



*Environmental/Hermetic Connectors*

# MIL-DTL-38999 Series III and IV

**Industry-Standard • Military / Aerospace • Harsh-Environment**

OCTOBER 2017







**HERMETIC AND  
ENVIRONMENTAL**

# **MIL-DTL-38999 Series III and IV**

**The industry standard mil/  
aero connector backed by  
Glenair service and availability**



**DLA QPL MIL-DTL-38999  
SERIES III AND IV AVAILABLE  
FROM GLENAIR**

**D**LA certified environmental and hermetic class MIL-DTL-38999 Series III and IV connectors are the most widely used and requested connectors within the mil-aero industry—and for good reason. Developed for reliability, the Series III triple-start thread prevents galling and cross-threading while providing quick disconnect, single-turn action to engage self-locking, metal-to-metal coupling. Series IV offers the industry's most robust mating with a 90 degree quarter-turn breech-lock mate with visual, tactile and audible engagement confirmation. The rugged construction of the Series IV disperses the mating force across a channeled metal flange while threaded mechanical force provides friction, locking the mates halves securely. Both series feature accessory threads and environmental sealing for reliable attachment of backshells. Scoop-proof shell design protects crimp-removable contacts from damage. Integrated plug-to-receptacle grounding and shell-to-shell bottoming delivers 65dB minimum shielding at 10 GHz.

Both series III and IV support all MIL-STD-1560 insert arrangements. Qualified environmental-class Series III connectors are supplied with W, F, G and T class materials and plating. Classes F and W are supplied for Series IV. Hermetic versions of Series III and IV are available in classes Y and N.

- **Qualified environmental plug, jam-nut, and square flange, box mount, wall mount and solder mount connectors**
- **All 1560 crimp-contact insert arrangements fully supported**
- **Environmental and hermetic versions available with plating classes IAW 38999 MIL-DTL Series III and IV**
- **A 100% made in America interconnect: No foreign-sourced materials, component parts, or assembly labor employed**

# QPL QUALIFIED AND COTS EQUIVALENT MIL-DTL-38999 Series III and IV

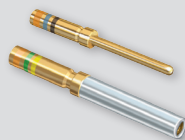


## Product selection guide



### Reference Section

|                                                                          |    |
|--------------------------------------------------------------------------|----|
| MIL-STD-1560 standard power and signal contact insert arrangements . . . | 4  |
| MIL-STD-1560 hi-speed contact insert arrangements . . . . .              | 8  |
| MIL-STD-1560 combo contact insert arrangements . . . . .                 | 9  |
| Space-grade guidelines for commercial parts . . . . .                    | 10 |
| Series III recommended panel cut-outs . . . . .                          | 12 |
| Series III alternate key and keyway polarization . . . . .               | 13 |
| Series IV recommended panel cut-outs . . . . .                           | 14 |
| Series IV alternate key and keyway polarization . . . . .                | 15 |
| Series III and IV material and finish . . . . .                          | 16 |



### Contacts and Tools

|                                              |    |
|----------------------------------------------|----|
| Pin contact selection guide . . . . .        | 17 |
| Socket contact selection guide . . . . .     | 18 |
| Crimp, insertion and removal tools . . . . . | 19 |



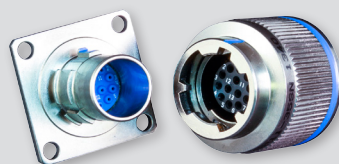
### Series III QPL qualified and COTS equivalent environmental connectors

|                                              |    |
|----------------------------------------------|----|
| Overview . . . . .                           | 22 |
| D38999/26 plug . . . . .                     | 24 |
| D38999/24 jam-nut mount receptacle . . . . . | 26 |
| D38999/20 wall mount receptacle . . . . .    | 28 |



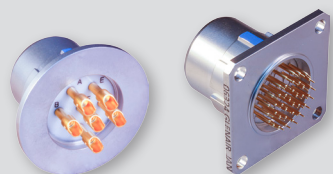
### Series III QPL qualified and COTS equivalent hermetic connectors

|                                              |    |
|----------------------------------------------|----|
| Overview . . . . .                           | 30 |
| D38999/21 box mount receptacle . . . . .     | 32 |
| D38999/25 solder mount receptacle . . . . .  | 34 |
| D38999/23 jam-nut mount receptacle . . . . . | 36 |
| D38999/27 weld mount receptacle . . . . .    | 38 |



### Series IV QPL qualified and COTS equivalent environmental connectors

|                                                                   |    |
|-------------------------------------------------------------------|----|
| Overview . . . . .                                                | 40 |
| D38999/46 and 47 plug with or without EMI ground spring . . . . . | 42 |
| D38999/40 wall mount receptacle . . . . .                         | 44 |
| D38999/42 box mount receptacle . . . . .                          | 46 |
| D38999/44 jam-nut mount receptacle . . . . .                      | 48 |
| D38999/49 in-line receptacle . . . . .                            | 46 |



### Series IV QPL qualified and COTS equivalent hermetic connectors

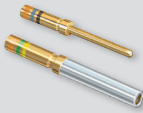
|                                              |    |
|----------------------------------------------|----|
| Overview . . . . .                           | 52 |
| D38999/41 box mount receptacle . . . . .     | 54 |
| D38999/43 jam-nut mount receptacle . . . . . | 56 |
| D38999/45 solder mount receptacle . . . . .  | 58 |
| D38999/48 weld mount receptacle . . . . .    | 60 |

# QPL QUALIFIED AND COTS EQUIVALENT MIL-DTL-38999 Series III and IV



## MIL-STD-1560 standard power and signal contact arrangements For environmental and hermetic connectors

REFERENCE INFORMATION

| Contacts                                                                                      |                                                                                                         |                                                                                                       |                                                                                                       |
|-----------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------|
| Contact Size (environmental contacts shown in pictures below)                                 |                                                                                                         |                                                                                                       |                                                                                                       |
| Size #22D<br>Environmental: 5 Amp Max. Current<br>Hermetic: 5 Amp Max. Current<br>#22-#28 AWG | Size #20 Contacts<br>Environmental: 7.5 Amp Max. Current<br>Hermetic: 5 Amp Max. Current<br>#20-#24 AWG | Size #16 Contacts<br>Environmental 13 Amp Max. Current<br>Hermetic: 5 Amp Max. Current<br>#16-#20 AWG | Size #12 Contacts<br>Environmental 23 Amp Max. Current<br>Hermetic: 5 Amp Max. Current<br>#12-#14 AWG |
|              |                        |                     |                    |

| Contact Size 22D   |               |              |
|--------------------|---------------|--------------|
| Number of Contacts | D38999 Sr III | D38999 Sr IV |
| 6                  | A35           |              |
| 13                 | B35           | B35          |
| 22                 | C35           | C35          |
| 37                 | D35           | D35          |
| 55                 | E35           | E35          |
| 66                 | F35           | F35          |
| 67                 | F45           | F45          |
| 79                 | G35           | G35          |
| 100                | H35           | H35          |
| 128                | J35           | J35          |

| Contact Size 16    |               |              |
|--------------------|---------------|--------------|
| Number of Contacts | D38999 Sr III | D38999 Sr IV |
| 2                  | B2            | B2           |
| 4                  | C4            | C4           |
| 5                  | D5            | D5           |
| 8                  | E8            | E8           |
| 11                 | F11           | F11          |
| 16                 | G16           | G16          |
| 21                 | H21           | H21          |
| 16                 | H97           | H97          |
| 11                 | H99           | H99          |
| 29                 | J29           | J29          |
| 37                 | J37           | J37          |

| 38999 Series III and IV Shell Size Code Reference |             |            |             |            |             |
|---------------------------------------------------|-------------|------------|-------------|------------|-------------|
| Shell size                                        | Code letter | Shell size | Code letter | Shell size | Code letter |
| 9                                                 | A           | 15         | D           | 21         | G           |
| 11                                                | B           | 17         | E           | 23         | H           |
| 13                                                | C           | 19         | F           | 25         | J           |

| Contact Size 20    |               |              |
|--------------------|---------------|--------------|
| Number of Contacts | D38999 Sr III | D38999 Sr IV |
| 3                  | A98           |              |
| 4                  | B4            | B4           |
| 5                  | B5            | B5           |
| 6                  | B98           | B98          |
| 7                  | B99           | B99          |
| 8                  | C8            | C8           |
| 10                 | C98           | C98          |
| 18                 | D18           | D18          |
| 19                 | D19           | D19          |
| 26                 | E26           | E26          |
| 32                 | F32           | F32          |
| 24                 | G24           | G24          |
| 25                 | G25           | G25          |
| 27                 | G27           | G27          |
| 41                 | G41           | G41          |
| 32                 | H32           | H32          |
| 34                 | H34           | H34          |
| 36                 | H36           | H36          |
| 53                 | H53           | H53          |
| 55                 | H55           | H55          |
| 61                 | J61           | J61          |

| Contact Size 12    |               |              |
|--------------------|---------------|--------------|
| Number of Contacts | D38999 Sr III | D38999 Sr IV |
| 6                  | E6            | E6           |
| 11                 | G11           | G11          |
| 19                 | J19           | J19          |



# QPL QUALIFIED AND COTS EQUIVALENT MIL-DTL-38999 Series III and IV

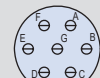


## MIL-STD-1560 standard power and signal contact arrangements For environmental and hermetic connectors - pin front view

REFERENCE INFORMATION

### Contact Legend

#22D • #16 ⊕  
#20 ⊖ #12 ⊙



Insert Arrangement

A35

A98

B2

B4

B5

B98

B99

No. of Contacts and Contact Size

6 #22D

3 #20

2 #16

4 #20

5 #20

6 #20

7 #20

Service Rating

M

I

I

I

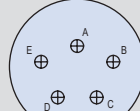
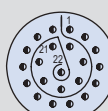
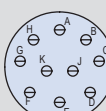
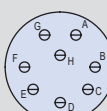
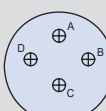
I

I

I

### Contact Legend

#22D • #16 ⊕  
#20 ⊖ #12 ⊙



Insert Arrangement

B35

C4

C8

C98

C35

D5

No. of Contacts and Contact Size

13 #22D

4 #16

8 #20

10 #20

22 #22D

5 #16

Service Rating

M

I

I

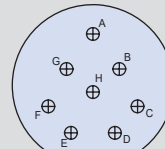
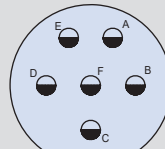
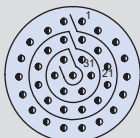
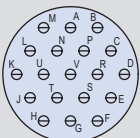
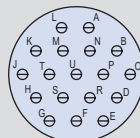
I

M

II

### Contact Legend

#22D • #16 ⊕  
#20 ⊖ #12 ⊙



Insert Arrangement

D18

D19

D35

E6

E8

No. of Contacts and Contact Size

18 #20

19 #20

37 #22D

6 #12

8 #16

Service Rating

I

I

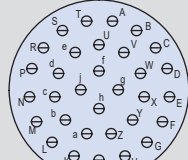
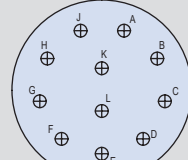
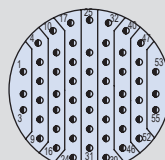
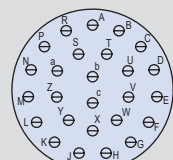
M

I

II

### Contact Legend

#22D • #16 ⊕  
#20 ⊖ #12 ⊙



Insert Arrangement

E26

E35

F11

F32

No. of Contacts and Contact Size

26 #20

55 #22D

11 #16

32 #20

Service Rating

I

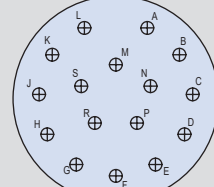
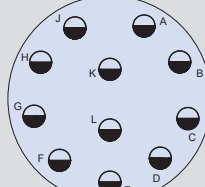
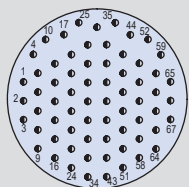
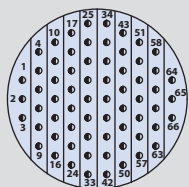
M

II

I

### Contact Legend

#22D • #16 ⊕  
#20 ⊖ #12 ⊙



Insert Arrangement

F35

F45

G11

G16

No. of Contacts and Contact Size

66 #22D

67 #22D

11 #12

16 #16

Service Rating

M

M

I

II

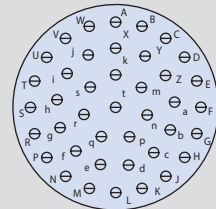
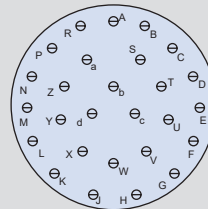
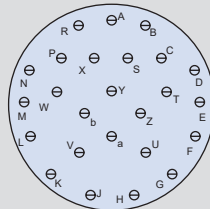
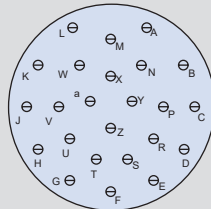
# QPL QUALIFIED AND COTS EQUIVALENT MIL-DTL-38999 Series III and IV



## MIL-STD-1560 standard power and signal contact arrangements For environmental and hermetic connectors - pin front view

REFERENCE INFORMATION

Contact Legend  
#22D • #16 ⊕  
#20 ⊖ #12 ●



Insert Arrangement  
No. of Contacts and Contact Size  
Service Rating

G24

24 #20

I

G25

25 #20

I

G27

27 #20

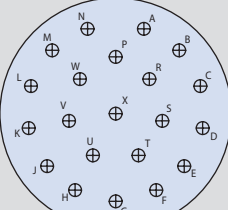
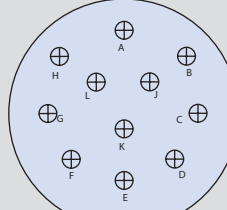
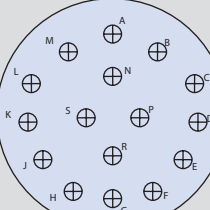
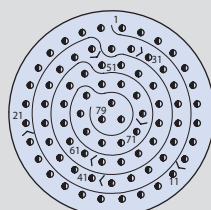
I

G41

41 #20

I

Contact Legend  
#22D • #16 ⊕  
#20 ⊖ #12 ●



Insert Arrangement  
No. of Contacts and Contact Size  
Service Rating

G35

79 #22D

M

H97

16 #16

I

H99

11 #16

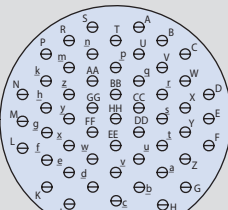
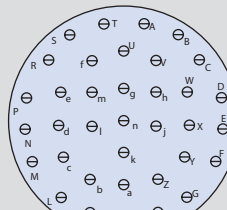
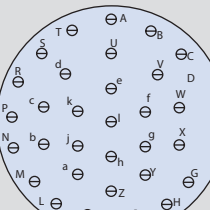
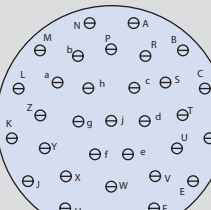
II

H21

21 #16

II

Contact Legend  
#22D • #16 ⊕  
#20 ⊖ #12 ●



Insert Arrangement  
No. of Contacts and Contact Size  
Service Rating

H32

32 #20

I

H34

34 #20

I

H36

36 #20

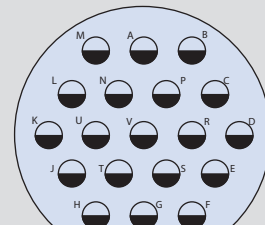
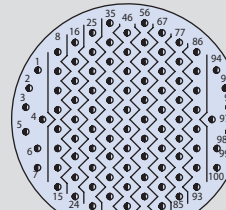
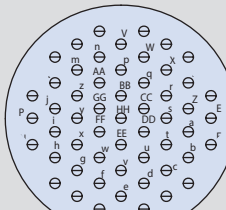
I

H53

53 #20

I

Contact Legend  
#22D • #16 ⊕  
#20 ⊖ #12 ●



Insert Arrangement  
No. of Contacts and Contact Size  
Service Rating

H55

55 #20

I

H35

100 #22D

M

J19

19 #12

I



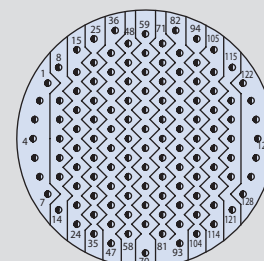
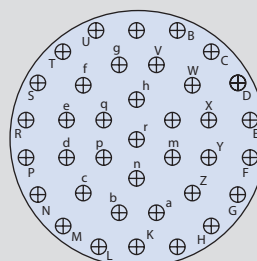
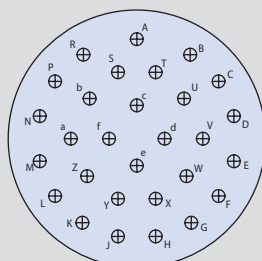
# QPL QUALIFIED AND COTS EQUIVALENT MIL-DTL-38999 Series III and IV



## MIL-STD-1560 standard power and signal contact arrangements For environmental and hermetic connectors - pin front view

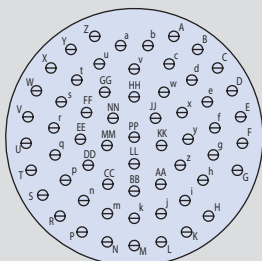
REFERENCE INFORMATION

Contact Legend  
#22D • #16 ⊕  
#20 ⊖ #12 ●



|                                  |        |        |          |
|----------------------------------|--------|--------|----------|
| Insert Arrangement               | J29    | J37    | J35      |
| No. of Contacts and Contact Size | 29 #16 | 37 #16 | 128 #22D |
| Service Rating                   | I      | II     | M        |

Contact Legend  
#22D • #16 ⊕  
#20 ⊖ #12 ●



|                                  |        |
|----------------------------------|--------|
| Insert Arrangement               | J61    |
| No. of Contacts and Contact Size | 61 #20 |
| Service Rating                   | I      |

| Service Rating | Suggested Operating Voltage |      | Test Voltage AC RMS 60Hz |       |            |       |            |       |             |       |
|----------------|-----------------------------|------|--------------------------|-------|------------|-------|------------|-------|-------------|-------|
|                | (Sea Level)                 |      | Sea Level                |       | 50,000 Ft. |       | 70,000 Ft. |       | 100,000 Ft. |       |
|                | AC (RMS)                    | DC   | unmated                  | mated | unmated    | mated | unmated    | mated | unmated     | mated |
| M              | 400                         | 550  | 1300                     | 1300  | 550        | 800   | 350        | 800   | 200         | 800   |
| N              | 300                         | 450  | 1000                     | 1000  | 400        | 600   | 260        | 600   | 200         | 600   |
| I              | 600                         | 850  | 1800                     | 1800  | 600        | 1000  | 400        | 1000  | 200         | 1000  |
| II             | 900                         | 1250 | 2300                     | 2300  | 800        | 1000  | 500        | 1000  | 200         | 1000  |

**Note:** The establishment of electrical safety factors is left entirely to the designer, as he is in the position to know exactly what peak voltages, switching currents, transients, etc. can be expected in a particular circuit

| 38999 Series III and IV Shell Size Code Reference |             |            |             |            |             |
|---------------------------------------------------|-------------|------------|-------------|------------|-------------|
| Shell size                                        | Code letter | Shell size | Code letter | Shell size | Code letter |
| 9                                                 | A           | 15         | D           | 21         | G           |
| 11                                                | B           | 17         | E           | 23         | H           |
| 13                                                | C           | 19         | F           | 25         | J           |

# QPL QUALIFIED AND COTS EQUIVALENT MIL-DTL-38999 Series III and IV

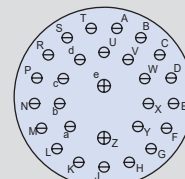
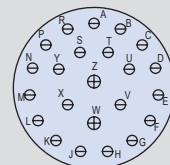
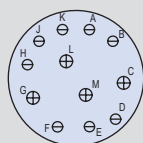
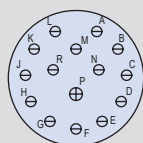


## MIL-STD-1560 combo contact arrangements For environmental and hermetic connectors - pin front view

REFERENCE INFORMATION

| Combo Contact Arrangements                                                                                                                                                                   |                                                                                                                                                                                             |                                                                                                                                                                                              |                    |     |     |                       |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|-----|-----|-----------------------|
| Contact Size (environmental contacts shown in pictures below)                                                                                                                                |                                                                                                                                                                                             |                                                                                                                                                                                              | Number of Contacts |     |     | D38999<br>Sr III & IV |
|                                                                                                                                                                                              |                                                                                                                                                                                             |                                                                                                                                                                                              | #20                | #16 | #12 |                       |
| Size #20 Contacts<br>Environmental: 7.5 Amp Max. Current<br>Hermetic: 5 Amp Max. Current<br>#20-#24 AWG<br> | Size #16 Contacts<br>Environmental 13 Amp Max. Current<br>Hermetic: 10 Amp Max. Current<br>#16-#20 AWG<br> | Size #12 Contacts<br>Environmental 23 Amp Max. Current<br>Hermetic: 17 Amp Max. Current<br>#12-#14 AWG<br> | 14                 | 1   |     | D15                   |
|                                                                                                                                                                                              |                                                                                                                                                                                             |                                                                                                                                                                                              | 8                  | 4   |     | D97                   |
|                                                                                                                                                                                              |                                                                                                                                                                                             |                                                                                                                                                                                              | 21                 | 2   |     | E99                   |
|                                                                                                                                                                                              |                                                                                                                                                                                             |                                                                                                                                                                                              | 26                 | 2   |     | F28                   |
|                                                                                                                                                                                              |                                                                                                                                                                                             |                                                                                                                                                                                              | 29                 | 1   |     | F30                   |
|                                                                                                                                                                                              |                                                                                                                                                                                             |                                                                                                                                                                                              | 19                 | 4   | 4   | G29                   |
|                                                                                                                                                                                              |                                                                                                                                                                                             |                                                                                                                                                                                              | 37                 | 2   |     | G39                   |
|                                                                                                                                                                                              |                                                                                                                                                                                             |                                                                                                                                                                                              | 48                 | 8   |     | J4                    |
|                                                                                                                                                                                              |                                                                                                                                                                                             |                                                                                                                                                                                              |                    | 12  | 12  | J24                   |
|                                                                                                                                                                                              |                                                                                                                                                                                             |                                                                                                                                                                                              | 23                 | 20  |     | J43                   |

Contact Legend  
 #22D • #16 ⊕  
 #20 ⊖ #12 ⊙



Insert Arrangement

No. of Contacts and Size  
Service Rating

D15

1X #16 14X #20

D97

4X #16 8X #20

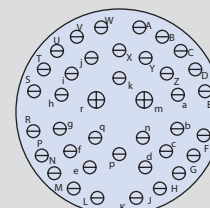
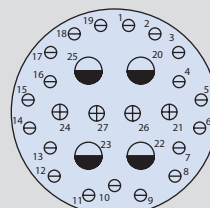
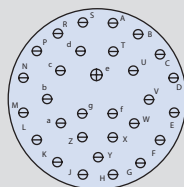
E99

2X #16 21X #20

F28

2X #16 26X #20

Contact Legend  
 #22D • #16 ⊕  
 #20 ⊖ #12 ⊙



Insert Arrangement

No. of Contacts and Size  
Service Rating

F30

1X #16 29X #20

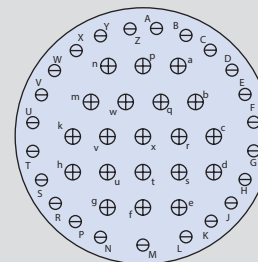
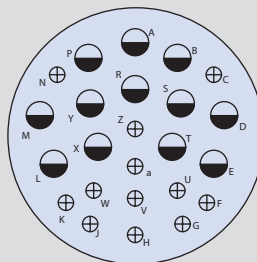
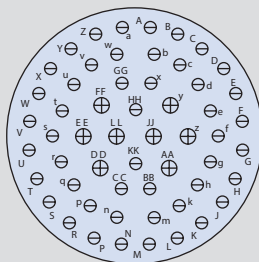
G29

4X #16 19X #20

G39

2X #16 37X #20

Contact Legend  
 #22D • #16 ⊕  
 #20 ⊖ #12 ⊙



Insert Arrangement

No. of Contacts and Size  
Service Rating

J4

8X #16 48X #20

J24

12X #12 12X #16

J43

20X #16 23X #20

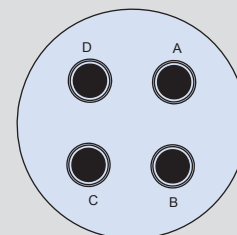
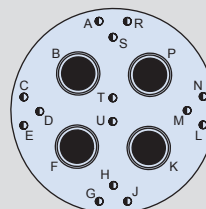
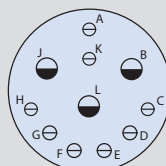
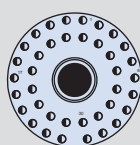
# QPL QUALIFIED AND COTS EQUIVALENT MIL-DTL-38999 Series III and IV



## MIL-STD-1560 high-speed contact arrangements - pin front view For environmental connectors only

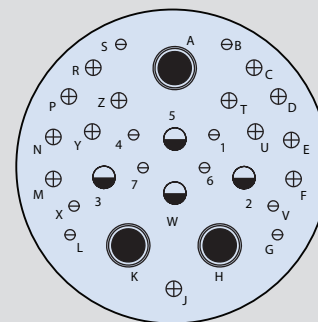
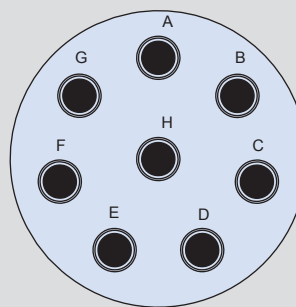
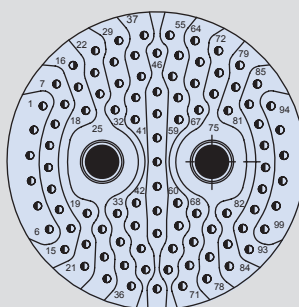
REFERENCE INFORMATION

Contact Legend  
#22D #16   
#20 #12   
#8



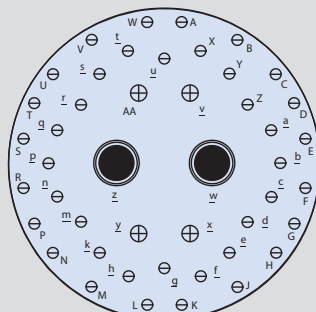
| Insert Arrangement | E2     |          | E11   |        |       | F18    |          | G75    |
|--------------------|--------|----------|-------|--------|-------|--------|----------|--------|
| No. of Contacts    | 1x #8  | 38x #22D | 1x 12 | 2x 12  | 8x 20 | 4x #8  | 14x #22D | 4x #8  |
| Service Rating     | Twinax | M        | Coax  | Twinax | N     | Twinax | M        | Twinax |

Contact Legend  
#22D #16   
#20 #12   
#8



| Insert Arrangement       | J7     |          | J8     | J20    |        |         |         |
|--------------------------|--------|----------|--------|--------|--------|---------|---------|
| No. of Contacts and Size | 2x #8  | 97x #22D | 8x #8  | 3x #8  | 4x #12 | 13x #16 | 10x #20 |
| Service Rating           | Twinax | M        | Twinax | Twinax | Co-ax  | N       | N       |

Contact Legend  
#22D #16   
#20 #12   
#8



| Insert Arrangement       | J46   |        |         | J90    |        |         |
|--------------------------|-------|--------|---------|--------|--------|---------|
| No. of Contacts and Size | 2x #8 | 4x #16 | 40x #20 | 2x #8  | 4x #16 | 40x #20 |
| Service Rating           | Coax  | I      | I       | Twinax | I      | I       |

J46 and J90 share same layout, with the exception of the size #8 contact

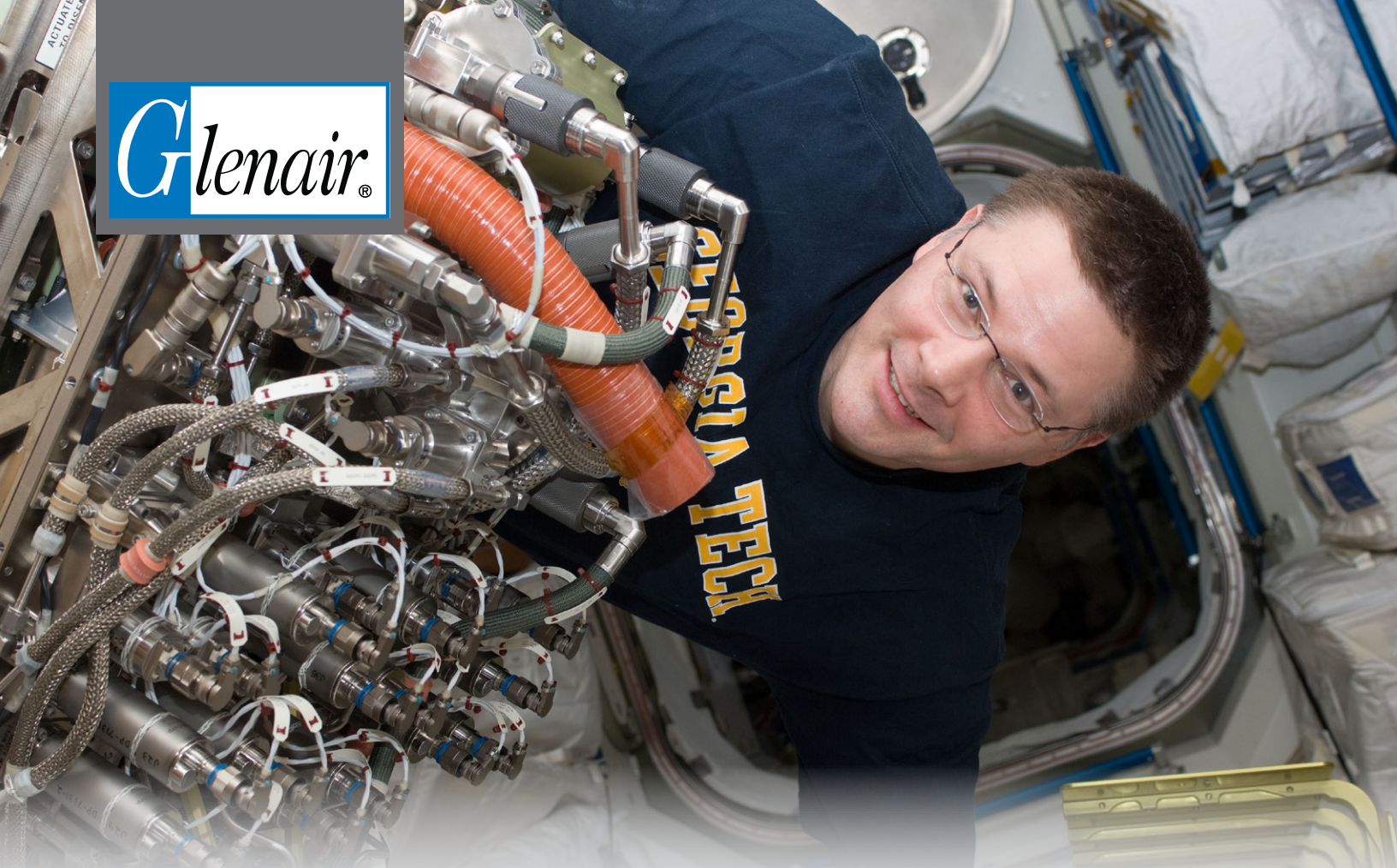
### Max Current Rating (Amps)

| Contact Size            | 22D | 20 | 16 | 12 |
|-------------------------|-----|----|----|----|
| Environ.                | 3   |    |    |    |
| Coaxial Contacts: 1 amp |     |    |    |    |
| Twinax Contacts: 1 Amp  |     |    |    |    |

### Contact Arrangements

| Number of Contacts |     |     |     |    | D38999<br>Sr III & IV |
|--------------------|-----|-----|-----|----|-----------------------|
| #22D               | #20 | #16 | #12 | #8 |                       |
| 38                 |     |     |     | 1  | E2                    |
| 14                 |     |     |     | 4  | F18                   |
|                    |     |     |     | 4  | G75                   |
| 97                 |     |     |     | 2  | J7                    |
|                    |     |     |     | 8  | J8                    |
|                    | 10  | 13  | 4   | 3  | J20                   |
|                    | 40  | 4   |     | 2  | J46                   |
|                    | 40  | 4   |     | 2  | J90                   |





# ENVIRONMENTAL AND HERMETIC SERIES 23

## Space-grade Guidelines

### Outgassing

Space flight equipment requires low-outgassing components in order to prevent degradation to optics and other sensitive instruments. MIL-DTL-38999 environmental connectors contain nonmetallic materials such as rubber, plastic, adhesives and potting compounds which can give off gasses when subjected to a vacuum or high heat. Unless the connector is specially processed, the TML and CVCM can exceed allowable limits. The space industry has adopted a standardized test procedure, ASTM E595, to evaluate outgassing properties. The MIL-DTL-38999 specification Class G also details specific TVM and CVCM values. Glenair's 186T modification code, IAW Class G, requires environmental connectors to be heated to 175° C at a vacuum of  $5 \times 10^{-6}$  torr for 48 hours. A similar mod code is applied for hermetic connectors to meet Class H requirements. Items under test are then weighed to calculate the Total Mass Loss (TML), which may not exceed 1.0% of the total initial mass. A collector plate is used to determine the Collected Volatile Condensable Material (CVCM), which may not exceed 0.1% of the total original specimen mass. Glenair is able to offer both NASA as well as D38999 Class G or H bakeout processes which assure all materials comply with their respective standards. Glenair is a QPL supplier of Series IV environmental Class G and Series III Class H hermetic connectors.

