

## MIL-DTL-38999 Series I Type 231-209 Wall-mount receptacle, washout standoffs

### "BETTER THAN QPL" FEATURES AND BENEFITS

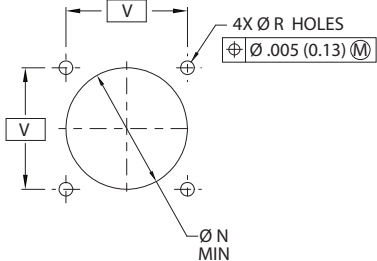
- Improved, positive-lock, 3-point stainless-steel pin bayonet coupling with outstanding vibration and shock resistance
- Plug ground fingers for advanced EMC
- Glenair Signature tin zinc finish class is RoHS compliant and cadmium compatible
- Precision-machined key/keyway polarization for reliable mismatching protection
- Expanded receptacle styles include Clinch-nut and Helicoil mounting, and In-Line configurations
- Scoop-proof design prevents pin damage and short circuits
- Fully tooled for all MIL-STD-1560 insert arrangements
- Contact options include size #22D, #20, #16, and #12 (see High-Speed series for Size #8)
- 500+ mating cycles exceeds MIL-DTL-38999 specification

### POWER SPECIFICATIONS

- Max operating temperature is 200°C finish dependent
- Meets Mil-Spec service rating, insert dependent

| HOW TO ORDER           |                                                |     |    |    |     |   |   |
|------------------------|------------------------------------------------|-----|----|----|-----|---|---|
| Sample Part Number     | 231-209                                        | -CM | NF | 23 | -99 | P | N |
| Basic Part Number      | 231-209                                        |     |    |    |     |   |   |
| Connector Style        | (See Table IV)                                 |     |    |    |     |   |   |
| Material/Finish        | NF, MA, MT, ME, ZR, Z1, ZL, AB (See Table III) |     |    |    |     |   |   |
| Connector Size         | 9, 11, 13, 15, 17, 19, 21, 23, 25              |     |    |    |     |   |   |
| Insert Arrangement     | PER MIL-STD-1560                               |     |    |    |     |   |   |
| Contact Style          | P = Pin, PC Tail<br>S = Socket, PC Tail        |     |    |    |     |   |   |
| Alternate Polarization | A, B, C, D, E, N = Normal                      |     |    |    |     |   |   |

TABLE II - MOUNTING HOLES



| Shell Size Code | Shell Size | Ø N Min       | Ø R Holes                  | V Bsc         |
|-----------------|------------|---------------|----------------------------|---------------|
| A               | 9          | 0.656 (16.66) |                            | 0.719 (18.26) |
| B               | 11         | 0.796 (20.22) |                            | 0.812 (20.62) |
| C               | 13         | 0.922 (23.42) |                            | 0.906 (23.01) |
| D               | 15         | 1.047 (26.59) | .133 (3.38)                | 0.969 (24.61) |
| E               | 17         | 1.219 (30.96) | .123 (3.12)                | 1.062 (26.97) |
| F               | 19         | 1.297 (32.94) |                            | 1.156 (29.36) |
| G               | 21         | 1.422 (36.12) |                            | 1.250 (31.75) |
| H               | 23         | 1.547 (39.29) | .159 (4.04)<br>.149 (3.78) | 1.375 (34.93) |
| J               | 25         | 1.672 (42.47) | .155 (3.94)<br>.145 (3.68) | 1.500 (38.10) |

TABLE III - MATERIAL/FINISH

| Sym | Material              | Finish                           |
|-----|-----------------------|----------------------------------|
| NF  | Aluminum Alloy        | Cad/O.D. Over Electroless Nickel |
| MA  |                       | Electroless Nickel, Matte        |
| ME  |                       | Electroless Nickel               |
| MN  |                       | Tri-Nickel Alloy                 |
| MT  |                       | Nickel-PTFE                      |
| TZ  |                       | Tin Zinc Over Electroless Nickel |
| ZR  |                       | Zinc Ni, Black (Tri-Valent CR)   |
| Z1  | Stainless Steel (SST) | Passivate                        |
| ZL  |                       | Electrodeposited Nickel          |
| AB  | Marine Bronze (MB)    | None (Clean Only)                |

