

# Amphenol® 348 Series High Density Connectors

12-093-6



MIL-C-81511, Series I, II

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**Amphenol**

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This catalog covers Amphenol® 348 Series Connectors. For additional information on Amphenol® products, or for special application requirements, contact your local Amphenol sales office or -

Amphenol Corporation  
Amphenol Aerospace  
40-60 Delaware Avenue  
Sidney, New York 13838-1395  
Telephone: 607-563-5011  
Fax: 607-563-5157  
www.amphenol-aerospace.com

Data printed in blue pertains only to Series I, Long.  
Data printed in black pertains to Series II, Standard or both  
Series I and II as the catalog situation dictates.

Amphenol Aerospace is a certified ISO 9001 Manufacturer.

# 348 Series

## high density connectors

**MIL-C-81511  
Series I**



**straight plug**



**square flange  
receptacle**



**single hole  
mounting  
receptacle**

**MIL-C-81511  
Series II**



**straight plug**



**square flange  
receptacle**



**single hole  
mounting  
receptacle**

The Amphenol® 348 Series connector provides reliability and high contact density. Qualified to MIL-C-81511, these connectors can accommodate a minimum of three circuits to a maximum of one hundred and fifty five circuits.

Amphenol® 348 Series connectors are available in two basic constructions: Long (Series I) and Standard (Series II). The Series I features 100% scoop-proof construction (potential contact damage minimized by recessed pins). Series II, Standard connectors are scoop-proof when the pin contacts are specified in the receptacle shell only.

Each construction, Series I and Series II, features a single one-piece molded dielectric retention system that locks the contacts in place. The contacts are crimp type, either power or shielded, and available in sizes 12, 16, 20 and 23-28 or 23-22 with wire size accommodations from 12 through 32 AWG.

The Amphenol® 348 Series is a lightweight, compact connector offered in 4 shell styles: straight plug, square flange receptacle, single hole mounting receptacle and cable receptacle. It is environmentally resistant and will operate at sea level to a voltage of 600 VAC (RMS). It will perform under high temperature vibration, testing through 150°C (see specifications on page 2).

# 348 Series specifications

## Materials and Finishes:

**pin contact (standard)** - copper base alloy, gold plated per 50 micro inches min. per MIL-G-45204 over suitable underplate.

**socket contact (standard)** - copper base alloy, gold plated per MIL-G-45204 over suitable underplate. Hood material is stainless steel.

**shell** - aluminum alloy finish for E class connectors - cadmium plate over suitable underplate.

**inserts** - high grade dielectric material

**Maintenance Aging** - All contacts shall be removed and installed for 10 cycles. After 10th cycle, contact insertion and retention forces are as shown in table:

| Contact Size | Unlocked             |                    |         | Locked Retention Force lbs. |
|--------------|----------------------|--------------------|---------|-----------------------------|
|              | Insertion Force lbs. | Removal Force lbs. |         |                             |
|              | Maximum              | Minimum            | Maximum | Minimum                     |
| 23*          | 12                   | 3                  | 17      | 10                          |
| 20           | 20                   | 3                  | 23      | 15                          |
| 16           | 25                   | 4                  | 23      | 25                          |
| 12           | 30                   | 5                  | 23      | 25                          |

\* Applies to both 23-28 and 23-22 contact sizes.

**Durability** - After 500 mating-unmating cycles at a maximum rate of 300 cycles per hour, connectors shall not show any damage detrimental to the operation of the connector.

**Corrosion** - After salt spray testing per method 1001, condition B, MIL-STD-1344 connectors shall show no exposure of basis metal which will affect performance.

**Dielectric Withstanding Voltage** - Connectors shall show no evidence of breakdown or flashover when subjected to the test voltages and altitudes specified in table. Corona shall not be considered as breakdown. (Sea level tests performed per method 3001 of MIL-STD-1344; Altitude tests per method 1005, condition C, of MIL-STD-202).

### Test Voltage (ac, rms, not working voltage)

| Simulated Altitude Condition | Mated | Unmated |
|------------------------------|-------|---------|
| Sea Level                    | 1800  | 1500    |
| 50,000 feet                  | 1000  | 550     |
| 70,000 feet                  | 1000  | 375     |
| 110,000 feet                 | 1000  | 200     |

### Maximum recommended working voltage, ac, rms

| Condition    |     |
|--------------|-----|
| Sea Level    | 600 |
| 50,000 feet  | 300 |
| 70,000 feet  | 300 |
| 110,000 feet | 300 |

**Fluid Immersion** - Unmated connectors shall be immersed fully in fluids specified in table. At least one connector must be immersed in each fluid type. After the immersion period and a drying period of 1 hour, the connectors must remain completely functional.

### Fluids for fluid immersion

| Connector Class | Fluids                    |
|-----------------|---------------------------|
| E               | MIL-H-5606<br>MIL-L-23699 |

**Moisture Resistance** - Mated connectors shall have an insulation resistance of 500 megohms or greater at 25°C after moisture testing per MIL-STD-202, method 106.

**Thermal Shock** - Connectors shall remain completely functional after being subjected to the temperature extremes specified below:

| Low Temperature<br>-65°C + 0°<br>- 3° | High Temperature<br>+150°C + 3°<br>- 0° |
|---------------------------------------|-----------------------------------------|
| Test Condition*                       | F                                       |

\* Tested in accordance with method 1003, of MIL-STD-1344 per test conditions listed.

**Vibration** - Connectors shall undergo vibration testing per method 2005, test condition IV, MIL-STD-1344 in low and high temperature extremes of preceding table with all contacts connected in series, and a current flow of 100 milliamperes. There shall be no circuit interruption longer than 1 micro-second.

**Physical Shock** - The application of 1/2 sine-wave transient shock impulses of 50 gravity units to 3 planes for 11 milli-seconds, with test voltage applied to series connected contacts, shall result in no discontinuity longer than 1 micro-second. Connectors shall not be damaged, parts shall not become loose.

**Temperature Life** - Mated connectors shall perform satisfactorily after being subjected to ambient temperatures specified, per class for 1000 hrs.

