Waveguide and Flange Data

The following table details the Flann standard flanges. Most products are available with other flange styles and special Flanges.

<table>
<thead>
<tr>
<th>Frequency Range (GHz)</th>
<th>Waveguide Designation</th>
<th>Internal Dimensions (mm)</th>
<th>Flann ‘Standard’ flange details Please see page 113 - 118 for outline dimensions</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.14 - 1.73</td>
<td>6 14 650</td>
<td>165.100 x 82.550</td>
<td>UG-417B/U Type (but without groove)</td>
<td>Rectangular, Ten hole fixing + 2 dowel holes</td>
</tr>
<tr>
<td>1.72 - 2.61</td>
<td>8 22 430</td>
<td>109.220 x 54.610</td>
<td>UG-435B/U Type (but without groove)</td>
<td>Rectangular, Ten hole fixing + 2 dowel holes</td>
</tr>
<tr>
<td>2.17 - 3.30</td>
<td>9A 26 340</td>
<td>90.42 x 47.24</td>
<td>UDR26</td>
<td>Rectangular, Ten hole fixing</td>
</tr>
<tr>
<td>2.60 - 3.95</td>
<td>10 32 284</td>
<td>72.140 x 34.040</td>
<td>5985-99-083-1560 also drilled for the 5985-99-083-0010</td>
<td>Circular, Six/Eight hole fixing</td>
</tr>
<tr>
<td>3.22 - 4.90</td>
<td>11A 40 229</td>
<td>58.170 x 29.083</td>
<td>UDR 40</td>
<td>Rectangular, Ten hole fixing</td>
</tr>
<tr>
<td>3.94 - 5.99</td>
<td>12 48 187</td>
<td>47.550 x 22.149</td>
<td>UAR 48</td>
<td>Circular, Eight hole fixing</td>
</tr>
<tr>
<td>4.64 - 7.05</td>
<td>13 58 159</td>
<td>40.390 x 20.193</td>
<td>UAR 58</td>
<td>Circular, Six hole fixing</td>
</tr>
<tr>
<td>5.38 - 8.18</td>
<td>14 70 137</td>
<td>34.850 x 15.799</td>
<td>UAR 70</td>
<td>Circular, Six hole fixing</td>
</tr>
<tr>
<td>6.58 - 10.0</td>
<td>15 84 112</td>
<td>28.449 x 12.624</td>
<td>UBR 84</td>
<td>Square, Four hole fixing</td>
</tr>
<tr>
<td>8.20 - 12.5</td>
<td>16 100 90</td>
<td>22.860 x 10.160</td>
<td>UBR 100</td>
<td>Square, Four hole fixing</td>
</tr>
<tr>
<td>9.84 - 15.0</td>
<td>17 120 75</td>
<td>19.050 x 9.525</td>
<td>UBR 120</td>
<td>Square, Four hole fixing</td>
</tr>
<tr>
<td>11.9 - 18.0</td>
<td>18 140 62</td>
<td>15.799 x 7.899</td>
<td>UBR 140</td>
<td>Square, Four hole fixing</td>
</tr>
<tr>
<td>14.5 - 22.0</td>
<td>19 180 51</td>
<td>12.954 x 6.477</td>
<td>UBR 180</td>
<td>Square, Four hole fixing</td>
</tr>
<tr>
<td>17.6 - 26.7</td>
<td>20 220 42</td>
<td>10.668 x 4.318</td>
<td>UBR 220 Type</td>
<td>Square, Four hole fixing</td>
</tr>
<tr>
<td>21.7 - 33.8</td>
<td>21 260 34</td>
<td>8.636 x 4.318</td>
<td>UBR 260 Type</td>
<td>Square, Four hole fixing</td>
</tr>
<tr>
<td>26.4 - 40.1</td>
<td>22 320 28</td>
<td>7.112 x 3.556</td>
<td>UG-599/U</td>
<td>Square, Four hole fixing</td>
</tr>
<tr>
<td>33.0 - 50.1</td>
<td>23 400 22</td>
<td>5.690 x 2.845</td>
<td>*UG-383/U</td>
<td>Circular, Four hole fixing/doweled</td>
</tr>
<tr>
<td>39.3 - 59.7</td>
<td>24 500 19</td>
<td>4.775 x 2.388</td>
<td>*UG-383/U (Modified)</td>
<td>Circular, Four hole fixing/doweled</td>
</tr>
<tr>
<td>49.9 - 75.8</td>
<td>25 620 15</td>
<td>3.759 x 1.880</td>
<td>*UG-385/U</td>
<td>Circular, Four hole fixing/doweled</td>
</tr>
<tr>
<td>60.5 - 92.0</td>
<td>26 740 12</td>
<td>3.099 x 1.549</td>
<td>*UG-387/U</td>
<td>Circular, Four hole fixing/doweled</td>
</tr>
<tr>
<td>73.8 - 112</td>
<td>27 900 10</td>
<td>2.540 x 1.270</td>
<td>*UG-387/U (Modified)</td>
<td>Circular, Four hole fixing/doweled</td>
</tr>
<tr>
<td>92.3 - 140.0</td>
<td>28 1200 8</td>
<td>2.032 x 1.016</td>
<td>*UG-387/U (Modified)</td>
<td>Circular, Four hole fixing/doweled</td>
</tr>
<tr>
<td>114.0 - 173.0</td>
<td>29 1400 6</td>
<td>1.651 x 0.826</td>
<td>*UG-387/U (Modified)</td>
<td>Circular, Four hole fixing/doweled</td>
</tr>
<tr>
<td>145.0 - 220.0</td>
<td>30 1800 5</td>
<td>1.295 x 0.648</td>
<td>*UG-387/U (Modified)</td>
<td>Circular, Four hole fixing/doweled</td>
</tr>
<tr>
<td>172.0 - 261.0</td>
<td>31 2200 4</td>
<td>1.092 x 0.546</td>
<td>*UG-387/U (Modified)</td>
<td>Circular, Four hole fixing/doweled</td>
</tr>
<tr>
<td>217.0 - 330.0</td>
<td>32 2600 3</td>
<td>0.864 x 0.432</td>
<td>*UG-387/U (Modified)</td>
<td>Circular, Four hole fixing/doweled</td>
</tr>
</tbody>
</table>

