

Hyperboloid Contacts for High Performance Connectors

ICS SERIES

integra
Mate®





QA Technology integraMate® Contacts are high quality, high reliability hyperboloid contacts intended for use in a wide range of applications. Our patented design provides lower insertion force, closer connector pin spacing, and better protection from damage than competitive designs. In addition, our automated manufacturing equipment typically allows us to ship within 24-48 hours of order.

The ICS series of integraMate® contacts are specifically designed for use by manufacturers of high reliability mil/aero, medical and industrial connectors and cable assemblies. The family features a shorter form factor and provides greater flexibility for customization of termination and mounting features. ICS contacts are available for multiple mating pin sizes (0.40mm, 0.45mm, 0.50mm, 0.60mm and 0.70mm).

Features

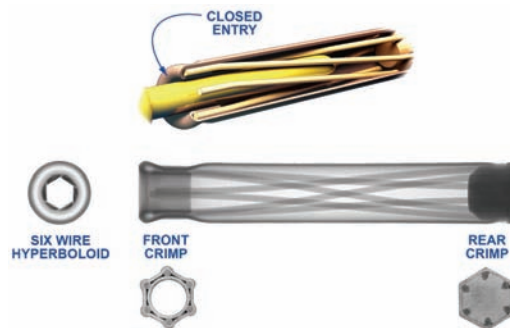
- Low insertion/extraction force
- Low resistance
- Long cycle life
- Resistance to shock and vibration
- Positive wiping action
- Easy contact removal using available extraction tools
- Small external contact diameter compared to other hyperboloid contacts allowing closer spacing
- Tubular entrance to protect spring wire cage and guide mating
- Intermates with other hyperboloid contacts known in the industry

Applications

High reliability connectors for:

- Medical & Dental Equipment
- Scientific Instruments
- Industrial Equipment
- Transportation Equipment
- ATE Interfaces
- Military & Aerospace
- Telecommunications & Data Communications

Socket Construction Details



The core technology of integraMate® is a novel hyperboloid wire cage contact design that offers low mating force, high cycle life and superior resistance to shock and vibration.

integraMate® ICS Series contacts are designed to be shorter and smaller in diameter than earlier hyperboloid contacts. Their design

has been simplified, reducing cost and overall length so as to allow ICS sockets to be used in high density board-level connectors (as well as in circular and rectangular I/O connectors).

Termination Flexibility



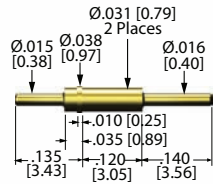
All ICS contacts utilize a highly reliable 6-wire hyperboloid cage and are available with solder cup, crimp or PCB terminations. Custom terminations to suit specific applications can be readily available due to QA's "state of the art" automation equipment. Contacts are available for front and rear loaded connector designs and in removable versions. Please contact QA Technology integraMate® Applications Engineering for assistance with your next high performance connector design.

All dimensions are in inches [mm]. All specifications subject to change without notice. • ISO 9001:2008

