TIMELINE & HISTORY

1966 - Founded as an aerospace component manufacturer

1978 - Qualified to MIL-DTL-28748

1980 - Qualified to MIL-DTL-24308 & MIL-C-39029

1983 - Operations in Puerto Rico began

1991 - Operations in Europe began
Since 1966, Positronic has provided connector solutions to customers around the world.

Positronic offers a wide variety of power, D-subminiature, circular and rectangular connector products and accessories. Value-added services are also available.

Our connectors feature precision machined contacts and can be provided to industrial or military performance levels to meet various target price points.

Our products are used in all areas of the electronics industry from basic power supplies to advanced weapon systems.
The Engineering department accomplishes a variety of key company objectives such as designing new products for standard and customer-specific applications, modifying existing products to meet customer demands, undertaking value engineering initiatives, and offering technical support for existing product lines. A focus on 3D modeling during the design process is augmented by in-house 3D printing capabilities.

The Tooling department has a host of capable machines like CNCs and EDMs that are used to manufacture punch press dies, molds, assembly fixtures, cams and other tools for in-house use. The department also manufactures assembly tools used by Positronic customers worldwide.

The Molding department houses multiple thermoplastic and thermoset plastic molding machines that are used to mold connector insulators, backshells, angle brackets, cable clamps and other plastic accessories.

The Metal Fab department boasts a number of punch presses in varying sizes and capabilities that are used to manufacture connector shells, backshells, angle brackets, cable clamps and other metal accessories.

One of the core competencies of Positronic is screw machine technology. Across all locations, Positronic has over 200 automatic lathes to manufacture thousands of varieties of electrical contacts for use in its broad connector product lines. These machines are also used to manufacture certain types of component hardware.

With a variety of test equipment to choose from, the Positronic test lab is certified to carry out a variety of tests to IEC standards plus QPL testing to military standards MIL-DTL-24308, SAE AS39029 and MIL-DTL-28748. In addition, the lab is approved by UL as part of the Client Test Data program and has the ability to verify product performance to IP65 and IP67 requirements.
Positronic has a robust TQM program and is AS9100/ISO9001 compliant at various locations. The QA department manages continuous improvement initiatives to ensure quality is designed into the product through rigid process control and a dedicated Quality Engineering staff. The company is also certified to act as a Designated Supplier Quality Representative (DSQR) for some of the world’s most respected companies.

Manufacturing Engineering designs and implements state of the art manufacturing processes and proprietary equipment for in-house use. This includes automated, high-speed assembly tools and robotic equipment used to maximize efficiency while minimizing manufacturing defects.

Positronic has multiple stocking locations around the world for both components and finished goods. Finished goods are available to ship within 1 business day from the time the order is received and PosiShop, the e-Commerce division of Positronic, offers thousands of products for sale online.

The Assembly department handles finished connector assembly along with a variety of secondary manufacturing operations such as slotting, drilling, tapping, milling, depressing, sleeving, striping and reeling, among others.

Positronic has an extensive sales and support network all over the world with key regional offices in the USA, France, India, Singapore and China. In addition to many highly trained direct sales staff, the company also partners with electronics distributors in strategic parts of the world to better serve the customers in those areas.

The internal plating shop applies gold, nickel, copper, zinc, tin, chromate conversion, electroless nickel and anodic coatings to connector components prior to the assembly process. Plating inspection technology exists to verify plating thickness, adhesion and appearance to meet military specifications.
OUR FOCUS

POWER ELECTRONICS
INDUSTRIAL
COMMERCIAL AEROSPACE
TELECOM / DATACOM
DEFENSE
TEST & INSTRUMENTATION
SPACEFLIGHT
TRANSPORTATION
MEDICAL
OIL & GAS
OUR STRENGTHS

SOLID MACHINED, LOW RESISTANCE CONTACTS
POWER CONNECTORS
D-SUBMINIATURE CONNECTORS
RECTANGULAR CONNECTORS
CUSTOM CONNECTOR DEVELOPMENT
POSIBAND CONTACT TECHNOLOGY
E-COMMERCE
SERVICE & SUPPORT
### TECH SPECS

#### POWER CONNECTORS

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<th>LOW-PROFILE SCORPION</th>
<th>PANTHER</th>
<th>POWER CONNECTION SYSTEMS</th>
<th>GOLDFISH</th>
<th>GREAT GOLDEN</th>
<th>COMPACT POWER CONNECTOR</th>
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<th>VITA 41 (VXS)</th>
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<td>Crimp Solder Cup Press-Fit PCB</td>
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<td>Crimp Ring Terminal Busbar</td>
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<td>EN45545-2 HL3</td>
<td>FAR 25.853</td>
<td>NFF 16-101/102</td>
<td>CUL</td>
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</tbody>
</table>

All Positronic contacts are machined from solid copper alloy and plated gold for maximum performance. Gold plating thickness options include gold flash, 30 microinches and 50 microinches. All insulators meet UL 94V-0 requirements.

