *Blade*
J *Radius*	**L** *Crown 4-Point*	**L18** *Crown 4-Point*	**L36** *Crown 4-Point*	**N** *Needle*
T *Pyramid*	**T1** *3-Sided*	**T10** *3-Sided*	**T30** *Pyramid 3-Sided*	**T36** *Pyramid 3-Sided*
TJ *Test Jet*	**UN** *Trident®*	**V** *Tulip 7-Point*	**Z** *Crown 8-Point*	**Z1** *Reduced Crown 8-Point*



Pogo Plus®

A variety of innovative tip styles give you the flexibility to match the PogoPlus® to your specific test application

Available steel tips, manufactured with ECT's MicroSharp™ technology, offer the ultimate in long-lasting tip sharpness and contact integrity



A double-roll close offers the industry's best pointing accuracy that helps you hit the smallest test targets with high repeatability

Interaction of the captured ball, bias-cut plunger end and applied spring force guarantees uninterrupted electrical contact with the probe barrel sidewall, virtually eliminating probe related false opens

A shorter plunger permits more spring volume, higher spring force and longer spring life

ECT's precious metal plating process, together with enhanced bias contact, provides highly repeatable conductivity

General Purpose - Replaceable Probes

Designed for typical Automotive Board Test and standard continuity test, contacting industry norm test points such as leads, vias, and pads. A replaceable probe is retained by a separate component (receptacle) permanently fixed into a retention plate to which the electrical connection is made. Removal of the probe does not damage or break the electrical connection. The Threaded Probe/Receptacle is the most secure method and is typically used in Wire Harness testing to guarantee retention of probe in receptacle during test of automobile or aircraft harnesses.

Retention Methods: Pylon Bend, Detents and Press Ring, Threads, or Solder Cup

General Purpose Non-Replaceable Probes

Designed for Industrial Applications where typical probe life meets or exceeds those of the end-use product. They are typically located inside the end product where probe replacement is impossible or end product damage would occur. A non-replaceable probe is designed to be permanently fixed in the retention plate and not removed without breaking the electrical connection or damaging the retention plate.

Retention methods: Epoxy Mount or One-Piece Press-In "Anti-Walkout".

Step Probes

A "step" or "hat" probe indicates the concept of using a "step" to control the distance of probe tip entry into a wire harness connector housing, thus allowing electrical contact to be made to a terminal without actually entering the terminal. The critical areas of the connector terminal remain virgin to assure proper conductivity and intermetallic relationships once the harness is assembled into its end use.

Retention Methods: Receptacle Detents, Press-in One-piece, Threaded, Hex Nut

Switch Probes

Designed primarily for "presence/electrical" test applications such as detecting the absence or presence of contacts within a wire harness connector. In this case, the switch probe provides electrical interconnection and verifies the connector has been manufactured properly. If contacts are missing, out of place, or not firmly seated, the part is rejected. If all the contacts are in place, the part is accepted and an electrical test is performed verifying electrical integrity of the connector and the wires with the harness.

Retention Methods: Receptacle Detents, Press-in One-piece, Threaded, Hex Nut

High Current & High Frequency Probes

Designed for powered functional testing of connectors, wire harnesses, modules and other devices drawing up to 50A, our high current probes feature low resistance plungers and multiple-point, high current capacity tips. Only ECT offers a complete line of high current probes for .100, .125, and .187 inch test centers.

Battery Probes

Battery Probes are typically contained in modules where consistent, long-life, low-resistance, compliant electrical and mechanical connections are required. They are typically molded into a housing and soldered either to a mating PCB or terminal to provide a permanent stable and reliable electrical and mechanical connection.

Retention Methods: Press Fit, Solder, Receptacle Detents

Solar Solutions

As alternative energy technologies develop, ECT is committed to providing effective and reliable solutions for your test and measurement needs. Our products are often used for standard or custom automated test equipment and fixture applications which involve simulation, production testing, characterization, validation, or failure analysis.

During the production of solar photovoltaic (PV) products there are many instances where it is desirable to make temporary electrical contact for the purposes of measuring current and voltage. Pogo pin technology is an ideal solution for facilitating temporary electrical connections to obtain IV curve measurements, or providing reliable contact for your challenging high current or low voltage connections.

Whether you are making contact directly with silicon/thin film circuitry, or the bus bar of your PV device, ECT offers a wide range of sizes, tip styles, and spring forces to accommodate your specific application.

Look for the solar icon throughout the catalog for solar applications.

Bus Bar Contact Solutions	**Polysilicon or Thin Film Contact Solutions**
POGO-25HM	CP-059-019
P2665-2W	E-S-R
P2757-1W	G-S-R
P2757-2W	P2532
P2550-6-8	HPA-64-3
P2447	P2662G-1R
	P2663G-1R
	P5160G-1R
	P2665G-1R
	P2757G-1R
	TSC-157-D30

For further application assistance, please call your ECT support representative.

General Purpose, Replaceable Probes are those designed for typical Automotive Board Test and standard continuity test, contacting industry norm test points such as leads, vias and pads.

All of the probes in this section are designed for high volume testing and are replaceable through the use of a mating receptacle mounted into a retaining plate or retaining block via a “press-ring” or knurl.

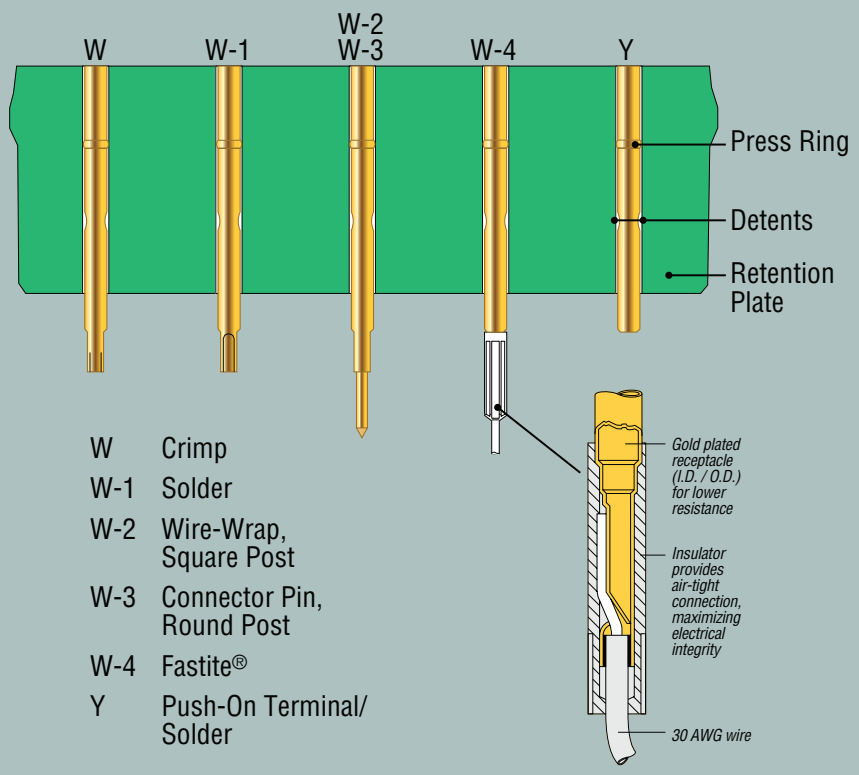
A replaceable probe is retained by a separate component (receptacle) permanently fixed into a retention plate to which electrical connection is made. Removal of the probe does not damage or break the electrical connection.

Typical probe retention is achieved by detents in the receptacle; detents in the receptacle with a “Pylon” bend in the probe; or a threaded connection.

ECT offers an extensive selection of General Purpose Probes for a wide variety of application in various different industries, making ECT spring probes the first choice of test engineers worldwide.

Contents

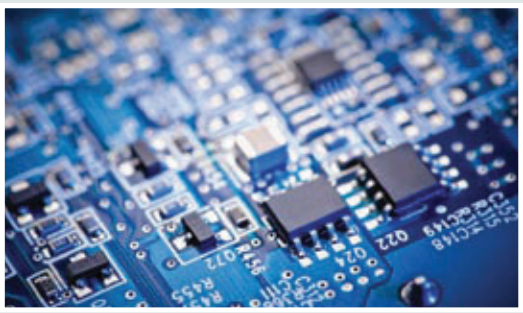
Termination Types



W	Crimp
W-1	Solder
W-2	Wire-Wrap, Square Post
W-3	Connector Pin, Round Post
W-4	Fastite®
Y	Push-On Terminal/ Solder

General Purpose – Replaceable Probes

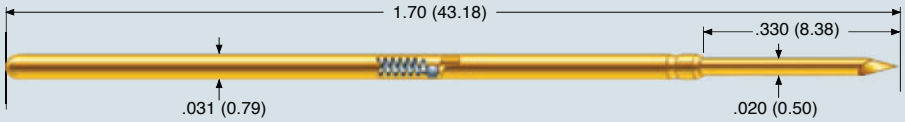
MODEL	Pitch (inch/mm)	OAL (inch/mm)	Recommended Travel (inch/mm)	Probe Resistance mΩ	Current Capacity Continuous (Amps)	Receptacle	Probe Retention Method	Crimp	Solder	WW	Round Post	Push-On Terminal	Fastite	Pre-Wired
POGO-72	.050 (1.27)	1.70 (43.18)	.167 (4.24)	15	3	HPR-72	Receptacle Detents	X	X				X	X
POGO-1	.075 (1.91)	1.30 (33.02)	.167 (4.24)	10	6	LTR-1	Receptacle Detents	X	X	X				
POGO-25	.100 (2.54)	1.30 (33.02)	.167 (4.24)	8	8	SPR-25	Receptacle Detents	X	X	X	X			
HPA/SPA-1	.075 (1.91)	.655 (16.64)	.067 (1.70)	35/50	3	SPR-1	Receptacle Detents	X	X	X				
EPA/SPA-2	.100 (2.54)	.970 (24.64)	.107 (2.72)	35/50	5	SPR-2	Receptacle Detents	X	X	X	X	X		
EPA/SPA-3	.125 (3.18)	1.30 (33.02)	.167 (4.24)	35/50	6	SPR-3	Receptacle Detents	X	X	X		X		
EPA/SPA-4	.187 (4.75)	1.32 (33.53)	.167 (4.24)	35/50	7	SPR-4	Receptacle Detents	X	X	X		X		
EPA/SPA-5	.187 (4.75)	1.42 (36.07)	.167 (4.24)	35/50	8	SPR-5	Receptacle Detents	X	X					
P2662A	.050 (1.27)	.710 (18.03)	.067 (1.7)	30	3	S2662A-3ED	Receptacle Detents		X					
P2662B	.050 (1.27)	.575 (14.60)	.050 (1.27)	30	3	PR261	Receptacle Detents		X	X				
P2663	.075 (1.91)	.810 (20.57)	.067 (1.7)	10	3	S2663	Receptacle Detents		X	X	X			
P2664	.100 (2.54)	.895 (22.73)	.084 (2.13)	10	5	PR541	Receptacle Detents	X	X	X	X			
P3158	.100 (2.54)	.970 (24.64)	.114 (2.90)	10	8	PR541	Receptacle Detents	X	X	X	X			
P5160	.100 (2.54)	1.310 (33.27)	.167 (4.24)	10	8	PR541	Receptacle Detents	X	X	X	X			
P2665	.125 (3.18)	1.290 (32.77)	.167 (4.24)	10	15	PR80	Receptacle Detents	X	X	X	X			
P2757	.187 (4.75)	1.210 (30.73)	.167 (4.24)	10	20	S2757	Receptacle Detents		X	X	X			
SPL-25D-226	.100 (2.54)	1.37 (34.80)	.133 (3.38)	50	5	SPR-25 Series	Receptacle Detents/ Pylon Bend	X	X	X	X			
SPL-25J-212	.100 (2.54)	1.32 (33.53)	.167 (4.24)	50	5	SPR-25 Series	Receptacle Detents/ Pylon Bend	X	X	X	X			
SPL-25R-203	.100 (2.54)	1.30 (33.02)	.220 (5.59)	50	5	SPR-25 Series	Receptacle Detents/ Pylon Bend	X	X	X	X			
TSC-087	.087 (2.21)	1.10 (27.9)	1.37 (3.5)	39	5	TPR-087-W1K	Threaded		X					
TSC-025	.100 (2.54)	1.41 (35.7)	1.57 (4.0)	25	5	TPR-025-W1K	Threaded		X					
TSC-157	.157 (3.99)	1.15 (28.3)	1.57 (4.0)	25	10	TPR-157-W1/W1K	Threaded		X					



High-Performance Bias Ball Probe

50 mil, 75 mil, 100 mil Test Centers

POGO-72



Actual Size

Mechanical

Rec. Travel:	.167" (4.24mm)
Full Travel:	.250" (6.35 mm)
Operating Temperature:	-55°C to +105°C

Electrical (Static Conditions)

Average Probe Resistance:	15 mOhms
Current Rating:	3 amps

Spring Force in oz. (grams)

	Order Code	Preload	2/3 Travel
Light	-2	0.35 (10)	2.0 (57)
Standard	-4	1.05 (30)	4.0 (113)
Alternate	-6	2.63 (75)	6.0 (170)
Elevated	-7	2.05 (58)	7.0 (198)
High	-8	1.48 (42)	8.0 (227)
Ultra High	-10	3.32 (94)	10.0 (283)

Materials and Finishes

Plunger: (Pogo-72)	Heat-treated beryllium copper, gold-plated over hard nickel
Plunger: (Pogo-72-Steel)	Heat-treated tool steel, gold-plated over hard nickel
Barrel:	Work-hardened beryllium copper, HPA-Gold™ plated (I.D. and O.D.) over hard nickel
Spring:	Music wire
Ball:	Stainless steel

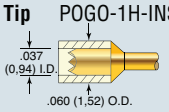
Mounting Options

Receptacle(s): HPR-72W, HPR-72W-1, HPR-72W-4, HPR-72W-28, HPR-72W-30; page 51

POGO-1

Actual Size

Insulated Tip POGO-1H-INS



Mechanical

Rec. Travel:	.167" (4.24mm)
Full Travel:	.250" (6.35 mm)
Operating Temperature:	-55°C to +105°C

Electrical (Static Conditions)

Average Probe Resistance:	10 mOhms
Current Rating:	6 amps

Spring Force in oz. (grams)

	Order Code	Preload	2/3 Travel
Light	-2	0.94 (27)	2.0 (57)
Standard	-4	0.33 (9)	4.0 (113)
Alternate	-6	2.88 (82)	6.0 (170)
Elevated	-7	2.48 (70)	7.0 (198)
High	-8	2.04 (58)	8.0 (227)
Ultra High	-10	3.65 (103)	10.0 (283)

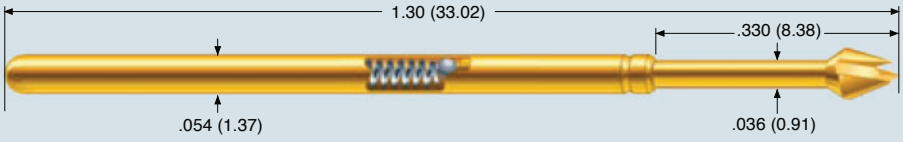
Materials and Finishes

Plunger: (Pogo-1)	Heat-treated beryllium copper, gold-plated over hard nickel
Plunger: (Pogo-1-Steel):	Heat-treated tool steel, gold-plated over hard nickel
Barrel:	Work-hardened phosphor bronze, HPA-Gold™ plated (I.D. and O.D.) over hard nickel
Spring:	Music wire
Ball:	Stainless steel

Mounting Options

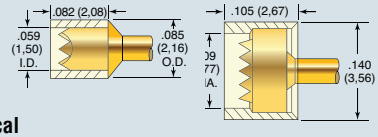
Receptacle(s): LTR-1W, LTR-1W-1, LTR-1W-2, ELTR-1W-2, LTR-1W-2L, ELTR-1W-2L, LTR-1W-2LL, ELTR-1W-2LL, page 51

POGO-25



Actual Size

Insulated Tips Pogo-25H-INS Pogo-25HM-INS



Mechanical

Rec. Travel:	.167" (4.24mm)
Full Travel:	.250" (6.35 mm)
Operating Temperature:	-55°C to +105°C

Electrical (Static Conditions)

Average Probe Resistance:	8 mOhms
Current Rating:	8 amps

Spring Force in oz. (grams)

	Order Code	Preload	2/3 Travel
Light	-2	0.70 (20)	2.0 (57)
Standard	-4	1.62 (46)	4.0 (114)
Alternate	-6	2.42 (69)	6.0 (170)
Elevated	-6.5	2.65 (75)	6.5 (184)
High	-8	2.46 (70)	8.0 (227)
Ultra High	-10	2.72 (77)	10.0 (283)
Super	-16	3.93 (111)	16.0 (455)

Materials and Finishes

Plunger: (Pogo-25)	Heat-treated beryllium copper, gold-plated over hard nickel
Plunger: (Pogo-25-Steel):	Heat-treated tool steel, gold-plated over hard nickel
Barrel:	Work-hardened phosphor bronze, HPA-Gold™ plated (I.D. and O.D.) over hard nickel
Spring:	Music wire
Ball:	Stainless steel

Mounting Options

Receptacle(s): SPR-25W, SPR-25W-1, SPR-25W-2, EPR-25W-2, SPR-25W-2L, EPR-25W-2L, SPR-25W-2LL, EPR-25W-2LL, SPR-25W-3, page 51

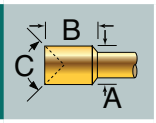
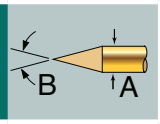
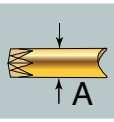
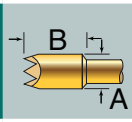
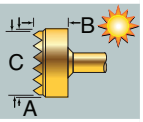
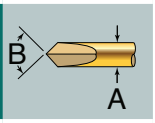
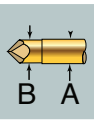
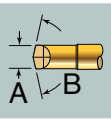
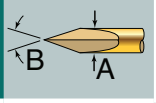
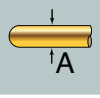
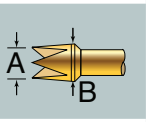
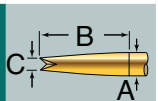
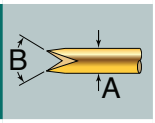
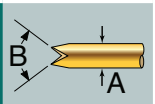
Pogo is Registered in U.S. Patent & Trademark office

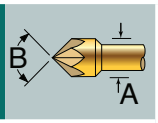
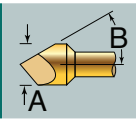
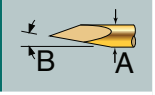
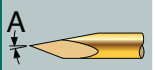
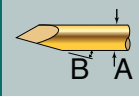
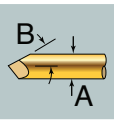
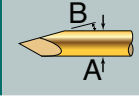
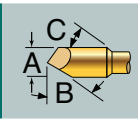
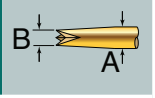
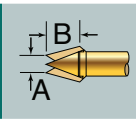
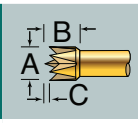
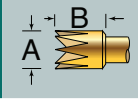
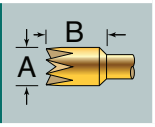
* Consult factory for other temperature requirements, and other applications below -40°C.

Order Example: POGO-□□-□□-□

- S STEEL
- X STANDARD SPRING FORCE / X ALTERNATE SPRING FORCE
- XX HEAD (TIP) STYLE
- X SIZE

Dimensions in inches (millimeters)
Specifications subject to change without notice

TIP STYLE		POGO-72	POGO-1	POGO-25
A			A: .047 (1.19) B: .080 (2.03) C: 90°	A: .060 (1.52) B: .080 (2.03) C: 90°
B			A: 0.22 (0.56) B: 30°	A: .034 (0.86) B: 30°
FP		A: .020 (0.50)	A: 0.22 (0.56)	
H		A: .035 (0.89) B: .080 (2.03)	A: .047 (1.19) B: .080 (2.03)	A: .060 (1.52) B: .080 (2.03)
HM				A: .122 (3.10) B: .080 (2.03) C: .119 (3.02)
I		A: .020 (0.50) B: 90°	A: 0.22 (0.56) B: 90°	A: .034 (0.86) B: 89°
I8		A: .020 (0.50)	A: 0.22 (0.56) B: .020 (0.50)	A: .034 (0.86) B: .033 (0.84)
I15		A: .020 (0.50) B: 155°	A: .021 (0.53) B: 155°	A: .033 (0.84) B: 155°
I35			A: 0.22 (0.56) B: 35°	A: .034 (0.86) B: 35°
J		A: 0.20 (0.50)	A: 0.22 (0.56)	A: .034 (0.86)
L			A: .033 (0.84) B: .040 (1.02)	A: .050 (1.27) B: .060 (1.52)
L18			A: 0.22 (0.56) B: .080 (2.03) C: .018 (0.46)	A: .034 (0.86) B: .150 (3.81) C: .018 (0.46)
L24			A: 0.22 (0.56) B: 60°	
L36				A: .034 (0.86) B: 60°

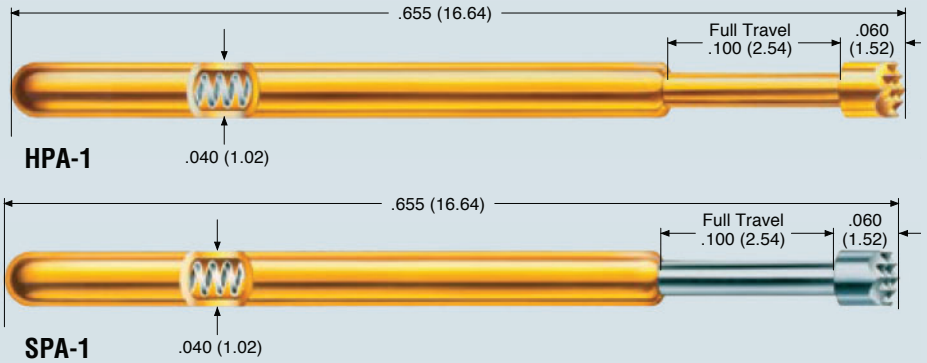
TIP STYLE		POGO-72	POGO-1	POGO-25
P			A: .047 (1.19) B: 90°	
T			A: .047 (1.19) B: 30°	A: .060 (1.52) B: 30°
T1		A: 0.20 (0.50) B: 30°	A: 0.22 (0.56)	A: .036 (0.91)
T10				A: 10°
T20		A: 0.20 (0.50) B: 60°		
T24			A: 0.22 (0.56) B: 15°	
T30			A: 0.22 (0.56) B: 30°	A: .034 (0.86) B: 30°
T36				A: .034 (0.86) B: 15°
T38		A: .038 (0.97) B: 60° C: 45°		
U		A: 0.20 (0.50) B: .018 (0.46)		
UN			A: .021 (0.53) B: .051 (1.30)	A: .025 (0.64) B: .060 (1.52)
V			A: .047 (1.19) B: .054 (1.37) C: .007 (0.18)	A: .055 (1.40) B: .047 (1.19) C: .009 (0.20)
Z			A: .047 (1.19) B: .080 (2.03)	A: .060 (1.52) B: .080 (2.03)
Z1			A: .038 (0.97) B: .080 (2.03)	A: .051 (1.30) B: .080 (2.03)

Denotes Solar Application

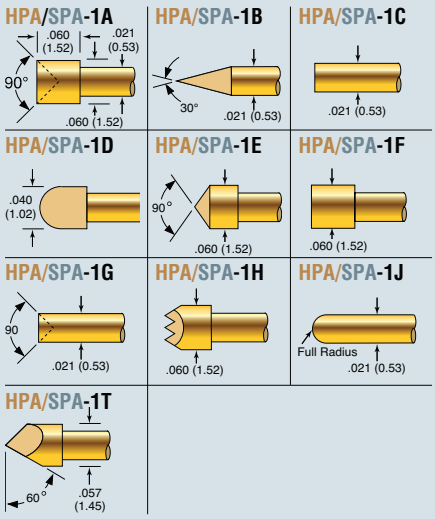
High & Standard Performance Probes

75 mil, 100 mil Test Centers

HPA-1/SPA-1



Actual Size



Mechanical

Rec. Travel:	.067" (1.70 mm)
Full Travel:	.100" (2.54 mm)
Operating Temperature:	-55°C to +150°C

Electrical (Static Conditions)

Average Probe Resistance (HPA-1):	35 mOhms
Average Probe Resistance (SPA-1):	50 mOhms
Current Rating:	3 amps

Materials and Finishes

Plunger: (HPA-1)	Heat-treated beryllium copper, gold-plated over hard nickel
Plunger: (SPA-1)	Heat-treated beryllium copper, rhodium plated over hard nickel
Barrel:	Work-hardened phosphor bronze, HPA-Gold™ plated (I.D. and O.D.) over hard nickel
Spring:	Stainless steel, silver plated

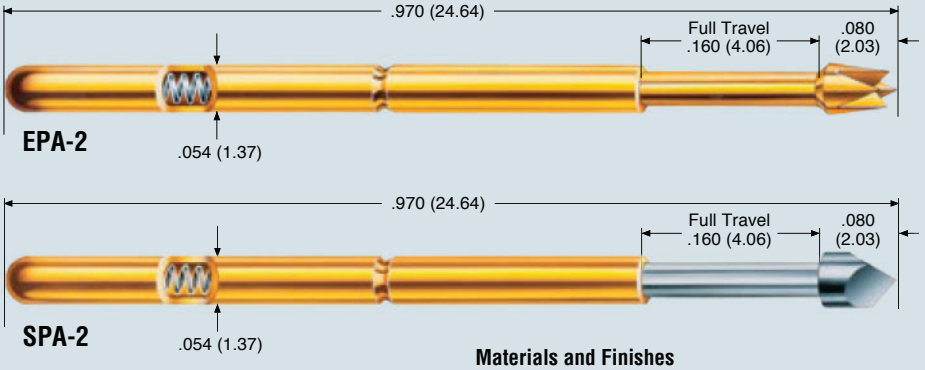
Spring Force in oz. (grams)

	Order Code	Preload	2/3 Travel
Standard	as shown	1.1 (31)	2.5 (71)
Alternate	-1	1.3 (37)	4.5 (128)

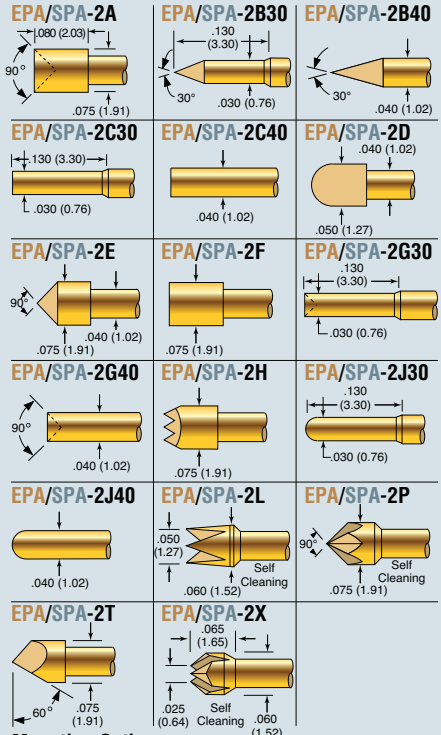
Mounting Options

Receptacle(s): SPR-1W, SPR-1W-1, SPR-1W-2, SPR-1W-2M, page 51

EPA-2/SPA-2



Actual Size



Mechanical

Rec. Travel:	.107" (2.72 mm)
Full Travel:	.160" (4.06 mm)
Operating Temperature:	-55°C to +105°C

Electrical (Static Conditions)

Average Probe Resistance (EPA-2):	35 mOhms
Average Probe Resistance (SPA-2):	50 mOhms
Current Rating:	5 amps

Materials and Finishes

Plunger: (EPA-2)	Heat-treated beryllium copper, gold-plated over hard nickel
Plunger: (SPA-2)	Heat-treated beryllium copper, rhodium plated over hard nickel
Barrel:	Work-hardened phosphor bronze, HPA-Gold™ plated (I.D. and O.D.) over hard nickel
Spring:	Silver plated music wire
Ball:	Stainless steel, gold plated

Spring Force in oz. (grams)

	Order Code	Preload	2/3 Travel
Standard	as shown	1.08 (31)	3.5 (99)
Alternate	-1	2.64 (75)	6.5 (184)
Ultra High	-2	4.09 (116)	10.0 (283)

Mounting Options

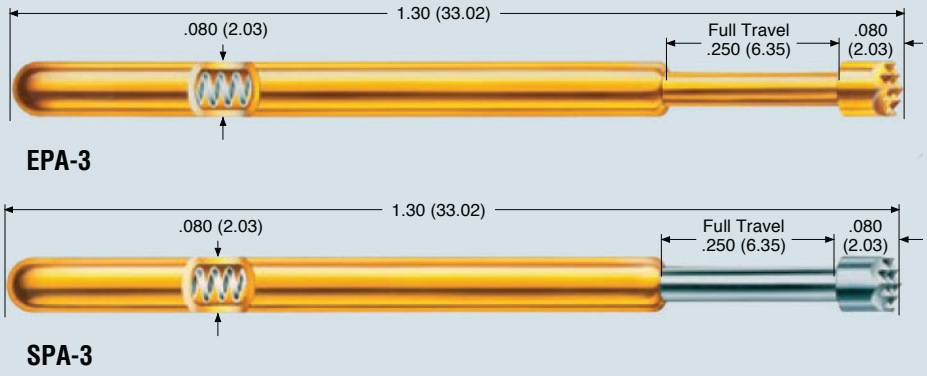
Receptacle(s): SPR-2W, SPR-2W-1, SPR-2W-2, SPR-2W-3, SPR-2Y, page 53

* Consult factory for other temperature requirements, and other applications below -40°C.

