

FEATURES

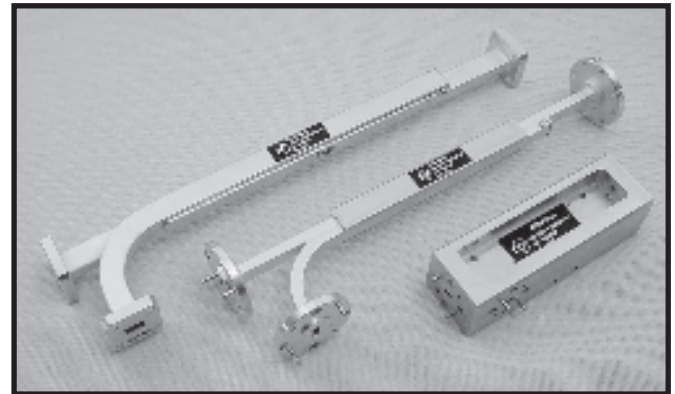
- ❖ Waveguide or split block configuration
- ❖ Light weight
- ❖ High directivity
- ❖ Low insertion loss
- ❖ Low cost

APPLICATIONS

- ❖ Test benches
- ❖ Subsystems
- ❖ Power sampling

DESCRIPTION

PCM series multi-hole directional couplers are offered for the frequency range of 18 to 110 GHz in seven waveguide bands. The standard coupling levels are 3, 6, 10, 30 and 40 dB with full waveguide operational bandwidth. The high directivity is achieved via low VSWR built-in termination. The couplers are typically used for power sampling or frequency monitoring with minimum signal loss on the main transmitting path. The multi-hole couplers are especially used in the test setups where power reflection measurement is required. The multi-hole couplers are offered in two physical configurations, waveguide and split block.



PCM Series

SPECIFICATIONS

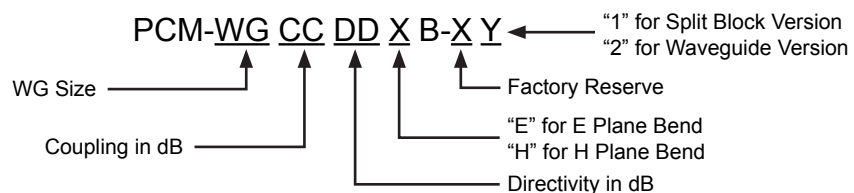
Waveguide Band	K	KA	Q	U	V	E	W
Frequency Range (GHz)	18 to 26.5	26.5 to 40	33 to 50	40 to 60	50 to 75	60 to 90	75 to 110
Waveguide Size	WR-42	WR-28	WR-22	WR-19	WR-15	WR-12	WR-10
Coupling Level (dB, Typical)	3, 6, 10, 20, 30 and 40						
Coupling Flatness (dB, Maximum)	± 0.8	± 0.8	± 0.8	± 0.9	± 0.9	± 0.9	± 1.0
Insertion Loss (dB, Typical) ¹	0.7	0.7	0.7	0.8	1.0	1.2	1.5
Directivity (dB, Typical)	30	30	30	30	30	30	30
Main Line VSWR (Typical)	1.1:1	1.1:1	1.1:1	1.2:1	1.2:1	1.2:1	1.2:1
Secondary Line VSWR (Typical)	1.1:1	1.1:1	1.2:1	1.2:1	1.2:1	1.25:1	1.25:1
Outline for Split Block Version ²	WT-E-9	WT-E-9	WT-E-9	WT-E-9	WT-E-9	WT-E-9	WT-E-9
Outline for Waveguide Version ²	WT-E-10	WT-E-10	WT-E-10	WT-E-10	WT-E-10	WT-E-10	WT-E-10

Note:

