

# High Reliability, Military D Subminiature, & Non-Magnetic/No-Outgas

Solder Cup



(See page 333)

Crimp



(See page 334-335)

Printed Circuit



(See page 336-338)

## Performance and Material Specifications

### MATERIALS AND FINISHES

|                      | Standard                                                                   |                                                          | Military                                                                   |                                                                                                                                     |
|----------------------|----------------------------------------------------------------------------|----------------------------------------------------------|----------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------|
|                      | Material                                                                   | Finish                                                   | Material                                                                   | Finish                                                                                                                              |
| Shell                | Steel per ASTM A-620                                                       | Yellow chromate over cadmium<br>QQ-P-416 Type II Class 2 | Steel per ASTM A-620                                                       | Yellow chromate over cadmium<br>QQ-P-416 Type II Class 2                                                                            |
| Insulator            | Diallyl phthalate glass-filled<br>per MIL-M-14, type SDG-F,<br>color green |                                                          | Diallyl phthalate glass-filled<br>per MIL-M-14, type SDG-F,<br>color green |                                                                                                                                     |
| Contact              | Copper alloy                                                               | Gold over nickel                                         | Copper Alloy<br>Crimp Socket has<br>stainless steel hood<br>passivated.    | Gold 50 microinches minimum thickness per<br>MIL-G-45204 Type II Grade C Class 1 over<br>copper per MIL-C-14550<br>Hood: Passivated |
| Float Mount Hardware | Stainless steel                                                            | Passivate per QQ-P-35                                    | Stainless steel                                                            | Passivate per QQ-P-35                                                                                                               |

### PERFORMANCE SPECIFICATIONS

|                                  |                                            |
|----------------------------------|--------------------------------------------|
| Wire Accommodation (AWG)         | Solder - #20 Max.<br>Crimp - #18- #30 Max. |
| Current Rating                   | #20; 5 Amp                                 |
| Temperature Rating               | -65°C to +150°C                            |
| Contact Resistance               | 55 @ 7.5 Amp<br>test current               |
| After Salt Spray, Millivolt Max. |                                            |

See pages 339 and 340 for complete M24308 cross reference.

### DIELECTRIC WITHSTANDING VOLTAGE

|                   | 90° and Straight (Solder/Crimp) |              |               |               |
|-------------------|---------------------------------|--------------|---------------|---------------|
|                   | Altitude (feet/m)               |              |               |               |
|                   | Sea Level                       | 20,000/6,096 | 50,000/15,240 | 70,000/21,336 |
| Average Flashover | 1700/1500                       | 1000/1000    | 650/500       | 500/500       |
| Test              | 1250/1000                       | 750/650      | 475/325       | 375/325       |

All voltage figures are rms AC 60 rms cps, measured at approximately +25°C, 50% rh. For additional performance specifications refer to MIL-C-24308 Test Extracts on page 385.

## Non-Magnetic/No-Outgas Options

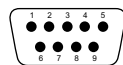
| Suffix Code | Residual Magnetism                                                                               | Shell Material (Finish)                                                                                              | Desired Results           |
|-------------|--------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------|---------------------------|
| NMB         | 200 Gamma Residual Magnetism Insulator. (Diallyl Phtalate per MIL-M-14 type SDG-F, color white.) | Bras Shells Per QQ-B-613 (Yellow Chromate over Cadmium per QQ-P-416. Type II, Class 2.)                              | Non-Magnetic<br>No-Outgas |
| NMB-K52     | 200 Gamma Residual Magnetism Insulator. (Diallyl Phtalate per MIL-M-14 type SDG-F, color white.) | Brass Shells Per QQ-B-613 (Gold over copper per MIL-G-45204, Type II, Grade C, Class 1 over copper per MIL-C-14550.) | Non-Magnetic<br>No-Outgas |

Note: Look for the **NM** symbol for orderign information.

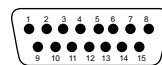
## Contact Arrangements

### Face View Pin Insert

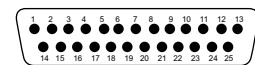
Shell Size  
Contact Arrangement  
Contact Size



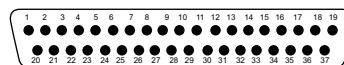
E  
9  
#20



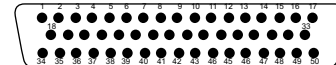
A  
15  
#20



B  
25  
#20



C  
37  
#20



D  
50  
#20

Shell Size  
Contact Arrangement  
Contact Size

## 333

## How to Order - Crimp Connectors (contacts are removable)



## Receptacles (Includes Socket Contacts) With .120" Through-Mounting Holes

| Number of Contacts (Shell Size) | Standard | Military Version | M24308 Cross Reference |
|---------------------------------|----------|------------------|------------------------|
| 9 (E)                           | DEMA9S   | DEMAM9S          | M24308/2-1             |
| 15 (A)                          | DAMA15S  | DAMAM15S         | M24308/2-2             |
| 25 (B)                          | DBMA25S  | DBMAM25S         | M24308/2-3             |
| 37 (C)                          | DCMA37S  | DCMAM37S         | M24308/2-4             |
| 50 (D)                          | DDMA50S  | DDMAM50S         | M24308/2-5             |

## Plugs (Includes Pin Contacts)\* With .120" Through-Mounting Holes

| Number of Contacts (Shell Size) | Standard | Military Version | M24308 Cross Reference |
|---------------------------------|----------|------------------|------------------------|
| 9 (E)                           | DEMA9P   | DEMAM9P          | M24308/4-1             |
| 15 (A)                          | DAMA15P  | DAMAM15P         | M24308/4-2             |
| 25 (B)                          | DBMA25P  | DBMAM25P         | M24308/4-3             |
| 37 (C)                          | DCMA37P  | DCMAM37P         | M24308/4-4             |
| 50 (D)                          | DDMA50P  | DDMAM50P         | M24308/4-5             |

To receive these connectors without contacts, add "F0" to end of part number.

Example: DBMA25SF0, DBMAM25SF0.

**NM** Non-Magnetic/No Outgas-Add desired suffix code with desired option to end of part number.

Example: DEMA9PSNMB  
DEMA9PSNMB-K52

Crimp Connectors without contacts, add F0 to end of the part number and change K52 to K47.

Assembly Instructions - Page 363.

Performance Specifications - Page 332.

## Mounting Options Available:

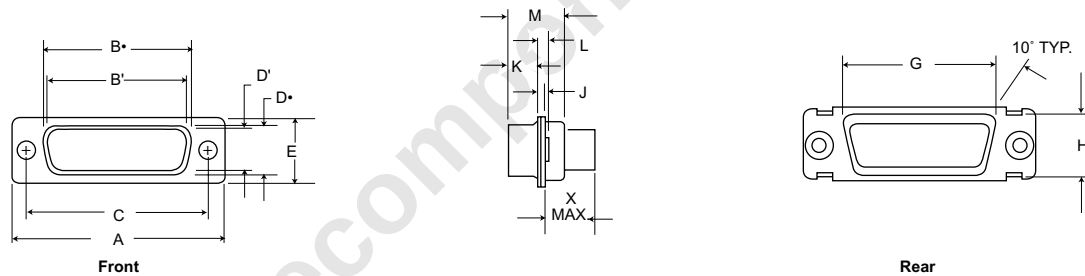
4-40 Clinch Nut - Add "E" to Part Number After "M" or "A"

4-40 Flood Mount - Add "Y" to Part Number After "M" or "A"

(Can be used in front or rear panel mount applications)

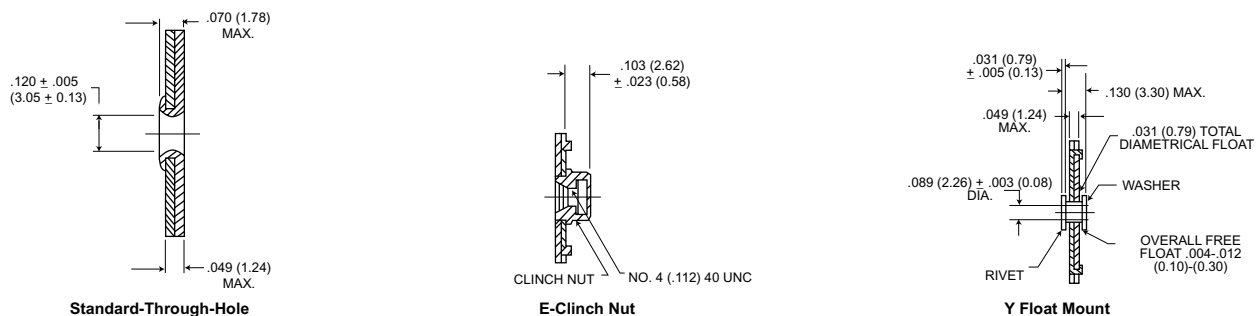
Example: DBMAE25S  
DBMAM25S  
DEMAY9P  
DBMAMY9P

## Dimensions - Crimp Connectors



| Part Number by Shell Size | A             | B             | B'            | C             | D             | D'            | E             | G             | H             | J             | K             | L             | M             | X           |
|---------------------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|-------------|
|                           | ± .015 (0.38) | ± .005 (0.13) | ± .005 (0.13) | ± .005 (0.13) | ± .005 (0.13) | ± .005 (0.13) | ± .015 (0.38) | ± .010 (0.25) | ± .010 (0.25) | ± .010 (0.25) | ± .006 (0.15) | ± .013 (0.33) | ± .010 (0.25) | Max.        |
| DEMA-9P                   | 1.213 (30.81) | -             | .666 (16.91)  | .984 (24.99)  | -             | .329 (8.36)   | .494 (12.55)  | .759 (19.28)  | .422 (10.72)  | .030 (0.76)   | .235 (5.97)   | .048 (1.22)   | .422 (10.72)  | .345 (8.76) |
| DEMA-9S                   | 1.213 (30.81) | .643 (16.33)  | -             | .984 (24.99)  | .311 (7.90)   | -             | .494 (12.55)  | .759 (19.28)  | .422 (10.72)  | .030 (0.76)   | .243 (6.17)   | .048 (1.22)   | .429 (10.90)  | .345 (8.76) |
| DAMA-15P                  | 1.541 (39.14) | -             | .994 (25.24)  | 1.312 (33.32) | -             | .329 (8.36)   | .494 (12.55)  | 1.083 (27.51) | .422 (10.72)  | .030 (0.76)   | .235 (5.97)   | .048 (1.22)   | .422 (10.72)  | .345 (8.76) |
| DAMA-15S                  | 1.541 (39.14) | .971 (24.66)  | -             | 1.312 (33.32) | .311 (7.90)   | -             | .494 (12.55)  | 1.083 (27.51) | .422 (10.72)  | .030 (0.76)   | .243 (6.17)   | .048 (1.22)   | .429 (10.90)  | .345 (8.76) |
| DBMA-25P                  | 2.088 (53.03) | -             | 1.534 (38.96) | 1.852 (47.04) | -             | .329 (8.36)   | .494 (12.55)  | 1.625 (41.27) | .422 (10.72)  | .039 (0.99)   | .230 (5.84)   | .060 (1.52)   | .426 (10.82)  | .345 (8.76) |
| DBMA-25S                  | 2.088 (53.03) | 1.511 (38.38) | -             | 1.852 (47.04) | .311 (7.90)   | -             | .494 (12.55)  | 1.625 (41.27) | .422 (10.72)  | .030 (0.76)   | .243 (6.17)   | .048 (1.22)   | .429 (10.90)  | .345 (8.76) |
| DCMA-37P                  | 2.729 (69.31) | -             | 2.182 (55.42) | 2.500 (63.50) | -             | .329 (8.36)   | .494 (12.55)  | 2.272 (57.71) | .422 (10.72)  | .039 (0.99)   | .230 (5.84)   | .060 (1.52)   | .426 (10.82)  | .345 (8.76) |
| DCMA-37S                  | 2.729 (69.31) | 2.159 (54.84) | -             | 2.500 (63.50) | .311 (7.90)   | -             | .494 (12.55)  | 2.272 (57.71) | .422 (10.72)  | .030 (0.76)   | .243 (6.17)   | .048 (1.22)   | .429 (10.90)  | .345 (8.76) |
| DDMA-50P                  | 2.635 (66.92) | -             | 2.079 (52.81) | 2.406 (61.11) | -             | .441 (11.20)  | .605 (15.37)  | 2.178 (55.32) | .534 (13.56)  | .039 (0.99)   | .230 (5.84)   | .060 (1.52)   | .426 (10.82)  | .345 (8.76) |
| DDMA-50S                  | 2.635 (66.92) | 2.064 (52.43) | -             | 2.406 (61.11) | .423 (10.74)  | -             | .605 (15.37)  | 2.178 (55.32) | .534 (13.56)  | .030 (0.76)   | .243 (6.17)   | .048 (1.22)   | .429 (10.90)  | .345 (8.76) |

## Mounting Option Dimensions - Crimp Components



It is recommended that only one assembly, either pin or socket, be float mounted.

Dimensions are shown in inches (millimeters).  
Dimensions subject to change.

## High Rel Crimp Contacts

## MATERIALS AND FINISHES

NM

| Contact Size | Wire Size Accom. | Standard Finish |              | Military Finish |               | NMB          |              |
|--------------|------------------|-----------------|--------------|-----------------|---------------|--------------|--------------|
|              |                  | Pin             | Socket       | Pin             | Socket        | Pin          | Socket       |
| 20           | 20, 22, 24       | 330-5291-000    | 031-1007-000 | 330-5291-037    | 031-1007-042  | 330-5291-037 | 031-1007-057 |
| 20-18        | 1 #18 & 2 #22    | 330-5291-001    | 031-1007-001 | 330-5291-055    | 031-1007-054  | -            | -            |
| 20-26        | 26, 28, 30       | 330-5291-004    | 031-1007-004 | 330-5291-050    | 031-1007-048  | -            | -            |
| 22D          | 22, 24, 26, 28   |                 |              | 030-2042-002*   | 031-1147-002* | -            | -            |

## MIL-C-39029 Cross-Reference

| Contact Size | Wire Size Accom. | M39029  | M24308 | Cannon Part No. |
|--------------|------------------|---------|--------|-----------------|
| 20 Pin       | 20/22/24         | /64-369 | /11-1  | 330-5291-037    |
| 20 Socket    | 20/22/24         | /36-368 | /10-1  | 031-1007-042    |
| 22D Pin      | 24/26/28         | /58-360 | /13-1  | 030-2042-000    |
| 22D Socket   | 22/24/26/28      | /57-354 | /12-1  | 031-1147-000    |

Assembly Instructions - Page 363

\*50 microinch AU over copper, no stripes.

## Tooling

## Insertion/Extraction Tools

## CIET-20HD

| Contact Size | AWG            | Plastic Insertion/Extraction |             | Plastic Extraction |             |
|--------------|----------------|------------------------------|-------------|--------------------|-------------|
|              |                | Part No.                     | Description | Part No.           | Description |
| 20           | 20, 22, 24     | 980-2000-426                 | CIET-20HD   | 323-7010-000       | CET-20-11   |
| 2026         | 26, 28, 30     | 980-2000-426                 | CIET 20HD   | 323-7010-000       | CET-20-11   |
| 2018         | 1 #18          | None                         | None        | 274-5016-002       | CET-20-15   |
|              | 2 #22          | None                         | None        | 274-5016-002       | CET-20-15   |
| 22D          | 22, 24, 26, 28 | 274-7048-000                 | CIET 22D    | None               | None        |
| High Power   | 12, 16         | 274-7003-000                 | CIET 12     | None               | None        |
| High Volt    | #20            | 274-7003-000                 | CIET 12     | None               | None        |

## Hand Crimp Tools



## M22520/1-01

## M22520/2-01

| Contact Size | AWG            | Crimp Tool   |             | Locator      |             |
|--------------|----------------|--------------|-------------|--------------|-------------|
|              |                | Part No.     | Description | Part No.     | Description |
|              |                | 995-0001-584 | M22520/2-01 | 995-0001-604 | M22520/2-08 |
| 20           | 20, 22, 24     | 995-0001-585 | M22520/2-01 | 995-0001-244 | TH25        |
| 2026         | 26, 28, 30     | 995-0001-584 | M22520/2-01 | 995-0001-325 | L3198-20HD  |
| 2018         | 1 #18          | 995-0001-584 | M22520/2-01 | 980-0005-722 | K250        |
|              | 2 #22          |              |             |              |             |
| 22D          | 22, 24, 26, 28 | 995-0001-584 | M22520/2-01 | 995-0001-739 | M22520/2-06 |

## Semi-Automatic Crimp Machines

The CBT-646, Vibra-Bowl Crimper is pneumatically powered, electronically controlled machine. It is designed to semi-automatically crimp closed barrel, machined contacts, as used in the aerospace and commercial industries. The machine will accommodate wire sizes 30 thru 12 AWG. The CBT-646 is actuated automatically upon insertion of a pre-stripped stranded or single conductor wire. The CBT-646 meets all Mil. Spec. requirements for crimping closed barrel contacts.

**Machine Crimp Rate:** 1300 + per hour

**Power Requirements:** Electrical = 115 Vac., 60 Hz, 5A  
Pneumatic = 85 psi., 2 cu. ft. per min.

Products: Most ITT Cannon Commercial and Aerospace closed barrel contacts, wire sizes 30 thru 12 AWG.  
(See connector line for part numbers.)

CBT-646

## How to Order - High-Rel Printed Circuit Mount Connectors

Straight PC Tail, Receptacles (Includes Socket Contacts) With .120 (3.15) Through-Mounting Holes.



| Number of Contacts (Shell Size) | PC Tails - .030 (0.76) Diameter     |                                     |                                     | Wire Wrap Post - .024 (0.61) Square             |                                                   |
|---------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------------------|---------------------------------------------------|
|                                 | .127 (3.23) ± .027 (0.69) Long Post | .158 (4.01) ± .027 (0.69) Long Post | .183 (4.65) ± .027 (0.69) Long Post | .405 (10.29) ± .027 (0.69) Long Post (Two Wrap) | .530 (13.46) ± .027 (0.69) Long Post (Three Wrap) |
| 9 (E) Standard                  | DEM9SE                              | DEM9SM                              | DEM9SZ                              | DEM9SF179                                       | DEM9SF179A                                        |
| 9 (E) Military                  | DEMM9SE                             | DEMM9SM                             | DEMM9SZ                             | DEMM9SF179                                      | DEMM9SF179A                                       |
| 15 (A) Standard                 | DAM15SE                             | DAM15SM                             | DAM15SZ                             | DAM15SF179                                      | DAM15SF179A                                       |
| 15 (A) Military                 | DAMM15SE                            | DAMM15SM                            | DAMM15SZ                            | DAMM15SF179                                     | DAMM15SF179A                                      |
| 25 (B) Standard                 | DBM25SE                             | DBM25SM                             | DBM25SZ                             | DBM25SF179                                      | DBM25SF179A                                       |
| 25 (B) Military                 | DBMM25SE                            | DBMM25SM                            | DBMM25SZ                            | DBMM25SF179                                     | DBMM25SF179A                                      |
| 37 (C) Standard                 | DCM37SE                             | DCM37SM                             | DCM37SZ                             | DCM37SF179                                      | DCM37SF179A                                       |
| 37 (C) Military                 | DCMM37SE                            | DCMM37SM                            | DCMM37SZ                            | DCMM37SF179                                     | DCMM37SF179A                                      |
| 50 (D) Standard                 | DDM50SE                             | DDM50SM                             | DDM50SZ                             | DDM50SF179                                      | DDM50SF179A                                       |
| 50 (D) Military                 | DDMM50SE                            | DDMM50SM                            | DDMM50SZ                            | DDMM50SF179                                     | DDMM50SF179A                                      |

**NM** Non-Magnetic/No-Outgas - Add desired suffix code (NMB, NM-K52) to end of part number. Example: DEM95ZNMB-K52

Straight PC Tail, Plug (Includes Pin Contacts) With .120 (3.15) Through-Mounting Holes

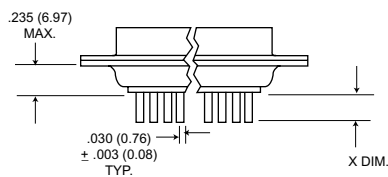


| Number of Contacts (Shell Size) | PC Tails - .030 (0.76) Diameter     |                                     |                                     | Wire Wrap Post - .024 (0.61) Square             |                                                   |
|---------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------------------|---------------------------------------------------|
|                                 | .127 (3.23) ± .027 (0.69) Long Post | .158 (4.01) ± .027 (0.69) Long Post | .183 (4.65) ± .027 (0.69) Long Post | .405 (10.29) ± .027 (0.69) Long Post (Two Wrap) | .530 (13.46) ± .027 (0.69) Long Post (Three Wrap) |
| 9 (E) Standard                  | DEM9PE                              | DEM9PM                              | DEM9PZ                              | DEM9PF179                                       | DEM9PF179A                                        |
| 9 (E) Military                  | DEMM9PE                             | DEMM9PM                             | DEMM9PZ                             | DEMM9PF179                                      | DEMM9PF179A                                       |
| 15 (A) Standard                 | DAM15PE                             | DAM15PM                             | DAM15PZ                             | DAM15PF179                                      | DAM15PF179A                                       |
| 15 (A) Military                 | DAMM15PE                            | DAMM15PM                            | DAMM15PZ                            | DAMM15PF179                                     | DAMM15PF179A                                      |
| 25 (B) Standard                 | DBM25PE                             | DBM25PM                             | DBM25PZ                             | DBM25PF179                                      | DBM25PF179A                                       |
| 25 (B) Military                 | DBMM25PE                            | DBMM25PM                            | DBMM25PZ                            | DBMM25PF179                                     | DBMM25PF179A                                      |
| 37 (C) Standard                 | DCM37PE                             | DCM37PM                             | DCM37PZ                             | DCM37PF179                                      | DCM37PF179A                                       |
| 37 (C) Military                 | DCMM37PE                            | DCMM37PM                            | DCMM37PZ                            | DCMM37PF179                                     | DCMM37PF179A                                      |
| 50 (D) Standard                 | DDM50PE                             | DDM50PM                             | DDM50PZ                             | DDM50PF179                                      | DDM50PF179A                                       |
| 50 (D) Military                 | DDMM50PE                            | DDMM50PM                            | DDMM50PZ                            | DDMM50PF179                                     | DDMM50PF179A                                      |

**NM** Non-Magnetic/No-Outgas - Add desired suffix cod (NMB, NM-K52) to end of part number. Example: DEM9PZNMB-K52

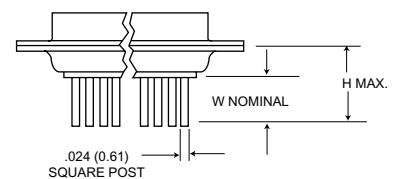
## Dimensions

## Printed Circuit Applications



\*All MIL-C-24308 connectors come with .250 (0.10) length spacers.

## Wire Wrapping Applications



| Code (Last Letter of Part Number) | Straight X ± .027 (0.69) |
|-----------------------------------|--------------------------|
| E                                 | .127 (3.22)              |
| M                                 | .158 (4.01)              |
| Z                                 | .183 (4.65)              |

| Modification Code | Number of Wraps | W            | H            |
|-------------------|-----------------|--------------|--------------|
| F179              | 2               | .405 (10.29) | .655 (16.64) |
| F179A             | 3               | .530 (13.46) | .780 (19.81) |

## How to Order - High-Rel Printed Circuit Mount Connectors

Right Angle PC Tail Receptacles, With Bracket  
(.120 (3.15) Though-Holes Only)

| Number of<br>Contacts<br>(Shell Size) | PC Tails - .030 (0.76) Diameter           |                                           |                                           |
|---------------------------------------|-------------------------------------------|-------------------------------------------|-------------------------------------------|
|                                       | .127 (3.23)<br>± .027 (0.69)<br>Long Post | .158 (4.01)<br>± .027 (0.69)<br>Long Post | .183 (4.65)<br>± .027 (0.69)<br>Long Post |
|                                       |                                           |                                           |                                           |
| 9 (E) Standard                        | DEM9SD                                    | DEM9SL                                    | DEM9SS                                    |
| 9 (E) <b>Military</b>                 | <b>DEMM9SD</b>                            | <b>DEMM9SL</b>                            | <b>DEMM9SS</b>                            |
| 15 (A) Standard                       | DAM15SD                                   | DAM15SL                                   | DAM15SS                                   |
| 15 (A) <b>Military</b>                | <b>DAMM15SD</b>                           | <b>DAMM15SL</b>                           | <b>DAMM15SS</b>                           |
| 25 (B) Standard                       | DBM25SD                                   | DBM25SL                                   | DBM25SS                                   |
| 25 (B) <b>Military</b>                | <b>DBMM25SD</b>                           | <b>DBMM25SL</b>                           | <b>DBMM25SS</b>                           |
| 37 (C) Standard                       | DCM37SD                                   | DCM37SL                                   | DCM37SS                                   |
| 37 (C) <b>Military</b>                | <b>DCMM37SD</b>                           | <b>DCMM37SL</b>                           | <b>DCMM37SS</b>                           |
| 50 (D) Standard                       | DDM50SD                                   | DDM50SL                                   | DDM50SS                                   |
| 50 (D) <b>Military</b>                | <b>DDMM50SD</b>                           | <b>DDMM50SL</b>                           | <b>DDMM50SS</b>                           |

**NM Non-Magnetic/No-Outgas** - Add desired suffix cod (NMB, NM-K52) to end of part number. Example: DEM9SLNMB-K52

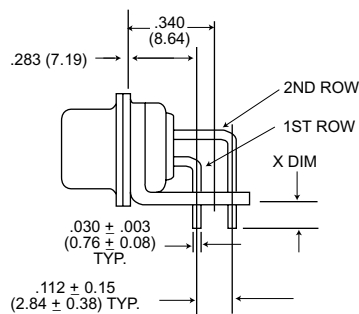
Right Angle PC Tail Plug, With Bracket (.120  
(3.15) Through-Holes Only)

| Number of<br>Contacts<br>(Shell Size) | PC Tails - .030 (0.76) Diameter           |                                           |                                           |
|---------------------------------------|-------------------------------------------|-------------------------------------------|-------------------------------------------|
|                                       | .127 (3.23)<br>± .027 (0.69)<br>Long Post | .158 (4.01)<br>± .027 (0.69)<br>Long Post | .183 (4.65)<br>± .027 (0.69)<br>Long Post |
|                                       |                                           |                                           |                                           |
| 9 (E) Standard                        | DEM9PD                                    | DEM9PL                                    | DEM9PS                                    |
| 9 (E) <b>Military</b>                 | <b>DEMM9PD</b>                            | <b>DEMM9PL</b>                            | <b>DEMM9PS</b>                            |
| 15 (A) Standard                       | DAM15PD                                   | DAM15PL                                   | DAM15PS                                   |
| 15 (A) <b>Military</b>                | <b>DAMM15PD</b>                           | <b>DAMM15PL</b>                           | <b>DAMM15PS</b>                           |
| 25 (B) Standard                       | DBM25PD                                   | DBM25PL                                   | DBM25PS                                   |
| 25 (B) <b>Military</b>                | <b>DBMM25PD</b>                           | <b>DBMM25PL</b>                           | <b>DBMM25PS</b>                           |
| 37 (C) Standard                       | DCM37PD                                   | DCM37PL                                   | DCM37PS                                   |
| 37 (C) <b>Military</b>                | <b>DCMM37PD</b>                           | <b>DCMM37PL</b>                           | <b>DCMM37PS</b>                           |
| 50 (D) Standard                       | DDM50PD                                   | DDM50PL                                   | DDM50PS                                   |
| 50 (D) <b>Military</b>                | <b>DDMM50PD</b>                           | <b>DDMM50PL</b>                           | <b>DDMM50PS</b>                           |

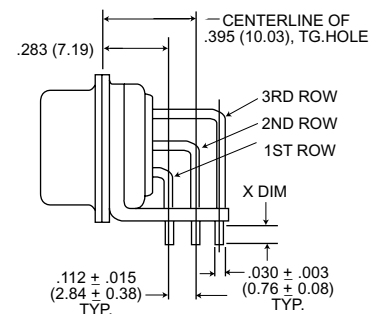
**NM Non-Magnetic/No-Outgas** - Add desired suffix cod (NMB, NM-K52) to end of part number. Example: DDM9SLNM-K52

## Dimensions-Right Angle 90° D Subminiature

Connectors with brackets cannot be ordered with float mounts or clinch nuts.



DE, DA, DB, DC Sizes

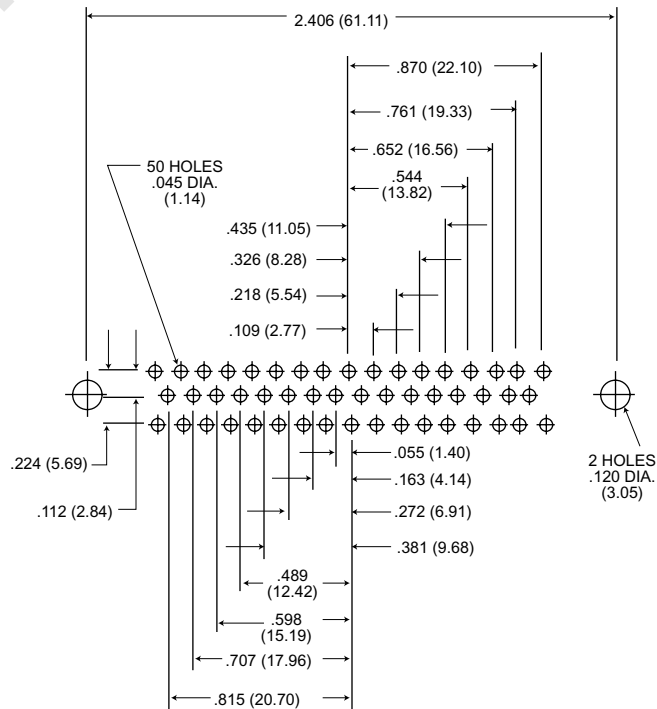
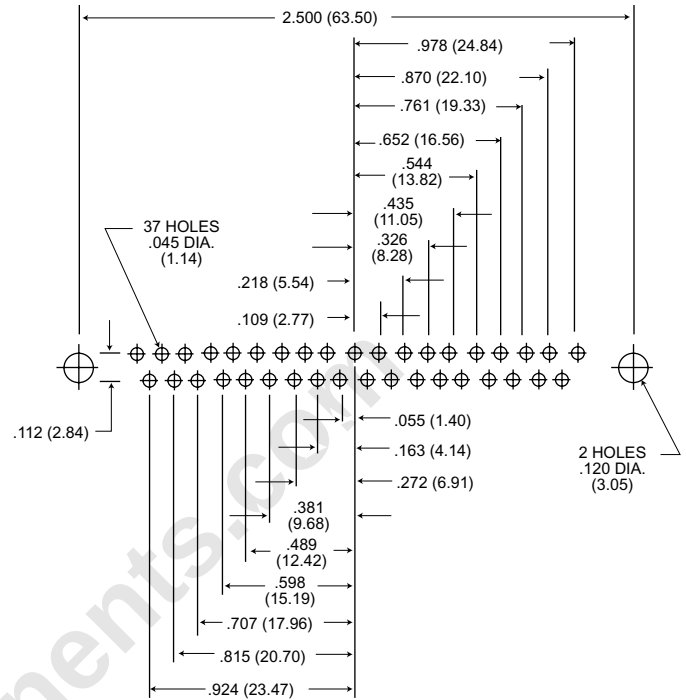
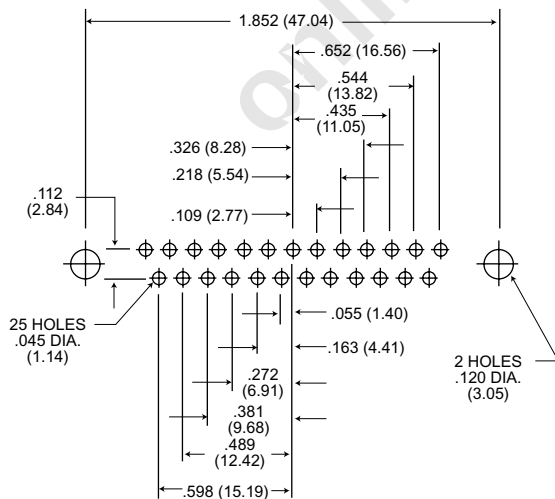
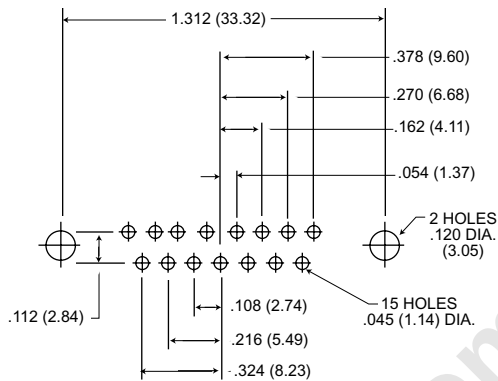
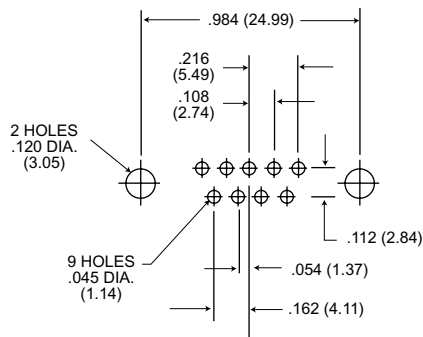


DD Size

| Code<br>Last Letter<br>of P/N's | Right Angle<br>With<br>Bracket | X<br>± .027 (0.69) |
|---------------------------------|--------------------------------|--------------------|
| D                               | •                              | .127 (3.22)        |
| L                               | •                              | .158 (4.01)        |
| S                               | •                              | .183 (4.65)        |

Performance Specifications - Page 332.

