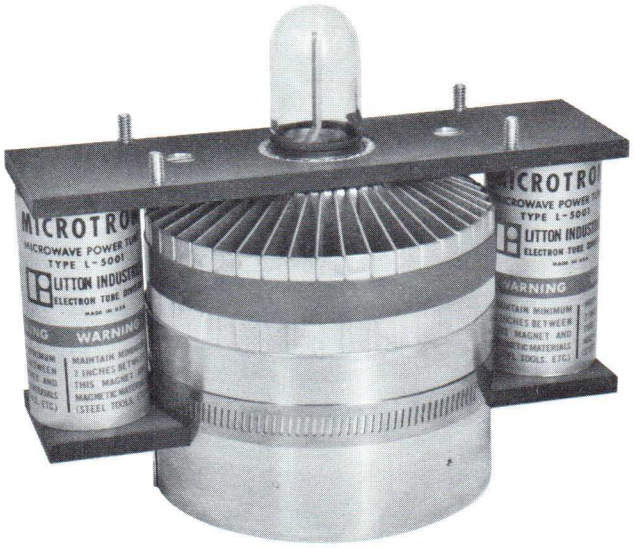
MICROTRON®
microwave power source

L-5001
CW MAGNETRON



Litton Industries Electron Tube Division offers a variety of CW magnetrons and associated transformers for microwave heating and cooking applications.

The L-5001 is a versatile medium voltage magnetron which can be operated at minimum levels of 1200, 1000, 850 or 650 watts of CW power at 2450 megacycles. The tube has a permanent magnet, is forced air cooled, lightweight and has been designed for ease of mounting and accessibility.

MECHANICAL DATA

Physical Dimensions	See Outline Drawing
Mounting Position	Cathode Vertical
Weight (Tube Permanent Magnet)	Approx. 7.0 lbs.
Cooling	Forced Air
Air Volume	0.1 cfm/watt nom.
Pressure Drop	See Chart
Inlet Air Temperature	40°C Max.
RF Coupling	Waveguide
Magnetic Field	Permanent Magnet
Anode Temperature	150°C Max.
Cathode Seal Temperature	170°C Max.
Cathode Seal Cooling	Provided in Filter Box

ELECTRICAL DATA

1200* Watt Operation (220 V, 14 A System)

Design Ratings	Min.	Avg.	Max.	Units
Heater—Directly heated				
surge current	....	....	80	amps
Warmup Time	....	3	6	sec.
Voltage Standby	4.2	4.6	5.0	volts
Voltage Operate	3.2	3.6	4.0	volts
Current-Standby	....	20.0	....	amps
Anode Voltage (Peak)	3.45	3.55	3.65	kv
Anode Current—1200 Watts (Typical Cavity)	....	725	750	mA
Frequency	2420	2450	2480	Mc
Power Output Flat Load, Note 1	....	1700	....	watts
Power Output—Oven Cavity, Note 2	1100	1200*	....	watts
Mode Boundary, Note 3	1.3	....	....	amps

1000* Watt Operation (220 V, 12 A System)

Design Ratings	Min.	Avg.	Max.	Units
Heater—Directly heated				
surge current	....	....	80	amps
Warmup Time	....	3	6	sec.
Voltage Standby	4.2	4.6	5.0	volts
Voltage Operate	....	TBS	....	volts
Current-Standby	....	20.0	....	amps
Anode Voltage (Peak)	3.45	3.55	3.65	kv
Anode Current—1000 Watts (Typical Cavity)	....	625	650	mA
Frequency	2420	2450	2480	Mc
Power Output Flat Load, Note 1	....	1475	....	watts
Power Output—Oven Cavity, Note 2	900	1000*	....	watts
Mode Boundary, Note 3	1.3	....	....	amps

850* Watt Operation (110 V, 20 A System)