Note: Products fitted with flange types marked thus * are supplied with two fixing screws per flange and provided with alignment dowels in accordance with MIL-DTL-3922/67C.

Standard product finishes
Plate: Tin nickel for the larger, low frequency products; gold plate for smaller and millimetric products.
Paint: Two part epoxy paint in mid brunswick green.
**Waveguide Flanges, General Information**

See pages 113 to 118 for “Standard” Flange Details and outline dimensions

- **Most waveguide flange types are available from WG6 (WR650) to WG32 (WR3)**
- **Special waveguide flanges can be supplied to order**

Flann is able to provide ‘free fit’ waveguide flanges for WG6 (WR650) to WG32 (WR3) for customers’ own manufacturing assemblies.

Flange fixing hardware (nuts, bolts, gaskets, shims, etc) is also available. We are also able to supply special flanges to customers’ requirements.

---

**Standard Flanges**

All waveguide products in this catalogue are fitted with Flann “Standard Flanges” as listed on page 111, except where stated. **Note:** Choke flanges are not recommended for broadband waveguide equipment.

Details of the “Standard Flanges” as fitted to Flann products are shown on Pages 113 to 118.

**Double Ridge Flange Definitions:**
- **C** = Cover Flange
- **G** = Grooved
- **1** = Tap and Clear
- **2** = All Tapped
- **3** = All Clear
- **A** = Aluminium
- **B** = Brass

All instruments will be fitted with C1 flanges as standard.

**Flanges and flange hardware** - quotations for standard and special flanges are available on request. Flange fixing bolts, nuts, dowels and O ring seals are also available - details on request.