## PC Board Hole Patterns



## MIL-C-24308 Cross Reference

| Military Part Number | Cannon Part Number | Military Part Number | Cannon Part Number | Military Part Number | Cannon Part Number |
|----------------------|--------------------|----------------------|--------------------|----------------------|--------------------|
| M24308/1-1           | DEMM9S             | M24308/2-485         | DCMAMY37S-F0       | M24308/6-5           | DDMAM50SNM         |
| M24308/1-2           | DAMM15S            | M24308/2-486         | DDMAMY50S-F0       | M24308/6-6           | DEMAMT9SNM         |
| M24308/1-3           | DBMM25S            | M24308/3-1           | DEMM9P             | M24308/6-7           | DAMAMT15SNM        |
| M24308/1-4           | DCMM37S            | M24308/3-2           | DAMM15P            | M24308/6-8           | DBMAMT25SNM        |
| M24308/1-5           | DDMM50S            | M24308/3-3           | DBMM25P            | M24308/6-9           | DCMAMT37SNM        |
| M24308/1-12          | DEMMF9s            | M24308/3-4           | DCMM37P            | M24308/6-10          | DDMAMT50SNM        |
| M24308/1-13          | DAMMF15S           | M24308/3-5           | DDMM50P            | M24308/6-15          | DDMAM78SNM         |
| M24308/1-14          | DBMMF25S           | M24308/3-12          | DEMMF9P            | M24308/6-259         | DEMAMF9SNM         |
| M24308/1-15          | DCMMF37S           | M24308/3-13          | DAMMF15P           | M24308/6-260         | DAMAMF15SNM        |
| M24308/1-16          | DDMMF50S           | M24308/3-14          | DBMMF25P           | M24308/6-261         | DBMAMF25SNM        |
| M24308/1-23          | DEMMY9S            | M24308/3-15          | DCMMF37P           | M24308/6-262         | DCMAMF37SNM        |
| M24308/1-24          | DAMMY15S           | M24308/3-16          | DDMMF50P           | M24308/6-263         | DDMAMF50SNM        |
| M24308/1-25          | DBMMY25S           | M24308/4-1           | DEMAM9P            | M24308/6-268         | DDMAMF78SNM        |
| M24308/1-26          | DCMMY37S           | M24308/4-2           | DAMAM15P           | M24308/6-270         | DEMAMFT9SNM        |
| M24308/1-27          | DDMMY50S           | M24308/4-3           | DBMAM25P           | M24308/6-271         | DAMAMFT15SNM       |
| M24308/2-1           | DEMAM9S            | M24308/4-4           | DCMAM37P           | M24308/6-272         | DBMAMFT25SNM       |
| M24308/2-2           | DAMAM15S           | M24308/4-5           | DDMAM50P           | M24308/4-5           | DEMAMFT37SNM       |
| M24308/2-3           | DBMAM25S           | M24308/4-6           | DEMAMT9P           | M24308/4-6           | DDMAMFT50SNM       |
| M24308/2-4           | DCMAM37S           | M24308/4-7           | DAMAMT15P          | M24308/4-7           | DEMAM9SNM-F0       |
| M24308/2-5           | DDMAM50S           | M24308/4-8           | DBMAMT25P          | M24308/4-8           | DAMAM15SNM-F0      |
| M24308/2-6           | DEMAMT9S           | M24308/4-9           | DCMAMT37P          | M24308/4-9           | DDMAM25SNM-F0      |
| M24308/2-7           | DAMAMT15S          | M24308/4-10          | DDMAMT50P          | M24308/4-10          | DCMAM37SNM-F0      |
| M24308/2-8           | DBMAMT25S          | M24308/4-15          | DDMAMT8P           | M24308/4-15          | DDMAM50SNM-F0      |
| M24308/2-9           | DCMAMT37S          | M24308/4-259         | DEMAM9P-F0         | M24308/4-259         | DDMAM78SUM-F0      |
| M24308/2-10          | DDMAMT50S          | M24308/4-260         | DAMAM15P-F0        | M24308/4-260         | DEMAMF9SNM-F0      |
| M24308/2-15          | DDMAM78S           | M24308/4-261         | DBMAM25P-F0        | M24308/4-261         | DAMAMF15SNM-F0     |
| M24308/2-23          | DEMAMF9S           | M24308/4-262         | DCMAM37P-F0        | M24308/4-262         | DBMAMF25SNM-F0     |
| M24308/2-24          | DAMAMF15S          | M24308/4-263         | DDMAM50P-F0        | M24308/4-263         | DCMAMF37SNM-F0     |
| M24308/2-25          | DBMAMF25S          | M24308/4-268         | DDMAM78P-F0        | M24308/4-268         | DDMAMF50SNM-F0     |
| M24308/2-26          | DCMAMF37S          | M24308/4-302         | DEMAMF9P           | M24308/4-302         | DDMAMF78SNM-F0     |
| M24308/2-27          | DDMAMF50S          | M24308/4-303         | DAMAMF15P          | M24308/4-303         | DEMAMY9SNM         |
| M24308/2-32          | DDMAMF78S          | M24308/4-304         | DBMAMF25P          | M24308/4-304         | DAMAMY15SNM        |
| M24308/2-34          | DEMAMFT9S          | M24308/4-305         | DCMAMF37P          | M24308/4-305         | DBMAMY25SNM        |
| M24308/2-35          | DAMAMFT15S         | M24308/4-306         | DDMAMF50P          | M24308/4-306         | DCMAMY37SNM        |
| M24308/2-36          | DBMAMFT25S         | M24308/4-311         | DCMAMF78P          | M24308/4-311         | DDMAMY50SNM        |
| M24308/2-37          | DCMAMFT37S         | M24308/4-313         | DEMAMFT9P          | M24308/4-313         | DDMEMYT9SNM        |
| M24308/2-38          | DDMAMFT50S         | M24308/4-314         | DAMAMFT15P         | M24308/4-314         | DAMAMYT15SNM       |
| M24308/2-281         | DEMAM9S-F0         | M24308/4-315         | DBMAMFT25P         | M24308/4-315         | DBMAMYT25SNM       |
| M24308/2-282         | DAMAM15S-F0        | M24308/4-316         | DCMAMFT37P         | M24308/4-316         | DCMAMYT37SNM       |
| M24308/2-283         | DBMAM25S-F0        | M24308/4-317         | DDMAMFT50P         | M24308/4-317         | DDMAMYT50SNM       |
| M24308/2-284         | DCMAM37S-F0        | M24308/4-324         | DEMAMF9P-F0        | M24308/4-324         | DEMAMY9SNM-F0      |
| M24308/2-285         | DDMAM50S-F0        | M24308/4-325         | DAMAMF15P-F0       | M24308/4-325         | DAMAMY15SNM-F0     |
| M24308/2-290         | DDMAM78S-F0        | M24308/4-326         | DBMAMF25P-F0       | M24308/4-326         | DBMAMY25SNM-F0     |
| M24308/2-292         | DEMAMF9S-F0        | M24308/4-327         | DCMAMF37P-F0       | M24308/4-327         | DCMAMY37SNM-F0     |
| M24308/2-293         | DAMAMF15S-F0       | M24308/4-328         | DDMAMF50P-F0       | M24308/4-328         | DDMAMY50SNM-F0     |
| M24308/2-294         | DBMAMF25S-F0       | M24308/4-333         | DDMAMF78P-F0       | M24308/7-1           | DEMM9PNM           |
| M24308/2-295         | DCMAMF37S-F0       | M24308/5-1           | DEMM9SNM           | M24308/7-2           | DAMM15PNM          |
| M24308/2-296         | DDMAMF50S-F0       | M24308/5-2           | DAMM15SNM          | M24308/7-3           | DBMM25PNM          |
| M24308/2-301         | DDMAMF78S-F0       | M24308/5-3           | DBMM25SNM          | M24308/7-4           | DCMM37PNM          |
| M24308/2-335         | DBMAMR25S          | M24308/5-4           | DCMM37SNM          | M24308/7-5           | DDMMS0PNM          |
| M24308/2-336         | DCMAMR37S          | M24308/5-5           | DDMM50SNM          | M24308/7-12          | DEMMF9PNM          |
| M24308/2-341         | DAMAMR15S          | M24308/5-12          | DEMMF9SNM          | M24308/7-13          | DAMMF15PNM         |
| M24308/2-342         | DEMAMY9S           | M24308/5-13          | DAMMF15SNM         | M24308/7-14          | DBMMF25PNM         |
| M24308/2-343         | DAMAMY15S          | M24308/5-14          | DBMMF25SNM         | M24308/7-15          | DCMMF37PNM         |
| M24308/2-344         | DBMAMY25S          | M24308/5-15          | DCMMF37SNM         | M24308/7-16          | DDMMF50PNM         |
| M24308/2-345         | DCMAMY37S          | M24308/5-16          | DDMMF50SNM         | M24308/8-1           | DEMAM9PNM          |
| M24308/2-346         | DDMAMY50S          | M24308/5-23          | DDMMY9SNM          | M24308/8-2           | DAMAM15PNM         |
| M24308/2-353         | DEMAMYT9S          | M24308/5-24          | DAMMY15SNM         | M24308/8-3           | DBMAM25PNM         |
| M24308/2-354         | DAMAMYT15S         | M24308/5-25          | DBMMY25SNM         | M24308/8-4           | DCMAM37PNM         |
| M24308/2-355         | DBMAMYT25S         | M24308/5-26          | DCMMY37SNM         | M24308/8-5           | DDMAM50PNM         |
| M24308/2-356         | DCMAMYT37S         | M24308/5-27          | DDMMY50SNM         | M24308/8-6           | DEMAMT9PNM         |
| M24308/2-357         | DDMAMYT50S         | M24308/6-1           | DEMAM9SNM          | M24308/8-7           | DAMAMT15PNM        |
| M24308/2-482         | DEMAMY9S-F0        | M24308/6-2           | DAMAM15SNM         | M24308/8-8           | DBMAMT25PNM        |
| M24308/2-483         | DEMAMY15S-F0       | M24308/6-3           | DBMAM25SNM         | M24308/8-9           | DCMAMT37PNM        |
| M24308/2-484         | DEMAMY25S-F0       | M24308/6-4           | DCMAM37SNM         | M24308/8-10          | DDMAMT50PNM        |

## MIL-C-24308 Cross Reference (Continued)

| Military Part Number | Cannon Part Number | Military Part Number | Cannon Part Number | Military Part Number | Cannon Part Number |
|----------------------|--------------------|----------------------|--------------------|----------------------|--------------------|
| M24308/8-15          | DDMAM78PNM         | M24308/23-8          | DAMM15SZ           | M24308/24-8          | DAMM15PZ           |
| M24308/8-259         | DEMAM9PNM-FO       | M24308/23-9          | DBMM25SZ           | M24308/24-9          | DBMM25PZ           |
| M24308/8-260         | DAMAM15PNM-FO      | M24308/23-10         | DCMM37SZ           | M24308/24-10         | DCMM37PZ           |
| M24308/8-261         | DBMAM25PNM-FO      | M24308/23-11         | DDMM50SZ           | M24308/24-11         | DDMM50PZ           |
| M24308/8-262         | DCMAM37PNM-FO      | M24308/23-13         | DEMM9SH            | M24308/24-13         | DEMM9PH            |
| M24308/8-263         | DDMAM50PNM-FO      | M24308/23-14         | DAMM15SH           | M24308/24-14         | DAMM15PH           |
| M24308/8-269         | DDMAM78PNM-FO      | M24308/23-15         | DBMM25SH           | M24308/24-15         | DBMM25PH           |
| M24308/8-302         | DEMAMF9PNM         | M24308/23-16         | DCMM37SH           | M24308/24-16         | DCMM37SH           |
| M24308/8-303         | DAMAMF15PNM        | M24308/23-17         | DDMM50SH           | M24308/24-17         | DDMM50PH           |
| M24308/8-304         | DBMAMF25PNM        | M24308/23-19         | DEMM9SX            | M24308/24-19         | DEMM9PX            |
| M24308/8-305         | DCMAMF37PNM        | M24308/23-20         | DAMM15SX           | M24308/24-20         | DAMM15FX           |
| M24308/8-306         | DDMAMF50PNM        | M24308/23-21         | DBMM25SX           | M24308/24-21         | DBMM25PX           |
| M24308/8-311         | DDMAMF78PNM        | M24308/23-22         | DCMM37SX           | M24308/24-22         | DCMM37PX           |
| M24308/8-313         | DEMAMFT9PNM        | M24308/23-23         | DDMM50SX           | M24308/24-23         | DDMM50PX           |
| M24308/8-314         | DAMAMFT15PNM       | M24308/23-25         | DEMM9SD            | M24308/24-25         | DEMM9PD            |
| M24308/8-315         | DBMAMFT25PNM       | M24308/23-26         | DAMM15SD           | M24308/24-26         | DAMM15PD           |
| M24308/8-316         | DCMAMFT37PNM       | M24308/23-27         | DBMM25SD           | M24308/24-27         | DBMM25PD           |
| M24308/8-317         | DDMAMFT50PNM       | M24308/23-28         | DCMM37SD           | M24308/24-28         | DCMM37PD           |
| M24308/8-324         | DEMAMF9PNM-FO      | M24308/23-29         | DDMM50SD           | M24308/24-29         | DDMM50PD           |
| M24308/8-325         | DAMAMF15PNM-FO     | M24308/23-31         | DEMM9SL            | M24308/24-31         | DEMM9PL            |
| M24308/8-326         | DBMAMF25PNM-FO     | M24308/23-32         | DAMM15SL           | M24308/24-32         | DAMM15PL           |
| M24308/8-327         | DCMAMF37PNM-FO     | M24308/23-33         | DBMM25SL           | M24308/24-33         | DBMM25PL           |
| M24308/8-328         | DDMAMF50PNM-FO     | M24308/23-34         | DCMM37SL           | M24308/24-34         | DCMM37PL           |
| M24308/3-333         | DDMAMF78PNM-FO     | M24308/23-35         | DDMM50SL           | M24308/24-35         | DDMM50PL           |
| M24308/9-1           | DEH9P002           | M24308/23-37         | DEMM9SA            | M24308/24-37         | DEMM9PA            |
| M24308/9-2           | DAH15P002          | M24308/23-38         | DAMM15SA           | M24308/24-38         | DAMM15PA           |
| M24308/9-3           | DBH25P002          | M24308/23-39         | DBMM25SA           | M24308/24-39         | DBMM25PA           |
| M24308/9-4           | DCH37P002          | M24308/23-40         | DCMM37SA           | M24308/24-40         | DCMM37PA           |
| M24308/9-5           | DDH50P002          | M24308/23-41         | DDMM50SA           | M24308/24-41         | DDMM50PA           |
| M24308/9-6           | DEH9P001           | M24308/23-43         | DEMM9SG            | M24308/24-43         | DEMM9PG            |
| M24308/9-7           | DAH15P001          | M24308/23-44         | DAMM15SG           | M24308/24-44         | DAMM15PG           |
| M24308/9-8           | DBH25P001          | M24308/23-45         | DBMM25SG           | M24308/24-45         | DBMM25PG           |
| M24308/9-9           | DCH37P001          | M24308/23-46         | DCMM37SG           | M24308/24-46         | DCMM37PG           |
| M24308/9-10          | DDH50P001          | M24308/23-47         | DDMM50SG           | M24308/24-47         | DDMM50PG           |
| M24308/9-11          | DEH9P202           | M24308/23-49         | DEMM9SS            | M24308/24-49         | DEMM9PS            |
| M24308/9-12          | DAH15P202          | M24308/23-50         | DAMM15SS           | M24308/24-50         | DAMM15PS           |
| M24308/9-13          | DBH25P202          | M24308/23-51         | DBMM25SS           | M24308/24-51         | DBMM25PS           |
| M24308/9-14          | DCH37P202          | M24308/23-52         | DCMM37SS           | M24308/24-52         | DCMM37PS           |
| M24308/9-15          | DDH50P202          | M24308/23-53         | DDMM50SS           | M24308/24-53         | DDMM50PS           |
| M24308/9-16          | DEH9P201           | M24308/23-55         | DEMM9SW            | M24308/24-55         | DEMM9PW            |
| M24308/9-17          | DAH15P201          | M24308/23-56         | DAMM15SW           | M24308/24-56         | DAMM15PW           |
| M24308/9-18          | DBH25P201          | M24308/23-57         | DBMM25SW           | M24308/24-57         | DBMM25PW           |
| M24308/9-19          | DCH37P201          | M24308/23-58         | DCMM37SW           | M24308/24-58         | DCMM37PW           |
| M24308/9-20          | DDH50P201          | M24308/23-59         | DDMM50SW           | M24308/24-59         | DDMM50PW           |
| M24308/23-1          | DEMM9SM            | M24308/24-1          | DEMM9PM            | M24308/26-1          | D20418-2           |
| M24308/23-2          | DAMM15SM           | M24308/24-2          | DAMM15PM           | M24308/26-2          | D20418-39          |
| M24308/23-3          | DBMM25SM           | M24308/24-3          | DBMM25PM           |                      |                    |
| M24308/23-4          | DCMM37SM           | M24308/24-4          | DCMM37PM           |                      |                    |
| M24308/23-5          | DDMM50SM           | M24308/24-5          | DDMM50PM           |                      |                    |
| M24308/23-7          | DEMM9SZ            | M24308/24-7          | DEMM9PZ            |                      |                    |

Crimp



(See page 342)

Printed Circuit



(See page 343)

## Performance and Material Specifications

### MATERIALS AND FINISHES

|                      | Standard                                                                  |                                                          | Military                                                                  |                                                                                                                                     |
|----------------------|---------------------------------------------------------------------------|----------------------------------------------------------|---------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------|
|                      | Material                                                                  | Finish                                                   | Material                                                                  | Finish                                                                                                                              |
| Shell                | Steel per ASTM A-620                                                      | Yellow chromate over cadmium<br>QQ-P-416 Type II Class 2 | Steel per ASTM A-620                                                      | Yellow chromate over cadmium<br>QQ-P-416 Type II Class 2                                                                            |
| Insulator            | Diallyl phthalate glass-filled<br>per MIL-M-14, type SDG-F<br>color green | -                                                        | Diallyl phthalate glass-filled<br>per MIL-M-14, type SDG-F<br>color green | -                                                                                                                                   |
| Contact              | Copper alloy                                                              | Gold over nickel                                         | Copper alloy<br>Crimp socket has<br>stainless steel hood                  | Gold 50 microinches minimum thickness per<br>MIL-G-45204 Type II Grade C Class 1 over<br>copper per MIL-C-14550<br>Hood: Passivated |
| Float Mount Hardware | Stainless steel                                                           | Passivate per QQ-P-35                                    | Stainless steel                                                           | Passivate per QQ-P-35                                                                                                               |

### PERFORMANCE SPECIFICATIONS

|                                                        |                            |
|--------------------------------------------------------|----------------------------|
| Wire Accommodation (AWG)                               | Crimp-#22-#28 AWG          |
| Current Rating                                         | #22: 5 Amp                 |
| Temperature Rating                                     | -65°C to +150°C            |
| Contact Resistance<br>After Salt Spray, Millivolt Max. | 55 @ 5 Amp<br>test current |

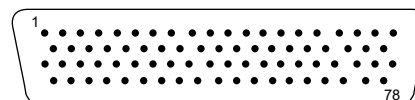
### DIELECTRIC WITHSTANDING VOLTAGE

| Test | 90° and Straight (Solder/Crimp) |               |         |
|------|---------------------------------|---------------|---------|
|      | Altitude (feet/m)               |               |         |
|      | Sea Level                       | 70,000/21,336 | 100,000 |
|      | 1000                            | 325           | 175     |

All voltage figures are rms AC 60 rms cps, measured at approximately +25°C, 50% rh. For additional performance specifications refer to MIL-C-24308 Test Extracts on page 385.

## Contact Arrangements

### Face View Pin Insert



Shell Size  
Contact Arrangement  
Contact Size

D  
78  
#22

## How to Order - Crimp Connectors



## Receptacle (Includes Socket Contacts) With .120" Through-Mounting Holes

| Number<br>Contacts<br>(Shell Size) | Standard<br>Version | Military<br>Version |
|------------------------------------|---------------------|---------------------|
| 78 (D)                             | DDMA78S             | DDMAM78S            |

## Plugs (Includes Pin Contacts)\* With .120" Through-Mounting Holes

| Number<br>Contacts<br>(Shell Size) | Standard<br>Version | Military<br>Version |
|------------------------------------|---------------------|---------------------|
| 78 (D)                             | DDMA78P             | DDMAM78P            |

Note: 1) To receive the connector without contacts, add "FO" to end of part number.

Example: DBMA25SFO, DBMAM25SFO.

2) For loose contacts and tooling see page 5.

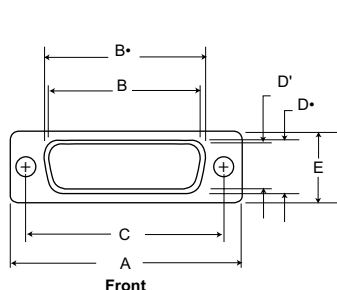
## Mounting Options Available:

4-40 Clinch Nut - ADD "E" to Part Number After "M" or "A"

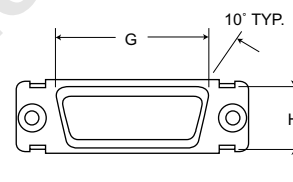
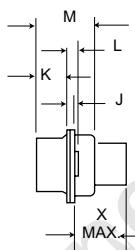
4-40 Float Mount - Add "Y" to Part Number After "M" or "A"

(Can be used in front or rear panel mount applications)

## Dimensions - Crimp Connectors



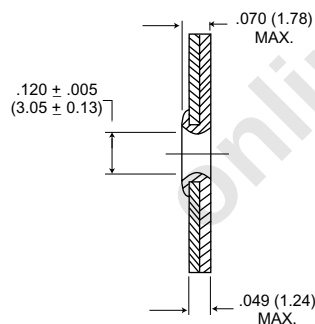
Front



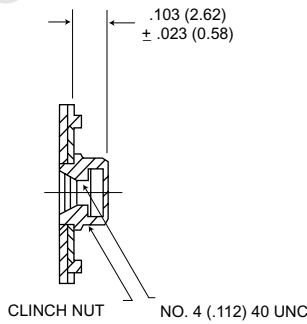
Rear

| Part Number<br>by Shell Size | A<br>± .015 (0.38) | B<br>± .010 (0.25) | B'<br>± .005 (0.13) | C<br>± .005 (0.13) | D<br>± .005 (0.13) | D'<br>± .010 (0.25) | E<br>± .015 (0.38) | G<br>± .010 (0.25) | H<br>± .010 (0.25) | J<br>± .010 (0.25) | K<br>± .006 (0.25) | L<br>± .013 (0.33) | M<br>± .010 (0.25) | X<br>Max    |
|------------------------------|--------------------|--------------------|---------------------|--------------------|--------------------|---------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|-------------|
| DDM78P                       | 2.635 (66.92)      | -                  | 2.079 (52.81)       | 2.406 (61.11)      | -                  | .441 (11.20)        | .605 (15.37)       | 2.178 (55.32)      | .534 (13.56)       | .039 (0.99)        | .231 (5.87)        | .060 (1.52)        | .426 (10.82)       | .345 (8.76) |
| DDM78S                       | 2.635 (66.92)      | 2.064 (52.43)      | -                   | 2.406 (61.11)      | .423 (10.41)       | -                   | .605 (15.37)       | 2.178 (55.32)      | .534 (13.56)       | .030 (0.76)        | .243 (6.17)        | .045 (1.14)        | .429 (10.90)       | .345 (8.76) |

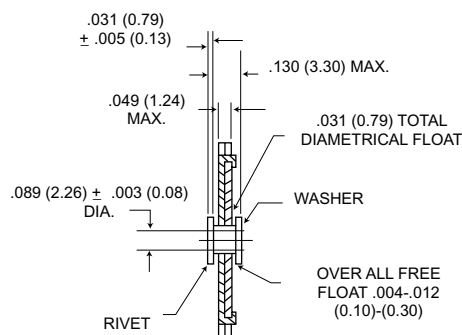
## Mounting Option Dimensions



Standard - Through-Hole



E-Clinch Nut



Y-Float Mount

It is recommended that only on assembly, either pin or socket, be float mounted.

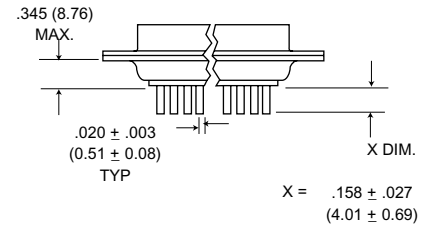
## High Rel Printed Circuit Mount Connector - Straight PC Tail



Receptacle



Plug



With .120 (3.15) Through-Mounting Holes

| Number<br>Contacts<br>(Shell Size) |          | Receptacle    | <b>NM</b><br>Non-Magnetic<br>Receptacle | Plug          | <b>NM</b><br>Non-Magnetic<br>Plug |
|------------------------------------|----------|---------------|-----------------------------------------|---------------|-----------------------------------|
| 78 (D)                             | Standard | DDMA50913-499 | -                                       | DDMA50913-500 | -                                 |
| 78 (D)                             | Military | DDMA50913-439 | DDMA50913-445                           | DDMA50913-440 | DDMA50913-446                     |

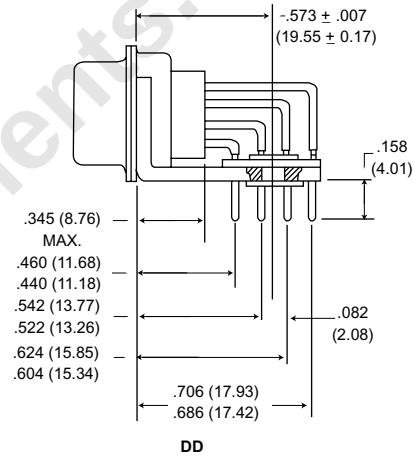
## High Rel 90° PCB Connectors



Receptacle



Plug



Connectors with brackets cannot be ordered with float mounts or clinch nuts.

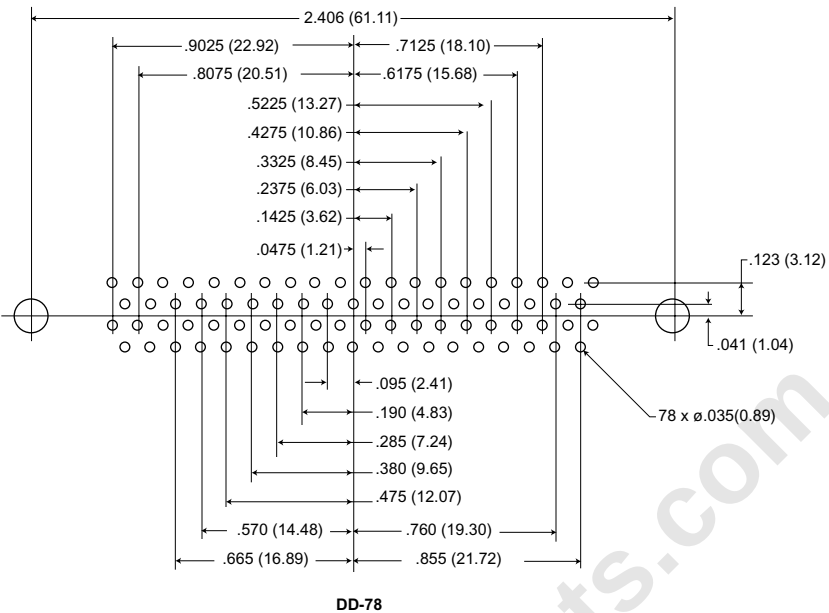
| Number<br>Contacts<br>(Shell Size) |          | Receptacle    | <b>NM</b><br>Non-Magnetic<br>Receptacle | Plug          | <b>NM</b><br>Non-Magnetic<br>Plug |
|------------------------------------|----------|---------------|-----------------------------------------|---------------|-----------------------------------|
| 78 (0)                             | Standard | DDMA50913-467 | -                                       | DDMA50913-468 | -                                 |
| 78 (0)                             | Military | DDMA50913-437 | DDMA50913-473                           | DDMA50913-438 | DDMA50913-474                     |

## High Rel Crimp Contacts

| Contact<br>Size | Wire Size<br>Accommodation | Cannon Part Number |         |             |              |
|-----------------|----------------------------|--------------------|---------|-------------|--------------|
|                 |                            | M39029             | M24308* | Pin         | Socket       |
| 22D<br>Pin      | 22, 24, 26, 28             | /58-360            | /13-1   | 030-2042-00 | -            |
| 22D<br>Socket   | 22, 24, 26, 28             | /57-354            | /12-1   | -           | 031-1147-000 |

\* Superseded by M39029

## Straight and 90° Board Hole Patterns



## Tooling

### Hand Tools

| Contact Size | AWG            | Plastic Insertion/Extraction | Crimp Tool                  | Locator                     |
|--------------|----------------|------------------------------|-----------------------------|-----------------------------|
| 22D          | 22, 24, 26, 28 | 274-7048-000<br>CIET-22D     | 995-0001-584<br>M22520/2-01 | 995-0001-739<br>M22520/2-06 |

# Combo D®

Combination D Subminiature connectors are the fastest growing segment of the D Subminiature market. ITT Cannon engineering teams, in keeping pace with the demands of the industry, have developed the broadest selection of combination D Subminiature available.

We offer the ability to intergrade signal and coax, high power, and high voltage. You can mix red, green, and blue video lines with signal and up to 40 amps of power in the same package.

Design variations of the new Combo D connector, versus other packaging methods, include the proven ITT Cannon polarized "D" shape to prevent mismatching; dense, space-saving packaging; and diverse mounting options. Choose from a variety of cable and printed wiring board selections. Printed wiring board combos come pre-assembled with fixed contacts eliminating the need to buy several components.

This new line of connectors offers you **unlimited design versatility**.



Straight and right angle printed wiring board contacts are available in both coax and high power versions.

## Performance and Material Specifications

### CONNECTOR ASSEMBLIES

| Description                      | Material                                            | Finish                                                |
|----------------------------------|-----------------------------------------------------|-------------------------------------------------------|
| Shell                            | Steel or Brass                                      | Yellow Chromate Cadmium or Gold over Nickel           |
| Insulator                        | Thermoplastic or Diallyl Phthalate, UL 94V-0 rated. | None                                                  |
| Size 20 contacts when applicable | Copper alloy                                        | 50μ inches gold over copper or 100μ gold over copper. |
| Bracket                          | Steel                                               | Yellow Chromate over Cadmium                          |
| Rivnut                           | Steel or Copper alloy                               |                                                       |

### COAXIAL ASSEMBLY

|                         |              |                                                  |
|-------------------------|--------------|--------------------------------------------------|
| Contacts and shells     | Copper alloy | Gold over nickel or 50μ inches gold over copper. |
| Ring, retaining         | Copper alloy | Nickel or Gold                                   |
| Insulator               | Teflon       | None                                             |
| U.L. File Number: E8572 |              |                                                  |

### DIELECTRIC WITHSTANDING VOLTAGE

| Type of Contact                                       |                   | Altitude (feet/m) |          |             |          |              |          |             |          |
|-------------------------------------------------------|-------------------|-------------------|----------|-------------|----------|--------------|----------|-------------|----------|
|                                                       |                   | Sea Level         |          | 20,000/6096 |          | 50,000/15240 |          | 70,000/1336 |          |
|                                                       |                   | 90'               | Straight | 90'         | Straight | 90'          | Straight | 90'         | Straight |
| Center Conductor to Coaxial Shell                     | Average Flashover | 1200              | 1500     | 900         | 1000     | 600          | 700      | 400         | 500      |
|                                                       | Test              | 800               | 1000     | 600         | 650      | 400          | 475      | 275         | 325      |
| Coaxial Shell to Nearest Standard Solder Pot Contact  | Average Flashover | •                 | 1500     | •           | 1500     | •            | 900      | •           | 650      |
|                                                       | Test              | •                 | 1000     | •           | 1000     | •            | 600      | •           | 425      |
| High Power contact and/or Coaxial Shell to Plug Shell | Average Flashover | 1500              | 1500     | 1000        | 1000     | 500          | 500      | 500         | 500      |
|                                                       | Test              | 1000              | 1000     | 650         | 650      | 325          | 325      | 325         | 325      |
| #20 Signal                                            | Average Flashover | 1700              |          | 1000        |          | 650          |          | 500         |          |
|                                                       | Test              | 1250              |          | 750         |          | 475          |          | 375         |          |
| HV Contact to Nearest Contact or to Shell             | Average Flashover | 3800              | 3800     | 2300        | 2300     | 900          | 900      | 650         | 650      |
|                                                       | Test              | 2800              | 2800     | 1700        | 1700     | 675          | 675      | 475         | 475      |

All voltage figures are rms AC 60 rms cps, measured at approximately +25°C, 50% rh.

