

Characteristics

- ◆ Fullband Coverage
- ◆ Excellent Coupling Flatness and Accuracy
- ◆ Low VSWR
- ◆ Very High Directivity



Product Description

QuinStar Technology's **QJR series precision high directivity couplers** cover the frequency range of 18 to 170 GHz in nine waveguide bands. They are available in 3 and 4 port configurations with coupling values of 3, 6, 10, 20, 30 and 40 dB. They are constructed with a rugged splitblock mechanical design for long-lasting durability to maintain their coupling value.

Precision high directivity directional couplers are ideal devices for sampling or inserting RF energy in a waveguide

transmission line without affecting the transmitting signal. They prove especially useful in applications such as RF power and signal reflection measurements in test systems. The superior directivity, insertion loss, coupling flatness and accuracy also make these directional couplers useful for a wide range of laboratory requirements and subsystem applications. In addition to the standard three-port directional couplers, QuinStar offers custom four-port directional couplers.

Specifications

FREQUENCY BAND	K	Ka	Q	U	V	E	W	F	D
Frequency Range (GHz)	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
Coupling Values (dB at center frequency)	3, 6, 10, 20, 30 and 40 ± 1								
Coupling Flatness (±dB typ)	0.7	0.7	0.7	0.7	0.7	0.8	0.8	1.0	1.0
Directivity (dB typ) ^{1, 3}	37	37	37	37	35	35	35	30	28
Insertion Loss (dB max) ²	0.7	0.7	0.7	0.7	0.8	1.0	1.2	2.0	2.5
VSWR, Main Line (max)	1.1:1	1.1:1	1.1:1	1.1:1	1.1:1	1.1:1	1.1:1	1.15:1	1.15:1
VSWR, Secondary Line (max)	1.1:1	1.1:1	1.1:1	1.1:1	1.1:1	1.15:1	1.15:1	1.2:1	1.21:1

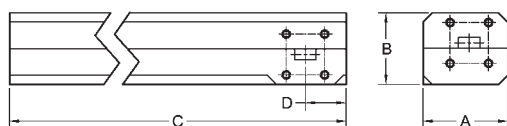
Other waveguide sizes are available.

¹ Directivity is the difference between power levels at the coupled port when input and output ports are interchanged.

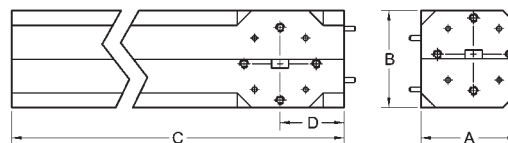
² Insertion loss is defined as the power loss in excess of the loss due to coupling.

³ For 30 dB and 40 dB couplers: directivity = 25 dB typ.

Outline Drawings/Mechanical Specifications



WR-42 and WR-28



WR-22 through WR-6

FREQ. BAND	WAVEGUIDE SIZE	FLANGE PATTERN	OUTLINE DIMENSIONS, inches/mm			
			A	B	C	D
K	WR-42	UG-595/U	1.40/35.6	1.10/27.9	7.75/196.8	0.44/11.2
Ka	WR-28	UG-599/U	1.10/27.9	0.93/23.6	6.21/157.7	0.53/13.5
Q	WR-22	UG-383/U	1.25/31.8	1.25/31.8	5.50/139.7	0.83/21.1
U	WR-19	UG-383/U	1.25/31.8	1.25/31.8	5.50/139.7	0.83/21.1
V	WR-15	UG-385/U	1.20/30.5	0.834/21.2	3.84/97.5	0.60/15.2
E	WR-12	UG-387/U	1.20/30.5	0.825/21	3.4/86.4	0.60/15.2
W	WR-10	UG-387/U	1.20/30.5	0.80/20.3	3.24/82.3	0.60/15.2
F	WR-8	UG-387/U	1.20/30.5	0.80/20.3	2.42/61.5	0.60/15.2
D	WR-6	UG-387/U	1.20/30.5	0.80/20.3	2.82/71.6	0.60/15.2

Ordering Information

Model Number **QJR -**

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

coupling value in dB

03, 06, 10, 20, 30 or 40

A BC D E O

version

0 = standard
Z = custom

number of ports

3 = 3 ports
4 = 4 ports