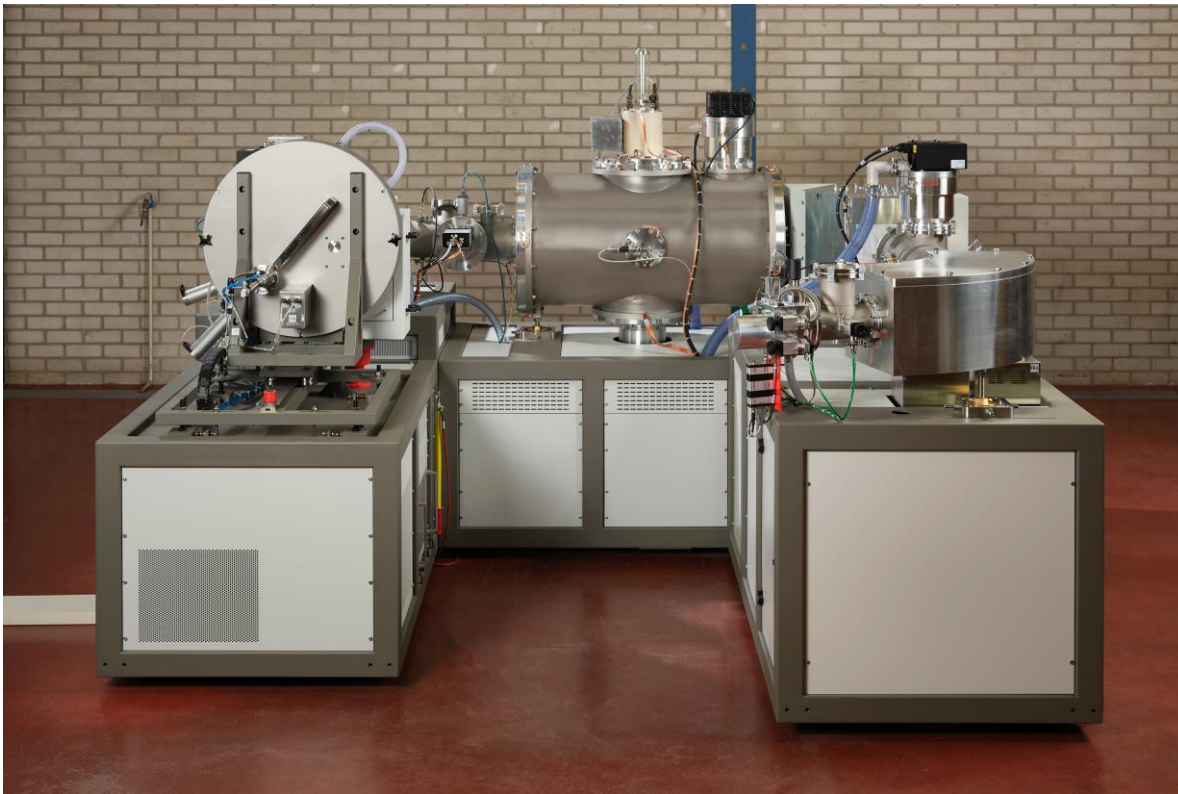


# 4102Bo-AMS for $^{14}\text{C}$ dating



The 4102Bo-AMS system is a high precision instrument for radiocarbon ( $^{14}\text{C}$ ) 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  $\text{CO}_2$  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  $\text{SF}_6$ .
- 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.

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## SPECIFICATIONS

### Radiocarbon analysis

- Guaranteed precision for unlimited size modern ( $^{14}\text{C}/^{12}\text{C} \sim 10^{-12}$ ) samples
  - . Solid carbon : 0.2% ( $^{14}\text{C}/^{12}\text{C}$ )
  - : 0.2% ( $^{13}\text{C}/^{12}\text{C}$ )
  - .  $\text{CO}_2$  : 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 :  $1 \times 10^{-15}$  (> 57000 years) (typical  $5 \times 10^{-16}$ )
  - .  $\text{CO}_2$  :  $1 \times 10^{-14}$  (> 38000 years) (typical  $3 \times 10^{-15}$ )

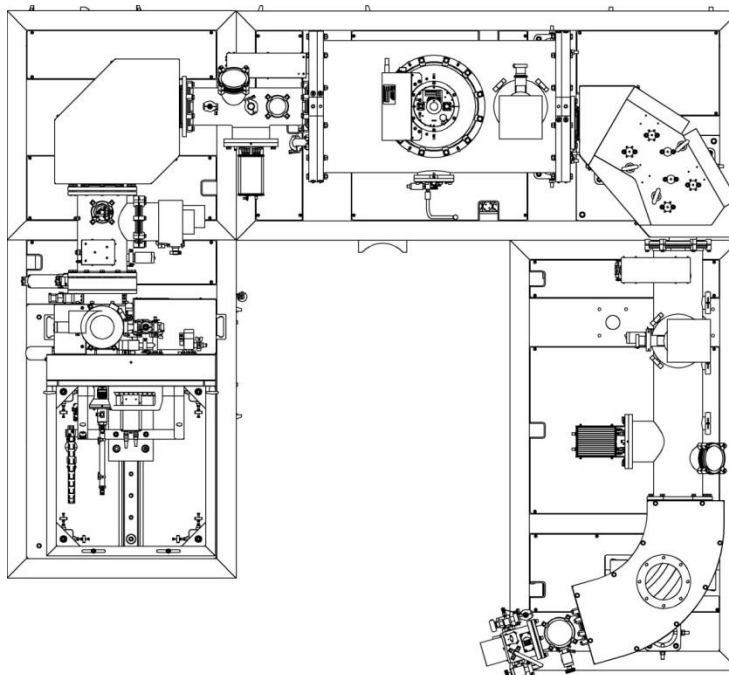
### Overall AMS system

- Sample medium : solid and gaseous ( $\text{CO}_2$ )
- Sample capacity : 50 or 200 samples
- Accelerator
  - . Operational terminal voltage : 210 kV
  - . During conditioning : 230 kV
- Dimensions : 3.0 m length, 2.7 m width, 2 m height
- Electrical power consumption :  $\sim 2.5$  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  $^{12}\text{C}$  and  $^{13}\text{C}$  measurement

Gas ionization detector for  $^{14}\text{C}$  measurement

## Sales offices in Europe and Japan

4102Bo-AMS 006

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