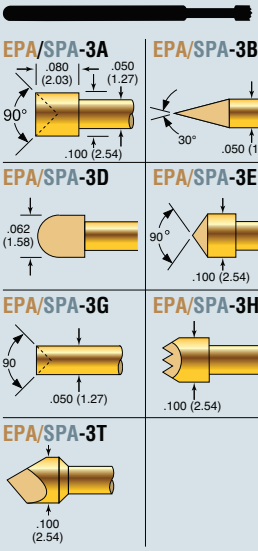
Order Example: HPA/SPA- ☐ ☐☐ - ☐
- ☐ STANDARD SPRING FORCE, T ALTERNATE SPRING FORCE
- XX HEAD (TIP) STYLE
- ☐ SIZE

Dimensions in inches (millimeters)
Specifications subject to change without notice

EPA-3/SPA-3



Actual Size



Mechanical

Rec. Travel:	.167" (4.24 mm)
Full Travel:	.250" (6.35 mm)
Operating Temperature	
Standard Spring:	-55°C to +85°C
Alternate/Ultra High Spring:	-55°C to +150°C

Electrical (Static Conditions)

Average Probe Resistance (EPA-3):	35 mOhms
Average Probe Resistance (SPA-3):	50 mOhms
Current Rating:	6 amps

Materials and Finishes

Plunger: (EPA-3)	Heat-treated beryllium copper, gold-plated over hard nickel
Plunger: (SPA-3):	Heat-treated beryllium copper, rhodium plated over hard nickel
Barrel:	Work-hardened nickel silver, gold plated over hard nickel
Spring	
Standard:	Beryllium copper, silver plated
Alternate:	Stainless steel, silver plated
Ultra High:	Stainless steel
Ball:	Brass, gold plated

Spring Force in oz. (grams)

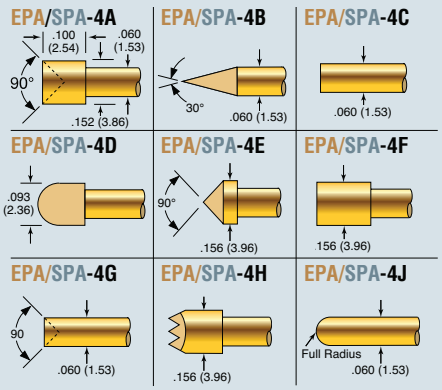
	Order Code	Preload	2/3 Travel
Standard	as shown	1.60 (45)	4.5 (126)
Alternate	-1	2.52 (71)	6.5 (184)
Ultra High (SPA Only)	-2	4.18 (119)	11.7 (332)

Mounting Options

Receptacle(s): SPR-3W, SPR-3W-1, SPR-3W-2, SPR-3Y, page 53

EPA-4/SPA-4

Actual Size



Mechanical

Rec. Travel:	.167" (4.24 mm)
Full Travel:	.250" (6.35 mm)
Operating Temperature	
Standard Spring:	-55°C to +85°C
Alternate/Ultra High Spring:	-55°C to +150°C

Electrical (Static Conditions)

Average Probe Resistance (EPA-4):	35 mOhms
Average Probe Resistance (SPA-4):	50 mOhms
Current Rating:	7 amps

Materials and Finishes

Plunger: (EPA-4)	Heat-treated beryllium copper, gold-plated over hard nickel
Plunger: (SPA-4):	Heat-treated beryllium copper, rhodium plated over hard nickel
Barrel:	Work-hardened nickel silver, gold plated over hard nickel
Spring	
Standard:	Beryllium copper, silver plated
Alternate:	Stainless steel, silver plated
Ultra High:	Stainless steel
Ball:	Brass, gold plated

Spring Force in oz. (grams)

	Order Code	Preload	2/3 Travel
Standard	as shown	2.2 (62)	4.8 (136)
Alternate	-1	3.2 (90)	6.9 (196)
Ultra High	-2	6.7 (190)	11.8 (335)

Mounting Options

Receptacle(s): SPR-4W, SPR-4W-1, SPR-4W-2, SPR-4Y, page 53

* Consult factory for other temperature requirements, and other applications below -40°C.

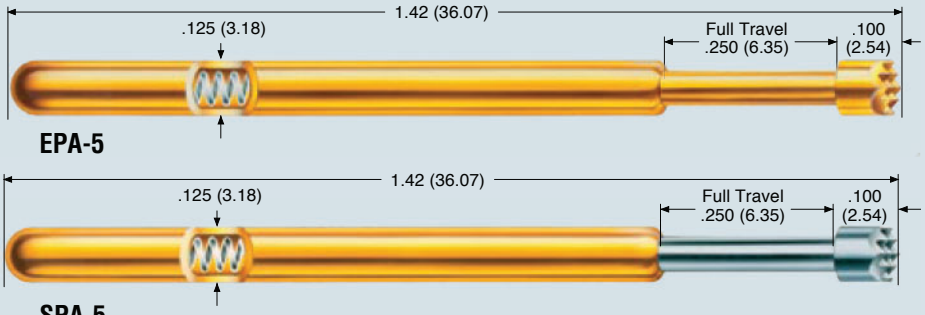
Order Example: EPA/SPA – □ □ – □
- □ STANDARD SPRING FORCE
- 1 ALTERNATE SPRING FORCE
- 2 ULTRA HIGH SPRING FORCE
- XX HEAD (TIP) STYLE
- 3 SIZE
- 4

Dimensions in inches (millimeters)
Specifications subject to change without notice

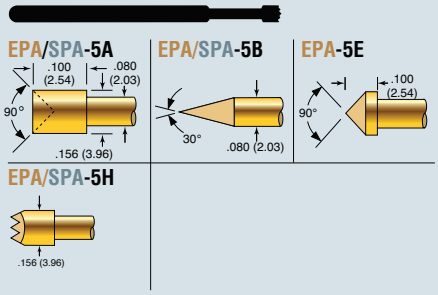
General Purpose Probe/Standard Continuity Probe

50 mil, 187 mil Test Centers

EPA-5/SPA-5



Actual Size



Mechanical

Rec. Travel:	.167" (4.24 mm)
Full Travel:	.250" (6.35 mm)
Operating Temperature	
Light Spring (SPA-5 Only):	-55°C to +85°C
Standard Spring:	-55°C to +150°C
Ultra High Spring:	-55°C to +105°C

Electrical (Static Conditions)

Average Probe Resistance (EPA-5):	35 mOhms
Average Probe Resistance (SPA-5):	50 mOhms
Current Rating:	8 amps

Materials and Finishes

Plunger: (EPA-5)	Heat-treated beryllium copper, gold-plated over hard nickel
Plunger: (SPA-5):	Heat-treated beryllium copper, rhodium plated over hard nickel
Barrel:	Work-hardened nickel silver, gold plated over hard nickel
Spring Light: (SPA-5 Only)	Beryllium copper, silver plated
Standard:	Stainless steel, silver plated
Ultra High:	Music wire, silver plated
Ball:	Brass, gold plated

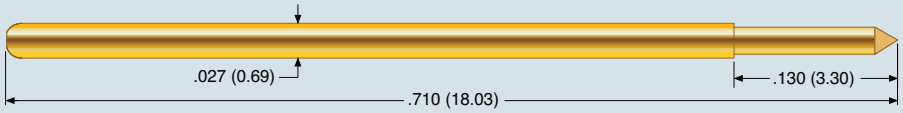
Spring Force in oz. (grams)

	Order Code	Preload	2/3 Travel
Light (SPA-5 Only)	-1	1.96 (56)	3.5 (99)
Standard	as shown	6.13 (174)	16.0 (454)
Ultra High	-2	12.90 (366)	48.0 (1360)

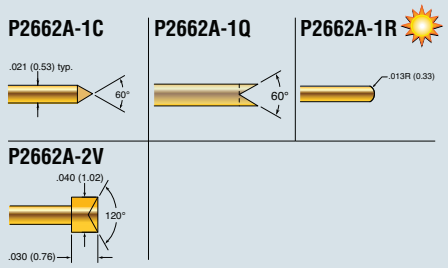
Mounting Options

Receptacle(s): SPR-5W, SPR-5W-1, page 53

P2662A



Actual Size



Spring Force in oz. (grams)

	Order Code	Initial	Working
Standard	-1	0.7 (20)	1.7 (48)
Alternate	-2	0.6 (17)	2.5 (72)

Mounting Options

Receptacle S2662A Series, page 56

Mechanical

Rec. Travel:	.067" (1.70 mm)
Operating Temperature*	-55°C to +105°C

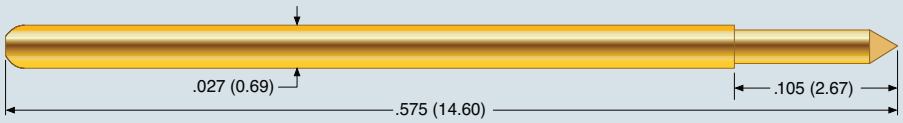
Electrical (Static Conditions)

Average Probe Resistance	<30 mOhms
Current Rating:	3 amps

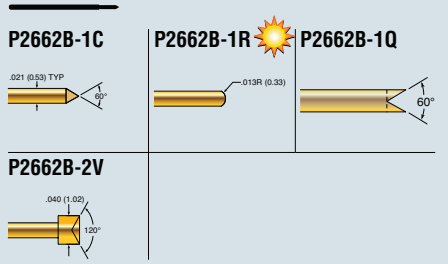
Materials and Finishes

Plunger:	Gold-plated hardened BeCu
Barrel:	Gold-plated phosphorous bronze
Spring:	Silver-plated BeCu
Ball:	Stainless steel

P2662B



Actual Size



Spring Force in oz. (grams)

	Order Code	Initial	Working
Standard	-1	1.0 (28)	1.8 (51)
Alternate	-2	0.5 (14)	2.5 (71)

Mounting Tool T261-0

Mounting Options

Receptacle PR261 Series, page 55

Mechanical

Rec. Travel:	.050" (1.27 mm)
Operating Temperature*	-55°C to +105°C

Electrical (Static Conditions)

Average Probe Resistance	<30 mOhms
Current Rating:	3 amps

Materials and Finishes

Plunger:	Gold-plated hardened BeCu
Barrel:	Gold-plated phosphorous bronze
Spring:	Silver-plated BeCu
Ball:	Stainless steel

Denotes Solar Application

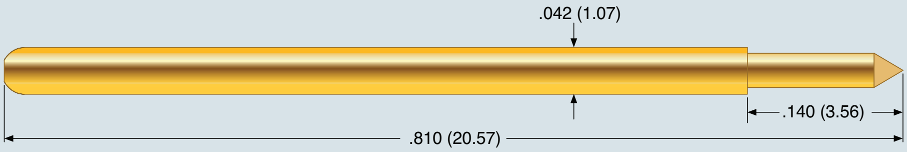
* Consult factory for other temperature requirements, and other applications below -40°C.

Order Example:
EPA/SPA- □ □ □
- 1 STANDARD SPRING FORCE
- 2 ALTERNATE SPRING FORCE
- 3 ULTRA HIGH SPRING FORCE
- XX HEAD (TIP) STYLE
- 3 4 SIZE

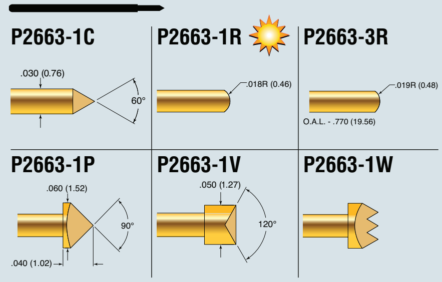
Order Example:
P2662A / P2662B □ □ □ □
- S STRAIGHT BODY
- 1 STANDARD SPRING FORCE
- 2 ALTERNATE SPRING FORCE
- XX HEAD (TIP) STYLE
- G GOLD PLATED PLUNGER

Dimensions in inches (millimeters)
Specifications subject to change without notice

P2663



Actual Size



Spring Force in oz. (grams)

	Order Code	Initial	Working
Standard	-1	1.5 (42)	3.3 (94)
Alternate	-2	1.0 (28)	2.0 (57)

Mounting Options

Receptacle — S2663 Series, page 56

Mechanical

Rec. Travel:	.067" (1.70 mm)
Operating Temperature*	-55°C to +150°C

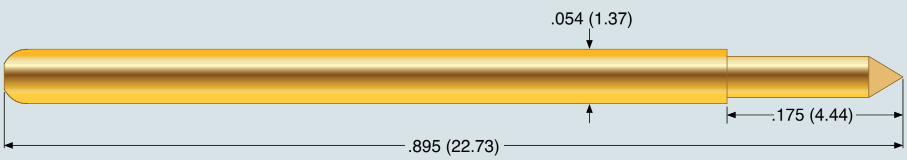
Electrical (Static Conditions)

Average Probe Resistance	<10 mOhms
Current Rating:	3 amps

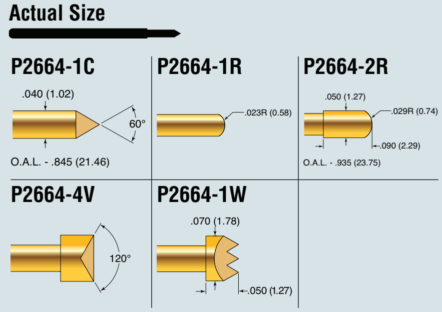
Materials and Finishes

Plunger:	Hardened BeCu
Barrel:	Gold-plated phosphorous bronze
Spring:	Stainless steel
Ball:	Stainless steel

P2664



Actual Size



Spring Force in oz. (grams)

	Order Code	Initial	Working
Standard	-1	2.0 (57)	3.6 (102)
Alternate	-2	3.0 (85)	5.70 (162)

Mounting Options

Receptacle — PR541 Series, page 55

Mechanical

Rec. Travel:	.084" (2.13 mm)
Operating Temperature*	-55°C to +150°C

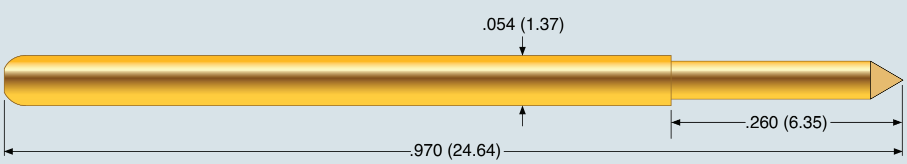
Electrical (Static Conditions)

Average Probe Resistance	<10 mOhms
Current Rating:	5 amps

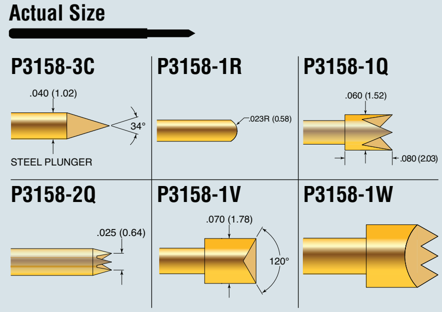
Materials and Finishes

Plunger:	Hardened BeCu
Barrel:	Gold-plated phosphorous bronze
Spring:	Stainless steel
Ball:	Stainless steel

P3158



Actual Size



Spring Force in oz. (grams)

	Order Code	Initial	Working
Standard	-1	2.7 (77)	6.9 (196)
Alternate	-2	1.3 (37)	2.8 (79)

Mounting Options

Receptacle — PR541 Series, page 55

Mechanical

Rec. Travel:	.114" (2.90 mm)
Operating Temperature*	-55°C to +105°C

Electrical (Static Conditions)

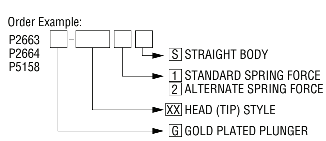
Average Probe Resistance	<10 mOhms
Current Rating:	8 amps

Materials and Finishes

Plunger:	Hardened BeCu (except as noted)
Barrel:	Gold-plated phosphorous bronze
Spring:	Music wire
Ball:	Stainless steel

Denotes Solar Application

* Consult factory for other temperature requirements, and other applications below -40°C.

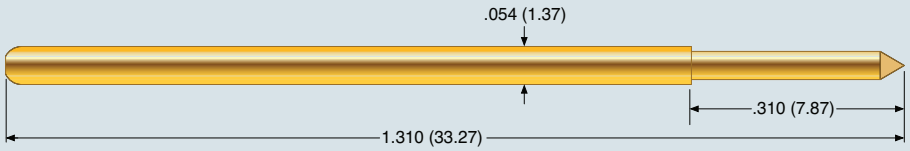


Dimensions in inches (millimeters)
Specifications subject to change without notice

Standard Continuity Probe

100 mil, 125 mil, 187 mil Test Centers

P5160



Spring Force in oz. (grams)

	Order Code	Initial	Working
Standard	-1	2.5 (71)	6.5 (184)
Alternate	-2	1.7 (48)	3.5 (99)
Alternate	-3	2.5 (71)	8.2 (232)

Mounting Options

Receptacle — PR54 Series, page 55

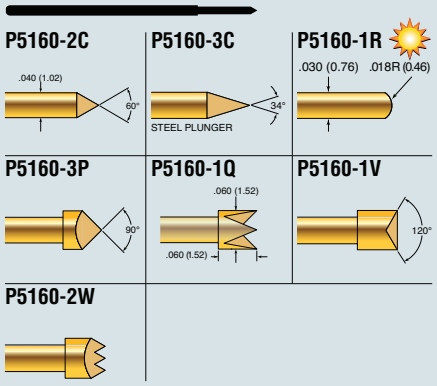
Mechanical

Rec. Travel:	.167" (4.24 mm)
Operating Temperature*	-55°C to +105°C

Electrical (Static Conditions)

Average Probe Resistance	<10 mOhms
Current Rating:	8 amps

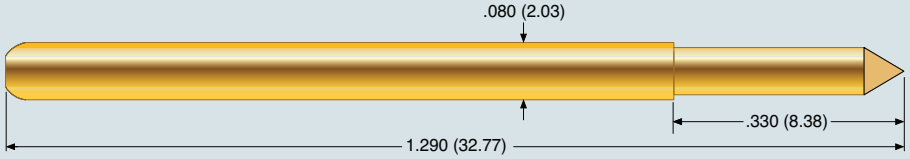
Actual Size



Materials and Finishes

Plunger:	Hardened BeCu
Barrel:	Gold-plated phosphorous bronze
Spring:	Music wire
Ball:	Stainless steel

P2665



Spring Force in oz. (grams)

	Order Code	Initial	Working
Standard	-1	1.5 (43)	3.0 (85)
Alternate	-2	2.5 (71)	5.8 (164)

Mounting Options

Receptacle — PR80 Series, page 55

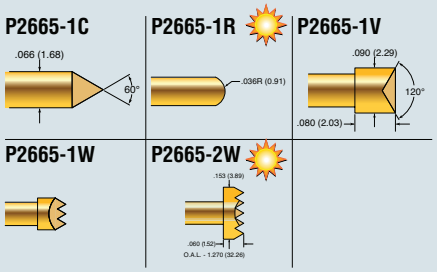
Mechanical

Rec. Travel:	.167" (4.24 mm)
Operating Temperature*	-55°C to +150°C

Electrical (Static Conditions)

Average Probe Resistance	<10 mOhms
Current Rating:	15 amps

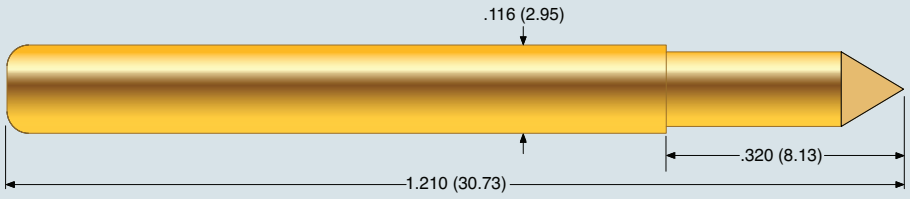
Actual Size



Materials and Finishes

Plunger:	Hardened BeCu
Barrel:	Gold-plated phosphorous bronze
Spring:	Stainless steel
Ball:	Stainless steel

P2757



Spring Force in oz. (grams)

	Order Code	Initial	Working
Standard	-1	2 (57)	4.0 (113)
Alternate	-2	3.5 (99)	6.85 (194)

Mounting Options

Receptacle — S2757 Series, page 56

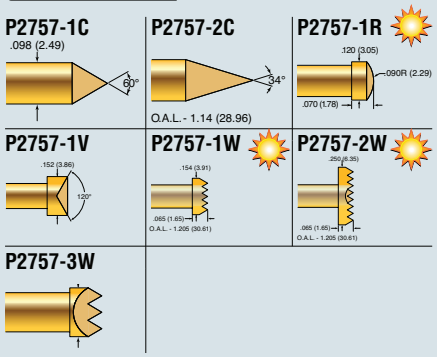
Mechanical

Rec. Travel:	.167" (4.24 mm)
Operating Temperature*	-55°C to +150°C

Electrical (Static Conditions)

Average Probe Resistance	<10 mOhms
Current Rating:	20 amps

Actual Size



Materials and Finishes

Plunger:	Hardened BeCu
Barrel:	Gold-plated phosphorous bronze
Spring:	Stainless steel
Ball:	Stainless steel

Denotes Solar Application

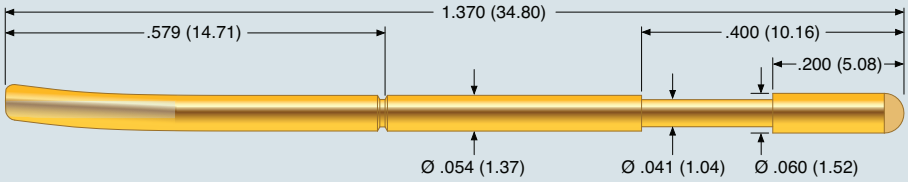
* Consult factory for other temperature requirements, and other applications below -40°C.

Order Example: P2665 P2757

- S STRAIGHT BODY
- 1 STANDARD SPRING FORCE
- 2 ALTERNATE SPRING FORCE
- XX HEAD (TIP) STYLE
- 6 GOLD PLATED PLUNGER

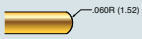
Dimensions in inches (millimeters)
Specifications subject to change without notice

SPL-25D-226



Actual Size

SPL-25D-226



Spring Force in oz. (grams)

	Initial	Working
Standard	1.71 (48)	3.14 (89)

Mounting Options

Receptacle — SPR-25 Series, page 51

Mechanical

Rec. Travel:	.133" (3.40 mm)
Full Travel:	.200" (5.08 mm)
Operating Temperature*	-55°C to +105°C

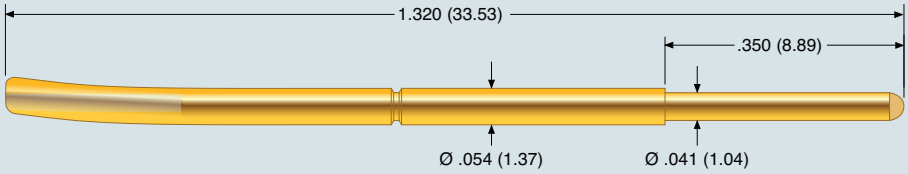
Electrical (Static Conditions)

Average Probe Resistance	<50 mOhms
Current Rating:	5 amps

Materials and Finishes

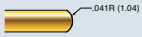
Plunger:	Gold-plated hardened BeCu
Barrel:	Silver-plated hardened Nickel
Spring:	Silver-plated Music wire

SPL-25J-212



Actual Size

SPL-25J-212



Spring Force in oz. (grams)

	Initial	Working
Standard	1.72 (49)	3.5 (100)

Mounting Options

Receptacle — SPR-25 Series, page 51

Mechanical

Rec. Travel:	.167" (4.24 mm)
Full Travel:	.250" (6.35 mm)
Operating Temperature*	-55°C to +105°C

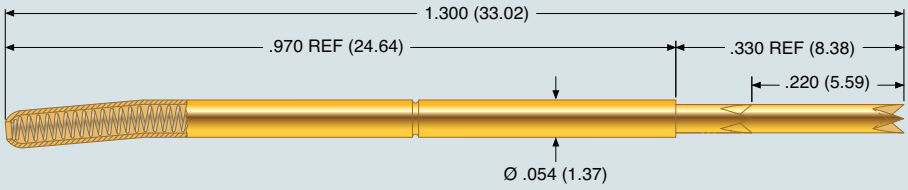
Electrical (Static Conditions)

Average Probe Resistance	<50 mOhms
Current Rating:	5 amps

Materials and Finishes

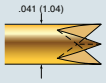
Plunger:	Gold-plated hardened BeCu
Barrel:	Gold-plated, Nickel-Silver
Spring:	Music wire
Ball:	Stainless steel

SPL-25R-203



Actual Size

SPL-25R-203



Spring Force in oz. (grams)

	Initial	Working
Standard	0.6 (17)	2.0 (57)

Mounting Options

Receptacle — SPR-25 Series, page 51

Mechanical

Rec. Travel:	.220" (5.60 mm)
Full Travel:	.330" (8.40 mm)
Operating Temperature*	-55°C to +105°C

Electrical (Static Conditions)

Average Probe Resistance	<50 mOhms
Current Rating:	5 amps

Materials and Finishes

Plunger:	Gold-plated hardened BeCu
Barrel:	Gold-plated, Nickel-Silver
Spring:	Music wire

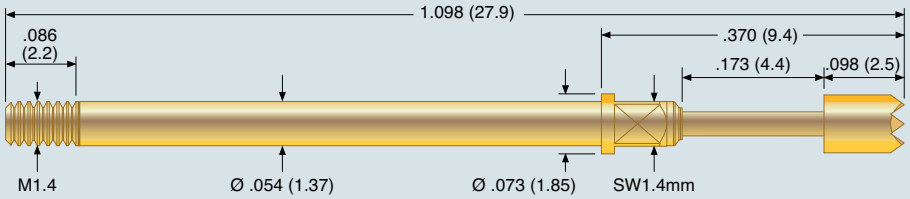
* Consult factory for other temperature requirements, and other applications below -40°C.

