

# **Mil-Spec Connectors & Accessories**



**DEUTSCH ECD**

## **Defense / Aerospace Operations . . .**

*is the world's premier manufacturer of electrical interconnection devices for use in defense, aerospace, and commercial applications. Whether you need an interconnection device for a commercial or military aircraft, missile, tank, truck transmission or a host of other applications, Deutsch has the solution you're looking for.*

### **Deutsch ECD Defense Aerospace Operations**

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## ***Deutsch's MIL-C-38999 Series III qualified with triple start, self locking, threaded coupling and crimp-type terminations.***

The Deutsch DTS Series is qualified to MIL-C-38999 Series III. This rugged design offers the maximum in vibration, shock and EMI resistance. A general duty threaded connector, the DTS Series, offers thicker wall sections and greater coupling surface with 100% metal to metal bottoming, a superior anti-coupling system, and Deutsch's proven dielectric contact retention. The positive metal to metal coupling design, superior interfacial seals, and cadmium over nickel

plating provide excellent EMI, moisture and corrosion resistance. In a 360° turn of the coupling nut, the DTS quickly mates and self locks. Blunting of the thread on both the coupling nut and receptacle makes cross threading virtually impossible. Elongated mounting holes permit the DTS Connector to intermount with existing standard MS/38999 box or wall mount receptacles, giving it a design replacement advantage.

### **SPECIFICATIONS:**

#### **Vibration:** (Class W)

Sine — Up to 60 G's for 36 hours duration per MIL-C-38999.

Random — Up to 41.7 G's rms for 16 hours duration at 175°C; Up to 50 G's rms for 16 hours duration at ambient temperature.

#### **Temperature:** (Class W)

-65°C to +175°C (-85°F to +347°F)

#### **Shock:**

High impact per MIL-S-901.

#### **Thermal Shock:**

Meets requirements of MIL-C-38999.

#### **EMI Shielding:** (Class W)

Effective over a range of 100 MHz to 10GHz with a minimum 50 dB effectiveness at 10 GHz.

#### **Insulation resistance:**

5000 megaohms min. at +25°C (+77°F).

#### **Corrosion:** (Class W)

500 hours salt spray per MIL-C-38999.

#### **Contact rating:** (Crimp Contacts)

22D — 5.0 amps.

20 — 7.5 amps.

16 — 13.0 amps.

12 — 23.0 amps.

#### **Dielectric withstanding voltage:**

Test voltage at sea level — 1300 VAC (rms).

Wired, assembled, unmated connectors withstand:

550 VAC (rms) at 50,000 ft.

350 VAC (rms) at 70,000 ft.

200 VAC (rms) at 100,000 ft.

#### **Contact Millivolt drop:**

22D — 73 millivolts at 5.0 amps.

20 — 55 millivolts at 7.5 amps.

16 — 49 millivolts at 13.0 amps.

12 — 42 millivolts at 23.0 amps.

#### **Usable wire size:**

22D accepts 22 thru 28 AWG.

20 accepts 20 thru 24 AWG.

16 accepts 16 thru 20 AWG.

12 accepts 12 thru 14 AWG.

#### **Materials:**

Shell — aluminum alloy.

Pin Contacts — copper alloy.

Inserts — plastic; silicone.

#### **Finish:**

Shell — O.D. cad over nickel (class W).

— nickel plated (class F).

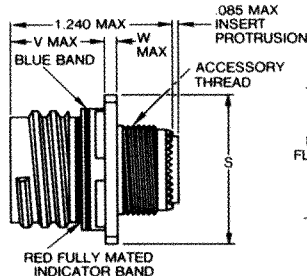
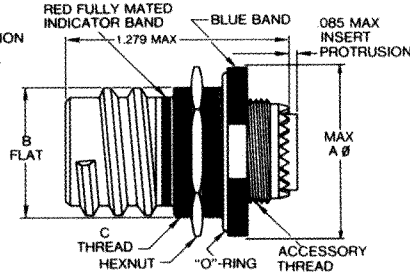
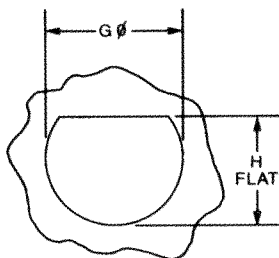
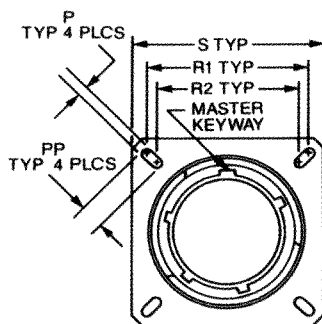
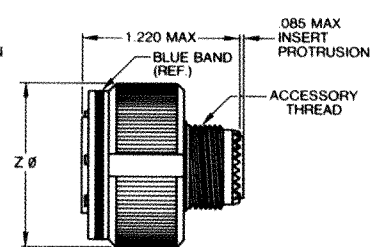
Contacts — gold over nickel.

