

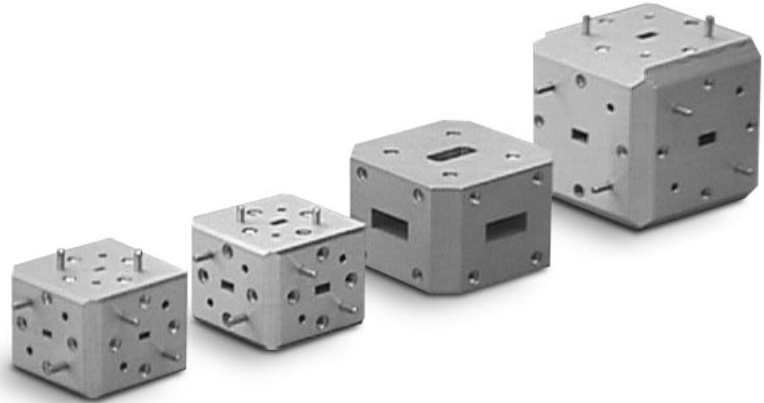


Matched Hybrid Tees

QJH

Characteristics

- ◆ Broadband Operation
- ◆ High Isolation
- ◆ Low Insertion Loss
- ◆ Low VSWR



Product Description

QuinStar Technology's **QJH** series of **matched hybrid tees (magic tees)** cover the frequency range of 18 to 170 GHz in nine waveguide bands. These four-port devices are used for balanced power-combining and/or dividing RF signals over a broad bandwidth. They are constructed using a rugged and compact split-block mechanical design with convenient interfaces. A signal entering either of the two input ports is split equally between two of the other ports and is isolated from the fourth port. The signals emanating from the "E" plane port are 180 degrees out of phase. The signals emanating from the "H" plane port are in phase. The ports are matched so that isolation between the series arm (E-plane) and the shunt arm (H-plane) is 30dB minimum. Isolation between co-linear arms is 20dB typical.

Typical applications for these tees include power dividers/combiners, bridge circuits, balanced mixers, amplifiers, and instrumentation setups. QuinStar can provide custom 4- or 8-way power dividers by combining several hybrid tees (power dividers) into a single housing. It is also possible to configure the hybrid junctions to achieve unequal power split in 3, 5, 6 or 7 ports.

QuinStar Technology can also supply custom configurations ("folded tees") with output ports in different locations than in the standard product. Other power dividers (short slot hybrids and "rat-race" hybrids) are also available as special orders. If your application requires a unique power division scheme, please contact QuinStar with your requirements.

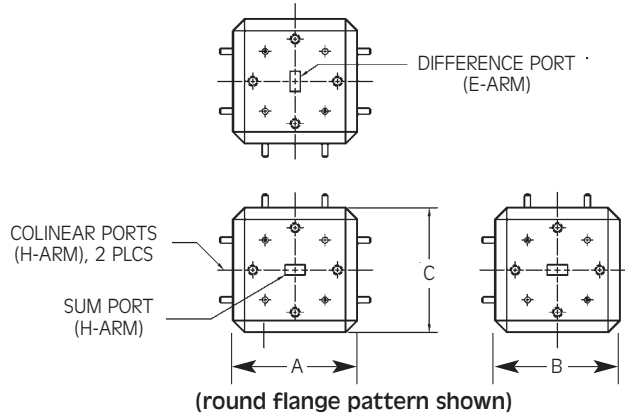
Specifications

FREQUENCY BAND	K	Ka	Q	U	V	E	W	F	D
Frequency Range (GHz) ¹	18-26.5	26.5-40	33-50	40-60	50-75	60-90	75-110	90-140	110-170
Waveguide Size	WR-42	WR-28	WR-22	WR-19	WR-15	WR-12	WR-10	WR-8	WR-6
Insertion Loss (dB max)	0.5	0.5	0.7	0.8	1.0	1.0	1.0	1.2	1.2
VSWR, H-Plane (max)	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
VSWR, E-Plane (max)	1.6:1	1.6:1	1.6:1	1.6:1	1.6:1	1.6:1	1.6:1	1.6:1	1.6:1
Balance (+/- dB typ)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5

Other waveguide sizes are available.

¹ Standard products meet full performance specifications over 80% of the waveguide band, with slightly degraded performance over the balance of the band. Narrow bandwidth versions (25% of waveguide band) with superior isolation and lower insertion loss are available.

Outline Drawing/Mechanical Specifications



FREQUENCY BAND	WAVEGUIDE SIZE	FLANGE PATTERN	DIMENSIONS (inches/mm)		
			A	B	C
K	WR-42	UG-595/U	1.25/31.8	1.25/31.8	0.89/22.6
Ka	WR-28	UG-599/U	1.00/25.4	1.00/25.4	1.00/25.4
Q	WR-22	UG-383/U	1.38/35.1	1.38/35.1	1.38/35.1
U	WR-19	UG-383/U	1.38/35.1	1.38/35.1	1.38/35.1
V	WR-15	UG-385/U	1.00/25.4	1.00/25.4	0.80/20.3
E	WR-12	UG-387/U	1.00/25.4	1.00/25.4	0.80/20.3
W	WR-10	UG-387/U	1.00/25.4	1.00/25.4	0.80/20.3
F	WR-8	UG-387/U	1.00/25.4	1.00/25.4	0.80/20.3
D	WR-6	UG-387/U	1.00/25.4	1.00/25.4	0.80/20.3

Ordering Information

Model Number **QJH -**

A B CD 00



Please specify exact center frequency when ordering narrowband version.

waveguide band designator

- K = K-band
- A = Ka-band
- Q = Q-band
- U = U-band
- V = V-band
- E = E-band
- W = W-band
- F = F-band
- D = D-band

frequency

- Fullband: FB
- Narrowband: center frequency rounded to nearest GHz
(1A = 100-109 GHz, 1B = 110-119 GHz, etc.)

version

- U = upper 80% of waveguide band
- L = lower 80% of waveguide band
- N = narrowband
- Z = custom