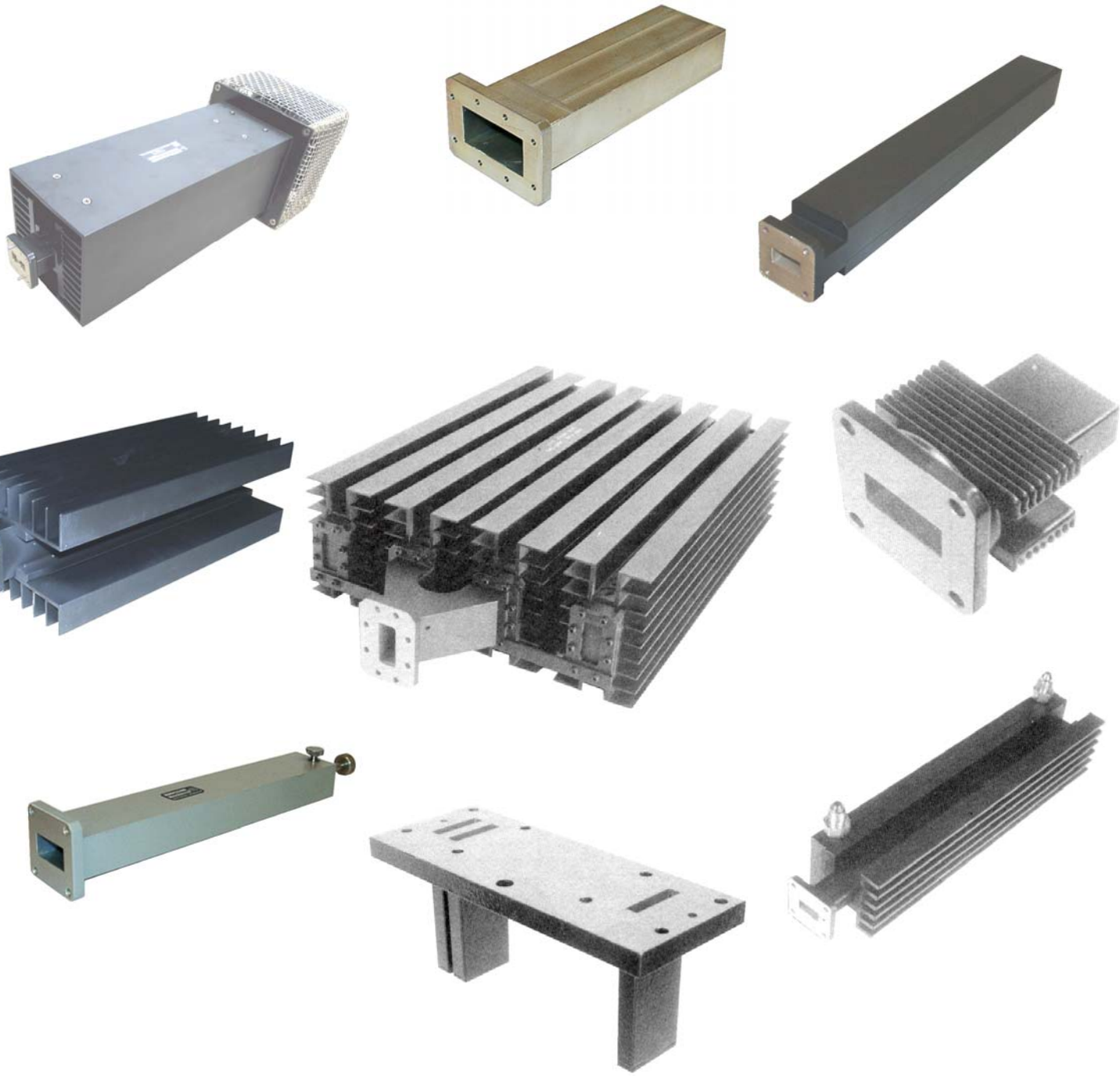

Microwave Engineering Corporation's extensive line of rectangular waveguide terminations supplies world-wide needs from 1 to 50 GHz. The following pages describe our standard product line and a few of our many specials. Other terminations can be readily supplied to satisfy your unique requirements. We're as near as your phone.