Impedance: 50 ohm

### PERFORMANCE DATA

|                                         |                                       |
|-----------------------------------------|---------------------------------------|
| Signal Contact Current Rating           | 5 Amp                                 |
| Temperature Rating                      | -65°C to +150°C                       |
| Signal Contact Resistance millivolt max | 55 @ 7.5 Amp test current             |
| Coax Impedance                          | 50 ohm                                |
| Coax VSWR                               | Less than 1.3-1.0 up to 500 megahertz |
| Coax Insertion Loss                     | .1 db loss at 500 megahertz.          |

See *Commercial D Subminiature* catalog for additional Combo D options, including 75 ohm Coax.

## Combo D® - Coaxial/ 75 and 50 Ohm

## Coaxial Housing With Solder Cup Signal Contacts



- Cable combinations supplied with preloaded solder signal contacts
- 50 ohm coax contacts supplied separately (see pages 347-348)

Clinch Nut and Float Mount Options Available:

Add: E = 4-40 Clinch Nut

Y = Float Mounting

Example: DAMME3W3P

DANNT3W3P

Mounting Method Detail - Page 334.

| Layout   | Military Socket | Military Pin | NM Non-Magnetic Socket | NM Non-Magnetic Pin |
|----------|-----------------|--------------|------------------------|---------------------|
| DE-5W1   | DEMM5W1S        | DMM5W1P      | DEM5W1S-NMB-K52        | DEM5W1P-NMB-K52     |
| DA-7W2   | DAMM7W2S        | DAMM7W2P     | DAM7W2S-NMB-K52        | DAM7W2P-NMB-K52     |
| DA-11W1  | DAMM11W1S       | DAMM11W1P    | DAM11W1S-NMB-K52       | DAM11W1P-NMB-K52    |
| DA-3W3   | DAMM3W3S        | DAMM3W3P     | DAM3W3S-NMB-K47        | DAM3W3P-NMB-K47     |
| DB-5W5   | DBMM5W5S        | DBMM5W5P     | DBM5W5S-NMB-K47        | DBM5W5P-NMB-K47     |
| DB-9W4   | DBMM9W4S        | DBMM9W4P     | DBM9W4S-NMB-K52        | DBM9W4P-NMB-K52     |
| DB-13W3  | DBMM13W3S       | DBMM13W3P    | DBM13W3S-NMB-K52       | DBM13W3P-NMB-K52    |
| DB-17W2  | DBMM17W2S       | DBMM17W2P    | DBM17W2S-NMB-K52       | DBM17W2P-NMB-K52    |
| DB-21W1  | DBMM21W1S       | DBMM21W1P    | DBM21W1S-NMB-K52       | DBM21W1P-NMB-K52    |
| DC-8W8   | DCMM8W8S        | DCMM8W8P     | DCM8W8S-NMB-K47        | DCM8W8P-NMB-K47     |
| DC-13W6  | DCMM13W6S       | DCMM13W6P    | DCM13W6S-NMB-K52       | DCM13W6P-NMB-K52    |
| DC-17W5  | DCMM17W5S       | DCMM17W5P    | DCM17W5S-NMB-K52       | DCM17W5P-NMB-K52    |
| DC-21WA4 | DCMM21WA4S      | DCMM21WA4P   | DCM21WA4S-NMB-K52      | DCM21WA4P-NMB-K52   |
| DC-25W3  | DCMM25W3S       | DCMM25W3P    | DCM25W3S-NMB-K52       | DCM25W3P-NMB-K52    |
| DC-27W2  | DCMM27W2S       | DCMM27W2P    | DCM27W2S-NMB-K52       | DCM27W2P-NMB-K52    |
| DD-24W7  | DDMM24W7S       | DDMM24W7P    | DDM24W7S-NMB-K52       | DDM24W7P-NMB-K52    |
| DD-36W4  | DDMM36W4S       | DDMM36W4P    | DDM36W4S-NMB-K52       | DDM36W4P-NMB-K52    |
| DD-43W2  | DDMM43W2S       | DDMM43W2P    | DDM43W2S-NMB-K52       | DDM43W2P-NMB-K52    |
| DD-47W1  | DDMM47W1S       | DDMM47W1P    | DDMC47W1S-NMB-K52      | DDM47W1P-NMB-K52    |

## Contact Arrangements

(Will accommodate Removable Coax, Power and/or High Voltage Contacts)

Note: Color Code - Pin Connector: Red, Socket Connector: Blue

|                                                                                        |                          |                          |                           |                          |                    |                        |
|----------------------------------------------------------------------------------------|--------------------------|--------------------------|---------------------------|--------------------------|--------------------|------------------------|
|                                                                                        |                          |                          |                           |                          |                    |                        |
| Shell Size<br>Contact Arrangement<br>No. of Signal Contacts<br>No. of Coaxial Contacts | E<br>5W1<br>4-#20<br>1   | A<br>3W3<br>0<br>3       | A<br>7W2<br>5 #20<br>2    | A<br>11W1<br>10 #20<br>1 | B<br>5W5<br>0<br>5 | B<br>9W4<br>5 #20<br>4 |
|                                                                                        |                          |                          |                           |                          |                    |                        |
| Shell Size<br>Contact Arrangement<br>No. of Signal Contacts<br>No. of Coaxial Contacts | B<br>13W3<br>10 #20<br>3 | B<br>17W2<br>15 #20<br>2 | B<br>21W1<br>20 #20<br>1  | C<br>8W8<br>0<br>8       |                    |                        |
|                                                                                        |                          |                          |                           |                          |                    |                        |
| Shell Size<br>Contact Arrangement<br>No. of Signal Contacts<br>No. of Coaxial Contacts | C<br>13W6<br>7 #20<br>6  | C<br>17W5<br>12 #20<br>5 | C<br>21WA4<br>17 #20<br>4 | C<br>25W3<br>22 #20<br>3 |                    |                        |
|                                                                                        |                          |                          |                           |                          |                    |                        |
| Shell Size<br>Contact Arrangement<br>No. of Signal Contacts<br>No. of Coaxial Contacts | C<br>27W2<br>25 #20<br>2 | D<br>24W7<br>17 #20<br>7 | D<br>36W4<br>32 #20<br>4  |                          |                    |                        |
|                                                                                        |                          |                          |                           |                          |                    |                        |
| Shell Size<br>Contact Arrangement<br>No. of Signal Contacts<br>No. of Coaxial Contacts | D<br>43W2<br>41 #20<br>2 | D<br>47W1<br>46 #20<br>1 |                           |                          |                    |                        |

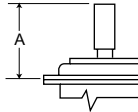
See Commerical D Subminiature catalog for additional Combo D options, including 75 ohm Coax.

## Combo D® - Coaxial/50 Ohm

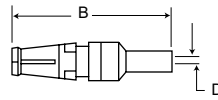
## Cable Combinations - 50 Ohm Coaxial Contacts

Color Code: Receptacle - Blue; Plug - Red

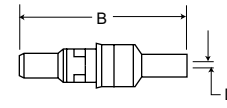
Straight Crimp Braid



(Dimensions include outer sleeve).



Receptacle

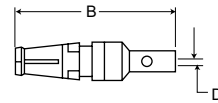
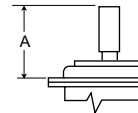


Plug

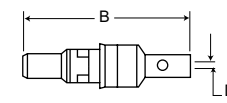
|            | Crimp/Crimp<br>Gold Over Nickel | Gold Over Nickel | 50μ in. Gold Over Copper | <i>NM</i> - Non-Magnetic<br>50μ in. Gold Over Copper | A<br>Max.   | B<br>Max.     | D<br>Min.   | RG Cable No. |        |
|------------|---------------------------------|------------------|--------------------------|------------------------------------------------------|-------------|---------------|-------------|--------------|--------|
|            |                                 |                  |                          |                                                      |             |               |             | Old          | New    |
| Plug       |                                 | DM53740          | DM53740-17               |                                                      | .739 (18.8) | .945 (24.00)  | .040 (1.00) | 196/U        | 178B/U |
| Plug       | DM53740-37*                     | DM53740-1        | DM53740-15               | DM53740-36                                           | .739 (18.8) | .945 (24.00)  | .067 (1.70) | 187/U        | 179B/U |
| Plug       |                                 | DM53740-35       |                          |                                                      | .739 (18.8) | .945 (24.00)  | .067 (1.70) | -            | RD316  |
| Plug       |                                 | DM53740-3        | DM53740-16               |                                                      | .847 (21.5) | 1.037 (26.34) | .110 (2.79) | 195/U        | 180B/U |
| Plug       |                                 | DM53740-5        | DM53740-18               |                                                      | .847 (21.5) | 1.037 (26.34) | .125 (3.18) | 58/U         | 58B/U  |
| Receptacle |                                 | DM53742          | DM53742-18               |                                                      | .739 (18.8) | .945 (24.00)  | .040 (1.00) | 196/U        | 178B/U |
| Receptacle | DM53742-38*                     | DM53742-1        | DM53742-16               | DM53742-37                                           | .739 (18.8) | .945 (24.00)  | .067 (1.70) | 187/U        | 179B/U |
| Receptacle |                                 | DM53742-36       |                          |                                                      | .739 (18.8) | .945 (24.00)  | .067 (1.70) | -            | RD316  |
| Receptacle |                                 | DM53742-3        | DM53742-17               |                                                      | .847 (21.5) | 1.037 (26.34) | .110 (2.79) | 195/U        | 180B/U |
| Receptacle |                                 | DM53742-5        | DM53742-19               |                                                      | .847 (21.5) | 1.037 (26.34) | .125 (3.18) | 58/U         | 58B/U  |

\* Consult factory for center contact crimp tooling.

Straight Crimp Braid



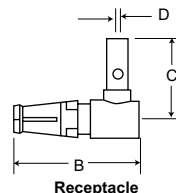
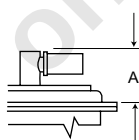
Receptacle



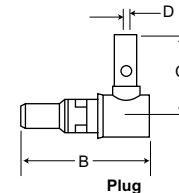
Plug

|                         | Gold Over Nickel | 50μ in. Gold Over Copper | <i>NM</i> - Non-Magnetic<br>50μ in. Gold Over Copper | A<br>Max.    | B<br>Max.     | D<br>Min.   | RG Cable No. |        |
|-------------------------|------------------|--------------------------|------------------------------------------------------|--------------|---------------|-------------|--------------|--------|
|                         |                  |                          |                                                      |              |               |             | Old          | New    |
| Plug                    | DM53740-5008     | DM53740-5105             |                                                      | .739 (18.8)  | .945 (24.00)  | .040 (1.00) | 196/U        | 178B/U |
| Plug                    | DM53740-5001     | DM53740-5099             | DM53740-5147                                         | .739 (18.8)  | .945 (24.00)  | .067 (1.70) | 187/U        | 179B/U |
| Plug                    | DM53740-5145     |                          |                                                      | .739 (18.8)  | .945 (24.00)  | .067 (1.70) | -            | RD316  |
| Plug                    | DM53740-5002     | DM53740-5104             |                                                      | .847 (21.5)  | 1.037 (26.34) | .110 (2.79) | 195/U        | 180B/U |
| Plug                    | DM53740-5005     | DM53740-5101             |                                                      | .847 (21.5)  | 1.037 (26.34) | .125 (3.18) | 58/U         | 58/U   |
| Receptacle              | DM53742-5006     | DM53742-5092             |                                                      | .739 (18.8)  | .945 (24.00)  | .040 (1.00) | 196/U        | 178B/U |
| Receptacle              | DM53742-5001     | DM53742-5089             | DM53742-5127                                         | .739 (18.8)  | .945 (24.00)  | .067 (1.70) | 187/U        | 179B/U |
| Receptacle              | DM53742-5126     |                          |                                                      | .739 (18.8)  | .945 (24.00)  | .067 (1.70) | -            | RD316  |
| Receptacle              | DM53742-5002     | DM53742-5091             |                                                      | .847 (21.5)  | 1.037 (26.34) | .110 (2.79) | 195/U        | 180B/U |
| Receptacle              | DM53742-5004     | DM53742-5086             |                                                      | .847 (21.5)  | 1.037 (26.34) | .125 (3.18) | 58/U         | 58/U   |
| Plug (Short Type)       | DM53740-5000     | DM53740-5100             | .670 (17.0)                                          | .874 (22.20) | .045 (1.14)   | .196/U      | 178B/U       |        |
| Receptacle (Short Type) | DM53742-5000     | DM53742-5085             | .670 (17.0)                                          | .874 (22.20) | .045 (1.14)   | .196/U      | 178B/U       |        |

Right Angle Solder Braid



Receptacle



Plug

|            | Gold Over Nickel | 50μ in. Gold Over Copper | A<br>Max.    | B<br>Max.    | C            | D<br>Min.   | RG Cable No.   |                  |
|------------|------------------|--------------------------|--------------|--------------|--------------|-------------|----------------|------------------|
|            |                  |                          |              |              |              |             | Old            | New              |
| Plug       | DM53741-5000     | DM53741-5059             | .530 (13.46) | .745 (18.92) | .544 (15.10) | .040 (1.00) | 196/U          | 178B/U           |
| Plug       | DM53741-5001     | DM53741-5062             | .530 (13.46) | .745 (18.92) | .544 (15.10) | .067 (1.70) | 187/U<br>188/U | 178B/U<br>316B/U |
| Plug       | DM53741-5003     | DM53741-5063             | .530 (13.46) | .745 (18.92) | .630 (16.00) | .110 (2.79) | 195/U          | 180B/U           |
| Plug       | DM53741-5004     | DM53741-5060             | .530 (13.46) | .745 (18.92) | .630 (16.00) | .125 (3.18) | 58/U           | 58/U             |
| Receptacle | DM53743-5000     | DM53743-5073             | .530 (13.46) | .745 (18.92) | .594 (15.09) | .040 (1.00) | 196/U          | 178B/U           |
| Receptacle | DM53743-5001     | DM53743-5076             | .530 (13.46) | .745 (18.92) | .594 (15.09) | .067 (1.70) | 187/U<br>188/U | 179B/U<br>316B/U |
| Receptacle | DM53743-5003     | DM53743-5077             | .530 (13.46) | .745 (18.92) | .630 (16.00) | .110 (2.79) | 195/U          | 180B/U           |
| Receptacle | DM53743-5004     | DM53743-5074             | .530 (13.46) | .745 (18.92) | .630 (16.00) | .125 (3.18) | 58/U           | 58B/U            |

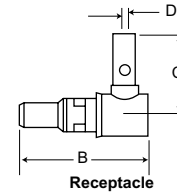
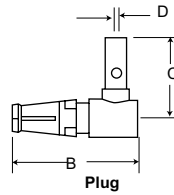
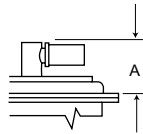
Highlighted part numbers indicate standard product; usually available with shorter lead times.

See *Commerical D Subminiature* catalog for additional Combo D options, including 75 ohm Coax.

# Combo D® - Coaxial/50 Ohm

## Cable Combinations - 50 Ohm Coaxial Contacts (Continued)

### Right Angle Crimp Braid



(Dimensions include outer sleeve.)  
Color Code: Receptacle - Blue; Plug - Red

|            | Part Number      |                          | A<br>Max.    | B<br>Ref.    | C            | D<br>± .005 (0.13) | RG Cable No. |        |
|------------|------------------|--------------------------|--------------|--------------|--------------|--------------------|--------------|--------|
|            | Gold Over Nickel | 50μ in. Gold Over Copper |              |              |              |                    | Old          | New    |
| Plug       | DM53741          | DM53741-12               | .530 (13.46) | .745 (18.92) | .594 (15.10) | .045 (1.14)        | 196/U        | 178B/U |
| Plug       | DM53741-1        | DM53741-11               | .530 (13.46) | .745 (18.92) | .594 (15.10) | .072 (1.83)        | 187/U        | 179B/U |
|            |                  |                          |              |              |              |                    | 188/U        | 316B/U |
| Plug       | DM53741-3        | DM53741-10               | .530 (13.46) | .745 (18.92) | .630 (16.00) | .110 (2.79)        | 195/U        | 180B/U |
| Plug       | DM53741-4        | DM53741-13               | .530 (13.46) | .745 (18.92) | .630 (16.00) | .125 (3.18)        | 58/U         | 58B/U  |
| Receptacle | DM53743-2        | DM53743-18               | .530 (13.46) | .745 (18.92) | .594 (15.10) | .045 (1.14)        | 196/U        | 178B/U |
| Receptacle | DM53743-3        | DM53743-16               | .530 (13.46) | .745 (18.92) | .594 (15.10) | .072 (1.83)        | 187/U        | 179B/U |
|            |                  |                          |              |              |              |                    | 188/U        | 316B/U |
| Receptacle | DM53743-5        | DM53743-17               | .530 (13.46) | .745 (18.92) | .630 (16.00) | .110 (2.79)        | 195/U        | 180B/U |
| Receptacle | DM53743-6        | DM53743-19               | .530 (13.46) | .745 (18.92) | .630 (16.00) | .125 (3.18)        | 58/U         | 58B/U  |

## Insertion/Extraction Instructions

### Coaxial, High Power and High Voltage Contacts

#### Insertion

No insertion tool is required. The contact is easily snapped in from the rear of the connector.

RED COLOR CODED CONNECTOR  
ACCEPTS PLUG CONTACTS.

BLUE COLOR CODED CONNECTORS ACCEPTS RECEPTACLE  
CONTACTS INSERT FROM TERMINAL END AS SHOWN BELOW.

INSERT

INSERT

PLUG CONTACT  
D\*M PLUG

RECEPTACLE CONTACT  
D\*M RECEPTACLE

#### Extraction

##### CET-C6B

The CET-C6B tool extracts coaxial, high power and high voltage contacts (Plug and receptacle).  
Part number 070064-0000.

#### Operating Instructions:

To extract the coax contact, hold the tool by the body and insert the tip into the front of the contact cavity until it bottoms and closes the coax retaining ring. Holding the body in this position securely enough to keep coax retaining ring closed, push the plunger; contact will be pushed out of the rear of the assembly.

TOOL PLUNGER D\*M PLUG  
COAXIAL, H.V., OR  
POWER CONTACTS  
EXTRACT

TOOL TIP  
EXTRACTION TOOL CET-C6B

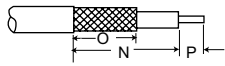
Hand Tool with intergral die set for all coax straight crimp braid. Part Number: 070051-0000 (CCT-DM)

See Commerical D Subminiature catalog for additional Combo D options, including 75 ohm Coax.

# Combo D® - Coaxial/50 Ohm

## Coax Assembly Instructions

### Trim Dimensions



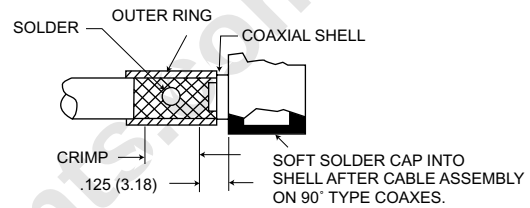
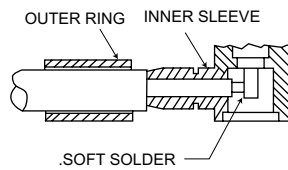
| RG Cable No.                                  | Straight    |             |             | Right Angle  |             |             |
|-----------------------------------------------|-------------|-------------|-------------|--------------|-------------|-------------|
|                                               | N           | O           | P           | N            | O           | P           |
| 196/U, 178B/U, 187/U<br>188/U, 179B/U, 316B/U | .312 (7.92) | .250 (6.35) | .078 (1.98) | .375 (9.52)  | .234 (5.94) | .062 (1.57) |
| 195/U, 180B/U<br>58/U, 58B/U                  | .375 (9.52) | .312 (7.92) | .078 (1.98) | .422 (10.69) | .312 (7.92) | .094 (2.39) |

All tolerances  $\pm .010$  (0.25)

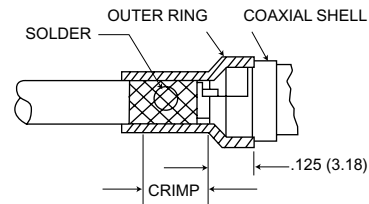
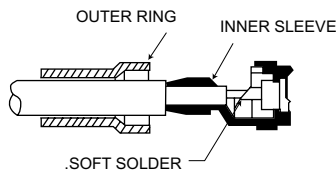
### Crimp Tooling

| RG Cable No.                   | Tool P/N    | Description | Closure |
|--------------------------------|-------------|-------------|---------|
| 196/U, 178B/U                  | 070051-0000 | CCT-DM      | C       |
| 187/U, 179B/U<br>188/U, 316B/U | 070051-0000 | CCT-DM      | B       |
| 195/U, 180B/U<br>58/U, 58B/U   | 070051-0000 | CCT-DM      | A       |

### 90° Coaxial



### Straight Coaxial



### STEP 1: Straight and 90° Coaxials

Slide the outer ring over the cable jacket. Trim the cable as specified in the table of Coax Cable Trim Dimensions. Insert the cable dielectric and center conductor into the inside diameter of the inner sleeve. Then solder the center conductor to the coax center contact.

### STEP 2: Straight and 90° Coaxials

Slide the outer ring forward until it is flush with the coax shell containing the braid between the outer ring and the inner sleeve. For solder type coaxes, soft solder the outer ring to the assembly thru the cross-drilled solder hold. For crimp type coaxes, crimp with the appropriate tool in the area defined.

See Commercial D Subminiature catalog for additional Combo D options, including 75 ohm Coax.

## Combo D® - Coaxial/50 Ohm

## Right Angle Receptacle for PCB Mounting



PCB Layouts - Page 352

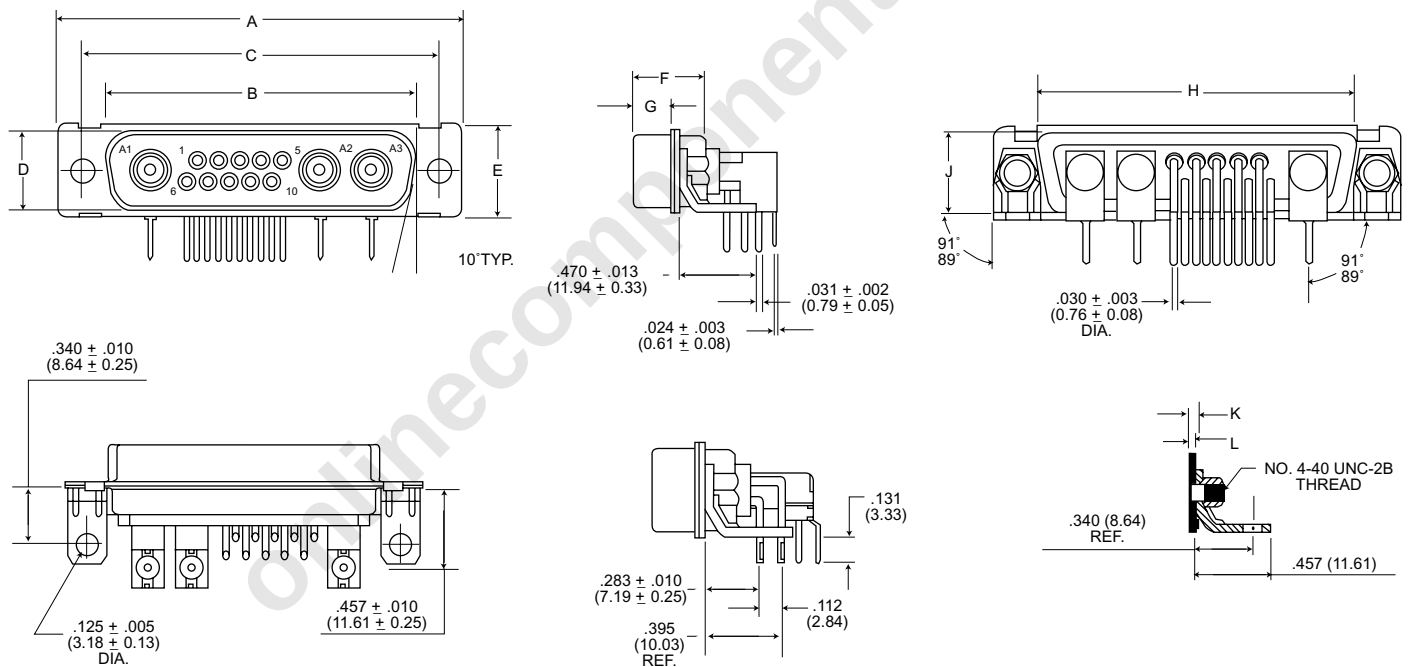
Military part numbers come complete with fixed, female, signal and coaxial contacts and right angle brackets.

Military part numbers come with coaxial contacts.

Non-magnetic part numbers must use coaxial contacts from Page 347 and do not come with brackets.

| Layout   | Military     | NM<br>Non-Magnetic |
|----------|--------------|--------------------|
| DE-5W1   | DEMMP5X1SP   | DEM5W1SP-NMB-K52   |
| DA-7W2   | DAMMP7X2SP   | DAM7W2SP-NMB-K52   |
| DA-11W1  | DAMMP11X1SP  | DAM11W1SP-NMB-K52  |
| DA-3W3   | DAMMP3X3SP   | DAM3W3SP-NMB-K47   |
| DB-5W5   | DBMMP5X5SP   | DBM5W5SP-NMB-K47   |
| DB-9W4   | DBMMP9X4SP   | DBM9W4SP-NMB-K52   |
| DB-13W3  | DBMMP13X3SP  | DBM13W3SP-NMB-K52  |
| DB-17W2  | DBMMP17X2SP  | DBM17W2SP-NMB-K52  |
| DB-21W1  | DBMMP21X1SP  | DBM21W1SP-NMB-K52  |
| DC-8W8   | DCMMP8X8SP   | DCM8W8SP-NMB-K47   |
| DC-13W6  | DCMMP13X6SP  | DCM13W6SP-NMB-K52  |
| DC-17W5  | DCMMP17X5SP  | DCM17W5SP-NMB-K52  |
| DC-21WA4 | DCMMP21XA4SP | DCM21WA4SP-NMB-K52 |
| DC-25W3  | DCMMP25X3SP  | DCM25W3SP-NMB-K52  |
| DC-27W2  | DCMMP27X2SP  | DCM27W2SP-NMB-K52  |

## Dimensions



## SOCKET CONNECTOR ASSEMBLY (Female)

| Shell Size | A<br>± .015 (0.38) | B<br>± .005 (0.13) | C<br>± .005 (0.13) | D<br>± .005 (0.13) | E<br>± .015 (0.38) | F<br>± .005 (0.13) | G<br>± .005 (0.13) | H<br>± .010 (0.25) | J<br>± .010 (0.25) | K<br>± .013 (0.33) | L<br>± .010 (0.25) |
|------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|
| DE         | 1.213 (30.81)      | .643 (16.33)       | .984 (24.99)       | .311 (7.90)        | .494 (12.55)       | .429 (10.90)       | .243 (6.17)        | .759 (19.28)       | .422 (10.72)       | .048 (1.22)        | .030 (0.76)        |
| DA         | 1.541 (39.14)      | .971 (24.66)       | 1.312 (33.32)      | .311 (7.90)        | .494 (12.55)       | .429 (10.90)       | .243 (6.17)        | 1.083 (27.51)      | .422 (10.72)       | .048 (1.22)        | .030 (0.76)        |
| DB         | 2.088 (53.03)      | 1.511 (38.38)      | 1.852 (47.04)      | .311 (7.90)        | .494 (12.55)       | .429 (10.90)       | .243 (6.17)        | 1.625 (41.27)      | .422 (10.72)       | .048 (1.22)        | .039 (0.99)        |
| DC         | 2.729 (69.31)      | 2.159 (54.84)      | 2.500 (63.50)      | .311 (7.90)        | .494 (12.55)       | .429 (10.90)       | .243 (6.17)        | 2.272 (57.71)      | .422 (10.72)       | .048 (1.22)        | .039 (0.99)        |

See Commercial D Subminiature catalog for additional Combo D options, including 75 ohm Coax.

# Combo D® - Coaxial/50 Ohm

## Right Angle Plug for PCB Mounting



PCB Layouts - Page 352

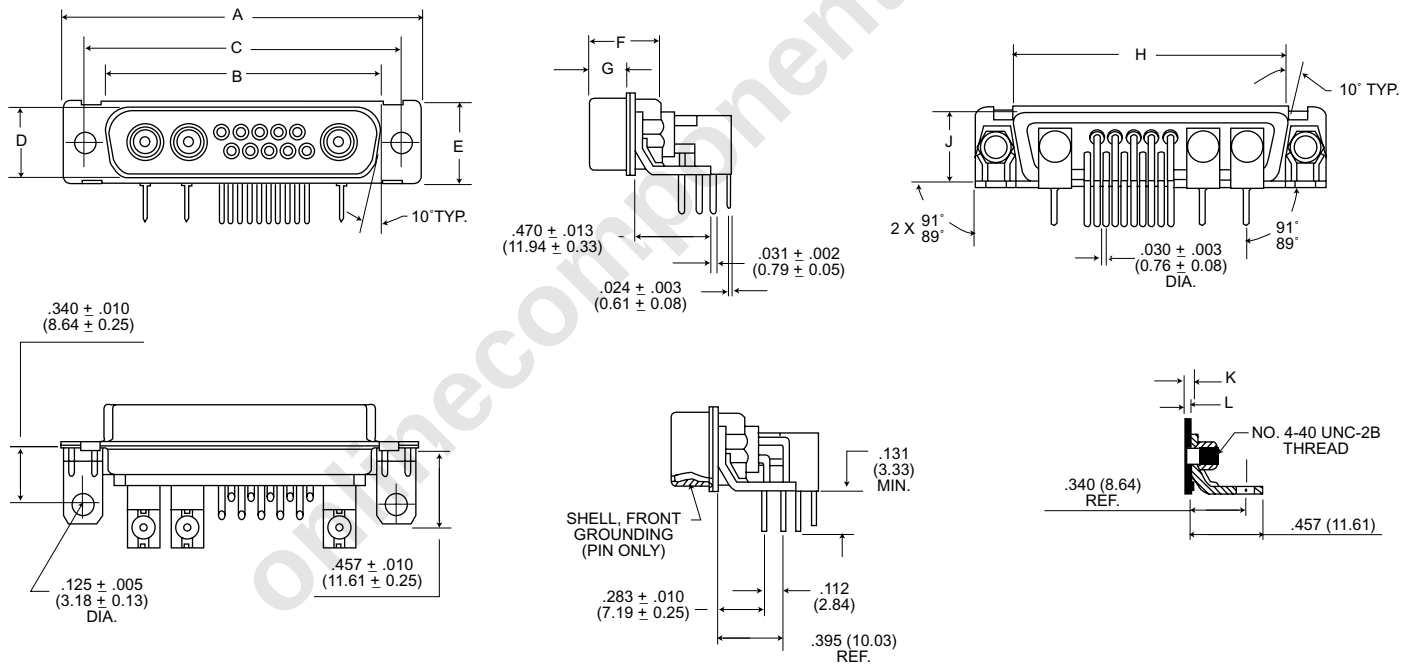
Military part numbers come complete with fixed, female, signal and right angle brackets.

Military part numbers come with coaxial contacts.

Non-magnetic part numbers must use coaxial contacts from Page 347 and do not come with brackets.

| Layout   | Military    | <b>NM</b><br>Non-Magnetic |
|----------|-------------|---------------------------|
| DE-5W1   | DEMMP5X1PP  | DEM5W1PP-NMB-K52          |
| DA-7W2   | DAMMP7X2PP  | DAM7W2PP-NMB-K52          |
| DA-11W1  | DAMM11X1PP  | DAM11W1PP-NMB-K52         |
| DA-3W3   | DAMM3X3PP   | DAM3W3P-NMB-K47           |
| DB-5W5   | DBMM5X5PP   | DBM5W5P-NMB-K47           |
| DB-9W4   | DBMM9X4PP   | DBM9W4PP-NMB-K52          |
| DB-13W3  | DBMM13X3PP  | DBM13W3PP-NMB-K52         |
| DB-17W2  | DBMM17X2PP  | DBM17W2PP-NMB-K52         |
| DB-21W1  | DBMM21X1PP  | DBM21W1PP-NMB-K52         |
| DC-8W8   | DCMM8X8PP   | DCM8W8P-NMB-K47           |
| DC-13W6  | DCMM13X6PP  | DCM13W6PP-NMB-K52         |
| DC-17W5  | DCMM17X5PP  | DCM17W5PP-NMB-K52         |
| DC-21WA4 | DCMM21XA4PP | DCM21WA4PP-NMB-K52        |
| DC-25W3  | DCMM25X3PP  | DCM25W3PP-NMB-K52         |
| DC-27W2  | DCMM27X2PP  | DCM27W2PP-NMB-K52         |

## Dimensions



## PLUG CONNECTOR ASSEMBLY (Male)

| Shell Size | A<br>+.015 (0.38) | B<br>+.005 (0.13) | C<br>+.005 (0.13) | D<br>+.005 (0.13) | E<br>+.015 (0.38) | F<br>+.005 (0.13) | G<br>+.006 (0.15) | H<br>+.010 (0.25) | J<br>+.010 (0.25) | K<br>+.013 (0.33) | L<br>+.010 (0.25) |
|------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
| DE         | 1.213 (30.81)     | .666 (16.91)      | .984 (24.99)      | .329 (8.36)       | .494 (12.55)      | .422 (10.72)      | .236 (5.99)       | .759 (19.28)      | .422 (10.72)      | .048 (1.22)       | .030 (0.76)       |
| DA         | 1.541 (39.14)     | .994 (25.24)      | 1.312 (33.32)     | .329 (8.36)       | .494 (12.55)      | .422 (10.72)      | .236 (5.99)       | 1.083 (27.51)     | .422 (10.72)      | .048 (1.22)       | .030 (0.76)       |
| DB         | 2.088 (53.03)     | 1.534 (38.96)     | 1.852 (47.04)     | .329 (8.36)       | .494 (12.55)      | .426 (10.82)      | .231 (5.87)       | 1.625 (41.27)     | .422 (10.72)      | .060 (1.52)       | .039 (0.99)       |
| DC         | 2.729 (69.31)     | 2.182 (55.42)     | 2.500 (63.50)     | .329 (8.36)       | .494 (12.55)      | .426 (10.82)      | .231 (5.87)       | 2.272 (57.71)     | .422 (10.72)      | .060 (1.52)       | .039 (0.99)       |

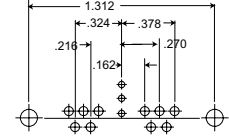
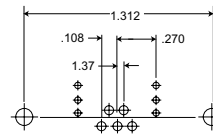
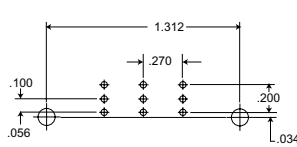
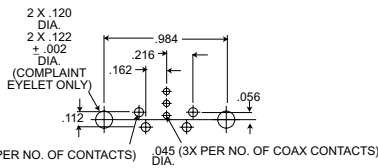
See Commercial D Subminiature catalog for additional Combo D options, including 75 ohm Coax.

