POLYGON PHYSICS

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Our ion & electron sources ready for your needs.

HEXAR
BROAD BEAM ECR SOURCE

Etching/Assistance • Figuring • Sputtering • Surface Activation
• Surface Modification • Cleaning • Deposition

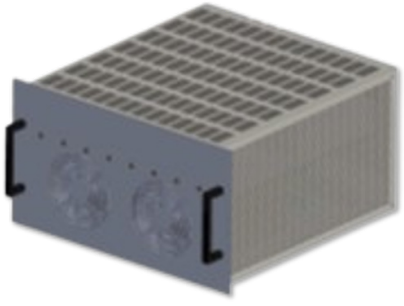


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GENERAL CHARACTERISTICS

Source type	ECR filament free
Gas	H_2, He, N_2, O_2, noble gas, molecular gas
Beam current	Up to 40 mA (@2 kV)
Beam voltage	0.1 – 2 kV 3 grids acc/decc
Beam size at grid	80 mm
Length	110 mm
Diameter	130 mm
Microwave power	7x20 W + 1x20 W (electrons)
Microwave matching	No
Cooling	Oil or de-ionized water
Mounting	CF160 standard Adaptable to other flanges
Electronics	19" rack 6U: Control command (inc.HF) and 8 HF generators Cooler (500 W)
Hardware control	API available via Microcontroller
Communication protocol	Ethernet UDP, RS232
User interface	GUI executable (ethernet UDP only)
Source gas control	Mass-Flow Controller (MFC)
Insertion depth	210 mm
Number of cavities	7 (+1 with neutralizer)
Options	Longer cables, neutralizer