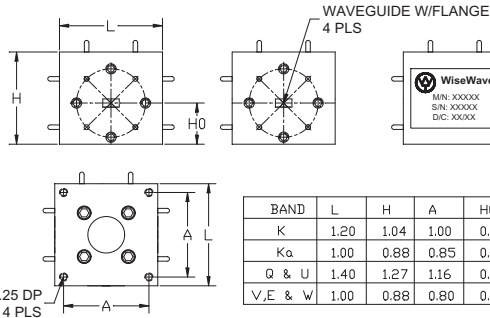
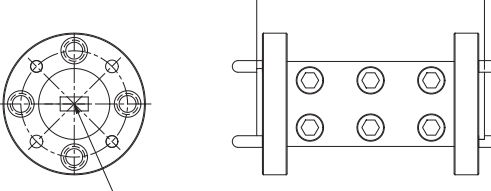
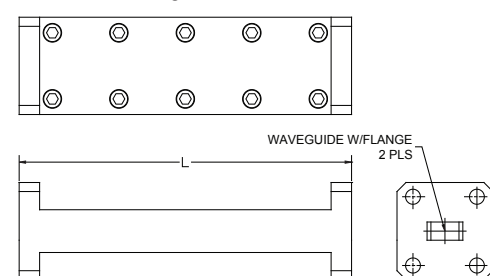
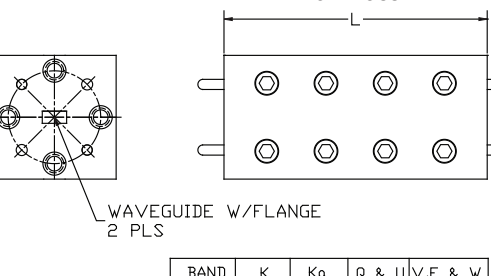
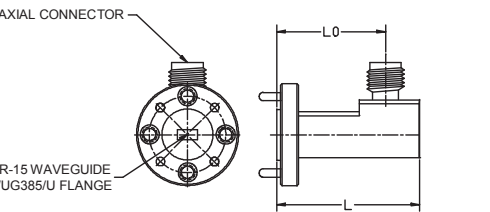
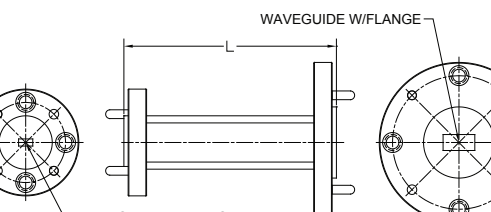
1. Insertion loss is defined as the power loss in addition to the coupling loss. Contact factory for other waveguide size or coupling level needs.
2. Split block version does not have an E plane bend version. Contact factory for outline drawing of waveguide version with E bend coupling port.

