

## HD38999 High Density



## High Density Interconnects

HD38999



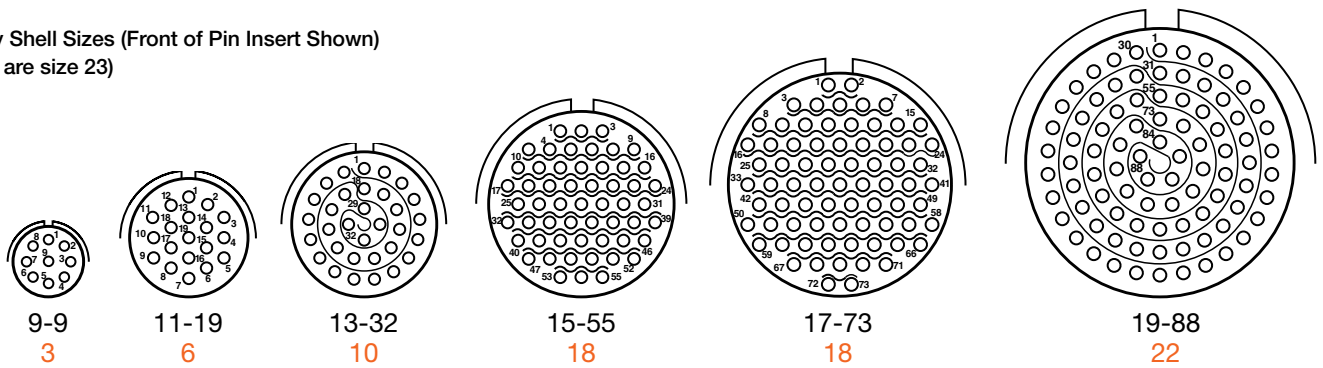
### A connector that starts at 9 goes to 187 contacts!

The HD38999 family of connectors has 30% more contact density than the highest density Mil Spec 38999 connectors of its size. This series of connectors was designed to utilize mil-specified 38999 components with the exception of the contacts and inserts arrangement. Utilizing existing mil-qualified 39029 size 23 contacts and 38999 insert materials, these connectors are essentially a drop-in replacement for the standard 38999 connector.

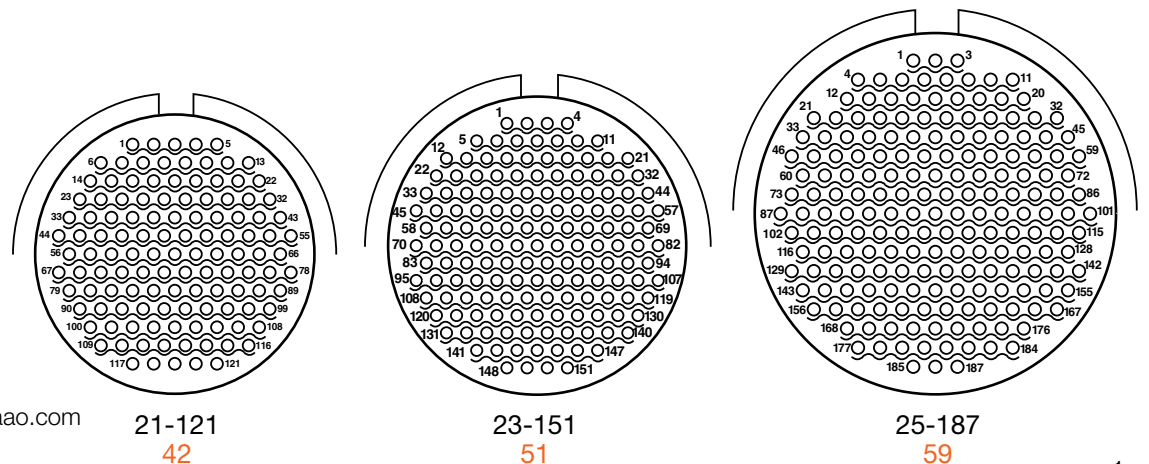
This connector design benefits users in a couple of different ways. For those users who need to increase the amount of contacts in their application, the HD38999 series allows them to do so without increasing the size of their connector. For users who are looking to decrease the overall size of their system, they can do so by using smaller shell sizes without decreasing the number of contacts.

Amphenol has qualified this series of connectors to the requirements of MIL-DTL-38999. Amphenol also manufactures this high density series in Filter, Hermetic and customized versions to fit our customer's needs. Please contact us if additional information is required.

### High Density Shell Sizes (Front of Pin Insert Shown) (all contacts are size 23)



Increased number of contacts in HD38999 insert pattern compared to Standard 38999\* contact density of same shell size.



Contact Us:

Kyle Brown

E-mail: [kbrown@amphenol-aa.com](mailto:kbrown@amphenol-aa.com)

Phone: 607-643-3122



**Build a part number**

|                            |              |               |                                 |              |                     |             |
|----------------------------|--------------|---------------|---------------------------------|--------------|---------------------|-------------|
| 1.                         | 2.           | 3.            | 4.                              | 5.           | 6.                  | 7.          |
| Connector Type             | Shell Styles | Service Class | Shell Size – Insert Arrangement | Contact Type | Alternate Positions | PCB Options |
| TV or PTV (Potted version) | 06           | RW            | 23-151                          | P            | B                   | (P25)       |

**1. Select a Connector Type**

|                          | Designates |   |
|--------------------------|------------|---|
| P<br>(prefix for Potted) | TV         | Tri-Start Series Connector  |
|                          | TVP        | Back panel mounted receptacle   |
|                          | MTV        | CLUTCH-LOK high vibration plug connector (Note: remove dashes in how to order part number when ordering CLUTCH-LOK) |
|                          | CTV        | Tri-Start Composite Series connector  |
|                          | CTVP       | Panel mounted composite receptacle  |

**2. Select a Shell Style**

|    | Designates  |
|----|---|
| 00 | Wall mount receptacle   |
| 40 | Wall mount double flange receptacle   |
| 01 | Line receptacle   |
| 02 | Box mount receptacle - contact Amphenol for availability.                   |
| 06 | Straight plug   |
| 07 | Jam nut receptacle  |
| 47 | Jam nut double flange receptacle  |
| 26 | Proprietary CLUTCH-LOK high vibration straight plug (service Class RK only) |
| 97 | Reduced flange jam nut receptacle (not available in composite)              |
| 96 | Straight plug with integral backshell (not available in composite)          |