---

**Anti-Cocking Flanges for Millimetric Waveguide Bands**

- **Greatly improved performance and repeatability**
- **Fully compatible with standard “Mil spec” flanges**

The Millimetric flanges in the Series UG-381/U to UG-387/U are notorious for “cocking” during connection which results in leakage, increased insertion loss, discontinuity and poor repeatability. Flann produces a range of millimetric “Anti-cocking” flanges which provide greatly improved performance and repeatability whilst maintaining full compatibility with standard Mil spec flanges. “Anti-cocking” flanges are optionally available on most millimetric products in the Flann product range. Refer to page 122 for details. Customers requiring millimetric products fitted with anti-cocking flanges must request such flanges at the time of the initial enquiry. Purchase orders must specify anti-cocking flanges, if required, as such flanges can not be retro-fitted to products.

**NOTE:** Anti-cocking flanges must be specified at time of order.

---

**Precision Flanges**

**Precision flanges are fitted as standard to all Flann calibration kit components and individual Metrology Grade Components.** Flann precision flanges are fully compatible with “standard” flange types. Precision flanges in the millimetric waveguide sizes also incorporate the “anti-cocking” feature. See from page 119 for details.

---

**Waveguide Materials**

Flann is able to supply most products either in brass / copper waveguide or in aluminium. Metrology grade products have the waveguide sections machined to a high accuracy from solid material. The remaining products utilise premium drawn waveguide supplied to MIL specification or equivalent.

www.flann.com
The following flange details show the “standard” flange types as fitted to Flann products, unless otherwise stated. Full dimensional details of all “standard” flange types are available on request.

Alternative and custom flanges can be fitted to special order.

Flann is also able to supply most types of Flanges as separate items. Please contact our sales office for price and availability information.

**NOTE: ALL DIMENSIONS ARE IN MILLIMETERS**

See pages 126 - 129 for details of Flann precision style flanges.
### Flann Standard Flanges

**WG11 A R40 WR229**

- **UDR 40**
  - A: 70.20
  - B: 98.73
  - E: 26.67
  - F: 12.70
  - G: 27.18
  - H: 41.15
  - Holes: 10 x 6.50 dia

### Non-Standard Flanges

**WG12 R48 WR187**

- **UAR 48**
  - Holes: 8 x 5.15 dia on 82.55 PCD
  - A: 92.33 dia

### WG13 R58 WR159

- **UAR 58**
  - Holes: 6 x 5.15 dia on 76.20 PCD
  - A: 85.915 dia

### WG14 R70 WR137

- **UAR 70**
  - Holes: 6 x 5.15 dia on 69.85 PCD
  - A: 79.50 dia

**NOTE: ALL DIMENSIONS ARE IN MILLIMETERS**

See pages 126 - 129 for details of Flann precision style flanges.
**“Standard” Flange Data**

<table>
<thead>
<tr>
<th>Flann Standard Flanges</th>
<th>Non-Standard Flanges</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>WG15 R84 WR112</strong></td>
<td><strong>UDR 84</strong></td>
</tr>
<tr>
<td>UBR 84</td>
<td><strong>UER 84</strong></td>
</tr>
<tr>
<td>A ........................ 47.90</td>
<td><strong>CPR 112F</strong></td>
</tr>
<tr>
<td>E ........................ 18.72</td>
<td><strong>CMR 112</strong></td>
</tr>
<tr>
<td>F ........................ 17.17</td>
<td></td>
</tr>
<tr>
<td>Holes..................... 4 x 4.255 dia</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Flann Standard Flanges</th>
<th>Non-Standard Flanges</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>WG16 R100 WR90</strong></td>
<td><strong>UDR 100</strong></td>
</tr>
<tr>
<td>UBR 100</td>
<td><strong>UER 100</strong></td>
</tr>
<tr>
<td>A ........................ 41.40</td>
<td><strong>CPR 90F</strong></td>
</tr>
<tr>
<td>E ........................ 16.26</td>
<td><strong>CMR 90</strong></td>
</tr>
<tr>
<td>F ........................ 15.49</td>
<td></td>
</tr>
<tr>
<td>Holes..................... 4 x 4.255 dia</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Flann Standard Flanges</th>
<th>Non-Standard Flanges</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>WG17 R120 WR75</strong></td>
<td><strong>UDR 120</strong></td>
</tr>
<tr>
<td>UBR 120</td>
<td></td>
</tr>
<tr>
<td>A ........................ 38.30</td>
<td></td>
</tr>
<tr>
<td>E ........................ 14.25</td>
<td></td>
</tr>
<tr>
<td>F ........................ 13.21</td>
<td></td>
</tr>
<tr>
<td>Holes..................... 4 x 4.085 dia</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Flann Standard Flanges</th>
<th>Non-Standard Flanges</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>WG18 R140 WR62</strong></td>
<td><strong>UDR 140</strong></td>
</tr>
<tr>
<td>UBR 140</td>
<td><strong>UG-419/U</strong></td>
</tr>
<tr>
<td>A ........................ 33.30</td>
<td></td>
</tr>
<tr>
<td>E ........................ 12.14</td>
<td></td>
</tr>
<tr>
<td>F ........................ 12.63</td>
<td></td>
</tr>
<tr>
<td>Holes..................... 4 x 4.085 dia</td>
<td></td>
</tr>
</tbody>
</table>