HOW TO ORDER

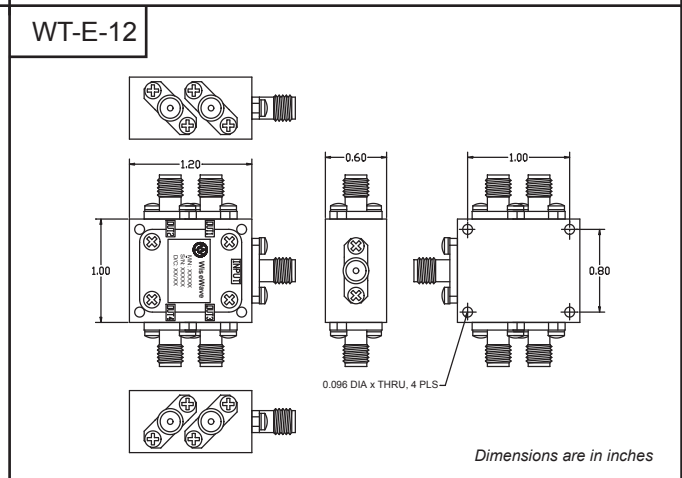
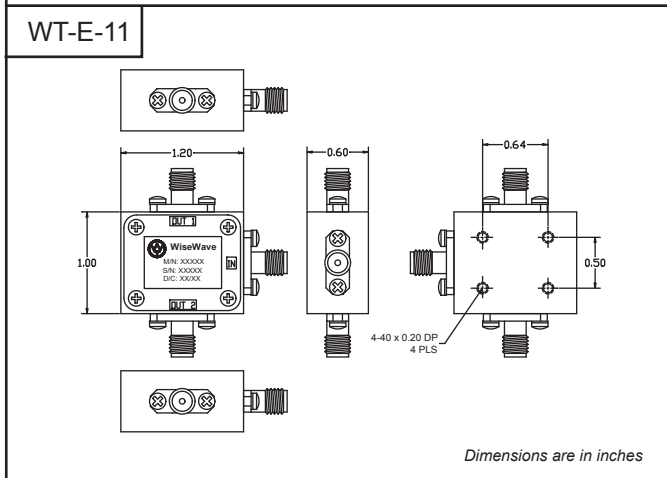
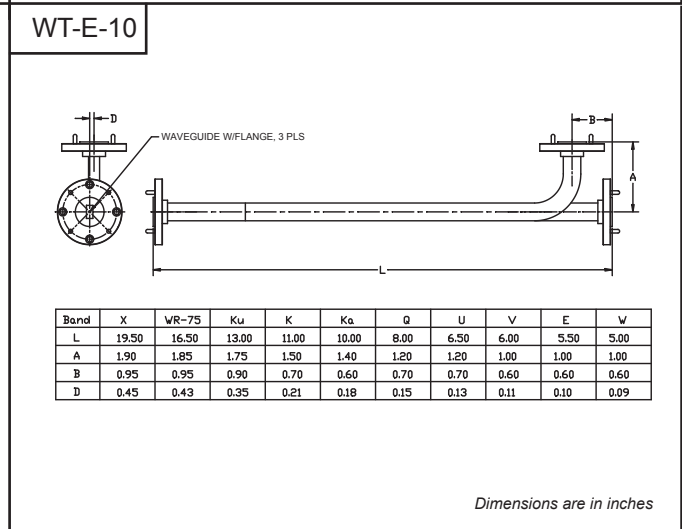
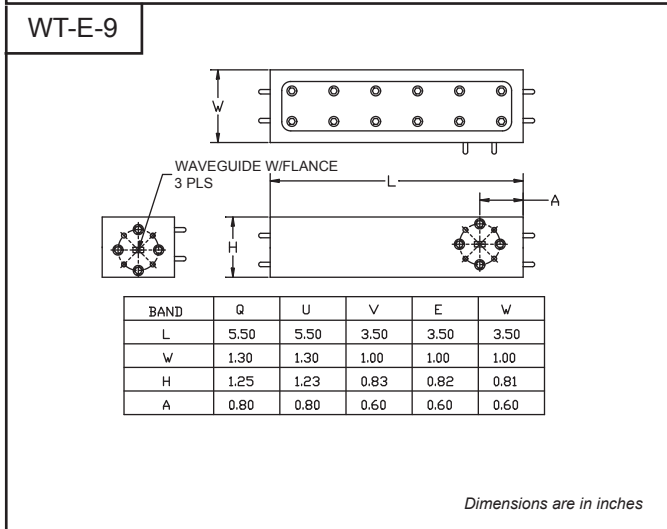
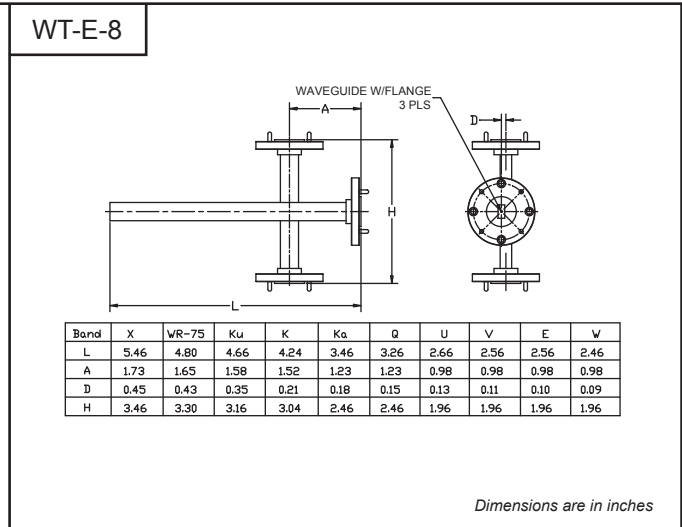
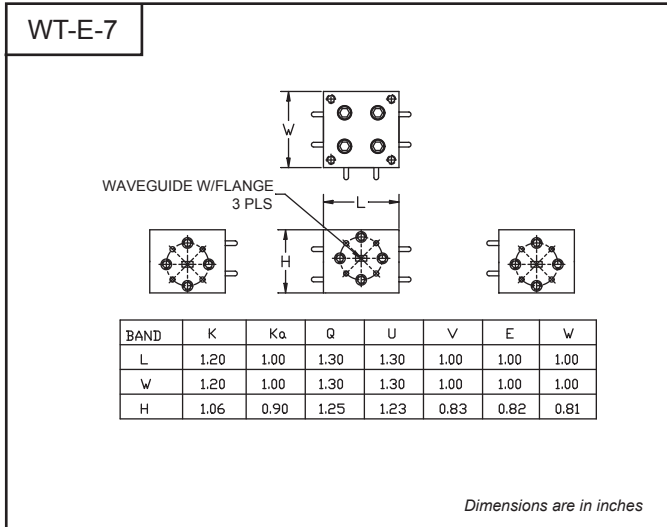
Specify Model Number