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LOW POWER MATCHED TERMINATIONS

- LOW VSWR
- FULL BANDWIDTH
- LIGHTWEIGHT
- COMPACT

80-LU
80-LA

80-L

DESCRIPTION

MEC Rectangular Waveguide Standard Length 80-L, Ultra-short 80-LU, Communications and Narrow Band 80-LA Terminations consists of precision aluminum waveguide containing rugged material especially selected and designed to absorb incident power with very low reflection.
These units are ideal for laboratory and field measurements and production setups requiring high quality terminations. Additional features are short length and light weight. Typical applications include VSWR measurement of waveguide components, low power dummy antennas and matched terminations for directional couplers, hybrids and other devices.
All units have a Chemical Film finish per MIL-C-5541, Class 3, followed by gray epoxy enamel. A power sampling probe can be supplied as a separate unit with any of the terminations. Typical flatness is ± 0.5 dB across the entire band for sampling levels from 30 to 50 dB.

SPECIFICATIONS

MODEL NO	FREQUENCY RANGE (GHz)	WAVEGUIDE SIZE	EQUIVALENT FLANGE	MAX. AV. PWR. (WATTS)	VSWR (MAX.)	LENGTH (IN. MAX.)
STANDARD LENGTH						
L80-L	1.12-1.70	WR-650	UG-418B/U	25	1.03	30
LM80-L	1.45-2.20	WR-510	UG-1717/U	15	1.03	27
LA80-L	1.70-2.60	WR-430	UG-437B/U	10	1.025	23
LS80-L	2.20-3.30	WR-340	UG-554A/U	5	1.025	17
S80-L	2.60-3.95	WR-284	UG-584/U	5	1.025	12
S2-80-L	2.60-5.85	RG-109/U	M3922/75-01	5	1.025	12
B80-L	3.30-4.90	WR-229	CMR-229	5	1.02	8
G80-L	3.95-5.85	WR-187	UG-407/U	5	1.02	8
D80-L	4.90-7.05	WR-159	CMR-159	4	1.02	6
J80-L	5.85-8.20	WR-137	UG-441/U	3	1.02	6
J2-80-L	5.85-12.4	RG-110/U	M3922/75-03	2	1.02	6
H80-L	7.05-10.0	WR-112	UG-138/U	2	1.02	5
W80-L	7.0-11.0	WR-102	M3922/70-002	2	1.02	5
X80-L	8.2-12.4	WR-90	UG-135/U	2	1.02	4
M80-L	10.0-15.0	WR-75	M3922/53-008	2	1.02	4
P80-L	12.4-18.0	WR-62	UG-1665/U	1.5	1.02	3
N80-L	15.0-22.0	WR-51	M3922/70-011	1.5	1.02	3
K80-L	18.0-26.5	WR-42	UG-597/U	1.5	1.03	3
Y80-L	22.0-33.0	WR-34	M3922/63-010	1	1.03	3
A80-L	26.5-40.0	WR-28	UG-599/U*	1	1.03	3
T80-L	33.0-50.0	WR-22	UG-383/U*	1	1.05	3
ULTRA-SHORT						
S80-LU	2.60-3.95	WR-284	UG-584/U	5	1.06	8
S2-80-LU	2.60-5.85	RG-109/U	M3922/75-01	5	1.06	8
B80-LU	3.30-4.90	WR-229	CMR-229	5	1.05	4
G80-LU	3.95-5.85	WR-187	UG-407/U	5	1.05	4
D80-LU	4.90-7.05	WR-159	CMR-159	4	1.05	3
J80-LU	5.85-8.20	WR-137	UG-441/U	3	1.05	3
J2-80-LU	5.85-12.4	RG-110/U	M3922/75-03	2	1.05	3
H80-LU	7.05-10.0	WR-112	UG-138/U	2	1.05	0.5
W80-LU	7.0-11.0	WR-102	M3922/70-002	2	1.05	2.5
X80-LU	8.2-*12.4	WR-90	UG-135/U	2	1.05	1.5
M80-LU	10.0-15.0	WR-75	M3922/53-008	2	1.05	1.5
P80-LU	12.4-18.0	WR-62	UG-1665/U	1.5	1.05	1.5
N80-LU	15.0-22.0	WR-51	M3922/70-011	1.5	1.05	1.5
K80-LU	18.0-26.5	WR-42	UG-597/U	1.5	1.06	1.5
Y80-LU	22.0-33.0	WR-34	M3922/63-010	1	1.06	1.5
A80-LU	26.5-40.0	WR-28	UG-599/U*	1	1.10	1.5
T80-LU	33.0-50.0	WR-22	UG-383/U	1	1.10	1.5
COMMUNICATIONS AND NARROW BAND						
B80-LAM	3.7-4.2	WR-229	CMR-229	5		4
D80-LAM	5.925-6.425	WR-159	CMR-159	4		3
J80-LAL	5.925-6.425	WR-137	UG-441/U	3		3
H80-LAL	7.25-8.4	WR-112	UG-138/U	2	1.01	2.5
X80-LAL	10.7-11.7	WR-90	UG-135/U	2		1.5
M80-LAL	10.7-11.7	WR-75	M3922/53-008	2		1.5
N80-LAL	17.0-19.0	WR-51	M3922/70-011	1.5		1.5

