

Product Specification

Spec No.

C

Page

3/12

Model No.

PM60AL-03P

This Specifications is based on the General Rules of Inspection for Electron Tubes ED-1101 and the Testing Methods for Continuous Wave Magnetrons ED-1501 set by the Electronic Industries Association of Japan (EIAJ).

Absolute Maximum Rating

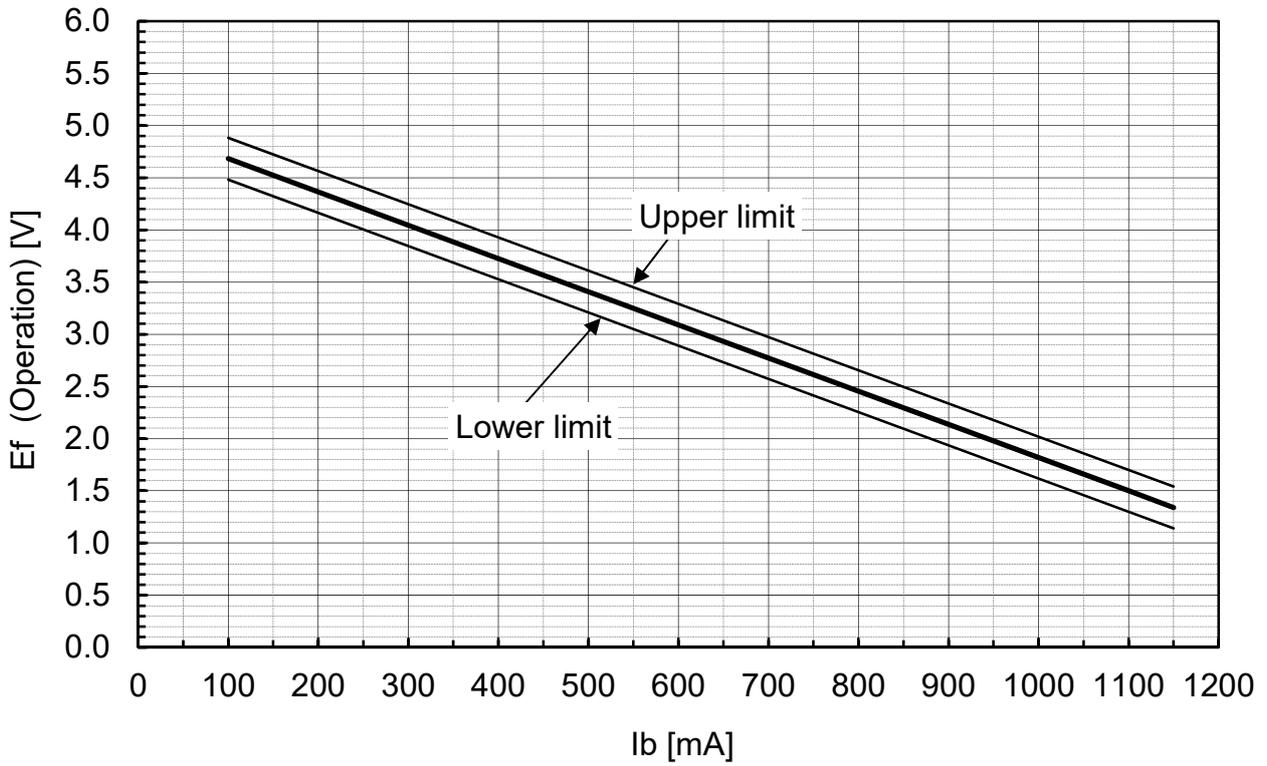
Description		Continuous Wave Magnetron (Fixed Frequency, Packaged Magnet and Probe Output)										
Outline		See the Outline Drawing				Net Weight			Approximately 4.1 kg			
Absolute Maximum Rating	Item	Ef Stand-by	Ef Operation	tk	ebm	lb	lbm	Pi	σ_L	Tp ^③	Tc ^③	storage
	Unit	V	V	s	kV	mAdc	A	kW	—	°C	°C	°C
	Max.	5.2	②	—	7.6	1150	2.1	8.4	1.5	100	100 ^④	60
	Min.	4.8	②	6	—	—	—	—	—	—	—	-30
Standard Test Condition ^①		5.0	1.5	120	—	1100	—	—	1.1 MAX	—	—	—