Dimensions in inches (millimeters)
Specifications subject to change without notice

Threaded Standard Continuity Probe

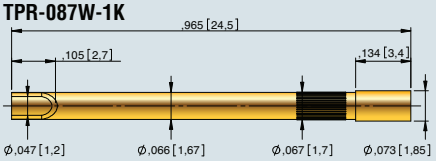
87 mil, 100 mil, 157 mil Test Centers

TSC-087



Actual Size

TPR-087W-1K



Spring Force in oz. (grams)

	Order Code	Initial	Working
Standard		1.8 (51)	3.6 (102)
Alternate	-1	1.8 (51)	5.4 (153)
High	-2	1.8 (51)	10.8 (306)

Tools

Screw-in Tool — PIT-087 or PIT-087T

Mechanical

Rec. Travel:	.137" (3.50 mm)
Full Travel:	.173" (4.40 mm)
Operating Temperature	-20°C to +80°C

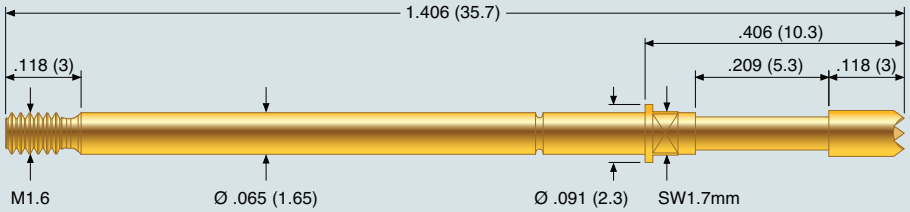
Electrical (Static Conditions)

Average Probe Resistance	<39 mOhms
Current Rating:	5 amps

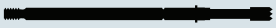
Materials and Finishes

Plunger:	Gold-plated hardened BeCu
Barrel:	Gold-plated brass
Spring:	Gold-plated music wire
Receptacle:	Gold-plated brass

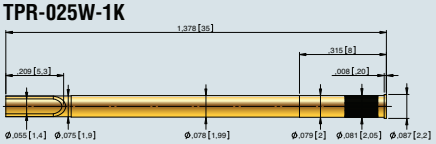
TSC-025



Actual Size



TPR-025W-1K



Spring Force in oz. (grams)

	Order Code	Initial	Working
Alternate	-1	2.2 (61)	5.4 (153)

Tools

Screw-in Tool — PIT-025 or PIT-025T

Mechanical

Rec. Travel:	.157" (4.00 mm)
Full Travel:	.197" (5.00 mm)
Operating Temperature	-20°C to +80°C

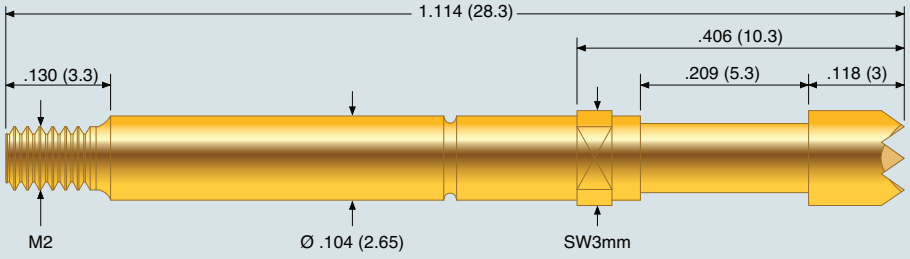
Electrical (Static Conditions)

Average Probe Resistance	<25 mOhms
Current Rating:	5 amps

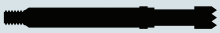
Materials and Finishes

Plunger:	Gold-plated hardened BeCu or Gold-plated stainless steel
Barrel:	Gold-plated brass
Spring:	Silver-plated music wire
Receptacle:	Gold-plated brass

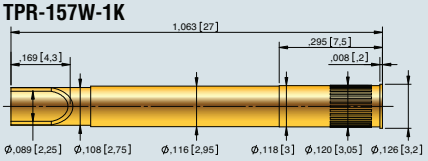
TSC-157



Actual Size



TPR-157W-1K



Spring Force in oz. (grams)

	Order Code	Initial	Working
Alternate	-1	2.2 (61)	5.4 (153)
High	-2	2.9 (82)	10.8 (306)

Tools

Screw-in Tool — PIT-157 or PIT-157T

Mechanical

Rec. Travel:	.157" (4.00 mm)
Full Travel:	.197" (5.00 mm)
Operating Temperature	-20°C to +80°C

Electrical (Static Conditions)

Average Probe Resistance	<25 mOhms
Current Rating:	10 amps

Materials and Finishes

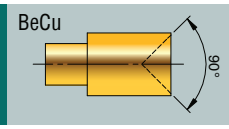
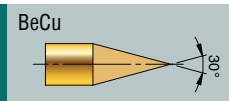
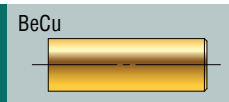
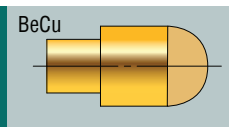
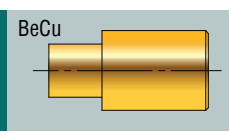
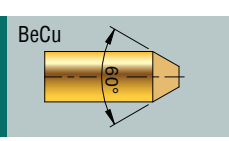
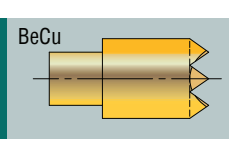
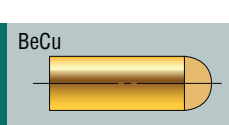
Plunger:	Gold-plated hardened BeCu or Gold-plated stainless steel
Barrel:	Gold-plated brass
Spring:	Silver-plated music wire
Receptacle:	Gold-plated brass

* Consult factory for other temperature requirements, and other applications below -40°C.

Order Example: TSC-☐☐☐☐☐☐

- ☐ Special
- ☐ STANDARD SPRING FORCE / 1 ALTERNATE SPRING FORCE
- ### HEAD (TIP) DIAMETER
- ☐ HEAD (TIP) STYLE
- ### Series

Dimensions in inches (millimeters)
Specifications subject to change without notice

TIP STYLE	TSC-087	TSC-025	TSC-157
A 	A180 (ø .071”)	A200 (ø .079”)	
B 		B130 (ø .051”)	
C 		C080 (ø .032”) C100 (ø .039”)	C100 (ø .039”) C140 (ø .055”) C180 (ø .071”)
D 			D300 (ø .118”)
F 		F150 (ø .059”) F200 (ø .079”)	F230 (ø .091”)
FB 			BF180 (ø .071”)
H 	H130 (ø .051”)	H150 (ø .059”) H180 (ø .071”) H200 (ø .079”)	H230 (ø .091”) H250 (ø .098”) H300 (ø .118”) H400 (ø .158”)
J 	J061 (ø .024”) J065 (ø .026”) J075 (ø .030”)	J064 (ø .025”) J080 (ø .032”) J100 (ø .039”) J130 (ø .051”)	J080 (ø .032”) J140 (ø .055”) J180 (ø .071”)

Denotes Solar Application

Order Example: TSC- [ ][ ][ ][ ][ ]
- [X] Special
- [ ] STANDARD SPRING FORCE / [1] ALTERNATE SPRING FORCE
- [###] HEAD (TIP) DIAMETER
- [X] HEAD (TIP) STYLE
- [###] Series

Dimensions in inches (millimeters)
Specifications subject to change without notice

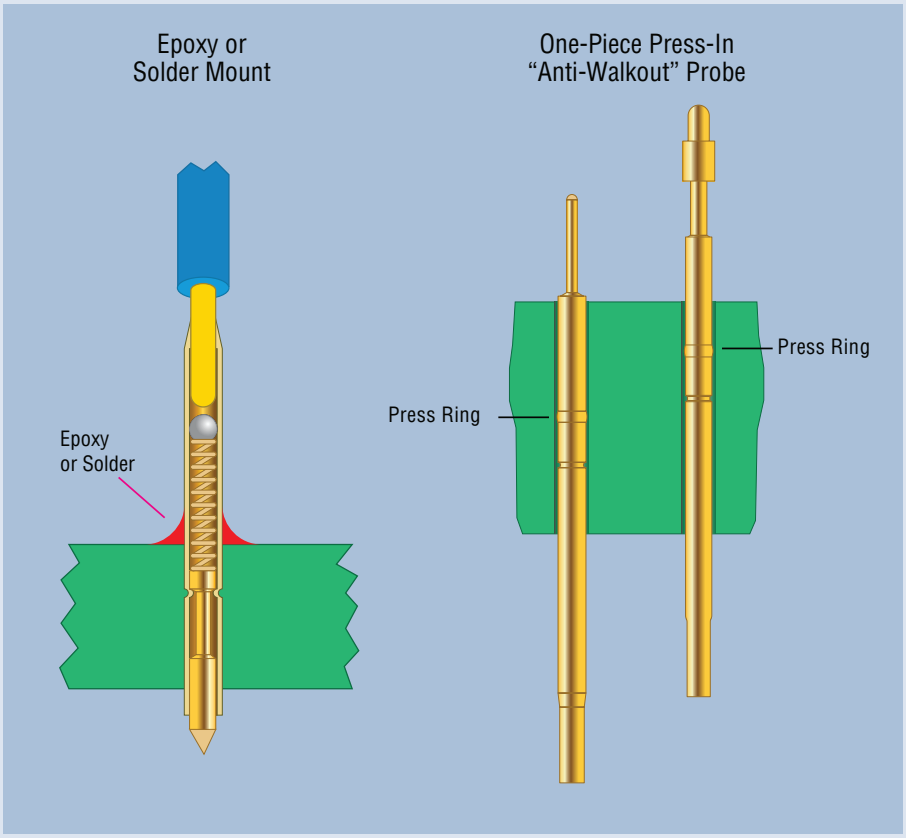
The ECT / Pylon line of standard products include non-replaceable Pogo Contacts. They differ from the replaceable contacts in that they do not require a socket and are designed to be permanently mounted.

General Purpose, Non-Replaceable Probes are those designed for industrial applications where typical probe life meets or exceeds those of the end-use product. They are typically located inside the end product where probe replacement is either impossible or end-product damage would occur. Electrical connections are typically made with a soldered connection for electrical and mechanical stability.

The probe is retained in the retention plate either with epoxy, solder or with a “press ring” on the outside of the probe body.

Non-replaceable Pogo Contacts are another example of ECT’s and Pylon’s quality and innovation and how it can work for you.

Contents



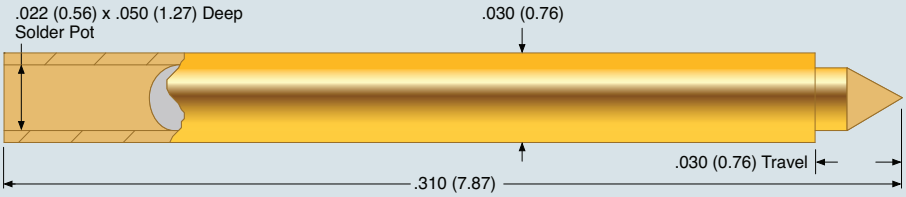
General Purpose – Non-Replaceable Probes

MODEL	Pitch (inch/mm)	OAL (inch/mm)	Recommended Travel (inch/mm)	Probe Resistance mΩ	Current Capacity Continuous (Amps)	Receptacle	Probe Retention Method	Crimp	Solder	WW	Round Post	Push-On Terminal	Fastite	Pre-Wired
A-A-S	.040 (1.0)	.310 (7.87)	.020 (0.51)	30	2	-	Epoxy		X					
A-S	.050 (1.27)	.230 (5.84)	.020 (0.51)	30	2	-	Epoxy		X					
C-S	.075 (1.91)	.395 (10.03	.030 (0.76)	30	5	-	Epoxy		X					
E-S	.100 (2.54)	.495 (12.57)	.043 (1.09)	30	5	-	Epoxy		X					
F-S	.125 (3.18)	.780 (19.81)	.066 (1.68)	30	5	-	Epoxy		X					
G-S	.125 (3.18)	.780 (19.81)	.067 (1.68)	30	5	-	Epoxy		X					
P2532	.156 (3.96)	.812 (20.62)	.093 (2.36)	30	5	-	Epoxy		X					
P2550	.187 (4.75)	1.45 (36.91)	.167 (4.24)	30	5	-	Epoxy		X					
SPG-01J-008	.075 (1.91)	1.52 (38.6)	.167 (4.24)	10	6	-	Press-in	X						
SPL-02C-170	.100 (2.54)	1.17 (29.72)	.107 (2.72)	35	5	-	Press-in	X						
SPL-25J-289	.100 (2.54)	1.50 (38.1)	.233 (5.92)	35	5	-	Press-in	X						
SPL-25J-392	.100 (2.54)	1.39 (35.3)	.233 (5.92)	35	5	-	Press-in	X						

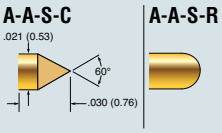
Standard Continuity Probe

40 mil, 50 mil, 75 mil Test Centers

A-A-S — 40 mil (1 mm) Test Centers



Actual Size



Spring Force in oz. (grams)

	Initial	Working
Standard	0.5 (14)	2.0 (57)

Mounting Options

Epoxy mounting recommended hole ø .0315 (#68 drill)

Mechanical

Minimum Test Centers:	40 mil (1mm)
Rec. Travel:	.020" (0.51 mm)
Operating Temperature*	-55°C to +150°C

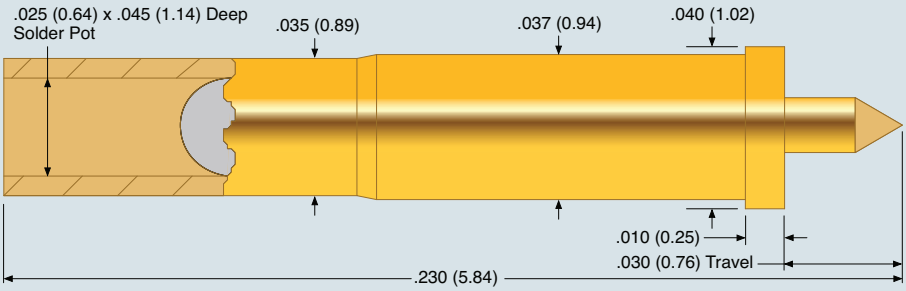
Electrical (Static Conditions)

Average Probe Resistance	<30 mOhms
Current Rating:	2 amps

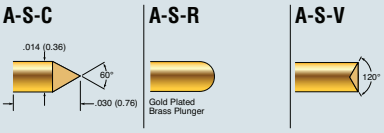
Materials and Finishes

Plunger:	Gold-plated hardened BeCu
Barrel:	Gold-plated phosphorous bronze
Spring:	Gold-plated stainless steel
Ball:	Gold-plated stainless steel

A-S — 50 mil (1.27 mm) Test Centers



Actual Size



Spring Force in oz. (grams)

	Initial	Working
Standard	0.7 (20)	1.3 (37)

Mounting Options

Epoxy mounting recommended hole ø .0380 (#62 drill)

Mechanical

Minimum Test Centers:	50 mil (1.27mm)
Rec. Travel:	.020" (0.51 mm)
Operating Temperature*	-55°C to +150°C

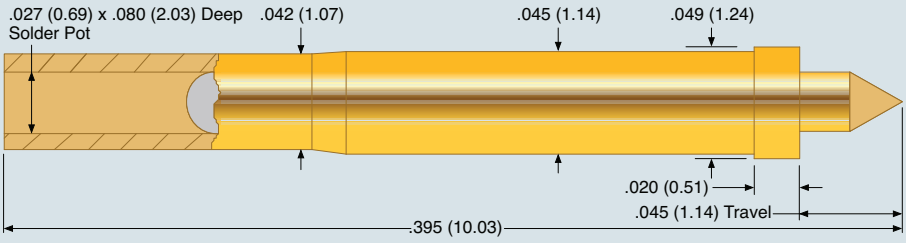
Electrical (Static Conditions)

Average Probe Resistance	<30 mOhms
Current Rating:	2 amps

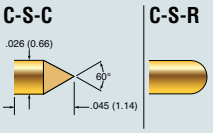
Materials and Finishes

Plunger:	Gold-plated hardened BeCu
Barrel:	Gold-plated brass
Spring:	Gold-plated stainless steel
Ball:	Gold-plated stainless steel

C-S — 75 mil (1.91 mm) Test Centers



Actual Size



Spring Force in oz. (grams)

	Initial	Working
Standard	.5 (14)	3.4 (96)

Mounting Options

Epoxy mounting recommended hole ø .0465 (#56 drill)

Mechanical

Minimum Test Centers:	75 mil (1.91 mm)
Rec. Travel:	.030" (0.76 mm)
Operating Temperature*	-55°C to +150°C

Electrical (Static Conditions)

Average Probe Resistance	<30 mOhms
Current Rating:	5 amps

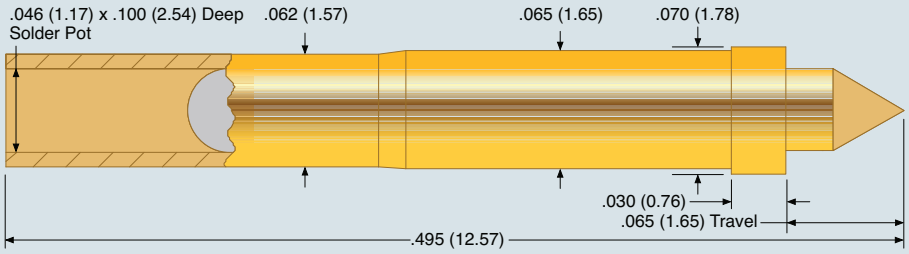
Materials and Finishes

Plunger:	Gold-plated hardened BeCu
Barrel:	Gold-plated brass
Spring:	Gold-plated stainless steel
Ball:	Gold-plated stainless steel

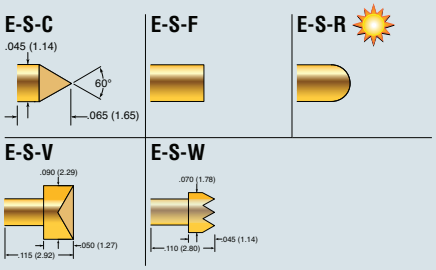
* Consult factory for other temperature requirements, and other applications below -40°C.

Dimensions in inches (millimeters)
Specifications subject to change without notice

E-S — 100 mil (2.54 mm) Test Centers



Actual Size



Spring Force in oz. (grams)

	Initial	Working
Standard	1.0 (29)	2.75 (78)

Mounting Options

Epoxy mounting recommended hole ø .0670 (#51 drill)

Mechanical

Minimum Test Centers:	100 mil (2.54 mm)
Rec. Travel:	.043" (1.09 mm)
Operating Temperature*	-55°C to +150°C

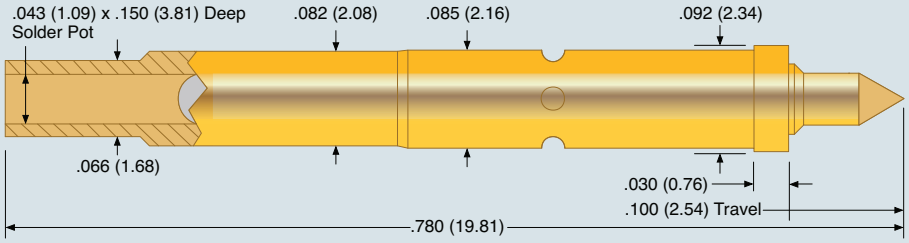
Electrical (Static Conditions)

Average Probe Resistance	<30 mOhms
Current Rating:	5 amps

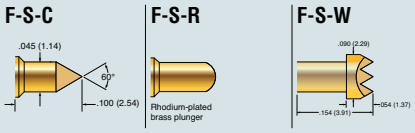
Materials and Finishes

Plunger:	Gold-plated hardened BeCu
Barrel:	Gold-plated brass
Spring:	Gold-plated stainless steel
Ball:	Gold-plated stainless steel

F-S — 125 mil (3.18 mm) Test Centers



Actual Size



Spring Force in oz. (grams)

	Initial	Working
Standard	2.0 (57)	6.0 (170)

Mounting Options

Epoxy mounting recommended hole ø .0860 (#44 drill)

Mechanical

Minimum Test Centers:	125 mil (3.18 mm)
Rec. Travel:	.066" (1.68 mm)
Operating Temperature*	-55°C to +150°C

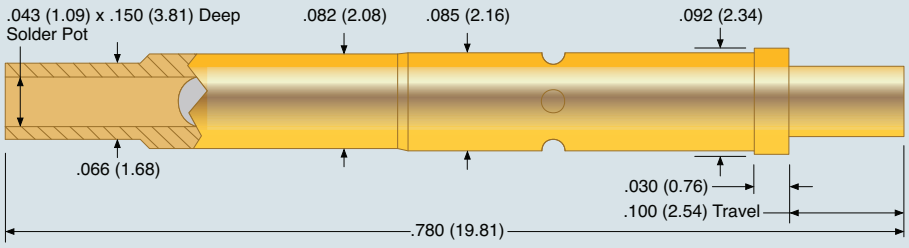
Electrical (Static Conditions)

Average Probe Resistance	<30 mOhms
Current Rating:	5 amps

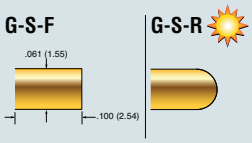
Materials and Finishes

Plunger:	Gold-plated hardened BeCu
Barrel:	Gold-plated brass
Spring:	Gold-plated stainless steel
Ball:	Gold-plated stainless steel

G-S — 125 mil (3.18 mm) Test Centers



Actual Size



Spring Force in oz. (grams)

	Initial	Working
Standard	3.0 (85)	6.0 (170)

Mounting Options

Epoxy mounting recommended hole ø .0860 (#44 drill)

Mechanical

Minimum Test Centers:	125 mil (3.18 mm)
Rec. Travel:	.067" (1.68 mm)
Operating Temperature*	-55°C to +150°C

Electrical (Static Conditions)

Average Probe Resistance	<30 mOhms
Current Rating:	5 amps

Materials and Finishes

Plunger:	Gold-plated hardened BeCu
Barrel:	Gold-plated brass
Spring:	Gold-plated stainless steel
Ball:	Gold-plated stainless steel

Denotes Solar Application

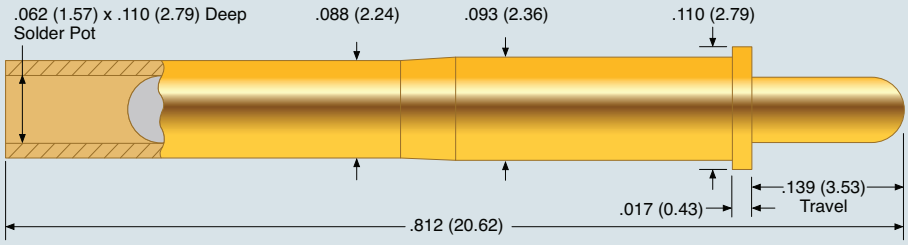
* Consult factory for other temperature requirements, and other applications below -40°C.

Dimensions in inches (millimeters)
Specifications subject to change without notice

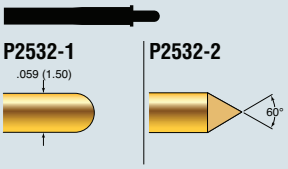
Standard Continuity Probe

156 mil, 187 mil, 75 mil Test Centers

P2532



Actual Size



Spring Force in oz. (grams)

	Initial	Working
Standard	1.0 (28)	2.3 (65)

Mounting Options

Epoxy mounting recommended hole ø .0945 (2.4 mm)

Mechanical

Minimum Test Centers:	156 mil (3.96 mm)
Rec. Travel:	.093" (2.36 mm)
Operating Temperature*	-55°C to +150°C

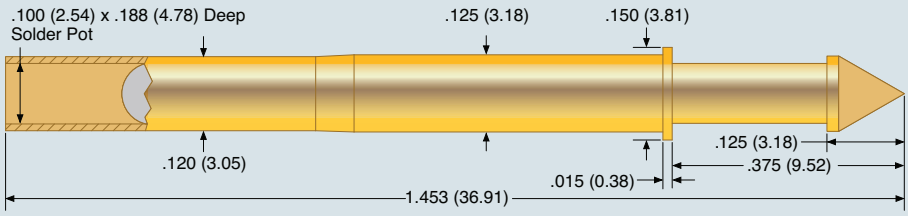
Electrical (Static Conditions)

Average Probe Resistance	<30 mOhms
Current Rating:	5 amps

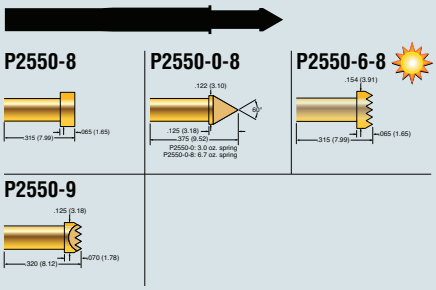
Materials and Finishes

Plunger:	Gold-plated hardened BeCu
Barrel:	Gold-plated brass
Spring:	Stainless steel
Ball:	Gold-plated stainless steel

P2550



Actual Size



Spring Force in oz. (grams)

	Initial	Working
Standard	1.20 (34)	3.10 (88)

Mounting Options

Epoxy mounting recommended hole ø .1260 (3.2 mm)

Mechanical

Minimum Test Centers:	187 mil (4.75 mm)
Rec. Travel:	.167" (4.24 mm)
Operating Temperature*	-55°C to +150°C

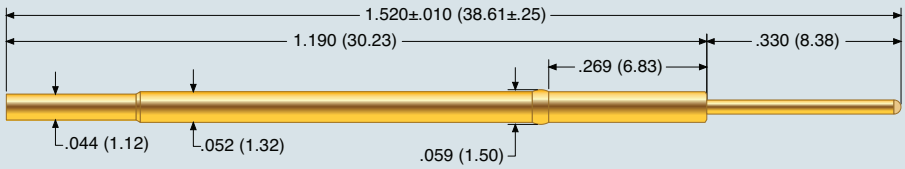
Electrical (Static Conditions)

Average Probe Resistance	<30 mOhms
Current Rating:	5 amps

Materials and Finishes

Plunger:	Gold-plated hardened BeCu
Barrel:	Gold-plated brass
Spring:	Stainless steel
Ball:	Gold-plated stainless steel

SPG-01J-008



Actual Size

Spring Force in oz. (grams)

	Order Code	Initial	Working
Standard (Light)	-1	0.94 (27)	2.0 (57)

Mounting Options

Mounting Hole Size: .053/.055 (1.35/1.40)

Mechanical

Rec. Travel:	.167" (4.24 mm)
Full Travel:	.250" (6.35 mm)
Operating Temperature:	-55°C to +105°C

Electrical (Static Conditions)

Average Probe Resistance:	<10 mOhms
Current Rating:	6 amps

Materials and Finishes

Plunger:	Heat treated tool steel, gold-plated over hard nickel
Barrel:	Work-hardened phosphorous bronze, gold plated (I.D. and O.D.) over hard nickel
Spring:	Music wire
Ball:	Stainless steel

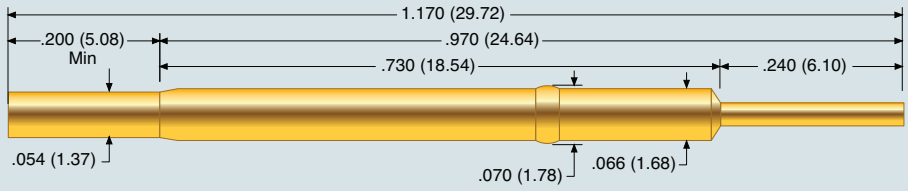
Denotes Solar Application

* Consult factory for other temperature requirements, and other applications below -40°C.

Dimensions in inches (millimeters)
Specifications subject to change without notice

SPL-02C-170

Actual Size



Spring Force in oz. (grams)

	Order Code	Initial	Working
Standard	-1	1.68 (47.63)	3.75 (106.3)

Mounting Options

Mounting Hole Size:	.067/.069 (1.70/1.75)
Recommended Drill Size:	#51 or 1.75mm

Mechanical

Rec. Travel:	.107” (2.72 mm)
Operating Temperature:	-55°C to +150°C

Electrical (Static Conditions)

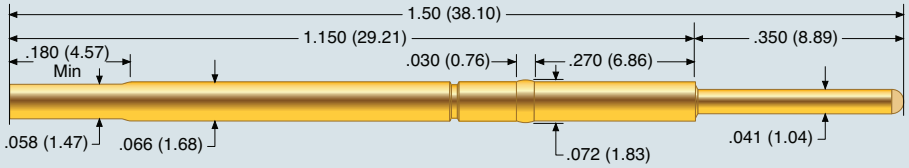
Average Probe Resistance:	<35 mOhms
Current Rating:	5 amps

Materials and Finishes

Plunger:	Rhodium-plated beryllium copper
Barrel:	Gold-plated nickel silver
Spring:	Silver-plated music wire
Ball:	Stainless steel

SPL-25J-289

Actual Size



Spring Force in oz. (grams)

	Order Code	Initial	Working
Standard (Light)	-1	0.25 (7)	1.16 (3)

Mounting Options

Mounting Hole Size:	.067/.069 (1.70/1.75)
Recommended Wire Gauge:	22-26 AWG
Recommended Drill Size:	#51 or 1.75mm

Mechanical

Rec. Travel:	.167” (4.24 mm)
Full Travel:	.350” (8.89 mm)
Operating Temperature:	-55°C to +105°C

Electrical (Static Conditions)

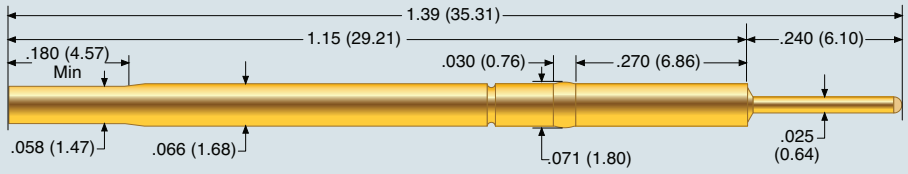
Average Probe Resistance:	<35 mOhms
Current Rating:	5 amps

Materials and Finishes

Plunger:	Gold-plated hardened beryllium copper
Barrel:	Gold-plated nickel silver
Spring:	Silver-plated music wire
Ball:	Stainless steel

SPL-25J-392

Actual Size



Spring Force in oz. (grams)

	Order Code	Initial	Working
Standard (Light)	-1	0.28 (7.94)	2.5 (71)

Mounting Options

Mounting Hole Size:	.067/.069 (1.70/1.75)
Recommended Wire Gauge:	22-26 AWG
Recommended Drill Size:	#51 or 1.75mm

Mechanical

Rec. Travel:	.233” (5.92 mm)
Full Travel:	.240” (6.10 mm)
Operating Temperature:	-55°C to +105°C

Electrical (Static Conditions)

Average Probe Resistance:	<35 mOhms
Current Rating:	5 amps

Materials and Finishes

Plunger:	Gold-plated hardened beryllium copper
Barrel:	Gold-plated beryllium copper
Spring:	Silver-plated music wire
Ball:	Stainless steel

* Consult factory for other temperature requirements, and other applications below -40°C.