**3. Select a Service Class**

|    | Designates   |  |
|----|--|--|
| RF | Electroless nickel plated aluminum, optimum EMI shielding effectiveness -65dB @ 10GHz specification min., 48 hour salt spray, 175°C                    |  |
| RW | Corrosion resistant olive drab cadmium plate aluminum, 500 hour extended salt spray, EMI -50dB @ 10GHz specification min., 175°C                       |  |
| RL | Corrosion resistant stainless steel, electro-deposited nickel, 48 hours salt spray, 175°C, non-firewall  |  |
| RK | Corrosion resistant stainless steel, firewall capability, plus 500 hour salt spray resistance, EMI -45 dB @ 10 GHz specification min., 175°C           |  |
| DT | Duralon plated, alternative to cadmium. Corrosion resistant, 500 hour extended salt spray EMI -50dB @ 10GHz specification min. without CR <sup>6</sup> |  |
| DZ | Zinc-Nickel alternative to cadmium. Corrosion resistant, 500 hour salt spray, conductive, -65°C to +175°C  |  |

**4. Select a Shell Size – Insert Arrangement**

Shell Sizes are MIL-DTL-38999, Series III, with the newer High Density insert arrangements shown on page 1.

| Shell Size | Insert Arrangement Number |
|------------|---------------------------|
| 9-         | 9                         |
| 11-        | 19                        |
| 13-        | 32                        |
| 15-        | 55                        |
| 17-        | 73                        |
| 19-        | 88                        |
| 21-        | 121                       |
| 23-        | 151                       |
| 25-        | 187                       |

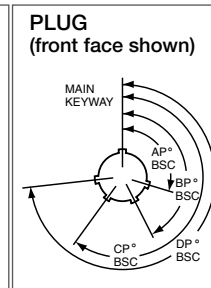
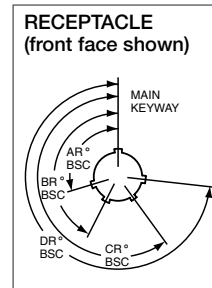
**5. Select a Contact Type**

|   | Designates      |
|---|-----------------|
| P | Pin contacts    |
| S | Socket contacts |

**6. Select an Alternate Position**

A, B, C, D, E or blank for normal.

| Shell Size     | Key & keyway arrangement identification letter | AR <sup>o</sup> or AP <sup>o</sup> BSC | BR <sup>o</sup> or BP <sup>o</sup> BSC | CR <sup>o</sup> or CP <sup>o</sup> BSC | DR <sup>o</sup> or DP <sup>o</sup> BSC |
|----------------|--|--|--|--|--|
| 9              | N  | 105                                    | 140                                    | 215                                    | 265                                    |
|                | A  | 102                                    | 132                                    | 248                                    | 320                                    |
|                | B  | 80                                     | 118                                    | 230                                    | 312                                    |
|                | C  | 35                                     | 140                                    | 205                                    | 275                                    |
|                | D  | 64                                     | 155                                    | 234                                    | 304                                    |
| 11, 13, and 15 | E  | 91                                     | 131                                    | 197                                    | 240                                    |
|                | N  | 95                                     | 141                                    | 208                                    | 236                                    |
|                | A  | 113                                    | 156                                    | 182                                    | 292                                    |
|                | B  | 90                                     | 145                                    | 195                                    | 252                                    |
|                | C  | 53                                     | 156                                    | 220                                    | 255                                    |
| 17 and 19      | D  | 119                                    | 146                                    | 176                                    | 298                                    |
|                | E  | 51                                     | 141                                    | 184                                    | 242                                    |
|                | N  | 80                                     | 142                                    | 196                                    | 293                                    |
|                | A  | 135                                    | 170                                    | 200                                    | 310                                    |
|                | B  | 49                                     | 169                                    | 200                                    | 244                                    |
| 21, 23, and 25 | C  | 66                                     | 140                                    | 200                                    | 257                                    |
|                | D  | 62                                     | 145                                    | 180                                    | 280                                    |
|                | E  | 79                                     | 153                                    | 197                                    | 272                                    |
|                | N  | 80                                     | 142                                    | 196                                    | 293                                    |
|                | A  | 135                                    | 170                                    | 200                                    | 310                                    |
|                | B  | 49                                     | 169                                    | 200                                    | 244                                    |
|                | C  | 66                                     | 140                                    | 200                                    | 257                                    |
|                | D  | 62                                     | 145                                    | 180                                    | 280                                    |
|                | E  | 79                                     | 153                                    | 197                                    | 272                                    |



A plug with a given rotation letter will mate with a receptacle with the same rotation letter. The angles for a given connector are the same whether it contains pins or sockets. Inserts are not rotated in conjunction with the master key/keyway.

**7. Select a PCB Contact Option**

| Pin Contacts | Pin Contacts with Alignment Disc* | Socket Contacts | Socket Contacts with Alignment Disc** | PCB tail stickout +/- .040 inch |
|--------------|-----------------------------------|-----------------|---------------------------------------|---------------------------------|
| P1*          | P1AD                              | S1              | S1AD                                  | .100" nominal                   |
| P15*         | P15AD                             | S15             | S15AD                                 | .150" nominal                   |
| P2           | P2AD                              | S2              | S2AD                                  | .200" nominal                   |
| P25*         | P25AD                             | S25             | S25AD                                 | .250" nominal                   |
| P3*          | P3AD                              | S3              | S3AD                                  | .300" nominal                   |
| P35          | P35AD                             | S35             | S35AD                                 | .350" nominal                   |

\* Not available in TV40 wall mount double flange receptacle or TV47 jam nut double flange receptacle styles.

\*\* See page 8 for more information on alignment discs for HD38999 connectors.

Note: Standard tail diameter is 0.019 ±.001 Stick out is measured from the end of the connector shell to end of the contact

## Contacts & Tools

### Contact Part Numbers:

Size 23 Sockets 10-597330-735 (M39029/17-172)  
Size 23 Pins 10-597331-735 (M39029/18-177)  
Sealing Plugs 10-405996-222 (MS27488-22-2)

**Crimp Barrel Dia.:**  
(Inches) .034-.036

**Crimp Barrel Depth:**  
(Inches) .151-.155

### Tools:

Crimp Tool: Daniels M22520/2-01  
Positioner: Daniels M22520/2-16 Socket  
Daniels M22520/2-13 Pin  
Insertion Tool: Daniels DAK225-22  
Removal Tool: Daniels DRK225-22  
Insertion/Removal Tool: M81969/16-04 (Plastic)