# Combo D® - Coaxial

## Right Angle Printed Circuit Board Hole Patterns

Face view, pin insert

(for receptacle, hole pattern is a mirror image)



Shell Size

Contact Arrangement

No. of Signal Contacts

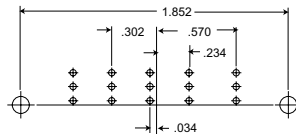
No. of Coaxial Contacts

E

5W1

4 #20

1

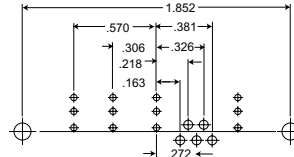


A

3W3

0

3

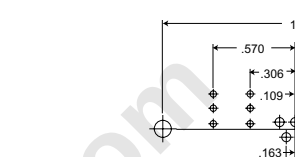


A

7W2

5 #20

2

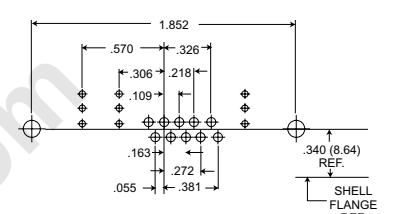


A

11W1

10 #20

1



Shell Size

Contact Arrangement

No. of Signal Contacts

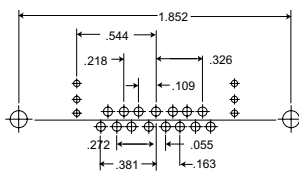
No. of Coaxial Contacts

B

5W5

0

5

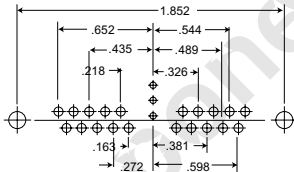


B

9W4

10 #20

4

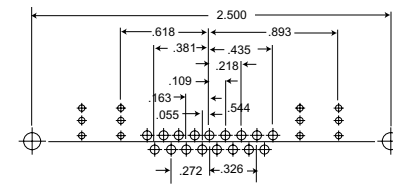


B

13W3

10 #20

3



Shell Size

Contact Arrangement

No. of Signal Contacts

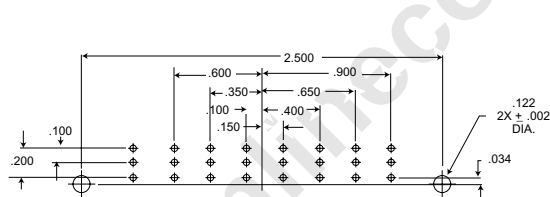
No. of Coaxial Contacts

B

17W2

15 #20

2

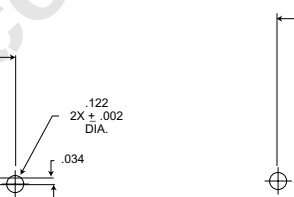


B

21W1

20 #20

1

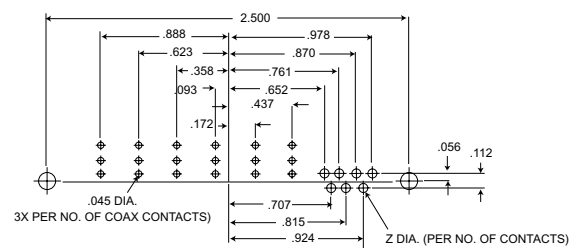


C.489

21WA4

17 #20

4



Shell Size

Contact Arrangement

No. of Signal Contacts

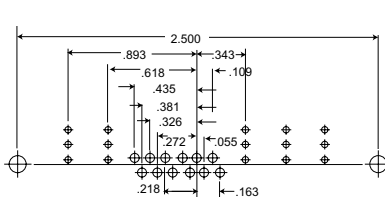
No. of Coaxial Contacts

C

8W8

0

8

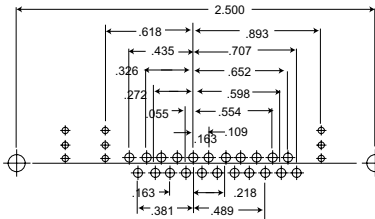


C

13W6

7 #20

6



Shell Size

Contact Arrangement

No. of Signal Contacts

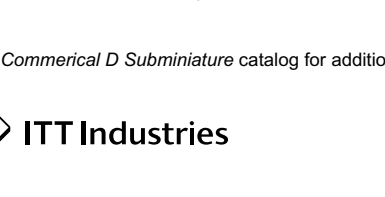
No. of Coaxial Contacts

C

17W5

12 #20

5

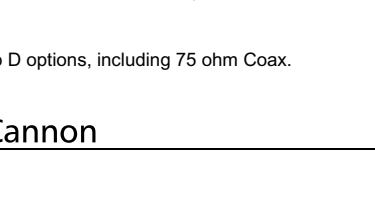


C

25W3

22 #20

3



Size #20

Contact PC

Tail Dia.

.030 (0.76)

Z

Dia.

.045 (1.14)

See Commerical D Subminiature catalog for additional Combo D options, including 75 ohm Coax.

## Combo D® - Coaxial/50 Ohm

## Straight Receptacle for PCB Mounting



PCB Hole Patterns - Pages 354-355

Part numbers come complete with fixed, female, signal and coaxial contacts.

| Layout   | Military    | <b>NM</b>         |
|----------|-------------|-------------------|
|          |             | Non-Magnetic      |
| DE-5W1   | DEMM5X1SM   | DEM5X1SM-NM-K52   |
| DA-7W2   | DAMM7X2SM   | DAM7X2SM-NM-K52   |
| DA-11W1  | DAMM11X1SM  | DAM11X1SM-NM-K52  |
| DA-3W3   | DAMM3X3SM   | DAM3X3SM-NM-K52   |
| DB-5W5   | DBMM5X5SM   | DBM5X5SM-NM-K52   |
| DB-9W4   | DBMM9X4SM   | DBM9X4SM-NM-K52   |
| DB-13W3  | DBMM13X3SM  | DBM13X3SM-NM-K52  |
| DB-17W2  | DBMM17X2SM  | DBM17X2SM-NM-K52  |
| DB-21W1  | DBMM21X1SM  | DBM21X1SM-NM-K52  |
| DC-8W8   | DCMM8X8SM   | DCM8X8SM-NM-K52   |
| DC-13W6  | DCMM13X6SM  | DCM13X6SM-NM-K52  |
| DC-17W5  | DCMM17X5SM  | DCM17X5SM-NM-K52  |
| DC-21WA4 | DCMM21XA4SM | DCM21XA4SM-NM-K52 |
| DC-25W3  | DCMM25X3SM  | DCM25X3SM-NM-K52  |
| DD-24W7  | DCMM24X7SM  | DCM24X7SM-NM-K52  |
| DC-27W2  | DCMM27X2SM  | DCM27X2SM-NM-K52  |
| DD-24W7  | DDMM24X7SM  | DDM24X7SM-NM-K52  |
| DD-36W4  | DDMM36X4SM  | DDM36X4SM-NM-K52  |
| DD-43W2  | DDMM43X2SM  | DDM43X2SM-NM-K52  |
| DD-47W1  | DDMM47X1SM  | DDMC47X1SM-NM-K52 |

## Straight Plug for PCB Mounting (Board Thickness up to .125 [3.18])

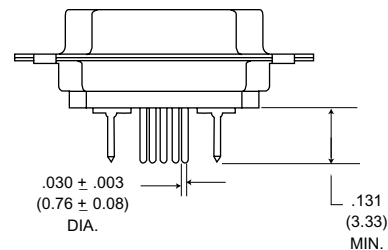


PCB Hole Patterns - Pages 354-355

Part numbers come complete with fixed, male, signal and coaxial contacts.

| Layout   | Military    | <b>NM</b>         |
|----------|-------------|-------------------|
|          |             | Non-Magnetic      |
| DE-5W1   | DEMM5X1PM   | DEM5X1PM-NM-K52   |
| DA-7W2   | DAMM7X2PM   | DAM7X2PM-NM-K52   |
| DA-11W1  | DAMM11X1PM  | DAM11X1PM-NM-K52  |
| DA-3W3   | DAMM3X3PM   | DAM3X3PM-NM-K52   |
| DB-5W5   | DBMM5X5PM   | DBM5X5PM-NM-K52   |
| DB-9W4   | DBMM9X4PM   | DBM9X4PM-NM-K52   |
| DB-13W3  | DBMM13X3PM  | DBM13X3PM-NM-K52  |
| DB-17W2  | DBMM17X2PM  | DBM17X2PM-NM-K52  |
| DB-21W1  | DBMM21X1PM  | DBM21X1PM-NM-K52  |
| DC-8W8   | DCMM8X8PM   | DCM8X8PM-NM-K52   |
| DC-13W6  | DCMM13X6PM  | DCM13X6PM-NM-K52  |
| DC-17W5  | DCMM17X5PM  | DCM17X5PM-NM-K52  |
| DC-21WA4 | DCMM21XA4PM | DCM21XA4PM-NM-K52 |
| DC-25W3  | DCMM25X3PM  | DCM25X3PM-NM-K52  |
| DC-27W2  | DCMM27X2PM  | DCM27X2PM-NM-K52  |
| DD-24W7  | DDMM24X7PM  | DDM24X7PM-NM-K52  |
| DD-36W4  | DDMM36X4PM  | DDM36X4PM-NM-K52  |
| DD-43W2  | DDMM43X2PM  | DDM43X2PM-NM-K52  |
| DD-47W1  | DDMM47X1PM  | DDM47X1PM-NM-K52  |

## Dimensions

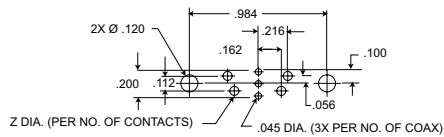


See Commerical D Subminiature catalog for additional Combo D options, including 75 ohm Coax.

# Combo D® - Coaxial

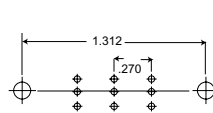
## Straight Printed Circuit Board Hole Patterns

Face view, pin insert  
(for receptacle, hole pattern is a mirror image)

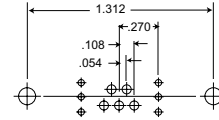


Shell Size  
Contact Arrangement  
No. of Signal Contacts  
No. of PC Coaxial Contacts

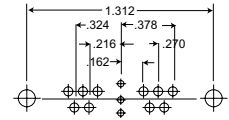
**E**  
**5W1**  
**4 #20**  
**1**



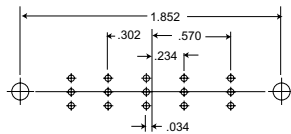
**A**  
**3W3**  
**-**  
**3**



**A**  
**7W2**  
**5 #20**  
**2**

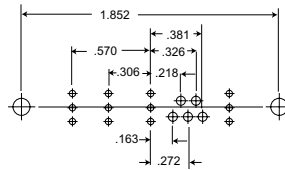


**A**  
**11W1**  
**10 #20**  
**1**

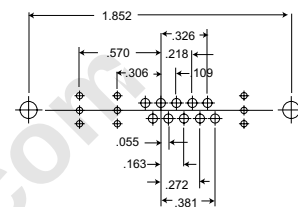


Shell Size  
Contact Arrangement  
No. of Signal Contacts  
No. of PC Coaxial Contacts

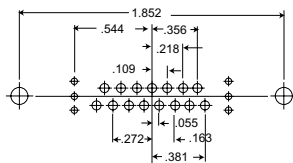
**B**  
**5W5**  
**-**  
**5**



**B**  
**9W4**  
**5 #20**  
**4**

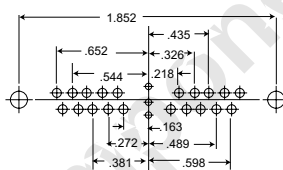


**B**  
**13W3**  
**10 #20**  
**3**

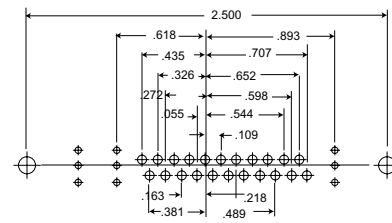


Shell Size  
Contact Arrangement  
No. of Signal Contacts  
No. of PC Coaxial Contacts

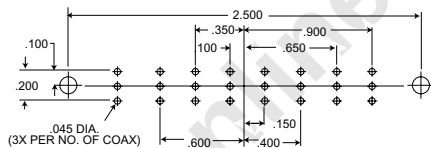
**B**  
**17W2**  
**15 #20**  
**2**



**B**  
**21W1**  
**20 #20**  
**1**

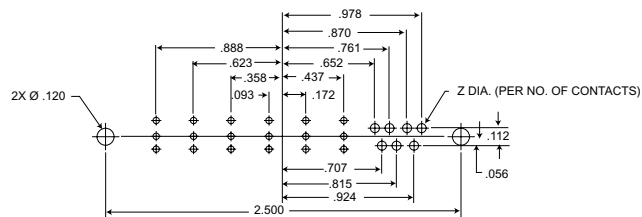


**C**  
**25W3**  
**22 #20**  
**3**

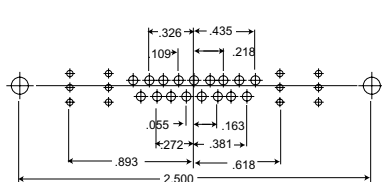


Shell Size  
Contact Arrangement  
No. of Signal Contacts  
No. of PC Coaxial Contacts

**C**  
**8W8**  
**-**  
**8**

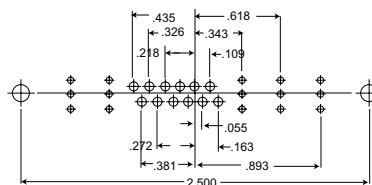


**C**  
**13W6**  
**7 #20**  
**6**



Shell Size  
Contact Arrangement  
No. of Signal Contacts  
No. of PC Coaxial Contacts

**C**  
**21WA4**  
**17 #20**  
**4**



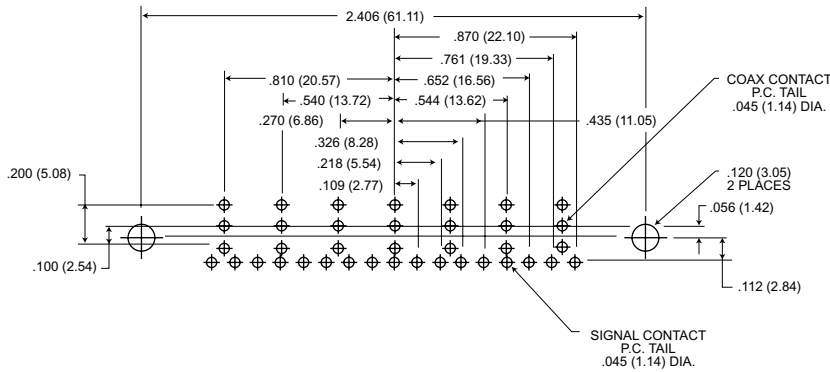
**C**  
**17W5**  
**12 #20**  
**5**

|             |             |
|-------------|-------------|
| Size No. 20 | 2           |
| Contact PC  | Dia.        |
| Tail Dia.   | .030 (0.76) |
|             | .045 (1.14) |

# Combo D® - Coaxial

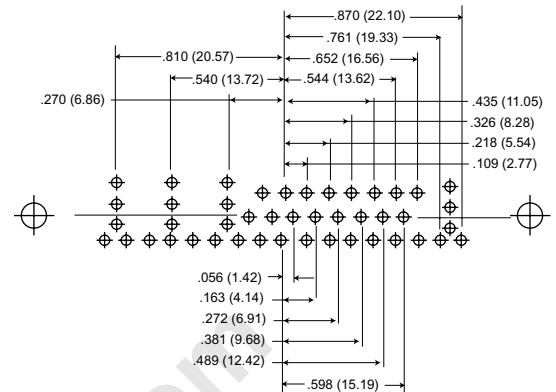
## Straight Printed Circuit Board Hole Patterns

Face view, pin insert  
(for receptacle, hole pattern is a mirror image)



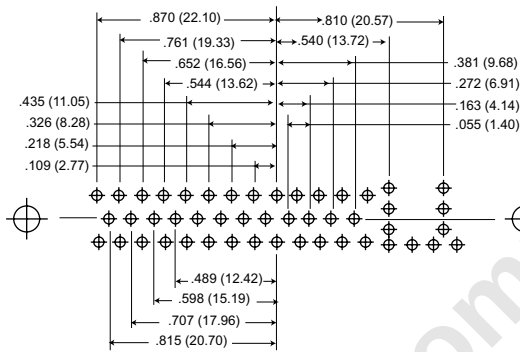
Shell Size  
Contact Arrangement  
No. of Signal Contacts  
No. of Coaxial Contacts

**D**  
**24W7**  
**17 #20**  
**7**



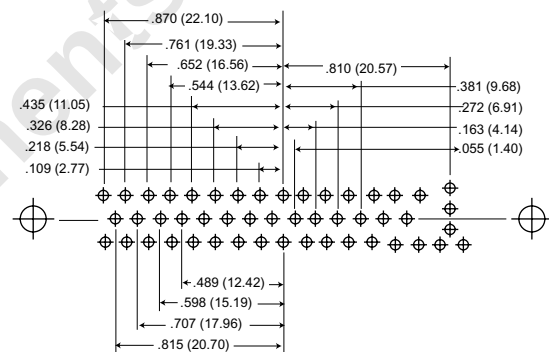
Shell Size  
Contact Arrangement  
No. of Signal Contacts  
No. of Coaxial Contacts

**D**  
**36W4**  
**32 #20**  
**4**



Shell Size  
Contact Arrangement  
No. of Signal Contacts  
No. of Coaxial Contacts

**D**  
**43W2**  
**41 #20**  
**2**



Shell Size  
Contact Arrangement  
No. of Signal Contacts  
No. of Coaxial Contacts

**D**  
**47W1**  
**46 #20**  
**1**

# Combo D® - High Voltage

## Coaxial Housings With Solder Cup Signal Contacts

High voltage contacts  
supplied separately.



Contact Arrangements: Page 346 of Coax section  
Performance Specifications: Page 345 of Coax section.

Clinch Nut and Float Mount Options Available:

Add: E = 4-40 Clinch Nut

Y = Float Mounting

Example: DAMME3W3P

DAMMY3W3P

See page 334 for Mounting Method Detail.

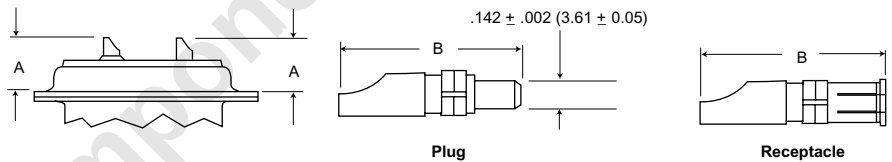
Cable Combinations supplied with preloaded solder signal contacts. High Power Contacts supplied separately, see below.

Extraction Tool for High Power Contacts are the same as for 50 Ohm Coaxial Contacts. See page 348.

| Layout   | Military Socket | Military Pin | NM - Non-Magnetic Socket | NM - Non-Magnetic Pin |
|----------|-----------------|--------------|--------------------------|-----------------------|
| DE-5W1   | DEMM5W1S        | DEMM5W1P     | DEM5W1S-NMB-K52          | DEM5W1P-NMB-K52       |
| DA-7W2   | DAMM7W2S        | DAMM7W2P     | DAM7W2S-NMB-K52          | DAM7W2P-NMB-K52       |
| DA-11W1  | DAMM11W1S       | DAMM11W1P    | DAM11W1S-NMB-K52         | DAM11W1P-NMB-K52      |
| DA-3W3   | DAMM3W3S        | DAMM3W3P     | DAM3W3S-NMB-K47          | DAM3W3P-NMB-K47       |
| DB-5W5   | DBMM5W5S        | DBMM5W5P     | DBM5W5S-NMB-K47          | DBM5W5P-NMB-K47       |
| DB-9W4   | DBMM9W4S        | DBMM9W4P     | DBM9W4S-NMB-K52          | DBM9W4P-NMB-K52       |
| DB-13W3  | DBMM13W3S       | DBMM13W3P    | DBM13W3S-NMB-K52         | DBM13W3P-NMB-K52      |
| DB-17W2  | DBMM17W2S       | DBMM17W2P    | DBM17W2S-NMB-K52         | DBM17W2P-NMB-K52      |
| DB-21W1  | DBMM21W1S       | DBMM21W1P    | DBM21W1S-NMB-K52         | DBM21W1P-NMB-K52      |
| DC-8W8   | DCMM8W8S        | DCMM8W8P     | DCM8W8S-NMB-K47          | DCM8W8P-NMB-K47       |
| DC-13W6  | DCMM13W6S       | DCMM13W6P    | DCM13W6S-NMB-K52         | DCM13W6P-NMB-K52      |
| DC-17W5  | DCMM17W5S       | DCMM17W5P    | DCM17W5S-NMB-K52         | DCM17W5P-NMB-K52      |
| DC-21WA4 | DCMM21WA4S      | DCMM21WA4P   | DCM21WA4S-NMB-K52        | DCM21WA4P-NMB-K52     |
| DC-25W3  | DCMM25W3S       | DCMM25W3P    | DCM25W3S-NMB-K52         | DCM25W3P-NMB-K52      |
| DC-27W2  | DCMM27W2S       | DCMM27W2P    | DCM27W2S-NMB-K52         | DCM27W2P-NMB-K52      |
| DD-24W7  | DDMM24W7S       | DDMM24W7P    | DDM24W7S-NMB-K52         | DDM24W7P-NMB-K52      |
| DD-36W4  | DDMM36W4S       | DDMM36W4P    | DDM36W4S-NMB-K52         | DDM36W4P-NMB-K52      |
| DD-43W2  | DDMM43W2S       | DDMM43W2P    | DDM43W2S-NMB-K52         | DDM43W2P-NMB-K52      |
| DD-47W1  | DDMM47W1S       | DDMM47W1P    | DDM47W1S-NMB-K52         | DDM47W1P-NMB-K52      |

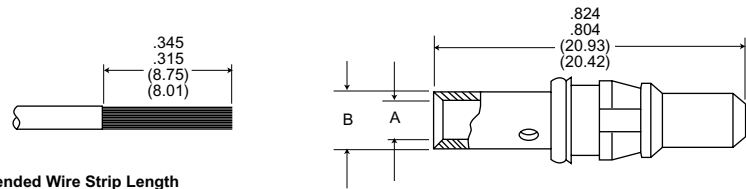
## High Power Contacts

Solder Type



|            | Gold over Nickel | 50μ in. Gold over Copper | NM - Non-Magnetic 50μ in. Gold over Copper | A Max.       | B Ref.       | Current Rating (Amps) | Wire Size |
|------------|------------------|--------------------------|--------------------------------------------|--------------|--------------|-----------------------|-----------|
| Plug       | DM53745-1        | DM53745-28               | DM53745-70                                 | .666 (16.92) | .866 (22.00) | 40                    | #8        |
| Plug       | DM53745-7        | DM53745-27               | DM53745-77                                 | .666 (16.92) | .866 (22.00) | 20                    | #12       |
| Plug       | DM53745-8        | DM53745-25               | DM53745-70                                 | .666 (16.92) | .866 (22.00) | 10                    | #16       |
| Receptacle | DM53744-1        | DM53744-21               | DM53744-62                                 | .666 (16.92) | .856 (21.74) | 40                    | #8        |
| Receptacle | DM53744-6        | DM53744-25               | DM53744-64                                 | .666 (16.92) | .856 (21.74) | 20                    | #12       |
| Receptacle | DM53744-7        | DM53744-24               | DM53744-63                                 | .666 (16.92) | .856 (21.74) | 10                    | #16       |

Crimp Type



|            | Gold over Nickel | 50μ in. Gold over Copper | A Dia. Max. | B Dia. Max. | Current Rating (Amps) | Wire Size |
|------------|------------------|--------------------------|-------------|-------------|-----------------------|-----------|
| Plug       | DM130338-4       | DM130338                 | .181 (4.60) | .230 (5.84) | 40                    | #8        |
| Plug       | DM130339-4       | DN130339                 | .100 (2.54) | .218 (5.54) | 20                    | #12       |
| Plug       | DM130340-4       | DM130340                 | .067 (1.07) | .102 (2.59) | 10                    | #16       |
| Receptacle | DM130341-4       | DM130341                 | .181 (4.60) | .230 (5.84) | 40                    | #8        |
| Receptacle | DM130342-4       | DM130342                 | .100 (2.54) | .218 (5.54) | 20                    | #12       |
| Receptacle | DM130343-4       | DM130343                 | .067 (1.07) | .102 (2.59) | 10                    | #16       |

Crimp Tooling - Page 357.

See Commerical D Subminiature catalog for PCB High Power connectors.

# Combo D® - High Power

## Crimp High Power Contact Tooling

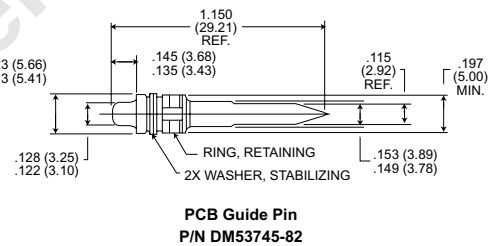
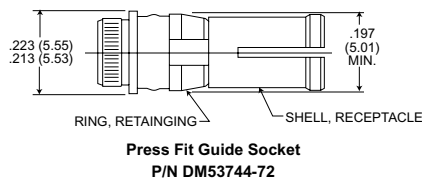
(For use with Crimp High Power Contacts on Page 356)

| AWG Wire Size | Daniels Crimp Tool | Crimp Tool/Locator       |          |
|---------------|--------------------|--------------------------|----------|
|               |                    | Tool Setting Number      | Locartor |
| 8-10          | M300-BT            | AWG 8 = 6<br>AWG 10 = 5  | TP968    |
| 12-14         | M300-BT            | AWG 12/14 = 1            | TP968    |
| 16-18         | FT-8               | AWG 16 = 6<br>AWG 18 = 5 | TH554    |

NOTE: Purchase tooling directly from Daniels.

## Combo D Guide Pin and Socket

Installs into any Combo D, size 8 Cavity. This patented guide pin and socket system is ideal for blind mate applications where space is limited.



| Description  | Material     | Finish           |
|--------------|--------------|------------------|
| Guide Pin    | Brass        | Gold over nickel |
| Guide Socket | Copper Alloy | Gold over nickel |

# Combo D® - High Voltage

## Coaxial Housings With Solder Cup Signal Contacts

High voltage contacts  
supplied separately.



Contact Arrangements: Page 346 of Coax section  
Performance Specifications: Page 345 of Coax section.

Clinch Nut and Float Mount Options Available:

Add: E = 4-40 Clinch Nut

Y = Float Mounting

Example: DAMME3W3P

DAMMY3W3P

Mouting Method Detail - Page 334.

Cable Combinations supplied with preloaded solder signal contacts. High Voltage Contacts supplied separately, see below.

Extraction Tool for High Voltage Contacts are the same as for 50 Ohm Coaxial Contacts. See page 348.

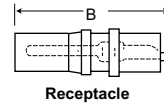
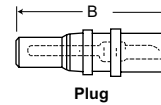
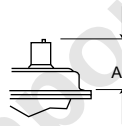
| Layout   | Military Socket | Military Pin |
|----------|-----------------|--------------|
| DE-5W1   | DEMM5W1S        | DEMM5W1P     |
| DA-7W2   | DAMM7W2S        | DAMM7W2P     |
| DA-11W1  | DAMM11W1S       | DAMM11W1P    |
| DA-3W3   | DAMM3W3S        | DAMM3W3P     |
| DB-5W5   | DBMM5W5S        | DBMM5W5P     |
| DB-9W4   | DBMM9W4S        | DBMM9W4P     |
| DB-13W3  | DBMM13W3S       | DBMM13W3P    |
| DB-17W2  | DBMM17W2S       | DBMM17W2P    |
| DB-21W1  | DBMM21W1S       | DBMM21W1P    |
| DC-8W8   | DCMM8W8S        | DCMM8W8P     |
| DC-13W6  | DCMM13W6S       | DCMM13W6P    |
| DC-17W5  | DCMM17W5S       | DCMM17W5P    |
| DC-21WA4 | DCMM21WA4S      | DCMM21WA4P   |
| DC-25W3  | DCMM25W3S       | DCMM25W3P    |
| DC-27W2  | DCMM27W2S       | DCMM27W2P    |
| DD-24W7  | DCMM24W7S       | DCMM24W7P    |
| DD-36W4  | DCMM36W4S       | DCMM36W4P    |
| DD-43W2  | DCMM43W2S       | DCMM43W2P    |
| DD-47W1  | DCMM47W1S       | DCMM47W1P    |

## High Voltage Combination Contacts

|                          |                 |
|--------------------------|-----------------|
| Wire Accommodation (AWG) | #20 Max.        |
| Current Rating           | 5 Amp           |
| Temperature Rating       | -55°C to +125°C |

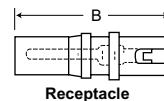
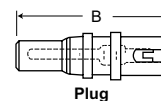
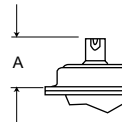
| Description     | Material      | Finish                                                |
|-----------------|---------------|-------------------------------------------------------|
| Contacts        | Copper Alloy  | Std: Gold over nickel<br>MIL-50μ in. Gold over copper |
| Insulator       | Thermoplastic | None                                                  |
| Ring, Retaining | Copper Alloy  | Nickel                                                |

### Straight



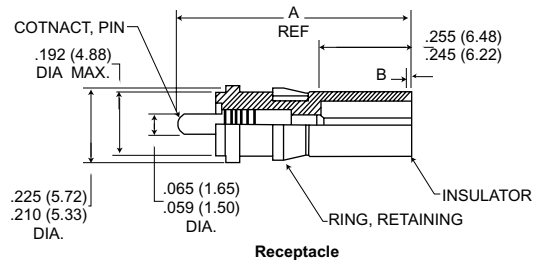
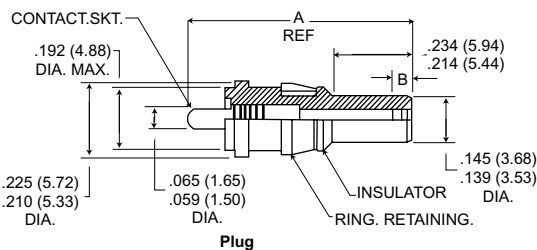
|            | Gold over Nickel | 50μ in. Gold | A<br>Max.    | B<br>Ref.    | Wire<br>Size |
|------------|------------------|--------------|--------------|--------------|--------------|
| Plug       | DM51157          | DM51157-8    | .539 (13.69) | .734 (18.64) | #20          |
| Receptacle | DM51155          | DM51155-7    | .539 (13.69) | .764 (19.41) | #20          |

### Right Angle



|            | Gold over Nickel | 50μ in. Gold | A<br>Max.    | B<br>Ref.    | Wire<br>Size |
|------------|------------------|--------------|--------------|--------------|--------------|
| Plug       | DM51157-5000     | DM51157-5005 | .491 (12.47) | .697 (17.70) | #20          |
| Receptacle | DM51155-5000     | DM51155-5004 | .491 (12.47) | .697 (17.70) | #20          |

### Straight PCB



|            | Standard Finish | Military Finish | A            | B                     |
|------------|-----------------|-----------------|--------------|-----------------------|
| Plug       | DM51157-13      | DM51157-14      | .628 (15.95) | .060/.050 (1.52/1.27) |
| Receptacle | DM51155-12      | DM51155-13      | .660 (16.76) | .010/.000 (0.25/0.00) |



The Cannon D\*D Environmental Series is designed to meet the demand for sealed subminiature rectangular plugs with superior vibration and moisture resistance characteristics for aircraft, missile, and ground support equipment applications.

Featuring a rugged aluminum shell and peripheral seal, the D\*D connector meets all applicable requirements of MIL-C-24308. Available in both solder

and crimp versions, all assemblies are provided with nylon potting cups and dust caps.