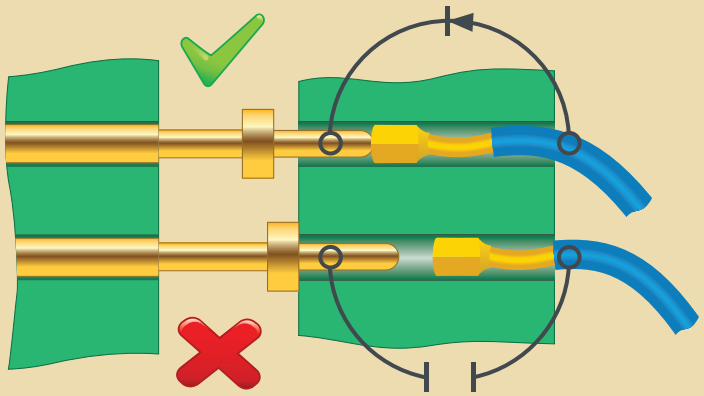
Dimensions in inches (millimeters)
Specifications subject to change without notice

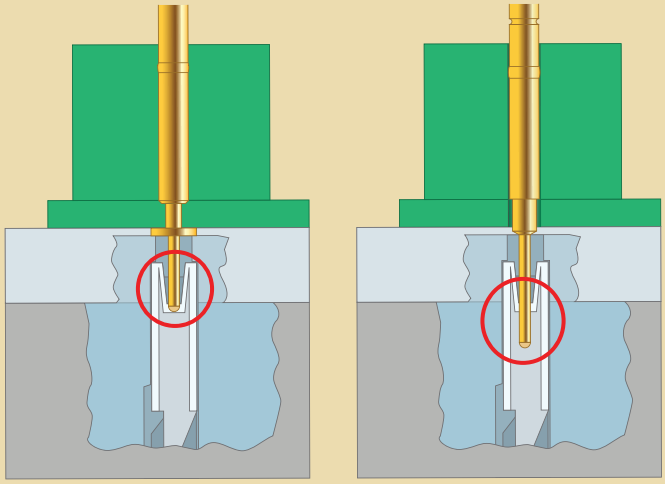
A “Step” or “Hat” probe indicates the concept of using a “step” to control the distance of probe tip entry into a wire harness connector housing, thus allowing electrical contact to be made to a terminal without actually entering the terminal. Though used almost exclusively in the wire harness testing industry they can also be used in ICT and FCT testing.

The critical areas of the connector terminal remain virgin to assure proper conductivity and intermetallic relationships once the harness is assembled into its end use.

ECT offers a variety of pitches and step depths to accommodate most harness test requirements. Depending on the customer preference, Step Probes can be either replaceable or non-replaceable.

Contents

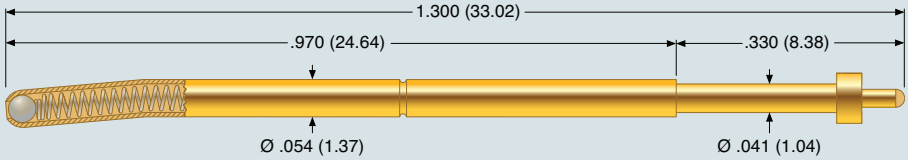




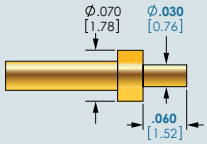
MODEL	Pitch (inch/mm)	OAL (inch/mm)	Recommended Travel (inch/mm)	Probe Resistance mΩ	Current Capacity Continuous (Amps)	Receptacle	Probe Retention Method	Crimp	Solder	WW	Round Post	Push-On Terminal	Fastite	Pre-Wired
STP-25	.100 (2.54)	1.30 (33.02)	.120 (4.57)	35	5	SPR-25 Series	Receptacle Detents/ Pylon Bend	X	X	X	X			
SPL-25C-393	.100 (2.54)	1.30 (33.02)	.110 (2.79)	35	5	SPR-25 Series	Receptacle Detents/ Pylon Bend	X	X	X	X			
SPL-25F-401	.100 (2.54)	1.30 (33.02)	.120 (4.57)	35	5	SPR-25 Series	Receptacle Detents/ Pylon Bend	X	X	X	X			
SPL-25J-339	.100 (2.54)	1.30 (33.02)	.110 (2.79)	35	5	SPR-25 Series	Receptacle Detents/ Pylon Bend	X	X	X	X			
SPL-25J-381	.100 (2.54)	1.30 (33.02)	.167 (4.24)	35	5	SPR-25 Series	Receptacle Detents/ Pylon Bend	X	X	X	X			
SPL-25J-410	.100 (2.54)	1.30 (33.02)	.167 (4.24)	35	5	SPR-25 Series	Receptacle Detents/ Pylon Bend	X	X	X	X			
SPL-25J-411	.100 (2.54)	1.30 (33.02)	.120 (4.57)	35	5	SPR-25 Series	Receptacle Detents/ Pylon Bend	X	X	X	X			
STP-1	.075 (1.91)	1.30 (33.02)	.120 (4.57)	35	3	LTR-1 Series	Receptacle Detents/ Pylon Bend	X	X	X	X			
SPL-03C-090	.125 (3.18)	1.53 (38.86)	.220 (5.59)	50	6	-	Press-In	X						
SPL-03C-114	.125 (3.18)	1.53 (38.86)	.127 (3.22)	50	6	-	Press-In	X						
SPL-03C-153	.125 (3.18)	1.53 (38.86)	.127 (3.22)	50	6	-	Press-In	X						
SPL-25J-372	.100 (2.54)	1.48 (37.6)	.120 (4.57)	35	5	-	Press-In	X						

STP-25 Series / SPL-25 Series

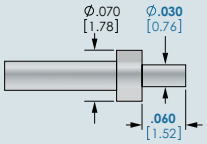
Actual Size



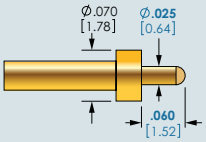
STP-25C060-3G



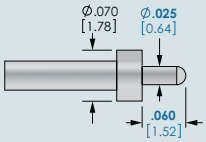
STP-25C060-3R



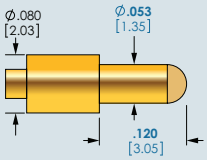
STP-25J060-3G



STP-25J060-3R

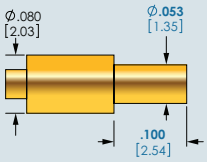


SPL-25J-339



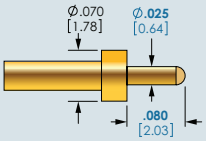
Rec. Travel
.110" (2.80 mm)

SPL-25C-393

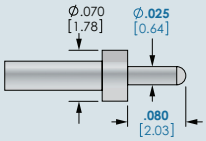


Rec. Travel
.110" (2.80 mm)

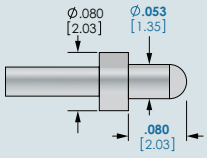
STP-25J080-3G



STP-25J080-3R

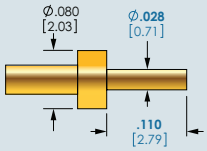


SPL-25J-381



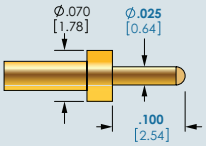
Rec. Travel
.167" (4.24 mm)

SPL-25F-401

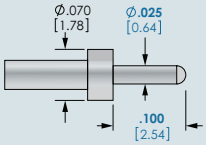


Rec. Travel
.167" (4.24 mm)

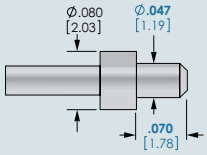
STP-25J100-3G



STP-25J100-3R

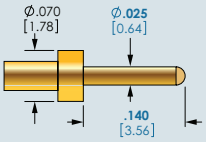


SPL-25J-410

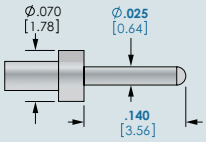


Rec. Travel
.167" (4.24 mm)

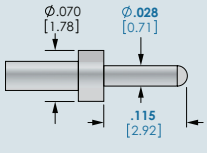
STP-25J140-3G



STP-25J140-3R

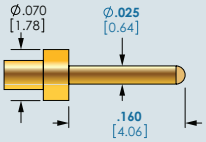


SPL-25J-411

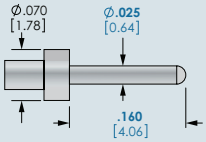


Rec. Travel
.120" (3.05 mm)

STP-25J160-3G



STP-25J160-3R



Spring Force in oz. (grams)

	Initial	Working
STP-25	1.5 (42)	2.9 (82)
SPL-25C-393	2.1 (58)	4.9 (138)
SPL-25F-401	1.2 (35)	4.0 (113)
SPL-25J-339	1.7 (48)	2.9 (82)
SPL-25J-381	1.7 (48)	3.5 (99)
SPL-25J-410	1.2 (33)	3.5 (99)
SPL-25J-411	1.6 (40)	2.9 (82)

Mounting Options

Receptacle — SPR-25 Series, page 51

Mechanical

Rec. Travel: .110" (2.79 mm) to .167" (4.24 mm) (Varies with tip)

Operating Temperature:* (Music wire spring) -55°C to +105°C

Operating Temperature:* (Steel spring) -55°C to +150°C

Electrical (Static Conditions)

Average Probe Resistance <35 mOhms

Current Rating: 5 amps

Materials and Finishes

Plunger: Gold-plated hardened BeCu
Rodium-plated hardened BeCu

Barrel: Gold-plated phosphorous bronze or Gold-plated Nickel-Silver

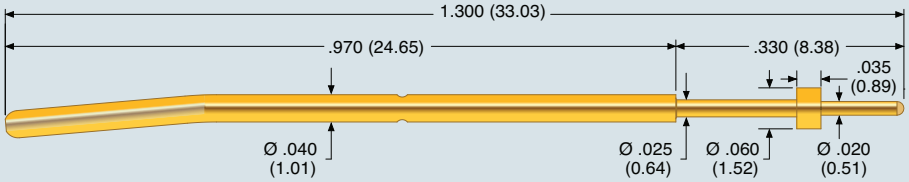
Spring: Music wire or Silver-plated stainless steel

Ball: Stainless steel

* Consult factory for other temperature requirements, and other applications below -40°C.

Dimensions in inches (millimeters)
Specifications subject to change without notice

STP-1 Series



Spring Force in oz. (grams)

	Initial	Working
Standard	1.5 (42)	2.9 (82)

Mounting Options

Receptacle LTR-1/ ELTR-1 Series, page 51

Mechanical

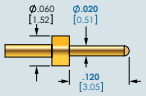
Rec. Travel:	.120" (3.05 mm)
Operating Temperature*	-55°C to +150°C

Electrical (Static Conditions)

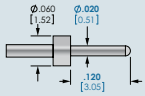
Average Probe Resistance	<35 mOhms
Current Rating:	3 amps

Actual Size

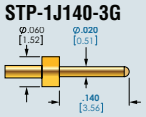
STP-1J120-3G



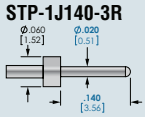
STP-1J120-3R



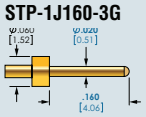
STP-1J140-3G



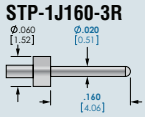
STP-1J140-3R



STP-1J160-3G



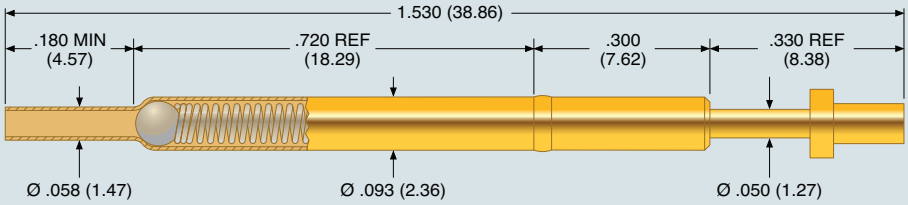
STP-1J160-3R



Materials and Finishes

Plunger:	Gold-plated hardened BeCu Rodium-plated hardened BeCu
Barrel:	Gold-plated phosphorous bronze
Spring:	Silver-plated stainless steel

SPL-03 Series



Spring Force in oz. (grams)

	Initial	Working
SPL-03C-090	0.8 (23)	2.3 (65)
SPL-03C-114	1.7 (48)	4.0 (113)
SPL-03C-153	1.6 (45)	4.0 (113)

Mounting Options

Mounting Hole Size:	.094/.096 (2.39/2.44)
Recommended Wire Gauge:	22-26 AWG
Recommended Drill Size:	#41 or 2.4mm

Mechanical

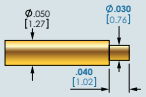
Rec. Travel:	.127" (3.22 mm)
Operating Temperature*	-55°C to +105°C

Electrical (Static Conditions)

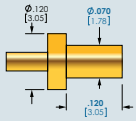
Average Probe Resistance	<50 mOhms
Current Rating:	6 amps

Actual Size

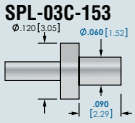
SPL-03C-090



SPL-03C-114



SPL-03C-153

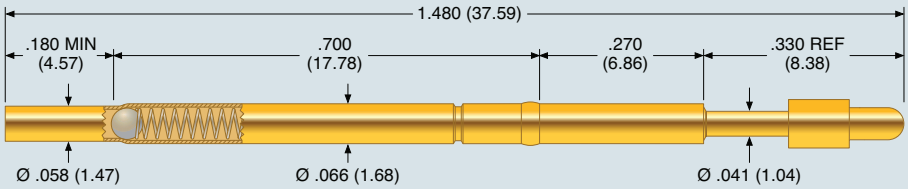


Rec. Travel .220" (5.59 mm)

Materials and Finishes

Plunger:	Gold-plated hardened BeCu Rodium-plated hardened BeCu
Barrel:	Gold-plated phosphorous bronze or Gold-plated Nickel-Silver
Spring:	Silver-plated Music wire or Silver-plated BeCu
Ball:	Hardened brass or Gold-plated hardened brass

SPL-25J-372



Spring Force in oz. (grams)

	Initial	Working
Standard	0.6 (16)	1.8 (50)

Mounting Options

Mounting Hole Size:	.067/.069 (1.70/1.75)
Recommended Wire Gauge:	22-26 AWG
Recommended Drill Size:	#51 or 1.75mm

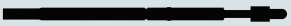
Mechanical

Rec. Travel:	.120" (3.05 mm)
Operating Temperature*	-55°C to +105°C

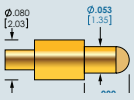
Electrical (Static Conditions)

Average Probe Resistance	<35 mOhms
Current Rating:	5 amps

Actual Size



SPL-25J-372



Materials and Finishes

Plunger:	Gold-plated hardened BeCu
Barrel:	Gold-plated, Nickel-Silver
Spring:	Silver-plated Music wire
Ball:	Gold-plated stainless steel

* Consult factory for other temperature requirements, and other applications below -40°C.

Dimensions in inches (millimeters)
Specifications subject to change without notice

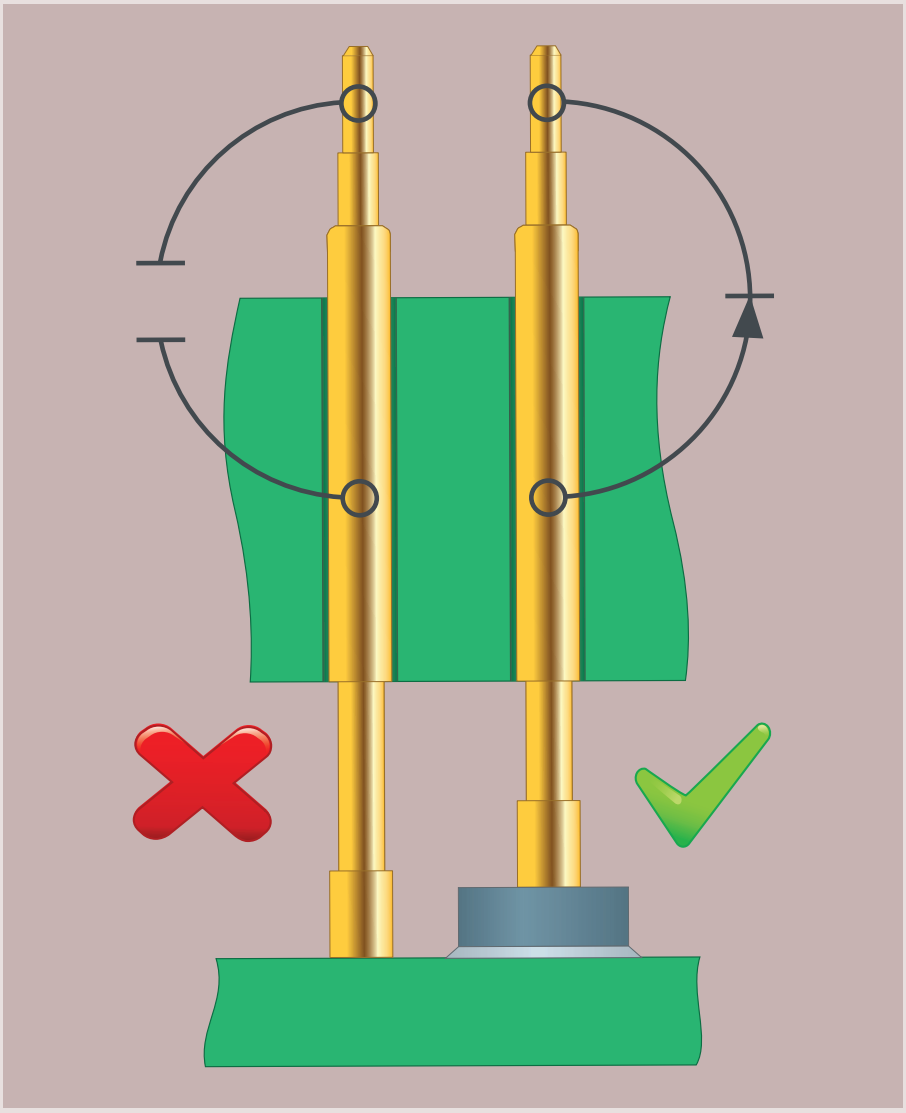
A switch probe is designed primarily for “presence/electrical” test applications such as detecting the absence or presence of contacts within a wire harness connector.

In this case, the switch probe provides electrical interconnection and verifies the connector has been manufactured properly. If contacts are missing or out of place, the part is rejected.

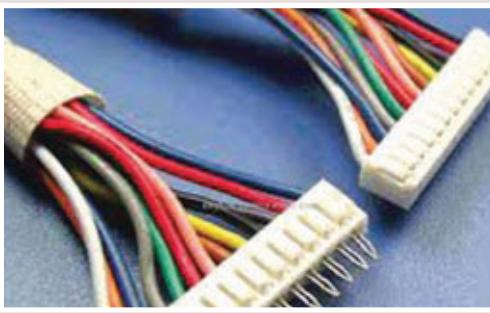
If all the contacts are in place, the part is accepted and an electrical test is performed, verifying electrical integrity of the connector and the wires within the harness.

In many board test applications, a switch probe is used to detect only the physical presence of a device or if the orientation of the component (connector) is correct and does not perform an electrical test.

Contents



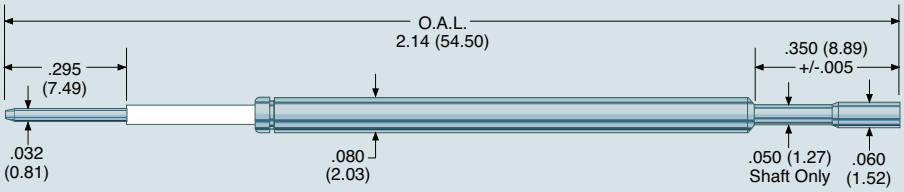
MODEL	Pitch (inch/mm)	OAL (inch/mm)	Recommended Travel (inch/mm)	Probe Resistance mΩ	Current Capacity Continuous (Amps)	Receptacle	Probe Retention Method	Crimp	Solder	WW	Round Post	Push-On Terminal	Fastite	Pre-Wired
MSP-3C	.125 (3.18)	2.14 (54.50)	.085 (2.16)	50	3	SPR-3W	Detents					X		
SPL-03C-069	.125 (3.18)	1.83 (46.48)	.330 (8.38)	50	3	N/A	Press-In				X			
MSP-5C	.187 (4.75)	2.26 (57.40)	.132 (3.35)	20	5	SPR-5W	Detents					X		
SSP-5C	.187 (4.75)	1.21 (30.73)	.100 (2.54)	50	5	SSR-5Y	Detents					X		
MSP-25C	.100 (2.54)	1.69 (42.93)	.085 (2.16)	50	3	SPR-25W	Detents					X		
SSP-812023	.500 (12.7)	1.64 (41.66)	0.24 (6.1)	N/A	N/A	N/A	Hex Nut					X		
TSP-100	.100 (2.54)	1.99 (50.6)	.157 (4.0)	20	5	TPR-100-Y/W1K	Threaded		X			X		
TSP-138	.138 (3.50)	1.76 (44.8)	.157 (4.0)	20	10	TPR-138-Y/YK/W1K	Threaded		X			X		
TSP-157	.157 (4.0)	.984 (25.0)	.157 (4.0)	20	10	TPR-157-YK/W1K	Threaded		X			X		



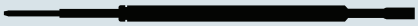
Standard Switch Probe

125 mil, 187 mil Test Centers

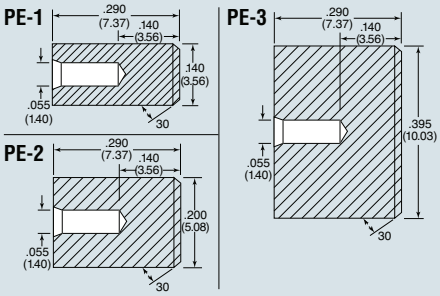
MSP-3C



Actual Size



Caps for MSP-3C



Spring Force in oz. (grams)

	Switch Point	Rec. Travel
Standard	3.2 (90)	6.5 (184)
Alternate	24.8 (703)	35.0 (992)

Mounting Options

Receptacle(s): SPR-3W, page 53

Mechanical

Rec. Travel:	.085" (2.16 mm)
Full Travel:	.140" (3.56 mm)
Switch Point (± .012)	.030 (0.76)

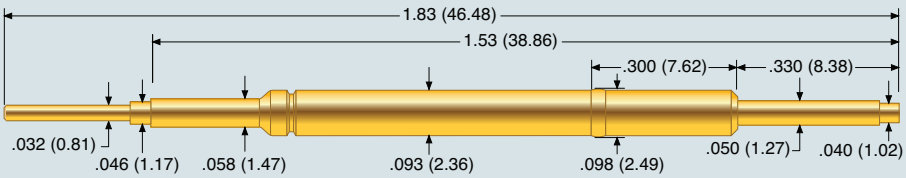
Electrical (Static Conditions)

Average Probe Resistance:	50 mOhms
Current Rating:	3 amps

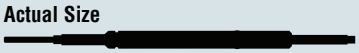
Materials and Finishes

Plunger:	Nickel plated beryllium copper
Barrel:	Silver plated nickel silver
Spring:	Silver plated stainless steel
Insulator:	KEL-F™
Terminal:	Silver plated beryllium copper

SPL-03C-069



Actual Size



Spring Force in oz. (grams)

	Preload	Rec. Travel
Standard	3.2 (90)	1.85 (52)

Mechanical

Rec. Travel:	.167" (4.24 mm)
Full Travel:	.330" (8.38 mm)
Switch Point (± .015)	.025 (0.64)

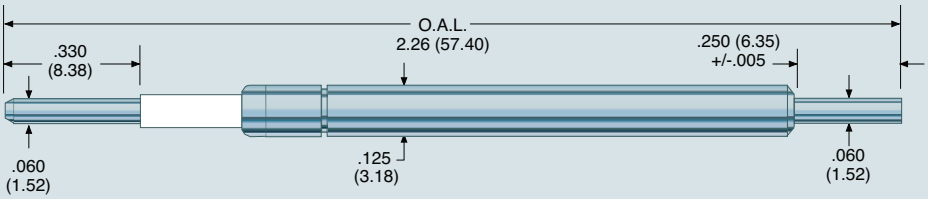
Electrical (Static Conditions)

Average Probe Resistance:	50 mOhms
Current Rating:	3 amps

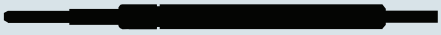
Materials and Finishes

Plunger:	Gold plated beryllium copper
Barrel:	Gold plated nickel silver
Spring:	Music Wire
Insulator:	DELRIN™
Terminal:	Gold plated beryllium copper

MSP-5C



Actual Size



Spring Force in oz. (grams)

	Switch Point	Rec. Travel
Standard	2.5 (70)	5.2 (146)
Alternate	26.9 (755)	35.0 (992)

Mounting Options

Receptacle(s): SPR-5W, page 53

Mechanical

Rec. Travel:	.132" (3.35 mm)
Full Travel:	.185" (4.70 mm)
Switch Point (± .012)	.025 (0.64)

Electrical (Static Conditions)

Average Probe Resistance:	20 mOhms
Current Rating:	5 amps

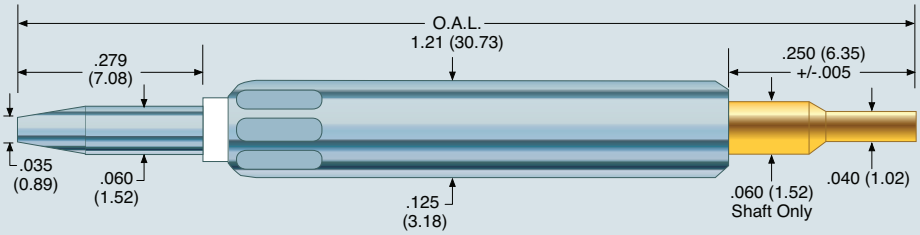
Materials and Finishes

Plunger:	Nickel plated brass
Barrel:	Silver plated brass
Spring:	Silver plated stainless steel
Insulator:	KEL-F™
Terminal:	Silver plated brass

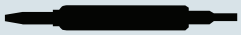
* Consult factory for other temperature requirements, and other applications below -40°C.

Dimensions in inches (millimeters)
Specifications subject to change without notice

SSP-5C



Actual Size



Spring Force in oz. (grams)

	Switch Point	Rec. Travel
Standard	2.36 (66)	4.5 (128)

Mounting Options

Receptacle(s): SSR-5Y

Mechanical

Rec. Travel:	.100” (2.54 mm)
Full Travel:	.150” (3.81 mm)
Switch Point (± .012)	.025 (0.64)

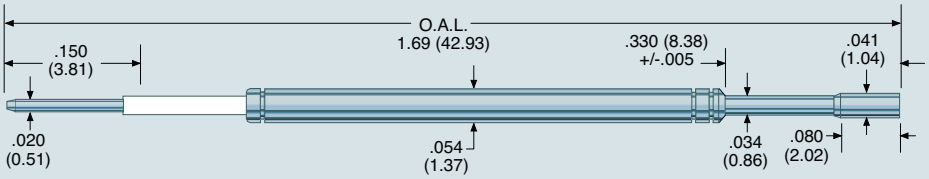
Electrical (Static Conditions)

Average Probe Resistance:	50 mOhms
Current Rating:	5 amps

Materials and Finishes

Plunger:	Gold plated beryllium copper
Barrel:	Silver plated nickel silver
Spring:	Silver plated spring steel
Insulator:	DELRIN™
Terminal:	Gold plated beryllium copper

MSP-25C



Actual Size

Spring Force in oz. (grams)

	Switch Point	Rec. Travel
Standard	6.51 (183)	7.55 (212)

Mounting Options

Receptacle(s): SSR-25W

Mechanical

Rec. Travel:	.085” (2.16 mm)
Full Travel:	.125” (3.18 mm)
Switch Point (± .012)	.030 (0.76)

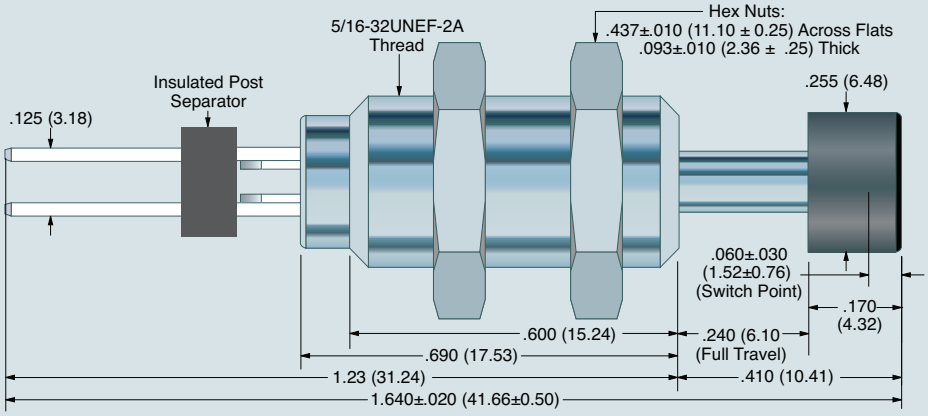
Electrical (Static Conditions)

Average Probe Resistance:	50 mOhms
Current Rating:	3 amps

Materials and Finishes

Plunger:	Nickel plated beryllium copper
Barrel:	Work-hardened phosphor bronze, HPA-Gold™ plated (I.D. and O.D.) over hard nickel
Spring:	Silver plated music wire
Insulator:	DELRIN™
Terminal:	Silver plated beryllium copper

SSP-812023



Actual Size

SSP-812023 Presence Detection Device

Replaceable mechanical switch easily and reliably detects part presence and/or orientation. Quick-Connect termination.