**NOTE: ALL DIMENSIONS ARE IN MILLIMETERS**
See pages 126 - 129 for details of Flann precision style flanges.
### Flann Standard Flanges

<table>
<thead>
<tr>
<th>Flange</th>
<th>Type</th>
<th>A</th>
<th>E</th>
<th>F</th>
<th>Holes</th>
</tr>
</thead>
<tbody>
<tr>
<td>WG19 R180 WR51</td>
<td>UBR 180</td>
<td>30.10</td>
<td>11.25</td>
<td>10.29</td>
<td>4 x 4.085 dia</td>
</tr>
<tr>
<td>WG20 R220 WR42</td>
<td>UBR 220</td>
<td>22.41</td>
<td>8.51</td>
<td>8.13</td>
<td>4 x 3.07 dia</td>
</tr>
<tr>
<td>WG21 R260 WR34</td>
<td>UBR 260</td>
<td>22.10</td>
<td>7.90</td>
<td>7.50</td>
<td>4 x 3.07 dia</td>
</tr>
<tr>
<td>WG22 R320 WR28</td>
<td>UBR 320</td>
<td>19.05</td>
<td>6.73</td>
<td>6.35</td>
<td>4 x 2.98 dia</td>
</tr>
</tbody>
</table>

### Non-Standard Flanges

- Full details on request

<table>
<thead>
<tr>
<th>Flange</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>UDR 180</td>
<td></td>
</tr>
<tr>
<td>UDR 320</td>
<td></td>
</tr>
</tbody>
</table>

**NOTE:** ALL DIMENSIONS ARE IN MILLIMETERS

See pages 126 - 129 for details of Flann precision style flanges.
“Standard” Flange Data

Note: Products fitted with Circular, Four hole fixing/Doweled flanges WG23 (WR22) to WG28 (WR8) are supplied with two captive fixing screws per flange.

“All-cocking” Flanges - We strongly recommend that customers specify “anti-cocking” flanges on instruments in the waveguide range WG23 (WR22) to WG28 (WR8). “Anti-cocking” flanges provide better performance and repeatability than standard flanges whilst maintaining full compatibility with MIL spec types. Please refer to page 122 for details and outline dimensions.

<table>
<thead>
<tr>
<th>Flange Type</th>
<th>Flange Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>WG23 R400 WR22</td>
<td>UG-383/U (MIL-DTL-3922/67C-006)</td>
</tr>
<tr>
<td>Holes C .......... 4 x 4-40 UNC-2B</td>
<td></td>
</tr>
<tr>
<td>Holes D .......... 2 x 1.65 dia</td>
<td></td>
</tr>
<tr>
<td>Holes E .......... 2 x dowels 1.549/1.562 dia x 4 projection</td>
<td></td>
</tr>
<tr>
<td>All Holes on 23.81 PCD</td>
<td></td>
</tr>
<tr>
<td>A ................... 28.55</td>
<td></td>
</tr>
</tbody>
</table>

WG24 R500 WR19
UG-383/U Modified (MIL-DTL-3922/67C-007)

Holes C .......... 4 x 4-40 UNC-2B
Holes D .......... 2 x 1.65 dia
Holes E .......... 2 x dowels 1.549/1.562 dia x 4 projection
All Holes on 23.81 PCD
A ................... 28.55

