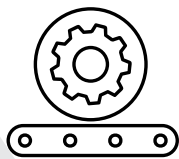


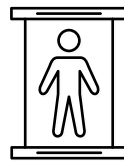


# VEBOS

## WHOLE BODY IN-VIVO COUNTING SYSTEM



Fully automatic scanning system



Measure of total body activity and committed effective dose



Alternative detection equipment options

Detectors: two liquid-nitrogen-cooled HPGe

Low-background lead shielding/collimators

Extensive safety devices

Several operating modes available according to required activities

The **VEBOS** system is designed to perform a complete scan of individuals standing in front of a vertically moving detection equipment.

The measuring equipment is composed of 2 liquid-nitrogen-cooled HPGe detectors, each coupled to a 30 l nitrogen dewar, and managed by a multi-channel analyser.

The detectors are shielded with lead collimators in order to reduce the contribution due to environmental background. The collimators can also be used to define a detection field of view, according to the measurement requirements (e.g. full body scan, hot spot deep analysis, etc.).

The detectors and related components are lodged on a mechanically moving shelf, activated by the system software according to the pre-set measurement sequence.

The mechanical structure of **VEBOS** includes a main frame which acts both as supporting structure as well as shielding from external background contribution.

The primary user interface is provided by a built-in panel PC with proprietary software allowing the complete management of the system, i.e. activation and control of the measurements, display/archive of the results, etc.

Several safety devices are implemented in **VEBOS**: a base platform that detects an individual presence, interlocks at the maintenance door, and buttons on the holding handles to enable the movement of the detectors.

## OPERATING MODES

VEBOS is designed to be an extremely flexible system, allowing the User to select proper measurement modalities depending on the specific needs:

- Full scan: 6-steps segmented scan of the individual, to evaluate the total body contamination (in Bq) and to subsequently evaluate the committed effective dose (in Sv). The segmented approach allows identifying hot-spots.
- Fixed-position measurement: dedicated, high-statistics measurement for a specific body region in case of hot-spot detection.
- Lung and thyroid measurement: specifically conceived to measure thyroid and lungs' contamination.
- Sample measurement: low-background isotopic analysis of contaminated samples.

## TECHNICAL SPECIFICATIONS

### Detection unit

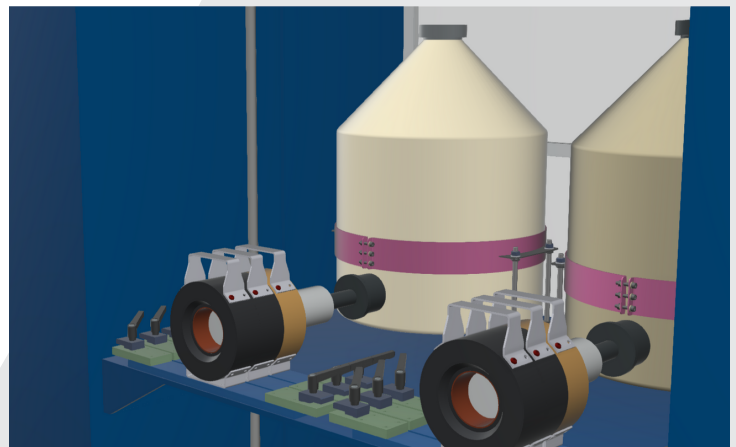
- Detector type: liquid-nitrogen-cooled coaxial P-type HPGe detectors
- Number of units: 2
- Nitrogen dewars: 30 l, each
- Lead shielding/collimator thickness: 50 mm
- Energy range: 40 keV to 10 MeV
- Relative efficiency:  $\geq 25\%$
- Energy resolution (122 keV): 0.82 keV
- Energy resolution (1.33 MeV): 1.85 keV
- Peak to Compton: 56:1
- Detectors endcap size: 70 mm

### Mechanical characteristics

- Overall dimensions (WxHxD):  
2000 x 2720 x 1800 mm
- Total weight: approx. 1000 kg

### General features

- Alarm column
- Handles for helping the person to keep a suitable position during measurements
- Door for easy access to the detectors for maintenance activities
- Eyebolts for easy deployment of the system



*VEBOS detectors detail*

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## OPTIONS

- Alternative detection equipment options, e.g.: electro-cooled HPGe detectors, NaI(Tl) scintillators, etc.

## ACCESSORIES AVAILABLE UPON REQUEST

- BOMAB phantom for calibration
  - Warranty extension from 12 months to 24 months
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