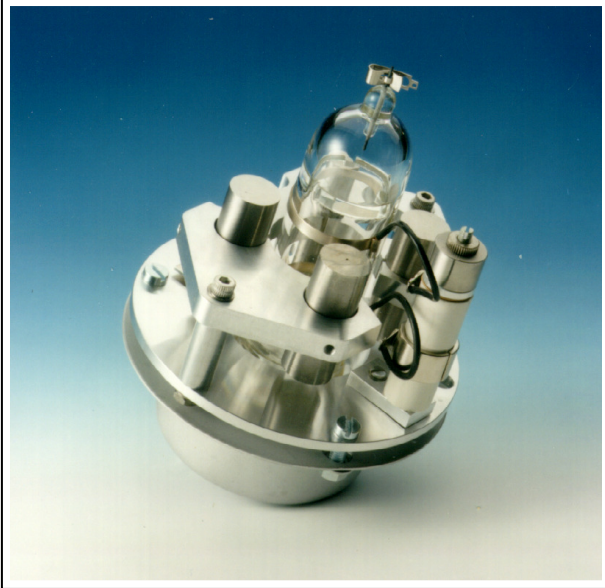


RF ION SOURCE

Model SO-173 (short bottle)



Features

- 600 hours lifetime
- Low gas consumption
- Currents up to 0.7 mA
- Reliable and easy operation
- Different configurations available
- Low energy spread

General description

The RF ion source Model SO-173 short bottle is a long life ion source for general purposes. It is a heavy-duty prolific source for hydrogen and other gaseous ions. The source bottle contains a gas, which is excited by an RF (Radio Frequency) oscillator capacitive coupled to the bottle. The plasma is confined and positioned by an axial magnetic field produced by a permanent magnet placed symmetrically around the bottle. The source output is optimized by control of the source gas pressure and oscillator loading. The source bottle is standard fitted with a stainless steel source canal, available in different aperture sizes (tantalum canals are available on request).

The RF ion source Model SO-173 is suitable for single ended accelerators with high-pressure insulation gas as well as tandem injectors in combination with a charge exchange canal at atmospheric pressure.

The short bottle RF ion source is available in two configurations:

CX-SO-173-005, which is equipped with a Pyrex source bottle provided with a tungsten extraction pin. To protect the extraction pin from electron erosion caused by back streaming electrons, a quartz baffle is installed at the top of the bottle. The ion source has a 2.10 mm stainless steel lined aluminum source canal.

CX-SO-173-006, which has the same configuration as the CX-SO-173-005, but is equipped with a 1.60 mm stainless steel lined aluminum source canal for excellent focusing.

HIGH VOLTAGE ENGINEERING

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



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PERFORMANCE

Minimum ion beam currents for all configurations, canal diameter 2,1 mm

Hydrogen	250 μ A *	* This current may increase, up to 0.7 mA, depending on the RF source configuration. Currents for other gases than Hydrogen can be decreased by approximately $M^{-1/2}$
Helium	125 μ A	
Nitrogen	60 μ A	
Oxygen	60 μ A	
Neon	50 μ A	
Argon	40 μ A	
Krypton	25 μ A	
Iodine	20 μ A	
Xenon	20 μ A	

SPECIFICATIONS

Proton yield	: 75%
Energy spread	: 100 eV typical
Ion species	: H, Ar, He, Ne, Xe, Kr, CO ₂ , I, B, BF ₃
Beam emittance	: the beam emittance depends on the source canal but is expected lower than 1.2π mm mrad MeV ^{1/2}

POWER REQUIREMENTS

Probe power supply	: 3kV / 3mA DC
Extraction power supply	: 20kV / 5mA DC
Oscillator power supply	: 350V / 400mA DC

The Model RF SO-173 ion source normally operates at +20 kV with respect to (terminal) ground. Therefore the source must be insulated from (terminal) ground. The source power supplies must be connected to a 20 kV isolation transformer.

Options

1. Ion source power supplies.
2. Extraction gap assembly and extraction power supply.
3. Spare part kits

Sales offices in Europe and Japan

RFS-4

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