Test Specification

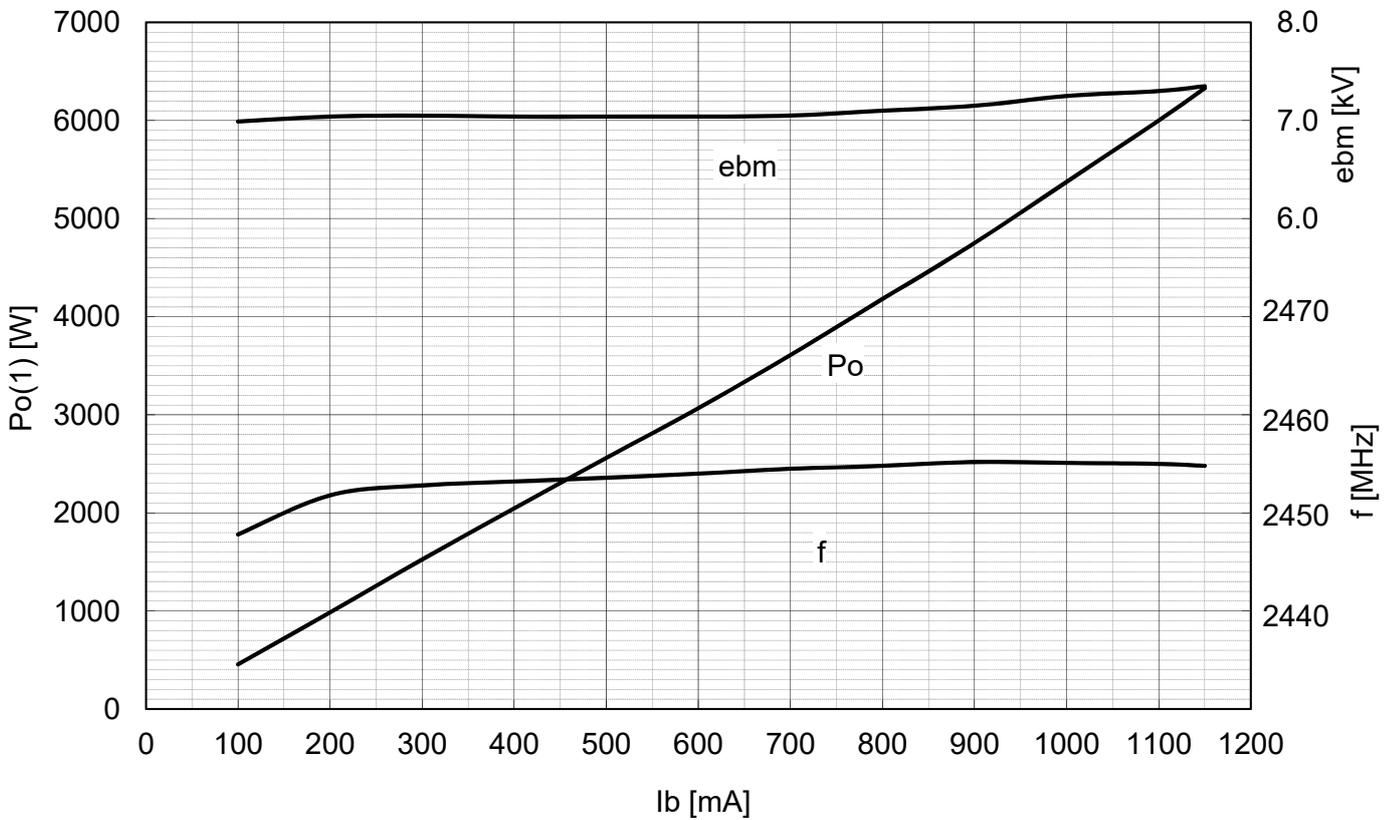
Test Item ^⑦	Test Method ED-1501	Test Condition ^①	Symbol	Nominal	Limit		Unit
					Min.	Max.	
*Filament Current	4.1.1	tk=120	If	29	26	32	A
Peak Anode Voltage	4.3.1	⑤	ebm	7.30	7.00	7.50	kV
Average Output Power (1)	4.3.3.1	⑤	Po(1)	6000	5700	—	W
Frequency	4.3.4	⑤	f	2455	2440	2470	MHz
Insulation	4.2	1kVdc	Rpf	—	1000	—	MΩ
Breakdown Voltage	4.2	10kVdc,t=60s	V _{BV}	No Abnormality ^⑥			—

