SPACECRAFT COMPONENTS CORP.

Your Connector Consultant Since 1962

# QPL LISTED CONTACTS

## Per AS39029

For Harsh Environments with Patented Reverse Clip Technology

SPACECRAFT COMPONENTS CORP.

in collaboration with

preci-dip

# REVOLUTIONARY CONTACT TECHNOLOGY

## HOODED CONTACTS USING THE REVERSE CLIP PATENTED TECHNOLOGY

### CONTACT DESIGN

The contact consists of three parts, manufactured separately from different base materials. This design optimises the performance and selects the most appropriate individual production process:

- Contact body: machined brass.
- Reverse clip: stamped and formed beryllium-copper.
- Hood: deep-drawn stainless steel.

Separate electroplating processes of the body and clip allow the best cost-performance ratio. The assembly of the three parts is carried out on dedicated, fully automated assembly lines.

### ADVANTAGES AND CHARACTERISTICS

- Smaller difference between insertion and extraction forces.
- Reduced dispersion of the force values.
- By using a 6 or 8 contact finger, a superior electrical contact is made at the point of engagement.

### TECHNICAL SPECIFICATIONS

Operating temperature range from -65 to +200°C

**Contact Body**

| | |
|---|---|
| Material: | Machined brass C34500 |
| Overall finish: | Gold plated acc. to ASTM B488, Type II, C, over 2.5 µm Ni |

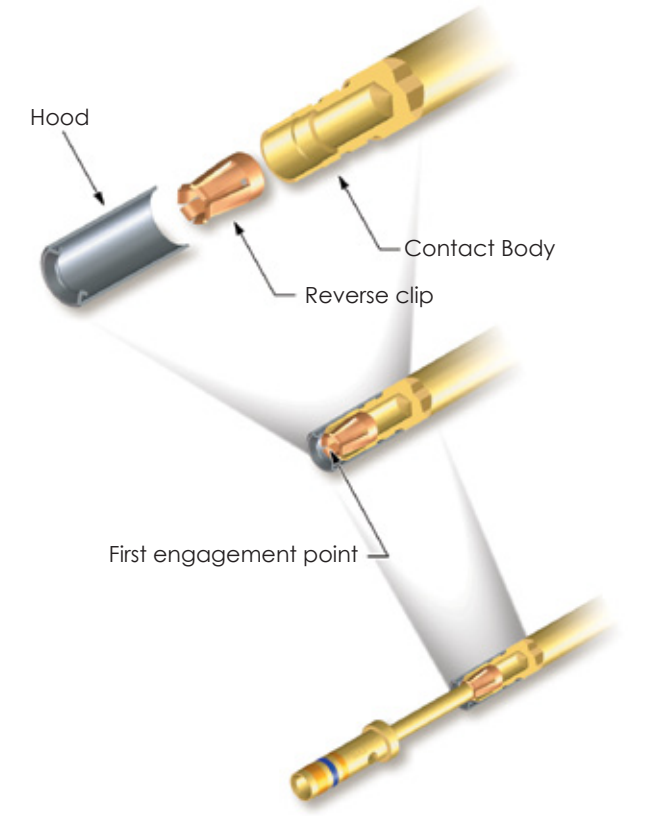
**Reverse Clip**

| | |
|---|---|
| Material: | BeCu C17200 |
| Overall finish: | Gold plated acc. to ASTM B488, Type II, C, min. 1.27 µm over 2.5 µm Ni |

