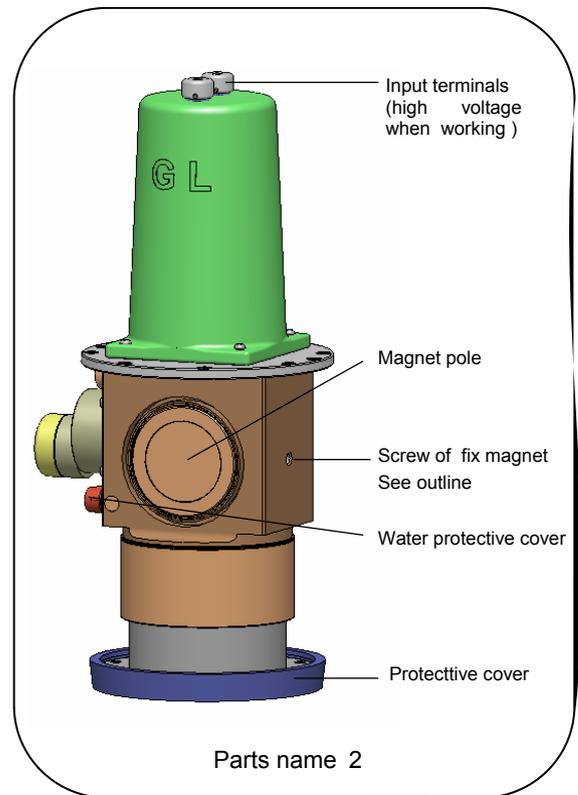
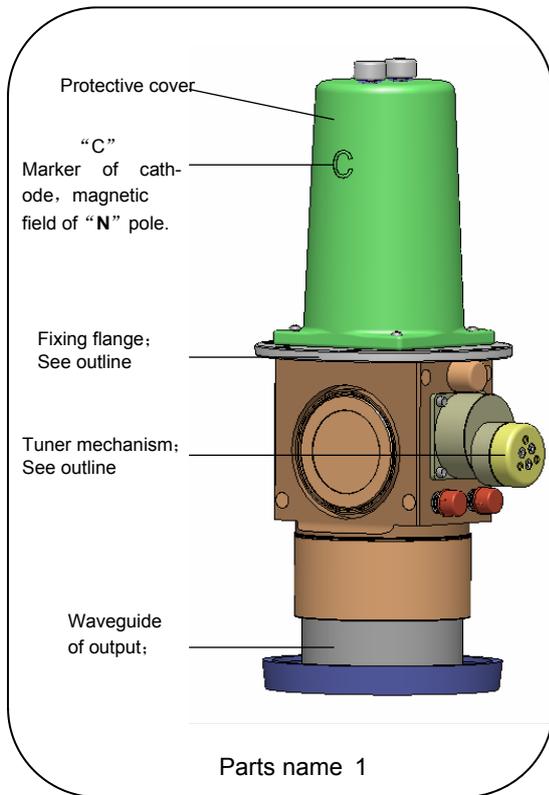


GLM5193 Pulse Magnetron

Instruction



Thank you for buying GLVAC Magnetron !

- ◆ For your safety, please read this instruction carefully before using the products, and keep it for reference later.

Main technical data

Frequency range	2992—3002 MHz
Pulse output power	≥2.6 MW
Typical pulse duration	4.2 μs
Typical pulse repetition frequency	250 Hz
Cooling	water ≥5L/min
Cathode heating voltage	8.5 v (DC or AC)
Cathode heating current	9 A
Peak heater starting current	20 A
Cathode pre-heating time (minimum)	3 min
Anode voltage (peak)	45-48 KV
Anode current (peak)	110 A
Rate of rise of voltage pulse	≤120 KV/μs
Magnetic field	1550±25 gauss
Weight	8 Kg
Tuner revolutions to cover frequency range	4.75
Mounting position	any

Installation process and notes

- Check the external package to see if there is any significant, please contact us.

①

- Check the packing list:

- Test report;
- Product certificate;
- Product instruction;
- Product label (Note:the NO. on the label is the service code) NO. _____
- Other accessories: _____

- Check each the magnetron to see if there is any damage.

Note: There is a protective film on the surface, which will not affect any performance so you can Keep it or remove.

- Check if the tuner mechanism can turn flexible .