Solder type contacts are non-removable and are factory-installed. Crimp type connectors utilize the field-proven LITTLE CAESAR® rear insertion, rear-release retention system.

**PLEASE NOTE: The D\*D Series is not interchangeable with other D Subminiature connectors.**

## Performance and Material Specifications

|                           |                                                                                                                                                                      |
|---------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Shell                     | Aluminum, cadmium plated with yellow chromate supplementary coating.                                                                                                 |
| Contacts                  | Solder pot: Copper alloy, gold plated .00002 (0.0005) over nickel .00004 (0.0010). Crimp type: Copper alloy, gold plated .00002 (0.0005) over nickel .00004 (0.0010) |
| Insulator                 | Diallyl phthalate, per MIL-M-14, Type MDG or SDG-F                                                                                                                   |
| Contact Termination       | Solder pot accommodating up to #20 AWG stranded wire. Crimp type accommodating #20, #22 and #24 AWG stranded wire.                                                   |
| Socket Type               | Closed entry                                                                                                                                                         |
| Mounting Rivets & Washers | Stainless steel Passivated per QQ-P-35                                                                                                                               |

## Test Data

| Specifications                          |                                                                                                                                                                    |
|-----------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Voltage Rating                          | All voltage figures are AC (rms). 60 Hz measured at approximately 25.0°C 50% RH                                                                                    |
| Insulation Resistance (per MIL-C-24308) | Greater than 5,000 megohms, determined in accordance with MIL-STD-202A, Method 302.                                                                                |
| Contact Voltage Drop                    | 2.67 millivolts, maximum, per amp.                                                                                                                                 |
| Contact Separation Force                | 1 to 8 ounces when tested in accordance with MIL-C-24308.                                                                                                          |
| Air Leakage                             | When properly wired and potted, 1 cubic inch of air per hour max. when subjected to 30 PSI pressure differential in accordance with MIL-C-5015D, Paragraph 4.5.3.1 |
| Vibration (per MIL-C-24308)             | Exceeds test requirements of MIL-STD-202A, Method 204, Condition D.                                                                                                |
| Corrosion Resistance (per MIL-C-24308)  | Exceeds requirements of 50 hour exposure to salt spray in accordance with MIL-STD-202A, Method 101A, Condition B.                                                  |
| Moisture Resistance (per MIL-C-24308)   | Exceeds requirements of MIL-STD-202A, Method 106.                                                                                                                  |
| Shock                                   | Exceeds requirements of MIL-STD-202A, Method 213, Condition G                                                                                                      |
| Environmental Seal                      | Effective from full engagement to 1/16 short of full engagement.                                                                                                   |
| Contact Retention Force                 | (Crimp type) 8 pounds (35.6 newtons) minimum of first cycles: 5 pounds (22.2 newtons) minimum after tenth cycle.                                                   |
| Standard Layout Plugs                   | Measured from contact-to-contact, and contact-to-shell or unmated condition.                                                                                       |

| Altitude (Feet)    |           |        |        |        |
|--------------------|-----------|--------|--------|--------|
|                    | Sea Level | 20,000 | 50,000 | 70,000 |
| Average Flash-over | 1700      | 1000   | 650    | 500    |
| Test               | 1250      | 750    | 475    | 375    |

See Commercial D Subminiature catalog for additional Combo D options, including 75 ohm Coax.

## How to Order

### Solder Cup Terminals



#### SERIES PREFIX

ITT Cannon Designation

#### CLASS

D - Environmental

#### MOUNTING STYLE

A - Standard mounting holes  
B - Float mounts supplied

#### SHELL SIZE

A, B, C, D, E

#### CONTACT ARRANGEMENT

9, 15, 25, 37, 50

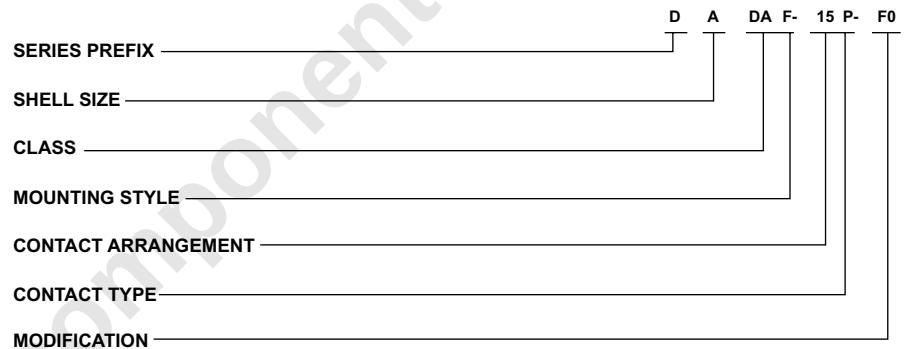
#### MODIFICATION

Consult factory

#### CONTACT TYPE

P - Pin  
S - Socket

### Snap-In Crimp Terminals



#### SERIES PREFIX

ITT Cannon Designation

#### CLASS

DA - Enviromental, crimp type

#### CONTACT TYPE

P - Pin  
S - Socket

#### SHELL SIZE

A, B, C, D, E

#### MOUNTING STYLE

No Designator - Standard mounting  
F - Float mounts supplied

#### MODIFICATION

F0 - Connector supplied less contacts, for other modifications consult factory.

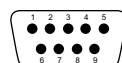
#### CONTACT ARRANGEMENT

9, 15, 25, 37, 50

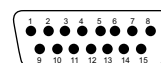
## Contact Arrangements

### Faces View Pin Insert

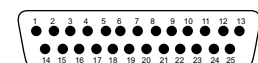
Shell Size  
Contact Arrangement  
Contact Size



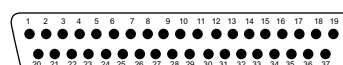
E  
9  
#20



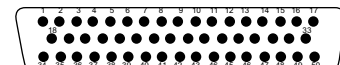
A  
15  
#20



B  
25  
#20



C  
37  
#20

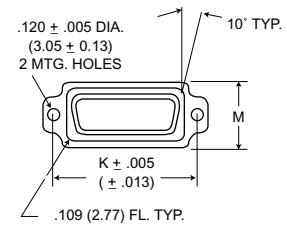
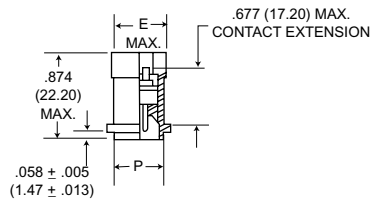
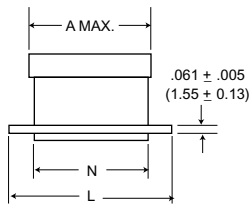


D  
50  
#20

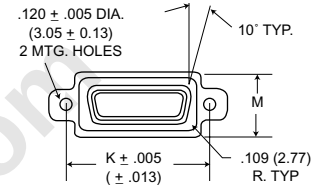
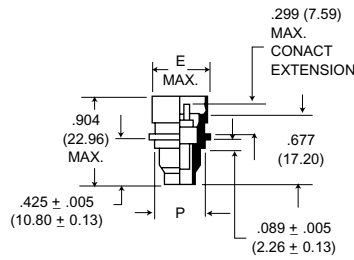
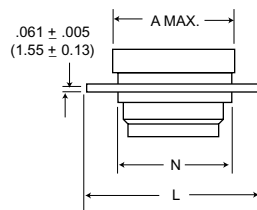
Shell Size  
Contact Arrangement  
Contact Size

## Shell Dimensions, Standard Mount

### Receptacle

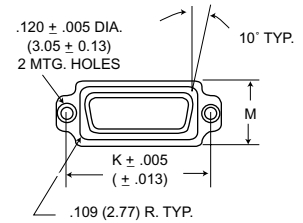
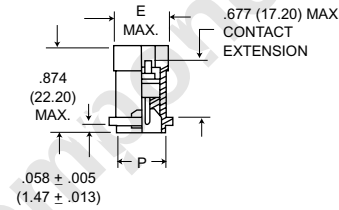
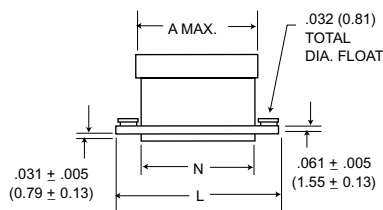


### Plug

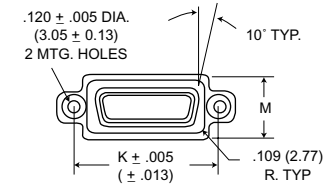
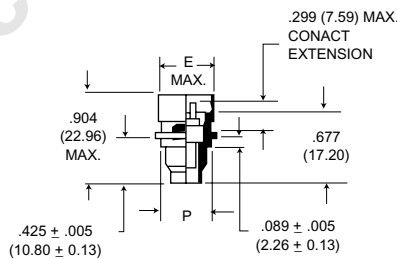
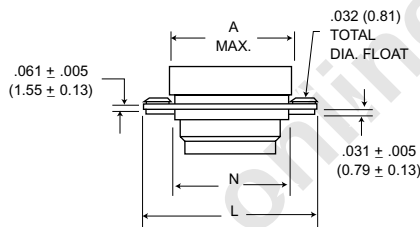


## Float Mount Dimensions

### Receptacle



### Plug



NOTE: All D\*D Environmental plugs and receptacles are provided with dust caps and removable potting cups.

| Shell Size | A<br>Max.     | E<br>Max.    | K<br>± .005 (0.13) | L<br>± .010 (0.25) | M<br>± .010 (0.25) | N<br>± .010 (0.25) | P<br>± .010 (0.25) |
|------------|---------------|--------------|--------------------|--------------------|--------------------|--------------------|--------------------|
| DED-9P     | .915 (23.24)  | .596 (15.14) | 1.125 (28.58)      | 1.442 (36.63)      | .614 (15.60)       | .825 (20.86)       | .483 (12.27)       |
| DED-9S     | .915 (23.24)  | .596 (15.14) | 1.125 (28.58)      | 1.442 (36.63)      | .614 (15.60)       | .825 (20.86)       | .483 (12.27)       |
| DAD-15P    | 1.233 (31.32) | .596 (15.14) | 1.437 (36.50)      | 1.755 (44.58)      | .614 (15.60)       | 1.143 (29.03)      | .483 (12.27)       |
| DAD-15S    | 1.233 (31.32) | .596 (15.14) | 1.437 (36.50)      | 1.755 (44.58)      | .614 (15.60)       | 1.143 (29.03)      | .483 (12.27)       |
| DBD-25P    | 1.786 (45.36) | .596 (15.14) | 1.993 (50.62)      | 2.295 (58.29)      | .614 (15.60)       | 1.683 (42.75)      | .483 (12.27)       |
| DBD-25S    | 1.786 (45.36) | .596 (15.14) | 1.993 (50.62)      | 2.295 (58.29)      | .614 (15.60)       | 1.683 (42.75)      | .483 (12.27)       |
| DCD-37P    | 2.458 (62.43) | .567 (14.40) | 2.625 (66.68)      | 2.937 (74.60)      | .614 (15.60)       | 2.343 (59.51)      | .483 (12.27)       |
| DCD-37S    | 2.458 (62.43) | .567 (14.40) | 2.625 (66.68)      | 2.937 (74.60)      | .614 (15.60)       | 2.343 (59.51)      | .483 (12.27)       |
| DDD-50P    | 2.390 (60.71) | .680 (17.27) | 2.531 (64.29)      | 2.859 (72.62)      | .735 (18.67)       | 2.251 (57.18)      | .596 (15.14)       |
| DDD-50S    | 2.390 (60.71) | .680 (17.27) | 2.531 (64.29)      | 2.859 (72.62)      | .735 (18.67)       | 2.251 (57.18)      | .596 (15.14)       |

All tolerances are ± .010 (0.24) unless noted otherwise.

## Mounting Dimensions

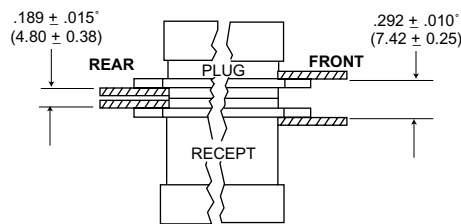


Figure 1

Figure 2

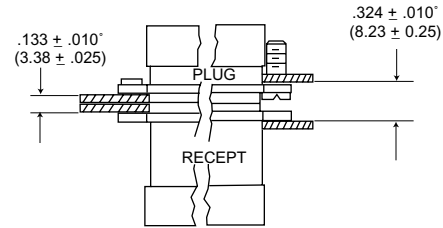


Figure 3

Figure 4

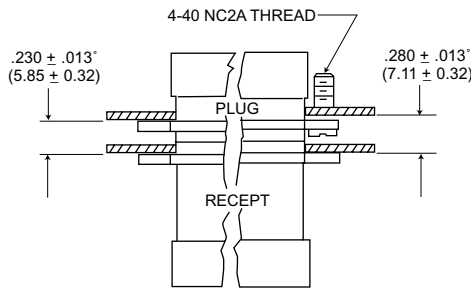


Figure 5

Figure 6

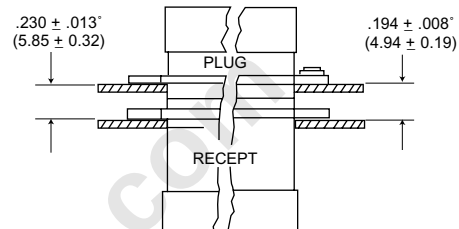


Figure 7

Figure 8

NOTE: Max panel thickness is .125 (3.17) for non-floating rear panel mounting.

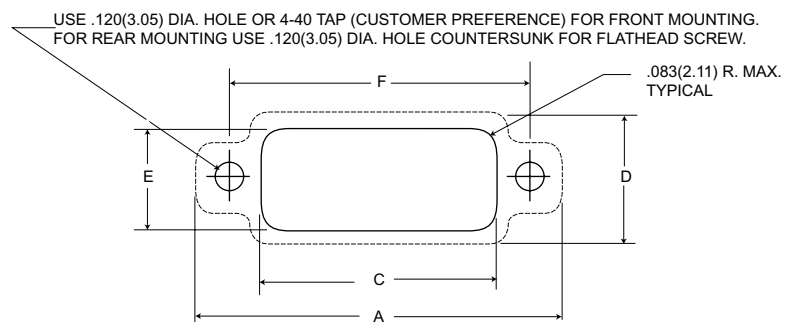
1. With both connectors rear mounted, use #4-40 flat head screws flush with the panel (Fig. 1).
2. With both connectors front mounted, use #4-40 binder or pan head screws (Fig. 2).
3. With both connectors rear mounted (float rivets on plug assembly side); use #4-40 flat head screws, flush with the panel (Fig. 3).
4. With both connectors front mounted (plug assembly has float mounting screw), use #4-40 binder or pan head screws for receptacle assembly (Fig. 4).

5. With plug assembly front mounted and receptacle assembly rear mounted, use hardware from Figures 5 and 6.
6. With plug assembly front mounted and receptacle assembly rear mounted (plug assembly has float mounting screw), use hardware from figure 1 for receptacle assembly.
- \* Dimensions between panels represent the recommended limit to be used in the design of the connector mounting method.
7. With plug assembly rear mounted and receptacle assembly front mounted, use hardware from Figures 1 and 2.

8. With plug assembly rear mounted (float rivets) and receptacle assembly front mounted, use hardware from Figures 2 and 3.
9. Electrical contact engagement when mounted per Figure 1 is .046 (1.17) min./ .070 (1.78) max.

NOTE: Float rivets are for rear mounting only and float screw for front mounting only. (Specify when ordering.)

## Panel Cutouts



| Shell Size | A<br>+ .010 (0.25) | C<br>Min.     | D<br>+ .010 (0.25) | E<br>Min.    | F<br>+ .006 (0.15) |
|------------|--------------------|---------------|--------------------|--------------|--------------------|
| DED-9      | 1.442 (36.63)      | .839 (21.31)  | .614 (15.60)       | .497 (12.62) | 1.125 (28.58)      |
| DAD-15     | 1.755 (44.58)      | 1.157 (29.39) | .614 (15.60)       | .497 (12.62) | 1.437 (36.50)      |
| DBD-25     | 2.295 (58.29)      | 1.697 (43.10) | .614 (15.60)       | .497 (12.62) | 1.993 (50.62)      |
| DCD-37     | 2.937 (74.60)      | 2.357 (59.87) | .614 (15.60)       | .497 (12.62) | 2.625 (66.68)      |
| DDD-50     | 2.859 (72.62)      | 2.265 (57.53) | .735 (18.67)       | .610 (15.49) | 2.531 (64.29)      |

Add .032 (0.81) to dimensions C and E for float mounting.  
Note: Panel cutout does not allow for potting cup clearance.

## Contact Crimping Information

### Crimp Type Contacts

| Contact Size | Wire Size Accom. | Standard Finish Pin | Standard Finish Socket | Military Finish Pin | Military Finish Socket |
|--------------|------------------|---------------------|------------------------|---------------------|------------------------|
| 20           | 20, 22, 24       | 330-5291-015        | 031-1007-000           | 330-5291-079        | 031-1007-042           |

### Semi-Automatic Crimp Machines

### Insertion/Extraction Tools

### CIET-20HD

| Contact Size | AWG        | Plastic Insertion/Extraction |             | Plastic Extraction |             |
|--------------|------------|------------------------------|-------------|--------------------|-------------|
|              |            | Part No.                     | Description | Part No.           | Description |
| 20           | 20, 22, 24 | 980-2000-426                 | CIET-20HD   | 323-7010-000       | CET-20-11   |

### CBT-646

The CBT-646, Vibra-Bowl Crimper is a pneumatically powered, electronically controlled machine. It is designed to semi-automatically crimp closed barrel, machined contacts, as used in the aerospace and commercial industries. The machine will accommodate wire sizes 30 thru 12 AWG. The CBT-646 is actuated automatically upon insertion of a pre-stripped stranded or single conductor wire. The CBT-646 meets all Mil. Spec. requirements for crimping closed barrel contacts.



### Hand Crimp Tools

### M22520/1-01

### M22520/2-01

| Contact Size | AWG        | Crimp Tool   |             | Locator      |             |
|--------------|------------|--------------|-------------|--------------|-------------|
|              |            | Part No.     | Description | Part No.     | Description |
| 20           | 20, 22, 24 | 995-0001-584 | M22520/2-01 | 995-0001-604 | M22520/2-08 |
|              |            | 995-0001-585 | M22520/1-01 | 995-0001-244 | TH25        |

**Machine Crimp Range:** 1300 + per hour

### Power Requirements:

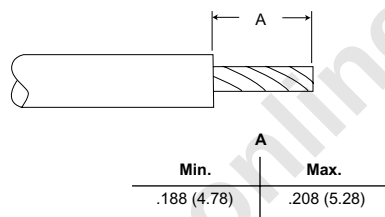
Electrical = 115 Vac, 60 Hz, 5A

Pneumatic = 85 psi, 2 cu. ft. per min.

**Products:** Most ITT Cannon Commercial and Aerospace closed-barrel contacts, wire sizes 30 thru 12 AWG. See connector line for part numbers.

## Assembly Instructions

### Wire Stripping-Machined Contacts



### Contact Crimping



### Contact Insertion



1. Cut wires to length. Strip insulation per above illustration. Check for broken or frayed wires.

2. Insert contact and wires into proper crimp tool (and locator, if required). Crimp contact to wires. Inspect crimp.

3. Center wired contact in groove of insertion tool with tool tip butting contact shoulder. Insert contact into cavity until a positive stop is felt. Inspection insertion.



4. To be sure contact is locked securely, pull back lightly on wire. Repeat for balance of contacts working row by row across the insulator.

### Contact Extraction



5. Place wire into extraction tool tip.



6. Insert tool tip into contact cavity until tip bottoms against contact shoulder, releasing wires. Hold wires against tool with finger and remove tool and contact. Repeat for balance of contacts.



- Environmental Protection
- MIL-C-24308 Compatibility
- Reliability and Versatility

GD\* connectors are ideal for aerospace, military, telecommunications and other applications requiring environmental protection and high reliability.

ITT Cannon developed GD\* connectors to meet the needs of the avionics industry. These connectors provide high-density and moisture protection.

Environmental protection is accomplished by the resilient grommet, interfacial seal, and bonded connector components.

## Performance and Material Specifications

### MATERIALS AND FINISHES

|                      | Materials                                            | Finishes                                                                                                                                                    |
|----------------------|------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Shell                | Low carbon steel per ASTM-A-620                      | Yellow chromate over cadmium per QQ-P-416, Type II, Class 2                                                                                                 |
| Insulator            | Diallyl phthalate per MIL-M-14 type SDF-F or GDI-30F | -                                                                                                                                                           |
| Contacts             | Copper alloy                                         | Standard finish: Gold over nickel<br>Military Finish: Gold 50 microinches thickness per MIL-G-45204, Type II, Grade C, Class 1, over copper per MIL-C-14550 |
| Float Mount Hardware | Stainless steel                                      | Passivated per QQ-P-35                                                                                                                                      |
| Grommets and Seals   | Silicone elastomer or Fluorosilicone                 |                                                                                                                                                             |
| Bonding Materials    | Epoxy                                                | -                                                                                                                                                           |

### MECHANICAL FEATURES

Wire Accommodation - Contact: #20, #22, #24 AWG.

Wire O.D. .071 (1.80) maximum, .038 (0.97) minimum.

Contact Retention - 9 lbs. minimum (40n) after 10 insertions.

### ELECTRICAL DATA

Test Voltage AC RMS 60 Hz

|                   | Sea Level | 20,000 Ft. | 50,000 Ft. | 70,000 Ft. |
|-------------------|-----------|------------|------------|------------|
| Average Flashover | 1,000     | 1,000      | 500        | 500        |
| Test              | 1,000     | 650        | 325        | 325        |

Maximum Current Carrying Capacity of Contacts - #20 Contacts: 5 Amps

Temperature Range - -65°C to +150°C (-53.9°F to +302°F)

## How to Order

GD B - 25 P \*\*

SERIES PREFIX \_\_\_\_\_

SHELL SIZE \_\_\_\_\_

MOUNTING TYPE \_\_\_\_\_

CONTACT ARRANGEMENT \_\_\_\_\_

CONTACT TYPE \_\_\_\_\_

MODIFICATION \_\_\_\_\_

#### SERIES PREFIX

GD - Grommet D

#### SHELL SIZE

E, A, B, D

#### MOUNTING TYPE

No Designator - .120 (3.05) Diameter Mounting Holes  
Y - Float Mount for Rear and Front Panel Mounting

#### CONTACT ARRANGEMENT

9, 15, 25, and 50

#### CONTACT TYPE

P - Pin, crimp termination  
S - Socket, crimp termination  
PB - Pin, Printed circuit termination with no-removable straight tails for .125 (3.18) maximum P.C. Board thickness

#### MODIFICATIONS (Typical Modifiers)

F0 - Connectors supplied Less Contacts  
A156 - Connectors supplied with contacts plated per MIL-G-45204 Type II Class 1 over copper per MIL-C-14550 (M24308 Finish)

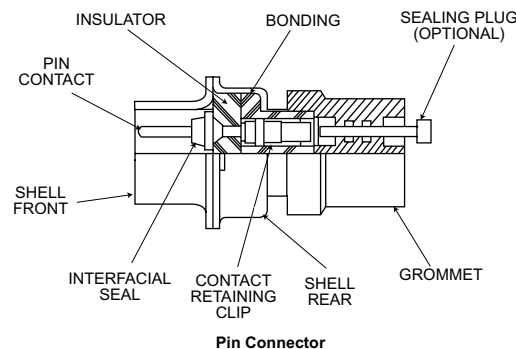
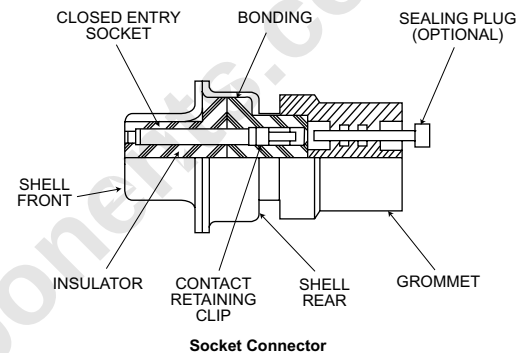
## Test Data

GD\* connectors meet all applicable requirements of MIL-C-24308. The following are excerpts from ITT Cannon Test Report C82-78 applicable to environmental D subminiature GD\* series connectors. Refer to MIL-C-24308 Test Extracts on page 385.

| Test Description   | Test Method                                                                                                           | Results                                                                                                                                                                    |
|--------------------|-----------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Moisture Resistant | MIL-STD-1344<br>Method 1002.1 Type II                                                                                 | 1. No deterioration of performance.<br>2. Insulation resistance greater than 100 megohms<br>3. No evidence of flashover or breakdown during 1000 VAC DWV testing.          |
| Fluid Immersion    | 20 hours immersion in hydraulic fluid per MIL-H-5606 and lubricating fluid per MIL-L-23699                            | 1. No detrimental damage.<br>2. Able to meet requirements of mating and unmating forces test.                                                                              |
| Immersion          | Two hour Immersion tap water at a dept of 36.00 (914.40) in mated condition, per MIL-STD-810 Method 512, Procedure 1. | While still immersed, the mated connectors exceeded 100 megohm insulator resistance and exhibited no evidence of breakdown or flashover during 1000 VAC (RMS) DWV testing. |

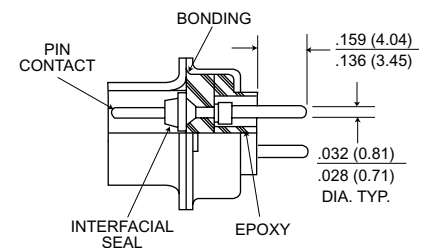
## Design Features

- Resilient silicone grommets for wire sealing
- Interfacial seals
- Closed-entry socket contacts
- Bonded components to prevent moisture
- Optional sealing plugs
- Uses M39029 type contacts and termination tooling
- Intermateable with most M24308 type connectors
- Rear-release crimp contacts
- LITTLE CAESAR® contact retention assembly

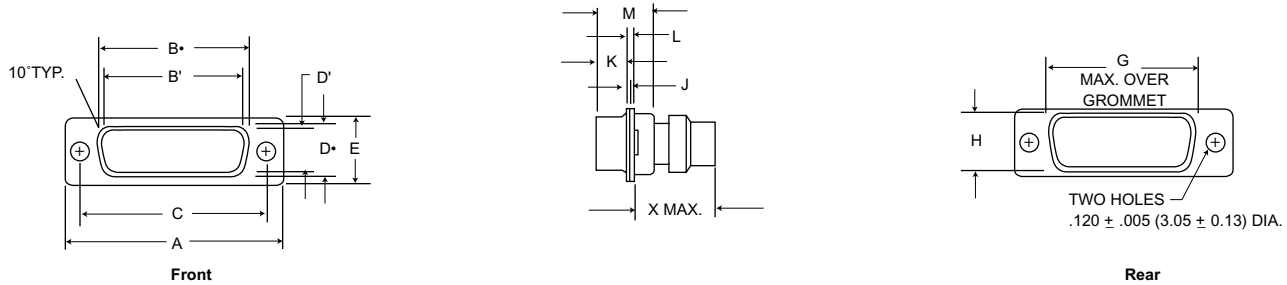


## Printed Circuit Applications

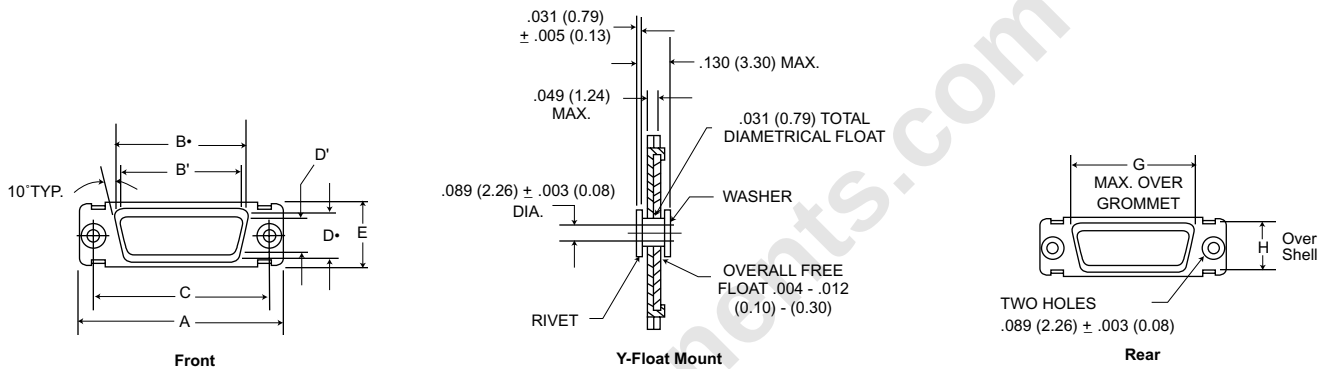
GD\* pin connectors are available with pre-loaded, non-removable contacts for P.C. board termination. Typical Part No. GDB-25PB. Environmental sealing is accomplished by application of epoxy to each contact cavity, interfacial seals, and bonded connector components.



## Standard Shell Dimensions



## Shell With Float Mount Dimensions



It is recommended that only one assembly, either pin or socket, be float mounted. For front panel mounting use reverse float mount.

| Shell Size | A<br>± .015<br>(0.38) | B*<br>± .005<br>(0.13) | B'<br>± .005<br>(0.13) | C<br>± .005<br>(0.12) | D*<br>± .005<br>(0.13) | D'<br>± .005<br>(0.13) | E<br>± .015<br>(0.38) | G<br>Max.     | H<br>± .010<br>(0.25) | J<br>± .010<br>(0.25) | K<br>± .006<br>(0.13) | L<br>± .010<br>(0.25) | M<br>± .005<br>(0.13) | X<br>Max.    |
|------------|-----------------------|------------------------|------------------------|-----------------------|------------------------|------------------------|-----------------------|---------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|--------------|
| GDE-9P     | 1.213 (30.81)         | -                      | .666 (16.91)           | .984 (24.99)          | -                      | .329 (8.36)            | .494 (12.55)          | .750 (19.05)  | .422 (10.72)          | .030 (0.76)           | .235 (5.97)           | .045 (1.14)           | .422 (10.72)          | .718 (18.24) |
| GDE-9S     | 1.213 (30.81)         | .643 (16.33)           | -                      | .984 (24.99)          | .311 (7.90)            | -                      | .494 (12.55)          | .750 (19.05)  | .422 (10.72)          | .030 (0.76)           | .243 (6.17)           | .045 (1.14)           | .429 (10.90)          | .718 (18.24) |
| DGA-15P    | 1.541 (39.14)         | -                      | .994 (25.24)           | 1.312 (33.32)         | -                      | .329 (8.36)            | .494 (12.55)          | 1.093 (27.76) | .422 (10.72)          | .030 (0.76)           | .235 (5.97)           | .045 (1.14)           | .422 (10.72)          | .718 (18.24) |
| GDA-15S    | 1.541 (39.14)         | .971 (24.66)           | -                      | 1.312 (33.32)         | .311 (7.90)            | -                      | .494 (12.55)          | 1.093 (27.76) | .422 (10.72)          | .030 (0.76)           | .243 (6.17)           | .045 (1.14)           | .429 (10.90)          | .718 (18.24) |
| GDB-25P    | 2.088 (53.03)         | -                      | 1.534 (38.96)          | 1.852 (47.04)         | -                      | .329 (8.36)            | .494 (12.55)          | 1.625 (41.28) | .422 (10.72)          | .039 (0.99)           | .230 (5.84)           | .060 (1.52)           | .426 (10.82)          | .718 (18.24) |
| GDB-25S    | 2.088 (53.03)         | 1.511 (38.38)          | -                      | 1.852 (47.04)         | .311 (7.90)            | -                      | .494 (12.55)          | 1.625 (41.28) | .422 (10.72)          | .030 (0.76)           | .243 (6.17)           | .045 (1.14)           | .429 (10.90)          | .718 (18.24) |
| GDD-50P    | 2.635 (66.92)         | -                      | 2.079 (52.81)          | 2.406 (61.11)         | -                      | .441 (11.20)           | .605 (15.37)          | 2.162 (54.91) | .534 (13.56)          | .039 (0.99)           | .230 (5.84)           | .060 (1.52)           | .426 (10.82)          | .718 (18.24) |
| GDD-50S    | 2.635 (66.92)         | 2.064 (52.42)          | -                      | 2.406 (61.11)         | .423 (10.74)           | -                      | .605 (15.37)          | 2.162 (54.91) | .534 (13.56)          | .030 (0.76)           | .243 (6.17)           | .045 (1.14)           | .429 (10.90)          | .718 (18.24) |

\* dimensions B, D, and H are measured as outside dimensions at the bottom of draw.

NOTE: B\* and D\* are the outside dimensions for socket side, B' and D' are the inside dimensions for pin side.