Tip material: Black Phenolic

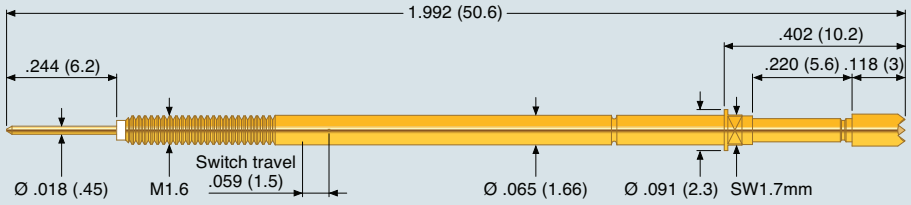
* Consult factory for other temperature requirements, and other applications below -40°C.

Dimensions in inches (millimeters)
Specifications subject to change without notice

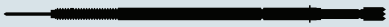
Threaded Switch Probe

100 mil, 138 mil, 157 mil Test Centers

TSP-100



Actual Size



Spring Force in oz. (grams)

	Order Code	Switch Point	Working
Standard	-1	1.8 (51)	4.8 (137)
Alternate	-2	3.6 (102)	7.2 (204)
High	-3	5.0 (143)	12.6 (357)

Tools

Screw-in Tool	PIT-100 or PIT-100T

Mechanical

Rec. Travel:	.157" (4.00 mm)
Full Travel:	.197" (5.00 mm)
Switch Point (± .008")	.059" (1.50 mm)
Operating Temperature	-20°C to +80°C

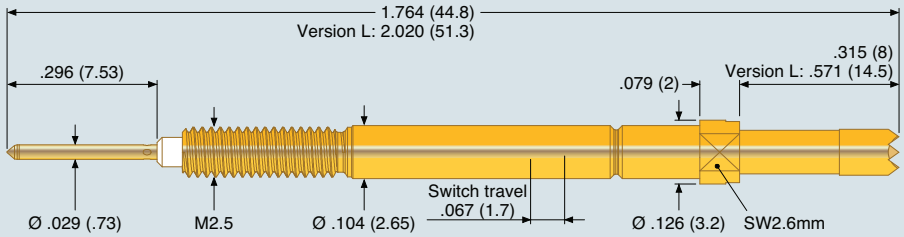
Electrical (Static Conditions)

Average Probe Resistance	<20 mOhms
Current Rating:	5 amps

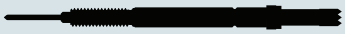
Materials and Finishes

Plunger:	Gold-plated hardened BeCu or Synthetic Insulator
Barrel:	Gold-plated brass
Spring:	Silver-plated music wire
Receptacle:	Gold-plated brass

TSP-138/TSP-138L



Actual Size



Spring Force in oz. (grams)

	Order Code	Switch Point	Working
High	-3	6.1 (173)	12.6 (357)

Tools

Screw-in Tool	PIT-138, PIT-138T
Screw-in Tool Tips > Ø.118"	PIT-138H, PIT-138HT

Mechanical

Rec. Travel	.157" (4.00 mm)
Full Travel	.197" (5.00 mm)
Full Travel Tips > Ø.118"	.165" (4.20 mm)
Switch Point (± .008")	.067" (1.70 mm)
Operating Temperature	-20°C to +80°C

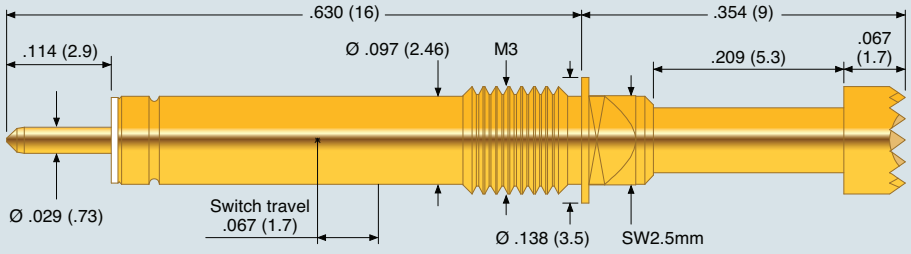
Electrical (Static Conditions)

Average Probe Resistance	<20 mOhms
Current Rating:	10 amps

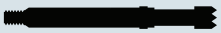
Materials and Finishes

Plunger:	Gold-plated hardened BeCu or Synthetic Insulator
Barrel:	Gold-plated brass
Spring:	Silver-plated music wire
Receptacle:	Gold-plated brass

TSP-157



Actual Size



Spring Force in oz. (grams)

	Order Code	Switch Point	Working
Standard	-1	3.2 (92)	5.4 (153)

Tools

Screw-in Tool	PIT-157 or PIT-157ST

Mechanical

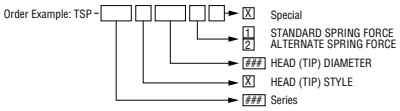
Rec. Travel:	.157" (4.00 mm)
Full Travel:	.197" (5.00 mm)
Switch Point (± .008")	.067" (1.70 mm)
Operating Temperature	-20°C to +80°C

Electrical (Static Conditions)

Average Probe Resistance	<20 mOhms
Current Rating:	10 amps

Materials and Finishes

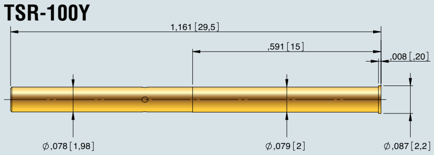
Plunger:	Gold-plated hardened BeCu or Synthetic Insulator
Barrel:	Gold-plated brass
Spring:	Silver-plated music wire
Receptacle:	Gold-plated brass



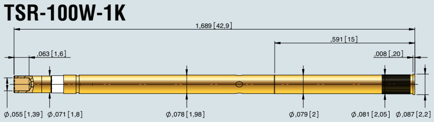
Dimensions in inches (millimeters)
Specifications subject to change without notice

TSR-100

TSR-100Y

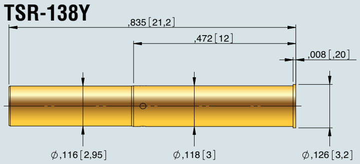


TSR-100W-1K

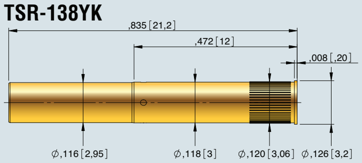


TSR-138

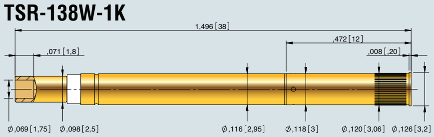
TSR-138Y



TSR-138YK

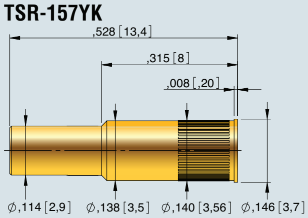


TSR-138W-1K

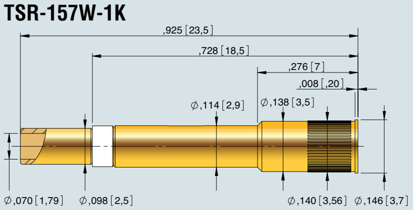


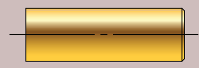
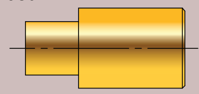
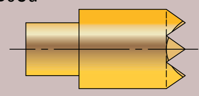
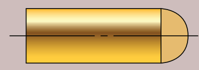
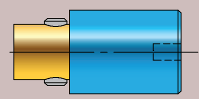
TSR-157

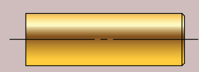
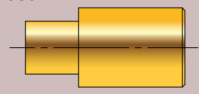
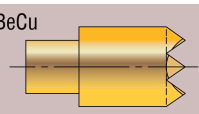
TSR-157YK

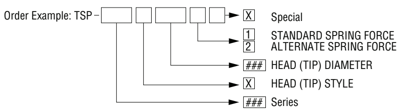


TSR-157W-1K



		TSP-100	TSP-138
C	BeCu 	C100 (ø .039”)	C180 (ø .071”)
F	BeCu 	F180 (ø .071”)	F230 (ø .091”) F300 (ø .118”) F350 (ø 0.138”) F400 (ø .158”)
H	BeCu 	H150 (ø .059”) H180 (ø .071”)	H100 (ø .039”) H230 (ø .091”)
J	BeCu 	J100 (ø .039”)	
FK	Insulated 	FK180 (ø .071”)	FK230 (ø .091”) FK300 (ø .118”) FK400 (ø .158”)

		TSP-138L	TSP-157
C	BeCu 		C100 (ø .039”)
F	BeCu 	F350 (ø .138”)	F200 (ø .079”)
H	BeCu 		H200 (ø .079”)



Dimensions in inches (millimeters)
Specifications subject to change without notice

For powered functional testing of connectors, wire harnesses, modules and other devices drawing up to 50A, our high current probes feature low resistance plungers and multiple-point, high-current-capacity tips. Only Everett Charles Technologies offers a complete line of high current probes for .100, .125 and .187-inch test centers. And only Everett Charles Technologies provides direct technical support to help you make the most of them.

Technical Notes

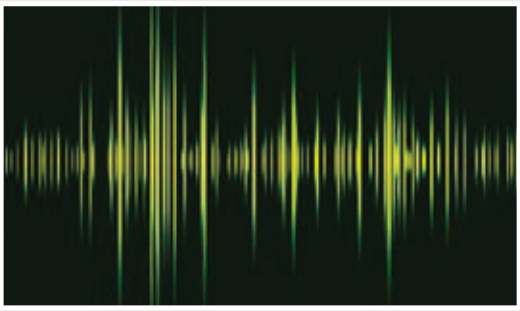
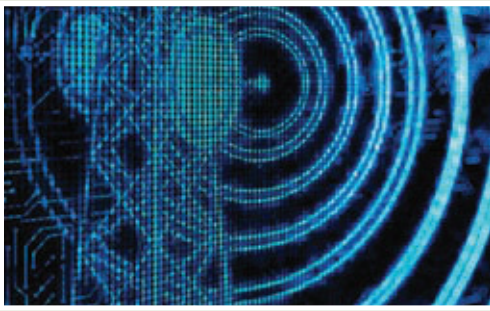
The maximum continuous current rating of a spring probe is determined by its design, size and construction. Typical probes are rated from 2 to 5 amps maximum current (non-inductive) at working travel. While this is sufficient for most board test applications, higher current probes are sometimes required. ECT High-Current Probes (HCP series) are capable of carrying electrical current up to 50 amps.

Contents

High Current & High Frequency Probes

MODEL	Pitch (inch/mm)	OAL (inch/mm)	Recommended Travel (inch/mm)	Probe Resistance mΩ	Current Capacity Continuous (Amps)	Receptacle	Probe Retention Method	Crimp	Solder	WW	Round Post	Push-On Terminal	Fastite	Pre-Wired
P2447	.225 (5.72)	1.145 (29.08)	.200 (5.08)	10	10	N/A	Epoxy		X					
P3325	.125 (3.18)	.645 (16.38)	.066 (1.68)	10	10	N/A	Epoxy		X					
P4301	.250 (6.35)	1.750 (44.45)	.167 (4.24)	5	45	BR4301/BR4301K	Epoxy/Detents					1		
HCP-13	.125 (3.18)	1.30 (33.02)	.167 (4.24)	25	15	SPR-3	Detents	X	X	X		X		
HCP-14	.187 (4.75)	1.32 (33.53)	.167 (4.24)	25	25	SPR-4	Detents	X	X	X		X		
HCP-15	.187 (4.75)	1.42 (36.07)	.167 (4.24)	25	35	SPR-5	Detents	X	X					
HCP-25	.100 (2.54)	1.30 (33.02)	.167 (4.24)	25	10	SPR-25	Detents	X	X	X	X	X		
THC-025	.100 (2.54)	1.406 (35.7)	.157 (4.0	10	20	TPR-025-W1K	Threaded							
THC-157	.157 (4.00)	1.11 (28.3)	.157 (4.0)	8	26	TPR-157-W1/W1K	Threaded							
THC-197	.197 (5.00)	1.697 (43.1)	.173 (4.4)	5	50	TPR-197-W1	Threaded							
TKP-138	.138 (3.5)	1.764 (44.8)	.157 (4.0)			-								
K-50L		1.83 (46.4)	.225 (5.72)	10	6	-								
K-50H-S		1.21 (30.6)		10	6	-								
K-50L-QG				10	6	-								
K-50L-QG-75		1.575 (40.0)	.067 (1.70)	35	3	-								
K-50L-QG-75R		1.637 (41.58)	.067 (1.70)	15	3	-								
CSP-03G-003				50	6	-								

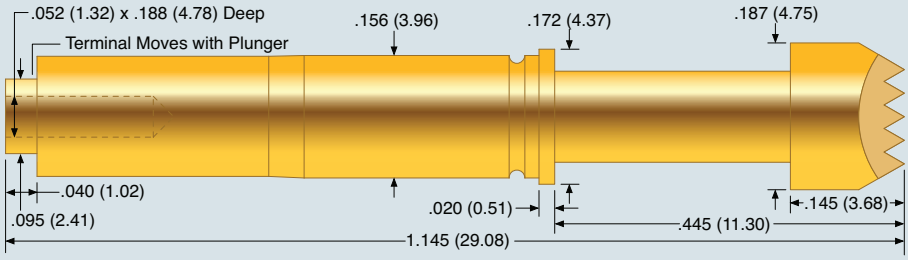
1 - P4301 has threaded terminal

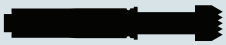
Feed Through Probe

10A, 50A Current Rating

P2447



Actual Size



Spring Force in oz. (grams)

	Initial	Working
Standard	6.0 (170)	14.0 (397)

Mounting Options

Epoxy mounting recommended hole ø .1570 (#22 drill)

Mechanical

Minimum Test Centers:	225 mil (5.72 mm)
Rec. Travel:	.200" (5.08 mm)
Operating Temperature*	-55°C to +150°C

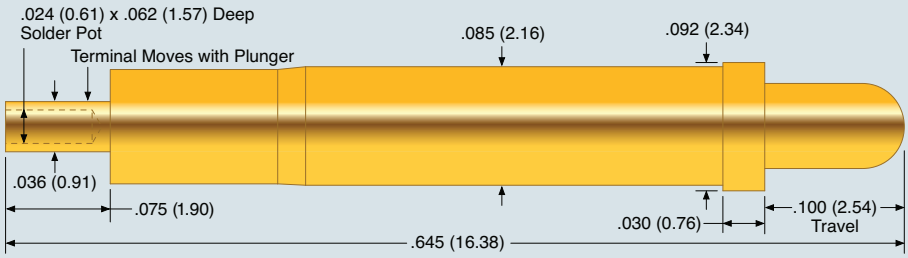
Electrical (Static Conditions)

Average Probe Resistance	<10 mOhms
Current Rating:	10 amps

Materials and Finishes

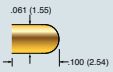
Plunger:	Nickel-plated hardened BeCu
Barrel:	Brass
Spring:	Stainless steel
Terminal:	Nickel-plated brass

P3325

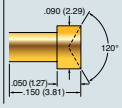


Actual Size

P3325-0



P3325-1



Spring Force in oz. (grams)

	Initial	Working
Standard	5.0 (142)	8.3 (235)

Mounting Options

Epoxy mounting recommended hole ø .0680 (#44 drill)

Mechanical

Minimum Test Centers:	125 mil (3.18 mm)
Rec. Travel:	.066" (1.68 mm)
Operating Temperature*	-55°C to +105°C

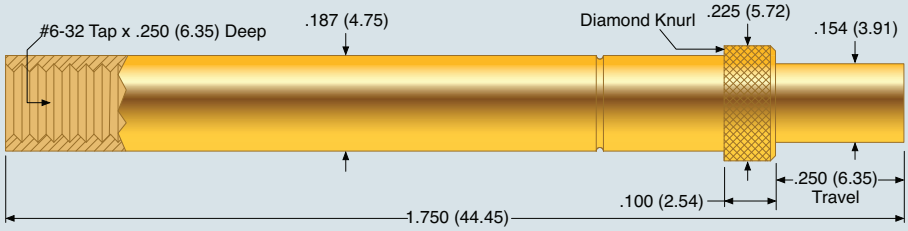
Electrical (Static Conditions)

Average Probe Resistance	<10 mOhms
Current Rating:	10 amps

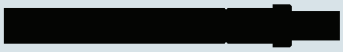
Materials and Finishes

Plunger:	Gold-plated hardened BeCu
Barrel:	Brass
Spring:	Music wire

P4301



Actual Size



P4301-1W

P4301-1Z

Spring Force in oz. (grams)

	Initial	Working
Standard	16.0 (454)	25.7 (729)

Mounting Options

Epoxy mounting recommended hole ø .1890 (#12 drill)

Mechanical

Minimum Test Centers:	250 mil (6.35 mm)
Rec. Travel:	.167" (4.24 mm)
Operating Temperature*	-55°C to +150°C

Electrical (Static Conditions)

Average Probe Resistance	<5 mOhms
Current Rating:	50 amps

Materials and Finishes

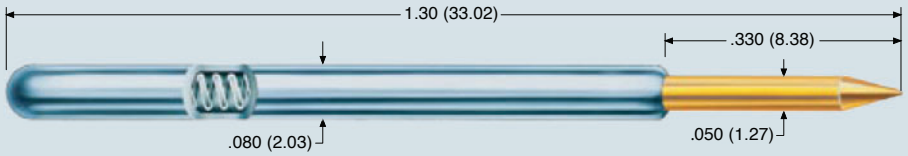
Plunger:	Gold-plated tellurium Copper
Barrel:	Gold-plated tellurium Copper
Spring:	Stainless steel
Ball:	Stainless steel

Denotes Solar Application

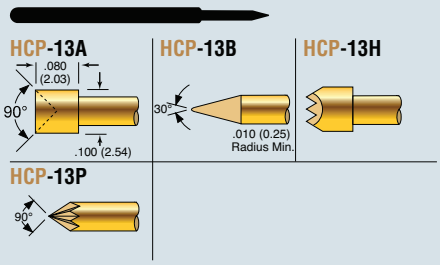
* Consult factory for other temperature requirements, and other applications below -40°C.

Dimensions in inches (millimeters)
Specifications subject to change without notice

HCP-13 (HC80)



Actual Size



Spring Force in oz. (grams)

	Order Code	Preload	2/3 Travel
Standard	as shown	1.54 (44)	4.5 (128)

Mounting Options

Receptacle(s): SPR-3 series, page 53

Mechanical

Rec. Travel:	.167" (4.24 mm)
Full Travel:	.250" (6.35 mm)
Operating Temperature:	-55°C to +150°C

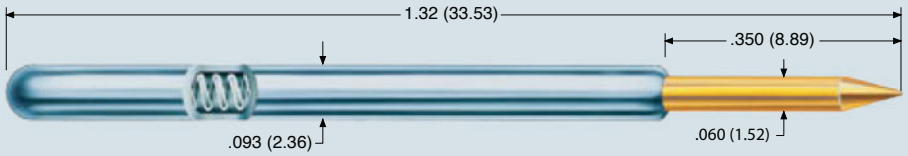
Electrical (Static Conditions)

Average Probe Resistance:	25 mOhms
Current Rating:	15 amps

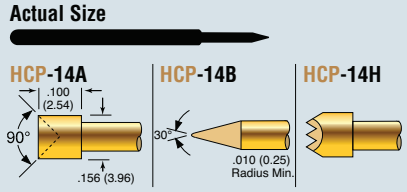
Materials and Finishes

Plunger:	Heat-treated beryllium copper, gold-plated over hard nickel
Barrel:	Work-hardened nickel silver, silver plated (I.D. and O.D.) over hard nickel
Spring:	Stainless steel, silver plated
Ball:	Brass, gold plated

HCP-14 (HC93)



Actual Size



Spring Force in oz. (grams)

	Order Code	Preload	2/3 Travel
Standard	as shown	0.86 (24)	4.8 (136)

Mounting Options

Receptacle(s): SPR-4 series, page 53

Mechanical

Rec. Travel:	.167" (4.24 mm)
Full Travel:	.250" (6.35 mm)
Operating Temperature:	-55°C to +150°C

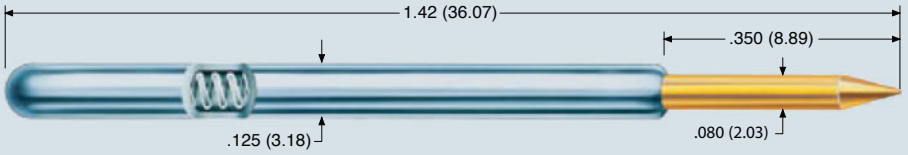
Electrical (Static Conditions)

Average Probe Resistance:	25 mOhms
Current Rating:	25 amps

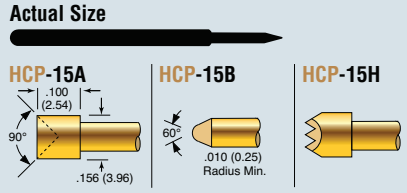
Materials and Finishes

Plunger:	Heat-treated beryllium copper, gold-plated over hard nickel
Barrel:	Work-hardened nickel silver, silver plated (I.D. and O.D.) over hard nickel
Spring:	Stainless steel, silver plated
Ball:	Brass, gold plated

HCP-15 (HC125)



Actual Size



Spring Force in oz. (grams)

	Order Code	Preload	2/3 Travel
Standard	as shown	3.76 (107)	16.0 (456)

Mounting Options

Receptacle(s): SPR-5 series, page 53

Mechanical

Rec. Travel:	.167" (4.24 mm)
Full Travel:	.250" (6.35 mm)
Operating Temperature:	-55°C to +150°C

Electrical (Static Conditions)

Average Probe Resistance:	25 mOhms
Current Rating:	35 amps

Materials and Finishes

Plunger:	Heat-treated beryllium copper, gold-plated over hard nickel
Barrel:	Work-hardened nickel silver, silver plated (I.D. and O.D.) over hard nickel
Spring:	Stainless steel, silver plated
Ball:	Brass, gold plated

* Consult factory for other temperature requirements, and other applications below -40°C.

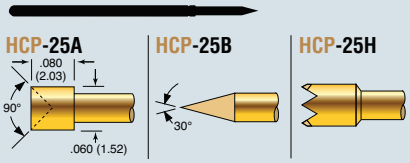
Dimensions in inches (millimeters)
Specifications subject to change without notice

Standard High Current Probe/Threaded High Current Probe

10A, 20A, 26A Current Rating

HCP-25

Actual Size



Spring Force in oz. (grams)

	Order Code	Preload	2/3 Travel
Standard	as shown	0.86 (24)	4.0 (113)

Mounting Options

Receptacle(s): SPR-25 series, page 51

Mechanical

Rec. Travel:	.167" (4.24 mm)
Full Travel:	.250" (6.35 mm)
Operating Temperature:	-55°C to +150°C

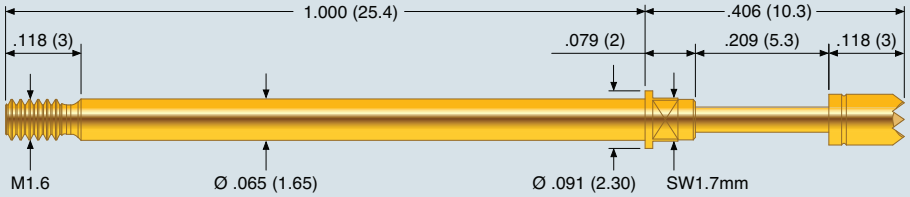
Electrical (Static Conditions)

Average Probe Resistance:	25 mOhms
Current Rating:	10 amps

Materials and Finishes

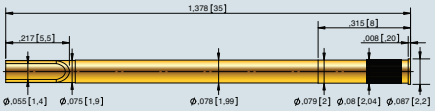
Plunger:	Heat-treated beryllium copper, gold-plated over hard nickel
Barrel:	Work-hardened nickel silver, silver plated (I.D. and O.D.) over hard nickel
Spring:	Stainless steel, silver plated
Ball:	Stainless steel

THC-025



Actual Size

TPR-025W-1K



Spring Force in oz. (grams)

	Order Code	Initial	Working
Alternate	-2	1.8 (51)	10.8 (306)

Tools

Screw-in Tool: PIT-025 or PIT-025T

Mechanical

Rec. Travel:	.157" (4.00 mm)
Full Travel:	.197" (5.00 mm)
Operating Temperature	-40°C to +250°C

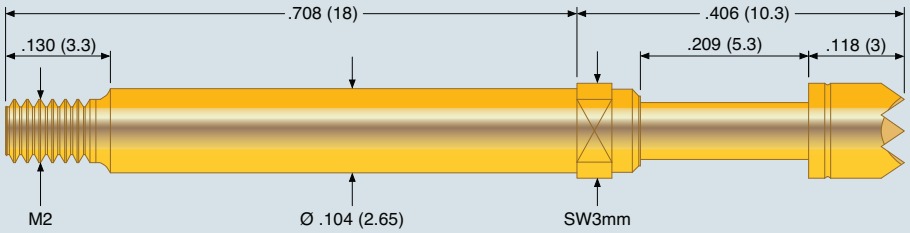
Electrical (Static Conditions)

Average Probe Resistance	<10 mOhms
Current Rating:	20 amps

Materials and Finishes

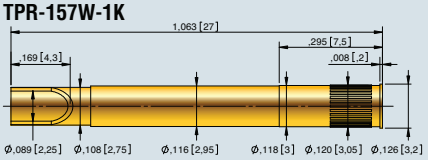
Plunger:	Gold-plated hardened BeCu
Barrel:	Gold-plated brass
Spring:	Stainless steel, unplated
Receptacle:	Gold-plated brass

THC-157



Actual Size

TPR-157W-1K



Spring Force in oz. (grams)

	Order Code	Initial	Working
Alternate	-2	2.9 (82)	10.8 (306)

Tools

Screw-in Tool: PIT-157 or PIT-157T

Mechanical

Rec. Travel:	.157" (4.00 mm)
Full Travel:	.197" (5.00 mm)
Operating Temperature	-40°C to +250°C

Electrical (Static Conditions)

Average Probe Resistance:	<8 mOhms
Current Rating:	26 amps

Materials and Finishes

Plunger:	Gold-plated hardened BeCu
Barrel:	Gold-plated brass
Spring:	Stainless steel, unplated
Receptacle:	Gold-plated brass

* Consult factory for other temperature requirements, and other applications below -40°C.

Order Example: THC- ☐-☐☐

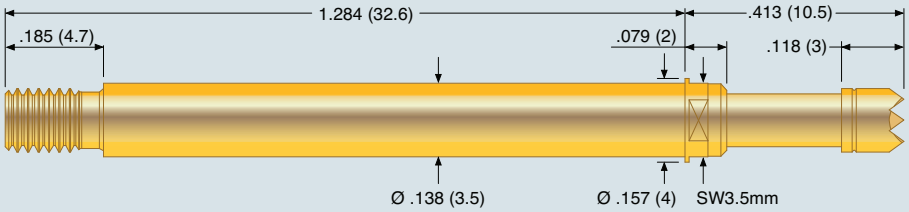
XXX SIZE

X HEAD (TIP) STYLE

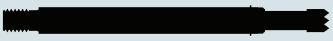
X Series

Dimensions in inches (millimeters)
Specifications subject to change without notice

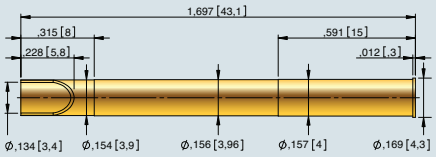
THC-197



Actual Size



TPR-197W-1



Spring Force in oz. (grams)

	Order Code	Initial	Working
Alternate	-2	5.4 (153)	10.8 (306)

Tools

Screw-in Tool	PIT-197 or PIT-197T

Mechanical

Rec. Travel:	.173" (4.40 mm)
Full Travel:	.217" (5.50 mm)
Operating Temperature	-40°C to +250°C

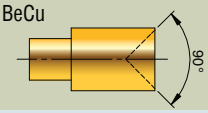
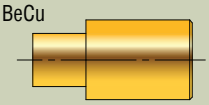
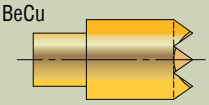
Electrical (Static Conditions)

Average Probe Resistance	<5 mOhms
Current Rating:	50 amps

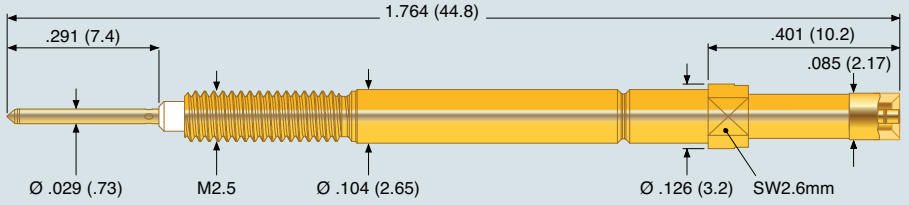
Materials and Finishes

Plunger:	Gold-plated hardened BeCu
Barrel:	Gold-plated brass
Spring:	Silver-plated music wire
Receptacle:	Gold-plated brass

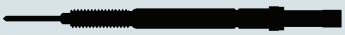
Tip Styles

		THC-025	THC-157	THC-197
A	BeCu 	A200 (ø .079")		
C	BeCu 	C100 (ø .039")		
F	BeCu 		F230 (ø .091")	F400 (ø .158")
H	BeCu 	H200 (ø .079")	H230 (ø .091") H300 (ø .118")	H400 (ø .158")

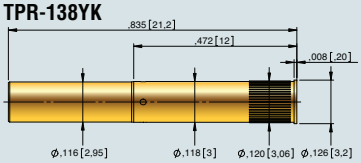
TKP-138



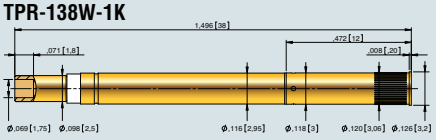
Actual Size



TPR-138YK



TPR-138W-1K



Spring Force in oz. (grams)

	Order Code	Initial	Working
Standard	-1	3.6 (102)	14.8 (418)

Tools

Screw-in Tool	PIT-138, PIT-138T

Mechanical

Rec. Travel:	.157" (4.00 mm)
Full Travel:	.197" (5.00 mm)
Operating Temperature	-20°C to +80°C

Electrical (Static Conditions)

Current Rating (Outer contact):	10 amps
Current Rating (Inner contact):	2 amps

Materials and Finishes

Plunger:	Gold-plated hardened BeCu
Barrel:	Gold-plated brass
Spring:	Silver-plated music wire
Receptacle:	Gold-plated brass

* Consult factory for other temperature requirements, and other applications below -40°C.