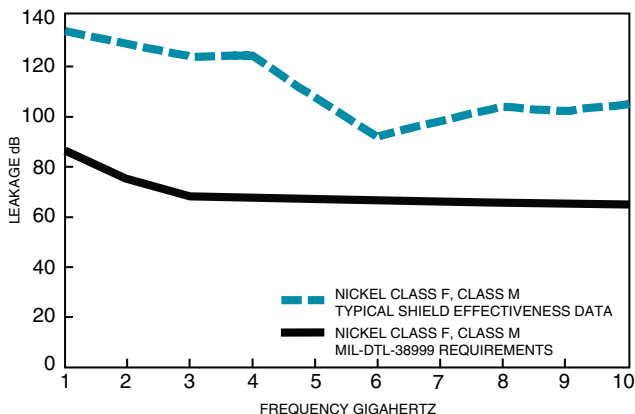
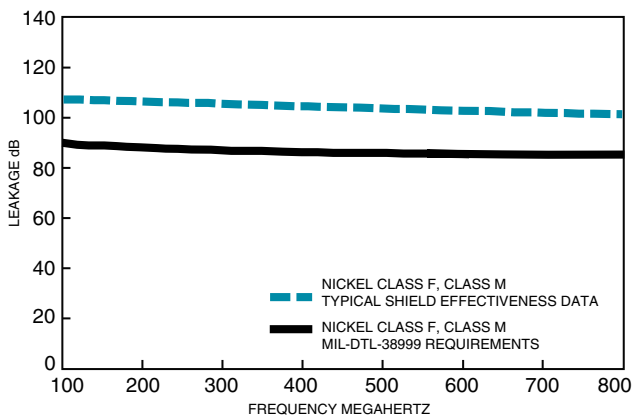
Note: Wire insulation diameter greater than 0.045 is too large for the extraction tool to work properly. Connector damage is possible.

## Technical Data

HD38999 series was designed to meet and/or exceed the specifications of MIL-DTL-38999. The connector series has been tested to all the requirements of 38999 with the use of AS39029 size 23 contacts. Test reports are available upon request. The following is a summary of some of the performance requirements.

### EMI Shielding Effectiveness:

Solid metal to metal coupling, EMI grounding fingers and conductive finishes have proven to be the ultimate in EMI/EMP shielding effectiveness. The following chart illustrated shielding effectiveness data which is typical in HD38999 connectors.



### Electrical:

22 AWG: 5.0 AMPS  
24 AWG: 3.0 AMPS  
26 AWG: 2.0 AMPS  
28 AWG: 1.5 AMPS

Insulation Resistance: 5000 megohms min. @500 VDC 25C

Dielectric Withstanding Voltage: 1000 VRMS@sea level

### Mechanical:

**Metallic Shells:** Material: Aluminum alloy, Stainless Steel  
Protection: Electroless Nickel, O.D. Cadmium, Durmalon (Nickel PTFE), Zinc Nickel

**Composite Shells:** Material: Thermoplastic  
Protection: Electroless Nickel, O.D. Cadmium, Durmalon (Nickel PTFE), Zinc Nickel

**Contacts:** Material: Copper Alloy  
Protection: Gold over Nickel

**Insert Retention to Shell:** 100 psi in axial load

**Durability:** 500 full mating and unmating cycles

**Vibration:** 60G sine per MIL-DTL-38999L Para 4.5.23.2.1  
5G2 Random per EIA-364-28E, Test condition A  
1G2 Random per EIA-364-28E, Test condition I

**Shock:** Per EIA-364-27B, 300g

### Environmental:

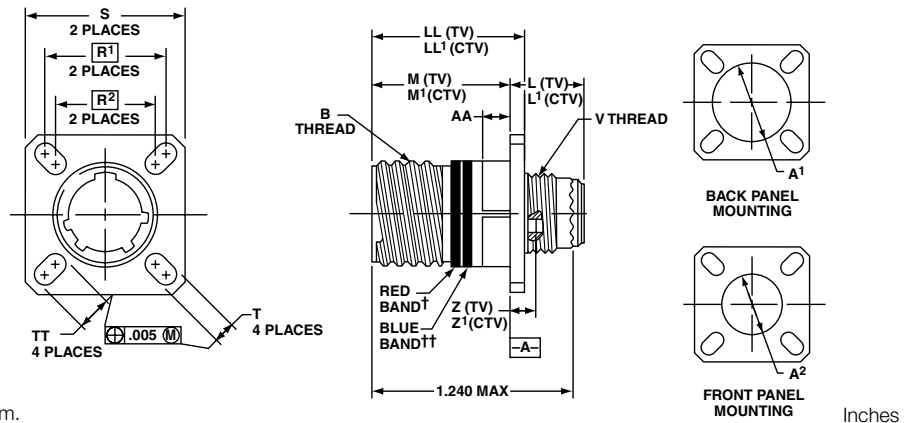
**Operating Temperature:** -65°C to +175°C

**Salt Spray:**  
**Metallized:** Electroless Nickel: 48 hours  
Anodic Coating, O. D. Cadmium, Durmalon, Zinc Nickel: 500 hours

**Salt Spray Composite:** Electroless Nickel: 1000 hours  
O. D. Cadmium, Durmalon, Zinc Nickel: 500 hours

### Wall Mounting Receptacle

TVP00( ) - Crimp, Metal  
CTVP00( ) - Crimp, Composite



See how to build a part number on pages 2

† Red band indicates fully mated

†† Blue band indicates rear release contact retention system.