ICS40 Series ~ 0.40mm Contacts

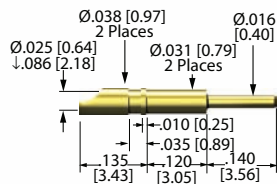
PINS

PCB Termination



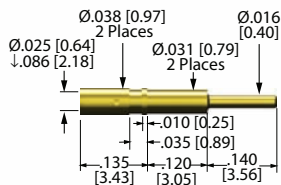
ICS40 B1 P2P2

Solder Cup Termination



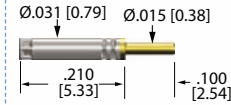
ICS40 B1 P2S3

Crimp Termination

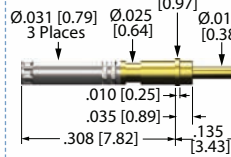


ICS40 B1 P2C3

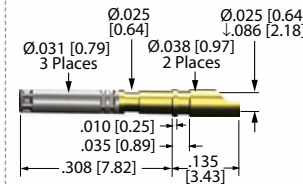
SOCKETS



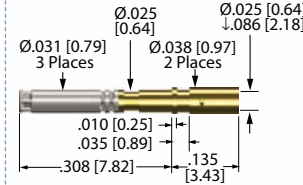
ICS40 B2 S2P1



ICS40 B1 S2P2



ICS40 B1 S2S3



ICS40 B1 S2C3

MECHANICAL

Insertion/Extraction Force	1oz [28gms] nominal
Durability (EIA 364-9C)	Up to 100,000 cycles, <2 mΩ change
Operating Temperature	-65°C to 125°C
Wire Size for Crimp & Solder Cup	26-30 AWG
Mechanical Shock (EIA 364-27B)	500g no damage, no discontinuities >10 nanosec.
Random Vibration (EIA 364-28D) cond VI, Ltr I	43.92 g rms no damage, no discontinuities >10 nanosec

ELECTRICAL

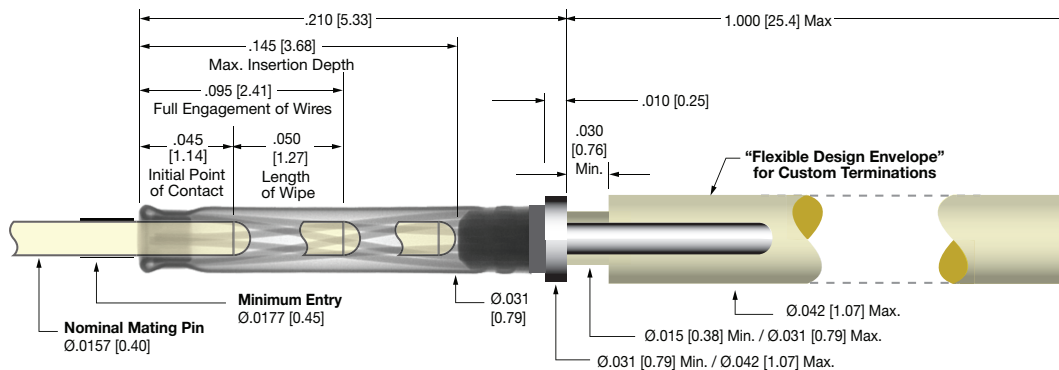
Resistance (LLCR-EIA 364-23B)	< 8 mΩ
Current Rating	1 Amp nominal for 30°C ΔT with 26 AWG wiring

MATERIALS

Contact Wires	Beryllium Copper, 50 μ-inch of gold plating over nickel
Sleeve	Stainless Steel
All Terminations	Brass, 10 μ-inch of gold plating over nickel
Mating Pins	Brass, 50 μ-inch of gold plating over nickel

US Patent No. 6,767,260

ICS40 Press-Fit Socket — Flexible Design Envelope for Custom Terminations



www.gatech.com/integramate



All dimensions are in inches [mm]. All specifications subject to change without notice. • ISO 9001:2008

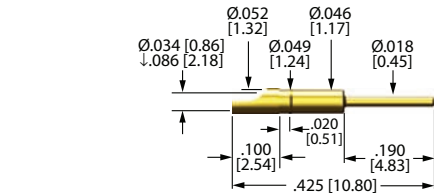
For detailed product specifications, please contact QA Technology Company, Inc. at (603) 926-1193 or sales@gatech.com.