②

Note 1: Customer that does not have the capabilities of maintenance and frequency measurement is not recommended to turn the tuner mechanism. As the acquiescent working frequency is 2998 MHz at the case of 0.001 duty cycle, 1550 gauss magnetic field intensity and 110A current .

2: There will be a QC label on the turn position of tuner mechanism, which can prevent turning and guarantee the initiative working frequency is 2998 MHz at the case of 0.001duty cycle, 1550 gauss magnetic field intensity and 110A current ,please remove it before working high voltage.

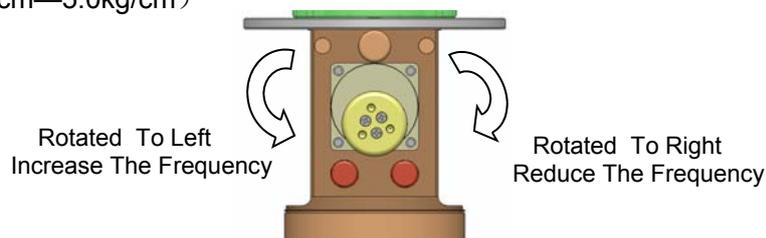
- Check the cycles of the tuner mechanism. (advise the customer who have the capabilities to measure the frequency) see the following picture.

Note 1. The total cycles of the tuner mechanism is 4.75 cycles. Please do not turn it forcefully when it comes to the limit location.

2. Make the tuner mechanism face yourself when checking it. Rotated to left to the end, and then rotated to right for 4.75 cycles. Please contact us if it turning cycles are wrong or not flexible .

3. After the checking ok , rotated to left to the end ,and then rotated to right for 3 cycles, where it is the middle frequency of magnetron ,should match With the middle position of turning electromotor . Please contact us if you Have any special requirement.

- Check the turning electromotor is in the middle position .
- Check the turn torque of the turning electromotor . (Turn torque range:0.7kg/cm—5.0kg/cm)



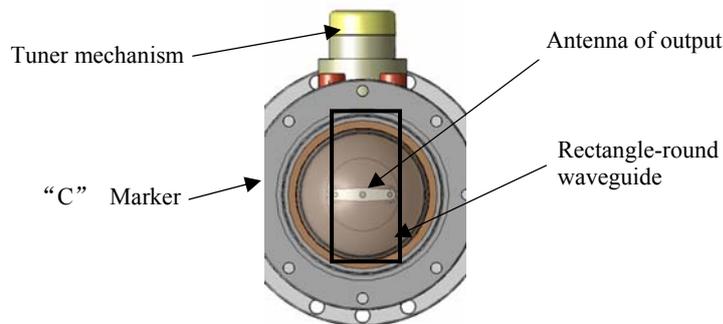
- Check magnetic field strength of the equipment.

Note 1. Put the sensor chip in the center of the magnetic field when checking the magnetic field strength, and had better to use fixture;

- 2.If it is a permanent magnet, the field should be in the range of 1550 ± 25 gauss ;
- 3.If it is a electromagnetic, suggest to check the field current under 1550 gauss ;
4. A pretty higher magnetic field strength will bring arc; while a pretty lower magnetic field strength will result in a lower power .

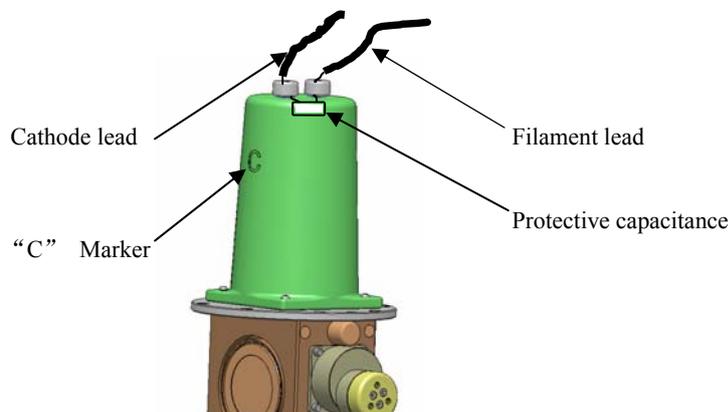
- Check the Rectangle-round waveguide joint part has any arc, while the joint part with severe arc have to be replaced .
- Please make sure the correct direction once the joint part connects with the magnetron .
- Mounting the fixed screw, tighten it diagonally, and make sure it to get a even force .
- Check the center of the field is the same with magnetron's.