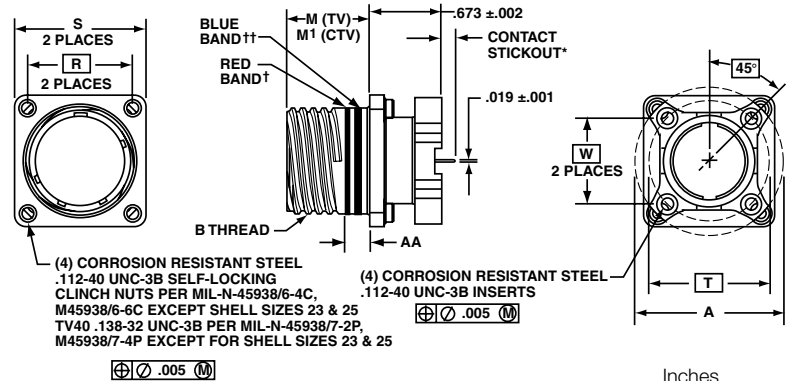
| Shell Size | MS Shell Size Code | B Thread Class 2A 0.1P-0.3L-TS (Plated) | L Max. (TV) | L1 Max. (CTV) | M +.000 - .005 (TV) | M1 +.000 - .005 (CTV) | R1    | R2    | S Max. | T ±.008 | Z Max. (TV) | Z1 Max. (CTV) | A1 Back Panel Mount | A2 Front Panel Mount | AA Max. Panel Thickness | LL +.006 - .000 (TV) | LL1 ±.005 (CTV) | TT ±.008 |
|------------|--------------------|---|-------------|---------------|---------------------|-----------------------|-------|-------|--------|---------|-------------|---------------|---------------------|----------------------|-------------------------|----------------------|-----------------|----------|
| 9          | A                  | .6250                                   | .469        | .520          | .820                | .773                  | .719  | .594  | .948   | .128    | .153        | .198          | .650                | .510                 | .234                    | .905                 | .908            | .216     |
| 11         | B                  | .7500                                   | .469        | .520          | .820                | .773                  | .812  | .719  | 1.043  | .128    | .153        | .198          | .800                | .620                 | .234                    | .905                 | .908            | .194     |
| 13         | C                  | .8750                                   | .469        | .520          | .820                | .773                  | .906  | .812  | 1.137  | .128    | .153        | .198          | .910                | .740                 | .234                    | .905                 | .908            | .194     |
| 15         | D                  | 1.0000                                  | .469        | .520          | .820                | .773                  | .969  | .906  | 1.232  | .128    | .153        | .198          | 1.040               | .900                 | .234                    | .905                 | .908            | .173     |
| 17         | E                  | 1.1875                                  | .469        | .520          | .820                | .773                  | 1.062 | .969  | 1.323  | .128    | .153        | .198          | 1.210               | 1.010                | .234                    | .905                 | .908            | .194     |
| 19         | F                  | 1.2500                                  | .469        | .520          | .820                | .773                  | 1.156 | 1.062 | 1.449  | .128    | .153        | .198          | 1.280               | 1.130                | .234                    | .905                 | .908            | .194     |
| 21         | G                  | 1.3750                                  | .500        | .552          | .790                | .741                  | 1.250 | 1.156 | 1.575  | .128    | .183        | .228          | 1.410               | 1.250                | .204                    | .905                 | .904            | .194     |
| 23         | H                  | 1.5000                                  | .500        | .552          | .790                | .741                  | 1.375 | 1.250 | 1.701  | .154    | .183        | .228          | 1.530               | 1.360                | .204                    | .905                 | .904            | .242     |
| 25         | J                  | 1.6250                                  | .500        | .552          | .790                | .741                  | 1.500 | 1.375 | 1.823  | .154    | .183        | .228          | 1.660               | 1.470                | .204                    | .905                 | .904            | .242     |

All dimensions for reference only

### Wall Mounting Double Flange Receptacle

(Printed Circuit Board Mount)

TVP40( ) - Crimp, Metal  
CTVP40( ) - Crimp, Composite



See how to build a part number on pages 2

\* Contact stickout dimension: see Step 7 of how to order on page 2.

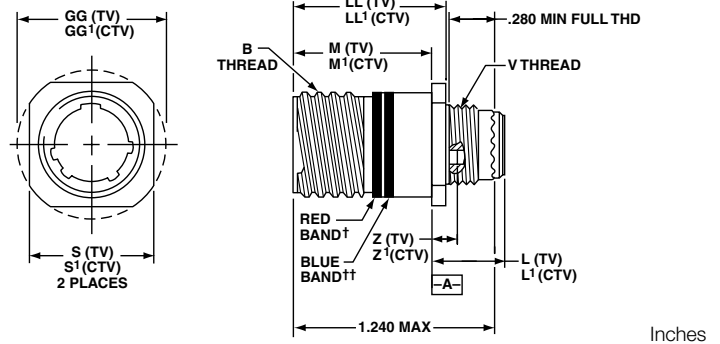
† Red band indicates fully mated

†† Blue band indicates rear release contact retention system.

| Shell Size | MS Shell Size Code | A Dia. ±.005 (TV) | A Dia. ±.005 (CTV) | B Thread Class 2A 0.1P-0.3L-TS (Plated) | M +.000 - .005 (TV) | M1 ±.003 (CTV) | R (Panel Mount) (CTV) | R (Panel Mount) (TV) | S Max. (TV) | S Max. (CTV) | AA Max. Panel Thickness | PCB Mounting Dimensions |            |
|------------|--------------------|-------------------|--------------------|---|---------------------|----------------|-----------------------|----------------------|-------------|--------------|-------------------------|-------------------------|------------|
|            |                    |                   |                    |   |                     |                |                       |                      |             |              |                         | T Dia. (TV) TP          | W (CTV) TP |
| 9          | A                  | 1.016             | 1.016              | .6250                                   | .820                | .770           | .719                  | NA                   | 1.094       | .949         | .234                    | .752                    | .532       |
| 11         | B                  | 1.062             | 1.148              | .7500                                   | .820                | .770           | .812                  | .766                 | 1.187       | 1.042        | .234                    | .850                    | .601       |
| 13         | C                  | 1.250             | 1.250              | .8750                                   | .820                | .770           | .906                  | .859                 | 1.281       | 1.136        | .234                    | .994                    | .703       |
| 15         | D                  | 1.375             | 1.375              | 1.0000                                  | .820                | .770           | .969                  | .938                 | 1.344       | 1.230        | .234                    | 1.119                   | .791       |
| 17         | E                  | 1.500             | 1.500              | 1.1875                                  | .820                | .770           | 1.062                 | 1.016                | 1.437       | 1.323        | .234                    | 1.237                   | .875       |
| 19         | F                  | 1.625             | 1.625              | 1.2500                                  | .820                | .770           | 1.156                 | 1.110                | 1.531       | 1.449        | .234                    | 1.379                   | .975       |
| 21         | G                  | 1.750             | 1.750              | 1.3750                                  | .820                | .738           | 1.250                 | 1.206                | 1.625       | 1.573        | .204                    | 1.489                   | 1.053      |
| 23         | H                  | 1.875             | 1.875              | 1.5000                                  | .820                | .738           | 1.375                 | 1.312                | 1.750       | 1.699        | .204                    | 1.619                   | 1.195      |
| 25         | J                  | 2.000             | 2.000              | 1.6250                                  | .820                | .738           | 1.500                 | 1.438                | 1.875       | 1.823        | .204                    | 1.744                   | 1.233      |

### Line Receptacle

TV01( ) - Crimp, Metal  
CTV01( ) - Crimp, Composite



See how to build a part number on pages 2 & 3

† Red band indicates fully mated

†† Blue band indicates rear release contact retention system.

