AMP Circular Connectors for Commercial Signal & Power Applications
AMP Circular Connectors for Commercial Signal and Power Applications

Note: All part numbers are RoHS Compliant.

Product Facts
- Lightweight, all-plastic and metal-shell connectors
- CPC connectors are UL 94V-0 rated and made of stabilized, heat resistant, self-extinguishing thermoplastic material
- Metal-shell CPC connector housings made of UL 94V-0 rated thermoplastic
- Operating temperature range: -40°C to +105°C
- Available in panel or chassis mount and free-hanging configurations
- Quick connect/disconnect capability with thread assist, positive detent coupling
- Built-in pin and socket protection
- Polarized for proper mating of connector halves
- Special connector configurations offer special solder and posted contacts, special receptacles with or without threaded inserts
- Full complement of optional accessories
- Recognized under the Component Program of Underwriters Laboratories Inc.

Introduction

Six connector series for different interconnection requirements:
- Series 1—Standard density, signal and low-current applications using durable Multimate contacts (.082 [1.57] pin diameter)
- Series 2—High density applications using Size 20 DM and 20 DF contacts (.040 [.1.02] pin diameter)
- Series 3—Low density, power applications with Type XII contacts capable of carrying up to 35 amperes of current
- Series 4—Combination of standard and power density application with Type III+ and Type XII contacts
- Series 5—Power density application with Size 8 screw machined and precision formed contacts
- Series 6—Combination of standard and power density application with Type III+ and Size 8 contacts

MIL-C-5015 Style Circular Plastic Connectors (CPC)

Product Facts
- Intermateable with Metal-Shell sizes 20-14 and 18-10, MIL-C-5015 Style connectors
- High impact resistant plastic housing made of UL 94V-0 rated material
- Lightweight
- Lower cost than standard MIL-C-5015 connectors

Industry accepted Type III+ pin and socket contacts, available on reels in strip form for high volume, low cost, automatic machine terminations, or in loose piece form for low volume, prototype or maintenance and repair

Improved alignment (U.S. Standard MIL-C-5015 Connectors) prevents mismating with other housing insert arrangements

Recognized under the Component Program of Underwriters Laboratories Inc., File No. E28476

Certified by Canadian Standards Association, File No. LR 7189

Miniature CPC Connectors

Product Facts
- Compact, high contact density, environmentally sealed connectors
- Uses existing Mini-Universal MATE-N-LOK stamped and formed pin and socket contacts
- Two shell sizes—available in 1 to 4 and 5 to 9 position configurations

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At Tyco Electronics, we’re ready to support your RoHS requirements. We’ve assessed more than 1.5 million end items/components for RoHS compliance, and issued new part numbers where any change was required to eliminate the restricted materials.

Part numbers in this catalog are RoHS Compliant, unless marked otherwise. These products comply with European Union Directive 2002/95/EC as amended 1 January 2006 that restricts the use of lead, mercury, cadmium, hexavalent chromium, PBBS, and PBDE in certain electrical and electronic products sold into the EU as of 1 July 2006.

Note: For purposes of this Catalog, included within the definition of RoHS Compliant products are those that are clearly “Out of Scope” of the RoHS Directive such as hand tools and other non-electrical accessories. Information regarding RoHS compliance is provided based on reasonable inquiry of our suppliers and represents our current actual knowledge based on the information provided by our suppliers. This information is subject to change. For latest compliance status, refer to our website referenced at right.

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- Cross-Reference from Non-compliant to Compliant Products
- Ability to browse RoHS Compliant Products in our on-line catalog
- Downloadable Technical Data
- Customer Information Presentation
- More detailed information regarding the definitions used above

So whatever your questions when it comes to RoHS, we’ve got the answers at www.tycoelectronics.com/leadfree
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Connector Series and Types

Series 1—Size 16 Contacts
Series 1 connectors permit the use of multiple combinations of signal and coaxial circuits in the same housing by accepting durable Multimate contacts. These pin and socket contacts include Type III+ and subminiature coaxial contacts, interchangeable in the same Multimate contact cavity. Type III+ contacts (.062 [1.57] pin diameter) are capable of carrying a maximum of 13 amperes when crimped in wire. Type III solder contacts and posted contacts for pc board applications are also available. Many connector arrangements offer both standard and reverse sex contact loading—from 4 thru 37 positions.

Series 2—Size 20 Contacts
Series 2 connectors accept Size 20 DF (precision formed) and Size 20 DM (screw-machined) pin and socket contacts with a .040 [1.02] pin diameter. Size 20 DF contacts are available in crimp and solder versions, as well as a posted version for wrap-type and pc board applications. Maximum current carrying capability is 7.5 amperes. Many connector arrangements offer both standard and reverse sex contact loading—from 8 thru 63 positions.

Series 3—Power Contacts
Series 3 connectors accept Type XII power contacts which can carry up to 25 amps per contact. These contacts will accommodate a wire size range of 16 to 10 AWG [1.4 to 5 mm²]. Two connector sizes are available in both standard and reverse sex connector arrangements 3 and 7 positions.

Series 4—Combination Size 16 and Power Contacts
Series 4 connectors accept Size 16 Multimate and Type XII power contacts, combining the signal and coaxial circuit capabilities of Series 1 connectors with the power circuit capabilities of Series 3 connectors. Available in two connector sizes offering power mixing combinations totaling 16 and 22 positions.
Connector Series and Types (Continued)

Series 5—Power Contacts .125 POWERBAND
Series 5 connectors combine the revolutionary performance of the new AMP POWERBAND Contact, high current contact in configurations similar to the Series 3 connectors. AMP POWERBAND contacts offer the electrical performance of the best Mil Spec Size 8 screw-machined contacts with the economy and productivity of strip-fed, precision formed contacts. Series 5 connectors are environmentally sealable to meet IEC IP 65 and IP 67 specifications.

Series 6—Combination, Size 16 and .125 POWERBAND Contacts
This combination of power and signal contacts is offered in one connector configuration containing two .125 POWERBAND contacts and eight Type III+ signal pin and socket contacts.

MIL-C-5015 Style—Size 16 Contacts
This new addition to the AMP Circular Plastic Connector Line is specifically designed to be intermateable with Metal-Shell size 20-14 and 18-10, MIL-C-5015 Style connector systems. The high impact resistant plastic housing offers the advantages of light weight and lower cost than existing metal-shell connectors. In addition the connector design prevents mismating when used with other insert arrangements. As part of the AMP Multimate family of connectors, the MIL-C-5015 style connector offers the economies of crimp Type III+ pin and socket contacts in reel-mounted, strip-form for high volume automatic machine termination, as well as in loose piece-form for low volume, prototype or maintenance and repair.

Metal-Shell, Circular Plastic Connectors
Metal-Shell CPC connectors consist of a black thermoplastic insert in a nickel-plated, zinc alloy shell. These connectors are currently available in shell sizes 14, 22 and 28, and in two basic configurations consisting of plugs and square flange receptacles.

Miniature CPC Connectors
These compact connectors accept existing Mini-Universal MATE-N-LOK pin and socket contacts, 30-18 AWG [0.05-.8 mm²]. Two shell sizes (8 or 11) are available, accommodating from 1 to 4 and 5 to 9 positions. Featuring high contact density and IP67 sealing, these durable connectors are well suited for many wire-to-wire, wire-to-board, and wire-to-panel applications.
### Performance Characteristics — CPC and Metal-Shell CPC Connectors

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<th>Test Description</th>
<th>Procedure</th>
<th>Requirements</th>
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<tr>
<td>Maintenance Aging</td>
<td>Contacts removed and reinserted 10 times using applicable tools</td>
<td>No damage to contacts or housings. Contact retention maintained</td>
</tr>
<tr>
<td>Contact Retention</td>
<td>Axial load applied to contact to displace to the rear of the connector</td>
<td>Contacts remain in place when subjected to a minimum 10 lb. load*</td>
</tr>
<tr>
<td>Dielectric Withstanding Voltage</td>
<td>Connectors subjected to 1500 volts rms at sea level</td>
<td>No breakdown or flashover</td>
</tr>
<tr>
<td>Thermal Shock</td>
<td>Connectors subjected to five cycles of temperature change (-55°C and +125°C)</td>
<td>No damage</td>
</tr>
<tr>
<td>Vibration</td>
<td>Connectors vibrated (wired and mated). Contacts wired in series with 100 milliampere flowing during the test</td>
<td>No damage or loosening of parts. No interruption of electrical continuity longer than 10 microseconds</td>
</tr>
<tr>
<td>Physical Shock</td>
<td>Connectors shocked 50 G (wired and mated). Contacts wired in series with 100 milliampere flowing during the test</td>
<td>No damage or loosening of parts. No interruption of electrical continuity longer than 10 microseconds</td>
</tr>
<tr>
<td>Durability</td>
<td>Connectors mated and unmated 25 times with tin plated contacts and 500 times with gold plated contacts</td>
<td>No wear through damage to plating</td>
</tr>
<tr>
<td>Corrosion (Salt Spray)</td>
<td>Mated connectors subjected to 5% salt spray for 48 hours</td>
<td>No damage</td>
</tr>
<tr>
<td>Protection Against Solids</td>
<td>a. Test wire is pushed into mated connectors</td>
<td>a. Must not touch live parts</td>
</tr>
<tr>
<td>Protection Against Water</td>
<td>Water is projected through jets against mated connector from any direction and then temporarily immersed in water</td>
<td>b. No dust deposits observed on mating surfaces</td>
</tr>
<tr>
<td>Temperature Life</td>
<td>Mated connectors subjected to a temperature of +125°C for 200 hours</td>
<td>No damage</td>
</tr>
<tr>
<td>Insulation Resistance</td>
<td>Measurement made between adjacent contacts with connector mated</td>
<td>5000 megohms minimum ambient temperature</td>
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<tr>
<td>Humidity</td>
<td>Mated connectors subjected to 10 days moisture test</td>
<td>Minimum insulation resistance of 100 megohms</td>
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*For size 16 contacts. Size 8 contacts 25 lb. load, min.
Levels of Protection for Electric Operating Material According to IEC 60529 and IEC 60947, Appendix C

Environmentally Protected Circular Plastic Connectors, for Mated CPC Connectors Utilizing Peripheral Seals and either Wire Entry Seals (for Discrete Wire Applications) or Heat Shrink Boots (for Jacketed Cable Applications). Available are Various Sizes, Series 1, 5 and 6.

Internal Protection (IP)
Definition:
- Per IEC 60947, Appendix C—Pertains to low voltage switchgear and control gear.
- Per IEC 60529—Pertains to degrees of protection provided by enclosures (IP code).

Sample Designation:
(Where x is a numeral value), i.e. IP 65

IP Codes

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<th>Degree of Protection against ingress of solid foreign objects</th>
<th>Degree of Protection against ingress of water</th>
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<td>Protection against ingress of solid foreign objects</td>
<td>Degree of Protection, $X_2$</td>
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<td>0</td>
<td>No Protection</td>
<td>No Protection</td>
<td>0</td>
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<td>Protection against objects &gt;50mm diameter—including inadvertently touched by hands</td>
<td>Protection against vertical drops of water</td>
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<td>2</td>
<td>Protection against objects &gt;12.5mm—including fingers</td>
<td>Dripping &lt;15°—Protection against dripping water when the enclosure is tilted 15° from vertical</td>
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<td>Protection against objects &gt;2.5mm diameter—including tools</td>
<td>Spraying at an angle up to 60° from vertical</td>
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<td>4</td>
<td>Protection against objects &gt;1.0mm diameter—including grains</td>
<td>Splashing—Protection against water splashed from any direction</td>
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<td>5</td>
<td>Protection against ingress of solid foreign bodies</td>
<td>Jetting—Protection against water stream out of a nozzle, from any direction</td>
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<td>Protection against ingress of dust</td>
<td>Powerful Jetting—Protection against temporary flooding due to powerful jet streams out of a nozzle from any direction</td>
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<td>7</td>
<td>Temporary immersion—Protection against temporary immersion</td>
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Note: All part numbers are RoHS Compliant.
The total current capacity of each contact in a given connector is dependent upon the heat rise resulting from the combination of electrical loads of the contacts in the connector arrangement and the maximum ambient temperature in which the connector will be operating. Caution must be taken so that this combination of conditions does not cause the internal temperature of the connector to exceed the maximum operating temperature of the housing material. Several variables which must be considered when determining this maximum current capacity for your application are:

- **Wire Size**—Larger wire will carry more current since it has less internal resistance to current flow and generates less heat. The wire also conducts heat away from the connector.
- **Connector Size**—In general, with more circuits in a connector, less current per contact can be carried.
- **Current Load Distribution**—Spreading those lines with greater current loads throughout the connector, particularly around the outer perimeter, will enhance heat dissipation.
- **Ambient Temperature**—With higher ambient temperatures, less current can be carried.

### Current Rating Verification

**Can a contact rated at 10 amps carry 10 amps?**

Maybe yes, but probably not. The reason lies in the test conditions used to rate the contact. If these conditions do not adequately reflect the application conditions, the actual allowable current levels may be lower than specified levels. For example, many manufacturers, including Tyco Electronics, test a single contact in air. This gives an accurate measure of the basic current-carrying capacity of the contact. Use the contact alone in air and it can certainly carry 10 amperes. Use it in a multi-position connector surrounded by other current-carrying contacts or in high ambient temperatures, and the contact should carry less current.