**High conductivity contacts are available for most product families. On average, the current rating will be improved by 20-50%.

**28 amp rating applies to DC output and 40 amp rating applies to AC/DC input.

**7.5 amp rating applies to GAP/GAPL series and 13 amp rating applies to GMCT series.

**The listed qualification may not apply to all products within the family. Safety agency certifications not listed here may have been pending at the time of printing. Consult sales for current status.
<table>
<thead>
<tr>
<th>D-SUBMINIATURE CONNECTORS</th>
<th>RECTANGULAR CONNECTORS</th>
<th>CIRCULAR CONNECTORS</th>
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<td><strong>HIGH DENSITY</strong></td>
<td><strong>COMBO-D</strong></td>
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<td>ODD, DDP, XAVAC, SAVAC, HVAC</td>
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</table>
The most versatile modular power/signal connector on the market

FEATURES

Modular tool design allows for practically limitless customer-defined contact arrangements

Molding process yields a one-piece insulator

The connector width is variable up to 101.00 mm

High conductivity contacts available to maximize current density

For high voltage requirements, increase creepage and clearance distances with spacer modules

Sequential mating

Superior blind mating

Venting options for improved cooling

Backshell available

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</tbody>
</table>

*1 Contact Sales for size 24 options.

*2 High conductivity contacts are available for most product families. On average, the current rating will be improved by 20-50%.
1. Define the requirements
2. Select the modules
3. Configure the part number

**MODULES**

- Size 4
- Size 8
- Size 12
- Size 16
- Size 18
- Size 22
- Size 24
- Spacers

*Contact Sales for size 24 options.*
A **low-profile** (8.20mm) version of the modular Scorpion family

**FEATURES**

- Modular tool design allows for tens of thousands of customer-defined contact arrangements
- Molding process yields a one-piece insulator
- Maximize power throughput and minimize space claim
- The connector width is variable up to 101.00 mm
- High conductivity contacts available to maximize current density
- For high voltage requirements, increase creepage and clearance distances with spacer modules
- Sequential mating
- Integrated blind mating
- Venting options for improved cooling

| CONTACT SIZE | CURRENT RATING (AMPS) *
<table>
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<tbody>
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</tbody>
</table>

- High conductivity contacts are available for most product families. On average, the current rating will be improved by 20-50%.
Rugged **IP65/67/68/69K** connector for use in rail, earth moving, battery and related applications

**FEATURES**

- Meets EN45545-2 HL3 smoke and toxicity requirements for rail passenger applications
- IP65/67/68/69K ratings are achieved in mated condition
- Operating temperatures to 200°C
- Contact current ratings up to 110 amps per contact when using high conductivity versions

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*High conductivity contacts are available for most product families. On average, the current rating will be improved by 20-50%.

**PART NUMBER PREFIX**
- PA, PB

**CONTACTS**
- PACKAGE SIZES
- LAYOUTS
- Wire
- Solder
- Press-fit
The original blue power connector with size 16 contacts

FEATURES

An industry-leading, high reliability power connector for more than 20 years

One, two or three contact row options

High conductivity contacts available to maximize current density

Sequential mating

Locking latch integrated into connector housing

Unique right angle press-fit available

Terminate a variety of wire gauges into a single connector

Economical

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</table>

*1 High conductivity contacts are available for most product families. On average, the current rating will be improved by 20-50%.
A **economical**, blind mating power/signal connector with many options

**FEATURES**

Ideal for applications requiring robust blind mating in a compact, economical package

Mixed density (hybrid) connector offers options for AC/DC input, DC output at multiple voltages and signal control

Touch-safe recessed female contacts

High conductivity contacts available to maximize current density

Sequential mating

Excellent blind mating

Hot swap

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</table>

High conductivity contacts are available for most product families. On average, the current rating will be improved by 20-50%.
Up to **400 amps** of throughput in a robust, modular housing

**FEATURES**

- Fixed-length modular connector for ultra-high power applications
- Select one of five different modules for each of the four insert positions
- Busbar options available
- Superior blind mating
- Robust housing stands up to abuse
- Hot swap

| CONTACT SIZE | CURRENT RATING (AMPS) *
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</table>

*Ring terminal and busbar options available

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*High conductivity contacts are available for most product families. On average, the current rating will be improved by 20-50%.
Plug-in power interface for **CompactPCI** and other platforms

**FEATURES**

- P47 connector (PCIH47) is compliant to the PICMG 2.11 Power Connector Interface specification also known as CompactPCI
- Mixed density (hybrid) connector offers options for AC/DC input, DC output at multiple voltages and signal control
- Touch-safe recessed female contacts
- Keying options
- Sequential mating
- Coplanar mounting options

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| CONTACTS | PART NUMBER PREFIX | CURRENT RATING (AMPS) *
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</table>

*1 High conductivity contacts are available for most product families. On average, the current rating will be improved by 20-50%.

