Linear ECR Broad Beam Ion Sources

The Modular Linear Ion Source

EC/L 800
Ion Source

Key Design Features

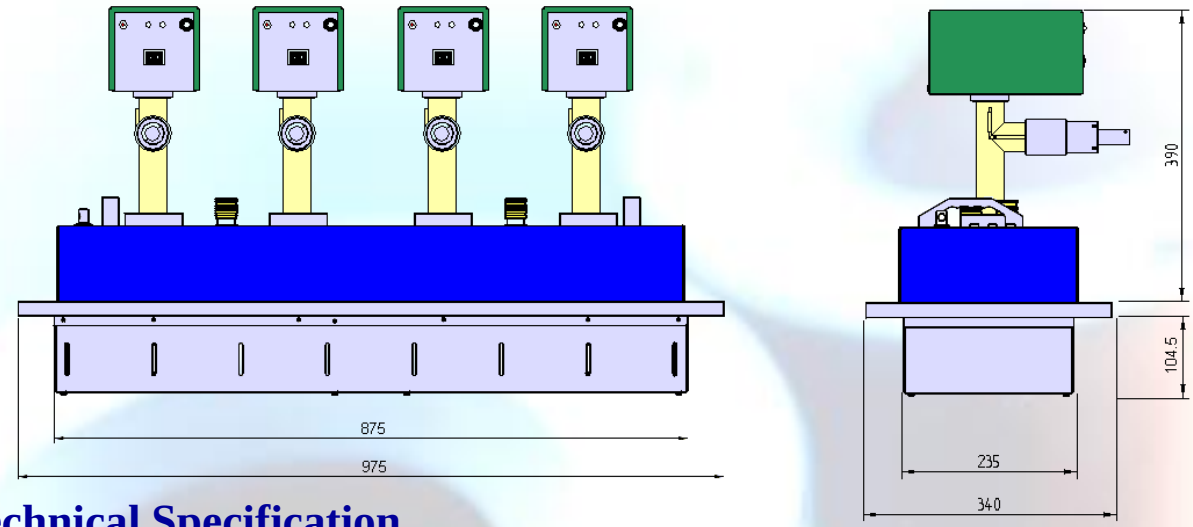
- **Filamentfree source operation** based on a simple, compact **microwave power coupling**
- **Permanent magnets** for use of the Electron Cyclotron Resonance (**ECR**)
- **Flange mounting** configuration
- **Functional ceramics** for easy and quick maintenance
- Special **grid insulation and adjustment** system

Advantages

- Fully noble gas; restricted for oxygen, and other reactive **gas capability**
- **Grid systems** from different shape and material for optimum process adaptation
- **Modular concept** up to 2 m length
- **Minimum maintenance** and long lifetime, maintenance cycles over 300 h
- **Homogeneous beam profile** over the total length, 80%

The unique solution for large scale ion beam processing !

Dimensions / Size



Technical Specification

	EC/L 800
Type:	Flange mounted microwave excited ion source with multiapertur extraction grids
Discharge modules:	1
Source materials:	Discharge lining: Al_2O_3 Grids: Graphite Vacuum separation of the microwave antenna: SiO_2 cup Permanent magnets: NdFeB Housing: Stainless steel Magnetic shield: Ni coated steel
Grid types:	2 grid system 2 standard systems (focussing and plane)
Size:	Immerse depth: standard 104.5 mm 235 mm x 875 mm (without flange)
Weight:	~80 kg
Flange:	Non-standard rectangular flange with O-ring seal 340 mm x 975 mm
Microwave power:	~125 to 400 W at 2.45 GHz for each module
Ion current:	Maximum 1200 mA at 1000 V (1.2 kW)
Ion energy:	~100 to 1000 eV
Accelerator voltage:	0 to –1000 V
Process gases:	Noble gases, N_2 (No restrictions) O_2,and Halogen containing gases (Grid lifetime reduced)
Gas flow :	25 … 40 sccm, plug in connector for 6 mm hose
Cooling water:	1.5 l/min, plug in connectors for 6 mm hose