2018/ 5/17

Panasonic



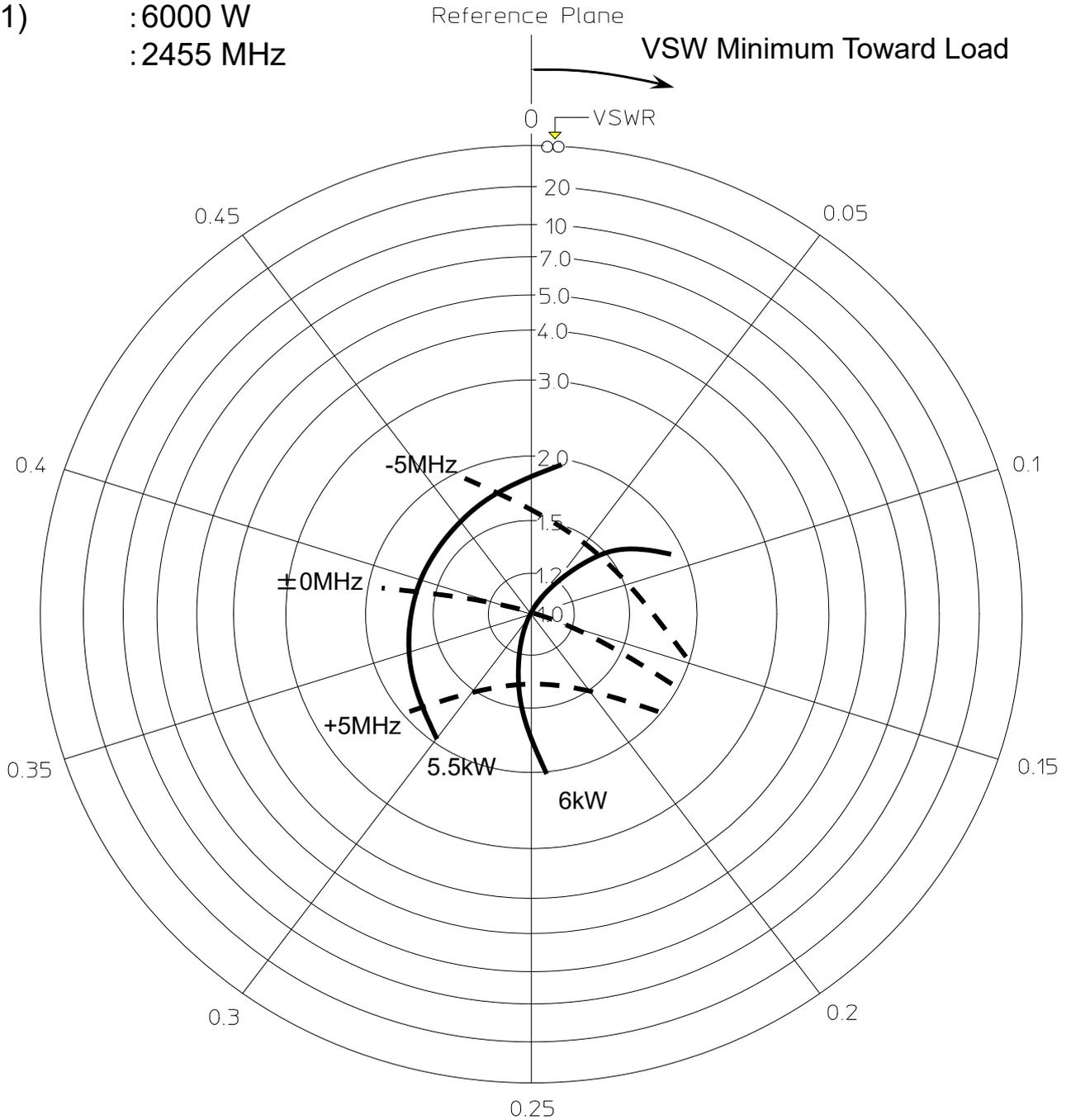
[Fig.1] Cut back of filament voltage on operation condition



[Fig.2] Performance Characteristics Note ①, ②, ⑤, $\sigma_L \leq 1.1$

Matched Load Condition (VSWR ≤ 1.1)

