

**CPC Connectors, Series 1  
for Cable or Panel Mount**  
(Accepts Type 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 16-22
- Contact Arrangement**—Page 23
- Component Dimensions**—Page 24\*
- Accessories**—Pages 37-41, 51-53
- Performance Characteristics**—  
Page 6
- Application Tooling**—Pages 75-78
- Technical Documents**—Page 79

**Replacement Coupling Rings**

| Shell Size | Part No. |
|------------|----------|
| 11         | 213811-1 |
| 13         | 213813-1 |
| 17         | 213810-1 |
| 23         | 213812-1 |

**Keying**

Molded-in keying in two configurations:

**A**—Standard Configuration: 5 Keys

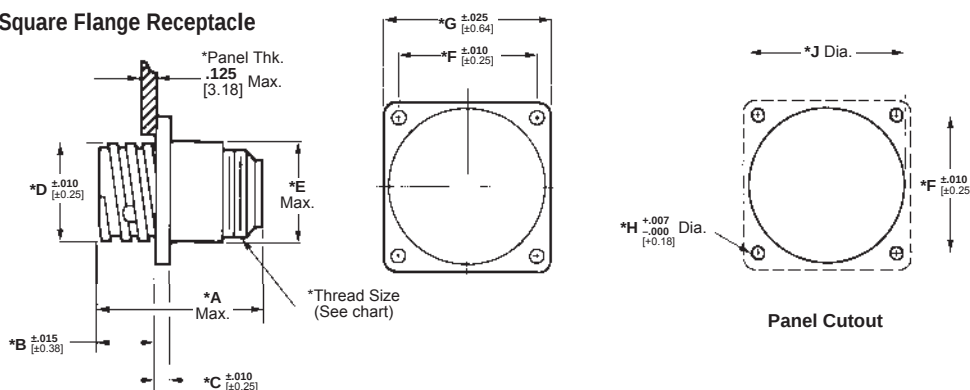


**B**—Optional Configuration: 4 Keys to  
prevent mismatching of standard and  
reverse sex.

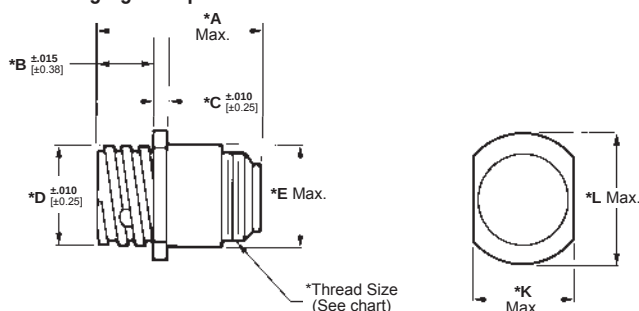


**Circular Plastic Connectors, Size 1**

**Square Flange Receptacle**

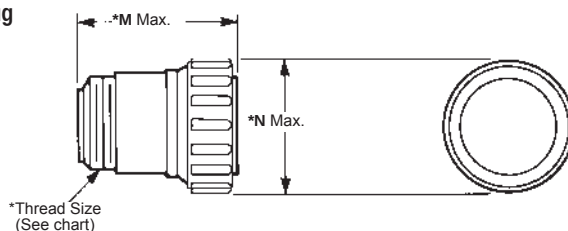


**Free-Hanging Receptacle**



**\*Note:**  
See page 24 for callout dimensions

**Plug**



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

| Arrangement | Keying | Square Flange Receptacle           |                     | Free-Hanging Receptacle | Plug     |
|-------------|--------|------------------------------------|---------------------|-------------------------|----------|
|             |        | With Threaded Inserts <sup>1</sup> | With Mounting Holes |                         |          |
| 11-4        | A      | 208130-1                           | 206061-1            | 206153-1                | 206060-1 |
| 13-9        | A      | 208131-1                           | 206705-1            | 206705-2                | 206708-1 |
| 17-16       | A      | 206036-8                           | 206036-1            | 206036-3                | 206037-1 |
|             | B      | —                                  | 213862-1            | —                       | 213849-1 |
| 23-24       | A      | 211839-1                           | 206838-1            | 206838-2                | 206837-1 |
|             | B      | —                                  | 213866-1            | —                       | 213851-1 |
| 23-37       | A      | 787610-1                           | 206151-1            | 206151-2                | 206150-1 |
|             | B      | —                                  | 213860-1            | —                       | 213848-1 |

<sup>1</sup>Four 4-40 threaded inserts per receptacle.

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

| Arrangement | Keying | Square Flange Receptacle           |                     | Free-Hanging Receptacle | Plug     |
|-------------|--------|------------------------------------|---------------------|-------------------------|----------|
|             |        | With Threaded Inserts <sup>1</sup> | With Mounting Holes |                         |          |
| 11-4        | A      | 211102-1                           | 206430-1            | 206430-2                | 206429-1 |
| 17-14       | A      | 211103-1                           | 206043-1            | 206043-3                | 206044-1 |
|             | B      | —                                  | 796437-2            | —                       | 796449-1 |
| 23-37       | A      | 206306-5                           | 206306-1            | 206306-2                | 206305-1 |
|             | B      | —                                  | 213864-1            | —                       | 213850-1 |

<sup>1</sup>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, VDE Tested

**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 16-22

**Contact Arrangement**—Page 23

**Component Dimensions**—Page 24\*

**Accessories**—Pages 37-41, 51-53

**Performance Characteristics**—  
Page 6

**Application Tooling**—Pages 75-78

**Technical Documents**—Page 79

### Replacement Coupling Rings

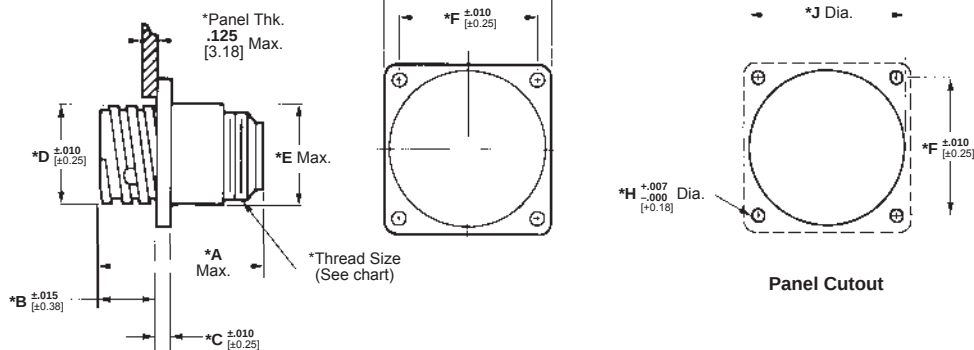
| Shell Size | Part No. |
|------------|----------|
| 13         | 213813-1 |
| 17         | 213810-1 |
| 23         | 213812-1 |

### Keying

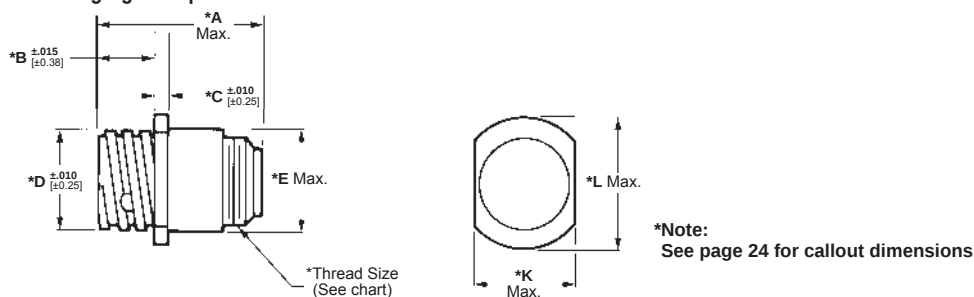
**A**—Standard Configuration: 5 Keys

**B**—Optional Configuration: 4 Keys

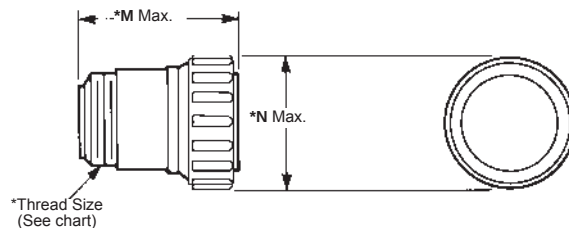
### Square Flange Receptacle



### Free-Hanging Receptacle



### Plug



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

| Arrangement | Shell Size | No. of Positions | Keying | Square Flange Receptacle           |                     | Plug     |
|-------------|------------|------------------|--------|------------------------------------|---------------------|----------|
|             |            |                  |        | With Threaded Inserts <sup>1</sup> | With Mounting Holes |          |
| 13-7        | 13-7       | 7                | A      | 211401-4                           | 211401-1            | 211399-1 |
|             |            |                  | A      | 211767-2                           | 211767-1            | 211766-1 |
| 23-19       | 23-19      | 19               | A      | 211771-2                           | 211771-1            | 211770-2 |
|             |            |                  | B      | —                                  | 213870-1            | 213853-1 |

<sup>1</sup>Four 4-40 threaded inserts per receptacle.