TABLE IV - CONNECTOR STYLE

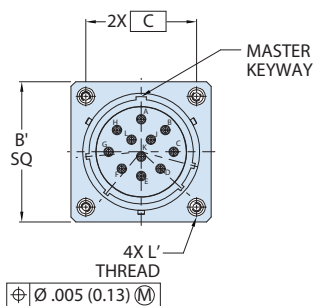
| SYM | Description                                                  |
|-----|--------------------------------------------------------------|
| CM  | Receptacle, Wall-mount With Metric Clinch-nuts               |
| CS  | Receptacle, Wall-mount With Standard Clinch-nuts             |
| DO  | Receptacle, Wall-mount With Thru Holes                       |
| HM  | Receptacle, Wall-mount With Metric Helicoils                 |
| HS  | Receptacle, Wall-mount With Standard Helicoils               |
| TO  | Receptacle, Wall-mount With Std Tapped Holes (MAT; SST & MB) |
| T1  | Receptacle, Wall-mount With Mtc Tapped Holes (MAT; SST & MB) |

TABLE V

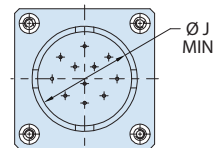
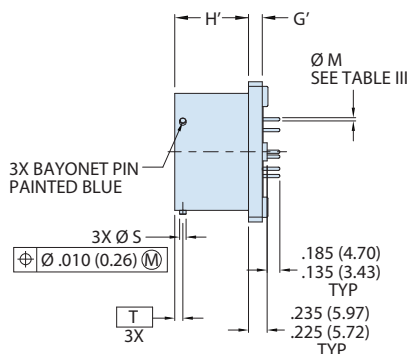
| Contact Size | PC Tail ØK                 |
|--------------|----------------------------|
| No 23        | .020 (0.51)<br>.018 (0.46) |
| No 22        | .020 (0.51)<br>.018 (0.46) |
| No 20        | .030 (0.76)<br>.028 (0.71) |
| No 16        | .040 (1.02)<br>.038 (0.97) |
| No 12        | .072 (1.83)<br>.070 (1.78) |

MIL-DTL-38999 Series I Type  
231-209 Wall-mount receptacle, washout standoffs

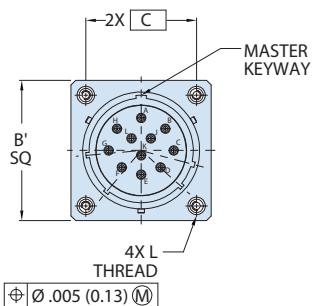
**CM - WALL-MOUNT RECEPTACLE**



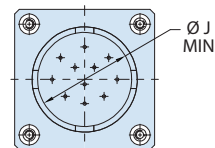
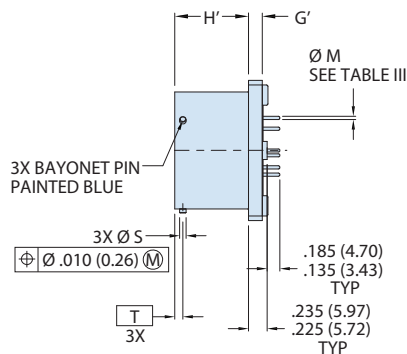
CM - WALL MOUNT RECEPTACLE  
WITH METRIC CLINCH NUTS (SEE TABLE IV)



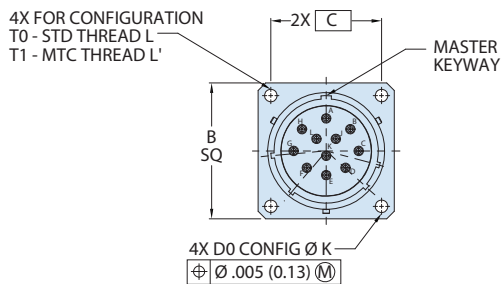
**CS - WALL-MOUNT RECEPTACLE**



CS - WALL MOUNT RECEPTACLE  
WITH STANDARD CLINCH NUTS (SEE TABLE IV)