WG25 R620 WR15
UG-385/U (MIL-DTL-3922/67C-08)

Holes C .......... 4 x 4-40 UNC-2B
Holes D .......... 2 x 1.65 dia
Holes E .......... 2 x dowels 1.549/1.562 dia x 4 projection
All Holes on 14.29 PCD
A ................... 19.05

NOTE: ALL DIMENSIONS ARE IN MILLIMETERS
See pages 126 - 129 for details of Flann precision style flanges.
“Standard” Flange Data

Note: Products fitted with Circular, Four hole fixing/Doweled flanges WG23 (WR22) to WG28 (WR8) are supplied with two captive fixing screws per flange.

“Anti-cocking” Flanges - We strongly recommend that customers specify “anti-cocking” flanges on instruments in the waveguide range WG23 (WR22) to WG28 (WR8). “Anti-cocking” flanges provide better performance and repeatability than standard flanges whilst maintaining full compatibility with MIL spec types. Please refer to page 122 for details and outline dimensions.

## Flann Standard Flanges

<table>
<thead>
<tr>
<th>Flange</th>
<th>Description</th>
<th>Diagram</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>WG26 R740 WR12</strong></td>
<td>UG-387/U (MIL-DTL-3922/67C-009)</td>
<td><img src="image1" alt="Diagram" /></td>
</tr>
<tr>
<td>Holes C</td>
<td>4 x 4-40 UNC-2B</td>
<td></td>
</tr>
<tr>
<td>Holes D</td>
<td>2 x 1.65 dia</td>
<td></td>
</tr>
<tr>
<td>Holes E</td>
<td>2 x dowels 1.549/1.562 dia x 4 projection</td>
<td></td>
</tr>
<tr>
<td>All Holes</td>
<td>on 14.29 PCD</td>
<td></td>
</tr>
<tr>
<td>A</td>
<td>19.05</td>
<td></td>
</tr>
</tbody>
</table>

## Non-Standard Flanges

<table>
<thead>
<tr>
<th>Flange</th>
<th>Description</th>
<th>Diagram</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>WG27 R900 WR10</strong></td>
<td>UG-387/U Modified (MIL-DTL-3922/67C-010)</td>
<td><img src="image2" alt="Diagram" /></td>
</tr>
<tr>
<td>Holes C</td>
<td>4 x 4-40 UNC-2B</td>
<td></td>
</tr>
<tr>
<td>Holes D</td>
<td>2 x 1.65 dia</td>
<td></td>
</tr>
<tr>
<td>Holes E</td>
<td>2 x dowels 1.549/1.562 dia x 4 projection</td>
<td></td>
</tr>
<tr>
<td>All Holes</td>
<td>on 14.29 PCD</td>
<td></td>
</tr>
<tr>
<td>A</td>
<td>19.05</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Flange</th>
<th>Description</th>
<th>Diagram</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>WG28 R1200 WR8</strong></td>
<td>UG-387/U Modified</td>
<td><img src="image3" alt="Diagram" /></td>
</tr>
<tr>
<td>Holes C</td>
<td>4 x 4-40 UNC-2B</td>
<td></td>
</tr>
<tr>
<td>Holes D</td>
<td>2 x 1.65 dia</td>
<td></td>
</tr>
<tr>
<td>Holes E</td>
<td>2 x dowels 1.549/1.562 dia x 4 projection</td>
<td></td>
</tr>
<tr>
<td>All Holes</td>
<td>on 14.29 PCD</td>
<td></td>
</tr>
<tr>
<td>A</td>
<td>19.05</td>
<td></td>
</tr>
</tbody>
</table>

**MIL-F3922/74-001**

Holes C | 4 x 4-40 UNC-2B |
Holes D | 2 x 1.65 dia |
Holes E | 2 x dowels 1.549/1.562 dia x 4 projection |
All Holes | on 14.29 PCD |
A | 19.05 |

**NOTE: ALL DIMENSIONS ARE IN MILLIMETERS**

See pages 126 - 129 for details of Flann Precision Style Flanges.
The following flange details show the precision style flange types as fitted to Flann calibration grade products, unless otherwise stated.

