Hyperboloid Contacts for High Performance Connectors

ICS SERIES

IntegraMate®

Technology Company, Inc.
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

## Mechanical Specification

### Insertion/Extraction Force
1 oz [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)
43.92 g rms no damage, no discontinuities >10 nanosec

## Electrical Specification

### Resistance (LLCR-EIA 364-23B)
< 8 mΩ

### Current Rating
1 Amp nominal for 30°C \( \Delta T \) 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

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

**Nominal Mating Pin**

- Ø0.0177 [0.45]

**Minimum Entry**

- Ø0.031 [0.78]

**Flexible Design Envelope**

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

All dimensions are in inches [mm]. All specifications subject to change without notice. • ISO 9001:2008
ICS45 Series ~ 0.45mm Contacts

**MECHANICAL**

**SPECIFICATION**

- Insertion/Extraction Force: <3 oz [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): 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

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

- **PCB Termination**
- **Solder Cup Termination**
- **Crimp Termination**

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

- **PINS**
- **SOCKETS**

All dimensions are in inches [mm]. All specifications subject to change without notice. • ISO 9001:2008
ICS50 Press-Fit Socket — Flexible Design Envelope for Custom Terminations

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<th>PCB Termination</th>
<th>Solder Cup Termination</th>
<th>Crimp Termination</th>
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ICS50 Removable Socket, Rear Loaded — Flexible Design Envelope for Custom Terminations

<table>
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<tr>
<th>Pins</th>
<th>PCB Termination</th>
<th>Solder Cup Termination</th>
<th>Crimp Termination</th>
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<td>Ø.020 [0.51]</td>
</tr>
</tbody>
</table>

**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

**ELECTRICAL**

- Resistance (LLCR-EIA 364-23B): < 7 mΩ
- Current Rating: 3.0 Amp nominal for 30°C ∆T 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

For detailed product specifications, please contact QA Technology Company, Inc. at (603) 926-1193 or sales@qatech.com.
ICS60 Series ~ 0.60mm Contacts

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 Vl, 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 ∆T 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

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All dimensions are in inches [mm]. All specifications subject to change without notice. • ISO 9001:2008
# ICS70 Series ~ 0.70mm Contacts

## PINS

### PCB Termination

- **Nominal Mating Pin**: Ø.0276 [0.70]
- **Minimum Entry**: Ø.030 [0.76]
- **Ø.040 [1.02]**
- **Ø.054 [1.37] Min.**
- **Max. Ø.060 [1.52]**

### Solder Cup Termination

- **Nominal Mating Pin**: Ø.0276 [0.70]
- **Minimum Entry**: Ø.0505 [1.28]
- **Min. Ø.054 [1.37]**
- **Max. Ø.060 [1.52]**

### Crimp Termination

- **Nominal Mating Pin**: Ø.0276 [0.70]
- **Minimum Entry**: Ø.0505 [1.28]
- **Min. Ø.054 [1.37]**
- **Max. Ø.060 [1.52]**

## SOCKETS

### ICS70 B1 S2P1

- **Max. Insertion Depth**: 1.350 [34.29]
- **Max. Ø.060 [1.52]**
- **Min. Ø.054 [1.37]**
- **Max. Ø.060 [1.52]**

### ICS70 B1 S2S6

- **Max. Insertion Depth**: 1.350 [34.29]
- **Max. Ø.060 [1.52]**
- **Min. Ø.054 [1.37]**
- **Max. Ø.060 [1.52]**

### ICS70 B1 P2S6

- **Max. Insertion Depth**: 1.350 [34.29]
- **Max. Ø.060 [1.52]**
- **Min. Ø.054 [1.37]**
- **Max. Ø.060 [1.52]**

### ICS70 B1 P2C5

- **Max. Insertion Depth**: 1.350 [34.29]
- **Max. Ø.060 [1.52]**
- **Min. Ø.054 [1.37]**
- **Max. Ø.060 [1.52]**

## 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

### SPECIFICATION

- **Resistance (LLCR-EIA 364-23B)**: < 6 mΩ
- **Current Rating**: 4.5 Amp nominal for 30°C ∆T 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

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

- **“Flexible Design Envelope” for Custom Terminations**
- **Max. Insertion Depth**: 1.350 [34.29]
- **Min. Ø.0505 [1.28]**
- **Max. Ø.089 [2.26]**
- **Nominal Mating Pin**: Ø.0276 [0.70]

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