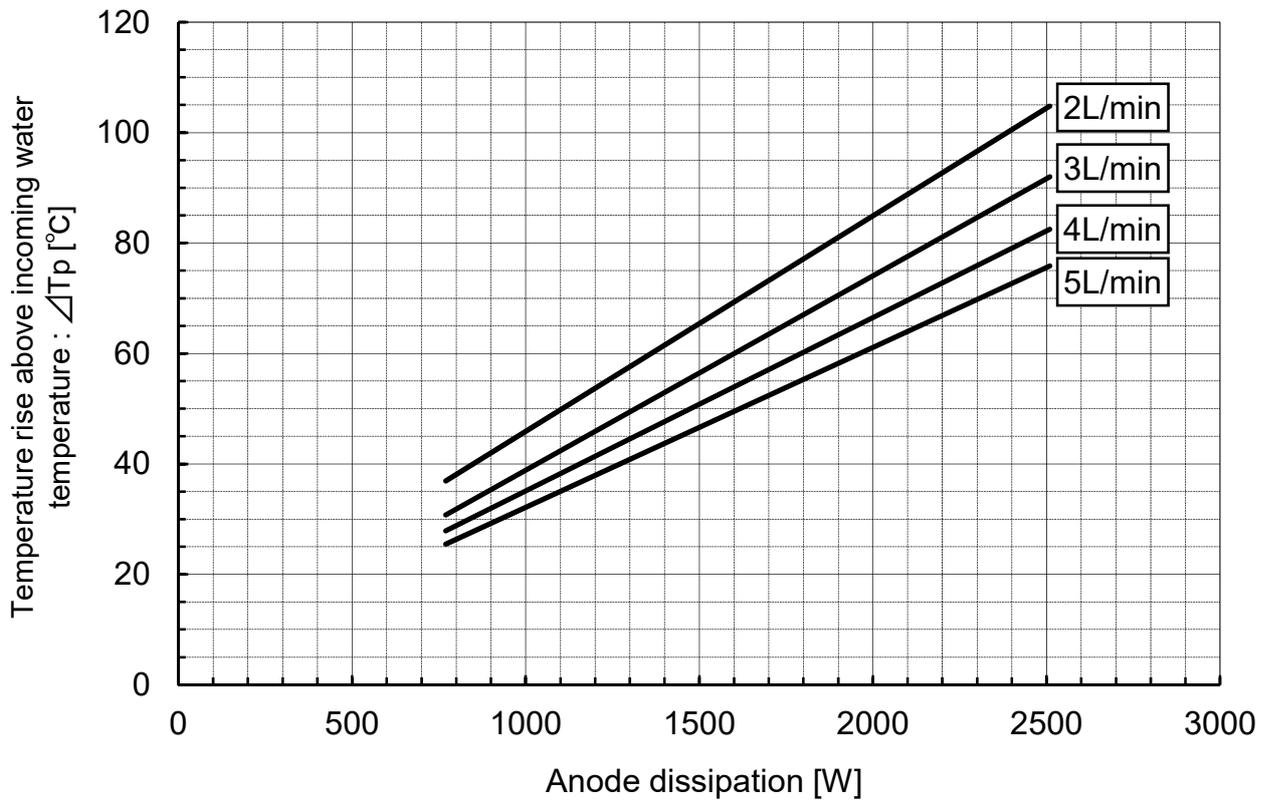
ebm : 7.30 kV
 Po(1) : 6000 W
 f : 2455 MHz