Design Ratings	Min.	Avg.	Max.	Units
Heater—Directly heated				
surge current	....	....	80	amps
Warmup Time	....	3	5	sec.
Voltage Standby and Operate	4.2	4.6	5.0	volts
Current	....	20.0	....	amps
Anode Voltage (Peak)	3.4	3.5	3.6	kv
Anode Current—850 Watts (Typical Cavity)	....	550	575	mA
Frequency	2420	2450	2480	Mc
Power Output Flat Load, Note 1	....	1300	....	watts
Power Output—Oven Cavity, Note 2	750	850*	....	watts
Mode Boundary, Note 3	1.3	....	....	amps

650* Watt Operation (110 V, 15 A System)

Design Ratings	Min.	Avg.	Max.	Units
Heater—Directly heated				
surge current	....	....	80	amps
Warmup Time	....	3	5	sec.
Voltage Standby and Operate	4.2	4.6	5.0	volts
Current	....	20.0	....	amps
Anode Voltage (Peak)	3.4	3.5	3.6	kv
Anode Current—650 Watts (Typical Cavity)	....	400	425	mA
Frequency	2420	2450	2480	Mc
Power Output Flat Load, Note 1	....	950	....	watts
Power Output—Oven Cavity, Note 2	550	650*	....	watts
Mode Boundary, Note 3	1.3	....	....	amps

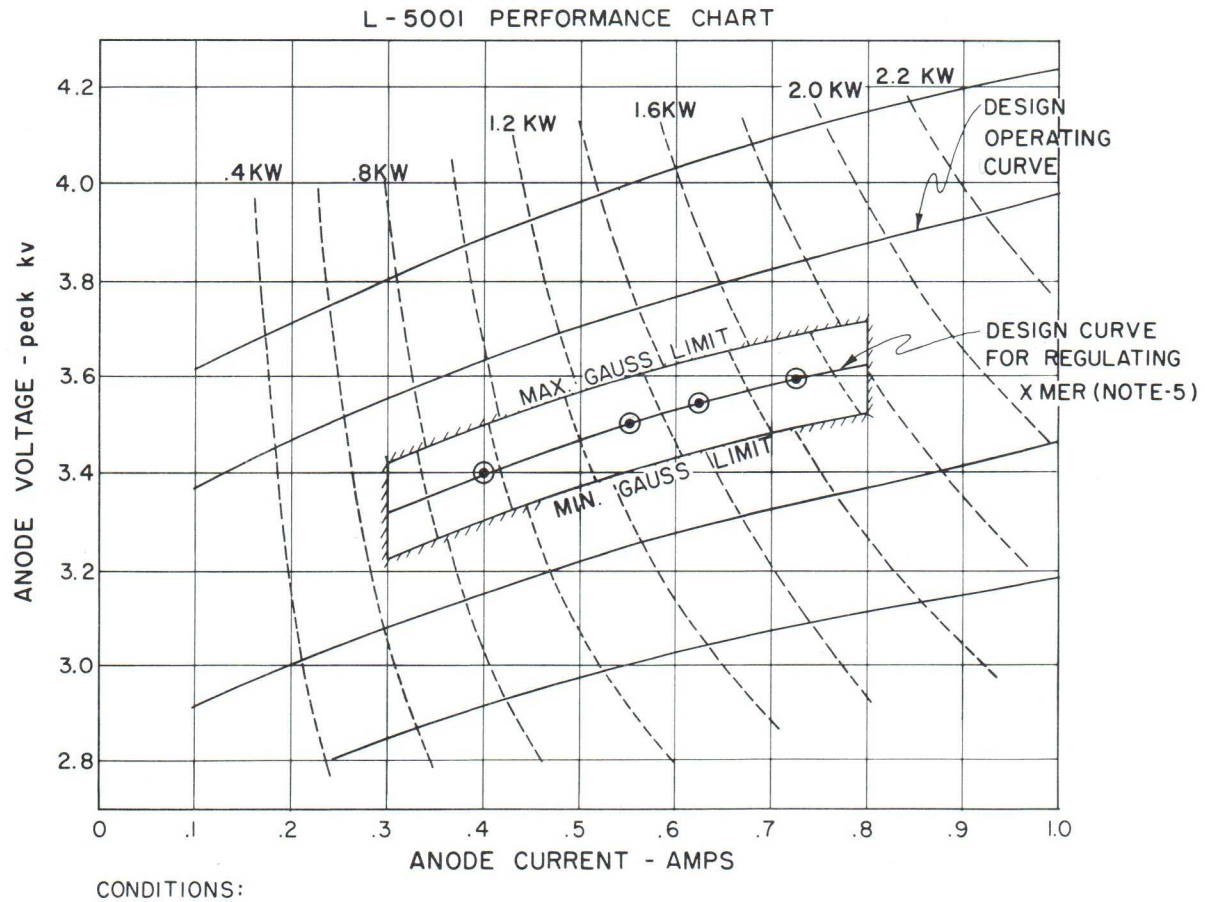
Note 1: Load VSWR 1.1:1 maximum. Power measured at average rated current.

