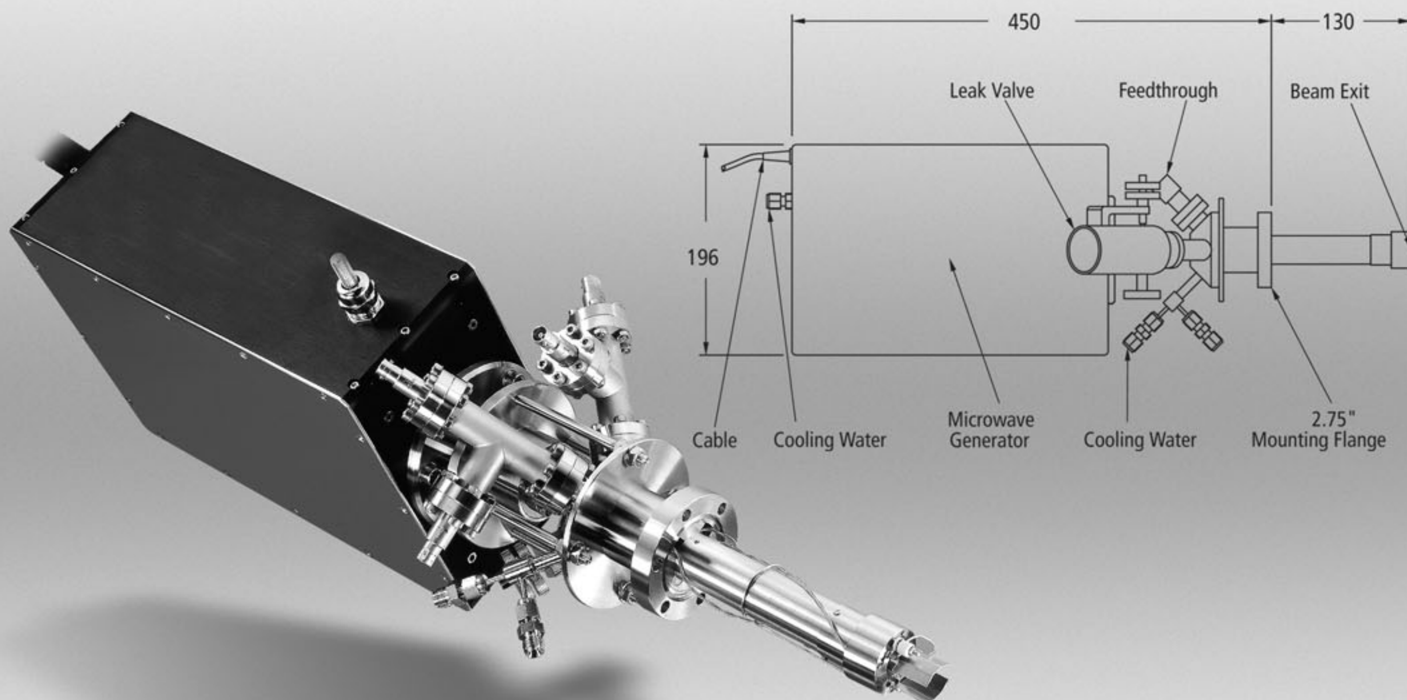
COMPONENTS FOR SURFACE ANALYSIS

Mini ECR Plasma Source

MPS-ECR

- Microwave coupled plasma
- Based on 2.75″ (NW40CF) flange
- For Oxygen, Nitrogen, Hydrogen
- Filamentless design
- No microwave tuning required
- User configurable coaxial design



SPECS®

The Mini ECR Plasma Source MPS-ECR

The SPECS Plasma Cracker Source MPS-ECR is a truly UHV compatible source for many PVD applications where a NW40CF base flange is necessary. The design is based on the well known SPECS PCS-ECR technology. A high density plasma is created by coupling a radially symmetric 2.45 GHz micro-wave field to ions on the 86 mT surface of a multi-polar magnetic array. A unique combination of features and options make this a highly versatile plasma source.

Main Features:

- Mounting flange: 2.75”(NW40CF)
- UHV compatible
- Bakeable: 200° C
- Power: 60 W max. at 2.45 GHz
- Magnet type: permanent
- Integral water cooling (Feedthrough and jacket)
- In vacuum length: 130 mm
- Beam diameter: ~ 13 mm at source
- Gas flow rate: ~ 1 sccm typical
- Working distance: 50 - 300 mm
- Discharge tube: Materials according to gas

Options:

- Integrated shutter
- Various aperture types
- Differential pumping: Extends the range of working pressures into the ~ 10^{-7} and 10^{-8} mbar range
- Ion trap: Deflects residual ion current out of the beam.

Operating Modes:

The source can be operated in three distinct modes, according to the extraction optics fitted and covering a wide range of ion energies and particle types.

Atom source – Thermal energy neutrals

This mode is intended for low energy and low damage surface treatment and sample growth. The particles released are largely thermalised (< 1 eV) and are therefore suitable for sensitive applications.

Downstream plasma /ECR mode – Low energy ions and neutrals

This mode reproduces classic ECR source characteristics. The optics here allow ions and higher energy plasma particles (~ 25 eV) to flood out into the chamber.

Hybrid – Atom source/ECR characteristics with controllable ions

This mode combines atom source and ion source behaviour to produce a source, which behaves like the atom source above until potentials are applied to the extraction grids, when ions with controllable energy (50 - 1500 eV) are then added to the beam.

Applications:	
Nitrogen:	Nitriding (GaN, AlN, InN and SiN), doping (ZnSe) and alloying (GaInNAs, GaAlAsN)
Oxygen:	HTc superconductors, optical coatings, dielectrics, reactive sputtering, laser ablation and ceramic growth (Al_2O_3) oxygen cleaning and oxidation kinetics, post growth oxidation / low temperature SiO_2
Hydrogen:	Cleaning, growth enhancement / surfactant
Chlorine:	In-situ etching
Methane (carbon):	SiC film growth

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ISO 9001 Certificate

Your Representative:

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