Similarly, as the contact ages and stress relaxation, environmental cycling, and other degradation factors take their toll, the contact’s current-carrying capacity decreases. A prudent design must set current levels for such end-of-design-life (EODL) conditions. Practical current-carrying capacity is not an absolute, but an application-dependent condition.

### New Method Simplifies Ratings

To help the designer set the appropriate current level, Tyco Electronics has developed a method of specifying current-carrying capacity. This method takes into account the various application factors that influence current rating.

The method can be summarized as follows:

- The contact is aged to EODL conditions by durability cycling, thermal cycling, and environmental exposure.
- The contact’s resistance stability is verified.
- The current necessary to produce the specified temperature rise is measured. This T-rise is usually 90°C.
- A rating factor is determined to allow derating of multiple contacts in the same housing and for different conductor sizes.

### Temperature

One other factor influencing current levels is the maximum operating temperature, for example, 105°C. If the application has a high ambient temperature (over 75°C) the contact’s T-rise is limited by the maximum operating temperature. For example, an application temperature of 90°C limits the contact T-rise to 15°C. Since current produces heat (the I²R law), the current must be lowered to limit the T-rise.

A contact’s T-rise depends not only on its FR Joule heating, but also on its ability to dissipate the heat. Consider a contact in a multi-contact housing. Joule heating in multiple contacts will raise the local ambient temperature. Since the contact will not be able to dissipate its own heat as well by convection, the maximum T-rise will be realized at a lower current level. Consequently, the allowable current level must be lower to maintain an acceptable T-rise.

For a given connector, the current level will be set by the loading density. A connector containing 50% current-carrying contacts will permit higher currents (per contact) than a connector will at 75% loading. The loading percentage assumes an even distribution of contacts within the housing. If all 10 contacts are grouped together in one section of a 20-position connector, the loading density may approach 100%.

### The Importance of EODL

As stated, T-rise in a contact depends on both resistance and current. As it ages, a contact’s resistance will increase. The contact designer will specify a maximum resistance for the contact, this level is the end-of-design-life resistance. Before the contact is tested for current, Tyco Electronics subjects it to a sequence of tests that exercises the major failure mechanisms and thereby simulates EODL conditions. Conditioning includes mating cycling, industrial mixed-flowing gases, humidity and temperature cycling, and vibration to sequentially introduce wear, corrosion, stress relaxation, and mechanical disturbance.
Current Rating

The presentation of current-carrying capacity in AMP product specifications includes two parts:

- First, a base curve showing current levels versus T-rise for a single circuit and the largest wire size (See figure 1). This represents the maximum current capacity of the contact. The curve is usually flat up to 75°C ambient and then drops off. Up to 75°C, the 30°C T-rise limits the amount of current, and above 75°C the current must be reduced to keep the combination of ambient temperature and T-rise from exceeding the maximum operating temperature of 105°C.

- Next are rating factors, a table of multipliers to account for connector loading and for smaller wire sizes (See figure 2). The designer first determines the base current for the ambient conditions of the application; then multiplies this base current by the rating factors to find the current level for the application’s loading factor and wire size.

Practical Values

The current-rating method gives designers practical values applicable to their applications. While the specified current levels for a contact may be lower than for other testing methods, they are more practical and simplify the system design process.

“Spec-manship” is replaced by a realistic assessment of the current-carrying capacity of a contact under varying conditions of temperature, connector loading, and wire size.

Specific current-carrying data based on EOL and % loading is available from Tyco Electronics. Please contact your local Tyco Electronics Sales Engineer or call Tyco Electronics.

Contact Selector Chart

As previously stated, choosing the correct connector/contact combination is fundamental to the successful function of all connectors. The Selector Chart shown at right, is designed to simplify your choice of connectors and their acceptable contacts. Once you have selected the wire size, current-carrying capacity needed, number of positions required, and the type of contacts needed in your choice of connector, refer to this matrix for a quick look at exactly what is acceptable in a given connector type.

*Note: Data is not typical of a specific CPC connector configuration. For specific current rating information based on % connector loading, contact Tyco Electronics.

To demonstrate the method of specifying current, consider the following application conditions; an ambient temperature of 65°C, a 50% loading of contacts in the housing, and 20 AWG [0.6mm²] wire.

- From Figure 1, the base current rating is 14 ampere with 18 AWG [0.8mm²] wire.
- Figure 2, the rating factor for 50% loading and 20 AWG [0.6mm²] wire is 0.68.
- The specific rating for this application is the product of the base rating and the rating factor:
  \[ 14 \times 0.68 = 9.5 \text{ ampere} \]
- Each of the contacts can carry 9.5 ampere.
- However, if the ambient temperature is 80°C the allowable T-rise becomes 25°C. The base current must be lowered to 12.8 ampere so that the 105°C maximum operating temperature is not exceeded. The current rating then becomes:
  \[ 12.8 \times 0.68 = 8.7 \text{ ampere} \]
AMP Circular Connectors for Commercial Signal and Power Applications

Note: All part numbers are RoHS Compliant.

Circular Plastic Connectors, Size 1

CPC Connectors, Series 1 for Cable or Panel Mount
(Accepts Types III+, High-Current Power, Type II and Subminiature Coax Contacts)

Listed part numbers are for connectors only; contacts must be ordered separately.

Material
Housing—Thermoplastic, 94V-0 rated, black

Related Product Data
Contacts—Pages 17-23
Contact Arrangement—Page 24
Component Dimensions—Page 25
Accessories—Pages 38-42, 52-54
Performance Characteristics—Page 6
Application Tooling—Pages 76-79
Technical Documents—Page 80

Replacement Coupling Rings

<table>
<thead>
<tr>
<th>Shell Size</th>
<th>Part No.</th>
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</thead>
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<tr>
<td>11</td>
<td>213811-1</td>
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<td>13</td>
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<tr>
<td>17</td>
<td>213810-1</td>
</tr>
<tr>
<td>23</td>
<td>213812-1</td>
</tr>
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</table>

Keying
Molded-in keying in two configurations:
A—Standard Configuration: 5 Keys
B—Optional Configuration: 4 Keys to prevent mismating of standard and reverse sex.

Standard Sex Connectors (Receptacles accept pin contacts, Plugs accept socket contacts)

<table>
<thead>
<tr>
<th>Arrangement</th>
<th>Keying</th>
<th>Square Flange Receptacle</th>
<th>Free-Hanging Receptacle</th>
<th>Plug</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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<td>With Threaded Inserts¹</td>
<td>With Mounting Holes</td>
<td></td>
</tr>
<tr>
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<td>213862-1</td>
<td>—</td>
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<td></td>
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<td>213849-1</td>
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<tr>
<td>23-24</td>
<td>A</td>
<td>211839-1</td>
<td>206838-1</td>
<td>206837-1</td>
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<tr>
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<td>B</td>
<td>—</td>
<td>213866-1</td>
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</tbody>
</table>

¹Four 4-40 threaded inserts per receptacle.

Reverse Sex Connectors (Receptacles accept socket contacts, Plugs accept pin contacts)

<table>
<thead>
<tr>
<th>Arrangement</th>
<th>Keying</th>
<th>Square Flange Receptacle</th>
<th>Free-Hanging Receptacle</th>
<th>Plug</th>
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</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>With Threaded Inserts¹</td>
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<td>A</td>
<td>211102-1</td>
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<td>213850-1</td>
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</table>

¹Four 4-40 threaded inserts per receptacle.

Key Style “A” is the Standard 5 Locating Key arrangement. Key Style “B” is the 4 Locating Key arrangement.
CPC Connectors, Series 1, for Cable or Panel Mount (Accepts Type III+, High-Current Power, Type II and Subminiature Coax Contacts)

- Designed to meet requirements of VDE as shown in DIN Specification 57627
- Recognized under the Component Program of Underwriters Laboratories Inc. for 600 VAC and 600 VDC service, File No. E28476
- Certified by Canadian Standards Association, File No. LR 7189

Listed part numbers are for connectors only: contacts must be ordered separately.

Material
- Housing—Thermoplastic, 94V-0 rated, black

**Related Product Data**
- Contacts—Pages 17-23
- Contact Arrangement—Page 24
- Component Dimensions—Page 25*
- Accessories—Pages 38-42, 52-54
- Performance Characteristics—Page 6
- Application Tooling—Pages 76-79
- Technical Documents—Page 80

**Replacement Coupling Rings**

<table>
<thead>
<tr>
<th>Shell Size</th>
<th>Part No.</th>
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</thead>
<tbody>
<tr>
<td>13</td>
<td>213811-1</td>
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<td>17</td>
<td>213810-1</td>
</tr>
<tr>
<td>23</td>
<td>213812-1</td>
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</table>

**Keying**
- A—Standard Configuration: 5 Keys
- B—Optional Configuration: 4 Keys

**Standard Sex Connectors** (Receptacles accept pin contacts, Plugs accept socket contacts)

<table>
<thead>
<tr>
<th>Arrangement</th>
<th>Keying</th>
<th>Square Flange Receptacle</th>
<th>Plug</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shell Size</td>
<td>No. of Positions</td>
<td>With Threaded Inserts</td>
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<td>23-19</td>
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*Four 4-40 threaded inserts per receptacle.

**Reverse Sex Connectors** (Receptacles accept socket contacts, Plugs accept pin contacts)

<table>
<thead>
<tr>
<th>Arrangement</th>
<th>Keying</th>
<th>Square Flange Receptacle</th>
<th>Free-Hanging Receptacle</th>
<th>Plug</th>
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<td>No. of Positions</td>
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</table>

*Four 4-40 threaded inserts per receptacle.

Key Style "A" is the Standard 5 Locating Key arrangement. Key Style "B" is the 4 Locating Key arrangement.
Circular Plastic Connectors, Series 1

Square Flange Receptacles, Printed Circuit Board Mount
with .025 [0.64] sq. solder tails

Material and Finish

Housing—Thermoplastic, 94V-0 rated, black

Contacts—
A—Duplex plated gold flash on entire contact with .00058 [0.00076] min. gold on contact engagement area, tin on the termination area
B—Plated tin on the entire contact, tin on the termination area

Related Product Data

Contact Arrangement—Page 24
Performance Characteristics—Page 6
Technical Documents—Page 80

Keying

Molded-in keying in two configurations:
A—Standard Configuration: 5 Keys
B—Optional Configuration: 4 Keys to prevent mismating of standard and reverse sex.

Other Available Posted Contacts

Tyco Electronics can make available contacts with various solder tail lengths for loading into the standard or reverse sex, square flange receptacles for applications requiring custom solder tail lengths.

Standard Sex (Posted Pin Contacts)

<table>
<thead>
<tr>
<th>Arrangement No.</th>
<th>Receptacle Assemblies</th>
<th>Keying</th>
<th>Dimensions</th>
<th>Contact Finish Code</th>
<th>Peripheral Seal</th>
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<td>.618 .654</td>
<td>A</td>
<td>N</td>
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</tbody>
</table>

Note: All part numbers are RoHS Compliant.

Note: Posts are .017 [0.43] offset from centerline of contacts. All posts must be oriented in the same plane for proper contact/post location.

Dimensions are in inches and millimeters unless otherwise specified. Values in brackets are metric equivalents.
## Square Flange Receptacles, Printed Circuit Board Mount

With .025 [0.64] sq. solder tails

### Material and Finish

**Housing**—Thermoplastic, 94V-0 rated, black

**Contacts**—
- A—Duplex plated gold flash on entire contact with .000030 [0.00076] min. gold on contact engagement area, tin on the termination area
- C—Plated tin on the entire contact, tin on the termination area

### Related Product Data

**Contact Arrangement**—Page 24

**Performance Characteristics**—Page 6

**Technical Documents**—Page 80

**Keying**—Page 12

### Special CPC Connectors,
Square Flange Receptacles,
Printed Circuit Board Mount
With Round Posted Contacts
(Size 16), Contact Arrangement 17-16

### Material and Finish

**Housing**—Thermoplastic, 94V-0 rated, heat-stabilized, fire-resistant, self-extinguishing, black

**Contacts**—Brass

**Plating**—
- A—Duplex plated gold flash on entire contact with .000030 [0.00076] min. gold on contact engagement area, tin on the termination area
- C—Plated tin on the entire contact, tin on the termination area

### Reverse Sex (Posted Socket Contacts)

<table>
<thead>
<tr>
<th>Arrangement No.</th>
<th>Receptacle Assemblies</th>
<th>Keying Style</th>
<th>Dimensions A</th>
<th>Dimensions B</th>
<th>Contact Finish Code</th>
<th>Peripheral Seal</th>
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<td>A</td>
<td>.159</td>
<td>4.04</td>
<td>.374</td>
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</table>

### Notes:

1. Connectors can be used for pressure bulkhead feed-thru (sealed) applications.
2. Receptacle is Standard Sex, supplied preloaded with 16 special round posted pin contacts,.030 [0.76] diameter.

---

**Catalog 82021**

Dimensions are in inches and millimeters unless otherwise specified. Values in brackets are metric equivalents.