Full dimensional details of all precision style flange types are available on request. *Alternative flanges may be supplied to special order.*

**WG6 R14 WR650**
UG417BU TYPE (Without Groove)-PF
A ..................... 138.90
B ..................... 221.50
E ..................... 58.69
F ..................... 31.73
G ..................... 60.30
H ..................... 100.00
Holes ............. 10 x 8.20 dia
Dowel Holes .... 2 x 6.375 dia

**WG8 R22 WR430**
UG435BU TYPE (Without Groove)-PF
A ..................... 106.38
B ..................... 161.14
E ..................... 43.69
F ..................... 23.83
G ..................... 45.39
H ..................... 71.0
Holes ............. 6 x 5.15 dia
Dowel Holes .... 2 x 6.375 dia

**WG10 R32 WR284**
UDR 32
A ..................... 76.20
B ..................... 114.3
E ..................... 29.57
F ..................... 14.68
G ..................... 32.54
H ..................... 48.61
Holes I .......... 6 x 7 dia
Holes J .......... 4 x 6.6 dia
Dowel Holes .... 2 x 6.375 dia

**WG11A R40 WR229**
UDR 40-PF
A ..................... 70.20
B ..................... 98.73
E ..................... 26.67
F ..................... 12.70
G ..................... 27.18
H ..................... 41.15
Holes ............. 10 x 6.50 dia
Dowel Holes .... 2 x 6.375 dia

**WG12 R48 WR187**
UAR 48-PF
Holes ............. 8 x 5.15 dia
on 82.55 PCD
A ..................... 92.33 dia
Dowel Holes .... 2 x 6.375 dia
B ..................... 29.188

**WG13 R58 WR159**
UAR 58-PF
Holes ............. 6 x 5.15 dia
on 76.20 PCD
A ..................... 85.915 dia
Dowel Holes .... 2 x 6.375 dia
B ..................... 26.94

**WG14 R70 WR137**
UAR 70-PF
Holes ............. 6 x 5.15 dia
on 69.85 PCD
A ..................... 79.50 dia
Dowel Holes .... 2 x 6.375 dia
B ..................... 24.695

**NOTE:** ALL DIMENSIONS ARE IN MILLIMETERS
Precision Style Flange Details

WG15 R84 WR112
UBR 84 -PF

A ................. 47.90
E ................. 18.72
F ................. 17.17
Holes ............ 4 x 4.255 dia
Dowel Holes ...... 2 x 2.38 dia

WG16 R100 WR90
UBR 100 -PF

A ................. 41.40
E ................. 16.26
F ................. 15.49
Holes ............ 4 x 4.255 dia
Dowel Holes ...... 2 x 2.38 dia

WG17 R120 WR75
UBR 120 -PF

A ................. 38.30
E ................. 14.25
F ................. 13.21
Holes ............ 4 x 4.085 dia
Dowel Holes ...... 2 x 2.38 dia

WG18 R140 WR62
UBR 140 -PF

A ................. 33.30
E ................. 12.14
F ................. 12.63
Holes ............ 4 x 4.085 dia
Dowel Holes ...... 2 x 2.38 dia

WG19 R180 WR51
UBR 180 -PF

A ................. 30.10
E ................. 11.25
F ................. 10.29
Holes ............ 4 x 4.085 dia
Dowel Holes ...... 2 x 2.38 dia

WG20 R220 WR42
UBR 220 TYPE -PF

A ................. 22.40
E ................. 8.51
F ................. 8.13
Holes ............ 4 x 3.07 dia
Dowel Holes ...... 2 x 2.38 dia

WG21 R260 WR34
UBR 260 TYPE -PF

A ................. 22.10
E ................. 7.90
F ................. 7.50
Holes ............ 4 x 3.07 dia
Dowel Holes ...... 2 x 2.38 dia

WG22 R320 WR28
UG-990/U -PF

A ................. 19.05
E ................. 6.73
F ................. 6.34
Holes ............ 4 x 2.98 dia
Dowel Holes ...... 2 x 2.38 dia

NOTE: ALL DIMENSIONS ARE IN MILLIMETERS

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**Precision Style Flange Details**

**WG 23 (WR 22) to WG 32 (WR 3) inclusive**

- **Enhanced accuracy & performance**
- **Fully compatible with the standard “MIL spec” flanges**

Flann Precision millimetric flanges are fitted as standard to the Company’s range of Network Analyser Calibration Kits and Metrology grade components. Our precision millimetric flanges incorporate an “anti-cocking” feature which minimizes the risk of leakage or discontinuity occurring at the interface.