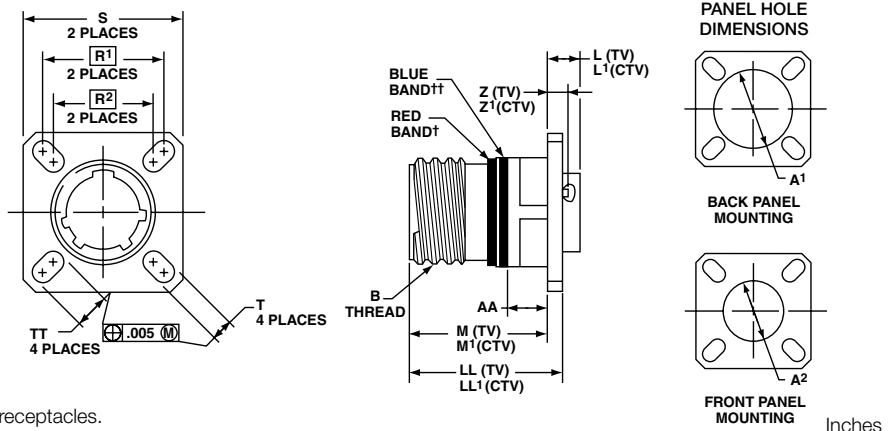
| Shell Size | MS Shell Size Code | B Thread 0.1P-0.3L-TS-2A (Plated) | M +.000 - .005 (TV) | M' +.000 - .005 (CTV) | L Max. (TV) | L' Max. (CTV) | S ±.010 (TV) | S' ±.010 (CTV) | Z Max (TV) | Z' Max (CTV) | GG ±.010 (TV) | GG' ±.010 (CTV) | LL +.006 - .000 (TV) | LL' ±.005 (CTV) |
|------------|--------------------|-----------------------------------|---------------------|-----------------------|-------------|---------------|--------------|----------------|------------|--------------|---------------|-----------------|----------------------|-----------------|
| 9          | A                  | .6250                             | .820                | .773                  | .469        | .520          | .675         | .635           | .153       | .198         | .812          | .699            | .905                 | .908            |
| 11         | B                  | .7500                             | .820                | .773                  | .469        | .520          | .800         | .765           | .153       | .198         | .905          | .875            | .905                 | .908            |
| 13         | C                  | .8750                             | .820                | .773                  | .469        | .520          | .925         | .885           | .153       | .198         | 1.093         | 1.007           | .905                 | .908            |
| 15         | D                  | 1.0000                            | .820                | .773                  | .469        | .520          | 1.050        | 1.100          | .153       | .198         | 1.219         | 1.140           | .905                 | .908            |
| 17         | E                  | 1.1875                            | .820                | .773                  | .469        | .520          | 1.238        | 1.197          | .153       | .198         | 1.375         | 1.229           | .905                 | .908            |
| 19         | F                  | 1.2500                            | .820                | .773                  | .469        | .520          | 1.300        | 1.260          | .153       | .198         | 1.469         | 1.380           | .905                 | .908            |
| 21         | G                  | 1.3750                            | .790                | .741                  | .500        | .552          | 1.425        | 1.385          | .183       | .228         | 1.625         | 1.493           | .905                 | .904            |
| 23         | H                  | 1.5000                            | .790                | .741                  | .500        | .552          | 1.550        | 1.510          | .183       | .228         | 1.750         | 1.626           | .905                 | .904            |
| 25         | J                  | 1.6250                            | .790                | .741                  | .500        | .552          | 1.675        | 1.635          | .183       | .228         | 1.875         | 1.777           | .905                 | .904            |

All dimensions for reference only

### Box Mount Receptacle

TVP02( ) - Crimp, Metal  
CTVP02( ) - Crimp, Composite

\*\* See availability note below



See how to build a part number on pages 2 & 3

† Red band indicates fully mated

†† Blue band indicates rear release contact retention system.

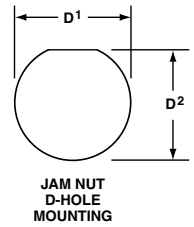
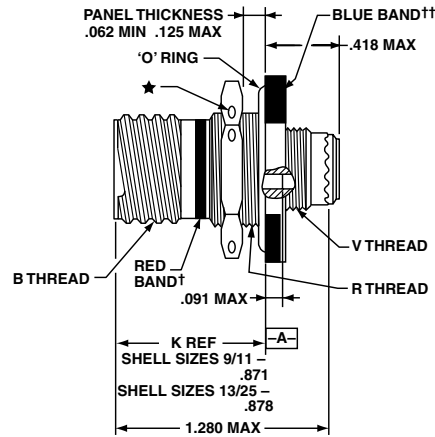
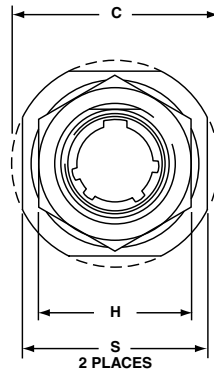
\*\*Consult Amphenol Aerospace for availability for box mount receptacles.

| Shell Size | MS Shell Size Code | B Thread Class 2A 0.1P-0.3L-TS (Plated) | L Max. (TV) | L' Max. (CTV) | M +.000 - .005 (TV) | M' +.000 - .005 (CTV) | R <sup>1</sup> | R <sup>2</sup> | S Max. (TV) | T ±.008 (TV) | Z Max. (TV) | Z' Max. (CTV) | A <sup>1</sup> Back Panel Mount | A <sup>2</sup> Front Panel Mount | AA Max. Panel Thickness | LL +.006 - .000 (TV) | LL1 ±.005 (CTV) | TT ±.008 |
|------------|--------------------|---|-------------|---------------|---------------------|-----------------------|----------------|----------------|-------------|--------------|-------------|---------------|---------------------------------|----------------------------------|-------------------------|----------------------|-----------------|----------|
| 9          | A                  | .6250                                   | .205        | .250          | .820                | .773                  | .719           | .594           | .948        | .128         | .153        | .198          | .650                            | .510                             | .234                    | .905                 | .908            | .216     |
| 11         | B                  | .7500                                   | .205        | .250          | .820                | .773                  | .812           | .719           | 1.043       | .128         | .153        | .198          | .800                            | .620                             | .234                    | .905                 | .908            | .194     |
| 13         | C                  | .8750                                   | .205        | .250          | .820                | .773                  | .906           | .812           | 1.137       | .128         | .153        | .198          | .910                            | .740                             | .234                    | .905                 | .908            | .194     |
| 15         | D                  | 1.0000                                  | .205        | .250          | .820                | .773                  | .969           | .906           | 1.232       | .128         | .153        | .198          | 1.040                           | .900                             | .234                    | .905                 | .908            | .173     |
| 17         | E                  | 1.1875                                  | .205        | .250          | .820                | .773                  | 1.062          | .969           | 1.323       | .128         | .153        | .198          | 1.210                           | 1.010                            | .234                    | .905                 | .908            | .194     |
| 19         | F                  | 1.2500                                  | .205        | .250          | .820                | .773                  | 1.156          | 1.062          | 1.449       | .128         | .153        | .198          | 1.280                           | 1.130                            | .234                    | .905                 | .908            | .194     |
| 21         | G                  | 1.3750                                  | .235        | .280          | .790                | .741                  | 1.250          | 1.156          | 1.575       | .128         | .183        | .228          | 1.410                           | 1.250                            | .204                    | .905                 | .904            | .194     |
| 23         | H                  | 1.5000                                  | .235        | .280          | .790                | .741                  | 1.375          | 1.250          | 1.701       | .154         | .183        | .228          | 1.530                           | 1.360                            | .204                    | .905                 | .904            | .242     |
| 25         | J                  | 1.6250                                  | .235        | .280          | .790                | .741                  | 1.500          | 1.375          | 1.823       | .154         | .183        | .228          | 1.660                           | 1.470                            | .204                    | .905                 | .904            | .242     |