*2 28 amp rating applies to DC output and 40 amp rating applies to AC/DC input.
Economical and **miniature** power/signal connector

**FEATURES**

Power/signal connector ideal for applications requiring high power density at an economical price

- Sequential mating
- Integrated locking system
- Maintains low contact resistance over 10,000 mating cycles
- 2-pole, auto-shunting version available

<table>
<thead>
<tr>
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*1: High conductivity contacts are available for most product families. On average, the current rating will be improved by 20-50%.

**PART NUMBER PREPIX** | **DF**
-----------------------|------------------------
CONNECTORS | 4 | 5
PACKAGE SIZES | | LAYOUTS
TERMINATIONS | | |
Superior **blind mating**, mixed density connector with robust housing

**FEATURES**

- Mixed density (hybrid) connector offers options for AC/DC input, DC output at multiple voltages and signal control
- Touch-safe recessed female contacts
- 3-level sequential mating
- High conductivity contacts available to maximize current density
- Excellent blind mating compensating for 7.62mm of misalignment
- Robust housing stands up to abuse
- High voltage capability
- Hot swap

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*1 High conductivity contacts are available for most product families. On average, the current rating will be improved by 20-50%.
An innovative alternative to CT shorting blocks

FEATURES

Quick and easy alternative to commonly used CT (current transformer) shorting blocks

Innovative design automatically shorts male contacts (circuits) together upon decoupling

For use in six-line “Delta” configurations or four-line “Y” configurations

Two position connector is ideal for “Ground Fault Protection” configurations

Accepts 10 and 12 AWG wire

Reduces operating cost

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</table>

*1 High conductivity contacts are available for most product families. On average, the current rating will be improved by 20-50%.
POWER INPUT CONNECTOR
(3) size 12 contacts spaced ideally for AC/DC power input

FEATURES
Screw termination facilitates field installation
Sequential mating
Hot swap

VITA 41 (VXS)
System power interface for VITA 41 systems

FEATURES
Standard power interface for VITA 41 (VXS) systems
Ultra-miniature
Three-level sequential mating

SAFETY SHROUD
Shrouded, touch-safe power connector in 5 and 7-pin versions

FEATURES
Prevents unsafe exposure to both male and female contacts
High voltage capability
Hot swap
AdvancedTCA
THE PICMG 3.0 AdvancedTCA Zone 1 connector of choice

FEATURES
The original Zone 1 power interface for AdvancedTCA systems – copied but never duplicated

Four-level sequential mating
Internal blind mate guide

CompactPCI
Plug-in power interface for CompactPCI and other platforms

FEATURES
P47 connector (PCIH47) is compliant to the PICMG 2.11 Power Connector Interface specification also known as CompactPCI

Mixed density (hybrid) connector offers options for AC/DC input, DC output at multiple voltages and signal control

Keying options

AdvancedTCA RTM
For data and management on the rear transition modules (RTM) in PICMG 3.0 R3.0

FEATURES
Common in instrumentation and high energy physics applications

Integrated blind mating
Small size minimizes space claim
High reliability D-sub with size 20 machined contacts

**FEATURES**

- Various performance levels for best cost/performance ratio
- #1 in the world for MIL-DTL-24308 connectors
- Mix and match connector with accessories to suit application requirements
- Stainless steel shells available for corrosion protection or near zero magnetism
- Ability to provide application-specific modifications at low MOQs
- Connector savers available for all sizes
- Popular lock lever available
- Thermocouple contact options available
- Machined compliant press-fit technology
- Hermetic options available

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<th>PART NUMBER</th>
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**TERMINATIONS**

- crimp wire
- solder cup wire
- solder PCB
- press-fit PCB

*High conductivity contacts are available for most product families. On average, the current rating will be improved by 20-50%.*
High reliability D-subs with size 22 machined contacts

FEATURES

Maximize signal count and minimize space claim while adhering to standard D-sub shell sizes