Note 2: Typical coupling to oven 70% of flat load. Power measured at average rated current.

Note 3: No moding at minimum specified current in an approved oven design. (Momentary operation—5 sec. max.).

*Nominal oven rating. Power rating can be increased by reducing VSWR and increasing cavity coupling factor.

L-5001 PERFORMANCE DATA



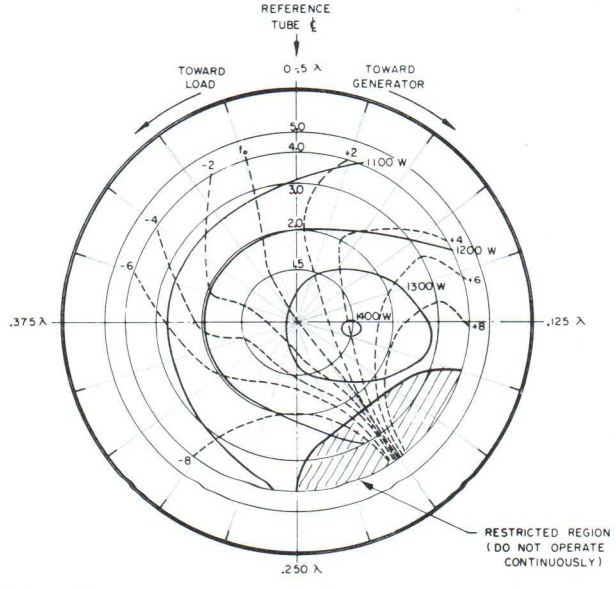
CONDITIONS:

(1) FLAT LOAD 1.1 : 1 MAX. VSWR.
(2) PERMANENT MAGNET
(3) ANODE SUPPLY - FULL WAVE, NO FILTER.
(4) $\not{c}pk \approx 3.5 \times Ib$
(5) INSET AREA APPLIES WITH HIGH IMPEDANCE CURRENT REGULATING TRANSFORMERS $\not{c}b \approx 2 \times Ib$
⊙ TRANSFORMER DESIGN POINTS
SEE MANUFACTURER FOR SPECIFIC APPLICATION.