ICS45 Series ~ 0.45mm Contacts

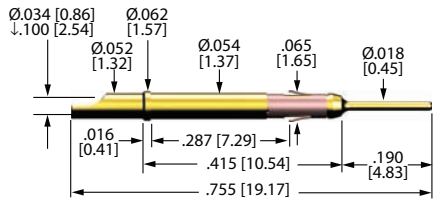
PINS

PCB Termination

Solder Cup Termination

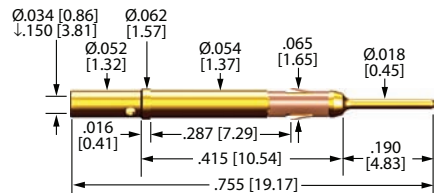


ICS45 B1 P2S5



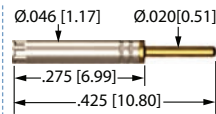
ICS45 A1 P2S5

Crimp Termination

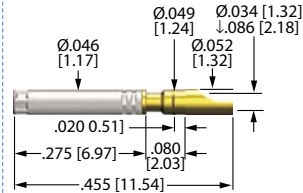


ICS45 A1 P2C5

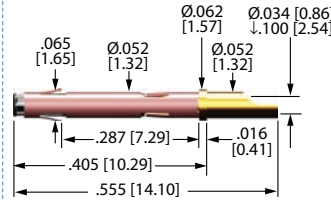
SOCKETS



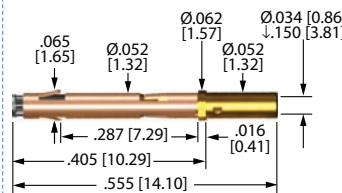
ICS45 B2 S2P1



ICS45 B1 S2S5



ICS45 A1 S2S5



ICS45 A1 S2C5

MECHANICAL

Insertion/Extraction Force	<3oz [85gms] nominal
Retention Force	5.0 lbs [22.2 N]
Durability (EIA 364-9C)	Up to 100,000 cycles, <2 mΩ change
Operating Temperature	-65°C to 125°C

Wire Size for Crimp & Solder Cup

22-26 AWG

Mechanical Shock (EIA 364-27B)

500 g no damage, no discontinuities >10 nanosec

Random Vibration (EIA 364-28D) cond VI, Ltr I

43.92 g rms no damage, no discontinuities >10 nanosec

ELECTRICAL

Resistance (LLCR-EIA 364-23B)

< 8 mΩ

Current Rating

2.5 Amp nominal for 30°C ΔT with 22 AWG wiring

MATERIALS

Contact Wires

Beryllium Copper, 50 μ-inch of gold plating over nickel

Sleeve

Stainless Steel

All Terminations

Brass, 10 μ-inch of gold plating over nickel

Spring Clip

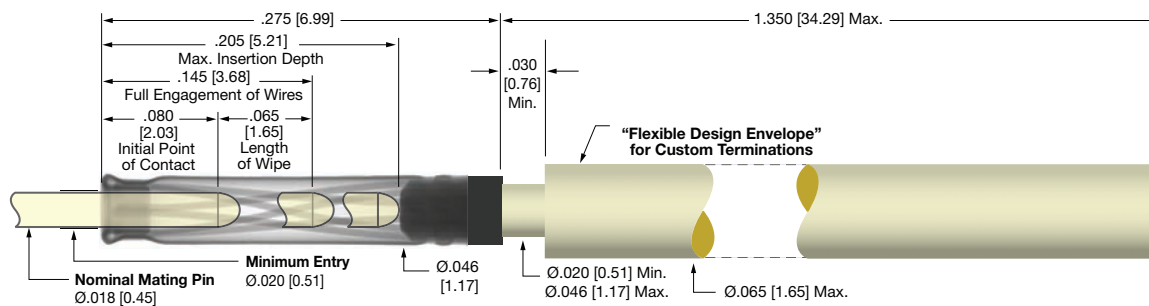
Beryllium Copper, not plated

Mating Pins

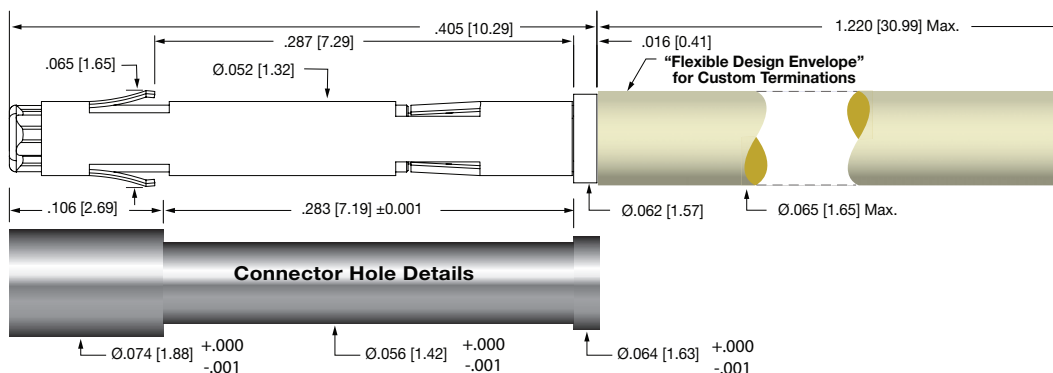
Brass, 50 μ-inch of gold plating over nickel