#### **Fluid Immersion:**

Fluid resistant to many fuels, coolants and solvents per MIL-C-38999.

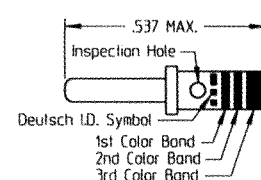
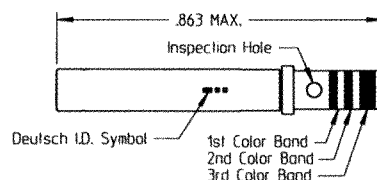


**Deutsch's MIL-C-38999 Series III qualified with triple start, self locking, threaded coupling and crimp-type terminations.**

**SQUARE FLANGE RECEPTACLE**DTS20WXX-XXXX-XXXX  
D38999/20WXXX**JAM NUT RECEPTACLE**DTS24WXX-XXXX-XXXX  
D38999/24WXXX**RFI PLUG**DTS26WXX-XXXX-XXXX  
D38999/26WXXX

| SHELL SIZE | A Ø MAX | +0.004<br>-0.006<br>B FLAT | C THREAD        | H FLAT<br>+0.000<br>-0.010 | G Ø<br>+0.010<br>-0.000 | S<br>±0.001 | V MAX | W MAX | R1 TYP | R2 TYP | P<br>+0.004<br>-0.002 | PP<br>+0.004<br>-0.002 | 2 Ø<br>MAX | ACCESSORY<br>THREAD |
|------------|---------|----------------------------|-----------------|----------------------------|-------------------------|-------------|-------|-------|--------|--------|-----------------------|------------------------|------------|---------------------|
| 9          | 1.200   | .651                       | M17X1-6g 0.100R | .669                       | .697                    | .937        | .822  | .098  | .719   | .594   | .128                  | .216                   | .858       | M12X1/0-6g 0.100R   |
| 11         | 1.385   | .751                       | M20X1-6g 0.100R | .769                       | .822                    | 1.031       | .822  | .098  | .812   | .719   | .128                  | .194                   | .984       | M15X1/0-6g 0.100R   |
| 13         | 1.511   | .938                       | M25X1-6g 0.100R | .955                       | 1.007                   | 1.126       | .822  | .098  | .906   | .812   | .128                  | .194                   | 1.157      | M18X1/0-6g 0.100R   |
| 15         | 1.637   | 1.062                      | M28X1-6g 0.100R | 1.084                      | 1.134                   | 1.220       | .822  | .098  | .969   | .906   | .128                  | .173                   | 1.279      | M22X1/0-6g 0.100R   |
| 17         | 1.763   | 1.187                      | M32X1-6g 0.100R | 1.208                      | 1.259                   | 1.311       | .822  | .098  | 1.062  | .969   | .128                  | .194                   | 1.405      | M25X1/0-6g 0.100R   |
| 19         | 1.948   | 1.312                      | M35X1-6g 0.100R | 1.333                      | 1.384                   | 1.437       | .822  | .098  | 1.156  | 1.062  | .128                  | .194                   | 1.515      | M28X1/0-6g 0.100R   |
| 21         | 2.074   | 1.437                      | M38X1-6g 0.100R | 1.459                      | 1.507                   | 1.563       | .791  | .126  | 1.250  | 1.156  | .128                  | .194                   | 1.641      | M31X1/0-6g 0.100R   |
| 23         | 2.200   | 1.562                      | M41X1-6g 0.100R | 1.584                      | 1.634                   | 1.689       | .791  | .126  | 1.375  | 1.250  | .154                  | .242                   | 1.768      | M34X1/0-6g 0.100R   |
| 25         | 2.322   | 1.687                      | M44X1-6g 0.100R | 1.709                      | 1.759                   | 1.811       | .791  | .126  | 1.500  | 1.375  | .154                  | .242                   | 1.889      | M37X1/0-6g 0.100R   |

