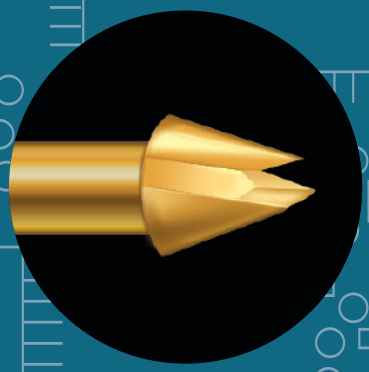
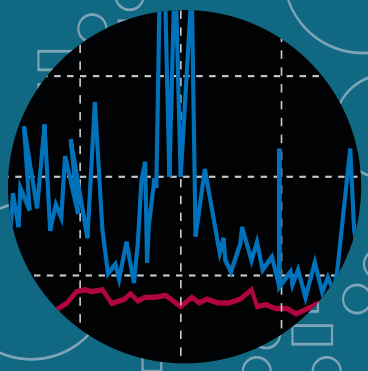
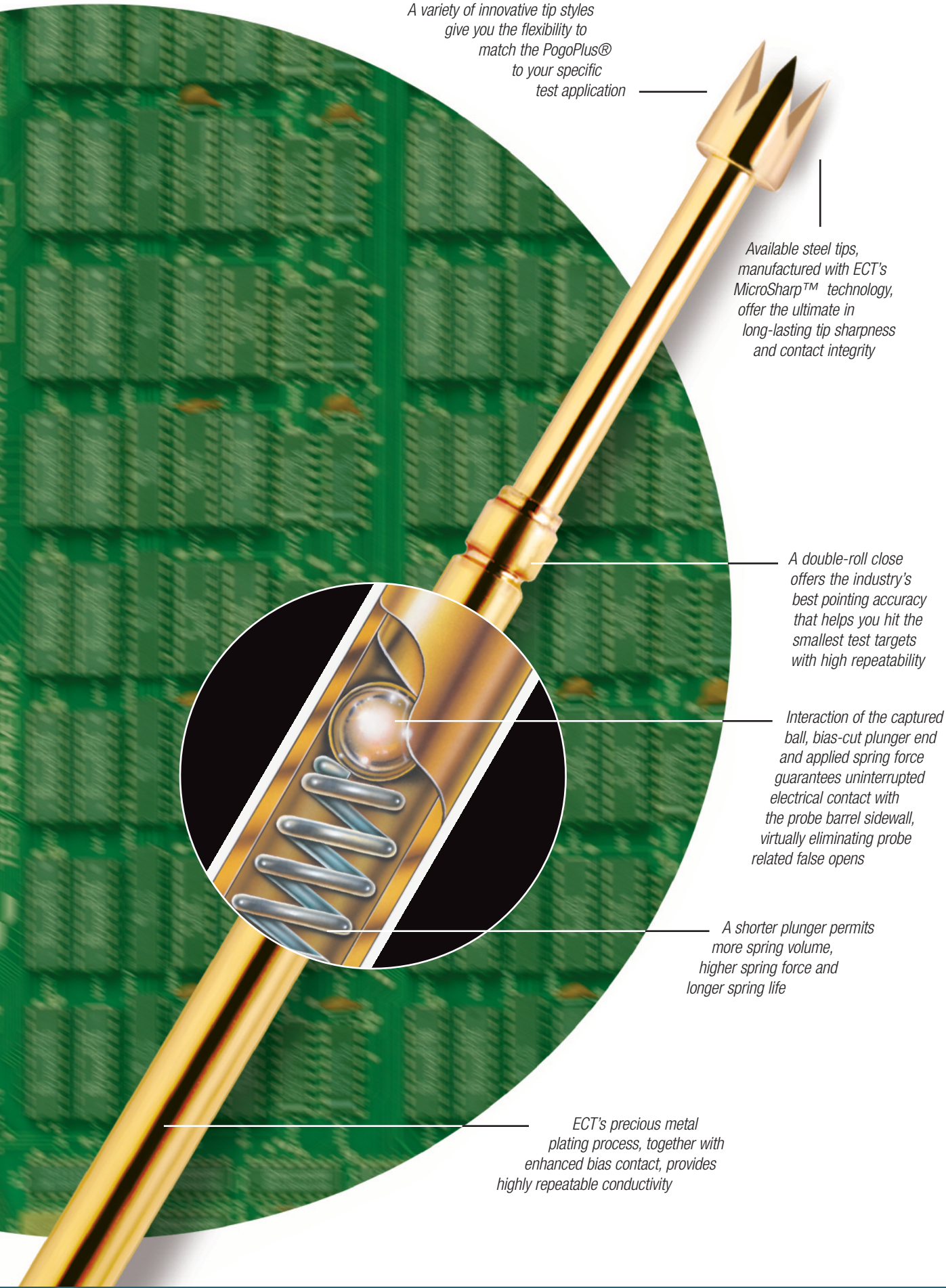
CONTACT PRODUCTS GROUP