## Contact Arrangements

## Face View Pin Insert

|                     |     |     |     |     |
|---------------------|-----|-----|-----|-----|
|                     |     |     |     |     |
| Shell Size          | E   | A   | B   | D   |
| Contact Arrangement | 9   | 15  | 25  | 50  |
| Contact Size        | #20 | #20 | #20 | #20 |

## Contacts

| Finish      | Type       | ITT Cannon<br>Part Number | M39029<br>Part Number |
|-------------|------------|---------------------------|-----------------------|
| Standard    | Pin #20    | 330-5291-000              |                       |
| Gold/Nickel | Socket #20 | 031-1007-000              |                       |
| A156        | Pin #20    | 330-5291-037              | M39029/64-369         |
| Gold/Copper | Socket #20 | 031-1007-042              | M39029/63-368         |

## Accessories

**SEALING PLUGS:** GD\* grommets are designed to accept MS27488-20 sealing plugs, ITT Cannon P/N 225-0070-000 ordered separately.

**LOCKING HARDWARE, DUST CAPS:** GD\* Connectors will accommodate most standard D Subminiature accessories.

## Hand Crimp Tool

M22520/2-01 with M22520/2-08 locator. Semi-automatic and fully automatic tooling is also available.



### Insertion/Extraction Tool (Plastic)

| Contact<br>Size | ITT Cannon<br>Description | ITT Cannon<br>Part Number | Insertion<br>Color Tip | Extraction<br>Color Tip |
|-----------------|---------------------------|---------------------------|------------------------|-------------------------|
| #20             | CIET-20HDL                | 274-7010-000              | White                  | Green                   |

# D Subminiature Accessories

ITT Cannon offers one of the broadest lines of accessories for the D Subminiature line of connectors in today's marketplace. The ITT Cannon accessory line offers unlimited design versatility. Choose from a variety of plastic, metal, EMI/RFI backshells, screwlocks, jackscrews, and spring latches.

## Backshell/Hardware Compatibility Chart

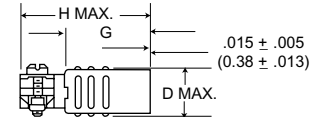
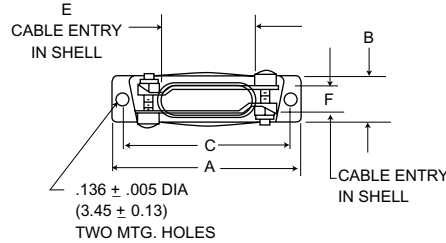
|                        |                                | Locking Hardware                                                         |                                     |                           |                          |                                                  |                                 |                                        |                                                 |                 |
|------------------------|--------------------------------|--------------------------------------------------------------------------|-------------------------------------|---------------------------|--------------------------|--------------------------------------------------|---------------------------------|----------------------------------------|-------------------------------------------------|-----------------|
|                        |                                | Male<br>Screw<br>Locks<br>020419/<br>020420                              | Female<br>Screw-<br>Locks<br>D20418 | Jack-<br>screw<br>D110550 | Jack-<br>post<br>D110551 | Slide<br>Locks<br>DA51220-1<br>thru<br>DE51224-1 | Slide<br>Lock<br>Post<br>D53018 | Spring<br>Latch<br>D110277/<br>D110279 | Spring<br>Latch<br>Plate<br>D110279/<br>D110280 | Keying<br>Plate |
| MOUNTING<br>METHOD     | Front<br>Panel                 |                                                                          | •                                   |                           | •                        | •                                                | •                               | •                                      |                                                 | •               |
|                        | Rear<br>Panel                  |                                                                          | •                                   |                           |                          | •                                                | •                               | •                                      |                                                 |                 |
| METAL<br>BACKSHELLS    | Deep<br>Straight<br>Clamp      | •                                                                        | •                                   |                           | •                        | •                                                | •                               | •                                      | •                                               | •               |
|                        | Right<br>Angle                 |                                                                          | •                                   |                           |                          | •                                                | •                               | •                                      | •                                               | •               |
|                        | Round<br>Clamp                 | •                                                                        | •                                   |                           | •                        | •                                                | •                               | •                                      | •                                               | •               |
|                        | Straight<br>Clamp              | •                                                                        | •                                   |                           | •                        | •                                                | •                               | •                                      | •                                               | •               |
| SHIELDED<br>BACKSHELLS | Plated<br>Plastic              |                                                                          |                                     |                           |                          |                                                  |                                 |                                        |                                                 |                 |
|                        | Die-Cast<br>Zinc               |                                                                          |                                     |                           |                          |                                                  |                                 |                                        |                                                 |                 |
| PLASTIC<br>BACKSHELLS  | Straight<br>& 90°<br>(D*5121X) |                                                                          |                                     |                           |                          | •                                                | •                               | •                                      | •                                               | •               |
|                        | Universal<br>D*110963          | •                                                                        | •                                   | •                         | •                        |                                                  |                                 | •                                      | •                                               |                 |
|                        | Snap-<br>Together<br>Universal | •                                                                        | •                                   | •                         | •                        |                                                  |                                 | •                                      | •                                               |                 |
|                        | Dataphone<br>DB51226-1B        | Supplied with male screw locks.                                          |                                     |                           |                          |                                                  |                                 |                                        |                                                 |                 |
|                        | IDC<br>D*115386                | Designed for use with quick-disconnect latching hardware (see page 376). |                                     |                           |                          |                                                  |                                 |                                        |                                                 |                 |
|                        | STR/90°<br>D*115339            |                                                                          |                                     |                           |                          |                                                  |                                 |                                        |                                                 |                 |
| POTTING<br>CUPS        | Plastic                        | •                                                                        | •                                   |                           | •                        | •                                                | •                               | •                                      | •                                               | •               |

Legend: • = Compatible

# Accessories - M85049 Backshells

## Deep Straight Clamp

- Positive strain relief



MIL-Spec.

Material: Low Carbon Steel per ASTM A-620

Finish: Yellow Chromate Over Cadmium per M85049 Specification

Non-Magnetic/No-Outgas\*

Material: Brass per QQ-B-613

Finish: Gold over copper per MIL-G-45204, Type II, Grade C, Class 1 or Electroless nickel per MIL-C-26074B

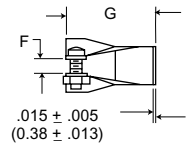
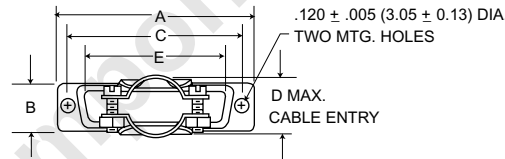
(Superseded MIL-Spec. No.: M24308/20-1 thru-5)

|        |             | <b>NM</b><br>Non-Magnetic/<br>No-Outgas* |         |     |     | A                | B                | C                | D           | E                | F                | G                | H            |
|--------|-------------|------------------------------------------|---------|-----|-----|------------------|------------------|------------------|-------------|------------------|------------------|------------------|--------------|
|        |             | Plating                                  |         |     |     | ± .015<br>(0.38) | ± .015<br>(0.38) | ± .005<br>(0.13) | Max.        | ± .015<br>(0.38) | ± .015<br>(0.38) | ± .015<br>(0.38) | Max.         |
| Layout | Part Number | Mil. Spec.                               | AU      | NI  |     |                  |                  |                  |             |                  |                  |                  |              |
| DE-9   | DE24657     | M85049/48-1-1                            | DE24657 | -16 | -27 | 1.203 (30.6)     | .484 (12.3)      | .984 (25.0)      | .578 (14.7) | .375 (9.5)       | .375 (9.5)       | 7.50 (19.0)      | 1.250 (31.7) |
| DA-15  | DA24658     | M85049/48-1-2                            | DA24658 | -15 | -25 | 1.531 (38.9)     | .484 (12.3)      | 1.312 (33.3)     | .578 (14.7) | .713 (18.1)      | .312 (7.9)       | 7.50 (19.0)      | 1.250 (31.7) |
| DB-25  | DB24659     | M85049/48-1-3                            | DB24659 | -15 | -25 | 2.078 (52.8)     | .484 (12.3)      | 1.852 (47.0)     | .578 (14.7) | 1.000 (25.4)     | .312 (7.9)       | 1.000 (25.4)     | 1.563 (39.7) |
| DC-37  | DC24660     | M85049/48-1-4                            | DC24660 | -16 | -25 | 2.718 (69.0)     | .484 (12.3)      | 2.500 (63.5)     | .578 (14.7) | 1.375 (34.9)     | .312 (7.9)       | 1.000 (25.4)     | 1.563 (39.7) |
| DD-50  | DD24661     | M85049/48-1-5                            | DD24661 | -13 | -23 | 2.625 (66.7)     | .593 (15.1)      | 2.406 (61.1)     | .687 (17.4) | 1.406 (35.7)     | .406 (10.3)      | 1.125 (28.6)     | 1.688 (42.9) |

\* Meet requirements of M85049

## Round Clamp

- Low profile
- Round cable applications



MIL-Spec.

Material: Low Carbon Steel per ASTM A-620

Finish: Yellow Chromate Over Cadmium per M85049 Specification

Non-Magnetic/No-Outgas\*

Material: Brass per QQ-B-613

Finish: Gold over copper per MIL-G-45204, Type II, Grade C, Class 1 or Electroless nickel per MIL-C-26074B

(Superseded MIL-Spec. No.: M24308/21-1 thru-5)

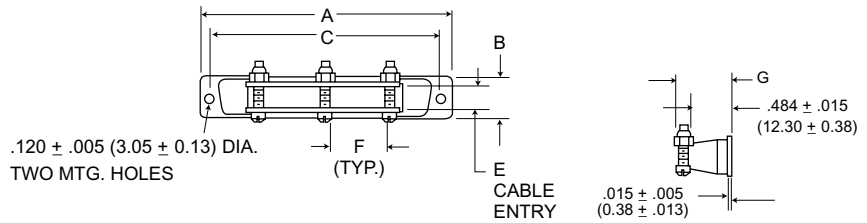
|        |             | <b>NM</b><br>Non-Magnetic/<br>No-Outgas* |         |     |     | A             | B             | C             | D           | E             | F             | G             |
|--------|-------------|------------------------------------------|---------|-----|-----|---------------|---------------|---------------|-------------|---------------|---------------|---------------|
|        |             | Plating                                  |         |     |     | ± .015 (0.38) | ± .015 (0.38) | ± .005 (0.13) | Max.        | ± .015 (0.38) | ± .015 (0.38) | ± .030 (0.76) |
| Layout | Part Number | Mil. Spec.                               | AU      | NI  |     |               |               |               |             |               |               |               |
| DE-9   | DE44994     | M85049/48-2-1                            | DE44994 | -2  | -13 | 1.208 (30.7)  | .500 (12.7)   | .984 (25.0)   | .406 (10.3) | .661 (16.8)   | .125 (3.2)    | 1.031 (26.2)  |
| DA-15  | DA20961     | M85049/48-2-2                            | DA20961 | -16 | -23 | 1.531 (38.9)  | .500 (12.7)   | 1.312 (33.3)  | .406 (10.3) | .984 (25.0)   | .125 (3.2)    | 1.031 (26.2)  |
| DB-25  | DB20962     | M85049/48-2-3                            | DB20962 | -18 | -27 | 2.078 (52.8)  | .500 (12.7)   | 1.852 (47.00) | .593 (15.1) | 1.515 (38.5)  | .187 (4.7)    | 1.062 (27.0)  |
| DC-37  | DC20963     | M85049/48-2-4                            | DC20963 | -17 | -26 | 2.718 (69.0)  | .500 (12.7)   | 2.500 (63.5)  | .718 (18.2) | 2.171 (55.1)  | .250 (6.3)    | 1.062 (27.0)  |
| DD-50  | DD20964     | M85049/48-2-5                            | DD20964 | -19 | -31 | 2.625 (66.7)  | .609 (15.5)   | 2.406 (61.1)  | .812 (20.6) | 2.093 (53.2)  | .312 (7.9)    | 1.062 (27.0)  |

\* Meet requirements of M85049

# Accessories - M85049 Backshells

## Straight Clamp

- Low profile
- Discrete wire application



MIL-Spec.

Material: Low Carbon Steel per ASTM A-620

Finish: Yellow Chromate Over Cadmium per M85049 Specification

Non-Magnetic/No-Outgas\*

Material: Brass per QQ-B-613

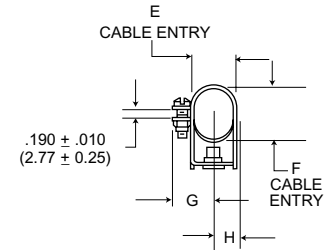
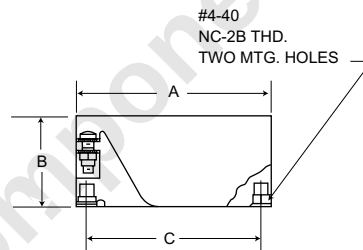
Finish: Gold over copper per MIL-G-45204, Type II, Grade C,  
Class 1 or Electroless nickel per MIL-C-26074B

(Superseded MIL-Spec. No.: M24308/22-1 thru-4)

| NM     |                |               |                             |           |                                        |               |               |               |               |               |               |
|--------|----------------|---------------|-----------------------------|-----------|----------------------------------------|---------------|---------------|---------------|---------------|---------------|---------------|
|        |                |               | Non-Magnetic/<br>No-Outgas* |           | No. of<br>Cable Locking<br>Screws Req. | A             | B             | C             | E             | F             | G             |
| Layout | Part<br>Number | Mil. Spec.    | Plating                     |           |                                        |               |               |               |               |               |               |
|        |                |               | AU                          | NI        |                                        | ± .015 (0.38) | ± .015 (0.38) | ± .005 (0.13) | ± .015 (0.38) | ± .015 (0.38) | ± .035 (0.89) |
| DA-15  | DA19678-1      | M85049/48-3-2 | DA19678                     | -167 -208 | 2                                      | 1.531 (38.9)  | .500 (12.7)   | 1.312 (33.3)  | .296 (7.5)    | .312 (7.9)    | .644 (16.36)  |
| DB-25  | DB19678-2      | M85049/48-3-3 | DB19678                     | -168 -209 | 2                                      | 2.078 (52.8)  | .500 (12.7)   | 1.852 (47.0)  | .296 (7.5)    | .796 (20.2)   | .644 (16.36)  |
| DC-37  | DC19678-3      | M85049/48-3-4 | DC19678                     | -138 -210 | 2                                      | 2.718 (69.0)  | .500 (12.7)   | 2.500 (63.5)  | .296 (7.5)    | .687 (17.4)   | .644 (16.36)  |
| DD-50  | DD19678-4      | M85049/48-3-5 | DD19678                     | -161 -211 | 3                                      | 2.625 (66.7)  | .609 (15.5)   | 2.406 (61.1)  | .390 (9.9)    | .687 (17.4)   | .694 (17.63)  |

## Right Angle

- Low profile
- Spaceborne applications



MIL-Spec.

Material: Low Carbon Steel per ASTM A-620

Finish: Yellow Chromate Over Cadmium per M85049 Specification

Non-Magnetic/No-Outgas\*

Material: Brass per QQ-B-613

Finish: Gold over copper per MIL-G-45204, Type II, Grade C,  
Class 1 or Electroless nickel per MIL-C-26074B

| Layout | Part Number | Mil. Spec.  | NM<br>Non-Magnetic/<br>No-Outgas* |     | A<br>± .015<br>(0.38) | B<br>± .030<br>(0.76) | C<br>± .005<br>(0.13) | E<br>± .030<br>(0.76) | F<br>± .030<br>(0.76) | G<br>± .030<br>(0.76) | H<br>± .030<br>(0.76) |            |
|--------|-------------|-------------|-----------------------------------|-----|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|------------|
|        |             |             | Plating                           |     |                       |                       |                       |                       |                       |                       |                       |            |
|        |             |             | AU                                | NI  |                       |                       |                       |                       |                       |                       |                       |            |
| DE-9   | DE19977-5   | M85049/50-1 | DE19977                           | -47 | -63                   | 1.203 (30.6)          | .718 (18.2)           | .984 (25.0)           | .437 (11.1)           | .437 (11.1)           | .468 (11.9)           | .281 (7.1) |
| DA-15  | DA19977-1   | M85049/50-2 | DE19977                           | -40 | -64                   | 1.531 (38.9)          | .718 (18.2)           | 1.312 (33.3)          | .437 (11.1)           | .437 (11.1)           | .468 (11.9)           | .281 (7.1) |
| DB-25  | DB19977-2   | M85049/50-3 | DE19977                           | -43 | -52                   | 2.078 (52.8)          | .968 (24.6)           | 1.852 (47.0)          | .437 (11.1)           | .625 (15.9)           | .468 (11.9)           | .281 (7.1) |
| DC-37  | DC19977-3   | M85049/50-4 | DE19977                           | -45 | -65                   | 2.718 (69.0)          | 1.187 (30.10)         | 2.500 (63.5)          | .437 (11.1)           | .812 (20.6)           | .468 (11.9)           | .281 (7.1) |
| DD-50  | DD19977-4   | M85049/50-5 | DE19977                           | -44 | -66                   | 2.625 (66.7)          | 1.250 (31.7)          | 2.406 (61.1)          | .562 (14.3)           | .906 (23.1)           | .531 (13.5)           | .343 (8.7) |

\* Meet requirements of M85049

# Accessories - Shielded Metalized Plastic Backshells

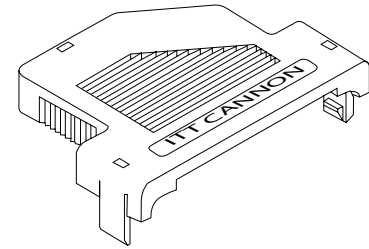
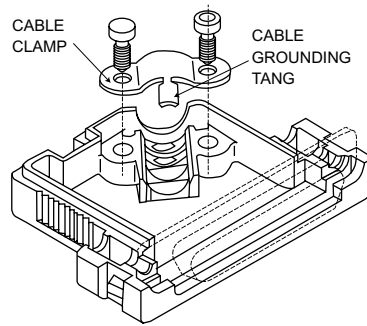
## Snap-Together

- Quick and simple assembly using snap-together design feature
- No complicated crimp ferrule tooling needed
- Helps to comply with FCC shielding requirements

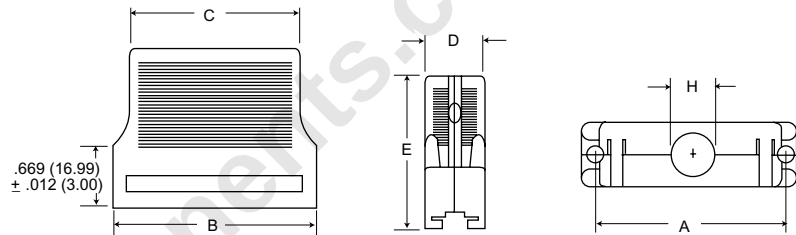
|                    |                    |
|--------------------|--------------------|
| Material:          | ABS Polymer        |
| Finish:            | Nickel over Copper |
| Temperature Range: | 20/80°C            |
| Attenuation:       | 44 DB @ 1000 MHZ   |

Design includes integral strain relieving cable clamp.

Backshell requires hardware - see page 372.

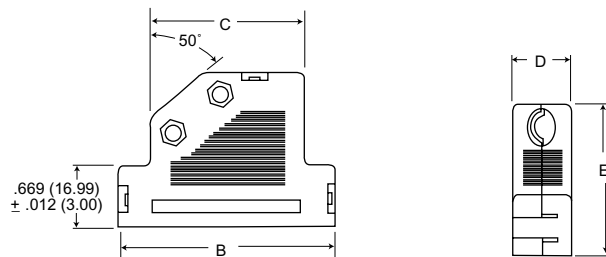


## Straight Exit



| Layout | Part Number  | A<br>+ .006 (0.15) | B<br>+ .012 (0.30) | C<br>+ .012 (0.30) | C<br>+ .012 (0.30) | E<br>+ .008 (0.20) | H<br>Max.    |
|--------|--------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------|
| DE-9   | DE121073-154 | .982 (24.95)       | 1.213 (30.8)       | .933 (23.7)        | .630 (16.0)        | 1.417 (36.0)       | .288 (7.32)  |
| DA-15  | DA121073-150 | 1.311 (33.30)      | 1.539 (39.1)       | 1.252 (31.8)       | .630 (16.0)        | 1.654 (42.0)       | .327 (8.31)  |
| DB-25  | DB121073-151 | 1.850 (47.00)      | 2.087 (53.0)       | 1.772 (45.0)       | .630 (16.0)        | 1.654 (42.0)       | .414 (10.52) |
| DC-37  | DC121073-152 | 2.498 (63.45)      | 2.728 (69.3)       | 2.374 (60.3)       | .630 (16.0)        | 1.654 (42.0)       | .485 (12.32) |

## 40° Exit

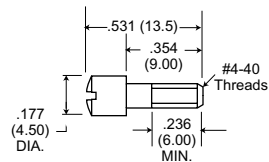
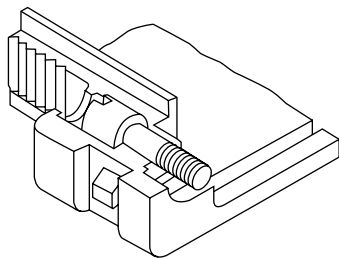


| Layout | Part Number | B<br>+ .012 (0.30) | C<br>+ .012 (0.30) | D<br>+ .012 (0.30) | E<br>+ .008 (0.20) | Cable Diameter |             |
|--------|-------------|--------------------|--------------------|--------------------|--------------------|----------------|-------------|
|        |             |                    |                    |                    |                    | Min.           | Max.        |
| DE-9   | DE121073-54 | 1.417 (36.0)       | .866 (22.0)        | .630 (16.0)        | 1.417 (36.0)       | .138 (3.5)     | .295 (7.5)  |
| DA-15  | DA121073-50 | 1.744 (44.3)       | 1.075 (27.3)       | .630 (16.0)        | 1.654 (42.0)       | .256 (6.5)     | .354 (9.0)  |
| DB-25  | DB121073-51 | 2.283 (58.0)       | 1.614 (41.0)       | .630 (16.0)        | 1.654 (42.0)       | .256 (6.5)     | .433 (11.0) |
| DC-37  | DC121073-52 | 2.933 (74.5)       | 2.264 (57.5)       | .630 (16.0)        | 1.654 (42.0)       | .256 (6.5)     | .433 (11.0) |
| DD-50  | DD121073-53 | 2.873 (73.0)       | 2.165 (55.0)       | .748 (19.0)        | 1.654 (42.0)       | .354 (9.0)     | .512 (13.0) |

# Accessories - Shielded Backshells

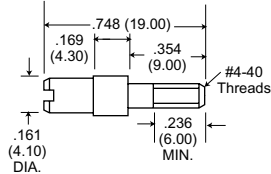
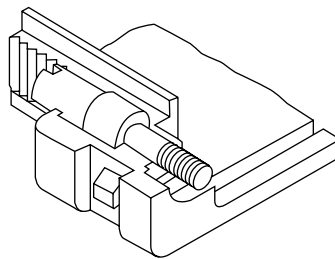
## #4-40 Locking Hardware For Snap-Together Shielded Backshells

Recessed Jackscrew



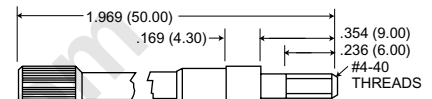
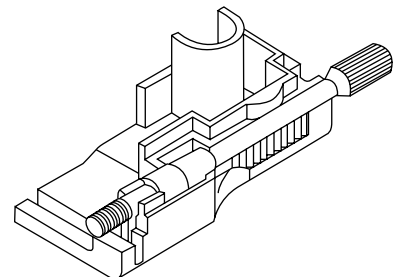
|                                  |              |
|----------------------------------|--------------|
| Part Number:                     | 250-8501-004 |
| Material:                        | Brass        |
| Finish:                          | Nickel       |
| Quantity Required per Backshell: | 2            |

Extended Jackscrew



|                                  |              |
|----------------------------------|--------------|
| Part Number:                     | 250-8501-010 |
| Material:                        | Brass        |
| Finish:                          | Nickel       |
| Quantity Required per Backshell: | 2            |

Thumbscrew



|                                  |              |
|----------------------------------|--------------|
| Part Number:                     | 250-8501-013 |
| Material:                        | Brass        |
| Finish:                          | Nickel       |
| Quantity Required per Backshell: | 2            |

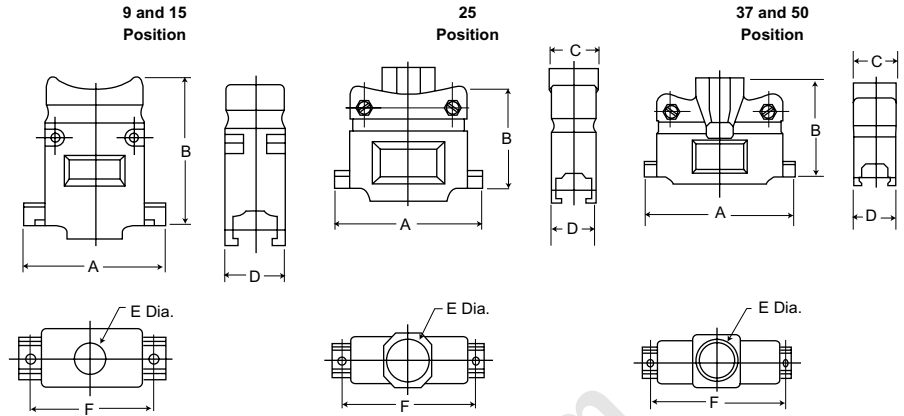
# Accessories - Shielded Backshells

## Metal Blackshell

### Straight Cable Exit



- EMI/RFI protection
- Integral grommet to protect against



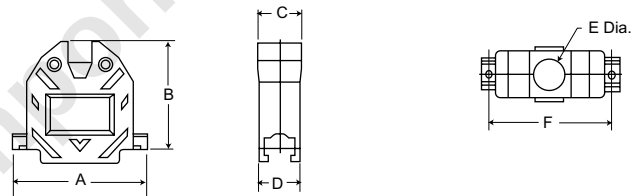
### MATERIAL SPECIFICATIONS

|           |                  |
|-----------|------------------|
| Cover:    | Die Cast Zinc    |
| Finish:   | Clear Zinc Plate |
| Inserts:  | PVC              |
| Hardware: | Steel            |
| Finish:   | Clear Zinc       |

| Size | Part Number  | A<br>± .005 (0.13) | B<br>± .005 (0.13) | C<br>± .005 (0.13) | D<br>± .005 (0.13) | E<br>± .005 (0.13) | F<br>± .005 (0.13) |
|------|--------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|
| 9    | 980-2000-345 | 1.225 (31.12)      | 1.465 (37.21)      | .620 (15.75)       | .620 (15.75)       | .400 (10.16)       | .984 (24.99)       |
| 15   | 980-2000-346 | 1.540 (39.12)      | 1.600 (40.64)      | .620 (15.75)       | .620 (15.75)       | .400 (10.16)       | 1.312 (33.32)      |
| 25   | 980-2000-347 | 2.090 (53.09)      | 1.550 (39.37)      | .690 (17.53)       | .620 (15.75)       | .525 (13.34)       | 1.857 (47.17)      |
| 37   | 980-2000-348 | 2.730 (69.34)      | 1.800 (45.72)      | .864 (21.95)       | .620 (15.75)       | .726 (18.44)       | 2.500 (63.50)      |
| 50   | 980-2000-349 | 2.626 (66.70)      | 1.800 (45.72)      | .864 (21.95)       | .730 (18.54)       | .726 (18.44)       | 2.406 (61.11)      |

## Metalized-Plastic Backshell

### Straight Cable Exit



### MATERIAL SPECIFICATIONS

|           |                    |
|-----------|--------------------|
| Cover:    | ABS Polymer        |
| Finish:   | Nickel over Copper |
| Inserts:  | PVC                |
| Hardware: | Steel              |
| Finish:   | Clear Zinc         |

| Size | Part Number  | A<br>± .005 (0.13) | B<br>± .005 (0.13) | C<br>± .005 (0.13) | D<br>± .005 (0.13) | E<br>± .005 (0.13) | F<br>± .005 (0.13) |
|------|--------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|
| 9    | 980-2000-350 | 1.217 (30.91)      | 1.547 (39.29)      | .640 (16.26)       | .640 (16.26)       | .400 (10.16)       | .984 (24.99)       |
| 15   | 980-2000-351 | 1.545 (39.29)      | 1.505 (38.23)      | .640 (16.26)       | .640 (16.26)       | .400 (10.16)       | 1.312 (33.32)      |
| 25   | 980-2000-352 | 2.090 (53.09)      | 1.655 (42.04)      | .710 (18.03)       | .640 (16.26)       | .522 (13.26)       | 1.857 (47.17)      |
| 37   | 980-2000-353 | 2.734 (69.44)      | 1.830 (46.48)      | .906 (23.01)       | .640 (16.26)       | .726 (18.44)       | 2.500 (63.50)      |
| 50   | 980-2000-354 | 2.645 (67.18)      | 1.855 (47.12)      | .940 (23.88)       | .770 (19.56)       | .726 (18.44)       | 2.406 (61.11)      |

Highlight part numbers indicate standard product; usally available with shorter lead times.