**EMI Shielding Effectiveness** - As measured in a triaxial EMI leakage tester, connector shells with grounding springs shall exhibit a radio frequency attenuation equal to or greater than the following:

| Frequency (MHz) | Leakage Atten. (db) |
|-----------------|---------------------|
| 100             | 65                  |
| 300             | 55                  |
| 800             | 45                  |
| 1000            | 45                  |

# 348 Series

## insert availability and identification alternate positions

**Insert Availability**

| Insert Arrangement |           | MS Code | Service Rating | Total Contacts | Contact Size |    |    |    |
|--------------------|-----------|---------|----------------|----------------|--------------|----|----|----|
| Series I           | Series II |         |                |                | 23*          | 20 | 16 | 12 |
| 8-04               | 8-04      | A01     | I              | 4              | 4            |    |    |    |
| 10-03              | 10-03     | B03     | I              | 3              |              |    | 3  |    |
| 10-05              | 10-05     | B02     | I              | 5              |              | 5  |    |    |
| 10-12              | 10-12     | B01     | I              | 12             | 12           |    |    |    |
| 14-04              | 14-04     | D04     | I              | 4              |              |    |    | 4  |
| 14-09              | 14-09     | D03     | I              | 9              |              |    | 9  |    |
| 14-19              | 14-19     | D02     | I              | 19             |              | 19 |    |    |
| 14-37              | 14-37     | D01     | I              | 37             | 37           |    |    |    |
| 16-07              | 16-07     | E04     | I              | 7              |              |    |    | 7  |
| 16-14              | 16-14     | E03     | I              | 14             |              |    | 14 |    |
| 16-27              | 16-27     | E02     | I              | 27             |              | 27 |    |    |
| 16-55              | 16-55     | E01     | I              | 55             | 55           |    |    |    |
| 18-09              | 18-09     | F04     | I              | 9              |              |    |    | 9  |
| 18-21              | 18-21     | F03     | I              | 21             |              |    | 21 |    |
| 18-38              | 18-38     | F02     | I              | 38             |              | 38 |    |    |
| 18-85              | 18-85     | F01     | I              | 85             | 85           |    |    |    |
| 20-11              | NA        | G04     | I              | 11             |              |    |    | 11 |
| 20-24              | NA        | G03     | I              | 24             |              |    | 24 |    |
| 20-45              | NA        | G02     | I              | 45             |              | 45 |    |    |
| 20-92              | NA        | G01     | I              | 92             | 92           |    |    |    |
| 22-14              | NA        | H04     | I              | 14             |              |    |    | 14 |
| 22-32              | NA        | H03     | I              | 32             |              |    | 32 |    |
| 22-61              | NA        | H02     | I              | 61             |              | 61 |    |    |
| 22-121             | NA        | H01     | I              | 121            | 121          |    |    |    |
| 24-19              | NA        | J04     | I              | 19             |              |    |    | 19 |
| 24-41              | NA        | J03     | I              | 41             |              |    | 41 |    |
| 24-74              | NA        | J02     | I              | 74             |              | 74 |    |    |
| 24-155             | NA        | J01     | I              | 155            | 155          |    |    |    |

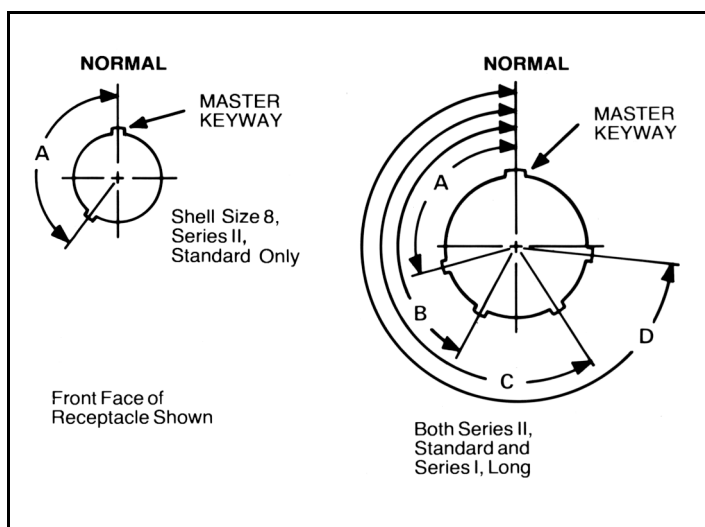
\* Applies to both 23-28 and 23-22 contact sizes.

### Alternate Positions

To avoid cross-plugging problems in applications requiring the use of more than one 348 Series connector of the same size and arrangement, alternate positions are available as indicated in the charts below.

A plug with a given position number (1 through 6) will mate with a receptacle with the same position number. The angular rotation A, B, C or D is the same whether the connector has pin or socket inserts. Inserts are not rotated in relation to the master key/keyway.

Shown below is a view from the front face of a receptacle. The view for the front face of a plug is the same except the direction of rotation of the angles is opposite of that shown for the receptacle.



### Series II, Standard

| Key and Keyway Position | Angular Location |     |     |     |                      |     |     |     |
|-------------------------|------------------|-----|-----|-----|----------------------|-----|-----|-----|
|                         | Shell Size 8     |     |     |     | Shell Size 10 and 14 |     |     |     |
|                         | A°               | B°  | C°  | D°  | A°                   | B°  | C°  | D°  |
| 1                       | 128              | 105 | 140 | 215 | 265                  | 105 | 140 | 215 |
| 2                       | 190              | 102 | 132 | 248 | 320                  | 18  | 149 | 192 |
| 3                       | 205              | 80  | 118 | 230 | 312                  | 92  | 152 | 222 |
| 4                       | 220              | 35  | 140 | 205 | 275                  | 84  | 152 | 204 |
| 5                       | 235              | 64  | 155 | 235 | 304                  | 24  | 135 | 199 |
| 6                       | 250              | 35  | 115 | 220 | 270                  | 98  | 152 | 268 |

### Series I, Long

| Key and Keyway Position | Angular Location |     |     |     |                      |     |     |     |                               |     |     |     |
|-------------------------|------------------|-----|-----|-----|----------------------|-----|-----|-----|-------------------------------|-----|-----|-----|
|                         | Shell Size 8     |     |     |     | Shell Size 10 and 14 |     |     |     | Shell Size 16, 18, 20, 22, 24 |     |     |     |
|                         | A°               | B°  | C°  | D°  | A°                   | B°  | C°  | D°  | A°                            | B°  | C°  | D°  |
| 1                       | 105              | 140 | 215 | 265 | 95                   | 141 | 208 | 236 | 80                            | 142 | 196 | 293 |
| 2                       | 102              | 132 | 248 | 320 | 113                  | 156 | 182 | 292 | 135                           | 170 | 200 | 310 |
| 3                       | 80               | 118 | 230 | 312 | 90                   | 145 | 195 | 252 | 49                            | 169 | 200 | 244 |
| 4                       | 35               | 140 | 205 | 275 | 53                   | 156 | 220 | 255 | 66                            | 140 | 200 | 257 |
| 5                       | 64               | 155 | 234 | 304 | 119                  | 146 | 176 | 298 | 62                            | 145 | 180 | 280 |
| 6                       | 91               | 131 | 197 | 240 | 51                   | 141 | 184 | 242 | 79                            | 153 | 197 | 272 |

# 348 Series

## insert arrangements

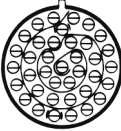
front face of pin inserts illustrated

The insert arrangements on this page (shell sizes 8 thru 18) are available in both Series I, Long and Series II, Standard.