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

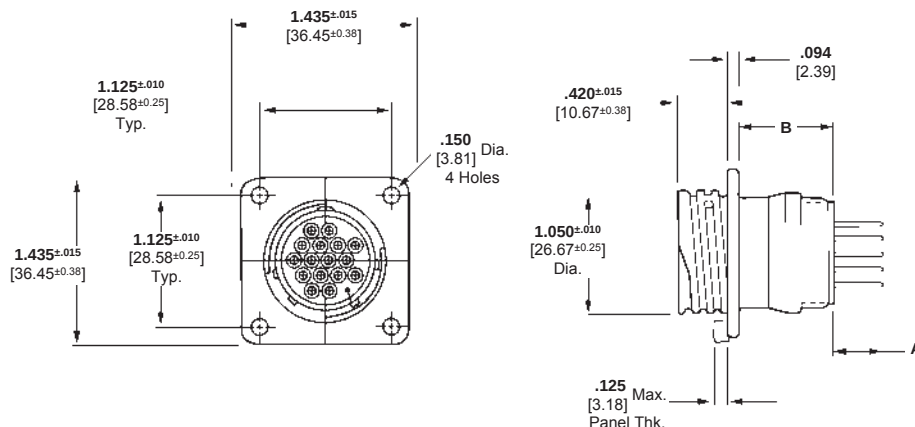
| Arrangement | Shell Size | No. of Positions | Keying | Square Flange Receptacle           |                     | Free-Hanging Receptacle | Plug     |
|-------------|------------|------------------|--------|------------------------------------|---------------------|-------------------------|----------|
|             |            |                  |        | With Threaded Inserts <sup>1</sup> | With Mounting Holes |                         |          |
| 13-7        | 13-7       | 7                | A      | 211398-4                           | 211398-1            | 211398-2                | 211400-1 |
|             |            |                  | A      | —                                  | 211769-1            | 211769-3                | 211768-1 |
| 17-9        | 17-9       | 9                | B      | —                                  | 796439-2            | —                       | 796450-1 |
|             |            |                  | A      | —                                  | 211773-1            | —                       | 211772-1 |
| 23-19       | 23-19      | 19               | B      | —                                  | 213868-1            | —                       | 213852-1 |

<sup>1</sup>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 .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 23

**Performance Characteristics**—  
Page 6

**Technical Documents**—Page 79

### Keying

Molded-in keying in two configurations:

**A**—Standard Configuration: 5 Keys

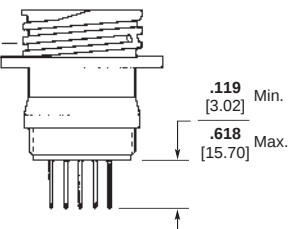


**B**—Optional Configuration: 4 Keys to prevent mismatching of standard and reverse sex.



### 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)

| Arrangement No. | Receptacle Assemblies |                       | Keying Style | Dimensions    |               | Contact Finish Code | Peripheral Seal |
|-----------------|-----------------------|-----------------------|--------------|---------------|---------------|---------------------|-----------------|
|                 | Mounting Holes        | 4-40 Threaded Inserts |              | A             | B             |                     |                 |
| 11-4            | —                     | 207825-9              | A            | .119<br>3.02  | .816<br>20.73 | A                   | N               |
| 13-7            | —                     | 1-796433-1            | A            | .220<br>5.59  | .816<br>20.73 | A                   | N               |
| 13-9            | 208223-9              | —                     | A            | .220<br>5.59  | .816<br>20.73 | A                   | N               |
|                 | —                     | 1-208223-0            | A            | .220<br>5.59  | .816<br>20.73 | A                   | N               |
|                 | —                     | 1-207303-4            | A            | .220<br>5.59  | .816<br>20.73 | A<br>C              | N               |
| 17-16           | 1-207303-5            | —                     | A            | .220<br>5.59  | .816<br>20.73 | A                   | N               |
|                 | 1-207303-3            | —                     | A            | .220<br>5.59  | .816<br>20.73 | A                   | N               |
|                 | 213855-4              | 213855-3              | B            | .220<br>5.59  | .816<br>20.73 | A                   | N               |
| 23-19           | 213782-4              | —                     | A            | .429<br>10.90 | .679<br>17.24 | A                   | N               |
|                 | 213859-2              | —                     | B            | .618<br>15.70 | .674<br>17.12 | A                   | N               |
|                 | —                     | 213588-2              | A            | .220<br>5.59  | .654<br>16.61 | C                   | N               |
| 23-24           | 213798-3              | —                     | A            | .618<br>15.70 | .679<br>17.24 | A                   | N               |
|                 | 213780-2              | —                     | A            | .220<br>5.59  | .536<br>13.61 | A                   | N               |
|                 | 213857-2              | —                     | B            | .429<br>10.90 | .679<br>17.24 | A                   | N               |
|                 | 1-206934-1            | —                     | A            | .220<br>5.59  | .654<br>16.61 | A                   | N               |
| 23-37           | 206934-5              | —                     | —            | .119<br>3.02  | .654<br>16.61 | A                   | N<br>Y          |
|                 | —                     | 1-206934-7            | A            | .119<br>3.02  | .654<br>16.61 | A                   | N<br>Y          |
|                 | 208132-2              | —                     | A            | .429<br>10.90 | .654<br>16.61 | C                   | N               |
|                 | 1-206934-8            | —                     | A            | .429<br>10.90 | .654<br>16.61 | A                   | N               |
|                 | 213854-3              | —                     | B            | .429<br>10.90 | .654<br>16.61 | A                   | N               |
|                 | 1-206934-9            | —                     | A            | .618<br>15.70 | .654<br>16.61 | A                   | N               |

**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.

**Circular Plastic Connectors, Series 1** (Continued)

**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 23

**Performance Characteristics**—  
Page 6

**Technical Documents**—Page 79

**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

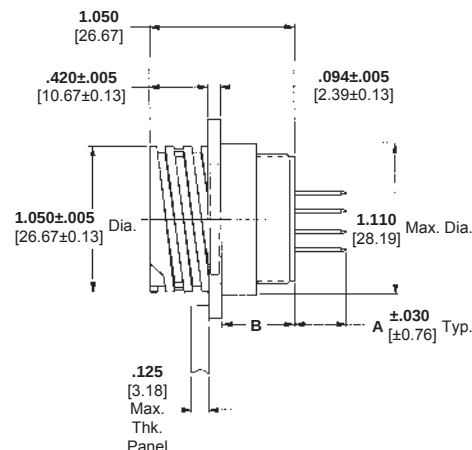
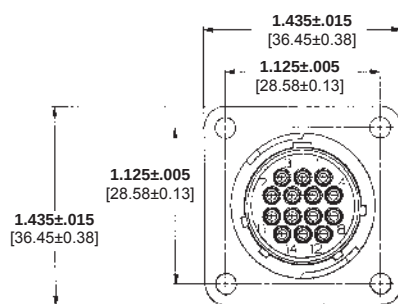
**Plating**—

**Connector Part No. 207292-1**—  
Plated tin over .000050 [0.00127] min. nickel on entire contact

**Connector Part No. 207292-2**—  
Plated .000030 [0.00076] min. gold over .000050 [0.00127] min. nickel on entire contact

**Notes:** 1. Connector can be used for pressure bulkhead feed-thru (sealed) applications.

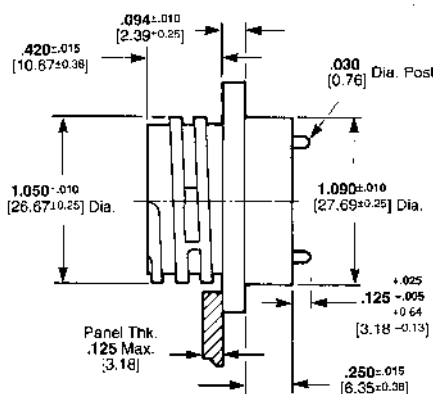
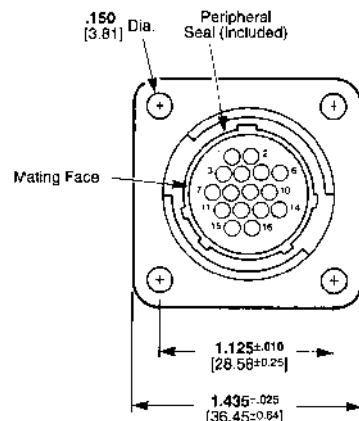
2. Receptacle is **Standard Sex**, supplied preloaded with 16 special round posted pin contacts, .030 [0.76] diameter.



**Reverse Sex (Posted Socket Contacts)**

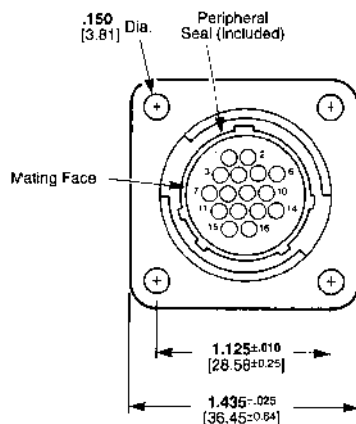
| Arrangement No. | Receptacle Assemblies |                       | Keying Style | Dimensions    |               | Contact Finish Code | Peripheral Seal |
|-----------------|-----------------------|-----------------------|--------------|---------------|---------------|---------------------|-----------------|
|                 | Mounting Holes        | 4-40 Threaded Inserts |              | A             | B             |                     |                 |
| 11-4            | 208283-4              | —                     | A            | .159<br>4.04  | .536<br>13.61 | A                   | N               |
|                 | 1-788130-1            | —                     | A            | .704<br>17.88 | .541<br>13.74 | C                   | N               |
| 17-9            | 1-213826-1            | —                     | A            | .220<br>5.59  | .536<br>13.61 | C                   | Y               |
| 17-14           | 213729-9              | 213729-6              | A            | .368<br>9.35  | .536<br>13.61 | A                   | N               |
|                 | 1-213825-7            | —                     | A            | .220<br>5.59  | .536<br>13.61 | C                   | Y               |
|                 | —                     | 213729-8              | A            | .159<br>4.04  | .536<br>13.61 | C                   | N               |
|                 | 213858-3              | —                     | B            | .645<br>16.38 | .394<br>10.00 | A                   | N               |
| 23-19           | 213781-9              | —                     | A            | .557<br>14.15 | .374<br>9.50  | C                   | N               |
|                 | 213827-8              | —                     | A            | .368<br>9.35  | .374<br>9.50  | C                   | Y               |
|                 | 2-208224-1            | —                     | A            | .557<br>14.15 | .374<br>9.50  | A                   | N               |
| 23-37           | 213856-4              | —                     | B            | .557<br>14.15 | .374<br>9.50  | A                   | N               |
|                 | 1-208224-2            | —                     | A            | .368<br>9.35  | .374<br>9.50  | C                   | N               |
|                 | 1-213828-6            | —                     | A            | .368<br>9.35  | .374<br>9.50  | C                   | Y               |
|                 | 207890-2              | —                     | A            | .159<br>4.04  | .374<br>9.50  | A                   | N               |
|                 | —                     | —                     | —            | —             | —             | —                   | —               |

**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.



**Circular Plastic Connectors, Series 1** (Continued)

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



**Material and Finish**

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

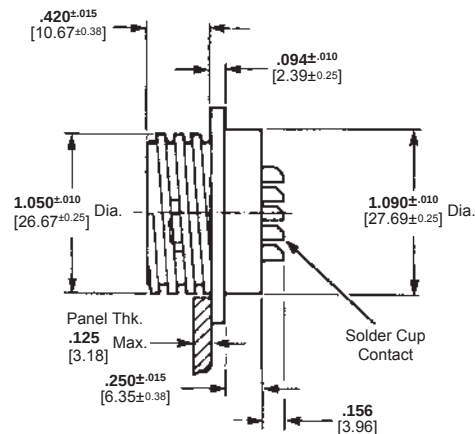
**Contacts**—Brass

**Plating**—

**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

- 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.

