

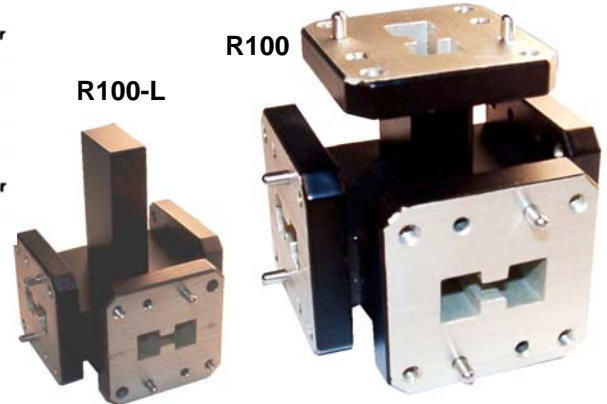
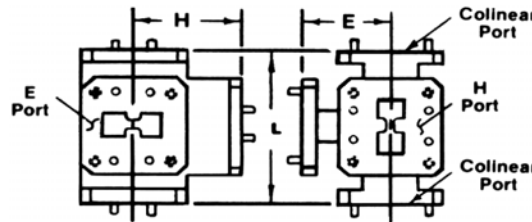


# DOUBLE-RIDGE WAVEGUIDE MAGIC TEE HYBRIDS

**R100 SERIES                      R100-L SERIES**

**DATA SHEET  
No. T14F**

- LOW VSWR
- HIGH ISOLATION
- LOW LOSS
- LEVEL POWER SPLIT
- FULLY QUALIFIED



## DESCRIPTION

The R100 Series magic tee is a versatile four-port hybrid which can vectorially add, subtract or divide two signals. In its most common use, it splits an input signal at the H or sum-port into two outputs of equal amplitude and phase at the collinear ports, with typical tracking of .3dB and 5°. Used in reverse, the tee may also combine two in-phase or out-of-phase signals into a common output with combined loss under 0.3 dB.

For low and medium-power cases not requiring out-of-phase splitting or combining, the R100-L series may be used. It has the E or difference port internally terminated leaving only three accessible, well-matched ports.

Due to their outstanding electrical characteristics and superior construction, MEC's magic tees have been selected for the harshest environments of ECM systems onboard many of the most advanced military aircraft. They exceed the requirements of MIL-E-5400 for non-conditioned compartments and have undergone extensive qualification testing including high power, temperature, altitude, vibration, shock, humidity, salt spray, sand, and dust.

R100 magic tees are available with many options including other mechanical configurations, pressure sealing, higher power versions and a large assortment of waveguide flanges or coaxial connectors. They may also be networked together into N-way divider/combiner assemblies for high power summing and phased-array applications.

Material is aluminum, flanges are cover type with alternate tapped and clearance holes, finish is chromate conversion per MIL-C-5541, Class 3 and paint is high temperature black epoxy enamel.

## SPECIFICATIONS: R100 SERIES

Power Split: 3.1 ± 0.3 dB typ., ± 0.4 dB max.  
VSWR: 1.3 typ., 1.5 max

Isolation, Collinear Ports: 17 dB typ., 12 dB min.  
Isolation, E – H Ports: 30 dB min.

MODEL	FREQUENCY (GHz)	WAVEGUIDE SIZE	FLANGE	POWER (R100 Series)		DIMENSIONS (Inches ± .03)		
				PEAK <sup>(1)</sup>	AVERAGE <sup>(1)</sup>	L	E	H
R100	8.0 – 16.0	WRD-750D24	MEC-750C2 M39000/3-074	5KW	500W	2.00	1.25	1.20
R100-F	8.0 – 18.0							
R100-1	8.5 – 18.5							
R100-2	7.5 – 18.0							
R107	8.0 – 18.0	WRD-650D28	MEC-650C2	NOTE:1 Peak Applies At 14.7 PSIA Air (Sea Level) Ambient	NOTE: 2 Average Applies At 110° Rise Above Ambient	2.00	1.25	1.20
R107-1	6.5 – 18.0							
R107-2	6.5 – 18.5							
R107-3	6.0 – 18.0							
R108	8.0 – 16.0	WRD-580D28	MEC-580C2	7 KW <sup>(1)</sup>	600 W <sup>(2)</sup>	3.00	1.75	1.50
R108-1	5.8 – 16.0							
R101	4.8 – 9.6	WRD-475D24	MEC-475C2 M39000/3-038	8 KW <sup>(1)</sup>	700 W <sup>(2)</sup>	4.50	3.00	2.50
R101-1	4.75 – 11.0							
R109	4.8 – 9.6	DR-19	MEC-DR19C2 M39000/3-044	10 KW <sup>(1)</sup>	700 W <sup>(2)</sup>	6.00	3.00	4.20
R109-1	4.8 – 11.0							
R102	4.0 – 8.0	WRD-350D24	MEC-350C2 M39000/3-032	8 KW <sup>(1)</sup>	700 W <sup>(2)</sup>	4.50	3.00	2.50
R102-1	3.5 – 8.2							
R103	2.0 – 4.0	WRD-200D24	MEC-200C/2 M39000/3-026	10 KW <sup>(1)</sup>	700 W <sup>(2)</sup>	6.00	3.00	4.20