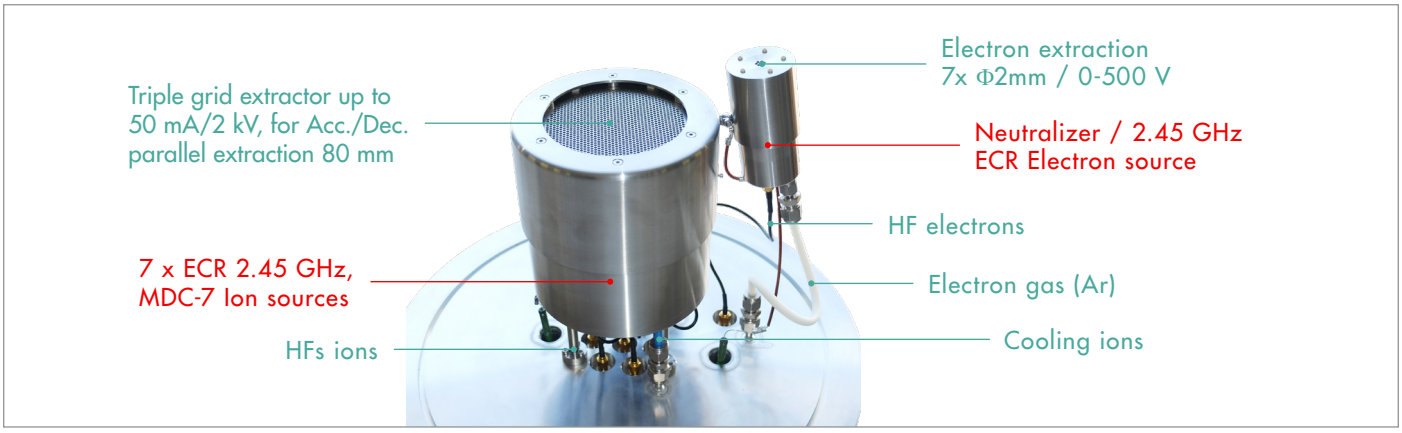


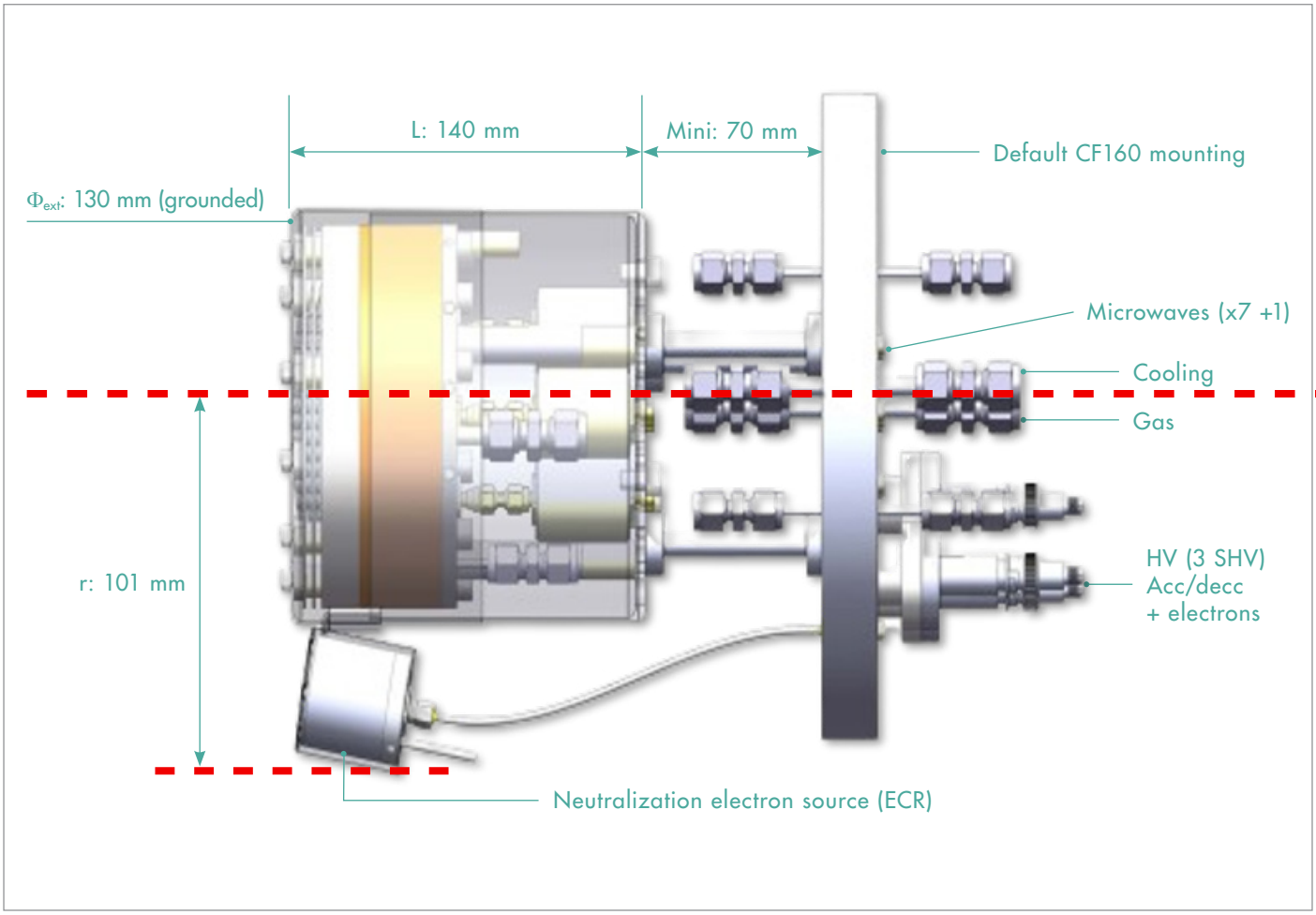
Command and control rack (19"6U)

MECHANICAL DESCRIPTION

7-discharges ECR gridded source for 80 mm parallel circular broad beam, processing with neutralization electron source (ECR).