*Note: Flann Precision flanges are compatible with standard MIL spec types if the additional precision dowels are not used.*

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**WG 23 (WR22) & WG24 (WR19) Precision flanges, which are fully compatible with the standard UG283/U style flange.**

A Holes 4 off - 4.40 UNC-2B. C’bore 3.56 dia x 1.6 deep from flange face
B Holes 2 off - 1.65/1.66 dia. C’sink 2.0 dia @ 90° on front face
C Holes 2 off - Alignment pins 1.562/1.549 dia
D Holes 2 off - Drill and bore 2.25 dia through C’sink 2.8 dia @ 90° and ream 2.395/2.379 dia

Note: Dowels ‘C’ & Dowel holes ‘B’ & ‘D’ are precisely positioned with respect to the waveguide aperture after the flange has been fitted to the waveguide.

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**WG 25 (WR15) & WG28 (WR8) Precision flanges, which are fully compatible with the standard UG285/U style flange.**

A Holes 4 off - 4.40 UNC-2B. C’bore 3.56 dia x 1.6 dia deep from flange face
B Holes 2 off - 1.65/1.66 dia. C’sink 2.0 dia @ 90° on front face
C Holes 2 off - Alignment pins 1.562/1.549 dia
D Holes 2 off - Drill and bore 1.5 dia through C’sink 2.3 dia @ 90° and ream 1.588/1.600 dia

Note: Dowels ‘C’ & Dowel holes ‘B’ & ‘D’ are precisely positioned with respect to the waveguide aperture after the flange has been fitted to the waveguide.

*Note: Instruments fitted with precision flanges are supplied with two fixing screws per flange.*

**NOTE: ALL DIMENSIONS ARE IN MILLIMETERS**
Anti-Cocking Flanges

- Greatly improved performance & repeatability
- Fully compatible with standard “MIL spec” flanges

The standard MIL spec style of flanges, normally used in the frequency bands from 26.0 to 220 GHz, are designs with the serious disadvantage that “cocking” can easily take place unless extreme care is taken when tightening the clamping screws. “Cocked” flanges introduce high leakage levels and unnecessary discontinuities. In common with many other major manufacturers Flann offers “anti-cocking” flanges, which prevent cocking when connected to similar “anti-cocking” flanges; these flanges are fully compatible with standard MIL spec designs.

“Anti-cocking” flanges must be specified at time of order. The Flann “anti-cocking” flanges are detailed below.

NOTE: ALL DIMENSIONS ARE IN MILLIMETERS

A Holes 4 off - 4.40 UNC-2B. C’bore 3.56 dia x 1.6 deep from flange face
B Holes 2 off - 1.65/1.66 dia. C’sink 2.0 dia x 90° on front face
C Holes 2 off - Alignment pins 1.562/1.549 dia

Note: Dowels ‘C’ & Dowel holes ‘B’ are precisely positioned with respect to the waveguide aperture after the flange has been fitted to the waveguide.

Details of the WG23 (WR22) & WG24 (WR19) “Anti-cocking” flange which is fully compatible with the standard UG383/U style flange.

A Holes 4 off - Drill 4.40 UNC-2B. C’bore 3.56 dia x 1.6 dia deep from flange face
B Holes 2 off - 1.65/1.66 dia. C’sink 2.0 dia x 90° on front face
C Holes 2 off - Alignment pins 1.562/1.549 dia

Note: Dowels ‘C’ & Dowel holes ‘B’ are precisely positioned with respect to the waveguide aperture after the flange has been fitted to the waveguide.

Note: Instruments fitted with an anti-cocking flange are supplied with two fixing screws per flange.

NOTE: ALL DIMENSIONS ARE IN MILLIMETERS

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