### Note on Connector Material and Finish Options

Some types of metals are prohibited for space flight. "Cadmium, zinc, chemically coated cadmium, zinc or silver shall not be used as a connector or contact finish" (NASA EEE-INST-002 Instructions for EEE Parts Selection, Screening, Qualification, and Derating). NASA recommends passivated stainless steel, electroless nickel or gold finish on connector shells and gold finish for contacts.



- QPL supplier of Series IV Class G space-grade environmental connectors
- QPL supplier of Series III Class H space-grade hermetic connectors
- Bakeout and thermal vacuum outgas processing available for SuperNine® environmental series connectors IAW Class G space-grade requirements
- Bakeout and thermal vacuum outgas processing available for SuperNine® hermetic series connectors IAW Class H space-grade requirements

# COTS EQUIVALENT MIL-DTL-38999 Series III and IV Class G (and NASA screening) Space-grade application guidelines for commercial part numbers



## NASA and Class G and H Screening

The MIL-DTL-38999 specification defines TML and CVCN values for Class G and H space flight. Glenair modification code 186T assures parts are outgassed to meet the Class G and H requirements for outgassing. Additionally, NASA recommends that connectors for space flight be specially screened. NASA EEE-INST-002 instructions for EEE parts selection, screening, qualification, and derating contains three levels of screening for space-grade components. These outgassing and screening modification codes are listed at right. To add a modification code append code to end of part number

- **“Mission critical” connectors for space flight should undergo rigorous 100% final inspection**
- **Modification codes are available to invoke special screening for both MIL-DTL-38999 and NASA applications**
- **Outgassing properties of materials used in Glenair D38999 connectors are detailed in the table below**

| Screening Level and Available Outgassing Modification Codes  |                          |                          |                                                   |                |
|--------------------------------------------------------------|--------------------------|--------------------------|---------------------------------------------------|----------------|
| Screening Level                                              | Screening Only           | 48 Hour Oven Bake 175° C | Thermal Vacuum Outgassing (10 <sup>-6</sup> Torr) |                |
|                                                              |                          |                          | 24 Hour 125° C                                    | 48 Hour 175° C |
| NASA, Level 1 Highest Reliability                            | 429B                     | 429J                     | 429C                                              |                |
| NASA, Level 2 High Reliability                               | 429                      | 429K                     | 429A                                              |                |
| NASA, Level 3 Standard Reliability                           | Use Standard Part Number |                          | 429L                                              |                |
| 38999, Class G or H (Group A and B inspection, no screening) |                          |                          |                                                   | 186T           |

| Table II: NASA EEE-INST-002, Table 2A Screening Levels |         |         |         |
|--------------------------------------------------------|---------|---------|---------|
| Inspection                                             | Level 1 | Level 2 | Level 3 |
| Visual                                                 | 100%    | 100%    | 100%    |
| Mechanical                                             | 2(0)    | 2(0)    |         |
| Dielectric Withstanding Voltage                        | 2(0)    | 2(0)    |         |
| Insulation Resistance                                  | 2(0)    | 2(0)    |         |
| Contact Engagement & Separation Force                  | 2(0)    |         |         |
| Hermeticity (Sealed Receptacles Only)                  | 100%    | 100%    |         |
| Coupling Force                                         | 2(0)    |         |         |

Required inspection quantity shown. Number in parenthesis indicates acceptance of failures allowed for all quantities inspected.

| Outgassing Properties of Materials Used in MIL-DTL-38999 Connectors          |                                           |       |        |                                          |
|------------------------------------------------------------------------------|-------------------------------------------|-------|--------|------------------------------------------|
| Component                                                                    | Material                                  | TML % | CVCN % | Test Reference                           |
| Front and Rear Insulator                                                     | Epiall 1908                               | 0.84  | 0.0    | NASA Test # GSC15435 (48 hours at 180°C) |
| Rear Grommet, Interfacial Seal, Peripheral Seal, and Special Auxiliary Seals | Blended fluorosilicone/silicone elastomer | 0.04  | 0.0    | Glenair test                             |
| Front-To-Rear Insulator Bonding Material                                     | Eccobond 104 A/B                          | 0.52  | 0.08   | Emerson & Cuming Data Sheet              |
| Insulator-to-Rubber Bonding Material                                         | RTV, per MIL-A-46146                      | <1.0  | <0.1   | Glenair Test                             |
| White Epoxy Ink for Silk-screening                                           | Markem 7224 White                         | 0.49  | 0.03   | NASA Test #GSC19899                      |
| Potting Compound                                                             | High-performance space-grade epoxy        | <1.0  | <0.1   | Glenair Test                             |

| MIL-DTL-38999 Connector Materials Approved for Space Flight                 |                                                 |                                |
|-----------------------------------------------------------------------------|-------------------------------------------------|--------------------------------|
| Component                                                                   | Material                                        | Notes                          |
| Shells, Coupling Nuts, Jam Nuts                                             | Aluminum alloy                                  | Approved for Space Flight      |
| Rigid Insulators                                                            | Glass reinforced thermoset plastic, Epiall 1908 | Approved for Space Flight      |
| Contact Retention Clip                                                      | Beryllium copper, heat-treated, unplated        | Approved for Space Flight      |
| Grommet, Peripheral Seal, Interfacial Seal, Special Auxiliary Seals, O-ring | Blended fluorosilicone/silicone elastomer       | Requires outgassing processing |
| Pin/Socket Contact                                                          | Gold plated beryllium copper alloy              | Approved for Space Flight      |
| Socket Contact Hood                                                         | Stainless steel                                 | Approved for Space Flight      |
| Potting Compounds and Adhesives                                             | RTV and epoxies                                 | Requires outgassing processing |

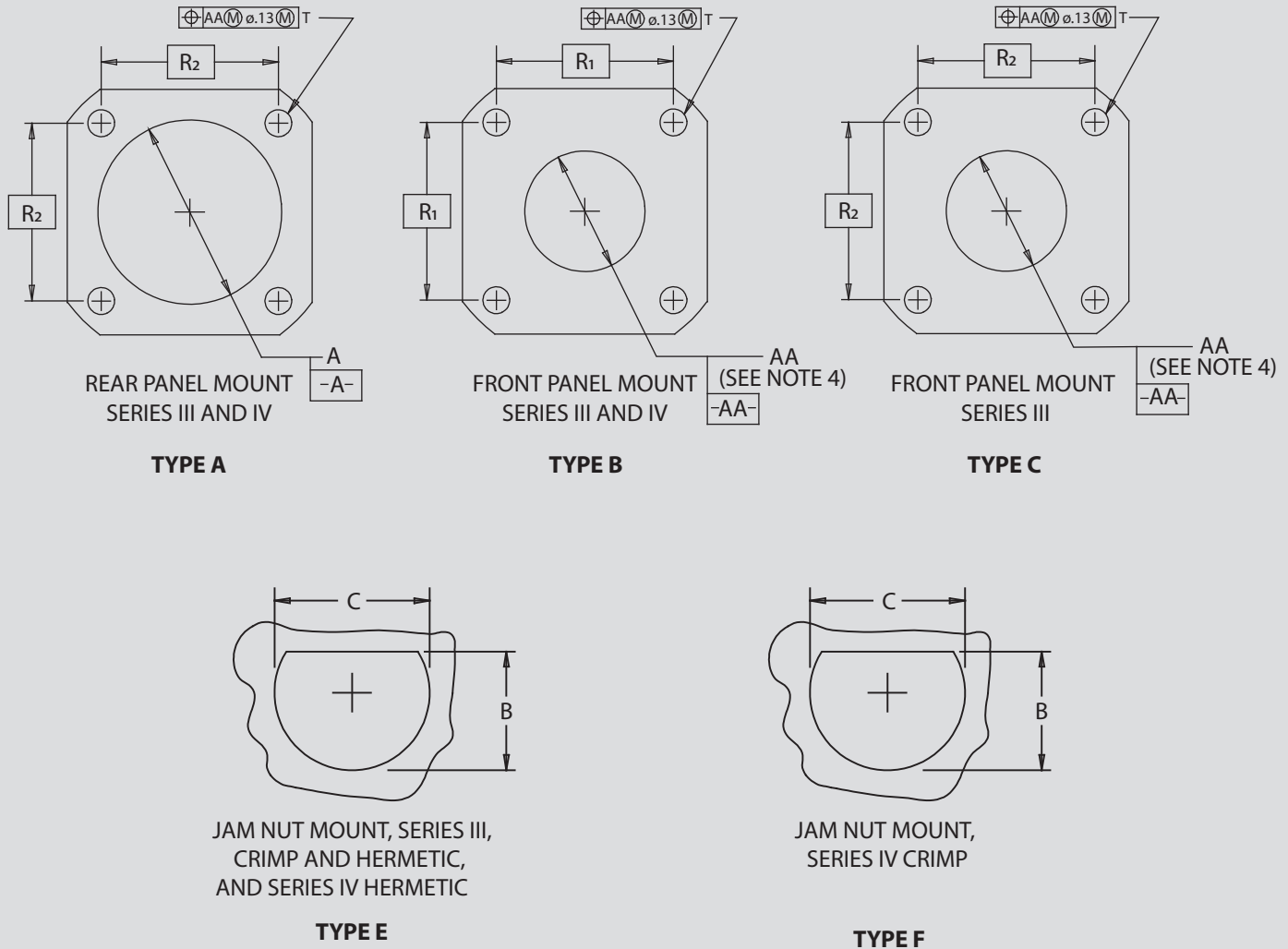
REFERENCE INFORMATION

# QPL QUALIFIED AND COTS EQUIVALENT MIL-DTL-38999 Series III and IV



## Recommended panel cut-outs

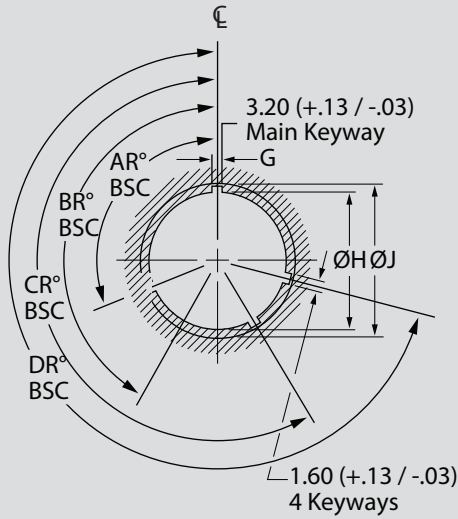
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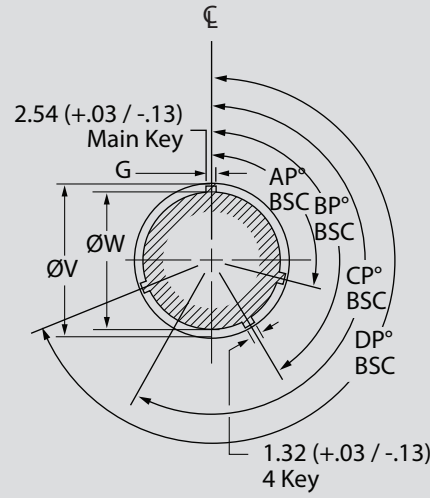
| Series II and IV, Recommended Panel Cut-Out Dimensions |               |               |               |                    |                   |                 |                   |                   |               |               |                  |
|--------------------------------------------------------|---------------|---------------|---------------|--------------------|-------------------|-----------------|-------------------|-------------------|---------------|---------------|------------------|
| Shell<br>Size<br>Code                                  | Shell<br>Size | A Dia         | AA Dia        | B*<br>+.00<br>-.25 | C<br>+.25<br>-.00 | E<br>dia<br>min | F<br>+.00<br>-.25 | G<br>+.25<br>-.00 | R1            | R2            | T<br>dia<br>±.13 |
| A                                                      | 8-9           | .656 (16.66)  | .516 (13.11)  | .657 (16.69)       | .693 (17.60)      | .557 (14.15)    | .830 (21.08)      | .885 (22.48)      | .719 (18.26)  | .594 (15.09)  | .128 (3.25)      |
| B                                                      | 10-11         | .796 (20.22)  | .625 (15.88)  | .771 (19.58)       | .825 (20.96)      | .682 (17.32)    | .955 (24.26)      | 1.010 (25.65)     | .812 (20.62)  | .719 (18.26)  | .128 (3.25)      |
| C                                                      | 12-13         | .922 (23.42)  | .750 (19.05)  | .955 (24.26)       | 1.010 (25.65)     | .854 (21.69)    | 1.085 (27.56)     | 1.135 (28.83)     | .906 (23.01)  | .812 (20.62)  | .128 (3.25)      |
| D                                                      | 14-15         | 1.047 (26.59) | .906 (23.01)  | 1.085 (27.56)      | 1.135 (28.83)     | .979 (24.87)    | 1.210 (30.73)     | 1.260 (32.00)     | .969 (24.61)  | .906 (23.01)  | .128 (3.25)      |
| E                                                      | 16-17         | 1.219 (30.96) | 1.016 (25.81) | 1.210 (30.73)      | 1.260 (32.00)     | 1.104 (28.04)   | 1.335 (33.91)     | 1.385 (35.18)     | 1.062 (26.97) | .969 (24.61)  | .128 (3.25)      |
| F                                                      | 18-19         | 1.297 (32.94) | 1.141 (28.98) | 1.335 (33.91)      | 1.385 (35.18)     | 1.229 (31.22)   | 1.460 (37.08)     | 1.510 (38.35)     | 1.156 (29.36) | 1.062 (26.97) | .128 (3.25)      |
| G                                                      | 20-21         | 1.422 (36.12) | 1.266 (32.16) | 1.460 (37.08)      | 1.510 (38.35)     | 1.354 (34.39)   | 1.585 (40.26)     | 1.635 (41.53)     | 1.250 (31.75) | 1.156 (29.36) | .128 (3.25)      |
| H                                                      | 22-23         | 1.547 (39.29) | 1.375 (34.92) | 1.585 (40.26)      | 1.635 (41.53)     | 1.479 (37.57)   | 1.709 (43.41)     | 1.760 (44.70)     | 1.375 (34.92) | 1.250 (31.75) | .154 (3.91)      |
| J                                                      | 24-25         | 1.672 (42.47) | 1.484 (37.69) | 1.710 (43.43)      | 1.760 (44.70)     | 1.604 (40.74)   | 1.835 (46.61)     | 1.885 (47.88)     | 1.500 (38.10) | 1.375 (34.92) | .150 (3.81)      |



Main key and keyway polarization



Alternate Keyway  
Receptacles



Alternate Key  
Plugs

| Series III Alternate Key and Keyway Polarization |                            |                     |                |                |                |                |
|--------------------------------------------------|----------------------------|---------------------|----------------|----------------|----------------|----------------|
| Shell Size Cde                                   | Shell Size                 | Key and Keyway Code | AR° or AP° BSC | BR° or BP° BSC | CR° or CP° BSC | DR° or DP° BSC |
| A                                                | 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            |
|                                                  |                            | E                   | 91             | 131            | 197            | 240            |
| B<br>C<br>D                                      | 11<br>13<br>15             | N                   | 95             | 141            | 208            | 236            |
|                                                  |                            | A                   | 113            | 156            | 182            | 292            |
|                                                  |                            | B                   | 90             | 145            | 195            | 252            |
|                                                  |                            | C                   | 53             | 156            | 220            | 255            |
|                                                  |                            | D                   | 119            | 146            | 176            | 298            |
|                                                  |                            | E                   | 51             | 141            | 184            | 242            |
| E<br>F<br>G<br>H<br>J                            | 17<br>19<br>21<br>23<br>25 | 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            |

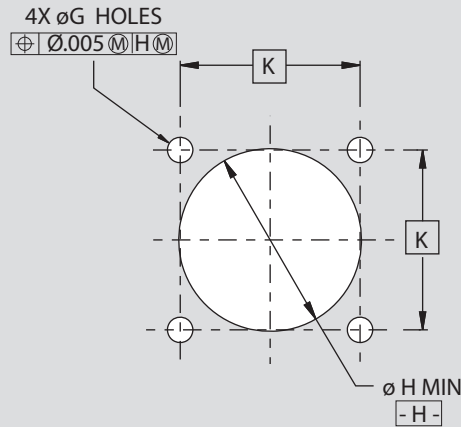


# QPL QUALIFIED AND COTS EQUIVALENT MIL-DTL-38999 Series IV

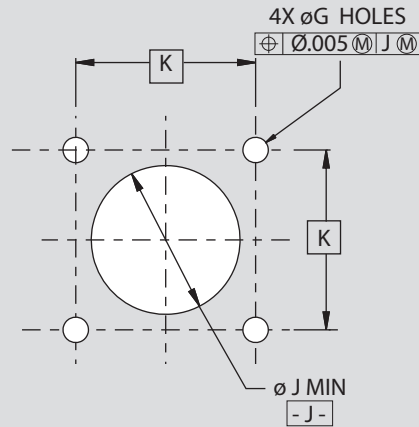


## Recommended panel cut-outs

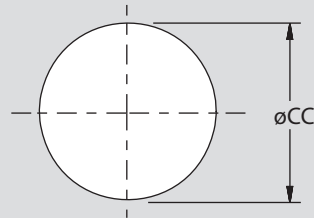
REFERENCE INFORMATION



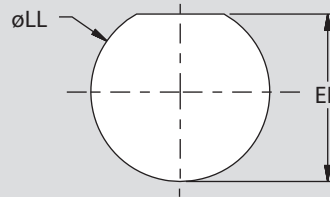
**Wall or Box Mount  
Rear Panel Mounting**



**Wall or Box Mount  
Front Panel Mounting**



**Solder Mount**

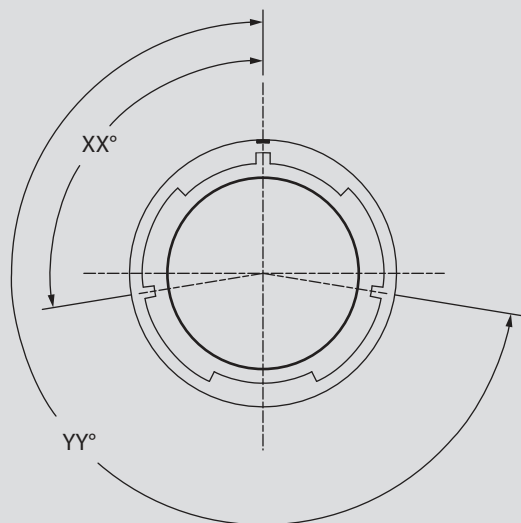


**Jam-Nut**

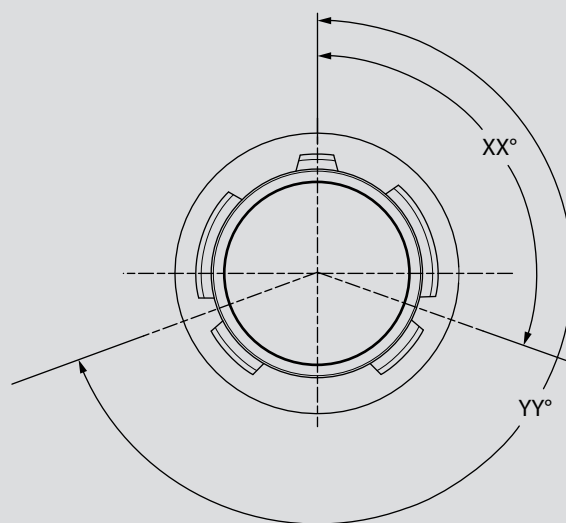
**Series IV, Recommended Panel Cut-Out Dimensions**

| Shell<br>Size<br>Code | Shell<br>Size | Box or Wall Mount |                  |                            |                  |                  | Solder<br>Mount                 | Jam-Nut Mount<br>(Environmental) |                                | Jam-Nut Mount<br>(Hermetic)    |                                |
|-----------------------|---------------|-------------------|------------------|----------------------------|------------------|------------------|---------------------------------|----------------------------------|--------------------------------|--------------------------------|--------------------------------|
|                       |               | H Dia             | J Dia            | G Dia<br>Holes             | K<br>Bsc         | KK<br>Bsc        | CC Dia                          | LL Dia                           | EE                             | LL Dia                         | EE                             |
| B                     | 11            | .781 (19.84)      | .625<br>(15.88)  | .133 (3.38)<br>.123 (3.12) | .796<br>(20.22)  | .806<br>(20.47)  | .794 (20.17)<br>.784 (19.91)    | 1.020 (25.91)<br>1.010 (25.65)   | .955 (24.26)<br>.945 (24.00)   | .835 (21.21)<br>.825 (20.96)   | .771 (19.59)<br>.761 (19.34)   |
| C                     | 13            | .921 (23.39)      | .750<br>(19.05)  | .133 (3.38)<br>.123 (3.12) | .922<br>(23.42)  | .932<br>(23.67)  | .919 (23.34)<br>.909 (23.09)    | 1.145 (29.08)<br>1.135 (28.83)   | 1.085 (27.56)<br>1.075 (27.30) | 1.020 (25.90)<br>1.010 (25.65) | .955 (24.26)<br>.945 (24.01)   |
| D                     | 15            | 1.047 (26.59)     | .906<br>(23.01)  | .133 (3.38)<br>.123 (3.12) | 1.047<br>(26.59) | 1.057<br>(26.85) | 1.043 (26.49)<br>1.033 (26.24)  | 1.270 (32.26)<br>1.260 (32.00)   | 1.210 (30.73)<br>1.200 (30.48) | 1.145 (29.08)<br>1.135 (28.83) | 1.085 (27.56)<br>1.075 (27.31) |
| E                     | 17            | 1.218 (30.94)     | 1.16<br>(29.46)  | .133 (3.38)<br>.123 (3.12) | 1.219<br>(30.96) | 1.183<br>(30.05) | 1.1698 (29.71)<br>1.159 (29.44) | 1.395 (35.43)<br>1.385 (35.18)   | 1.335 (33.91)<br>1.325 (33.65) | 1.270 (32.26)<br>1.260 (32.01) | 1.210 (30.73)<br>1.200 (30.48) |
| F                     | 19            | 1.296 (32.92)     | 1.142<br>(29.01) | .133 (3.38)<br>.123 (3.12) | 1.297<br>(32.94) | 1.307<br>(33.20) | 1.263 (32.08)<br>1.253 (31.83)  | 1.520 (38.61)<br>1.510 (38.35)   | 1.460 (37.08)<br>1.450 (36.83) | 1.395 (35.43)<br>1.385 (35.18) | 1.335 (33.91)<br>1.325 (33.66) |
| G                     | 21            | 1.421 (36.09)     | 1.266<br>(32.16) | .133 (3.38)<br>.123 (3.12) | 1.422<br>(36.12) | 1.432<br>(36.37) | 1.388 (35.26)<br>1.378 (35.00)  | 1.645 (41.78)<br>1.635 (41.53)   | 1.585 (40.26)<br>1.575 (40.00) | 1.520 (38.60)<br>1.510 (38.35) | 1.460 (37.08)<br>1.450 (36.83) |
| H                     | 23            | 1.546 (39.27)     | 1.375<br>(34.92) | .159 (4.04)<br>.149 (3.78) | 1.547<br>(39.29) | 1.557<br>(39.55) | 1.513 (38.43)<br>1.503 (38.18)  | 1.770 (44.96)<br>1.760 (44.70)   | 1.710 (43.43)<br>1.700 (43.18) | 1.645 (41.78)<br>1.635 (41.53) | 1.585 (40.26)<br>1.575 (40.01) |
| J                     | 25            | 1.672 (42.47)     | 1.484<br>(37.69) | .159 (4.04)<br>.149 (3.78) | 1.672<br>(42.47) | 1.682<br>(42.72) | 1.648 (41.86)<br>1.638 (41.61)  | 1.895 (48.13)<br>1.885 (47.88)   | 1.835 (46.61)<br>1.825 (46.36) | 1.770 (44.95)<br>1.760 (44.70) | 1.710 (43.43)<br>1.700 (43.18) |

## Alternate key and keyway polarization



**Alternate Key and Keyway  
Receptacles**



**Alternate Key and Keyway  
Plugs**

REFERENCE INFORMATION

| Series IV Alternate Key and Keyway Polarization |            |            |
|-------------------------------------------------|------------|------------|
| Polarization                                    | $XX^\circ$ | $YY^\circ$ |
| N                                               | 110°       | 250°       |
| A                                               | 100°       | 260°       |
| B                                               | 90°        | 270°       |
| C                                               | 80°        | 280°       |
| D                                               | 70°        | 290°       |
| K                                               | 120°       | 255°       |
| L                                               | 120°       | 265°       |
| M                                               | 120°       | 275°       |
| R                                               | 120°       | 285°       |

# QPL QUALIFIED AND COTS EQUIVALENT MIL-DTL-38999 Series III and IV



## Environmental and hermetic material and finish

REFERENCE INFORMATION

| Series III and IV Environmental Connector Materials |                                                                                  |
|-----------------------------------------------------|----------------------------------------------------------------------------------|
| Shell, Barrel, and Coupling Nut                     | Aluminum alloy 6061 or 7075 per ASTM-B221                                        |
| Front and Rear Insulators                           | High Grade Rigid Dielectric                                                      |
| Contact Retention Clip                              | Beryllium copper, heat-treated, unplated                                         |
| Grommet, Peripheral Seal and Interfacial Seal       | Blended elastomer, 30% silicone per ZZ-R-765, 70% fluorosilicone per MIL-R-25988 |
| Pin / Socket Contacts (Environmental)               | Copper Alloy / Gold Plate                                                        |
| Adhesives                                           | Silicone and epoxy                                                               |

| Series III and IV Hermetic Connector Materials |                                                         |
|------------------------------------------------|---------------------------------------------------------|
| Shell, Barrel, and Coupling Nut                | Corrosion resistant steel                               |
| Insulators                                     | Fused vitreous glass                                    |
| Pin Contact                                    | Nickel iron alloy 52/gold plated                        |
| Socket Contact                                 | Copper Alloy, Gold Plated IAW ASTM B488, Type 3, Code C |
| Socket Insulator                               | High Grade Rigid Dielectric                             |

| Series III Environmental Class Connector Finishes |             |          |                                                  |                                |
|---------------------------------------------------|-------------|----------|--------------------------------------------------|--------------------------------|
| QPL Finish                                        | COTS Finish | Material | Finish                                           | Specification                  |
| F                                                 | ME          | Aluminum | Electroless Nickel                               | AMS-C-26074                    |
| W                                                 | NF          | Aluminum | Cadmium Plate Olive Drab over Electroless Nickel | AMS-QQ-P-416, over AMS-C-26074 |
| T                                                 | MT          | Aluminum | Ni-PTFE (Nickel Fluorocarbon Polymer)            | SAE-AMS2454                    |
| G                                                 | MA          | Aluminum | Electroless Nickel                               | AMS-C-26074                    |

| Series IV Environmental Class Connector Finishes |             |          |                                                  |                                                      |
|--------------------------------------------------|-------------|----------|--------------------------------------------------|------------------------------------------------------|
| QPL Finish                                       | COTS Finish | Material | Finish                                           | Specification                                        |
| F                                                | ME          | Aluminum | Electroless Nickel                               | AMS-C-26074                                          |
| W                                                | NF          | Aluminum | Cadmium Plate Olive Drab over Electroless Nickel | AMS-QQ-P-416, over AMS-C-26074 (500 Hour Salt Spray) |

| Series III and IV Hermetic Class Connector Finishes |             |                 |                         |                                                 |
|-----------------------------------------------------|-------------|-----------------|-------------------------|-------------------------------------------------|
| QPL Finish                                          | COTS Finish | Material        | Finish                  | Specification                                   |
| Y                                                   | Z1          | Stainless Steel | Passivate               | ASTM A967                                       |
| N                                                   | ZL          | Stainless Steel | Electrodeposited Nickel | SAE-AMS-QQ-N-290, Class 2 (500 Hour Salt Spray) |

# QPL QUALIFIED AND COTS EQUIVALENT MIL-DTL-38999 Series III and IV



## Pin contact selection guide for environmental connectors

SERIES III AND IV CONTACTS AND TOOLS

**AS39029 Pin Contacts for 38999 Series III and IV**

| Wire Size | Contact Size | M39029 Part Number | Glenair Part Number | Crimp Tools        |                     |                    |                     | BIN | Tool Code |
|-----------|--------------|--------------------|---------------------|--------------------|---------------------|--------------------|---------------------|-----|-----------|
|           |              |                    |                     | Crimper            |                     | Positioner         |                     |     |           |
|           |              |                    |                     | M22520 Part Number | Glenair Part Number | M22520 Part Number | Glenair Part Number |     |           |
| #22 - #28 | #22D         | M39029/58-360      | 850-002-22-360      | M22520/2-01        | 809-015             | M22520/2-09        | K42 (Daniels)       | 360 | A, C      |
| #20 - #24 | #20          | M39029/58-363      | 850-002-20-363      | M22520/2-01        | 809-015             | M22520/2-10        | K43 (Daniels)       | 363 | A, E      |
| #16 - #20 | #16          | M39029/58-364      | 850-002-16-364      | M22520/1-01        | 809-136             | M22520/1-04        | 809-137             | 364 | L, M      |
| #12 - #14 | #12          | M39029/58-365      | 850-002-12-365      | M22520/1-01        | 809-136             | M22520/1-04        | 809-137             | 365 | L, M      |

**AS39029 Coax Pin Contacts for 38999 Series III and IV**

| Wire Type       | Contact Size | Pin Part Number<br>M39029 P/N<br>(Glenair P/N) | Coax Freq | Crimp Tools                            |                                           |                                       |                                                  | BIN |
|-----------------|--------------|------------------------------------------------|-----------|----------------------------------------|-------------------------------------------|---------------------------------------|--------------------------------------------------|-----|
|                 |              |                                                |           | Inner Contact                          |                                           | Shield Crimp Sleeve                   |                                                  |     |
|                 |              |                                                |           | Crimper<br>M22520 P/N<br>(Glenair P/N) | Positioner<br>M22520 P/N<br>(Glenair P/N) | Crimper<br>M2250 P/N<br>(Glenair P/N) | Hex Die/Positioner<br>M2250 P/N<br>(Glenair P/N) |     |
| RG180           | #8           | M39029/60-367<br>(852-007-08-367)              | 700 MHz   | M22520/2-01<br>(809-015)               | M22520/2-31<br>(859-050)                  | M22520/5-01<br>(809-129)              | M22520/5-05<br>(859-051)                         | 367 |
| RG174,<br>RG316 | #12          | M39029/28-211<br>(852-002-12-211)              | 700 MHz   | M22520/2-01<br>(809-015)               | M22520/2-34<br>(809-135)                  | M22520/31-01<br>(809-133)             | M22520/31-02<br>(809-134)                        | 211 |
| RG316           | #12          | M39029/102-558<br>(852-004-12-558)             | 3 GHz     | 809-128 (Glenair)<br>MH992 (Daniels)   | 859-006 (Glenair)<br>K1721 (Daniels)      | M22520/5-01<br>(809-129)              | M22520/5-03<br>(809-130)                         | 558 |

**AS39029 Twinax Pin Contacts for 38999 Series III and IV**

| Wire Type                       | Contact Size | Pin Part Number<br>M39029 P/N<br>(Glenair P/N) | Crimp Tools                            |                                           |                                        |                                        |                                            |                                        | BIN |
|---------------------------------|--------------|------------------------------------------------|----------------------------------------|-------------------------------------------|----------------------------------------|----------------------------------------|--------------------------------------------|----------------------------------------|-----|
|                                 |              |                                                | Center Contact                         |                                           | Intermediate Contact                   |                                        | Shield Crimp Sleeve                        |                                        |     |
|                                 |              |                                                | Crimper<br>M22520 P/N<br>(Glenair P/N) | Positioner<br>M22520 P/N<br>(Glenair P/N) | Crimper<br>M22520 P/N<br>(Glenair P/N) | Hex Die<br>M22520 P/N<br>(Glenair P/N) | Crimper<br>M22520 P/N<br>(Glenair P/N)     | Hex Die<br>M22520 P/N<br>(Glenair P/N) |     |
| M17/176-00002 and Raychem 10612 | #8           | M39029/90-529<br>(853-001-08-529)              | M22520/2-01<br>(809-015)               | M22520/2-37<br>(809-240)                  | M22520/5-01<br>(809-129)               | M22520/5-105<br>(859-048)              | M22520/5-01<br>(809-129)                   | M22520/5-105<br>(859-048)              | 529 |
|                                 | #12          | 02004-936<br>853-008-1                         | 809-128<br>MH992 (DMC)                 | 859-125<br>(K1365 DMC)                    | 859-126<br>(GS212)                     | 859-127<br>(GP1437)                    | M22520/31-01<br>(809-133)<br>(GS200-1 DMC) | 859-128<br>(GP959 DMC)                 | 936 |

**BIN Color Coding**

|            |            |          |             |             |            |           |             |           |            |
|------------|------------|----------|-------------|-------------|------------|-----------|-------------|-----------|------------|
| 0<br>BLACK | 1<br>BROWN | 2<br>RED | 3<br>ORANGE | 4<br>YELLOW | 5<br>GREEN | 6<br>BLUE | 7<br>VIOLET | 8<br>GREY | 9<br>WHITE |
|------------|------------|----------|-------------|-------------|------------|-----------|-------------|-----------|------------|



