

SILHI 2 - RF injection & accelerating column

SILHI® : PROTON high intensity & high energy ECR ion source

Silhi is a 2,45GHz ECR ion source with very high performance

Originally designed by the CEA (Commissariat à l'Energie Atomique) with room temperature coils to produce the magnetic field. SILHI2 is a permanent magnet version today routinely used at different places to produce proton beams.

The source has magnetic rings arranged together to generate the resonant and diffusion field inside the plasma chamber.

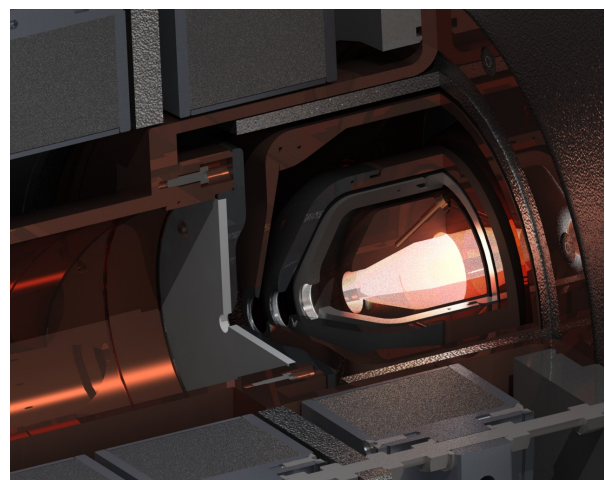
The RF wave at 2,45GHz is injected axially. The choice of material for the plasma chamber permits to enhance the proton fraction better than 85% with respect to H_2^+ and H_3^+ ions.

The pentode extraction system is mounted in

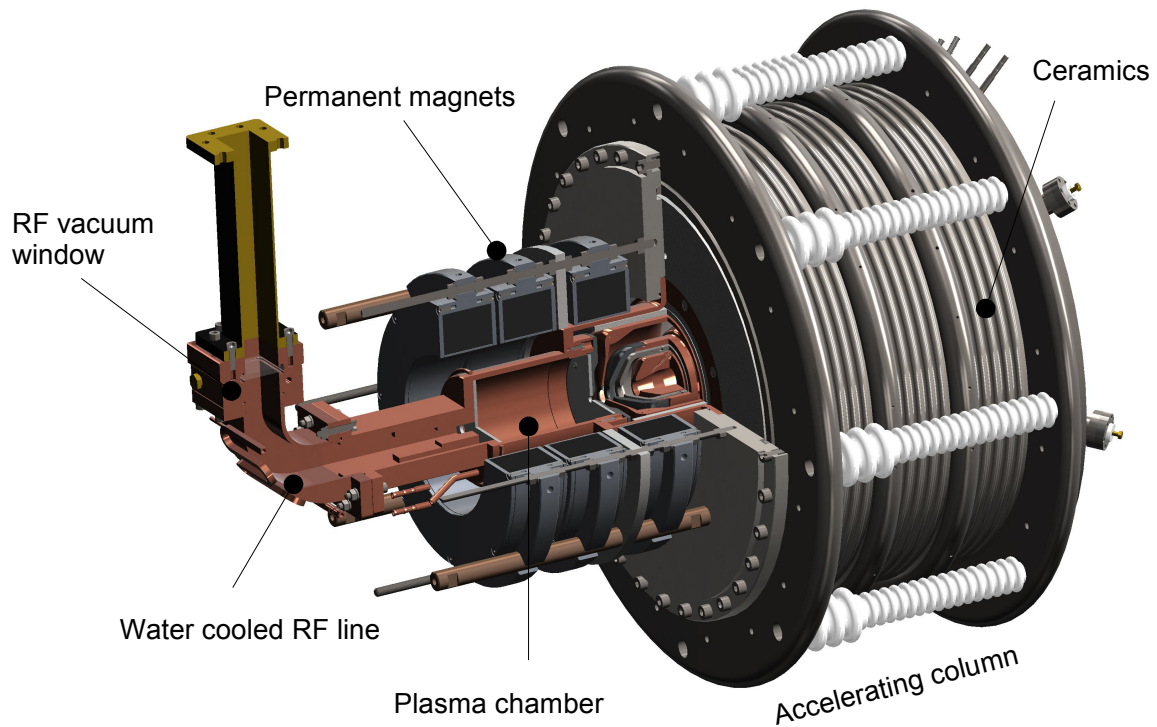
the accelerating column providing up to 100kV final energy to the beam.

Performances are at least guarantee for intensity of 40mA H^+ @ 60 keV energy.

The optimum beam intensity at high energy is only obtained with this type of multi-electrode extraction system. As a result the emittance of proton beam is $< 0,2$ p.mm.mrad.



Pentode extraction system



TURN KEY BENCH

The system can be integrated in a turn key bench which includes:

- the High Voltage platform and supports with interlocked security
- the RF Amplifier and wave guide line isolated by a water cooled DC-breaker
- the HV power supplies
- a command and control cabinet running I/O hardware (with FPGA)
- a command and control software running automatic procedures

The full bench is pre-tested in the Pantechnik headquarters in the presence of the customer. The bench can be mounted in the final site by Pantechnik experts.



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