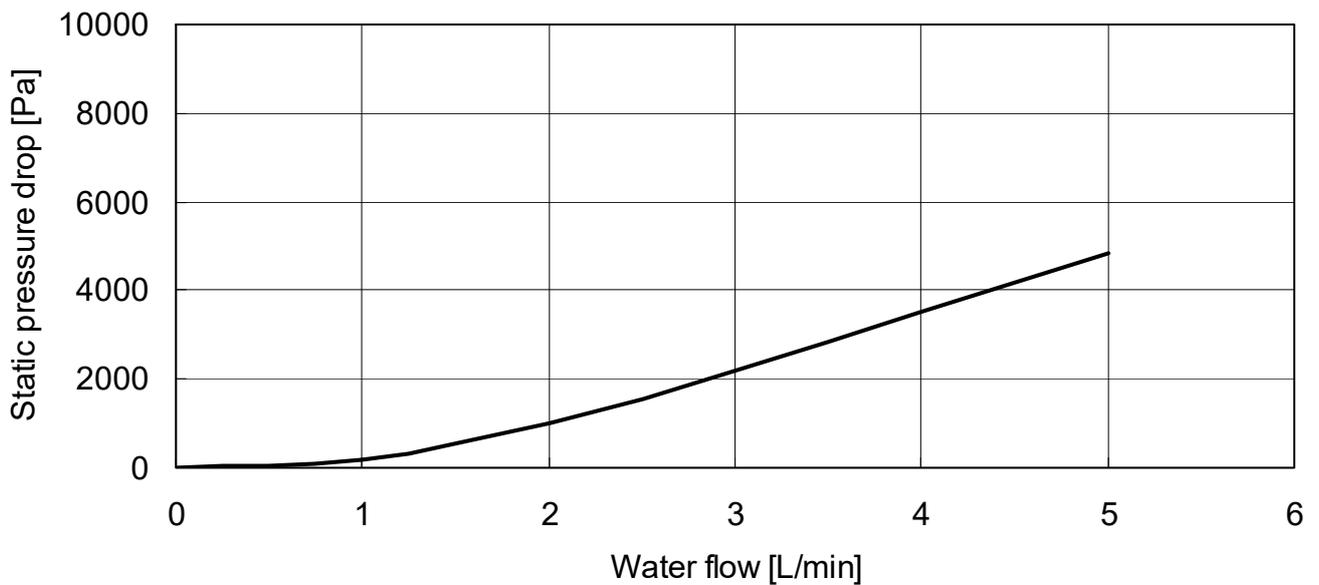
[Fig.3] Load Characteristics (Rieke Diagram)

Measurement Condition

Power Supply : DC power supply with the less than 2% of power ripple rate
 Reference Plane : Antenna Center
 Ef Operation : 1.5 V
 Ib : 1100 mAdc