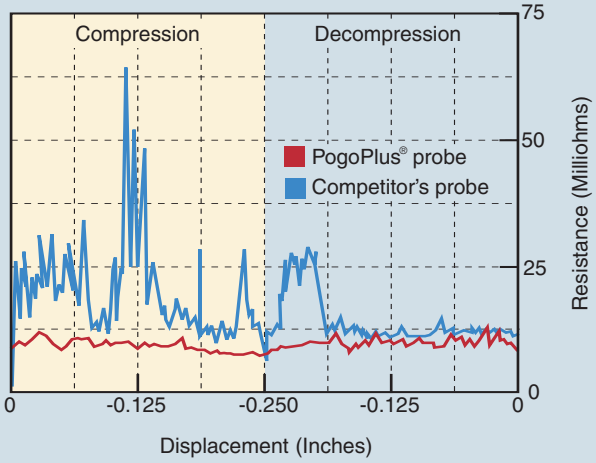
PogoPlus® High Performance Probe

Achieve Higher Test Productivity – Overnight!

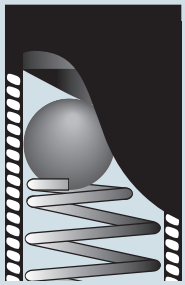

A variety of innovative tip styles give you the flexibility to match the PogoPlus® to your specific test application
Available steel tips, manufactured with ECT's MicroSharp™ technology, offer the ultimate in long-lasting tip sharpness and contact integrity
A double-roll close offers the industry's best 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

How Much Better is the PogoPlus®? Here's the Proof.

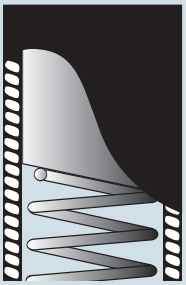
Conventional single-close probes (bottom) provide marginal pointing accuracy. The double-close design of the PogoPlus probe (top) constrains the plunger to a tighter range of vertical motion for more accurate pointing precision.



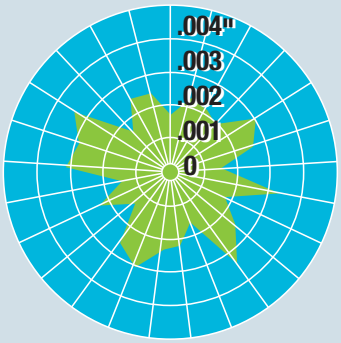
Resistance vs. displacement tests show the PogoPlus probe's more consistent resistivity performance resulting in significantly fewer probe false opens and tighter control of the test process.



PogoPlus Bias Design
The enhanced bias-ball design forces contact between plunger and barrel wall at all times, virtually eliminating probe-related false opens.



Conventional Bias Design
Angle of spring coil end matches biased plunger end, compromising bias force and electrical contact.



Tighter Pointing Tolerances
ECT Pogo® contacts deliver superior pointing accuracy demonstrated by test results measuring sideload TIR.

Objective
Measure the resistance of the PogoPlus and a standard high performance probe as they are compressed and decompressed. For reliable results, a probe should have a resistance of less than 10 milliohms (with a standard deviation of <5 milliohms) throughout the compression/decompression cycle.

Method
Each probe is placed in a calibrated test station that dynamically measures resistance relative to probe displacement. Displacement resolution is 0.0001 inch. For each increment in displacement, resistance is simultaneously measured with a resolution of 1 milliohm.

Results
Test results for the PogoPlus and a competitor's high performance probe are shown in the graph above.

Discussion
As the displacement vs. resistance graph clearly shows, the bias design of the PogoPlus outperforms the competitor's probe by demonstrating more repeatable resistivity across its travel range. Because false opens occur when large changes in resistivity occur over short displacements, a steeper slope in the displacement/resistivity curve indicates a greater likelihood of a false reject.

For a more detailed discussion of the test method and results, please ask your ECT salesperson for a copy of the complete test report.