### Jam Nut Receptacle

TV07( ) - Crimp, Metal

CTV07( ) - Crimp, Composite



See how to build a part number on pages 2

† Red band indicates fully mated

†† Blue band indicates rear release contact retention system.

H .059 dia. min., 3 lockwire holes. Formed lockwire hole design (6 holes) is optional

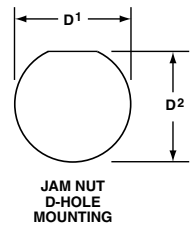
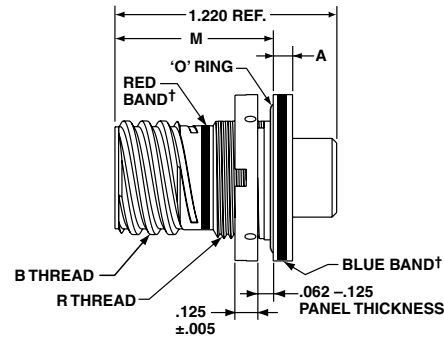
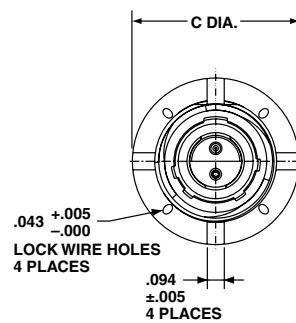
Inches

| Shell Size | MS Shell Size Code | B Thread Class 2A 0.1P-0.3L-TS (Plated) | C Max. | D <sup>1</sup> +.010 -0.000 | D <sup>2</sup> +.000 -0.010 | H Hex +.017 -0.016 | S ±.010 | V Thread Metric | R Thread (Plated) 9-7543 |
|------------|--------------------|---|--------|-----------------------------|-----------------------------|--------------------|---------|-----------------|--------------------------|
| 9          | A                  | .6250                                   | 1.199  | .693                        | .657                        | .875               | 1.062   | M12X1-6g        | M17X1-6g                 |
| 11         | B                  | .7500                                   | 1.386  | .825                        | .770                        | 1.000              | 1.250   | M15X1-6g        | M20X1-6g                 |
| 13         | C                  | .8750                                   | 1.511  | 1.010                       | .955                        | 1.188              | 1.375   | M18X1-6g        | M25X1-6g                 |
| 15         | D                  | 1.0000                                  | 1.636  | 1.135                       | 1.085                       | 1.312              | 1.500   | M22X1-6g        | M28X1-6g                 |
| 17         | E                  | 1.1875                                  | 1.761  | 1.260                       | 1.210                       | 1.438              | 1.625   | M25X1-6g        | M32X1-6g                 |
| 19         | F                  | 1.2500                                  | 1.949  | 1.385                       | 1.335                       | 1.562              | 1.812   | M28X1-6g        | M35X1-6g                 |
| 21         | G                  | 1.3750                                  | 2.073  | 1.510                       | 1.460                       | 1.688              | 1.938   | M31X1-6g        | M38X1-6g                 |
| 23         | H                  | 1.5000                                  | 2.199  | 1.635                       | 1.585                       | 1.812              | 2.062   | M34X1-6g        | M41X1-6g                 |
| 25         | J                  | 1.6250                                  | 2.323  | 1.760                       | 1.710                       | 2.000              | 2.188   | M37X1-6g        | M44X1-6g                 |

All dimensions for reference only

### Reduced Flange Jam Nut Receptacle

TV97( ) - Crimp, Metal



See how to build a part number on pages 2

† Red band indicates fully mated

†† Blue band indicates rear release contact retention system.