|                    |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |
|--------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
|                    |  |  |  |  |  |
| Insert Arrangement | 8-04                                                                              | 10-03                                                                             | 10-05                                                                             | 10-12                                                                               | 14-04                                                                               |
| Number of Contacts | 4                                                                                 | 3                                                                                 | 5                                                                                 | 12                                                                                  | 4                                                                                   |
| Contact Size       | 23*                                                                               | 16                                                                                | 20                                                                                | 23*                                                                                 | 12                                                                                  |

|                    |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |
|--------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
|                    |  |  |  |  |  |
| Insert Arrangement | 14-09                                                                             | 14-19                                                                             | 14-37                                                                             | 16-07                                                                               | 16-14                                                                               |
| Number of Contacts | 9                                                                                 | 19                                                                                | 37                                                                                | 7                                                                                   | 14                                                                                  |
| Contact Size       | 16                                                                                | 20                                                                                | 23*                                                                               | 12                                                                                  | 16                                                                                  |

|                    |                                                                                     |                                                                                     |                                                                                      |                                                                                       |
|--------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
|                    |  |  |  |  |
| Insert Arrangement | 16-27                                                                               | 16-55                                                                               | 18-09                                                                                | 18-21                                                                                 |
| Number of Contacts | 27                                                                                  | 55                                                                                  | 9                                                                                    | 21                                                                                    |
| Contact Size       | 20                                                                                  | 23*                                                                                 | 12                                                                                   | 16                                                                                    |

|                    |                                                                                     |                                                                                     |
|--------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
|                    |  |  |
| Insert Arrangement | 18-38                                                                               | 18-85                                                                               |
| Number of Contacts | 38                                                                                  | 85                                                                                  |
| Contact Size       | 20                                                                                  | 23*                                                                                 |

\*Applies to both 23-28 and 23-22 contact sizes.

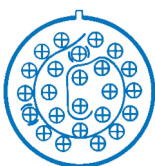
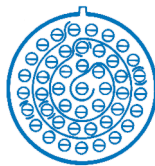
|                |                                                                                       |                                                                                       |                                                                                       |                                                                                       |
|----------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
| Contact Legend |  |  |  |  |
|                | 12                                                                                    | 16                                                                                    | 20                                                                                    | 23*                                                                                   |

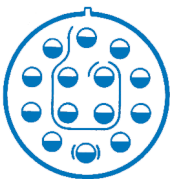
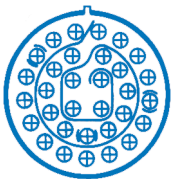
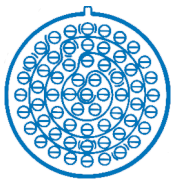
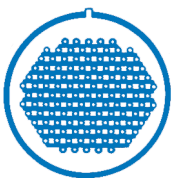
# 348 Series

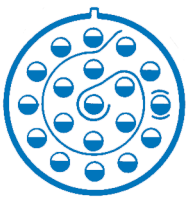
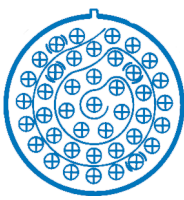
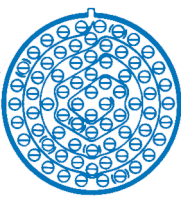
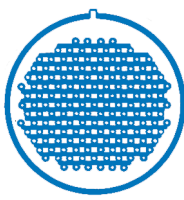
## insert arrangements

front face of pin inserts illustrated

The insert arrangements on this page (shell sizes 20 thru 24) are available only in Series I, Long.

|                    |                                                                                   |                                                                                   |                                                                                    |                                                                                     |
|--------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
|                    |  |  |  |  |
| Insert Arrangement | 20-11                                                                             | 20-24                                                                             | 20-45                                                                              | 20-92                                                                               |
| Number of Contacts | 11                                                                                | 24                                                                                | 45                                                                                 | 92                                                                                  |
| Contact Size       | 12                                                                                | 16                                                                                | 20                                                                                 | 23*                                                                                 |

|                    |                                                                                    |                                                                                    |                                                                                     |                                                                                      |
|--------------------|------------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|
|                    |  |  |  |  |
| Insert Arrangement | 22-14                                                                              | 22-32                                                                              | 22-61                                                                               | 22-121                                                                               |
| Number of Contacts | 14                                                                                 | 32                                                                                 | 61                                                                                  | 121                                                                                  |
| Contact Size       | 12                                                                                 | 16                                                                                 | 20                                                                                  | 23*                                                                                  |

|                    |                                                                                     |                                                                                     |                                                                                      |                                                                                       |
|--------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
|                    |  |  |  |  |
| Insert Arrangement | 24-19                                                                               | 24-41                                                                               | 24-74                                                                                | 24-155                                                                                |
| Number of Contacts | 19                                                                                  | 41                                                                                  | 74                                                                                   | 155                                                                                   |
| Contact Size       | 12                                                                                  | 16                                                                                  | 20                                                                                   | 23*                                                                                   |

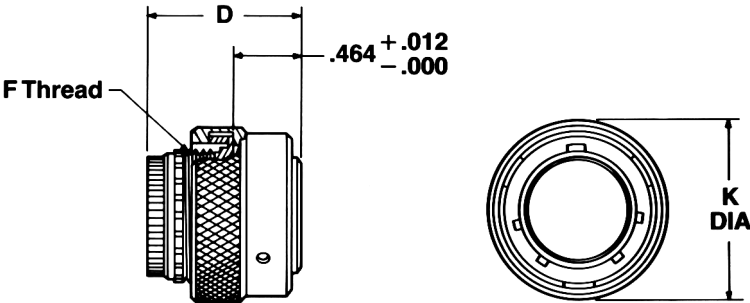
\*Applies to both 23-28 and 23-22 contact sizes.

|                |                                                                                       |                                                                                       |                                                                                       |                                                                                       |
|----------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
| Contact Legend |  |  |  |  |
|                | 12                                                                                    | 16                                                                                    | 20                                                                                    | 23*                                                                                   |

# 348-36E (M81511/26E) 348-46E (M81511/06E) straight plug

Blue designates Series I, Long  
Black designates Series II, Standard

\*348-36EXX-XX  
\*M81511/26EXXXXX  
\*348-46EXX-XX  
\*M81511/06EXXXXX



| Shell Size | Plug Front View | Plug Side View |                   |
|------------|-----------------|----------------|-------------------|
|            | K Dia. Max.     | D Max.         | F Thread Class 2A |
| 8          | .850            | 1.445          | .5000-28 UNEF     |
| 10         | .975            | 1.445          | .6250-28 UN       |
| 14         | 1.225           | 1.445          | .8750-28 UN       |
| 16         | 1.350           | 1.445          | 1.0000-28 UN      |
| 18         | 1.475           | 1.445          | 1.1250-28 UN      |
| 20         | 1.624           | 1.525          | 1.2500-28 UN      |
| 22         | 1.749           | 1.525          | 1.3750-28 UN      |
| 24         | 1.874           | 1.525          | 1.5000-28 UN      |

| Shell Size | Plug Front View | Plug Side View |                   |
|------------|-----------------|----------------|-------------------|
|            | K Dia. Max.     | D Max.         | F Thread Class 2A |
| 8          | .850            | 1.100          | .5000-28 UNEF     |
| 10         | .975            | 1.100          | .6250-28 UN       |
| 14         | 1.225           | 1.100          | .8750-28 UN       |
| 16         | 1.350           | 1.100          | 1.0000-28 UN      |
| 18         | 1.475           | 1.100          | 1.1250-28 UN      |

All dimensions for reference only.  
All dimensions in inches and shown as Max. unless otherwise indicated.  
\* To complete order number see pages 14 and 15.

