

# Waveguide Sections, Bends, Twists and Loads

Bulletin No. PWS, PWE, PWH, PWM, PWT

## FEATURES

- ❖ Rugged waveguide configuration
- ❖ Full band operation
- ❖ Low cost

## APPLICATIONS

- ❖ Test benches
- ❖ Subsystems
- ❖ Prototypes

## DESCRIPTION

**PWS, PWE, PWH, PWM** and **PWT** series offered various waveguide components to cover frequency range of 18 to 110 GHz in seven waveguide bands. Other frequency bands are available per request.

Straight waveguide sections (**PWS**) offer the inter-connections between the waveguide ports and are available in 1” to 8” standard length in 1” incremental as well as customer-specified lengths.

Waveguide bends (**PWE**) change the E plane direction in the waveguide assembly. While standard version offers 90° bend, the special bend angle up to 180° are available per request.

Waveguide bends (**PWH**) change the H plane direction in the waveguide assembly. While standard version offers 90° bend, the special bend angle up to 180° are available per request.

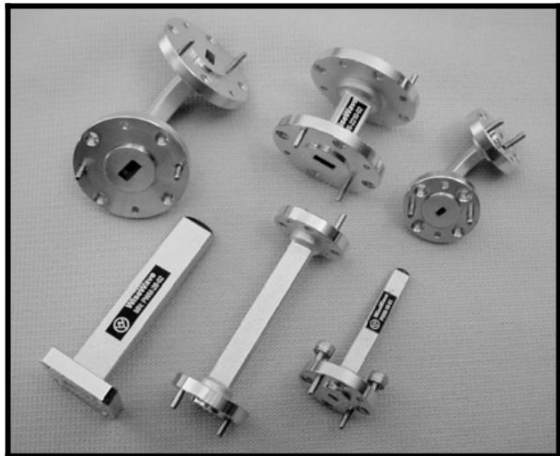
Waveguide termination loads (**PWM**) are useful when a matched port termination is required. The standard termination loads offer less than 1.10 VSWR and up to 10.0 watts power handling. Higher power handling versions are offered as custom-specified option.

Waveguide twists (**PWT**) allow changing the orientation of the waveguide port and are available with the twisting angle of 45° or 90°.

## WAVEGUIDE 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
Flange Pattern	UG595/U	UG599/U	UG383/U	UG383/U	UG385/U	UG387/U	UG387/U
Inner Dimension (A x B, Inches)	0.420 x 0.170	0.280 x 0.140	0.224 x 0.112	0.188 x 0.094	0.148 x 0.074	0.122 x 0.061	0.100 x 0.050

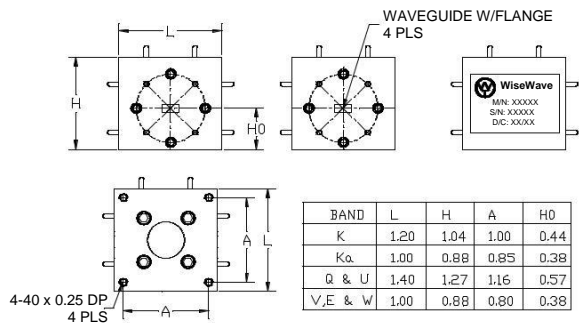
**Note:** Contact factory for other waveguide band needs.