Example: To order a WR-15 waveguide multi-hole directional coupler with 20 dB coupling level, 30 dB minimum directivity E plane bend for coupling port and waveguide version, specify PCM-152030EB-X2.

<div style="border: 1px solid black; padding: 5px;"> <p>WT-E-1</p>  <p>WAVEGUIDE W/FLANGE 4 PLS</p> <p>4-40 x 0.25 DP 4 PLS</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>BAND</th> <th>L</th> <th>H</th> <th>A</th> <th>H0</th> </tr> </thead> <tbody> <tr> <td>K</td> <td>1.20</td> <td>1.04</td> <td>1.00</td> <td>0.44</td> </tr> <tr> <td>K_a</td> <td>1.00</td> <td>0.88</td> <td>0.85</td> <td>0.38</td> </tr> <tr> <td>Q & U</td> <td>1.40</td> <td>1.27</td> <td>1.16</td> <td>0.57</td> </tr> <tr> <td>V,E & W</td> <td>1.00</td> <td>0.88</td> <td>0.80</td> <td>0.38</td> </tr> </tbody> </table> <p style="text-align: right;"><i>Dimensions are in inches</i></p> </div>	BAND	L	H	A	H0	K	1.20	1.04	1.00	0.44	K _a	1.00	0.88	0.85	0.38	Q & U	1.40	1.27	1.16	0.57	V,E & W	1.00	0.88	0.80	0.38	<div style="border: 1px solid black; padding: 5px;"> <p>WT-E-2</p>  <p>WAVEGUIDE W/FLANGE 2 PLS</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>BAND</th> <th>K</th> <th>K_a</th> <th>Q & U</th> <th>V,E & W</th> </tr> </thead> <tbody> <tr> <td>L</td> <td colspan="4">Vary per Specifications</td> </tr> </tbody> </table> <p style="text-align: right;"><i>Dimensions are in inches</i></p> </div>	BAND	K	K _a	Q & U	V,E & W	L	Vary per Specifications																							
BAND	L	H	A	H0																																																				
K	1.20	1.04	1.00	0.44																																																				
K _a	1.00	0.88	0.85	0.38																																																				
Q & U	1.40	1.27	1.16	0.57																																																				
V,E & W	1.00	0.88	0.80	0.38																																																				
BAND	K	K _a	Q & U	V,E & W																																																				
L	Vary per Specifications																																																							
<div style="border: 1px solid black; padding: 5px;"> <p>WT-E-3</p> <p style="text-align: center;">High Pass</p>  <p>WAVEGUIDE W/FLANGE 2 PLS</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>BAND</th> <th>K</th> <th>K_a</th> <th>Q & U</th> <th>V,E & W</th> </tr> </thead> <tbody> <tr> <td>L</td> <td>3.00</td> <td>2.60</td> <td>2.20</td> <td>1.80</td> </tr> </tbody> </table> <p style="text-align: right;"><i>Dimensions are in inches</i></p> </div>	BAND	K	K _a	Q & U	V,E & W	L	3.00	2.60	2.20	1.80	<div style="border: 1px solid black; padding: 5px;"> <p>WT-E-4</p> <p style="text-align: center;">Low Pass</p>  <p>WAVEGUIDE W/FLANGE 2 PLS</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>BAND</th> <th>K</th> <th>K_a</th> <th>Q & U</th> <th>V,E & W</th> </tr> </thead> <tbody> <tr> <td>L</td> <td>3.00</td> <td>2.50</td> <td>2.00</td> <td>1.60</td> </tr> </tbody> </table> <p style="text-align: right;"><i>Dimensions are in inches</i></p> </div>	BAND	K	K _a	Q & U	V,E & W	L	3.00	2.50	2.00	1.60																																			
BAND	K	K _a	Q & U	V,E & W																																																				