# QPL QUALIFIED AND COTS EQUIVALENT MIL-DTL-38999 Series III and IV



## Socket contact selection guide for environmental connectors

SERIES III AND IV CONTACTS AND TOOLS

| AS39029 Socket Power Contacts for 38999 Series III and IV |              |                    |                     |                    |                     |                    |                     |     |
|-----------------------------------------------------------|--------------|--------------------|---------------------|--------------------|---------------------|--------------------|---------------------|-----|
| Wire Size                                                 | Contact Size | M38039 Part Number | Glenair Part Number | Crimp Tools        |                     |                    |                     | BIN |
|                                                           |              |                    |                     | Crimper            |                     | Positioner         |                     |     |
|                                                           |              |                    |                     | M22520 Part Number | Glenair Part Number | M22520 Part Number | Glenair Part Number |     |
| #12 - #14                                                 | #12          | M39029/56-353      | 850-001-12-353      | M22520/1-01        | 809-136             | M22520/1-04        | 809-137             | 353 |
| #16 - #20                                                 | #16          | M39029/56-352      | 850-001-16-352      | M22520/1-01        | 809-136             | M22520/1-04        | 809-137             | 352 |
| #20 - #24                                                 | #20          | M39029/56-351      | 850-001-20-351      | M22520/2-01        | 809-015             | M22520/2-10        | K43 (Daniels)       | 351 |
| #22 - #28                                                 | #22D         | M39029/56-348      | 850-001-22-348      | M22520/2-01        | 809-015             | M22520/2-09        | K40 (Daniels)       | 348 |

| AS39029 Coax Socket Contacts for 38999 Series III and IV |              |                                                   |           |                                        |                                           |                                        |                                                       |     |
|----------------------------------------------------------|--------------|---------------------------------------------------|-----------|----------------------------------------|-------------------------------------------|----------------------------------------|-------------------------------------------------------|-----|
| Wire Size                                                | Contact Size | Socket Part Number<br>M39029 P/N<br>(Glenair P/N) | Coax Freq | Crimp Tools                            |                                           |                                        |                                                       | BIN |
|                                                          |              |                                                   |           | Inner Contact                          |                                           | Shield Crimp Sleeve                    |                                                       |     |
|                                                          |              |                                                   |           | Crimper<br>M22520 P/N<br>(Glenair P/N) | Positioner<br>M22520 P/N<br>(Glenair P/N) | Crimper<br>M22520 P/N<br>(Glenair P/N) | Hex Die/<br>Positioner<br>M22520 P/N<br>(Glenair P/N) |     |
| RG180                                                    | #8           | M39029/59-366<br>(852-006-08-366)                 | 700 MHz   | M22520/2-01<br>(809-015)               | M22520/2-31 (859-050)                     | M22520/5-01 (809-129)                  | M22520/5-05 (859-051)                                 | 366 |
| RG174, G316                                              | #12          | M39029/75-416 (852-003-12-416)                    | 700 MHz   | M22520/2-01<br>(809-015)               | M22520/2-34 (859-135)                     | M22520/31-01<br>(809-133)              | M22520/31-02<br>(809-134)<br>Positioner               | 416 |
| RG316                                                    | #12          | M39029/103-559<br>(852-005-12-559)                | 3GHz      | 809-128 (Glenair)<br>MH992 (Daniels)   | 859-006 (Glenair)<br>K1721 (Daniels)      | M22520/5-01<br>(809-129)               | M22520/5-03<br>(809-130)                              | 559 |

| AS39029 Concentric Twinax Socket Contacts for 38999 Series III and IV |              |                                                   |                                        |                                           |                                        |                                        |                                            |                                        |     |
|-----------------------------------------------------------------------|--------------|---------------------------------------------------|----------------------------------------|-------------------------------------------|----------------------------------------|----------------------------------------|--------------------------------------------|----------------------------------------|-----|
| Wire Size                                                             | Contact Size | Socket Part Number<br>M39029 P/N<br>(Glenair P/N) | Crimp Tools                            |                                           |                                        |                                        |                                            |                                        | BIN |
|                                                                       |              |                                                   | Center Contact                         |                                           | Intermediate Contact                   |                                        | Shield Crimp Sleeve                        |                                        |     |
|                                                                       |              |                                                   | Crimper<br>M22520 P/N<br>(Glenair P/N) | Positioner<br>M22520 P/N<br>(Glenair P/N) | Crimper<br>M22520 P/N<br>(Glenair P/N) | Hex Die<br>M22520 P/N<br>(Glenair P/N) | Crimper<br>AS22520 P/N<br>(Glenair P/N)    | Hex Die<br>M22520 P/N<br>(Glenair P/N) |     |
| M17/176-00002 and Raychem 10612                                       | #8           | M39029/91-530<br>(853-002-08-530)                 | (M22520/2-01)<br>809-015               | (M22520/2-37)<br>809-240                  | (M22520/5-01)<br>809-129               | (M22520/5-105)<br>859-048              | (M22520/5-01)<br>809-129                   | (M22520/5-105)<br>859-048              | 530 |
|                                                                       | #12          | 02003-926<br>(853-009-1)                          | 809-128<br>(MH992 DMC)                 | 859-125<br>(K1365 DMC)                    | 859-126<br>(GS212 DMC)                 | 859-127<br>(GP1437 DMC)                | M22520/31-01<br>(809-133)<br>(GS200-1 DMC) | 859-128<br>(GP959 DMC)                 | 926 |

| BIN Color Coding |            |          |             |             |            |           |             |           |            |
|------------------|------------|----------|-------------|-------------|------------|-----------|-------------|-----------|------------|
| 0<br>BLACK       | 1<br>BROWN | 2<br>RED | 3<br>ORANGE | 4<br>YELLOW | 5<br>GREEN | 6<br>BLUE | 7<br>VIOLET | 8<br>GREY | 9<br>WHITE |

# QPL QUALIFIED AND COTS EQUIVALENT MIL-DTL-38999 Series III and IV, Environmental Contact crimp and installation tools



## ADJUSTABLE CRIMP TOOLS FOR SIZE #22D AND 20 POWER AND SIZE #8 AND #12 COAX CONTACTS

These crimp tools perform precision eight indent crimps for gas-tight wire terminations and excellent tensile strength. Adjustment wheel has 8 settings. Ratchet mechanism prevents improper crimps. Use with bayonet-type positioners. Check calibration with M22520/3 gages. Length is 6.75 inches, weight is approx. 10 oz.



**1** Standard M22520/2-01 miniature crimper. Use with standard size #22D and #20 contacts also for use with size #12 and #20 coaxial center of M39029/75, /60, /59 contacts. positioners, ordered separately.



**2** Glenair 809-128 size #12 coax crimper. Use with size #12 M39029/103 and /102, 3 GHz coax and 02003 and 02004 twinax contacts. Positioners, ordered separately. Coax and Twinax contacts also require shield crimp sleeve tools, sold separately.

| Glenair Part Number | Military Part Number | Daniels Part Number |
|---------------------|----------------------|---------------------|
| <b>809-015</b>      | M22520/2-01          | AFM8                |
| <b>809-128</b>      | N/A                  | MH992               |



**3** Positioners for #20, #22D power contacts and size #8 and #12 coaxial contacts. Coax positioners are for crimping inner contact of M39029/28, /75, /60, /59 contacts. Use with 809-015 or 809-128 crimp tool as required.

| Power Contact Positioners |                     |                      |                     |
|---------------------------|---------------------|----------------------|---------------------|
| Contact Size              | Glenair Part Number | Military Part Number | Daniels Part Number |
| #22D (Pin)                | N/A                 | M22520/2-09          | K42                 |
| #22D (Socket)             | N/A                 | M22520/2-07          | K40                 |
| #20                       | N/A                 | M22520/2-10          | K43                 |

| Coaxial Inner Contact Positioner |                     |                      |                     |
|----------------------------------|---------------------|----------------------|---------------------|
| Contact Size                     | Glenair Part Number | Military Part Number | Daniels Part Number |
| #12                              | <b>859-135</b>      | M22520/2-34          | K-323               |
| #12                              | <b>859-006</b>      | N/A                  | K1721               |
| #12                              | <b>859-125</b>      |                      | K136                |
| #8                               | <b>859-050</b>      | M22520/2-31          | K-406               |

| Twinax Inner Contact Positioner |                     |                      |                     |
|---------------------------------|---------------------|----------------------|---------------------|
| Contact Size                    | Glenair Part Number | Military Part Number | Daniels Part Number |
| #8                              | <b>809-240</b>      | M22520/2-37          | K-709               |

# QPL QUALIFIED AND COTS EQUIVALENT MIL-DTL-38999 Series III and IV, Environmental

## Contact crimp and installation tools



SERIES III AND IV CONTACTS AND TOOLS

### CRIMP TOOL AND POSITIONER FOR #12 AND #16 POWER CONTACTS



**1** Crimp tool for use with size #16 and #12 power pins. 9.75 inches OAL, 1.25 pounds. Use with M39029/57 and /58 contacts and 809-093 adapters.

**2** Positioner for use with size #12 and #16 Power contacts.

| Figure | Glenair Part Number | Military Part Number | Daniels Part Number |
|--------|---------------------|----------------------|---------------------|
| 1      | <b>809-136</b>      | M22520/1-01          | AF8                 |
| 2      | <b>809-137</b>      | M22520/1-04          | TH163               |

### PARALLEL ACTION CRIMP TOOL AND HEX DIE SET FOR #8 AND 12 COAX AND TWINAX CONTACTS



**1** Parallel action tool for use with hex crimp dies. 11 inches OAL, 2.0 pounds. Anodized aluminum frame, steel mechanism, plastic handles. Includes tool for die set removal. Accepts all M22520/5 die sets.

| Glenair Part Number | Military Part Number | Daniels Part Number |
|---------------------|----------------------|---------------------|
| <b>809-129</b>      | M22520/5-01          | HX4                 |

**2** Die set for terminating twinax shield and intermediate contact as well as coax shield crimp sleeve. Use with size #8 and #12 coaxial and concentric twinax contacts. Set consists of upper and lower halves. Made of hardened steel with black oxide finish. Approximately 2 inches in length, assembled. Die set has two closures per illustration.

| Contact Type | Contact Size | Hex Dies            |                      |                     |
|--------------|--------------|---------------------|----------------------|---------------------|
|              |              | Glenair Part Number | Military Part Number | Daniels Part Number |
| Coax         | #8           | <b>859-051</b>      | M22520/5-05          | Y197                |
| Coax         | #12          | <b>809-130</b>      | M22520/5-03          | Y196                |
| Twinax       | #12          | <b>859-048</b>      | M22520/5-105         | Y631                |

### CRIMP TOOL AND POSITIONER FOR #12 COAXIAL SHIELD CRIMP SLEEVE

For crimping size #12 shield sleeves. These mil spec approved tools feature a ratchet mechanism to prevent damage from overcrimping. Check calibration with M22520/3 gage.



**1** Crimp tool for use with size #12 coaxial contacts. Black handles. 9.75 inches OAL, 1.25 pounds.

**2** Positioner for use with size #12 coaxial contacts. Use with 809-133 (M22520/31-01) crimp tool.

| Figure | Glenair Part Number | Military Part Number | Daniels Part Number |
|--------|---------------------|----------------------|---------------------|
| 2      | <b>809-133</b>      | M22520/31-01         | GS200-1             |
| 3      | <b>809-134</b>      | M22520/31-02         | G2P330              |

# QPL QUALIFIED AND COTS EQUIVALENT MIL-DTL-38999 Series III and IV, Environmental

## Contact crimp and installation tools



### CRIMP TOOL AND POSITIONER FOR #12 TWINAX INTERMEDIATE CONTACT

For use with 02004-936 and -926 intermediate contact

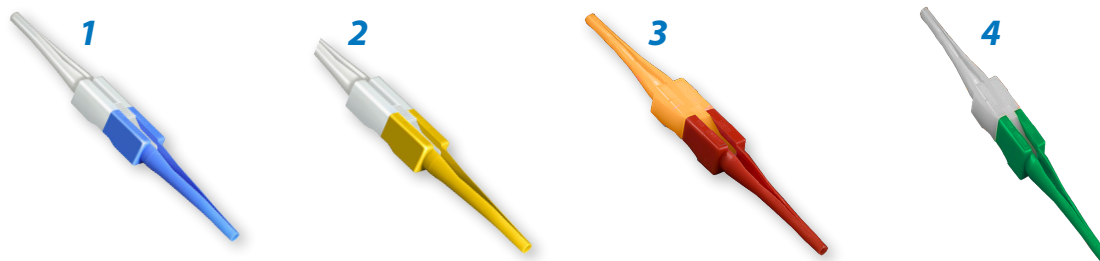
| Glenair Part Number | Military Part Number | Daniels Part Number |
|---------------------|----------------------|---------------------|
| <b>859-126</b>      | N/A                  | GS212               |
| <b>859-127</b>      | N/A                  | GP1437              |

### CRIMP TOOL AND POSITIONER FOR #12 TWINAX SHIELD CRIMP SLEEVE

For use with 02004-936 and -926 shield crimp sleeve

| Glenair Part Number | Military Part Number | Daniels Part Number |
|---------------------|----------------------|---------------------|
| <b>809-133</b>      | M22520/31-01         | GS200-1             |
| <b>859-128</b>      | N/A                  | GP959               |

### CONTACT INSERTION AND REMOVAL TOOLS



**1** Insertion/Extraction Tool for #16 Contacts. Use with size power contacts. Economical molded plastic. White extraction tip, blue insertion tip.

**2** Insertion/Extraction Tool for #12 Contacts. Use with size #12 coaxial or power contacts. Molded plastic. White extraction tip, yellow insertion tip.

**3** Insertion/Extraction Tool for #20 Contacts. Molded plastic. Orange extraction tip, red insertion tip.

**4** Insertion/Extraction Tool for #22D Contacts. Molded plastic. White extraction tip, green insertion tip.

| Figure | Size | Type                 | Part Number    | Military Part Number | Daniels Part Number |
|--------|------|----------------------|----------------|----------------------|---------------------|
| 1      | #16  | Insertion/Extraction | <b>809-131</b> | M81969/14-03         | (None)              |
| 2      | #12  | Insertion/Extraction | <b>809-132</b> | M81969/14-04         | (None)              |
| 3      | #20  | Insertion/Extraction | <b>809-207</b> | M81969/14-10         | (None)              |
| 4      | #22D | Insertion/Extraction | <b>859-020</b> | M81969/14-01         | (None)              |





## QPL AND COTS EQUIVALENT MIL-DTL-38999

### Series III Environmental

The industry standard mil/aero connector backed with Glenair service and availability

Standard environmental-class MIL-DTL-38999 Series III connectors with DLA certification are now manufactured and supplied by Glenair. These industry-standard connectors are ideally suited for the broad range of harsh environmental land, sea, air, and space applications and are backed with Glenair's industry leading service, support, and availability. Marked with D38999 or Glenair COTS part numbering, these environmental crimp-contact connectors are available in plug, jam-nut and wall mount receptacle shell styles. Standard material and finish classes are supported including W (Cad/O.D. over Electroless Nickel), F (Electroless Nickel), T (Nickel-PTFE) and G (Space-Grade Electroless Nickel). Contact arrangements per MIL-STD-1560 and both normal and alternate polarizations are fully supported. Best of all, defense and commercial aerospace customers, as well as land and marine engineers and procurement specialists may now specify these mission-critical interconnects directly from Glenair—the recognized service, support, and availability leader for the interconnect industry.

#### DLA-QPL MIL-DTL-38999 SERIES III AVAILABLE FROM GLENAIR

- Qualified environmental plug, jam-nut, and wall mount flange receptacles
- Size #12, #16, #20, and #22D 1560 crimp-contact insert arrangements supported
- F, T, W and G plating classes, plus Glenair COTS equivalents and additional material/finish options available
- 100% made in America, no foreign-sourced materials, component parts, or assembly labor employed



*Glenair: Made in America since 1956*

# QPL QUALIFIED AND COTS EQUIVALENT MIL-DTL-38999 Series III



Industry standard, triple-start mating  
harsh-environment, Mil qualified connectors

## MECHANICAL, ENVIRONMENTAL, AND ELECTRICAL PERFORMANCE

MIL-DTL-38999 Series III (Glenair Series 233-105) offers outstanding interconnect performance for mission-critical military and commercial applications.

- **Electromagnetic compatibility (EMC):** metal-to-metal coupling, plug grounding fingers, and conductive shell finishes deliver excellent shielding performance up to 65 dB at 10 GHz
- **Contact protection:** scoop-proof design prevents inadvertent damage to pin contacts during mating
- **Environmental performance:** interfacial and wire grommet seals deliver IP67 level sealing, even at high altitude
- **Corrosion resistance:** connector shell finishes—from Cad over Nickel to Class T Nickel-PTFE offer outstanding corrosion resistance
- **Mating:** triple-start stub ACME threads provide fast mating and resist galling and cross-threading
- **Supported contacts:** from size #22D signal to #12 shielded Coax
- **Commercial equivalent:** Glenair COTS equivalent connectors deliver mil-spec performance with material/finish options not available in QPL parts

## Mechanical Performance Features

|                                       |
|---------------------------------------|
| Threaded Triple-Start Coupling Design |
| Nine Shell Sizes, Range 9 – 25        |
| Scoop-Proof Shell Design              |
| Full Mate Visual Indicator            |
| Integrated Contact Retention System   |
| Interfacial and Grommet Seals         |
| Fully Shielded                        |
| Shell-to-Shell Bottoming              |
| Threaded/Toothed Accessory Interface  |
| Full Range of Assembly Tools          |

SERIES III ENVIRONMENTAL

## CONNECTOR FINISH CLASSES



### Cadmium Olive Drab

Conductivity ++++++

Corrosion Resistance ⚡⚡⚡⚡⚡

-65° to +175°C

Glenair Code **NF**

D38999 Class **W**



### Electroless Nickel

Conductivity ++++++

Corrosion Resistance ⚡⚡⚡⚡⚡

-65° to +200°C

Glenair Code **ME**

D38999 Class **F**



### Space-Grade Electroless Nickel

Conductivity ++++++

Corrosion Resistance ⚡⚡⚡⚡⚡

-65° to +200°C

Glenair Code **MA**

D38999 Class **G**



### Nickel-PTFE

Conductivity ++++++

Corrosion Resistance ⚡⚡⚡⚡⚡

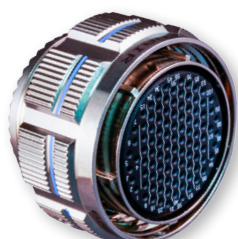
-65° to +175°C

Glenair Code **MT**

D38999 Class **T**



## SUPPORTED CRIMP-CONTACT SHELL STYLES



Plug



Jam-Nut Receptacle



Wall Mount Receptacle



## 38999 SERIES III ACCESSORIES

Glenair offers a full range of QPL D38999 accessories, contact the factory for details



QPL QUALIFIED

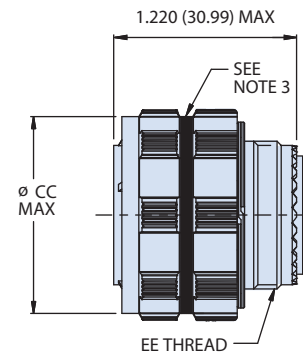
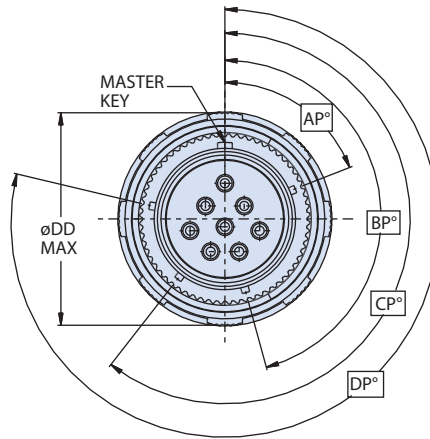
## MIL-DTL-38999 Series III, Triple-Start Thread

D38999/26 plug with crimp rear release contacts and rear accessory threads



SERIES III ENVIRONMENTAL

| QPL Part Number Development |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |           |   |   |    |     |
|-----------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|---|---|----|-----|
| Sample Part Number          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | D38999/26 | W | A | 35 | P N |
| D38999 Series III           | D38999/26 = Plug with accessory threads                                                                                                                                                                                                                                                                                                                                                                                                                                                        |           |   |   |    |     |
| Class                       | <b>W</b> = Environmental, aluminum, cadmium O.D. over electroless nickel (500 hour salt spray), -65°C to +175°C, conductive plating<br><b>F</b> = Environmental, aluminum, electroless nickel (48 hour salt spray), -65°C to +200°C, conductive plating<br><b>G</b> = Environmental, aluminum, electroless nickel (48 hour salt spray), matte finish, space grade, -65°C to +200°C, conductive plating<br><b>T</b> = Environmental, aluminum, Nickel-PTFE, -65°C to +175°C, conductive plating |           |   |   |    |     |
| Shell Size Code             | A, B, C, D, E, F, G, H and J (per MIL-STD-1560)                                                                                                                                                                                                                                                                                                                                                                                                                                                |           |   |   |    |     |
| Insert Arrangement          | Per MIL-STD-1560; See reference information information section for details                                                                                                                                                                                                                                                                                                                                                                                                                    |           |   |   |    |     |
| Contact Type                | <b>P</b> = Pin, 500 cycles <b>A</b> = Pin insert, less standard contacts<br><b>S</b> = Socket, 500 cycles <b>B</b> = Socket insert, less standard contacts                                                                                                                                                                                                                                                                                                                                     |           |   |   |    |     |
| Alternate Polarization      | <b>N</b> (Normal), <b>A, B, C, D, E</b> see polarization position table                                                                                                                                                                                                                                                                                                                                                                                                                        |           |   |   |    |     |



| Series III Alternate Key and Keyway Polarization |            |                        |         |         |         |         |                 |                |                        |         |         |         |         |                       |                            |                        |         |         |         |         |
|--------------------------------------------------|------------|------------------------|---------|---------|---------|---------|-----------------|----------------|------------------------|---------|---------|---------|---------|-----------------------|----------------------------|------------------------|---------|---------|---------|---------|
| Shell Size Code                                  | Shell Size | Key and Keyway ID Code | AP° BSC | BP° BSC | CP° BSC | DP° BSC | Shell Size Code | Shell Size     | Key and Keyway ID Code | AP° BSC | BP° BSC | CP° BSC | DP° BSC | Shell Size Code       | Shell Size                 | Key and Keyway ID Code | AP° BSC | BP° BSC | CP° BSC | DP° BSC |
| A                                                | 9          | N                      | 105     | 140     | 215     | 265     | B<br>C<br>D     | 11<br>13<br>15 | N                      | 95      | 141     | 208     | 236     | E<br>F<br>G<br>H<br>J | 17<br>19<br>21<br>23<br>25 | N                      | 80      | 142     | 196     | 293     |
|                                                  |            | A                      | 102     | 132     | 248     | 320     |                 |                | A                      | 113     | 156     | 182     | 292     |                       |                            | A                      | 135     | 170     | 200     | 310     |
|                                                  |            | B                      | 80      | 118     | 230     | 312     |                 |                | B                      | 90      | 145     | 195     | 252     |                       |                            | B                      | 49      | 169     | 200     | 244     |
|                                                  |            | C                      | 35      | 140     | 205     | 275     |                 |                | C                      | 53      | 156     | 220     | 255     |                       |                            | C                      | 66      | 140     | 200     | 257     |
|                                                  |            | D                      | 64      | 155     | 234     | 304     |                 |                | D                      | 119     | 146     | 176     | 298     |                       |                            | D                      | 62      | 145     | 180     | 280     |
|                                                  |            | E                      | 91      | 131     | 197     | 240     |                 |                | E                      | 51      | 141     | 184     | 242     |                       |                            | E                      | 79      | 153     | 197     | 272     |

## 233-105-26 plug with crimp rear release contacts and rear accessory threads

| COTS Part Number Development |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |    |    |     |   |   |      |
|------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|----|-----|---|---|------|
| Sample Part Number           | 233-105-26                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | MA | 11 | -35 | P | N | 186T |
| Series / Basic Part No.      | 233-105-26 = Plug with accessory threads                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |    |    |     |   |   |      |
| Material/Finish              | <b>NF</b> = Aluminum, cadmium O.D. over electroless nickel (500 hour salt spray), -65°C to +175°C, conductive plating<br><b>ME</b> = Aluminum, electroless nickel (48 hour salt spray), -65°C to +200°C, conductive plating<br><b>MA*</b> = Aluminum, electroless nickel (48 hour salt spray), matte finish, space grade, -65°C to +200°C, conductive plating<br><b>MT</b> = Aluminum, nickel-PTFE, -65°C to +175°C, conductive plating<br><b>ZR</b> = Aluminum, zinc nickel-black<br><b>G2</b> = Aluminum, hard, anodic, non conductive .0020 inch minimum thickness. |    |    |     |   |   |      |
| Shell Size                   | 9, 11, 13, 15, 17, 19, 21, 23, 25                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |    |    |     |   |   |      |
| Contact Arrangement          | Per MIL-STD-1560; See reference information section for details                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |    |    |     |   |   |      |
| Contact Type                 | <b>P</b> = Pin Insert <b>A</b> = Pin Gender, Less Contacts<br><b>S</b> = Socket Insert <b>B</b> = Socket Gender, Less Contacts                                                                                                                                                                                                                                                                                                                                                                                                                                         |    |    |     |   |   |      |
| Alternate Polarization       | <b>A, B, C, D, E, N</b> (Normal), <b>U</b> (Universal)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |    |    |     |   |   |      |
| Optional Mod Code            | <b>LC</b> = Less contacts <b>186T</b> = Thermal vacuum outgassing                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |    |    |     |   |   |      |

\* Connectors must be ordered with "MA" finish and modification code "-186T" to conform to the thermal vacuum outgassing requirements of Class G. Additional material/finish options are available, consult factory for ordering information.

| Dimensions      |            |               |               |                         |
|-----------------|------------|---------------|---------------|-------------------------|
| Shell Size Code | Shell Size | ØCC Max       | ØDD Max       | EE Thread 1.0-6g 0.100R |
| A               | 09         | .732 (18.60)  | .858 (21.79)  | M12                     |
| B               | 11         | .839 (21.30)  | .984 (24.99)  | M15                     |
| C               | 13         | 1.008 (25.60) | 1.157 (29.39) | M18                     |
| D               | 15         | 1.138 (28.90) | 1.280 (32.51) | M22                     |
| E               | 17         | 1.276 (32.40) | 1.406 (35.71) | M25                     |
| F               | 19         | 1.382 (35.10) | 1.516 (38.51) | M28                     |
| G               | 21         | 1.508 (38.30) | 1.642 (41.71) | M31                     |
| H               | 23         | 1.626 (41.30) | 1.768 (44.91) | M34                     |
| J               | 25         | 1.752 (44.50) | 1.890 (48.01) | M37                     |

| Additional Material/Finish Options |                                                               |
|------------------------------------|---------------------------------------------------------------|
| Finish Code                        | Description                                                   |
| ZR                                 | Aluminum, zinc nickel-black                                   |
| G2                                 | Aluminum, hard, anodic, non conductive .0020 in min thickness |

### NOTES

1. Insert arrangements per MIL-STD-1560,
2. Connector is supplied with contacts (including spares), insertion/removal tool and sealing plugs unless otherwise specified.
3. Blue color band indicates rear release retention system.

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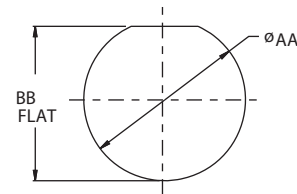
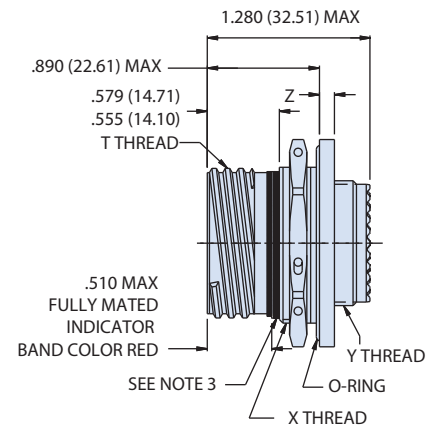
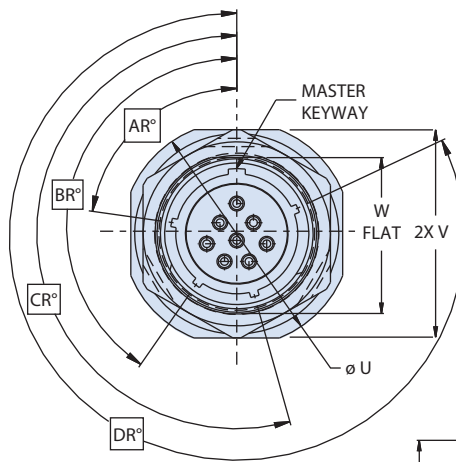
## MIL-DTL-38999 Series III, Triple-Start Thread

D38999/24 jam-nut receptacle with rear release crimp contacts and accessory threads



SERIES III ENVIRONMENTAL

| QPL Part Number Development |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |           |   |   |    |     |
|-----------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|---|---|----|-----|
| Sample Part Number          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | D38999/24 | W | A | 35 | P N |
| D38999 Series III           | D38999/24 = Jam-Nut receptacle                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |           |   |   |    |     |
| Class                       | <b>W</b> = Environmental, aluminum, cadmium O.D. over electroless nickel (500 hour salt spray), -65°C to +175°C, conductive plating<br><b>F</b> = Environmental, aluminum, electroless nickel (48 hour salt spray), -65°C to +200°C, conductive plating<br><b>G</b> = Environmental, aluminum, electroless nickel (48 hour salt spray), matte finish, space grade, -65°C to +200°C, conductive plating<br><b>T</b> = Environmental, aluminum, Nickel-PTFE, -65°C to +175°C, conductive plating |           |   |   |    |     |
| Shell Size Code             | <b>A, B, C, D, E, F, G, H</b> and <b>J</b> (per MIL-STD-1560)                                                                                                                                                                                                                                                                                                                                                                                                                                  |           |   |   |    |     |
| Insert Arrangement          | Per MIL-STD-1560; See reference information section for details                                                                                                                                                                                                                                                                                                                                                                                                                                |           |   |   |    |     |
| Contact Type                | <b>P</b> = Pin, 500 cycles <b>A</b> = Pin insert, less standard contacts<br><b>S</b> = Socket, 500 cycles <b>B</b> = Socket insert, less standard contacts                                                                                                                                                                                                                                                                                                                                     |           |   |   |    |     |
| Alternate Polarization      | <b>A, B, C, D, E, N</b> = Normal                                                                                                                                                                                                                                                                                                                                                                                                                                                               |           |   |   |    |     |



RECOMMENDED PANEL CUT OUT

| Series III Alternate Keyway Polarizations |            |                          |         |         |         |         |                 |                |                     |         |         |         |         |                       |                            |                          |         |         |         |         |
|-------------------------------------------|------------|--------------------------|---------|---------|---------|---------|-----------------|----------------|---------------------|---------|---------|---------|---------|-----------------------|----------------------------|--------------------------|---------|---------|---------|---------|
| Shell Size Code                           | Shell Size | Key and Keyway ID Letter | AR° BSC | BR° BSC | CR° BSC | DR° BSC | Shell Size Code | Shell Size     | Key and Keyway Code | AR° BSC | BR° BSC | CR° BSC | DR° BSC | Shell Size Code       | Shell Size                 | Key and Keyway ID Letter | AR° BSC | BR° BSC | CR° BSC | DR° BSC |
| A                                         | 9          | N                        | 105     | 140     | 215     | 265     | B<br>C<br>D     | 11<br>13<br>15 | N                   | 95      | 141     | 208     | 236     | E<br>F<br>G<br>H<br>J | 17<br>19<br>21<br>23<br>25 | N                        | 80      | 142     | 196     | 293     |
|                                           |            | A                        | 102     | 132     | 248     | 320     |                 |                | A                   | 113     | 156     | 182     | 292     |                       |                            | A                        | 135     | 170     | 200     | 310     |
|                                           |            | B                        | 80      | 118     | 230     | 312     |                 |                | B                   | 90      | 145     | 195     | 252     |                       |                            | B                        | 49      | 169     | 200     | 244     |
|                                           |            | C                        | 35      | 140     | 205     | 275     |                 |                | C                   | 53      | 156     | 220     | 255     |                       |                            | C                        | 66      | 140     | 200     | 257     |
|                                           |            | D                        | 64      | 155     | 234     | 304     |                 |                | D                   | 119     | 146     | 176     | 298     |                       |                            | D                        | 62      | 145     | 180     | 280     |
|                                           |            | E                        | 91      | 131     | 197     | 240     |                 |                | E                   | 51      | 141     | 184     | 242     |                       |                            | E                        | 79      | 153     | 197     | 272     |