**PWS, PWE, PWH, PWM & PWT Series**

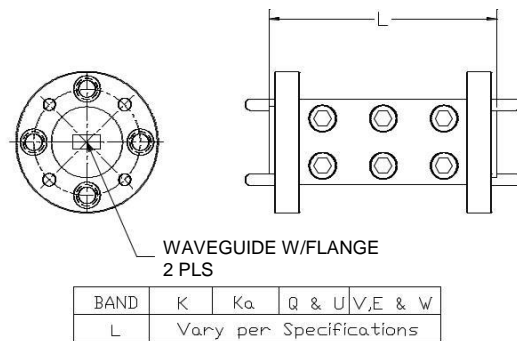
# Passive Component Outline Drawings #1

WT-E-1



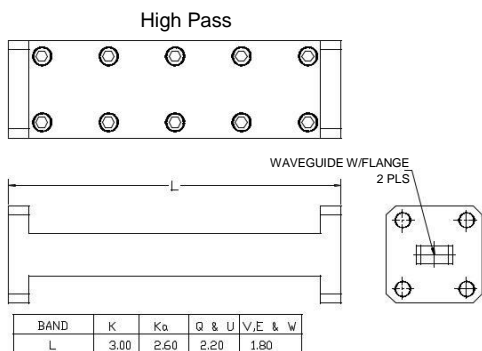
Dimensions are in inches

WT-E-2



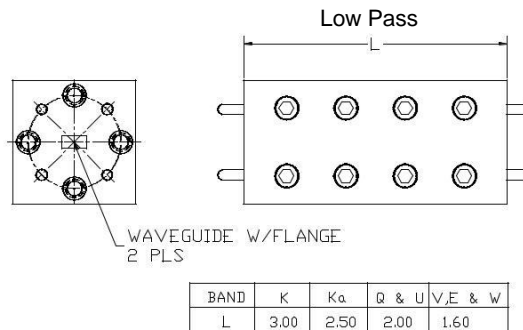
Dimensions are in inches

WT-E-3



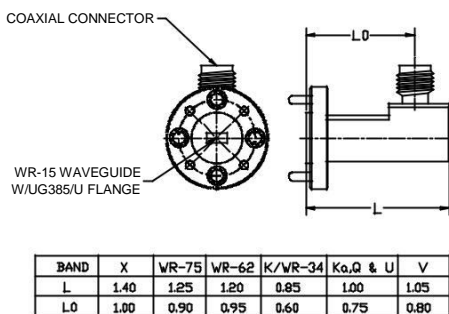
Dimensions are in inches

WT-E-4



Dimensions are in inches

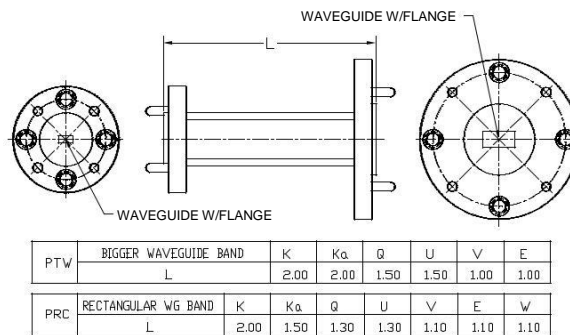
WT-E-5



NOTES:  
BOTH MALE AND FEMALE COAXIAL CONNECTORS ARE AVAILABLE FOR ALL BANDS

Dimensions are in inches

WT-E-6



Dimensions are in inches

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.

# Passive Component Outline Drawings #2

**WT-E-7**

BAND	K	Ka	Q	U	V	E	W
L	1.20	1.00	1.30	1.30	1.00	1.00	1.00
W	1.20	1.00	1.30	1.30	1.00	1.00	1.00
H	1.06	0.90	1.25	1.23	0.83	0.82	0.81

*Dimensions are in inches*

**WT-E-8**

Band	X	VR-75	Ku	K	Ka	Q	U	V	E	W
L	5.46	4.80	4.66	4.24	3.46	3.26	2.66	2.56	2.56	2.46
A	1.73	1.65	1.58	1.52	1.23	1.23	0.98	0.98	0.98	0.98
D	0.45	0.43	0.35	0.21	0.18	0.15	0.13	0.11	0.10	0.09
H	3.46	3.30	3.16	3.04	2.46	2.46	1.96	1.96	1.96	1.96

*Dimensions are in inches*

**WT-E-9**

BAND	Q	U	V	E	W
L	5.50	5.50	3.50	3.50	3.50
W	1.30	1.30	1.00	1.00	1.00
H	1.25	1.23	0.83	0.82	0.81
A	0.80	0.80	0.60	0.60	0.60

*Dimensions are in inches*

**WT-E-10**

Band	X	VR-75	Ku	K	Ka	Q	U	V	E	W
L	19.50	16.50	13.00	11.00	10.00	8.00	6.50	6.00	5.50	5.00
A	1.90	1.85	1.75	1.50	1.40	1.20	1.20	1.00	1.00	1.00
B	0.95	0.95	0.90	0.70	0.60	0.70	0.70	0.60	0.60	0.60
D	0.45	0.43	0.35	0.21	0.18	0.15	0.13	0.11	0.10	0.09

*Dimensions are in inches*

**WT-E-11**

*Dimensions are in inches*

**WT-E-12**

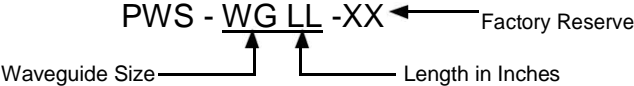
*Dimensions are in inches*

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.

## HOW TO ORDER

### Straight waveguide sections

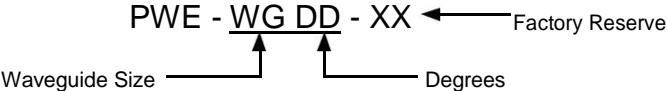
Specify Model Number



Example: To order a 2" long, WR-15 straight waveguide section, specify PWS-1502-XX.

### Waveguide E plane bends

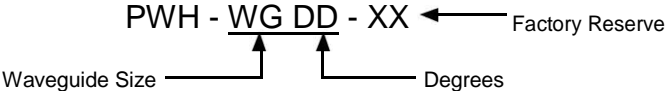
Specify Model Number



Example: To order a WR-28, E-plane, 30° waveguide bend, specify PWE-2830-XX.

### Waveguide H plane bends

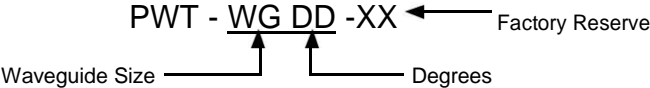
Specify Model Number



Example: To order a WR-28, E-plane, 30° waveguide bend, specify PWE-2830-XX.