Inches

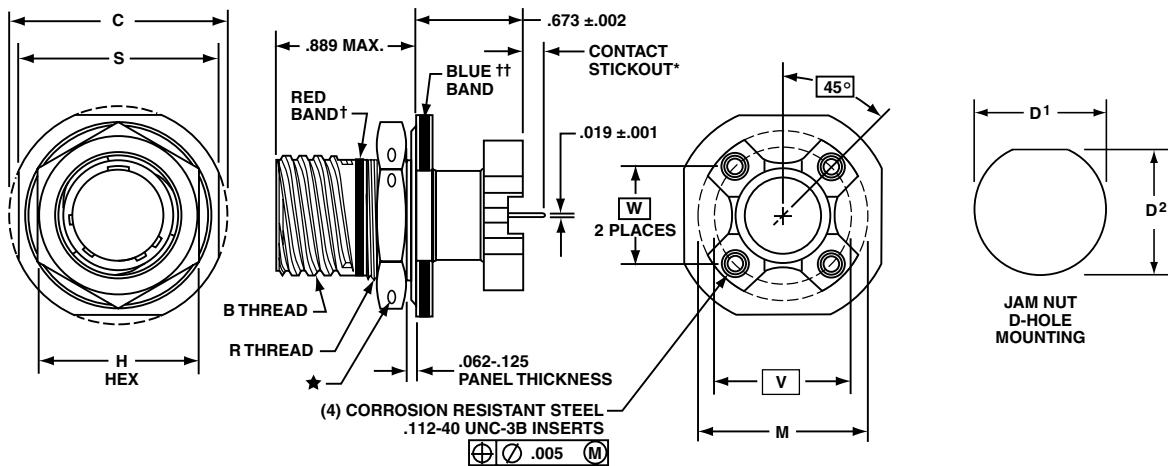
| Shell Size | MS Shell Size Code | B Thread Class 2A 0.1P-0.3L-TS (Plated) | A +.010 -0.005 | C Dia. Max. | D <sup>1</sup> +.010 -0.000 | D <sup>2</sup> +.000 -0.010 | M    | R Thread (Plated) 9-7543 |
|------------|--------------------|---|----------------|-------------|-----------------------------|-----------------------------|------|--------------------------|
| 9          | A                  | .6250                                   | .104           | .915        | .693                        | .657                        | .871 | M17X1-6g                 |
| 11         | B                  | .7500                                   | .104           | 1.042       | .825                        | .770                        | .871 | M20X1-6g                 |
| 13         | C                  | .8750                                   | .104           | 1.240       | 1.010                       | .955                        | .878 | M25X1-6g                 |
| 15         | D                  | 1.0000                                  | .104           | 1.357       | 1.135                       | 1.085                       | .878 | M28X1-6g                 |
| 17         | E                  | 1.1875                                  | .104           | 1.630       | 1.260                       | 1.210                       | .878 | M32X1-6g                 |
| 19         | F                  | 1.2500                                  | .135           | 1.816       | 1.385                       | 1.335                       | .878 | M35X1-6g                 |
| 21         | G                  | 1.3750                                  | .135           | 1.942       | 1.510                       | 1.460                       | .878 | M38X1-6g                 |
| 23         | H                  | 1.5000                                  | .135           | 2.067       | 1.635                       | 1.585                       | .878 | M41X1-6g                 |
| 25         | J                  | 1.6250                                  | .135           | 2.190       | 1.760                       | 1.710                       | .878 | M44X1-6g                 |

# Jam Nut Double Flange Receptacle

(Printed Circuit Board Mount)

TV47( ) - Crimp, Metal

CTV47( ) - Crimp, Composite



See how to build a part number on pages 2

\* Contact stickout dimension: see Step 7 of how to order on page 2.

† Red band indicates fully mated

†† Blue band indicates rear release contact retention system.

H .059 dia. min., 3 lockwire holes. Formed lockwire hole design (6 holes) is optional

Inches

| Shell Size | MS Shell Size Code | B Thread Class<br>2A 0.1P-0.3L-TS<br>(Plated) | C<br>±.005<br>(Jam Nut<br>Flange Dia.) | D <sup>1</sup><br>+.010<br>-.000 | D <sup>2</sup><br>+.000<br>-.010 | H<br>Hex<br>+.017<br>-.016 | M<br>Dia.<br>±.005 | R<br>Thread<br>Metric<br>(Plated) | S<br>+.011<br>-.010 | PCB Mounting<br>Dimensions |               |
|------------|--------------------|---|--|----------------------------------|----------------------------------|----------------------------|--------------------|-----------------------------------|---------------------|----------------------------|---------------|
|            |                    |   |  |                                  |                                  |                            |                    |                                   |                     | V Dia. (TV)<br>TP          | W (CTV)<br>TP |
| 9          | A                  | .6250   | 1.188                                  | .700                             | .670                             | .875                       | 1.016              | M17X1-6g0.100R                    | 1.062               | .753                       | .532          |
| 11         | B                  | .7500   | 1.375                                  | .825                             | .770                             | 1.000                      | 1.148              | M20X1-6g0.100R                    | 1.250               | .850                       | .601          |
| 13         | C                  | .8750   | 1.500                                  | 1.010                            | .955                             | 1.188                      | 1.250              | M25X1-6g0.100R                    | 1.375               | .994                       | .703          |
| 15         | D                  | 1.0000  | 1.625                                  | 1.135                            | 1.085                            | 1.312                      | 1.375              | M28X1-6g0.100R                    | 1.500               | 1.119                      | .791          |
| 17         | E                  | 1.1875  | 1.750                                  | 1.260                            | 1.210                            | 1.438                      | 1.500              | M32X1-6g0.100R                    | 1.625               | 1.237                      | .875          |
| 19         | F                  | 1.2500  | 1.937                                  | 1.385                            | 1.335                            | 1.562                      | 1.625              | M35X1-6g0.100R                    | 1.812               | 1.379                      | .975          |
| 21         | G                  | 1.3750  | 2.062                                  | 1.510                            | 1.460                            | 1.688                      | 1.750              | M38X1-6g0.100R                    | 1.937               | 1.489                      | 1.053         |
| 23         | H                  | 1.5000  | 2.188                                  | 1.635                            | 1.585                            | 1.812                      | 1.875              | M41X1-6g0.100R                    | 2.062               | 1.644                      | 1.145         |
| 25         | J                  | 1.6250  | 2.312                                  | 1.760                            | 1.710                            | 2.000                      | 2.000              | M44X1-6g0.100R                    | 2.188               | 1.744                      | 1.233         |

All dimensions for reference only

## Straight Plug

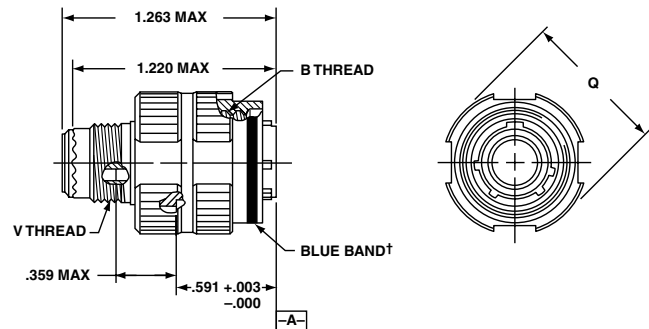
TV06( ) - Crimp, Metal

CTV06( ) - Crimp, Composite

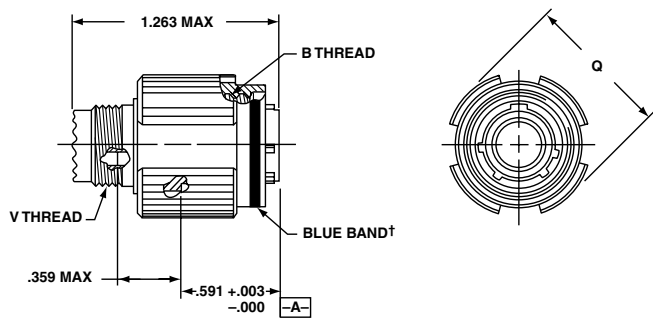
† Blue band indicates rear release contact retention system Inches

| Shell Size | MS Shell Size Code | B Thread<br>0.1P-0.3L-TS-2B<br>(Plated) | Q Dia. Max. |
|------------|--------------------|---|-------------|
| 9          | A                  | .6250                                   | .858        |
| 11         | B                  | .7500                                   | .984        |
| 13         | C                  | .8750                                   | 1.157       |
| 15         | D                  | 1.0000                                  | 1.280       |
| 17         | E                  | 1.1875                                  | 1.406       |
| 19         | F                  | 1.2500                                  | 1.516       |
| 21         | G                  | 1.3750                                  | 1.642       |
| 23         | H                  | 1.5000                                  | 1.768       |
| 25         | J                  | 1.6250                                  | 1.890       |