ORDERING INFORMATION

(1) For Power Sampling, add suffix "PS" to model number and specify sampling level (from 30 to 50 dB) desired.
(2) Half-height terminations, other frequency ranges, other flanges, and unique mounting arrangements also available.
(3) 80-LU Series also available from 2.60 through 50 GHz with smaller bandwidth and improved VSWR. Add suffix "L" "M", or "H" for low, middle, or high half of band.

m·e·c
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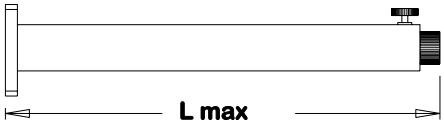
MEDIUM POWER & SLIDING TERMINATIONS

- LOW VSWR
- ADJUSTABLE PHASE



DESCRIPTIONS

80-LS Sliding Terminations consist of a well-matched, tapered sliding load in a precision aluminum waveguide housing. The load can be moved over more than one-half wavelength at the lowest frequency. Optional micrometer drive is available for band H through A. Applications include simulating a perfect termination for precise measurement of VSWR, impedance, directivity or isolation. By reversing the phase of the sliding termination it is possible to subtract it from other small reflections in the system under test.

80-M Medium Power Terminations are convection-cooled and similar to the low power series, but designed to handle higher power levels. Features include low VSWR and light weight. Typical applications include system or test bench set-ups and as moderate power dummy loads.

Both series are available with optional sampling probes supplied as separate units from 30 to 50 dB with typical flatness of ± 0.5 dB. Finish is Chemical Film per MIL-C-5541, Class 3, followed by gray epoxy enamel for the sliding loads and black enamel for the medium power termination.