# COTS EQUIVALENT MIL-DTL-38999 Series III, Triple-Start Thread

## 233-105-24 jam-nut receptacle with rear release crimp contacts and rear accessory options



SERIES III ENVIRONMENTAL

| COTS Part Number Development |                                                                                                                                                                                                                                                                                                                                                                                                                                         |    |    |     |   |   |      |
|------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|----|-----|---|---|------|
| Sample Part Number           | 233-105-24                                                                                                                                                                                                                                                                                                                                                                                                                              | MA | 11 | -35 | P | N | 186T |
| Series / Basic Part No.      | 233-105-24 = Environmental, jam-nut receptacle                                                                                                                                                                                                                                                                                                                                                                                          |    |    |     |   |   |      |
| Material/Finish              | <b>NF</b> = Aluminum, cadmium O.D. over electroless nickel (500 hour salt spray), -65°C to +175°C, conductive plating<br><b>ME</b> = Aluminum, electroless nickel (48 hour salt spray), -65°C to +200°C, conductive plating<br><b>MA*</b> = Aluminum, electroless nickel (48 hour salt spray), matte finish, space grade, -65°C to +200°C, conductive plating<br><b>MT</b> = Aluminum, nickel-PTFE, -65°C to +175°C, conductive plating |    |    |     |   |   |      |
| Shell Size                   | 9, 11, 13, 15, 17, 19, 21, 23, 25                                                                                                                                                                                                                                                                                                                                                                                                       |    |    |     |   |   |      |
| Insert Arrangement           | Per MIL-STD-1560; See reference information section for details                                                                                                                                                                                                                                                                                                                                                                         |    |    |     |   |   |      |
| Contact Type                 | <b>P</b> = Pin insert <b>A</b> = Pin gender, less contacts<br><b>S</b> = Socket insert <b>B</b> = Socket gender, less contacts                                                                                                                                                                                                                                                                                                          |    |    |     |   |   |      |
| Alternate Polarization       | <b>A, B, C, D, E, N</b> (Normal), <b>U</b> (Universal)                                                                                                                                                                                                                                                                                                                                                                                  |    |    |     |   |   |      |
| Optional Mod Codes           | <b>LC</b> = Less contacts <b>186T</b> = Thermal vacuum outgassing                                                                                                                                                                                                                                                                                                                                                                       |    |    |     |   |   |      |

\* Connectors must be ordered with "MA" finish and modification code "-186T" to conform to the thermal vacuum outgassing requirements of Class G. Additional material/finish options are available, consult factory for ordering information.

| Dimensions      |            |                           |                                |                                |                                |                           |                           |                                  |                                |                                |
|-----------------|------------|---------------------------|--------------------------------|--------------------------------|--------------------------------|---------------------------|---------------------------|----------------------------------|--------------------------------|--------------------------------|
| Shell Size Code | Shell Size | T Thread<br>.1P-.3L-TS-2A | Ø U                            | V                              | W Flat                         | X Thread<br>1.0-6g 0.100R | Y Thread<br>1.0-6g 0.100R | Z                                | Panel Cut-out                  |                                |
|                 |            |                           |                                |                                |                                |                           |                           |                                  | ØAA                            | BB Flat                        |
| A               | 09         | .6250                     | 1.201 (30.51)<br>1.177 (29.90) | 1.079 (27.41)<br>1.047 (26.59) | .655 (16.64)<br>.645 (16.38)   | M17                       | M12                       | .122<br>(3.10)<br>.083<br>(2.11) | .703 (17.86)<br>.693 (17.60)   | .661 (16.79)<br>.655 (16.64)   |
| B               | 11         | .7500                     | 1.386 (35.20)<br>1.362 (34.59) | 1.268 (32.21)<br>1.236 (31.39) | .755 (19.18)<br>.745 (18.92)   | M20                       | M15                       |                                  | .835 (21.21)<br>.825 (20.96)   | .771 (19.58)<br>.761 (19.33)   |
| C               | 13         | .8750                     | 1.512 (38.40)<br>1.488 (37.80) | 1.390 (35.31)<br>1.358 (34.49) | .942 (23.93)<br>.932 (23.67)   | M25                       | M18                       |                                  | 1.020 (25.91)<br>1.010 (25.65) | .955 (24.26)<br>.945 (24.00)   |
| D               | 15         | 1.0000                    | 1.638 (41.61)<br>1.614 (41.00) | 1.516 (38.51)<br>1.484 (37.69) | 1.066 (27.08)<br>1.056 (26.82) | M28                       | M22                       |                                  | 1.145 (29.08)<br>1.135 (28.83) | 1.085 (27.56)<br>1.075 (27.30) |
| E               | 17         | 1.1875                    | 1.764 (44.81)<br>1.740 (44.20) | 1.642 (41.71)<br>1.610 (40.89) | 1.191 (30.25)<br>1.181 (30.00) | M32                       | M25                       |                                  | 1.270 (32.26)<br>1.260 (32.00) | 1.210 (30.73)<br>1.200 (30.48) |
| F               | 19         | 1.2500                    | 1.949 (49.50)<br>1.925 (48.90) | 1.827 (46.41)<br>1.795 (45.59) | 1.316 (33.43)<br>1.306 (33.17) | M35                       | M28                       | .153<br>(3.89)<br>.114<br>(2.90) | 1.395 (35.43)<br>1.385 (35.18) | 1.335 (33.91)<br>1.325 (33.65) |
| G               | 21         | 1.3750                    | 2.075 (52.71)<br>2.051 (52.10) | 1.953 (49.61)<br>1.921 (48.79) | 1.441 (36.60)<br>1.431 (36.35) | M38                       | M31                       |                                  | 1.520 (38.61)<br>1.510 (38.35) | 1.460 (37.08)<br>1.450 (36.83) |
| H               | 23         | 1.5000                    | 2.201 (55.91)<br>2.177 (55.30) | 2.079 (52.81)<br>2.047 (51.99) | 1.566 (39.78)<br>1.556 (39.52) | M41                       | M34                       |                                  | 1.645 (41.78)<br>1.635 (41.53) | 1.585 (40.26)<br>1.575 (40.00) |
| J               | 25         | 1.6250                    | 2.323 (59.00)<br>2.299 (58.39) | 2.205 (56.01)<br>2.173 (55.19) | 1.691 (42.95)<br>1.681 (42.70) | M44                       | M37                       |                                  | 1.770 (44.96)<br>1.760 (44.70) | 1.710 (43.43)<br>1.700 (43.18) |

| Additional Material/Finish Options |                                                               |
|------------------------------------|---------------------------------------------------------------|
| Finish Code                        | Description                                                   |
| ZR                                 | Aluminum, zinc nickel-black                                   |
| G2                                 | Aluminum, hard, anodic, non conductive .0020 in min thickness |

### NOTES

1. Insert arrangements per MIL-STD-1560,
2. Connector is supplied with contacts (including spares), insertion/removal tool and sealing plugs unless otherwise specified.
3. Blue color band indicates rear release retention system.

Rev. 06.20.19

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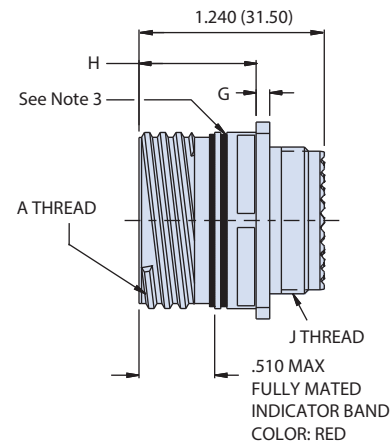
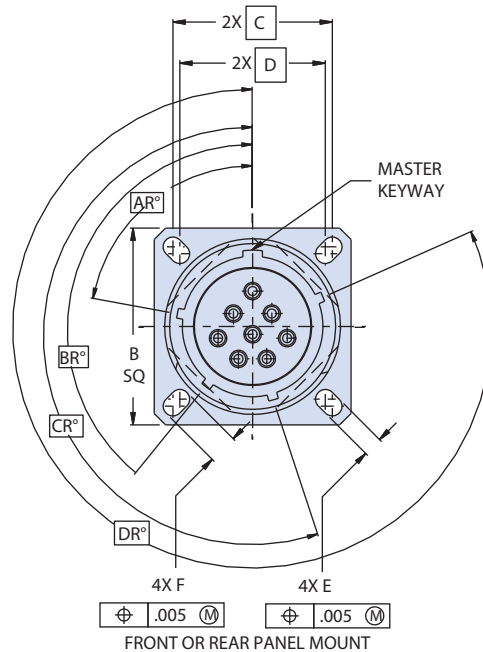
## MIL-DTL-38999 Series III, Triple-Start Thread

D38999/20 wall mount receptacle with rear release crimp contacts and accessory threads



SERIES III ENVIRONMENTAL

| QPL Part Number Development |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |           |   |   |    |     |
|-----------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|---|---|----|-----|
| Sample Part Number          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | D38999/20 | W | A | 35 | P N |
| D38999 Series IV            | D38999/20 = Wall mount receptacle                                                                                                                                                                                                                                                                                                                                                                                                                                                              |           |   |   |    |     |
| Class                       | <b>W</b> = Environmental, aluminum, cadmium O.D. over electroless nickel (500 hour salt spray), -65°C to +175°C, conductive plating<br><b>F</b> = Environmental, aluminum, electroless nickel (48 hour salt spray), -65°C to +200°C, conductive plating<br><b>G</b> = Environmental, aluminum, electroless nickel (48 hour salt spray), matte finish, space grade, -65°C to +200°C, conductive plating<br><b>T</b> = Environmental, aluminum, Nickel-PTFE, -65°C to +175°C, conductive plating |           |   |   |    |     |
| Shell Size Code             | <b>A, B, C, D, E, F, G, H</b> and <b>J</b> (per MIL-STD-1560)                                                                                                                                                                                                                                                                                                                                                                                                                                  |           |   |   |    |     |
| Insert Arrangement          | Per MIL-STD-1560; See reference information section for details                                                                                                                                                                                                                                                                                                                                                                                                                                |           |   |   |    |     |
| Contact Type                | <b>P</b> = Pin, 500 cycles <b>A</b> = Pin insert, less standard contacts<br><b>S</b> = Socket, 500 cycles <b>B</b> = Socket insert, less standard contacts                                                                                                                                                                                                                                                                                                                                     |           |   |   |    |     |
| Alternate Polarization      | <b>A, B, C, D, E, N</b> = Normal                                                                                                                                                                                                                                                                                                                                                                                                                                                               |           |   |   |    |     |



For recommended panel cut-out see reference information section

| Series III Alternate Keyway Polarizations |            |                          |         |         |         |         |                 |                |                     |         |         |         |         |                       |                            |                          |         |         |         |         |
|-------------------------------------------|------------|--------------------------|---------|---------|---------|---------|-----------------|----------------|---------------------|---------|---------|---------|---------|-----------------------|----------------------------|--------------------------|---------|---------|---------|---------|
| Shell Size Code                           | Shell Size | Key and Keyway ID Letter | AR° BSC | BR° BSC | CR° BSC | DR° BSC | Shell Size Code | Shell Size     | Key and Keyway Code | AR° BSC | BR° BSC | CR° BSC | DR° BSC | Shell Size Code       | Shell Size                 | Key and Keyway ID Letter | AR° BSC | BR° BSC | CR° BSC | DR° BSC |
| A                                         | 9          | N                        | 105     | 140     | 215     | 265     | B<br>C<br>D     | 11<br>13<br>15 | N                   | 95      | 141     | 208     | 236     | E<br>F<br>G<br>H<br>J | 17<br>19<br>21<br>23<br>25 | N                        | 80      | 142     | 196     | 293     |
|                                           |            | A                        | 102     | 132     | 248     | 320     |                 |                | A                   | 113     | 156     | 182     | 292     |                       |                            | A                        | 135     | 170     | 200     | 310     |
|                                           |            | B                        | 80      | 118     | 230     | 312     |                 |                | B                   | 90      | 145     | 195     | 252     |                       |                            | B                        | 49      | 169     | 200     | 244     |
|                                           |            | C                        | 35      | 140     | 205     | 275     |                 |                | C                   | 53      | 156     | 220     | 255     |                       |                            | C                        | 66      | 140     | 200     | 257     |
|                                           |            | D                        | 64      | 155     | 234     | 304     |                 |                | D                   | 119     | 146     | 176     | 298     |                       |                            | D                        | 62      | 145     | 180     | 280     |
|                                           |            | E                        | 91      | 131     | 197     | 240     |                 |                | E                   | 51      | 141     | 184     | 242     |                       |                            | E                        | 79      | 153     | 197     | 272     |

# COTS EQUIVALENT MIL-DTL-38999 Series III, Triple-Start Thread



## 233-105-20 wall mount receptacle with rear release crimp contacts and rear accessory options

SERIES III ENVIRONMENTAL

| COTS Part Number Development |                                                                                                                                                                                                                                                                                                                                                                                                                                        |    |    |     |   |   |  |
|------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|----|-----|---|---|--|
| Sample Part Number           | 233-105-20                                                                                                                                                                                                                                                                                                                                                                                                                             | NF | 11 | -35 | P | N |  |
| Series / Basic Part No.      | 233-105-20 = Environmental, wall mount receptacle                                                                                                                                                                                                                                                                                                                                                                                      |    |    |     |   |   |  |
| Material/Finish              | <b>NF</b> = Aluminum, cadmium O.D. over electroless nickel (500 hour salt spray), -65°C to +175°C, conductive plating<br><b>ME</b> = Aluminum, electroless nickel (48 hour salt spray), -65°C to +200°C, conductive plating<br><b>MA</b> = Aluminum, electroless nickel (48 hour salt spray), matte finish, space grade, -65°C to +200°C, conductive plating<br><b>MT</b> = Aluminum, nickel-PTFE, -65°C to +175°C, conductive plating |    |    |     |   |   |  |
| Shell Size                   | 9, 11, 13, 15, 17, 19, 21, 23, 25                                                                                                                                                                                                                                                                                                                                                                                                      |    |    |     |   |   |  |
| Contact Arrangement          | Per MIL-STD-1560; See reference information section for details                                                                                                                                                                                                                                                                                                                                                                        |    |    |     |   |   |  |
| Contact Type                 | P = Pin Insert   A = Pin Gender, Less Contacts   S = Socket Insert   B = Socket Gender, Less Contacts                                                                                                                                                                                                                                                                                                                                  |    |    |     |   |   |  |
| Alternate Polarization       | A, B, C, D, E, N (Normal), U (Universal)                                                                                                                                                                                                                                                                                                                                                                                               |    |    |     |   |   |  |
| Optional Mod Codes           | LC = Less contacts   186T = Thermal vacuum outgassing                                                                                                                                                                                                                                                                                                                                                                                  |    |    |     |   |   |  |

\* Connectors must be ordered with "MA" finish and modification code "-186T" to conform to the thermal vacuum outgassing requirements of Class G. Additional material/finish options are available, consult factory for ordering information.

| Dimensions      |            |                        |                                |               |               |                            |                            |                            |                              |                        |
|-----------------|------------|------------------------|--------------------------------|---------------|---------------|----------------------------|----------------------------|----------------------------|------------------------------|------------------------|
| Shell Size Code | Shell Size | A Thread .1P-.3L-TS-2A | B Sq                           | C BSC         | D BSC         | E                          | F                          | G                          | H                            | J Thread 1.0-6g 0.100R |
| A               | 09         | .6250                  | .949 (24.10)<br>.925 (23.50)   | .719 (18.26)  | .594 (15.09)  | .136 (3.45)<br>.120 (3.05) | .224 (5.69)<br>.208 (5.28) | .098 (2.49)<br>.083 (2.11) | .820 (20.83)<br>.771 (19.58) | M12                    |
| B               | 11         | .7500                  | 1.043 (26.49)<br>1.019 (25.88) | .812 (20.62)  | .719 (18.26)  |                            | .202 (5.13)<br>.186 (4.72) |                            |                              | M15                    |
| C               | 13         | .8750                  | 1.138 (28.91)<br>1.114 (28.30) | .906 (23.01)  | .812 (20.62)  |                            | .181 (4.60)<br>.165 (4.19) |                            |                              | M18                    |
| D               | 15         | 1.0000                 | 1.232 (31.29)<br>1.208 (30.68) | .969 (24.61)  | .906 (23.01)  |                            |                            |                            |                              | M22                    |
| E               | 17         | 1.1875                 | 1.323 (33.60)<br>1.299 (32.99) | 1.062 (26.97) | .969 (24.61)  |                            |                            |                            |                              | M25                    |
| F               | 19         | 1.2500                 | 1.449 (36.80)<br>1.425 (36.20) | 1.156 (29.36) | 1.062 (26.97) |                            |                            |                            |                              | M28                    |
| G               | 21         | 1.3750                 | 1.575 (40.00)<br>1.551 (39.40) | 1.250 (31.75) | 1.156 (29.36) | .162 (4.11)<br>.146 (3.71) | .250 (6.35)<br>.234 (5.94) | .126 (3.20)<br>.083 (2.11) | .790 (20.07)<br>.741 (18.82) | M31                    |
| H               | 23         | 1.5000                 | 1.701 (43.21)<br>1.677 (42.60) | 1.375 (34.92) | 1.250 (31.75) |                            |                            |                            |                              | M34                    |
| J               | 25         | 1.6250                 | 1.823 (46.30)<br>1.799 (45.69) | 1.500 (38.10) | 1.375 (34.92) |                            |                            |                            |                              | M37                    |

| Additional Material/Finish Options |                                                               |
|------------------------------------|---------------------------------------------------------------|
| Finish Code                        | Description                                                   |
| ZR                                 | Aluminum, zinc nickel-black                                   |
| G2                                 | Aluminum, hard, anodic, non conductive .0020 in min thickness |

### NOTES

1. Insert arrangements per MIL-STD-1560,
2. Connector is supplied with contacts (including spares), insertion/removal tool and sealing plugs unless otherwise specified.
3. Blue color band indicates rear release retention system.





## QPL AND COTS EQUIVALENT MIL-DTL-38999 Series III Hermetic

The industry standard mil/aero connector backed with Glenair service and availability

**H**ermetic-class MIL-DTL-38999 Series III connectors are also available from Glenair with DLA certification. These hermetically sealed connectors are ideally suited for harsh environments where the environment exists under vacuum and must remain free of air or gas impurities via the ingress of foreign chemical substances. Such systems may be susceptible to the condensation of corrosive material, dielectric breakdown and the loss of insulation resistance between conductors. Typical applications include medical, geophysical, military aerospace and other industrial applications. Marked with D38999 or Glenair COTS part numbering, these hermetic class receptacles are available for Series III and IV in box mount, jam-nut, solder mount and weld mount shell styles. All standard material and finish classes are supported including Y (CRES, passivated), N (CRES, electrodeposited nickel), and H (space-grade). Contact arrangements per MIL-STD-1560. All standard and normal and alternate key and keyway polarizations are fully supported. Best of all, defense and commercial aerospace customers, as well as land and marine engineers and procurement specialists may specify these mission-critical interconnects directly from Glenair—the recognized service, support, and availability leader for the interconnect industry.

### DLA-QPL MIL-DTL-38999 SERIES III AVAILABLE FROM GLENAIR

- Qualified hermetic jam-nut, box mount, solder mount and weld mount receptacles
- All 1560 crimp-contact insert arrangements fully supported
- N, Y, and H plating classes, plus Glenair SuperNine® signature equivalents
- 100% made in America interconnect: No foreign-sourced materials, component parts, or assembly labor employed



*Glenair: Made in America since 1956*



# QPL QUALIFIED AND COTS EQUIVALENT MIL-DTL-38999 Series III, Triple-Start Thread

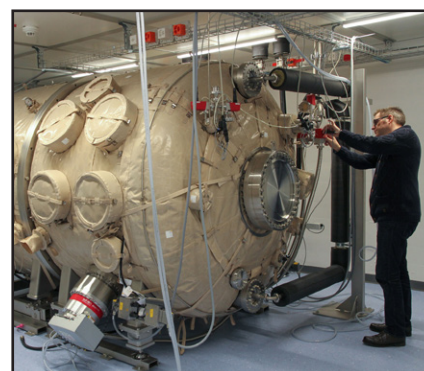


Industry standard, hermetic triple-start mating,  
Mil qualified connectors

## MECHANICAL, HERMETIC, AND ELECTRICAL PERFORMANCE

MIL-DTL-38999 Series III (Glenair Series 233-100) offers outstanding interconnect performance for mission-critical military and commercial applications.

- **Triple start self locking connectors available with pin/socket, solder cup, PC tail or eyelet contacts**
- **Electromagnetic compatibility (EMC):** metal-to-metal coupling, grounding fingers in plugs, and conductive shell finishes deliver excellent shielding performance up to 65 dB at 10 GHz
- **Contact protection:** scoop-proof design prevents inadvertent damage to pin contacts during mating
- **Hermetic sealing:**  $10^{-7}$  cc/second maximum helium leak rate
- **Corrosion resistance:** connector shells are made from corrosion resistant steel and are offered with passivated or electrodeposited nickel finish
- **Mating:** triple-start stub ACME threads provide fast mating and resist galling and cross-threading
- **Supported contacts:** from size #22D signal to #12 signal in solder cup, feedthru, and eyelet
- **Commercial equivalent:** Glenair COTS equivalent connectors deliver mil-spec performance with material/finish options not available in QPL parts



SERIES III HERMETIC

## CONNECTOR FINISH CLASSES



### Electrodeposited Nickel

Conductivity +++++  
Corrosion Resistance 88888  
-65° to +200°C  
Glenair Code **ZL**  
D38999 Class **N**



### Passivated

Conductivity +++++  
Corrosion Resistance 88888  
-65° to +200°C  
Glenair Code **Z1**  
D38999 Class **Y** and **H** (space)



## 38999 SERIES III ACCESSORIES



Glenair offers a full range of QPL D38999 accessories, contact the factory for details

## SUPPORTED SHELL STYLES



Jam-Nut Receptacle



Box Mount Receptacle



Solder Mount Receptacle



Weld Mount Receptacle

QPL QUALIFIED

## MIL-DTL-38999 Series III, Triple-Start Thread

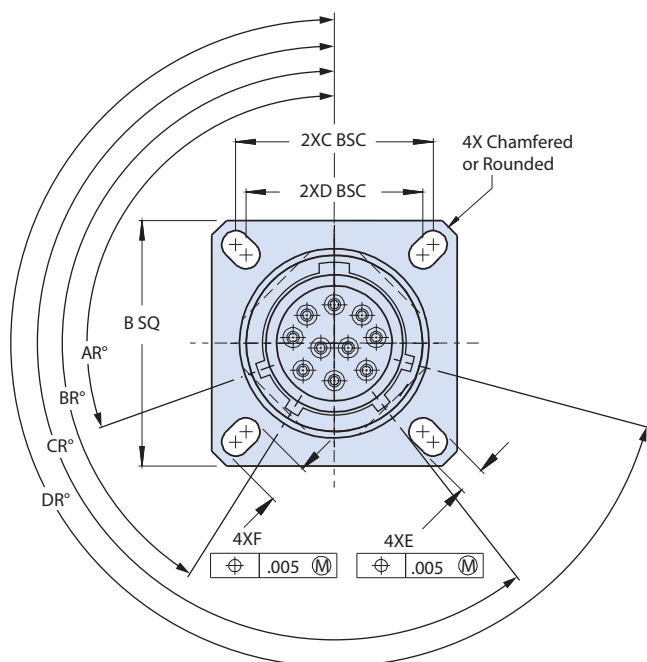
## D38999/21 box mount hermetic receptacle



SERIES III HERMETIC

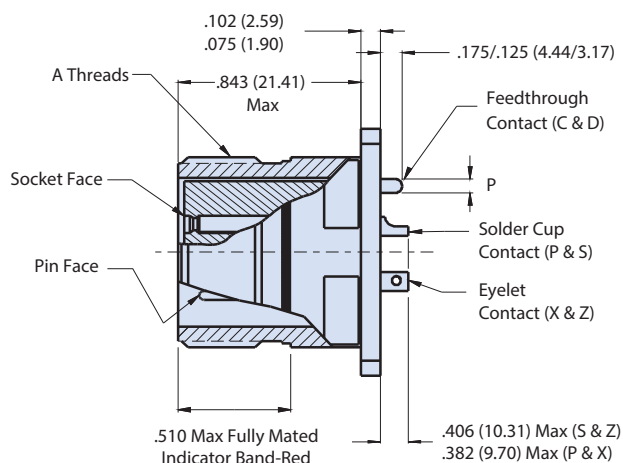
## QPL Part Number Development

| Sample Part Number     |                                                                                                                                                                                                                                          | D38999/21 | Y | B | 35 | P | N |
|------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|---|---|----|---|---|
| MIL-DTL-38999          | D38999/21 = Box mount receptacle                                                                                                                                                                                                         |           |   |   |    |   |   |
| Class                  | <b>N</b> = Hermetic, CRES, nickel finish, conductive, -65°C to 200°C<br><b>Y</b> = Hermetic, CRES, passivate finish, conductive, -65°C to 200°C<br><b>H</b> = Hermetic, CRES, passivate finish, conductive, -65°C to 200°C (space grade) |           |   |   |    |   |   |
| Shell Size Code        | <b>A, B, C, D, E, F, G, H</b> and <b>J</b> (per MIL-STD-1560)                                                                                                                                                                            |           |   |   |    |   |   |
| Insert Arrangement     | Per MIL-STD-1560; See reference information section for details                                                                                                                                                                          |           |   |   |    |   |   |
| Contact Type           | <b>P</b> = Pin, solder cup <b>X</b> = Pin, eyelet <b>C</b> = Pin, PCB flex feedthrough<br><b>S</b> = Socket, solder cup <b>Z</b> = Socket, eyelet <b>D</b> = Socket, PCB flex feedthrough                                                |           |   |   |    |   |   |
| Alternate Polarization | <b>A, B, C, D, E, N</b> = Normal                                                                                                                                                                                                         |           |   |   |    |   |   |



## Contact Size

| Size | ø P                          |                                          |
|------|------------------------------|------------------------------------------|
| 22D  | .015 (0.38)<br>.011 (0.28)   | FEEDTHROUGH CONTACT<br>STYLE C AND D<br> |
| 20   | .028 (0.71)<br>.024 (0.61)   |                                          |
| 16   | .0635 (1.61)<br>.0615 (1.56) | SIZE 12 AND SIZE 16<br>                  |
| 12   | .095 (2.41)<br>.093 (2.36)   | SIZE 22D AND SIZE 20<br>                 |



## Wire Accommodation

| Contact Size | Wire Gauge |
|--------------|------------|
| 22D          | #22 - #28  |
| 20           | #20 - #24  |
| 16           | #16 - #20  |
| 12           | #12 - #14  |

# COTS EQUIVALENT

## MIL-DTL-38999 Series III, Triple-Start Thread

### 233-100-H2 box mount hermetic receptacle



SERIES III HERMETIC

| COTS Part Number Development |                                                                                                                                                                                                     |    |    |     |   |   |
|------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|----|-----|---|---|
| Sample Part Number           | 233-100-H2                                                                                                                                                                                          | Z1 | 11 | -35 | P | N |
| Series / Basic Part No.      | 233-100-H2 = Hermetic, box mount receptacle                                                                                                                                                         |    |    |     |   |   |
| Material/Finish*             | ZL = CRES, nickel finish, conductive, -65°C to 200°C<br>Z1 = CRES, passivate finish, conductive, -65°C to 200°C<br>Z1S = Hermetic, CRES, passivate finish, conductive, -65°C to 200°C (space grade) |    |    |     |   |   |
| Shell Size                   | 9, 11, 13, 15, 17, 19, 21, 23, 25                                                                                                                                                                   |    |    |     |   |   |
| Insert Arrangement           | Per MIL-STD-1560; See reference information section for details                                                                                                                                     |    |    |     |   |   |
| Contact Type                 | P = Pin, solder cup      X = Pin, eyelet      C = Pin, PCB flex feedthrough<br>S = Socket, solder cup      Z = Socket, eyelet      D = Socket, PCB flex feedthrough                                 |    |    |     |   |   |
| Alternate Polarization       | A, B, C, D, E, N (Normal),                                                                                                                                                                          |    |    |     |   |   |

Additional material/finish options are available, consult factory for ordering information.

| Dimensions      |            |                           |               |               |               |             |             |
|-----------------|------------|---------------------------|---------------|---------------|---------------|-------------|-------------|
| Shell Size Code | Shell Size | A Thread<br>.1P-.3L-TS-2A | B Sq<br>±.012 | C Bsc         | D Bsc         | E<br>±.008  | F<br>±.008  |
| A               | 9          | .6250                     | .937 (23.80)  | .719 (18.26)  | .594 (15.09)  | .128 (3.25) | .216 (5.49) |
| B               | 11         | .7500                     | 1.031 (26.19) | .812 (20.62)  | .719 (18.26)  | .128 (3.25) | .194 (4.93) |
| C               | 13         | .8750                     | 1.126 (28.60) | .906 (23.01)  | .812 (20.62)  | .128 (3.25) | .194 (4.93) |
| D               | 15         | 1.0000                    | 1.220 (30.99) | .969 (24.61)  | .906 (23.01)  | .173 (4.39) | .173 (4.39) |
| E               | 17         | 1.1875                    | 1.311 (33.30) | 1.062 (26.97) | .969 (24.61)  | .128 (3.25) | .194 (4.93) |
| F               | 19         | 1.2500                    | 1.437 (36.50) | 1.156 (29.36) | 1.062 (26.97) | .128 (3.25) | .194 (4.93) |
| G               | 21         | 1.3750                    | 1.563 (39.70) | 1.250 (31.75) | 1.156 (29.36) | .128 (3.25) | .194 (4.93) |
| H               | 23         | 1.5000                    | 1.689 (42.90) | 1.375 (34.92) | 1.250 (31.75) | .154 (3.91) | .242 (6.15) |
| J               | 25         | 1.6250                    | 1.811 (46.00) | 1.500 (38.10) | 1.375 (34.92) | .150 (3.81) | .242 (6.15) |

| Series III Alternate Keyway Polarizations |            |                          |         |         |         |         |                 |                |                     |         |         |         |         |                       |                            |                          |         |         |         |         |
|-------------------------------------------|------------|--------------------------|---------|---------|---------|---------|-----------------|----------------|---------------------|---------|---------|---------|---------|-----------------------|----------------------------|--------------------------|---------|---------|---------|---------|
| Shell Size Code                           | Shell Size | Key and Keyway ID Letter | AR° BSC | BR° BSC | CR° BSC | DR° BSC | Shell Size Code | Shell Size     | Key and Keyway Code | AR° BSC | BR° BSC | CR° BSC | DR° BSC | Shell Size Code       | Shell Size                 | Key and Keyway ID Letter | AR° BSC | BR° BSC | CR° BSC | DR° BSC |
| A                                         | 9          | N                        | 105     | 140     | 215     | 265     | B<br>C<br>D     | 11<br>13<br>15 | N                   | 95      | 141     | 208     | 236     | E<br>F<br>G<br>H<br>J | 17<br>19<br>21<br>23<br>25 | N                        | 80      | 142     | 196     | 293     |
|                                           |            | A                        | 102     | 132     | 248     | 320     |                 |                | A                   | 113     | 156     | 182     | 292     |                       |                            | A                        | 135     | 170     | 200     | 310     |
|                                           |            | B                        | 80      | 118     | 230     | 312     |                 |                | B                   | 90      | 145     | 195     | 252     |                       |                            | B                        | 49      | 169     | 200     | 244     |
|                                           |            | C                        | 35      | 140     | 205     | 275     |                 |                | C                   | 53      | 156     | 220     | 255     |                       |                            | C                        | 66      | 140     | 200     | 257     |
|                                           |            | D                        | 64      | 155     | 234     | 304     |                 |                | D                   | 119     | 146     | 176     | 298     |                       |                            | D                        | 62      | 145     | 180     | 280     |
|                                           |            | E                        | 91      | 131     | 197     | 240     |                 |                | E                   | 51      | 141     | 184     | 242     |                       |                            | E                        | 79      | 153     | 197     | 272     |

| Additional Material/Finish Options |                                                                 |
|------------------------------------|-----------------------------------------------------------------|
| Finish Code                        | Description                                                     |
| Z1S†                               | CRES, passivate finish, conductive, -65°C to 200°C, space-grade |

† Connectors ordered with "Z1S" include outgas processing to conform to outgassing requirements of Class H.

