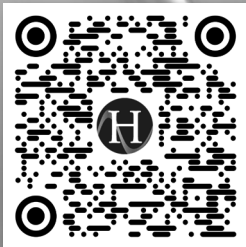




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RF COAXIAL and WAVEGUIDE ATTENUATORS

RF Coaxial Attenuators are used to reduce signal levels and improve the match between components.

A Millimeter Waveguide Attenuator is a passive RF device specifically designed to reduce the power of a signal without affecting or reducing the waveform of the signal. Millimeter Waveguide Fixed Attenuators have a fixed level of attenuation - any signal input in to the system will be attenuated by the waveguide.

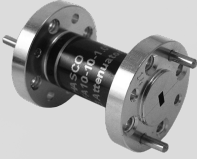
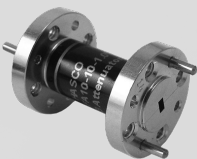
HASCO stocks thousands of RF and Microwave attenuators and can support most requirements, such as Type N, SMA, 2.92mm, 2.4mm, and 1.85mm in addition to many other RF Coaxial and Waveguide Attenuators.

RF COAXIAL ATTENUATORS

XX = dB Value

PHOTO	TYPE/PART #	FREQUENCY	POWER	TEMP RANGE	ATTENUATION	VSWR	MATERIALS
	Type N HA18N5W-XX	DC-18 GHz	5 Watts Peak: 500 W	-65° - +125°C	1-6 dB = ± 0.30 dB 7-20 dB = ± 0.50 dB 30 dB = ± 0.75 dB 40 dB = ± 1.25 dB	1:15:1 to 1.35:1	● Heat Sink: Black Anodized Aluminum ● Housing: Passivated SS ● Contact: Gold Plated BeCu ● Dielectric: PTFE
	Type N HA18N10W-XX	DC-18 GHz	10 Watts Peak: 500 W	-65° - +125°C	1-6 dB = ± 0.50 dB 7-20 dB = ± 0.75 dB 30-40 dB = ± 1.00 dB	1:15:1 to 1.40:1	● Heat Sink: Black Anodized Aluminum ● Housing: Passivated SS ● Contact: Gold Plated BeCu ● Dielectric: PTFE
	SMA HA3A2-XX	DC-3 GHz	2 Watts Peak: 100 W	-10° - +65°C	1-2 dB = ± 0.40 dB 3-9 dB = ± 0.50 dB 10 dB = ± 0.60 dB 15-20 dB = ± 0.70 dB 30 dB = ± 0.80 dB	1:20:1	● Housing: Gold Plated Brass ● Contact: Gold Plated BeCu ● Dielectric: PTFE
	SMA HA6A-XX	DC-6 GHz	2 Watts Peak: 200 W	-65° - +125°C	1-20 dB = ± 0.50 dB 30 dB = ± 0.75 dB	1:15:1 to 1.20:1	● Housing: Passivated SS ● Contact: Gold Plated BeCu ● Dielectric: High Temp. Plastic Bead
	SMA HA6A2-XX	DC-6 GHz	2 Watts Peak: 200 W	-65° - +125°C	1-20 dB = ± 0.50 dB 30 dB = ± 0.75 dB	1:15:1 to 1.35:1	● Housing: Passivated SS ● Contact: Gold Plated BeCu ● Dielectric: PTFE