SPECIFICATIONS

MODEL NO.	FREQUENCY RANGE (GHz)	WAVEGUIDE SIZE	EQUIVALENT FLANGE	MAX. AV. PWR. (WATTS)	VSWR (MAX.)	LENGTH (IN. MAX.)
SLIDING TERMINATIONS						
L80-LS	1.12-1.70	WR-650	UG-418B/U	25	1.03	48
LM80-LS	1.45-2.20	WR-510	UG-1717/U	15	1.03	45
LA80-LS	1.70-2.60	WR-430	UG-437B/U	10	1.025	40
LS80-LS	2.20-3.30	WR-340	UG-554A/U	5	1.025	34
A80-LS	2.60-3.95	WR-284	UG-584/U	5	1.025	28
S2-80-LS	2.60-5.85	RG-109/U	M3922/75-01	5	1.025	28
B80-LS	3.30-4.90	WR-229	CMR-229	5	1.02	22
G80-LS	3.95-5.85	WR-187	UG-407/U	5	1.02	18
D80-LS	4.90-7.05	WR-159	CMR-159	4	1.02	16.5
J80-LS	5.85-8.20	WR-137	UG-441/U	3	1.02	13.5
J2-80-LS	5.85-12.4	RG-110/U	M3922/75-03	2	1.02	13.5
H80-LS	7.05-10.0	WR-112	UG-138/U	2	1.02	11
W80-LS	7.0-11.0	WR-102	M3922/70-002	2	1.02	10
X80-LS	8.2-12.4	WR-90	UG-135/U	2	1.02	9
M80-LS	10.0-15.0	WR-75	M3922/53-008	2	1.02	7.5
P80-LS	12.4-18.0	WR-62	UG-1665/U	1.5	1.02	7
N80-LS	15.0-22.0	WR-51	M3922/70-011	1.5	1.02	7
K80-LS	18.0-26.5	WR-42	UG-597/U	1.5	1.03	5.5
Y80-LS	22.0-33.0	WR-34	M3922/63-010	1	1.03	5
A80-LS	26.5-40.0	WR-28	UG-599/U*	1	1.03	5
MEDIUM POWER TERMINATIONS						
L80-M	1.12-1.70	WR-650	UG-418B/U	50	1.05	40
LM80-M	1.45-2.20	WR-510	UG-1717/U	50		40
LA80-M	1.70-2.60	WR-430	UG-437B/U	50		30
LS80-M	2.20-3.30	WR-340	UG-554A/U	50		30
S80-M	2.60-3..95	WR-284	UG-584/U	50		30
S2-80-M	2.60-5.85	RG-109/U	M3922/75-01	50		22
B80-M	3.30-4.90	WR-229	CMR-229	50		30
G80-M	3.95-5.85	WR-187	UG-407/U	50		24
D80-M	4.90-7.05	WR-159	CMR-159	50		24
J80-M	5.85-8.20	WR-137	UG-441/U	50		20
J2-80-M	5.85-12.4	RG-110/U	M3922/75-03	50		13.4
H80-M	7.05-10.0	WR-112	UG-138/U	50		12
W80-M	7.0-11.0	WR-102	M3922/70-002	50		12
X80-M	8.2-12.4	WR-90	UG-135/U	50		12
M80-M	10.0-15.0	WR-75	M3922/53-008	50		10.5
P80-M	12.4-18.0	WR-62	UG-1665/U	40		9.4
N80-M	15.0-22.0	WR-51	M3922/70-011	40		9.4
K80-M	18.0-26.5	WR-42	UG-597/U	30		7.5
Y80-M	22.0-33.0	WR-34	M3922/63-010	20		7.5
A80-M	26.5-40.0	WR-28	UG-599/U*	15		7.5

***Aluminum**

ORDERING INFORMATION

Add suffix "PS" to model number for Power Sampling and specify level (30 to 50 dB).
Customized mounting, half-height models, other flanges and frequencies available on request.

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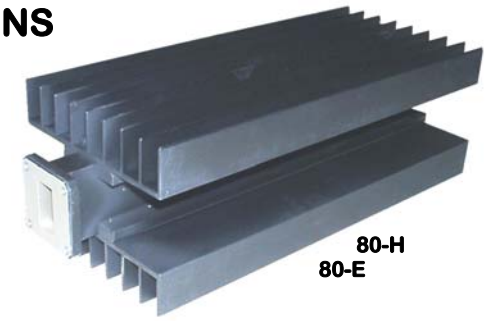
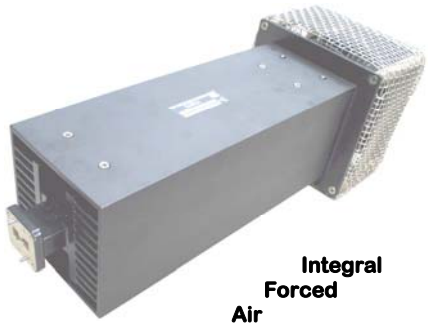
HIGH POWER & EXTRA HIGH POWER TERMINATIONS

- CONVECTION COOLING
- FAN COOLED





DESCRIPTION

MEC Rectangular Waveguide High Power 80-H and Extra High Power 80-E Terminations are constructed of finned aluminum waveguide containing high temperature absorbing material in intimate contact with the waveguide walls for good heat transfer. Standard units of 1,000 W or less are cooled by free air convection; for ratings greater then 1,000 W, forced air must be used. For higher powers, shorter lengths, or lower temperature rise, an integrally mounted fan and ducted housing may be supplied to provide forced air cooling. VSWR is 1.20 max. for operation over the full waveguide frequency band.