US Patent No. 6,767,260

ICS45 Press-Fit Socket — Flexible Design Envelope for Custom Terminations



ICS45 Removable Socket, Rear Loaded — Flexible Design Envelope for Custom Terminations



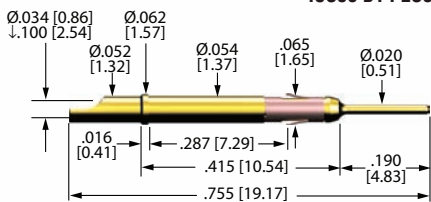
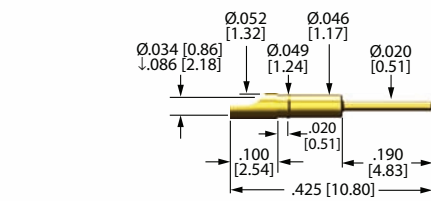
All dimensions are in inches [mm]. All specifications subject to change without notice. • ISO 9001:2008

ICS50 Series ~ 0.50mm Contacts

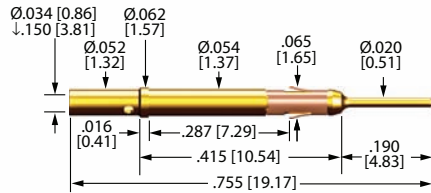
PINS

PCB Termination

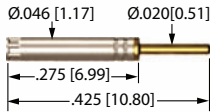
Solder Cup Termination



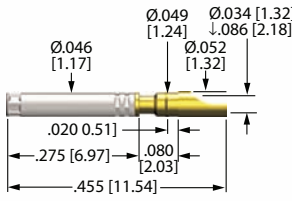
Crimp Termination



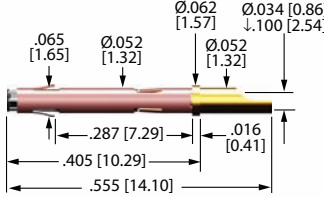
SOCKETS



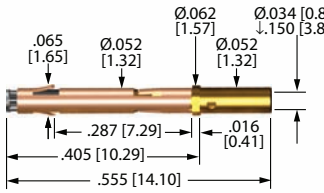
ICS50 B2 S2P1



ICS50 B1 S2S5



ICS50 A1 S2C5



MECHANICAL

Insertion/Extraction Force	<3oz [85gms] nominal
Retention Force	5.0 lbs [22.2 N]
Durability (EIA 364-9C)	Up to 100,000 cycles, <2 mΩ change
Operating Temperature	-65°C to 125°C

Wire Size for Crimp & Solder Cup	22-26 AWG
Mechanical Shock (EIA 364-27B)	500 g no damage, no discontinuities >10 nanosec
Random Vibration (EIA 364-28D) cond VI, Ltr I	43.92 g rms no damage, no discontinuities >10 nanosec

ELECTRICAL

Resistance (LLCR-EIA 364-23B)L	< 7 mΩ
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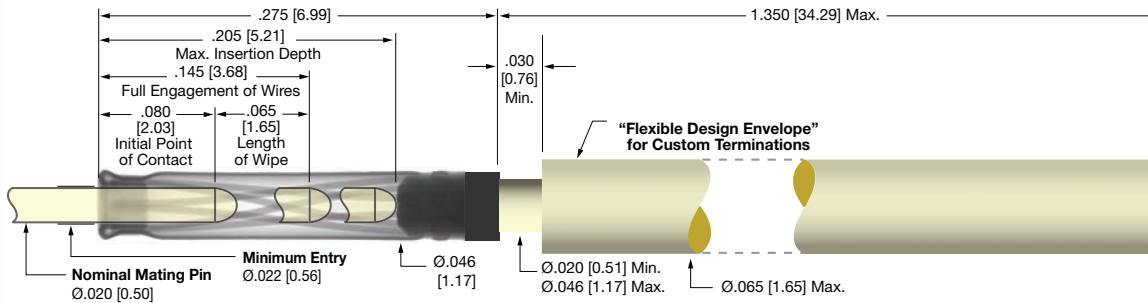
Current Rating	3.0 Amp nominal for 30°C ΔT with 22 AWG wiring
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MATERIALS