	SMA HA18A-XX	DC-18 GHz	2 Watts Peak: 250 W	-55° - +85°C	0.5-9 dB = ± 0.30 dB 10-20 dB = ± 0.50 dB 25-30 dB = ± 0.75 dB	1:15:1 to 1.35:1	● Housing: Passivated SS ● Contact: Gold Plated BeCu ● Dielectric: PTFE
	SMA HA18A5W-XX	DC-18 GHz	5 Watts Peak: 500 W	-65° - +125°C	0.5-6 dB = ± 0.30 dB 7-20 dB = ± 0.50 dB 30 dB = ± 0.75 dB 40 dB = ± 1.25 dB	1:15:1 to 1.35:1	● Heat Sink: Black Anodized Aluminum ● Housing: Passivated SS ● Contact: Gold Plated BeCu ● Dielectric: PTFE
	SMA HA18A10W-XX	DC-18 GHz	10 Watts Peak: 500 W	-65° - +125°C	1-6 dB = ± 0.50 dB 10-20 dB = ± 0.75 dB 30 dB = ± 1.00 dB	1:15:1 to 1.40:1	● Heat Sink: Black Anodized Aluminum ● Housing: Passivated SS ● Contact: Gold Plated BeCu ● Dielectric: PTFE
	SMA HA26A-XX	DC-26 GHz	2 Watts Peak: 500 W	-65° - +125°C	1-12 dB = ± 0.50 dB 15-20 dB = ± 0.75 dB 30 dB = ± 1.25 dB	1:15:1 to 1.35:1	● Housing: Passivated SS ● Contact: Gold Plated BeCu ● Dielectric: PTFE
	2.92mm HA40A-XX	DC-40 GHz	1/2 (.5) Watt Peak: 500 W	-55° - +125°C	1-30 dB = ± 0.75 dB	1:30:1 to 1.40:1	● Housing: Passivated SS ● Contact: Gold Plated BeCu ● Dielectric: High Temp. Plastic Bead
	2.92mm HA40A2-XX	DC-40 GHz	2 Watts Peak: 500 W	-55° - +125°C	1-9 dB = ± 0.80 dB 10-30 dB = ± 1.00 dB	1:30:1 to 1.40:1	● Housing: Passivated SS ● Contact: Gold Plated BeCu ● Dielectric: High Temp. Plastic Bead
	2.4mm HA50A-XX	DC-50 GHz	1/2 (.5) Watt	-55° - +100°C	1-10 dB = ± 1.50 dB 20-30 dB = ± 2.00 dB	1:35:1 to 1.75:1	● Housing: Passivated SS ● Contact: Gold Plated BeCu ● Dielectric: High Temp. Plastic Bead
	2.4mm HA50A1-XX	DC-50 GHz	1 Watt	-55° - +100°C	1-10 dB = ± 1.50 dB 20-30 dB = ± 2.00 dB	1:35:1 to 1.75:1	● Housing: Passivated SS ● Contact: Gold Plated BeCu ● Dielectric: High Temp. Plastic Bead
	1.85mm HA65A-XX	DC-65 GHz	1 Watt	-55° - +100°C	1-9 dB = ± 1.50 dB 10 dB = ± 1.75 dB 20 dB = ± 2.5 dB 30 dB = ± 5.5 dB	1:35:1 to 1.65:1	● Housing: Passivated SS ● Contact: Gold Plated BeCu ● Dielectric: High Temp. Plastic Bead