**Hood**

| | |
|---|---|
| Material: | Corrosion-resistant steel |

Exploded View of Socket Contact




## HOODLESS CONTACTS USING THE EAGLE GRIP CLIP PATENTED TECHNOLOGY

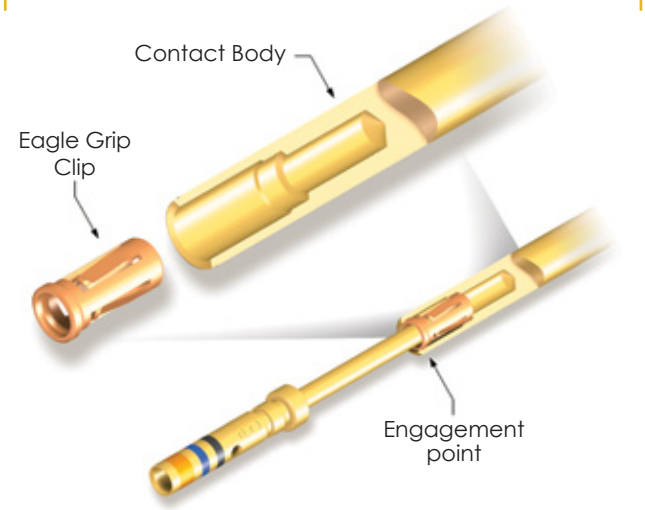
### CONTACT DESIGN

- The hoodless contact consists of two parts: the contact body and the clip (separate pressure member) are made from different base materials.
- The high-speed screw machined contact body is made of brass.
- The use of quality crimping brass renders the annealing operation unnecessary.
- The precision stamped and formed Eagle Grip clip is made of beryllium-copper.
- Separate electroplating processes of the body and clip offer the best cost-performance ratio.
- Automatic assembly lines are designed by our engineers to conduct the body and clip assembly.
- The clip is precisely positioned in the outer shell and firmly held in place between a shoulder and the crimp lip.
- Eagle Grip clip hoodless contacts are presently available in sizes 16, 20 and 22.
- This PRECI-DIP proprietary technology is protected by international patents.

### ADVANTAGES AND CHARACTERISTICS

- 2-piece contact without hood.
- Fully automatic assembly process with in-line mechanical check.
- Localized finish: body and clip are plated separately.
- High surface quality with a stamped and formed clip.
- Precision rolling surface finish in the contact area.
- Better contact redundancy thanks to 3 or 4 contact fingers.
- Limited difference between insertion and extraction mating forces.
- Narrow range of the force values.
- Swiss precision technology.

Exploded View of Socket Contact




**Contact Body**

| | |
|---|---|
| Material: | Machined brass C34500 |
| Overall finish: | Gold plated acc. to ASTM B488, Type II, C, over 2.5 µm Ni |

**Clip**

| | |
|---|---|
| Material: | BeCu C17200 |
| Overall finish: | Gold plated acc. to ASTM B488, Type II, C, min. 1.27 µm Au over 2.5 µm Ni |

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## DESCRIPTION AND TECHNICAL SPECIFICATIONS

### FUNCTIONAL PRINCIPLE

PRECI-DIP spring-loaded contacts consist of a contact body or barrel, a piston and an helical compression spring. Electrical contact is established by the pressure against a fixed, flat area called the pad connector.

### AN EVOLVING LINE

The electrical multipoint connection between the mobile piston and the clip guarantees low, stable electrical resistance values without micro-discontinuities, even when the piston is moving or in case of vibrations, thus assuring maximum reliability.