QPL QUALIFIED

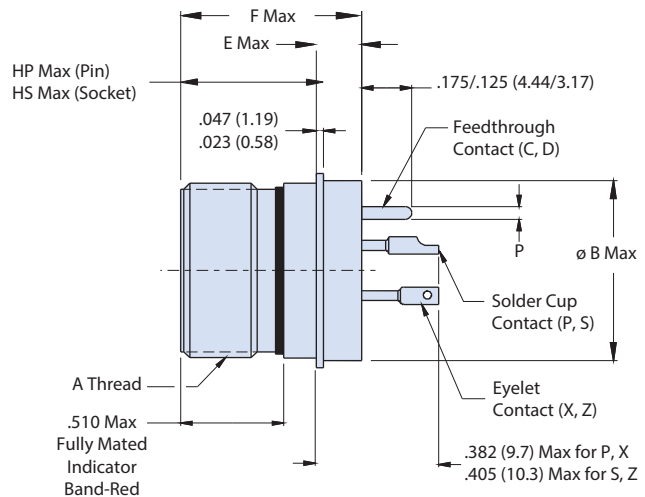
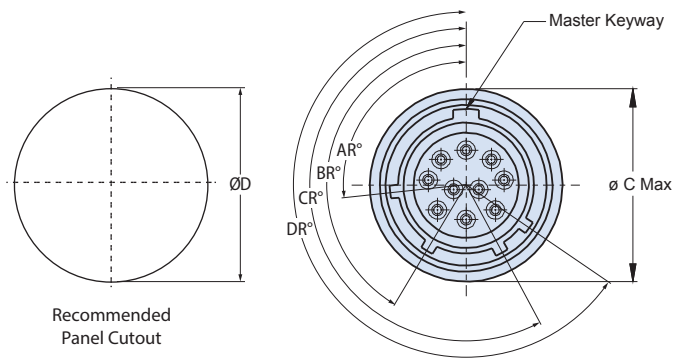
## MIL-DTL-38999 Series III, Triple-Start Thread

D38999/25 solder mount hermetic receptacle



SERIES III HERMETIC

| QPL Part Number Development |                                                                                                                                                                                                                                          |           |   |   |    |     |
|-----------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|---|---|----|-----|
| Sample Part Number          |                                                                                                                                                                                                                                          | D38999/25 | Y | B | 35 | P N |
| MIL-DTL-38999               | D38999/25 = Solder mount receptacle                                                                                                                                                                                                      |           |   |   |    |     |
| Class                       | <b>N</b> = Hermetic, CRES, nickel finish, conductive, -65°C to 200°C<br><b>Y</b> = Hermetic, CRES, passivate finish, conductive, -65°C to 200°C<br><b>H</b> = Hermetic, CRES, passivate finish, conductive, -65°C to 200°C (space grade) |           |   |   |    |     |
| Shell Size Code             | <b>A, B, C, D, E, F, G, H</b> and <b>J</b> (per MIL-STD-1560)                                                                                                                                                                            |           |   |   |    |     |
| Insert Arrangement          | Per MIL-STD-1560; See reference information section for details                                                                                                                                                                          |           |   |   |    |     |
| Contact Type                | <b>P</b> = Pin, solder cup <b>X</b> = Pin, eyelet <b>C</b> = Pin, PCB flex feedthrough<br><b>S</b> = Socket, solder cup <b>Z</b> = Socket, eyelet <b>D</b> = Socket, PCB flex feedthrough                                                |           |   |   |    |     |
| Alternate Polarization      | <b>A, B, C, D, E, N</b> (Normal)                                                                                                                                                                                                         |           |   |   |    |     |



| Series III Alternate Keyway Polarizations |            |                          |         |         |         |         |                 |                |                     |         |         |         |         |                       |                            |                          |         |         |         |         |
|-------------------------------------------|------------|--------------------------|---------|---------|---------|---------|-----------------|----------------|---------------------|---------|---------|---------|---------|-----------------------|----------------------------|--------------------------|---------|---------|---------|---------|
| Shell Size Code                           | Shell Size | Key and Keyway ID Letter | AR° BSC | BR° BSC | CR° BSC | DR° BSC | Shell Size Code | Shell Size     | Key and Keyway Code | AR° BSC | BR° BSC | CR° BSC | DR° BSC | Shell Size Code       | Shell Size                 | Key and Keyway ID Letter | AR° BSC | BR° BSC | CR° BSC | DR° BSC |
| A                                         | 9          | N                        | 105     | 140     | 215     | 265     | B<br>C<br>D     | 11<br>13<br>15 | N                   | 95      | 141     | 208     | 236     | E<br>F<br>G<br>H<br>J | 17<br>19<br>21<br>23<br>25 | N                        | 80      | 142     | 196     | 293     |
|                                           |            | A                        | 102     | 132     | 248     | 320     |                 |                | A                   | 113     | 156     | 182     | 292     |                       |                            | A                        | 135     | 170     | 200     | 310     |
|                                           |            | B                        | 80      | 118     | 230     | 312     |                 |                | B                   | 90      | 145     | 195     | 252     |                       |                            | B                        | 49      | 169     | 200     | 244     |
|                                           |            | C                        | 35      | 140     | 205     | 275     |                 |                | C                   | 53      | 156     | 220     | 255     |                       |                            | C                        | 66      | 140     | 200     | 257     |
|                                           |            | D                        | 64      | 155     | 234     | 304     |                 |                | D                   | 119     | 146     | 176     | 298     |                       |                            | D                        | 62      | 145     | 180     | 280     |
|                                           |            | E                        | 91      | 131     | 197     | 240     |                 |                | E                   | 51      | 141     | 184     | 242     |                       |                            | E                        | 79      | 153     | 197     | 272     |



# COTS EQUIVALENT MIL-DTL-38999 Series III, Triple-Start Thread

## 233-100-H5 solder mount hermetic receptacle



SERIES III HERMETIC

| COTS Part Number Development |                                                                                                                                                                                                                          |    |    |     |   |   |
|------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|----|-----|---|---|
| Sample Part Number           | 233-100-H5                                                                                                                                                                                                               | Z1 | 11 | -35 | P | N |
| Series / Basic Part No.      | 233-100-H5 = Hermetic, solder mount receptacle                                                                                                                                                                           |    |    |     |   |   |
| Material/Finish              | <b>ZL</b> = CRES, nickel finish, conductive, -65°C to 200°C<br><b>Z1</b> = CRES, passivate finish, conductive, -65°C to 200°C<br><b>Z1S</b> = Hermetic, CRES, passivate finish, conductive, -65°C to 200°C (space grade) |    |    |     |   |   |
| Shell Size                   | 9, 11, 13, 15, 17, 19, 21, 23, 25 (per MIL-STD-1560)                                                                                                                                                                     |    |    |     |   |   |
| Insert Arrangement           | Per MIL-STD-1560; See reference information section for details                                                                                                                                                          |    |    |     |   |   |
| Contact Type                 | <b>P</b> = Pin, solder cup <b>X</b> = Pin, eyelet <b>C</b> = Pin, PCB flex feedthrough<br><b>S</b> = Socket, solder cup <b>Z</b> = Socket, eyelet <b>D</b> = Socket, PCB flex feedthrough                                |    |    |     |   |   |
| Alternate Polarization       | <b>A, B, C, D, E, N</b> = Normal                                                                                                                                                                                         |    |    |     |   |   |

Additional material/finish options are available, consult factory for ordering information.

| Dimensions      |            |                            |               |               |                                |           |            |            |            |
|-----------------|------------|----------------------------|---------------|---------------|--------------------------------|-----------|------------|------------|------------|
| Shell Size Code | Shell Size | A Thread<br>-.1P-.3L-TS-2A | ØB Max        | ØC Max        | ØD                             | E Max     | F Max      | HP Max     | HS Max     |
| A               | 9/09       | .6250                      | .673 (17.09)  | .764 (19.41)  | .685 (17.40)<br>.675 (17.15)   | .201(5.1) | .937(23.8) | .677(17.2) | .764(19.4) |
| B               | 11         | .7500                      | .783 (19.89)  | .858 (21.79)  | .794 (20.17)<br>.784 (19.91)   | .201(5.1) | .937(23.8) | .677(17.2) | .764(19.4) |
| C               | 13         | .8750                      | .909 (23.09)  | .980 (24.89)  | .920 (23.37)<br>.910 (23.11)   | .201(5.1) | .937(23.8) | .677(17.2) | .764(19.4) |
| D               | 15         | 1.0000                     | 1.031 (26.19) | 1.106 (28.09) | 1.043 (26.49)<br>1.033 (26.24) | .201(5.1) | .937(23.8) | .677(17.2) | .764(19.4) |
| E               | 17         | 1.1875                     | 1.157 (29.39) | 1.232 (31.29) | 1.169 (29.69)<br>1.159 (29.44) | .201(5.1) | .937(23.8) | .677(17.2) | .764(19.4) |
| F               | 19         | 1.2500                     | 1.252 (31.80) | 1.323 (33.60) | 1.263 (32.08)<br>1.253 (31.83) | .201(5.1) | .937(23.8) | .677(17.2) | .764(19.4) |
| G               | 21         | 1.3750                     | 1.378 (35.00) | 1.449 (36.80) | 1.389 (35.28)<br>1.379 (35.03) | .201(5.1) | .937(23.8) | .677(17.2) | .764(19.4) |
| H               | 23         | 1.5000                     | 1.504 (38.20) | 1.575 (40.00) | 1.515 (38.48)<br>1.505 (38.23) | .232(5.9) | .969(24.6) | .677(17.2) | .764(19.4) |
| J               | 25         | 1.6250                     | 1.626 (41.30) | 1.701 (43.21) | 1.638 (41.61)<br>1.628 (41.35) | .232(5.9) | .969(24.6) | .677(17.2) | .764(19.4) |

| Additional Material/Finish Options |                                                                 |
|------------------------------------|-----------------------------------------------------------------|
| Finish Code                        | Description                                                     |
| Z1S†                               | CRES, passivate finish, conductive, -65°C to 200°C, space-grade |

† Connectors ordered with "Z1S" include outgas processing to conform to outgassing requirements of Class H.

| Wire Accommodation |            |
|--------------------|------------|
| Contact Size       | Wire Gauge |
| 22D                | #22 - #28  |
| 20                 | #20 - #24  |
| 16                 | #16 - #20  |
| 12                 | #12 - #14  |

| Contact Size |                              |
|--------------|------------------------------|
| Size         | Ø P                          |
| 22D          | .011 (0.28)<br>.015 (0.38)   |
| 20           | .024 (0.61)<br>.028 (0.71)   |
| 16           | .0635 (1.61)<br>.0615 (1.56) |
| 12           | .095 (2.41)<br>.093 (2.36)   |

FEEDTHROUGH CONTACT  
STYLE C AND D

SIZE 12 AND SIZE 16  
.065 (1.7)  
.035 (0.9)

SIZE 22D AND SIZE 20

QPL QUALIFIED

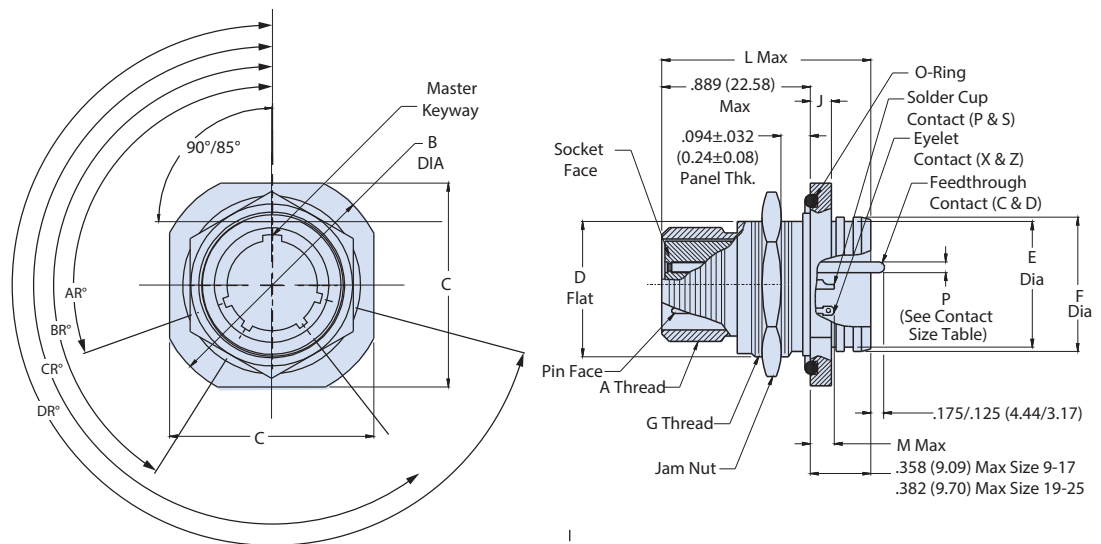
## MIL-DTL-38999 Series III, Triple-Start Thread

## D38999/23 jam-nut mount hermetic receptacle

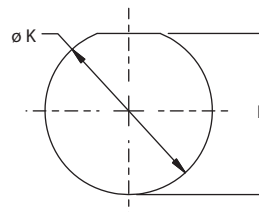


SERIES III HERMETIC

| QPL Part Number Development |                                                                                                                                                                                                                                          |           |   |   |    |     |
|-----------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|---|---|----|-----|
| Sample Part Number          |                                                                                                                                                                                                                                          | D38999/23 | Y | B | 35 | P N |
| MIL-DTL-38999               | D38999/23 = Jam-Nut mount receptacle                                                                                                                                                                                                     |           |   |   |    |     |
| Class                       | <b>N</b> = Hermetic, CRES, nickel finish, conductive, -65°C to 200°C<br><b>Y</b> = Hermetic, CRES, passivate finish, conductive, -65°C to 200°C<br><b>H</b> = Hermetic, CRES, passivate finish, conductive, -65°C to 200°C (space grade) |           |   |   |    |     |
| Shell Size Code             | <b>A, B, C, D, E, F, G, H</b> and <b>J</b> (per MIL-STD-1560)                                                                                                                                                                            |           |   |   |    |     |
| Insert Arrangement          | Per MIL-STD-1560; See reference information section for details                                                                                                                                                                          |           |   |   |    |     |
| Contact Type                | <b>P</b> = Pin, solder cup <b>X</b> = Pin, eyelet <b>C</b> = Pin, PCB flex feedthrough<br><b>S</b> = Socket, solder cup <b>Z</b> = Socket, eyelet <b>D</b> = Socket, PCB flex feedthrough                                                |           |   |   |    |     |
| Alternate Polarization      | <b>A, B, C, D, E, N</b> = Normal                                                                                                                                                                                                         |           |   |   |    |     |



| Wire Accommodation |            |
|--------------------|------------|
| Contact Size       | Wire Gauge |
| 22D                | #22 - #28  |
| 20                 | #20 - #24  |
| 16                 | #16 - #20  |
| 12                 | #12 - #14  |

RECOMMENDED  
PANEL CUT-OUT

| Series III Alternate Keyway Polarizations |            |                          |         |         |         |         |                 |                |                     |         |         |         |         |                       |                            |                          |         |         |         |         |
|-------------------------------------------|------------|--------------------------|---------|---------|---------|---------|-----------------|----------------|---------------------|---------|---------|---------|---------|-----------------------|----------------------------|--------------------------|---------|---------|---------|---------|
| Shell Size Code                           | Shell Size | Key and Keyway ID Letter | AR° BSC | BR° BSC | CR° BSC | DR° BSC | Shell Size Code | Shell Size     | Key and Keyway Code | AR° BSC | BR° BSC | CR° BSC | DR° BSC | Shell Size Code       | Shell Size                 | Key and Keyway ID Letter | AR° BSC | BR° BSC | CR° BSC | DR° BSC |
| A                                         | 9          | N                        | 105     | 140     | 215     | 265     | B<br>C<br>D     | 11<br>13<br>15 | N                   | 95      | 141     | 208     | 236     | E<br>F<br>G<br>H<br>J | 17<br>19<br>21<br>23<br>25 | N                        | 80      | 142     | 196     | 293     |
|                                           |            | A                        | 102     | 132     | 248     | 320     |                 |                | A                   | 113     | 156     | 182     | 292     |                       |                            | A                        | 135     | 170     | 200     | 310     |
|                                           |            | B                        | 80      | 118     | 230     | 312     |                 |                | B                   | 90      | 145     | 195     | 252     |                       |                            | B                        | 49      | 169     | 200     | 244     |
|                                           |            | C                        | 35      | 140     | 205     | 275     |                 |                | C                   | 53      | 156     | 220     | 255     |                       |                            | C                        | 66      | 140     | 200     | 257     |
|                                           |            | D                        | 64      | 155     | 234     | 304     |                 |                | D                   | 119     | 146     | 176     | 298     |                       |                            | D                        | 62      | 145     | 180     | 280     |
|                                           |            | E                        | 91      | 131     | 197     | 240     |                 |                | E                   | 51      | 141     | 184     | 242     |                       |                            | E                        | 79      | 153     | 197     | 272     |

COTS EQUIVALENT

## MIL-DTL-38999 Series III, Triple-Start Thread

## 233-100-H7 jam-nut mount hermetic receptacle

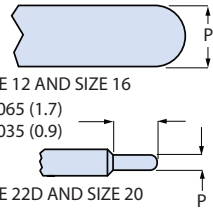


SERIES III HERMETIC

| COTS Part Number Development |                                                                                                                                                                                                     |    |    |     |   |   |
|------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|----|-----|---|---|
| Sample Part Number           | 233-100-H7                                                                                                                                                                                          | Z1 | 11 | -35 | P | N |
| Series / Basic Part No.      | 233-100-H7 = Hermetic, jam-nut mount receptacle                                                                                                                                                     |    |    |     |   |   |
| Material/Finish              | ZL = CRES, nickel finish, conductive, -65°C to 200°C<br>Z1 = CRES, passivate finish, conductive, -65°C to 200°C<br>Z1S = Hermetic, CRES, passivate finish, conductive, -65°C to 200°C (space grade) |    |    |     |   |   |
| Shell Size                   | 9, 11, 13, 15, 17, 19, 21, 23, 25                                                                                                                                                                   |    |    |     |   |   |
| Insert Arrangement           | Per MIL-STD-1560; See reference information section for details                                                                                                                                     |    |    |     |   |   |
| Contact Type                 | P = Pin, solder cup      X = Pin, eyelet      C = Pin, PCB flex feedthrough<br>S = Socket, solder cup      Z = Socket, eyelet      D = Socket, PCB flex feedthrough                                 |    |    |     |   |   |
| Alternate Polarization       | A, B, C, D, E, N (Normal)                                                                                                                                                                           |    |    |     |   |   |

Additional material/finish options are available, consult factory for ordering information.

| Dimensions      |            |                           |                                |                     |                      |                     |                            |
|-----------------|------------|---------------------------|--------------------------------|---------------------|----------------------|---------------------|----------------------------|
| Shell Size Code | Shell Size | A Thread<br>-0.1P-0.3L-TS | B Dia                          | C A/F<br>±.015(0.4) | D Flat<br>±.005(0.1) | E Dia<br>±.012(0.3) | F Dia                      |
| A               | 9          | 0.625                     | 1.201 (30.5)<br>1.177 (29.9)   | 1.063(27.0)         | .650(16.5)           | .602(15.3)          | .653(16.6)<br>.642(16.3)   |
| B               | 11         | 0.750                     | 1.386 (35.2)<br>1.362 (34.6)   | 1.252(31.8)         | .750(19.1)           | .724(18.4)          | .775(19.7)<br>.764(19.4)   |
| C               | 13         | 0.875                     | 1.512 (38.4)<br>1.488 (37.8)   | 1.374(34.9)         | .937(23.8)           | .850(21.6)          | .905(23.0)<br>.894(22.7)   |
| D               | 15         | 1.000                     | 1.638 (41.6)<br>1.614 (41.0)   | 1.500(38.1)         | 1.061(26.9)          | .976(24.8)          | 1.031(26.2)<br>1.020(25.9) |
| E               | 17         | 1.187                     | 1.764 (44.8)<br>1.740 (44.2)   | 1.626(41.3)         | 1.186(30.1)          | 1.102(28.0)         | 1.153(29.3)<br>1.142(29.0) |
| F               | 19         | 1.250                     | 1.949 (49.5)<br>1.925 (48.9)   | 1.811(46.0)         | 1.311(33.3)          | 1.228(31.2)         | 1.278(32.5)<br>1.268(32.2) |
| G               | 21         | 1.375                     | 2.075 (52.7)<br>2.050 (52.1)   | 1.937(49.2)         | 1.436(36.5)          | 1.350(34.3)         | 1.405(35.7)<br>1.394(35.4) |
| H               | 23         | 1.500                     | 2.201 (55.9)<br>2.177 (55.3)   | 2.063(52.4)         | 1.561(39.6)          | 1.476(37.5)         | 1.531(38.9)<br>1.520(38.6) |
| J               | 25         | 1.625                     | 2.323 (59.00)<br>2.299 (58.39) | 2.189(55.6)         | 1.686(42.8)          | 1.602(40.7)         | 1.653(42.0)<br>1.642(41.7) |

| Contact Size                                                                                                                 |                              |
|------------------------------------------------------------------------------------------------------------------------------|------------------------------|
| FEEDTHROUGH CONTACT<br>STYLE C AND D<br> |                              |
| SIZE 12 AND SIZE 16                                                                                                          | .065 (1.7)<br>.035 (0.9)     |
| SIZE 22D AND SIZE 20                                                                                                         | P                            |
| Contact Size                                                                                                                 | ø P                          |
| 22D                                                                                                                          | .011 (0.28)<br>.015 (0.38)   |
| 20                                                                                                                           | .024 (0.61)<br>.028 (0.71)   |
| 16                                                                                                                           | .0635 (1.61)<br>.0615 (1.56) |
| 12                                                                                                                           | .095 (2.41)<br>.093 (2.36)   |

| Dimensions (Continued) |            |                        |                 |                      |               |            |            |                       |
|------------------------|------------|------------------------|-----------------|----------------------|---------------|------------|------------|-----------------------|
| Shell Size Code        | Shell Size | G Thread<br>Iso Metric | J<br>±.008(0.2) | K Dia<br>±.005 (0.1) | L Max         | M Max      |            | N<br>±.005 (0.1)      |
|                        |            |                        |                 |                      |               | P & X      | S & Z      |                       |
| A                      | 9/09       | M17 X 1.0-6g           | .106 (2.7)      | .698 (17.73)         | 1.150 (29.2)  | .209 (5.3) | .232 (5.9) | .658±.003 (16.71±.08) |
| B                      | 11         | M20 X 1.0-6g           | .106 (2.7)      | .830 (21.08)         | 1.150 (29.2)  | .209 (5.3) | .232 (5.9) | .766 (19.46)          |
| C                      | 13         | M25 X 1.0-6g           | .106 (2.7)      | 1.015 (25.78)        | 1.154 (29.3)  | .201 (5.1) | .224 (5.7) | .950 (24.13)          |
| D                      | 15         | M28 X 1.0-6g           | .106 (2.7)      | 1.140 (28.96)        | 1.154 (29.3)  | .201 (5.1) | .224 (5.7) | 1.080 (27.43)         |
| E                      | 17         | M32 X 1.0-6g           | .106 (2.7)      | 1.265 (32.13)        | 1.154 (29.3)  | .201 (5.1) | .224 (5.7) | 1.205 (30.61)         |
| F                      | 19         | M35 X 1.0-6g           | .138 (3.5)      | 1.390 (35.31)        | 1.185 (30.10) | .201 (5.1) | .224 (5.7) | 1.330 (33.78)         |
| G                      | 21         | M38 X 1.0-6g           | .138 (3.5)      | 1.515 (38.48)        | 1.185 (30.10) | .201 (5.1) | .224 (5.7) | 1.455 (36.96)         |
| H                      | 23         | M41 X 1.0-6g           | .138 (3.5)      | 1.640 (41.66)        | 1.185 (30.10) | .201 (5.1) | .224 (5.7) | 1.580 (40.13)         |
| J                      | 25         | M44 X 1.0-6g           | .138 (3.5)      | 1.765 (44.83)        | 1.185 (30.10) | .201 (5.1) | .224 (5.7) | 1.705 (43.31)         |

| Additional Material/Finish Options |                                                                 |
|------------------------------------|-----------------------------------------------------------------|
| Finish Code                        | Description                                                     |
| Z1S†                               | CRES, passivate finish, conductive, -65°C to 200°C, space-grade |

† Connectors ordered with "Z1S" include outgas processing to conform to outgassing requirements of Class H.

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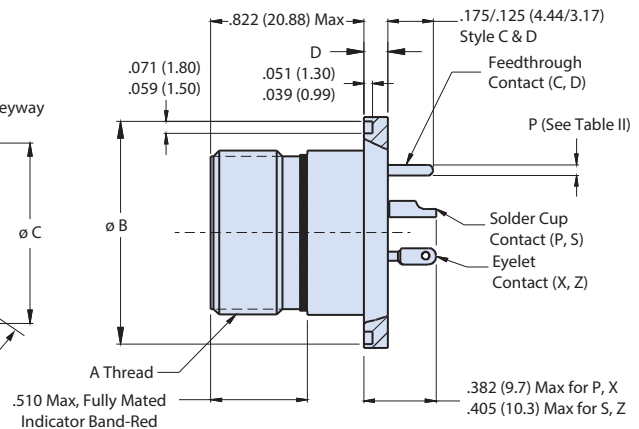
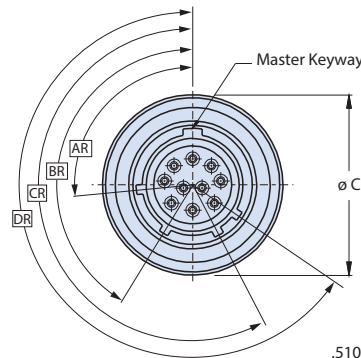
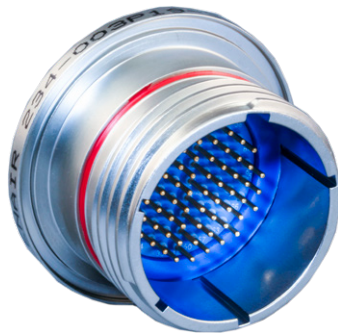
# MIL-DTL-38999 Series III, Triple-Start Thread

D38999/27 weld mount hermetic receptacle



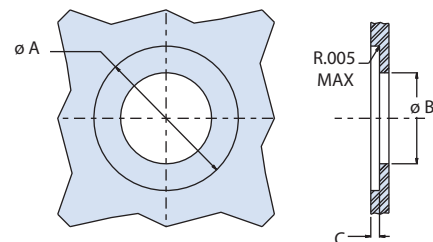
SERIES III HERMETIC

| QPL Part Number Development |                                                                                                                                                                                                                                          |   |   |    |   |   |
|-----------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---|---|----|---|---|
| Sample Part Number          | D38999/27                                                                                                                                                                                                                                | Y | B | 35 | P | N |
| MIL-DTL-38999               | D38999/27 = Weld mount receptacle                                                                                                                                                                                                        |   |   |    |   |   |
| Class                       | <b>N</b> = Hermetic, CRES, nickel finish, conductive, -65°C to 200°C<br><b>Y</b> = Hermetic, CRES, passivate finish, conductive, -65°C to 200°C<br><b>H</b> = Hermetic, CRES, passivate finish, conductive, -65°C to 200°C (space grade) |   |   |    |   |   |
| Shell Size Code             | <b>A, B, C, D, E, F, G, H</b> and <b>J</b> (per MIL-STD-1560)                                                                                                                                                                            |   |   |    |   |   |
| Insert Arrangement          | Per MIL-STD-1560; See reference information section for details                                                                                                                                                                          |   |   |    |   |   |
| Contact Type                | <b>P</b> = Pin, solder cup <b>X</b> = Pin, eyelet <b>C</b> = Pin, PCB flex feedthrough<br><b>S</b> = Socket, solder cup <b>Z</b> = Socket, eyelet <b>D</b> = Socket, PCB flex feedthrough                                                |   |   |    |   |   |
| Alternate Polarization      | <b>A, B, C, D, E, N</b> = Normal                                                                                                                                                                                                         |   |   |    |   |   |



| Panel Cut-Out Dimensions |            |                                |               |             |
|--------------------------|------------|--------------------------------|---------------|-------------|
| Shell Size Code          | Shell Size | Ø A                            | Ø B           | Ø C         |
| A                        | 9          | .990 (25.15)<br>.985 (25.02)   | .300 (7.62)   | .126 (3.20) |
| B                        | 11         | 1.112 (28.24)<br>1.107 (28.12) | .430 (10.92)  | .126 (3.20) |
| C                        | 13         | 1.238 (31.45)<br>1.233 (31.32) | .550 (13.97)  | .126 (3.20) |
| D                        | 15         | 1.364 (34.65)<br>1.359 (34.52) | .675 (17.15)  | .126 (3.20) |
| E                        | 17         | 1.451 (36.86)<br>1.446 (36.73) | .795 (20.19)  | .126 (3.20) |
| F                        | 19         | 1.597 (40.56)<br>1.592 (40.44) | .895 (22.73)  | .126 (3.20) |
| G                        | 21         | 1.738 (44.15)<br>1.733 (44.02) | 1.010 (25.65) | .126 (3.20) |
| H                        | 23         | 1.894 (48.11)<br>1.899 (48.23) | 1.135 (28.83) | .157 (3.99) |
| J                        | 25         | 1.990 (50.55)<br>1.985 (50.42) | 1.250 (31.75) | .157 (3.99) |

| Wire Accommodation |            |
|--------------------|------------|
| Contact Size       | Wire Gauge |
| 22D                | #22 - #28  |
| 20                 | #20 - #24  |
| 16                 | #16 - #20  |
| 12                 | #12 - #14  |





# COTS EQUIVALENT MIL-DTL-38999 Series III, Triple-Start Thread 233-100-H8 weld mount hermetic receptacle



SERIES III HERMETIC

| COTS Part Number Development |                                                                                                                                                                                                                          |    |    |     |   |   |
|------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|----|-----|---|---|
| Sample Part Number           | 233-100-H8                                                                                                                                                                                                               | Z1 | 11 | -35 | P | N |
| Series / Basic Part No.      | 233-100-H8 = Hermetic, weld mount receptacle                                                                                                                                                                             |    |    |     |   |   |
| Material/Finish              | <b>ZL</b> = CRES, nickel finish, conductive, -65°C to 200°C<br><b>Z1</b> = CRES, passivate finish, conductive, -65°C to 200°C<br><b>Z1S</b> = Hermetic, CRES, passivate finish, conductive, -65°C to 200°C (space grade) |    |    |     |   |   |
| Shell Size                   | 9, 11, 13, 15, 17, 19, 21, 23, 25 see dimensions table                                                                                                                                                                   |    |    |     |   |   |
| Insert Arrangement           | Per MIL-STD-1560; See reference information section for details                                                                                                                                                          |    |    |     |   |   |
| Contact Type                 | <b>P</b> = Pin, solder cup <b>X</b> = Pin, eyelet <b>C</b> = Pin, PCB flex feedthrough<br><b>S</b> = Socket, solder cup <b>Z</b> = Socket, eyelet <b>D</b> = Socket, PCB flex feedthrough                                |    |    |     |   |   |
| Alternate Polarization       | <b>A, B, C, D, E, N</b> (Normal)                                                                                                                                                                                         |    |    |     |   |   |

Additional material/finish options are available, consult factory for ordering information.

| Contact Size                                                                                                                      |                              |
|-----------------------------------------------------------------------------------------------------------------------------------|------------------------------|
| <p>FEEDTHROUGH CONTACT<br/>STYLE C AND D</p> <p>SIZE 12 AND SIZE 16<br/>.065 (1.7)<br/>.035 (0.9)</p> <p>SIZE 22D AND SIZE 20</p> |                              |
| Contact Size                                                                                                                      | ø P                          |
| 22D                                                                                                                               | .011 (0.28)<br>.015 (0.38)   |
| 20                                                                                                                                | .024 (0.61)<br>.028 (0.71)   |
| 16                                                                                                                                | .0635 (1.61)<br>.0615 (1.56) |
| 12                                                                                                                                | .095 (2.41)<br>.093 (2.36)   |

| Dimensions      |            |                        |                              |                              |                          |
|-----------------|------------|------------------------|------------------------------|------------------------------|--------------------------|
| Shell Size Code | Shell Size | A Thread .1P-.3L-TS-2A | ø B                          | ø C                          | D                        |
| A               | 9/09       | .6250                  | .941 (23.9)<br>.929 (23.6)   | .984 (25.0)<br>.972 (24.7)   | .134 (3.4)<br>.118 (3.0) |
| B               | 11         | .7500                  | 1.063 (27.0)<br>1.051 (27.0) | 1.106 (28.1)<br>1.094 (27.8) | .134 (3.4)<br>.118 (3.0) |
| C               | 13         | .8750                  | 1.189 (30.2)<br>1.177 (28.9) | 1.232 (31.3)<br>1.220 (31.0) | .134 (3.4)<br>.118 (3.0) |
| D               | 15         | 1.0000                 | 1.315 (33.4)<br>1.303 (33.1) | 1.358 (34.5)<br>1.346 (34.2) | .134 (3.4)<br>.118 (3.0) |
| E               | 17         | 1.1875                 | 1.402 (35.6)<br>1.390 (35.3) | 1.445 (36.7)<br>1.433 (36.4) | .134 (3.4)<br>.118 (3.0) |
| F               | 19         | 1.2500                 | 1.547 (39.3)<br>1.535 (39.0) | 1.591 (40.4)<br>1.579 (40.1) | .134 (3.4)<br>.118 (3.0) |
| G               | 21         | 1.3750                 | 1.689 (42.9)<br>1.677 (42.6) | 1.732 (44.0)<br>1.720 (43.7) | .134 (3.4)<br>.118 (3.0) |
| H               | 23         | 1.5000                 | 1.854 (47.1)<br>1.842 (46.8) | 1.898 (48.2)<br>1.886 (47.4) | .165 (4.2)<br>.149 (3.8) |
| J               | 25         | 1.6250                 | 1.941 (49.3)<br>1.929 (49.0) | 1.984 (50.4)<br>1.972 (50.1) | .165 (4.2)<br>.149 (3.8) |

| Series III Alternate Keyway Polarizations |            |                          |         |         |         |         |                 |                |                     |         |         |         |         |                       |                            |                          |         |         |         |         |
|-------------------------------------------|------------|--------------------------|---------|---------|---------|---------|-----------------|----------------|---------------------|---------|---------|---------|---------|-----------------------|----------------------------|--------------------------|---------|---------|---------|---------|
| Shell Size Code                           | Shell Size | Key and Keyway ID Letter | AR° BSC | BR° BSC | CR° BSC | DR° BSC | Shell Size Code | Shell Size     | Key and Keyway Code | AR° BSC | BR° BSC | CR° BSC | DR° BSC | Shell Size Code       | Shell Size                 | Key and Keyway ID Letter | AR° BSC | BR° BSC | CR° BSC | DR° BSC |
| A                                         | 9          | N                        | 105     | 140     | 215     | 265     | B<br>C<br>D     | 11<br>13<br>15 | N                   | 95      | 141     | 208     | 236     | E<br>F<br>G<br>H<br>J | 17<br>19<br>21<br>23<br>25 | N                        | 80      | 142     | 196     | 293     |
|                                           |            | A                        | 102     | 132     | 248     | 320     |                 |                | A                   | 113     | 156     | 182     | 292     |                       |                            | A                        | 135     | 170     | 200     | 310     |
|                                           |            | B                        | 80      | 118     | 230     | 312     |                 |                | B                   | 90      | 145     | 195     | 252     |                       |                            | B                        | 49      | 169     | 200     | 244     |
|                                           |            | C                        | 35      | 140     | 205     | 275     |                 |                | C                   | 53      | 156     | 220     | 255     |                       |                            | C                        | 66      | 140     | 200     | 257     |
|                                           |            | D                        | 64      | 155     | 234     | 304     |                 |                | D                   | 119     | 146     | 176     | 298     |                       |                            | D                        | 62      | 145     | 180     | 280     |
|                                           |            | E                        | 91      | 131     | 197     | 240     |                 |                | E                   | 51      | 141     | 184     | 242     |                       |                            | E                        | 79      | 153     | 197     | 272     |

| Additional Material/Finish Options |                                                                 |
|------------------------------------|-----------------------------------------------------------------|
| Finish Code                        | Description                                                     |
| Z1S†                               | CRES, passivate finish, conductive, -65°C to 200°C, space-grade |

† Connectors ordered with "Z1S" include outgas processing to conform to outgassing requirements of Class H.