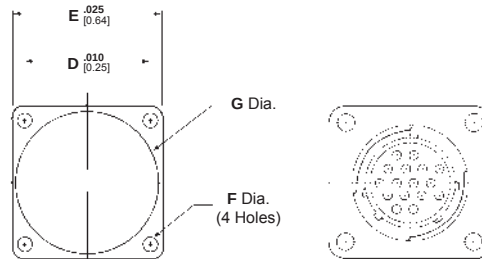
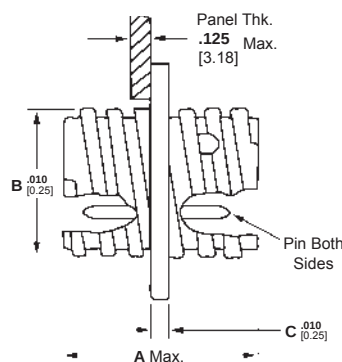


**Special CPC Connectors,  
Feed-Thru**

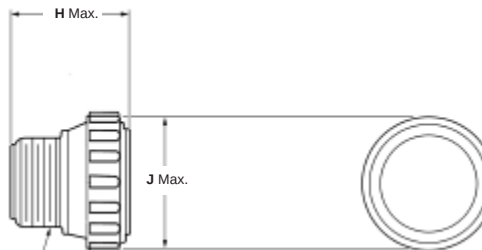
Pressure Rating up to 30 psi



**Receptacle, Feed-Thru**



**Panel Cutout**



**Plug**

**Material and Finish**

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

**Contacts**—Copper alloy, gold over nickel plated

**Part Numbers**

| Arrangement | Standard Numbering Plug | Reverse Numbering Plug | Feed-Thru Receptacle |
|-------------|-------------------------|------------------------|----------------------|
| 11-4        | 206060-1                | 206516-1               | 206518-2             |
| 17-16       | 206037-1                | 206554-1               | 206552-1             |

**Dimensions**

| Arrangement | Dimensions     |                |              |                |                |              |                |                |                | Thread Size         |
|-------------|----------------|----------------|--------------|----------------|----------------|--------------|----------------|----------------|----------------|---------------------|
|             | A              | B              | C            | D              | E              | F            | G              | H              | J              |                     |
| 11-4        | 1.209<br>30.71 | .687<br>17.45  | .094<br>2.39 | .844<br>21.44  | 1.125<br>28.58 | .125<br>3.18 | .840<br>21.34  | 1.080<br>27.43 | .975<br>24.77  | 5/8-24<br>UNEF-2A   |
| 17-16       | 1.209<br>30.71 | 1.050<br>26.67 | .094<br>2.39 | 1.125<br>28.58 | 1.435<br>36.45 | .150<br>3.81 | 1.210<br>30.73 | 1.080<br>27.43 | 1.349<br>34.26 | 15/16-20<br>UNEF-2A |

**Note:** Feed-Thru Receptacles are fully loaded with Size 16, feed-thru pin contacts. Order Size 16 crimp, snap-in socket contacts for plugs separately.

**Square Flange Receptacles,  
Right-Angle, Posted**

with .025 [0.64] sq. solder tails



**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**—.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 23

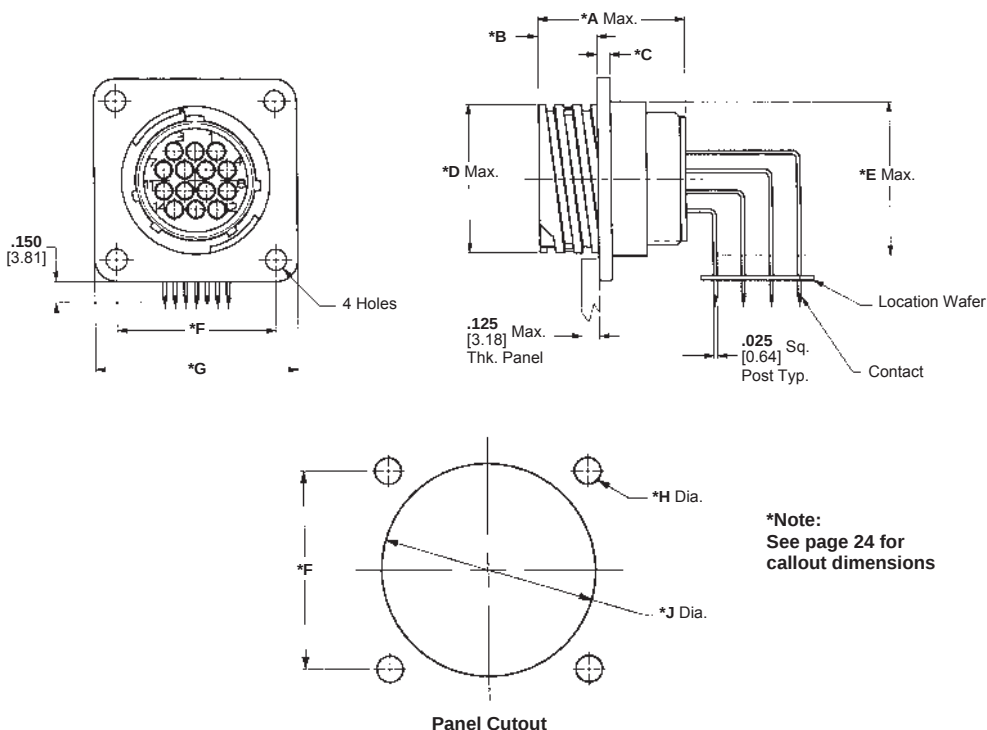
**Component Dimensions**—Page 24\*

**Performance Characteristics**—Page 6

**Keying**—Standard Configuration: 5 Keys

**Technical Documents**—Page 79

**Circular Plastic Connectors, Series 1 (Continued)**



**Standard Sex (Posted Pin Contacts)**

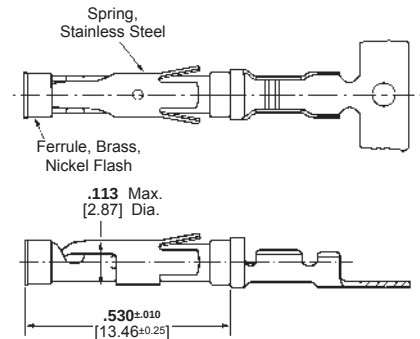
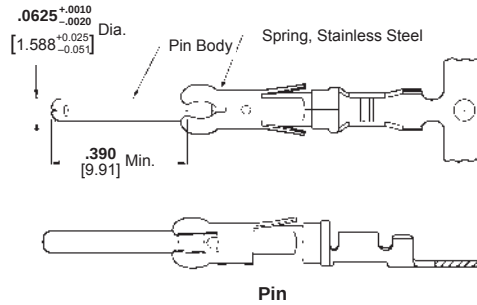
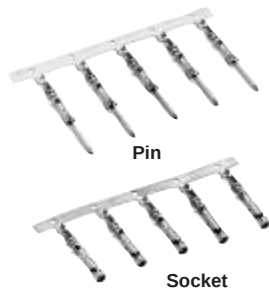
| Arrangement No. | Receptacle Assemblies |                       | Contact Body Finish Code | Mating Plug Part No. |
|-----------------|-----------------------|-----------------------|--------------------------|----------------------|
|                 | Mounting Holes        | 4-40 Threaded Inserts |                          |                      |
| 11-4            | 1-796403-1            | 1-796403-2            | B                        | 206060-1             |
| 13-7            | 1-796435-1            | 1-796435-2            | B                        | 211399-1             |
| 13-9            | 1-796375-1            | 1-796375-2            | B                        | 206708-1             |
| 17-9            | 1-796497-1            | —                     | B                        | 211766-1             |
| 17-16           | 1-796404-1            | —                     | B                        | 206037-1             |
| 23-19           | 1-796405-1            | —                     | B                        | 211770-2             |
| 23-24           | 1-796387-1            | —                     | A                        | 206837-1             |
|                 | 1-796387-2            | —                     | B                        | —                    |
| 23-37           | 1-796406-1            | —                     | B                        | 206150-1             |

**Reverse Sex (Posted Socket Contacts)**

| Arrangement No. | Receptacle Assemblies |                       | Contact Body Finish Code | Mating Plug Part No. |
|-----------------|-----------------------|-----------------------|--------------------------|----------------------|
|                 | Mounting Holes        | 4-40 Threaded Inserts |                          |                      |
| 11-4            | 1-796407-1            | —                     | B                        | 206429-1             |
| 13-7            | 1-796500-1            | —                     | B                        | 211400-1             |
| 17-9            | 1-796501-1            | —                     | B                        | 211768-1             |
| 17-14 (shown)   | 796348-3              | —                     | A                        | 206044-1             |
|                 | 796348-2              | —                     | B                        | —                    |
| 23-19           | 1-796502-1            | —                     | B                        | 211772-1             |
| 23-37           | 1-796409-1            | —                     | B                        | 206305-1             |

**Signal Contacts**

**Type III+, Crimp, Snap-In**



**Material and Finish** — See chart.

**Contact Body**—Brass or phosphor bronze

**Retention Spring**—Stainless steel

**Application Tooling**—Pages 75-78

**Technical Documents**

114-10004 Application Specification

108-10042 Product Specification

**Socket**

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

†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.