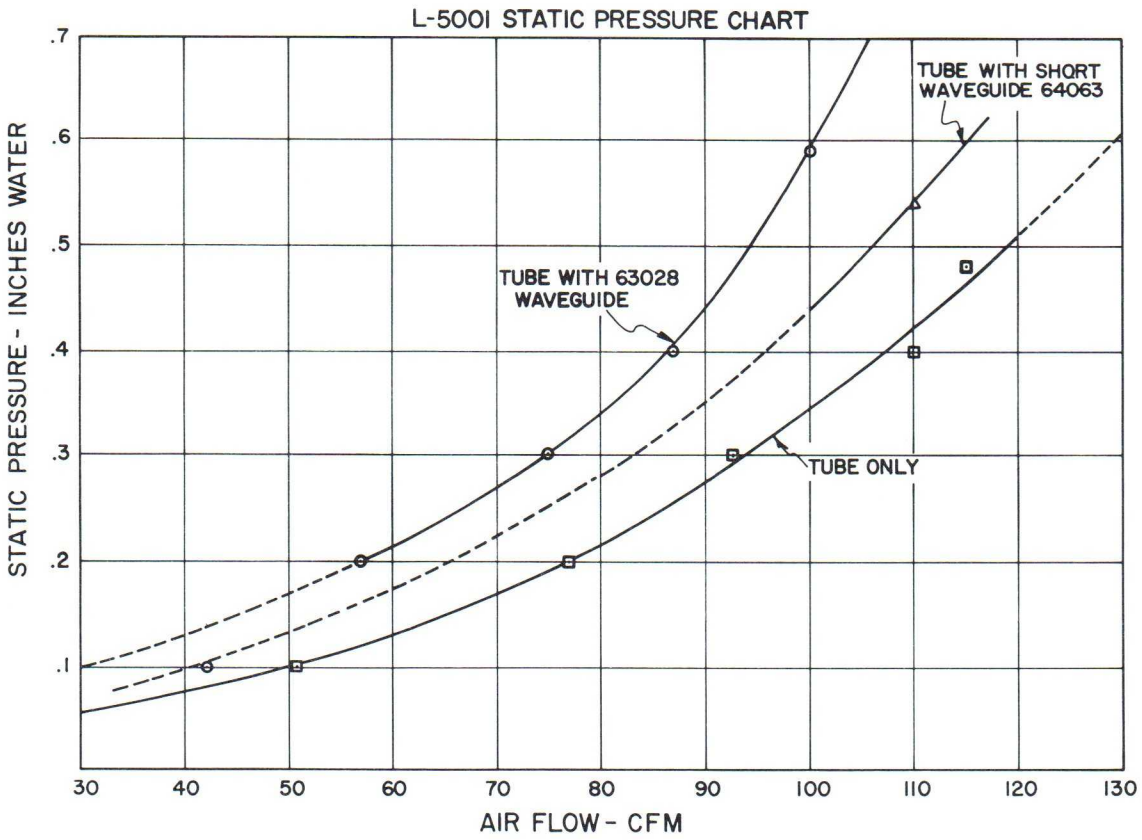
L-5001 RIEKE DIAGRAM

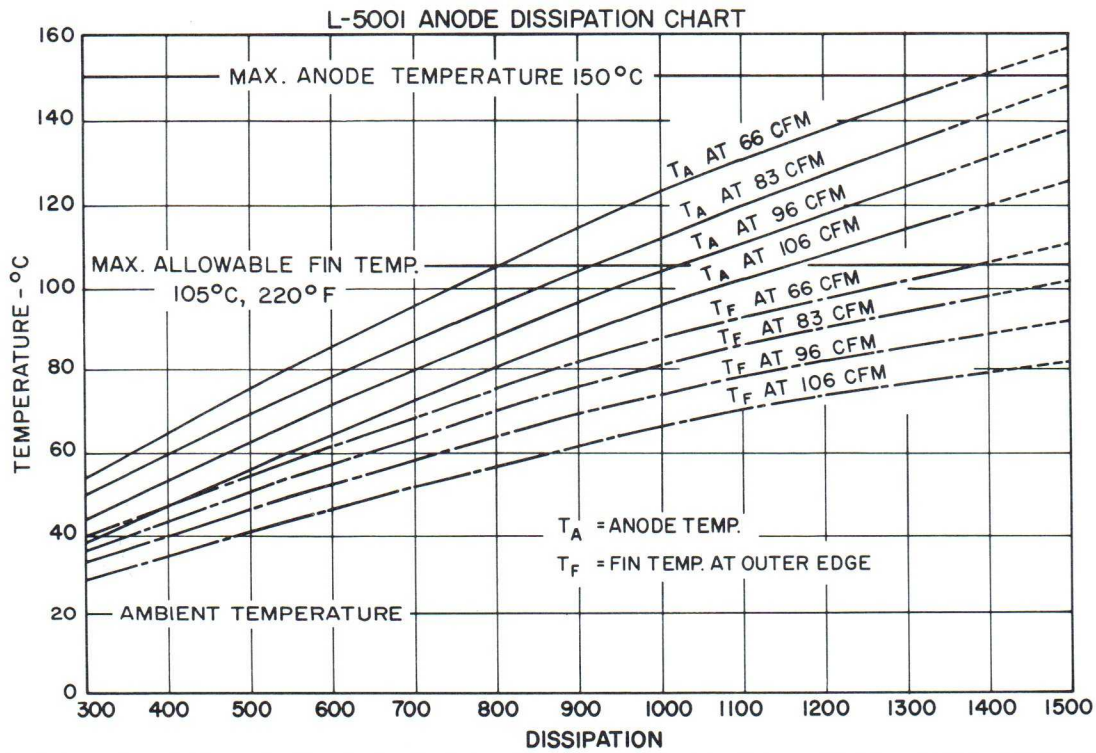
(1.3 KW)