**USA/Canada:** 1-800-522-6752

**Mexico:** 52-55-1106-0800

**C. America:** 51-254-4444

**South America:** 55-11-2103-6000

**Hong Kong:** 2527-1629

**Japan:** 81-44-844-8013

**UK:** 44-208-420-8341

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**CPC Series 1**

**Note:** All part numbers are RoHS Compliant.
## Circular Plastic Connectors, Series 1 (Continued)

### Material and Finish
- **Housing**: Thermoplastic, 94V-0 rated, heat-stabilized, fire-resistant, self-extinguishing, black
- **Contacts**: Brass
- **Connector Part No. 206404-1**: Plated .000030 [0.00076] min. gold over .000030 [0.00076] min. nickel on entire contact
- **Connector Part No. 206404-2**: Plated tin over .000100 [0.00254] min. copper on entire contact

### Special CPC Connectors, Feed-Thru
- Pressure Rating up to 30 psi

### Material and Finish
- **Housing**: Thermoplastic, 94V-0 rated, black
- **Contacts**: Copper alloy, gold over nickel plated

### Special CPC Connectors, Square Flange Receptacles, With Solder Type Contacts (Size 16), Contact Arrangement 17-16

### Part Numbers

<table>
<thead>
<tr>
<th>Arrangement</th>
<th>Standard Numbering Plug</th>
<th>Reverse Numbering Plug</th>
<th>Feed-Thru Receptacle</th>
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</thead>
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<td>206516-1</td>
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<td>17-16</td>
<td>206037-1</td>
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### Dimensions

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<th>Dimensions</th>
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<td></td>
</tr>
<tr>
<td>17-16</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Notes:
1. Connector can be used for pressure bulkhead feed-thru (sealed) applications.
2. Receptacle is standard sex, supplied preloaded with 16 special solder cup pin contacts.
Circular Plastic Connectors, Series 1 (Continued)

Note: All part numbers are RoHS Compliant.

Material and Finish
Housing—Thermoplastic, 94V-0 rated, black
Location Wafer—Phenolic, black
Contact Posts—.000100 [0.00254] min. tin over .000050 [0.00127] min. copper
Contact Body—
A—.000100 [0.00254] min. tin over .000050 [0.00127] min. nickel
B—.000030 [0.000762] min. gold for a length of .200 [5.08] min. from mating end, with remainder gold flash, both over .000050 [0.00127] min. nickel

Related Product Data
Contact Arrangements—Page 24
Component Dimensions—Page 25
Performance Characteristics—Page 6
Keying—Standard Configuration: 5 Keys
Technical Documents—Page 80

Standard Sex (Posted Pin Contacts)

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
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Reverse Sex (Posted Socket Contacts)

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</tr>
</thead>
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<tr>
<td>13-7</td>
<td>1-796500-1 —</td>
<td>B</td>
<td>211400-1</td>
</tr>
<tr>
<td>17-9</td>
<td>1-796501-1 —</td>
<td>B</td>
<td>211768-1</td>
</tr>
<tr>
<td>17-14 (shown)</td>
<td>796348-3 —</td>
<td>A</td>
<td>206044-1</td>
</tr>
<tr>
<td>23-19</td>
<td>1-796502-1 —</td>
<td>B</td>
<td>211772-1</td>
</tr>
<tr>
<td>23-37</td>
<td>1-796409-1 —</td>
<td>B</td>
<td>208305-1</td>
</tr>
</tbody>
</table>
Square Flange Receptacles, Right-Angle, Posted
For Higher Current Applications

Material and Finish

Housing—Thermoplastic, 94V-0 rated, black
Location Wafer—Phenolic, black
Contact Posts—.000100 [0.00254] min. tin over .000100 [0.00254] min. copper
Contact Body—
A—.000100 [0.00254] min. tin over .000050 [0.00127] min. nickel
B—.00030 [0.000762] min. gold for a length of .200 [5.08] min. from mating end, with remainder gold flash, both over .000050 [0.00127] min. nickel.

Technical Documents—Page 80

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CPC Series 1

Circular Plastic Connectors, Series 1 (Continued)

Standard Sex (Posted Pin Contacts)

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>13-7</td>
<td>1776903-1</td>
<td>B</td>
<td>211399-1</td>
</tr>
<tr>
<td>17-16</td>
<td>1776904-1</td>
<td>B</td>
<td>206037-1</td>
</tr>
<tr>
<td>23-24</td>
<td>1776905-1</td>
<td>B</td>
<td>206837-1</td>
</tr>
<tr>
<td>23-37</td>
<td>1776906-1</td>
<td>B</td>
<td>206150-1</td>
</tr>
</tbody>
</table>

Note: All part numbers are RoHS Compliant.
Contact Size 16—Pin Diameter .062 [1.57] (Test Current, 13 Ampere)†

<table>
<thead>
<tr>
<th>AWG</th>
<th>Ins. Dia. Range</th>
<th>Contact Finish</th>
<th>Strip Form Contact No.</th>
<th>Loose Piece Contact No.</th>
<th>Tooling Part No.</th>
<th>Strip Form Applicators</th>
</tr>
</thead>
<tbody>
<tr>
<td>30-28</td>
<td>0.05-0.09</td>
<td>Gold/Nickel†</td>
<td>788085-3</td>
<td>788088-2</td>
<td>90716-1</td>
<td>567867-1*** or 567947-1*** or 568002-1***</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Sel. Gold/Nickel†</td>
<td>788085-1</td>
<td>788088-1</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>788085-4</td>
<td>788088-3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>30-26</td>
<td>0.05-0.15</td>
<td>Bright Tin</td>
<td>1-66422-5</td>
<td>1-66421-1</td>
<td>91515-1†</td>
<td>466598-3***</td>
</tr>
<tr>
<td></td>
<td>1.02-1.52</td>
<td>Gold/Nickel†</td>
<td>66425-7</td>
<td>66424-7</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>0.36-0.76</td>
<td>Sel. Gold/Nickel†</td>
<td>66425-8</td>
<td>66424-8</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>0.20-0.2</td>
<td>Bright Tin</td>
<td>1-66422-5</td>
<td>1-66421-1</td>
<td>91515-1†</td>
<td>466598-3***</td>
</tr>
<tr>
<td></td>
<td>0.05-0.09</td>
<td>Gold/Nickel†</td>
<td>66425-7</td>
<td>66424-7</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Sel. Gold/Nickel†</td>
<td>66425-8</td>
<td>66424-8</td>
<td></td>
<td></td>
</tr>
<tr>
<td>26-24</td>
<td>0.12-0.2</td>
<td>Bright Tin</td>
<td>2-66422-5</td>
<td>3-66421-1</td>
<td>91515-1†</td>
<td>466598-3***</td>
</tr>
<tr>
<td></td>
<td>0.05-0.35</td>
<td>Gold/Nickel†</td>
<td>66425-7</td>
<td>66424-7</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>0.30-0.6</td>
<td>Sel. Gold/Nickel†</td>
<td>66425-8</td>
<td>66424-8</td>
<td></td>
<td></td>
</tr>
<tr>
<td>24-20</td>
<td>0.2-0.6</td>
<td>Bright Tin</td>
<td>1-66422-5</td>
<td>1-66421-1</td>
<td>91515-1†</td>
<td>466598-3***</td>
</tr>
<tr>
<td></td>
<td>1.52-3.05</td>
<td>Gold/Nickel†</td>
<td>66425-7</td>
<td>66424-7</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>2.03-2.54</td>
<td>Sel. Gold/Nickel†</td>
<td>66425-8</td>
<td>66424-8</td>
<td></td>
<td></td>
</tr>
<tr>
<td>18-16</td>
<td>0.8-1.4</td>
<td>Bright Tin</td>
<td>1-66422-5</td>
<td>1-66421-1</td>
<td>91515-1†</td>
<td>466598-3***</td>
</tr>
<tr>
<td></td>
<td>2.03-2.54</td>
<td>Gold/Nickel†</td>
<td>66425-7</td>
<td>66424-7</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>0.8-2.0</td>
<td>Bright Tin</td>
<td>1-66422-5</td>
<td>1-66421-1</td>
<td>91515-1†</td>
<td>466598-3***</td>
</tr>
<tr>
<td></td>
<td>2.03-2.54</td>
<td>Gold/Nickel†</td>
<td>66425-7</td>
<td>66424-7</td>
<td></td>
<td></td>
</tr>
<tr>
<td>116-150</td>
<td>2.79-3.81</td>
<td>Bright Tin</td>
<td>66597-8</td>
<td>1-66588-0</td>
<td>91515-1†</td>
<td>466598-3***</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Gold/Nickel†</td>
<td>66597-2</td>
<td>66598-2</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>66602-2</td>
<td>66601-9</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

†Single contact, free-air test current is not to be construed as contact rating current. Use only for testing. Refer to contact current carrying capability information on page 8.

‡Contact can ONLY be used in: Metrimate; CPC Series 1 (Arr. 23-24), Series 4 (Arr. 23-13M, 23-16M, 23-228), and VDE connectors.

§Overall insulation crimp diameter, including crimp barrel, must not exceed .950 [2.41].

¶.00015 (0.0006) gold in the mating area over .00005 (0.0002) min. nickel.

∥.00030 (0.00076) gold in the mating area, with gold flash on remainder, over .00005 (0.0002) min. nickel.

★.00040 (0.0010) gold in the mating area, with gold gradient on remainder, over .00025 (0.0006) min. nickel.
**Signal Contacts (Continued)**

**Contact Size 16—Pin Diameter .062 (1.57)**

<table>
<thead>
<tr>
<th>Wire Size Range</th>
<th>Ins. Dia. Range</th>
<th>Contact Finish</th>
<th>Strip Form Contact No.</th>
<th>Loose Piece Contact No.</th>
<th>Tooling Part No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>AWG</td>
<td>mm²</td>
<td>Pin</td>
<td>Socket</td>
<td>Pin</td>
<td>Socket</td>
</tr>
<tr>
<td>18-14</td>
<td>0.8-2.0</td>
<td>.060-.100</td>
<td>Gold</td>
<td>1-66359-6</td>
<td>1-66358-9</td>
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<tr>
<td></td>
<td></td>
<td>2.03-2.54</td>
<td>Tin</td>
<td>1-66359-9</td>
<td>2-66358-1</td>
</tr>
<tr>
<td>.110-.150</td>
<td>2.79-3.81</td>
<td>Gold</td>
<td>1-66597-0</td>
<td>1-66598-1</td>
<td>66602-9</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Tin</td>
<td>1-66597-1</td>
<td>1-66598-2</td>
<td>1-66602-0</td>
</tr>
</tbody>
</table>

1 Overall insulation crimp diameter, including crimp barrel, must not exceed .125 [3.18].

2 Contacts can ONLY be used in CPC, Series 1 (Arr. 23-24), Series 4 (Arr. 23-13M, 23-16M, 23-22M), and VDE connectors.

3 To use with the 626 Pneumatic Tool System: remove the crimping head from the Straight Action Hand Tool (SAHT) Assembly, order SAHT Adapter Part No. 217201-1, Adapter Holder Part No. 356304-1 (with ratchet) or 189928-1 (without), and Power Unit Part No. 189721-1 (hand actuated) or 189722-1 (foot actuated).

*** Call Technical Support for Automatic Machine Applicator Part Numbers.

**Increased High Current Type III+, Crimp, Snap-In**

**Material and Finish** — See chart.

**Contact Body**—Copper Nickel Alloy

**Retention Spring**—Stainless Steel

**Related Product Data**

**Application Tooling** — Pages 76-79

**Technical Documents**

- 114-10004 Application Specification
- 108-10024-2 Product Specification

**Specifications**

**Ratings**

**Voltage:**

- 250 Volts AC/DC
- 600 Volts AC/DC, Series I, VDE tested and select loaded only

**Base Current:**

Type III+: contacts: 17 amperes, 30˚C temperature rise with single contact on 14 AWG wire

Enhanced High Current Type III+ contacts: 25 amperes, 30˚C temperature rise with single contact on 14 AWG wire

**Temperature:**

- -55˚C to +105˚C
- VDE 0627: ¼/630/4KV/2 - Series I, VDE tested only

**Multiplication Rating Factor (F)**

**Type III+ Contacts (Note: 1 = 17 amperes)**

<table>
<thead>
<tr>
<th>Shell Size</th>
<th>Single Circuit ≤ 50%</th>
<th>Percent Connector Loading</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>30 AWG</td>
<td>14 AWG</td>
</tr>
<tr>
<td>11-4</td>
<td>.291</td>
<td>.1</td>
</tr>
<tr>
<td>13-9</td>
<td>.278</td>
<td>.995</td>
</tr>
<tr>
<td>17-16</td>
<td>.270</td>
<td>.990</td>
</tr>
<tr>
<td>23-24</td>
<td>.281</td>
<td>.985</td>
</tr>
<tr>
<td>23-37</td>
<td>.275</td>
<td>.985</td>
</tr>
</tbody>
</table>

**Enhanced High Current Type III+ Contacts (14 AWG wire only - Note: 1 = 25 amperes)**

<table>
<thead>
<tr>
<th>Shell Size</th>
<th>Single Circuit ≤ 50%</th>
<th>Percent Connector Loading</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>14 AWG</td>
<td>14 AWG</td>
</tr>
<tr>
<td>11-4</td>
<td>.880</td>
<td>.840</td>
</tr>
<tr>
<td>13-9</td>
<td>.880</td>
<td>.640</td>
</tr>
<tr>
<td>17-16</td>
<td>.880</td>
<td>.520</td>
</tr>
<tr>
<td>23-24</td>
<td>.880</td>
<td>.520</td>
</tr>
<tr>
<td>23-37</td>
<td>.880</td>
<td>.440</td>
</tr>
</tbody>
</table>
Signal Contacts (Continued)