| Wire Size<br>Range | Ins.<br>Dia.<br>Range | Contact<br>Finish             | Strip Form<br>Contact No. |           | Loose Piece<br>Contact No. |           | Tooling Part No.                                               |                                                 |
|--------------------|-----------------------|-------------------------------|---------------------------|-----------|----------------------------|-----------|----------------------------------------------------------------|-------------------------------------------------|
|                    |                       |                               | Pin                       | Socket    | Pin                        | Socket    | Loose Piece<br>Hand Tool                                       | Strip Form<br>Applicators                       |
| 30-28              | 0.05-0.09             | Gold/Nickel <sup>2</sup>      | 788085-3                  | 788088-2  | —                          | —         | 90716-1                                                        | 567867-1***<br>or 567947-1***<br>or 680602-□*** |
|                    |                       | Sel. Gold/Nickel <sup>3</sup> | 788085-1                  | 788088-1  | 788085-4                   | 788088-3  |                                                                |                                                 |
|                    |                       | Bright Tin                    | 1-66425-2                 | 1-66424-1 | —                          | —         |                                                                |                                                 |
| 30-26              | 0.05-0.15             | Gold/Nickel <sup>2</sup>      | 66425-7                   | 66424-7   | 66429-3                    | 66428-3   | 91515-1 <sup>6</sup>                                           | 466598-□***                                     |
|                    |                       | Sel. Gold/Nickel <sup>3</sup> | 66425-8                   | 66424-8   | 66429-4                    | 66428-4   |                                                                |                                                 |
|                    |                       | Bright Tin                    | 1-66106-5                 | 1-66108-5 | 1-66107-1                  | 1-66109-7 |                                                                |                                                 |
| 26-24              | 0.12-0.2              | Gold/Nickel <sup>2</sup>      | 66393-7                   | 66394-7   | —                          | —         | 90225-2 <sup>6</sup>                                           | 466585-3***                                     |
|                    |                       | Sel. Gold/Nickel <sup>3</sup> | 66393-8                   | 66394-8   | 66406-4                    | 66405-4   |                                                                |                                                 |
|                    |                       | Bright Tin                    | 1-66106-5                 | 1-66108-5 | 1-66107-1                  | 1-66109-7 |                                                                |                                                 |
| 24-20              | 0.2-0.6               | Gold/Nickel <sup>2</sup>      | 66106-7                   | 66108-7   | 66107-3                    | 66109-3   | 91515-1 <sup>6</sup><br>or<br>58495-1*                         | 466321-□***<br>or<br>466908-2***                |
|                    |                       | Sel. Gold/Nickel <sup>3</sup> | 66106-8                   | 66108-8   | 66107-4                    | 66109-4   |                                                                |                                                 |
|                    |                       | Sel. Gold/Nickel <sup>4</sup> | —                         | 66108-1   | —                          | 66109-1   |                                                                |                                                 |
| 18-16              | 0.8-1.4               | Bright Tin                    | 2-66102-5                 | 3-66104-0 | 1-66103-8                  | 1-66105-9 | 91515-1 <sup>6</sup><br>or<br>58495-1*                         | 466323-□***<br>or<br>466907-2***                |
|                    |                       | Gold/Nickel <sup>2</sup>      | 66102-8                   | 66104-8   | 66103-3                    | 66105-3   |                                                                |                                                 |
|                    |                       | Sel. Gold/Nickel <sup>3</sup> | 66102-9                   | 66104-9   | 66103-4                    | 66105-4   |                                                                |                                                 |
| 18-14              | 0.8-2.0               | Gold/Nickel <sup>2</sup>      | 2-66102-2                 | 2-66104-3 | 1-66103-2                  | 1-66105-3 | 91523-1 <sup>6</sup><br>or<br>90225-2 <sup>6</sup>             | 466324-□***<br>or<br>466942-1***                |
|                    |                       | Sel. Gold/Nickel <sup>3</sup> | 66332-7                   | 66331-7   | 66400-3                    | 66399-3   |                                                                |                                                 |
|                    |                       | Sel. Gold/Nickel <sup>4</sup> | 66332-8                   | 66331-8   | 66400-4                    | 66399-4   |                                                                |                                                 |
| 18-16              | 0.8-1.4               | Gold/Nickel <sup>2</sup>      | 66098-8                   | 66100-8   | 66099-3                    | 66101-3   | 91505-1 <sup>6</sup> or<br>91523-1 <sup>6</sup> or<br>58495-1* | 466325-□***<br>or<br>466906-1***                |
|                    |                       | Sel. Gold/Nickel <sup>3</sup> | 66098-9                   | 66100-9   | 66099-4                    | 66101-4   |                                                                |                                                 |
|                    |                       | Sel. Gold/Nickel <sup>4</sup> | 66098-6                   | —         | 66099-1                    | —         |                                                                |                                                 |
| 18-14              | 0.8-2.0               | Bright Tin                    | 1-66359-4                 | 1-66358-6 | 1-66361-2                  | 1-66360-2 | 91519-1 <sup>6</sup>                                           | 466326-□***<br>or<br>466923-2***                |
|                    |                       | Gold/Nickel <sup>2</sup>      | 66359-5                   | 66358-8   | 66361-7                    | 66360-7   |                                                                |                                                 |
|                    |                       | Sel. Gold/Nickel <sup>3</sup> | 66359-9                   | 66358-9   | 66361-4                    | 66360-4   |                                                                |                                                 |
| 18-14              | 0.8-2.0               | Gold/Nickel <sup>2</sup>      | 66359-2                   | 66358-3   | 66361-8                    | 66360-8   | 91521-1 <sup>6</sup>                                           | 466958-1***<br>or<br>567364-□***                |
|                    |                       | Sel. Gold/Nickel <sup>3</sup> | 66597-8                   | 66598-0   | 66602-8                    | 66601-9   |                                                                |                                                 |
|                    |                       | Sel. Gold/Nickel <sup>4</sup> | 66597-2                   | 66598-2   | 66602-2                    | 66601-2   |                                                                |                                                 |

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

<sup>2</sup>.000015 [0.00038] gold in the mating area over .000050 [0.00127] min. nickel.

<sup>3</sup>.000030 [0.00076] gold in the mating area, with gold flash on remainder, over .000050 [0.00127] min. nickel.

<sup>4</sup>.000030 [0.00076] gold in the mating area, with gold gradient on remainder, over .000050 [0.00127] min. nickel.

<sup>5</sup>Contacts can ONLY be used in: Metrimate; CPC Series 1 (Arr. 23-24), Series 4 (Arr. 23-13M, 23-16M, 23-22M), and VDE connectors.

<sup>6</sup>To use with the 626 Pneumatic Tool: remove crimping head from Straight Action Hand Tool (SAHT), 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).

<sup>8</sup>Standard reeling of strip form contacts.

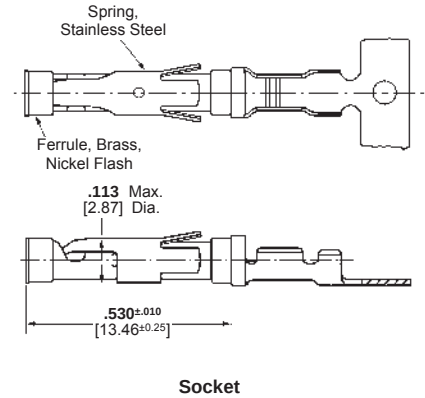
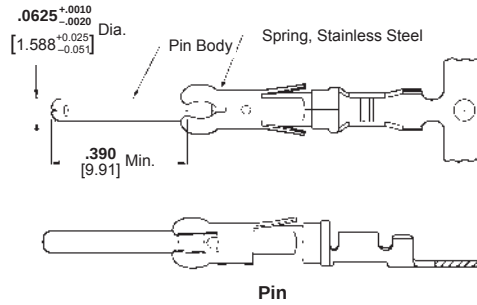
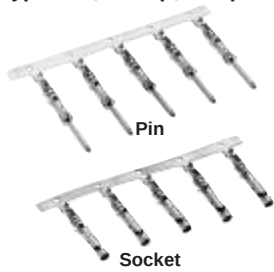
\*Commercial PRO-CRIMPER II hand tool for field repair only. **Note:** Die Set can be adapted for use with 626 Pneumatic Tool System. Insertion Tool Part No. 91002-1 (for insulation diameters .070 [1.78] or less), No. 200893-2 (for insulation diameters .090 [2.29] max.).

Extraction Tool Part No. 305183. (Instruction Sheet 408-1216)

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

Signal Contacts (Continued)

Enhanced 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 75-78

Technical Documents

114-10004 Application Specification

108-10024-2 Product Specification

Contact Size 16—Pin Diameter .062 [1.57]

| Wire Size<br>Range | Ins.<br>Dia.<br>Range               | Contact<br>Finish | Strip Form<br>Contact No. |           | Loose Piece<br>Contact No. |           | Tooling Part No.         |                           |
|--------------------|-------------------------------------|-------------------|---------------------------|-----------|----------------------------|-----------|--------------------------|---------------------------|
|                    |                                     |                   | Pin                       | Socket    | Pin                        | Socket    | Loose Piece<br>Hand Tool | Strip Form<br>Applicators |
| 18-14              | .080-.100 <sup>1</sup><br>2.03-2.54 | Gold              | 1-66359-6                 | 1-66358-9 | 1-66361-4                  | 1-66360-4 | 91519-1 <sup>3</sup>     | 466326-□***<br>or         |
|                    |                                     | Tin               | 1-66359-9                 | 2-66358-1 | 1-66361-6                  | 1-66360-6 |                          | 466923-2***               |
|                    | .110-.150 <sup>2</sup><br>2.79-3.81 | Gold              | 1-66597-0                 | 1-66598-1 | 66602-9                    | 1-66601-0 | 91521-1 <sup>3</sup>     | 466958-1***<br>or         |
|                    |                                     | Tin               | 1-66597-1                 | 1-66598-2 | 1-66602-0                  | 1-66601-2 |                          | 567364-□***               |

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

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

<sup>3</sup> 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.

