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DENKA LaB_6 CATHODE SPECIFICATIONS

Date : '89. 2. 25.
Grade : M1-EG
Serial No. : 3559
Filament Heating Test : 1550℃ at 1.6 A

Orientatation : <100>
Tip Shape : 90 ° 5 μmR pointed
— ° — μmφ flat

Precautions on the Usage of LaB_6 Cathode

~~1. Vacuum Seal~~
~~Don't open the vacuum seal until use.~~

2. Assembly of the Electron Gun

Use a microscope and perform assembly so that it will be accurately positioned in the center of the Whenelt cylinder.

At this time, pay attention so that dust and solings will not be attached to it.

3. Single Crystal Tip

Emission is made from the top of the tip (conical tip) which has a diameter of merely 50 umφ or less.

Therefore, pay special attention so that this portion is not soiled.

4. Degree of Vacuum: 10^6 Torr or above.

If the degree of vacuum is bad, the consumption of the cathode will be great. Furthermore, it will become the cause of electric discharge, and the top of tip (tip portion of the cathode) will be damaged.

Therefore, observe the high vacuum degree without fail.

5. Cathode Temperature: 1,550°C or below

Pay special attention to overheating (Do not raise the temperature to 1,550°C or above).

At the time of setting the temperature, refer to the characteristic data of [Heating Current---Cathode Temperature].

When emission can not be obtained, in many cases it is due to causes such as drifting of electron beams rather than low temperature, so for safety's sake, check this.

6. Electric Discharge

If electric discharge occurs, it will damage the cathode at once. It is important to maintain high degree of vacuum, and to eliminate dust and soilings.

7. Drifting of Electron Beam

Sudden heating and cooling will become the cause of electron beam drifting.

Once the switch is turned ON, avoid turning it OFF and ON frequently.

We recommend you to preheat it at all times at about 2/3 of the constant rating value.

8. Changes in the Electron Beam

Gradual lowering of electron beam current caused by the wear of LaB_6 tip.

Fluctuation for a short period of time is mainly caused by the soiling of the Whenelt cylinder, so check it.

9. Storage

Do not remove the cathode frequently.

If it is to be stored for a long period of time, always do so in a desiccator.

In case something that has been used is re-used, sometimes insulating substances form on the heater portion, and electric current may not flow.

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