

4102Bo-AMS for ^{14}C dating



The 4102Bo-AMS system is a high precision instrument for radiocarbon (^{14}C) analysis, supporting biomedical as well as dating applications.

Features

- Source embodiment at ground potential ensures safe and easy operation.
- One source for both solid and CO_2 gas samples.
- Samples stored in a carousel and transported to the source interior upon use to avoid sample cross-contamination.
- Interchangeable with 50 or 200 sample carousel.
- Permanent magnets for reduced power consumption. No cooling water required.
- Vacuum insulated accelerator: no use of SF_6 .
- Accelerator with internal power supply avoids vulnerable HV cable interfacing.
- Fast 100Hz bouncer cycling frequency for virtual DC operation.
- Automatic start-up & shut-down and automated tuning, system control & monitoring as well as on-line data analysis.
- Unattended measurements of all samples in any pre-defined sequence.
- Fits in a single standard laboratory room.
- Quick and straight forward installation.

HIGH VOLTAGE ENGINEERING

Particle Accelerators Systems for the scientific, educational and industrial research communities



HIGH VOLTAGE ENGINEERING EUROPA B.V.

Amsterdamseweg 63, 3812 RR Amersfoort, P.O. Box 99, 3800 AB Amersfoort, The Netherlands
Phone: +31 33 4619741 Fax: +31 33 4615291 E-mail: info@highvolteng.com Web: www.highvolteng.com



SPECIFICATIONS

Radiocarbon analysis

- Guaranteed precision for unlimited size modern ($^{14}\text{C}/^{12}\text{C} \sim 10^{-12}$) samples
 - . Solid carbon : 0.3% ($^{14}\text{C}/^{12}\text{C}$)
 - : 0.2% ($^{13}\text{C}/^{12}\text{C}$)
 - . CO_2 : 0.5% ($^{14}\text{C}/^{12}\text{C}$)
 - : 0.3% ($^{13}\text{C}/^{12}\text{C}$)
- Background $^{14}\text{C}/^{12}\text{C}$
 - . Solid carbon : 2×10^{-15} (> 50000 years) (expected 5×10^{-16})
 - . CO_2 : 1×10^{-14} (> 38000 years)

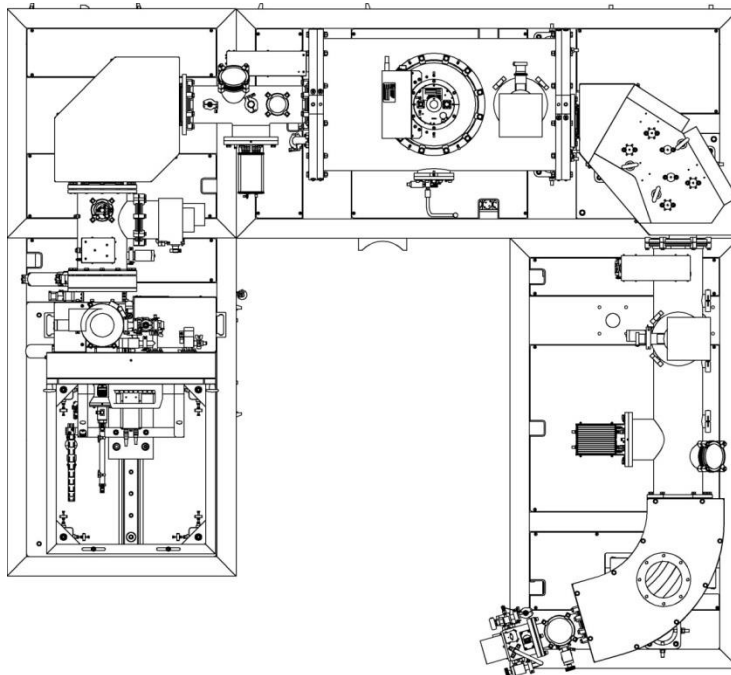
Overall AMS system

- Sample medium : solid and gaseous (CO_2)
- Sample capacity : 50 or 200 samples
- Accelerator
 - . Operational terminal voltage : 210 kV
 - . During conditioning : 230 kV
- Dimensions : 3.1 m length, 2.8 m width, 2 m height
- Electrical power consumption : < 5 kW
- Cooling : Air cooled, no cooling water required

Layout

Injector magnet with fast (100 Hz) sequential injection system

SO-110C ion source with 50 or 200 sample carousel



Vacuum insulated accelerator with internal power supply

HE spectrometer with analyzing magnet and electrostatic analyzer

Gated Offset Faraday cups for ^{12}C and ^{13}C measurement

Gas ionization detector for ^{14}C measurement

Sales offices in Europe and Japan

4102Bo-AMS 004

HIGH VOLTAGE ENGINEERING EUROPA B.V. reserves the right to change specifications and features without prior notice unless part of a quotation or order.

