



**MICROWAVE ENGINEERING CORPORATION**  
**RECTANGULAR WAVEGUIDE**  
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SHEET  
No. B002a**

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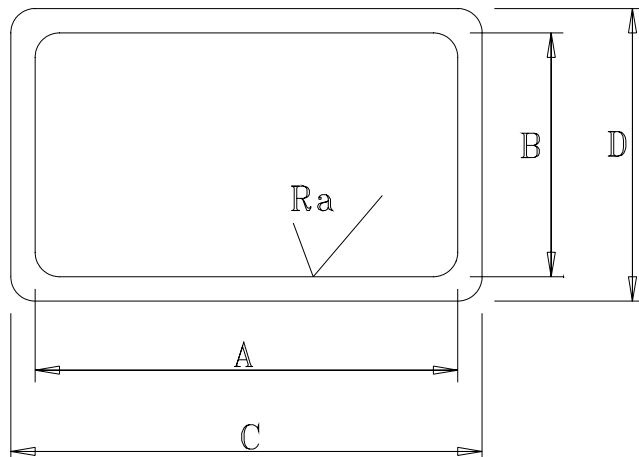
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# STANDARD RECTANGULAR WAVEGUIDE

**DATA  
SHEET  
No. T110**

| Waveguide Size<br>Europe And USA |     |     | Internal Dimensions A x B |       |             |       | External Dimensions C x D |       |             |       | Wall<br>Thickness |       | Internal<br>Surface<br>Finish (Ra) |             |
|----------------------------------|-----|-----|---------------------------|-------|-------------|-------|---------------------------|-------|-------------|-------|-------------------|-------|------------------------------------|-------------|
| R                                | Wg  | Wr  | mm                        | tol.± | inches      | tol.± | mm                        | tol.± | Inches      | tol.± | mm                | Inch  | μ<br>meter                         | μ<br>inches |
| 14                               | 6   | 650 | 165.10x82.55              | 0.25  | 6.500x3.250 | .01   | 170.30x87.75              | 0.25  | 6.704x3.455 | 0.01  | 2.6               | 0.1   | 40                                 | 1.6         |
| 22                               | 8   | 430 | 109.22x54.61              | 0.14  | 4.300x2.150 | .006  | 113.28x58.67              | 0.15  | 4.460x2.310 | 0.006 | 2.03              | 0.08  | 40                                 | 1.6         |
| 26                               | 9A  | 340 | 86.36x43.18               | 0.11  | 3.400x1.700 | .005  | 90.42x47.24               | 0.13  | 3.560x1.860 | 0.005 | 2.03              | 0.08  | 40                                 | 1.6         |
| 32                               | 10  | 284 | 72.14x34.04               | 0.08  | 2.840x1.340 | .004  | 76.20x38.10               | 0.1   | 3.000x1.500 | 0.004 | 2.03              | 0.08  | 25                                 | 1           |
| 40                               | 11A | 229 | 58.17x29.083              | 0.06  | 2.290x1.145 | .003  | 61.42x32.33               | 0.08  | 2.418x1.273 | 0.003 | 1.625             | 0.064 | 25                                 | 1           |
| 48                               | 12  | 187 | 47.55x22.149              | 0.05  | 1.872x0.872 | .003  | 50.80x25.40               | 0.08  | 2.000x1.000 | 0.002 | 1.625             | 0.064 | 25                                 | 1           |
| 58                               | 13  | 159 | 40.39x20.139              | 0.05  | 1.590x0.795 | .002  | 43.64x23.44               | 0.05  | 1.718x0.923 | 0.002 | 1.625             | 0.064 | 25                                 | 1           |
| 70                               | 14  | 137 | 34.85x15.799              | 0.04  | 1.372x0.622 | .002  | 38.10x19.05               | 0.05  | 1.500x0.750 | 0.002 | 1.625             | 0.064 | 25                                 | 1           |
| 84                               | 15  | 112 | 28.499x12.624             | 0.03  | 1.122x0.497 | .002  | 31.75x15.88               | 0.05  | 1.250x0.625 | 0.001 | 1.625             | 0.064 | 25                                 | 1           |
| 100                              | 16  | 90  | 22.86 x10.16              | 0.03  | 0.900x0.400 | .001  | 25.40x12.70               | 0.03  | 1.000x0.500 | 0.001 | 1.27              | 0.05  | 25                                 | 1           |
| 120                              | 17  | 75  | 19.05x9.525               | 0.02  | 0.750x0.375 | .001  | 21.59x12.06               | 0.03  | 0.850x0.475 | 0.001 | 1.27              | 0.05  | 25                                 | 1           |
| 140                              | 18  | 62  | 15.799x7.899              | 0.02  | 0.622x0.311 | .0008 | 17.83x9.930               | 0.03  | 0.702x0.391 | 0.001 | 1.016             | 0.04  | 25                                 | 1           |
| 180                              | 19  | 51  | 12.954x6.477              | 0.02  | 0.510x0.255 | .0008 | 14.99x8.510               | 0.03  | 0.590x0.335 | 0.001 | 1.016             | 0.04  | 25                                 | 1           |
| 220                              | 20  | 42  | 10.668x4.318              | 0.02  | 0.420x0.170 | .0008 | 12.70x6.350               | 0.03  | 0.500x0.250 | 0.001 | 1.016             | 0.04  | 25                                 | 1           |
| 280                              | 21  | 34  | 8.636x4.318               | 0.02  | 0.340x0.170 | .0008 | 10.57x6.350               | 0.03  | 0.420x0.250 | 0.001 | 1.016             | 0.04  | 25                                 | 1           |
| 320                              | 22  | 28  | 7.112x3.556               | 0.02  | 0.280x0.140 | .0008 | 9.14x5.590                | 0.03  | 0.360x0.220 | 0.001 | 1.016             | 0.04  | 25                                 | 1           |
| 400                              | 23  | 22  | 5.690x2.845               | 0.02  | 0.224x0.112 | .0008 | 7.72x4.880                | 0.03  | 0.304x0.192 | 0.001 | 1.016             | 0.04  | 25                                 | 1           |
| 500                              | 24  | 19  | 4.775x2.388               | 0.02  | 0.188x0.094 | .0008 | 5.81x4.420                | 0.03  | 0.268x0.174 | 0.001 | 1.016             | 0.04  | 25                                 | 1           |
| 620                              | 25  | 15  | 3.759x1.880               | 0.02  | 0.148x0.074 | .0008 | 5.79x3.910                | 0.03  | 0.228x0.154 | 0.001 | 1.016             | 0.04  | 25                                 | 1           |
| 740                              | 26  | 12  | 3.099x1.549               | 0.02  | 0.122x0.61  | .0008 | 5.13x3.580                | 0.03  | 0.202x0.141 | 0.001 | 1.016             | 0.04  | 25                                 | 1           |
| 900                              | 27  | 10  | 2.540x1.270               | 0.02  | 0.100x0.050 | .0008 | 4.57x3.300                | 0.03  | 0.160x0.130 | 0.001 | 1.016             | 0.04  | 25                                 | 1           |



Length: 3050 mm (Other upon request)  
Alloy: 6063 (Other upon request)

Straightness and twist:  
DIN 17615

Availability from stock ensures a swift delivery worldwide

Data subject to change without notice

**m.e.c**

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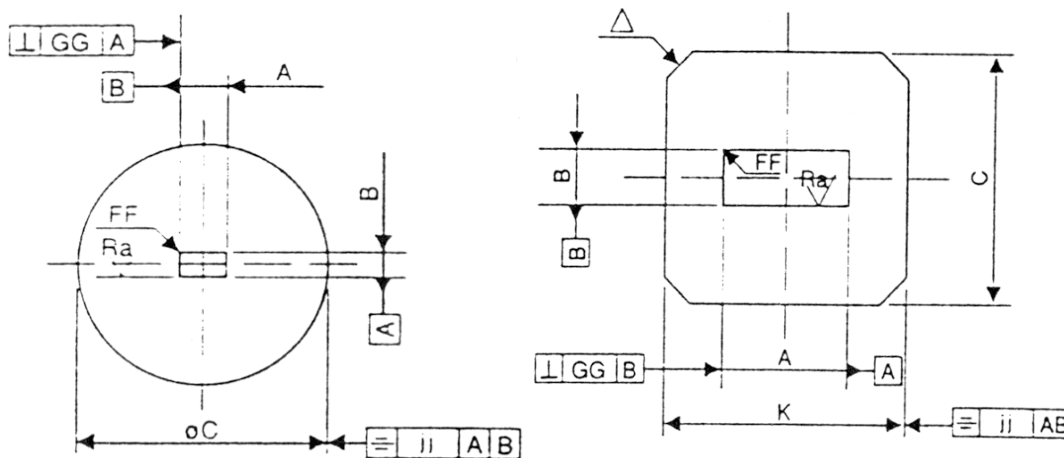
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# RECTANGULAR FLANGE STOCK

DATA  
SHEET  
No. T112

| Waveguide<br>Size | Dimensions                      |                                 |                 |               |                |                |                | $\mu$ inch/ $\mu$ m | 4 places           |
|-------------------|---------------------------------|---------------------------------|-----------------|---------------|----------------|----------------|----------------|---------------------|--------------------|
| WR                | A                               | B                               | C               | K             | FF             | GG             | JJ             | Ra                  | delta              |
|                   |                                 |                                 | min             | min           | max            |                |                |                     |                    |
| 187               | 1.872 ± .0030<br>47.55 ± .0800  | 0.872 ± .0030<br>22.149 ± .0800 | 2.5<br>63.5     | 3.50<br>88.9  | 0.030<br>0.800 | 0.002<br>0.050 | 0.008<br>0.200 | 4.0<br>1.0          | R0.25<br>R6.35     |
| 159               | 1.590 ± .0020<br>40.39 ± .0500  | 0.795 ± .0020<br>20.193 ± .0500 | 2.44<br>61.9    | 3.19<br>81.0  | 0.030<br>0.800 | 0.002<br>0.050 | 0.008<br>0.200 | 4.0<br>1.0          | R0.25<br>R6.35     |
| 137               | 1.372 ± .0020<br>34.85 ± .0500  | 0.622 ± .0020<br>15.799 ± .0500 | 1.94<br>49.2    | 2.69<br>68.3  | 0.030<br>0.800 | 0.002<br>0.050 | 0.800<br>0.200 | 4.0<br>1.0          | R0.15<br>R3.8      |
| 112               | 1.122 ± .0015<br>28.499 ± .0400 | 0.497 ± .0015<br>12.62 ± .0400  | 1.88<br>47.8    | 1.88<br>47.8  | 0.030<br>0.800 | 0.002<br>0.050 | 0.004<br>0.100 | 4.0<br>1.0          | 0.20X45<br>5X45    |
| 90                | 0.900 ± .0010<br>22.86 ± .0300  | 0.400 ± .0010<br>10.16 ± .0300  | 1.63<br>41.4    | 1.63<br>41.4  | 0.030<br>0.800 | 0.002<br>0.050 | 0.004<br>0.100 | 4.0<br>1.0          | 0.137X45<br>3.5X45 |
| 75                | 0.750 ± .0010<br>19.05 ± .0300  | 0.375 ± .0010<br>9.525 ± .0300  | 1.5<br>38.1     | 1.5<br>38.1   | 0.030<br>0.800 | 0.002<br>0.050 | 0.004<br>0.100 | 4.0<br>1.0          | 0.13X45<br>3.5X45  |
| 62                | 0.622 ± .0008<br>15.799 ± .0200 | 0.311 ± .0008<br>7.899 ± .0200  | 1.31<br>33.3    | 1.31<br>33.3  | 0.016<br>0.400 | 0.002<br>0.050 | 0.004<br>0.100 | 4.0<br>1.0          | 0.13X45<br>3.5X45  |
| 51                | 0.510 ± .0008<br>12.954 ± .0200 | 0.255 ± .0008<br>6.477 ± .0200  | 1.31<br>33.3    | 1.31<br>33.3  | 0.016<br>0.400 | 0.002<br>0.050 | 0.004<br>0.100 | 4.0<br>1.0          | R0.56<br>R14.25    |
| 42                | 0.420 ± .0008<br>10.668 ± .0200 | 0.170 ± .0008<br>4.318 ± .0200  | 0.875<br>22.2   | 0.875<br>22.2 | 0.016<br>0.400 | 0.002<br>0.050 | 0.004<br>0.100 | 4.0<br>1.0          | R0.56<br>R14.25    |
| 34                | .0340 ± .0008<br>8.636 ± .0200  | 0.170 ± .0008<br>4.318 ± .0200  | 0.875<br>22.2   | 0.875<br>22.2 | 0.016<br>0.400 | 0.002<br>0.050 | 0.002<br>0.050 | 4.0<br>1.0          | R0.46<br>R11.70    |
| 28                | 0.280 ± .0008<br>7.112 ± .0200  | 0.140 ± .0008<br>3.556 ± .0200  | 0.750<br>19.1   | 0.750<br>19.1 | 0.016<br>0.400 | 0.002<br>0.050 | 0.002<br>0.050 | 4.0<br>1.0          |                    |
| 22                | 0.224 ± .0008<br>5.690 ± .0200  | 0.112 ± .0008<br>2.845 ± .0200  | Ø 1.125<br>28.6 |               | 0.008<br>0.200 | 0.001<br>0.030 | 0.002<br>0.050 | 4.0<br>1.0          |                    |
| 19                | 0.188 ± .0008<br>4.775 ± .0200  | 0.094 ± .0008<br>2.388 ± .0200  | Ø 1.125<br>28.6 |               | 0.008<br>0.200 | 0.001<br>0.030 | 0.002<br>0.050 | 4.0<br>1.0          |                    |
| 10                | 0.10 ± .0016<br>2.54 ± .0400    | 0.05 ± .0016<br>1.27 ± .0400    | Ø 0.75<br>19.1  |               | 0.008<br>0.200 | 0.001<br>0.030 | 0.002<br>0.050 | 4.0<br>1.0          |                    |



Length: 1000 mm  
(Other upon request)

Alloy: 6063  
(Other upon request)

Straightness and twist:  
DIN: 17615

Data subject to change without notice



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# RECTANGULAR WAVEGUIDE AND FLANGES

