

## Waveguide Crossguide Couplers, SWX Series

### FEATURES:

- ◆ Frequency coverage: 18 to 170 GHz
- ◆ Waveguide or split block styles
- ◆ Three or four-port configurations
- ◆ Various coupling levels
- ◆ Low insertion loss and moderate directivity
- ◆ Instrumentation grade



### APPLICATIONS:

- ◆ Test labs
- ◆ Instrumentation
- ◆ Subassemblies

### DESCRIPTION:

**SWX series** waveguide crossguide couplers are offered for power sampling where directivity is a concern. Compared to multi-hole directional couplers, crossguide couplers feature lower insertion loss and a shorter design. These couplers are offered in both waveguide and split block versions. The below standard models cover 18 to 110 GHz, however, additional models can be offered for frequencies up to 170 GHz. While the waveguide version offers a light weight and flange interfaces for a convenient integration from both directions, the block version offers a more compact size. Although both versions can be offered in three and four-port configurations, only four-port configurations are listed below. In addition, full band models and differing coupling levels can be requested. Always check the website or contact the factory for custom models.

### CATALOG MODELS:

Band	Model Number	WG	Frequency Range (GHz)	Bandwidth (GHz)	Coupling (dB)	Insertion Loss (dB) <sup>1</sup>	Directivity (dB) <sup>2</sup>	VSWR	Outline
K	SWX-F1NF2NCC-42-4B	WR-42	18.0 to 26.5	4.0	20, 30, 40	0.50	15	1.1:1	WX-BK-4
K	SWX-F1NF2NCC-42-4W	WR-42	18.0 to 26.5	4.0	20, 30, 40	0.70	15	1.1:1	WX-WK-4
Ka	SWX-F1NF2NCC-28-4B	WR-28	26.5 to 40.0	6.0	20, 30, 40	0.50	15	1.1:1	WX-BA-4
Ka	SWX-F1NF2NCC-28-4W	WR-28	26.5 to 40.0	6.0	20, 30, 40	0.70	15	1.1:1	WX-WA-4
Q	SWX-F1NF2NCC-22-4B	WR-22	33.0 to 50.0	7.0	20, 30, 40	0.60	15	1.1:1	WX-BQ-4
Q	SWX-F1NF2NCC-22-4W	WR-22	33.0 to 50.0	7.0	20, 30, 40	0.80	15	1.1:1	WX-WQ-4
U	SWX-F1NF2NCC-19-4B	WR-19	40.0 to 60.0	8.0	20, 30, 40	0.60	15	1.1:1	WX-BU-4
U	SWX-F1NF2NCC-19-4W	WR-19	40.0 to 60.0	8.0	20, 30, 40	0.80	15	1.1:1	WX-WU-4
V	SWX-F1NF2NCC-15-4B	WR-15	50.0 to 75.0	10.0	20, 30, 40	0.70	15	1.1:1	WX-BV-4
V	SWX-F1NF2NCC-15-4W	WR-15	50.0 to 75.0	10.0	20, 30, 40	0.90	15	1.1:1	WX-WV-4
E	SWX-F1NF2NCC-12-4B	WR-12	60.0 to 90.0	10.0	20, 30, 40	0.70	15	1.1:1	WX-BE-4
E	SWX-F1NF2NCC12-4W	WR-12	60.0 to 90.0	10.0	20, 30, 40	0.90	15	1.1:1	WX-WE-4
W	SWX-F1NF2NCC10-4B	WR-10	75.0 to 110.0	10.0	20, 30, 40	0.80	15	1.1:1	WX-BW-4
W	SWX-F1NF2NCC-10-4W	WR-10	75.0 to 110.0	10.0	20, 30, 40	1.00	15	1.1:1	WX-WW-4

- Note: 1) Insertion loss is the power loss on top of the coupling loss. For example, 20 dB block type crossguide coupler with model number SWX-30336320-28-4B has 20.5 dB total power loss.  
2) The directivity of the four-port coupler is dependent on the load.

### CUSTOM MODELS:

SAGE Millimeter's crossguide coupler model numbers are configured per the following format. Customers may refer to the format below and specify their own model numbers accordingly when placing an order.

SWX - F1N F2N CC - WG - XY

F1N is the start frequency in MHz x 10N. For example: 85 GHz = 853

F2N is the stop frequency in MHz x 10N. For example: 95 GHz = 953

CC is the coupling level in dB. For example: 30 dB = 30

WG is the waveguide size. For example: WR-10 = 10

X is for number of ports. "D" is for two ports, "3" is for three ports and "4" is for four ports.

Y is for coupler configuration. "B" is for split block and "W" is for waveguide.

Example: SWX-85395330-10-4B is a 4-port crossguide coupler with a frequency range from 85 to 95 GHz and a coupling level of 30 dB. The coupler has WR-10 waveguides at the input and output ports and a split block configuration.