Type III+ (Precision Formed, Crimp)

Contact Size — 16
Pin Diameter — .062 [1.57]

Material and Finish
Contact Body — Copper alloy, plated tin or gold
Spring — Stainless steel

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>mm²</td>
<td>AWG</td>
<td>.035-.055</td>
<td>.089-.14</td>
<td>Tin</td>
<td>164159-3</td>
<td>164162-1</td>
<td>—</td>
<td>91515-15 or 58495-1*</td>
</tr>
<tr>
<td>0.12-0.2</td>
<td>26-24</td>
<td>164159-4</td>
<td>164162-2</td>
<td>466323-□**** 91505-15 or 58495-1*</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0.2-0.6</td>
<td>24-20</td>
<td>164160-3</td>
<td>164163-1</td>
<td>466907-2*** 91515-15 or 58495-1*</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>.045-.070</td>
<td>1.14-.178</td>
<td>164160-4</td>
<td>164163-2</td>
<td>466741-□*** 91523-15 or 58495-1*</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>.078-.098</td>
<td>1.98-2.49</td>
<td>Tin</td>
<td>164161-3</td>
<td>164164-1</td>
<td>680114-3*** 58495-1*</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

1 Overall insulation crimp diameter, including crimp barrel, must not exceed .125 [3.18].
2 Gold flash over .000030 [0.00076] min. nickel on entire contact, with .000030 [0.00076] gold in contact area.
3 To use with the 626 Pneumatic Tool System: remove the crimping head from the Straight Action Hand Tool (SAHT) Assembly, order SAHT Adapter Part No. 217201-1, Adapter Holder Part No. 356304-1 (with ratchet) or 189928-1 (without), and Power Unit Part No. 189721-1 (hand actuated) or 189722-1 (foot actuated).
4 Commercial PRO-CRIMPER II hand tool for field repair only. Note: Die Set can be adapted for use with the 626 Pneumatic Tool System.
5 Call Technical Support for Automatic Machine Applicator Part Numbers.

High Current Power Contact — Size 16

The features of the High Current Size 16 contact have been designed to retrofit into the existing AMP Connectors such as CPC (Circular Plastic Connector), CMC (Circular Metal Connector), G Series, M Series, Metrimate Square Grid and Drawer Connector housings. An initial T-Rise test in free air has shown a 23 amp capability with a 30° T-Rise. The contact may be crimped onto 14 AWG wire with an AMP hand tool Part No. 601967-1. Use turret TH502 (1-601967-6) for the pin and turret TH501 (1-601967-5) for the socket.

Material
Body — Copper alloy
Louvertac Band — Beryllium copper
Retention Spring — Stainless steel

Finish
Body — Silver
Louvertac Band — Gold

<p>| Wire Range Contact Part Nos. Crimping Tool |
|-----------------|-----------------|-----------------|-----------------|</p>
<table>
<thead>
<tr>
<th>mm²</th>
<th>AWG</th>
<th>Pin</th>
<th>Socket</th>
<th>Tool for Pins</th>
<th>Tool for Sockets</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.8-1.4</td>
<td>18-16</td>
<td>796964-1</td>
<td>796964-2</td>
<td>796966-1</td>
<td>796966-2</td>
</tr>
<tr>
<td>2</td>
<td>14</td>
<td>193844-1</td>
<td>193844-2</td>
<td>193846-1</td>
<td>193846-2</td>
</tr>
</tbody>
</table>

Extraction Tool Part No. 305183
AMP Circular Connectors for
Commercial Signal and Power Applications

Signal Contacts (Continued)

Type III+ (Precision Formed, Solder)

Contact Size—16
Pin Diameter—.062 [1.57]

Material and Finish
Contact Body—Copper alloy, plated tin or gold
Spring—Stainless steel

Related Product Data
Performance Characteristics—Page 6
Technical Documents—Page 80

<table>
<thead>
<tr>
<th>Wire Size Range</th>
<th>Contact Finish</th>
<th>Loose Piece Contact No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>AWG mm²</td>
<td>Pin</td>
<td>Socket</td>
</tr>
<tr>
<td>26-20 0.12-0.6</td>
<td>Gold/Nickel¹</td>
<td>66182-1</td>
</tr>
<tr>
<td>18-16 0.8-1.4</td>
<td>Gold/Nickel¹</td>
<td>66180-1</td>
</tr>
<tr>
<td>Solder Tab²</td>
<td>Duplex² 202236-7</td>
<td>202237-7</td>
</tr>
<tr>
<td></td>
<td>Bright Tin 202236-5</td>
<td>202237-5</td>
</tr>
</tbody>
</table>

¹0.000030 [0.000076] gold in mating area over .000030 [0.000076] min. nickel.
²Duplex plated .000030 [0.000076] gold in mating area over .000030 [0.000076] min. nickel on contact body; bright tin on solder tab.
³Bright tin on entire contact.

Note: These contacts can be used in Multimate contact cavities of all connector housings.
†Single contact, free-air test current is not to be construed as contact rating current. Use only for testing.
‡Refer to contact current carrying capability information on page 8.

Extraction Tool Part No. 305183
AMP Circular Connectors for Commercial Signal and Power Applications

Note: All part numbers are RoHS Compliant.

Signal Contacts (Continued)

Type II, Screw Machined, Crimp

Material
Contact Body—Brass
Retention Spring—Stainless steel

Finish
Contact Body—.00030 [0.00076] gold over .00050 [0.00127] nickel. Gold thickness controlled on socket O.D.
Retention Spring—Stainless steel

Related Product Data
Application Tooling—Pages 76-79

Contact Size 16—Pin Diameter .062 [1.57] (Test Current, 13 Ampere)

<table>
<thead>
<tr>
<th>Wire Size Range</th>
<th>Ins. Dia. Range</th>
<th>Tape Mounted Contact No.</th>
<th>Loose Piece Contact No.</th>
<th>Contact Color Code</th>
<th>Tape Mounted Dies for AMP-TAPETRONIC Machine 69875</th>
<th>Loose Piece Die Set for 626 Pneumatic Tool System</th>
<th>Hand Tool</th>
</tr>
</thead>
<tbody>
<tr>
<td>AWG mm²</td>
<td>[1.78]</td>
<td>Pin/Socket</td>
<td>Pin/Socket</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>28-24 0.08-0.20</td>
<td>.035-.055 0.89-.140</td>
<td>201611-1-4</td>
<td>201613-1-1</td>
<td>Red/Red</td>
<td>90249-2</td>
<td>90230-1* 91538-1 or 601967-1</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>24-20 0.2-0.6</td>
<td>.048-.065 1.22-.165</td>
<td>201334-1-1</td>
<td>201332-1-1</td>
<td>Red/Red</td>
<td>90249-2</td>
<td>91538-1 or 58541-1*</td>
<td></td>
</tr>
<tr>
<td></td>
<td>.095-.110 2.41-.279</td>
<td></td>
<td></td>
<td>Green</td>
<td>90249-2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>18 (Two) 0.9-0.9</td>
<td>.080-.105 2.03-.267</td>
<td>202725-1-1</td>
<td>202726-1-1</td>
<td>Blue</td>
<td>90231-2*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Two)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>16-18 0.8-1.4</td>
<td>.080-.105 2.03-.267</td>
<td>202507-1-1</td>
<td>202508-1-1</td>
<td>Blue/Blue</td>
<td>90231-2*</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>14 2</td>
<td>No Ins. Support</td>
<td>200336-1-1</td>
<td>200333-1-1</td>
<td>Blue/Blue</td>
<td>90250-1</td>
<td></td>
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<tr>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

1Overall insulation crimp diameter, including crimp barrel, must not exceed .125 [3.18].
2For AMP-TAPETRONIC Machine No. 69875, order contacts by Tape Mounted Contact No., plus packaging code “IM REEL” (5000 parts per reel).
3Grounding pin is used to provide a make-first/break-last condition when mating and unmating connector halves.
4Use turret THS02 (1-601967-6) with hand tool 601967-1.
5Use turret THS01 (1-601967-5) with hand tool 601967-1.
6Pin length is .630-.005 [16.002-.127] on these two pins.
7Die Set requires “C” Head Adapter Part No. 318161-1; Adapter Holder Part No. 356304-1 (with ratchet) or 189928-1 (without); and Power Unit Part No. 189721-2 (hand actuated) or 189722-2 (foot actuated).
8Commercial PRO-CRIMPER II Hand Tool for field repair use only. Note: Die Set can be adapted for use with the 626 Pneumatic Tool System.
9Does not use Hand Tool 91539-1 or 601967-1.
10Single contact, free-air test current is not to be construed as contact rating current. Use only for testing. Refer to contact current carrying capability information on page 8.
11Overall insulation crimp diameter, including crimp barrel, must not exceed .125 [3.18].
12For AMP-TAPETRONIC Machine No. 69875, order contacts by Tape Mounted Contact No., plus packaging code “IM REEL” (5000 parts per reel).

Insertion Tool Part No. 200893-2 (for insulation diameters .070 [1.78] or less).
Extraction Tool Part No. 305183.
AMP Circular Connectors for Commercial Signal and Power Applications

Note: All part numbers are RoHS Compliant.

Coaxial Contacts

Subminiature Coax, Size 16
Precision Formed, Crimp

Material

- **Outer Shell**: Brass per MIL-C-50
- **Center Conductor**: Beryllium copper per QQ-C-533 (Pin); Brass per QQ-B-626 (Socket)
- **Inner Dielectric**: Polypropylene
- **Retention Spring**: Stainless steel per QQ-S-766
- **Ferrule**: Copper per QQ-C-576

Finish

- **Outer Shell, Center Conductor**: See charts
- **Ferrule**: Bright tin per MIL-T-10727

Related Product Data

- **Application Tooling**: Pages 76-79

Selection Chart for Coaxial Cable

<table>
<thead>
<tr>
<th>Cable Size (RG/U)</th>
<th>Contact Finish</th>
<th>Loose Piece Contact No.</th>
<th>Ferrule Part No.</th>
<th>Die Sets for Hand Tool 69710-1 or 626 Pneumatic Tool System</th>
<th>Hand Tool or Die Set*</th>
</tr>
</thead>
<tbody>
<tr>
<td>178, 196</td>
<td>Gold/Nickel</td>
<td>226537-2</td>
<td>51565-2</td>
<td>1-332057-0†</td>
<td>69690-2†</td>
</tr>
<tr>
<td></td>
<td>Gold/Copper</td>
<td></td>
<td></td>
<td></td>
<td>69656-2</td>
</tr>
<tr>
<td></td>
<td>Gold/Nickel</td>
<td></td>
<td></td>
<td></td>
<td>69656-9</td>
</tr>
<tr>
<td>196 (Double Braid)</td>
<td>Gold/Nickel</td>
<td>226537-2</td>
<td>51565-2</td>
<td>5-225088-1†</td>
<td>69690†</td>
</tr>
<tr>
<td></td>
<td>Gold/Copper</td>
<td></td>
<td></td>
<td></td>
<td>91911-3*</td>
</tr>
<tr>
<td>174, 188, 316</td>
<td>Gold/Nickel</td>
<td>226537-1</td>
<td>51565-1</td>
<td>1-332056-0</td>
<td>69690†</td>
</tr>
<tr>
<td></td>
<td>Gold/Copper</td>
<td></td>
<td></td>
<td></td>
<td>91911-4*</td>
</tr>
<tr>
<td></td>
<td>Gold/Nickel</td>
<td>226537-4</td>
<td>51565-4</td>
<td>5-225088-3</td>
<td>69656-7</td>
</tr>
<tr>
<td>179, 187</td>
<td>Gold/Nickel</td>
<td>226537-1</td>
<td>51565-1</td>
<td>1-332056-0</td>
<td>69690-1†</td>
</tr>
<tr>
<td></td>
<td>Gold/Copper</td>
<td></td>
<td></td>
<td></td>
<td>91911-4*</td>
</tr>
<tr>
<td>187 (Double Braid)</td>
<td>Gold/Nickel</td>
<td>226537-1</td>
<td>51565-1</td>
<td>5-225088-1†</td>
<td>69656-8</td>
</tr>
<tr>
<td></td>
<td>Gold/Copper</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>161</td>
<td>Gold/Nickel</td>
<td>226537-1</td>
<td>51565-1</td>
<td>1-332056-0</td>
<td>69656-7</td>
</tr>
<tr>
<td></td>
<td>Gold/Copper</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

†Does not use Hand Tool 91539-1 or 601967-1.
*Used with PRO-CRIMPER II Hand Tool Frame Part No. 354940-1.

Extraction Tool Part No. 305183

---

1. 000030 [0.00076] gold over .000050 [0.00127] nickel—outer shell and socket center conductor; .000030 [0.00076] gold over .000100 [0.00254] copper—pin center conductor.
2. 000050 [0.00127] gold over .000050 [0.00127] nickel—outer shell and socket center conductor; .000050 [0.00127] gold over .000100 [0.00254] copper—pin center conductor.