Designed to withstand conditions of extreme temperature and thermal shock, these terminations are ideal for us in high power systems as dummy antennas to permit testing, tuning, and maintenance without radiating RF power.

Finish is Chemical Film per MIL-C-5541, Class 3 followed by high temperature black epoxy enamel.

A power sampling probe can be supplied as a separate unit to monitor power. Typical sampling flatness is ± 0.5 dB across the entire band for levels from 30 to 50 dB.

SPECIFICATIONS

MODEL NO.	FREQUENCY RANGE (GHz)	WAVEGUIDE SIZE	EQUIVALENT FLANGE	MAXIMUM POWER			LENGTH (IN. MAX)
				AVERAGE (WATTS)		PEAK (KW) @ 30 PSIG DRY AIR ‡	
				80-H	80-E		
L80-H, L80-E	1.12-1.70	WR-650	UG-418B/U	1,000	1,500	20,000	40
LM80-H, LM80-E	1.45-2.20	WR-510	UG-1717/U	1,000	1,500	15,000	40
LA80-H, LA80-E	1.70-2.60	WR-430	UG-437B/U	1,000	1,500	10,000	30
LS80-H, LS80-E	2.20-3.30	WR-340	UG-554A/U	1,000	1,500	7,000	30
S80-H, S80-E	2.60-3.95	WR-284	UG-584/U	1,000	1,500	4,000	30
S2-80-H, S2-80-E	2.60-5.85	RG-109/U	M3922/75-01	1,000	1,500	2,000	22
B80-H, B80-E	3.30-4.90	WR-229	CPR-229F	1,000	1,500	3,000	30
G80-H, G80-E	3.95-5.85	WR-187	UG-407/U	1,000	1,500	1,800	24
D80-H, D80-E	4.90-7.05	WR-159	CPR-159F	1,000	1,500	1,000	24
J80-H, J80-E	5.85-8.20	WR-137	CPR-137F	1,000	1,500	1,000	20
J80-H*, J80-E*	5.90-6.50	WR-137	CPR-137F	1,000	1,500	1,000	24
J2-80H, J2-80-E	5.85-12.4	RG-110/U	M3922/75-03	500	1,000	750	13.4
H80-H, H80-E	7.05-10.0	WR-112	UG-138/U	500	1,000	750	12
W80-H, W80-E	7.0-11.0	WR-102	M3922/70-002	500	1,000	700	12
X80-H, X80-E	8.2-12.4	WR-90	UG-135/U	500	1,000	350	12
M80-H, M80-E	10.0-15.0	WR-75	M3922/53-008	400	800	300	10.5
P80-H, P80-E	12.4-18.0	WR-62	UG-1665/U	250	500	250	9.4
N80-H, N80-E	15.0-22.0	WR-51	M3922/70-011	175	350	175	9.4
K80-H, K80-E	18.0-26.5	WR-42	UG-597/U	125	250	100	7.5
Y80-H, Y80-E	22.0-33.0	WR-34	M3922/63-010	112	225	85	7.5
A80-H, A80-E	26.5-40.0	WR-28	UG-599/U**	100	200	80	7.5

Notes: (1) For ratings greater than 1,000 W, forced air must be used (2) VSWR on all units is 1.05 max., 3 *Narrow band (4) ‡ Pressurized units are supplied on special request (5) **Aluminum

ORDERING INFORMATION

(1) Order by Model No, and specify actual frequency range, VSWR and pressurization required.
(2) Add suffix "PS" to Model No. for Power Sampling and specify level (30 to 50 dB).
(3) For Integral Forced Air cooling, contact MEC.
(4) Half-height terminations, unique mounting arrangements, other flanges and frequencies available on request.