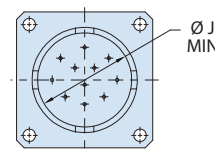
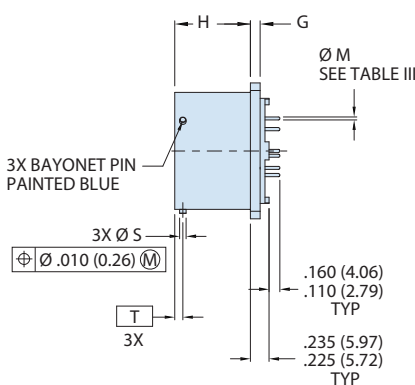
**D0 - WALL-MOUNT RECEPTACLE**



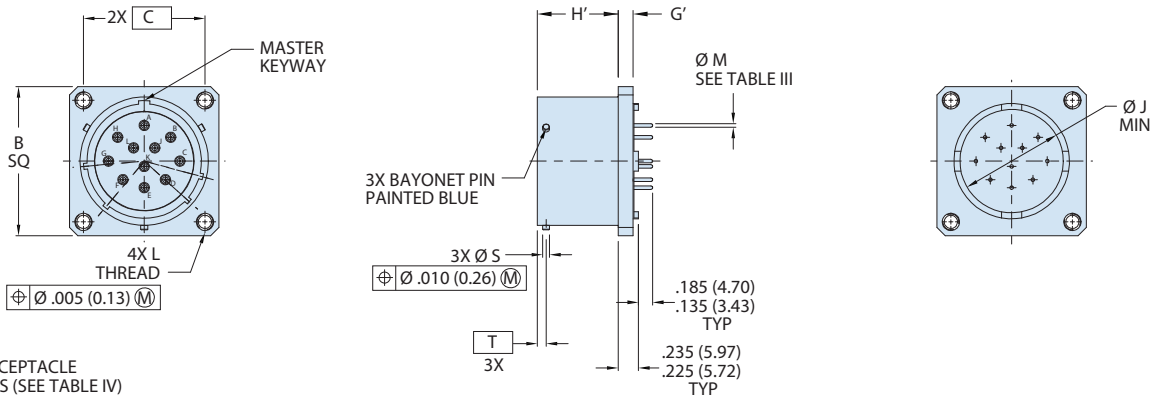
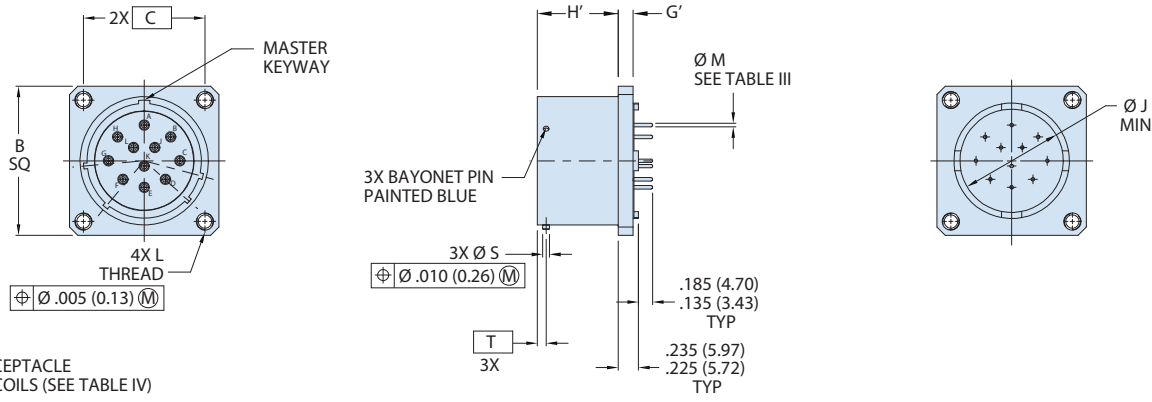
D0 - WALL MOUNT RECEPTACLE  
WITH THRU HOLES (SEE TABLE IV)