**DATA  
SHEET  
No. T71C**

| WAVEGUIDE               |                             |                         |                                 | FLANGES          |                  |                |                  |                      |                  |                          |                  |              |                     |            |              |              |            |            |                 |  | MATERIAL<br>ALLOY |
|-------------------------|-----------------------------|-------------------------|---------------------------------|------------------|------------------|----------------|------------------|----------------------|------------------|--------------------------|------------------|--------------|---------------------|------------|--------------|--------------|------------|------------|-----------------|--|-------------------|
| MEC<br>DESIG-<br>NATION | FREQUENCY<br>RANGE<br>(GHz) | EIA<br>DESIG-<br>NATION | INNER<br>DIMENSIONS<br>(INCHES) | MIL DESIGNATIONS |                  |                |                  |                      |                  | MIL & EIA DESIGNATIONS   |                  |              |                     |            |              |              |            |            |                 |  |                   |
|                         |                             |                         |                                 | COVER            |                  | CHOKE          |                  | CONTACT              |                  | UNPRESSURIZED<br>CONTACT |                  |              | PRESSURIZED CONTACT |            |              |              |            |            |                 |  |                   |
|                         |                             |                         |                                 |                  |                  |                |                  |                      |                  |                          |                  |              | GROOVED             |            |              |              | FLAT       |            |                 |  |                   |
| UG(I)/U                 | M3922(I)-( )                | UG(I)/U                 | M3922(I)-( )                    | UG(I)/U          | M3922(I)-( )     | UG(I)/U        | M3922(I)-( )     | UG(I)/U              | M3922(I)-( )     | CMR                      | UG(I)/U          | M3922(I)-( ) | CPR(I)G             | UG(I)/U    | M3922(I)-( ) | CPR(I)F      |            |            |                 |  |                   |
| L                       | 1.12 – 1.70                 | WR650                   | 6.500 x 3.250                   | --<br>--         | --<br>--         | --<br>--       | --<br>--         | 418B<br>417B         | 58-008<br>58-007 | --<br>--                 | --<br>--         | --<br>--     | 1343<br>1362        | 024<br>023 | --<br>--     | 1720<br>1714 | 002<br>001 | --<br>--   | 6061AL<br>BRASS |  |                   |
| LM                      | 1.45 – 2.20                 | WR510                   | 5.100 x 2.550                   | --<br>--         | --<br>--         | --<br>--       | --<br>--         | --<br>--             | --<br>--         | --<br>--                 | --<br>--         | --<br>--     | 1719<br>1718        | 028<br>025 | --<br>--     | 1717<br>1715 | 004<br>003 | --<br>--   | 6061AL<br>BRASS |  |                   |
| LA                      | 1.70 – 2.60                 | WR430                   | 4.300 x 2.150                   | --<br>--         | --<br>--         | --<br>--       | --<br>--         | 437B<br>435B         | 58-010<br>58-009 | --<br>--                 | --<br>--         | --<br>--     | 1345<br>1344        | 028<br>027 | --<br>--     | 1711<br>1716 | 006<br>005 | --<br>--   | 6061AL<br>BRASS |  |                   |
| LS                      | 2.20 – 3.30                 | WR340                   | 3.400 x 1.700                   | --<br>--         | --<br>--         | --<br>--       | --<br>--         | 554B<br>553B         | 58-012<br>58-011 | --<br>--                 | --<br>--         | --<br>--     | 1347<br>1346        | 030<br>029 | --<br>--     | 1713<br>1712 | 008<br>007 | --<br>--   | 6061AL<br>BRASS |  |                   |
| S                       | 2.60 – 3.95                 | WR284                   | 2.840 x 1.340                   | 584<br>53        | 56-002<br>56-001 | 585A<br>54B    | 61-001<br>61-002 | --<br>--             | --<br>--         | 1484<br>1469             | 64-002<br>64-001 | 284<br>284   | 1349<br>1348        | 032<br>031 | 284<br>284   | 1725<br>1724 | 010<br>009 | 284<br>284 | 6061AL<br>BRASS |  |                   |
| S2A                     | 2.60 – 3.95                 | M85/4-017<br>M85/4-015  | 2.840 x 0.670                   | --<br>--         | --<br>--         | --<br>--       | --<br>--         | --<br>--             | 75-06<br>75-05   | --<br>--                 | --<br>--         | --<br>--     | --<br>--            | --<br>--   | --<br>--     | --<br>--     | --<br>--   | --<br>--   | 6061AL<br>BRASS |  |                   |
| S2                      | 2.60 – 5.85                 | M85/4-007<br>M85/4-001  | 2.840 x 1.004                   | --<br>--         | --<br>--         | --<br>--       | --<br>--         | --<br>--             | 75-02<br>75-01   | --<br>--                 | --<br>--         | --<br>--     | --<br>1906          | --<br>--   | --<br>--     | --<br>1905   | --<br>--   | --<br>--   | 6061AL<br>BRASS |  |                   |
| B                       | 3.30 – 4.90                 | WR229                   | 2.290 x 1.145                   | --<br>--         | --<br>--         | --<br>--       | --<br>--         | --<br>--             | --<br>--         | --<br>--                 | --<br>--         | 229<br>229   | 1351<br>1350        | 034<br>033 | 229<br>229   | 1727<br>1726 | 012<br>011 | 229<br>229 | 6061AL<br>BRASS |  |                   |
| G                       | 3.95 – 5.85                 | WR187                   | 1.872 x 0.872                   | 407<br>149A      | 57-001<br>57-002 | 406B<br>148C   | 62-001<br>62-002 | --<br>--             | --<br>--         | 1480<br>1475             | 63-005<br>63-001 | 187<br>187   | 1353<br>1352        | 036<br>035 | 187<br>187   | 1729<br>1728 | 014<br>013 | 187<br>187 | 6061AL<br>BRASS |  |                   |
| D                       | 4.90 – 7.05                 | WR159                   | 1.590 x 0.795                   | --<br>--         | --<br>--         | --<br>--       | --<br>--         | --<br>1907           | --<br>--         | --<br>--                 | --<br>--         | 159*<br>159  | 1355<br>1354        | 038<br>037 | 159<br>159   | 1731<br>1730 | 016<br>015 | 159<br>159 | 6061AL<br>BRASS |  |                   |
| J                       | 5.85 – 8.20                 | WR137                   | 1.372 x 0.622                   | 441<br>344       | 55-002<br>55-001 | 440B<br>343B   | 60-002<br>60-001 | --<br>150            | --<br>--         | 1481<br>1476             | 63-006<br>63-002 | 137<br>137   | 1357<br>1356        | 040<br>039 | 137<br>137   | 1733<br>1732 | 018<br>017 | 137<br>137 | 6061AL<br>BRASS |  |                   |
| J2                      | 5.85 – 12.4                 | M85/4-008<br>M85/4-003  | 1.372 x 0.487                   | --<br>--         | --<br>--         | --<br>--       | --<br>--         | --<br>75-04<br>75-03 | --<br>--         | --<br>511                | --<br>--         | --<br>--     | --<br>1909          | --<br>--   | --<br>--     | --<br>1908   | --<br>--   | --<br>--   | 6061AL<br>BRASS |  |                   |
| H                       | 7.05 – 10.0                 | WR112                   | 1.122 x 0.497                   | 138<br>51        | 53-004<br>53-002 | 137B<br>52B    | 59-009<br>59-007 | --<br>--             | --<br>--         | 1482<br>1477             | 63-007<br>63-003 | 112<br>112   | 1359<br>1358        | 042<br>041 | 112<br>112   | 1735<br>1734 | 020<br>019 | 112<br>112 | 6061AL<br>BRASS |  |                   |
| H2                      | 7.05 – 10.0                 | ½ Ht.<br>WR112          | 1.122 x 0.249                   | ½ Ht<br>138      | --               | --             | --               | --<br>--             | --<br>--         | --<br>--                 | --<br>--         | --<br>--     | --<br>--            | --<br>--   | --<br>--     | --<br>--     | --<br>--   | --<br>--   | 6061AL          |  |                   |
| W                       | 7.0 – 11.0                  | WR102                   | 1.020 x 0.510                   | --<br>1493       | 70-002<br>70-001 | --<br>1494     | 69-002<br>69-001 | --<br>--             | --<br>--         | --<br>--                 | --<br>--         | --<br>--     | --<br>--            | --<br>--   | --<br>--     | --<br>--     | 002<br>--  | --<br>--   | 6061AL<br>BRASS |  |                   |
| W2                      | 7.0 – 11.0                  | ½ Ht.<br>WR102          | 1.020 x 0.255                   | --               | 75-09            | --             | --               | --<br>--             | --<br>--         | --<br>--                 | --<br>--         | --<br>--     | --<br>--            | --<br>--   | --<br>--     | --<br>--     | --<br>--   | --<br>--   | 6061AL<br>BRASS |  |                   |
| X                       | 8.2 – 12.4                  | WR90                    | 0.900 x 0.400                   | 135<br>39        | 53-003<br>53-001 | 136B<br>40B    | 59-008<br>59-006 | --<br>--             | --<br>--         | 1483<br>1478             | 63-008<br>63-004 | 90<br>90     | 1361<br>1360        | 044<br>043 | 90<br>90     | 1737<br>1736 | 022<br>021 | 90<br>90   | 6061AL<br>BRASS |  |                   |
| M                       | 10.0 – 15.0                 | WR75                    | 0.750 x 0.375                   | WR75*<br>WR75*   | 53-008<br>53-007 | WR75*<br>WR75* | 59-011<br>59-010 | --<br>--             | --<br>--         | --<br>--                 | --<br>--         | --<br>--     | --<br>--            | --<br>--   | --<br>--     | --<br>--     | --<br>--   | --<br>--   | 6061AL<br>BRASS |  |                   |
| P                       | 12.4 – 18.0                 | WR62                    | 0.622 x 0.311                   | 1665<br>419      | 53-006<br>53-005 | 1666<br>541A   | 59-002<br>59-001 | --<br>--             | --<br>--         | --<br>--                 | --<br>--         | --<br>--     | --<br>--            | --<br>--   | --<br>--     | --<br>--     | --<br>--   | --<br>--   | 6061AL<br>BRASS |  |                   |
| N                       | 15.0 – 22.0                 | WR51                    | 0.510 x 0.255                   | WR51*<br>WR51*   | 70-011<br>70-010 | WR51*<br>WR51* | 69-005<br>69-004 | --<br>--             | --<br>--         | --<br>--                 | --<br>--         | --<br>--     | --<br>--            | --<br>--   | --<br>--     | --<br>--     | --<br>--   | --<br>--   | 6061AL<br>BRASS |  |                   |
| K                       | 18.0 – 26.5                 | WR42                    | 0.420 x 0.170                   | 597<br>595       | 54-002<br>54-001 | 598A<br>596A   | 59-004<br>59-003 | --<br>--             | --<br>--         | --<br>--                 | --<br>--         | --<br>--     | --<br>--            | --<br>--   | --<br>--     | --<br>--     | --<br>--   | --<br>--   | 6061AL<br>BRASS |  |                   |
| Y                       | 22.0 – 33.0                 | WR34                    | 0.340 x 0.170                   | --<br>--         | --<br>--         | --<br>--       | --<br>--         | --<br>--             | --<br>--         | --<br>1530               | 63-010<br>63-009 | --<br>--     | --<br>--            | --<br>--   | --<br>--     | --<br>--     | --<br>--   | --<br>--   | 6061AL<br>BRASS |  |                   |
| A                       | 26.5 – 40.0                 | WR28                    | 0.280 x 0.140                   | 599              | 54-003           | 600A           | 59-005           | --                   | --               | --                       | --               | --           | --                  | --         | --           | --           | --         | --         | BRASS           |  |                   |

\* No MIL designation

\*\* Most Cover Flanges as listed above are THRU type. However, BUTT type will be supplied unless otherwise specified.

Contact **mec** for further information.

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# RECTANGULAR WAVEGUIDE STRAIGHT SECTIONS, BENDS AND TWISTS 10 / 120 / 130 / 150 SERIES

DATA  
SHEET  
No. T16D  
1 of 2

- LOW VSWR
- LOW INSERTION LOSS
- PRECISION FABRICATION



## DESCRIPTION

MEC's Straight Sections of Rectangular Waveguide are useful for field and laboratory applications where lowest loss and VSWR are required. The waveguide conforms to MIL-W-85. Straight Sections can be supplied up to 12 feet long. Bends and Twists may be used alone or in combination for systems packaging. Straights, Bends and Twists are normally supplied with UG cover flanges; however choke, CPR, CMR and other flanges may be requested. VSWR of Standard Waveguide models is 1.03 typical, 1.05 max. over the full waveguide band while insertion loss is essentially that of straight waveguide. Units are available in aluminum or copper. Finish is chromate conversion per MIL-C-5541, Class 3 for aluminum and corrosion-resistant coatings for all others, painted with gray enamel.

## SPECIFICATIONS

| FREQUENCY<br>(GHz) | WAVEGUIDE<br>SIZE    | STRAIGHT<br>SECTION | E PLANE<br>BEND |      | H PLANE<br>BEND |      | TWIST     |      | MATERIAL |
|--------------------|----------------------|---------------------|-----------------|------|-----------------|------|-----------|------|----------|
|                    |                      | MODEL NO.           | MODEL NO.       | A    | MODEL NO.       | A    | MODEL NO. | A    |          |
| STANDARD WAVEGUIDE |                      |                     |                 |      |                 |      |           |      |          |
| 1.0 – 1.45         | WR770                | E10                 | E120            | 24.0 | E130            | 24.0 | E150      | —    | A        |
| 1.12 – 1.70        | WR650                | L10                 | L120            | 15.0 | L130            | 15.0 | L150      | 24.0 | A        |
| 1.45 – 2.20        | WR510                | LM10                | LM120           | 15.0 | LM130           | 15.0 | LM150     | 24.0 | A        |
| 1.70 – 2.60        | WR430                | LA10                | LA120           | 15.0 | LA130           | 15.0 | LA150     | 24.0 | A        |
| 2.20 – 3.30        | WR340                | LS10                | LS120           | 12.0 | LS130           | 12.0 | LS150     | 24.0 | A        |
| 2.60 – 3.95        | WR284                | S10                 | S120            | 4.75 | S130            | 6.50 | S150      | 11.0 | A,C      |
| 3.30 – 4.90        | WR229                | B10                 | B120            | 5.00 | B130            | 8.00 | B150      | 12.0 | A,C      |
| 3.95 – 5.85        | WR187                | G10                 | G120            | 3.00 | G130            | 4.50 | G150      | 8.0  | A,C      |
| 4.90 – 7.05        | WR159                | D10                 | D120            | 4.25 | D130            | 4.25 | D150      | 7.0  | A,C      |
| 5.85- 8.20         | WR137                | J10                 | J120            | 2.38 | J130            | 2.75 | J150      | 6.0  | A,C      |
| 7.05 – 10.0        | WR112                | H10                 | H120            | 1.50 | H130            | 2.63 | H150      | 6.0  | A,C      |
| 7.0 – 11.0         | WR102                | W10                 | W120            | 2.31 | W130            | 2.63 | W150      | 6.0  | A,C      |
| 8.2 – 12.4         | WR90                 | X10                 | X120            | 1.50 | X130            | 1.69 | X150      | 6.0  | A,C      |
| 10.0 – 15.0        | WR75                 | M10                 | M120            | 1.50 | M130            | 1.69 | M150      | 6.0  | A,C      |
| 12.4 – 18.0        | WR62                 | P10                 | P120            | 1.69 | P130            | 1.84 | P150      | 6.0  | A,C      |
| 15.0 – 22.0        | WR51                 | N10                 | N120            | 1.50 | N130            | 1.50 | N150      | 4.0  | A,C      |
| 18.0 – 26.5        | WR42                 | K10                 | K120            | 1.50 | K130            | 1.50 | K150      | 3.5  | A,C      |
| 22.0 – 33.0        | WR34                 | Y10                 | Y120            | 1.50 | Y130            | 1.50 | Y150      | 3.0  | A,C      |
| 26.5 – 40.0        | WR28                 | A10                 | A120            | 1.38 | A130            | 1.44 | A150      | 3.0  | A,C      |
| REDUCED HEIGHT     |                      |                     |                 |      |                 |      |           |      |          |
| 2.60 – 5.85        | M85/4 - 001          | S2-10               | S2-120*         | 5.00 | —               | —    | S2-150*   | 11.0 | C        |
| 5.85 – 12.4        | M85/4 – 003          | J2-10               | J2-120          | 2.38 | —               | —    | J2-150*   | 8.0  | C        |
| MEC FLATGUIDE      |                      |                     |                 |      |                 |      |           |      |          |
| 8.0 – 18.0         | (F750)M85/4-003      | F10                 | F120 §          | 3.00 | F130†           | 3.75 | F150§     | 5.00 | A        |
| 7.0 – 18.0         | (F700)M85/4-029,-027 | F11                 | F120§           | 3.00 | F131†           | 4.25 | F151§     | 6.00 | A,C      |
| 4.0 – 10.4         | (F400)M85/4-023      | F12                 | F122§           | 2.50 | F132†           | 4.75 | F152§     | 9.00 | A        |

\*VSWR § VSWR<1.08

† VSWR<1.12

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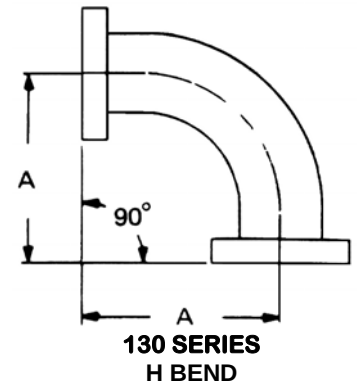
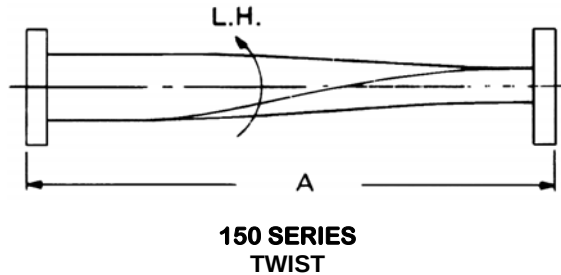
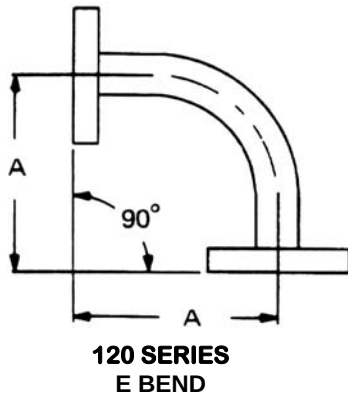
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# RECTANGULAR WAVEGUIDE STRAIGHT SECTIONS, BENDS AND TWISTS

## 10 / 120 / 130 / 150 SERIES

DATA  
SHEET  
No. T16D  
2 of 2



### ORDERING INFORMATION

- (1) For 10 Series STRAIGHT SECTIONS, add suffixes to model number as follows:
  - (a) LENGTH: Specify face-to-face length in inches.
  - (b) MATERIAL: A for Aluminum; C for Copper
  - (c) FLANGES: 1 for Cover; 2 for Choke; 3 for CMR; 4 for CPRE, 5 for CPRG. See Data Sheet T5C for Reduced Height & MEC FLATGUIDE Flanges.
- (2) For Series 120/130 BENDS and Series 150 TWISTS, add suffixes to model numbers as follows:
  - (a) ANGLE: Suffix desired angle in degrees if other than 90°.
  - (b) MATERIAL: A for Aluminum; C for Copper.
  - (c) FLANGES: Cover flanges are standard. For others, specify as above.
- (3) Coin silver available above 18 GHz on request.
- (4) Heavy Wall and Extra Heavy Wall small radius copper bends also available: e.g. WR90 H Bend with "A" dimension = 1.50" and wall thickness = 0.200".
- (5) Mitered Bends are available to provide even shorter "A" dimensions: e.g. X120-M and X130-M have leg lengths of only 1.0". Specify "M" for mitered bends.
- (6) Other sizes, configurations and combinations available on request. MEC has one of the largest waveguide facilities to satisfy unique customer requirements. See Data Sheet B20C.



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# RECTANGULAR WAVEGUIDE TRANSITIONS 30 SERIES

DATA  
SHEET  
No. T37C

- LOWEST VSWR
- SHORT LENGTH

## DESCRIPTION

MEC precision fabricated 30 Series Transitions have been designed to connect different size waveguide components in a minimum of space while maintaining a VSWR of 1.04 or less in those cases where the frequency bands overlap. Standard units are furnished in aluminum with cover or contact flanges. Finish is chromate conversion per MIL-C5541, Class 3, painted with gray epoxy enamel on external non-mating surfaces.



## ORDERING INFORMATION

| FREQUENCY BAND | FREQUENCY RANGE (GHz) | WAVEGUIDE SIZE | EQUIVALENT FLANGE |
|----------------|-----------------------|----------------|-------------------|
| L              | 1.12 - 1.70           | WR-650         | UG-418B/U         |
| LM             | 1.45 - 2.20           | WR-510         | UG-1717/U         |
| LA             | 1.70 - 2.60           | WR-430         | UG-437B/U         |
| LS             | 2.20 - 3.30           | WR-340         | UG-554A/U         |
| S              | 2.60 - 3.95           | WR-284         | UG-584/U          |
| B              | 3.30 - 4.90           | WR-229         | CMR-229           |
| G              | 3.95 - 5.85           | WR-187         | UG-407/U          |
| D              | 4.90 - 7.05           | WR-159         | CMR-159           |
| J              | 5.85 - 8.20           | WR-137         | UG-441 /U         |

| FREQUENCY BAND | FREQUENCY RANGE (GHz) | WAVEGUIDE SIZE | EQUIVALENT FLANGE |
|----------------|-----------------------|----------------|-------------------|
| H              | 7.05-10.0             | WR-112         | UG-138/U          |
| W              | 7.0-11.0              | WR-102         | UG-1493/U*        |
| X              | 8.2 - 12.4            | WR-90          | UG-135/U          |
| M              | 10.0-15.0             | WR-75          | M3922/53-008      |
| P              | 12.4-18.0             | WR-62          | UG-1665/U         |
| N              | 15.0-22.0             | WR-51          | M3922/70-011      |
| K              | 18.0 - 26.5           | WR-42          | UG-597/U          |
| Y              | 22.0 - 33.0           | WR-34          | UG-1530/U*        |
| A              | 26.5 - 40.0           | WR-28          | UG-599/U*         |

\*Aluminum

1) To formulate model number, select desired lower frequency band from above table and add as prefix to series No. "30". Then select higher frequency band and add as suffix to designate the two waveguide sizes to be interconnected by the transition. Also specify actual frequency range and VSWR desired.

EXAMPLES: X30-M specifies a WR-90 to WR-75 transition.

W30-P specifies a WR-102 to WR-62 transition.

- 2) Special sizes, configurations, and combinations are available on request, as well as other flanges (e.g. UG choke, CPR, CMR).
- 3) Custom designed step transitions available on special request.
- 4) Transitions to circular waveguide also available.