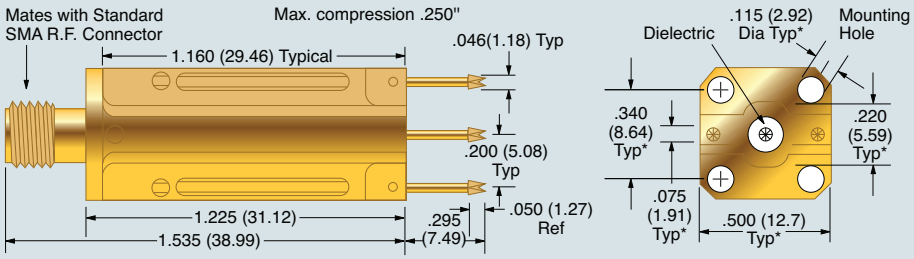
Order Example: THC- ☐-☐☐☐
- XXX SIZE
- X HEAD (TIP) STYLE
- X Series

Dimensions in inches (millimeters)
Specifications subject to change without notice

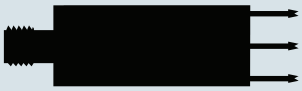
High Frequency Probe

6A Current Rating

K-50L



Actual Size



Specifications

Nominal Impedance:	50 Ohms
Minimum Return Loss @ 1 Ghz:	23 db, 26 db Typical
Maximum Insertion Loss @ 1 Ghz:	0.12 db, 0.06 db Typical
Maximum VSWR @ 1 Ghz:	1.15:1, 1.11:1 Typical

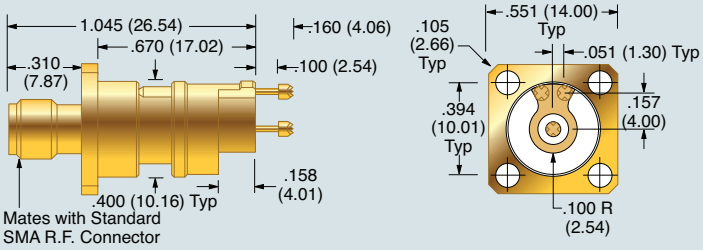
Materials and Finishes

Housing:	Gold plated brass
Dielectric:	Premium virgin teflon per MIL-P-18468
Replaceable Probes:	Gold plated beryllium copper alloy. Request SPL-01L-039.
SMA Connector Pin:	Gold plated beryllium copper

Applications:

The K-50 coaxial probe provides an instrumentation-quality interface for broadband R.F. measurements up to 4 GHz. With the K-50 R.F. Circuit Design, impedance characterization measurements can be performed using it as a Network Analyzer port-extending accessory. Accurate and repeatable small signal and R.F. power (50 Watts) measurements provide consistent and repeatable results. The K-50 was developed in cooperation with a leading manufacturer of advanced communications systems and is supported by a leading instrument equipment manufacturer.

K-50H-S



Actual Size

Specifications

Nominal Impedance:	50 Ohms
Minimum Return Loss @ 1 Ghz:	23 db, 26 db Typical
Maximum Insertion Loss @ 1 Ghz:	0.12 db, 0.06 db Typical
Maximum VSWR @ 1 Ghz:	1.15:1, 1.11:1 Typical

Materials and Finishes

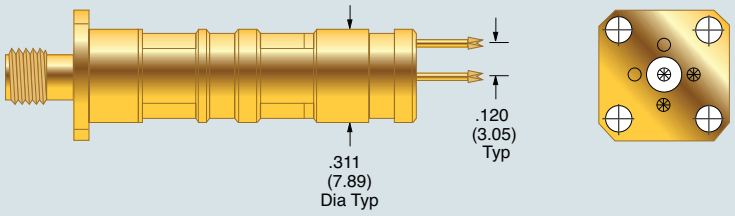
Housing:	Gold plated copper zinc alloy
Dielectric:	Premium virgin teflon per MIL-P-18468
Replaceable Probes:	SPL-01B-119 SPL-01H-116
SMA Connector Pin:	Gold plated beryllium copper

Applications:

The K-50H-S coaxial probe is a shorter version of the K-50 series measurement probe with .100 full travel and a slightly larger mounting flange. Electrical characteristics and applications are similar to the K-50.

Patent No. D422,230

K-50L-QG



Actual Size

Specifications

Nominal Impedance:	50 Ohms
Minimum Return Loss @ 1 Ghz:	23 db, 26 db Typical
Maximum Insertion Loss @ 1 Ghz:	0.12 db, 0.06 db Typical
Maximum VSWR @ 1 Ghz:	1.15:1, 1.11:1 Typical

Materials and Finishes

Housing:	Gold plated brass
Dielectric:	Premium virgin teflon per MIL-P-18468
Replaceable Probes:	Gold plated beryllium copper alloy. Request SPL-01L-039.
SMA Connector Pin:	Gold plated beryllium copper

Applications:

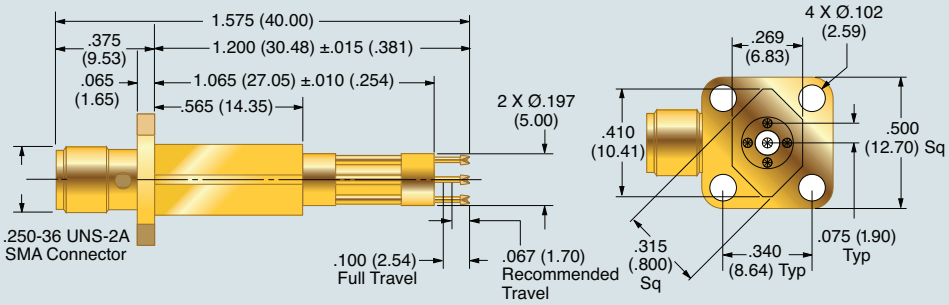
The K-50 coaxial probe provides an instrumentation-quality interface for broadband R.F. measurements up to 4 GHz. With the K-50 R.F. Circuit Design, impedance characterization measurements can be performed using it as a Network Analyzer port-extending accessory. Accurate and repeatable small signal and R.F. power (50 Watts) measurements provide consistent and repeatable results. The K-50 was developed in cooperation with a leading manufacturer of advanced communications systems and is supported by a leading instrument equipment manufacturer.

Patent No. D395,016

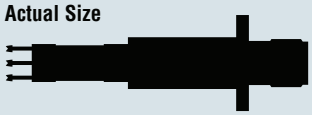
* Consult factory for other temperature requirements, and other applications below -40°C.

Dimensions in inches (millimeters)
Specifications subject to change without notice

K-50L-QG-75



Actual Size



Applications:

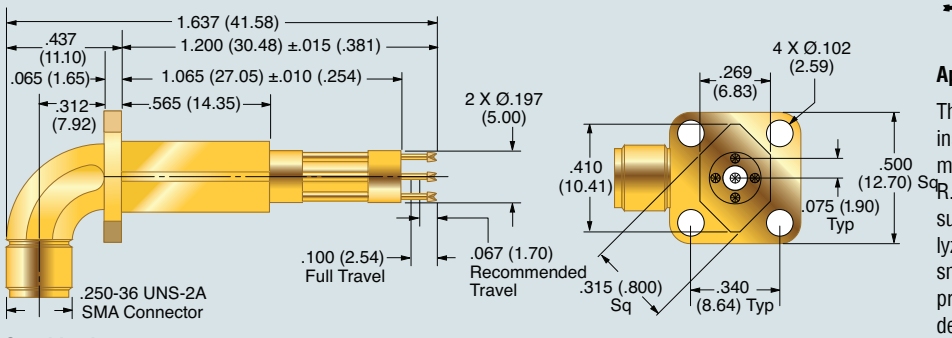
The K-50L-QG-75 series coaxial probe provides an instrumentation-quality interface for broadband R.F. measurements up to 12 GHz. With the K-50L-QG-75 R.F. Circuit Design, impedance characterization measurements can be performed using it as a Network Analyzer port-extending accessory. Accurate and repeatable small signal and R.F. power (50 Watts) measurements provide consistent and repeatable results. The K-50 was developed in cooperation with a leading manufacturer of advanced communications systems and is supported by a leading instrument equipment manufacturer.

Specifications

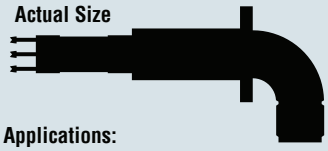
Nominal Impedance:	50 Ohms		
Minimum Return Loss		Maximum Insertion Loss	
@ 1 Ghz:	23.8 dB, 22.8 dB	@ 1 Ghz:	0.183 dB, 0.186 dB
@ 5 Ghz:	18.3 dB, 16.4 dB	@ 5 Ghz:	0.370 dB, 0.371 dB
@ 10 Ghz:	17.7 dB, 17.0 dB	@ 10 Ghz:	0.577 dB, 0.572 dB

Maximum VSWR	
@ 1 Ghz:	1.14:1, 1.16:1
@ 5 Ghz:	1.28:1, 1.36:1
@ 10 Ghz:	1.30:1, 1.33:1

K-50L-QG-75R



Actual Size



Applications:

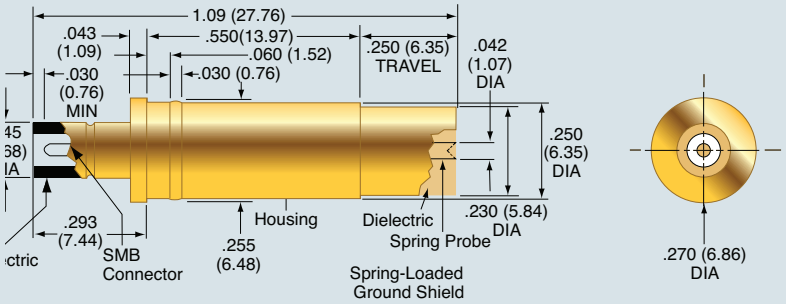
The K-50L-QG-75 series coaxial probe provides an instrumentation-quality interface for broadband R.F. measurements up to 12 GHz. With the K-50L-QG-75 R.F. Circuit Design, impedance characterization measurements can be performed using it as a Network Analyzer port-extending accessory. Accurate and repeatable small signal and R.F. power (50 Watts) measurements provide consistent and repeatable results. The K-50 was developed in cooperation with a leading manufacturer of advanced communications systems and is supported by a leading instrument equipment manufacturer.

Specifications

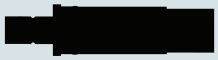
Nominal Impedance:	50 Ohms		
Minimum Return Loss		Maximum Insertion Loss	
@ 1 Ghz:	25.1 dB, 25.2 dB	@ 1 Ghz:	0.160 dB, 0.159 dB
@ 5 Ghz:	18.0 dB, 17.5 dB	@ 5 Ghz:	0.421 dB, 0.405 dB
@ 10 Ghz:	27.0 dB, 35.3 dB	@ 10 Ghz:	0.489 dB, 0.429 dB

Maximum VSWR	
@ 1 Ghz:	1.12:1, 1.12:1
@ 5 Ghz:	1.29:1, 1.31:1
@ 10 Ghz:	1.09:1, 1.03:1

CSP-03G-003



Actual Size



Applications:

Designed for use in interconnect applications where signal integrity is required, such as accessing high frequency targets on circuit boards. Can also be used as R.F. mating connector. Consult factory for detailed connector target information.

Specifications

Test Centers:	.300 (7.62)
Ground Shield Travel:	.250 (6.35)
Mounting Hole Size:	.252/.254 (6.40/6.45) dia.
Mates with Amphenol SMB 27-1 or equivalent.	

Electrical

Nominal Impedance:	50 Ohms
Probe Resistance:	50 m maximum
Dielectric Withstanding Voltage:	1K VAC
VSWR:	1.15:1 @ 1 GHz (Tested with Target)
Insertion Loss:	0.13 db @ 1 GHz (Tested with Target)

Materials and Finishes

Housing:	Gold plated copper zinc alloy
Ground Shield:	Gold plated beryllium copper
Dielectric:	Teflon per MIL-P-18468
Connector Pin:	Gold plated beryllium copper
Spring Probe	
Plunger:	Gold plated beryllium copper
Barrel:	Gold plated brass
Spring:	Music wire, silver plated

* Consult factory for other temperature requirements, and other applications below -40°C.

Dimensions in inches (millimeters)
Specifications subject to change without notice

Battery Probes are typically contained in modules where consistent, long-life, low-resistance, compliant electrical and mechanical connections are required. They are typically molded into a housing and soldered either to mating PCB or terminal to provide a permanent stable and reliable electrical and mechanical connection.

Everett Charles Technologies versatile line of battery interconnect probes gives you design flexibility to match your performance, cost, and assembly requirements. Our design expertise and complete manufacturing capabilities will help you bring your product to market faster and easier.

As part of our customer service commitment, these products can be modified or custom designed to meet your needs. Contact us to discuss the limitless possibilities.

Contents

Application Notes

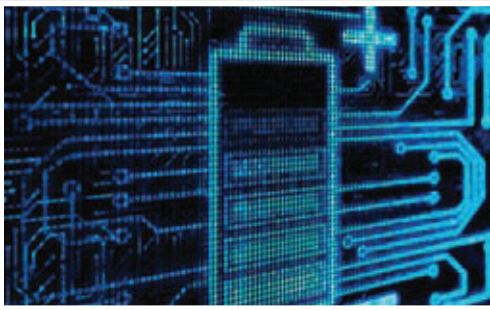
BIP Series probes are used in battery charger or electronic device applications such as:

- Camcorders
- Circuit board to board docking stations
- Cellular Phones
- 2-way radios
- Computer docking stations
- Cordless phones
- Chargers
- InkJet Printers
- Notebook and laptop computers
- AC/DC power supplies

Features & Benefits

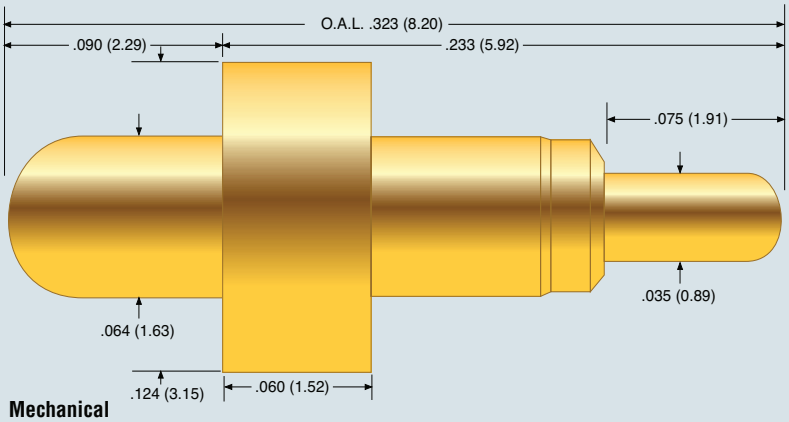
- Low resistance (average 16 milliohms)
- Better contact than nickel-plated strip contacts
- Maintains high compliancy
- Less susceptible to damage
- Can accommodate up to .025" subsurface battery mating contact
- Longer life than conventional interconnects

MODEL	Pitch	OAL (inch/mm)	Recommended Travel (inch/mm)	Probe Resistance mΩ	Current Capacity Continuous (Amps)	Receptacle	Probe Retention Method	Crimp	Solder	WW	Round Post	Push-On Terminal	Fastite	Pre-Wired
BIP-1	.138 (3.5)	.323 (8.20)	.050 (1.27)	16	5	-	Soldered to PCB	X	X				X	X
BIP-2	.100 (2.54)	.365 (9.27)	.050 (1.27)	30	5	-	Press Fit	X	X	X				
BIP-3	.114 (2.9)	.512 (13.00)	.060 (1.52)	30	5	-	Soldered to PCB	X	X	X	X			
HPA-64-3	.100 (2.54)	.365 (9.27)	.050 (1.27)	50	3	SPR-64W-2	Detents or Solder to PCB	X	X					
CCA-003	.118 (3)	.669 (17.0)	.040 (1.00)	50	5	-	Soldered to PCB	X	X	X				
CCA-004	.050 (1.27)	.414 (10.51)	.040 (1.00)	50	5	-	Soldered to PCB	X	X	X	X	X		
CP-059-017	.100 (2.54)	.313 (7.95)	.040 (1.02)	25	10		Soldered to PCB	X	X	X		X		
CP-059-019	.100 (2.54)	.276 (7.01)	.040 (1.02)	25	10		Soldered to PCB	X	X	X		X		
SPL-04J-079	.138 (3.5)	.233 (5.9)	.075 (1.9)	16	5		Soldered to PCB		X					
SPL-04J-082	.150 (3.81)	.281 (7.14)	.050 (1.27)	50	3		Soldered to PCB		X	X				
SPL-25H-395	.130 (3.3)	.511 (12.98)	.060 [1.52]	50	5		Soldered to PCB		X	X	X			
SPL-25J-382	.075 (1.9)	.585 (14.9)	.060 [1.52]	50	3		Soldered to PCB	X	X	X	X			

Battery Interconnect Probe

BIP-1



Mechanical

Rec. Travel:	.050 (1.27)
Full Travel:	.075 (1.91)
Operating Temperature:	-55°C to +150°C

Electrical (Static Conditions)

Average Probe Resistance:	16 mOhms
Current Rating (Non-inductive DC):	5 amps

Actual Size

Materials and Finishes

Plunger:	Hard nickel over beryllium copper, gold plated
Barrel:	Hard nickel over brass, gold plated
Spring	
Standard:	Stainless steel, silver plated
Alternate:	Consult factory

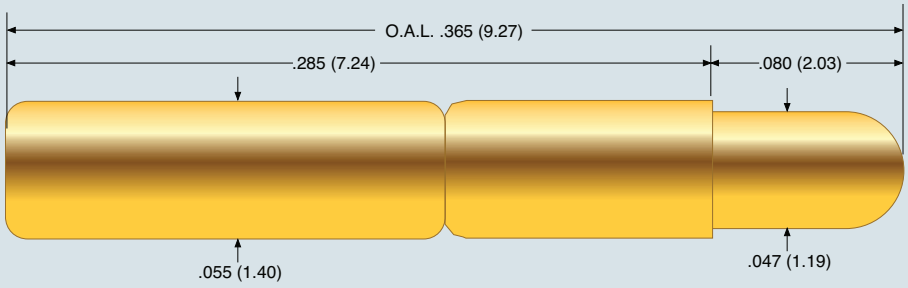
Spring Force in oz. (grams)

	Preload	Rec. Travel
Standard	1.39 (39.44)	3.50 (99.31)

Mounting Options

Mounting Hole Size: .067 (1.70) min.

BIP-2



Mechanical

Rec. Travel:	.050 (1.27)
Full Travel:	.050 (1.27)
Operating Temperature:	-55°C to +150°C

Electrical (Static Conditions)

Average Probe Resistance:	30 mOhms
Current Rating (Non-inductive DC):	5 amps

Actual Size

Materials and Finishes

Plunger:	Hard nickel over beryllium copper, gold plated
Barrel:	Hard nickel over nickel silver, gold plated
Spring	
Standard:	Stainless steel, silver plated
Alternate:	Consult factory

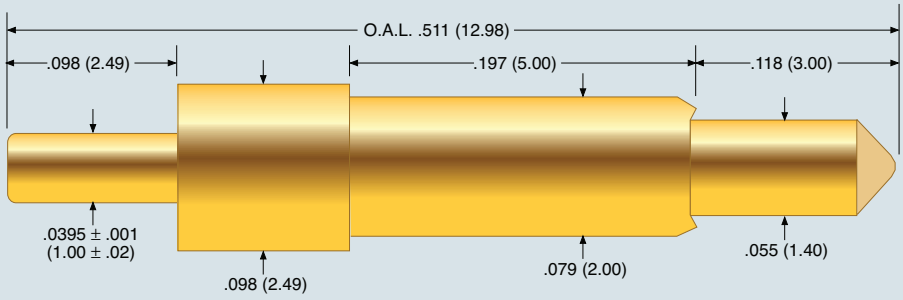
Spring Force in oz. (grams)

	Preload	Rec. Travel
Standard	1.10 (31.2)	3.85 (109)

Mounting Options

Mounting Hole Size: .053 (1.35)

BIP-3



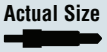
Mechanical

Rec. Travel:	.060 (1.52)
Full Travel:	.100 (2.54)
Operating Temperature:	-55°C to +105°C

Electrical (Static Conditions)

Average Probe Resistance:	30 mOhms
Current Rating (Non-inductive DC):	5 amps

Actual Size



Materials and Finishes

Plunger:	Hard nickel over brass, gold plated
Barrel:	Hard nickel over brass, gold plated
Spring	
Standard:	Stainless steel, silver plated
Alternate:	Music wire, silver plated

Spring Force in oz. (grams)

	Preload	Rec. Travel
Standard	0.40 (11.35)	1.14 (32.35)
Alternate	1.0 (28.38)	3.0 (85.13)

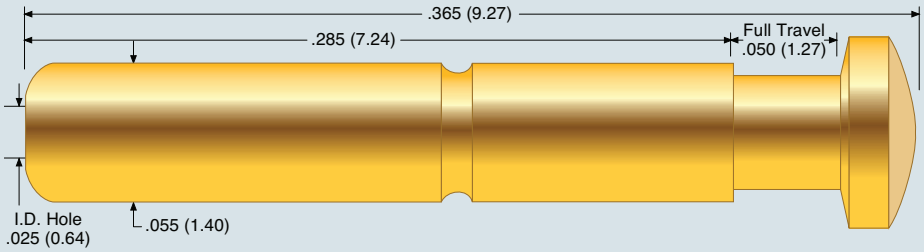
Mounting Options

Mounting Hole Size: .043 (1.09) min

* Consult factory for other temperature requirements, and other applications below -40°C.

Dimensions in inches (millimeters)
Specifications subject to change without notice

HPA-64-3



Actual Size

Mechanical

Rec. Travel:	.050 (1.27)
Full Travel:	.050 (1.27)
Operating Temperature:	-55°C to +150°C

Electrical (Static Conditions)

Average Probe Resistance:	50 mOhms
Current Rating:	3 amps

Materials and Finishes

Plunger:	Heat-treated beryllium copper, gold plated over hard nickel
Barrel:	Work-hardened nickel silver, gold plated over hard nickel
Spring:	Stainless steel, silver plated

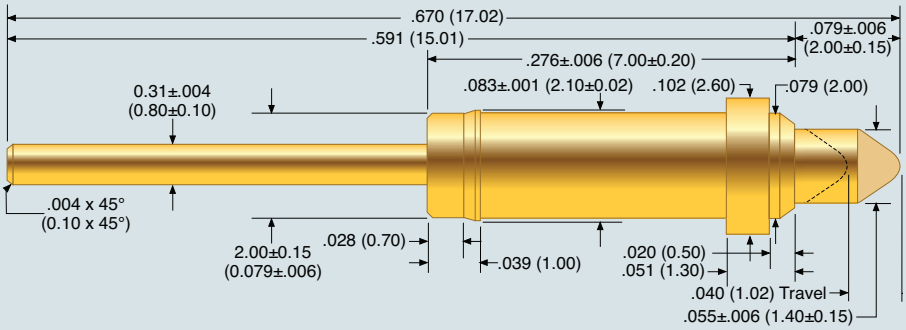
Spring Force in oz. (grams)

	Preload	Rec. Travel
Standard	1.1 (31)	3.85 (109)

Mounting Options

Mounting Hole Size: .067/.069 (1.7/1.75)
A #51 or 1.75 mm drill is most commonly used.

CCA-003



Actual Size

Mechanical

Rec. Travel:	.040 (1.00)
Full Travel:	.078 (1.98)
Operating Temperature:	-35°C to +105°C

Electrical (Static Conditions)

Average Probe Resistance:	50 mOhms
Current Rating:	10 amps continuous

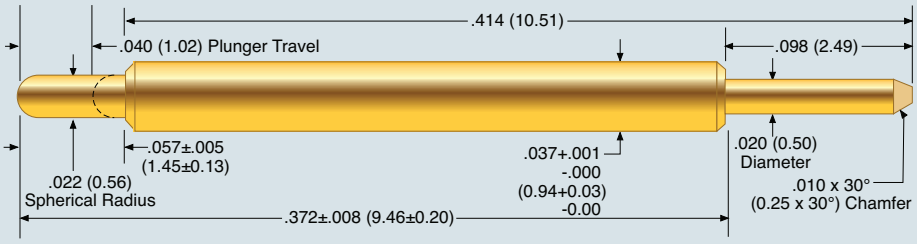
Materials and Finishes

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

Spring Force in oz. (grams)

	Preload	Rec. Travel
Standard	1.27 (36.04)	2.94 (85.50)

CCA-004



Actual Size

Mechanical

Rec. Travel:	.040 (1.00)
Full Travel:	.057 (1.48)
Operating Temperature:	-35°C to +105°C

Electrical (Static Conditions)

Average Probe Resistance:	50 mOhms
Current Rating:	10 amps continuous

Materials and Finishes

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

Spring Force in oz. (grams)

	Preload	Rec. Travel
Standard	.83 (23.55)	2.85 (80.87)

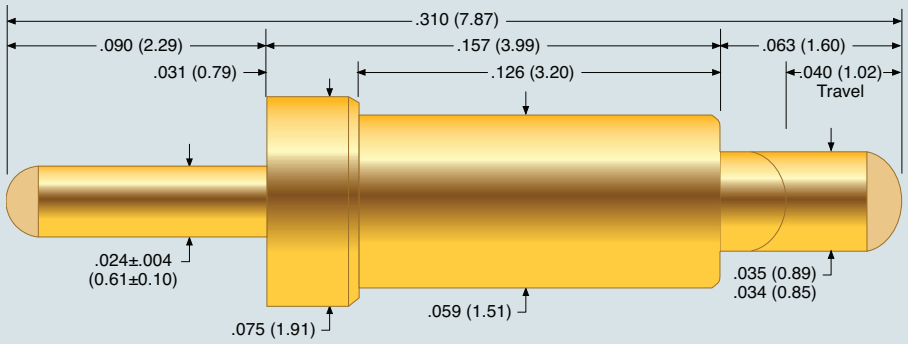
Denotes Solar Application

* Consult factory for other temperature requirements, and other applications below -40°C.