Shell size 6 (104-pin) available

Various performance levels for best cost/performance ratio

#1 in the world for MIL-DTL-24308 connectors

Mix and match connector with accessories to suit application requirements

Stainless steel shells available for corrosion protection or near zero magnetism

Ability to provide application-specific modifications at low MOQs

Connector savers available for all sizes

Thermocouple contact options available

Machined compliant press-fit technology

Hermetic options available

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*1 High conductivity contacts are available for most product families. On average, the current rating will be improved by 20-50%.
**Mixed density** D-sub to mix signal/power/coax/HV and fiber optic

**FEATURES**

- High quality, mixed density D-subs to combine signal, power, coax, high voltage and fiber optic (ARINC 801) in a single package
- Ideal for mixed mode I/O on slim “black boxes”
- Shell size 6 (46W4-pin) available
- Stainless steel shells available for corrosion protection or near zero magnetism
- Ability to provide application-specific modifications at low MOQs
- Connector savers available for all sizes
- Thermocouple contact options available
- Mixed high density options

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</table>

**TERMINATIONS**

- crimp, solder cup, solder, press-fit

*High conductivity contacts are available for most product families. On average, the current rating will be improved by 20-50%.
For **extreme** applications requiring non-outgassing and low magnetism

**FEATURES**

Highest reliability D-subs for mission critical applications

Select products qualified to NASA Goddard Space Flight Center S-311 requirements and MIL-DTL-24308 Class M

Meets NASA outgassing standards

Near zero magnetic characteristics

Standard and high density signal options

Available with mixed power and signal for all package sizes

Connector saver options

Lightweight aluminum backshells available

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<tr>
<th>PART NUMBER PREFIX</th>
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*High conductivity contacts are available for most product families. On average, the current rating will be improved by 20-50%.*
For applications requiring **IP65 / IP67** waterproofing characteristics

**FEATURES**

Water and dust ingress protection to IP65 / IP67

Standard and high density signal options

Panel mount and cable versions available

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</table>

- **CONNECTORS**
  - **PACKAGE SIZES**: 5
  - **LAYOUTS**: 10

- **TERMINATIONS**
  - Crimp
  - Solder cup
  - Solder PCB

*High conductivity contacts are available for most product families. On average, the current rating will be improved by 20-50%.*
**Stacked** right angle D-sub connections to save panel and board space

**FEATURES**

- Two D-sub connectors, vertically stacked and assembled as one unit, saving panel and board space.
- Assembly costs are reduced by streamlining two assembly processes into one.
- Available in numerous combinations of standard density, high density, and mixed density D-sub connectors.
- Multiple spacings available between upper and lower connector bodies.

<table>
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<tr>
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* High conductivity contacts are available for most product families. On average, the current rating will be improved by 20-50%.
Feedthroughs for vacuum applications

FEATURES

Intended for use as an electrical feedthrough in high vacuum applications

Helium leakage rate at ambient temperature: $< 5 \times 10^{-9}$ mbar.l/s under a vacuum of $1.5 \times 10^{-2}$ mbar

Signal, power, coax and high voltage versions available

Connectors can be mounted on flange assembly per customer specification (See opposite page)

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- **CONTACTS**

- **CONNECTORS**
  - 15+
  - 50+

- **TERMINATIONS**

- **FEEDTHROUGHS**

*1 High conductivity contacts are available for most product families. On average, the current rating will be improved by 20-50%.

connectpositronic.com
Custom Flange Assemblies

- Diameter, bolt-hole locations, material, etc per customer requirement
- Capable of feeding through 1000s of signals
- Mix power, high voltage, coax and signal
- Single flange simplifies maintenance
OPTIK-D
ARINC 801, multimode fiber optic terminus for use in Combo-Ds

FEATURES

Ultra low insertion loss (IL) of 0.06 dB (typical)
Return loss (RL) > 45 dB
Suitable for harsh environments
More cost effective than D38999 or ARINC 600-based systems
Hybrid connector allows for mixing modes such as optical, power, signal, high voltage and/or coax

Advantages of fiber optics include:
Safe in explosive environments
High bandwidth
EMI immune
Reduced bulk and weight in wire bundles

Protected by United States Patents 8,944,697 & 9,304,263

BACKSHELLS & ACCESSORIES
For D-sub connectors

FEATURES

Lightweight aluminum backshell with internal grounding capability
Quick disconnect locking device
Multi-gender jackscrew options
Ecomonical plastic backshell options
Brackets and spacers
Float mount options
360° shielding capability
Robust connectors for rack & panel applications

FEATURES

Rugged, durable design
Select products certified to MIL-DTL-28748 and SAE AS39029
Multiple keying (coding) options
Great option for use as a ruggedized power connector
Terminate a variety of wire gauges into a single connector
Grounding block connector available