BMP — BOARD MARKER PROBE

Application Examples:
Bare Board Test
Loaded Board Test
Connector / Wire Harness
Package Test

Benefits:
Hands Free Operation
No Hazardous Consumables
Durable
> 50000 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
Component Clearance for Loaded Board Test

BMP-1
BMP-2

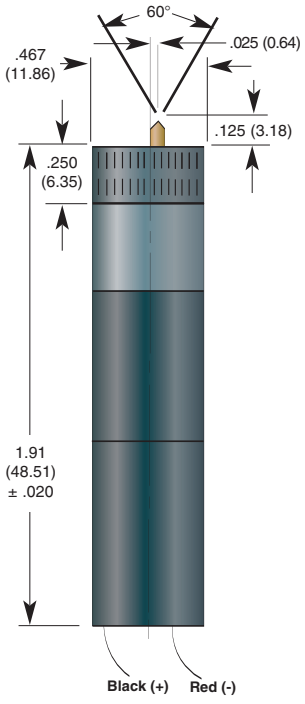
Board Marker Probe

The BMP-1 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-1 scribes a permanent .050" circle on every "passed" PCB tested. Boards that fail the test are not marked. The risk of human error is eliminated in PCB testing and sorting.

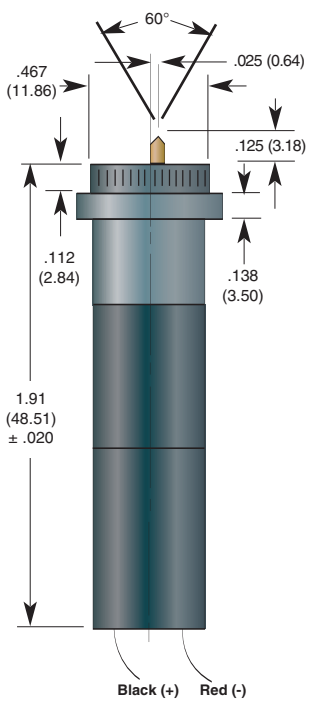
The unit requires less than .500" of fixture area. It is designed to mark board areas of bare glass (FR4), solder mask over glass or copper, or bare tinned copper.

The BMP-1 includes a mounting receptacle with press ring, 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.

Probe Specifications	BMP-1	BMP-2
Mechanical		
Full Marker Tip Travel:	.062 (1.57)	.062 (1.57)
Recommended Working Travel:	.050 (1.27)	.050 (1.27)
Direction of Rotation:	CCW	CCW
Scribed Diameter:	.050 (1.27)	.050 (1.27)
Special diameters available.		
Electrical (Operating Conditions)		
Current Rating:	50 mA	50 mA
Voltage Rating:	15VDC	15VDC
Recommended Duty Cycle:	1 sec. On (min.), 5 sec. Off	1 sec. On (min.), 5 sec. Off
Materials and Finishes		
Plunger Tip:	Carbide	Carbide
Receptacle:	Stainless steel	Stainless steel
Mounting Hole Size:	.468/.469 (11.89/11.91)	.468/.469 (11.89/11.91)



BMP-1
For use in Series 32 G-10 fixtures
Patent Pending



BMP-2
For use in Lexan Drop Pin Fixtures
Patent Pending

HOW TO ORDER

Specify model number of components or tools you require:

BMP-1, -2: Probe and receptacle, wires and connector attached, mating connector supplied, (-red, + black).

BMR-1, -2: Receptacle only.

BMT-1: Tip replacement assembly for both BMT-1 and BMT-2.

RIT-BMP: Receptacle insertion tool for BMR-1.

EXT-BMP: Receptacle extraction tool for BMR-1.

POGO-25

Test Centers .100" (2.54)

Specifications

Mechanical
Full Travel: .250 (6.35)
Recommended Working Travel: .167 (4.24)
Mechanical Life Exceeds: 1 x 10^6 cycles

Operating Temperature -55˚C to +105˚C
Consult factory for other temperature requirements, and other applications below -40°C

Electrical (Static Conditions)
Current Rating: 8 amps
Maximum continuous current, non-inductive at working travel

Average Probe Resistance 8mΩ
With a standard deviation of <1 mΩ @ 25 mA test current

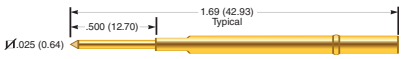
Materials and Finishes
Steel Plunger: Heat-treated tool steel, gold plated over hard nickel
BeCu Plunger: Heat-treated beryllium copper, gold plated over hard nickel
Barrel: Work hardened phosphor bronze, HPA-GOLD™ plated (I.D. and O.D.) over hard nickel
Spring: Music wire
Ball: Stainless steel