OR

T0 - WALL MOUNT RECEPTACLE WITH STD TAPPED HOLES  
T1 - WALL MOUNT RECEPTACLE WITH MTC TAPPED HOLES  
(MAT; STAINLESS STEEL AND MARINE BRONZE)  
(SEE TABLE IV)



**MIL-DTL-38999 Series I Type**  
**231-209 Wall-mount receptacle, washout standoffs**

| HM - WALL-MOUNT RECEPTACLE                                                                                                                                       |               |                                |                                |               |                            |                            |                              |                              |               |                            |                |              |                            |                 |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|--------------------------------|--------------------------------|---------------|----------------------------|----------------------------|------------------------------|------------------------------|---------------|----------------------------|----------------|--------------|----------------------------|-----------------|
|  <p>HM - WALL MOUNT RECEPTACLE<br/>WITH METRIC HELICOILS (SEE TABLE IV)</p>    |               |                                |                                |               |                            |                            |                              |                              |               |                            |                |              |                            |                 |
| HS - WALL-MOUNT RECEPTACLE                                                                                                                                       |               |                                |                                |               |                            |                            |                              |                              |               |                            |                |              |                            |                 |
|  <p>HS - WALL MOUNT RECEPTACLE<br/>WITH STANDARD HELICOILS (SEE TABLE IV)</p> |               |                                |                                |               |                            |                            |                              |                              |               |                            |                |              |                            |                 |
| Shell<br>Size<br>Code                                                                                                                                            | Shell<br>Size | B Sq                           | B' Sq                          | C Bsc         | G                          | G'                         | H                            | H'                           | Ø J Min       | Ø k                        | L<br>Thread    | L'<br>Thread | Ø S                        | T Bsc           |
| A                                                                                                                                                                | 9             | 0.948 (24.08)<br>0.925 (23.50) | 1.043 (26.49)<br>1.003 (25.48) | 0.719 (18.26) | .103 (2.62)<br>.077 (1.96) | .153 (3.89)<br>.127 (3.23) | .952 (24.18)<br>.928 (23.57) | .927 (23.55)<br>.903 (22.94) | .340 (8.64)   | .136 (3.45)<br>.120 (3.05) | .112-40<br>UNC | M3X0.5       | .084 (2.13)<br>.076 (1.93) | 0.100<br>(2.54) |
| B                                                                                                                                                                | 11            | 1.043 (26.49)<br>1.019 (25.88) | 1.136 (28.85)<br>1.096 (27.84) | 0.812 (20.62) |                            |                            |                              |                              | .468 (11.89)  |                            |                |              |                            |                 |
| C                                                                                                                                                                | 13            | 1.137 (28.88)<br>1.114 (28.30) | 1.230 (31.24)<br>1.190 (30.23) | 0.906 (23.01) |                            |                            |                              |                              | .572 (14.53)  |                            |                |              |                            |                 |
| D                                                                                                                                                                | 15            | 1.232 (31.29)<br>1.208 (30.68) | 1.293 (32.84)<br>1.253 (31.83) | 0.969 (24.61) |                            |                            |                              |                              | .705 (17.91)  |                            |                |              |                            |                 |
| E                                                                                                                                                                | 17            | 1.323 (33.60)<br>1.299 (32.99) | 1.386 (35.20)<br>1.346 (34.19) | 1.062 (26.97) |                            |                            |                              |                              | .830 (21.08)  |                            |                |              |                            |                 |
| F                                                                                                                                                                | 19            | 1.449 (36.80)<br>1.425 (36.20) | 1.480 (37.59)<br>1.440 (36.58) | 1.156 (29.36) |                            |                            |                              |                              | .934 (23.72)  |                            |                |              |                            |                 |
| G                                                                                                                                                                | 21            | 1.575 (40.01)<br>1.551 (39.40) | 1.574 (39.98)<br>1.534 (38.96) | 1.250 (31.75) | .133 (3.38)<br>.107 (2.72) | .183 (4.65)<br>.157 (3.99) |                              |                              | 1.055 (26.80) | .162 (4.11)<br>.146 (3.71) | .138-32<br>UNC | M4X0.7       |                            |                 |
| H                                                                                                                                                                | 23            | 1.701 (43.21)<br>1.677 (42.60) | 1.759 (44.68)<br>1.719 (43.66) | 1.375 (34.93) |                            |                            |                              |                              | 1.160 (29.46) |                            |                |              |                            |                 |
| J                                                                                                                                                                | 25            | 1.823 (46.30)<br>1.799 (45.69) | 1.884 (47.85)<br>1.844 (46.84) | 1.500 (38.10) |                            |                            |                              |                              | 1.307 (33.20) |                            |                |              |                            |                 |