# 348-30E (M81511/21E) 348-40E (M81511/01E) square flange receptacle

Blue designates Series I, Long

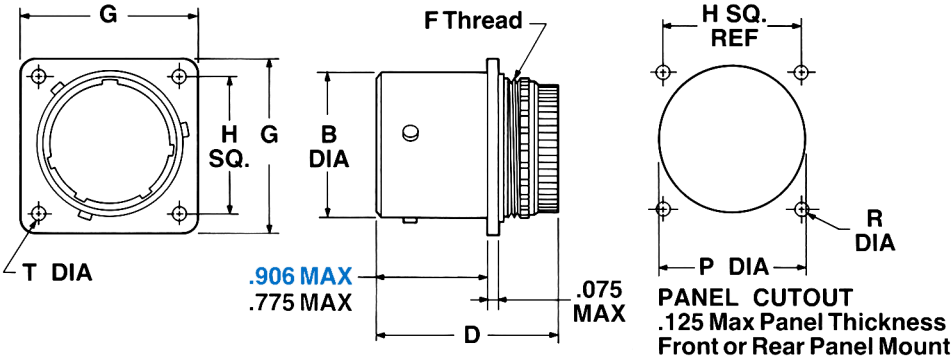
Black designates Series II, Standard

\*348-30EXX-XX

\*M81511/21EXXXX

\*348-40EXX-XX

\*M81511/01EXXXX



| Shell Size | Receptacle Front View |                |                    | Receptacle Side View |        |                   | Panel Cutout View |                    |
|------------|-----------------------|----------------|--------------------|----------------------|--------|-------------------|-------------------|--------------------|
|            | G Max.                | H ±.005 Square | T Dia. +.000 −.010 | B Dia. Max.          | D Max. | F Thread Class 2A | P Dia. ±.005      | R Dia. +.000 −.010 |
| 8          | .820                  | .594           | .126               | .553                 | 1.471  | .5000-28 UNEF     | .635              | .132               |
| 10         | .945                  | .719           | .126               | .678                 | 1.471  | .6250-28 UN       | .760              | .132               |
| 14         | 1.133                 | .906           | .126               | .928                 | 1.471  | .8750-28 UN       | 1.010             | .132               |
| 16         | 1.258                 | .969           | .126               | 1.054                | 1.471  | 1.0000-28 UN      | 1.135             | .132               |
| 18         | 1.351                 | 1.062          | .126               | 1.178                | 1.471  | 1.1250-28 UN      | 1.260             | .132               |
| 20         | 1.475                 | 1.156          | .126               | 1.303                | 1.551  | 1.2500-28 UN      | 1.385             | .132               |
| 22         | 1.570                 | 1.250          | .126               | 1.428                | 1.551  | 1.3750-28 UN      | 1.510             | .132               |
| 24         | 1.711                 | 1.375          | .153               | 1.553                | 1.551  | 1.5000-28 UN      | 1.635             | .159               |

| Shell Size | Receptacle Front View |                |                    | Receptacle Side View |        |                   | Panel Cutout View |                    |
|------------|-----------------------|----------------|--------------------|----------------------|--------|-------------------|-------------------|--------------------|
|            | G Max.                | H ±.005 Square | T Dia. +.000 −.010 | B Dia. Max.          | D Max. | F Thread Class 2A | P Dia. ±.005      | R Dia. +.000 −.010 |
| 8          | .820                  | .594           | .126               | .553                 | 1.340  | .5000-28 UNEF     | .635              | .132               |
| 10         | .945                  | .719           | .126               | .678                 | 1.340  | .6250-28 UN       | .760              | .132               |
| 14         | 1.133                 | .906           | .126               | .928                 | 1.340  | .8750-28 UN       | 1.010             | .132               |
| 16         | 1.258                 | .969           | .126               | 1.054                | 1.340  | 1.0000-28 UN      | 1.135             | .132               |
| 18         | 1.351                 | 1.062          | .126               | 1.178                | 1.340  | 1.1250-28 UN      | 1.260             | .132               |

All dimensions for reference only.

All dimensions in inches and shown as Max. unless otherwise indicated.

\* To complete order number see pages 14 and 15.

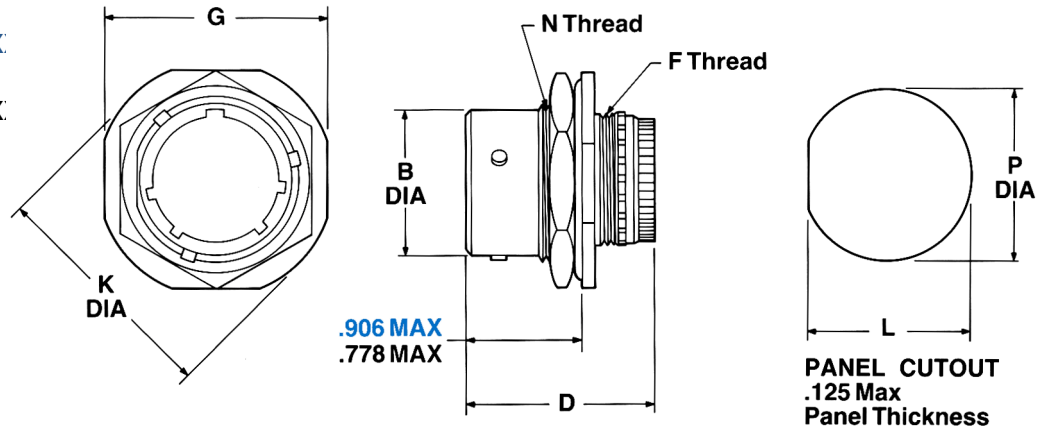
# 348-33E (M81511/23E)