Dimensions in inches (millimeters)
Specifications subject to change without notice

Battery Interconnect Probe

CP-059-017



Actual Size

Mechanical

Rec. Travel:	.040 (1.00)
Full Travel:	.060 (1.52)
Operating Temperature:	-55°C to +155 °C

Electrical (Static Conditions)

Average Probe Resistance:	25 mOhms
Current Rating:	10 amps

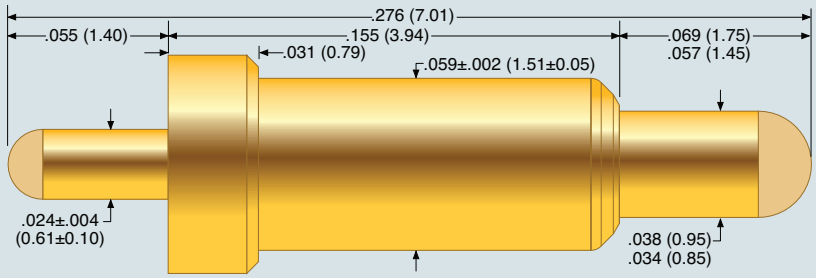
Materials and Finishes

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

Spring Force in oz. (grams)

	Preload	Rec. Travel
Standard	0.81 (22.9)	4.5 (128)

CP-059-019



Actual Size

Mechanical

Rec. Travel:	.040 (1.00)
Full Travel:	.062 (1.57)
Operating Temperature:	-35°C to +105°C

Electrical (Static Conditions)

Average Probe Resistance:	25 mOhms
Current Rating:	10 amps

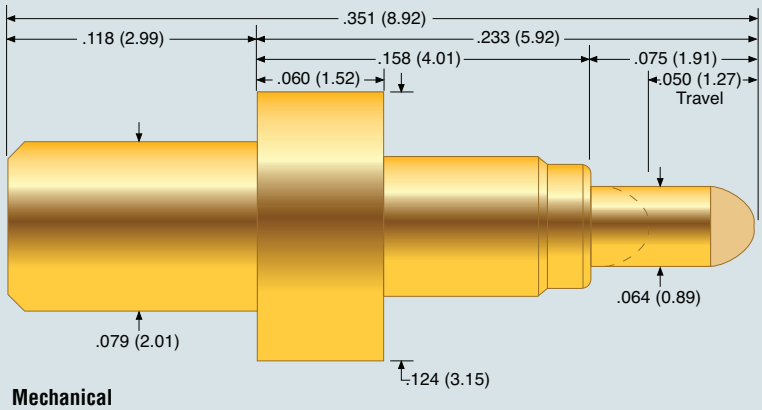
Materials and Finishes

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

Spring Force in oz. (grams)

	Preload	Rec. Travel
Standard	1.63 (46)	4.50 (128)

SPL-04J-079



Actual Size

Mechanical

Rec. Travel:	.050 (1.27)
Full Travel:	.075 (1.91)
Operating Temperature:	-55°C to +150°C

Electrical (Static Conditions)

Current Rating:	5 amps

Materials and Finishes

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

Spring Force in oz. (grams)

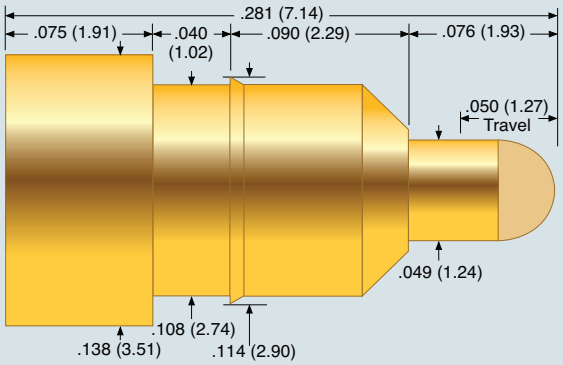
	Preload	Rec. Travel
Standard	0.52 (14.7)	3.25 (92.1)

Denotes Solar Application

* Consult factory for other temperature requirements, and other applications below -40°C.

Dimensions in inches (millimeters)
Specifications subject to change without notice

SPL-04J-082



Actual Size

Mechanical

Rec. Travel:	.050 (1.27)
Full Travel:	.070 (1.78)
Operating Temperature:	-55°C to +150°C

Electrical (Static Conditions)

Current Rating:	3 amps

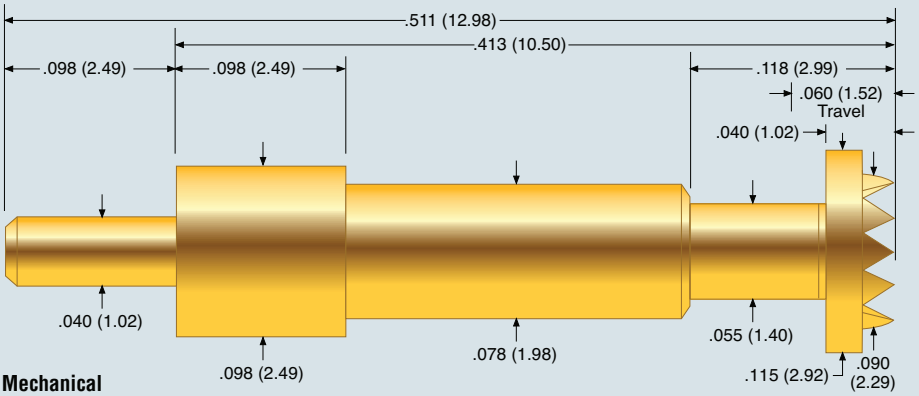
Materials and Finishes

Plunger:	Beryllium copper, gold plated over hard nickel
Barrel:	Brass, gold plated over hard nickel
Spring	Stainless steel, gold plated over hard nickel

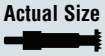
Spring Force in oz. (grams)

	Preload	Rec. Travel
Standard	0.67 (18.99)	3.5 (99.22)

SPL-25H-395



Actual Size



Mechanical

Rec. Travel:	.060 (1.52)
Full Travel:	.075 (1.91)
Operating Temperature:	-55°C to +105°C

Electrical (Static Conditions)

Current Rating:	5 amps

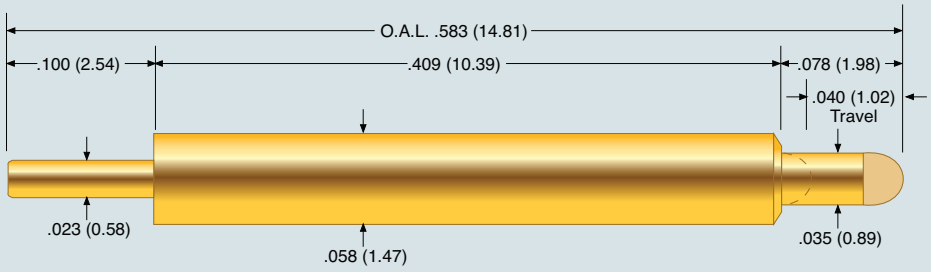
Materials and Finishes

Plunger:	Brass, gold plated
Barrel:	Brass, gold plated
Spring	Music wire, silver plated

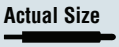
Spring Force in oz. (grams)

	Preload	Rec. Travel
Standard	1.11 (31.47)	3.0 (85.13)

SPL-25J-382



Actual Size



Mechanical

Rec. Travel:	.060 (1.50)
Full Travel:	.078 (1.98)
Operating Temperature:	-55°C to +105°C

Electrical (Static Conditions)

Average Probe Resistance:	<50 mOhms
Current Rating:	5 amps

Materials and Finishes

Plunger:	Brass, gold plated
Barrel:	Brass, gold plated
Spring	Music wire, silver plated

Spring Force in oz. (grams)

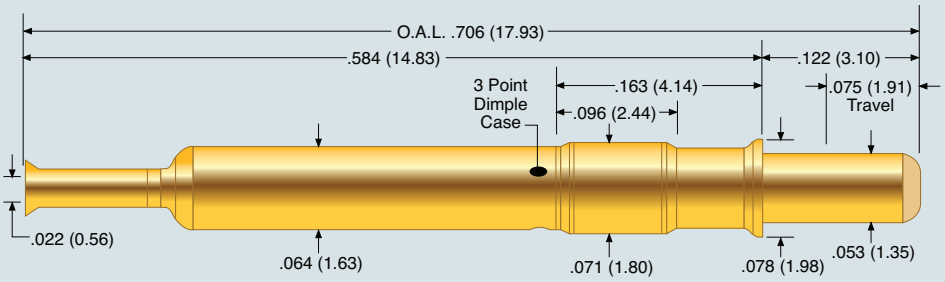
	Preload	Rec. Travel
Standard	0.24 (6.80)	0.67 (19.0)

* Consult factory for other temperature requirements, and other applications below -40°C.

Dimensions in inches (millimeters)
Specifications subject to change without notice

Battery Interconnect Probe

SPL-74C-015



Actual Size

Mechanical

Rec. Travel:	.075 (1.91)
Full Travel:	.122 (3.10)
Operating Temperature:	-55°C to +150°C

Electrical (Static Conditions)

Current Rating:	5 amps

Materials and Finishes

Plunger:	Beryllium copper, gold plated
Barrel:	Phosphor bronze, gold plated
Spring	Stainless steel, silver plated

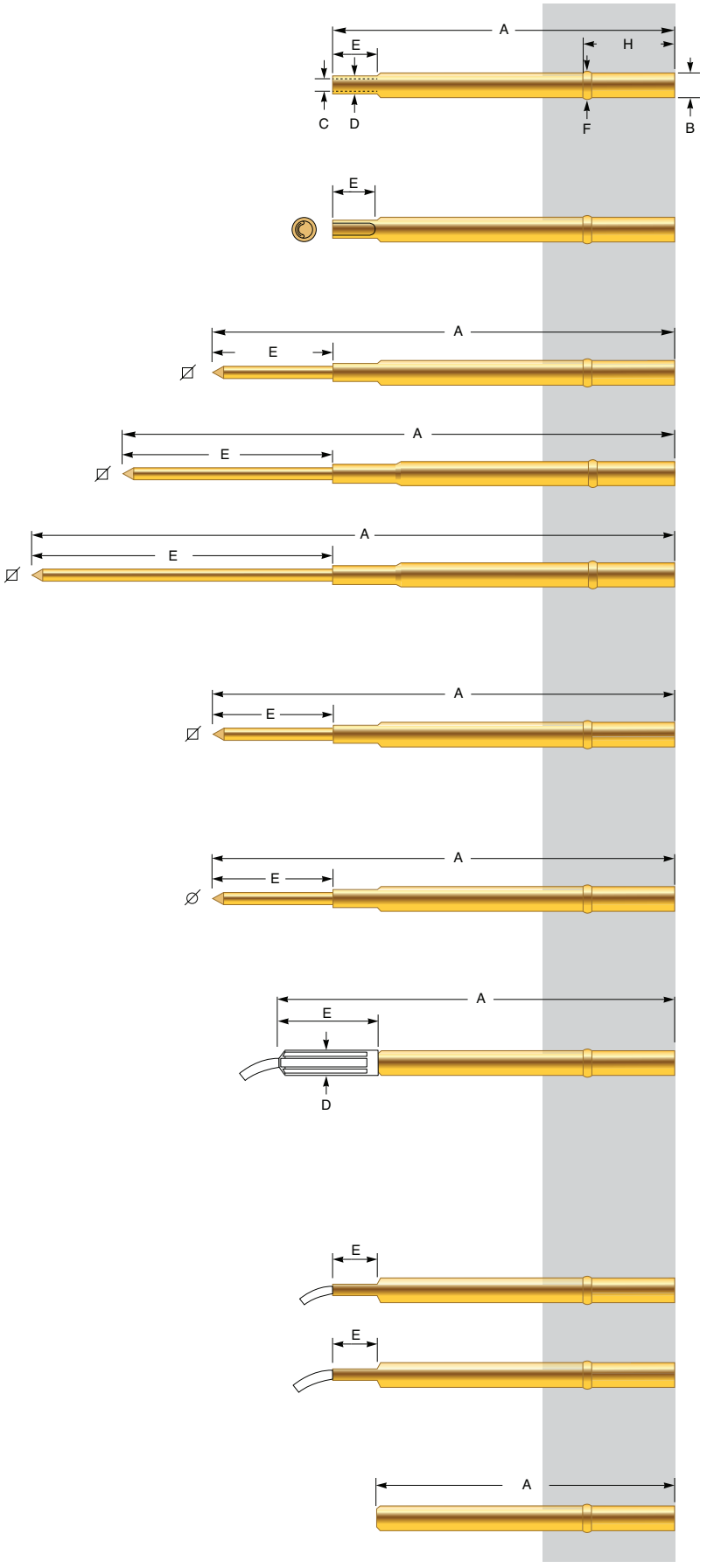
Spring Force in oz. (grams)

	@ 0.01" Travel	Rec. Travel
Standard	1.38 (39.12)	5.2 (148)

* Consult factory for other temperature requirements, and other applications below -40°C.

Dimensions in inches (millimeters)
Specifications subject to change without notice

Contents



W Crimp
Typical used to attach a wire by mechanical crimping

W-1 Solder Cup
Typical used to attach a wire by soldering

W-2 Wire Wrap
Square post ⍁.025 (0.64)
Vacuum leak rate not to exceed 1x10^{-4} CFM@15psi

W-2L Wire Wrap
Square post ⍁.025 (0.64)
Vacuum leak rate not to exceed 1x10^{-4} CFM@15psi

W-2LL Wire Wrap
Square post ⍁.025 (0.64)
Vacuum leak rate not to exceed 1x10^{-4} CFM@15psi

W-2M Wire Wrap
Square post ⍁.025 (0.64)
Vacuum leak rate not to exceed 1x10^{-4} CFM@15psi

W-3 Connector Pin/Round Post
Round post Ø.025 (0.64)
Vacuum leak rate not to exceed 1x10^{-4} CFM@15psi

W-4 FASTITE®
Wire termination (30 AWG only)
max. insulation diameter = .019 (0.48)
wire strip length = .125 (3.2)
One **DS-62-1** Insulation sleeve is provided with each FASTITE receptacle at no charge

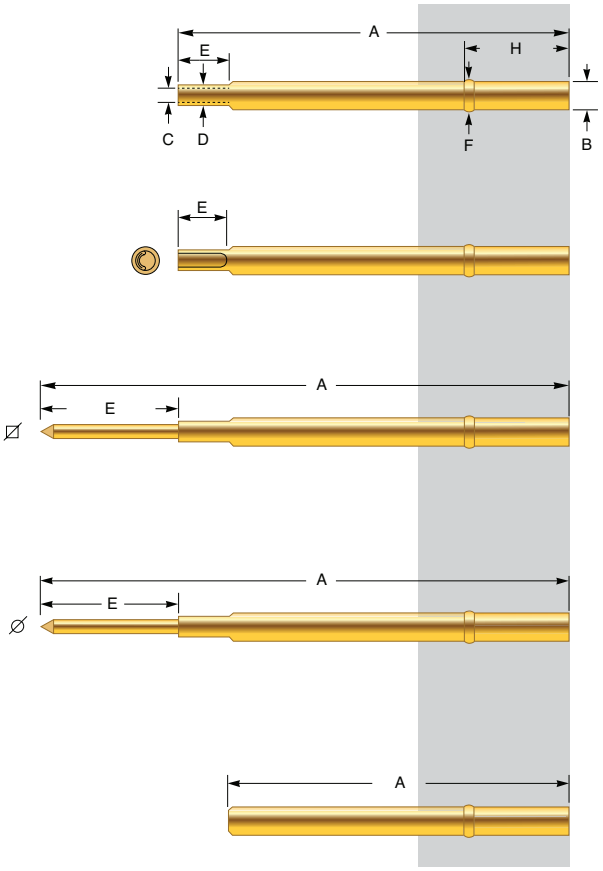
W-28 Prewired
Crimp with 30" of 28 AWG wire attached

W-30 Prewired
Crimp with 30" of 30 AWG wire attached

Y Push on
Push on termination

	A	B	C	D	E	F	H	Material
HPR-72 W	1.57 (39.88)	.038 (0.97)	.024 (0.61)	.030 (0.76)	.190 (4.83)	.0415 (1.05)	.351 (8.91)	Housing: Gold-plated hardened BeCu (I.D. and O.D.)
W-1	1.57 (39.88)	.038 (0.97)			.190 (4.83)	.0415 (1.05)	.351 (8.91)	Housing: Gold-plated hardened BeCu (I.D. and O.D.)
W-4	1.72 (43.69)	.038 (0.97)		.047 (1.19)	.350 (8.89)	.0415 (1.05)	.351 (8.91)	Housing: Gold-plated hardened BeCu (I.D. and O.D.)
W-28	1.57 (39.88)	.038 (0.97)			.190 (4.83)	.0415 (1.05)	.351 (8.91)	Housing: Gold-plated hardened BeCu (I.D. and O.D.)
W-30	1.57 (39.88)	.038 (0.97)			.190 (4.83)	.0415 (1.05)	.351 (8.91)	Housing: Gold-plated hardened BeCu (I.D. and O.D.)
LTR-1 W	1.19 (30.23)	.052 (1.32)	.035 (0.89)	.044 (1.12)	.214 (5.44)	.058 (1.47)	.300 (7.62)	Housing: Gold-plated, Nickel-Silver
W-1	1.19 (30.23)	.052 (1.32)			.214 (5.44)	.058 (1.47)	.300 (7.62)	Housing: Gold-plated, Nickel-Silver
W-2	1.69 (42.93)	.052 (1.32)			.500 (12.70)	.058 (1.47)	.300 (7.62)	Housing: Gold-plated, Nickel-Silver Post: Gold-plated, Phosphorous Bronze
W-2L	1.88 (47.75)	.052 (1.32)			.690 (17.52)	.058 (1.47)	.300 (7.62)	Housing: Gold-plated, Nickel-Silver Post: Gold-plated, Phosphorous Bronze
W-2LL	2.23 (56.74)	.052 (1.32)			1.04 (26.51)	.058 (1.47)	.300 (7.62)	Housing: Gold-plated, Nickel-Silver Post: Gold-plated, Phosphorous Bronze
ELTR-1 W-2	1.69 (42.93)	.052 (1.32)			.500 (12.70)	.058 (1.47)	.300 (7.62)	Housing: Nickel-Silver, unplated Post: Gold-plated, Phosphorous Bronze
W-2L	1.88 (47.75)	.052 (1.32)			.690 (17.52)	.058 (1.47)	.300 (7.62)	Housing: Nickel-Silver, unplated Post: Gold-plated, Phosphorous Bronze
W-2LL	2.23 (56.74)	.052 (1.32)			1.04 (26.51)	.058 (1.47)	.300 (7.62)	Housing: Nickel-Silver, unplated Post: Gold-plated, Phosphorous Bronze
SPR-25 W	1.15 (29.21)	.066 (1.68)	.048 (1.22)	.058 (1.47)	.180 (4.57)	.072 (1.83)	.300 (7.62)	Housing: Gold-plated, Nickel-Silver
W-1	1.19 (30.23)	.066 (1.68)			.180 (4.57)	.072 (1.83)	.300 (7.62)	Housing: Gold-plated, Nickel-Silver
W-2	1.69 (42.93)	.066 (1.68)			.500 (12.70)	.072 (1.83)	.300 (7.62)	Housing: Gold-plated, Nickel-Silver Post: Gold-plated, Phosphorous Bronze
W-2L	1.88 (47.75)	.066 (1.68)			.694 (17.36)	.072 (1.83)	.300 (7.62)	Housing: Gold-plated, Nickel-Silver Post: Gold-plated, Phosphorous Bronze
W-2LL	2.23 (56.74)	.066 (1.68)			1.04 (26.52)	.072 (1.83)	.300 (7.62)	Housing: Gold-plated, Nickel-Silver Post: Gold-plated, Phosphorous Bronze
W-3	1.56 (39.62)	.066 (1.68)			.410 (10.41)	.072 (1.83)	.300 (7.62)	Housing: Gold-plated, Nickel-Silver Post: Gold-plated, Phosphorous Bronze
EPR-25 W-2	1.69 (42.93)	.066 (1.68)			.500 (12.70)	.072 (1.83)	.300 (7.62)	Housing: Nickel-Silver, unplated Post: Gold-plated, Phosphorous Bronze
W-2L	1.88 (47.75)	.066 (1.68)			.694 (17.36)	.072 (1.83)	.300 (7.62)	Housing: Nickel-Silver, unplated Post: Gold-plated, Phosphorous Bronze
W-2LL	2.23 (56.74)	.066 (1.68)			1.04 (26.52)	.072 (1.83)	.300 (7.62)	Housing: Nickel-Silver, unplated Post: Gold-plated, Phosphorous Bronze
SPR-1 W	.690 (17.53)	.052 (1.32)	.035 (0.89)	.044 (1.12)	.180 (4.57)	.058 (1.47)	.160 (4.06)	Housing: Gold-plated, Nickel-Silver
W-1	.690 (17.53)	.052 (1.32)			.180 (4.57)	.058 (1.47)	.160 (4.06)	Housing: Gold-plated, Nickel-Silver
W-2	1.19 (30.23)	.052 (1.32)			.500 (12.70)	.058 (1.47)	.160 (4.06)	Housing: Gold-plated, Nickel-Silver Post: Gold-plated, Phosphorous Bronze
W-2M	.940 (23.88)	.052 (1.32)			.250 (6.35)	.058 (1.47)	.160 (4.06)	Housing: Gold-plated, Nickel-Silver Post: Gold-plated, Phosphorous Bronze

Dimensions in inches (millimeters)
Specifications subject to change without notice



W Crimp
Typical used to attach a wire by mechanical crimping

W-1 Solder Cup
Typical used to attach a wire by soldering

W-2 Wire Wrap
Square post ⍁.025 (0.64)
Vacuum leak rate not to exceed $1x10^{-4}$ CFM@15psi

W-3 Connector Pin/Round Post
Round post Ø.025 (0.64)
Vacuum leak rate not to exceed $1x10^{-4}$ CFM@15psi

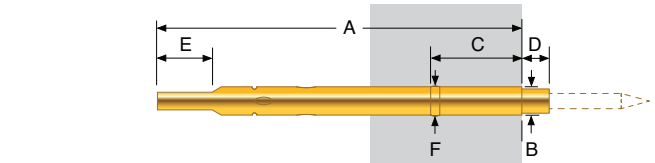
Y Push on
Push on termination

	A	B	C	D	E	F	H	Material
SPR-2 W	.930 (23.62)	.066 (1.68)	.048 (1.22)	.058 (1.47)	.20 Min (5.08)	.072 (1.83)	.240 (6.10)	Housing: Gold-plated, Nickel-Silver
W-1	.950 (24.13)	.066 (1.68)			.20 Min (5.08)	.072 (1.83)	.240 (6.10)	Housing: Gold-plated, Nickel-Silver
W-2	1.45 (36.83)	.0668 (1.68)			.500 (12.70)	.072 (1.83)	.240 (6.10)	Housing: Gold-plated, Nickel-Silver Post: Gold-plated, Phosphorous Bronze
W-3	1.32 (33.53)	.066 (1.68)			.370 (9.40)	.072 (1.83)	.240 (6.10)	Housing: Gold-plated, Nickel-Silver Post: Gold-plated, Phosphorous Bronze
Y	.735 (18.67)	.066 (1.68)				.072 (1.83)	.240 (6.10)	Housing: Gold-plated, Nickel-Silver
SPR-3 W	1.20 (30.48)	.093 (2.36)	.047 (1.19)	.058 (1.47)	.180 (4.57)	.098 (2.49)	.300 (7.62)	Housing: Gold-plated, Nickel-Silver
W-1	1.20 (30.48)	.093 (2.36)			.180 (4.57)	.098 (2.49)	.300 (7.62)	Housing: Gold-plated, Nickel-Silver
W-2	1.57 (39.88)	.093 (2.36)			.370 (9.40)	.098 (2.49)	.300 (7.62)	Housing: Gold-plated, Nickel-Silver Post: Gold-plated, Phosphorous Bronze
Y	.975 (24.77)	.093 (2.36)				.098 (2.49)	.300 (7.62)	Housing: Gold-plated, Nickel-Silver
SPR-4 W	1.20 (30.48)	.106 (2.69)	.081 (2.06)	.092 (2.34)	.180 (4.57)	.111 (2.82)	.300 (7.62)	Housing: Gold-plated, Nickel-Silver
W-1	1.20 (30.48)	.106 (2.69)			.180 (4.57)	.111 (2.82)	.300 (7.62)	Housing: Gold-plated, Nickel-Silver
W-2	1.57 (39.88)	.106 (2.69)			.370 (9.40)	.111 (2.82)	.300 (7.62)	Housing: Gold-plated, Nickel-Silver Post: Gold-plated, Phosphorous Bronze
Y	.975 (24.77)	.106 (2.69)				.111 (2.82)	.300 (7.62)	Housing: Gold-plated, Nickel-Silver
SPR-5 W	1.32 (33.53)	.140 (3.56)	.079 (2.01)	.093 (2.36)	.180 (4.57)	.144 (3.66)	.300 (7.62)	Housing: Gold-plated, Nickel-Silver
W-1	1.32 (33.53)	.140 (3.56)			.210 (5.33)	.144 (3.66)	.300 (7.62)	Housing: Gold-plated, Nickel-Silver

Dimensions in inches (millimeters)
Specifications subject to change without notice

Receptacles

PR261/PR541/PR54/PR80



0 Crimp

Typical used to attach a wire by mechanical crimping

0F Flush Mount

Typical used to attach a wire by soldering

1 Solder

Square post ⍁.025 (0.64)

1F Flush Mount

Square post ⍁.025 (0.64)

2 Wire Wrap

Square post ⍁.025 (0.64)

2F Flush Mount

Square post ⍁.025 (0.64)

3 Round Post

Round post Ø.025 (0.64)

3F Flush Mount

Wire termination (30 AWG only)
Max. insulation diameter = .019 (0.48)

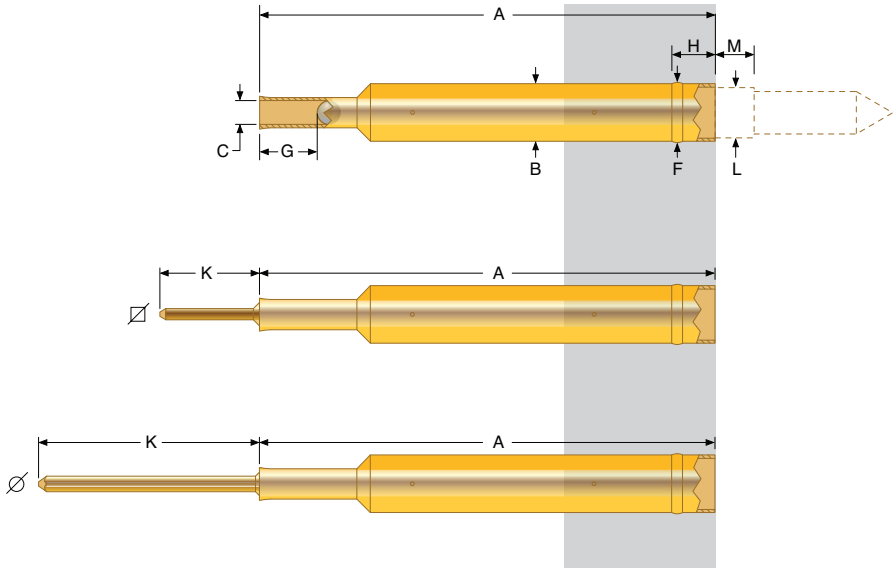
Dimensions in inches (millimeters)
Specifications subject to change without notice