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: XA/630/4KV/2 - Series I, VDE tested only

Multiplication Rating Factor (F)

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

| Shell Size | Percent Connector Loading |        |           |        |           |        |
|------------|---------------------------|--------|-----------|--------|-----------|--------|
|            | Single Circuit            |        | ≅ 50%     |        | 100%      |        |
|            | Wire Size                 |        | Wire Size |        | Wire Size |        |
|            | 30 AWG                    | 14 AWG | 30 AWG    | 14 AWG | 30 AWG    | 14 AWG |
| 11-4       | .291                      | 1      | .212      | .905   | .140      | .684   |
| 13-9       | .278                      | .995   | .175      | .750   | .134      | .567   |
| 17-16      | .270                      | .990   | .146      | .625   | .127      | .472   |
| 23-24      | .281                      | .985   | .138      | .550   | .120      | .416   |
| 23-37      | .275                      | .985   | .131      | .497   | .114      | .376   |

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

| Shell Size | Percent Connector Loading |        |        |
|------------|---------------------------|--------|--------|
|            | Single Circuit            | ≅ 50%  | 100%   |
|            | 14 AWG                    | 14 AWG | 14 AWG |
| 11-4       | .880                      | .840   | .640   |
| 13-9       | .880                      | .640   | .480   |
| 17-16      | .880                      | .520   | .400   |
| 23-24      | .880                      | .520   | .400   |
| 23-37      | 1                         | .440   | .320   |

**Type III+ (Precision  
Formed, Crimp)**

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

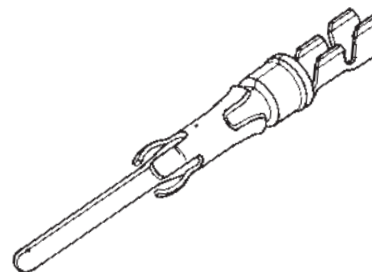
**Material and Finish**

**Contact Body**—Copper alloy, plated  
tin or gold  
**Spring**—Stainless steel

**Grounding Pin**  
(make first - break last)

**Related Product Data**

**Performance Characteristics**—Page 6  
**Application Tooling**—Pages 75-78  
**Technical Documents**—Page 79



| Wire Size Range |       | Ins.<br>Dia.<br>Range <sup>1</sup> | Contact<br>Finish             | Grounding Pin Part No. |             | Strip Form<br>Applicator<br>Part No. | Loose Piece<br>Hand Tool<br>Part No.                           |
|-----------------|-------|------------------------------------|-------------------------------|------------------------|-------------|--------------------------------------|----------------------------------------------------------------|
| mm <sup>2</sup> | AWG   |                                    |                               | Strip Form             | Loose Piece |                                      |                                                                |
| 0.12-0.2        | 26-24 | .035-.055<br>0.89-1.4              | Tin                           | 164159-3               | 164162-1    | —                                    | 91515-1 <sup>5</sup> or<br>58495-1*                            |
|                 |       |                                    | Sel. Gold/Nickel <sup>4</sup> | 164159-4               | 164162-2    |                                      |                                                                |
| 0.2-0.6         | 24-20 | .045-.070<br>1.14-1.78             | Bright Tin                    | 164160-3               | 164163-1    | 466323-□***<br>or<br>466907-2***     | 91515-1 <sup>5</sup> or<br>91505-1 <sup>5</sup> or<br>58495-1* |
|                 |       |                                    | Sel. Gold/Nickel <sup>4</sup> | 164160-4               | 164163-2    |                                      |                                                                |
| 0.8-1.4         | 18-16 | .078-.098<br>1.98-2.49             | Tin                           | 164161-3               | 164164-1    | 466741-□***<br>or<br>680114-3***     | 91523-1 <sup>5</sup> or<br>91505-1 <sup>5</sup> or<br>58495-1* |
|                 |       |                                    | Sel. Gold/Nickel <sup>4</sup> | 164161-4               | 164164-2    |                                      |                                                                |

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

<sup>4</sup>Gold flash over .000030 [0.00076] min. nickel on entire contact, with .000030 [0.00076] gold in contact area.

<sup>5</sup>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).

\*Commercial PRO-CRIMPER II hand tool for field repair only. **Note:** Die Set can be adapted for use with the 626 Pneumatic Tool System.

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

**Extraction Tool Part No. 539972-1.**

**High Current Power  
Contact—Size 16**

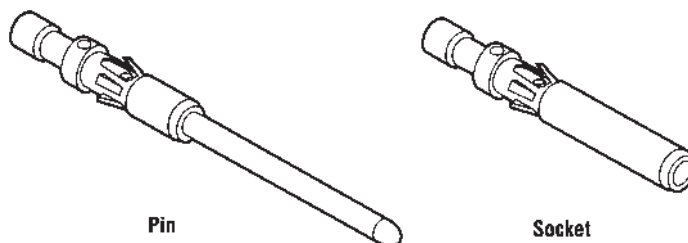
The features of the High Current Size 16 contact have been designed to retrofit into the existing AMP Connectors such as CPC (Circular Plastic Connector), CMC (Circular Metal Connector), G Series, M Series, Metrimate Square Grid and Drawer Connector housings. An initial T-Rise test in free air has shown 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



| Wire Range      |       | Contact Part Nos. |              |             |              | Crimping Tool |            |             |
|-----------------|-------|-------------------|--------------|-------------|--------------|---------------|------------|-------------|
|                 |       | Pin               |              | Socket      |              | Tool          | Turret     |             |
| mm <sup>2</sup> | AWG   | Loose Piece       | Tape Mounted | Loose Piece | Tape Mounted |               | for Pins   | for Sockets |
| 0.8-1.4         | 18-16 | 796964-1          | 796964-2     | 796966-1    | 796966-2     | 601967-1      | 1-601967-5 | 1-601967-6  |
| 2               | 14    | 193844-1          | 193844-2     | 193846-1    | 193846-2     | 601967-1      | 1-601967-6 | 1-601967-5  |

**Extraction Tool Part No. 305183**

**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

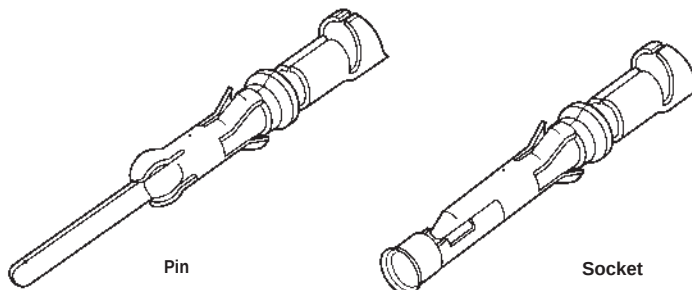
**Spring**—Stainless steel

**Related Product Data**

**Performance Characteristics**—Page 6

**Technical Documents**—Page 79

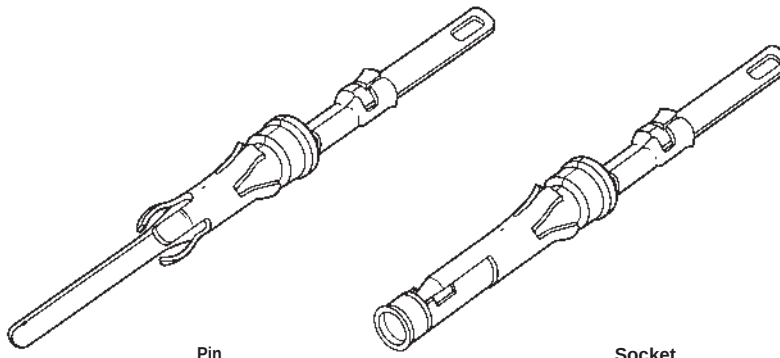
**Solder-Type**  
(with Preformed Wire Barrel/Insulation Support)



Pin

Socket

**Solder-Tab**



Pin

Socket



Pin

Socket

**Solder-Type**



Pin

Socket

**Solder-Tab**

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

| Wire Size<br>Range      |                 | Contact<br>Finish        | Loose Piece<br>Contact No. |          |
|-------------------------|-----------------|--------------------------|----------------------------|----------|
| AWG                     | mm <sup>2</sup> |                          | Pin                        | Socket   |
| 26-20                   | 0.12-0.6        | Gold/Nickel <sup>1</sup> | 66182-1                    | 66183-1  |
| 18-16                   | 0.8-1.4         | Gold/Nickel <sup>1</sup> | 66180-1                    | 66181-1  |
| Solder Tab <sup>4</sup> |                 | Duplex <sup>2</sup>      | 202236-7                   | 202237-7 |
|                         |                 | Bright Tin               | 202236-5                   | 202237-5 |

<sup>1</sup>.000030 [0.00076] gold in mating area over .000030 [0.00076] min. nickel.

<sup>2</sup>Duplex plated .000030 [0.00076] gold in mating area over .000030 [0.00076] min. nickel on contact body; bright tin on solder tab.

<sup>3</sup>Bright tin on entire contact.

<sup>4</sup>Designed for up to 14 AWG; but, not to exceed current limitation of 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**

Signal Contacts (Continued)

Type II, Screw Machined,  
Crimp

Material

Contact Body—Brass

Retention Spring—Stainless steel

Finish

Contact Body—.000030 [0.00076]  
gold over .000050 [0.00127]  
nickel. Gold thickness controlled  
on socket O.D.