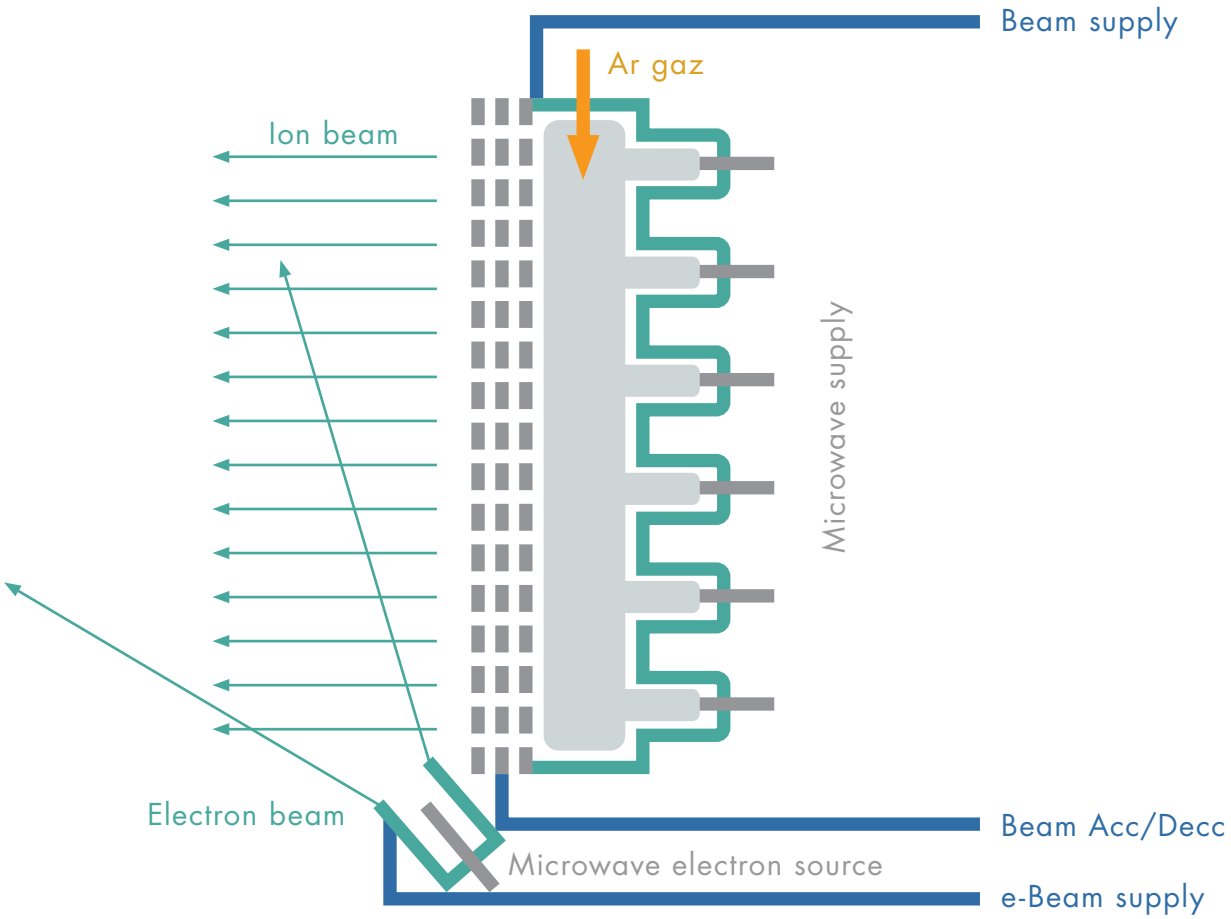
Example with mounting on NW300 Flange:





