

CESIUM ION GUN

Model 133



Features

- Easy operation and maintenance
- High current density
- Stability better than 1% per hour
- High ionizing efficiency
- Suitable for SIMS, Ion Microprobes and Ion Microscopes
- High lifetime of cesium charge

General description

The HVEE Model 133 cesium ion gun is especially designed for attachment to existing ion microprobes and ion microscopes. The Model 133 cesium ion gun can be rapidly interchanged with a Duoplasmatron ion source to provide the optimum in positive and negative ion yields with minimum downtime.

The Model 133 cesium ion gun provides a beam of energetic cesium ions for sputtering of a sample surface and to introduce cesium atoms into the near surface region. This cesiated surface results in a high negative secondary ion yield for those elements with a favorable electron affinity.

Cesium is controllably volatilized from a heated reservoir to feed a tungsten frit, which is heated up to 1100 °C. The cesium diffuses through the frit and is thermally ionized with almost 100% efficiency. The Cs⁺ ions are then accelerated and focused by the same ion optics as for a Duoplasmatron ion source.

The Model 133 cesium ion gun is designed for routine, reliable operation. With proper care and attention, a cesium charge will last several hundred hours. The reservoir/frit assembly is housed in a stainless steel chamber, which has a flange compatible with most ion probes.

Several types of the Model 133 cesium ion gun are available as a direct ion gun replacement for:

Fisons (VG-Microtrace)
Cameca ion microprobes
ARL ion microprobes

Riber Instruments ion microprobes
Atomika ADIDA ion microprobes

HIGH VOLTAGE ENGINEERING

Particle Accelerators Systems for the scientific, educational and industrial research communities



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SPECIFICATIONS

Output current : 200 μ A

Current density : 10 mA/cm²

Current stability : < 1% per hour

Detection limits : 10^{13} - 10^{17} atoms/cm³ for H, C, O, P, S, Zn, As, Se, Te, Au and the halogens

POWER REQUIREMENTS

Ionizer power supply : 10 V, 50 A, AC

Cesium reservoir power supply : 15 V, 1 A, AC

Extraction power supply : 15 kV, 2 mA, DC

Suppressor power supply : 5 kV, 5 mA, DC

The Model 133 Cesium Ion Gun requires ambient temperature liquid cooling with Syltherm XLT[®] or equivalent fluids (2 l/min, resistivity > 1 M Ω /cm).

The Model 133 Cesium Ion Gun normally operates at +15 kV with respect to (terminal) ground. Therefore the ion gun must be insulated from (terminal) ground. The ion gun power supplies must be connected to a 15 kV isolation transformer.

Options

1. Ion gun power supplies.
2. Extraction gap assembly and extraction power supply.
3. Suppressor assembly and suppressor power supply.
4. Einzellens assembly and Einzellens power supply.
5. Spare parts kit.

Sales offices in Europe and Japan

CIG-5

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