Spring Force in oz. (grams)

	Order Code	Preload	2/3 travel
Light	-2	0.99 (20)	2.0 (57)
Standard	-4	1.46 (41)	4.0 (113)
Alternate	-6	3.39 (96)	6.0 (170)
Elevated	-6.5	2.42 (69)	6.5 (184)
High	-8	2.98 (84)	8.0 (227)
Ultra High	-10	2.60 (74)	10.0 (283)
Super	-16	4.49 (127)	16.0 (455)

Receptacle Specifications

SPR-25W-2 ⌀ (wire wrap, square post)



SPR-25W (Crimp termination)
SPR-25W-1 (Solder cup termination)
SPR-25W-2 (Wire wrap, square post)
EPR-25W-2 (Wire wrap, square post)
SPR-25W-2L (Wire wrap, long square post)
EPR-25W-2L (Wire wrap, long square post)
SPR-25W-2LL (Wire wrap, extra-long square post)
EPR-25W-2LL (Wire wrap, extra-long square post)
SPR-25W-3 (Connector pin/round post)

Note: EPR receptacles are non-finished versions.

POGO-1

Test Centers .075" (1.91)

Specifications

Mechanical
Full Travel: .250 (6.35)
Recommended Working Travel: .167 (4.24)
Mechanical Life Exceeds: 1 x 10^6 cycles

Operating Temperature -55˚C to +105˚C
Consult factory for other temperature requirements, and other applications below -40°C

Electrical (Static Conditions)
Current Rating: 6 amps
Maximum continuous current, non-inductive at working travel

Average Probe Resistance 10mΩ
With a standard deviation of <3 mΩ @ 25 mA test current

Materials and Finishes
Steel Plunger: Heat-treated tool steel, gold plated over hard nickel
BeCu Plunger: Heat-treated beryllium copper, 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

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)

Receptacle Specifications

LTR-1W-2 ⌀ (wire wrap, square post)

LTR-1W (Crimp termination)
LTR-1W-1 (Solder cup termination)
LTR-1W-2 (Wire wrap, square post)
LTR-1W-2L (Wire wrap, long square post)
ELTR-1W-2L (Wire wrap, long square post)
LTR-1W-2LL (Wire wrap, extra-long square post)
ELTR-1W-2LL (Wire wrap, extra-long square post)

Note: ELTR receptacles are non-finished versions.

POGO-72

Test Centers .050" (1.27)

Specifications

Mechanical
Full Travel: .250 (6.35)
Recommended Working Travel: .167 (4.24)
Mechanical Life Exceeds: 1 x 10^6 cycles

Operating Temperature -55˚C to +105˚C
Consult factory for other temperature requirements, and other applications below -40°C

Electrical (Static Conditions)
Current Rating: 3 amps
Maximum continuous current, non-inductive at working travel

Average Probe Resistance 15mΩ
With a standard deviation of <2 mΩ @ 25 mA test current

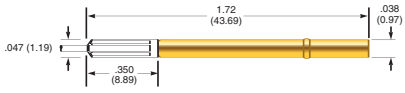
Materials and Finishes
Steel Plunger: Heat-treated tool steel, gold plated over hard nickel
BeCu Plunger: Heat-treated beryllium copper, gold plated over hard nickel
Barrel: Work hardened beryllium copper, HPA-GOLD™ plated (I.D. and O.D.) over hard nickel
Spring: Music wire
Ball: Stainless steel

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)

Receptacle Specifications

HPR-72W-4 ⌀ (Fastite™ wire termination)
(Shown with DS-62-1 installed)



HPR-72W (Crimp termination)
HPR-72W-1 (Solder cup termination)
HPR-72W-4 (FASTITE® wire termination)
HPR-72W-28 (Preterminated with 28 AWG wire)
HPR-72W-30 (Preterminated with 30 AWG wire)