3



- Please note the marker "C" joints the cathode lead when mounting the cathode and filament lead.
- The magnetron heater must be protected against arcing by use of minimum capacitance of 4000pF shunted across the heater directly at the input terminals; in some cases a capacitance as high as $2\mu\text{F}$ may be necessary depending on the equipment design.
- Check the filament power is DC or AC? We recommend the DC power, also users are advised to contact GLVAC if you need AC power.

4



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- Amount water tube and make sure there is no any water leakage. Also the water volume must be over 5 L/min. (The pressure should be over 1.25kg/cm²). Check the outline for the detailed size of water tube connector.
- Outlet water should be less 50℃, the temperature protective device should be put in the place of outlet water.
- We recommend charging the 99.99% SF6 into the waveguide system 3.0kg/cm².

Note : 1. Charge into the gas → empty all of the charged gas → Recharge insulation gas. In this case, it can help to get a higher purity gas.

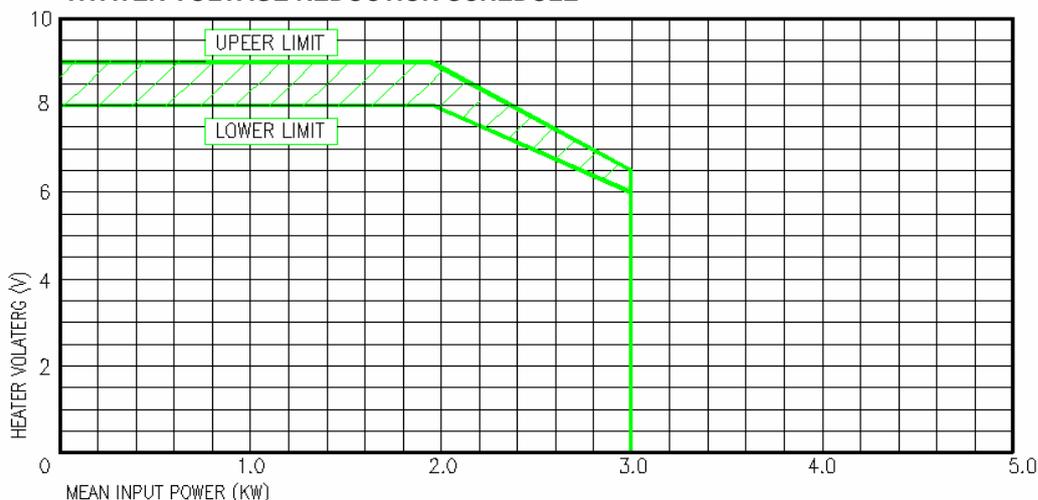
2. Periodically check the leakage after the first installation, charge more gas once finding the pressure less than 1.5kg/cm². Check the leakage place once finding a faster leakage, usually the “O” ring is the place as it will easily perish with age.

- Amount the turning electromotor and make sure the electromotor will be in the same center with the whole system, to avoid locking with eccentric turning.

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- Preheat time, make sure the preheat time will be more than 3 min, and then check if the filament current, recommend the current is 9A.
- Confirm the magnetic field, duty cycle and all of the data in the right data before put it into high voltage. Reduce the filament voltage when the output power reaches a certain level. For the details please see below.