*BREECH-LOCK*

**MIL-DTL-38999**

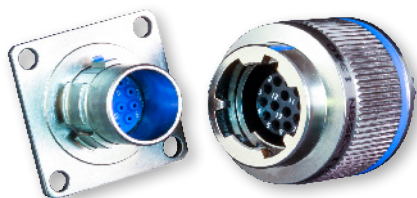
## Series IV Environmental

### For missile launch controls and other severe vibration applications

From vertical launch fire-control, tracking, and multi-target missile systems to rugged industrial applications such as mining/gas-pressure blasting, the Glenair's DLA qualified MIL-DTL-38999 Series IV connector is the ultimate solution for positive and reliable breech-locking connector performance. MIL-DTL-38999 Series IV plug and receptacle connectors are available in shell sizes 11–25, with MIL-STD-1560 insert arrangements as well as hybrid shielded contact arrangements. The heart of the Series IV connector is its coupling nut/locking technology which provides rock solid breech-lock mating augmented with both primary and secondary locking mechanisms. Environmentally sealed, EMI grounded, and outfitted with pin-to-pin mating protection to prevent circuit shorts and mechanical damage, Glenair MIL-DTL-38999 Series IV QPL connectors deliver unsurpassed reliability and anti-demating performance.



- QPL manufacturer of MIL-DTL-38999 Series IV Class F, W and G connectors
- Optimized for SWAMP area applications
- Quick-disconnect 90° breech coupling mechanism
- Visual, audible and tactile full-mate indicators
- Integrated EMI grounding fingers
- -65°C to 200°C operating temperature range



Series IV solutions are available in environmental and hermetic class configurations in shell sizes from 11–25 supporting a popular range of MIL-STD-1560 insert arrangements



Glenair's complete Series IV solution includes support for power, signal and hybrid insert arrangements including shielded coax, #22, #20, #16 and #12 contacts

# QPL QUALIFIED AND COTS EQUIVALENT MIL-DTL-38999 Series IV, Breech Coupling



Anti decoupling, vibration and shock resistant  
DLA qualified

## MECHANICAL, ENVIRONMENTAL AND ELECTRICAL PERFORMANCE

MIL-DTL-38999 Series IV (Glenair Series 234-105) offers outstanding interconnect performance for high shock and vibrate military and commercial applications.

- **Breech locking connectors available with crimp contacts**
- **Electromagnetic compatibility (EMC):** plug grounding fingers, and conductive shell finishes deliver excellent shielding performance up to 65 dB at 10 GHz. Grounding before engagement of contacts
- **Environmental performance:** interfacial and wire grommet seals deliver IP67 level sealing, even at high altitude
- **Contact protection:** scoop-proof design prevents inadvertent damage to pin contacts during mating
- **Mating:** breech-lock system provides fast and secure, quarter turn mating that resists decoupling even under extreme shock and vibrate conditions
- **Supported contacts:** from size #22D signal to #8 twinax contacts
- **Commercial equivalent:** Glenair COTS equivalent connectors deliver mil-spec performance with material/finish options not available in QPL parts



SERIES IV ENVIRONMENTAL

## CONNECTOR CLASSES FINISH



**Electroless Nickel**

Conductivity +++++  
Corrosion Resistance Ⓢ Ⓢ Ⓢ Ⓢ Ⓢ  
-65° to +200°C  
Glenair Code **ME**  
D38999 Class **F, G**



**Cadmium Olive Drab**

Conductivity +++++  
Corrosion Resistance Ⓢ Ⓢ Ⓢ Ⓢ Ⓢ  
-65° to +175°C  
Glenair Code **NF**  
D38999 Class **W**

## 38999 SERIES IV ACCESSORIES



Glenair offers a full range of QPL D38999 accessories, contact the factory for details

## SUPPORTED CRIMP-CONTACT SHELL STYLES



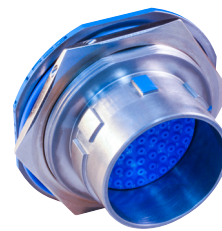
Plug



Wall-Mount Receptacle



Box-Mount Receptacle



Jam-Nut Receptacle



In-Line Receptacle



QPL QUALIFIED

# MIL-DTL-38999 Series IV, Breech Coupling

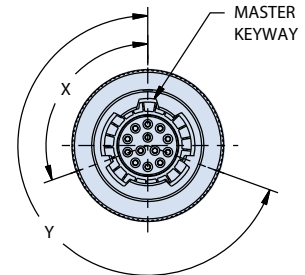
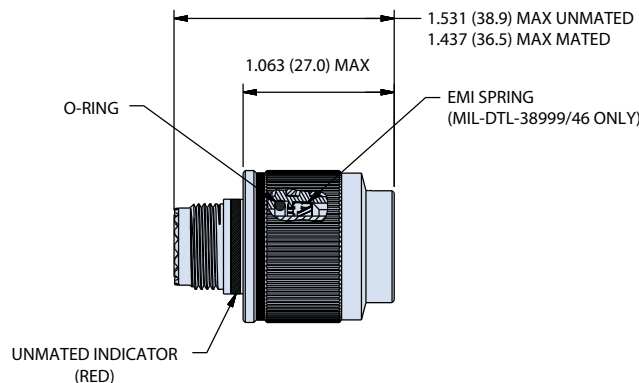
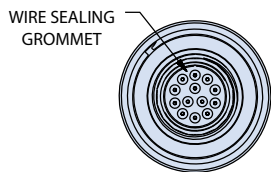
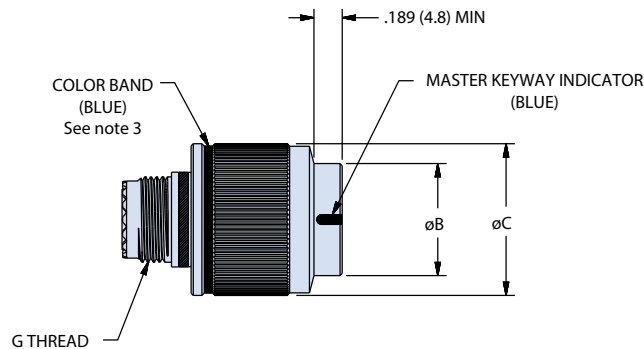
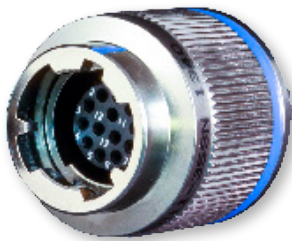
38999/46 plug with EMI ground spring

38999/47 plug without EMI ground spring



SERIES IV ENVIRONMENTAL

| QPL Part Number Development |                                                                                                                                                                                                                                                                                 |   |   |    |   |   |
|-----------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---|---|----|---|---|
| Sample Part Number          | D38999/46                                                                                                                                                                                                                                                                       | W | J | 30 | P | N |
| MIL-DTL-38999               | <b>38999/46</b> = Plug with EMI ground spring<br><b>38999/47</b> = Plug without EMI ground spring                                                                                                                                                                               |   |   |    |   |   |
| Class                       | <b>F</b> = Environmental, aluminum, electroless nickel, conductive, -65°C to +200°C<br><b>W</b> = Environmental, aluminum, cadmium olive drab, conductive, -65°C to +175°C<br><b>G</b> = Environmental, aluminum, electroless nickel, conductive, -65°C to +200°C (space-grade) |   |   |    |   |   |
| Shell Size                  | <b>B, C, D, E, F, G, H, J</b>                                                                                                                                                                                                                                                   |   |   |    |   |   |
| Insert Arrangement          | Per MIL-STD-1560; See reference information section for details                                                                                                                                                                                                                 |   |   |    |   |   |
| Contact Style               | <b>P</b> = Pin Insert <b>A</b> = Pin Gender, Less Contacts<br><b>S</b> = Socket Insert <b>B</b> = Socket Gender, Less Contacts                                                                                                                                                  |   |   |    |   |   |
| Polarization                | <b>N</b> (Normal), <b>A, B, C, D, K, L, M, R</b> ; see polarization positions table                                                                                                                                                                                             |   |   |    |   |   |



| Polarization Positions |      |      |      |      |      |      |      |      |      |
|------------------------|------|------|------|------|------|------|------|------|------|
|                        | N    | A    | B    | C    | D    | K    | L    | M    | R    |
| X                      | 110° | 100° | 90°  | 80°  | 70°  | 120° | 120° | 120° | 120° |
| Y                      | 250° | 260° | 270° | 280° | 290° | 255° | 265° | 275° | 285° |



## MIL-DTL-38999 Series IV, Breech Coupling



234-105-46 plug with EMI ground spring

234-105-47 plug without EMI ground spring

| COTS Part Number Development |                                                                                                                                                                                                                    |    |    |     |   |   |
|------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|----|-----|---|---|
| Sample Part Number           | 234-105-46                                                                                                                                                                                                         | NF | 11 | -35 | P | N |
| Series / Basic Part No.      | 234-105-46 = Environmental plug with EMI ground spring<br>234-105-47 = Environmental plug without EMI ground spring                                                                                                |    |    |     |   |   |
| Material/Finish              | ME* = Aluminum, electroless nickel, conductive, -65°C to +200°C<br>NF = Aluminum, cadmium olive drab, conductive, -65°C to +175°C<br>MA† = Aluminum, electroless nickel, conductive, -65°C to +200°C (space-grade) |    |    |     |   |   |
| Shell Size                   | 11, 13, 15, 17, 19, 21, 23, 25                                                                                                                                                                                     |    |    |     |   |   |
| Insert Arrangement           | Per MIL-STD-1560; See reference information section for details                                                                                                                                                    |    |    |     |   |   |
| Contact Designator           | P = Pin Insert      A = Pin Gender, Less Contacts<br>S = Socket Insert    B = Socket Gender, Less Contacts                                                                                                         |    |    |     |   |   |
| Polarization                 | N (Normal), A, B, C, D, K, L, M, R; see polarization positions table                                                                                                                                               |    |    |     |   |   |

\* Plug connectors, styles 46 and 47, with ME finish supplied with hard anodized coupling nuts

† Connectors must be ordered with "MA" finish and modification code "-186T" to conform to the thermal vacuum outgassing requirements of Class G. Additional material/finish options are available, consult factory for ordering information.

| Dimensions |                 |               |               |                     |
|------------|-----------------|---------------|---------------|---------------------|
| Shell Size | Shell Size Code | ØB Max        | ØC Max        | G Thread            |
| 11         | B               | .776 (19.71)  | 1.047 (26.59) | M15 X 1.0-6g 0.100R |
| 13         | C               | .902 (22.91)  | 1.220 (30.99) | M18 X 1.0-6g 0.100R |
| 15         | D               | 1.039 (26.39) | 1.346 (34.19) | M22 X 1.0-6g 0.100R |
| 17         | E               | 1.150 (29.21) | 1.472 (37.39) | M25 X 1.0-6g 0.100R |
| 19         | F               | 1.276 (32.41) | 1.583 (40.21) | M28 X 1.0-6g 0.100R |
| 21         | G               | 1.402 (35.61) | 1.705 (43.31) | M31 X 1.0-6g 0.100R |
| 23         | H               | 1.528 (38.81) | 1.831 (46.51) | M34 X 1.0-6g 0.100R |
| 25         | J               | 1.650 (41.91) | 1.957 (49.71) | M37 X 1.0-6g 0.100R |

## NOTES

1. Insert arrangements per MIL-STD-1560.
2. Connector is supplied with contacts (including spares), insertion/removal tool and sealing plugs unless otherwise specified.
3. Blue color band indicates rear release retention system.

| Additional Material/Finish Options |                                              |
|------------------------------------|----------------------------------------------|
| Finish Code                        | Description                                  |
| G2                                 | Aluminum, anodize, hardcoat                  |
| ZR                                 | Aluminum, zinc nickel, black (tri-valent cr) |
| MT                                 | Aluminum, nickel PTFE                        |

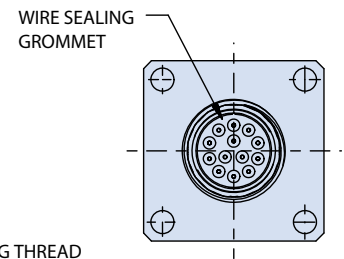
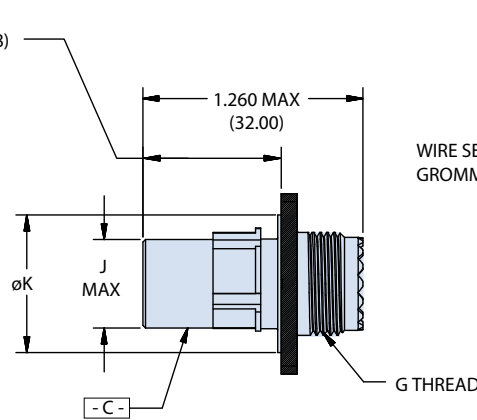
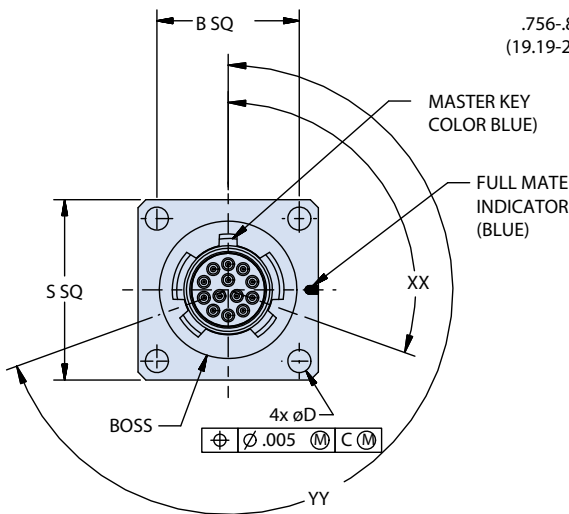
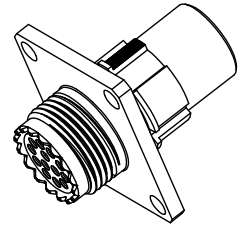
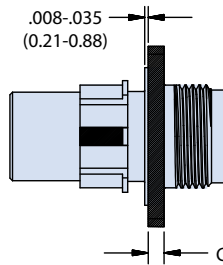
# QPL QUALIFIED

## MIL-DTL-38999 Series IV, Breech Coupling

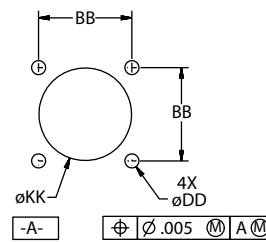
### 38999/40 wall mount receptacle with rear release crimp contacts



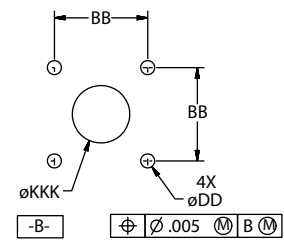
| QPL Part Number Development |                                                                                                                                                                                                                                                                                 |   |   |    |   |   |
|-----------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---|---|----|---|---|
| Sample Part Number          | D38999/40                                                                                                                                                                                                                                                                       | W | J | 30 | P | N |
| MIL-DTL-38999               | 38999/40 = Wall mount receptacle                                                                                                                                                                                                                                                |   |   |    |   |   |
| Class                       | <b>F</b> = Environmental, aluminum, electroless nickel, conductive, -65°C to +200°C<br><b>W</b> = Environmental, aluminum, cadmium olive drab, conductive, -65°C to +175°C<br><b>G</b> = Environmental, aluminum, electroless nickel, conductive, -65°C to +200°C (space-grade) |   |   |    |   |   |
| Shell Size                  | <b>B, C, D, E, F, G, H, J</b>                                                                                                                                                                                                                                                   |   |   |    |   |   |
| Insert Arrangement          | Per MIL-STD-1560; See reference information section for details                                                                                                                                                                                                                 |   |   |    |   |   |
| Contact Style               | <b>P</b> = Pin Insert <b>A</b> = Pin Gender, Less Contacts<br><b>S</b> = Socket Insert <b>B</b> = Socket Gender, Less Contacts                                                                                                                                                  |   |   |    |   |   |
| Polarization                | <b>N</b> (Normal), <b>A, B, C, D, K, L, M, R</b> ; see polarization positions table                                                                                                                                                                                             |   |   |    |   |   |



| Polarization Position |      |      |      |      |      |      |      |      |      |
|-----------------------|------|------|------|------|------|------|------|------|------|
|                       | N    | A    | B    | C    | D    | K    | L    | M    | R    |
| XX                    | 110° | 100° | 90°  | 80°  | 70°  | 120° | 120° | 120° | 120° |
| YY                    | 250° | 260° | 270° | 280° | 290° | 255° | 265° | 275° | 285° |



Recommended panel cutout  
.125 max panel thickness  
rear panel mount



Recommended panel cutout  
.125 max panel thickness  
front panel mount

COTS EQUIVALENT

## MIL-DTL-38999 Series IV, Breech Coupling

234-105-40 wall mount receptacle  
with rear release crimp contacts

SERIES IV ENVIRONMENTAL

| COTS Part Number Development |                                                                                                                                                                                                                                        |    |    |     |   |   |
|------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|----|-----|---|---|
| Sample Part Number           | 234-105-40                                                                                                                                                                                                                             | NF | 11 | -35 | P | N |
| Series / Basic Part No.      | 234-105-40 = Environmental, wall mount environmental receptacle                                                                                                                                                                        |    |    |     |   |   |
| Material/Finish              | <b>ME</b> = Aluminum, electroless nickel, conductive, -65°C to +200°C<br><b>NF</b> = Aluminum, cadmium olive drab, conductive, -65°C to +175°C<br><b>MA†</b> = Aluminum, electroless nickel, conductive, -65°C to +200°C (space-grade) |    |    |     |   |   |
| Shell Size                   | 11, 13, 15, 17, 19, 21, 23, 25                                                                                                                                                                                                         |    |    |     |   |   |
| Insert Arrangement           | Per MIL-STD-1560; See reference information section for details                                                                                                                                                                        |    |    |     |   |   |
| Contact Style                | <b>P</b> = Pin Insert <b>A</b> = Pin Gender, Less Contacts<br><b>S</b> = Socket Insert <b>B</b> = Socket Gender, Less Contacts                                                                                                         |    |    |     |   |   |
| Polarization                 | <b>N</b> (Normal), <b>A, B, C, D, K, L, M, R</b> ; see polarization position position table                                                                                                                                            |    |    |     |   |   |

† Connectors must be ordered with "MA" finish and modification code "-186T" to conform to the thermal vacuum outgassing requirements of Class G. Additional material/finish options are available, consult factory for ordering information.

| Dimensions |                 |               |                            |                            |                           |               |                                |                                |
|------------|-----------------|---------------|----------------------------|----------------------------|---------------------------|---------------|--------------------------------|--------------------------------|
| Shell Size | Shell Size Code | B BSC         | C                          | ØD                         | G Thread<br>1.0-6g 0.100R | ØJ MAX        | ØK                             | S                              |
| 11         | B               | .812 (20.62)  | .102 (2.59)<br>.083 (2.11) | .138 (3.51)<br>.122 (3.10) | M15                       | .509 (12.93)  | .793 (20.14)<br>.778 (19.76)   | 1.051 (26.70)<br>1.008 (25.60) |
| 13         | C               | .906 (23.01)  |                            |                            | M18                       | .634 (16.10)  | .913 (23.19)<br>.904 (22.96)   | 1.146 (29.11)<br>1.102 (27.99) |
| 15         | D               | .969 (24.61)  |                            |                            | M22                       | .759 (19.28)  | 1.044 (26.52)<br>1.029 (26.14) | 1.240 (31.50)<br>1.197 (30.40) |
| 17         | E               | 1.062 (26.97) |                            |                            | M25                       | .885 (22.48)  | 1.170 (29.72)<br>1.155 (29.34) | 1.335 (33.91)<br>1.291 (32.79) |
| 19         | F               | 1.156 (29.36) |                            |                            | M28                       | 1.009 (25.63) | 1.294 (32.87)<br>1.279 (32.49) | 1.461 (37.11)<br>1.417 (35.99) |
| 21         | G               | 1.250 (31.75) | .134 (3.40)<br>.114 (2.90) | .157 (3.99)<br>.142 (3.61) | M31                       | 1.134 (28.80) | 1.419 (36.04)<br>1.404 (35.66) | 1.583 (40.21)<br>1.539 (39.09) |
| 23         | H               | 1.375 (34.92) |                            |                            | M34                       | 1.259 (31.98) | 1.544 (39.22)<br>1.529 (38.84) | 1.709 (43.41)<br>1.665 (42.29) |
| 25         | J               | 1.500 (38.10) |                            |                            | M37                       | 1.384 (35.15) | 1.669 (42.39)<br>1.654 (42.01) | 1.835 (46.61)<br>1.791 (45.49) |

| Panel Cut-Out Dimensions |                 |                         |                           |               |                            |
|--------------------------|-----------------|-------------------------|---------------------------|---------------|----------------------------|
| Shell Size               | Shell Size Code | Rear Panel Mount<br>ØKK | Front Panel Mount<br>ØKKK | BB Bsc        | ØDD                        |
| 11                       | B               | .796 (20.22)            | .625 (15.88)              | .812 (20.62)  | .133 (3.38)<br>.123 (3.12) |
| 13                       | C               | .922 (23.42)            | .750 (19.05)              | .906 (23.01)  |                            |
| 15                       | D               | 1.047 (26.59)           | .906 (23.01)              | .969 (24.61)  |                            |
| 17                       | E               | 1.219 (30.96)           | 1.016 (25.81)             | 1.062 (26.97) |                            |
| 19                       | F               | 1.297 (32.94)           | 1.141 (28.98)             | 1.156 (29.36) |                            |
| 21                       | G               | 1.422 (36.12)           | 1.266 (32.16)             | 1.250 (31.75) | .159 (4.04)<br>.149 (3.78) |
| 23                       | H               | 1.547 (39.29)           | 1.375 (34.92)             | 1.375 (34.92) |                            |
| 25                       | J               | 1.672 (42.47)           | 1.484 (37.69)             | 1.500 (38.10) | .155 (3.94)<br>.145 (3.68) |

| Additional Material/Finish Options |                                              |
|------------------------------------|----------------------------------------------|
| Finish Code                        | Description                                  |
| G2                                 | Aluminum, anodize, hardcoat                  |
| ZR                                 | Aluminum, zinc nickel, black (tri-valent cr) |
| MT                                 | Aluminum, nickel PTFE                        |
| MA†                                | Aluminum, electroless nickel (space-grade)   |
| ZL‡                                | Stainless steel, electro-deposited nickel    |
| Z1‡                                | Stainless steel, passivated                  |

‡ Available in receptacle only, not firewall rated.

QPL QUALIFIED

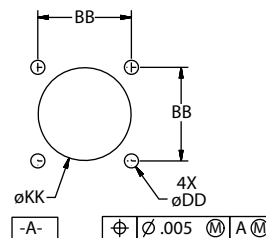
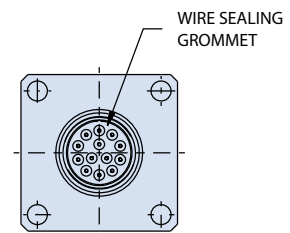
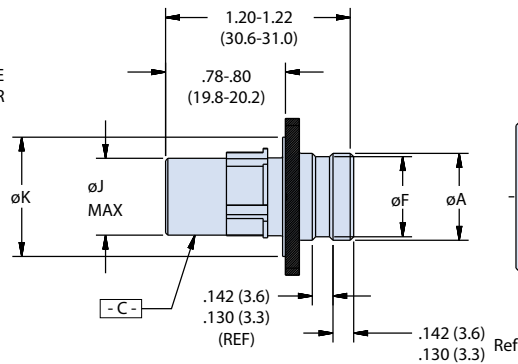
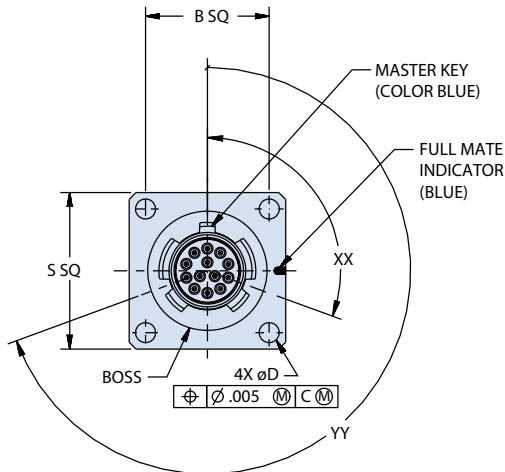
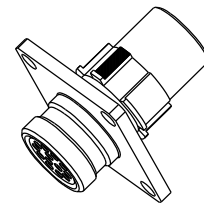
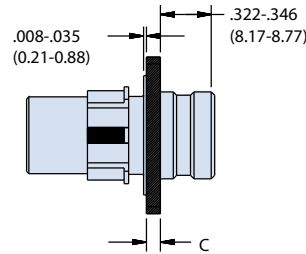
## MIL-DTL-38999 Series IV, Breech Coupling

38999/42 box mount receptacle  
with rear release crimp contacts

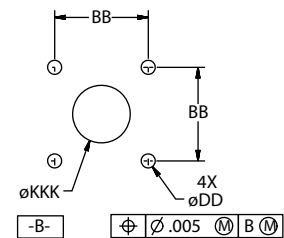
SERIES IV ENVIRONMENTAL

## QPL Part Number Development

| Sample Part Number |                                                                                                                                                                                                                                                                                 | D38999/42 | W | J | 30 | P | N |
|--------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|---|---|----|---|---|
| MIL-DTL-38999      | 38999/42 = Box mount receptacle                                                                                                                                                                                                                                                 |           |   |   |    |   |   |
| Class              | <b>F</b> = Environmental, aluminum, electroless nickel, conductive, -65°C to +200°C<br><b>W</b> = Environmental, aluminum, cadmium olive drab, conductive, -65°C to +175°C<br><b>G</b> = Environmental, aluminum, electroless nickel, conductive, -65°C to +200°C (space-grade) |           |   |   |    |   |   |
| Shell Size         | <b>B, C, D, E, F, G, H, J</b>                                                                                                                                                                                                                                                   |           |   |   |    |   |   |
| Insert Arrangement | Per MIL-STD-1560; See reference information section for details                                                                                                                                                                                                                 |           |   |   |    |   |   |
| Contact Style      | <b>P</b> = Pin Insert <b>A</b> = Pin Gender, Less Contacts<br><b>S</b> = Socket Insert <b>B</b> = Socket Gender, Less Contacts                                                                                                                                                  |           |   |   |    |   |   |
| Polarization       | <b>N</b> (Normal), <b>A, B, C, D, K, L, M, R</b> ; see polarization positions table                                                                                                                                                                                             |           |   |   |    |   |   |



Recommended panel cutout  
.125 max panel thickness  
rear panel mount



Recommended panel cutout  
.125 max panel thickness  
front panel mount

## Polarization Position

|    | N    | A    | B    | C    | D    | K    | L    | M    | R    |
|----|------|------|------|------|------|------|------|------|------|
| XX | 110° | 100° | 90°  | 80°  | 70°  | 120° | 120° | 120° | 120° |
| YY | 250° | 260° | 270° | 280° | 290° | 255° | 265° | 275° | 285° |



COTS EQUIVALENT

## MIL-DTL-38999 Series IV, Breech Coupling

234-105-42 box mount receptacle  
with rear release crimp contacts

SERIES IV ENVIRONMENTAL

| COTS Part Number Development |                                                                                                                                                                                                                                        |    |    |     |   |   |
|------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|----|-----|---|---|
| Sample Part Number           | 234-105-42                                                                                                                                                                                                                             | NF | 11 | -35 | P | N |
| Series / Basic Part No.      | 234-105-42 = Environmental, box mount receptacle                                                                                                                                                                                       |    |    |     |   |   |
| Material/Finish              | <b>ME</b> = Aluminum, electroless nickel, conductive, -65°C to +200°C<br><b>NF</b> = Aluminum, cadmium olive drab, conductive, -65°C to +175°C<br><b>MA†</b> = Aluminum, electroless nickel, conductive, -65°C to +200°C (space-grade) |    |    |     |   |   |
| Shell Size                   | 11, 13, 15, 17, 19, 21, 23, 25                                                                                                                                                                                                         |    |    |     |   |   |
| Insert Arrangement           | Per MIL-STD-1560; See reference information section for details                                                                                                                                                                        |    |    |     |   |   |
| Contact Style                | <b>P</b> = Pin Insert <b>A</b> = Pin Gender, Less Contacts<br><b>S</b> = Socket Insert <b>B</b> = Socket Gender, Less Contacts                                                                                                         |    |    |     |   |   |
| Polarization                 | <b>N</b> (Normal), <b>A, B, C, D, K, L, M, R</b> ; see polarization position position table                                                                                                                                            |    |    |     |   |   |

† Connectors must be ordered with "MA" finish and modification code "-186T" to conform to the thermal vacuum outgassing requirements of Class G. Additional material/finish options are available, consult factory for ordering information.

| Dimensions |                 |                                |               |                          |                            |                                |               |                                |                              |
|------------|-----------------|--------------------------------|---------------|--------------------------|----------------------------|--------------------------------|---------------|--------------------------------|------------------------------|
| Shell Size | Shell Size Code | ØA                             | B Bsc         | C                        | ØD                         | ØF                             | ØJ            | ØK                             | S                            |
| 11         | B               | .579 (14.71)<br>.563 (14.30)   | .812 (20.62)  | .102 (2.6)<br>.083 (2.1) | .138 (3.50)<br>.122 (3.10) | .535 (13.59)<br>.520 (13.21)   | .509 (12.93)  | .793 (20.15)<br>.778 (19.76)   | 1.051 (26.7)<br>1.008 (25.6) |
| 13         | C               | .693 (17.60)<br>.677 (17.20)   | .906 (23.02)  |                          |                            | .650 (16.51)<br>.634 (16.10)   | .634 (16.10)  | .919 (23.35)<br>.904 (22.96)   | 1.146 (29.1)<br>1.102 (28.0) |
| 15         | D               | .819 (20.80)<br>.803 (20.40)   | .969 (24.61)  |                          |                            | .772 (19.61)<br>.756 (19.20)   | .759 (19.28)  | 1.044 (26.52)<br>1.029 (26.13) | 1.240 (31.5)<br>1.197 (30.4) |
| 17         | E               | .945 (24.00)<br>.929 (23.60)   | 1.062 (26.98) |                          |                            | .898 (22.81)<br>.882 (22.40)   | .885 (22.48)  | 1.170 (29.72)<br>1.115 (28.33) | 1.335 (33.9)<br>1.291 (32.8) |
| 19         | F               | 1.051 (26.70)<br>1.035 (26.29) | 1.156 (29.36) |                          |                            | 1.004 (25.50)<br>.988 (25.10)  | 1.009 (25.63) | 1.294 (32.87)<br>1.279 (32.48) | 1.461 (37.1)<br>1.417 (36.0) |
| 21         | G               | 1.173 (29.79)<br>1.157 (29.39) | 1.250 (31.76) |                          |                            | 1.130 (28.70)<br>1.114 (28.30) | 1.134 (28.80) | 1.419 (36.05)<br>1.404 (35.66) | 1.583 (40.2)<br>1.539 (39.1) |
| 23         | H               | 1.299 (32.99)<br>1.283 (32.59) | 1.375 (34.93) | .134 (3.4)<br>.114 (2.9) | .157 (4.00)<br>.142 (3.60) | 1.256 (31.90)<br>1.240 (31.50) | 1.259 (31.98) | 1.544 (39.22)<br>1.332 (33.83) | 1.709 (43.4)<br>1.665 (42.3) |
| 25         | J               | 1.425 (36.20)<br>1.409 (35.79) | 1.500 (38.10) |                          |                            | 1.378 (35.00)<br>1.362 (34.59) | 1.384 (35.15) | 1.669 (42.40)<br>1.654 (42.01) | 1.835 (46.6)<br>1.791 (45.5) |

| Panel Cut-Out Dimensions |                 |                     |                       |               |                            |
|--------------------------|-----------------|---------------------|-----------------------|---------------|----------------------------|
| Shell Size               | Shell Size Code | Rear Panel Mount ØK | Front Panel Mount ØKK | BB BSC        | ØDD                        |
| 11                       | B               | .796 (20.22)        | .625 (15.88)          | .812 (20.62)  | .133 (3.38)<br>.123 (3.12) |
| 13                       | C               | .922 (23.42)        | .750 (19.05)          | .906 (23.01)  |                            |
| 15                       | D               | 1.047 (26.59)       | .906 (23.01)          | .969 (24.61)  |                            |
| 17                       | E               | 1.219 (30.96)       | 1.016 (25.81)         | 1.062 (26.97) |                            |
| 19                       | F               | 1.297 (32.94)       | 1.141 (28.98)         | 1.156 (29.36) |                            |
| 21                       | G               | 1.422 (36.12)       | 1.266 (32.16)         | 1.250 (31.75) |                            |
| 23                       | H               | 1.547 (39.29)       | 1.375 (34.92)         | 1.375 (34.92) | .159 (4.04)<br>.149 (3.78) |
| 25                       | J               | 1.672 (42.47)       | 1.484 (37.69)         | 1.500 (38.10) | .155 (3.94)<br>.145 (3.68) |

| Additional Material/Finish Options |                                              |
|------------------------------------|----------------------------------------------|
| Finish Code                        | Description                                  |
| G2                                 | Aluminum, anodize, hardcoat                  |
| ZR                                 | Aluminum, zinc nickel, black (tri-valent cr) |
| MT                                 | Aluminum, nickel PTFE                        |
| MA†                                | Aluminum, electroless nickel (space-grade)   |
| ZL‡                                | Stainless steel, electro-deposited nickel    |
| Z1‡                                | Stainless steel, passivated                  |

‡ Available in receptacle only, not firewall rated.