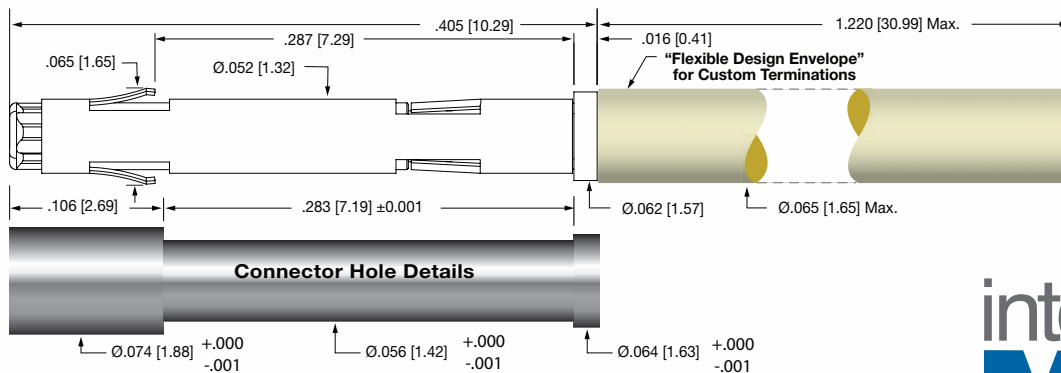
Contact Wires	Beryllium Copper, 50 μ-inch of gold plating over nickel
Sleeve	Stainless Steel
All Terminations	Brass, 10 μ-inch of gold plating over nickel
Spring Clip	Beryllium Copper, not plated
Mating Pins	Brass, 50 μ-inch of gold plating over nickel

US Patent No. 6,767,260

ICS50 Press-Fit Socket — Flexible Design Envelope for Custom Terminations



ICS50 Removable Socket, Rear Loaded — Flexible Design Envelope for Custom Terminations



All dimensions are in inches [mm]. All specifications subject to change without notice. • ISO 9001:2008