## Compression Inserts (Included With Backshell)

Accommodates a wide range of cable diameters-

9 position - .190/.350

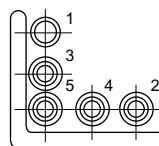
15 position - .190/.350

25 position - .190/.460

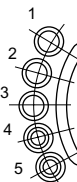
37 position - .300/.680

50 position - .300/.680

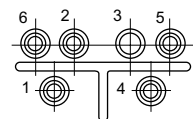
### 9 and 15 Position



### 25 Position



### 37 and 50 position



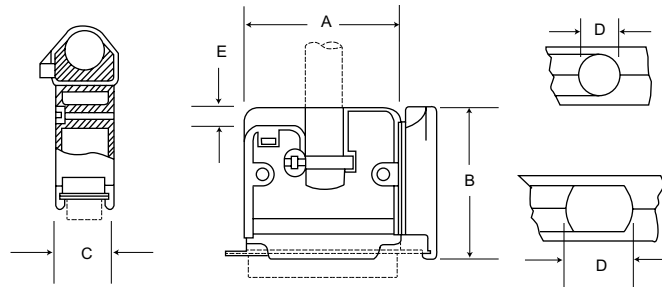
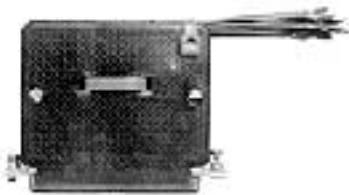
| Positions | #1            |               | #2            |               | #3            |               | #4            |               | #5            |               | #6            |              |
|-----------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|--------------|
|           | O.D.          | I.D.          | O.D.          | I.D.          | O.D.          | I.D.          | O.D.          | I.D.          | O.D.          | I.D.          | O.D.          | I.D.         |
| 9, 15     | 0.475 (12.07) | 0.320 (8.13)  | 0.360 (9.14)  | 0.315 (8.000) | 0.360 (9.14)  | 0.255 (6.48)  | 0.360 (9.14)  | 0.285 (7.24)  | 0.360 (9.14)  | 0.210 (5.33)  | N/A           | N/A          |
| 25        | 0.600 (15.24) | 0.450 (11.43) | 0.450 (11.43) | 0.410 (10.41) | 0.450 (11.43) | 0.370 (9.40)  | 0.450 (11.43) | 0.300 (7.62)  | 0.450 (11.43) | 0.230 (5.84)  | N/A           | N/A          |
| 37, 50    | 0.655 (16.64) | 0.570 (14.48) | 0.700 (17.78) | 0.620 (15.75) | 0.810 (20.57) | 0.650 (16.51) | 0.655 (16.64) | 0.500 (12.70) | 0.655 (16.64) | 0.425 (10.80) | 0.655 (16.64) | 0.350 (8.89) |

# Accessories - Plastic Backshells

## Universal

- Economical design uses an adjustable tie-wrap for cable strain relief
- Compatible with male screw locks and spring latches
- U.L. rated 94V-2 (flame retardant)  
248-2670-001 Listing

### Straight

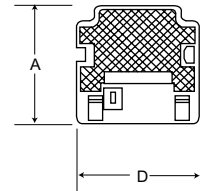
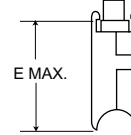
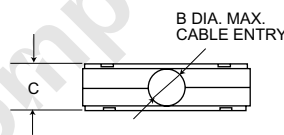


**Material:** Junction shell-polypropylene; Hardware-steel; Tie-wrap-nylon.  
**Finish:** Hardware-cadmium plate, yellow chromate.  
**Color:** Black (junction shell).

| Layout | Part Number | A<br>± .015 (0.38) | B<br>± .015 (0.38) | C<br>± .015 (0.13) | C<br>± .015 (0.38) | E<br>± .010 (0.25) |
|--------|-------------|--------------------|--------------------|--------------------|--------------------|--------------------|
| DE-9   | DE110963-1  | .765 (19.43)       | 1.400 (35.56)      | .600 (15.24)       | .250 (6.35)        | .125 (3.18)        |
| DA-15  | DA110963-2  | 1.097 (27.86)      | 1.569 (39.85)      | .600 (15.24)       | .375 (9.53)        | .161 (4.09)        |
| DB-25  | DB110963-3  | 1.641 (41.68)      | 1.651 (41.94)      | .600 (15.24)       | .410 (10.41)       | .205 (5.21)        |
| DC-37  | DC110963-4  | 2.279 (57.89)      | 1.899 (48.23)      | .600 (15.24)       | .593 (15.06)       | .205 (5.21)        |
| DD-50  | DD110963-5  | 2.063 (52.40)      | 1.925 (48.90)      | .710 (18.03)       | .670 (17.01)       | .285 (7.24)        |

## Snap-Together Universal

- A 2-piece snap-together design for quick assembly
- Customer furnishes tie-wrap

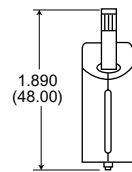
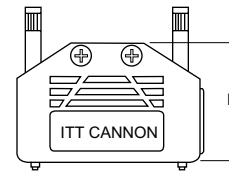
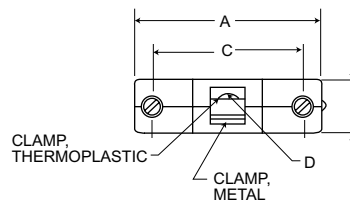


**Material:** Flame-retardant thermoplastic, UL 94V-0 rated.

| Layout | Part Number | A<br>± .008 (0.20) | B<br>Max.   | C<br>± .008 (0.20) | D<br>± .008 (0.20) | E<br>Max.    |
|--------|-------------|--------------------|-------------|--------------------|--------------------|--------------|
| DE-9   | DE115339-20 | 1.673 (42.5)       | .276 (7.0)  | .669 (17.0)        | .768 (19.5)        | 1.555 (39.5) |
| DA-15  | DA115339-21 | 1.673 (42.5)       | .378 (9.6)  | .669 (17.0)        | 1.094 (27.8)       | 1.555 (39.5) |
| DB-25  | DB115339-22 | 1.673 (42.5)       | .457 (11.6) | .669 (17.0)        | 1.638 (41.6)       | 1.555 (39.5) |
| DC-37  | DC115339-23 | 1.673 (42.5)       | .512 (13.0) | .669 (17.0)        | 2.283 (58.0)       | 1.555 (39.5) |
| DD-50  | DD115339-24 | 1.673 (42.5)       | .630 (16.0) | .780 (19.8)        | 2.060 (52.3)       | 1.555 (39.5) |

## One-Piece Snap Together

- Low cost
- Easy to assemble
- Aesthetically pleasing
- Includes: thumbscrews, cable clamps



**Material:** Specification: Plastic - polypropylene; Hardware - steel.  
**Finish:** Yellow chromate over zinc.

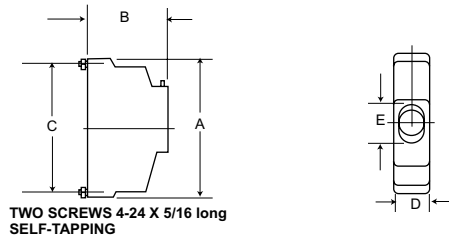
| Layout | Part Number | A             | B            | C             | D<br>Dia. Max. | E             |
|--------|-------------|---------------|--------------|---------------|----------------|---------------|
| DE-9   | DEBS-9      | 1.386 (35.20) | .638 (16.21) | .984 (24.99)  | .224 (5.69)    | 1.083 (27.51) |
| DA-15  | DABS-15     | 1.705 (43.31) | .638 (16.21) | 1.312 (33.32) | .224 (5.69)    | 1.228 (31.19) |
| DB-25  | DBBS-25     | 2.252 (57.20) | .638 (16.21) | 1.852 (47.04) | .256 (6.50)    | 1.508 (38.30) |

# Accessories - Plastic Backshells

## One Piece Plastic

- Straight or 90° cable exit
- Integral cable clamp and set screw
- Accommodates spring latches
- UL 94V-2 rated flame retardant
- Mounting hardware included

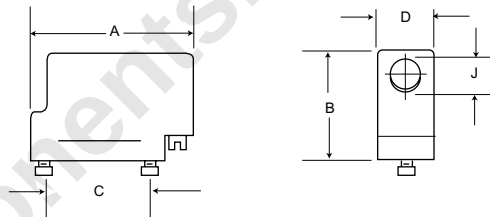
Straight Cable Exit



Material: Thermoplastic UL 94V-2 rated  
Color: Black  
Screws: Steel, cadmium plated

| Layout | Part Number | A<br>+ .015 (0.38) | B<br>+ .015 (0.38) | C<br>+ .015 (0.13) | C<br>+ .015 (0.38) | E<br>+ .010 (0.25) |
|--------|-------------|--------------------|--------------------|--------------------|--------------------|--------------------|
| DE-9   | DE51218     | 1.218 (30.9)       | 1.000 (25.4)       | .984 (25.0)        | .500 (12.7)        | .281 (7.1)         |
| DA-15  | DA51210     | 1.546 (39.3)       | 1.000 (25.4)       | 1.312 (33.3)       | .500 (12.7)        | .360 (9.1)         |
| DB-25  | DB51212     | 2.093 (53.2)       | 1.250 (31.7)       | 1.852 (47.0)       | .500 (12.7)        | .493 (12.5)        |
| DC-37  | DC51214     | 2.734 (69.4)       | 1.500 (38.1)       | 2.500 (63.5)       | .500 (12.7)        | .967 (17.6)        |
| DD-50  | DD51216     | 2.640 (67.1)       | 1.500 (38.1)       | 2.406 (61.1)       | .609 (15.5)        | .734 (18.6)        |

- 90° Cable Exit
- Integral cable clamps & set screw
- UL 94V-2 rated flame retardant
- Mounting Hardware included

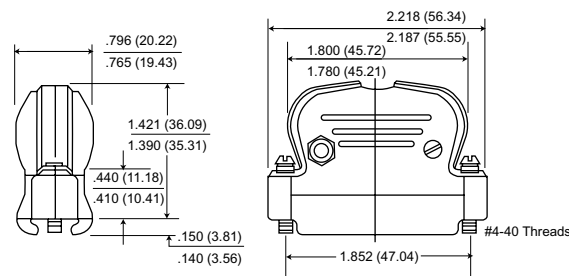


Material: Thermoplastic UL 94V-2 rated  
Color: Black  
Screws: Steel, cadmium plated

| Layout | Part Number | A<br>+ .015 (0.38) | B<br>+ .015 (0.38) | C<br>+ .015 (0.13) | C<br>+ .015 (0.38) | E<br>+ .010 (0.25) |
|--------|-------------|--------------------|--------------------|--------------------|--------------------|--------------------|
| DA-15  | DA51211     | 1.822 (46.3)       | 1.000 (25.4)       | 1.312 (33.3)       | .500 (12.7)        | .360 (9.1)         |
| DB-25  | DB51213     | 2.386 (60.1)       | 1.250 (31.7)       | 1.852 (47.0)       | .500 (12.7)        | .493 (12.5)        |
| DC-37  | DC51215     | 3.009 (76.4)       | 1.500 (38.1)       | 2.500 (63.5)       | .500 (12.7)        | .694 (17.6)        |
| DD-50  | DD51217     | 2.915 (74.0)       | 1.500 (38.1)       | 2.406 (61.1)       | .609 (15.5)        | .734 (18.6)        |

## Dataphone

- Available in 25 position only
- Supplied with screws



Max. Cable Entry .312 (7.92)

Material: Junction shell - Thermoplastic UL 94V-0 rated. Hardware - steel.  
Finish: Hardware - cadmium plate, clear chromate.  
Color: Black  
Part Number: DB51226-1B

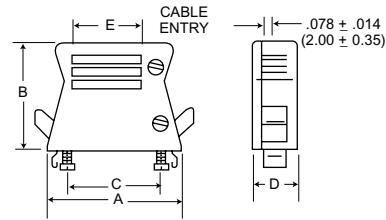
# Accessories - Plastic Backshells

## Quick-Disconnect Backshells for IDC Cable

### IDC

Order locking hardware separately.

- Optional Spring Clips provide quick disconnect for either flat IDC cable or round jacketed cable
- Designed for use with keying plates sold separately



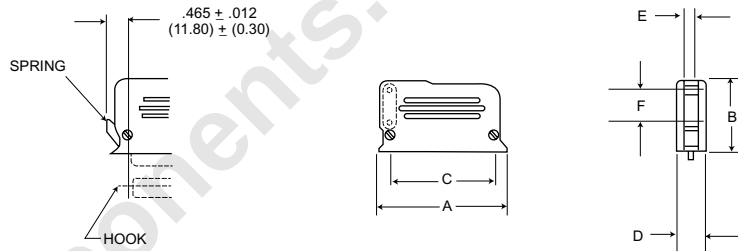
Material: Thermoplastic, UL 94V-0 rated  
Color; Black

| Layout | Part Number | A<br>Max.    | B<br>Max.    | C<br>± .005 (.013) | D<br>Max.   | E<br>± .008 (0.2) |
|--------|-------------|--------------|--------------|--------------------|-------------|-------------------|
| DE-9   | DE115386-1B | 1.623 (41.2) | 1.596 (40.5) | .984 (25.0)        | .642 (16.3) | .590 (15.0)       |
| DA-15  | DA115386-2B | 1.950 (49.5) | 1.596 (40.5) | 1.311 (33.3)       | .642 (16.3) | .917 (23.3)       |
| DB-25  | DB115386-3B | 2.490 (63.2) | 1.596 (40.5) | 1.852 (47.0)       | .642 (16.3) | 1.456 (37.0)      |
| DC-37  | DC115386-4B | 3.140 (79.7) | 1.596 (40.5) | 2.500 (63.5)       | .642 (16.3) | 2.106 (53.5)      |

## Quick-Disconnect Backshells for Round Cable

### Round Cable - Straight and 90° Exit

Order locking hardware separately.



Material: Thermoplastic, UL 94V-0 rated  
Color; Black

| Layout | Part Number | A<br>Max.    | B<br>Max.    | C<br>± .005 (.013) | D<br>Max.   | E<br>± .008 (0.2) | F<br>Min.   |
|--------|-------------|--------------|--------------|--------------------|-------------|-------------------|-------------|
| DE-9   | DE115339    | 1.623 (41.2) | 1.596 (40.5) | .984 (25.0)        | .642 (16.3) | .590 (15.0)       | .264 (6.7)  |
| DA-15  | DA115339-1  | 1.950 (49.5) | 1.596 (40.5) | 1.311 (33.3)       | .642 (16.3) | .917 (23.3)       | .264 (6.7)  |
| DB-25  | DB115339-2  | 2.490 (63.2) | 1.596 (40.5) | 1.852 (47.0)       | .642 (16.3) | 1.456 (37.0)      | .697 (17.7) |
| DC-37  | DC115339-3  | 3.140 (79.7) | 1.596 (40.5) | 2.500 (63.5)       | .642 (16.3) | 2.106 (53.5)      | .697 (17.7) |
| DD-50  | DD115339-4  | 3.023 (76.8) | 1.653 (42.0) | 2.405 (61.1)       | .748 (19.0) | .433 (11.0)       | .697 (17.7) |

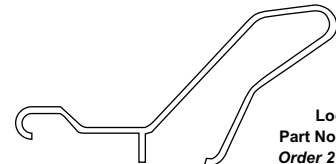
## Optional Locking Mechanism/Hardware

Material: Corrosion-resistant steel.

NOTE: When used with keying plate, order lock hook part number 015-8755-001.



**Lock Hook**  
Part No. 015-8755-000  
Order 2 per connector  
Note: Not for use on rear panel mounted connectors.



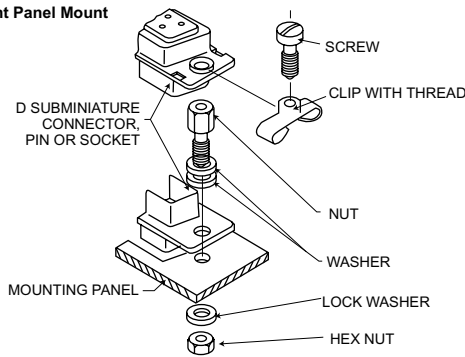
**Lock Spring**  
Part No. 259-8760-000  
Order 2 per connector

# Accessories - Locking Hardware

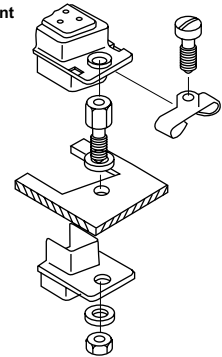
## Screw Locks

- ¥ Insures positive mating.
- ¥ Used for vibration applications.

Front Panel Mount



Rear Panel Mount

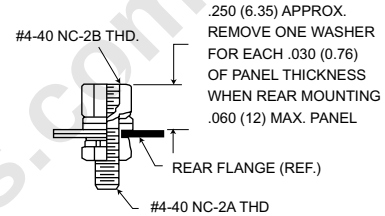
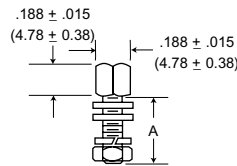


### Female Srew Locks



Order 2 per connector.

| Cadmium With<br>Yellow Chromate | M24308<br>MIL-Spec. | A<br>± .015 (0.38) |
|---------------------------------|---------------------|--------------------|
| D20418-2                        | M24308/26-1         | .312 (7.92)        |
| D20418-50                       |                     | .500 (12.70)       |
| D20418-39                       | M24308/26-2         | .625 (15.88)       |
| D20418-74                       |                     | .750 (19.05)       |



Material: Cold rolled steel.

Finish: Cadmium plate, yellow chromate

NOTE: (1) A 6 inch/pound (female) and 4 inch/pound (male) maximum torque during assembly is recommended on steel screw lock assemblies.

(2) A third flat washer is supplied for front panel mounting of tab shell connectors.

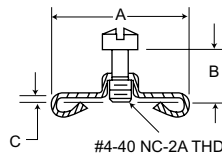
**NM** For Use With Non-Magnetic/No-Dutgas Products

| <b>NM</b><br>Brass | <b>NM</b><br>Stainless<br>Steel | A<br>± .015 (0.38) |
|--------------------|---------------------------------|--------------------|
| D20418-52          | D20418-14                       | .312 (7.92)        |
| N/A                | D20418-102                      | .500 (12.70)       |
| D20418-101         | D20418 -77                      | .625 (15.88)       |

**NM** - Non-Magnetic Finish and Material:

Passivated (Stainless Steel). Gold over copper per MIL-G-45204, Type II, Class 2 (Brass)

### Male Srew Locks



Standard Material: Clip-sheet steel; hardware-cold rolled steel.

Standard Finis: Cadmium plate, yellow chromate.

Commercial: 100 microinch zinc minimum.

Passivated (Stainless Steel). Gold over copper per MIL-G45204, Type II, Class 2 (Brass).

Order 2 per connector.

| Cadmium With<br>Yellow Chromate | <b>NM</b><br>Brass | <b>NM</b><br>Stainless<br>Steel | A<br>± .015 (0.38) | B<br>± .010 (0.25) | C<br>± .005 (0.13) | Connector<br>Size     |
|---------------------------------|--------------------|---------------------------------|--------------------|--------------------|--------------------|-----------------------|
| D20419                          | D20419-74          | N/A                             | .555 (14.10)       | .250 (6.35)        | .048 (1.22)        | DE9, DA15, DB25, DC37 |
| D20419-18                       | D20419-103         | D20419-38                       | .555 (14.10)       | .281 (7.14)        | .067 (1.70)        | DE9, DA15, DB25, DC37 |
| D20419-21                       | N/A                | D20419-80                       | .555 (14.10)       | .281 (7.14)        | .092 (2.34)        | DE9, DA15, DB25, DC37 |
| D20419-104                      | N/A                | N/A                             | .555 (14.10)       | .312 (7.92)        | .092 (2.34)        | DE9, DA15, DB25, DC37 |
| D20420                          | D20419-67          | N/A                             | .656 (16.66)       | .250 (6.35)        | .048 (1.22)        | DD50                  |
| D20420-13                       | D20419-74          | D20419-108                      | .656 (16.66)       | .281 (7.14)        | .067 (1.70)        | DD50                  |
| D20420-15                       | N/A                | D20419-70                       | .656 (16.66)       | .281 (7.14)        | .092 (2.34)        | DD50                  |
| D20420-86                       | N/A                | N/A                             | .656 (16.66)       | .312 (7.92)        | .092 (2.34)        | DD50                  |

**NM** - Non-Magnetic Finish & Material: Passivated (Stainless Steel). Gold over copper per MIL-G-4520, Type II, Class 2 (Brass).

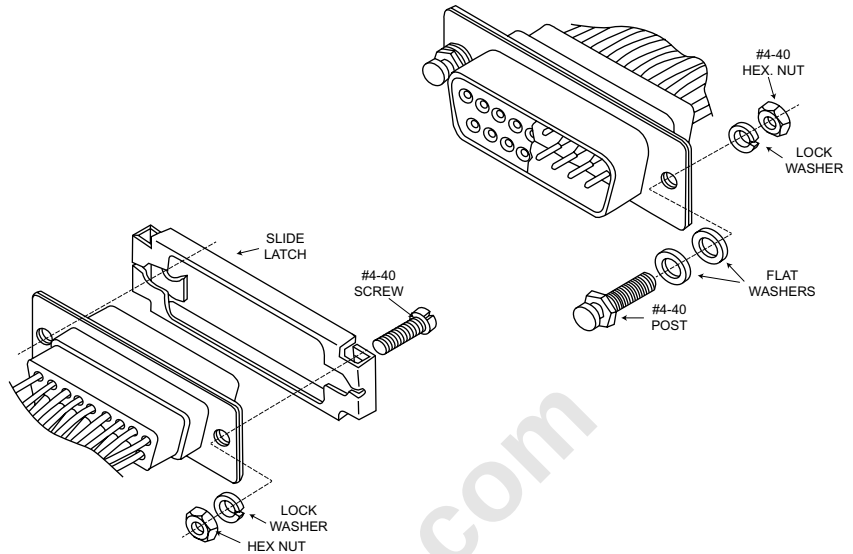
NOTE: (1) A 6 inch/pound (female) and 4 inch/pound (male) maximum torque during assembly is recommended on steel screw lock assemblies.

(2) A third flat washer is supplied for front panel mounting of tab shell connectors.

Highlighted part numbers indicate standard product; usually available with shorter lead times.

# Accessories - Locking Hardware

## Slide Latch Assemblies



### Slide Lock Post Kit

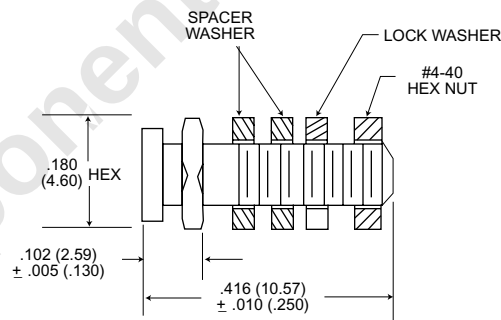


Kit consists of 1 post, 2 spacer washers, 1 lock washer and hex nut.

Order 2 per connector.

| Material | Cadmium With Yellow Chromate |
|----------|------------------------------|
| Steel    | D53018                       |
| Brass    | D53018-5                     |

NOTE: When rear-mounting connector to a 1/16" panel, delete the 2 spacer washer.



### Slide Latch Kit

- Ideal for Ethernet Applications

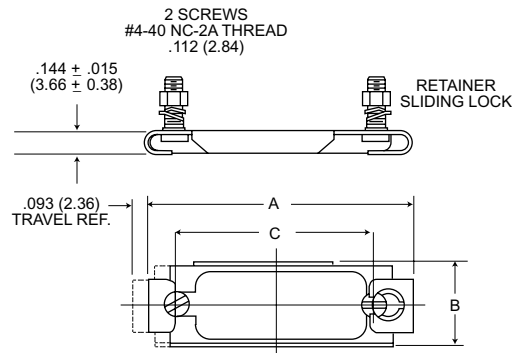


Kit consists of slide latch retainer, 2 screws, 2 nuts, 2 lock washer.

Order one per connector.

| Description           | Material                     | Finish                                                    |
|-----------------------|------------------------------|-----------------------------------------------------------|
| Retainer Sliding lock | Stainless Steel per QQ-S-766 | Passivated per QQ-P-35                                    |
| Screw, Mtg.           | Steel                        | Yellow chromate over 100 micro-inch cadmium per QQ-P-416. |
| Washer, Lock          |                              |                                                           |
| Nut, Hex              |                              |                                                           |

Highlighted part numbers indicated standard product; usually available with shorter lead times.



| Layout | Cadmium With Yellow Chromate | A<br>± .015 (0.38) | B<br>± .015 (0.38) | C<br>± .005 (0.13) |
|--------|------------------------------|--------------------|--------------------|--------------------|
| DE-9   | DE51224-1                    | 1.380 (35.05)      | .500 (12.70)       | .984 (25.00)       |
| DA-15  | DA51220-1                    | 1.720 (43.69)      | .500 (12.70)       | 1.312 (33.32)      |
| DB-25  | DB51221-1                    | 2.260 (57.40)      | .500 (12.70)       | 1.852 (47.04)      |
| DC-37  | DC51222-1                    | 2.908 (73.86)      | .500 (12.70)       | 2.500 (63.50)      |
| DD-50  | DD51223-1                    | 2.814 (71.47)      | .609 (15.47)       | 2.406 (61.11)      |

# Accessories - Locking Hardware

## Spring Latch Assemblies

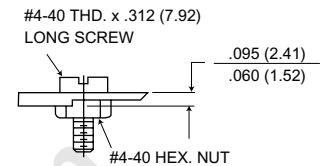
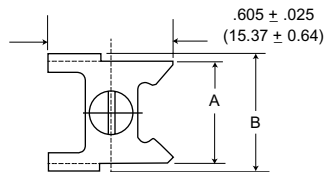
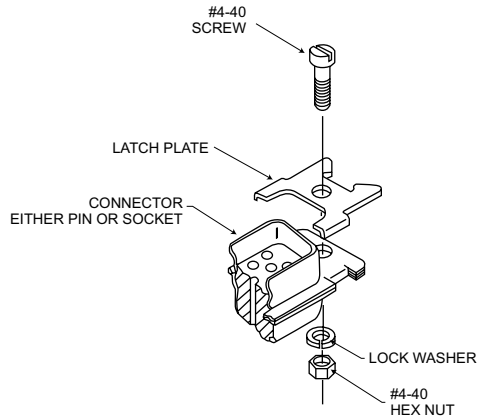
Low cost  
Minimizes field connection time  
Positive lock between connectors

Locked

Unlocked

### Spring Latch Plate

Kit consists of 1 plate, 1 screw,  
1 lock washer, 1 nut.  
Order two per connector.

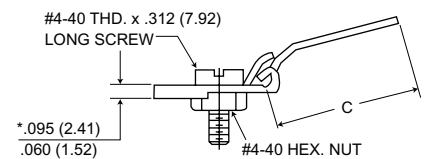
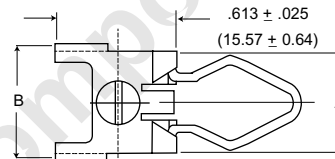
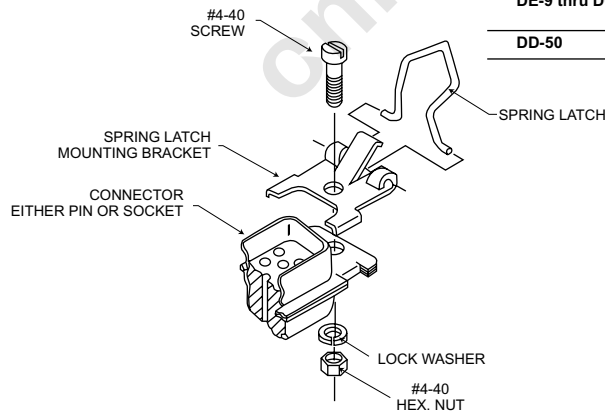


Material: Stainless Steel  
Finish: Passivated

| Layout          | Part Number | A<br>± .015 (0.38) | B<br>± .015 (0.38) |
|-----------------|-------------|--------------------|--------------------|
| DE-9 thru DC-37 | D110278     | .484 (12.29)       | .556 (14.12)       |
| DD-50 Only      | D110280     | .609 (15.49)       | .673 (17.09)       |

### Spring Latch

Kit consists of 1 spring, 1 screw,  
1 bracket, 1 lock washer, and  
1 hex nut.  
Order two per connector.



\* Does not apply to rear panel mounting.

Material: Stainless Steel  
Finish: Passivated

| Layout          | Mounting    | Part Number | A<br>± .015 (0.38) | B<br>± .015 (0.38) | C<br>± .020 (0.51) |
|-----------------|-------------|-------------|--------------------|--------------------|--------------------|
| DE-9 thru DC-37 | Front Panel | DD10277     | .489 (12.42)       | .565 (14.35)       | .732 (18.59)       |
|                 | Rear Panel  | D110277-4   | .489 (12.42)       | .605 (15.37)       | .615 (15.62)       |
| DD-50           | Front Panel | D110279     | .609 (15.49)       | .673 (17.09)       | .732 (18.59)       |

Highlighted part numbers indicate standard product; usually available with shorter lead times.

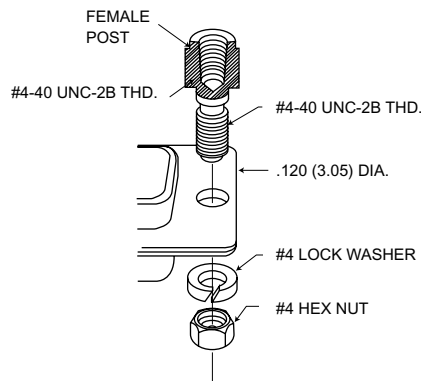
# Accessories - Locking Hardware

## Jackscrew/Jackpost Assemblies

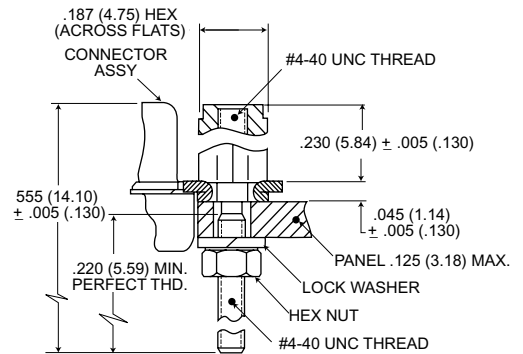
### Jackpost - P/N D110551

Kit consists of 2 posts, 2 nuts, 2 lockwashers.

**Order one per connector.**



JACKPOSTS ASSEMBLY



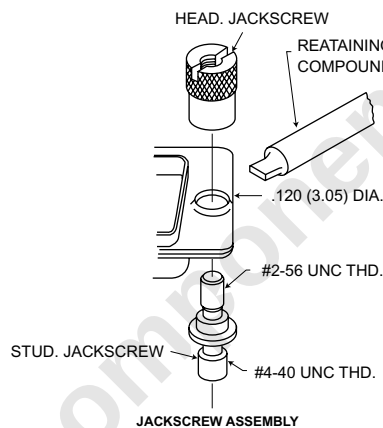
**Material: Stainless Steel per QQ-S-763**  
**Finish: Passivated per QQ-P-35**

Note: Jackpost is not compatible with rear-panel mounted connectors.

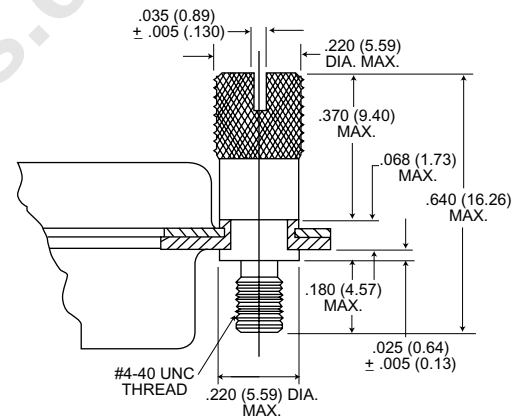
### Jackscrew - P/N D110550

Kit consists of 2 studs, 2 heads, and 1 tube retaining compound.

**Order one per connector.**



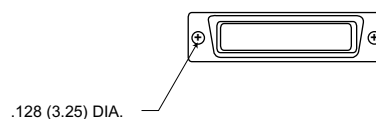
JACKSCREW ASSEMBLY



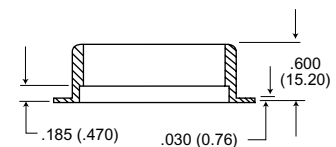
**Material: Stainless Steel per QQ-S-763**  
**Retaining Compound: per MIL-S-46163**  
**Finish: None**

## Jackscrew/Jackpost Assemblies

Nylon potting shells are molded with a thin flange .030 (0.76) to permit the use of D subminiature locking devices.  
Holds epoxy in place during curing.



**Material: Nylon**  
**Color: Natural (white)**



| Layout | Part Number |
|--------|-------------|
| DE-9   | DE50904-1   |
| DA-15  | DA50905-1   |
| DB-25  | DB50906-1   |
| DC-37  | DC50907-1   |
| DD-50  | DD50908-1   |

Highlighted part numbers indicated standard product; usually available with shorter lead times.

# Accessories

## Guide Pin Plates

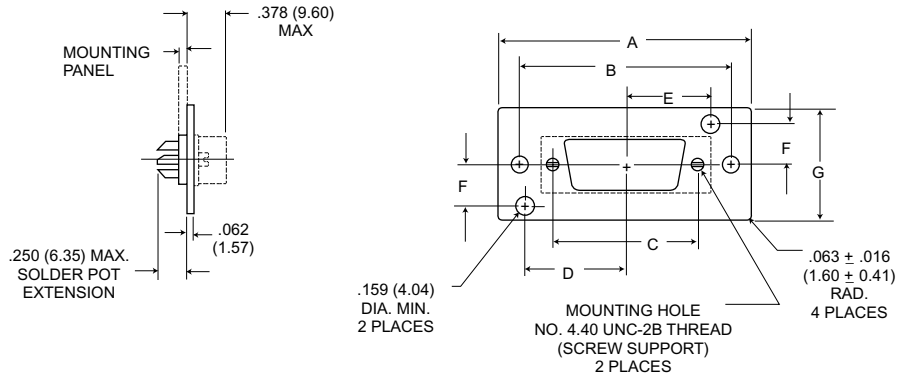
Female

### Blind Mate Applications

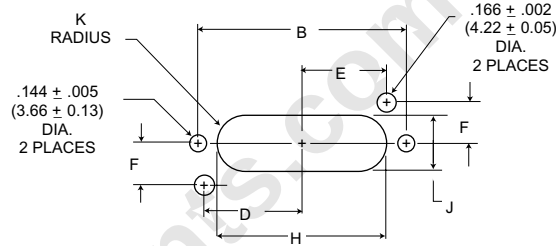


#### Materials

**Plate:** Cold rolled steel per ASTM A-620, yellow chromate over cadmium plate per QQ-P-416 Type II, Class 2  
**Screw:** Steel, yellow chromate over 100 microinches cadmium minimum per QQ-P-416.



#### Recommended Panel Cutout



| Layout | Part Number | A<br>± .016 (0.41) | B<br>± .005 (0.13) | C<br>± .005 (0.13) | D<br>± .005 (0.13) | E<br>± .005 (0.13) | F<br>± .005 (0.13) | G<br>± .016 (0.41) | H<br>± .016 (0.41) | J<br>± .016 (0.41) | K<br>± .016 (0.41) |
|--------|-------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|
| DA-15  | DA22214     | 2.282 (57.96)      | 1.906 (48.41)      | 1.312 (33.32)      | .898 (22.81)       | .765 (19.43)       | .375 (9.52)        | 1.000 (25.40)      | 1.532 (38.91)      | .484 (12.29)       | .242 (6.15)        |
| DB-25  | DB22254     | 2.820 (71.63)      | 2.446 (62.13)      | 1.852 (47.04)      | 1.168 (29.67)      | 1.035 (26.29)      | .375 (9.52)        | 1.000 (25.40)      | 2.016 (51.21)      | .469 (11.91)       | .234 (5.94)        |
| DC-37  | DC22071     | 3.469 (88.11)      | 3.094 (78.59)      | 2.500 (63.50)      | 1.492 (37.90)      | 1.359 (34.52)      | .375 (9.52)        | 1.000 (25.40)      | 2.657 (67.49)      | .469 (11.91)       | .234 (5.94)        |
| DD-50  | DD21961     | 3.375 (85.72)      | 3.000 (76.20)      | 2.406 (61.11)      | 1.437 (36.50)      | 1.312 (33.32)      | .437 (11.10)       | 1.125 (28.58)      | 2.563 (65.10)      | .563 (14.30)       | .282 (7.16)        |

Consult factory for DC size.