QPL QUALIFIED

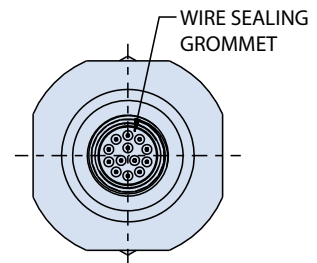
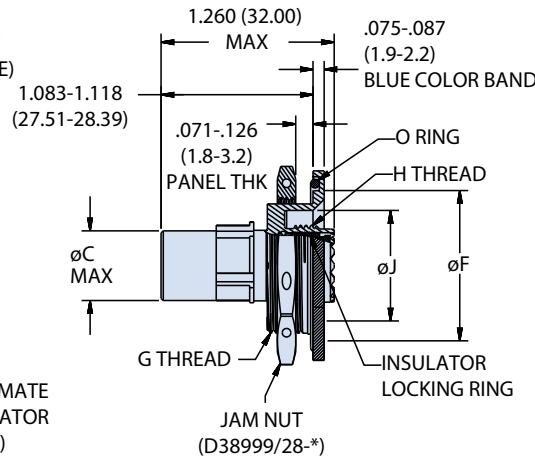
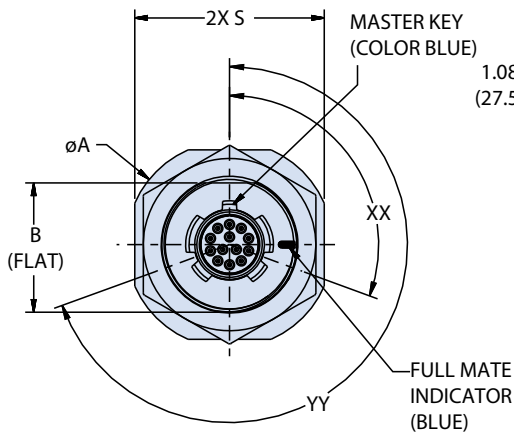
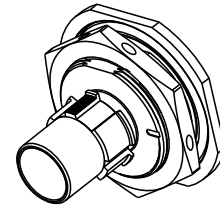
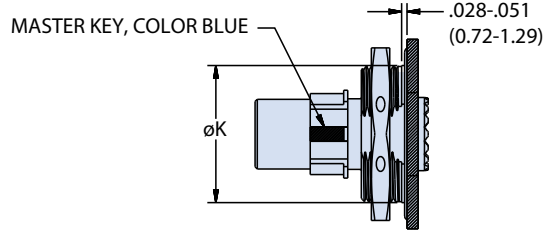
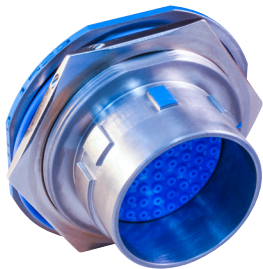
# MIL-DTL-38999 Series IV, Breech Coupling

38999/44 jam-nut mount receptacle  
with rear release crimp contacts

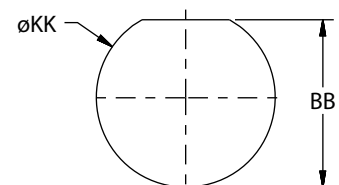


SERIES IV ENVIRONMENTAL

| QPL Part Number Development |                                                                                                                                                                                                                                                                                 |           |   |   |    |     |
|-----------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|---|---|----|-----|
| Sample Part Number          |                                                                                                                                                                                                                                                                                 | D38999/44 | W | J | 30 | P N |
| MIL-DTL-38999               | 38999/44 = Jam-Nut receptacle                                                                                                                                                                                                                                                   |           |   |   |    |     |
| Class                       | <b>F</b> = Environmental, aluminum, electroless nickel, conductive, -65°C to +200°C<br><b>W</b> = Environmental, aluminum, cadmium olive drab, conductive, -65°C to +175°C<br><b>G</b> = Environmental, aluminum, electroless nickel, conductive, -65°C to +200°C (space-grade) |           |   |   |    |     |
| Shell Size                  | <b>B, C, D, E, F, G, H, J</b>                                                                                                                                                                                                                                                   |           |   |   |    |     |
| Insert Arrangement          | Per MIL-STD-1560; See reference section for details                                                                                                                                                                                                                             |           |   |   |    |     |
| Contact Style               | <b>P</b> = Pin Insert <b>A</b> = Pin Gender, Less Contacts<br><b>S</b> = Socket Insert <b>B</b> = Socket Gender, Less Contacts                                                                                                                                                  |           |   |   |    |     |
| Polarization                | <b>N</b> (Normal), <b>A, B, C, D, K, L, M, R</b> ; see polarization positions table                                                                                                                                                                                             |           |   |   |    |     |



| Panel Cut-Out Dimensions |                 |                                |                                |            |                 |                                |                                |
|--------------------------|-----------------|--------------------------------|--------------------------------|------------|-----------------|--------------------------------|--------------------------------|
| Shell Size               | Shell Size Code | ØKK                            | BB                             | Shell Size | Shell Size Code | ØKK                            | BB                             |
| 11                       | B               | 1.020 (25.90)<br>1.010 (25.65) | .955 (24.26)<br>.945 (24.01)   | 19         | F               | 1.520 (38.60)<br>1.510 (38.35) | 1.460 (37.08)<br>1.450 (36.83) |
| 13                       | C               | 1.145 (29.08)<br>1.135 (28.83) | 1.085 (27.56)<br>1.075 (27.31) | 21         | G               | 1.645 (41.78)<br>1.635 (41.53) | 1.585 (40.26)<br>1.575 (40.01) |
| 15                       | D               | 1.270 (32.26)<br>1.260 (32.01) | 1.210 (30.73)<br>1.200 (30.48) | 23         | H               | 1.770 (44.95)<br>1.760 (44.70) | 1.710 (43.43)<br>1.700 (43.17) |
| 17                       | E               | 1.395 (35.43)<br>1.385 (35.18) | 1.335 (33.91)<br>1.325 (33.66) | 25         | J               | 1.895 (48.13)<br>1.885 (47.88) | 1.835 (46.61)<br>1.825 (46.36) |



JAM-NUT MOUNT RECEPTACLE  
RECOMMENDED PANEL CUTOUT

COTS EQUIVALENT

## MIL-DTL-38999 Series IV, Breech Coupling

234-105-44 jam-nut mount receptacle  
with rear release crimp contacts

SERIES IV ENVIRONMENTAL

| COTS Part Number Development |                                                                                                                                                                                                                                        |    |    |     |   |   |
|------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|----|-----|---|---|
| Sample Part Number           | 234-105-44                                                                                                                                                                                                                             | NF | 11 | -35 | P | N |
| Series / Basic Part No.      | 234-105-44 = Environmental, jam-nut environmental receptacle                                                                                                                                                                           |    |    |     |   |   |
| Material/Finish              | <b>ME</b> = Aluminum, electroless nickel, conductive, -65°C to +200°C<br><b>NF</b> = Aluminum, cadmium olive drab, conductive, -65°C to +175°C<br><b>MA†</b> = Aluminum, electroless nickel, conductive, -65°C to +200°C (space-grade) |    |    |     |   |   |
| Shell Size                   | 11, 13, 15, 17, 19, 21, 23, 25                                                                                                                                                                                                         |    |    |     |   |   |
| Insert Arrangement           | Per MIL-STD-1560; See reference section for details                                                                                                                                                                                    |    |    |     |   |   |
| Contact Style                | <b>P</b> = Pin Insert <b>A</b> = Pin Gender, Less Contacts<br><b>S</b> = Socket Insert <b>B</b> = Socket Gender, Less Contacts                                                                                                         |    |    |     |   |   |
| Polarization                 | <b>N</b> (Normal), <b>A, B, C, D, K, L, M, R</b> ; see polarization positions table                                                                                                                                                    |    |    |     |   |   |

† Connectors must be ordered with "MA" finish and modification code "-186T" to conform to the thermal vacuum outgassing requirements of Class G. Additional material/finish options are available, consult factory for ordering information.

| Dimensions |                 |                              |                                |               |                                |                     |                     |                                |                                |                                |            |
|------------|-----------------|------------------------------|--------------------------------|---------------|--------------------------------|---------------------|---------------------|--------------------------------|--------------------------------|--------------------------------|------------|
| Shell Size | Shell Size Code | ØA                           | B Flat                         | ØC Max        | ØF                             | G Thd 1.0-6g 0.100R | H Thd 1.0-6g 0.100R | ØJ                             | ØK                             | S                              | O-Ring P/N |
| 11         | B               | 1.520 (38.6)<br>1.480 (37.6) | .942 (23.93)<br>.935 (23.74)   | .509 (12.93)  | 1.096 (27.84)<br>1.085 (27.55) | M25                 | M15                 | .804 (20.42)<br>.794 (20.17)   | 1.000 (25.40)<br>.990 (25.15)  | 1.394 (35.40)<br>1.354 (34.40) | AS3582-024 |
| 13         | C               | 1.642 (41.7)<br>1.602 (40.7) | 1.066 (27.08)<br>1.059 (26.89) | .634 (16.10)  | 1.221 (31.02)<br>1.249 (31.72) | M28                 | M18                 | .928 (23.57)<br>.918 (23.32)   | 1.125 (28.58)<br>1.115 (28.33) | 1.520 (38.60)<br>1.480 (37.60) | AS3582-026 |
| 15         | D               | 1.768 (44.9)<br>1.728 (43.9) | 1.191 (30.26)<br>1.184 (30.07) | .759 (19.28)  | 1.346 (34.19)<br>1.335 (33.90) | M31                 | M22                 | 1.046 (26.56)<br>1.036 (26.31) | 1.250 (31.75)<br>1.240 (31.50) | 1.641 (41.68)<br>1.602 (40.70) | AS3582-028 |
| 17         | E               | 1.957 (49.7)<br>1.917 (48.7) | 1.321 (33.56)<br>1.314 (33.37) | .885 (22.48)  | 1.483 (37.67)<br>1.472 (37.38) | M34                 | M25                 | 1.182 (30.02)<br>1.172 (29.77) | 1.375 (34.92)<br>1.365 (34.67) | 1.799 (45.70)<br>1.760 (44.70) | AS3582-029 |
| 19         | F               | 2.035 (51.7)<br>1.996 (50.7) | 1.441 (36.61)<br>1.434 (36.42) | 1.009 (25.63) | 1.608 (40.85)<br>1.597 (40.56) | M38                 | M28                 | 1.296 (32.91)<br>1.286 (32.66) | 1.500 (38.10)<br>1.490 (37.85) | 1.909 (48.50)<br>1.870 (47.50) | AS3582-030 |
| 21         | G               | 2.157 (54.8)<br>2.118 (53.8) | 1.566 (39.78)<br>1.559 (39.59) | 1.134 (28.80) | 1.733 (44.02)<br>1.722 (43.73) | M41                 | M31                 | 1.422 (36.11)<br>1.412 (35.86) | 1.625 (41.28)<br>1.615 (41.03) | 2.035 (51.70)<br>1.996 (50.70) | AS3582-031 |
| 23         | H               | 2.283 (58.0)<br>2.244 (57.0) | 1.691 (42.96)<br>1.684 (42.77) | 1.259 (31.98) | 1.858 (47.20)<br>1.847 (46.91) | M44                 | M34                 | 1.546 (39.26)<br>1.536 (39.01) | 1.750 (44.45)<br>1.740 (44.20) | 2.157 (54.80)<br>2.118 (53.80) | AS3582-032 |
| 25         | J               | 2.409 (61.2)<br>2.370 (60.2) | 1.816 (46.13)<br>1.809 (45.94) | 1.384 (35.15) | 1.983 (50.37)<br>1.972 (50.08) | M47                 | M37                 | 1.672 (42.46)<br>1.662 (42.21) | 1.875 (47.63)<br>1.865 (47.38) | 2.283 (58.00)<br>2.244 (57.00) | AS3582-033 |

| Polarization Positions |      |      |      |      |      |      |      |      |      |
|------------------------|------|------|------|------|------|------|------|------|------|
|                        | N    | A    | B    | C    | D    | K    | L    | M    | R    |
| XX                     | 110° | 100° | 90°  | 80°  | 70°  | 120° | 120° | 120° | 120° |
| YY                     | 250° | 260° | 270° | 280° | 290° | 255° | 265° | 275° | 285° |

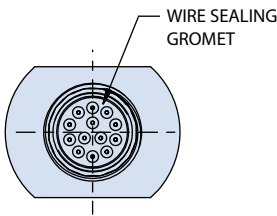
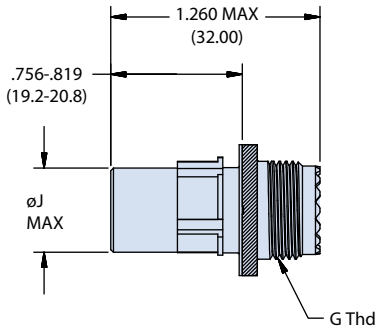
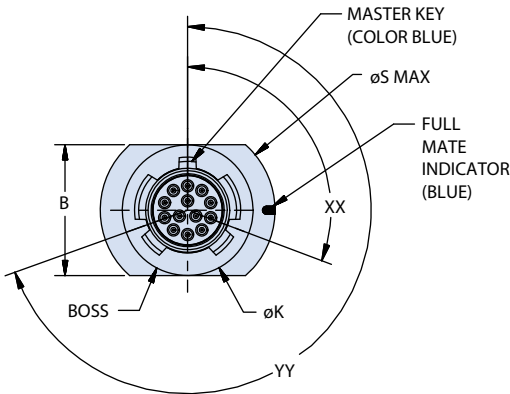
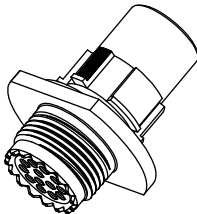
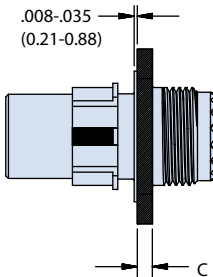
| Additional Material/Finish Options |                                              |
|------------------------------------|----------------------------------------------|
| Finish Code                        | Description                                  |
| G2                                 | Aluminum, anodize, hardcoat                  |
| ZR                                 | Aluminum, zinc nickel, black (tri-valent cr) |
| MT                                 | Aluminum, nickel PTFE                        |
| ZL‡                                | Stainless steel, electro-deposited nickel    |
| Z1‡                                | Stainless steel, passivated                  |

‡ Available in receptacle only, not firewall rated.

QPL QUALIFIED  
MIL-DTL-38999 Series IV, Breech Coupling  
38999/49 in-line receptacle  
with rear release crimp contacts



| QPL Part Number Development |                                                                                                                                                                                                                                                            |           |   |   |     |     |
|-----------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|---|---|-----|-----|
| Sample Part Number          |                                                                                                                                                                                                                                                            | D38999/49 | W | J | 35V | P N |
| MIL-DTL-38999               | 38999/49 = In-line receptacle                                                                                                                                                                                                                              |           |   |   |     |     |
| Class                       | F = Environmental, aluminum, electroless nickel, conductive, -65°C to +200°C<br>W = Environmental, aluminum, cadmium olive drab, conductive, -65°C to +175°C<br>G = Environmental, aluminum, electroless nickel, conductive, -65°C to +200°C (space-grade) |           |   |   |     |     |
| Shell Size                  | B, C, D, E, F, G, H, J                                                                                                                                                                                                                                     |           |   |   |     |     |
| Insert Arrangement          | Per MIL-STD-1560; See reference information section for details                                                                                                                                                                                            |           |   |   |     |     |
| Contact Style               | P = Pin Insert      A = Pin Gender, Less Contacts<br>S = Socket Insert    B = Socket Gender, Less Contacts                                                                                                                                                 |           |   |   |     |     |
| Polarization                | N (Normal), A, B, C, D, K, L, M, R; see polarization positions table                                                                                                                                                                                       |           |   |   |     |     |



| Polarization Position |      |      |      |      |      |      |      |      |      |
|-----------------------|------|------|------|------|------|------|------|------|------|
|                       | N    | A    | B    | C    | D    | K    | L    | M    | R    |
| XX                    | 110° | 100° | 90°  | 80°  | 70°  | 120° | 120° | 120° | 120° |
| YY                    | 250° | 260° | 270° | 280° | 290° | 255° | 265° | 275° | 285° |



## 234-105-49 in-line receptacle with rear release crimp contacts

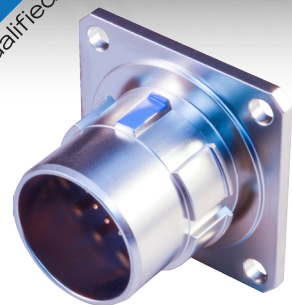
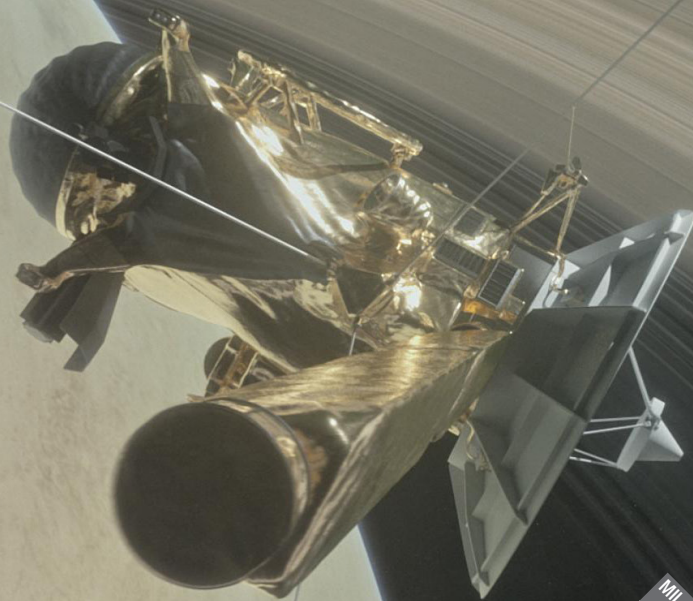
| COTS Part Number Development |                                                                                                                                                                                                                   |    |    |     |   |   |
|------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|----|-----|---|---|
| Sample Part Number           | 234-105-49                                                                                                                                                                                                        | NF | 11 | -35 | P | N |
| Series / Basic Part No.      | 234-105-49 = Environmental, in-line receptacle                                                                                                                                                                    |    |    |     |   |   |
| Material/Finish              | ME = Aluminum, electroless nickel, conductive, -65°C to +200°C<br>NF = Aluminum, cadmium olive drab, conductive, -65°C to +175°C<br>MA† = Aluminum, electroless nickel, conductive, -65°C to +200°C (space-grade) |    |    |     |   |   |
| Shell Size                   | 11, 13, 15, 17, 19, 21, 23, 25                                                                                                                                                                                    |    |    |     |   |   |
| Insert Arrangement           | Per MIL-STD-1560; See reference information section for details                                                                                                                                                   |    |    |     |   |   |
| Contact Style                | P = Pin Insert      A = Pin Gender, Less Contacts<br>S = Socket Insert    B = Socket Gender, Less Contacts                                                                                                        |    |    |     |   |   |
| Polarization                 | N (Normal), A, B, C, D, K, L, M, R; see polarization position position table                                                                                                                                      |    |    |     |   |   |

† Connectors must be ordered with "MA" finish and modification code "-186T" to conform to the thermal vacuum outgassing requirements of Class G. Additional material/finish options are available, consult factory for ordering information.

| Dimensions |                 |                                |                          |                           |               |                                |               |
|------------|-----------------|--------------------------------|--------------------------|---------------------------|---------------|--------------------------------|---------------|
| Shell Size | Shell Size Code | B (Flat)                       | C                        | G Thread<br>1.0-6g 0.100R | ØJ            | ØK                             | ØS Max        |
| 11         | B               | .793 (20.15)<br>.778 (19.76)   | .102 (2.6)<br>.083 (2.1) | M15                       | .509 (12.93)  | .793 (20.15)<br>.778 (19.76)   | 1.054 (26.78) |
| 13         | C               | .919 (23.35)<br>.904 (22.96)   | .102 (2.6)<br>.083 (2.1) | M18                       | .634 (16.10)  | .919 (23.35)<br>.904 (22.96)   | 1.226 (31.15) |
| 15         | D               | 1.044 (26.52)<br>1.029 (26.13) | .102 (2.6)<br>.083 (2.1) | M22                       | .759 (19.28)  | 1.044 (26.52)<br>1.029 (26.13) | 1.351 (34.32) |
| 17         | E               | 1.170 (29.72)<br>1.155 (29.33) | .102 (2.6)<br>.083 (2.1) | M25                       | .885 (22.48)  | 1.170 (29.72)<br>1.155 (29.33) | 1.476 (37.50) |
| 19         | F               | 1.294 (32.87)<br>1.279 (32.48) | .102 (2.6)<br>.083 (2.1) | M28                       | 1.009 (25.63) | 1.294 (32.87)<br>1.279 (32.48) | 1.586 (40.29) |
| 21         | G               | 1.419 (36.05)<br>1.404 (35.66) | .134 (3.4)<br>.114 (2.9) | M31                       | 1.134 (28.80) | 1.419 (36.05)<br>1.404 (35.66) | 1.711 (43.46) |
| 23         | H               | 1.544 (39.22)<br>1.529 (38.83) | .134 (3.4)<br>.114 (2.9) | M34                       | 1.259 (31.98) | 1.544 (39.22)<br>1.529 (38.83) | 1.836 (46.64) |
| 25         | J               | 1.669 (42.40)<br>1.654 (42.01) | .134 (3.4)<br>.114 (2.9) | M37                       | 1.384 (35.15) | 1.669 (42.40)<br>1.654 (42.01) | 1.964 (49.89) |

| Additional Material/Finish Options |                                              |
|------------------------------------|----------------------------------------------|
| Finish Code                        | Description                                  |
| G2                                 | Aluminum, anodize, hardcoat                  |
| ZR                                 | Aluminum, zinc nickel, black (tri-valent cr) |
| MT                                 | Aluminum, nickel PTFE                        |
| ZL‡                                | Stainless steel, electro-deposited nickel    |
| ZI‡                                | Stainless steel, passivated                  |

‡ Available in receptacle only, not firewall rated.



## QPL AND COTS EQUIVALENT MIL-DTL-38999 Series IV Hermetic

The industry standard mil/aero connector backed with Glenair service and availability

**H**ermetic-class DLA certified MIL-DTL-38999 Series IV connectors from Glenair provide hermetically sealed breech lock connectors for high shock and vibration applications. Breech-lock systems provide robust engagement augmented by an internal mechanical thread to ensure connectors remain mated. Glenair Series IV hermetics maintain seal integrity and prevent ingress of chemical substances or fluids in mission-critical vacuum environments where air or gas impurities can result in corrosion, dielectric breakdown, and loss of insulation resistance between conductors. Typical applications include medical, geophysical, military aerospace and other industrial applications. Marked with D38999 or Glenair COTS part numbering, these hermetic class receptacles are available for box mount, jam-nut, solder mount and weld mount shell styles. All standard material and finish classes are supported including Y (CRES, passivated) and N (CRES, electrodeposited nickel). Contact arrangements per MIL-STD-1560 and both normal and alternate polarizations are fully supported. Best of all, defense and commercial aerospace customers, as well as land and marine engineers and procurement specialists may now specify these mission-critical interconnects directly from Glenair—the recognized service, support, and availability leader for the interconnect industry.

### DLA-QPL MIL-DTL-38999 SERIES III AVAILABLE FROM GLENAIR

- Qualified hermetic jam-nut, weld, solder and box mount receptacles
- All 1560 crimp-contact insert arrangements fully supported
- N and Y plating classes, plus Glenair COTS equivalents
- 100% made in America, no foreign-sourced materials, component parts, or assembly labor employed



*Glenair: Made in America since 1956*

# QPL QUALIFIED AND COTS EQUIVALENT MIL-DTL-38999 Series IV, Breech Coupling



Industry standard, hermetic triple-start mating,  
Mil qualified connectors

## MECHANICAL, HERMETIC, AND ELECTRICAL PERFORMANCE

MIL-DTL-38999 Series IV (Glenair Series 234-100) offers outstanding interconnect performance for mission-critical military and commercial applications.

- **Breech-lock, self locking connectors available with pin/socket, solder cup or eyelet contacts**
- **Electromagnetic compatibility (EMC):** metal-to-metal coupling, plug grounding fingers, and conductive shell finishes deliver excellent shielding performance up to 45 dB at 10 GHz
- **Contact protection:** scoop-proof design prevents inadvertent damage to pin contacts during mating
- **Hermetic sealing:**  $10^{-7}$  cc/second maximum helium leak rate
- **Corrosion resistance:** connector shells are made from corrosion resistant steel and are offered with passivated or electrodeposited nickel finish
- **Mating:** breech lock interface provides fast mating with excellent high shock and vibration tolerance to demating
- **Supported contacts:** from size #22D signal to #12 signal in solder cup, feedthru, and eyelet
- **Commercial equivalent:** Glenair COTS equivalent connectors deliver mil-spec performance with material/finish options not available in QPL parts



SERIES IV HERMETIC

## CONNECTOR FINISH CLASSES



### Electrodeposited Nickel

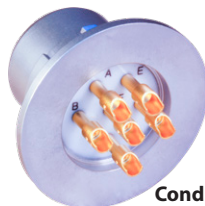
Conductivity ++++

Corrosion Resistance ⓧⓧⓧⓧ

-65° to +200°C

Glenair Code **ZL**

D38999 Class **N**



### Passivated

Conductivity ++++

Corrosion Resistance ⓧⓧⓧⓧ

-65° to +200°C

Glenair Code **Z1**

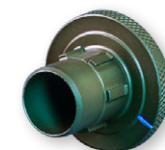
and **Z1S** (space)

D38999 Class **Y**

and **H** (space)



## 38999 SERIES IV ACCESSORIES



Glenair offers a full range of QPL D38999 accessories, contact the factory for details

## SUPPORTED SHELL STYLES



Jam-Nut Receptacle



Box Mount Receptacle



Solder Mount Receptacle



Weld Mount Receptacle



# QPL QUALIFIED

## MIL-DTL-38999 Series IV, Breech Coupling

### 38999/41 box mount receptacle



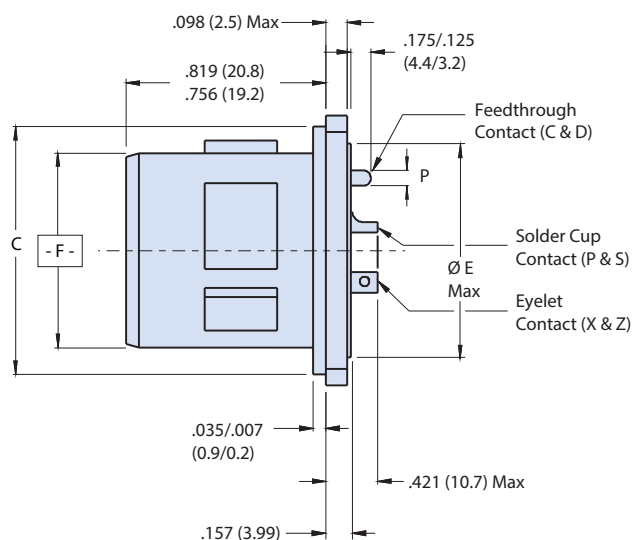
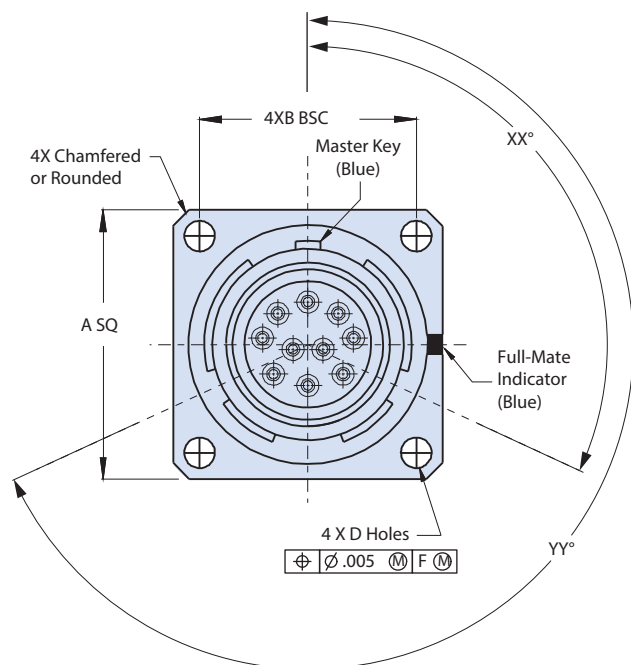
SERIES IV HERMETIC

| QPL Part Number Development |                                                                                                                                                                                                                                          |           |   |   |    |     |
|-----------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|---|---|----|-----|
| Sample Part Number          |                                                                                                                                                                                                                                          | D38999/41 | Y | B | 35 | P N |
| D38999                      | 38999/41 = Box mount receptacle                                                                                                                                                                                                          |           |   |   |    |     |
| Class                       | <b>N</b> = Hermetic, CRES, nickel finish, conductive, -65°C to 200°C<br><b>Y</b> = Hermetic, CRES, passivate finish, conductive, -65°C to 200°C<br><b>H</b> = Hermetic, CRES, passivate finish, conductive, -65°C to 200°C (space grade) |           |   |   |    |     |
| Shell Size                  | <b>B, C, D, E, F, G, H, J</b>                                                                                                                                                                                                            |           |   |   |    |     |
| Insert Arrangement          | Per MIL-STD-1560; See reference information section for details                                                                                                                                                                          |           |   |   |    |     |
| Contact Style               | <b>P</b> = Pin, solder cup <b>X</b> = Pin, eyelet <b>C</b> = Pin, PCB flex feedthrough<br><b>S</b> = Socket, solder cup <b>Z</b> = Socket, eyelet <b>D</b> = Socket, PCB flex feedthrough                                                |           |   |   |    |     |
| Polarization                | <b>N</b> (Normal), <b>A, B, C, D, K, L, M, R</b> ; see polarization positions table                                                                                                                                                      |           |   |   |    |     |