	A	B	C	D	E	F	Material
PR261-0	.690 (17.53)	.034 (0.86)	.100 (2.54)	.040 (1.02)	.180 (4.57)	.037 (0.94)	Housing: Gold-plated, Nickel-Silver
0F	.690 (17.53)	.034 (0.86)	.100 (2.54)		.180 (4.57)	.037 (0.94)	Housing: Gold-plated, Nickel-Silver
1	.690 (17.53)	.034 (0.86)	.100 (2.54)	.040 (1.02)	.180 (4.57)	.037 (0.94)	Housing: Gold-plated, Nickel-Silver
1F	.690 (17.53)	.034 (0.86)	.100 (2.54)		.180 (4.57)	.037 (0.94)	Housing: Gold-plated, Nickel-Silver
PR541-0	.930 (23.62)	.066 (1.68)	.240 (6.09)	.060 (1.52)	.20 (5.08)	.070 (1.78)	Housing: Gold-plated, Nickel-Silver
0F	.930 (56.74)	.066 (1.68)	.240 (6.09)		.20 (5.08)	.070 (1.78)	Housing: Gold-plated, Nickel-Silver
1	.930 (56.74)	.066 (1.68)	.240 (6.09)	.060 (1.52)	.20 (5.08)	.070 (1.78)	Housing: Gold-plated, Nickel-Silver
1F	.930 (56.74)	.066 (1.68)	.240 (6.09)		.20 (5.08)	.070 (1.78)	Housing: Gold-plated, Nickel-Silver
2	1.32 (33.53)	.066 (1.68)	.240 (6.09)	.060 (1.52)	.20 (5.08)	.070 (1.78)	Housing: Gold-plated, Nickel-Silver Post: Gold-plated, Phosphorous Bronze
2F	1.32 (33.53)	.066 (1.68)	.240 (6.09)		.20 (5.08)	.070 (1.78)	Housing: Gold-plated, Nickel-Silver Post: Gold-plated, Phosphorous Bronze
3	1.32 (33.53)	.066 (1.68)	.240 (6.09)	.060 (1.52)	.20 (5.08)	.070 (1.78)	Housing: Gold-plated, Nickel-Silver Post: Gold-plated, Phosphorous Bronze
3F	1.32 (33.53)	.066 (1.68)	.240 (6.09)		.20 (5.08)	.070 (1.78)	Housing: Gold-plated, Nickel-Silver Post: Gold-plated, Phosphorous Bronze
PR54- 0	1.15 (29.21)	.066 (1.68)	.300 (7.62)	.060 (1.52)	.180 (4.57)	.070 (1.78)	Housing: Gold-plated, Nickel-Silver
0F	1.15 (29.21)	.066 (1.68)	.300 (7.62)		.180 (4.57)	.070 (1.78)	Housing: Gold-plated, Nickel-Silver
1	1.19 (30.23)	.066 (1.68)	.300 (7.62)	.060 (1.52)	.180 (4.57)	.070 (1.78)	Housing: Gold-plated, Nickel-Silver
1F	1.19 (30.23)	.066 (1.68)	.300 (7.62)		.180 (4.57)	.070 (1.78)	Housing: Gold-plated, Nickel-Silver
2	1.58 (40.26)	.066 (1.68)	.300 (7.62)	.060 (1.52)	.20 (5.08)	.070 (1.78)	Housing: Gold-plated, Nickel-Silver Post: Gold-plated, Phosphorous Bronze
2F	1.58 (40.26)	.066 (1.68)	.300 (7.62)		.20 (5.08)	.070 (1.78)	Housing: Gold-plated, Nickel-Silver Post: Gold-plated, Phosphorous Bronze
3	1.56 (40.13)	.066 (1.68)	.300 (7.62)	.060 (1.52)	.20 (5.08)	.070 (1.78)	Housing: Gold-plated, Nickel-Silver Post: Gold-plated, Phosphorous Bronze
3F	1.56 (40.13)	.066 (1.68)	.300 (7.62)		.20 (5.08)	.070 (1.78)	Housing: Gold-plated, Nickel-Silver Post: Gold-plated, Phosphorous Bronze
PR80- 0	1.20 (30.48)	.093 (2.36)	.300 (7.62)	.090 (2.29)	.180 (4.57)	.098 (2.49)	Housing: Gold-plated, Nickel-Silver
0F	1.20 (30.48)	.093 (2.36)	.300 (7.62)		.180 (4.57)	.098 (2.49)	Housing: Gold-plated, Nickel-Silver
1	1.20 (30.48)	.093 (2.36)	.300 (7.62)	.090 (2.29)	.180 (4.57)	.098 (2.49)	Housing: Gold-plated, Nickel-Silver
1F	1.20 (30.48)	.093 (2.36)	.300 (7.62)		.180 (4.57)	.098 (2.49)	Housing: Gold-plated, Nickel-Silver
2	1.57 (39.88)	.093 (2.36)	.300 (7.62)	.090 (2.29)	.180 (4.57)	.098 (2.49)	Housing: Gold-plated, Nickel-Silver Post: Gold-plated, Phosphorous Bronze
2F	1.57 (39.88)	.093 (2.36)	.300 (7.62)		.180 (4.57)	.098 (2.49)	Housing: Gold-plated, Nickel-Silver Post: Gold-plated, Phosphorous Bronze
3	1.57 (39.88)	.093 (2.36)	.300 (7.62)	.090 (2.29)	.180 (4.57)	.098 (2.49)	Housing: Gold-plated, Nickel-Silver Post: Gold-plated, Phosphorous Bronze
3F	1.57 (39.88)	.093 (2.36)	.300 (7.62)		.180 (4.57)	.098 (2.49)	Housing: Gold-plated, Nickel-Silver Post: Gold-plated, Phosphorous Bronze

Dimensions in inches (millimeters)
Specifications subject to change without notice

Receptacles

S2662A/S2663/S2757



ED Crimp
Typical used to attach a wire by mechanical crimping

ETD Round
Round post Ø .026 (0.66)

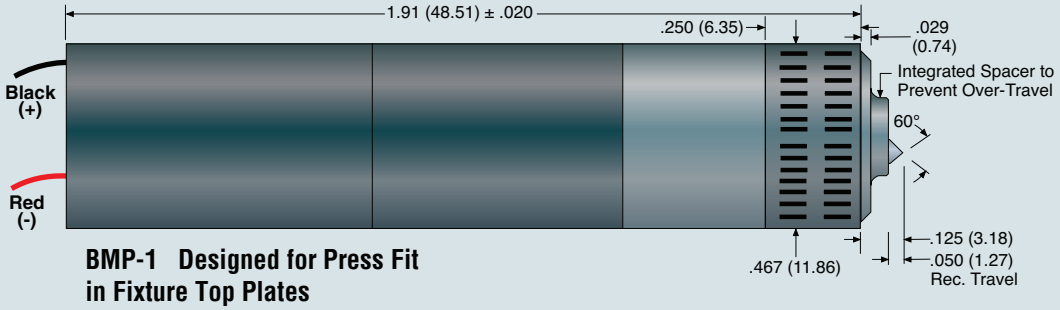
EWWD Wire Wrap
Square post ⍁ .025 (0.64)

	A	B	C	E	F	G	H	K	L	M
S2662A - 3ED	.690 (17.53)	.036 (0.91)	.022 (0.56)		.041 (1.04)	.110 (2.79)	.100 (2.54)		.0285 (0.72)	.040 (1.02)
S2663 - 1ED	.760 (19.30)	.054 (1.37)	.038 (0.97)		.059 (1.50)	.084 (2.13)	.100 (2.54)		.043 (1.09)	.050 (1.27)
1ETD	.760 (19.30)	.054 (1.37)	.038 (0.97)	.230 (5.84)	.059 (1.50)	.084 (2.13)	.100 (2.54)	.230 (5.84)	.043 (1.09)	.050 (1.27)
1EWWD	.760 (19.31)	.054 (1.37)	.038 (0.97)	.380 (9.65)	.059 (1.50)	.084 (2.13)	.100 (2.54)	.380 (9.65)	.043 (1.09)	.050 (1.27)
S2757 - 2ED	1.053 (26.75)	.133 (3.38)	.055 (1.40)		.138 (3.51)	.133 (3.38)	.100 (2.54)		.118 (3.00)	.090 (2.29)
2ETD	1.053 (26.75)	.133 (3.38)	.0554 (1.40)	.230 (5.84)	.138 (3.51)	.133 (3.38)	.100 (2.54)	.230 (5.84)	.118 (3.00)	.090 (2.29)
2EWWD	1.053 (26.75)	.133 (3.38)	.055 (1.40)	.510 (12.95)	.138 (3.51)	.133 (3.38)	.100 (2.54)	.510 (12.95)	.118 (3.00)	.090 (2.29)

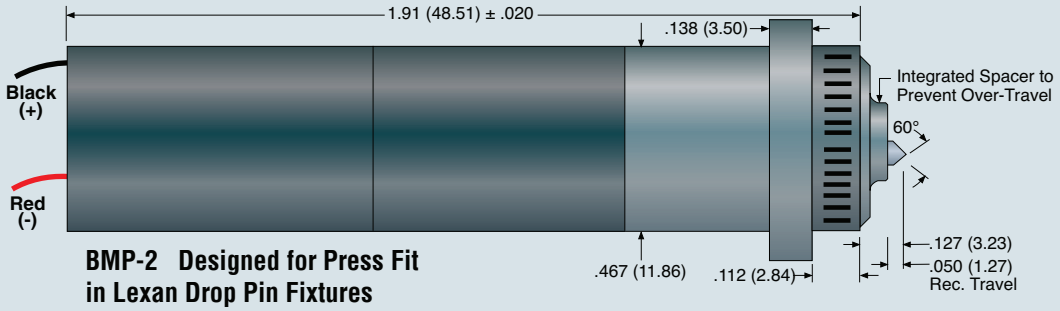
	Material
S2662A - 3ED	Housing: Gold-plated brass
S2663 - 1ED	Housing: Gold-plated brass
1ETD	Housing: Gold-plated brass Post: Gold-plated, Phosphorous Bronze
1EWWD	Housing: Gold-plated brass Post: Gold-plated, Phosphorous Bronze
S2757 - 2ED	Housing: Gold-plated brass
2ETD	Housing: Gold-plated brass Post: Gold-plated, Phosphorous Bronze
2EWWD	Housing: Gold-plated brass Post: Gold-plated, Phosphorous Bronze

Dimensions in inches (millimeters)
Specifications subject to change without notice

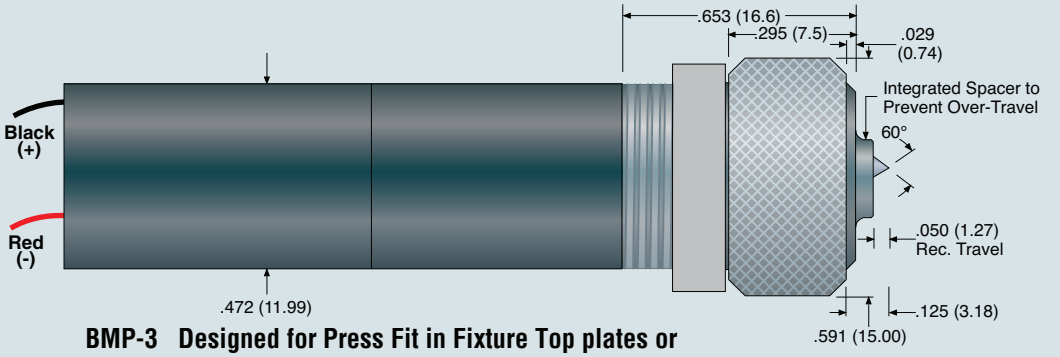
BMP-1/BMP-2/BMP-3



BMP-1 Designed for Press Fit in Fixture Top Plates



BMP-2 Designed for Press Fit in Lexan Drop Pin Fixtures



BMP-3 Designed for Press Fit in Fixture Top plates or Other Mounting Plates with Adjustable BMP Height Range of up to 0.440 inch (11.2mm).

Application Examples:

- Bare Board Test
- Loaded Board Test
- Connector / Wire Harness

Benefits:

- Hands Free Operation
- No Hazardous Consumables
- Durable
- > 50,000 Cycles before Tip Replacement
- Easy to Fixture

Features:

- Permanent Mark
- Controllable Mark Intensity
- Driven by Test Program
- MicroGrain Carbide Tip
- Replaceable Tip

Requirements:

- 15 VDC Power Source
- .050” Diameter Flat area for Mark

Mechanical

Full Marker Tip Travel:	.062 (1.57)
Recommended Working Travel:	.050 (1.27)
Direction of Rotation:	CCW
Scribed Diameter:	.050 (1.27)
Special diameters available.	

Electrical (Operating Conditions)

Current Rating:	50 mA
Voltage Rating:	15VDC
Recommended Duty Cycle:	1 sec. On (min.) 5 sec. Off

Materials and Finishes

Plunger Tip:	Carbide
Receptacle:	Stainless steel

Mounting Hole Size: .468/.469

How To Order

Specify model number of components or tools you require:

- BMP-1, -2, -3: Probe and receptacle, wires and connector attached, mating connector supplied, (-red, + black).
- BMR-1, -2, -3: Receptacle only.
- BMT-1: Tip replacement assembly for BMT-1, BMT-2, and BMT-3.
- RIT-BMP: Receptacle insertion tool for BMR-1.
- EXT-BMP: Receptacle extraction tool for BMR-1.

Applications:

The BMP Board Marker Probe patented design is for installation on bare board or loaded board test fixtures. When your tester is equipped with the appropriate electronics and software, the BMP scribes a permanent .050” circle on every “passed” PCB or device tested. Boards that fail the test are not marked. The risk of human error is eliminated in PCB testing and sorting.

The unit requires less than .500” of fixture area. It is designed to mark board areas of bare glass (FR4), solder mask over glass or copper, or bare tinned copper.

The BMP includes a mounting receptacle and a motor/transmission assembly. It can be easily removed from the receptacle for use in other fixtures. Spare receptacles and tip replacement assemblies are available. The thread between receptacle and housing is 7/16-20 UNF.

For further application assistance, please call your ECT support representative.

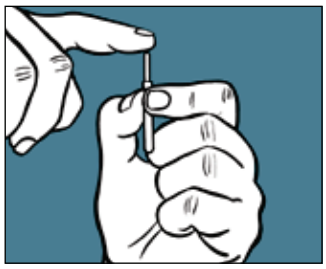
Dimensions in inches (millimeters)
Specifications subject to change without notice

Pogo® Handling Instructions

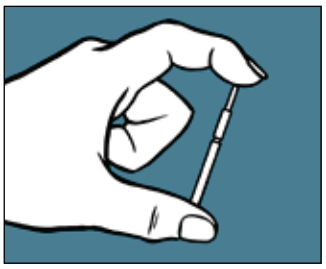
Special care should be used when handling some small diameter probes such as the POGO-72. Their long length makes them more susceptible to bending than their 100 mil counterparts. It is recommended that the plunger not be deflected unless it is in its mating receptacle, which should be installed in a probe plate. If deflection is required prior to insertion into the mating receptacle, please follow these guidelines to reduce the possibility of damage.

a) Hold the top of the probe barrel firmly between the forefinger and thumb of one hand.

b) Using the forefinger of the opposite hand (or a wooden dowel if it is a pointed tip), deflect the plunger the required distance.



Correct



Incorrect

Pogo® Maintenance

Generally, Pogo cleaning is not recommended. However, in some cases the spring probe performance in relationship to electrical conductivity can be improved if the spring probe tips are cleaned of any contaminants. Contaminants can form an insulation barrier on the probe tip, thus reducing contact integrity.

MPB-01 Brass bristle brush (4 .25" x 2.5")

MPB-03 Nylon brush (6.25")

MPB-02 4-row brass brush (3.25" x 1.125")

One of the more widely used methods for cleaning spring contact probes involves the use of brushes to clean the probe heads without probe removal from the test fixture. This technique allows for more frequent maintenance resulting in improved fixture reliability. After brushing contaminants free from the probes, the fixture should be vacuumed to insure no remaining particles create future problems.

Another cleaning method involves removal of probes from the test fixture, bundling them together, and submerging only the probe tips in a shallow pan of safe solution such as alcohol or citric cleaner for five minutes. After soaking, the probe tips can be scrubbed with a soft bristle brush to remove any residue, then rinsed and dried. The probes can then be installed back into the test fixture. This method should be attempted only as a last resort, as cleaning fluids and solvents can wash contaminants into the probes as well as the fixture.

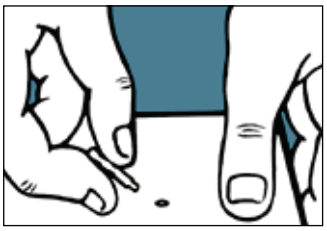
General Purpose-Replaceable Insertion/Extraction Tools

Made from the highest quality stainless steel, these durable, corrosion-resistant tools are guaranteed to provide years of service. They are engineered to minimum size for easy control and to fit comfortably in your hand for ease of use.

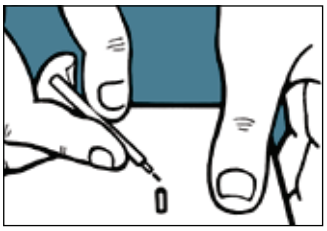
For receptacle installation, choose the RIT or ART tool that matches the receptacle and follow the Insertion Instructions. The press ring keeps the receptacle in place, so no glue is required. The spring probe can then be inserted into the receptacle to complete the installation.

The height of the probe can be changed by mounting the receptacle at different heights. For more information on receptacles, refer to the technical section of this catalog.

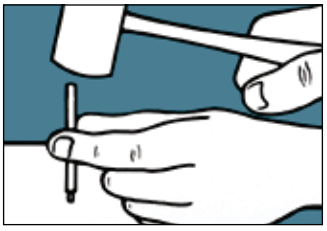
Insertion Instructions



1. Insert receptacle into the drill hole.



2. Insert tip of RIT tool into the top of the receptacle and, with slight hand pressure, seat the receptacle into the drill hole until resistance is met.



3. Tap the top of the tool with a small plastic hammer until the receptacle is seated at the proper height. The press ring keeps the receptacle in place.

Receptacle Insertion Tools

Model No.	Mounting Height	Used On
ARIT-1/1M	Flush to .220"	SPR-1W/LTR-1W
ARIT-25/25M	Flush to .220"	SPR-2W/SPR-25W/SPR-64W
ARIT54	Flush to .125"	SR541
ARIT54	Flush to .220"	SR54
ART-62	Flush to .285"	HPR-62W
ART-72	Flush to .220"	HPR-72W
RIT-0-0	Flush	SPR-0W
RIT-3-0	Flush	SPR-3W
RIT-3-220	.220"	SPR-3W
RIT-30-0	Flush	HPR-30W
RIT-4-0	Flush	SPR-4W
RIT-40-0	Flush	HPR-40W
RIT-5-0	Flush	SPR-5W
RIT-64-005	.005"	SPR-64W
RIT-BMP	Flush	BMR-1/BMR-2/BMR-3
RIT-80-0	Flush	STT-80W
T80-0	Flush	SR80

Receptacle Extraction Tools

Model No.	Used On
EXT-BMP	BMR-1/BMR-2/BMR-3
TET-1	LCT Series Terminals

Probe Insertion Tools

Model No.	Used On
PIT-0	SPA-0/HPA-0/HPA-50
PIT-20	MEP-20
PIE-25*	POGO-25/LTP-25

Probe Insertion/ Extraction Tool (PIE),

Receptacle Insertion Tool (ARIT-25),

Receptacle Insertion Tool (RIT),

FASTITE® Insertion Tool (FIT),

Adjustable Receptacle Insertion Tool (ART)

Epoxy Mount Instructions for General Purpose-Non Replaceable Probes

ECT does not recommend press fit mounting of non-replaceable probes. ECT non-replaceable products may be retained in mounting holes using solder or adhesives.

If conductivity is required, ECT recommends utilizing solder mounting for retention. If conductivity is not required, utilizing epoxy adhesives for mounting is acceptable.

Adhesives used are typically two-part epoxies, and can be either conductive or non-conductive dependent on the application. ECT does not recommend the use of fast setting Superglue® style adhesives as they can outgas and may put a nearly invisible barrier on contact surfaces.

Epoxy Mounting Procedure

1. The probe barrel must be clean & free of any coatings, paint, or other materials.
2. Additionally, the plated through hole, or mounting hole must be clean & free of any coatings, paint, or other materials.
3. To install the probe, apply a thin layer of conductive epoxy to the clean inside area of the mounting hole, or to the clean outside of the probe barrel, according to manufacturers directions.
4. If desired, apply a release agent, on all other surfaces to keep the epoxy from adhering to undesirable locations. Utilize a release agent which is compatible with your process.
5. If the depth of the mounting hole is shallow, ensure that a fixture is used to assure perpendicularity of the probe to the mounting plane.
6. Once the epoxy hardens, or sets up to an acceptable stiff plastic consistency, remove any fixturing and/or release agents.

Epoxy mounting, when properly utilized, provides excellent holding or retention ability as compared to the traditional mounting techniques such as solder mounting.

Several types of epoxies are available for use, dependent on whether conductivity is required, desired set time desired, the temperature of application, and the requirements and temperature in the end use.

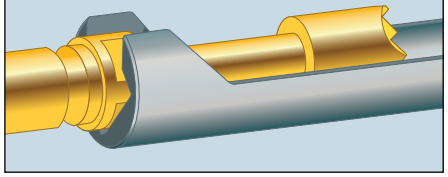
Here are some recommendations for epoxy adhesives which are known to work well in typical customer applications:

- DEVCON #14277 - two-part epoxy.
- LOCTITE (Henkel) - offers a very wide selection of adhesives and utilizing their product search tools will give you several choices. For example, the 31XX series of adhesives may be acceptable:
  General Purpose Potting and Encapsulating Products
  – Loctite 3140 Hysol Epoxy Resin, General Purpose
  – Loctite 3164 Hysol Epoxy Hardener, General Purpose
- DURALCO #4525 - all purpose room temp curing epoxy

For further application assistance, please call your ECT support representative for additional assistance.

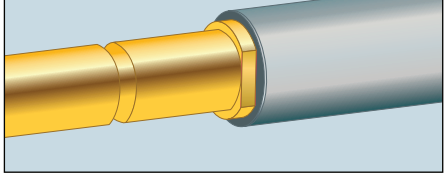
Screw-In Tool Options for Threaded Probes

Hook Wrench



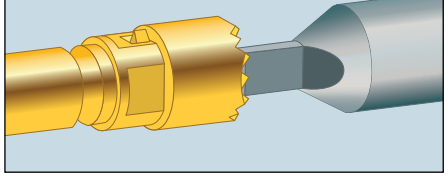
The hook wrench is the standard tool for all probes with square wrench sizes even if the head diameter is larger than the wrench size.

Socket Wrench



The socket wrench can be used for square wrench sizes if the head diameter is smaller than the wrench size. The tool helps to assemble probes within small centers.

Screw Driver

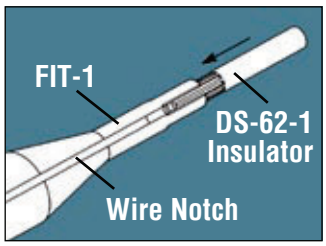


Screw drivers can be used if the contact area has any support (e.g. serrated honeycomb or slit) and the head has an integrated locking system.

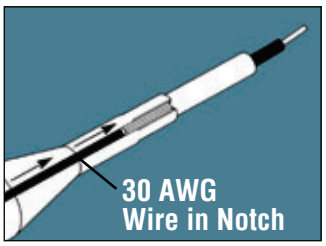
Screw-in Tools

			Screw-in Tool			Screw-in Tool with Torque Limiter		
Probe	**Tips**	**Wrench size**	**BIT and Handle**	**BIT**	**Handle**	**BIT and Handle**	**BIT**	**Handle**
TSC-087	all	1,4mm	PIT-087	BIT-087	PIT-HND-4	PIT-087T	BIT-087	PIT-HND-4T
TSC-025	all	1,7mm	PIT-025	BIT-025	PIT-HND-4	PIT-025T	BIT-025	PIT-HND-4T
TSC-157	all	3,0mm	PIT-157	BIT-157	PIT-HND-5	PIT-157T	BIT-157	PIT-HND-5T
TSP-100	all	1,7mm	PIT-100	BIT-100	PIT-HND-4	PIT-100T	BIT-100	PIT-HND-4T
TSP-138 (L)	<0.118	2,6mm	PIT-138	BIT-138	PIT-HND-5	PIT-138T	BIT-138	PIT-HND-5T
	>0.118	2,6mm	PIT-138H	BIT-137H	PIT-HND-5	PIT-138HT	BIT-137H	PIT-HND-5T
TSP-157	all	2,5mm	PIT-157S	BIT-157S	PIT-HND-5	PIT-157ST	BIT-157S	PIT-HND-5T
THC-025	all	1,7mm	PIT-025	BIT-025	PIT-HND-4	PIT-025T	BIT-025	PIT-HND-4T
THC-157	all	3,0mm	PIT-157	BIT-157	PIT-HND-5	PIT-157T	BIT-157	PIT-HND-5T
THC-197	all	3,5mm	PIT-197	BIT-197	PIT-HND-5	PIT-197T	BIT-197	PIT-HND-5T
TKP-138	all	2,6mm	PIT-138	BIT-138	PIT-HND-5	PIT-138T	BIT-138	PIT-HND-5T

FASTITE® Insertion Instructions

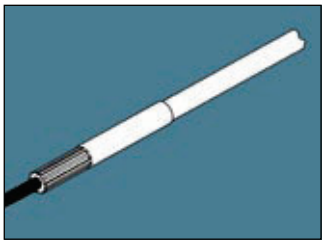


1. Insert insulator, knurled end first into tip of FIT tool.



2. Insert prestripped wire into notch on FIT tool and slide until it protrudes approximately 1/8 inch from insulator.

3. Hold wire firmly against tool with forefinger. Insert protruding wire into termination end of W-4 receptacle. Release grasp on wire and push insulator onto end of receptacle, completing termination.



4. Complete termination.

FASTITE® Insertion Tool

Model No.	Used On
FIT-1	HPR-72W-4, SPR-0W-4

Crimp Pliers

ECT crimping pliers make receptacle crimping fast and easy. The standard ratchet-action jaws are individually fitted and inspected to ensure quick insertion and removal of the receptacle.

The tool features an internal high-tension coil spring for fatigue-free operation and a lifetime of dependable service. Vinyl cushion grips ensure a firm grip with minimum applied pressure. Instructions are provided.

The 900 series crimp plier requires a corresponding crimp locator (DCL) in order to function properly. Example: To order a plier to crimp a SPR-1W, specify a 900 plier and a DCL-1 crimp locator. If you already have the 900 plier, order only the DCL for the specific receptacle series you require.

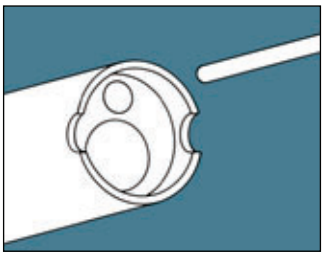
Pliers

Plier No.	DCL Locator No.	Receptacle
900	DCL-0	SPR-0W
900	DCL-1	SPR-1W
900	DCL-2	SPR-2W
900	DCL-3	SPR-3W
900	DCL-20	MEP-20*
900	DCL-25	SPR-25W
900	DCL-30	HPR-30W
900	DCL-40	HPR-40W, T
900	DCL-62	HPR-62W, WD
900	DCL-72	HPR-72W

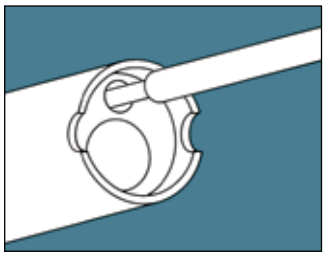
Plier No. 900 and DCL Locator

Wire Wrapping Tips

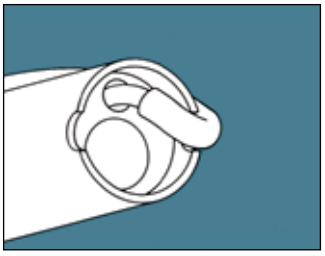
A wire-wrapped termination is made by coiling the wire around the sharp corners of a .025 inch square receptacle post. By bending the wire around the sharp corner, the oxide layer of both surfaces is broken, revealing an oxide-free surface. This provides clean metal-to-metal contact between the wire and the post. The minimum number of turns is based on wire gauge and the type of wrap. A standard wrap coils only the bare wire around the post. A modified wrap coils the wire and a portion of the insulation. The modified wrap increases the ability to withstand vibration.



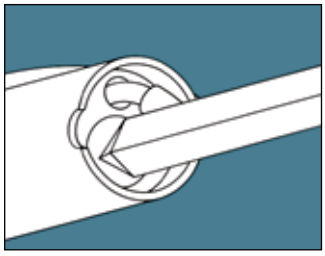
1. Pre-stripped wire, bit and sleeve



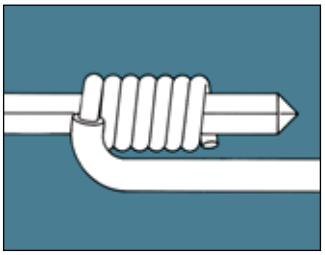
2. Insert wire.



3. Secure wire.



4. Insert terminal, actuate wrapping gun.



5. Completed termination.

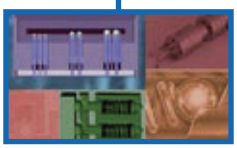
Wire turns per MIL-STD-1130B

Wire Size	Diameter	Minimum Number of Turns Class A (Modified)	Class B (Standard)
30	.010 (0.25)	7 stripped turns plus 1/2 insulated	7 stripped turns
28	.0126 (0.32)	7 stripped turns plus 1/2 insulated	7 stripped turns
26	.0159 (0.40)	6 stripped turns plus 1/2 Insulated	6 stripped turns
24	.0201 (0.51)	5 stripped turns plus 1/2 insulated	5 stripped turns
22	.0253 (0.64)	5 stripped turns plus 1/2 insulated	5 stripped turns

Note: This information is for .025" x 025" wrap post. While 22 AWG is often used, MIL-STD-1130B does not recommend it for this size post.

Making Contact Worldwide.

Everett Charles Technologies
A DOVER COMPANY



Contact Solutions

Fixture & Services Group

Capital Equipment Group

Sales Contacts

America
Brian Crisp
Sales Manager
700 East Harrison Avenue
Pomona, CA 91767
Phone: +1 909-273-7111
E-mail: brian.crisp@ectinfo.com

Asia
Johnson Ng
Poh Chian Lin
Block 161, Kallang Way
#06-18/26
Singapore 347249
Phone: +65 62938966
E-mail: johnson.ng@ectinfo.com
E-mail: poh.chian.lin@ectinfo.com

Europe
Thomas Frenzel
Muenchener Strasse 19
D-85540 Haar
Germany
Phone: +49 89-429204
E-mail: thomas.frenzel@ectinfo.com

Americas:
Brazil
Canada
Mexico
United States of America

Asia:
China
Hong Kong
Japan
Korea
Malaysia
Philippines
Singapore
Taiwan
Thailand

Australia:
Australia

Middle East/Africa:
Israel
South Africa
Tunisia

Europe:
Austria
Belarus
Belgium
Bulgaria
Croatia
Czech Republic
Denmark
Estonia
Finland
France
Germany
Hungary
Ireland
Israel
Italy
Lithuania
Luxembourg
Montenegro
Netherlands
Poland
Portugal
Romania
Serbia
Slovakia
Slovenia
Spain
Sweden
Switzerland
Turkey
Ukraine
United Kingdom

Your ECT Contact is:

www.ectinfo.com