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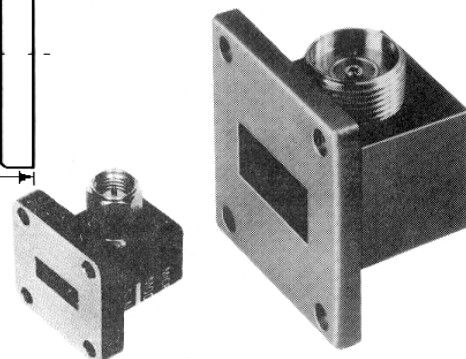
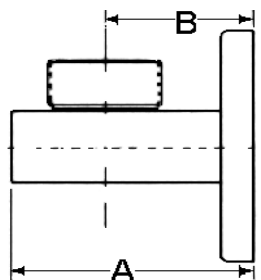
# STANDARD RECTANGULAR WAVEGUIDE-TO-COAXIAL ADAPTERS 40 SERIES

DATA  
SHEET  
No. T6F

- LOWEST VSWR, 1.04 MAXIMUM
- LOW INSERTION LOSS
- COMPLETE LINE 1.0 –40.0 GHz

## DESCRIPTION

The 40 Series Adapters allow transmission of power between waveguide and coax in either direction with very low reflection. This is achieved by using broadband matching techniques. VSWR over the full band is 1.04 max. for most models, or as limited by the coaxial connector used. High power adapters can be made up to the power rating of the connector requested. Custom designs for fractional and broad band, in-line, half height or other specials are available. Assemblies are furnished with an aluminum housing. Finish is chromate conversion per MIL-C-5541, Class 3, painted with gray epoxy enamel.



## SPECIFICATIONS

| MODEL NO.         | FREQUENCY RANGE<br>(GHz) | WAVEGUIDE SIZE | EQUIPMENT<br>FLANGE | DIMENSIONS (IN.) |         |
|-------------------|--------------------------|----------------|---------------------|------------------|---------|
|                   |                          |                |                     | A. MAX           | B ± .03 |
| STANDARD ADAPTERS |                          |                |                     |                  |         |
| E40               | 1.0-1.45                 | WR-770         | WR-770              | 5.50             | 3.44    |
| L40               | 1.12-1.70                | WR-650         | UG-418B/U           | 4.50             | 3.06    |
| LM40              | 1.45-2.20                | WR-510         | UG-1717/U           | 4.80             | 3.27    |
| LA40              | 1.70-2.60                | WR-430         | UG-437B/U           | 3.70             | 2.62    |
| LS40              | 2.20-3.30                | WR-340         | UG-554A/U           | 2.65             | 1.62    |
| S40               | 2.60-3.95                | WR-284         | UG-584/U            | 2.75             | 1.75    |
| B40               | 3.30-4.90                | WR-229         | CMR-229             | 2.00             | 1.32    |
| G40               | 3.95-5.85                | WR-187         | UG-407/U            | 2.00             | 1.31    |
| D40               | 4.90-7.05                | WR-159         | CMR-159             | 1.75             | 1.26    |
| J40               | 5.85-8.20                | WR-137         | UG-441/U            | 1.50†            | 1.04    |
| H40               | 7.05-10.0                | WR-112         | UG-138/U            | 1.44             | .80     |
| W40               | 7.0-11.0                 | WR-102         | M3922/70-002        | 1.25             | .63     |
| X40               | 8.2-12.4                 | WR-90          | UG-135/U            | 1.20             | .63     |
| M40*              | 10.0-15.0                | WR-75          | M3922/53-008        | 1.25             | .63     |
| P40*              | 12.4-18.0                | WR-62          | UG-1665/U           | 1.20             | .68     |
| N40+              | 15.0-22.0                | WR-51          | M3922/70-011        | 1.10             | .75     |
| K40+□             | 18.0-26.5                | WR-42          | UG-597/U            | .90              | .45††   |
| Y40□              | 22.0-33.0                | WR-34          | M3922/63-010        | .90              | .45     |
| A40□              | 26.5-40.0                | WR-28          | UG-599/UΔ           | .90              | .60     |
| T40▽              | 33.0-50.0                | WR-22          | UG-383/U            | .90              | .60     |

\*TNC VSWR ≤1.1 to 16 GHz & +SMA VSWR ≤ 1.01+ .005 f (GHz) to 26 GHz †1.62 for-14  
 ≤1.2 from 16 to 18 GHz □SSMA VSWR ≤1.09+. 007 f(GHz)to 40 GHz ††.47 for-17  
 ▽ Brass ΔAluminum

## ORDERING INFORMATION

(1)SEE CONNECTOR CHART

(2)VSWR Maximum: A for 1.04 B for 1.06 C for 1.10 P (see High Power Option)

(3)HIGH POWER Option:  
 VSWR -P for high average power determined by connector as follows:  
 1.20 max. SC to 8.2 GHz - 800w.  
 1.15 typ. N to 8.2 GHz – 600 W. Derate Linearly to 300 W at 18 GHz  
 TNC to 18 GHz – 200 W.  
 SMA to 18 GHz – 50 W.

(4)FRACTIONAL BANDWIDTH: L for lower half M for middle half H for upper half

EXAMPLE: Model x40-7AL=WR90 to 7 mm coaxial adapter with VSWR of 1.04 max. over the frequency range 8.2–10.0 GHz.

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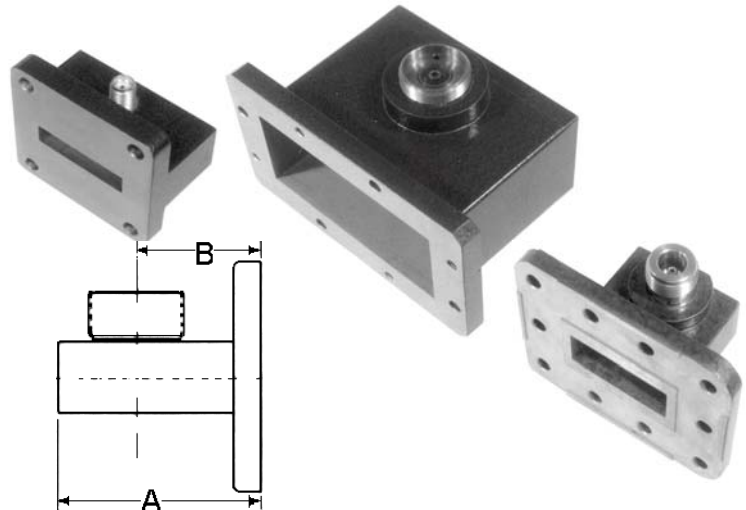
# SPECIAL RECTANGULAR WAVEGUIDE- TO-COAXIAL ADAPTERS 40 SERIES - SPECIALS

DATA  
SHEET  
No. T5D

- LOWEST VSWR
- LOW INSERTION LOSS
- NARROW AND BROAD BANDWIDTHS

## DESCRIPTION

MEC offers a wide range of Adapters for specialized applications requiring non-standard rectangular waveguides and/or frequency bands. They allow transmission of power in either direction with the lowest possible reflection. This is achieved by using broadband matching techniques. High power adapters are available up to the power rating of the connector requested. Requirements for other bands, waveguide heights and in-line adapters can also be satisfied. Assemblies are furnished with an aluminum housing. Finish is chromate conversion per MIL-C-5541, Class3, painted with gray epoxy enamel.



## SPECIFICATIONS

| MODEL NO.                                         | FREQUENCY RANGE (GHz) | WAVEGUIDE       |               | EQUIVALENT FLANGE   | DIMESIONS (IN.) |         | MAXIMUM VSWR                                                      |                  |
|---------------------------------------------------|-----------------------|-----------------|---------------|---------------------|-----------------|---------|-------------------------------------------------------------------|------------------|
|                                                   |                       | SIZE            | I.D. (INCHES) |                     | A.MAX           | B ± .03 |                                                                   |                  |
| STANDARD WAVEGUIDE COMMUNICATIONS AND NARROW BAND |                       |                 |               |                     |                 |         |                                                                   |                  |
| B40M                                              | 3.7 - 4.2             | WR-229          | 2.290 x1.145  | CMR-229             | 2.00            | 1.32    | A for 102                                                         |                  |
| D40M                                              | 5.925 – 6.425         | WR-159          | 1.590 x 0.795 | CMR-159             | 1.75            | 1.26    | B for 1.05                                                        |                  |
| J40L                                              | 5.925 – 6.425         | WR-137          | 1.372 x 0.622 | CMR-137             | 1.50†           | 1.04    |                                                                   |                  |
| H40L                                              | 7.25 – 8.4            | WR-112          | 1.122 x 0.497 | CMR-112             | 1.44            | .80     |                                                                   |                  |
| X40L                                              | 10.7 – 11.7           | WR-90           | 0.900 x 0.400 | CMR-90              | 1.20            | .63     | C for 1.10                                                        |                  |
| M40L                                              | 10.7 – 11.7           | WR-75           | 0.750 x 0.375 | M3922/53-008        | 1.25            | .63     | P for 1.20                                                        |                  |
| N40L                                              | 17.0 – 19.0           | WR-51           | 0.510 x 0.255 | M3922/70-011        | 1.10            | .75     |                                                                   |                  |
| STANDARD WAVEGUIDE EXTENDED FREQUENCY BAND        |                       |                 |               |                     |                 |         |                                                                   |                  |
| S41                                               | 2.3 – 4.1             | WR-284          | 2.840 x 1.340 | UG-584/U            | 2.75            | 1.75    | A for 1.10                                                        |                  |
| D41                                               | 4.1 – 7.0             | WR-159          | 1.590 x 0.795 | CMR-159             | 1.75            | 1.26    | B for 1.20                                                        |                  |
| X41                                               | 7.5 – 13.0            | WR-90           | 0.900 x 0.400 | UG-135/U            | 1.20            | .63     | P for 1.30                                                        |                  |
| P41                                               | 11.5 – 18.0           | WR-62           | 0.622 x 0.311 | UG-1665/U           | 1.20            | .68     |                                                                   |                  |
| REDUCED HEIGHT FULL FREQUENCY BAND                |                       |                 |               |                     |                 |         |                                                                   |                  |
| S2-40                                             | 2.60 – 3.95           | M85/4-017       | 2.840 x 0.670 | M3922/75-06         | 2.50            | 1.50    | A for 1.04<br>B for 1.06<br>C for 1.10<br>D for1.20<br>P for 1.30 |                  |
| J2-40                                             | 5.85 – 8.20           | M85/4-008       | 1.372 x 0.487 | M3922/75-04         | 1.50            | 1.10    |                                                                   |                  |
| H2-40                                             | 7.05 – 10.0           | M85/4-031       | 1.122 x 0.249 | M3922/75-10         | 1.05            | .57     |                                                                   |                  |
| W2-40                                             | 7.0 – 11.0            | M85/4-026       | 1.020 x 0.255 | M3922/75-09         | 1.16            | .62     |                                                                   |                  |
| REDUCED HEIGHT EXTENDED FREQUENCY BAND            |                       |                 |               |                     |                 |         |                                                                   |                  |
| S2-42                                             | 2.60 – 5.85           | M85/4-007       | 2.840 x 1.004 | M3922/75-02         | 2.50            | 1.57    | A for 1.25                                                        |                  |
| J2-42                                             | 5.85 – 12.4           | M85/4-008       | 1.372 x 0.487 | M3922/75-04         | 1.50            | 1.10    | P for 1.30                                                        |                  |
| MEC FLATGUIDE®                                    |                       |                 |               |                     |                 |         |                                                                   |                  |
| F40                                               | 8.0 – 16.0            | (F750)M85/4-033 | 0.847 x 0.312 | (F750C1)M3922/75-18 | 5.10            | 4.53    | A for 1.15                                                        | p<br>for<br>1.30 |
| F41                                               | 7.0 – 17.0            | (F700)M85/4-029 | 0.965 x 0.320 | (F700C1)M3922/75-22 | 5.50            | 5.00    | A for 1.25                                                        |                  |
| F42                                               | 5.2 – 10.4            | (F400)M85/4-023 | 1.668 x 0.506 | (F400C1)M3922/75/24 | 8.50            | 7.50    | A for 1.15                                                        |                  |

†1.62 for -14

## ORDERING INFORMATION

Add suffixes to model number as follows:

1. SEE CONNECTOR CHART
2. VSWR: A, B, C, D or P (High Power Option)
3. HIGH POWER OPTIONS: -P (see Data Sheet T6E for connectors & power levels)

Data subject to change without notice



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# RECTANGULAR WAVEGUIDE ISO ADAPTERS i40 SERIES

DATA  
SHEET  
No.T96

- LOW VSWR
- HIGH ISOLATION
- FULL BAND WIDTH

## DESCRIPTION

MEC is pleased to offer a complete line of Rectangular Waveguide ISO adapters. These adapters are offered in all common waveguide sizes and can be used to isolate signals from either the coaxial or waveguide transmission line. Typical models are similar in size to MEC 40 Series adapters and have an SMA female Coax connector. The i40 Series ISO adapters are available in full band or an optimized narrow band. Contact factory for your specific requirements.

## SPECIFICATIONS

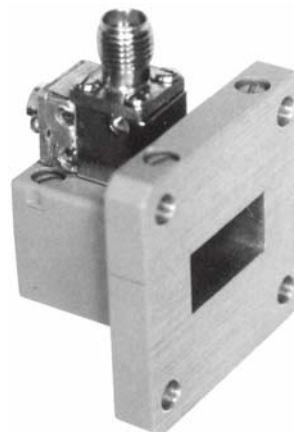
| MODEL NO. | FREQUENCY RANGE | WAVEGUIDE SIZE | ISOLATION* FULL BAND      | VSWR      | IL         |
|-----------|-----------------|----------------|---------------------------|-----------|------------|
| Li40      | 1.12- 1.70      | WR650          | 20 dB typical – 17 dB min | 1.2:1 max | 0.5 dB max |
| LMi40     | 1.45-2.20       | WR510          | 20 dB typical – 17 dB min | 1.2:1 max | 0.5 dB max |
| LAi40     | 1.70-2.60       | WR430          | 20 dB typical – 17 dB min | 1.2:1 max | 0.5 dB max |
| LSi40     | 2.20-3.30       | WR340          | 20 dB typical – 17 dB min | 1.2:1 max | 0.5 dB max |
| Si40      | 2.60-3.95       | WR284          | 20 dB typical – 17 dB min | 1.2:1 max | 0.5 dB max |
| Bi40      | 3.30-4.90       | WR229          | 20 dB typical – 17 dB min | 1.2:1 max | 0.5 dB max |
| Gi40      | 3.95-5.85       | WR187          | 20 dB typical – 17 dB min | 1.2:1 max | 0.5 dB max |
| Di40      | 4.90-7.05       | WR159          | 20 dB typical – 17 dB min | 1.2:1 max | 0.5 dB max |
| Ji40      | 5.85 - 8.20     | WR137          | 20 dB typical – 17 dB min | 1.2:1 max | 0.5 dB max |
| Hi40      | 7.05- 10.0      | WR112          | 20 dB typical – 17 dB min | 1.2:1 max | 0.5 dB max |
| Wi40      | 7.0- 11.0       | WR102          | 20 dB typical – 17 dB min | 1.2:1 max | 0.5 dB max |
| Xi40      | 8.2- 12.4       | WR90           | 20 dB typical – 17 dB min | 1.2:1 max | 0.5 dB max |
| Mi40      | 10.0- 15.0      | WR75           | 20 dB typical – 17 dB min | 1.2:1 max | 0.6 dB max |
| Pi40      | 12.4- 18.0      | WR62           | 20 dB typical – 17 dB min | 1.2:1 max | 0.6 dB max |

## ORDERING INFORMATION

- 1) SPECIFY Waveguide size
- 2) DEFINE Frequency Band
- 3) SPECIFY COAX OUTPUT if other than SMA female is required.

## COVER FLANGES ARE STANDARD

\*SPECIFY Direction of Isolation



Data subject to change without notice

**m.e.c**

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# RECTANGULAR WAVEGUIDE TO COAX END LAUNCH ADAPTERS E40 SERIES

DATA  
SHEET  
No. T19D

- FULL BAND
- LOW VSWR
- HIGH POWER

## DESCRIPTION

MEC state-of-the-art End Launch adapters fulfill the need for inline units with broadband capability. Their unique design achieves low profile with short length, low loss and VSWR.

Of special significance is the inherent ability of these units to operate over the full W/G band at high power levels, making them ideal for EW/ECM applications where transmission line routing is at a premium.



## SPECIFICATIONS

| MODEL NO. | FREQUENCY (GHz) | WAVEGUIDE SIZE  | VSWR (MAX) | BODY LENGTH (IN.) |
|-----------|-----------------|-----------------|------------|-------------------|
| SE40      | 2.6 – 3.95      | WR 284          | 1.2        | 9.0               |
| BE40      | 3.3 – 4.9       | WR 229          | 1.2        | 7                 |
| GE40      | 3.95 – 5.85     | WR 187          | 1.2        | 6                 |
| DE40      | 4.9 – 7.05      | WR 159          | 1.2        | 5                 |
| JE40      | 5.85 – 8.2      | WR 137          | 1.2        | 4.0               |
| HE40      | 7.05 – 10.0     | WR 112          | 1.2        | 3.5               |
| H2E40     | 7.05 – 10.0     | ½ height WR 112 | 1.1        | 3.0               |
| XE40      | 8.2 – 12.4      | WR 90           | 1.3        | 3.0               |
| ME40      | 10-15           | WR-75           | 1.3        | 3.0               |
| PE40      | 12.4 – 18       | WR 62           | 1.4        | 2.5               |
| KE40      | 18 – 26.5       | WR 42           | 1.5        | 2.0               |
| AE40      | 26. – 40.       | WR 28           | 1.5        | 2.0               |

## CONNECTOR SPECIFICATION INFORMATION

| CONNECTOR TYPE                                               | FEMALE SUFFIX | MALE SUFFIX | MAX FREQUENCY (GHz) | POWER (W) AT MAX FREQUENCY |
|--------------------------------------------------------------|---------------|-------------|---------------------|----------------------------|
| SC                                                           | -S            | -SCM        | 8                   | 800                        |
| TNC                                                          | -T            | -TM         | 18                  | 400                        |
| N                                                            | -N            | -NM         | 18                  | 300                        |
| SMA                                                          | -3            | -3M         | 26                  | 50                         |
| APC-7                                                        | -7            |             | 18                  | 10                         |
| * For other connectors and details, refer to Data Sheet T100 |               |             |                     |                            |

## ORDERING

- (1) Select Model number based on band required
- (2) To specify connector, add suffixes to model number from table. Also note max. frequency and power limits shown.
- (3) To specify pressure port, add suffix -P.
- (4) Other frequency bands, mounting provisions, and package arrangements available upon request

EXAMPLE: H2D40-N is the Model number for the half height WR 112 end Launch adapter with type N connector, over all length is 3.5 inches.