### Waveguide twists

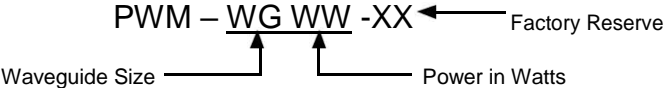
Specify Model Number



Example: To order a 45°, 1" long, WR-12 waveguide twist, specify PWT-120145-XX.

### Waveguide termination loads

Specify Model Number

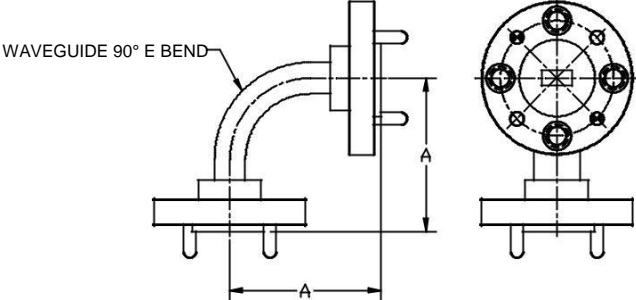


Example: To order a WR-42 waveguide, 2 Watts termination load, specify PWM-4202-XX.

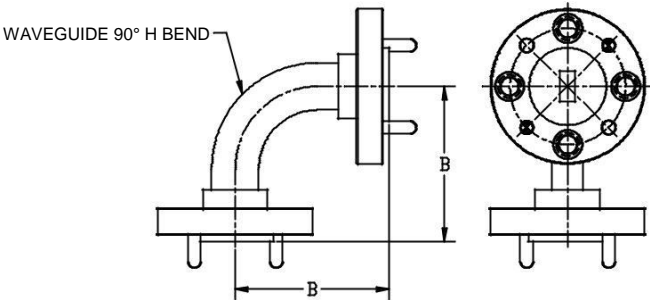
# Waveguide Sections, Bends, Twists and Loads

Bulletin No. PWG

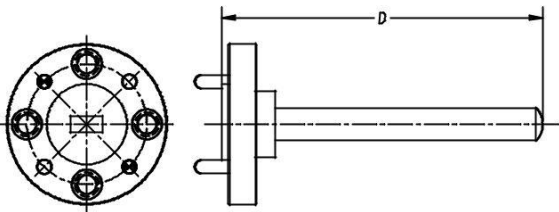
Outline: WT-E-A1



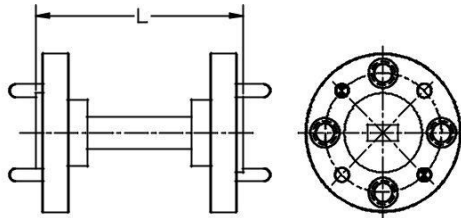
Outline: WT-E-A2



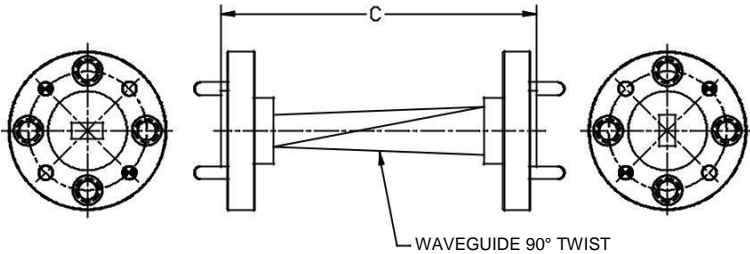
Outline: WT-E-A3



Outline: WT-E-A4



Outline: WT-E-A5



7

Waveguide Band	Frequency Range (GHz)	Waveguide Size	Flange Pattern	E-Bends A(Inch)	H-Bends B(Inch)	Twist C(Inch)	Loads D(Inch)	Section L(Inch)*
X	8-12.4	WR-90	UG39/U	2.00	2.00	3.00	3.00	2.0
WR-75	10-15	WR-75	Square	1.75	1.75	2.75	2.75	2.0
Ku	12-18	WR-62	UG419/U	1.50	1.50	2.50	2.50	2.0
K	18-26.5	WR-42	UG595/U	1.25	1.25	2.50	2.50	1.0
Ka	26.5-40	WR-28	UG599/U	1.00	1.00	2.00	2.00	1.0
Q	33-50	WR-22	UG383/U	1.00	1.00	2.00	2.00	1.0
U	40-60	WR-19	UG383/U-M	1.00	1.00	1.50	2.00	1.0
V	50-75	WR-15	UG385/U	0.75	0.75	1.50	1.50	1.0
E	60-90	WR-12	UG387/U	0.75	0.75	1.25	1.50	1.0
W	75-110	WR-10	UG387/U-M	0.75	0.75	1.25	1.50	1.0
Outline Drawing				WT-E-A1	WT-E-A2	WT-E-A5	WT-E-A3	WT-E-A4

\* The length shown is for standard model. Customer may specify the length at time of inquiry. The flange pattern shown is for illustration purpose. Refer to standard waveguide flange pattern for details.