HEATER VOLTAGE REDUCTION SCHEDULE



$$P_i = I_{apk} \times V_{apk} \times Du$$

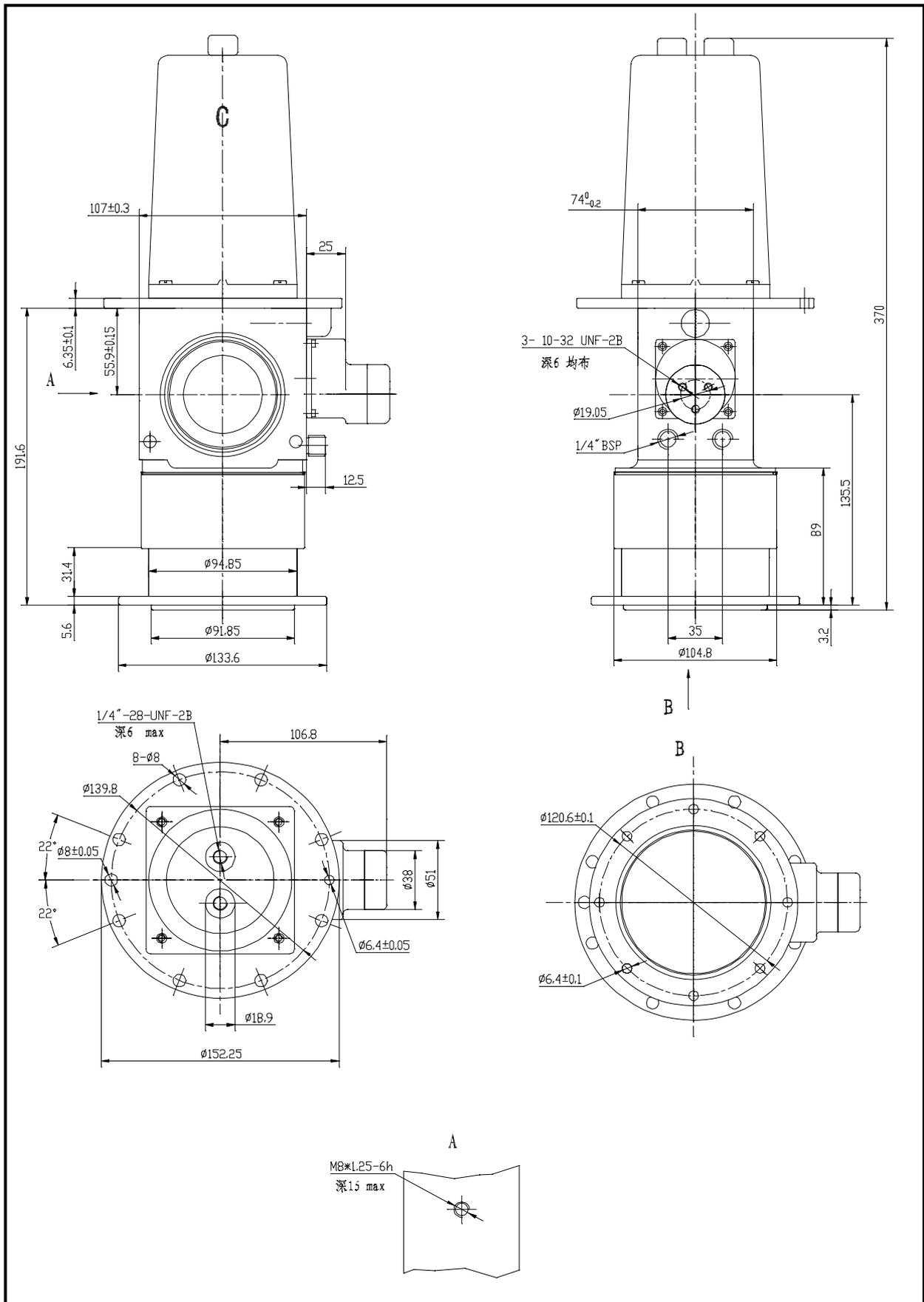
P_i = mean input power (W)

I_{apk} = peak anode current (A)

V_{apk} = peak anode voltage (V)

Du = duty cycle

Outline of GLM5193



Common fault and solutions

Symptom of failure	Processing method	Remark
Arc lightly	Advise machine working on the condition of low repetition frequency 10—15 min (50 or 100Hz), increase the current to 110A step by step, pay attention to reduce the filament by heater voltage reduction schedule.	Please contact us if there is no improvement;
Arc Continually	<ol style="list-style-type: none"> 1. Check if the waveguide id leakage; 2. Check if the filament current is to high; 3. Check if the protective capacitor is broken; 	Please contact us if there is no improvement;
No output power	<ol style="list-style-type: none"> 1. Check the filament voltage is normal. 2. Check the thyatron and modulator work well. 3. Check e-Gun work well. 4. Check the electromagnetic has power. 	Please contact us if there is no improvement;
Lower power	<ol style="list-style-type: none"> 1. Check magnetic field strength. 2. Check if the magnetic field is asymmetry. 3. Check the auto-tracking system work well. 	Please contact us if there is no improvement
Manual tuning can not track	Check if the turning system is stuck, or the position of motor and tuning system is correct according to step 2.	Please contact us if there is no improvement
Auto tuning can not track	Check if the turning motor feedback signal is normal, some need to adjust the AFC data. (Include AFCT).	Please contact us if there is no improvement
High water temperature	<ol style="list-style-type: none"> 1. Check if the pipe is blocked. 2. Check the magnetron at the condition of high load. 3. Check if the input water temperature is too high 	Please contact us if there is no improvement

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