

# MICROWAVE TEST EQUIPMENT

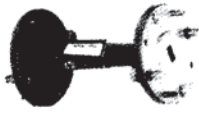
Adapters, Bends, Twists, Straights, Mismatches

Models 281A/C, 292A/B, 11515/6A, 897A/B, 898A/B, 899A/B

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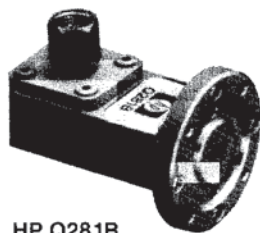
HP UV292A



HP Q898A



HP Q899A



HP Q281B



HP Q897A



HP U896D

## HP 281A/C, 292A/B, 11515A/6A Coax and Waveguide Adapters

HP 281A Adapters transform waveguide transmission line into 50-ohm coaxial line. The HP 281C family has improved SWR. HP R/Q281 Adapters use the new 2.4 mm coaxial connector capable of non-modulating performance all the way to 50 GHz.

HP 292A/B Waveguide-to-Waveguide Adapters connect two different waveguide sizes with overlapping frequency ranges. HP 11515A/16A adapt circular to rectangular flanges in K-band and R-band.

### HP 281A/B/C Specifications

HP Model	SWR	Frequency Range (GHz)	Waveguide Size EIA	Coaxial Connector	W/G Flange UG(-) U	Price
S281A	1.25	2.60-3.95	WR284	N (f)	584	\$275
G281A	1.25	3.95-5.85	WR187	N (f)	407	\$250
J281A	1.25	5.30-8.20	WR137	N (f)	441	\$200
H281A	1.25	7.05-10.0	WR112	N (f)	138	\$175
X281A	1.25	8.20-12.4	WR90	N (f)	135	\$150
X281C	1.05	8.20-12.4	WR90	APC-7	135	\$375
Option 012				N (m)		-\$15
Option 013				N (f)		-\$15
P281B	1.25	12.4-18.0	WR62	APC-7	419	\$250
Option 013				N (f)		-\$15
P281C	1.06	12.4-18.0	WR62	APC-7	419	\$400
Option 012				N (m)		-\$15
Option 013				N (f)		-\$15
K281C	1.07	18.0-26.5	WR42	APC-3.5 (f)	597	\$450
Option 012				APC-3.5 (m)		N/C
R281A	1.1	26.5 - 40.0	WR-28	2.4 mm (f)	381	\$850
R281B				2.4 mm (m)		\$800
Q281A	1.1	33.0 - 50.0	WR-22	2.4 mm (f)	383	\$850
Q281B				2.4 mm (m)		\$800

### HP 292A/B, 11515A, 11516A Specifications

HP Model	Frequency Range (GHz)	SWR	W/G Size Flange	to	W/G Size Flange	Price
HX292B	8.2-10.0	1.05	WR 112 UG-51/U		WR 90 UG-39/U	\$250
MX292B	10.0-12.4	1.05	WR 75 Cover		WR 90 UG-39/U	\$315
MP292B	12.4-15.0	1.05	WR 75 Cover		WR 62 UG-419/U	\$250
NP292A	15.0-18.0	1.05	WR 51 Cover		WR 62 UG-419/U	\$250
NK292A	18.0-22.0	1.05	WR 51 Cover		WR 42 UG-595/U	\$250
RQ292A	33.0-40.0	1.15	WR-28 UG-381/U		WR-22 UG-383/U	\$470
QU292A	40.0-50.0	1.15	WR-22 UG-383/U		WR-19 UG-383/U(Mod.)	\$480
UV292A	50.0-60.0	1.15	WR-19 UG-383/U(Mod.)		WR-15 UG-385/U	\$490
11515A	18.0-26.5	—	WR 42 UG-425/U		WR 42 UG-595/U	\$250
11516A	26.5-40.0	—	WR 28 UG-381/U		WR 28 UG-599/U	\$250

### HP 894, 896, 897, 898, 899 Millimetre-Wave Waveguide Accessories

Waveguide accessories, such as E- & H-Plane bends, twists, and straight sections, are necessary and useful for assembling waveguide measurement systems.

HP offers HP R/Q/U/V/W 897A/B E-Plane and H-Plane bends of 90 degrees. HP R/Q/U/V/W 898A/B twists can be specified for either right rotation (A-Model) or left rotation (B-Model) of 90 degrees. And, finally, several HP R/Q/U/V/W 899A/B straight sections are available in 2.5 and 5.0 cm lengths to fill out the proper dimensions of complicated test set-ups.

Network analysis calibration is verified by measuring a precise and traceable reference impedance. HP's R/Q/U/V/W 896 standard sections and R/Q/U/V/W 894 standard mismatches are this kind of references.

They have very low SWR, less than 1.016. Their impedance is traceable to the National Bureau of Standards, using laser interferometry to accurately measure waveguide dimensions.

The HP Q/U896 have a unique precision flange design. When mating with a standard MIL-spec flange, this design improves repeatability by about a factor of two (when mating two HP precision flanges, repeatability is improved by a factor of five).

### HP 897A/B, 898A/B, 899A/B Waveguide Accessories Specifications

Frequency Range (GHz)	Description and HP Model	SWR	W/G	Equiv. Flange	Price	
33 - 50 40 - 60	Bends					
	H-Plane Q897A E-Plane Q897B	1.1	WR-22	UG-383/U	180	
	H-Plane U897A E-Plane U897B	1.1	WR-19	UG-383/U(mod)	195	
33 - 50 40 - 60 50 - 75 75 - 110	Twists					
	90° R.H. Q898A 90° L.H. Q898B	1.1	WR-22	UG-383/U	195	
	U898A U898B	1.1	WR-19	UG-383/U(mod)	185	
	V898A W898A	1.1 1.15	WR-15 WR-10	UG-385/U UG-387/U(mod)	175 175	
26.5 - 40 33 - 50 40 - 60 50 - 75 75 - 110	Straights					
	2.5cm 5cm 10cm					
	Q899A	R896B Q899B Q896B Q896D	1.016 1.1 1.016 1.016	WR-28 WR-22 WR-22 WR-19	UG-599/U UG-383/U UG-383/U UG-383/U(mod)	\$470 \$500 \$175 \$155
	U899A	U899A U896B U896D	1.1 1.016 1.02	WR-19 WR-19 WR-15	UG-383/U(mod) UG-383/U(mod) UG-385/U	\$530 \$530 \$610
	V896B W896B	1.03	WR-10	UG-387/U(mod)	\$640	
	26.5 - 40 33 - 50 40 - 60 50 - 75 75 - 110	Mismatches				
5cm 10cm						
Mismatch Reflection (each port)						
R894D Q894D U894D		.25 .25 .25	WR-28 WR-22 WR-19	UG-599/U UG-383/U UG-383/U(Mod)	\$500 \$510 \$530	
V894B W894B		.25 .25	WR-15 WR-10	UG-385/U UG-385/U(Mod)	\$610 \$640	