

# High Reliability Hyperboloid Contacts

ICO SERIES

integra  
**Mate**<sup>TM</sup>



# integraMate Hyperboloid Contacts



**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.

## Competitive Advantages

The integraMate Hyperboloid Contact System has three clear advantages over existing hyperboloid contacts:

1. Lower and more uniform insertion and extraction force
2. Smaller contact diameter allows closer spacing and higher connector density
3. Better protection of the hyperbolic wire cage from accidental damage, since the cage lies behind a strong tubular entrance

## 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

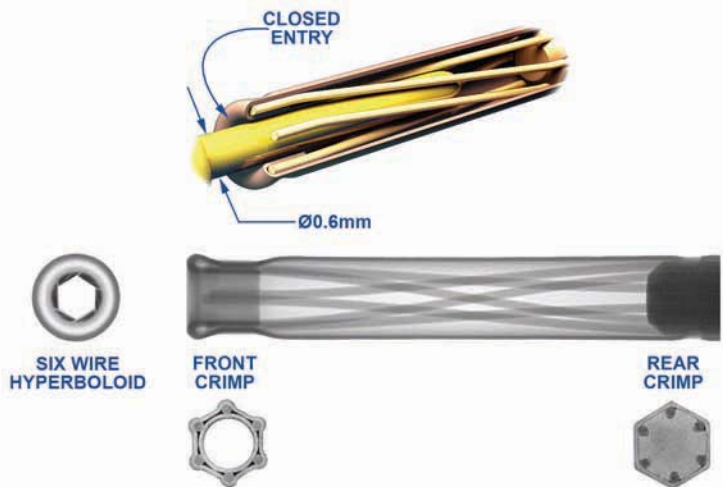
High reliability connectors for:

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

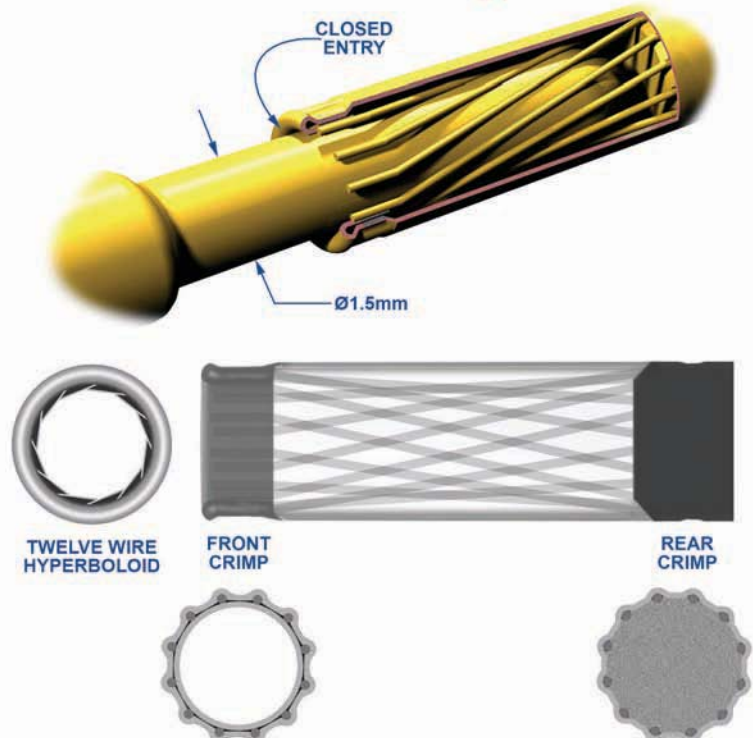
\* Contacts have been tested while installed in integraMate circular connectors for resistance to vibration, shock, humidity, and corrosion. For details and test results, please contact QA.