†Die Set requires “C” Head Adapter Part No. 318161-1; Adapter Holder Part No. 356304-1 (with ratchet) or 189928-1 (without); and Power Unit Part No. 189721-2 (hand actuated) or 189722-2 (foot actuated).

*Does not use Hand Tool 91159-1 or 601967-1.
### Coaxial Contacts (Continued)

**Subminiature Coax, Size 16**
Precision Formed, Crimp
(Continued)

#### Finish
- **Ferrule**—Bright tin per MIL-T-10727

#### Related Product Data
- **Application Tooling**—Pages 76-79

#### Selection Chart for Twisted Pair and Shielded Wire

<table>
<thead>
<tr>
<th>Wire Size</th>
<th>Contact Finish</th>
<th>Loose Piece Contact No.</th>
<th>Tooling Part No.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>AWG</strong></td>
<td><strong>mm²</strong></td>
<td><strong>Pin</strong></td>
<td><strong>Socket</strong></td>
</tr>
<tr>
<td>30</td>
<td>0.05 (Twisted Pair, Solid)</td>
<td>Gold/Nickel</td>
<td>226537-3</td>
</tr>
<tr>
<td>28</td>
<td>0.08-0.09 (Twisted Pair, Solid)</td>
<td>Gold/Nickel</td>
<td>226537-3</td>
</tr>
<tr>
<td>28</td>
<td>0.08-0.09 (Twisted Pair, Stranded 7 Str., .0050 [0.13] Dia.)</td>
<td>Gold/Nickel</td>
<td>226537-3</td>
</tr>
<tr>
<td>26</td>
<td>0.12-0.15 (Twisted Pair, Solid or Stranded 7 Str., .0063 [0.16] Dia.)</td>
<td>Gold/Nickel</td>
<td>226537-3</td>
</tr>
<tr>
<td>26</td>
<td>0.12-0.15 (Shielded, .075 [1.91] Max. O.D.)</td>
<td>Gold/Nickel</td>
<td>226537-1</td>
</tr>
</tbody>
</table>

---

1. 0.00030 [0.00076] gold over .000050 [0.00127] nickel—outer shell and socket center conductor; .000030 [0.00076] gold over .0000100 [0.000254] copper—pin center conductor.
2. 0.000050 [0.00127] gold over .000050 [0.00127] nickel—outer shell and socket center conductor; .000050 [0.00127] gold over .0000100 [0.000254] copper—pin center conductor.
3. Die Set requires “C” Head Adapter Part No. 318161-1; Adapter Holder Part No. 358304-1 (with ratchet) or 189928-1 (without); and Power Unit Part No. 189721-2 (hand actuated) or 189722-2 (foot actuated).
4. Used with PRO-CRIMP® II Hand Tool Frame Part No. 354940-1.

**Note:** A ferrule is required for each pin and socket.

**Extraction Tool Part No. 305183.**
AMP Circular Connectors for Commercial Signal and Power Applications

Note: All part numbers are RoHS Compliant.

Contact Arrangements, Series 1

Shell Sizes 11 and 13

Note: Contact arrangements shown are for pin mating face (plug or receptacle). Socket mating face is mirror image.
AMP Circular Connectors for Commercial Signal and Power Applications

Note: All part numbers are RoHS Compliant.

Component Dimensions, Series 1

Square Flange Receptacle

Free-Hanging Receptacle

Plug

<table>
<thead>
<tr>
<th>Shell Size</th>
<th>Sex</th>
<th>Dimensions</th>
<th>Thread Size</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>A</td>
<td>B</td>
</tr>
<tr>
<td></td>
<td>Std.</td>
<td>1.350</td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>Std.</td>
<td>1.350</td>
<td>.420</td>
</tr>
<tr>
<td></td>
<td>Std.</td>
<td>27.18</td>
<td>13.21</td>
</tr>
<tr>
<td></td>
<td>Std.</td>
<td>34.29</td>
<td>13.21</td>
</tr>
</tbody>
</table>

Values in brackets are metric equivalents.
CPC Connectors, Series 2 for Cable or Panel Mount
(Accepts Size 20 DM or DF Crimp, Snap-In Contacts)

Listed part numbers are for connectors only; contacts must be ordered separately.

Material
Housing—Thermoplastic, 94V-0 rated, black

Related Product Data
Contacts—Pages 29-30
Contact Arrangement—Page 31
Component Dimensions—Page 32*
Accessories—Pages 38-42
Performance Characteristics—Page 6
Application Tooling—Pages 76-79
Technical Documents—Page 80

Standard Sex Connectors
(Receptacles accept Size 20 DM or DF pin contacts, Plugs accept Size 20 DM or DF socket contacts)

<table>
<thead>
<tr>
<th>Arrangement</th>
<th>Square Flange Receptacle</th>
<th>Free-Hanging Receptacle</th>
<th>Plug</th>
</tr>
</thead>
<tbody>
<tr>
<td>11-8</td>
<td>205841-1</td>
<td>205841-3</td>
<td>205841-2 205838-1</td>
</tr>
<tr>
<td>11-9</td>
<td>206486-1</td>
<td>206482-8</td>
<td>206486-2 206485-1</td>
</tr>
<tr>
<td>17-28</td>
<td>205840-3</td>
<td>205840-4</td>
<td>206152-1 205839-3</td>
</tr>
<tr>
<td>23-57</td>
<td>206438-1</td>
<td>—</td>
<td>205843-2 205842-1</td>
</tr>
</tbody>
</table>

Reverse Sex Connectors
(Receptacles accept Size 20 DM or DF socket contacts, Plugs accept Size 20 DM or DF pin contacts)

<table>
<thead>
<tr>
<th>Arrangement</th>
<th>Square Flange Receptacle</th>
<th>Free-Hanging Receptacle</th>
<th>Plug</th>
</tr>
</thead>
<tbody>
<tr>
<td>11-8</td>
<td>206433-1</td>
<td></td>
<td>206433-2 206434-1</td>
</tr>
<tr>
<td>17-28</td>
<td>206038-1</td>
<td>206038-4</td>
<td>206038-2 206039-1</td>
</tr>
<tr>
<td>23-57</td>
<td>206437-1</td>
<td>—</td>
<td>206438-2 206437-1</td>
</tr>
</tbody>
</table>

*Four 4-40 threaded inserts per receptacle.

Note: For Standard and Reverse Sex Connectors the maximum wire insulation diameter is .068 [1.73].
Receptacles, Printed Circuit Board Mount with .025 [0.64] sq. solder tails

Material and Finish

Housing—Thermoplastic, 94V-0 rated, black

Contacts—
  A—Duplex plated gold flash on entire contact with .000030 [0.00076] min. gold on contact engagement area, tin on the termination area, all over .000005 [0.000127] min. nickel under-plating
  B—Plated gold flash on the entire contact, tin on the termination area

Related Product Data

Contact Arrangement—Page 31
Performance Characteristics—Page 6
Technical Documents—Page 80
Accessories—Pages 38-42

Standard Sex (Posted Pin Contacts)

<table>
<thead>
<tr>
<th>Arrangement</th>
<th>Receptacle Assemblies</th>
<th>Dimensions</th>
<th>Contact Finish Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shell Size</td>
<td>No. of Positions</td>
<td>Mounting Holes</td>
<td>4-40 Threaded Inserts</td>
</tr>
<tr>
<td>11-9</td>
<td></td>
<td>1-206852-2</td>
<td>—</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1-206852-1</td>
<td>—</td>
</tr>
<tr>
<td>17-28</td>
<td></td>
<td>1-207369-1</td>
<td>—</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1-207369-3</td>
<td>—</td>
</tr>
<tr>
<td>23-63</td>
<td></td>
<td>1-206455-2</td>
<td>—</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1-206455-1</td>
<td>—</td>
</tr>
</tbody>
</table>

Reverse Sex (Posted Socket Contacts)

<table>
<thead>
<tr>
<th>Arrangement</th>
<th>Receptacle Assemblies</th>
<th>Dimensions</th>
<th>Contact Finish Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shell Size</td>
<td>No. of Positions</td>
<td>Mounting Holes</td>
<td>4-40 Threaded Inserts</td>
</tr>
<tr>
<td>11-8</td>
<td></td>
<td>1-208657-1</td>
<td>—</td>
</tr>
<tr>
<td></td>
<td></td>
<td>—</td>
<td>1-208657-0</td>
</tr>
<tr>
<td>17-28</td>
<td></td>
<td>1-207216-6</td>
<td>—</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1-207216-7</td>
<td>—</td>
</tr>
<tr>
<td>23-57</td>
<td></td>
<td>1-796329-1</td>
<td>—</td>
</tr>
</tbody>
</table>

Other Available Posted Contacts

Tyco Electronics can make available contacts with various solder tail lengths for loading into the standard or reverse sex, square flange receptacles for applications requiring custom solder tail lengths.
AMP Circular Connectors for Commercial Signal and Power Applications

Note: All part numbers are RoHS Compliant.

Special CPC Connectors, Series 2
(Pressure rated up to 30 psi)

Listed plug connector part numbers are for connectors only; contacts must be ordered separately.

Material
Housing—Thermoplastic, 94V-0 rated, black
Feed-Thru Contacts—Copper alloy, plated gold over nickel

Related Product Data
Socket Contacts (for Plugs)—Pages 29-30
Contact Arrangement—Page 31
Performance Characteristics—Page 6
Accessories—Pages 38-42
Technical Documents—Page 80

Circular Plastic Connectors, Series 2 (Continued)

Square Flange Feed-Thru Receptacles
(with Permanently Sealed .040 [1.02] Dia. Solid Pins)

Related Product Data
Socket Contacts (for Plugs)—Pages 29-30
Contact Arrangement—Page 31
Performance Characteristics—Page 6
Accessories—Pages 38-42
Technical Documents—Page 80

Part Numbers

<table>
<thead>
<tr>
<th>Arrangement No.</th>
<th>Standard Numbering Plug</th>
<th>Reverse Numbering Plug</th>
<th>Square Flange Feed-Thru Receptacle</th>
</tr>
</thead>
<tbody>
<tr>
<td>11-8</td>
<td>205838-1</td>
<td>206460-1</td>
<td>206458-1</td>
</tr>
<tr>
<td>17-28</td>
<td>206125-1</td>
<td>206126-1</td>
<td>206127-1</td>
</tr>
</tbody>
</table>

Note: One plug must have standard numbering of cavities, and the other plug must have reverse numbering of cavities.
AMP Circular Connectors for Commercial Signal and Power Applications

Note: All part numbers are RoHS Compliant.

Signal Contacts

With Insulation Support

Material
Pin Body—Brass
Socket—Phosphor bronze

Contact Finish
A—Select gold flash over nickel on entire contact, with additional .000030 [0.00076] gold on mating end
B—Duplex plated .000030 [0.00076] gold on mating end, tin on termination end, with entire contact nickel underplated
C—Gold flash over nickel on entire contact
D—Duplex plated .000030 [0.00076] gold on mating end, tin on termination end, with entire contact nickel underplated

Related Product Data
Application Tooling—Pages 76-79
Technical Documents—Page 80
Product Specification—108-40005

Insertion/Extraction Tool
Part No. 91285-1
Instruction Sheet—408-9404
This tool includes interchangeable tips to Insert/Extract:
Size 22, 28-22 AWG [0.08-0.03 mm²] Crimp Contacts
Size 20, 28-20 AWG [0.08-0.6 mm²] Crimp and Solder Cup Contacts
Size 20, Post-Connected

††For complete information on AMP Strip Form Applicators for fully automatic and semiautomatic machines, contact Technical Support.

Note: Commercial PRO-CRIMPER III Maintenance and Repair Hand Tool for Wire Size 28-24 AWG [0.08-0.2 mm²] (Ins. Dia. Max. .040 [1.02]), and Wire Size 24-20 AWG [0.2-0.6 mm²] (Ins. Dia. Max. .060 [1.52])—Part No. 58448-2.
Note: Die Set Part No. 58448-3 can be adapted for use with the 626 Pneumatic Tool System.

To use with the 626 Pneumatic Tool System: remove the crimping head from the Straight Action Hand Tool (SAHT) Assembly, order SAHT Adapter Part No. 217201-1, Adapter Holder Part No. 355304-1 (with ratchet) or 189928-1 (without), and Power Unit Part No. 189721-1 (hand actuated) or 189722-1 (foot actuated).

Note: Dimensions in inches and millimeters unless otherwise specified. Values in brackets are metric equivalents.
Dimensions are shown for reference purposes only. Specifications subject to change.
AMP Circular Connectors for Commercial Signal and Power Applications

Note: All part numbers are RoHS Compliant.

Signal Contacts (Continued)

Size 20 DM, Screw-Machined, Crimp Contacts
Pin Diameter—.040 [1.02]

Test Current*—7.5 amperes (Single contact, free-air test current; not to be construed as contact rating current. Use only for testing.)

Material and Finish
Pin Body—Copper alloy per QQ-B-626
Socket Body—Beryllium copper per QQ-C-530
Socket Sleeve—Passivated stainless steel per QQ-S-766
Plating pin and socket body—.000050-.000100 [0.00127-0.00254] min. gold over .000100-.000150 [0.00254-0.00381] min. copper
Gold plating per MIL-G-45204
Copper plating per MIL-C-14550

Type 20 DF, Solder Contacts
Pin Diameter—.040 [1.02]

Test Current*—7.5 amperes (Single contact, free-air test current; not to be construed as contact rating current. Use only for testing.)