Data subject to change without notice



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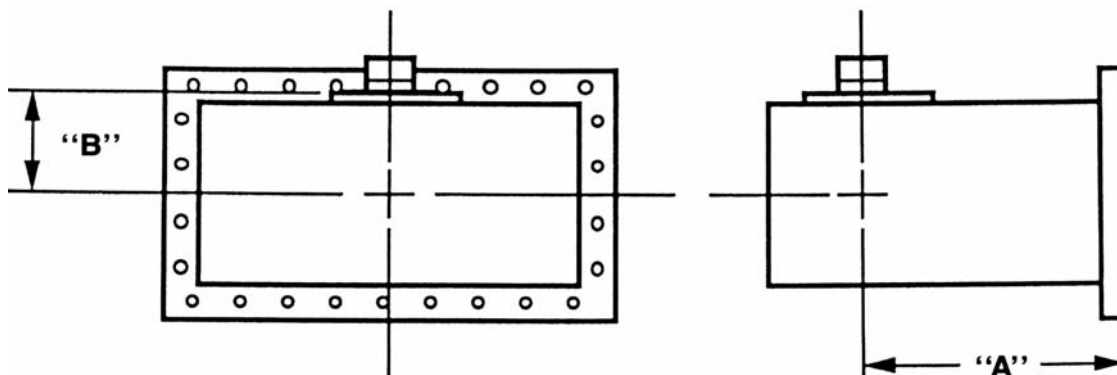
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# COAXIAL TO WAVEGUIDE TRANSITIONS WX SERIES

DATA  
SHEET  
No.T88A

- WIDE RANGE OF CONNECTORS
- LOW VSWR



## SPECIFICATIONS

| COAXIAL<br>SIZE | PART NUMBER |           |           |           | "A"   |
|-----------------|-------------|-----------|-----------|-----------|-------|
|                 | WR 1800     | WR 1500   | WR 1150   | WR 975    |       |
| 7/8-50 OHM      | WX810-XXX   | WX510-XXX | WX110-XXX | WX910-XXX | 6.00  |
| 1 5/8-50 OHM    | WX820-XXX   | WX520-XXX | WX120-XXX | WX920-XXX | 6.00  |
| 3 1/8-50 OHM    | WX830-XXX   | WX530-XXX | WX130-XXX | WX930-XXX | 6.00  |
| 4 1/16-50 OHM   | WX840-XXX   | WX540-XXX | WX140-XXX | WX940-XXX | 6.00  |
| 6 1/8-50 OHM    | WX860-XXX   | WX560-XXX | WX160-XXX | WX960-XXX | 6.00  |
| 6 1/8-50 OHM    | WX865-XXX   | WX565-XXX | WX165-XXX | WX965-XXX | 6.00  |
| 8 3/16-50 OHM   | WX885-XXX   | WX585-XXX | WX185-XXX |           | 12.00 |
| 9 3/16-50 OHM   | WX890-XXX   | WX590-XXX |           |           | 12.00 |
| 9 3/16-50 OHM   | WX895-XXX   | WX595-XXX |           |           | 12.00 |
| "B"             | 5.50        | 4.75      | 3.88      | 3.44      |       |

XXX DESIGNATES CENTER FREQUENCY MHz

0XX DESIGNATES TV CHANNEL

|                        |                                  |
|------------------------|----------------------------------|
| <b>POWER HANDLING:</b> | Compatibility to coaxial line    |
| <b>VSWR:</b>           | 1.035:1 for any 2% band          |
|                        | 1.10:1 for any 10% band          |
| <b>COAXIAL PORT:</b>   | will mate with EIA female        |
| <b>MATERIAL:</b>       | outer 6061-T6 aluminum           |
|                        | inner copper-silver plated brass |
| <b>FINISH:</b>         | outer 6061-T6 aluminum           |
|                        | (chromate conversion)            |

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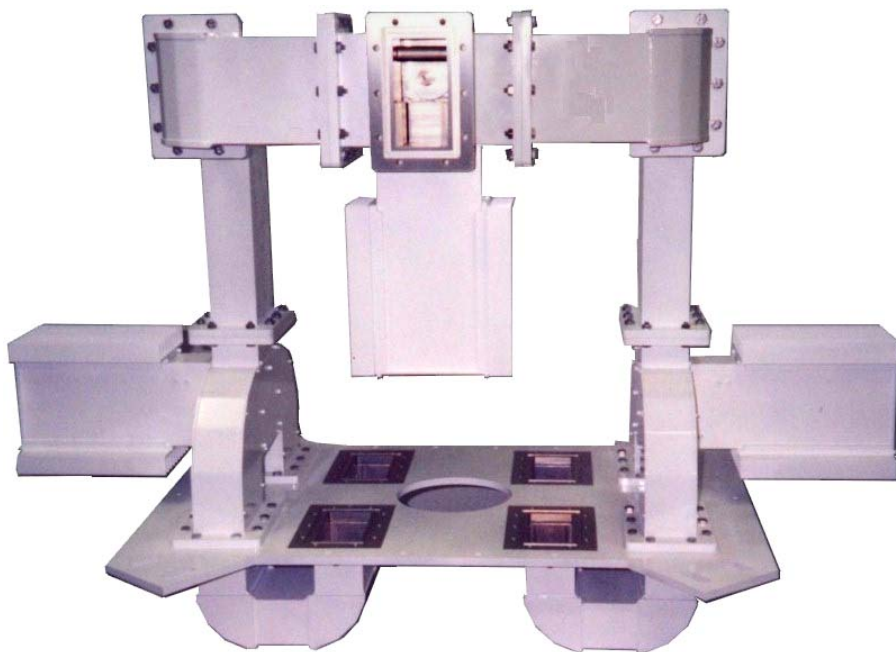
## POWER COMBINER/DIVIDER (LA100-207)

DATA  
SHEET  
No. T153

- HIGH POWER
- LOW LOSS
- RUGGED CONSTRUCTION

MEC model LA100-207 is an S-Band (WR430) 4 horn combiner/divider used for satellite up-link communications. This design features an input magic tee with integral high power load, waveguide plumbing with fabricated E and H bends, two output tees with integral H-bends on co-linear arms and high power loads. There are 4 in phase outputs. The complete assembly is mounted on a common flange.

Contact MEC with your specific requirements. Our engineering staff will be glad to discuss your needs.



### PECIFICATIONS:

|                           |                        |
|---------------------------|------------------------|
| <b>Model Number</b>       | <b>LA100-207</b>       |
| <b>Frequency</b>          | transmit 1.75-1.85 GHz |
|                           | receive 2.20-2.30 GHz, |
| <b>Power</b>              | 3 KW CW                |
| <b>Insertion Loss</b>     | <0.25 dB               |
| <b>VSWR</b>               | <1.2:1                 |
| <b>Phase balance</b>      | +/- 2 deg              |
| <b>Amplitude balance</b>  | +/- 0.2 dB             |
| <b>Input/Output Ports</b> | <b>WR430</b>           |

Data subject to change without notice



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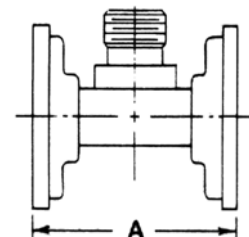
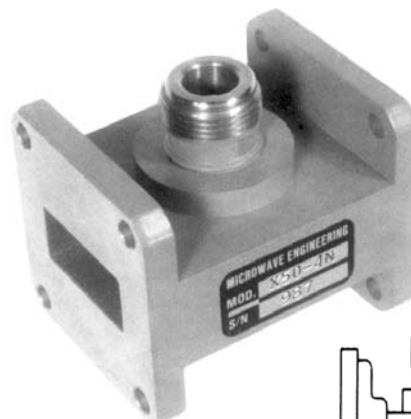
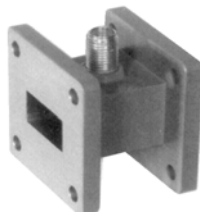
# RECTANGULAR WAVEGUIDE POWER SAMPLERS 50 SERIES

DATA  
SHEET  
No. T47D

- FLAT COUPLING
- FULL WAVEGUIDE BAND
- LOWEST VSWR, 1.02 TYPICAL

## DESCRIPTION

MEC Power Samplers provide an economical non-directional means of monitoring the power in a matched waveguide system. The units are available with coupling values of 30 to 60 dB and frequency sensitivity of  $\pm 1.0$  dB maximum ( $\pm 0.5$  dB typical) over the full bandwidth. Main line VSWR is 1.04 maximum. The sampling port is normally supplied with type N, SMA, or 7mm output connectors. Other types and coupling levels are available upon request. Cover flanges are provided on the main line unless otherwise specified. Assemblies have aluminum housings with chromate conversion per MIL-C-5541, Class 3, painted with gray epoxy enamel on external non-mating surfaces.



## SPECIFICATIONS

| MODEL NO. | FREQUENCY RANGE (GHz) | WAVEGUIDE SIZE | DIM. A (INCHES) |
|-----------|-----------------------|----------------|-----------------|
| E50       | 1.0-1.45              | WR-770         | 3.00            |
| L50       | 1.12-1.70             | WR0-650        | 3.00            |
| LM50      | 1.45-2.20             | WR-510         | 3.00            |
| LA50      | 1.70-2.60             | WR-430         | 3.00            |
| LS50      | 2.20-3.30             | WR-340         | 3.00            |
| S50       | 2.60-3.95             | WR-284         | 3.00            |
| B50       | 3.3-4.9               | WR-229         | 2.00            |
| G50       | 3.95-5.85             | WR-187         | 3.00            |
| D50       | 4.90-7.05             | WR-159         | 2.50            |
| J50       | 5.85-8.20             | WR-137         | 2.00            |

| MODEL NO. | FREQUENCY RANGE (GHz) | WAVEGUIDE SIZE | DIM. A (INCHES) |
|-----------|-----------------------|----------------|-----------------|
| H50       | 7.05-10.0             | WR-112         | 2.00            |
| W50       | 7.0-11.0              | WR-102         | 2.00            |
| X50       | 8.2-12.4              | WR-90          | 2.00            |
| M50       | 10.0-15.0             | WR-75          | 2.00            |
| P50       | 12.4-18.0             | WR-62          | 2.00Δ           |
| N50       | 15.0-22.0             | WR-51          | 1.00            |
| K50**     | 18.00-26.50           | WR-42          | 1.00            |
| Y50*      | 22.0-33.0             | WR-34          | 1.00            |
| A50*      | 26.5-40.0             | WR-28          | 1.00            |

\* Available Only with SSMA Connector, K-Connector or 2.4mm

\*\* Available With SMA up to 26.0 GHz. SSMA, K-Conn., or 2.4>26GHz

Δ P50( )-3 length is 1.00"

## ORDERING INFORMATION

(1) Add the following suffixes to model number to specify coupling and connector:

(a) COUPLING: -30 for 30 dB -40 for 40 dB -50 for 50 dB -60 for 60dB

(b) CONNECTOR: "N" for type N female "3" for SMA female "7" for precision 7mm\*

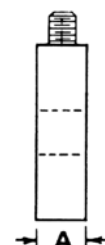
EXAMPLE: X50-43 is a WR-90 Waveguide 40dB sampler shown with SMA Female Connector.

(2) Units above 7 GHz are also available in the flange sampler shown at right with tapped holes.

Specify 50S. Length (A) is 0.75" for type N and 0.55" for SMA.

EXAMPLE: X50S-40-3

\*Refer to Data Sheet T100 for a complete list of available connectors



Data subject to change without notice



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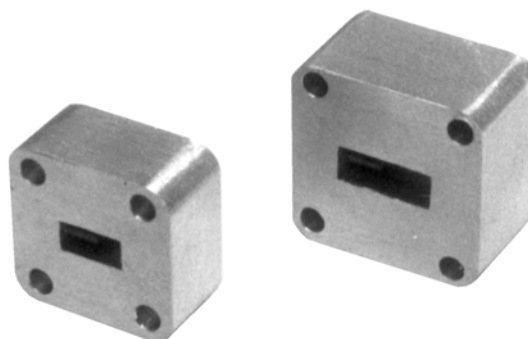
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## MINIATURE ATTENUATOR PADS 60 S SERIES

DATA  
SHEET  
No. T77B

- FULL WAVEGUIDE BAND
- ULTRA-FLAT FREQUENCY RESPONSE
- VERY LOW VSWR
- MINIATURE (FLANGE SIZE)



### DESCRIPTION

MEC's Miniature Attenuator Pads feature ultra-flat frequency response and very low VSWR in extremely short flange-size packages. Typical attenuation flatness over the full waveguide band is  $\pm 0.2$  dB ( $\pm 0.3$  dB max.) with typical VSWR of 1.10 (1.15 max.). These minimal-size units are available in 1 dB steps from 1 to 10 dB and are ideal for inclusion in systems where length is critical. Housing is aluminum with chromate conversion and gray epoxy enamel finish.

### SPECIFICATIONS

| MODEL NO. | FREQUENCY (GHz) | WAVEGUIDE SIZE | EQUIVALENT FLANGE | INSERTION LENGTH* (IN. MAX.) |
|-----------|-----------------|----------------|-------------------|------------------------------|
| H60 S     | 7.05 – 10.0     | WR112          | UG-138/U          | 1.25                         |
| W60 S     | 7.0 – 11.0      | WR102          | M3922/70-002      | 1.25                         |
| X60 S     | 8.2 – 12.4      | WR90           | UG-135/U          | 1.25                         |
| M60 S     | 10.0 – 15.0     | WR75           | M3922/53-008      | 1.00                         |
| P60 S     | 12.4 – 18.0     | WR62           | UG-1665/U         | .75                          |
| K60 S     | 18.0 – 26.5     | WR42           | UG-597/U          | .50                          |
| A60 S     | 26.5 – 40.0     | WR28           | UG-599/U          | .375                         |

Aluminum

\*Length longer if more than 6 dB

### ORDERING INFORMATION

(1) To specify desired attenuation, add suffix to model number. EXAMPLE: A60 S-3 specifies a 3 dB attenuator in WR28 waveguide operating from 26.5 to 40.0 GHz.

(2) Special values of attenuation and other waveguide sizes are available on request.

Data subject to change without notice



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# WAVEGUIDE VARIABLE ATTENUATORS

## 60V Series

DATA  
SHEET  
No. T150

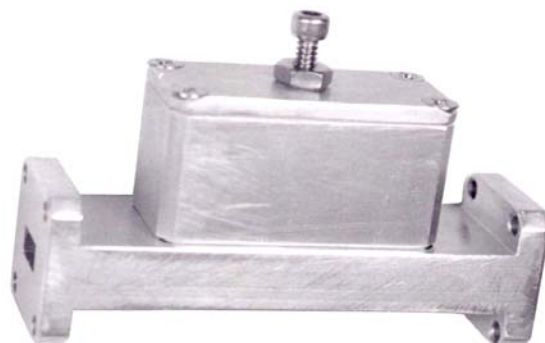
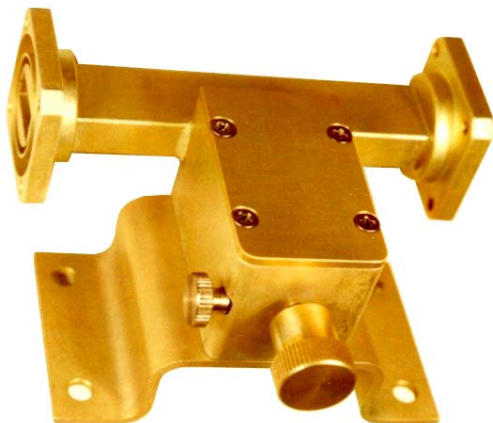
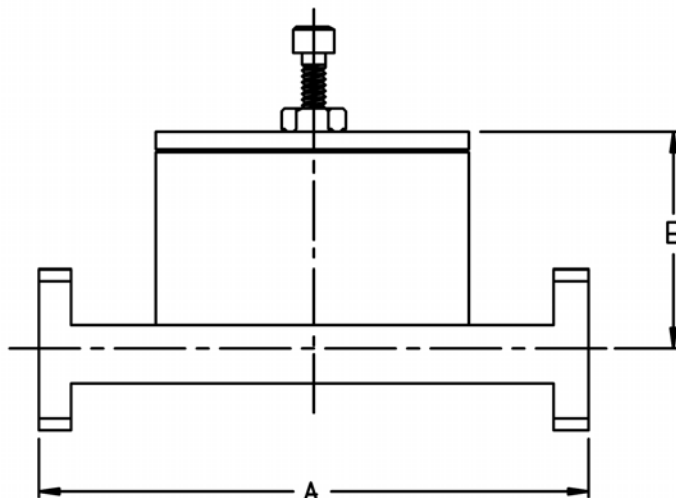
- BROAD ATTENUATION RANGE
- LOW LOSS
- LOW VSWR
- FULL BAND

### DESCRIPTION

MEC's 60V series of waveguide variable attenuators are available in attenuation ranges of 0-40 dB. Narrow or broad band versions may be ordered. Full band flatness is as low as  $\pm 0.5$  dB from 0-10 dB attenuation and  $\pm 0.7$  dB from 10-20 dB attenuation. Full band flatness degrades at higher attenuation levels, however narrower bandwidths can hold  $\pm 0.5$  dB flatness up to 40 dB attenuation.

Calibrated vernier drives are available upon request. A locking screw is standard on the drive mechanism. These components may be converted from variable to a fixed version by simply switching the attenuator block. Our high precision machining guarantees unit to unit repeatability within 0.1 dB.

The table below is a representative sample of MEC's available designs of variable attenuators. Contact MEC with your specific requirements. Our engineering staff will be glad to discuss your needs.



| MODEL NUMBER | W/G SIZE | FREQ. (GHz) | ATTENUATION (dB) | FLATNESS (dB)   |           | VSWR  | INSERTION LOSS (dB) | A (Inches) | B (Inches) |
|--------------|----------|-------------|------------------|-----------------|-----------|-------|---------------------|------------|------------|
| X60-V        | WR90     | 8.2-12.4    | 0-20             | 0-10 dB Atten.  | $\pm 1.0$ | 1.1:1 | 0.2 Max             | 10         | 1.34       |
|              |          |             |                  | 10-20 dB Atten. | $\pm 3.0$ |       |                     |            |            |
| P60-118      | WR62     | 12.4-18     | 0-40             | 0-10 dB Atten.  | $\pm 0.5$ | 1.1:1 | 0.2 Max             | 3.9        | 2.2        |
|              |          |             |                  | 10-20 dB Atten. | $\pm 0.7$ |       |                     |            |            |
|              |          |             |                  | 20-40 dB Atten. | $\pm 2.0$ |       |                     |            |            |
| Y60-V        | WR34     | 26-33       | 0-20             | 0-10 dB Atten.  | $\pm 0.5$ | 1.1:1 | 0.2 Max             | 3.0        | 1.2        |
|              |          |             |                  | 10-20 dB Atten. | $\pm 0.7$ |       |                     |            |            |

Data subject to change without notice



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# RECTANGULAR WAVEGUIDE TERMINATIONS 80 SERIES

DATA  
SHEET  
No.T73A  
1 OF 6



Microwave Engineering Corporation's extensive line of rectangular waveguide terminations supplies world-wide needs from 1 to 50 GHz. The following pages describe our standard product line and a few of our many specials. Other terminations can be readily supplied to satisfy your unique requirements. We're as near as your phone.