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<th>PCB</th>
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<td>solder cup</td>
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*1 High conductivity contacts are available for most product families. On average, the current rating will be improved by 20-50%.
*2 7.5 amp rating applies to GAP/GAPL output and 13 amp rating applies to GMCT series.
High density connectors for *rack & panel* applications

**FEATURES**

- Low-profile insulator is ideal for board-to-board stacking where reliability and ruggedness are key
- Select products certified to MIL-DTL-28748 and SAE AS39029
- Multiple keying (coding) options
- Miniature and lightweight
- 104-pin option available

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### CONTACTS

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<thead>
<tr>
<th>PART NUMBER PREPIX</th>
<th>SGM, SGMC, SMPL</th>
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### CONNECTORS

- 14 PACKAGE SIZES
- 14 LAYOUTS

### TERMINATIONS

- crimp wire
- solder cup wire
- solder PCB

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*1 High conductivity contacts are available for most product families. On average, the current rating will be improved by 20-50%.
UTILITY
Low-profile building-block connector

FEATURES
- Low-profile, wafer design
- Stackable feature with countersink screw allows for modularity and flexibility
- Numerous options for polarization and keying
- Miniature, lightweight and economical

CIRCLE HEX
For legacy avionics applications

FEATURES
- Miniature and lightweight
- Twist ring locking device
- Round profile
- Two sizes available – standard and miniature
Miniature size coupled with **hybird** inserts

**FEATURES**

360 degree banding shelf near the wire exit

Audible and tactile 'click'

Mix power and signal in one connector

Electroless nickel-plated aluminum shell

A knurled, quarter-turn coupling nut

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*1 High conductivity contacts are available for most product families. On average, the current rating will be improved by 20-50%.
Size 11 and size 19 composite circular

**FEATURES**

- Lightweight, non-corrodible material
- Right angle PCB mount options
- Sequential mating
- Environmental sealing/waterproof options to IP65/67
- EMI/RFI shielded version, electroless nickel-plated
- Thermocouple contact options
- Defense quality on a budget

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**TERMINATIONS**

- Crimp wire
- Solder PCB

**CONNECTORS**

- Size 11: 2
- Size 19: 16
Quarter-turn 
economical 
circular

FEATURES

Quarter-turn locking system

Lightweight, non-corrodible, composite material

Economical

Qualified to UL #E220614

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CONNECTORS

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TERMINATIONS

solder cup wire
Closed entry female contacts are often used to enhance the performance and reliability of connectors. In legacy designs, a sleeve is placed over a standard “split-tine” contact to achieve the closed entry feature. However, Posiband, a true closed entry contact, has an unbroken ring of solid material at the mating end of the contact. This design offers a degree of increased reliability while the split-tine approach has its inherent weaknesses. The PosiBand overcomes these weaknesses!

**FEATURES**

Separates mechanical and electrical functions for superior performance

Maximized surface area at the male/female contact interface

Low contact resistance improves system efficiency

Lower average insertion forces without compromising electrical performance requirements

Contact body does not require annealing of the crimp barrel eliminating unintentional heat treating of the mating barrel

Qualified to SAE AS39029, MIL-DTL-24308 and the higher 40 gram separation requirement of the NASA GSFC S-311 specification

Used primarily on size 18, 20 and 22 contacts

Protected by United States Patent 7,115,002
**LSA & MACHINED COMPLIANT PRESS-FIT CONTACTS**

**LARGE SURFACE AREA (LSA)**

**FEATURES**

Separates mechanical and electrical functions for superior performance

Low contact resistance provides minimized voltage drop across the contact

True closed entry design prevents damage to female contacts and will not allow misaligned or bent contacts to enter

Precision machined from solid copper alloy

Stable insertion and withdrawal forces throughout repeated mating cycles

---

**MACHINED COMPLIANT PRESS-FIT**

**FEATURES**

One-piece construction from tip to tail

Low PCB insertion forces reduce board warpage and plated-through-hole damage

Designed to meet the applicable performance requirements and hole diameters as listed in the internationally recognized specification, IEC 60352-5

Protected by United States Patent 5,255,580 and 5,329,697

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**Female contact**

**Male contact**

Spring retention member provides uniform retention of male contact when mated

Spring retention member

Section A enlarged
CUSTOM CONNECTORS

Positronic stands alone in our ability and desire to provide custom connectors at low volume. The phrase “custom connectors” covers the spectrum from basic modifications to clean-sheet designs. Although we boast a large catalog of standard products, customized solutions are common for us.