

**Magnetron, 1.45 kW Water Cooled,
3/8 NPT Fittings**

APPROVALS			REVISIONS			
	INITIALS	DATE	REV	DESCRIPTION	DATE	APPR
Drawn	JFG	19NOV10	1	Release	19NOV10	JFG
Engineering						
Manufacturing						
Marketing						

1.0 General Description

This document describes a water cooled version of the Hitachi 2M121A magnetron that is specially designed for installation in microwave plasma generators manufactured by GaSonics International. The GAE version of this magnetron is a direct replacement of the GaSonics (Novellus) p/n 95-0502 (National p/n NL10254-6) magnetron and provides the same performance and life. Unique features of these magnetrons include 3/8 NPT-Male water fittings and extended filament leads.

Attached to every magnetron is a final test data sheet indicating actual operating results using a Gerling Labs GL139 series high voltage power supply (same as used in the GaSonics system) and the National WR340LAUNB waveguide launch section. The test data, operating conditions and acceptance limits are identical to those defined by GaSonics for replacement magnetrons. A copy of the final test data is attached to each magnetron as well as enclosed separately in an envelope.

2.0 Specifications**2.1 Absolute Maximum Ratings:**

ITEM	SYM	MIN	MAX	UNITS
Filament voltage, Stand-by	Ef	4.2	5.0	Vac
Filament voltage, Ib = 450 mAdc	Ef	3.6	4.0	Vac
Filament warm-up	Tk	0	-	Sec
Anode voltage, peak	Ebm	-	4.7	kV
Anode current, peak	Ibm	-	1.8	A
Anode current, average	Ib	-	525	mAdc
Anode input power	Pi	-	2.1	kW
Load VSWR	ϕL	-	4	-
Anode core temperature	Tp	-	180	°C
Storage temperature	-	-30	60	°C

2.2 Test Conditions for Electrical Characteristics:

Power Supply Type	Single-phase, full-wave bridge rectifier without filter
Filament voltage	Ef = 4.6 Vac (stand-by), 3.8 Vac (Ib = 450 mAdc)
Average anode current	Ib = 450 mAdc
Load VSWR	$\phi L < 1.1$

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ITEM	CONDITION	SYM	BOGIE	MIN	MAX	UNITS
Filament current	Tk = 30sec min.	If	14	13	15	Aac
Anode voltage, peak		Ebm	4.5	4.2	4.7	kV
Output power, average		Po	1450	1300	-	W
Frequency		fe	2455	2440	2470	MHz
Stability	$\phi L < 3$	ST	-	550	-	mAdc
Breakdown voltage		Et	-	10	-	kVdc

2.4 Mechanical:

Filament connections	#8 ring terminals on 6" flying leads
Cooling water connections	3/8 NPT male fittings
Cooling water flow	0.5 gpm min. @ 35 °C max. input temperature
Cooling interlock	Thermal cut-out switch with 1/4" fast-on tabs

3.0 Final Test Data**3.1 Test Conditions:**

Power Supply	Gerling Labs p/n C12932-2-A (full wave bridge, unfiltered)
Waveguide	National p/n WR340LAUNB
Input Line Voltage	208 VAC nominal
HV Transformer Tap	240
Output Mw Power	1250 Watts

3.2 Test Data Parameters:

Input line voltage
Magnetron current DC average voltage (TP7)
Magnetron current DC peak voltage (TP7)
Duty cycle

4.0 Ordering Information

<u>GAE P/N</u>	<u>Description</u>	<u>GaSonics P/N</u>
911465-1	Magnetron Assembly, 1.45 kW Water-Cooled, 3/8 NPT	95-0502

5.0 Outline Drawing