Data subject to change without notice

**m.e.c.**

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# RECTANGULAR WAVEGUIDE TERMINATIONS 80 SERIES

DATA  
SHEET  
No.T73A  
2 OF 6

## LOW POWER MATCHED TERMINATIONS

- LOW VSWR
- FULL BANDWIDTH
- LIGHTWEIGHT
- COMPACT



## DESCRIPTION

MEC Rectangular Waveguide Standard Length 80-L, Ultra-short 80-LU, Communications and Narrow Band 80-LA Terminations consists of precision aluminum waveguide containing rugged material especially selected and designed to absorb incident power with very low reflection.

These units are ideal for laboratory and field measurements and production setups requiring high quality terminations. Additional features are short length and light weight. Typical applications include VSWR measurement of waveguide components, low power dummy antennas and matched terminations for directional couplers, hybrids and other devices.

All units have a Chemical Film finish per MIL-C-5541, Class 3, followed by gray epoxy enamel. A power sampling probe can be supplied as a separate unit with any of the terminations. Typical flatness is  $\pm 0.5$  dB across the entire band for sampling levels from 30 to 50 dB.

## SPECIFICATIONS

| MODEL NO                              | FREQUENCY RANGE (GHz) | WAVEGUIDE SIZE | EQUIVALENT FLANGE | MAX. AV. PWR. (WATTS) | VSWR (MAX.) | LENGTH (IN. MAX.) |
|---------------------------------------|-----------------------|----------------|-------------------|-----------------------|-------------|-------------------|
| <b>STANDARD LENGTH</b>                |                       |                |                   |                       |             |                   |
| L80-L                                 | 1.12-1.70             | WR-650         | UG-418B/U         | 25                    | 1.03        | 30                |
| LM80-L                                | 1.45-2.20             | WR-510         | UG-1717/U         | 15                    | 1.03        | 27                |
| LA80-L                                | 1.70-2.60             | WR-430         | UG-437B/U         | 10                    | 1.025       | 23                |
| LS80-L                                | 2.20-3.30             | WR-340         | UG-554A/U         | 5                     | 1.025       | 17                |
| S80-L                                 | 2.60-3.95             | WR-284         | UG-584/U          | 5                     | 1.025       | 12                |
| S2-80-L                               | 2.60-5.85             | RG-109/U       | M3922/75-01       | 5                     | 1.025       | 12                |
| B80-L                                 | 3.30-4.90             | WR-229         | CMR-229           | 5                     | 1.02        | 8                 |
| G80-L                                 | 3.95-5.85             | WR-187         | UG-407/U          | 5                     | 1.02        | 8                 |
| D80-L                                 | 4.90-7.05             | WR-159         | CMR-159           | 4                     | 1.02        | 6                 |
| J80-L                                 | 5.85-8.20             | WR-137         | UG-441/U          | 3                     | 1.02        | 6                 |
| J2-80-L                               | 5.85-12.4             | RG-110/U       | M3922/75-03       | 2                     | 1.02        | 6                 |
| H80-L                                 | 7.05-10.0             | WR-112         | UG-138/U          | 2                     | 1.02        | 5                 |
| W80-L                                 | 7.0-11.0              | WR-102         | M3922/70-002      | 2                     | 1.02        | 5                 |
| X80-L                                 | 8.2-12.4              | WR-90          | UG-135/U          | 2                     | 1.02        | 4                 |
| M80-L                                 | 10.0-15.0             | WR-75          | M3922/53-008      | 2                     | 1.02        | 4                 |
| P80-L                                 | 12.4-18.0             | WR-62          | UG-1665/U         | 1.5                   | 1.02        | 3                 |
| N80-L                                 | 15.0-22.0             | WR-51          | M3922/70-011      | 1.5                   | 1.02        | 3                 |
| K80-L                                 | 18.0-26.5             | WR-42          | UG-597/U          | 1.5                   | 1.03        | 3                 |
| Y80-L                                 | 22.0-33.0             | WR-34          | M3922/63-010      | 1                     | 1.03        | 3                 |
| A80-L                                 | 26.5-40.0             | WR-28          | UG-599/U*         | 1                     | 1.03        | 3                 |
| T80-L                                 | 33.0-50.0             | WR-22          | UG-383/U*         | 1                     | 1.05        | 3                 |
| <b>ULTRA-SHORT</b>                    |                       |                |                   |                       |             |                   |
| S80-LU                                | 2.60-3.95             | WR-284         | UG-584/U          | 5                     | 1.06        | 8                 |
| S2-80-LU                              | 2.60-5.85             | RG-109/U       | M3922/75-01       | 5                     | 1.06        | 8                 |
| B80-LU                                | 3.30-4.90             | WR-229         | CMR-229           | 5                     | 1.05        | 4                 |
| G80-LU                                | 3.95-5.85             | WR-187         | UG-407/U          | 5                     | 1.05        | 4                 |
| D80-LU                                | 4.90-7.05             | WR-159         | CMR-159           | 4                     | 1.05        | 3                 |
| J80-LU                                | 5.85-8.20             | WR-137         | UG-441/U          | 3                     | 1.05        | 3                 |
| J2-80-LU                              | 5.85-12.4             | RG-110/U       | M3922/75-03       | 2                     | 1.05        | 3                 |
| H80-LU                                | 7.05-10.0             | WR-112         | UG-138/U          | 2                     | 1.05        | 0.5               |
| W80-LU                                | 7.0-11.0              | WR-102         | M3922/70-002      | 2                     | 1.05        | 2.5               |
| X80-LU                                | 8.2-12.4              | WR-90          | UG-135/U          | 2                     | 1.05        | 1.5               |
| M80-LU                                | 10.0-15.0             | WR-75          | M3922/53-008      | 2                     | 1.05        | 1.5               |
| P80-LU                                | 12.4-18.0             | WR-62          | UG-1665/U         | 1.5                   | 1.05        | 1.5               |
| N80-LU                                | 15.0-22.0             | WR-51          | M3922/70-011      | 1.5                   | 1.05        | 1.5               |
| K80-LU                                | 18.0-26.5             | WR-42          | UG-597/U          | 1.5                   | 1.06        | 1.5               |
| Y80-LU                                | 22.0-33.0             | WR-34          | M3922/63-010      | 1                     | 1.06        | 1.5               |
| A80-LU                                | 26.5-40.0             | WR-28          | UG-599/U*         | 1                     | 1.10        | 1.5               |
| T80-LU                                | 33.0-50.0             | WR-22          | UG-383/U          | 1                     | 1.10        | 1.5               |
| <b>COMMUNICATIONS AND NARROW BAND</b> |                       |                |                   |                       |             |                   |
| B80-LAM                               | 3.7-4.2               | WR-229         | CMR-229           | 5                     | 1.01        | 4                 |
| D80-LAM                               | 5.925-6.425           | WR-159         | CMR-159           | 4                     |             | 3                 |
| J80-LAL                               | 5.925-6.425           | WR-137         | UG-441/U          | 3                     |             | 3                 |
| H80-LAL                               | 7.25-8.4              | WR-112         | UG-138/U          | 2                     |             | 2.5               |
| X80-LAL                               | 10.7-11.7             | WR-90          | UG-135/U          | 2                     |             | 1.5               |
| M80-LAL                               | 10.7-11.7             | WR-75          | M3922/53-008      | 2                     |             | 1.5               |
| N80-LAL                               | 17.0-19.0             | WR-51          | M3922/70-011      | 1.5                   |             | 1.5               |

## ORDERING INFORMATION

- (1) For Power Sampling, add suffix "PS" to model number and specify sampling level (from 30 to 50 dB) desired.
- (2) Half-height terminations, other frequency ranges, other flanges, and unique mounting arrangements also available.
- (3) 80-LU Series also available from 2.60 through 50 GHz with smaller bandwidth and improved VSWR. Add suffix "L" "M", or "H" for low, middle, or high half of band.

Data subject to change without notice



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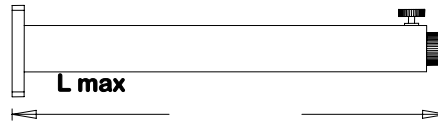


# RECTANGULAR WAVEGUIDE TERMINATIONS 80 SERIES

DATA  
SHEET  
No.T73A  
3 OF 6

## MEDIUM POWER & SLIDING TERMINATIONS

- LOW VSWR
- ADJUSTABLE PHASE



## DESCRIPTIONS

80-LS Sliding Terminations consist of a well-matched, tapered sliding load in a precision aluminum waveguide housing. The load can be moved over more than one-half wavelength at the lowest frequency. Optional micrometer drive is available for band H

through A. Applications include simulating a perfect termination for precise measurement of VSWR, impedance, directivity or isolation. By reversing the phase of the sliding termination it is possible to subtract it from other small reflections in the system under test.

80-M Medium Power Terminations are convection-cooled and similar to the low power series, but designed to handle higher power levels. Features include low VSWR and light weight. Typical applications include system or test bench set-ups and as moderate power dummy loads.

Both series are available with optional sampling probes supplied as separate units from 30 to 50 dB with typical flatness of  $\pm 0.5$  dB. Finish is Chemical Film per MIL-C-5541, Class 3, followed by gray epoxy enamel for the sliding loads and black enamel for the medium power termination.

## SPECIFICATIONS

| MODEL NO.                 | FREQUENCY RANGE (GHz) | WAVEGUIDE SIZE | EQUIVALENT FLANGE | MAX. AV. PWR. (WATTS) | VSWR (MAX.) | LENGTH (IN. MAX.) |
|---------------------------|-----------------------|----------------|-------------------|-----------------------|-------------|-------------------|
| SLIDING TERMINATIONS      |                       |                |                   |                       |             |                   |
| L80-LS                    | 1.12-1.70             | WR-650         | UG-418B/U         | 25                    | 1.03        | 48                |
| LM80-LS                   | 1.45-2.20             | WR-510         | UG-1717/U         | 15                    | 1.03        | 45                |
| LA80-LS                   | 1.70-2.60             | WR-430         | UG-437B/U         | 10                    | 1.025       | 40                |
| LS80-LS                   | 2.20-3.30             | WR-340         | UG-554A/U         | 5                     | 1.025       | 34                |
| S80-LS                    | 2.60-3.95             | WR-284         | UG-584/U          | 5                     | 1.025       | 28                |
| S2-80-LS                  | 2.60-5.85             | RG-109/U       | M3922/75-01       | 5                     | 1.025       | 28                |
| B80-LS                    | 3.30-4.90             | WR-229         | CMR-229           | 5                     | 1.02        | 22                |
| G80-LS                    | 3.95-5.85             | WR-187         | UG-407/U          | 5                     | 1.02        | 18                |
| D80-LS                    | 4.90-7.05             | WR-159         | CMR-159           | 4                     | 1.02        | 16.5              |
| J80-LS                    | 5.85-8.20             | WR-137         | UG-441/U          | 3                     | 1.02        | 13.5              |
| J2-80-LS                  | 5.85-12.4             | RG-110/U       | M3922/75-03       | 2                     | 1.02        | 13.5              |
| H80-LS                    | 7.05-10.0             | WR-112         | UG-138/U          | 2                     | 1.02        | 11                |
| W80-LS                    | 7.0-11.0              | WR-102         | M3922/70-002      | 2                     | 1.02        | 10                |
| X80-LS                    | 8.2-12.4              | WR-90          | UG-135/U          | 2                     | 1.02        | 9                 |
| M80-LS                    | 10.0-15.0             | WR-75          | M3922/53-008      | 2                     | 1.02        | 7.5               |
| P80-LS                    | 12.4-18.0             | WR-62          | UG-1665/U         | 1.5                   | 1.02        | 7                 |
| N80-LS                    | 15.0-22.0             | WR-51          | M3922/70-011      | 1.5                   | 1.02        | 7                 |
| K80-LS                    | 18.0-26.5             | WR-42          | UG-597/U          | 1.5                   | 1.03        | 5.5               |
| Y80-LS                    | 22.0-33.0             | WR-34          | M3922/63-010      | 1                     | 1.03        | 5                 |
| A80-LS                    | 26.5-40.0             | WR-28          | UG-599/U*         | 1                     | 1.03        | 5                 |
| MEDIUM POWER TERMINATIONS |                       |                |                   |                       |             |                   |
| L80-M                     | 1.12-1.70             | WR-650         | UG-418B/U         | 50                    | 1.05        | 40                |
| LM80-M                    | 1.45-2.20             | WR-510         | UG-1717/U         | 50                    |             | 40                |
| LA80-M                    | 1.70-2.60             | WR-430         | UG-437B/U         | 50                    |             | 30                |
| LS80-M                    | 2.20-3.30             | WR-340         | UG-554A/U         | 50                    |             | 30                |
| S80-M                     | 2.60-3.95             | WR-284         | UG-584/U          | 50                    |             | 30                |
| S2-80-M                   | 2.60-5.85             | RG-109/U       | M3922/75-01       | 50                    |             | 22                |
| B80-M                     | 3.30-4.90             | WR-229         | CMR-229           | 50                    |             | 30                |
| G80-M                     | 3.95-5.85             | WR-187         | UG-407/U          | 50                    |             | 24                |
| D80-M                     | 4.90-7.05             | WR-159         | CMR-159           | 50                    |             | 24                |
| J80-M                     | 5.85-8.20             | WR-137         | UG-441/U          | 50                    |             | 20                |
| J2-80-M                   | 5.85-12.4             | RG-110/U       | M3922/75-03       | 50                    |             | 13.4              |
| H80-M                     | 7.05-10.0             | WR-112         | UG-138/U          | 50                    |             | 12                |
| W80-M                     | 7.0-11.0              | WR-102         | M3922/70-002      | 50                    |             | 12                |
| X80-M                     | 8.2-12.4              | WR-90          | UG-135/U          | 50                    |             | 12                |
| M80-M                     | 10.0-15.0             | WR-75          | M3922/53-008      | 50                    |             | 10.5              |
| P80-M                     | 12.4-18.0             | WR-62          | UG-1665/U         | 40                    |             | 9.4               |
| N80-M                     | 15.0-22.0             | WR-51          | M3922/70-011      | 40                    |             | 9.4               |
| K80-M                     | 18.0-26.5             | WR-42          | UG-597/U          | 30                    |             | 7.5               |
| Y80-M                     | 22.0-33.0             | WR-34          | M3922/63-010      | 20                    |             | 7.5               |
| A80-M                     | 26.5-40.0             | WR-28          | UG-599/U*         | 15                    |             | 7.5               |

\*Aluminum

## ORDERING INFORMATION

Add suffix "PS" to model number for Power Sampling and specify level (30 to 50 dB).  
Customized mounting, half-height models, other flanges and frequencies available on request.

Data subject to change without notice



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# RECTANGULAR WAVEGUIDE TERMINATIONS 80 SERIES

DATA  
SHEET  
No.T73A  
4 OF 6

## HIGH POWER & EXTRA HIGH POWER TERMINATIONS

- CONVECTION COOLING
- FAN COOLED

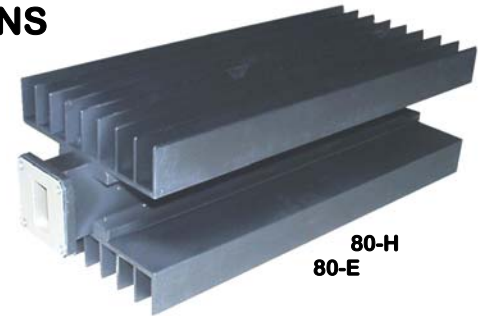
### DESCRIPTION

MEC Rectangular Waveguide High Power 80-H and Extra High Power 80-E Terminations are constructed of finned aluminum waveguide containing high temperature absorbing material in intimate contact with the waveguide walls for good heat transfer. Standard units of 1,000 W or less are cooled by free air convection; for ratings greater than 1,000 W, forced air must be used. For higher powers, shorter lengths, or lower temperature rise, an integrally mounted fan and ducted housing may be supplied to provide forced air cooling. VSWR is 1.05 max. for operation over the full waveguide frequency band.

Designed to withstand conditions of extreme temperature and thermal shock, these terminations are ideal for us in high power systems as dummy antennas to permit testing, tuning, and maintenance without radiating RF power.

Finish is Chemical Film per MIL-C-5541, Class 3 followed by high temperature black epoxy enamel.

A power sampling probe can be supplied as a separate unit to monitor power. Typical sampling flatness is  $\pm 0.5$  dB across the entire band for levels from 30 to 50 dB.



80-H  
80-E



Integral  
Forced  
Air  
Cooling

### SPECIFICATIONS

| MODEL NO.        | FREQUENCY RANGE (GHz) | WAVEGUIDE SIZE | EQUIVALENT FLANGE | MAXIMUM POWER   |       |                                     | LENGTH (IN. MAX) |
|------------------|-----------------------|----------------|-------------------|-----------------|-------|-------------------------------------|------------------|
|                  |                       |                |                   | AVERAGE (WATTS) |       | PEAK (KW)<br>@ 30 PSIG<br>DRY AIR ± |                  |
|                  |                       |                |                   | 80-H            | 80-E  |                                     |                  |
| L80-H, L80-E     | 1.12-1.70             | WR-650         | UG-418B/U         | 4,000           | 8,000 | 20,000                              | 40               |
| LM80-H, LM80-E   | 1.45-2.20             | WR-510         | UG-1717/U         | 3,500           | 7,000 | 15,000                              | 40               |
| LA80-H, LA80-E   | 1.70-2.60             | WR-430         | UG-437B/U         | 3,000           | 6,000 | 10,000                              | 30               |
| LS80-H, LS80-E   | 2.20-3.30             | WR-340         | UG-554A/U         | 2,700           | 5,500 | 7,000                               | 30               |
| S80-H, S80-E     | 2.60-3.95             | WR-284         | UG-584/U          | 2,500           | 5,000 | 4,000                               | 30               |
| S2-80-H, S2-80-E | 2.60-5.85             | RG-109/U       | M3922/75-01       | 1,800           | 3,600 | 2,000                               | 22               |
| B80-H, B80-E     | 3.30-4.90             | WR-229         | CPR-229F          | 2,500           | 5,000 | 3,000                               | 30               |
| G80-H, G80-E     | 3.95-5.85             | WR-187         | UG-407/U          | 1,500           | 3,000 | 1,800                               | 24               |
| D80-H, D80-E     | 4.90-7.05             | WR-159         | CPR-159F          | 1,500           | 3,000 | 1,000                               | 24               |
| J80-H, J80-E     | 5.85-8.20             | WR-137         | CPR-137F          | 1,000           | 2,000 | 1,000                               | 20               |
| J80-H*, J80-E*   | 5.90-6.50             | WR-137         | CPR-137F          | 1,500           | 3,000 | 1,000                               | 24               |
| J2-80H, J2-80-E  | 5.85-12.4             | RG-110/U       | M3922/75-03       | 500             | 1,000 | 750                                 | 13.4             |
| H80-H, H80-E     | 7.05-10.0             | WR-112         | UG-138/U          | 500             | 1,000 | 750                                 | 12               |
| W80-H, W80-E     | 7.0-11.0              | WR-102         | M3922/70-002      | 500             | 1,000 | 700                                 | 12               |
| X80-H, X80-E     | 8.2-12.4              | WR-90          | UG-135/U          | 500             | 1,000 | 350                                 | 12               |
| M80-H, M80-E     | 10.0-15.0             | WR-75          | M3922/53-008      | 400             | 800   | 300                                 | 10.5             |
| P80-H, P80-E     | 12.4-18.0             | WR-62          | UG-1665/U         | 250             | 500   | 250                                 | 9.4              |
| N80-H, N80-E     | 15.0-22.0             | WR-51          | M3922/70-011      | 175             | 350   | 175                                 | 9.4              |
| K80-H, K80-E     | 18.0-26.5             | WR-42          | UG-597/U          | 125             | 250   | 100                                 | 7.5              |
| Y80-H, Y80-E     | 22.0-33.0             | WR-34          | M3922/63-010      | 112             | 225   | 85                                  | 7.5              |
| A80-H, A80-E     | 26.5-40.0             | WR-28          | UG-599/U**        | 100             | 200   | 80                                  | 7.5              |

Notes: (1) For ratings greater than 1,000 W, forced air must be used (2) VSWR on all units is 1.05 max., 3 \*Narrow band (4)  $\pm$  Pressurized units are supplied on special request (5) \*\*Aluminum

### ORDERING INFORMATION

- (1) Order by Model No, and specify actual frequency range, VSWR and pressurization required.
- (2) Add suffix "PS" to Model No. for Power Sampling and specify level (30 to 50 dB).
- (3) For Integral Forced Air cooling, contact MEC.
- (4) Half-height terminations, unique mounting arrangements, other flanges and frequencies available on request.