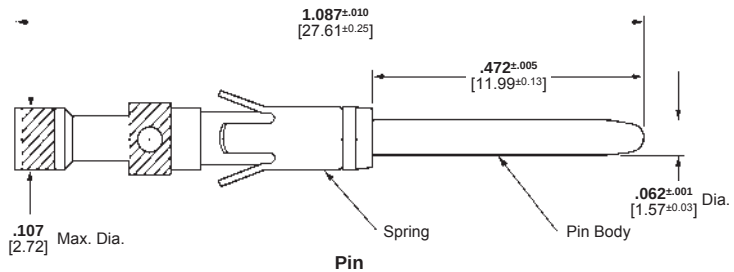
Retention Spring—Stainless steel

Related Product Data

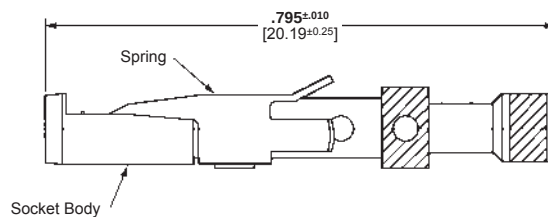
Application Tooling—Pages 75-78



Pin



Socket



Socket

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

| Wire Size<br>Range |                  | Ins.<br>Dia.<br>Range <sup>1</sup> | Tape Mounted<br>Contact No. <sup>2</sup> |          | Loose Piece<br>Contact No. |                       | Contact<br>Color<br>Code | Tooling Part No.                                            |                                                            |                                       |
|--------------------|------------------|------------------------------------|------------------------------------------|----------|----------------------------|-----------------------|--------------------------|-------------------------------------------------------------|------------------------------------------------------------|---------------------------------------|
|                    |                  |                                    | Pin                                      | Socket   | Pin                        | Socket                |                          | Tape Mounted<br>Dies for<br>AMP-TAPETRONIC<br>Machine 69875 | Loose Piece<br>Die Set for<br>626 Pneumatic<br>Tool System | Hand<br>Tool                          |
| 28-24              | 0.08-0.20        | .035-.055<br>0.89-1.40             | 201611-4                                 | —        | 201611-1 <sup>4</sup>      | 201613-1 <sup>5</sup> | Red/Red                  | 90249-2                                                     | 90230-1 <sup>7</sup>                                       | 91538-1<br>or 601967-1                |
|                    |                  | .048-.065<br>1.22-1.65             | —                                        | —        | 201334-1 <sup>4</sup>      | 201332-1 <sup>5</sup> | Red/Red                  |                                                             |                                                            |                                       |
|                    |                  | .095-.110<br>2.41-2.79             | —                                        | —        | 202410-1 <sup>4</sup>      | 202411-1 <sup>5</sup> | Green                    |                                                             |                                                            |                                       |
| 24-20              | 0.2-0.6          | .040-.062<br>1.02-1.57             | 201578-4                                 | —        | 201578-1 <sup>4</sup>      | 201580-1 <sup>5</sup> | Yellow/Red               | 90249-2                                                     | 90230-1 <sup>7</sup>                                       | 91538-1<br>or 58541-1*<br>or 601967-1 |
|                    |                  | .055-.088<br>1.40-2.16             | 201330-6                                 | 201328-9 | 201330-1 <sup>4</sup>      | 201328-1 <sup>5</sup> | Yellow/Red               |                                                             |                                                            |                                       |
| 18<br>(Two)        | 0.9-0.9<br>(Two) | No. Ins.<br>Support                | —                                        | —        | 202725-1 <sup>4</sup>      | 202726-1 <sup>4</sup> | Blue                     | —                                                           | 90231-2 <sup>7</sup>                                       | 91539-1<br>or 601967-1                |
| 18-16              | 0.8-1.4          | .080-.105<br>2.03-2.67             | —                                        | —        | 202507-1 <sup>4</sup>      | 202508-1 <sup>5</sup> | —                        | —                                                           | —                                                          | 90136-1<br>or 601967-1                |
|                    |                  | No Ins.<br>Support                 | 200336-6                                 | 200333-8 | 200336-1 <sup>4</sup>      | 200333-1 <sup>4</sup> | Blue/Blue                | 90250-1                                                     | 90231-2 <sup>7</sup>                                       | 91539-1<br>58541-1*<br>or 601967-1    |
|                    |                  | No Ins.<br>Support                 | —                                        | —        | 204219-1 <sup>5,6</sup>    | —                     | Blue/Blue                | —                                                           | —                                                          | 91539-1<br>58541-1*<br>or 601967-1    |
| 14                 | 2                | No Ins.<br>Support                 | 212618-2 <sup>3</sup>                    | 201568-3 | 201570-1 <sup>4</sup>      | 201568-1 <sup>5</sup> | Violet/Blue              | 90250-1                                                     | 90231-2 <sup>7</sup>                                       | 91539-1<br>58541-1*<br>or 601967-1    |
|                    |                  |                                    | 201570-2                                 | —        | 212618-1 <sup>3,6,†</sup>  | —                     | —                        | —                                                           | —                                                          | —                                     |

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

<sup>2</sup>For AMP-TAPETRONIC Machine No. 69875, order contacts by Tape Mounted Contact No., plus packaging code "IM REEL" (5000 parts per reel).

<sup>3</sup>Grounding pin is used to provide a make-first/break-last condition when mating and unmating connector halves.

<sup>4</sup>Use turret TH502 (1-601967-6) with hand tool 601967-1.

<sup>5</sup>Use turret TH501 (1-601967-5) with hand tool 601967-1.

<sup>6</sup>Pin length is .630±.005 [16.002±.127] on these two pins.

<sup>7</sup>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).

\*Commercial PRO-CRIMPER II Hand Tool for field repair use only. Note: Die Set can be adapted for use with the 626 Pneumatic Tool System.

†Does not use Hand Tool 91539-1 or 601967-1.

‡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.

Insertion Tool Part No. 200893-2 (for insulation diameters .070 [1.78] or less).

Extraction Tool Part No. 305183.

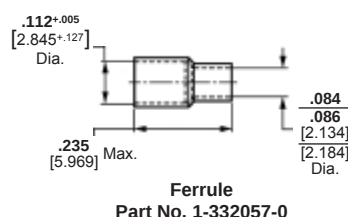
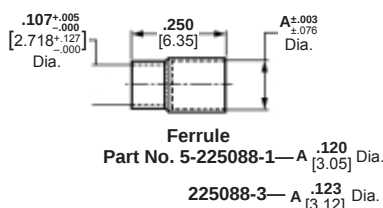
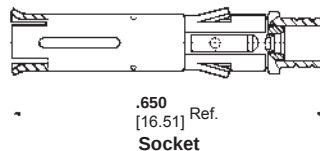
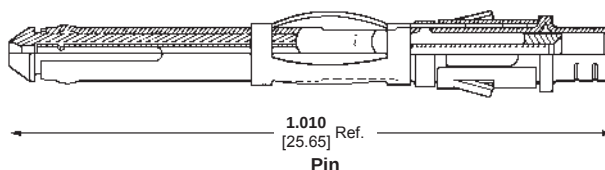
Subminiature Coax, Size 16  
Precision Formed, Crimp



Pin



Socket



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**<sup>†</sup>—Bright tin per  
MIL-T-10727

Related Product Data

**Application Tooling**—Pages 75-78

Selection Chart for Coaxial Cable

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

<sup>1</sup>.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.

<sup>2</sup>.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.

<sup>7</sup>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 91539-1 or 601967-1.

\*Used with PRO-CRIMPER II Hand Tool Frame **Part No. 354940-1**.

**Extraction Tool Part No. 305183**

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

**Finish**

**Ferrule**<sup>†</sup>—Bright tin per  
MIL-T-10727

**Related Product Data**

**Application Tooling**—Pages 75-78

**Coaxial Contacts** (Continued)

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

| Wire Size |                                                                          | Contact Finish                       | Loose Piece Contact No. |         | Ferrule Part No. | Tooling Part No.                                            |                           |
|-----------|--------------------------------------------------------------------------|--------------------------------------|-------------------------|---------|------------------|-------------------------------------------------------------|---------------------------|
| AWG       | mm <sup>2</sup>                                                          |                                      | Pin                     | Socket  |                  | Die Sets for Hand Tool 69710-1 or 626 Pneumatic Tool System | Hand Tool or Die Set*     |
| 30        | 0.05<br>(Twisted Pair, Solid)                                            | Gold/Nickel Gold/Copper <sup>1</sup> | 226537-3                | 51565-3 | 1-332057-0†      | 69690-2 <sup>7</sup>                                        | 69656-2                   |
|           |                                                                          | Gold/Nickel Gold/Copper <sup>2</sup> | 226537-6                | 51565-6 |                  |                                                             |                           |
| 28        | 0.08-0.09<br>(Twisted Pair, Solid)                                       | Gold/Nickel Gold/Copper <sup>1</sup> | 226537-3                | 51565-3 | 1-332057-0†      | 69690 <sup>7</sup>                                          | 91911-3*                  |
|           |                                                                          | Gold/Nickel Gold/Copper <sup>2</sup> | 226537-6                | 51565-6 |                  |                                                             |                           |
| 28        | 0.08-0.09<br>(Twisted Pair, Stranded 7 Str., .0050 [0.13] Dia.)          | Gold/Nickel Gold/Copper <sup>1</sup> | 226537-3                | 51565-3 | 1-332057-0†      | 69690-1 <sup>7</sup><br>or<br>69690-2 <sup>7</sup>          | 91911-4*<br>or<br>69656-2 |
|           |                                                                          | Gold/Nickel Gold/Copper <sup>2</sup> | 226537-6                | 51565-6 |                  |                                                             |                           |
| 26        | 0.12-0.15<br>(Twisted Pair, Solid or Stranded 7 Str., .0063 [0.16] Dia.) | Gold/Nickel Gold/Copper <sup>1</sup> | 226537-3                | 51565-3 | 1-332057-0†      | 69690 <sup>7</sup>                                          | 91911-3*                  |
|           |                                                                          | Gold/Nickel Gold/Copper <sup>2</sup> | 226537-6                | 51565-6 |                  |                                                             |                           |
| 26        | 0.12-0.15<br>(Shielded, .075 [1.91] Max. O.D.)                           | Gold/Nickel Gold/Copper <sup>1</sup> | 226537-1                | 51565-1 | 1-332057-0†      | 69690-3 <sup>7</sup>                                        | 69656-3                   |
|           |                                                                          | Gold/Nickel Gold/Copper <sup>2</sup> | 226537-4                | 51565-4 |                  |                                                             |                           |

<sup>1</sup>.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.

<sup>2</sup>.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.

<sup>7</sup>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).

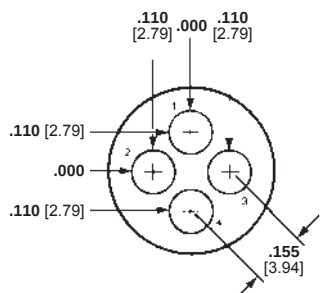
\*Used with PRO-CRIMPER II Hand Tool Frame **Part No. 354940-1**.

