

3. ION SOURCE TEST FACILITY

Name of the infrastructure	Ion Source test facility
Location of infrastructure (town, country)	Madrid, Spain
Web site address	http://www.ciemat.es
Legal name of organization operating the infrastructure	CIEMAT, Centro de Investigaciones Energéticas Medioambientales y Tecnológicas
Location of organization (town, country)	Madrid, Spain
Key Accelerator Research Area(s)	Ion source, H- source, cyclotron, vacuum, instrumentation, and diagnostics. Medical accelerators, cathode.
General description of the infrastructure	This facility is composed by the following infrastructures and / or activities: <ol style="list-style-type: none"> 1. Test station for P.I.G. ion sources: DC and RF extraction. Measurement of beam current with Faraday cups. Plasma density and temperature can be estimated with optical emission spectroscopy and Langmuir probes. 2. NC dipole magnet: 0,85 T 3. Cold Cathode P.I.G. Ion source 4. Beam diagnostics and instrumentation 4. H- gas handling control 5. Vacuum chamber and vacuum system.
Already existing or planned	Existing. Improvement plan: adaptation for measurement of RF ion sources. RF extraction to avoid high voltage.
Present situation/future changes/expected lifetime	No large change presently planned. Expected lifetime: more than 10 years
Accelerator infrastructure or component test infrastructure	Component test infrastructure
Shared facility/infrastructure	Medical Cyclotrons users and R&D Institutes
Main user community	P.I.G. sources for accelerators
Open for external users	yes
If open to external users: Modality of access to the infrastructure (access unit)	There are different modalities to access the facility like a "Service Contract" or a "Collaboration Agreement" among others
Number of access units available for external users	Depending on the availability of the part of the installation needed
If open to external users: Support offered by the organization operating the infrastructure	The equipment is under the responsibility of the CIEMAT, which are in charge of the operation, maintenance and safety issues. CIEMAT agrees to provide the personnel to ensure these functions.
Review procedure for requested access	Either after discussion with CIEMAT, or in the frame of an international contract, European or else
How to apply	By contacting the responsible
Can the infrastructure be made available?	yes
If YES, fraction of time that could be made available (%)	Depending on the internal projects going on, and on the facility needed.
Contact details (name, Institute, email,)	Daniel Gavela Accelerator Unit Avenida Complutense, 40 28040, Madrid daniel.gavela@ciemat.es Tel.: +34 91 496 2573
if available: costing model (how is the annual operating cost calculated)	If service is delivered to internal CIEMAT clients, costs are calculated on a basis of an all-in fee package. Special conditions may be applicable for tests performed in the frame of approved official cooperation agreements.

Pictures



Fig. 4. Ion source test facility



Fig. 5. Overview of the test bench with the mechanical structure, the magnet, the vacuum system, and the refrigeration water distribution system



Fig. 6. A top view inside the vacuum chamber, showing the electrical shielded box, the ion source and the magnet

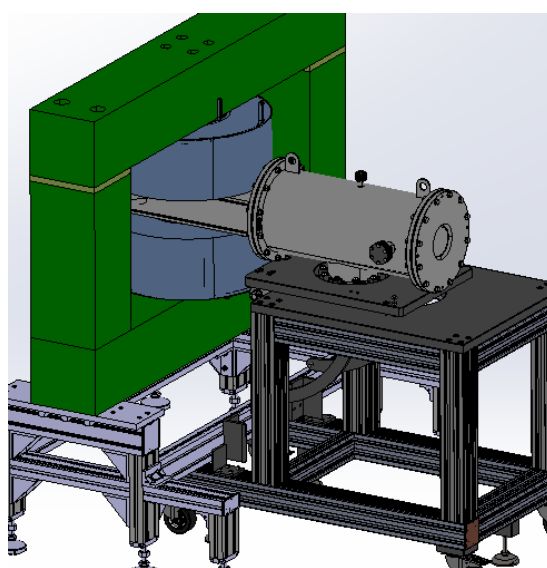


Fig. 7. New Ion source facility with RF extraction