FIXED WAVEGUIDE ATTENUATORS

PHOTO	TYPE/PART #	FREQUENCY	POWER	TEMP RANGE	ATTENUATION ACCURACY	VSWR	MATERIALS
	WR-10 W Band HWFA10-03-1.0 (1 Inch)	75 to 110 GHz	0.3 Watts	-0° - +100°C	Accuracy: (0.7 dB @ 4%) 3 dB Typ.	1:15:1	● Waveguide: 075-T6 Aluminum ● Finish: Gold Over Electroless Nickel ● Flange UG-387/U-M
	WR-10 W Band HWFA10-06-1.0 (1 Inch)	75 to 110 GH	0.3 Watts	-0° - +100°C	Accuracy: (0.7 dB @ 4%) 6 dB Typ.	1:15:1	● Waveguide: 075-T6 Aluminum ● Finish: Gold Over Electroless Nickel ● Flange UG-387/U-M
	WR-10 W Band HWFA10-10-1.0 (1 Inch)	75 to 110 GH	0.3 Watts	-0° - +100°C	Accuracy: (0.7 dB @ 4%) 10 dB Typ.	1:15:1	● Waveguide: 075-T6 Aluminum ● Finish: Gold Over Electroless Nickel ● Flange UG-387/U-M
	WR-12 E Band HWFA12-03-1.0 (1 Inch)	60 to 90 GHz	0.3 Watts	-0° - +100°C	Accuracy: (0.7 dB @ 4%) 3 dB Typ.	1:15:1	● Waveguide: 075-T6 Aluminum ● Finish: Gold Over Electroless Nickel ● Flange UG-387/U
	WR-12 E Band HWFA12-06-1.0 (1 Inch)	60 to 90 GHz	0.3 Watts	-0° - +100°C	Accuracy: (0.7 dB @ 4%) 6 dB Typ	1:15:1	● Waveguide: 075-T6 Aluminum ● Finish: Gold Over Electroless Nickel ● Flange UG-387/U
	WR-12 E Band HWFA12-10-1.0 (1 Inch)	60 to 90 GHz	0.3 Watts	-0° - +100°C	Accuracy: (0.7 dB @ 4%) 10 dB Typ.	1:15:1	● Waveguide: 075-T6 Aluminum ● Finish: Gold Over Electroless Nickel ● Flange UG-387/U
	WR-15 V Band HWFA15-03-1.0 (1 Inch)	50 to 75 GHz	0.3 Watts	-0° - +100°C	Accuracy: (0.7 dB @ 4%) 3 dB Typ.	1:15:1	● Waveguide: 075-T6 Aluminum ● Finish: Gold Over Electroless Nickel ● Flange UG-385/U
	WR-15 V Band HWFA15-06-1.0 (1 Inch)	50 to 75 GHz	0.3 Watts	-0° - +100°C	Accuracy: (0.7 dB @ 4%) 6 dB Typ	1:15:1	● Waveguide: 075-T6 Aluminum ● Finish: Gold Over Electroless Nickel ● Flange UG-385/U
	WR-15 V Band HWFA15-10-1.0 (1 Inch)	50 to 75 GHz	0.3 Watts	-0° - +100°C	Accuracy: (0.7 dB @ 4%) 10 dB Typ.	1:15:1	● Waveguide: 075-T6 Aluminum ● Finish: Gold Over Electroless Nickel ● Flange UG-385/U

LEVEL-SET WAVEGUIDE ATTENUATORS

PHOTO	TYPE/PART #	FREQUENCY	VARIABLE ATTENUATION	VSWR	MATERIALS
	WR-06 D Band HWLSA06-0330-ER	110 to 170 GHz	0 to 30dB	1:30:1	● Waveguide: OFHC Copper ● Flange: OFHC Copper ● Finish: Gold Plate ● Flange UG-387/M
	WR-08 F Band HWLSA08-0330-ER	90 to 140 GHz	0 to 30dB	1:30:1	● Waveguide: OFHC Copper ● Flange: OFHC Copper ● Finish: Gold Plate ● Flange UG-387/M
	WR-10 W Band HWLSA10-0330-ER	75 to 110 GHz	0 to 30dB	1:30:1	● Waveguide: OFHC Copper ● Flange: OFHC Copper ● Finish: Gold Plate ● Flange UG-387/M
	WR-12 E Band HWLSA12-0330-ER	60 to 90 GHz	0 to 30dB	1:30:1	● Waveguide: OFHC Copper ● Flange: OFHC Copper ● Finish: Gold Plate ● Flange UG-387
	WR-15 V Band HWLSA15-0330-ER	50 to 75 GHz	0 to 30dB	1:30:1	● Waveguide: OFHC Copper ● Flange: OFHC Copper ● Finish: Gold Plate ● Flange UG-385
	WR-19 U Band HWLSA19-0330-ER	40 to 60 GHz	0 to 30dB	1:30:1	● Waveguide: OFHC Copper ● Flange: OFHC Copper ● Finish: Gold Plate ● Flange UG-383/M
	WR-22 Q Band HWLSA22-0330-ER	33 to 50 GHz	0 to 30dB	1:30:1	● Waveguide: OFHC Copper ● Flange: OFHC Copper ● Finish: Gold Plate ● Flange UG-383/U-M
	WR-28 Ka Band HWLSA28-0330-ES	26.5 to 40 GHz	0 to 30dB	1:25:1	● Waveguide: OFHC Copper ● Flange: OFHC Copper ● Finish: Gold Plate ● Flange UG-599