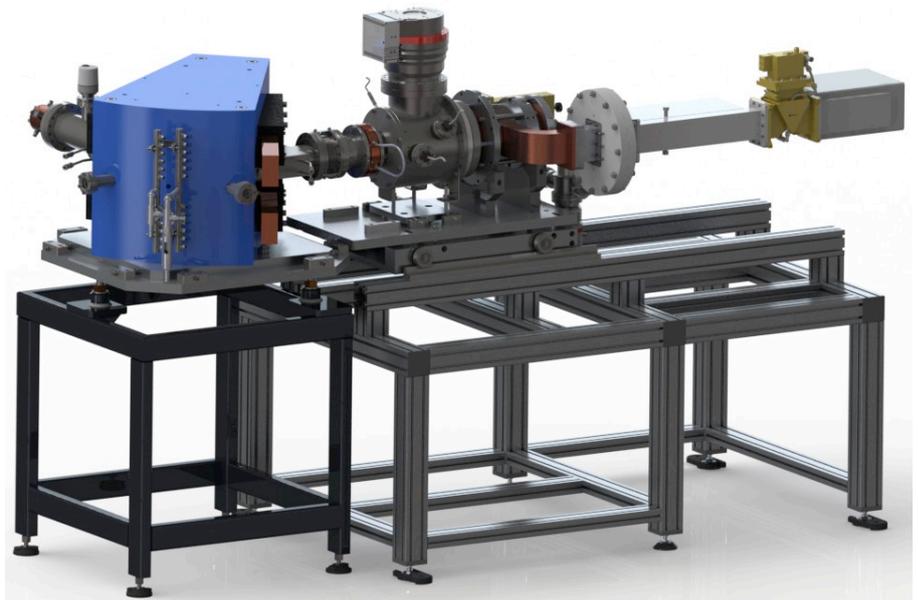


Monogan[®] M-1000



Turn-key bench with full permanent magnet Monogan M-1000 ECR ion source
Weight of the source: 40kg.

PROTON HIGH INTENSITY ECR ion source

Monogan is an ECR ion source, reliable and good performance

which the magnetic circuit is entirely made with permanent magnets. Its totally new design incorporates a symmetry which allows radial and axial confinement without use of multipoles. This magnetic structure is patented in Europe EU/FR 9615572 and US 6194836. The source has two magnetic rings spaced by several centimeters, allowing to have a direct access to the plasma region also radially. This can be used for introducing an oven, sputtering system or a

target inside the source. Monogan M-1000 runs at 2.45GHz and uses up to about 1.2 kW of RF power for achieving optimum beam intensities.

This source can produce intensities of the order of 40 mA of $Z = 1$ elements. Significant beam intensities are also obtained for other light monocharged ions (see table 1).

IMPORTANT: Optimum beam intensities are only obtained with a multi-electrode extraction system specially developed by Pantechnik. The normalized emittance of proton beams is about $0.2 \pi \text{ mm mrad}$.

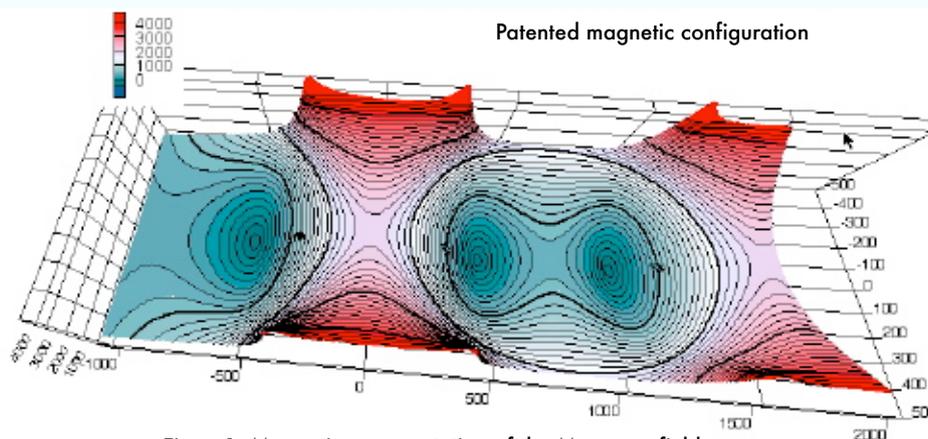


Figure1: Magnetic representation of the Monogan field

ion	M - 1000
H	40000
He	30000
N	15000
Ne*	15000
Ar*	10000
Kr*	3000

Table 1: Beam intensity for various monocharged ions in electric μA .
 (*) estimated

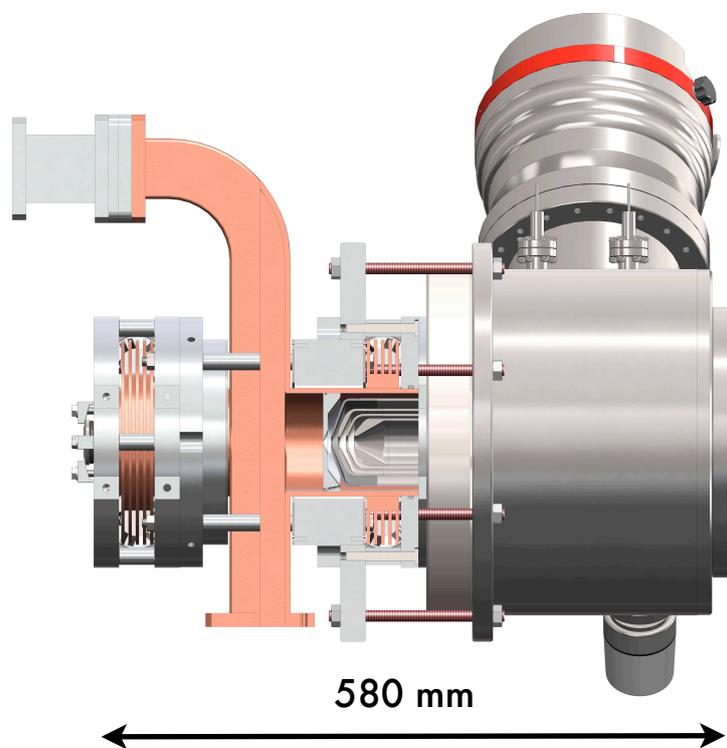


Figure 2: Internal view of the multi-electrode system optimized for high intensity beam production.

The complete bench includes a Command and Control Cabinet and software with user interface under Labview. The software includes automatic start-up of the source and tuning, with beam recovery. All safety and security of the bench (interlocks) are included in the turn-key system.

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