# 348-43E (M81511/03E)

## single hole mounting receptacle

Blue designates Series I, Long  
Black designates Series II, Standard

\*348-33EXX-XX  
\*M81511/23EXXX  
\*348-43EXX-XX  
\*M81511/03EXXX



| Shell Size | Receptacle Front View |             | Receptacle Side View |        |                   |                   | Panel Cutout View |              |
|------------|-----------------------|-------------|----------------------|--------|-------------------|-------------------|-------------------|--------------|
|            | G Max.                | K Dia. Max. | B Dia. Max.          | D Max. | F Thread Class 2A | N Thread Class 2A | L ±.005           | P Dia. ±.005 |
| 8          | .989                  | 1.072       | .553                 | 1.471  | .5000-28 UNEF     | .6250-20 UN       | .605              | .635         |
| 10         | 1.114                 | 1.197       | .678                 | 1.471  | .6250-28 UN       | .7500-20 UNEF     | .730              | .760         |
| 14         | 1.401                 | 1.510       | .928                 | 1.471  | .8750-28 UN       | 1.0000-20 UNEF    | .980              | 1.010        |
| 16         | 1.526                 | 1.635       | 1.054                | 1.471  | 1.0000-28 UN      | 1.1250-20 UN      | 1.105             | 1.135        |
| 18         | 1.651                 | 1.745       | 1.178                | 1.471  | 1.1250-28 UN      | 1.2500-20 UN      | 1.230             | 1.250        |
| 20         | 1.776                 | 1.870       | 1.303                | 1.551  | 1.2500-28 UN      | 1.3750-20 UN      | 1.355             | 1.385        |
| 22         | 1.901                 | 1.995       | 1.428                | 1.551  | 1.3750-28 UN      | 1.5000-20 UN      | 1.480             | 1.510        |
| 24         | 2.026                 | 2.120       | 1.553                | 1.551  | 1.5000-28 UN      | 1.6250-20 UN      | 1.605             | 1.635        |

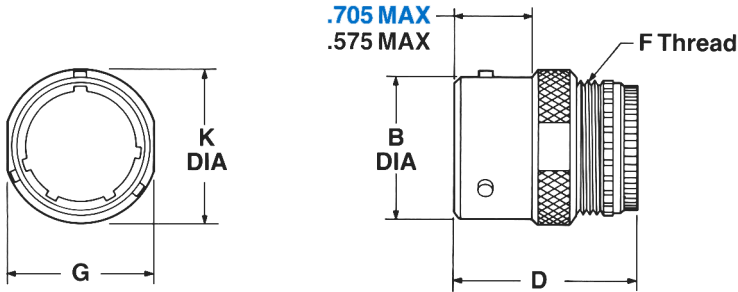
| Shell Size | Receptacle Front View |             | Receptacle Side View |        |                   |                   | Panel Cutout View |              |
|------------|-----------------------|-------------|----------------------|--------|-------------------|-------------------|-------------------|--------------|
|            | G Max.                | K Dia. Max. | B Dia. Max.          | D Max. | F Thread Class 2A | N Thread Class 2A | L ±.005           | P Dia. ±.005 |
| 8          | .989                  | 1.072       | .553                 | 1.340  | .5000-28 UNEF     | .6250-20 UN       | .605              | .635         |
| 10         | 1.114                 | 1.197       | .678                 | 1.340  | .6250-28 UN       | .7500-20 UNEF     | .730              | .760         |
| 14         | 1.401                 | 1.510       | .928                 | 1.340  | .8750-28 UN       | 1.0000-20 UNEF    | .980              | 1.010        |
| 16         | 1.526                 | 1.635       | 1.054                | 1.340  | 1.0000-28 UN      | 1.1250-20 UN      | 1.105             | 1.135        |
| 18         | 1.651                 | 1.745       | 1.178                | 1.340  | 1.1250-28 UN      | 1.2500-20 UN      | 1.230             | 1.260        |

All dimensions for reference only.  
All dimensions in inches and shown as Max. unless otherwise indicated.  
\* To complete order number see pages 14 and 15.  
NOTE: The jam nut has a special decoupling resistant feature.

# 348-31E (M81511/25E) 348-41E (M81511/05E) cable receptacle

Blue designates Series I, Long  
Black designates Series II, Standard

\*348-31EXX-XX  
\*M81511/25EXXXX  
\*348-41EXX-XX  
\*M81511/05EXXXX



| Shell Size | Receptacle Front View |             | Receptacle Side View |                   |        |
|------------|-----------------------|-------------|----------------------|-------------------|--------|
|            | G Max.                | K Dia. Max. | B Dia. Max.          | F Thread Class 2A | D Max. |
| 8          | .565                  | .780        | .553                 | .5000-28 UNEF     | 1.471  |
| 10         | .690                  | .900        | .678                 | .6250-28 UN       | 1.471  |
| 14         | .940                  | 1.150       | .928                 | .8750-28 UN       | 1.471  |
| 16         | 1.066                 | 1.280       | 1.054                | 1.0000-28 UN      | 1.471  |
| 18         | 1.190                 | 1.400       | 1.178                | 1.1250-28 UN      | 1.471  |
| 20         | 1.315                 | 1.525       | 1.303                | 1.2500-28 UN      | 1.551  |
| 22         | 1.440                 | 1.650       | 1.428                | 1.3750-28 UN      | 1.551  |
| 24         | 1.565                 | 1.775       | 1.553                | 1.5000-28 UN      | 1.551  |

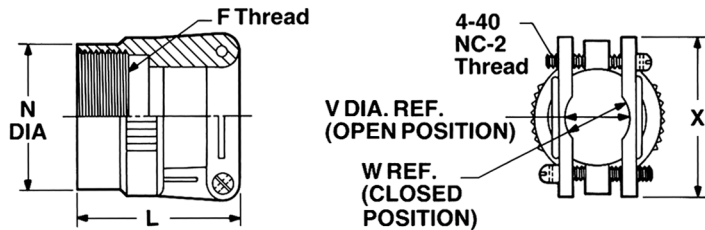
| Shell Size | Receptacle Front View |             | Receptacle Side View |                   |        |
|------------|-----------------------|-------------|----------------------|-------------------|--------|
|            | G Max.                | K Dia. Max. | B Dia. Max.          | F Thread Class 2A | D Max. |
| 8          | .565                  | .780        | .553                 | .5000-28 UNEF     | 1.340  |
| 10         | .690                  | .900        | .678                 | .6250-28 UN       | 1.340  |
| 14         | .940                  | 1.150       | .928                 | .8750-28 UN       | 1.340  |
| 16         | 1.066                 | 1.280       | 1.054                | 1.0000-28 UN      | 1.340  |
| 18         | 1.190                 | 1.400       | 1.178                | 1.1250-28 UN      | 1.340  |

All dimensions for reference only.  
All dimensions in inches and shown as Max. unless otherwise indicated.  
\* To complete order number see pages 14 and 15.