## Socket Construction Details

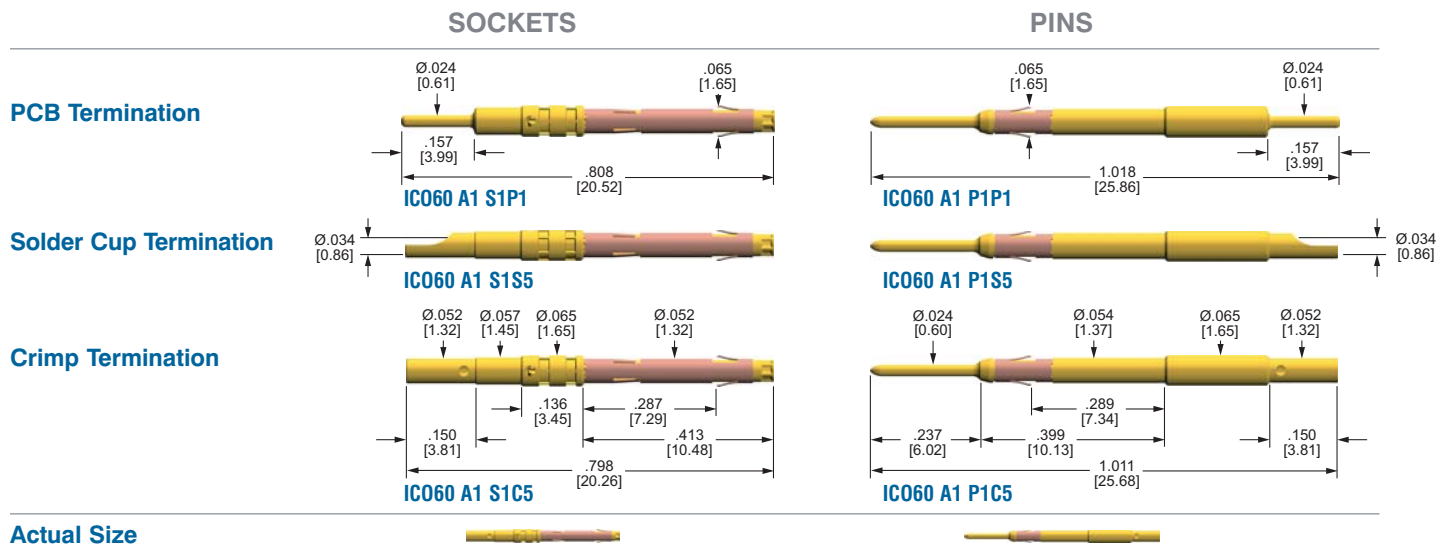
### 0.6mm Signal Contacts Type ICO60



### 1.5mm Power Contacts Type ICOA5



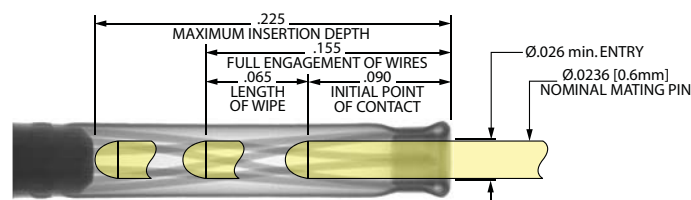
# 0.6mm Signal Contacts Type ICO60



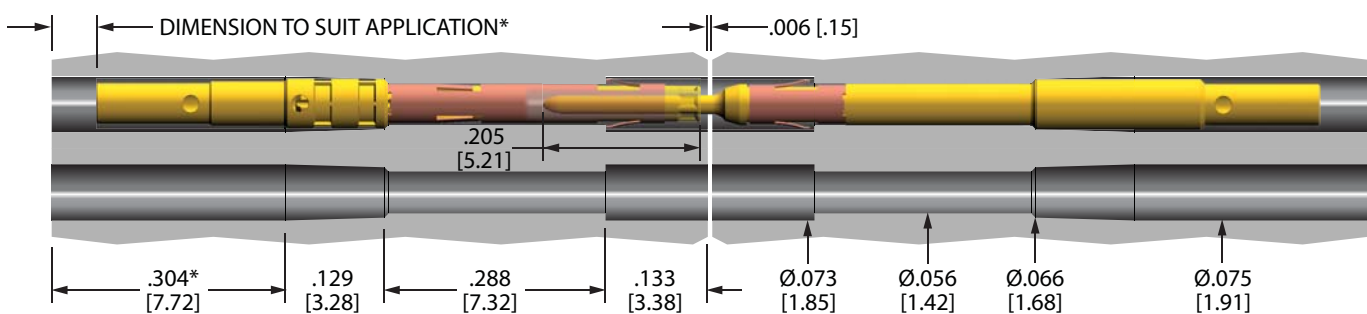
## Specifications

Mechanical	Specification
Insertion/Extraction Force	3.0 oz [85 g] typical
Retention Force	5.0 lb [22.2 N]
Durability (Cycle Life)	Up to 100,000 Cycles
Electrical	
Current Rating	4.0 Amps nominal (dependent upon mounting config., contact density, ambient temp., etc.)
Contact Resistance	4.0 milliohms maximum, 3 milliohms typical
Wire Size	22 – 26 AWG Crimp & Solder Cup
Materials	
Contact Wires	Beryllium Copper, ends not plated