Material and Finish
Pin—Brass, plated gold flash over nickel on entire contact with additional .000030 [0.00076] min. gold on mating end
Socket—Phosphor bronze, plated gold flash over nickel on entire contact with additional .000030 [0.00076] min. gold on mating end

*Note: Total current capacity of each contact in a given connector is dependent on the heat rise resulting from the combination of electrical loads of all contacts in the connector arrangement and the maximum ambient temperature in which the connector will be operating. See page 8.

Wire Size Range1
AWG mm²

Pin and Socket Contacts

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>24-20</td>
<td>0.2-0.6</td>
<td>.068</td>
<td>Pin</td>
<td>205089-2</td>
<td>64-369</td>
<td>205089-1</td>
<td>02-01</td>
<td>601966-1</td>
<td>2-08</td>
<td>601966-5</td>
</tr>
</tbody>
</table>

1Overall insulation crimp diameter, including crimp barrel, must not exceed .125 [3.18].
2.000015 [0.00038] gold in the mating area over .000050 [0.00127] nickel.

Strip Form Loose Piece Contact No.
Pin | 66570-2
Socket | 66569-2

Note: Contacts to be soldered to wire before being inserted into housing, 18 AWG [0.8 - 0.9 mm²] max. wire size.
Contact Arrangements, Series 2

Note: Contact arrangements shown are of pin mating face (plug or receptacle). Socket mating face is mirror image.

Shell Size 11

Arrangement 11-8
Max. Wire Ins. Dia. = .068 [1.73]

Arrangement 11-9
Max. Wire Ins. Dia. = .068 [1.73]

Shell Size 17

Arrangement 17-28
Max. Wire Ins. Dia. = .068 [1.73]

Shell Size 23

Arrangement 23-57
Max. Wire Ins. Dia. = .068 [1.73]

Arrangement 23-63
Max. Wire Ins. Dia. = .068 [1.73]
# Component Dimensions, Series 2

## Square Flange Receptacle

![Diagram of Square Flange Receptacle](image)

### Free-Hanging Receptacle

![Diagram of Free-Hanging Receptacle](image)

### Plug

![Diagram of Plug](image)

---

**Arrangement Number**

<table>
<thead>
<tr>
<th>No.</th>
<th>Arrangement</th>
<th>Dimensions</th>
<th>Thread Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>17-29</td>
<td>20.55</td>
<td>10.67</td>
<td>2.39</td>
</tr>
<tr>
<td>23-57</td>
<td>.924</td>
<td>.420</td>
<td>.156</td>
</tr>
<tr>
<td>23-63</td>
<td>23.47</td>
<td>10.67</td>
<td>3.96</td>
</tr>
</tbody>
</table>

**Note:** All dimensions apply to both standard and reverse sex connectors.

---

Note: All part numbers are RoHS Compliant.
AMP Circular Connectors for Commercial Signal and Power Applications

Note: All part numbers are RoHS Compliant.

Circular Plastic Connectors, Series 3

CPC Connectors, Series 3

Listed part numbers are for connectors only; contacts must be ordered separately.

Material
Housing—Thermoplastic, 94V-0 rated, black

Related Product Data
Contacts—Page 34–35
Contact Arrangement—Page 35
Component Dimensions—Page 36
Accessories—Pages 38–42
Performance Characteristics—Page 6
Application Tooling—Pages 76–79
Technical Documents—Page 80

Square Flange Receptacle

Free-Hanging Receptacle


Panel Cutout


Thread Size (See chart)

Contact Arrangement With with threaded inserts

Thread Size (See chart)

Component Dimensions

Accessories

Performance Characteristics

Application Tooling

Technical Documents

Material
Housing—Thermoplastic, 94V-0 rated, black

Free-Hanging Receptacle

Related Product Data
Contacts—Page 34–35
Contact Arrangement—Page 35
Component Dimensions—Page 36
Accessories—Pages 38–42
Performance Characteristics—Page 6
Application Tooling—Pages 76–79
Technical Documents—Page 80

Standard Sex Connectors
(Receptacles accept Type XII Male/pin contacts, Plugs accept Type XII Female/socket contacts)

Arrangement

Square Flange Receptacle

Free-Hanging Receptacle

Plug

Shell Size

Part No.

17
206036-2
213581-1
206207-1
206037-2
23-7
206137-1
206137-5
206137-2
206136-1

1Four 4-40 threaded inserts per receptacle.

Reverse Sex Connectors
(Receptacles accept Type XII Female/socket contacts, Plugs accept Type XII Male/pin contacts)

Arrangement

Square Flange Receptacle

Free-Hanging Receptacle

Plug

Shell Size

Part No.

17-3
206425-1
206425-5
206425-2
206426-1
23-7
206227-1
206227-6
206227-2
206226-1

1Four 4-40 threaded inserts per receptacle.

Note: Maximum wire insulation diameter is .220 [5.59].
AMP Circular Connectors for Commercial Signal and Power Applications

Note: All part numbers are RoHS Compliant.

Power Contacts, Series 3

Type XII, Precision Formed, Crimp

Material
Copper

Finish
A—Tin
B—.000030 [0.00076] selective gold over .000030 [0.00076] nickel
C—.00100 [0.00254] silver plated contacts with lubricant added

Test Current Rating
Silver or Gold—35 amperes ‡
Tin—15 amperes ‡

‡Single contact, free-air test current; not to be construed as contact rating current. Use only for testing. Refer to contact current carrying capability information, page 8.

Related Product Data
Application Tooling—Pages 76-79
Technical Documents—Page 80

Extraction Tool Part No. 91019-3

<table>
<thead>
<tr>
<th>Wire Size Range¹</th>
<th>Ins. Dia. Range</th>
<th>Contact Finish</th>
<th>Strip Form Contact Part Nos.</th>
<th>Loose Piece Contact Part Nos.</th>
<th>Tooling</th>
</tr>
</thead>
<tbody>
<tr>
<td>AWG</td>
<td>mm²</td>
<td>Standard***</td>
<td>Heavy Duty Miniature***</td>
<td>Male</td>
<td>Female</td>
</tr>
<tr>
<td>16 and 14-12</td>
<td>1.25-1.4 and 2-3</td>
<td>.135-.160 and 3.43-4.06</td>
<td>A</td>
<td>66255-1</td>
<td>66740-7</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>B</td>
<td>66255-2</td>
<td>66740-5</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>C⁵</td>
<td>66255-7</td>
<td>66740-1</td>
</tr>
<tr>
<td>10</td>
<td>5-6</td>
<td>.190-.220 or 4.83-5.59</td>
<td>A</td>
<td>66253-1</td>
<td>66741-7</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>B</td>
<td>66254-2</td>
<td>66741-5</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>C⁵</td>
<td>66254-4</td>
<td>66741-1</td>
</tr>
</tbody>
</table>

¹Wire strip length—.281 [7.14].
²Ground contact.
³Die insert Part No. 90145-2 is for crimping 16 AWG [1.25-1.4 mm²] wire.
⁴Die insert Part No. 90145-1 is for crimping 14-12 AWG [2-3 mm²] wire.
⁵Recommended for high current/vibration applications where fretting corrosion is a problem.
⁶Die Set requires “C” Head Adapter Part No. 318161-1; Adapter Holder Part No. 356304-1 (with ratchet) or 189928-1 (without); and Power Unit Part No. 189721-2 (hand actuated) or 189722-2 (foot actuated).

Extraction Tool No. 91019-3.

***Call Technical Support for Automatic Machine Applicator Part Numbers.
AMP Circular Connectors for Commercial Signal and Power Applications

Note: All part numbers are RoHS Compliant.

High Current Type XII Crimp Contacts
The Multimate features of the High Current Type XII contact have been designed to fit into the existing AMP Connectors such as CPC (Circular Plastic Connector), CMC (Circular Plastic Metal-Shell Connector), G Series, M Series, and CMPC (Circular Multipin Connector) housings. An initial T-Rise test in free air has shown a 60 amp capability with a 30° T-Rise with 8 gauge wires. The contact may be crimped onto 8 AWG wire with a Daniels Hand Tool M310 or AMP P/N 356114-1 and Positioner TP1068 or AMP P/N 356119-1.

Current-Carrying Capacity
The graph shows current-carrying capacity versus temperature rise for a fully energized 3 position CPC plug P/N 206037-2 and receptacle P/N 206036-2. These initial representative amperage ratings were conducted with 8 AWG wires that were 3 feet long.

Material
- Body — Copper Alloy
- Louvertac Band — Beryllium Copper
- Retention Spring — Stainless Steel
- Finish
  - Body — Silver
  - Louvertac Band — Gold

Extraction Tool Part No. 224155-1

Current Rating for 30°C Temperature Rise
100% Energized
3 Circuit Connector (Wire-to-Wire)

![Graph showing current rating][1]

Contact Arrangements, Series 3

Shell Size 17

<table>
<thead>
<tr>
<th>Arrangement</th>
<th>Max. Wire Ins. Dia.</th>
</tr>
</thead>
<tbody>
<tr>
<td>17-3</td>
<td>.220 [5.59]</td>
</tr>
</tbody>
</table>

![Diagram of arrangement 17-3][2]

Shell Size 23

<table>
<thead>
<tr>
<th>Arrangement</th>
<th>Max. Wire Ins. Dia.</th>
</tr>
</thead>
<tbody>
<tr>
<td>23-7</td>
<td>.220 [5.59]</td>
</tr>
</tbody>
</table>

![Diagram of arrangement 23-7][3]

Note: Contact arrangements shown are of pin mating face (plug or receptacle). Socket mating face is mirror image.
### Component Dimensions, Series 3

#### Square Flange Receptacle

![Diagram of Square Flange Receptacle]

- **Panel Thk.**: 0.125 in. (3.18 mm)
- **A Max.**:
- **B ±0.005**:
- **C ±0.005**:
- **D ±0.010**:
- **E ±0.010**:
- **F ±0.010**:
- **G ±0.010**:
- **H ±0.025**:
- **J ±0.010**:
- **K ±0.010**:

#### Free Hanging Receptacle

![Diagram of Free Hanging Receptacle]

- **Panel Cutout**
- **A Max.**
- **B ±0.005**:
- **C ±0.005**:
- **D ±0.010**:
- **E ±0.010**:
- **F ±0.010**:
- **G ±0.010**:
- **H ±0.025**:
- **J Dia.**:

#### Plug

![Diagram of Plug]

- **Panel Cutout**
- **A Max.**
- **B ±0.005**:
- **C ±0.005**:
- **D ±0.010**:
- **E ±0.010**:
- **F ±0.010**:
- **G ±0.010**:
- **H ±0.025**:
- **J ±0.010**:

---

<table>
<thead>
<tr>
<th>Arrangement No.</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>F</th>
<th>G</th>
<th>H</th>
<th>J</th>
<th>K</th>
<th>L</th>
<th>M</th>
<th>N</th>
<th>Thread Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>17-3</td>
<td>1.635</td>
<td>.420</td>
<td>.094</td>
<td>1.050</td>
<td>1.110</td>
<td>1.125</td>
<td>.1435</td>
<td>.150</td>
<td>1.210</td>
<td>1.161</td>
<td>1.310</td>
<td>1.645</td>
<td>1.349</td>
<td>15/16-20</td>
</tr>
<tr>
<td></td>
<td>41.53</td>
<td>10.67</td>
<td>2.39</td>
<td>26.67</td>
<td>28.19</td>
<td>28.58</td>
<td>36.45</td>
<td>3.81</td>
<td>30.73</td>
<td>29.49</td>
<td>33.27</td>
<td>41.18</td>
<td>34.26</td>
<td>UNEF-2A</td>
</tr>
<tr>
<td>23-7</td>
<td>1.635</td>
<td>.520</td>
<td>.156</td>
<td>1.438</td>
<td>1.510</td>
<td>1.438</td>
<td>.1750</td>
<td>.150</td>
<td>1.610</td>
<td>1.500</td>
<td>1.733</td>
<td>1.645</td>
<td>1.788</td>
<td>1-3/8-18</td>
</tr>
<tr>
<td></td>
<td>41.53</td>
<td>13.21</td>
<td>3.96</td>
<td>36.53</td>
<td>38.35</td>
<td>38.93</td>
<td>44.45</td>
<td>3.81</td>
<td>40.89</td>
<td>38.29</td>
<td>44.02</td>
<td>41.78</td>
<td>45.42</td>
<td>UNEF-2A</td>
</tr>
</tbody>
</table>

**Note:** All dimensions apply to both standard and reverse sex.
AMP Circular Connectors for Commercial Signal and Power Applications

CPC Connectors, Series 4, Standard Sex

Listed part numbers are for connectors only; contacts must be ordered separately.

Material

Housing—Thermoplastic; 94V-0 rated, black; 23-9M – Nylon 6/6, glass filled, black

Related Product Data

Contacts—Pages 17-21 and 34–35
Contact Arrangements—Below
Accessories—Pages 38-42
Performance Characteristics—Page 6
Application Tooling—Pages 76-79
Technical Documents—Page 80

Replacement Coupling Ring

<table>
<thead>
<tr>
<th>Shell Size</th>
<th>Part No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>23</td>
<td>213812-1</td>
</tr>
</tbody>
</table>

Contact Arrangements, Series 4 Shell Size 23

Note: Contact arrangements shown are of pin mating face (plug or receptacle). Socket mating face is mirror image.