| CHARACTERISTICS | Standard Contacts | Improved-Design Contacts | | High Reliabitilty Contacts | |
|---|---|---|---|---|---|
| | Hollow Piston Design | Slant Piston Design | Polygonal Piston Design | Clip Coaxial Design | Clip In-Line Design |
| |  |  |  |  |  |
| **Environmental** | | | | | |
| Operating temp, range | - 55°C to + 85°C (music wire) /+ 125°C (stainless steel) | | | | |
| **Materials (RoHS-Compliant)** | | | | | |
| Piston | Gold plated machined brass | | | | |
| Barrel | Gold plated machined brass | | | | |
| Spring | Gold plated music wire / Stainless steel | | | | |
| Clip | – | – | | Gold plated BeCu C17200 | |
| **Mechanical** | | | | | |
| Min. diameter | 1.1 mm | 1.5 mm | | 1.8 mm | 0.8 mm |
| Min. initial height | 2.5 mm | 5 mm | | 4.5 mm | 9 mm |
| Travel / height ratio | Max. 0.3 | Max. 0.2 | | Max. 0.2 | Max. 0.15 |
| Max. travel (stroke) | 2 mm | 2 mm | | 1.5 mm | |
| Min. initial spring force | 0.2 N | 0.2 N | | 0.2 N | |
| Mechanical life* | 100,000 cycles | 50,000 cycles | | 40,000 cycles | |
| **Electrical** | | | | | |
| Contact resistance** | Max. 15 mΩ | Max. 10 mΩ | | Max. 20 mΩ | |
| Max. operating current*** | 1A cont. / 2A peak | 3.5A cont. / 7A peak | | 2A cont. / 4A peak | |

* Tested at nominal stroke with perpendicular pad connector area
** Static measurement in halfway position of piston travel
*** Above max. current values are for single contacts in free air and for 10°C temperature rise.
Values are indicative and may be affected by contact force, static or dynamic applications, shocks or vibrations

## M39029 CONTACTS IN INVENTORY

| Part Number | Desc. | Size | Wire Range | Connector Specifications |
|---|---|---|---|---|
| M39029/4-110 | Pin | 20 | 20-24 | MIL-DTL-26482 Series 2, AS 81703 Series 3 MIL-DTL-83723 Series III, MIL-DTL-83733 |
| M39029/4-111 | Pin | 16 | 16-20 | |
| M39029/4-113 | Pin | 12 | 12-14 | |
| M39029/5-115 | Socket | 20 | 20-24 | |
| M39029/5-116 | Socket | 16 | 16-20 | |
| M39029/5-118 | Socket | 12 | 12-14 | |
| M39029/31-229 | Pin | 16 | 16-20 | MIL-DTL-26482 Series 1, MIL-DTL-26500 |
| M39029/31-240 | Pin | 20 | 20-24 | MIL-DTL-26482 Series 1 |
| M39029/32-248 | Socket | 16 | 16-20 | MIL-DTL-26482 Series 1, MIL-DTL-26500 |
| M39029/32-259 | Socket | 20 | 20-24 | MIL-DTL-26482 Series 1, MIL-DTL-26500 |

| Part Number | Desc. | Size | Wire Range | Connector Specifications |
|---|---|---|---|---|
| M39029/56-348 | Socket | 22D | 22-28 | MIL-DTL-24308, MIL-DTL-38999 Series I, III & IV |
| M39029/56-351 | Socket | 20 | 20-24 | |
| M39029/56-352 | Socket | 16 | 16-20 | |
| M39029/56-353 | Socket | 12 | 12-14 | |
| M39029/57-354 | Socket | 22D | 22-28 | MIL-DTL-24308, MIL-DTL-38999 Series II, MIL-DTL-55302/71/72/75, MIL-DTL-83733 |
| M39029/58-360 | Pin | 22D | 22-28 | MIL-DTL-24308, MIL-DTL-38999 Series I, II, III, IV, MIL-DTL-55302/69, MIL-DTL-83733 |
| M39029/58-363 | Pin | 20 | 20-24 | |
| M39029/58-364 | Pin | 16 | 16-20 | |
| M39029/58-365 | Pin | 12 | 12-14 | |

## CUSTOM DESIGN CONTACTS

Developing custom solutions from customer concept to actual product is our specialty!

Our group of engineers are experts in providing solutions from a cost-effectiveness and efficiency standpoint. Experienced with countless standard products and more than 20,000 references underlie the incessant development of exceptional quality products.

Contact Spacecraft to manage your custom designs!

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SCP 5015 STYLE CONNECTORS
(CATALOG 102)

SCPT 26482 STYLE
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SC2 38999 SERIES II
SC39 38999 SERIES III
(CATALOG 202)

SCPB SERIES
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