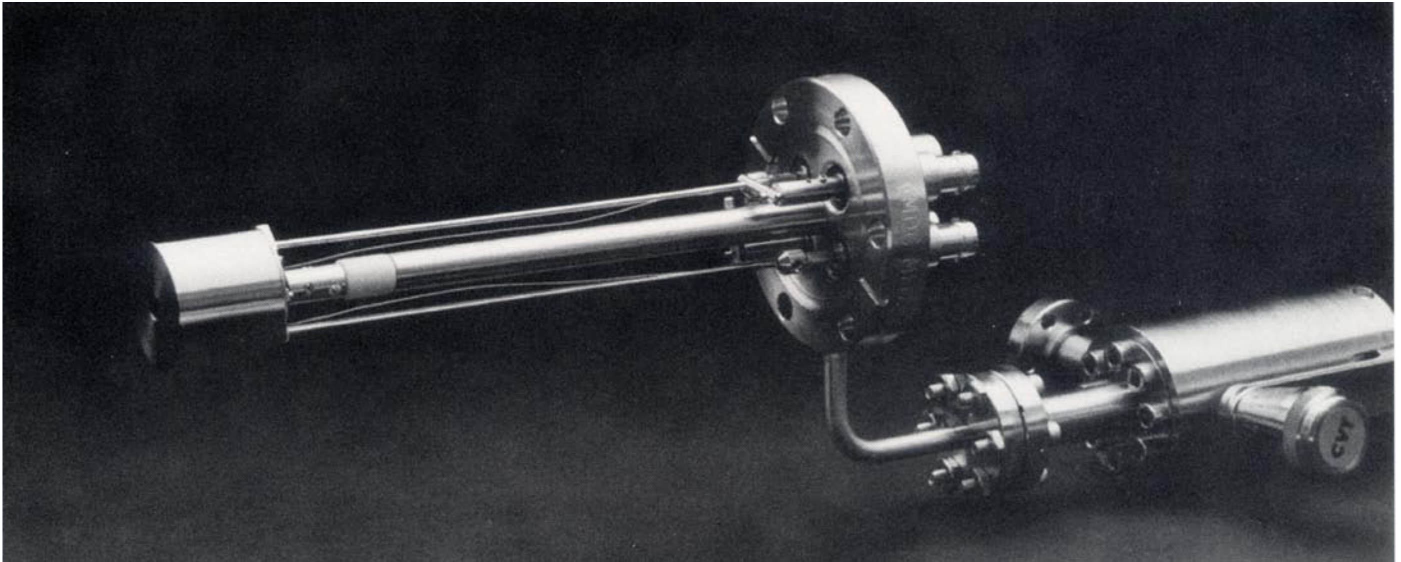
Models NGI3000

Sputter Etching System, Ion Gun and Control Electronics



PERFORMANCE FEATURES

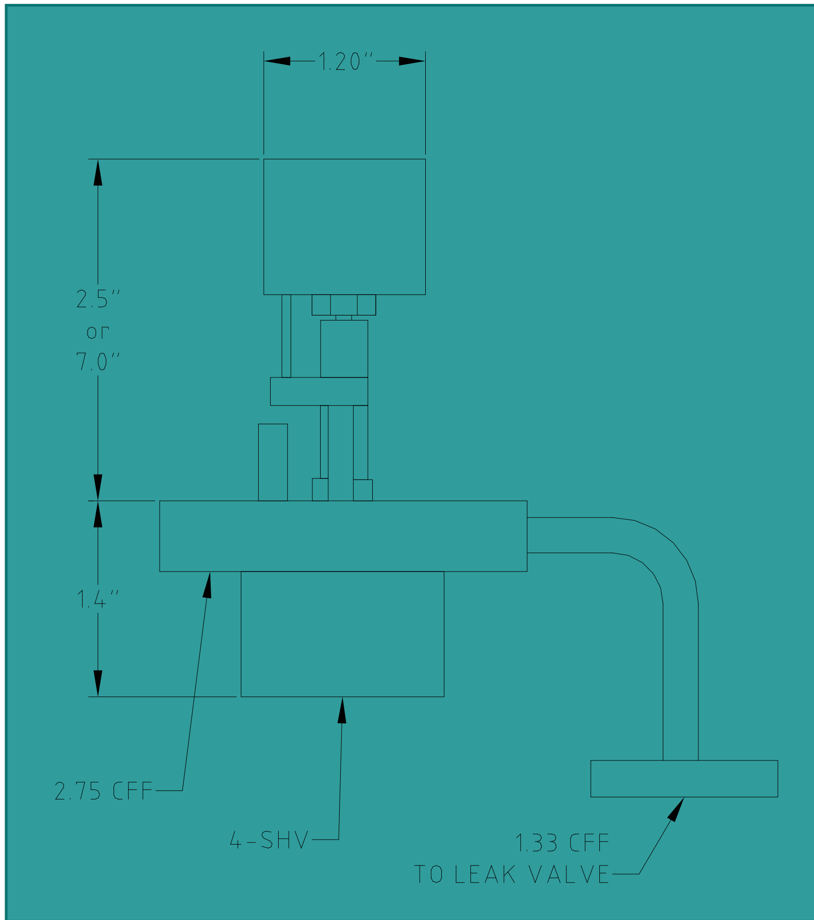
- patented gas injection system avoids expensive differential pumping equipment
- noble gas sputtering at low chamber pressures (~10^{-6})
- broad ion beam ensures uniform sputtering
- compatible with general sputter cleaning and ISS applications
- continuously tunable beam voltage to 3 kV

SPUTTER ETCHING SYSTEM

The LK Technologies Model NGI3000 Ion Gun with control electronics is designed for the cleaning of surfaces by ion sputtering with beam energies up to 3 keV and ion currents up to 25 μA. The gun employs a novel gas injection system which allows sputtering to take place at a typical chamber pressure of 1 x 10^{-6} Torr. This reduction in gas load represents a major advantage over conventional ion guns which require chamber backfilling to nominally 5 x 10^{-5} Torr and, therefore, involve longer pumpdown times and potential gas impurity problems. The gas injection system allows the NGI3000 to be employed for ISS and other ion spectroscopic applications without the need for expensive differential pumping equipment. In the standard configuration a broad ion beam is presented to the sample, thereby ensuring uniform sputtering required in most sample cleaning operations.