Data subject to change without notice

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LIQUID COOLED TERMINATIONS

- **LOW VSWR**
- **GREATEST HEAT TRANSFER**

DESCRIPTION

MEC's 80-W Series of Rectangular Waveguide Liquid Cooled Terminations operate with VSWR of 1.05 max. Thirteen models cover the full waveguide frequency bands from 2.60 to 40.0 GHz As dummy loads they ideally meet the demands of today's extremely high-powered systems to permit operational check-out without radiating RF power. Construction utilizes high-temperature absorbing material in intimate contact with the waveguide walls for good heat transfer. All units are designed to operate in any position with a coolant inlet pressure of 100 psig (max.) and temperature of 150° F (max.). Units are aluminum with MS33656E4 ¼" flared tube fittings for the liquid coolant connections. Finish is Chemical Film per MIL-C-5541, Class 3, followed by high-temperature black epoxy enamel. A power sampling probe can be supplied as a separate unit to monitor power. Typical sampling flatness is ± 0.5 dB across the entire band for levels from 30 to 50 dB.

SPECIFICATIONS

MODEL NO.	FREQUENCY RANGE (GHz)	WAVGUIDE SIZE	EQUIVALENT FLANGE	MAXIMUM POWER		MINIMUM FLOW RATE (GPM)	LENGTH (IN. MAX)
				AVERAGE (WATTS)	PEAK (KW) @ 30 PSIG DRY AIR ‡		
S80-W	2.60-3.95	WR-284	UG-584/U	15,000	4,000	5.1	30
B80-W	3.30-4.90	WR-229	CPR-229F	15,000	3,000	5.1	30
G80-W	3.95-5.85	WR-187	UG-407/U	10,000	1,800	3.4	24
D80-W	4.90-7.05	WR-159	CPR-159F	10,000	1,000	3.4	24
J80-W	5.85-8.20	WR-137	CPR-137F	5,000	1,000	1.7	20
H80-W	7.05-10.0	WR-112	UG-138/U	4,000	750	1.4	12
W80-W	7.0-11.0	WR-102	M3922/70-002	4,000	700	1.4	12
X80-W	8.2-12.4	WR-90	UG-135/U	3,000	350	1.0	12
M80-W	10.0-15.0	WR-75	M3922/53-008	3,000	300	1.0	10.5
P80-W	12.4-18.0	WR-62	UG-1665/U	1,500	250	0.5	9.4
N80-W	15.0-22.0	WR-51	M3922/70-011	1,500	175	0.5	9.4
K80-W	18.0-26.5	WR-42	UG-597/U	1,000	100	0.34	7.5
A80-W	26.5-40.0	WR-28	UG-599/U*	500	80	0.17	7.5

‡ Pressurized units are supplied on special request. ***Aluminum**

VSWR: 1.05 max.
COOLANT:

Where: Q= Minimum flow rate in GPM
Max. inlet temperature: 150°F.
Max. inlet pressure: 100 psig

The flow rate is determined from the following formula.
Typical demineralized water or Coolant.

$$Q = \frac{6.8P}{Cp\,\Delta T}$$

P = Max. CW power in Kilowatts.
Cp = Specific heat of coolant
ΔT = Coolant temperature rise in °F.

The tabularized values are for Cp = 1 for water and a ΔT of 20°F.
For different coolants, temperature rises, or power levels, a different flow rate would be necessary

ORDERING INFORMATIONS

(1) Order by Model No, and specify actual frequency range, VSWR and internal waveguide pressurization required.
(2) Add suffix "PS" to Model No. for Power Sampling and specify level (30 to 50 dB).
(3) Half-height terminations, other frequency ranges, flange, coolant fittings and pressures, unique mounting arrangements quoted on request.