Data subject to change without notice



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# RECTANGULAR WAVEGUIDE TERMINATIONS 80 SERIES

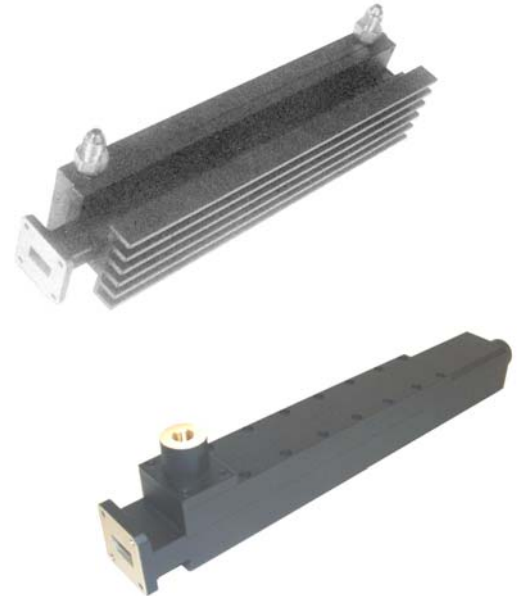
DATA  
SHEET  
No. T73A  
5 OF 6

## LIQUID COOLED TERMINATIONS

- LOW VSWR
- GREATEST HEAT TRANSFER

### DESCRIPTION

MEC's 80-W Series of Rectangular Waveguide Liquid Cooled Terminations operate with VSWR of 1.05 max. Thirteen models cover the full waveguide frequency bands from 2.60 to 40.0 GHz. As dummy loads they ideally meet the demands of today's extremely high-powered systems to permit operational check-out without radiating RF power. Construction utilizes high-temperature absorbing material in intimate contact with the waveguide walls for good heat transfer. All units are designed to operate in any position with a coolant inlet pressure of 100 psig (max.) and temperature of 150° F (max.). Units are aluminum with MS33656E4 ¼" flared tube fittings for the liquid coolant connections. Finish is Chemical Film per MIL-C-5541, Class 3, followed by high-temperature black epoxy enamel. A power sampling probe can be supplied as a separate unit to monitor power. Typical sampling flatness is  $\pm 0.5$  dB across the entire band for levels from 30 to 50 dB.



### SPECIFICATIONS

| MODEL NO. | FREQUENCY RANGE (GHz) | WAVEGUIDE SIZE | EQUIVALENT FLANGE | MAXIMUM POWER   |                               | MINIMUM FLOW RATE (GPM) | LENGTH (IN. MAX) |
|-----------|-----------------------|----------------|-------------------|-----------------|-------------------------------|-------------------------|------------------|
|           |                       |                |                   | AVERAGE (WATTS) | PEAK (KW) @ 30 PSIG DRY AIR ‡ |                         |                  |
| S80-W     | 2.60-3.95             | WR-284         | UG-584/U          | 15,000          | 4,000                         | 5.1                     | 30               |
| B80-W     | 3.30-4.90             | WR-229         | CPR-229F          | 15,000          | 3,000                         | 5.1                     | 30               |
| G80-W     | 3.95-5.85             | WR-187         | UG-407/U          | 10,000          | 1,800                         | 3.4                     | 24               |
| D80-W     | 4.90-7.05             | WR-159         | CPR-159F          | 10,000          | 1,000                         | 3.4                     | 24               |
| J80-W     | 5.85-8.20             | WR-137         | CPR-137F          | 5,000           | 1,000                         | 1.7                     | 20               |
| H80-W     | 7.05-10.0             | WR-112         | UG-138/U          | 4,000           | 750                           | 1.4                     | 12               |
| W80-W     | 7.0-11.0              | WR-102         | M3922/70-002      | 4,000           | 700                           | 1.4                     | 12               |
| X80-W     | 8.2-12.4              | WR-90          | UG-135/U          | 3,000           | 350                           | 1.0                     | 12               |
| M80-W     | 10.0-15.0             | WR-75          | M3922/53-008      | 3,000           | 300                           | 1.0                     | 10.5             |
| P80-W     | 12.4-18.0             | WR-62          | UG-1665/U         | 1,500           | 250                           | 0.5                     | 9.4              |
| N80-W     | 15.0-22.0             | WR-51          | M3922/70-011      | 1,500           | 175                           | 0.5                     | 9.4              |
| K80-W     | 18.0-26.5             | WR-42          | UG-597/U          | 1,000           | 100                           | 0.34                    | 7.5              |
| A80-W     | 26.5-40.0             | WR-28          | UG-599/U*         | 500             | 80                            | 0.17                    | 7.5              |

‡ Pressurized units are supplied on special request.

\*Aluminum

VSWR: 1.05 max.

COOLANT:

Where: Q= Minimum flow rate in GPM

Max. inlet temperature: 150°F.

Max. inlet pressure: 100 psig

The flow rate is determined from the following formula.

Typical demineralized water or Coolant. 6.8P

$Q = \frac{P}{C_p \Delta T}$

P = Max. CW power in Kilowatts.

Cp = Specific heat of coolant

$\Delta T$  = Coolant temperature rise in °F.

The tabularized values are for Cp = 1 for water and a  $\Delta T$  of 20°F.

For different coolants, temperature rises, or power levels, a different flow rate would be necessary

### ORDERING INFORMATION

(1) Order by Model No, and specify actual frequency range, VSWR and internal waveguide pressurization required.

(2) Add suffix "PS" to Model No. for Power Sampling and specify level (30 to 50 dB).

(3) Half-height terminations, other frequency ranges, flange, coolant fittings and pressures, unique mounting arrangements quoted on request.

Data subject to change without notice

**m.e.c**

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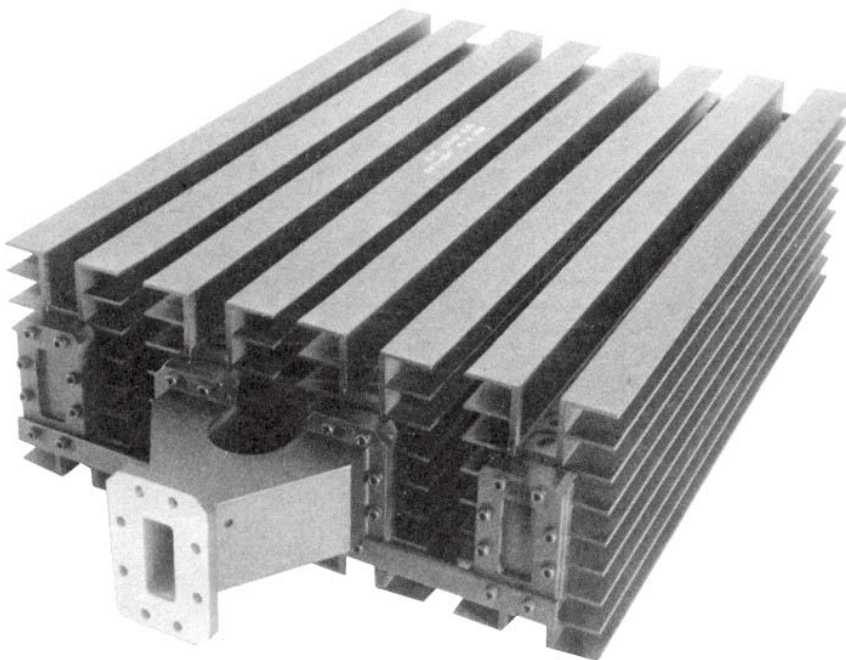
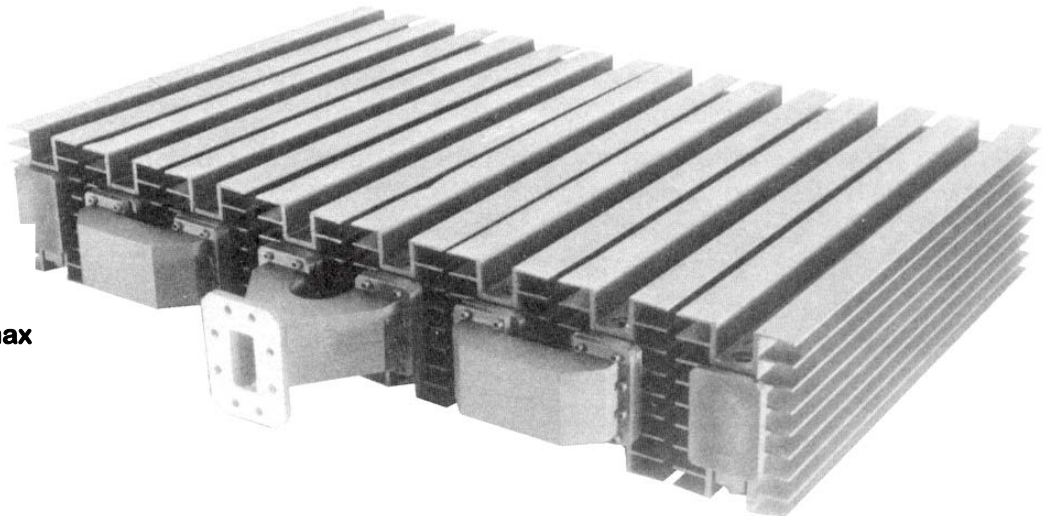


**RECTANGULAR WAVEGUIDE  
TERMINATIONS  
80 SERIES**

**DATA  
SHEET  
No.T73A  
6 OF 6**

**SUPER HIGH POWER TERMINATIONS  
80-S SERIES**

**WR-159  
5.925 – 6.425 GHz  
12 KW average  
VSWR: 1.05 typical, 1.1 max**



**WR-137  
5.925 – 6.425 GHz  
4.5 KW average  
VSWR: 1.05 typical, 1.1 max**

These state-of-the-art convection cooled super high power terminations exemplify but one of MEC's many innovative approaches to satisfy specific requirements. May we help with your applications? Inquiries are cordially invited.

Data subject to change without notice

**m.e.c**

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## RECTANGULAR WAVEGUIDE CROSS GUIDE COUPLERS

90 SERIES

90L SERIES

90LC SERIES

DATA  
SHEET  
No.T32E  
1 of 2

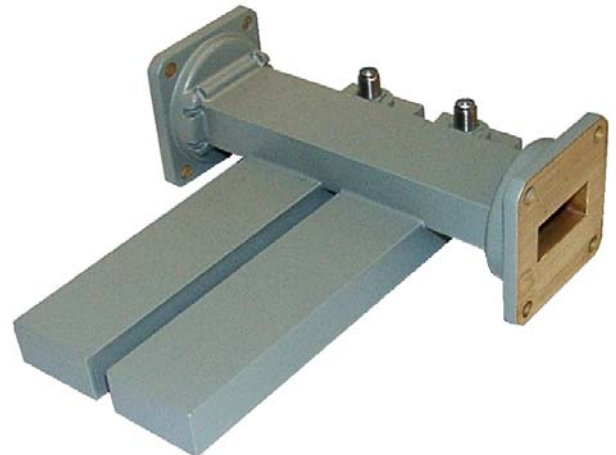
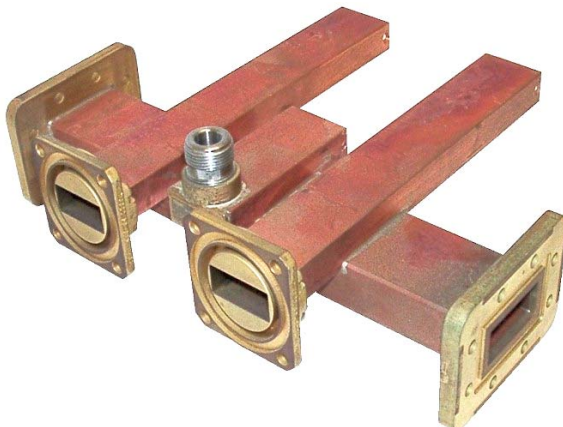
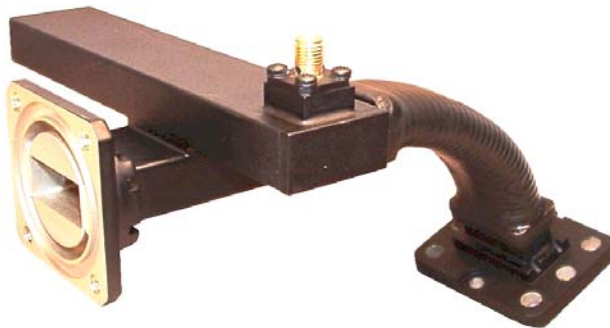
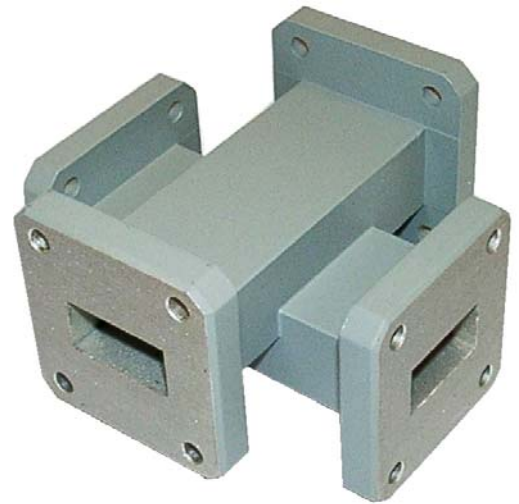
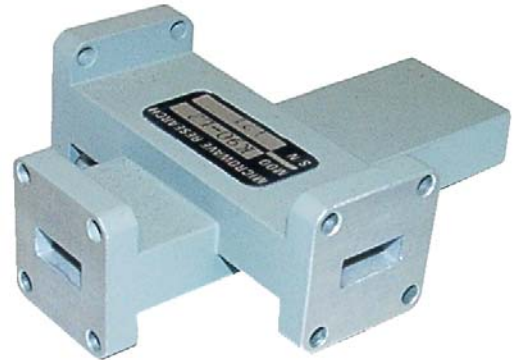
- COMPACT
- LIGHTWEIGHT
- INTERNAL TERMINATION

### DESCRIPTION

MEC 90 Series Cross Guide Couplers have specially-designed coupling apertures that produce flat coupling over the full waveguide frequency band. The couplers are symmetrical four-port devices; either arm may be used as the main line. They are also available with built-in terminations, integral coaxial adapters, and terminated dual secondary arms (dual directional couplers).

These rugged, moderate-directivity couplers are ideal where the high directivity of the longer broad-wall multi-hole couplers (160 Series) is not required. The units are well-suited for many microwave applications including injection, reflection measurement, attenuation, and isolation. Because of their compactness and simplicity of construction, they have found wide acceptance in production applications.

Assemblies are furnished with an aluminum housing. Finish is chromate conversion per MIL-C-5541, Class 3, painted with gray epoxy enamel.



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# RECTANGULAR WAVEGUIDE CROSS GUIDE COUPLERS

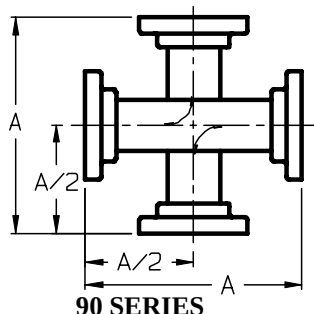
90 SERIES

90L SERIES

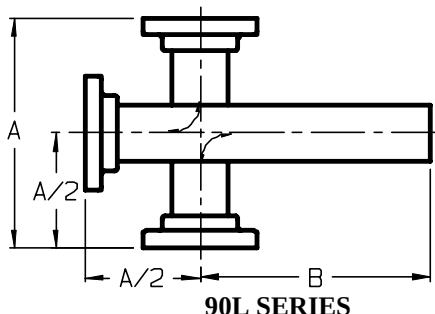
90LC SERIES

DATA  
SHEET  
No.T32E  
2 of 2

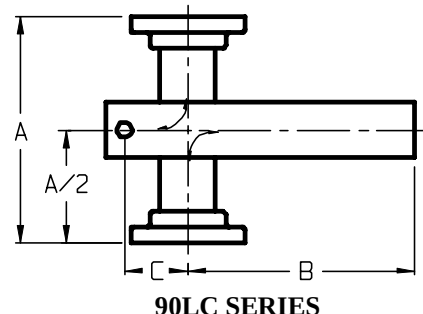
## SPECIFICATIONS



90 SERIES



90L SERIES



90LC SERIES

Coupling: 20, 30, 40, 50 dB

Coupling Mean:  $\pm 0.5$  dB

Frequency Sensitivity:

20 =  $\pm 1.2$  dB max.

30 =  $\pm 1.0$  dB max.

40 =  $\pm 0.8$  dB max.

50 =  $\pm 0.6$  dB max.