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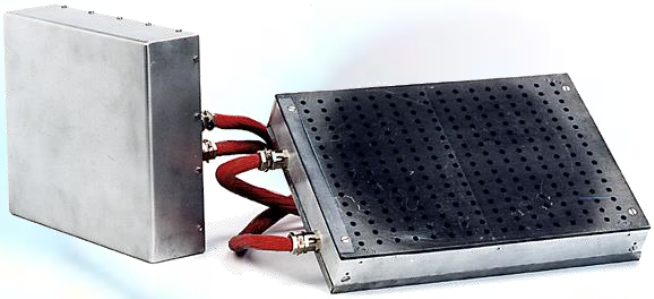
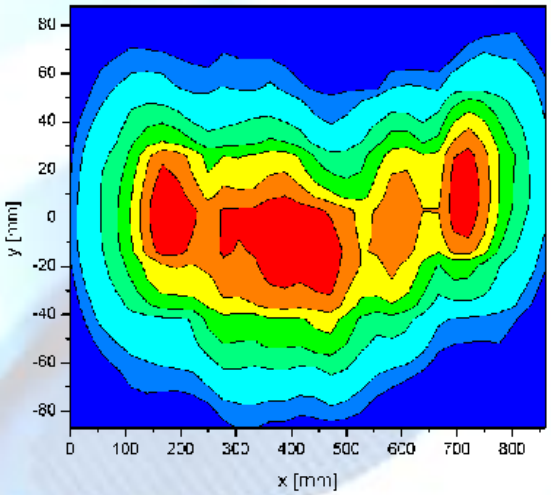
Ion Beam Profile Measurements

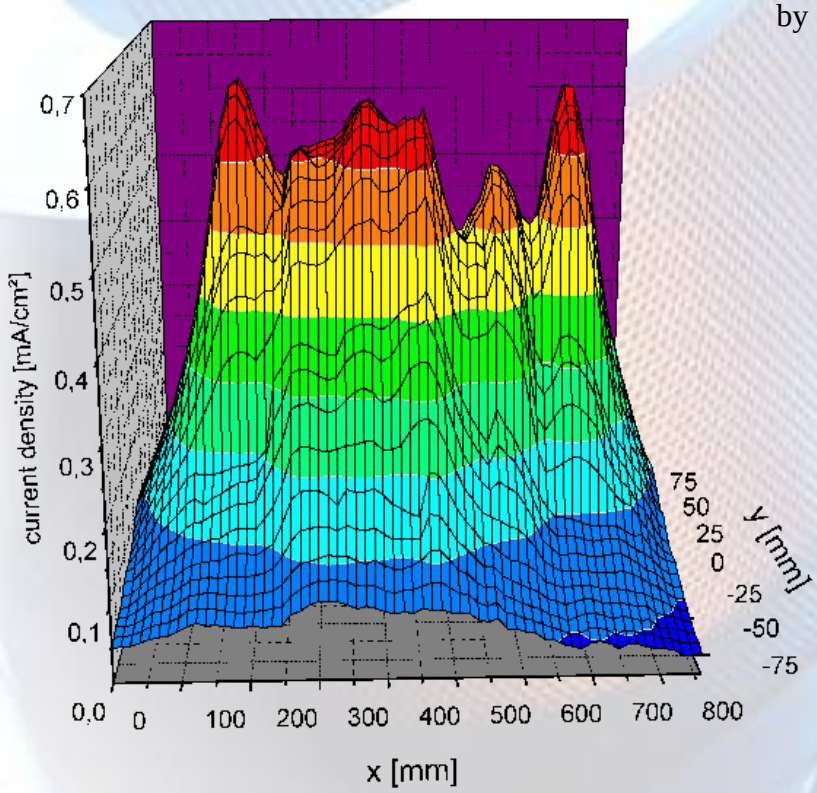
The Faraday cup array enables the measuring of the beam profile and the ion current density in substrate position.





Principle

- Measuring of the ion flux at small graphite probes
- Probes behind a grounded graphite shield with an well-defined aperture (4 mm in diameter)
- **Measuring of the hole beam profile** by scanning of the Faraday cup array



Ion beam profile of the EC/L800

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