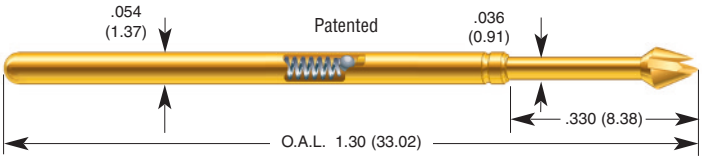
HOW TO ORDER

1. For each probe, specify the probe model, spring force and tip material (if applicable) as shown in the example.

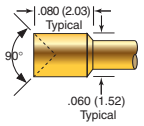
Example: POGO-72J-2-S

probe model	tip style	spring force	Optional steel plunger/ tip material

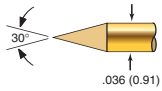
2. Place your order via phone or fax.
Phone 909-625-9390 Fax 909-624-9746



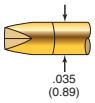
POGO-25A
POGO-25A-S



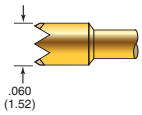
POGO-25B
POGO-25B-S



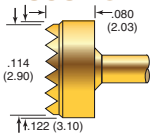
POGO-25FL-S



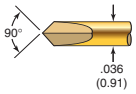
POGO-25H
POGO-25H-S



POGO-25HM

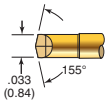


POGO-25I
POGO-25I-S

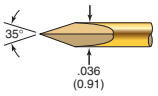


POGO-25I8-S

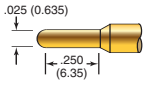
POGO-25I15-S



POGO-25I35-S

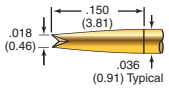


POGO-25J
POGO-25J-S



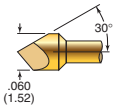
POGO-25L
POGO-25L-S

POGO-25L18
POGO-25L18-S

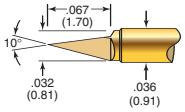


POGO-25L36
POGO-25L36-S

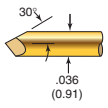
POGO-25T
POGO-25T-S



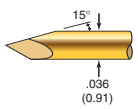
POGO-25T1-S



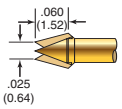
POGO-25T30
POGO-25T30-S



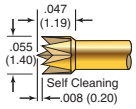
POGO-25T36
POGO-25T36-S



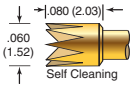
POGO-25UN
POGO-25UN-S



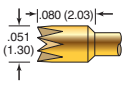
POGO-25V
POGO-25V-S

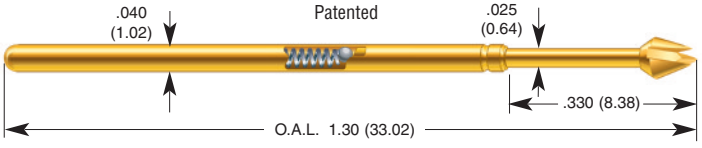


POGO-25Z
POGO-25Z-S

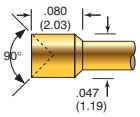


POGO-25Z1
POGO-25Z1-S

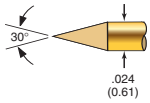




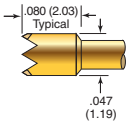
POGO-1A
POGO-1A-S



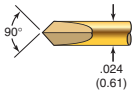
POGO-1B
POGO-1B-S



POGO-1H
POGO-1H-S

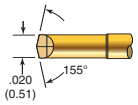


POGO-1I
POGO-1I-S

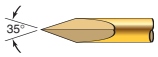


POGO-1I8-S

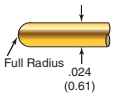
POGO-1I15-S



POGO-1I35-S



POGO-1J
POGO-1J-S



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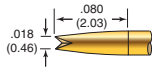
POGO-1L18-S



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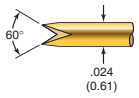

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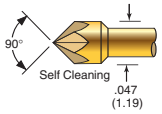
POGO-1P-S



POGO-1T
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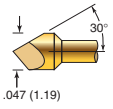

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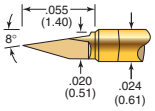

POGO-1T24
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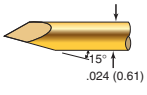

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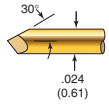

POGO-1UN
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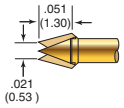

POGO-1V
POGO-1V-S

POGO-1Z
POGO-1Z-S

POGO-1Z1
POGO-1Z1-S

POGO-72H
POGO-72H-S

POGO-72I-S

POGO-72I8-S

POGO-72I15-S

POGO-72J
POGO-72J-S

POGO-72T1
POGO-72T1-S

POGO-72T20
POGO-72T20-S

POGO-72T38
POGO-72T38-S

POGO-72U
POGO-72U-S

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