# 348 Series - accessories

## cable clamp, dummy receptacle

### cable clamp

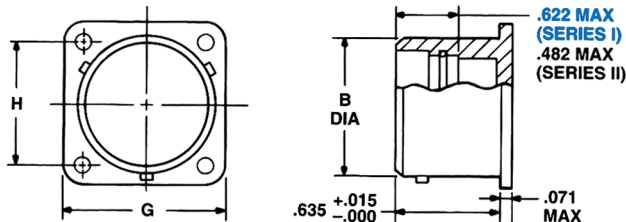


Used to support cable or wire at the connector and prevent twisting, pulling and strain on the wire terminations. Dimensions are the same for Series I and Series II.

| Shell Size | Amphenol Part Number | MS Part Number  | F Thread Class 2B | L Max. | N Dia. Max. | V Dia. Ref. | W Ref. | X Max. |
|------------|----------------------|-----------------|-------------------|--------|-------------|-------------|--------|--------|
| 8          | 348-260-08001        | M81511/13-08XX* | .5000-28 UNEF     | 1.375  | .558        | .125        | .062   | .775   |
| 10         | 348-260-10001        | M81511/13-10XX* | .6250-28 UN       | 1.375  | .683        | .250        | .125   | .955   |
| 14         | 348-260-14001        | M81511/13-14XX* | .8750-28 UN       | 1.375  | .933        | .500        | .250   | 1.145  |
| 16         | 348-260-16001        | M81511/13-16XX* | 1.0000-28 UN      | 1.375  | 1.059       | .625        | .375   | 1.210  |
| 18         | 348-260-18001        | M81511/13-18XX* | 1.1250-28 UN      | 1.375  | 1.183       | .750        | .500   | 1.330  |
| 20         | 348-260-20001        | M81511/13-20XX* | 1.2500-28 UN      | 1.452  | 1.308       | .875        | .625   | 1.470  |
| 22         | 348-260-22001        | M81511/13-22XX* | 1.3750-28 UN      | 1.452  | 1.433       | 1.000       | .750   | 1.580  |
| 24         | 348-260-24001        | M81511/13-24XX* | 1.5000-28 UN      | 1.452  | 1.558       | 1.125       | .750   | 1.720  |

\* To complete MS Part Number add suffix A1 which designates Service Class E, H and P. Consult Amphenol, Sidney, NY for availability.

### dummy receptacle



Used to anchor disconnected plugs and prevent damage or accumulation of dirt on face of plugs.

#### Use with Series I, Long

| Shell Size | Amphenol Part Number | B Dia. Max. | G Max. | H ±.005 |
|------------|----------------------|-------------|--------|---------|
| 8          | 348-292-08000-01     | .553        | .819   | .594    |
| 10         | 348-292-10000-01     | .678        | .944   | .719    |
| 14         | 348-292-14000-01     | .928        | 1.132  | .906    |
| 16         | 348-292-16000-01     | 1.054       | 1.257  | .969    |
| 18         | 348-292-18000-01     | 1.178       | 1.350  | 1.062   |
| 20         | 348-292-20000-01     | 1.303       | 1.474  | 1.156   |
| 22         | 348-292-22000-01     | 1.428       | 1.569  | 1.250   |
| 24         | 348-292-24000-01     | 1.553       | 1.709  | 1.375   |

#### Use with Series II, Standard

| Shell Size | Amphenol Part Number | B Dia. Max. | G Max. | H ±.005 |
|------------|----------------------|-------------|--------|---------|
| 8          | 348-167-08000-01     | .553        | .819   | .594    |
| 10         | 348-167-10000-01     | .678        | .944   | .719    |
| 14         | 348-167-14000-01     | .928        | 1.132  | .906    |
| 16         | 348-167-16000-01     | 1.054       | 1.257  | .969    |
| 18         | 348-167-18000-01     | 1.178       | 1.350  | 1.062   |

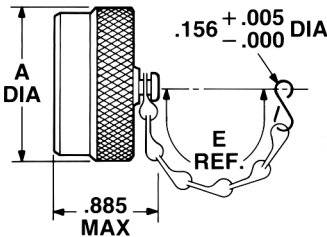
All dimensions for reference only.

All dimensions in inches and shown as Max. unless otherwise indicated.

# 348 Series - accessories

## protection caps

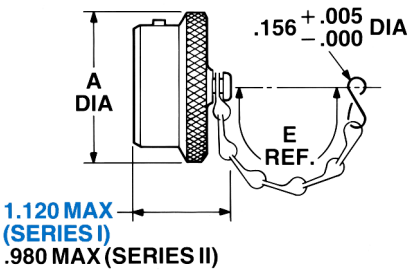
### receptacle protection cap



Dimensions and part numbers are the same for Series I and Series II.

| Shell Size | Amphenol Part Number | MS Part Number | A Dia. Max. | E Ref. |
|------------|----------------------|----------------|-------------|--------|
| 8          | 348-140-08001        | M81511/18-08   | .844        | 3.000  |
| 10         | 348-140-10001        | M81511/18-10   | .969        | 3.000  |
| 14         | 348-140-14001        | M81511/18-14   | 1.219       | 3.500  |
| 16         | 348-140-16001        | M81511/18-16   | 1.345       | 3.500  |
| 18         | 348-140-18001        | M81511/18-18   | 1.469       | 3.500  |
| 20         | 348-140-20001        | M81511/18-20   | 1.594       | 3.500  |
| 22         | 348-140-22001        | M81511/18-22   | 1.719       | 3.500  |
| 24         | 348-140-24001        | M81511/18-24   | 1.844       | 3.500  |

### plug protection cap



Use with Series I, Long

| Shell Size | Amphenol Part Number | A Dia. Max. | E Ref. |
|------------|----------------------|-------------|--------|
| 8          | 348-289-08001        | .844        | 3.000  |
| 10         | 348-289-10001        | .969        | 3.000  |
| 14         | 348-289-14001        | 1.219       | 3.500  |
| 16         | 348-289-16001        | 1.345       | 3.500  |
| 18         | 348-289-18001        | 1.469       | 3.500  |
| 20         | 348-289-20001        | 1.594       | 3.500  |
| 22         | 348-289-22001        | 1.719       | 3.500  |
| 24         | 348-289-24001        | 1.844       | 3.500  |

Use with Series II, Standard

| Shell Size | Amphenol Part Number | A Dia. Max. | E Ref. |
|------------|----------------------|-------------|--------|
| 8          | 348-139-08001        | .844        | 3.000  |
| 10         | 348-139-10001        | .969        | 3.000  |
| 14         | 348-139-14001        | 1.219       | 3.500  |
| 16         | 348-139-16001        | 1.345       | 3.500  |
| 18         | 348-139-18001        | 1.469       | 3.500  |

All dimensions for reference only.  
All dimensions in inches and shown as Max. unless otherwise indicated.