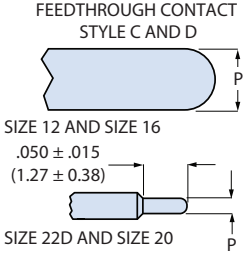
| Polarization Position |      |      |      |      |      |      |      |      |      |
|-----------------------|------|------|------|------|------|------|------|------|------|
|                       | N    | A    | B    | C    | D    | K    | L    | M    | R    |
| XX                    | 110° | 100° | 90°  | 80°  | 70°  | 120° | 120° | 120° | 120° |
| YY                    | 250° | 260° | 270° | 280° | 290° | 255° | 265° | 275° | 285° |

| Wire Accommodation |            |
|--------------------|------------|
| Contact Size       | Wire Gauge |
| 22D                | #22 - #28  |
| 20                 | #20 - #24  |
| 16                 | #16 - #20  |
| 12                 | #12 - #14  |





| SuperNine Part Number Development |                                                                                                                                                                                                     |    |    |     |   |   |
|-----------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|----|-----|---|---|
| Sample Part Number                | 234-100-H2                                                                                                                                                                                          | Z1 | 11 | -35 | P | N |
| Series / Basic Part No.           | 234-100-H2 = Hermetic, box mount receptacle                                                                                                                                                         |    |    |     |   |   |
| Material/Finish*                  | ZL = CRES, nickel finish, conductive, -65°C to 200°C<br>Z1 = CRES, passivate finish, conductive, -65°C to 200°C<br>Z1S = Hermetic, CRES, passivate finish, conductive, -65°C to 200°C (space grade) |    |    |     |   |   |
| Shell Size                        | 11, 13, 15, 17, 19, 21, 23, 25                                                                                                                                                                      |    |    |     |   |   |
| Insert Arrangement                | Per MIL-STD-1560; See reference information section for details                                                                                                                                     |    |    |     |   |   |
| Contact Style                     | P = Pin, solder cup      X = Pin, eyelet      C = Pin, PCB flex feedthrough<br>S = Socket, solder cup      Z = Socket, eyelet      D = Socket, PCB flex feedthrough                                 |    |    |     |   |   |
| Polarization                      | N (Normal), A, B, C, D, K, L, M, R; see polarization position position table                                                                                                                        |    |    |     |   |   |

| Contact Size                                                                                                                                                                                                             |                              |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------|
|  <p>FEEDTHROUGH CONTACT<br/>STYLE C AND D</p> <p>SIZE 12 AND SIZE 16<br/>.050 ± .015<br/>(1.27 ± 0.38)</p> <p>SIZE 22D AND SIZE 20</p> |                              |
| Contact Size                                                                                                                                                                                                             | ø P                          |
| 22D                                                                                                                                                                                                                      | .011 (0.28)<br>.015 (0.38)   |
| 20                                                                                                                                                                                                                       | .024 (0.61)<br>.028 (0.71)   |
| 16                                                                                                                                                                                                                       | .0635 (1.61)<br>.0615 (1.56) |
| 12                                                                                                                                                                                                                       | .095 (2.41)<br>.093 (2.36)   |

| Dimensions      |            |                              |              |                              |                          |               |
|-----------------|------------|------------------------------|--------------|------------------------------|--------------------------|---------------|
| Shell Size Code | Shell Size | A Sq                         | B Bsc        | C Dia                        | D Dia                    | Ø E Max       |
| B               | 11         | 1.051 (26.7)<br>1.008 (25.6) | .812 (20.6)  | .793 (20.1)<br>.778 (19.8)   | .138 (3.5)<br>.122 (3.1) | .625 (15.88)  |
| C               | 13         | 1.145 (29.1)<br>1.102 (28.0) | .906 (23.0)  | .919 (23.3)<br>.904 (23.0)   | .138 (3.5)<br>.122 (3.1) | .749 (19.02)  |
| D               | 15         | 1.240 (31.5)<br>1.197 (30.4) | .969 (24.6)  | 1.044 (26.5)<br>1.029 (26.1) | .138 (3.5)<br>.122 (3.1) | .906 (23.01)  |
| E               | 17         | 1.334 (33.9)<br>1.291 (32.8) | 1.062 (27.0) | 1.170 (29.7)<br>1.155 (29.3) | .138 (3.5)<br>.122 (3.1) | 1.016 (25.81) |
| F               | 19         | 1.460 (37.1)<br>1.417 (36.0) | 1.156 (29.4) | 1.294 (32.9)<br>1.279 (32.5) | .138 (3.5)<br>.122 (3.1) | 1.141 (28.98) |
| G               | 21         | 1.583 (40.2)<br>1.539 (39.1) | 1.250 (31.8) | 1.419 (36.0)<br>1.404 (35.7) | .138 (3.5)<br>.122 (3.1) | 1.266 (32.16) |
| H               | 23         | 1.709 (43.4)<br>1.665 (42.3) | 1.375 (34.9) | 1.544 (39.2)<br>1.529 (38.8) | .157 (4.0)<br>.142 (3.6) | 1.375 (34.92) |
| J               | 25         | 1.835 (46.6)<br>1.791 (45.5) | 1.500 (38.1) | 1.670 (42.4)<br>1.654 (42.0) | .157 (4.0)<br>.142 (3.6) | 1.484 (37.69) |

# QPL QUALIFIED

## MIL-DTL-38999 Series IV, Breech Coupling

### 38999/43 jam-nut mount receptacle



SERIES IV HERMETIC

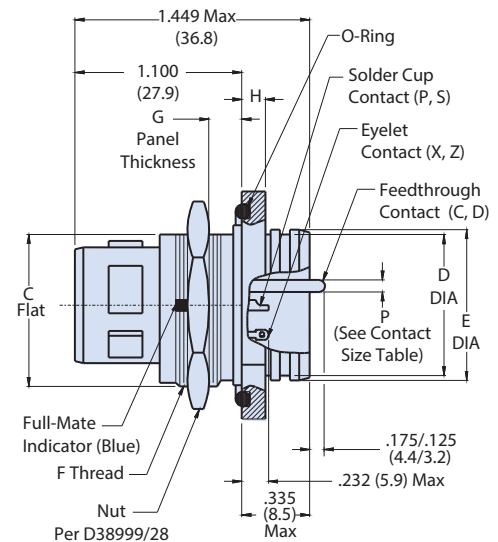
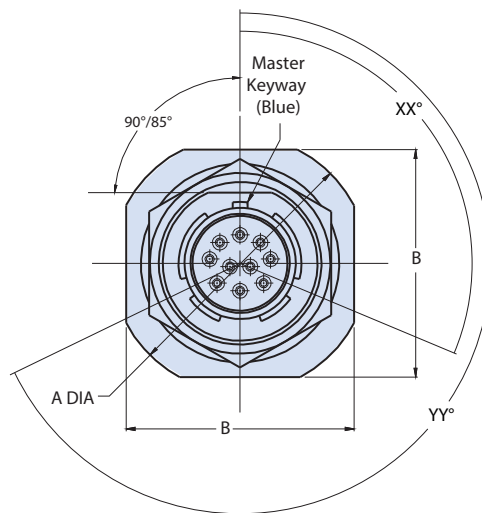
| QPL Part Number Development |                                                                                                                                                                                                                                          |           |   |   |    |     |
|-----------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|---|---|----|-----|
| Sample Part Number          |                                                                                                                                                                                                                                          | D38999/43 | Y | B | 35 | P N |
| D38999                      | 38999/43 = Jam-Nut receptacle                                                                                                                                                                                                            |           |   |   |    |     |
| Class                       | <b>N</b> = Hermetic, CRES, nickel finish, conductive, -65°C to 200°C<br><b>Y</b> = Hermetic, CRES, passivate finish, conductive, -65°C to 200°C<br><b>H</b> = Hermetic, CRES, passivate finish, conductive, -65°C to 200°C (space grade) |           |   |   |    |     |
| Shell Size                  | <b>B, C, D, E, F, G, H, J</b>                                                                                                                                                                                                            |           |   |   |    |     |
| Insert Arrangement          | Per MIL-STD-1560; See reference information section for details                                                                                                                                                                          |           |   |   |    |     |
| Contact Style               | <b>P</b> = Pin, solder cup <b>X</b> = Pin, eyelet <b>C</b> = Pin, PCB flex feedthrough<br><b>S</b> = Socket, solder cup <b>Z</b> = Socket, eyelet <b>D</b> = Socket, PCB flex feedthrough                                                |           |   |   |    |     |
| Polarization                | <b>N</b> (Normal), <b>A, B, C, D, K, L, M, R</b> ; see polarization positions table                                                                                                                                                      |           |   |   |    |     |



| Polarization Position |      |      |      |      |      |      |      |      |      |
|-----------------------|------|------|------|------|------|------|------|------|------|
|                       | N    | A    | B    | C    | D    | K    | L    | M    | R    |
| XX                    | 110° | 100° | 90°  | 80°  | 70°  | 120° | 120° | 120° | 120° |
| YY                    | 250° | 260° | 270° | 280° | 290° | 255° | 265° | 275° | 285° |

| Wire Accommodation |            |
|--------------------|------------|
| Contact Size       | Wire Gauge |
| 22D                | #22 - #28  |
| 20                 | #20 - #24  |
| 16                 | #16 - #20  |
| 12                 | #12 - #14  |

| Contact Size                                                                                                                |                              |
|-----------------------------------------------------------------------------------------------------------------------------|------------------------------|
| FEEDTHROUGH CONTACT<br>STYLE C AND D<br><br>SIZE 12 AND SIZE 16<br>.050 ± .015<br>(1.27 ± 0.38)<br>SIZE 22D AND SIZE 20<br> |                              |
| Contact Size                                                                                                                | ø P                          |
| 22D                                                                                                                         | .011 (0.28)<br>.015 (0.38)   |
| 20                                                                                                                          | .024 (0.61)<br>.028 (0.71)   |
| 16                                                                                                                          | .0635 (1.61)<br>.0615 (1.56) |
| 12                                                                                                                          | .095 (2.41)<br>.093 (2.36)   |



# COTS EQUIVALENT MIL-DTL-38999 Series IV, Breech Coupling 234-100-H7 jam-nut mount receptacle

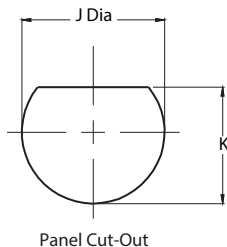


SERIES IV HERMETIC

\*Additional

| DLA Equivalent Part Number Development |                                                                                                                                                                                                                          |    |    |     |   |   |
|----------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|----|-----|---|---|
| Sample Part Number                     | 234-100-H7                                                                                                                                                                                                               | Z1 | 11 | -35 | P | N |
| Series / Basic Part No.                | 234-100-H7 = Hermetic, jam-nut mount hermetic receptacle                                                                                                                                                                 |    |    |     |   |   |
| Material/Finish*                       | <b>ZL</b> = CRES, nickel finish, conductive, -65°C to 200°C<br><b>Z1</b> = CRES, passivate finish, conductive, -65°C to 200°C<br><b>Z1S</b> = Hermetic, CRES, passivate finish, conductive, -65°C to 200°C (space grade) |    |    |     |   |   |
| Shell Size                             | 11, 13, 15, 17, 19, 21, 23, 25                                                                                                                                                                                           |    |    |     |   |   |
| Insert Arrangement                     | Per MIL-STD-1560; See reference information section for details                                                                                                                                                          |    |    |     |   |   |
| Contact Style                          | <b>P</b> = Pin, solder cup <b>X</b> = Pin, eyelet <b>C</b> = Pin, PCB flex feedthrough<br><b>S</b> = Socket, solder cup <b>Z</b> = Socket, eyelet <b>D</b> = Socket, PCB flex feedthrough                                |    |    |     |   |   |
| Polarization                           | <b>N</b> (Normal), <b>A, B, C, D, K, L, M, R</b> see polarization position position table                                                                                                                                |    |    |     |   |   |

| Dimensions      |            |                            |                                |                            |                            |                  |                            |              |              |
|-----------------|------------|----------------------------|--------------------------------|----------------------------|----------------------------|------------------|----------------------------|--------------|--------------|
| SHELL SIZE CODE | SHELL SIZE | A DIA                      | B                              | C FLAT                     | D DIA                      | E DIA ±.010(0.3) | F THREAD ISO METRIC 1.0-6g | G ±.033(0.8) | H ±.012(0.3) |
| B               | 11         | 1.385(35.2)<br>1.362(34.6) | 1.267 (32.18)<br>1.232 (31.29) | .754(19.2)<br>.745(18.9)   | .732(18.6)<br>.716(18.2)   | .769(19.5)       | M20                        | .092(2.3)    | .106(2.7)    |
| C               | 13         | 1.511(38.4)<br>1.488(37.8) | 1.393 (35.38)<br>1.358 (34.49) | .941(23.9)<br>.932(23.7)   | .858(21.8)<br>.839(21.3)   | .899(22.8)       | M25                        | .092(2.3)    | .106(2.7)    |
| D               | 15         | 1.637(41.6)<br>1.614(41.0) | 1.519 (38.58)<br>1.484 (37.69) | 1.065(27.1)<br>1.056(26.8) | .984(25.0)<br>.968(24.6)   | 1.025(26.0)      | M28                        | .092(2.3)    | .106(2.7)    |
| E               | 17         | 1.763(44.8)<br>1.740(44.2) | 1.641 (41.68)<br>1.606 (40.79) | 1.190(30.2)<br>1.181(30.0) | 1.110(28.2)<br>1.091(27.7) | 1.147(29.1)      | M32                        | .092(2.3)    | .106(2.7)    |
| F               | 19         | 1.948(49.5)<br>1.925(48.9) | 1.830 (46.48)<br>1.795 (45.59) | 1.316(33.4)<br>1.306(33.2) | 1.236(31.4)<br>1.220(31.0) | 1.273(32.3)      | M35                        | .092(2.3)    | .137(3.5)    |
| G               | 21         | 2.074(52.7)<br>2.051(52.1) | 1.956 (49.68)<br>1.921 (48.79) | 1.441(36.6)<br>1.431(36.3) | 1.358(34.5)<br>1.342(34.1) | 1.399(35.5)      | M38                        | .092(2.3)    | .137(3.5)    |
| H               | 23         | 2.200(55.9)<br>2.177(55.3) | 2.078 (52.78)<br>2.043 (51.89) | 1.565(39.8)<br>1.556(39.5) | 1.484(37.7)<br>1.468(37.3) | 1.525(38.7)      | M41                        | .092(2.3)    | .137(3.5)    |
| J               | 25         | 2.326(59.1)<br>2.299(58.4) | 2.204 (55.98)<br>2.169 (55.09) | 1.692(43.0)<br>1.681(42.7) | 1.610(40.9)<br>1.594(40.5) | 1.647(41.8)      | M44                        | .092(2.3)    | .137(3.5)    |



| Panel Cut-Out Dimensions |               |               |                 |               |               |
|--------------------------|---------------|---------------|-----------------|---------------|---------------|
| Shell Size Code          | J Dia         | K             | Shell Size Code | J Dia         | K             |
| B                        | .835 (21.21)  | .771 (19.58)  | F               | 1.395 (35.43) | 1.335 (33.91) |
|                          | .825 (20.96)  | .761 (19.33)  |                 | 1.385 (35.18) | 1.325 (33.66) |
| C                        | 1.020 (25.91) | .955 (24.26)  | G               | 1.520 (38.61) | 1.460 (37.08) |
|                          | 1.010 (25.65) | .945 (24.00)  |                 | 1.510 (38.35) | 1.450 (36.83) |
| D                        | 1.145 (29.08) | 1.085 (27.56) | H               | 1.645 (41.78) | 1.585 (40.26) |
|                          | 1.135 (28.83) | 1.075 (27.31) |                 | 1.635 (41.53) | 1.575 (40.01) |
| E                        | 1.270 (32.26) | 1.210 (30.73) | J               | 1.770 (44.96) | 1.710 (43.43) |
|                          | 1.260 (32.00) | 1.200 (30.48) |                 | 1.760 (44.70) | 1.700 (43.18) |

# QPL QUALIFIED

## MIL-DTL-38999 Series IV, Breech Coupling

### 38999/45 solder mount receptacle



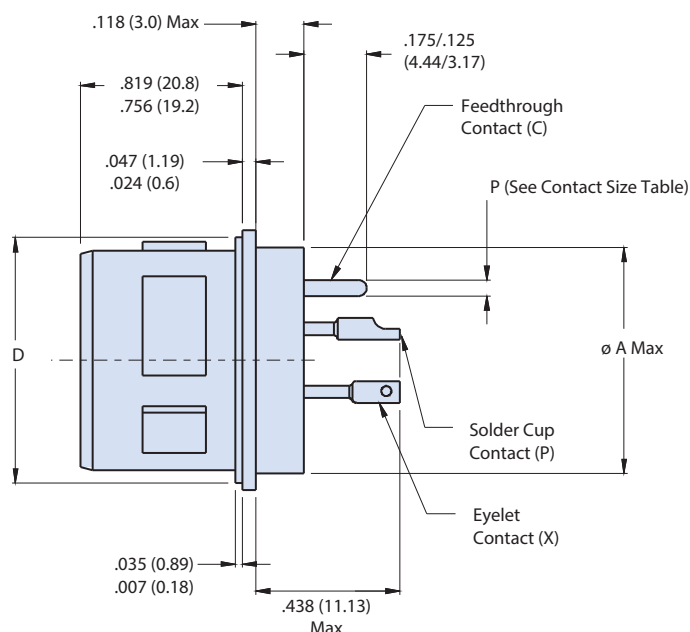
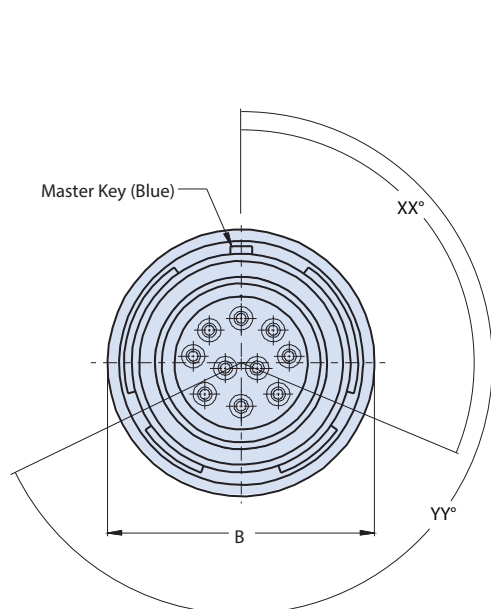
SERIES IV HERMETIC

| QPL Part Number Development |                                                                                                                                                                                                                                          |   |   |    |   |   |
|-----------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---|---|----|---|---|
| Sample Part Number          | D38999/45                                                                                                                                                                                                                                | Y | B | 35 | P | N |
| D38999                      | 38999/45 = Solder mount receptacle                                                                                                                                                                                                       |   |   |    |   |   |
| Class                       | <b>N</b> = Hermetic, CRES, nickel finish, conductive, -65°C to 200°C<br><b>Y</b> = Hermetic, CRES, passivate finish, conductive, -65°C to 200°C<br><b>H</b> = Hermetic, CRES, passivate finish, conductive, -65°C to 200°C (space grade) |   |   |    |   |   |
| Shell Size                  | <b>B, C, D, E, F, G, H, J</b>                                                                                                                                                                                                            |   |   |    |   |   |
| Insert Arrangement          | Per MIL-STD-1560; See reference information section for details                                                                                                                                                                          |   |   |    |   |   |
| Contact Style               | <b>P</b> = Pin, solder cup <b>X</b> = Pin, eyelet <b>C</b> = Pin, PCB flex feedthrough<br><b>S</b> = Socket, solder cup <b>Z</b> = Socket, eyelet <b>D</b> = Socket, PCB flex feedthrough                                                |   |   |    |   |   |
| Polarization                | <b>N</b> (Normal), <b>A, B, C, D, K, L, M, R</b> ; see polarization positions table                                                                                                                                                      |   |   |    |   |   |



| Polarization |      |      |      |      |      |      |      |      |      |
|--------------|------|------|------|------|------|------|------|------|------|
|              | N    | A    | B    | C    | D    | K    | L    | M    | R    |
| XX           | 110° | 100° | 90°  | 80°  | 70°  | 120° | 120° | 120° | 120° |
| YY           | 250° | 260° | 270° | 280° | 290° | 255° | 265° | 275° | 285° |

| Wire Accommodation |            |
|--------------------|------------|
| Contact Size       | Wire Gauge |
| 22D                | #22 - #28  |
| 20                 | #20 - #24  |
| 16                 | #16 - #20  |
| 12                 | #12 - #14  |





# COTS EQUIVALENT MIL-DTL-38999 Series IV, Breech Coupling

## 234-100-H5 solder mount receptacle

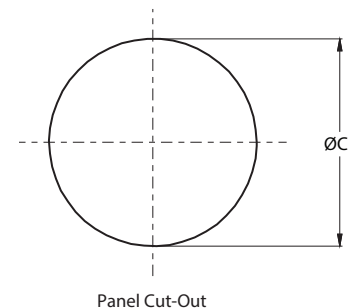


SERIES IV HERMETIC

| DLA Equivalent Part Number Development |                                                                                                                                                                                                                          |    |    |     |   |   |
|----------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|----|-----|---|---|
| Sample Part Number                     | 234-100-H5                                                                                                                                                                                                               | Z1 | 11 | -35 | P | N |
| Series / Basic Part No.                | 234-100-H5 = Hermetic, solder mount receptacle                                                                                                                                                                           |    |    |     |   |   |
| Material/Finish*                       | <b>ZL</b> = CRES, nickel finish, conductive, -65°C to 200°C<br><b>Z1</b> = CRES, passivate finish, conductive, -65°C to 200°C<br><b>Z1S</b> = Hermetic, CRES, passivate finish, conductive, -65°C to 200°C (space grade) |    |    |     |   |   |
| Shell Size                             | 11, 13, 15, 17, 19, 21, 23, 25                                                                                                                                                                                           |    |    |     |   |   |
| Insert Arrangement                     | Per MIL-STD-1560; See reference information section for details                                                                                                                                                          |    |    |     |   |   |
| Contact Style                          | <b>P</b> = Pin, solder cup <b>X</b> = Pin, eyelet <b>C</b> = Pin, PCB flex feedthrough<br><b>S</b> = Socket, solder cup <b>Z</b> = Socket, eyelet <b>D</b> = Socket, PCB flex feedthrough                                |    |    |     |   |   |
| Polarization                           | <b>N</b> (Normal), <b>A, B, C, D, K, L, M, R</b> see polarization table                                                                                                                                                  |    |    |     |   |   |

| Contact Size                                                                                                                          |                              |
|---------------------------------------------------------------------------------------------------------------------------------------|------------------------------|
| <p>FEEDTHROUGH CONTACT<br/>STYLE C AND D</p> <p>SIZE 12 AND SIZE 16<br/>.050 ± .015<br/>(1.27 ± 0.38)</p> <p>SIZE 22D AND SIZE 20</p> |                              |
| Contact Size                                                                                                                          | ø P                          |
| 22D                                                                                                                                   | .011 (0.28)<br>.015 (0.38)   |
| 20                                                                                                                                    | .024 (0.61)<br>.028 (0.71)   |
| 16                                                                                                                                    | .0635 (1.61)<br>.0615 (1.56) |
| 12                                                                                                                                    | .095 (2.41)<br>.093 (2.36)   |

| Dimensions      |            |             |             |                                |                            |
|-----------------|------------|-------------|-------------|--------------------------------|----------------------------|
| SHELL SIZE CODE | SHELL SIZE | ø A MAX     | ø B MAX     | ø C                            | D                          |
| B               | 11         | .783(19.9)  | .862(21.9)  | .794 (20.17)<br>.784 (19.91)   | .793(20.1)<br>.778(19.8)   |
| C               | 13         | .909(23.1)  | .988(25.1)  | .920 (23.37)<br>.910 (23.11)   | .919(23.3)<br>.904(23.0)   |
| D               | 15         | 1.035(26.3) | 1.110(28.2) | 1.046 (26.57)<br>1.036 (26.31) | 1.044(26.5)<br>1.028(26.1) |
| E               | 17         | 1.157(29.4) | 1.236(31.4) | 1.169 (29.71)<br>1.159 (29.44) | 1.170(29.7)<br>1.155(29.3) |
| F               | 19         | 1.252(31.8) | 1.331(33.8) | 1.263 (32.08)<br>1.253 (31.83) | 1.294(32.9)<br>1.279(32.5) |
| G               | 21         | 1.378(35.0) | 1.457(37.0) | 1.389 (35.28)<br>1.379 (35.03) | 1.419(36.0)<br>1.404(35.7) |
| H               | 23         | 1.504(38.2) | 1.583(40.2) | 1.515 (38.48)<br>1.505 (38.23) | 1.544(39.2)<br>1.528(38.8) |
| J               | 25         | 1.630(41.4) | 1.705(43.3) | 1.642 (41.71)<br>1.632 (41.45) | 1.670(42.4)<br>1.654(42.0) |



# QPL QUALIFIED

## MIL-DTL-38999 Series IV, Breech Coupling

### 38999/48 weld mount receptacle



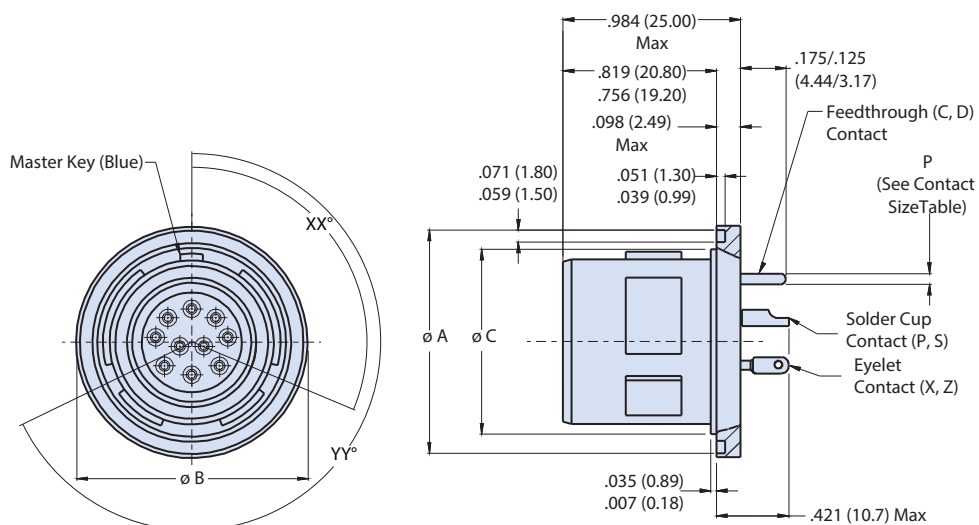
SERIES IV HERMETIC

| QPL Part Number Development |                                                                                                                                                                                                                                          |           |   |   |    |     |
|-----------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|---|---|----|-----|
| Sample Part Number          |                                                                                                                                                                                                                                          | D38999/48 | Y | B | 35 | P N |
| D38999                      | 38999/48 = Weld mount receptacle                                                                                                                                                                                                         |           |   |   |    |     |
| Class                       | <b>N</b> = Hermetic, CRES, nickel finish, conductive, -65°C to 200°C<br><b>Y</b> = Hermetic, CRES, passivate finish, conductive, -65°C to 200°C<br><b>H</b> = Hermetic, CRES, passivate finish, conductive, -65°C to 200°C (space grade) |           |   |   |    |     |
| Shell Size                  | <b>B, C, D, E, F, G, H, J</b>                                                                                                                                                                                                            |           |   |   |    |     |
| Insert Arrangement          | Per MIL-STD-1560; See reference information section for details                                                                                                                                                                          |           |   |   |    |     |
| Contact Style               | <b>P</b> = Pin, solder cup <b>X</b> = Pin, eyelet <b>C</b> = Pin, PCB flex feedthrough<br><b>S</b> = Socket, solder cup <b>Z</b> = Socket, eyelet <b>D</b> = Socket, PCB flex feedthrough                                                |           |   |   |    |     |
| Polarization                | <b>N</b> (Normal), <b>A, B, C, D, K, L, M, R</b> ; see polarization positions table                                                                                                                                                      |           |   |   |    |     |



| Polarization |      |      |      |      |      |      |      |      |      |
|--------------|------|------|------|------|------|------|------|------|------|
|              | N    | A    | B    | C    | D    | K    | L    | M    | R    |
| XX           | 110° | 100° | 90°  | 80°  | 70°  | 120° | 120° | 120° | 120° |
| YY           | 250° | 260° | 270° | 280° | 290° | 255° | 265° | 275° | 285° |

| Wire Accommodation |            |
|--------------------|------------|
| Contact Size       | Wire Gauge |
| 22D                | #22 - #28  |
| 20                 | #20 - #24  |
| 16                 | #16 - #20  |
| 12                 | #12 - #14  |



Consult Factory for Recommended Panel Cutout Dimensions

# COTS EQUIVALENT

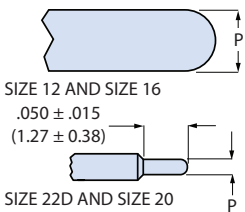
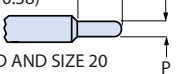
## MIL-DTL-38999 Series IV, Breech Coupling

### 234-100-H8 weld mount receptacle



SERIES IV HERMETIC

| DLA Equivalent Part Number Development |                                                                                                                                                                                                     |    |    |     |   |   |
|----------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|----|-----|---|---|
| Sample Part Number                     | 234-100-H8                                                                                                                                                                                          | Z1 | 11 | -35 | P | N |
| Series / Basic Part No.                | 234-100-H8 = Hermetic, weld mount receptacle                                                                                                                                                        |    |    |     |   |   |
| Material/Finish*                       | ZL = CRES, nickel finish, conductive, -65°C to 200°C<br>Z1 = CRES, passivate finish, conductive, -65°C to 200°C<br>Z1S = Hermetic, CRES, passivate finish, conductive, -65°C to 200°C (space grade) |    |    |     |   |   |
| Shell Size                             | 11, 13, 15, 17, 19, 21, 23, 25                                                                                                                                                                      |    |    |     |   |   |
| Insert Arrangement                     | Per MIL-STD-1560; See reference information section for details                                                                                                                                     |    |    |     |   |   |
| Contact Style                          | P = Pin, solder cup      X = Pin, eyelet      C = Pin, feedthrough<br>S = Socket, solder cup      Z = Socket, eyelet      D = Socket, feedthrough                                                   |    |    |     |   |   |
| Polarization                           | N (Normal), A, B, C, D, K, L, M, R see polarization position table                                                                                                                                  |    |    |     |   |   |

| Contact Size                                                                                                                                                                                                                                                                                     |                              |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------|
| FEEDTHROUGH CONTACT<br>STYLE C AND D<br><br>SIZE 12 AND SIZE 16<br>.050 ± .015<br>(1.27 ± 0.38)<br>SIZE 22D AND SIZE 20<br> |                              |
| Contact Size                                                                                                                                                                                                                                                                                     | ø P                          |
| 22D                                                                                                                                                                                                                                                                                              | .011 (0.28)<br>.015 (0.38)   |
| 20                                                                                                                                                                                                                                                                                               | .024 (0.61)<br>.028 (0.71)   |
| 16                                                                                                                                                                                                                                                                                               | .0635 (1.61)<br>.0615 (1.56) |
| 12                                                                                                                                                                                                                                                                                               | .095 (2.41)<br>.093 (2.36)   |

| Dimensions      |            |                              |                              |                              |
|-----------------|------------|------------------------------|------------------------------|------------------------------|
| SHELL SIZE CODE | SHELL SIZE | ø A                          | ø B                          | ø C                          |
| B               | 11         | 1.035 (26.3)<br>1.024 (26.0) | 1.106 (28.1)<br>1.094 (27.8) | .793 (20.1)<br>.778 (19.8)   |
| C               | 13         | 1.161 (29.5)<br>1.150 (29.2) | 1.232 (31.3)<br>1.220 (31.0) | .919 (23.3)<br>.904 (23.0)   |
| D               | 15         | 1.287 (32.7)<br>1.276 (32.4) | 1.358 (34.5)<br>1.346 (34.2) | 1.044 (26.5)<br>1.029 (26.1) |
| E               | 17         | 1.374 (34.9)<br>1.362 (34.6) | 1.445 (36.7)<br>1.433 (36.4) | 1.170 (29.7)<br>1.155 (29.3) |
| F               | 19         | 1.520 (38.6)<br>1.508 (38.3) | 1.591 (40.4)<br>1.579 (40.1) | 1.294 (32.9)<br>1.279 (32.5) |
| G               | 21         | 1.661 (42.2)<br>1.650 (41.9) | 1.732 (44.0)<br>1.720 (43.7) | 1.419 (36.0)<br>1.404 (35.7) |
| H               | 23         | 1.827 (46.4)<br>1.815 (46.1) | 1.898 (48.2)<br>1.886 (47.4) | 1.544 (39.2)<br>1.529 (38.8) |
| J               | 25         | 1.913 (48.6)<br>1.902 (48.3) | 1.984 (50.4)<br>1.972 (50.1) | 1.669 (42.4)<br>1.654 (42.0) |





The new  
MIL-DTL-38999  
go-to supplier

MIL-DTL-38999

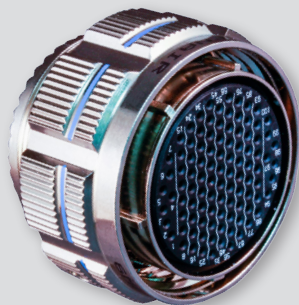
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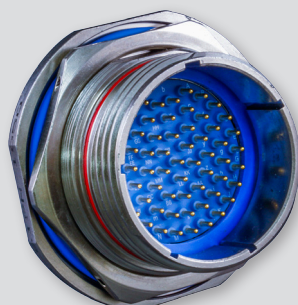
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- Liberal policies on NRE costs, minimum order quantities and delivery schedules

## QPL MIL-DTL-38999 CONNECTORS



D38999/26 Plug



D38999/24 Jam-Nut receptacle



D38999/20 Wall mount receptacle



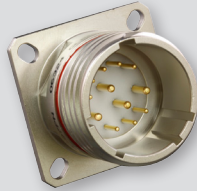
# MIL-DTL-38999 DERIVATIVES AND OTHER Mil-Aero Connector Specials



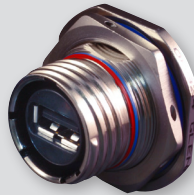
## GLENAIR SUPERNINE® ADVANCED PERFORMANCE CONNECTORS



SuperNine®  
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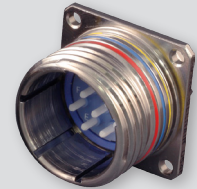
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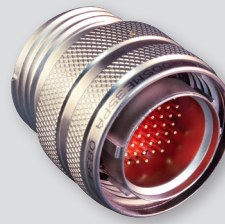
## BULKHEAD FEED-THRUS AND SAV-CON® CONNECTOR SAVERS



Bulkhead feed-thrus  
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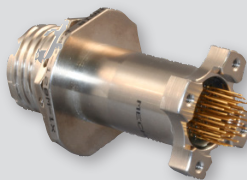
## INNOVATIVE SHELL PACKAGE MODIFICATIONS AND MATING TECHNOLOGIES



Mounting flange  
modifications



Quick-disconnect push-pull  
and lanyard-release mating



Integrated/housed  
electronics



Integrated band/  
boot porch



Blind-mate and  
low-extraction force

## NON-STANDARD CONTACT LAYOUTS



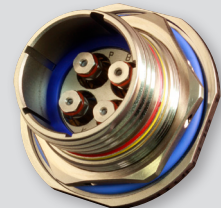
Hybrid power  
contact arrangement



Sealed Coax  
insert arrangement



Hybrid shielded contact/signal  
contact insert arrangement



Optronic (transmitter/receiver)  
contact arrangement



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