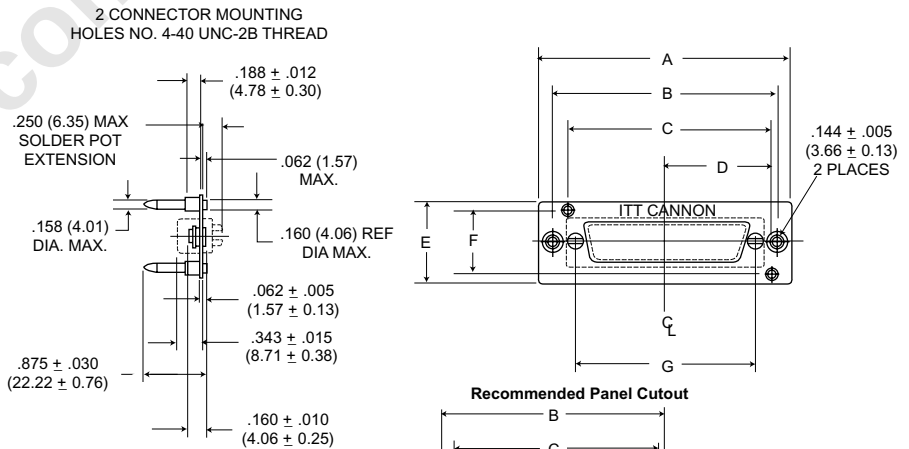
Male

### Blind Mate Applications

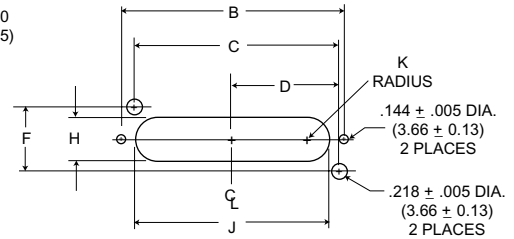


#### Materials

**Guide Pin:** 303 stainless steel per MIL-S-7720 Cond. A, passivated per QQ-P-35  
**Screws, Rivets, Washers:** Steel, Yellow chromate over 100 microinches cadmium minimum per QQ-P-416  
**Plate:** Cold rolled steel per ASTM A-620, yellow chromate over cadmium plate per QQ-P-416, Type II, Class 2



#### Recommended Panel Cutout



| Layout | Part Number | A<br>± .015 (0.38) | B<br>± .005 (0.13) | C<br>± .010 (0.23) | D<br>± .005 (0.13) | E<br>± .015 (0.38) | F<br>± .010 (0.23) | G<br>± .005 (0.13) | H<br>± .010 (0.25) | J<br>± .015 (0.38) | K<br>± .005 (0.13) |
|--------|-------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|
| DA-15  | DA22213     | 2.281 (57.94)      | 1.906 (48.41)      | 1.663 (42.24)      | .898 (22.81)       | 1.000 (25.40)      | .750 (19.05)       | 1.312 (33.32)      | .484 (12.29)       | 1.531 (38.89)      | .242 (6.15)        |
| DB-25  | DB22255     | 2.820 (71.63)      | 2.446 (62.13)      | 2.203 (55.96)      | 1.168 (29.67)      | 1.000 (25.40)      | .750 (19.05)       | 1.852 (47.04)      | .484 (12.29)       | 2.047 (51.99)      | .242 (6.15)        |
| DC-37  | DC22070     | 3.468 (88.09)      | 3.094 (78.42)      | 2.851 (72.42)      | 1.492 (37.90)      | 1.000 (25.40)      | .750 (19.05)       | 2.500 (63.50)      | .484 (12.29)       | 2.687 (68.25)      | .242 (6.15)        |
| DD-50  | DD21962     | 3.375 (85.72)      | 2.300 (58.42)      | 2.749 (69.82)      | 1.437 (36.50)      | 1.125 (28.58)      | .874 (22.20)       | 2.406 (61.11)      | .593 (15.06)       | 2.635 (66.93)      | .296 (7.52)        |

Consult factory for DC size.

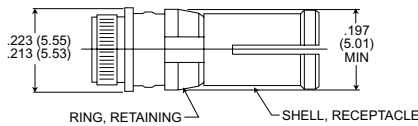
# Accessories

## Combo D Guide Pin and Socket

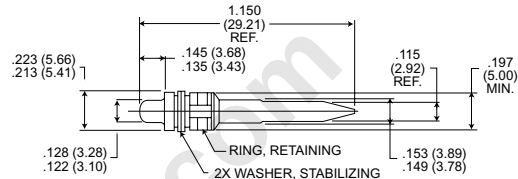
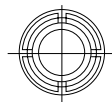
Installs into any Combo D, size 8 Cavity. This patented guide pin and socket system is ideal for blind mate applications where space is limited.



| Description  | Material     | Finish           |
|--------------|--------------|------------------|
| Guide Pin    | Brass        | Gold over nickel |
| Guide Socket | Copper Alloy | Gold over nickel |



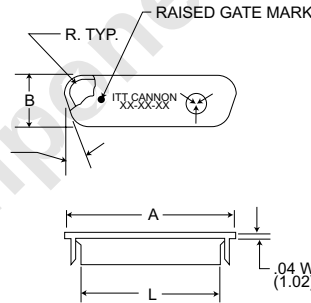
**Press Fit Guide Socket**  
P/N DM53744-72



**PCB Guide Pin**  
P/N DM53745-82

## Dust Caps

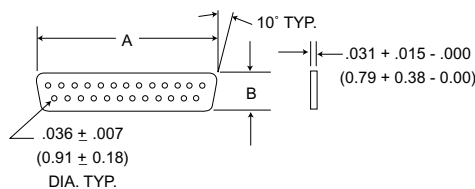
Anti-static conductive dust caps (black polypropylene) protect connectors and contacts from dust and moisture.



NOTE: L dim. applies at point of maximum internal interface length.

| Part Numbers | I.D.   | A            | B           | L             | W            |
|--------------|--------|--------------|-------------|---------------|--------------|
| DE-59-20     | Pin    | .80 (20.32)  | .45 (11.43) | .644 (16.36)  | .299 (7.59)  |
| DA-59-20     | Pin    | 1.12 (28.45) | .46 (11.68) | .968 (24.59)  | .300 (7.62)  |
| DB-59-20     | Pin    | 1.67 (42.42) | .46 (11.68) | 1.506 (38.25) | .295 (7.49)  |
| DC-59-20     | Pin    | 2.32 (58.93) | .46 (11.68) | 2.158 (54.81) | .290 (7.37)  |
| DD-59-20     | Pin    | 2.24 (56.90) | .57 (14.48) | 2.091 (53.11) | .410 (10.41) |
| DE-60-20     | Socket | .86 (21.84)  | .51 (12.95) | .700 (17.78)  | .351 (8.92)  |
| DA-60-20     | Socket | 1.20 (30.48) | .51 (12.95) | 1.044 (26.52) | .355 (9.02)  |
| DB-60-20     | Socket | 1.74 (44.20) | .53 (13.46) | 1.559 (39.60) | .358 (9.09)  |
| DC-60-20     | Socket | 2.39 (60.71) | .53 (13.46) | 2.240 (56.90) | .369 (9.37)  |
| DD-60-20     | Socket | 2.29 (58.17) | .63 (16.00) | 2.137 (54.28) | .474 (12.04) |

## Interfacial Seal



Material: Silastic sheet

Provides moisture resistance at the mating interface.

| Layout | Part Number | A            | B           |
|--------|-------------|--------------|-------------|
| DE-9   | DE53750     | .656 (16.7)  | .331 (8.4)  |
| DA-15  | DA53750-1   | .984 (25.0)  | .331 (8.4)  |
| DB-25  | DB53750-2   | 1.531 (38.9) | .331 (8.4)  |
| DC-37  | DC53750-3   | 2.171 (55.1) | .331 (8.4)  |
| DD-50  | DD53750-4   | 2.078 (52.8) | .437 (11.1) |

## Accessories - Gender Changers & Connector Savers

## Performance and Material Specifications

## MATERIALS AND FINISHES

|                             |     | Material       | Finish                      |
|-----------------------------|-----|----------------|-----------------------------|
| Contacts                    |     | Copper Alloy   | Gold Over Nickel            |
| Rivets                      |     | Copper Alloy   | Tin/Lead                    |
| Shells                      |     | Steel          | Tin/Lead                    |
| Insulator (Gender Changer): | M/M | Glass Epoxy    | -                           |
|                             | F/F | Thermo Plastic | -                           |
| Spacer                      |     | Zinc Alloy     | -                           |
| Locking Nut                 |     | Steel          | Clear Chromate Over Cadmium |
| Washers                     |     | Steel          | Clear Chromate Over Cadmium |
| Washer, Captive             |     | Mylar          | None                        |

## MECHANICAL FEATURES

Coupling - Friction and lock accessories

## Polarization - Keystone-shaped shells

## PERFORMANCE SPECIFICATIONS

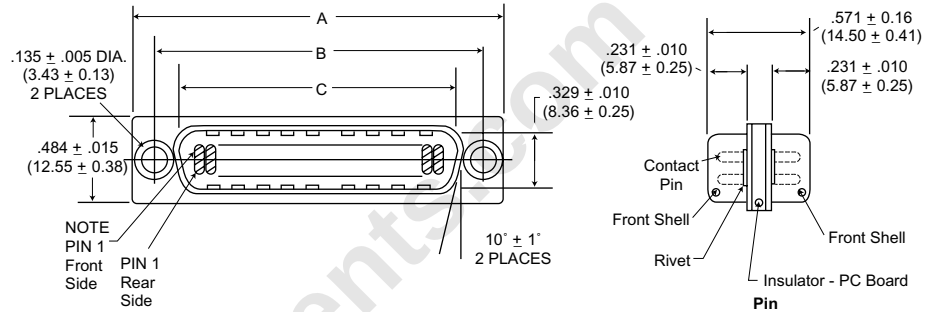
Temperature Rating: - 55° to +105°C

Current Rating: 3 Amp continuous

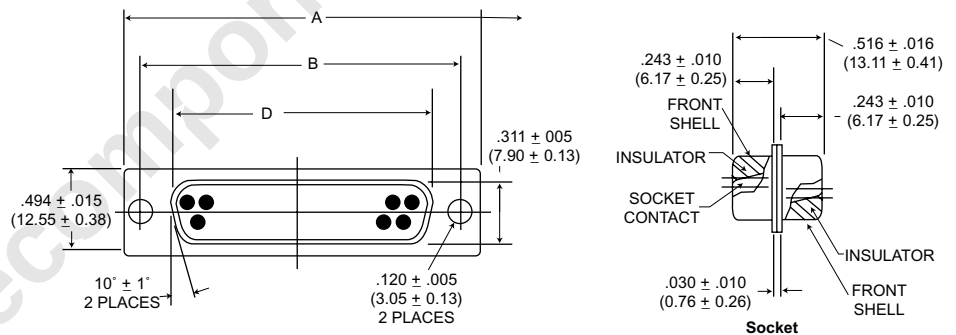
Dielectric Withstanding Voltage: 500 VAC at Sea Level

## Dimensions/Part Numbers

**Gender Changer**  
**Male/Male**

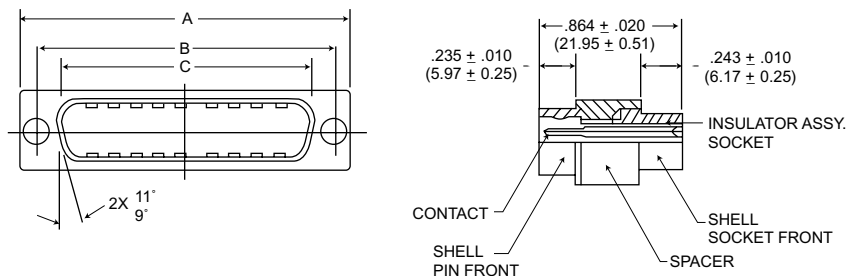


**Gender Changer**  
**Female/Female**



## Connector Saver

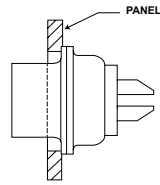
### Engaging View, Pin Side



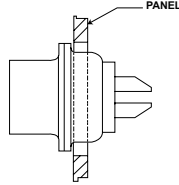
| Number of<br>Contacts<br>(Shell Size) | Gender Changer Part Numbers |                               |                     |                               | Connectors Saver<br>Part Numbers |               |               |               |               |
|---------------------------------------|-----------------------------|-------------------------------|---------------------|-------------------------------|----------------------------------|---------------|---------------|---------------|---------------|
|                                       | Male/Male                   |                               | Female/Female       |                               |                                  |               |               |               |               |
|                                       | Without<br>Hardware         | With<br>Hardware<br>Assembled | Without<br>Hardware | With<br>Hardware<br>Assembled |                                  |               |               |               |               |
|                                       |                             |                               |                     |                               |                                  | A             | B             | C             | D             |
|                                       |                             |                               |                     |                               | Male/Female                      | ± .015 (0.4)  | ± .010 (0.25) | ± .010 (0.25) | ± .005 (0.13) |
| 9 (E)                                 | DE111805-1                  | DE11805-5                     | DE111813            | DE111813-3                    | DEBU111515                       | 1.213 (30.81) | .984 (24.99)  | .666 (16.92)  | .643 (16.33)  |
| 15 (A)                                | DE111806-1                  | DA11806-5                     | DA111810            | DA111810-3                    | DABU111512                       | 1.541 (39.14) | 1.312 (33.32) | .994 (25.25)  | .971 (24.66)  |
| 25 (B)                                | DE111807-1                  | DB11807-5                     | DB111811            | DB111811-2                    | DBBU111511                       | 2.088 (53.04) | 1.852 (47.04) | 1.534 (38.96) | 1.511 (38.38) |
| 37 (C)                                | DE111808-1                  | DC11808-5                     | Not Available       | Not Available                 | Not Available                    | 2.729 (69.32) | 2.500 (63.50) | 2.182 (55.42) | ††            |

# D Subminiature

## Panel Cutouts

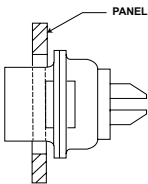
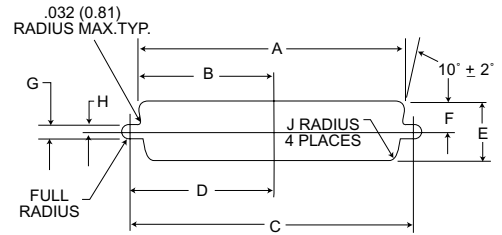


Rear mounting of  
standard shell

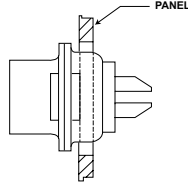


Front mounting of  
standard shell

Standard Cutout

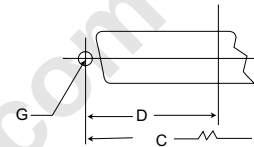


Rear mounting of  
float mount shell  
(Y-Code)



Front mounting of  
reverse mount shell  
(Y-Code)

Optional Cutout  
(For Rear Mounting)



| Connector Size | Mounting Method | A<br>± .005 (0.13) | B<br>± .005 (0.13) | C<br>± .005 (0.13) | D<br>± .005 (0.13) | E<br>± .005 (0.13) | F<br>± .005 (0.13) | G<br>± .002 (0.05) | H<br>± .002 (0.05) | J<br>± .002 (0.05) |
|----------------|-----------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|
| A Standard     | Front Mounting  | 1.202 (30.53)      | .601 (15.26)       | 1.312 (33.32)      | .656 (16.66)       | .513 (13.03)       | .257 (6.52)        | .120 (3.04)        | .060 (1.52)        | .083 (2.10)        |
|                | Rear Mounting   | 1.134 (28.80)      | .567 (14.40)       | 1.312 (33.32)      | .656 (16.66)       | .449 (11.40)       | .225 (5.71)        | .120 (3.04)        | .060 (1.52)        | .132 (3.35)        |
| A Float        | Front Mounting  | 1.234 (31.34)      | .617 (15.67)       | 1.312 (33.32)      | .656 (16.66)       | .545 (13.84)       | .273 (6.93)        | .088 (2.23)        | .044 (1.11)        | .083 (2.10)        |
|                | Rear Mounting   | 1.166 (29.61)      | .583 (14.80)       | 1.312 (33.32)      | .656 (16.66)       | .481 (12.21)       | .241 (6.12)        | .088 (2.23)        | .044 (1.11)        | .132 (3.35)        |
| B Standard     | Front Mounting  | 1.743 (44.27)      | .872 (22.14)       | 1.852 (47.04)      | .926 (23.52)       | .513 (13.03)       | .257 (6.52)        | .120 (3.04)        | .060 (1.52)        | .083 (2.10)        |
|                | Rear Mounting   | 1.674 (42.51)      | .837 (21.25)       | 1.852 (47.04)      | .926 (23.52)       | .449 (11.40)       | .225 (5.71)        | .120 (3.04)        | .060 (1.52)        | .132 (3.35)        |
| B Float        | Front Mounting  | 1.775 (45.08)      | .888 (22.55)       | 1.852 (47.04)      | .926 (23.52)       | .545 (13.84)       | .273 (6.93)        | .088 (2.23)        | .044 (1.11)        | .083 (2.10)        |
|                | Rear Mounting   | 1.706 (43.33)      | .853 (21.66)       | 1.852 (47.04)      | .926 (23.52)       | .481 (12.21)       | .241 (6.12)        | .088 (2.23)        | .044 (1.11)        | .132 (3.35)        |
| C Standard     | Front Mounting  | 2.391 (60.73)      | 1.196 (30.37)      | 2.500 (63.50)      | 1.250 (31.75)      | .513 (13.03)       | .257 (6.52)        | .120 (3.04)        | .060 (1.52)        | .083 (2.10)        |
|                | Rear Mounting   | 2.326 (59.08)      | 1.163 (29.54)      | 2.500 (63.50)      | 1.250 (31.75)      | .449 (11.40)       | .225 (5.71)        | .120 (3.04)        | .060 (1.52)        | .132 (3.35)        |
| C Float        | Front Mounting  | 2.423 (61.54)      | 1.212 (30.78)      | 2.500 (63.50)      | 1.250 (31.75)      | .545 (13.84)       | .273 (6.93)        | .088 (2.23)        | .044 (1.11)        | .083 (2.10)        |
|                | Rear Mounting   | 2.354 (59.79)      | 1.177 (29.89)      | 2.500 (63.50)      | 1.250 (31.75)      | .481 (12.21)       | .241 (6.12)        | .088 (2.23)        | .044 (1.11)        | .132 (3.35)        |
| D Standard     | Front Mounting  | 2.297 (58.34)      | 1.149 (29.18)      | 2.406 (61.11)      | 1.203 (30.55)      | .623 (15.82)       | .312 (7.92)        | .120 (3.04)        | .060 (1.52)        | .083 (2.10)        |
|                | Rear Mounting   | 2.218 (56.33)      | 1.109 (28.16)      | 2.406 (61.11)      | 1.203 (30.55)      | .555 (14.09)       | .278 (7.06)        | .120 (3.04)        | .060 (1.52)        | .132 (3.35)        |
| D Float        | Front Mounting  | 2.329 (59.15)      | 1.165 (29.59)      | 2.406 (61.11)      | 1.203 (30.55)      | .655 (16.63)       | .328 (8.33)        | .088 (2.23)        | .044 (1.11)        | .083 (2.10)        |
|                | Rear Mounting   | 2.250 (57.15)      | 1.125 (28.57)      | 2.406 (61.11)      | 1.203 (30.55)      | .587 (14.90)       | .294 (7.46)        | .088 (2.23)        | .044 (1.11)        | .132 (3.35)        |
| E Standard     | Front Mounting  | .874 (22.19)       | .437 (11.09)       | .984 (24.99)       | .492 (12.49)       | .513 (13.03)       | .257 (6.52)        | .120 (3.04)        | .060 (1.52)        | .083 (2.10)        |
|                | Rear Mounting   | .806 (20.47)       | .403 (10.23)       | .984 (24.99)       | .492 (12.49)       | .449 (11.40)       | .225 (5.71)        | .120 (3.04)        | .060 (1.52)        | .132 (3.35)        |
| E Float        | Front Mounting  | .906 (23.01)       | .453 (11.50)       | .984 (24.99)       | .492 (12.49)       | .545 (13.84)       | .273 (6.93)        | .088 (2.23)        | .044 (1.11)        | .083 (2.10)        |
|                | Rear Mounting   | .838 (21.28)       | .419 (10.64)       | .984 (24.99)       | .492 (12.49)       | .481 (12.21)       | .241 (6.12)        | .088 (2.23)        | .044 (1.11)        | .132 (3.35)        |

# D Subminiature

## Panel Mounting

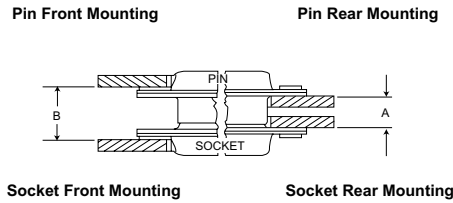


Figure 1A

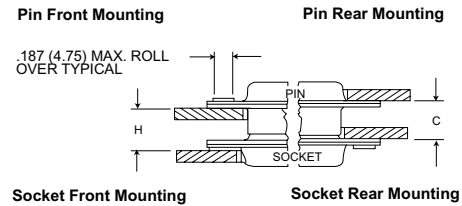


Figure 1B

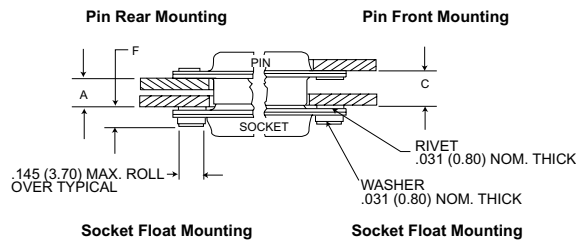


Figure 2

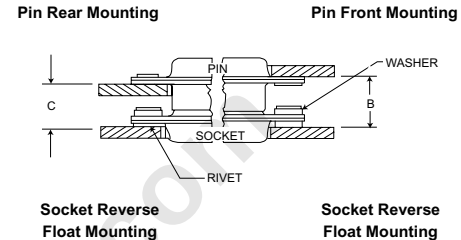


Figure 3

## NOTE:

1. A, B, C and H are dimensions between panels and represent the recommended limit to be used in the design of the connector mounting method.
2. It is recommended that only one assembly, either pin or socket, be float mounted.
3. Standard pin assemblies contained .015 (0.38) thick front shells on E and A sizes; .024 (.061) thick front shells on B, C, and D sizes.
4. Standard connectors accommodate a #4 screw. Float mount connectors accommodate a #2 screw.

| Combination of Mated Connectors |         |                      |                  | A                            | B                            | C                            | F             | H                            |
|---------------------------------|---------|----------------------|------------------|------------------------------|------------------------------|------------------------------|---------------|------------------------------|
| Fig. No.                        | Size    | Pin (See Note Below) | Socket           | + .030 (+0.76)<br>-.000 (-0) | + .030 (+0.76)<br>-.000 (-0) | + .030 (+0.76)<br>-.000 (-0) | ±.010 (±.025) | + .030 (+0.76)<br>-.000 (-0) |
| 1                               | A, E    | Standard             | Standard         | .250 (6.35)                  | .340 (8.63)                  | .295 (7.49)                  | -             | .295 (7.49)                  |
| 1                               | B, C, D | Standard             | Standard         | .238 (6.04)                  | .343 (8.71)                  | .298 (7.56)                  | -             | .283 (7.18)                  |
| 2                               | A, E    | Standard             | Float Mount      | .218 (5.53)                  | -                            | .263 (6.68)                  | .120 (3.04)   | -                            |
| 2                               | B, C, D | Standard             | Float Mount      | .206 (5.23)                  | -                            | .266 (6.75)                  | .120 (3.04)   | -                            |
| 2                               | A, E    | Float Mount          | Standard         | .218 (5.53)                  | -                            | .263 (6.68)                  | .120 (3.04)   | -                            |
| 2                               | B, C, D | Float Mount          | Standard         | .206 (5.23)                  | -                            | .251 (6.37)                  | .130 (3.30)   | -                            |
| 3                               | A, E    | Standard             | Rev. Float Mount | -                            | .358 (9.09)                  | .313 (7.95)                  | .120 (3.04)   | -                            |
| 3                               | B, C, D | Standard             | Rev. Float Mount | -                            | .361 (9.16)                  | .301 (7.64)                  | .120 (3.04)   | -                            |
| 3                               | A, E    | Rev. Float Mount     | Standard         | -                            | .358 (9.09)                  | .313 (7.95)                  | .120 (3.04)   | -                            |
| 3                               | B, C, D | Rev. Float Mount     | Standard         | -                            | .355 (9.01)                  | .310 (7.87)                  | .130 (3.30)   | -                            |

## MIL-C-24308 Test Extracts Applicable to Class G Connectors

| Test Descriptions      | Requirement               | Method                                               |
|------------------------|---------------------------|------------------------------------------------------|
| Mating/Unmating Force  | <b>Shell Size</b>         | MIL-STD-1344<br>Method 2013                          |
|                        | <b>Max Unmating (LBS)</b> |                                                      |
|                        | 1                         |                                                      |
|                        | 2                         |                                                      |
|                        | 3                         |                                                      |
| Contact Retention      | 4                         | MIL-STD-1344<br>Method 2004                          |
|                        | 5                         |                                                      |
|                        | 6                         |                                                      |
|                        | 10                        |                                                      |
|                        | 17                        |                                                      |
| Insulation Resistance  | 28                        | MIL-STD-1344<br>Method 3003                          |
|                        | 39                        |                                                      |
|                        | 49                        |                                                      |
|                        | 200 ± 100 cycles/hour     |                                                      |
|                        | 200 ± 100 cycles/hour     |                                                      |
| Contact Resistance     | 200 ± 100 cycles/hour     | MIL-STD-1344<br>Method 2016<br>200 ± 100 cycles/hour |
|                        | 200 ± 100 cycles/hour     |                                                      |
|                        | 200 ± 100 cycles/hour     |                                                      |
|                        | 200 ± 100 cycles/hour     |                                                      |
|                        | 200 ± 100 cycles/hour     |                                                      |
| Vibration              | 200 ± 100 cycles/hour     | MIL-STD-1344<br>Method 2005 Test Cond. 4             |
|                        | 200 ± 100 cycles/hour     |                                                      |
|                        | 200 ± 100 cycles/hour     |                                                      |
|                        | 200 ± 100 cycles/hour     |                                                      |
|                        | 200 ± 100 cycles/hour     |                                                      |
| Shock                  | 200 ± 100 cycles/hour     | MIL-STD-1344<br>Method 2004 Test Cond. E             |
|                        | 200 ± 100 cycles/hour     |                                                      |
|                        | 200 ± 100 cycles/hour     |                                                      |
|                        | 200 ± 100 cycles/hour     |                                                      |
|                        | 200 ± 100 cycles/hour     |                                                      |
| Durability             | 200 ± 100 cycles/hour     | MIL-STD-1344<br>Method 1016                          |
|                        | 200 ± 100 cycles/hour     |                                                      |
|                        | 200 ± 100 cycles/hour     |                                                      |
|                        | 200 ± 100 cycles/hour     |                                                      |
|                        | 200 ± 100 cycles/hour     |                                                      |
| Salt Spray (Corrosion) | 200 ± 100 cycles/hour     | MIL-STD-1344<br>Method 1001 Cond. B                  |
|                        | 200 ± 100 cycles/hour     |                                                      |
|                        | 200 ± 100 cycles/hour     |                                                      |
|                        | 200 ± 100 cycles/hour     |                                                      |
|                        | 200 ± 100 cycles/hour     |                                                      |
| Fluid Immersion        | 200 ± 100 cycles/hour     | MIL-STD-1344<br>Method 1016                          |
|                        | 200 ± 100 cycles/hour     |                                                      |
|                        | 200 ± 100 cycles/hour     |                                                      |
|                        | 200 ± 100 cycles/hour     |                                                      |
|                        | 200 ± 100 cycles/hour     |                                                      |

# MIL-C-39029 Crimp Contacts

| Military Part Number | ITT Cannon Part Number | Contact Size | Contact Style | Product Line     | MIL Specification                    | Pages            |
|----------------------|------------------------|--------------|---------------|------------------|--------------------------------------|------------------|
| M39029/4-110         | 030-9173-006           | 20           | Pin           | DPK, PV          | MIL-C-83733<br>MIL-C-26482, Series 2 | 75-91<br>157-166 |
| M39029/4-111         | 030-9205-007           | 16           | Pin           | DPK, PV          |                                      |                  |
| M39029/4-113         | 030-9185-003           | 12           | Pin           | DPK, PV          |                                      |                  |
| M39029/5-115         | 031-9174-004           | 20           | Soc           | DPK, PV          |                                      |                  |
| M39029/5-116         | 031-9206-006           | 16           | Soc           | DPK, PV          |                                      |                  |
| M39029/5-118         | 031-9186-003           | 12           | Soc           | DPK, PV          |                                      |                  |
| M39029/11-144        | 030-1975-008           | 22           | Pin           | DPX*, DPK*       | MIL-C-81659                          | 25-40            |
| M39029/11-145        | 030-1892-004           | 20           | Pin           | DPX*             |                                      |                  |
| M39029/11-146        | 030-9083-012           | 16           | Pin           | DPX*             |                                      |                  |
| M39029/11-147        | 030-1909-002           | 12           | Pin           | DPX*             |                                      |                  |
| M39029/12-148        | 031-1113-008           | 22           | Soc           | DPX*             |                                      |                  |
| M39029/12-149        | 031-1047-003           | 20           | Soc           | DPX*             |                                      |                  |
| M39029/12-150        | 031-1271-000           | 16           | Soc           | DPX*             |                                      |                  |
| M39029/12-151        | 031-1059-003           | 12           | Soc           | DPX*             |                                      |                  |
| M39029/29-212        | 030-3196-008           | 16           | Pin           | MS/CV345*        | MIL-C-5015                           | 188-195          |
| M39029/29-213        | 030-3197-007           | 12           | Pin           | MS/CV345*        |                                      |                  |
| M39029/29-214        | 030-3198-003           | 8            | Pin           | MS/CV345*        |                                      |                  |
| M39029/29-215        | 030-3199-004           | 4            | Pin           | MS/CV345*        |                                      |                  |
| M39029/29-216        | 030-3200-003           | 0            | Pin           | MS/CV345*        |                                      |                  |
| M39029/30-217        | 031-3113-005           | 16S          | Soc           | MS/CV345*        |                                      |                  |
| M39029/30-218        | 031-3114-008           | 16           | Soc           | MS/CV345*        |                                      |                  |
| M39029/30-219        | 031-3115-006           | 12           | Soc           | MS/CV345*        |                                      |                  |
| M39029/30-220        | 031-3116-003           | 8            | Soc           | MS/CV345*        |                                      |                  |
| M39029/30-221        | 031-3117-003           | 4            | Soc           | MS/CV345*        |                                      |                  |
| M39029/30-222        | 031-3118-003           | 0            | Soc           | MS/CV345*        |                                      |                  |
| M39029/31-228        | 030-9032-003           | 16           | Pin           | KPSE             | MIL-C-26482, Series I                | 140-156          |
| M39029/31-240        | 030-9036-000           | 20           | Pin           | KPSE             |                                      |                  |
| M39029/32-247        | 031-9095-003           | 16           | Soc           | KPSE             |                                      |                  |
| M39029/32-259        | 031-9074-002           | 20           | Soc           | KPSE             |                                      |                  |
| M39029/50-340        | 249-1825-001           | 12           | Pin           | DPK (Coax)       | MIL-C-83733                          | 75-91            |
| M39029/51-341        | 249-1826-000           | 12           | Soc           | DPK (Coax)       |                                      |                  |
| M39029/56-348        | 031-1147-007           | 22D          | Soc           | KJL/KJA          | MIL-C-38999, Series I, II, III       | 115-139          |
| M39029/56-351        | 031-1250-001           | 20           | Soc           | KJL/KJA          |                                      |                  |
| M39029/56-352        | 031-1251-001           | 16           | Soc           | KJL/KJA          |                                      |                  |
| M39029/56-353        | 031-1237-000           | 12           | Soc           | KJL/KJA          |                                      |                  |
| M39029/57-354        | 031-1147-000           | 22D          | Soc           | KJ & DPK*        | MIL-C-38999, Series II               | 122-127          |
| M39029/57-355        | 031-1122-022           | 22M          | Soc           | KJ Only          |                                      |                  |
| M39029/57-356        | 031-1125-022           | 22           | Soc           | KJ Only          |                                      |                  |
| M39029/57-357        | 031-1124-020           | 20           | Soc           | KJ Only          |                                      |                  |
| M39029/57-358        | 031-1123-016           | 16           | Soc           | KJ Only          |                                      |                  |
| M39029/57-359        | 031-1238-000           | 12           | Soc           | KJ Only          |                                      |                  |
| M39029/58-360        | 030-2042-000           | 22D          | Pin           | KJL/KJ/KJA & DPK | MIL-C-38999, Series I, II, III       | 115-139          |
| M39029/58-361        | 030-1993-022           | 22M          | Pin           | KJL/KJ/KJA       |                                      |                  |
| M39029/58-362        | 030-1999-022           | 22           | Pin           | KJL/KJ/KJA       |                                      |                  |
| M39029/58-363        | 030-1997-020           | 20           | Pin           | KJL/KJ/KJA       |                                      |                  |
| M39029/58-364        | 030-1995-016           | 16           | Pin           | KJL/KJ/KJA       |                                      |                  |
| M39029/58-365        | 030-2155-000           | 12           | Pin           | KJL/KJ/KJA       |                                      |                  |
| M39029/63-368        | 031-1007-042           | 20           | Soc           | D*MA             | MIL-C-24308                          | 332-344          |
| M39029/64-369        | 330-5291-037           | 20           | Pin           | D*MA             |                                      |                  |
| M39029/83-450        | 030-8008-800           | 2022         | Pin           | KFS-(Canada)     | MIL-C-28840                          | 218-223          |
| M39029/83-451        | 030-8009-100           | 2028         | Pin           | KFS-(Canada)     |                                      |                  |
| M39029/83-508        | 030-8085-700           | 2020         | Pin           | KFS-(Canada)     |                                      |                  |
| M39029/84-452        | 031-8004-300           | 2022         | Soc           | KFS-(Canada)     |                                      |                  |
| M39029/84-453        | 031-8004-400           | 2028         | Soc           | KFS-(Canada)     |                                      |                  |
| M39029/84-509        | 031-8005-700           | 2020         | Soc           | KFS-(Canada)     |                                      |                  |