**MIL-DTL-38999 Series I Type**  
**231-209-07 Jam-nut mount receptacle with standoffs**

ENVIRONMENTAL CONNECTORS



**“BETTER THAN QPL”  
FEATURES AND BENEFITS**

- Improved, positive-lock, 3-point stainless-steel pin bayonet coupling with outstanding vibration and shock resistance
- Plug ground fingers for advanced EMC
- Glenair Signature tin zinc finish class is RoHS compliant and cadmium compatible
- Precision-machined key/keyway polarization for reliable mismatching protection
- Expanded receptacle styles include Clinch-nut and Helicoil mounting, and In-Line configurations
- Scoop-proof design prevents pin damage and short circuits
- Fully tooled for all MIL-STD-1560 insert arrangements
- Contact options include size #22D, #20, #16, and #12 (see High-Speed series for Size #8)
- 500+ mating cycles exceeds MIL-DTL-38999 specification

| HOW TO ORDER           |                                               |     |    |    |    |   |   |
|------------------------|-----------------------------------------------|-----|----|----|----|---|---|
| Sample Part Number     | 231-209                                       | -07 | NF | 17 | -8 | P | N |
| Basic Part Number      | 231-209-07                                    |     |    |    |    |   |   |
| Connector Style        | 07 = Jam-nut, Standoff                        |     |    |    |    |   |   |
| Material/Finish        | NF, MA, MT, ME, ZR, Z1, ZL, AB (See Table II) |     |    |    |    |   |   |
| Connector Size         | 9, 11, 13, 15, 17, 19, 21, 23, 25             |     |    |    |    |   |   |
| Insert Arrangement     | PER MIL-STD-1560                              |     |    |    |    |   |   |
| Contact Style          | P = Pin, PC Tail<br>S = Socket, PC Tail       |     |    |    |    |   |   |
| Alternate Polarization | A, B, C, D, N = Normal                        |     |    |    |    |   |   |

**TABLE III - PANEL-MOUNT**

| Size Code | Shell Size | ØAA                            | BB FLAT                        |
|-----------|------------|--------------------------------|--------------------------------|
| A         | 9          | .703 (17.86)<br>.693 (17.60)   | .661 (16.79)<br>.654 (16.61)   |
| B         | 11         | .835 (21.21)<br>.825 (20.96)   | .771 (19.58)<br>.761 (19.33)   |
| C         | 13         | 1.020 (25.91)<br>1.010 (25.65) | .955 (24.26)<br>.945 (24.00)   |
| D         | 15         | 1.145 (29.08)<br>1.135 (28.83) | 1.085 (27.56)<br>1.075 (27.31) |
| E         | 17         | 1.270 (32.26)<br>1.260 (32.00) | 1.210 (30.73)<br>1.200 (30.48) |
| F         | 19         | 1.395 (35.43)<br>1.385 (35.18) | 1.335 (33.91)<br>1.325 (33.66) |
| G         | 21         | 1.520 (38.61)<br>1.510 (38.35) | 1.460 (37.08)<br>1.450 (36.83) |
| H         | 23         | 1.645 (41.78)<br>1.635 (41.53) | 1.585 (40.26)<br>1.575 (40.01) |
| J         | 25         | 1.770 (44.96)<br>1.760 (44.70) | 1.710 (43.43)<br>1.700 (43.18) |