TEST CONDITIONS:
1. ANODE SUPPLY - RECTIFIED A.C.
2. ANODE CURRENT - 550 mA AVERAGE (1.2 A PK)
3. ANODE VOLTAGE - 3.5 KV PEAK
4. ANODE REGULATION - CURRENT REGULATING TRANSFORMER



L-5001 PERFORMANCE DATA



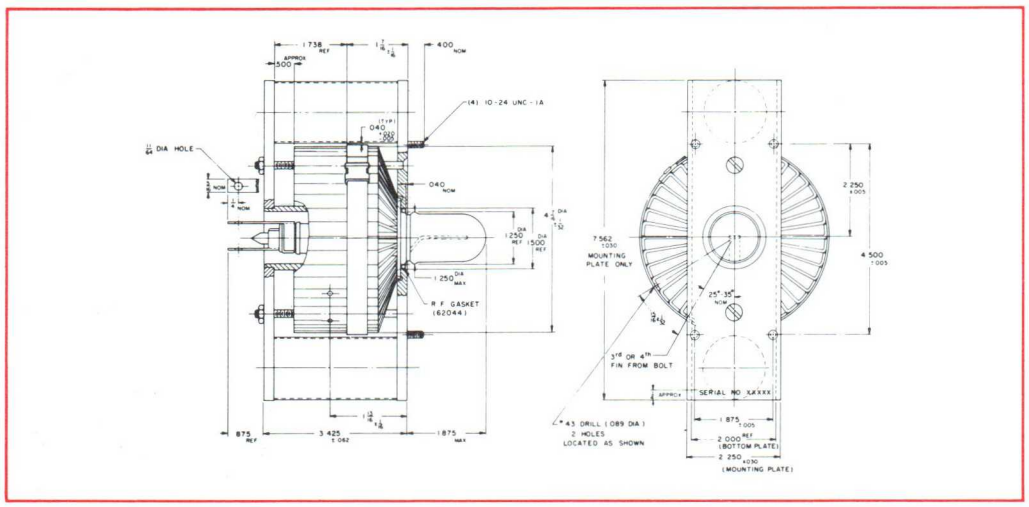


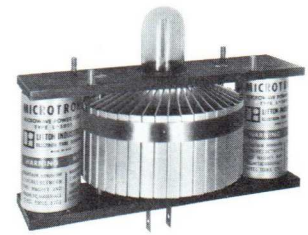
e_b (PEAK) x I_b (AVG) = POWER INPUT (QUASI WATTS) – POWER OUTPUT (WATTS) = ANODE DISSIPATION