The sputter etching system is typically furnished complete with the Model NGI3000 Ion Gun, Model NGI3000-SE control electronics and Model NGI3000-LV leak valve. Two standard gun lengths are available (see dimension drawing). The system is attractively priced and compatible with a range of typical sputter cleaning applications and ISS.

Manufacturer of precision instrumentation for surface analysis including electron spectrometers, ion and electron guns, and LEED/Auger systems.



MODEL NGI3000
Sputter Etching System

MODEL NGI3000
Ion Gun

MODEL NGI3000-SE
Control Electronics

PERFORMANCE DATA

TABLE 1

(2,5 cm gun to target 20mA emission)

Beam Voltage (kV)	Sample Current (μA)
0.50	12
1.00	19
2.00	25
3.00*	28*

* Current density > 100μA/cm^2

TABLE 2

Gun to Target Distance (cm)	Beam Diameter (FWHM) (mm)
1.5	6
2.5	8
14.0	30

Specifications

- beam voltage: 0.1 - 3 kV, continuously adjustable
- source: electron bombardment, extractor type
- filament: replaceable, thoriated iridium
- beam current: nominal 25 μA maximum, emission 20 mA; current density > 100 μA/cm^2
- beam diameter: gaussian shape, variable with target distance, nominal 8 mm diameter at 2.5 cm gun to target length (see table)
- mounting: 2.75 in. OD CFF with 4 SHV connectors
- gas inlet: through integral leak valve mounted on flange
- ion source pressure: nominal 5 x 10^{-5} Torr
- chamber pressure: nominal 1 x 10^{-6} Torr with 150 l/s chamber pumping
- differential pumping: not required
- control electronics: rack mounted, front panel control of beam voltage and emission current, metering on emission current

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