**POWER SPECIFICATIONS**

- Max operating temperature is 200°C finish dependent
- Meets Mil-Spec service rating, insert dependent

**TABLE II - MATERIAL/FINISH**

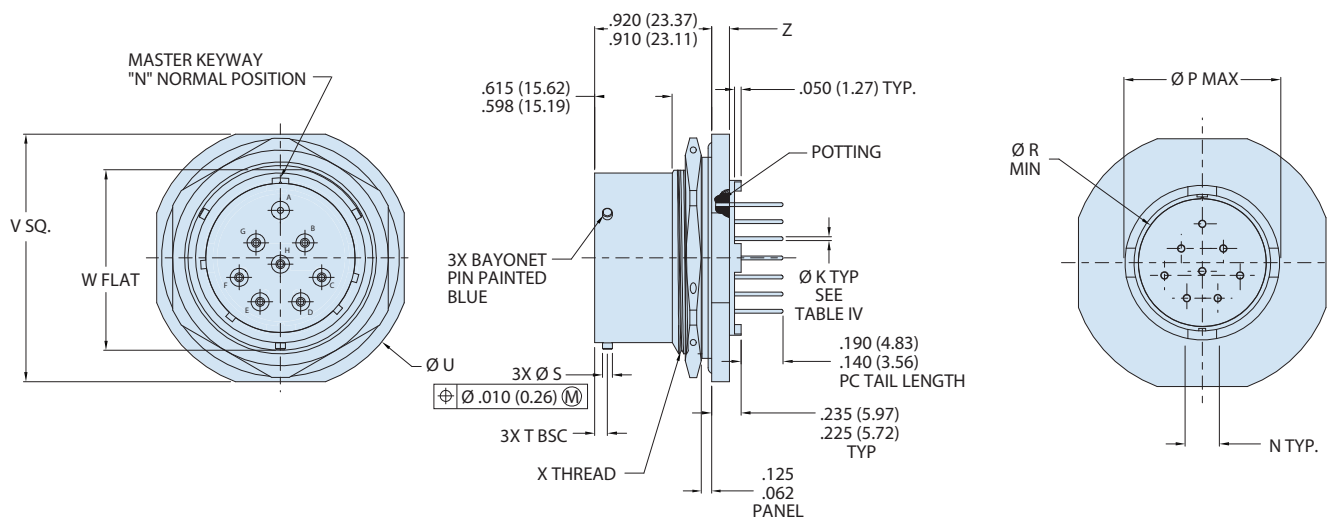
| Sym | Material              | Finish                           |
|-----|-----------------------|----------------------------------|
| NF  | Aluminum Alloy        | Cad/O.D. Over Electroless Nickel |
| MA  |                       | Electroless Nickel, Matte        |
| ME  |                       | Electroless Nickel               |
| MN  |                       | Tri-Nickel Alloy                 |
| MT  |                       | Nickel-PTFE                      |
| TZ  | Aluminum Alloy        | Tin Zinc Over Electroless Nickel |
| ZR  |                       | Zinc Ni, Black (Tri-Valent CR)   |
| Z1  | Stainless Steel (SST) | Passivate                        |
| ZL  |                       | Electrodeposited Nickel          |
| AB  | Marine Bronze (MB)    | None (Clean Only)                |

**TABLE V**

| Contact Size | PC Tail ØK                 |
|--------------|----------------------------|
| No 23        | .020 (0.51)<br>.018 (0.46) |
| No 22        | .020 (0.51)<br>.018 (0.46) |
| No 20        | .030 (0.76)<br>.028 (0.71) |
| No 16        | .040 (1.02)<br>.038 (0.97) |
| No 12        | .072 (1.83)<br>.070 (1.78) |