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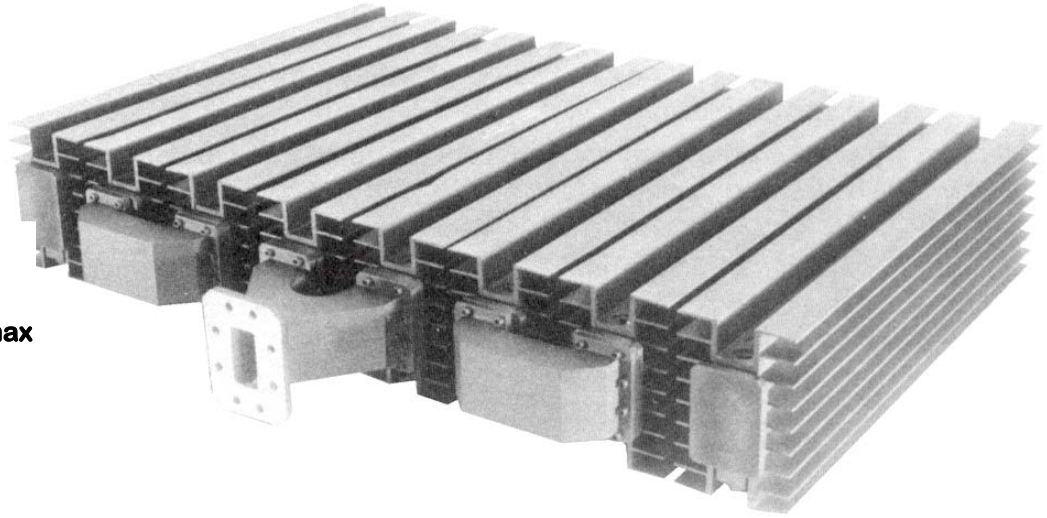
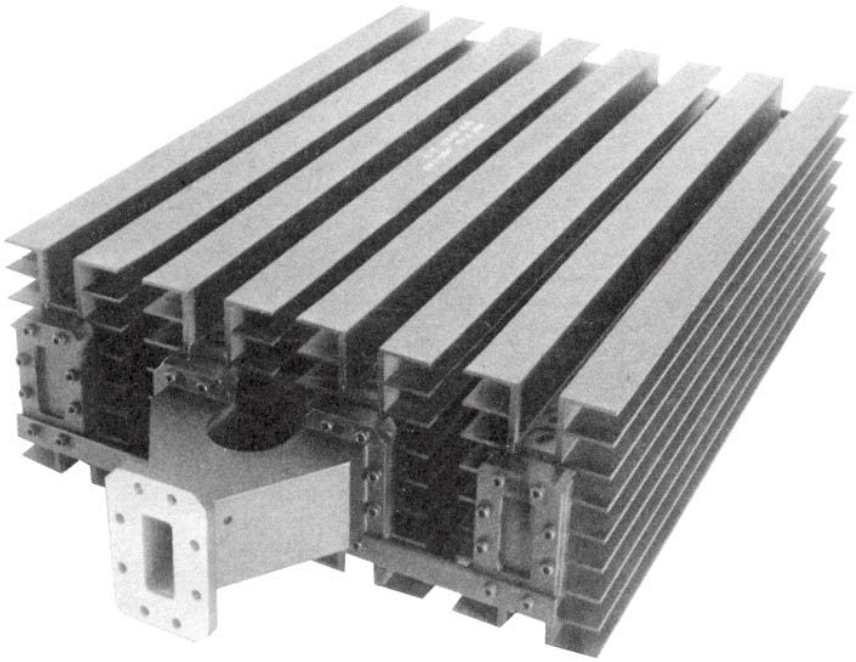
SUPER HIGH POWER TERMINATIONS
80-S SERIES

WR-159
5.925 – 6.425 GHz
12 KW average
VSWR: 1.05 typical, 1.1 max





WR-137
5.925 – 6.425 GHz
4.5 KW average
VSWR: 1.05 typical, 1.1 max

These state-of-the-art convection cooled super high power terminations exemplify but one of MEC's many innovative approaches to satisfy specific requirements. May we help with your applications? Inquiries are cordially invited.

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