MICROTRON®

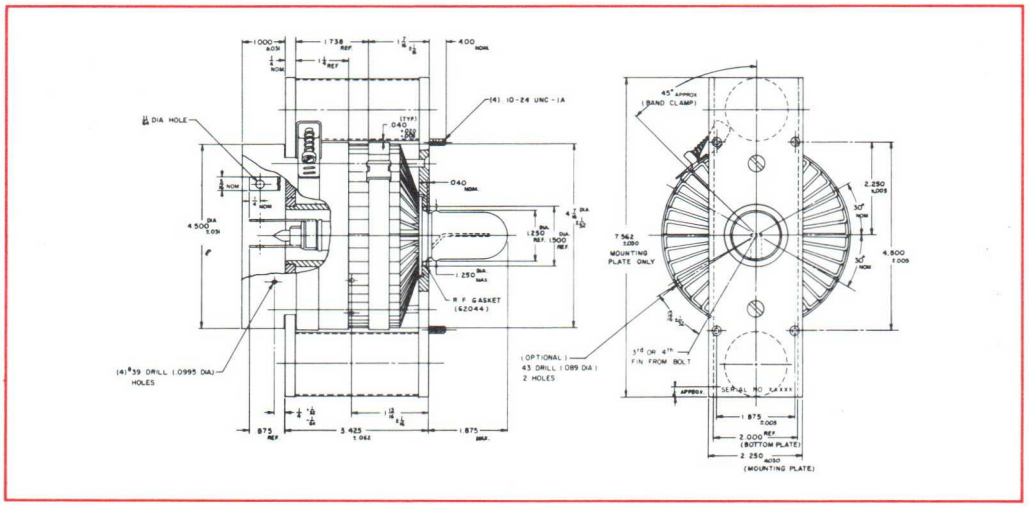
microwave power source

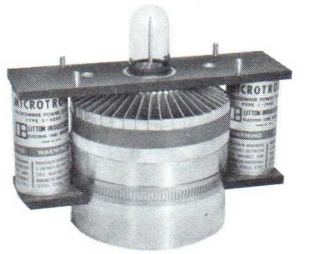
THE L-5001 IS AVAILABLE IN THREE CONFIGURATIONS



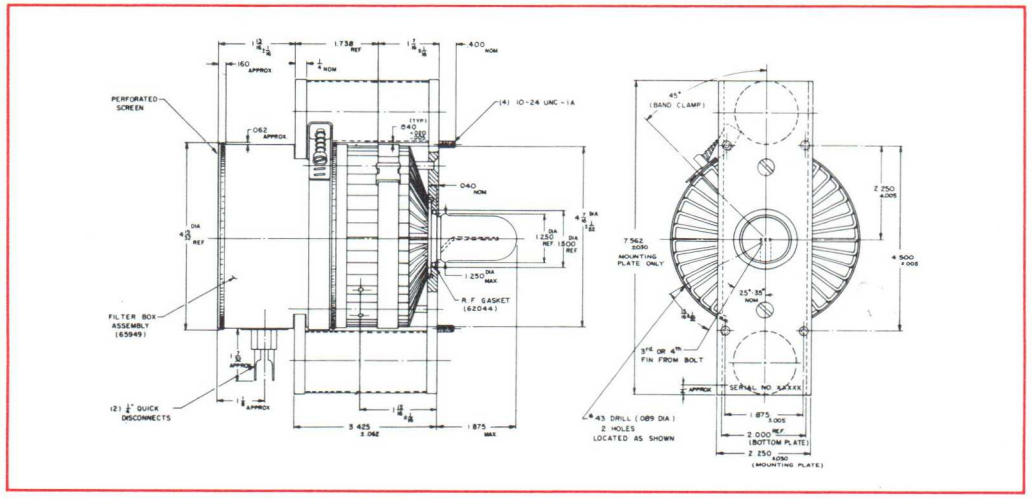


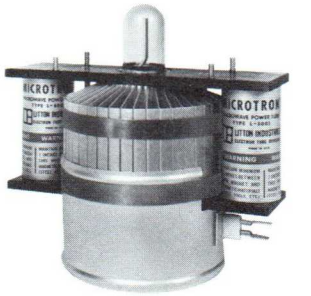
L-5001
Outline "A"
Tube Only





L-5001
Outline "B"
Tube with Duct Adapter

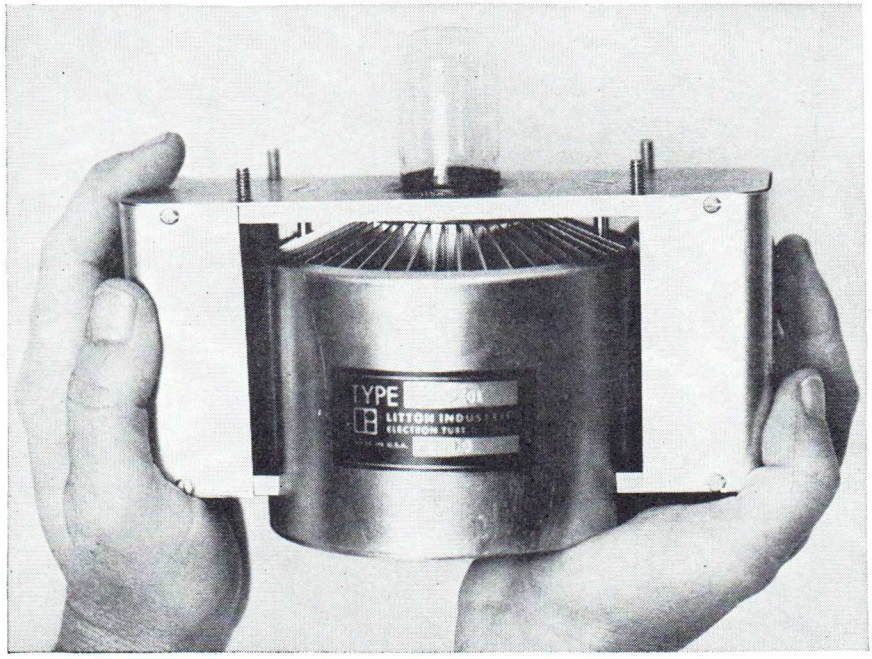




L-5001
Outline "C"
Tube with Filter Box

New Microwave

Miniature magnetron puts out 1 kw



A 6.3 x 7.5-inch magnetron, smaller than any other operating at the same frequency and power, has been developed by Litton Industries' Electronic Tube division. It can provide up to 1,000 watts continuous wave at 2,450 megacycles.

The tube, designated the L-5001, was developed especially for microwave cooking and heating applications, but it may have other uses since the 2,450 Mc operating frequency is shared by industrial, scientific and medical users. Total weight of the tube and magnet is only seven pounds.

Several innovations helped reduce the size of the tube. The cathode is shorter than in standard tubes, and the electron beam is focused with a permanent magnet instead of an electromagnet, which is larger and heavier. Instead of being water-cooled, the tube is cooled by air forced over its heat sink, which is made of lightweight aluminum; eliminating the water fittings and coolant jacket helped cut the size of the magnetron. An additional bit of miniaturization was obtained by reducing the required anode voltage from 6,000 to 3,600 volts. This not only makes the tube smaller, because less high-voltage insulation is needed, but also makes the power transformer for the tube much smaller.

Litton's Atherton division has already put its miniature magnetron into a commercially available microwave oven that is only half the weight of conventional ovens, but whose inside measures 12 inches square by 6 inches high, big enough for any conventional food service container.

Specifications

Operating frequency	2,450 megacycles
Power output	1,000, 750, or 500 watts continuous wave
Weight	7 pounds for tube and magnet
Height	6.3 inches
Width, max.	7.5 inches
Delivery	Immediate
Price	On request, depending on quantity

Litton Industries, Electronic Tube Division. San Carlos, Calif.