# 348 Series

## contacts, power and shielded

### power contacts

#### Pin Contact, Use with Series I & II

| Contact Size | Amphenol Part Number | Supersedes Amphenol Part Number | Military Part Number | Supersedes Military Part Number |
|--------------|----------------------|---------------------------------|----------------------|---------------------------------|
| 23-28        | 10-807018-735        | 348-100-5047P-02                | M39029/47-312        | MS90461A23-28                   |
| 23-22        | 10-807000-735        | 348-100-2202P-02                | M39029/47-314        | MS90461A23-22                   |
| 20           | 10-807000-205        | 348-100-2000P-02                | M39029/47-316        | MS90461A20-20                   |
| 16           | 10-807000-165        | 348-100-1600P-02                | M39029/47-337        | MS90461A16-16                   |
| 12           | 10-807000-125        | 348-100-1200P-02                | M39029/47-339        | MS90461A12-12                   |

| Contact Size | Wire Size No. Accommodations | Current Rating (Amps) |
|--------------|------------------------------|-----------------------|
| 23-28        | 28, 30, 32                   | 1.5                   |
| 23-22        | 22, 24, 26                   | 5.0                   |
| 20           | 20, 22, 24                   | 7.5                   |
| 16           | 16, 18, 20                   | 13.0                  |
| 12           | 12, 14                       | 23.0                  |

For insert arrangements that accept size 23 contacts, unless otherwise specified, the standard 23-22 contact will be supplied.

#### Socket Contact, Use with Series I

| Contact Size | Amphenol Part Number | Supersedes Amphenol Part Number | Military Part Number | Supersedes Military Part Number |
|--------------|----------------------|---------------------------------|----------------------|---------------------------------|
| 23-28        | 10-807403-735        | 348-100-5048S-02                | M39029/33-262        | MS3343A23-28                    |
| 23-22        | 10-807401-735        | 348-100-2203S-02                | M39029/33-264        | MS3343A23-22                    |
| 20           | 10-807401-205        | 348-100-2003S-02                | M39029/33-266        | MS3343A20-20                    |
| 16           | 10-807003-165        | 348-100-1603S-02                | M39029/33-268        | MS3343A16-16                    |
| 12           | 10-807003-125        | 348-100-1203S-02                | M39029/33-270        | MS3343A12-12                    |

#### Socket Contact, Use with Series II

| Contact Size | Amphenol Part Number | Supersedes Amphenol Part Number | Military Part Number | Supersedes Military Part Number |
|--------------|----------------------|---------------------------------|----------------------|---------------------------------|
| 23-28        | 10-807402-735        | 348-100-5047S-02                | M39029/46-302        | MS90460A23-28                   |
| 23-22        | 10-807400-735        | 348-100-2201S-02                | M39029/46-304        | MS90460A23-22                   |
| 20           | 10-807400-205        | 348-100-2000S-02                | M39029/46-306        | MS90460A20-20                   |
| 16           | 10-807001-165        | 348-100-1600S-02                | M39029/46-308        | MS90460A16-16                   |
| 12           | 10-807001-125        | 348-100-1200S-02                | M39029/46-310        | MS90460A12-12                   |

### shielded contacts

| Contact Size | Cable Accommodations*                        | Series I<br>Amphenol Part Number** |                  | Series II<br>Amphenol Part Number** |                  |
|--------------|----------------------------------------------|------------------------------------|------------------|-------------------------------------|------------------|
|              |                                              | Socket                             | Pin              | Socket                              | Pin              |
| 16           | RG-178A/U<br>RG-196A/U                       | 348-100-6011S-02                   | 348-100-6010P-02 | 348-100-6010S-02                    | 348-100-6010P-02 |
| 16           | Revere WH-95623                              | 348-100-6015S-02                   | 348-100-6014P-02 | 348-100-6014S-02                    | 348-100-6014P-02 |
| 12           | RG-187A/U<br>RG-188A/U<br>RG-179B/U          | 348-100-6005S-02                   | 348-100-6000P-02 | 348-100-6000S-02                    | 348-100-6000P-02 |
| 12           | Raychem 48-950                               | 348-100-6006S-02                   | 348-100-6001P-02 | 348-100-6001S-02                    | 348-100-6001P-02 |
| 12           | RG-180B/U<br>RG-195A/U<br>Micro Dot 293-3922 | 348-100-6007S-02                   | 348-100-6002P-02 | 348-100-6002S-02                    | 348-100-6002P-02 |
| 12           | Micro Dot 250-4070                           | 348-100-6008S-02                   | 348-100-6003P-02 | 348-100-6003S-02                    | 348-100-6003P-02 |
| 12           | Raychem 48-502                               | 348-100-6009S-02                   | 348-100-6004P-02 | 348-100-6004S-02                    | 348-100-6004P-02 |
| 12           | Revere WH-95623                              | 348-100-6012S-02                   | 348-100-6012P-02 | 348-100-6013S-02                    | 348-100-6012P-02 |

\* Cables shown are typical. Consult Amphenol, Sidney NY if your cable is not listed.

\*\* Available only under Amphenol part number.

# 348 Series

## contact sealing plugs, application tools

### contact sealing plugs

Used with both Series I, Long and Series II, Standard connectors.  
Teflon sealing plugs assure proper connector sealing whenever all contacts are not employed.

| Contact Size | Part Number | Color Code |
|--------------|-------------|------------|
| 23*          | MS27488-22  | White      |
| 20           | MS27488-20  | Red        |
| 16           | MS27488-16  | Blue       |
| 12           | MS27488-12  | Yellow     |

\* Applies to both 23-28 and 23-22 contact sizes.

### application tools

The following data includes information pertaining to the application tools which have been established for crimping, inserting and removing the size 12, 16, 20, 23-28 and 23-22 contacts incorporated in the 348 Series and MIL-C-81511 connectors as applicable. All crimping tools included are the "full cycling" type and when used as specified in the installation instructions L-2056 covering 348 Series connectors, will provide reliable crimped wire to contact terminations. Consult Amphenol, Sidney, NY for information on semi-automatic crimping equipment for large production runs.

#### Crimping Tools

| Contact Size | Military Part Number | Supersedes Military Part Number |
|--------------|----------------------|---------------------------------|
| 23*          | M22520/2-01          | MS3198-1                        |
| 20           | M22520/1-01          | MS3191-4                        |
| 16           | M22520/1-01          | MS3191-4                        |
| 12           | M22520/1-01          | MS3191-4                        |

\* Applies to both 23-28 and 23-22 contact sizes.

#### Locator or Turret Head Assembly\*\*

| Contact Size | Military Part Number |
|--------------|----------------------|
| 23*          | M22520/2-03          |
| 20           | M22520/1-08          |
| 16           | M22520/1-08          |
| 12           | M22520/1-08          |

\*\* Must be ordered separately.