| Contact size | Insertion/removal tool    | Crimp tool  | Crimp tool positioner      | Sealing plug (Military P/N) |
|--------------|---------------------------|-------------|----------------------------|-----------------------------|
| 22           | M81969/14-01<br>MS3160-23 | M22520/7-01 | M22520/7-07<br>M22520/7-05 | MS27488-22                  |
| 20           | M81969/14-10              | M22520/1-01 | M22520/1-04                | MS27488-20                  |
| 16           | M81969/14-03              | M22520/1-01 | M22520/1-04                | MS27488-16                  |
| 12           | M81969/14-04              | M22520/1-01 | M22520/1-04                | MS27488-12                  |

**Sockets, Gold Finish**

| Deutsch Part No. | MIL-C-39029 Equivalent No. | Size | Color Band 1st | Color Band 2nd | Color Band 3rd |
|------------------|----------------------------|------|----------------|----------------|----------------|
| 38943-22         | MIL-C-39029/56-348         | 22D  | ORANGE         | YELLOW         | GRAY           |
| 38943-20         | MIL-C-39029/56-351         | 20   | ORANGE         | GREEN          | BROWN          |
| 38943-16         | MIL-C-39029/56-352         | 16   | ORANGE         | GREEN          | RED            |
| 38943-12         | MIL-C-39029/56-353         | 12   | ORANGE         | GREEN          | ORANGE         |

**Sockets, Deutsch Extended Life Finish**

| Deutsch Part No. | Military Part No.   | Size | Color Band 1st | Color Band 2nd | Color Band 3rd |
|------------------|---------------------|------|----------------|----------------|----------------|
| 12333-22         | MIL-C-39029/106-614 | 22D  | BLUE           | BROWN          | YELLOW         |
| 12333-20         | MIL-C-39029/106-615 | 20   | BLUE           | BROWN          | GREEN          |
| 12333-16         | MIL-C-39029/106-616 | 16   | BLUE           | BROWN          | BLUE           |
| 12333-12         | MIL-C-39029/106-617 | 12   | BLUE           | BROWN          | VIOLET         |