L	3.00	2.60	2.20	1.80																																																				
BAND	K	K _a	Q & U	V,E & W																																																				
L	3.00	2.50	2.00	1.60																																																				
<div style="border: 1px solid black; padding: 5px;"> <p>WT-E-5</p>  <p>COAXIAL CONNECTOR</p> <p>WR-15 WAVEGUIDE W/UG385/U FLANGE</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>BAND</th> <th>X</th> <th>WR-75</th> <th>WR-62</th> <th>K/WR-34</th> <th>K_a,Q & U</th> <th>V</th> </tr> </thead> <tbody> <tr> <td>L</td> <td>1.40</td> <td>1.25</td> <td>1.20</td> <td>0.85</td> <td>1.00</td> <td>1.05</td> </tr> <tr> <td>L0</td> <td>1.00</td> <td>0.90</td> <td>0.95</td> <td>0.60</td> <td>0.75</td> <td>0.80</td> </tr> </tbody> </table> <p>NOTES: BOTH MALE AND FEMALE COAXIAL CONNECTORS ARE AVAILABLE FOR ALL BANDS</p> <p style="text-align: right;"><i>Dimensions are in inches</i></p> </div>	BAND	X	WR-75	WR-62	K/WR-34	K _a ,Q & U	V	L	1.40	1.25	1.20	0.85	1.00	1.05	L0	1.00	0.90	0.95	0.60	0.75	0.80	<div style="border: 1px solid black; padding: 5px;"> <p>WT-E-6</p>  <p>WAVEGUIDE W/FLANGE</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>PTW</th> <th>BIGGER WAVEGUIDE BAND</th> <th>K</th> <th>K_a</th> <th>Q</th> <th>U</th> <th>V</th> <th>E</th> </tr> </thead> <tbody> <tr> <td>L</td> <td>L</td> <td>2.00</td> <td>2.00</td> <td>1.50</td> <td>1.50</td> <td>1.00</td> <td>1.00</td> </tr> </tbody> </table> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>PRC</th> <th>RECTANGULAR WG BAND</th> <th>K</th> <th>K_a</th> <th>Q</th> <th>U</th> <th>V</th> <th>E</th> <th>W</th> </tr> </thead> <tbody> <tr> <td>L</td> <td>L</td> <td>2.00</td> <td>1.50</td> <td>1.30</td> <td>1.30</td> <td>1.10</td> <td>1.10</td> <td>1.10</td> </tr> </tbody> </table> <p style="text-align: right;"><i>Dimensions are in inches</i></p> </div>	PTW	BIGGER WAVEGUIDE BAND	K	K _a	Q	U	V	E	L	L	2.00	2.00	1.50	1.50	1.00	1.00	PRC	RECTANGULAR WG BAND	K	K _a	Q	U	V	E	W	L	L	2.00	1.50	1.30	1.30	1.10	1.10	1.10
BAND	X	WR-75	WR-62	K/WR-34	K _a ,Q & U	V																																																		
L	1.40	1.25	1.20	0.85	1.00	1.05																																																		
L0	1.00	0.90	0.95	0.60	0.75	0.80																																																		
PTW	BIGGER WAVEGUIDE BAND	K	K _a	Q	U	V	E																																																	
L	L	2.00	2.00	1.50	1.50	1.00	1.00																																																	
PRC	RECTANGULAR WG BAND	K	K _a	Q	U	V	E	W																																																
L	L	2.00	1.50	1.30	1.30	1.10	1.10	1.10																																																

The flange pattern shown is for illustration purpose. Refer to Technical Reference Section for flange pattern details. The outline drawings shown are standard versions. Contact factory for your specific package requirements.



The flange pattern shown is for illustration purpose. Refer to Technical Reference Section for flange pattern details. The outline drawings shown are standard versions. Contact factory for your specific package requirements.