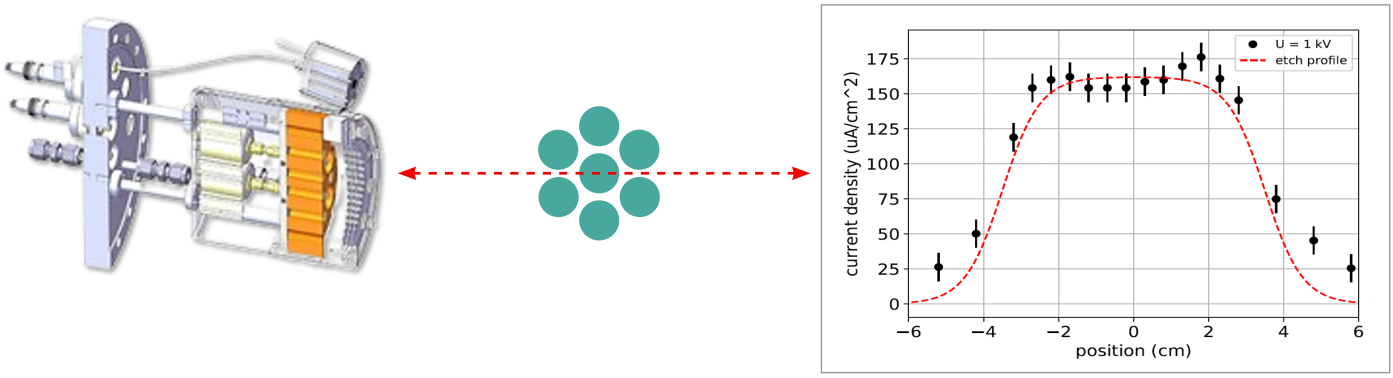
WORKING PRINCIPLE

7 independent discharges control the profile of the extracted current

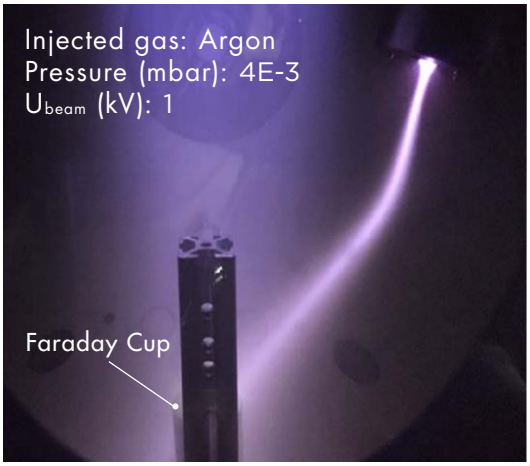


BEAM UNIFORMITY

Hexagonal distribution of *7* discharges

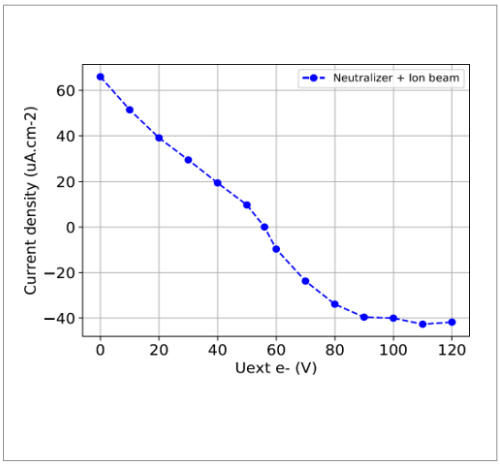


NEUTRALIZER



Neutralizer Test

Faraday Cup centered on source #1
@160mm from the grid



Neutralization Effect Measurement

Depending on electrons energy

USAGE EXAMPLE

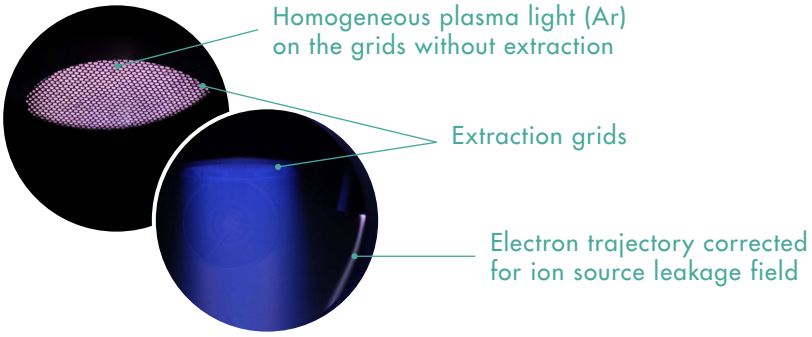
HEXAR Using Ar

Ar⁺ ion beam

- 1.5 kV / 35 mA
- 44 mA at 2 kV

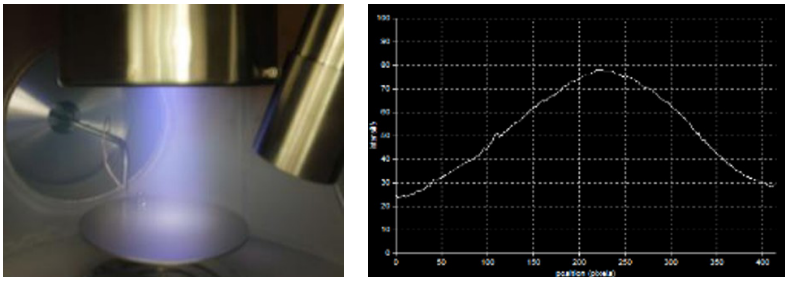
Neutralizer

- 100 V / 35 mA / electrons
- Argon-based

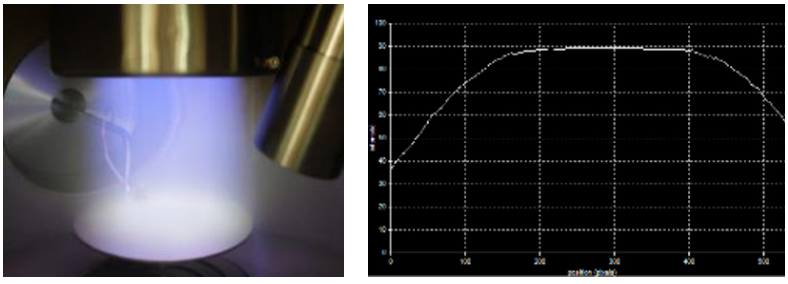


Control of the Radial Distribution of the Current Density (Grid 80 mm)

Condition 1
Central cavity ON only



Condition 1
7 cavities activated





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