Circular Plastic Connectors, Series 4

Square Flange Receptacle (Accepts Type XII Male and Multimate pin contacts)

Free-Hanging Receptacle (Accepts Type XII Male and Multimate pin contacts)

Plug (Accepts Type XII Female and Multimate socket contacts)

Arrangement 23-9M


*Four 4-40 threaded inserts per receptacle.
Note: Maximum wire insulation diameter is .150 [3.81] for Multimate contacts; .220 [5.59] for Power contacts.

Note: All part numbers are RoHS Compliant.
## CPC Connector Accessories

### Cable Clamps
Cable clamps provide strain relief and can be used on all series receptacles and plugs.

### Material
Black thermoplastic heat-stabilized, fire-resistant, self-extinguishing, UL 94V-0 rated

### Standard Size

<table>
<thead>
<tr>
<th>Shell Size</th>
<th>Dimensions A</th>
<th>Dimensions B</th>
<th>Cable O.D. (Max.)</th>
<th>Thread Size</th>
<th>Part No. Individually Packaged</th>
<th>Part No. Bulk Packaged*</th>
</tr>
</thead>
<tbody>
<tr>
<td>11</td>
<td>.825</td>
<td>1.250</td>
<td>.329</td>
<td>5/8-24 UNEF-2B</td>
<td>1-206062-4</td>
<td>1-206062-7** (400)</td>
</tr>
<tr>
<td>13</td>
<td>.950</td>
<td>1.400</td>
<td>.453</td>
<td>3/4-20 UNEF-2B</td>
<td>206966-7</td>
<td>206966-9** (200)</td>
</tr>
<tr>
<td>17</td>
<td>1.125</td>
<td>1.400</td>
<td>.453</td>
<td>15/16-20 UNEF-2B</td>
<td>206070-8</td>
<td>1-206070-0** (200)</td>
</tr>
<tr>
<td>23</td>
<td>1.600</td>
<td>1.555</td>
<td>.703</td>
<td>1-3/8-18 UNEF-2B</td>
<td>206138-8</td>
<td>1-206138-0** (100)</td>
</tr>
</tbody>
</table>

*Numbers in parentheses specify, in multiples, the minimum quantity of parts that can be ordered.

**Packaging includes two screws: shell sizes 11-17, screw length .500 [12.7]; shell size 23, screw length .625 [15.88].

### Notes:
1. Clamping areas adjustable by inverting or changing clamping inserts. The quantity of inserts supplied with each assembly is as follows: for size 11 cable clamps, one insert; for all other cable clamps, two inserts.
2. Components for all cable clamps are packaged unassembled. This includes the cable clamp, two screws and the clamping inserts.
3. Cable clamps can be threaded directly onto plugs or receptacles, or onto back-shell extenders (page 40).
4. Replacement screws are available in the following sizes: 3/8 in. [9.52]—5019024-1, 1/2 in. [12.7]—5019024-2, 5/8 in. [15.88]—5019024-3, 1 in. [25.4]—5019024-4, 3/4 in. [19.05]—5019024-5.
5. Cable clamp inserts not sold separately.

### Large Size

<table>
<thead>
<tr>
<th>Shell Size</th>
<th>Dimensions A</th>
<th>Dimensions B</th>
<th>Cable O.D. (Max.)</th>
<th>Thread Size</th>
<th>Part No. Individually Packaged</th>
<th>Part No. Bulk Packaged*</th>
</tr>
</thead>
<tbody>
<tr>
<td>11</td>
<td>.850</td>
<td>1.450</td>
<td>.453</td>
<td>5/8-24 UNEF-2B</td>
<td>206358-5</td>
<td>206358-6** (200)</td>
</tr>
<tr>
<td>13</td>
<td>1.131</td>
<td>1.655</td>
<td>.703</td>
<td>3/4-20 UNEF-2B</td>
<td>207008-5</td>
<td>207008-6** (100)</td>
</tr>
<tr>
<td>17</td>
<td>1.131</td>
<td>1.655</td>
<td>.703</td>
<td>15/16-20 UNEF-2B</td>
<td>206322-9</td>
<td>1-206322-0** (100)</td>
</tr>
<tr>
<td>23</td>
<td>1.600</td>
<td>1.655</td>
<td>1.125</td>
<td>1-3/8-18 UNEF-2B</td>
<td>206512-5</td>
<td>206512-6** (75)</td>
</tr>
</tbody>
</table>

*Numbers in parentheses specify, in multiples, the minimum quantity of parts that can be ordered.

**Packaging includes two screws: shell size 11, screw length .500 [12.7]; shell sizes 13-23, screw length .625 [15.88].

### Notes:
1. Clamping areas adjustable by inverting or changing clamping inserts. The quantity of inserts supplied with each assembly is as follows: for size 11 cable clamps, one insert; for size 23 cable clamps, four inserts; for all other cable clamps, two inserts.
2. Components for all cable clamps are packaged unassembled. This includes the cable clamp, two screws and the clamping inserts.
3. Cable clamps can be threaded directly onto plugs or receptacles, or onto back-shell extenders (page 40).
4. Replacement screws are available in the following sizes: 3/8 in. [9.52]—5019024-1, 1/2 in. [12.7]—5019024-2, 5/8 in. [15.88]—5019024-3, 1 in. [25.4]—5019024-4, 3/4 in. [19.05]—5019024-5.
5. Cable clamp inserts not sold separately.

The clamping area can be adjusted by reversing the clamping insert as shown below.

For additional information concerning cable clamps, refer to Instruction Sheet 408-7582.
Self-Centering Cable Clamp (for Shell Size 23)
The self-centering cable clamp is used in applications where strain relief protection is required and the cable or wire bundle is large and/or stiff.

Material
Black thermoplastic, UL 94V-0 rated

Part Numbers
207774-3 (individually packaged)
207774-4 (bulk packaged)

Right-Angle Cable Clamps
Right-angle cable clamps are used in tight areas where typical 180° cable clamp strain reliefs will not fit.

Material
Black thermoplastic, UL 94V-0 rated

Related Product Data
Technical Documents — page 80

Notes:
1. Clamping area is adjustable by inverting clamping inserts; maximum cable diameter is 1.125 [28.58].
2. Components for cable clamp are packaged unassembled. This includes the cable clamp, two screws (1.00 [25.4]) and the clamping inserts.
3. Cable clamp can be threaded directly onto plugs or receptacles, or onto back-shell extenders (page 40).
CPC Connector Accessories (Continued)

Back-Shell Extender  
(for Shell Size 23)

A back-shell extender is used with a cable clamp in applications where added length and/or additional wire breakout are required.

Material
Black glass-filled thermoplastic

Part No. 207055-1

Panel Mount Flanges  
(for Plugs only)

A panel mount flange is used in applications that require the plug half of a connector to be panel mounted.

Material
Black thermoplastic

Note: Back-shell extenders can be threaded directly onto plugs or receptacles and will accept cable clamps of the appropriate size (pages 38 and 39).

<table>
<thead>
<tr>
<th>Shell Size</th>
<th>Dimensions</th>
<th>Part No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>11</td>
<td>A: .844</td>
<td>B: 1.125</td>
</tr>
<tr>
<td></td>
<td>21.44</td>
<td>28.58</td>
</tr>
<tr>
<td>13</td>
<td>A: .969</td>
<td>B: 1.280</td>
</tr>
<tr>
<td></td>
<td>24.61</td>
<td>32.51</td>
</tr>
<tr>
<td>17</td>
<td>A: 1.125</td>
<td>B: 1.435</td>
</tr>
<tr>
<td></td>
<td>28.58</td>
<td>36.45</td>
</tr>
<tr>
<td>23</td>
<td>A: 1.438</td>
<td>B: 1.750</td>
</tr>
<tr>
<td></td>
<td>36.53</td>
<td>44.45</td>
</tr>
</tbody>
</table>
Flexible Cable Boot and Internal Cable Grip (for Shell Size 11)

Flexible cable boots, with internal cable grip installed, provide strain relief capabilities for jacketed cable in applications where aesthetic appearance is essential. They can be threaded onto plugs or receptacles.

**Material**
Black thermoplastic

**Cable Range**
.150-.250 [3.81-6.35] Dia.

**Part Numbers**
207489-1 (Cable Boot)
207490-1 (Cable Grip)

---

Flexible Cable Boot and Internal Cable Grip (for Shell Size 17)

Flexible cable boots, with internal cable grip installed, provide strain relief capabilities for jacketed cable in applications where aesthetic appearance is essential. They can be threaded onto plugs or receptacles.

**Material**
Black thermoplastic

**Part Numbers**
207241-1 (Cable Boot)
207387-1 (Cable Grip)

---

Note: All part numbers are RoHS Compliant.
Keying plugs are used to provide keying capabilities for all connector series. Keying plugs are used in socket cavities of standard sex plugs and reverse sex receptacles, except when used with sealing caps.

**Material**
Nylon, natural, UL 94V-2 rated

**Material**
Polyphenylene oxide, white, UL 94V-1 rated

**Material**
(206508-1) Nylon, natural, UL 94V-2 rated
(207597-1) Thermoplastic, black, UL 94V-0 rated

---

Series 1 and Series 4 Keying Plug
(for Types III+ and Subminiature COAXICON Contacts)
Part No. 200821-1

Series 2 Keying Plug
(for Size 20 DM and 20 DF Contacts)
Part No. 206509-1

Series 3 and Series 4 Keying Plugs
(for Type XII Contacts)
Part Nos. 206508-1 (Socket Cavities)—Shown Above
207597-1 (Pin Cavities)
The new Sealed One-Piece Circular Plastic Connectors are the latest product innovation to the sealed CPC product family. This design allows for easy assembly. The housing and the seal are attached. A newly designed wire entry seal protects the rear of the connector and a peripheral seal protects the connector interface. Simply crimp the contact onto a wire and insert the crimped wire contact through the seal and into the housing cavity. The connector loads the same as if the seal wasn’t there. All connector cavities come in a sealed condition. No plugs are required if you do not use a position cavity. We have the capability to provide this product sealing to you in all the shell sizes. If you don’t see your particular size configuration, contact your local Tyco Electronics Sales Engineer or call Tyco Electronics for the latest information.

Industry Standards
One-Piece Sealed CPC products meet —

- IP 67 (Temporary immersion)

Fluid Protection Against — diesel fuel, gear and engine lubricants, gasoline, anti-freeze, hydraulic fluid, water, salt sprays, etc.

Performance Characteristics
meets the same performance characteristics as shown on page 6.

Operating Temperature Range
-50°C to +125°C [-58˚F to +257˚F]

UL Voltage Rating
Series 1  600 V (AC or DC)
Series 6  250 V (AC or DC)
125 POWERBAND Power Contact —
45 amps, single contact rating at 30°C T-Rise
Type III+ Contacts —
13 amps, single contact rating at 30°C T-Rise

Flammability Rating
UL 94V-0 rated

Sealing Capability
Per IP 67

Housing Material
High strength, impact resistant thermoplastic

Fluid Resistance
Diesel fuel, gear and engine lubricants, gasoline, anti-freeze, hydraulic fluid, water

Dimensions are shown for reference purposes only. Specifications subject to change.
One-Piece Sealed Circular Plastic Connectors, Series 1

Sealed CPC Receptacles, Special Series 1 with Pre-Installed, Bonded Peripheral Seal

Listed part numbers are for connectors only; contacts must be ordered separately.

Material and Finish
Housing—Thermoplastic, UL 94V-0 rated, black
Seal—Elastomer, gray

Related Product Data
Contacts—Pages 17-22
Contact Arrangement—Page 24
Component Dimensions—Size 11-4 shown; request Customer Drawings for other sizes
Accessories—Pages 38-42 and 51-54
Performance Characteristics—Page 6
Application Tooling—Pages 76-79
Technical Documents—Page 80

Assembly Accessories
Seal Protectors are recommended to aid contact insertion through the wire entry seal. They are reusable.

Wire Entry Seal Plug
Part Number 796075-1 (6 per carrier strip)
Material—Polypropylene, natural

Dimensions are in inches and millimeters unless otherwise specified. Values in brackets are metric equivalents.

USA: 1-800-522-6752
Canada: 1-905-470-4425
Mexico: 52-55-1106-0800
C. America: 57-1-254-4444
South America: 55-11-2103-6000
Hong Kong: 852-2735-1628
Japan: 81-44-844-8013
UK: 44-208-420-8341

Note: All part numbers are RoHS Compliant.
One-Piece Sealed Circular Plastic Connectors, Series 5

Square Flange Receptacle (Uses Flange Seal Part No. 81665-2 on page 51)

Listed part numbers are for connectors only; contacts must be ordered separately.

Material
Housing—Nylon, glass-filled UL rated 94V-0, black

Related Product Data
Contacts—Page 47
Accessories—Page 51
Application Tooling—Pages 76-79
Technical Documents—Page 80

CPC Connectors, Series 6
Sealed

Listed part numbers are for connectors only; contacts must be ordered separately.