ICS60 Series ~ 0.60mm Contacts

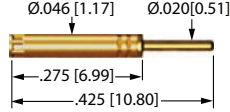
PINS

PCB Termination

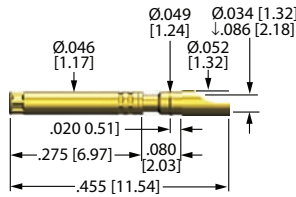
Solder Cup Termination

Crimp Termination

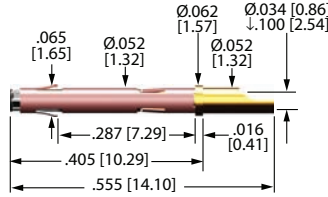
SOCKETS



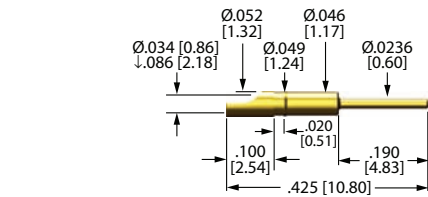
ICS60 B2 S1P1



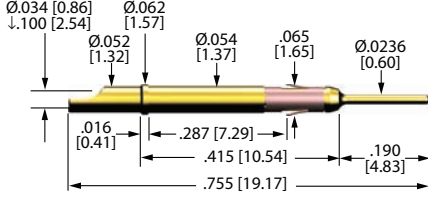
ICS60 B1 S1S5



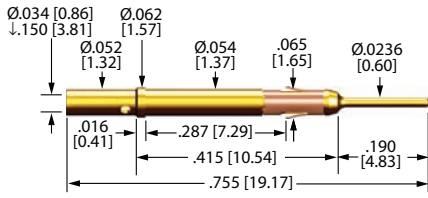
ICS60 A1 S1S5



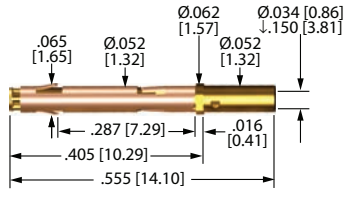
ICS60 B1 P2S5



ICS60 A1 P2S5



ICS60 A1 P2C5

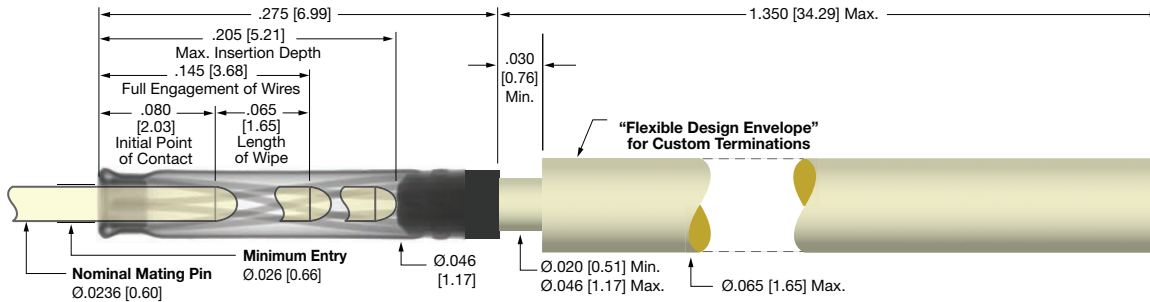


ICS60 A1 S1C5

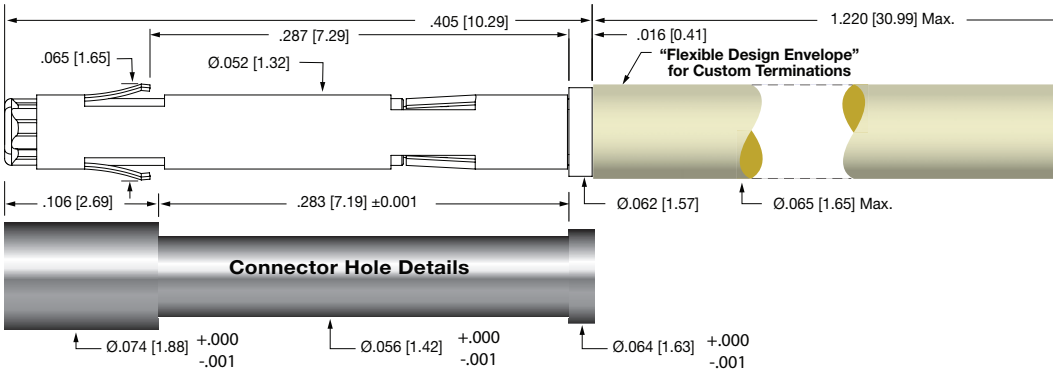
MECHANICAL	SPECIFICATION
Insertion/Extraction Force	<3oz [85gms] nominal
Retention Force	5.0 lbs [22.2 N]
Durability (EIA 364-9C)	Up to 100,000 cycles, <2 mΩ change
Operating Temperature	-65°C to 125°C
Wire Size for Crimp & Solder Cup	22-26 AWG
Mechanical Shock (EIA 364-27B)	500 g no damage, no discontinuities >10 nanosec
Random Vibration (EIA 364-28D) cond VI, Ltr I	43.92 g rms no damage, no discontinuities >10 nanosec
ELECTRICAL	
Resistance (LLCR-EIA 364-23B)	< 5 mΩ
Current Rating	4.0 Amp nominal for 30°C ΔT with 22 AWG wiring
MATERIALS	
Contact Wires	Beryllium Copper, 50 μ-inch of gold plating over nickel
Sleeve	Beryllium Copper, 10 μ-inch of gold plating over nickel
All Terminations	Brass, 10 μ-inch of gold plating over nickel
Spring Clip	Beryllium Copper, not plated
Mating Pins	Brass, 50 μ-inch of gold plating over nickel

US Patent No. 6,767,260

ICS60 Press-Fit Socket — Flexible Design Envelope for Custom Terminations



ICS60 Removable Socket, Rear Loaded — Flexible Design Envelope for Custom Terminations



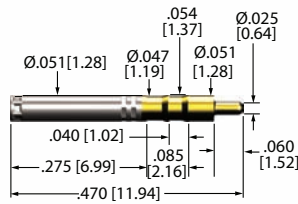
All dimensions are in inches [mm]. All specifications subject to change without notice. • ISO 9001:2008