Spring Clip	Beryllium Copper, not plated
All other parts	High conductivity copper alloys
Plating	<ul style="list-style-type: none"> <li>• 50 <math>\mu</math>-inch of gold plating over nickel on all sliding contact surfaces</li> <li>• 10 <math>\mu</math>-inch minimum of gold plating over nickel on all other surfaces, except as noted</li> </ul>

## ICO60 Pin / Socket Engagement Lengths



## Typical Dimensions for Mounting in Insulator



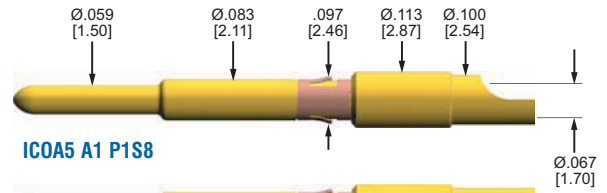
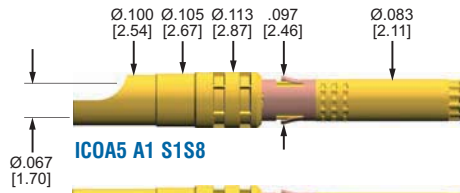
All specifications subject to change without notice. All dimensions are in inches [mm]

# 1.5mm Power Contacts Type ICOA5

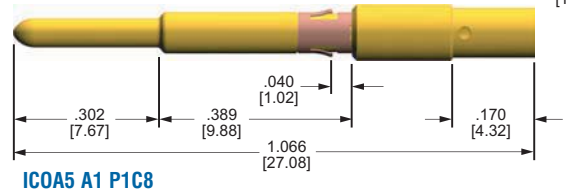
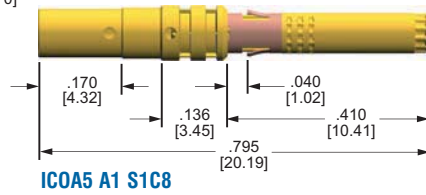
## SOCKETS