Material
Housing—Nylon, glass-filled UL rated 94V-0, black

Related Product Data
Contacts—Pages 17-23 and 47
Accessories—Pages 76-79
Technical Documents—Page 80

One-Piece Sealed Circular Plastic Connectors, Series 6

Free-Hanging Receptacle

Square Flange Receptacle

Listed part numbers are for connectors only; contacts must be ordered separately.

Material
Housing—Nylon, glass-filled UL rated 94V-0, black

Related Product Data
Contacts—Pages 17-23 and 47
Accessories—Pages 76-79
Technical Documents—Page 80
Two-Piece Sealed Circular Plastic Connectors

Product Facts

- Economical environmentally sealed connector designed for industrial applications
- Meets major Industrial Standards
- High strength, impact resistant thermoplastic housing, rated UL 94V-0
- Contains wire entry, peripheral, and full interfacial seals
- AMP POWERBAND precision formed power contact (Series 5 and 6)
- Type III+ precision formed signal/low current contacts (Series 6)
- Other configurations in Series 1 can be made available, contact your local Tyco Electronics Sales Engineer or Tyco Electronics, Harrisburg, PA

Sealed CPC connectors are the latest additions to the growing family of AMP Circular Plastic Connectors. Sealed CPC connectors were developed as part of the Series 5 and 6 product line, specifically to meet the increasing demand for an economical environmentally sealed connector.

Sealed CPC connectors are designed to meet the requirements of UL, CSA, and VDE for environmentally sealed connectors used in industrial applications. In addition, sealed CPC connectors are designed to meet the latest SAE and ASAE requirements as outlined in the standards listed here.

Sealed CPC connectors incorporated the latest technology in thermoplastic design and use the new AMP POWERBAND precision formed high current contact.

Illustrated above are the Series 5 (power) and Series 6 (power/signal mix) sealed connector configurations. Other sizes are available in a Series 1 (signal/low current) configuration. Contact your local Tyco Electronics Sales Engineer, or call Tyco Electronics for the latest design information.

Industry Standards

Two-Piece Sealed CPC connectors meet—
- IP65

Performance Characteristics

- Operating Temperature Range—
  -50°C to +125°C [-58°F to +257°F]
- UL Voltage Rating—
  Series 5 600 V (AC or DC)
  Series 6 250 V (AC or DC)
  125 POWERBAND Power Contact—
  45 amps, single contact rating at 30°C T-Rise
  Type III+ Contacts—
  13 amps, single contact rating at 30°C T-Rise
- Flammability Rating—
  UL 94V-0 rated
- Sealing Capability—
  Per IP 65
- Housing Material—
  High strength, impact resistant thermoplastic
- Fluid Resistance—
  Diesel fuel, gear and engine lubricants, gasoline, anti-freeze, hydraulic fluid, water
Sealed Circular Plastic Connectors

Multimate Size 16 Contacts
Precision formed signal/low current
Pin Diameter—.062 [1.57]
Test Current—13 amps max.

.125 POWERBAND Contacts
Precision formed high current
Pin Diameter—.125 [3.175]
Test Current—50 amps max.

Extraction Tool
Part Number 318813-1
(Instruction Sheet 408-4374)

Material and Finish
Contacts—Copper with beryllium copper spring
Plating Code
A — Post plated .000200 [0.00508] min. silver in mating area with .000050 [0.00127] min. silver on remainder of contact, all over .000050 [0.00127] min. nickel
B — Post plated .000030 [0.00076] min. gold in mating area with gold flash on remainder of contact, all over .000050 [0.00127] min. nickel

Related Product Data
Application Tooling—Pages 76-79
Technical Documents—Page 80

<table>
<thead>
<tr>
<th>Wire Size</th>
<th>Contact Finish</th>
<th>Pin Length</th>
<th>Contact Part No.</th>
<th>Tooling Part No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>AWG/mm²</td>
<td>Strip/Loose Piece</td>
<td>Pin/Socket</td>
<td>Pin/Socket</td>
<td>Heavy Duty Miniature (HDM) Applicators (for AMP-Q-LECTRIC Model G Machine, Base Part No. 354500)</td>
</tr>
<tr>
<td>14-12</td>
<td>Standard</td>
<td>213845-1</td>
<td>213847-1</td>
<td>680195-3</td>
</tr>
<tr>
<td>2-3</td>
<td></td>
<td>213845-2</td>
<td>213847-2</td>
<td>680195-4</td>
</tr>
<tr>
<td></td>
<td>Extended</td>
<td>213845-5</td>
<td>—</td>
<td>680195-7</td>
</tr>
<tr>
<td></td>
<td></td>
<td>213845-6</td>
<td>—</td>
<td>680195-8</td>
</tr>
<tr>
<td>10-8</td>
<td>Standard</td>
<td>213841-1</td>
<td>213843-1</td>
<td>680197-3</td>
</tr>
<tr>
<td>5-8</td>
<td></td>
<td>213841-2</td>
<td>213843-2</td>
<td>680197-4</td>
</tr>
<tr>
<td></td>
<td>Extended</td>
<td>213841-5</td>
<td>213841-7</td>
<td>—</td>
</tr>
<tr>
<td></td>
<td></td>
<td>213841-6</td>
<td>213841-8</td>
<td>—</td>
</tr>
</tbody>
</table>

1 For use in One-Piece or Two-Piece Sealed Circular Plastic Connectors (CPC), Series 5 and 6.
‡ Single contact, free-air test current; not to be construed as contact rating current. Use only for testing.
Refer to contact current carrying capability information, page 8.
Note: Standard Size 8, High Current Upgrade Size 8, and .125 POWERBAND contacts are not intermateable.

* A typical 626 Pneumatic Tool System requires: a power unit (Part No. 189721-2, hand actuated or 189722-2, foot actuated), an adapter holder (Part No. 356304-1, with ratchet), and “C” Head adapter Part No. 318161-1.

Specifically designed for AMP CPC Connectors, Series 5 and 6, the new .125 POWERBAND contact offers the performance of a MIL-Spec screw machined Size 8 contact with the economy of a stamped and formed, strip-feed contact. Strip-feed contacts offer maximum production capabilities using standard AMP bench-mount, semi-automatic termination equipment. For low volume, prototype or maintenance and repair requirements, the .125 POWERBAND contact is available in loose piece form.
**Two-Piece Sealed Circular Plastic Connectors, Series 5**

**CPC Connectors, Series 5**

Sealed – Reverse Sex

Listed part numbers are for connectors only; contacts must be ordered separately.

**Material**

Housing—Nylon, glass-filled UL rated 94V-0, black

**Related Product Data**

Contacts—Pages 47  
Accessories—Page 51  
Application Tooling—Pages 76-79  
Technical Documents—Page 80

**Replacement Coupling Ring**

<table>
<thead>
<tr>
<th>Shell Size</th>
<th>Part No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>17-3</td>
<td>213810-1</td>
</tr>
</tbody>
</table>

**Square Flange Receptacle** (Uses Flange Seal Part No. 81665-2 on page 51)

**Free-Hanging Receptacle**

**Plug** (With Full Interfacial Seal)

**Reverse Sex** (Receptacles accept socket contacts, plugs accept pin contacts)

<table>
<thead>
<tr>
<th>Arrangement</th>
<th>Square Flange Receptacle</th>
<th>Free-Hanging Receptacle</th>
<th>Plug</th>
</tr>
</thead>
<tbody>
<tr>
<td>17-3 - Connector</td>
<td>213889-2</td>
<td>213890-2</td>
<td>213905-1</td>
</tr>
<tr>
<td>17-3 - Wire Entry Seal Kit</td>
<td>213899-1</td>
<td>213899-1</td>
<td>213899-1</td>
</tr>
</tbody>
</table>

Kit includes (1) Silicon Wire Entry Seal and (1) Pressure Plate. *Wire entry seals require cable clamp kits.

**Wire Entry Seals**

*Cable clamp kit 213902-3 required. (Similar to 206322-9. See page 38 for dimensional detail of cable clamp) or cable clamp kit 213904-3. (Similar to 206070-6. See page 38 for dimensional detail of cable clamp).”

**Note:** Minimum insulation diameter is .156 [3.96]; Maximum insulation diameter is .280 [7.11].
Two-Piece Sealed Circular Plastic Connectors, Series 6

CPC Connectors, Series 6
Sealed – Reverse Sex

Square Flange Receptacle (Uses Flange Seal Part No. 81665-2 on page 51)

Free-Hanging Receptacle

Plug

Replacement Coupling Ring

<table>
<thead>
<tr>
<th>Shell Size</th>
<th>Part No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>17-10</td>
<td>213810-1</td>
</tr>
</tbody>
</table>

Reverse Sex (Receptacles accept socket contacts, Plugs accept pin contacts)

<table>
<thead>
<tr>
<th>Arrangement</th>
<th>Square Flange Receptacle</th>
<th>Free-Hanging Receptacle</th>
<th>Plug</th>
</tr>
</thead>
<tbody>
<tr>
<td>17-10 Connector</td>
<td>213893-2</td>
<td>213894-2</td>
<td>213906-1</td>
</tr>
<tr>
<td>17-10 Wire Entry Seal Kit</td>
<td>213801-1</td>
<td>213800-1</td>
<td>213800-1</td>
</tr>
</tbody>
</table>

Kit includes (1) Silicon Wire Entry Seal and (1) Pressure Plate.

Wire Entry Seal*

*Wire entry seals require cable clamp kits.

Rear View
Receptacles

Rear View
Plugs

Side View
Plugs/Receptacles

Note: Minimum insulation diameter is .156 [3.96]; maximum insulation diameter is .260 [6.60] for power contacts.
Minimum insulation diameter is .060 [1.50]; maximum insulation diameter is .130 [3.30] for signal contacts.

Material
Housing — Nylon, glass-filled UL rated 94V-0, black

Related Product Data
Contacts — Pages 17-21 and 47
Accessories — Page 51
Application Tooling — Pages 76-79
Technical Documents — Page 80

Note: All part numbers are RoHS Compliant.
Two-Piece Sealed Circular Plastic Connectors, Special Series 1

Sealed CPC Receptacles, Special Series 1 with Pre-Installed, Bonded Peripheral Seal

Listed part numbers are for connectors only; contacts must be ordered separately.

Material and Finish
Housing—Thermoplastic, UL 94V-0 rated, black
Seal—Elastomer, gray

Related Product Data
Contacts—Pages 17-21
Contact Arrangement—Page 24
Accessories—Pages 38-42 and 51
Performance Characteristics—Page 6
Application Tooling—Pages 76-79
Technical Documents—Page 80

Two-Piece Sealed Circular CPC Connectors

Square Flange Receptacle (Uses Flange Seal Part No. 81665-□ on page 51)

Free-Hanging Receptacle

Recommended Panel Cutout

Material and Finish
Housing—Thermoplastic, UL 94V-0 rated, black
Seal—Elastomer, gray

Related Product Data
Contacts—Pages 17-21
Contact Arrangement—Page 24
Accessories—Pages 38-42 and 51
Performance Characteristics—Page 6
Application Tooling—Pages 76-79
Technical Documents—Page 80

Related Product Data
Contacts—Pages 17-21
Contact Arrangement—Page 24
Accessories—Pages 38-42 and 51
Performance Characteristics—Page 6
Application Tooling—Pages 76-79
Technical Documents—Page 80

Receptacles with pre-installed, bonded peripheral seals are recommended for use in sealing/splash-proof applications, or where connectors will be subjected to vibration.

Receptacles with pre-installed, bonded peripheral seals are recommended for use in sealing/splash-proof applications, or where connectors will be subjected to vibration.

Receptacles with pre-installed, bonded peripheral seals are recommended for use in sealing/splash-proof applications, or where connectors will be subjected to vibration.

Receptacles with pre-installed, bonded peripheral seals are recommended for use in sealing/splash-proof applications, or where connectors will be subjected to vibration.
Two-Piece Circular Plastic Connector Sealing Accessories

Wire Entry Seal Kits
for Plug and Receptacle Housings

Material and Finish
Seal — Silicon, black
Pressure Plate — Nylon, black

Diagram showing the components of the seal kit, including the seal and pressure plate.

<table>
<thead>
<tr>
<th>Arrangement No.</th>
<th>Insulation Dia. Range</th>
<th>Dimension A</th>
<th>Kit for Pins</th>
<th>Kit for Sockets</th>
</tr>
</thead>
<tbody>
<tr>
<td>13-9</td>
<td>.075-.125 1.91-3.18</td>
<td>.681</td>
<td>213926-1</td>
<td>213925-1</td>
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<td>17-3</td>
<td>.178-.265 4.52-6.73</td>
<td>.790</td>
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<tr>
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<td>213900-1</td>
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<td>.075-.125 1.91-3.16</td>
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<td>213919-2</td>
<td>213919-1</td>
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<td>17-16</td>
<td>.075-.125 1.91-3.16</td>
<td>.790</td>
<td>213920-2</td>
<td>213920-1</td>
</tr>
</tbody>
</table>

Notes:
1. Kits include one Gang Seal and one Pressure Plate marked for cavity identification.

One-Piece or Two-Piece Sealed CPC Sealing Accessories

Flange Seals
Material — Neoprene, black

Related Product Data
Dimensions — Shell Size 17 shown; request Customer Drawings for other sizes