ICS70 Series ~ 0.70mm Contacts

PINS

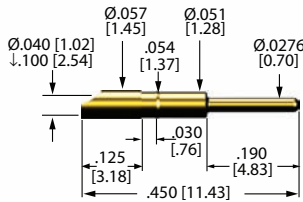
PCB Termination

SOCKETS

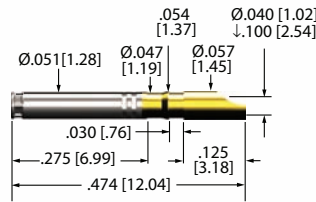


ICS70 B1 S2P1

Solder Cup Termination

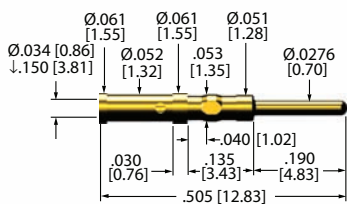


ICS70 B1 P2S6

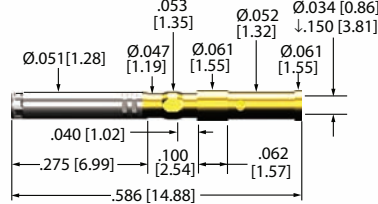


ICS70 B1 S2S6

Crimp Termination



ICS70 B1 P2C5



ICS70 B1 S2C5

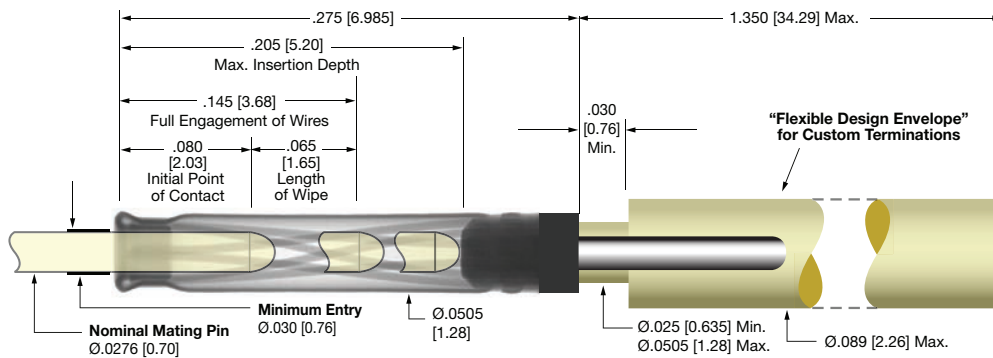
MECHANICAL

SPECIFICATION

Insertion/Extraction Force	<3oz [85gms] nominal
Retention Force	5.0 lbs [22.2 N]
Durability (EIA 364-9C)	Up to 100,000 cycles, <2 mΩ change
Operating Temperature	-65°C to 125°C
Wire Size for Crimp & Solder Cup	22-26 AWG
Mechanical Shock (EIA 364-27B)	500 g no damage, no discontinuities >10 nanosec
Random Vibration (EIA 364-28D) cond VI, Ltr I	43.92 g rms no damage, no discontinuities >10 nanosec
ELECTRICAL	
Resistance (LLCR-EIA 364-23B)	< 6 mΩ
Current Rating	4.5 Amp nominal for 30°C ΔT with 22 AWG wiring
MATERIALS	
Contact Wires	Beryllium Copper, 50 μ-inch of gold plating over nickel
Sleeve	Stainless Steel
All Terminations	Brass, 10 μ-inch of gold plating over nickel
Mating Pins	Brass, 50 μ-inch of gold plating over nickel

US Patent No. 6,767,260

ICS70 Press-Fit Socket — Flexible Design Envelope for Custom Terminations



All dimensions are in inches [mm]. All specifications subject to change without notice. • ISO 9001:2008



About QA Technology

QA Technology was founded in 1981 and has since been recognized as a worldwide leader in the manufacture of high quality spring contact test probes. QA designs and builds its own flexible, high-speed automatic assembly equipment, which allows us to typically ship orders within 24-48 hours. Now QA Technology brings the same high quality and manufacturing speed to the hyperboloid contact market.



integra
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