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

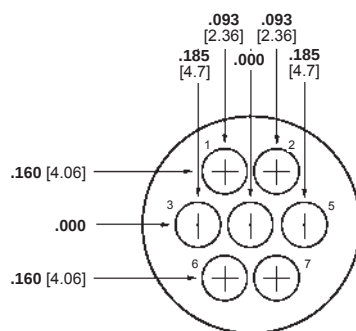
**Extraction Tool Part No. 305183.**

## Contact Arrangements, Series 1

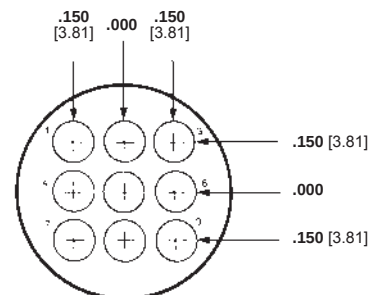
### Shell Sizes 11 and 13



**Arrangement 11-4**  
Max. Wire Ins. Dia. = .100 [2.54]

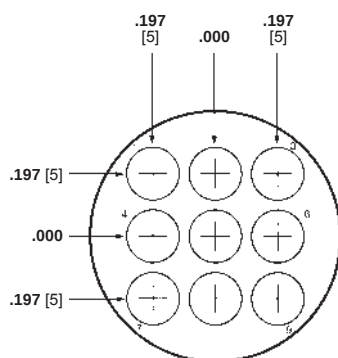


**Arrangement 13-7**  
Max. Wire Ins. Dia. = .100 [2.54]

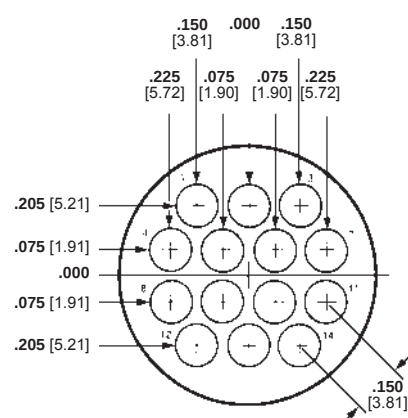


**Arrangement 13-9**  
Max. Wire Ins. Dia. = .100 [2.54]

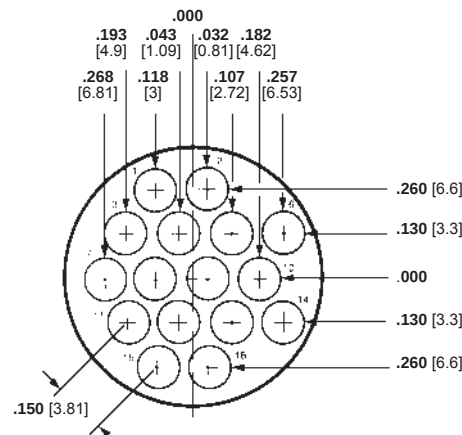
### Shell Size 17



**Arrangement 17-9**  
Max. Wire Ins. Dia. = .150 [3.81]

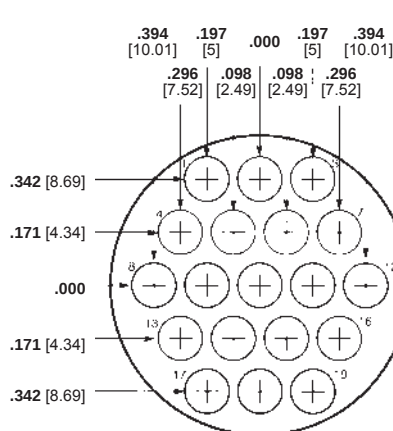


**Arrangement 17-14**  
Max. Wire Ins. Dia. = .100 [2.54]

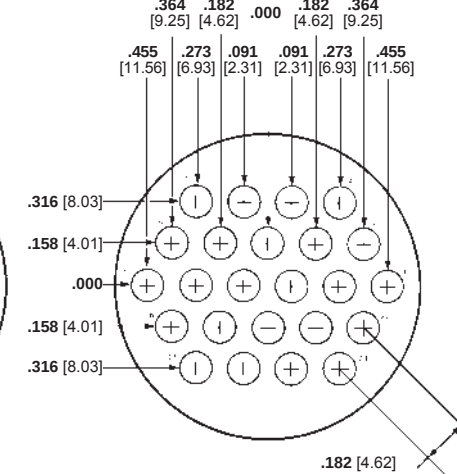


**Arrangement 17-16**  
Max. Wire Ins. Dia. = .100 [2.54]

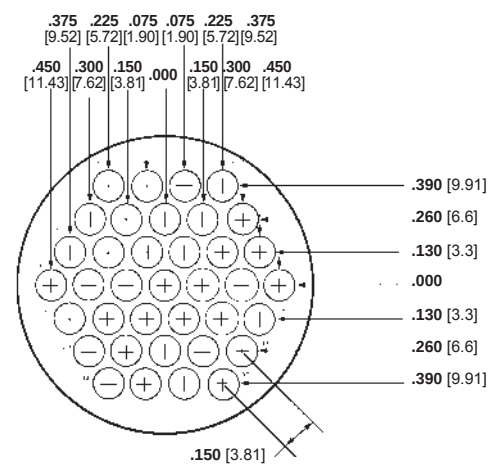
### Shell Size 23



**Arrangement 23-19**  
Max. Wire Ins. Dia. = .150 [3.81]



**Arrangement 23-24**  
Max. Wire Ins. Dia. = .150 [3.81]

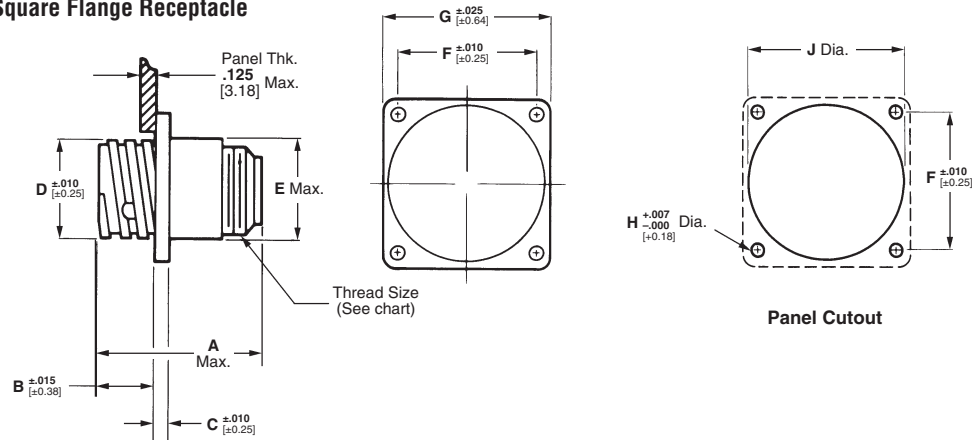


**Arrangement 23-37**  
Max. Wire Ins. Dia. = .100 [2.54]

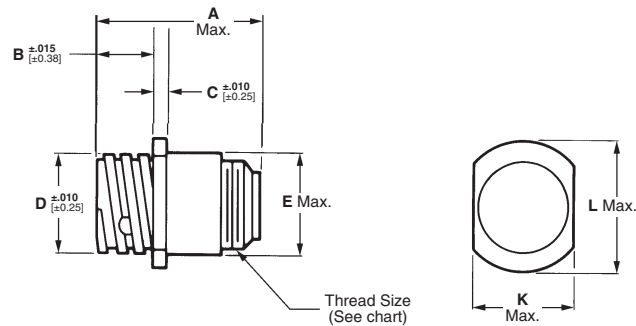
Note: Contact arrangements shown are for pin mating face (plug or receptacle). Socket mating face is mirror image.

## Component Dimensions, Series 1

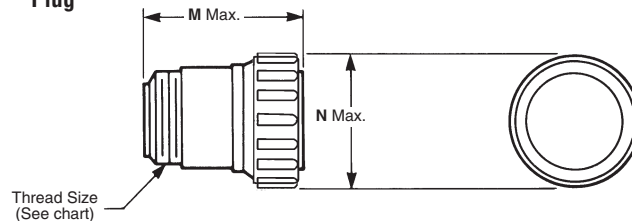
### Square Flange Receptacle



### Free-Hanging Receptacle

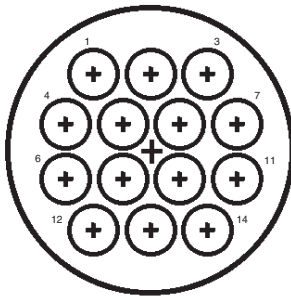


### Plug



| Shell Size | Sex  | Dimensions     |               |              |               |               |               |                |              |               |              |                |                |                | Thread Size         |
|------------|------|----------------|---------------|--------------|---------------|---------------|---------------|----------------|--------------|---------------|--------------|----------------|----------------|----------------|---------------------|
|            |      | A              | B             | C            | D             | E             | F             | G              | H            | J             | K            | L              | M              | N              |                     |
| 11         | Rev. | 1.070<br>27.18 | .420          | .094         | .687          | .740          | .844          | 1.125          | .125         | .840          | .817         | .935           | 1.365<br>34.67 | .975           | 5/8-24<br>UNEF-2A   |
|            | Std. | 1.350<br>34.29 | 10.67         | 2.39         | 17.45         | 18.8          | 21.44         | 28.58          | 3.18         | 21.34         | 20.75        | 23.75          | 1.080<br>27.43 | 24.77          |                     |
| 13         | Std. | 1.350<br>34.29 | .420<br>10.67 | .094<br>2.39 | .812<br>20.62 | .879<br>22.33 | .969<br>24.61 | 1.281<br>32.54 | .125<br>3.18 | .979<br>24.87 | .874<br>22.2 | 1.072<br>27.23 | 1.080<br>27.43 | 1.105<br>28.07 | 3/4-20<br>UNEF-2A   |
| 17         | Rev. | 1.070<br>27.18 | .420          | .094         | 1.050         | 1.110         | 1.125         | 1.435          | .150         | 1.210         | 1.161        | 1.310          | 1.365<br>34.67 | 1.349          | 15/16-20<br>UNEF-2A |
|            | Std. | 1.350<br>34.29 | 10.67         | 2.39         | 26.67         | 28.19         | 28.58         | 36.45          | 3.81         | 30.73         | 29.49        | 33.27          | 1.080<br>27.43 | 34.26          |                     |
| 23         | Rev. | 1.070<br>27.18 | .520          | .156         | 1.438         | 1.510         | 1.438         | 1.750          | .150         | 1.610         | 1.505        | 1.733          | 1.365<br>34.67 | 1.788          | 1-3/8-18<br>UNEF-2A |
|            | Std. | 1.350<br>34.29 | 13.21         | 3.96         | 36.53         | 38.35         | 36.53         | 44.45          | 3.81         | 40.89         | 38.23        | 44.02          | 1.080<br>27.43 | 45.42          |                     |

## Connector Series and Types

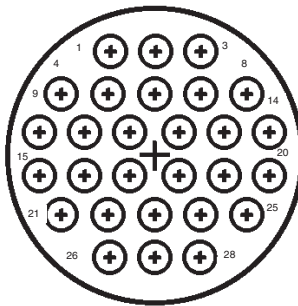


### Series 1—Size 16 Contacts

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.