## PINS

### Solder Cup Termination



### Crimp Termination



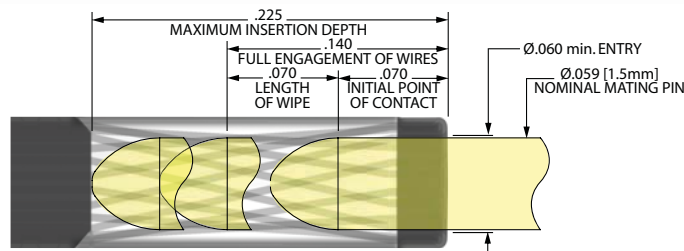
### Actual Size



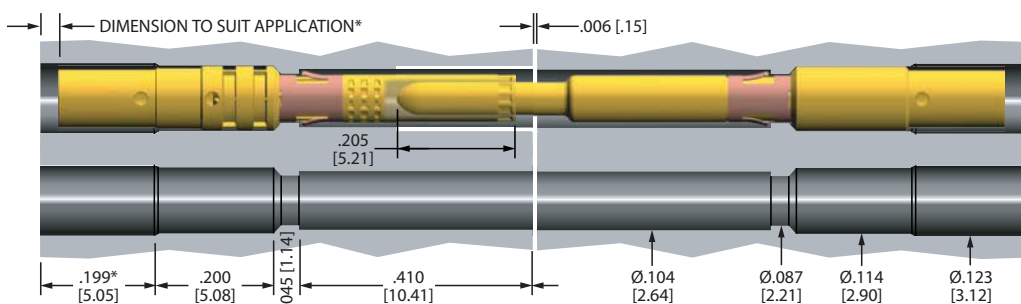
## Specifications

Mechanical	Specification
Insertion/Extraction Force	4 oz [114 g] typical
Retention Force	5.0 lb [22.2 N]
Durability (Cycle Life)	Up to 100,000 Cycles
Electrical	
Current Rating	12.0 Amps nominal (dependent upon mounting config., contact density, ambient temp., etc.)
Contact Resistance	2 milliohms maximum, 1.5 milliohms typical
Wire Size	16 – 20 AWG Crimp & Solder Cup
Materials	
Contact Wires	Beryllium Copper, ends not plated
Spring Clip	Beryllium Copper, not plated
All other parts	High conductivity copper alloys
Plating	<ul style="list-style-type: none"> <li>• 50 μ-inch of gold plating over nickel on all sliding contact surfaces</li> <li>• 10 μ-inch minimum of gold plating over nickel on all other surfaces, except as noted</li> </ul>

## ICOA5 Pin / Socket Engagement Lengths



## Typical Dimensions for Mounting in Insulator



All specifications subject to change without notice. All dimensions are in inches [mm]

## integraMate™ Hyperboloid Contact Ordering Information

### 0.6mm Contact Order Code:

I C O 6 0

A 1

1

Contact Type	Termination Type	Wire Size
P Pin	P PCB	1 Ø .024 Solder Tail
S Socket	C Crimp	5 22-26 AWG
	S Solder Cup	

### 1.5mm Contact Order Code:

I C O A 5

A 1

1 8

Contact Type	Termination Type	Wire Size
P Pin	C Crimp	8 16-20 AWG
S Socket	S Solder	

### Accessories and Tools for ICO60 (0.6mm) Contacts

ITC-100	<b>Crimping Tool</b> – Daniels AFM8 crimping tool (contact positioner not included)
ITP-O60	<b>Contact Positioner</b> – Positions 0.6 mm contacts in Daniels AFM8 crimping tool
ITE-O60	<b>Contact Extraction Tool</b> – Extracts 0.6 mm contacts from dielectric

### Accessories and Tools for ICOA5 (1.5mm) Contacts

ITC-200	<b>Crimping Tool</b> – Daniels AF8 crimping tool (contact positioner not included)
ITP-OA5	<b>Contact Positioner</b> – Positions 1.5 mm contacts in Daniels AF8 crimping tool
ITE-OA5	<b>Contact Extraction Tool</b> – Extracts 1.5 mm contacts from dielectric



ITC-100 & ITC-200 Crimping Tools



ITP-O60 Positioner  
for 0.6 mm Contacts



ITP-OA5 Positioner  
for 1.5 mm Contacts



ITE-O60 Extraction Tool  
for 0.6 mm Contacts



ITE-OA5 Extraction Tool  
for 1.5 mm Contacts



## 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.



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