MIL-DTL-38999 Series I Type  
231-209-07 Jam-nut mount receptacle with standoffs

TABLE II - JAM-NUT MOUNT



| Size Code | Shell Size | ØP Max        | ØR Min        | ØS                           | T Bsc        | ØU                             | V Sq.                          | W Flat                         | X Thread                       | Z                              | N                 |              |
|-----------|------------|---------------|---------------|------------------------------|--------------|--------------------------------|--------------------------------|--------------------------------|--------------------------------|--------------------------------|-------------------|--------------|
| A         | 9          | 0.470 (11.94) | 0.340 (8.64)  | 0.084 (2.13)<br>0.076 (1.93) | 0.100 (2.54) | 1.204 (30.58)<br>1.172 (29.77) | 1.078 (27.38)<br>1.046 (26.57) | .655 (16.64)<br>.645 (16.38)   | .6875-24 UNEF-2A               | .120 (3.05)<br>.099 (2.51)     | 0.150 (3.81)      |              |
| B         | 11         | 0.590 (14.99) | 0.468 (11.89) |                              |              | 1.391 (35.33)<br>1.359 (34.52) | 1.266 (32.16)<br>1.234 (31.34) | 0.755 (19.18)<br>0.745 (18.92) | .8125-20 UNEF-2A               |                                | 0.175 (4.45)      |              |
| C         | 13         | 0.708 (17.98) | 0.572 (14.53) |                              |              | 1.516 (38.51)<br>1.484 (37.69) | 1.391 (35.33)<br>1.359 (34.52) | 0.942 (23.93)<br>0.932 (23.67) | 1.0000-20 UNEF-2A              |                                | 0.200 (5.08)      |              |
| D         | 15         | 0.865 (21.97) | 0.705 (17.91) |                              |              | 1.641 (41.68)<br>1.609 (40.87) | 1.516 (38.51)<br>1.484 (37.69) | 1.066 (27.08)<br>1.056 (26.82) | 1.1250-18 UNEF-2A              |                                |                   |              |
| E         | 17         | 0.985 (25.02) | 0.830 (21.08) |                              |              | 1.766 (44.86)<br>1.734 (44.04) | 1.641 (41.68)<br>1.609 (40.87) | 1.191 (30.25)<br>1.181 (30.00) | 1.2500-18 UNEF-2A              | .151 (3.84)<br>.130 (3.30)     |                   | 0.225 (5.72) |
| F         | 19         | 1.105 (28.07) | 0.934 (23.72) |                              |              | 1.954 (49.63)<br>1.922 (48.82) | 1.828 (46.43)<br>1.796 (45.62) | 1.316 (33.43)<br>1.306 (33.17) | 1.3750-18 UNEF-2A              |                                |                   |              |
| G         | 21         | 1.220 (30.99) | 1.055 (26.80) |                              |              | 2.078 (52.78)<br>2.046 (51.97) | 1.954 (49.63)<br>1.922 (48.82) | 1.441 (36.60)<br>1.431 (36.35) | 1.5000-18 UNEF-2A              |                                |                   |              |
| H         | 23         | 1.340 (34.04) | 1.160 (29.46) |                              |              | 2.204 (55.98)<br>2.172 (55.17) | 2.078 (52.78)<br>2.046 (51.97) | 1.566 (39.78)<br>1.556 (39.52) | 1.6250-18 UNEF-2A              |                                |                   |              |
| J         | 25         | 1.455 (36.96) | 1.307 (33.20) |                              |              | 0.131 (3.33)<br>0.123 (3.12)   | 0.109 (2.77)                   | 2.328 (59.13)<br>2.296 (58.32) | 2.204 (55.98)<br>2.172 (55.17) | 1.691 (42.95)<br>1.681 (42.70) | 1.7500-18 UNEF-2A |              |