#### Insertion Tools

| Contact Size | Military Pin and Socket Tool Part Number | Supersedes Military Pin and Socket Tool Part Number | Color  |
|--------------|------------------------------------------|-----------------------------------------------------|--------|
| 23*          | M81969/2-01                              | MS3323-22                                           | Green  |
| 20           | M81969/2-02                              | MS3323-20                                           | Red    |
| 16           | M81969/2-03                              | MS3323-16                                           | Blue   |
| 12           | M81969/2-04                              | MS3323-12                                           | Yellow |

#### Removal Tools

| Contact Size | Military Pin Tool Part Number | Supersedes Military Pin Tool Part Number | Military Socket Tool Part Number | Supersedes Military Socket Tool Part Number | Color (Both Pin & Socket Tools) |
|--------------|-------------------------------|------------------------------------------|----------------------------------|---------------------------------------------|---------------------------------|
| 23*          | M81969/3-05                   | MS3342-23                                | M81969/3-01                      | MS3344-23                                   | Yellow                          |
| 20           | M81969/3-06                   | MS3342-20                                | M81969/3-02                      | MS3344-20                                   | Red                             |
| 16           | M81969/3-07                   | MS3342-16                                | M81969/3-03                      | MS3344-16                                   | Blue                            |
| 12           | M81969/3-08                   | MS3342-12                                | M81969/3-04                      | MS3344-12                                   | Yellow                          |

\* Applies to both 23-28 and 23-22 contact sizes

NOTE: Shielded contacts utilize size 16 and 12 insertion and removal tools.

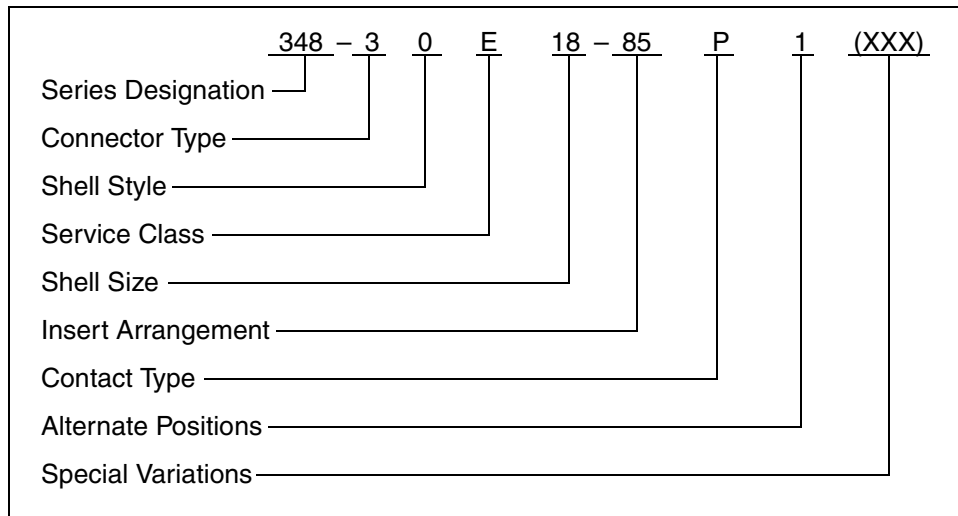
The above crimping tools are available from the approved tool manufacturers.

# 348 Series

## how to order

### Amphenol Part Number

Amphenol® 348 Series Connectors can be ordered by coded part number. Ordering procedure is illustrated by part number 348-30E18-85P1( ) as shown below:



#### Series Designation

348 Series Connector

#### Connector Type

348-3 designates 348, Series I (Long) connector

348-4 designates 348, Series II (Standard) connector

#### Shell Style

0 designates square flange receptacle

1 designates cable receptacle

3 designates single hole mounting receptacle

6 designates straight plug

#### Service Class

E designates environmental

W designates environmental, 500 hour salt spray

#### Shell Size

MIL-C-81511

Series I (Long), sizes 8 – 24

Series II (Standard), sizes 8 – 18

#### Insert Arrangement

MIL-C-81511, see insert arrangement chart, page 3

#### Contact Type

P designates pin contacts

S designates socket contacts

#### Alternate Positions

Rotation of minor keys. See page 3.

#### Special Variations

(200) designates connector with cable clamp

(201) designates connector less contacts

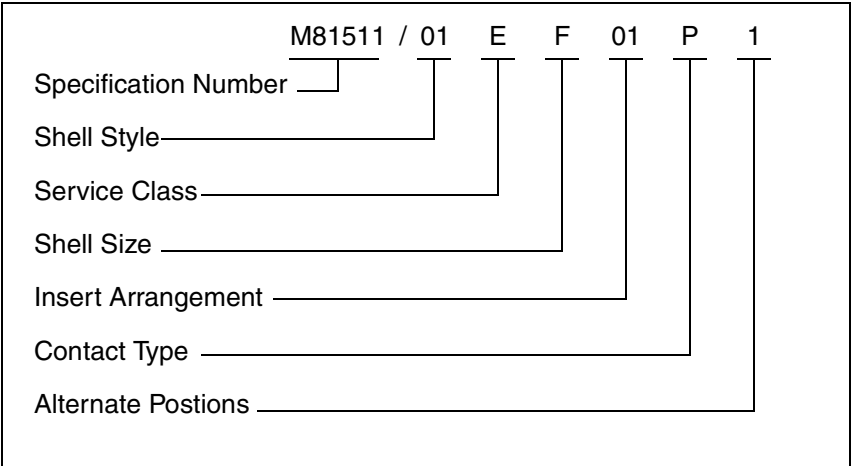
(207) designates connector with fluorosilicone rubber seals and grommets

# 348 Series

## how to order

### Military Part Number

To more easily illustrate ordering procedure by military designation, part number M81511/01F01P1 is shown as follows:



### Specification Number

M81511 designates MIL-C-81511 Series Connector

### Shell Style

Series I:

- /21 designates square flange receptacle
- /23 designates single hole mounting receptacle
- /25 designates cable receptacle
- /26 designates straight plug

Series II:

- /01 designates square flange receptacle
- /03 designates single hole mounting receptacle
- /05 designates cable receptacle
- /06 designates straight plug

### Service Class

E designates grommet seal connectors  
(150°C operating temperature)

### Shell Size

MIL-C-81511

Series I (Long), size 8 - 24

Series II (Standard), size 8 - 18

| A | B  | D  | E  | F  | G  | H  | J  | MIL Shell Size       |
|---|----|----|----|----|----|----|----|----------------------|
| 8 | 10 | 14 | 16 | 18 | 20 | 22 | 24 | Amphenol® Shell Size |

### Insert Arrangement

Code numbers coordinated with insert arrangement (see page 3). Example: F01 is 18-85 insert arrangement.

| 01    | 02 | 03 | 04 | MS Letter Code |
|-------|----|----|----|----------------|
| 23-28 | 20 | 16 | 12 | Contact Size   |
| 23-22 |    |    |    |                |

### Contact Type

P designates pin contacts  
S designates socket contacts

### Alternate Positions

Rotation of minor keys. See page 3.

# Mouser Electronics

Authorized Distributor

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[Amphenol:](#)

[M81511/26EE02P1](#) [348-33E18-85S1](#)