**Pins, Gold Finish**

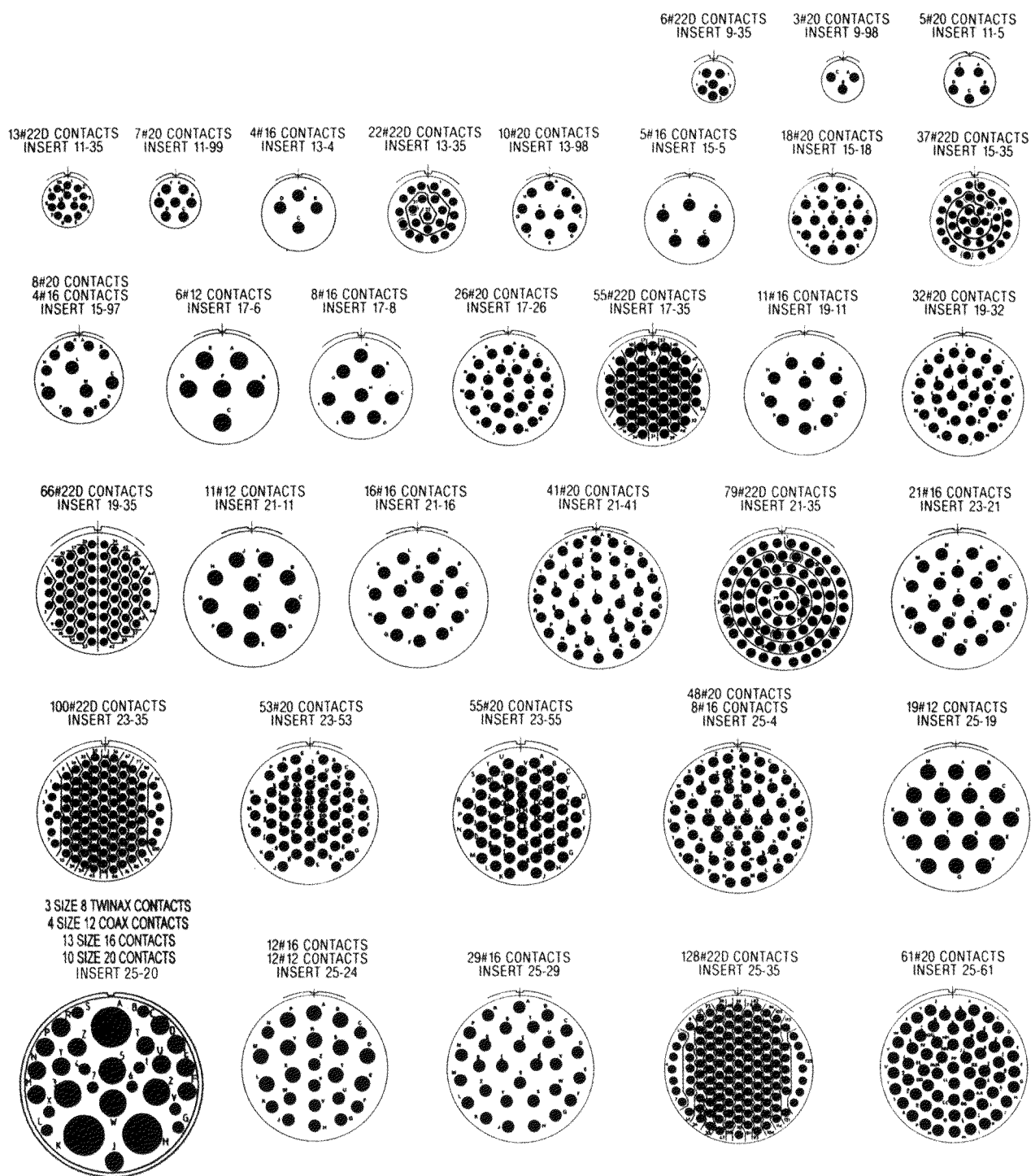
| Deutsch Part No. | MIL-C-39029 Equivalent No. | Size | Color Band 1st | Color Band 2nd | Color Band 3rd |
|------------------|----------------------------|------|----------------|----------------|----------------|
| 38941-22         | MIL-C-39029/58-360         | 22D  | ORANGE         | BLUE           | BLACK          |
| 38941-20         | MIL-C-39029/58-363         | 20   | ORANGE         | BLUE           | ORANGE         |
| 38941-16         | MIL-C-39029/58-364         | 16   | ORANGE         | BLUE           | YELLOW         |
| 38941-12         | MIL-C-39029/58-365         | 12   | ORANGE         | BLUE           | GREEN          |

**Pins, Deutsch Extended Life Finish**

| Deutsch Part No. | Military Part No.   | Size | Color Band 1st | Color Band 2nd | Color Band 3rd |
|------------------|---------------------|------|----------------|----------------|----------------|
| 12331-22         | MIL-C-39029/107-620 | 22D  | BLUE           | RED            | BLACK          |
| 12331-20         | MIL-C-39029/107-621 | 20   | BLUE           | RED            | BROWN          |
| 12331-16         | MIL-C-39029/107-622 | 16   | BLUE           | RED            | RED            |
| 12331-12         | MIL-C-39029/107-623 | 12   | BLUE           | RED            | ORANGE         |



## Insert Arrangements

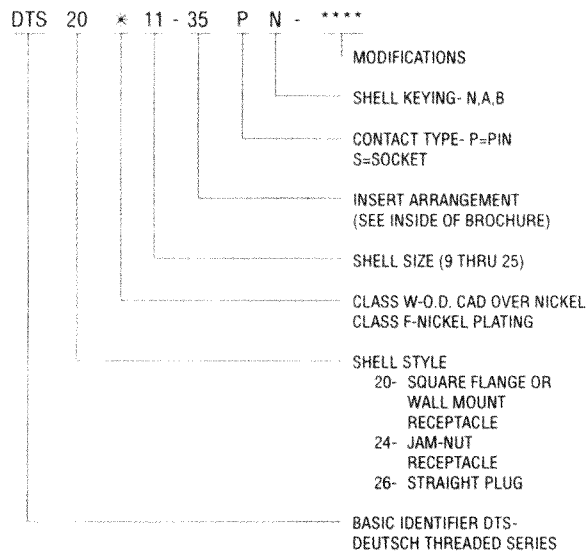


Note: For additional insert arrangements consult factory.