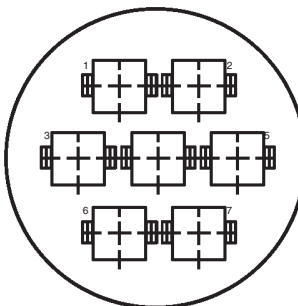
Type III solder contacts and posted contacts for pc board applications are also available. Many connector arrangements offer both standard and reverse sex contact loading—**from 4 thru 37 positions.**



### 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

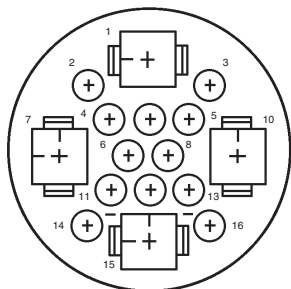
for wrap-type and pc board applications. Maximum current carrying capability is 7.5 amperes. Many connector arrangements offer both standard and reverse sex contact loading—**from 8 thru 63 positions.**



### 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 mm<sup>2</sup>]. Two connector sizes are available in both standard and reverse sex connector arrangements **3 and 7 positions.**

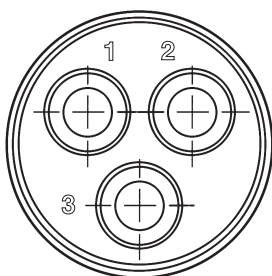


### Series 4—Combination Size 16 and Power Contacts

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)



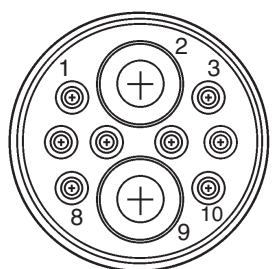
### Series 5—Power Contacts .125 POWERBAND

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.

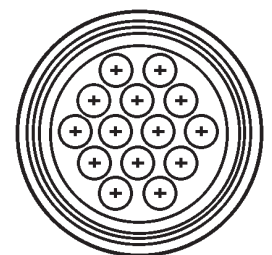
Rated at 600 VAC or VDC, 45 amperes maximum in a single contact, the connectors are available in free-hanging and panel-mount applications—**one connector configuration containing three .125 POWERBAND contacts.**



### Series 6—Combination, Size 16 and .125 POWERBAND Contacts

Series 6 combines the high current and environmental sealing capability of Series 5, POWERBAND contacts, and the reliability of signal carrying, low current Type III+ 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.**

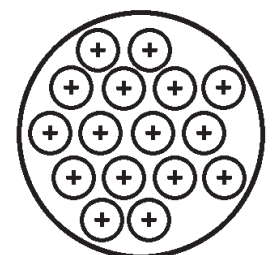


### MIL-C-5015 Style—Size 16 Contacts

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 mismatching when used with other insert arrangements. As part of the AMP Multimate family of connectors, the MIL-C-5015 style connector offers the

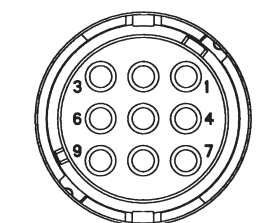
economies of crimp Type III+ pin and socket contacts in reel-mounted, strip-form for high volume automatic machine termination, as well as in loose piece-form for low volume, prototype or maintenance and repair.



### 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

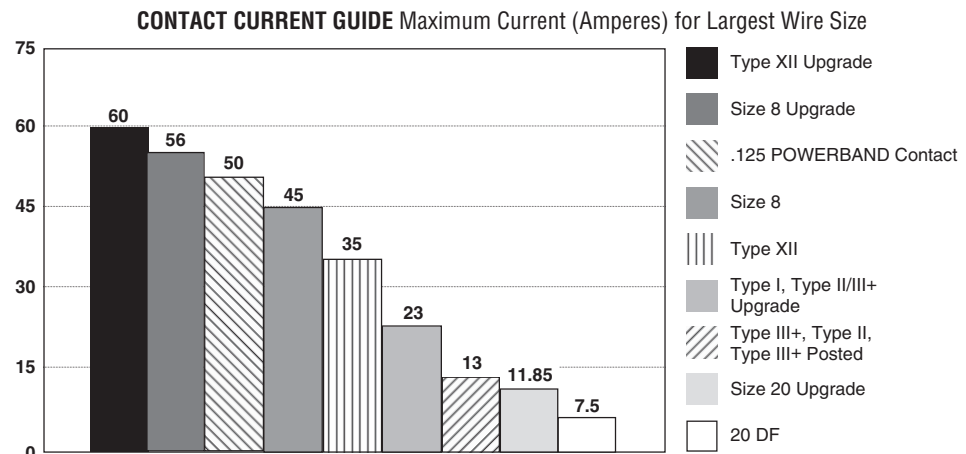
These compact connectors accept existing Mini-Universal MATE-N-LOK pin and socket contacts, 30-18 AWG [.05-.8 mm<sup>2</sup>].

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.

## Current Carrying Capabilities

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 capability 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 ampere. 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 30°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  $I^2R$  law), the current must be lowered to limit the T-rise.

A contact's T-rise depends not only on its  $I^2R$  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.

## Presentation — An Example\*

### 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.

### Connector/Contact Acceptability

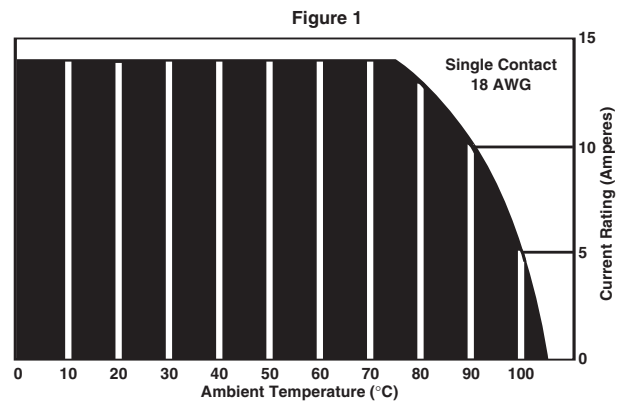
As previously stated, choosing the correct connector/contact combination is fundamental to the successful function of all connectors. The Selector Chart shown at right, is designed to simplify your choice

of connectors and their acceptable contacts. Once you have selected the wire size, current-carrying capacity need, 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.

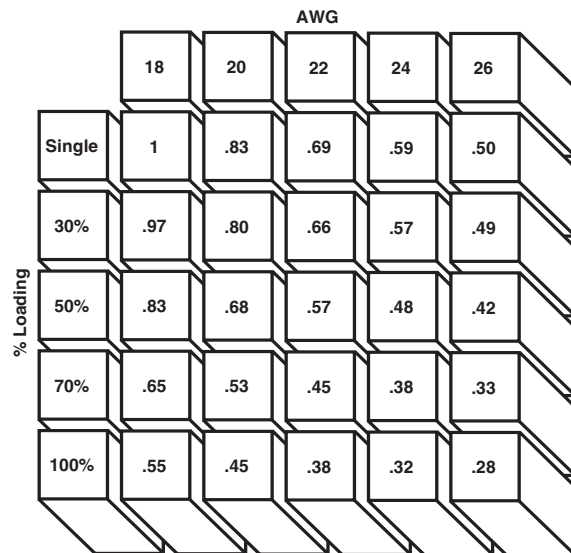
**\*Note:** Data is *not* typical of a specific CPC connector configuration. For specific current rating information based on % connector loading, contact Tyco Electronics.

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 [0.6mm<sup>2</sup>] wire.

- From Figure 1, the base current rating is 14 ampere with 18 AWG [0.8mm<sup>2</sup>] wire.
- Figure 2, the rating factor for 50% loading and 20 AWG [0.6mm<sup>2</sup>] wire is 0.68.
- The specific rating for this application is the product of the base rating and the rating factor:  
 $14 \times 0.68 = 9.5$  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:  
 $12.8 \times 0.68 = 8.7$  ampere.



Graph shows the relationship between base current, ambient temperature, and contact T-rise.



Rating factors allow the base current to be adjusted for various connector loading and wire sizes.

### Contact Selector Chart

| Connector Type | 20 DF | Type I | Type II | Type III+ | Posted Type III+ | Type XII | Sub-Mini Coax | POWERBAND Contacts |
|----------------|-------|--------|---------|-----------|------------------|----------|---------------|--------------------|
| CPC Series 1   |       |        | ✓       | ✓         | ✓                |          | ✓             |                    |
| CPC Series 2   | ✓     |        |         |           |                  |          |               |                    |
| CPC Series 3   |       |        |         |           |                  | ✓        |               |                    |
| CPC Series 4   |       |        | ✓       | ✓         |                  | ✓        | ✓             |                    |
| CPC Series 5   |       |        |         |           |                  |          |               | ✓                  |
| CPC Series 6   |       | ✓      | ✓       | ✓         |                  |          |               | ✓                  |
| CPC 5015       |       |        |         | ✓         |                  |          |               |                    |
| CMC Series 1   |       |        | ✓       | ✓         | ✓                |          | ✓             |                    |
| CMC Series 2   | ✓     |        |         |           |                  |          |               |                    |
| CMC Series 3   |       |        |         |           |                  | ✓        |               |                    |
| CMC Series 4   |       |        | ✓       | ✓         |                  | ✓        | ✓             |                    |