Directivity: typically 18 dB min

VSWR:

| Waveguide Ports* | Coaxial Ports                     |
|------------------|-----------------------------------|
| 1.05 max.        | 1.20 max. std.; 1.10, 1.05 avail. |

\*1.10 max for 20 dB

| MODEL NO. | FREQUENCY RANGE (GHz) | WAVELENGTH SIZE | FLANGE            | DIMENSIONS (INCHES) |        |             |
|-----------|-----------------------|-----------------|-------------------|---------------------|--------|-------------|
|           |                       |                 |                   | A $\pm .03$         | B max. | C $\pm .03$ |
| S90       | 2.60 - 3.95           | WR-284          | UG-584/U          | 7.00                | 10.5   | 2.92        |
| B90       | 3.7 - 4.2             | WR-229          | CMR-229           | 6.00                | 6.2    | 2.53        |
| G90       | 3.95 - 5.85           | WR-187          | UG-407/U          | 4.90                | 5.6    | 2.00        |
| D90       | 5.925 - 6.425         | WR-159          | CMR-159           | 5.00                | 4.9    | 2.10        |
| J90       | 5.85 - 8.20           | WR-137          | UG-441/U          | 4.00                | 4.3    | 1.83        |
| H90       | 7.05 - 10.00          | WR-112          | UG-138/U          | 3.50                | 3.7    | 1.35        |
| W90       | 7.0 - 11.0            | WR-102          | M3922/70-002      | 3.00                | 3.6    | 1.02        |
| X90       | 8.2 - 12.4            | WR-90           | UG-135/U          | 3.00                | 3.0    | .90         |
| M90       | 10.0 - 15.0           | WR-75           | M3922/53-008      | 2.75                | 2.5    | 1.04        |
| P90       | 12.4 - 18.0           | WR-62           | UG-1665/U         | 2.75                | 2.3    | .72         |
| N90       | 15.0 - 22.0           | WR-51           | M3922/70-011      | 2.50                | 1.8    | .67         |
| K90       | 18.0 - 26.5           | WR-42           | UG-597/U          | 1.80                | 1.8    | .62         |
| Y90       | 22.0 - 33.0           | WR-34           | M3922/63-010      | 1.80                | 1.7    | .58         |
| A90       | 26.5 - 40.0           | WR-28           | UG-599/U $\Delta$ | 1.80                | 1.7    | .55         |

## ORDERING INFORMATION

(1) Add the following suffixes to the model number to specify built-in termination, coaxial connector, coupling level, and connector type:

(a) Built-in secondary arm termination: "-L"

(b) Coupling Output Connector: "-C"

(c) Coupling Level: "-20" for 20dB, "-30" for 30dB, "-40" for 40dB, "-50" for 50dB

(d) Connector type:

"-17" for SSMA female "-N" for type N female "-T" for TNC female

"-3" for SMA female "-7" for precision 7mm

For a complete listing of connectors available, refer to data sheet T100.

(2) Other flanges, coupling values, direction of coupling, multiple coupling arms, reduced height waveguide, and custom designs available on request.

Data subject to change without notice

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# RECTANGULAR WAVEGUIDE WELL-MATCHED TEES AND HYBRIDS 100 / 100-L / 100-E / 100-H SERIES

**DATA  
SHEET  
No.T39C**

- LOW VSWR
- COMPACT
- FULL BANDWIDTH

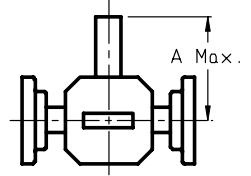
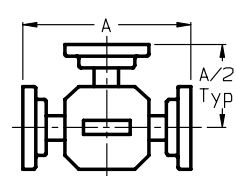
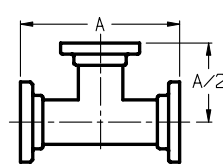
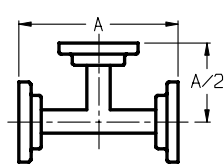


100-E Series

100-H series

100 Series

100-L Series



## DESCRIPTION

MEC offers a superior line of well-matched, broadband 4-port hybrid magic tees (model 100) and 3-port tees (100-E for E-Plane series tee). They can also be supplied with an integral medium power termination on the E arm (100-L). The 3-port tees may be used in power dividing networks or as combiners of high power tube outputs.

The magic tee hybrid is even more suitable as it offers high isolation. Common applications of the hybrid include balanced mixer operations and connecting a transmitter and receiver to a pair of fore and aft antennas on an aircraft. All units are aluminum with chromate conversion finish. Paint is gray epoxy enamel.

## SPECIFICATIONS

VSWR: 1.3:1 at midband, 1.5:1 at band edges. Lower VSWR can be supplied over reduced bandwidths – e.g. 1.05 over 5%, 1.10 over 10% 1.20 over 20% frequency bandwidths.

Power Split:  $3.2 \pm 0.2$  dB (typ. tracking < 0.3 dB)

Phase Balance: within  $\pm 5^\circ$  Hybrid Isolation: 30 dB E to H arm, 15 dB colinear arms

| FREQUENCY RANGE (GHz) | WAVEGUIDE SIZE | EQUIVALENT FLANGE | HYBRID TEE | TERMINATED HYBRID TEE | SERIES TEE | SHUNT TEE | DIMENSION A (IN. $\pm .03$ ) |
|-----------------------|----------------|-------------------|------------|-----------------------|------------|-----------|------------------------------|
| 2.60 – 3.95           | WR-284         | UG-584/U          | S100       | S100-L                | S100-E     | S100-H    | 7.00                         |
| 3.30 – 4.90           | WR-229         | CMR-229           | B100       | B100-L                | B100-E     | B100-H    | 6.00                         |
| 3.95 – 5.85           | WR-187         | UG-407/U          | G100       | G100-L                | G100-E     | G100-H    | 5.00                         |
| 4.90 – 7.05           | WR-159         | CMR-159           | D100       | D100-L                | D100-E     | D100-H    | 5.00                         |
| 5.85 – 8.20           | WR-137         | UG-441/U          | J100       | J100-L                | J100-E     | J100-H    | 4.50                         |
| 7.05 – 10.0           | WR-112         | UG-138/U          | H100       | H100-L                | H100-E     | H100-H    | 3.25                         |
| 7.0 – 11.0            | WR-102         | M3922/70-002      | W100       | W100-L                | W100-E     | W100-H    | 3.00                         |
| 8.2 – 12.4            | WR-90          | UG-135/U          | X100       | X100-L                | X100-E     | X100-H    | 2.50                         |
| 10.0 – 15.0           | WR-75          | M3922/53-008      | M100       | M100-L                | M100-E     | M100-H    | 2.50                         |
| 12.4 – 18.0           | WR-62          | UG-1665/U         | P100       | P100-L                | P100-E     | P100-H    | 2.50                         |
| 15.0 – 22.0           | WR-51          | M3922/70-011      | N100       | N100-L                | N100-E     | N100-H    | 2.00                         |
| 18.0 – 26.5           | WR-42          | UG-595/U          | K100       | K100-L                | K100-E     | K100-H    | 2.00                         |
| 26.5 – 40.0           | WR-28          | UG-599/U          | A100       | A100-L                | A100-E     | A100-H    | 2.00                         |

## ORDERING INFORMATION

- (1) For reduced VSWR over narrow band, add suffix "N" (e.g. S100-N) and specify band and VSWR desired.
- (2) Other flanges, materials, and tees such as folded, reduced height, and unequal split available on request.
- (3) Other waveguide bands and sizes also available.



Data subject to change without notice

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# RECTANGULAR WAVEGUIDE BROAD-WALL MULTI-HOLE DIRECTIONAL COUPLERS

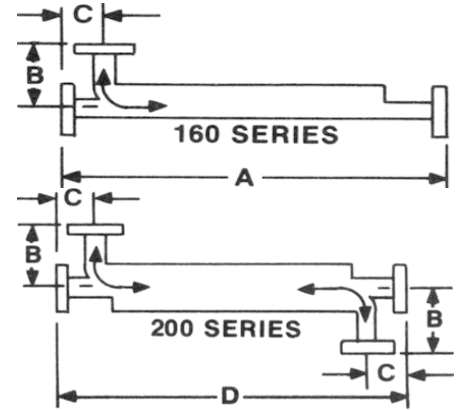
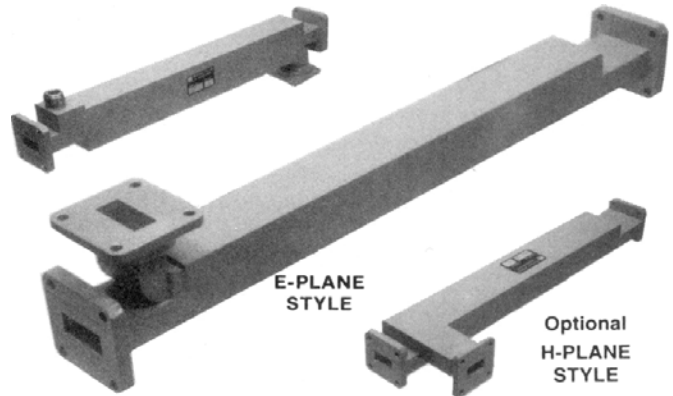
## 160 SERIES                      200 SERIES

**DATA  
SHEET  
No. T31D**

- HIGH DIRECTIVITY
- FLAT COUPLING
- WAVEGUIDE OR COAXIAL PORTS

### DESCRIPTION

These directional Couplers consist of rectangular waveguide primary and secondary lines with a common broad wall where high directivity coupling is achieved over the full waveguide band by a Tchebyscheff multi-hole coupling structure and a precision termination in the secondary arm. Waveguide cover flanges are provided on the main line while secondary lines are available with either cover flanges or coaxial connectors. Both single directional (160 Series) and dual directional (200 Series) couplers have minimum size consistent with electrical performance. These couplers are ideal in reflectometer set-ups to measure VSWR's as low as 1.04:1 over full waveguide bands. They are also well suited as samplers in leveling loops or as power dividers and combiners. Finish is chromate conversion per MIL-C-5541, Class 3 for aluminum, and corrosion-resistant coatings for all others when specified, painted with gray epoxy enamel.



### SPECIFICATIONS

|                       |                        |                                |
|-----------------------|------------------------|--------------------------------|
| Directivity           | 40 dB Min.             | VSWR 1.05 Max., Main Line      |
| Coupling              | 10, 20, 30, 40, 50, dB | 1.10 Max., Waveguide Secondary |
| Coupling              | ±0.4 dB                | 1.35 Max., Coaxial Secondary   |
| Frequency Sensitivity |                        | ±0.5 dB Max.                   |

| Model Number |      | Frequency Range (GHz) | Waveguide Size | Equivalent Flange | Dimensions (Inches) |      |      |       |
|--------------|------|-----------------------|----------------|-------------------|---------------------|------|------|-------|
| Single       | Dual |                       |                |                   | A                   | B    | C    | D*    |
| S160         | S200 | 2.60 – 3.95           | WR-284         | UG-584/U          | 33.00               | 3.57 | 2.90 | 66.00 |
| B160         | B200 | 3.30 – 4.90           | WR-229         | CMR-229           | 33.00               | 3.49 | 1.62 | 66.00 |
| G160         | G200 | 3.95 – 5.85           | WR-187         | UG-407/U          | 26.00               | 2.98 | 2.40 | 26.00 |
| D160         | D200 | 4.90 – 7.05           | WR-159         | CMR-159           | 21.00               | 1.90 | 1.46 | 21.00 |
| J160         | J200 | 5.85 – 8.20           | WR-137         | UG-441/U          | 21.00               | 1.88 | 1.81 | 21.00 |
| H160         | H200 | 7.05 – 10.0           | WR-112         | UG-138/U          | 14.00               | 1.85 | 1.19 | 14.00 |
| W160         | W200 | 7.0 – 11.0            | WR-102         | M3922/70-002      | 14.00               | 1.55 | 1.10 | 14.00 |
| X160         | X200 | 8.2 – 12.4            | WR-90          | UG-135/U          | 13.00               | 1.67 | 1.05 | 13.00 |
| M160         | M200 | 10.0 – 15.0           | WR-75          | M3922/53-008      | 12.00               | 1.30 | 1.00 | 12.00 |
| P160         | P200 | 12.4 – 18.0           | WR-62          | UG-1665/U         | 11.00               | 1.14 | 0.91 | 11.00 |
| N160         | N200 | 15.0 – 22.0           | WR-51          | M3922/70-011      | 11.00               | .97  | 0.91 | 11.00 |
| K160         | K200 | 18.0 – 26.5           | WR-42          | UG-597/U          | 9.00                | .82  | 0.69 | 9.00  |
| Y160         | Y200 | 22.0 – 33.0           | WR-34          | M3922/63-010      | 8.50                | .75  | 0.95 | 8.50  |
| A160         | A200 | 26.5 – 40.0           | WR-28          | UG-599/U**        | 6.50                | .64  | 0.62 | 6.50  |

\*For dual 10 dB couplers, two single couplers are used back to back resulting in  $D = 2A$

\*\*Aluminum

### ORDERING INFORMATION

- Order by model number and add suffix as follows to designate coupling level:  
 -10 for 10 dB      -20 for 20 dB      -30 for 30 dB      -40 for 40 dB      -50 for 50 dB
  - To specify coaxial secondary add suffix as follows:  
 -3 for SMA female      -T for TNC female      -N for type N female      -7 for precision 7 mm
- For a complete listing of connectors available, refer to data sheet T100
- Other coupling values from 3 dB and up are available. Over-all length may vary.
  - Other frequencies, directivity, style and power options available.

Data subject to change without notice

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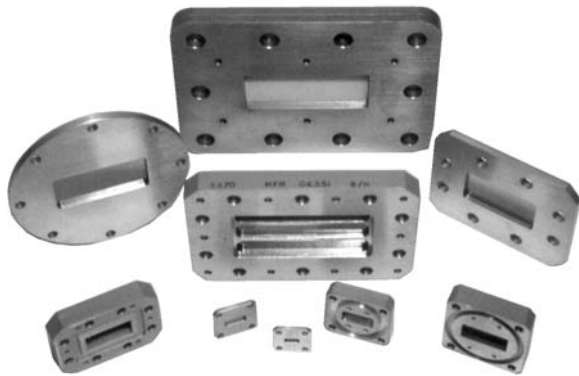
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# RECTANGULAR WAVEGUIDE PRESSURE WINDOWS 270 SERIES

DATA  
SHEET  
No. T87A

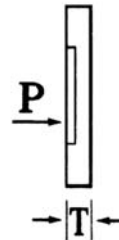
- LOW VSWR
- HIGHPOWER



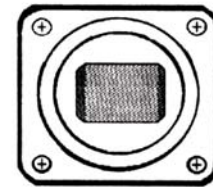
**STYLE 1**  
UNIDIRECTIONAL



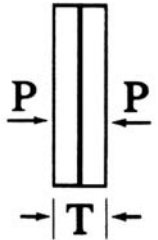
COVER/COVER



**STYLE 2**  
OMNIDIRECTIONAL



COVER/GASKET  
GASKET/GASKET  
COVER/COVER



## DESCRIPTION

MEC Rectangular Waveguide Pressure Windows offer low Reflection Loss over complete waveguide bands. Working pressure is 30 lbs. Typically they have a gasket groove on one side and conform to standard flange dimensions. Clearance holes are supplied for installation between flanges. Windows may be manufactured out of aluminum or brass.

## SPECIFICATIONS

| MODEL NO. | Waveguide Size | FLANGE TYPE | STYLE | T (INCHES) |
|-----------|----------------|-------------|-------|------------|
| S270      | WR-284         | UG-F/G      | 2     | 1/2        |
|           |                | CPR-F       | 2     | 1/2        |
|           |                | CPR-G       | 2     | 1/2        |
|           |                | CMR         | 2     | 1/2        |
| B270      | WR-229         | CPR-F       | 1     | 1/4        |
|           |                | CPR-G       | 2     | 3/8        |
|           |                | CMR         | 2     | 3/8        |
| G270      | WR-187         | UG-F        | 1     | 3/16       |
|           |                | UG-G        | 2     | 3/8        |
|           |                | CPR-F       | 1     | 3/16       |
|           |                | CPR-G       | 2     | 3/8        |
|           |                | CMR         | 2     | 3/8        |
| D270      | WR-159         | UG-F        | 1     | 3/16       |
|           |                | UG-G        | 2     | 3/8        |
|           |                | CPR-F       | 1     | 3/16       |
|           |                | CPR-G       | 2     | 3/8        |
|           |                | CMR         | 2     | 3/8        |
| J270      | WR-137         | UG-F        | 1     | 3/16       |
|           |                | UG-G        | 2     | 3/8        |
|           |                | CPR-F       | 1     | 3/16       |
|           |                | CPR-G       | 2     | 3/8        |
|           |                | CMR         | 2     | 3/8        |

| MODEL NO. | Waveguide Size | FLANGE TYPE | STYLE | T (INCHES) |
|-----------|----------------|-------------|-------|------------|
| H270      | WR-112         | UG-F        | 1     | 3/16       |
|           |                | UG-G        | 2     | 3/8        |
|           |                | CPR-F       | 1     | 3/16       |
|           |                | CPR-G       | 2     | 3/8        |
|           |                | CMR         | 2     | 3/8        |
| W270      | WR-102         | UG-F        | 1     | 3/16       |
|           |                | UG-G        | 2     | 3/8        |
| X270      | WR-90          | UG-F        | 1     | 3/16       |
|           |                | UG-G        | 2     | 3/8        |
|           |                | CPR-F       | 1     | 3/16       |
|           |                | CPR-G       | 2     | 3/8        |
|           |                | CMR         | 2     | 3/8        |
| M270      | WR-75          | UG-F        | 1     | 3/16       |
|           |                | UG-G        | 2     | 3/8        |
|           |                | CPR-F       | 1     | 3/16       |
|           |                | CPR-G       | 2     | 3/8        |
| P270      | WR-62          | UG-F        | 1     | 3/16       |
|           |                | UG-G        | 2     | 5/16       |
| N270      | WR-51          | UG-F        | 1     | 3/16       |
|           |                | UG-G        | 2     | 5/16       |
| K270      | WR-42          | UG-F        | 1     | 1/8        |
|           |                | UG-G        | 2     | 1/4        |
| Y270      | WR-34          | UG-F        | 1     | 1/8        |
|           |                | UG-G        | 2     | 1/4        |
| A270      | WR-28          | UG-F        | 1     | 1/8        |
|           |                | UG-G        | 2     | 1/4        |

## ORDERING INFORMATION

- (1) Ordering by model No., flange type, and style.
- (2) Call for information about higher power and special applications

Data subject to change without notice

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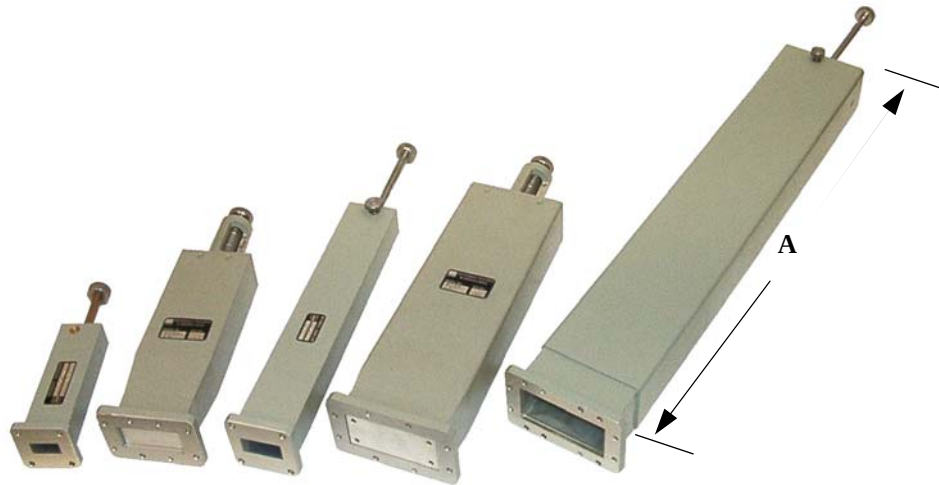
# RECTANGULAR WAVEGUIDE SLIDING SHORT CIRCUITS 280-LSC SERIES

DATA  
SHEET  
No. T61B

- LOW LOSS
- FULL BAND
- NON-CONTACTING

## DESCRIPTION

MEC 280-LSC Sliding Short Circuits are simple, low-loss devices which provide a movable short circuit in waveguide. The shorts are adjustable over more than half a guide wavelength at the lowest frequency of operation. Resettable movement is achieved via micrometer drive (P through A) or sliding shaft (LM through M) when scale or vernier is included.