### METAL



### COMPOSITE



## Straight Plug with Integral Backshell

TV96( ) (TV Type) - Crimp, Metal

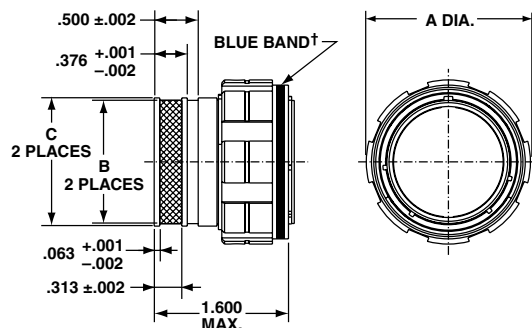
This MIL-DTL-38999 Series III style connector features an integral backshell design that eliminates the need for costly backshell accessories. The backshell feature is incorporated into the rear of the connector shell, allowing the user to attach the shield of their cable directly to the connector. This provides superior EMI shielding and ease for overmold applications. The straight plug with integral backshell is available in aluminum shells with OD Cad or Electroless Nickel plating.



See how to build a part number on pages 2

† Blue band indicates rear release contact retention system. Inches

| Shell Size | MS Shell Size Code | A Max. | B<br>+.005<br>-.000 | C<br>+.003<br>-.002 |
|------------|--------------------|--------|---------------------|---------------------|
| 9          | A                  | .859   | .416                | .472                |
| 11         | B                  | .969   | .524                | .580                |
| 13         | C                  | 1.141  | .652                | .708                |
| 15         | D                  | 1.266  | .810                | .866                |
| 17         | E                  | 1.391  | .928                | .984                |
| 19         | F                  | 1.500  | 1.046               | 1.102               |
| 21         | G                  | 1.625  | 1.164               | 1.220               |
| 23         | H                  | 1.750  | 1.282               | 1.338               |
| 25         | J                  | 1.875  | 1.400               | 1.456               |





## New Custom Designed HD38999 Connectors - Provide More Interconnect Solutions:

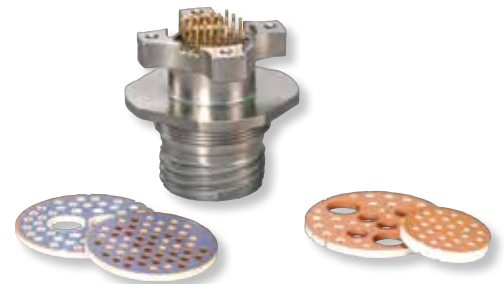
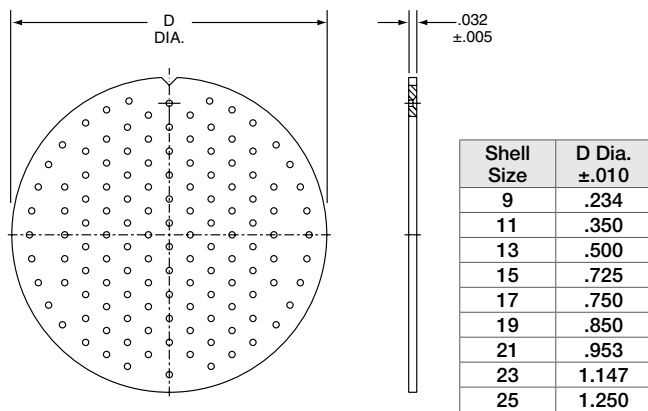
### Alignment Disks

Alignment disks keep contacts aligned for easier insertion into circuit boards. These are typically ordered with the connector - see step 7 of How to Order on page 2.



### Filtered HD38999 Connectors - for EMI/EMP Protection

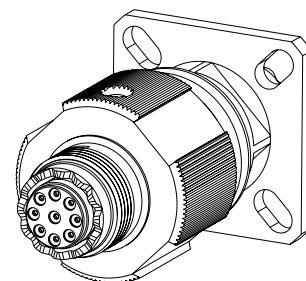
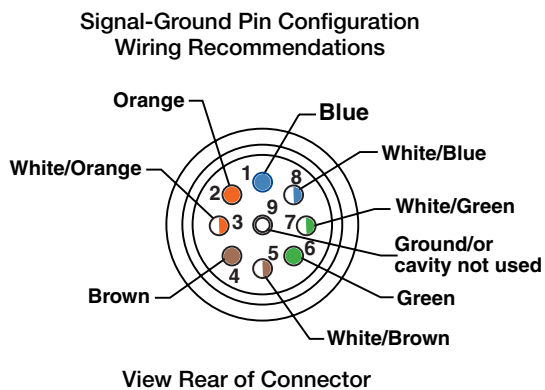
High density patterns are available in filter 38999 connectors - consult Amphenol Aerospace for ordering.



### HD38999 for Gigabit Ethernet Applications

The HD38999 is available for high speed (Gigabit Ethernet) data transmission in the size 9-9 insert pattern. Data transmission performance of this connector insert:

- 10 Base T, 100 Base TX, and 1000 Base T networks using Cat 5e per TIA/EIA568B and Class D per ISO/IEC 11801. (Test report available - consult Amphenol Aerospace for more information)



**HD38999 Connector with 9-9 Insert Pattern (Rear View)**

Notice: Specifications are subject to change without notice. Contact your nearest Amphenol Corporation Sales Office for the latest specifications. All statements, information and data given herein are believed to be accurate and reliable but are presented without guarantee, warranty, or responsibility of any kind, expressed or implied. Statements or suggestions concerning possible use of our products are made without representation or warranty that any such use is free of patent infringement and are not recommendations to infringe any patent. The user should assume that all safety measures are indicated or that other measures may not be required. Specifications are typical and may not apply to all connectors.

AMPHENOL is a registered trademark of Amphenol Corporation. ©2016 Amphenol Corporation REV:9/26/2016