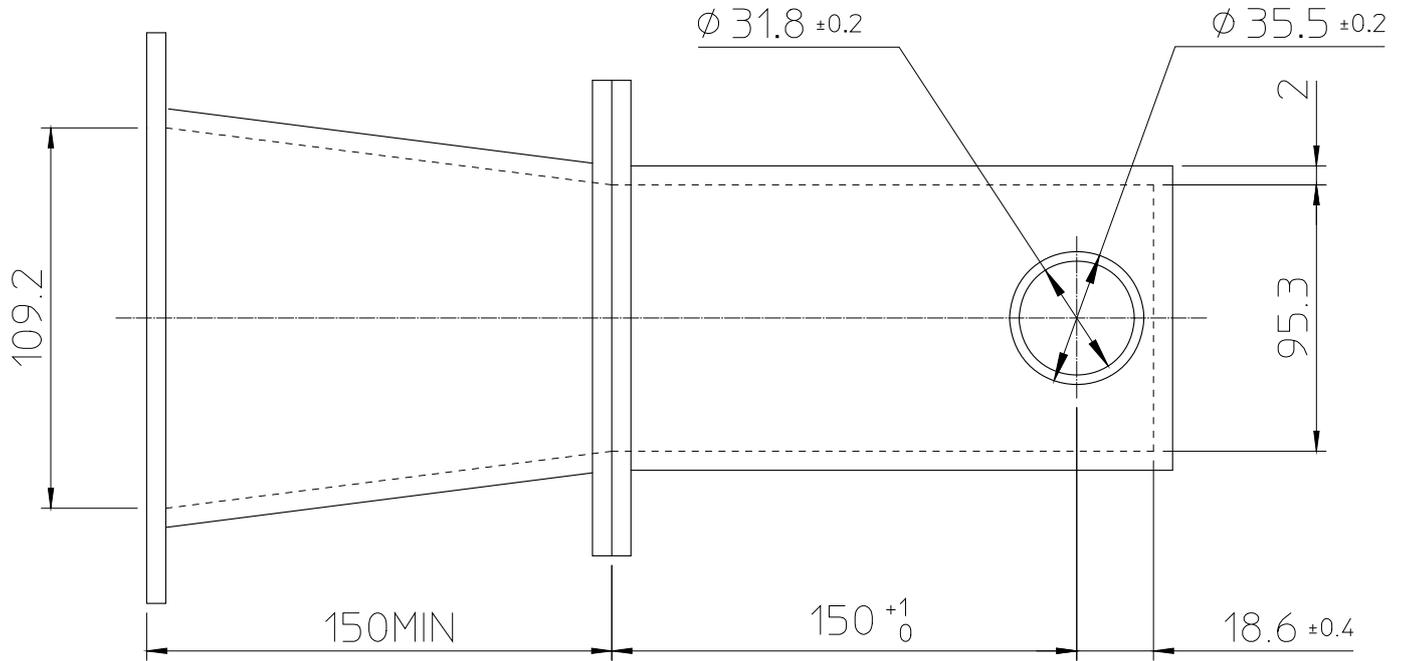


[Fig.4] Anode dissipation vs Anode temperature rise

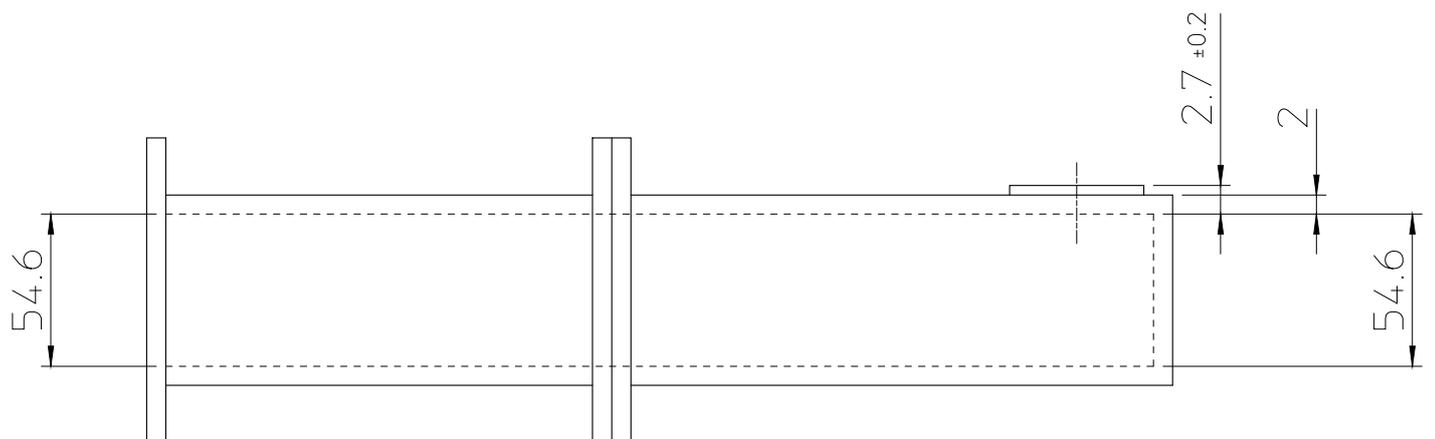


[Fig.5] Cooling water flow rate vs Static pressure drop

Unit : mm



The flange comply with Japanese Industrial Standards BRJ-2.



[Fig.6] R.F. Coupler

1. Handling

Because the filament is made of thoriated-tungsten wire and carbonized, it is quite weak against vibration and shock.

Please be careful about the handling.

Vibration resonant frequency of this filament is 300~400Hz.

Please avoid to provide vibration in this frequency range.

High Voltage is provided on the magnetron.

Please don't touch when it is operating.

Ensure unplug the cable during servicing.

Microwave leakage from magnetron input (filament terminal) is prevented by filter circuit.

However leakage from output shall be pay attention to confirm electrical contact of magnetron gasket and wave-guide lip.

The protection for the secondly circuit short should be installed.

Please prevent to operate in the environment with dust, moisture or corrosive gas.

Please prevent to provide excessive force to the terminals of the feed-through capacitor.

2. Connection of Filament Terminals

Filament current is over 20 A.

Contact defect causes huge voltage drop and it makes serious operation failures.

Inside of filter case becomes high temperature.

Please provide air cooling of 400L/min or more from outside.

The water cooling of tube and the air cooling of filter case are necessary during preheat.

Unit : mm

3. Preheating and Cut Back

More than 6 seconds preheating of filament is required before applying high voltage for reliable operation and longer life.

When applying high voltage, filament voltage should be regulated as shown in Fig. 1 at operating.

4. Load Impedance

Please design the load impedance does not exceed the absolute maximum rating any time for reliable operation and longer life.

It is recommended to use an isolator unit.

Excessive temperature on antenna/anode, antenna spark, moding, filament melt and runaway will be caused when magnetron will operated over this specifications.

5. Recommendation of Waveguide Design

Same dimensions as R.F. Coupler [Fig.6] are recommended.

Embossed edge shall be flat and the contact resistance shall be low.

