

## Matched Hybrid Tees (Magic Tees)

### FEATURES:

- ❖ Equal Power Division
- ❖ Available from 2 to 220 GHz
- ❖ High Isolation Provided by Symmetrical Construction

### Applications:

- ❖ Test setup



### DESCRIPTION:

### CMT Series

Cernex's CMT series E/H hybrid tees consist of three mutually perpendicular flanged sections of a standard waveguide. Two of these sections are symmetrically located on the broad and narrow walls of the main tee section to provide E-plane and H-plane connections. The internal geometry of these hybrids provides a power-dividing and phase-inverting characteristic. Power applied to the shunt H-plane arm is divided between the two in-line ports of the main tee section to result in equal power, in-phase output signals. Power applied to the series E-plane arm is also divided between these two ports, but with a phase reversal which provides equal-power, opposite-phase outputs. With symmetrical construction, good isolation is maintained between the E-plane and H-plane arms. The CMT series hybrid tees are available in standard waveguide sizes from 2 to 220 GHz.

### SPECIFICATIONS:

Waveguide Band	Ku	K	Ka	Q	U	V	E	W	F	D	G
Waveguide Size	WR-62	WR-42	WR-28	WR-22	WR-19	WR-15	WR-12	WR-10	WR-8	WR-6	WR-5
Frequency Range (GHz)	12.4 to 18.0	18 to 26.5	26.5 to 40	33 to 50	40 to 60	50 to 75	60 to 90	75 to 110	90 to 140	110 to 170	140 to 220
Bandwidth	20% & 80%	20% & 80%	20% & 80%	20% & 80%	20% & 80%	20% & 80%	20% & 80%	20% & 80%	20% & 80%	20% & 80%	20% & 80%
Insertion Loss (dB, Typ)	-	0.3	0.3	0.4	0.4	0.4	0.5	0.5	-	-	-
Ports Isolation (dB, Min)	20	20	20	20	20	20	20	20	20	20	20
Amplitude Un-Balance (dB, Max)	-	±0.1	±0.1	±0.2	±0.2	±0.2	±0.3	±0.3	-	-	-
VSWR (Typ)	1.5:1	1.5:1	1.5:1	1.5:1	1.5:1	1.5:1	1.5:1	1.5:1	1.5:1	1.5:1	1.5:1



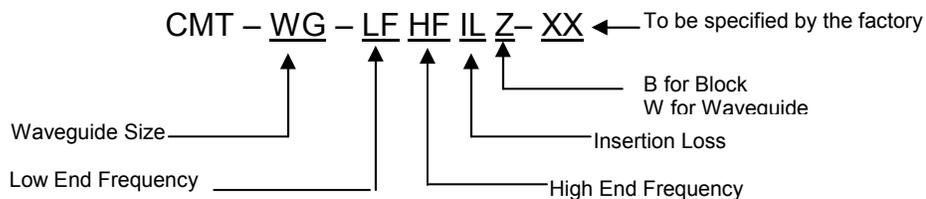
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NOTE: THE ABOVE SPECIFICATIONS ARE FOR BLOCK MAGIC TEES. 4 PORTS WAVEGUIDE ARE ALSO AVAILABLE BELOW 110 GHz. BLOCK IS MORE EXPENSIVE THAN WAVEGUIDE.

Waveguide Band	Ku	K	Ka	Q	V	E	W	F	D	G	
Waveguide Size	WR-650	WR-430	WR-340	WR-284	WR-229	WR-187	WR-159	WR-137	WR-112	WR-90	WR-75
Frequency Range (GHz)	1.12 to 1.7	1.7 to 2.6	2.2 to 3.3	2.6 to 3.95	3.3 to 4.9	3.95 to 5.85	4.9 to 7.05	5.85 to 8.2	7.05 to 10	8.2 to 12.4	10 to 15
Bandwidth	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%
Insertion Loss (dB, Typ)	-	-	-	-	-	-	-	-	-	-	-
Isolation between E and H (dB, Min)	35	35	35	35	35	35	35	35	35	35	35
Collinear port dB Min	15 to 20	15 to 20	15 to 20	15 to 20	15 to 20	15 to 20	15 to 20	15 to 20	15 to 20	15 to 20	15 to 20

### HOW TO ORDER:

Specify Model Number



**Example:** To order WR-22 hybrid tees at 33GHz with LF at 50 GHz with HF and an insertion loss of 0.4dB, specify CMT-22335004-XX.

CERNEX RESERVE THE RIGHT TO CHANGE THE SPECIFICATIONS WITHOUT NOTICE.