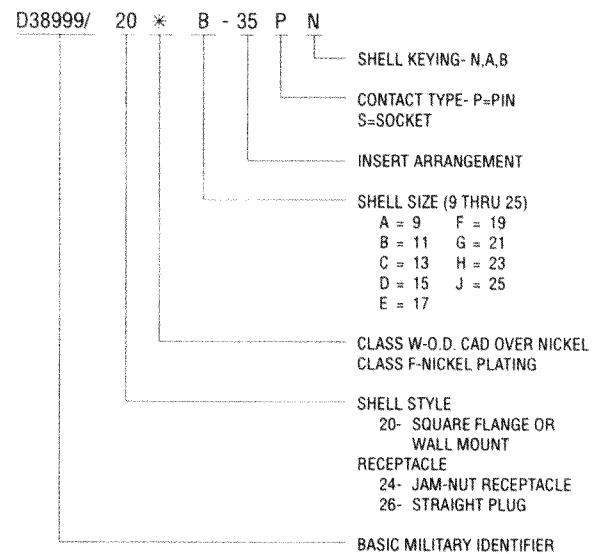


# Ordering Information

## Basic Deutsch Number



## Basic Military Number

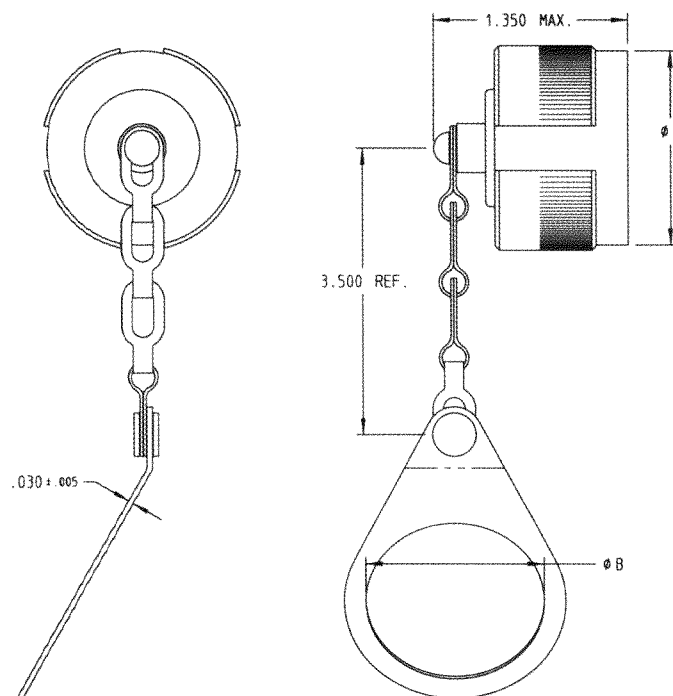


- \* Refer to page 15 for Class M & J.
- \* Consult factory for alternate keyings.
- \* Refer to page 20 for Protective Covers.
- \* Refer to page 21 for Lightweight Tie Type Strain Relief.

This information is for reference only. Consult factory for envelope drawings, updated specifications, and additions to the product line.



# Protective Covers for 38999 III Composite and Metal



Available in both environmental and environmental RFI/EMI (Shielding).

## Part Numbers

|       |   |    |   |      |                                            |
|-------|---|----|---|------|--------------------------------------------|
| 59503 | * | ** | - | **** |                                            |
|       |   |    |   |      | MODIFICATION                               |
|       |   |    |   |      | 1E = NO LANYARD                            |
|       |   |    |   |      | 2E = LANYARD CHAIN NO RING                 |
|       |   |    |   |      | CONNECTOR SIZE 09, 11, 13, 15, 17          |
|       |   |    |   |      | 19, 21, 23 AND 25                          |
|       |   |    |   |      | FINISH                                     |
|       |   |    |   |      | D = NATURAL                                |
|       |   |    |   |      | E = NATURAL LOCKING                        |
|       |   |    |   |      | M = NICKEL, SHIELDING, LOCKING             |
|       |   |    |   |      | W = OLIVE DRAB CADMIUM, SHIELDING, LOCKING |
|       |   |    |   |      | GENERAL IDENTIFIER                         |
|       |   |    |   |      | 59503 = DUST COVER FOR RECEPTACLES WITH    |
|       |   |    |   |      | MOUNTING CHAIN AND RETAINING WASHER        |

This information is for reference only. Consult factory for envelope drawings, updated specifications, and additions to the product line.