Models from LM through D contain two-stage non-contacting folded cavity short circuits. Those from J through A contain non-contacting shorting plungers of the circular, multi-choke type. Both are highly efficient. Return loss is typically less than 0.3dB over the full waveguide band. Waveguide is aluminum with chromate conversion finish per MIL-C-5541 Class 3. All units contain locking mechanisms. External non-mating surfaces are painted with gray epoxy enamel.

## SPECIFICATIONS

| MODEL NUMBER | FREQUENCY RANGE (GHz) | WAVEGUIDE SIZE | EQUIVALENT FLANGE | LENGTH A (INCHES) MAX. |
|--------------|-----------------------|----------------|-------------------|------------------------|
| LM280-LSC    | 1.45 - 2.20           | WR-510         | UG - 1717/U       | 22.0                   |
| LA280-LSC    | 1.70 - 2.60           | WR-430         | UG - 437B/U       | 17.0                   |
| LS280-LSC    | 2.20 - 3.30           | WR-340         | UG - 554A/U       | 13.0                   |
| S280-LSC     | 2.60 - 3.95           | WR-284         | UG - 584/U        | 10.0                   |
| B280-LSC     | 3.30 - 4.90           | WR-229         | CMR - 229         | 8.5                    |
| G280-LSC     | 3.95 - 5.85           | WR-187         | UG - 407/U        | 7.0                    |
| D280-LSC     | 4.90 - 7.05           | WR-159         | CMR - 159         | 5.5                    |
| J280-LSC     | 5.85 - 8.20           | WR-137         | UG - 441/U        | 4.5                    |
| H280-LSC     | 7.05 - 10.0           | WR-112         | UG - 138/U        | 4.0                    |
| W280-LSC     | 7.0 - 11.0            | WR-102         | M3922/70 - 002    | 4.0                    |
| X280-LSC     | 8.2 - 12.4            | WR-90          | UG - 135/U        | 4.0                    |
| M280-LSC     | 10.0 - 15.0           | WR-75          | M3922/53 - 008    | 4.0                    |
| P280-LSC     | 12.4 - 18.0           | WR-62          | UG - 1665/U       | 4.0                    |
| N280-LSC     | 15.0 - 22.0           | WR-51          | M3922/70 - 010    | 3.5                    |
| K280-LSC     | 18.0 - 26.5           | WR-42          | UG - 597/U        | 3.5                    |
| Y280-LSC     | 22.0 - 33.0           | WR -34         | M3922/63-010      | 3.5                    |
| A280-LSC     | 26.5 - 40.0           | WR-28          | UG - 599/U        | 3.5                    |

## ORDERING INFORMATION

- 1) Order by model number. Add "S" or "V" if optional scale or vernier is desired with sliding shaft.
  - 2) Other flanges, bands, and lengths available on request.
  - 3) Fixed short circuits with waveguide cover flanges are also available. Add suffix "FSC" to model number.
- EXAMPLE: P280 - FSC is a WR-62 waveguide fixed shorting plate with hole pattern the same as cover flange.

Data subject to change without notice

**m.e.c**

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# RECTANGULAR WAVEGUIDE SIDEWALL DIRECTIONAL COUPLERS 500 SERIES

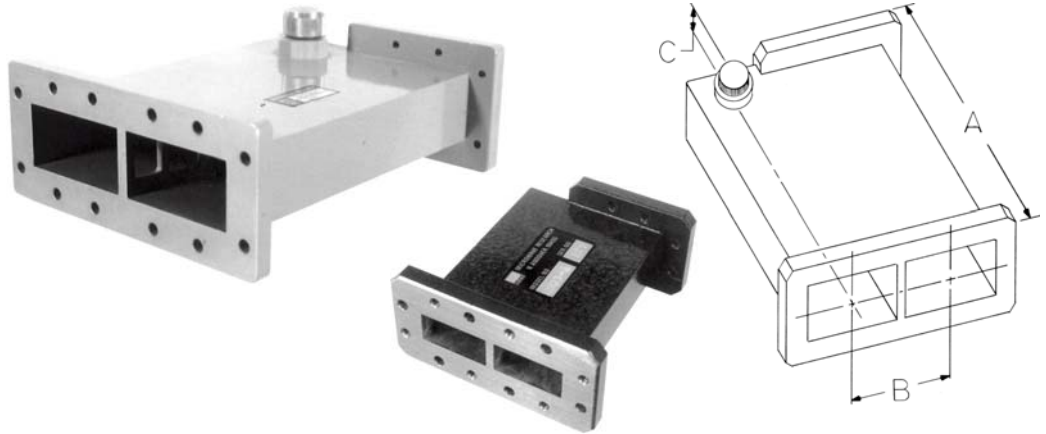
DATA  
SHEET  
No. T17C

- ULTRA-FLAT COUPLING
- HIGH ISOLATION
- WIDE COUPLING VALUES

## DESCRIPTION

MEC Ultra-Flat Sidewall Directional Couplers were developed for the standard communication frequency bands with weaker coupling values not previously available. The couplers are aluminum three-port devices and have been designed to minimize length as well as provide an extremely flat level of  $\pm 0.1$  dB coupling.

Directivity has been maintained at 20 dB minimum while VSWR is less than 1.06. Standard coupling values are 10, 20 and 30 dB nominal ( $\pm 2$  dB). Other values or custom designs are available on request between 2.4 and 30 dB over a wide choice of frequency ranges. Finish is chromate conversion per MIL-C-5541, Class 3, painted with gray epoxy enamel.



## SPECIFICATIONS

| MODEL NO.             | FREQUENCY (GHz) | COUPLING (dB) | WAVEGUIDE SIZE | INPUT FLANGE | DIMENSIONS (IN.) |       |          |
|-----------------------|-----------------|---------------|----------------|--------------|------------------|-------|----------|
|                       |                 |               |                |              | A                | B     | C (MAX.) |
| B503                  | 3.7 - 4.2       | 3             | WR229          | CMR229       | 9.50             | 2.440 | 1.3      |
| B510, B520, B530      | 3.7 - 4.2       | 10, 20, 30    | WR229          | CMR229       | 9.50             | 2.440 | 1.3      |
| D510, D520, D530      | 5.925 - 6.425   | 10, 20, 30    | WR159          | CMR159       | 5.25             | 1.740 | 1.1      |
| J510L, J520L, J530L   | 5.925 - 6.425   | 10, 20, 30    | WR137          | CMR137       | 6.40             | 1.522 | 1.1      |
| J510M, J520M, J530M   | 7.25 - 7.75     | 10, 20, 30    | WR137          | UG441/U      | 4.65             | 1.522 | 1.1      |
| J510H, J520H, J530H   | 7.9 - 8.4       | 10, 20, 30    | WR137          | UG441/U      | 4.10             | 1.522 | 1.1      |
| H510L, H520L, H530L   | 7.25 - 7.75     | 10, 20, 30    | WR112          | UG138/U      | 5.30             | 1.272 | 1.1      |
| H510M, H520M, H530M   | 7.9 - 8.4       | 10, 20, 30    | WR112          | UG138/U      | 4.60             | 1.272 | 1.1      |
| H5024H, H503H, H504H  | 9.5 - 10.0      | 2.4, 3, 4     | WR112          | UG138/U      | 4.60             | 1.272 | 1.1      |
| X503L                 | 8.5 - 9.6       | 3             | WR90           | CMR90        | 3.00             | 1.020 | 1.1      |
| X503M, X5033M, X5036M | 9.5 - 10.0      | 3, 3.3, 3.6   | WR90           | CMR90        | 3.00             | 1.020 | 1.1      |
| X504M, X5045M         | 9.5 - 10.0      | 4, 4.5        | WR90           | CMR90        | 3.00             | 1.020 | 1.1      |
| X503H                 | 10.7 - 11.7     | 3             | WR90           | CMR90        | 3.00             | 1.020 | 1.1      |
| X510H*, X520H, X530H  | 10.7 - 11.7     | 10, 20, 30    | WR90           | CMR90        | 3.00             | 1.020 | 1.1      |
| M510*, M520, M530     | 10.7 - 11.7     | 10, 20, 30    | WR75           | M3922/53-008 | 3.58             | .800  | 1.1      |

\*VSWR 1.15 max., Directivity 15 dB typical

## ORDERING INFORMATION

A. For other coupling values, specify as follows:

1. Designate the band by letter.
2. Insert "5".
3. Insert coupling value desired.

EXAMPLE: Model J517M is a 17 dB nominal ( $\pm 2$  dB) coupler in WR137 waveguide with flatness  $\pm 0.1$  dB, operating over the 7.25 - 7.75 GHz band.

B. For exact coupling values, please specify.

C. Termination may be placed in opposite wall if desired.

Data subject to change without notice



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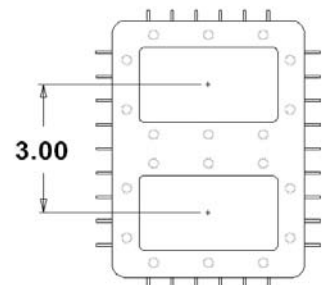
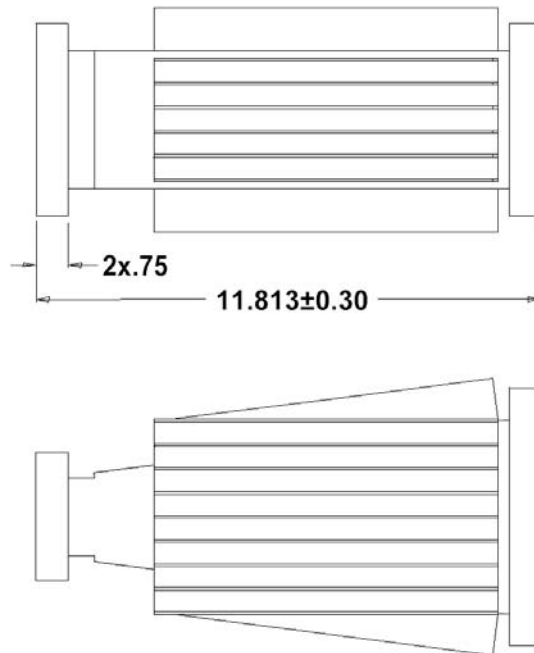
## SUPER HIGH POWER IN PHASE DIVIDER (S100E-215)

DATA  
SHEET  
No. T149

- SUPER HIGH POWER
- LOW LOSS
- COOL OPERATING
- TEMPERATURE
- HIGH EFFICIENCY FINS
- RUGGED CONSTRUCTION

### DESCRIPTION

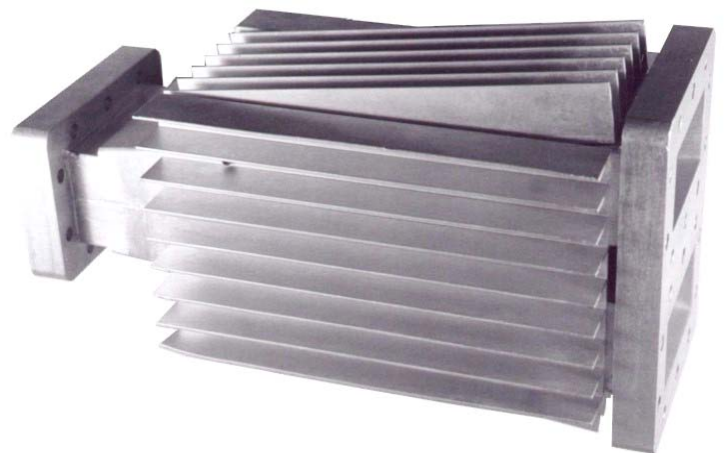
MEC's S70L-345 is a WR284 Super High Power in Phase Power Divider. It operates at S-band and handles 5 MW peak, 40 KW average. High conductivity aluminum alloy material is used which helps lower the insertion loss (typically 0.03 dB). The low loss, high precision machining, and high efficiency cooling fins all aid in lowering the operating temperatures. Temperature rise is less than 70 degrees F above ambient at 35 KW average input power. All above factors contribute towards problem free operation at the extremely high power levels. Its rugged construction makes it suitable for extreme shipboard environments.



Contact MEC with your specific requirements. Our engineering staff will be glad to discuss your high power needs.

### SPECIFICATIONS:

|                          |                                               |
|--------------------------|-----------------------------------------------|
| <b>Model Number</b>      | S100E-215                                     |
| <b>Frequency</b>         | 2.9-3.1 GHz                                   |
| <b>VSWR</b>              | 1.05:1 Max                                    |
| <b>Insertion Loss</b>    | 0.05 dB Max, .03 Typ                          |
| <b>Peak Power</b>        | 5 MW                                          |
| <b>Average Power</b>     | 40 KW                                         |
| <b>Case Temperature</b>  | 70° Max above Ambient<br>@35 KW average power |
| <b>Pressure</b>          | 37.5 PSIG Max                                 |
| <b>Input/Output Port</b> | WR284                                         |



Data subject to change without notice



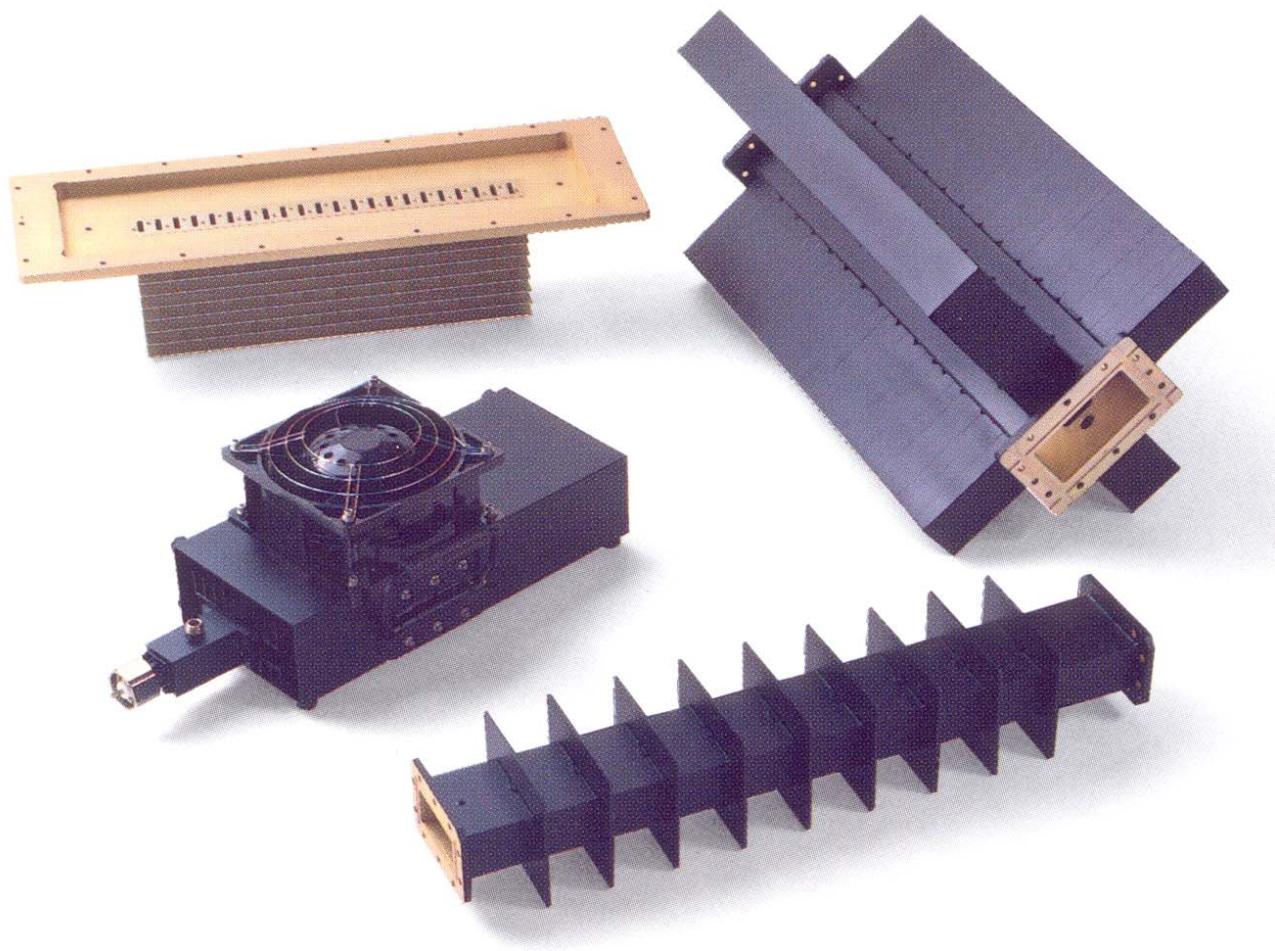
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## THE RIGHT STUFF. PERIOD. HIGH POWER COMPONENTS

DATA  
SHEET  
No. B021a



MEC has mastered the exacting science of high power handling, from .2 to 40GHz in coax and waveguide. Examples include:

- Dummy loads ranging from passive radiating finned models to fan and liquid cooled.
- Absorptive filters which prolong transmitter life by preventing overheating due to spurious harmonics.
- Mismatches, fixed or variable amplitude and/or phase, to test for breakdown under simulated standing waves.
- Assorted high power components, such as waveguide to coax adapters, couplers, pressure windows and customized test kits.

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**m.e.c**

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