HIDEX

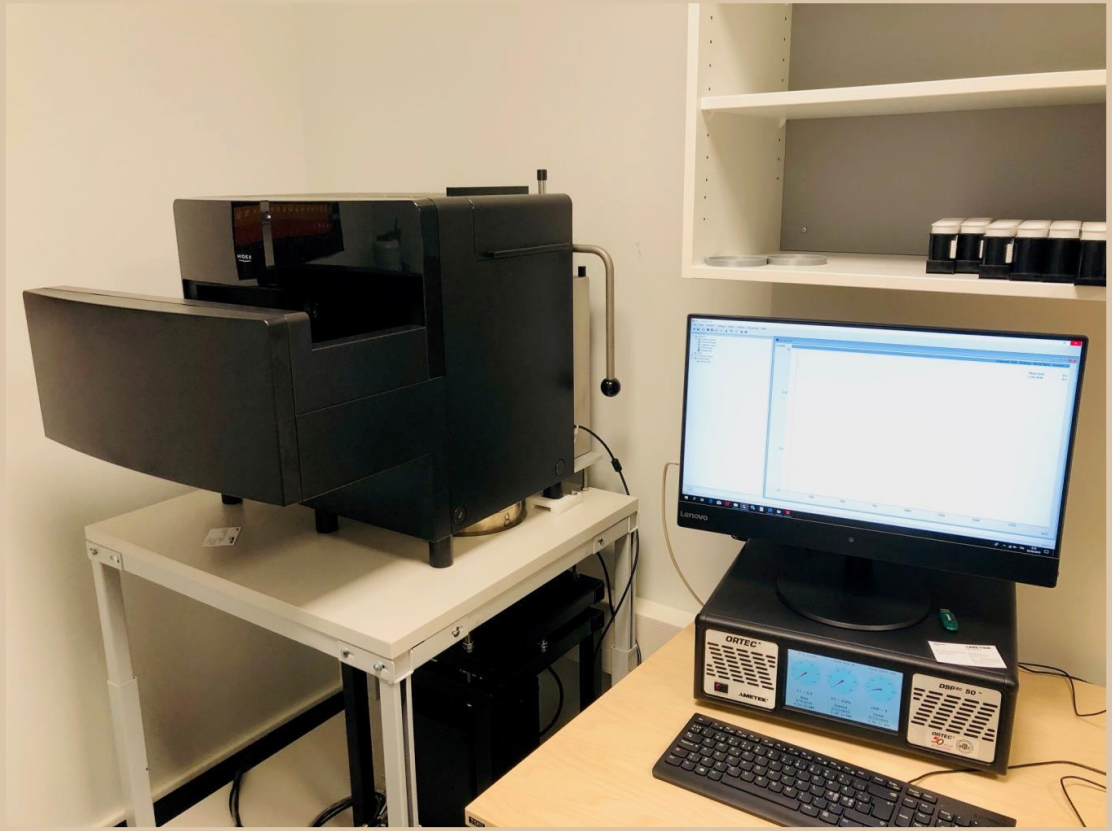
Hidex Sample Exchanger SEC for HpGe systems

Hidex sample exchanger for HpGe counter

- The Hidex automated high purity germanium detector is a system developed for Helsinki University Hospital Boron Neutron capture therapy laboratory.
- Installed for HUS Helsinki University Hospital back in 2018.
    - Existing HpGe detector system

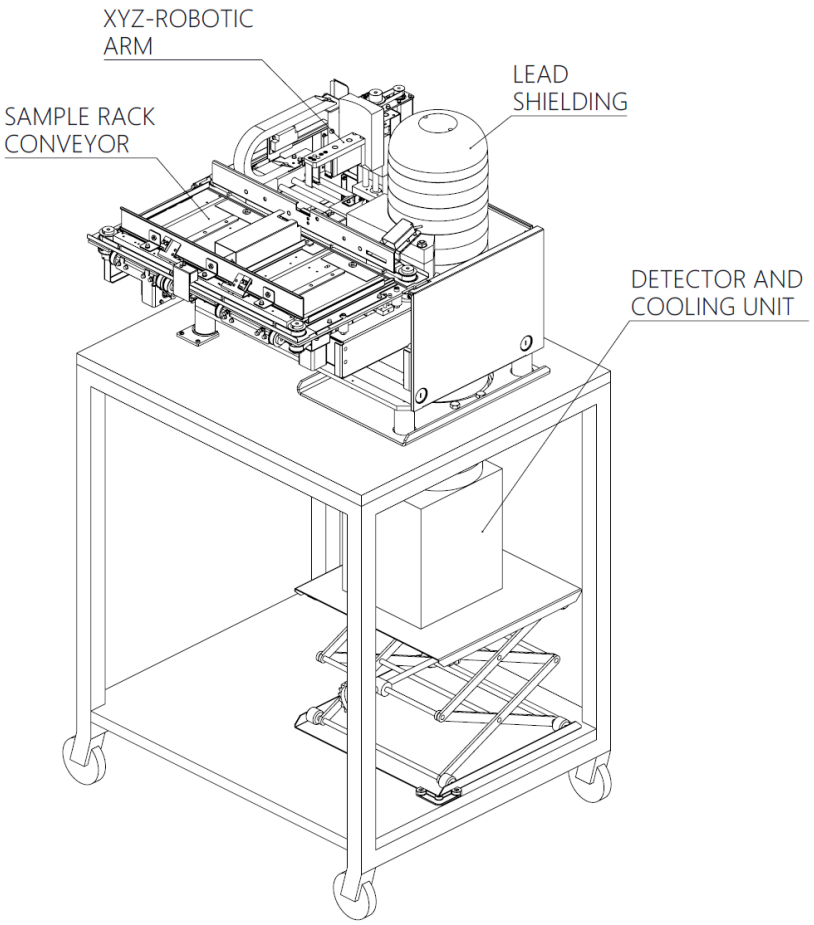
Wanted focus

- Improve the workflow with sample changer




HIDEX
First we focus on your benefit,
then we create a product,
and then we do it again.
On Point. Repeat.

Hidex SEC setup



- Semi-automatic sample changing unit equipped with third-party detector (and cooling unit).
- Mechanical system is based on a sample rack conveyor, robotic sample moving arm and third-party detector within lead shielding.
- Robotic arm picks up the sample vial and moves it on top of the detector within lead shielding.
- The Sample Changer's software architecture consists of Hidex Control Platform and third-party user interface and/or measurement software.
- The third-party user interface software communicates with the separate measurement software and Hidex Control Platform (conveyor and robotics control)
- User defines to be measured samples by giving the user interface rack barcode ID numbers and corresponding rack position numbers.

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Project based manufacturing

- To date 3 systems manufactured and taken in use
  - Neutron therapeutics Inc. in
    - Helsinki University hospital
    - Shonan Kamakura General Hospital (SKGH) in Kanagawa Prefecture, Japan.
  - Third system in US for radioisotope manufacturing
- All existing Ortec detector systems
    - GEM80P4-95
    - GEM25P4-70

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- Performance information not yet available
- Initial customer feedback very positive with workflow improvement

Application area

Activation foil gamma spectrometry

- Neutron activation is a widely used method for the neutron fluence rate determination
- Neutron beam characterization and daily quality assurance is performed with diluted Al-Au and Al-Mn (1% weight Au/Mn) activation foils and wires Al-Mn (2.6% weight Mn)
- Activity of the foils or wires is measured with a high-purity gamma spectrometer.

Article: Accelerator-based boron neutron capture therapy facility at the Helsinki University Hospital, Liisa Porra, etc. Acta Oncologica, 61:2, 269-273, (2022)

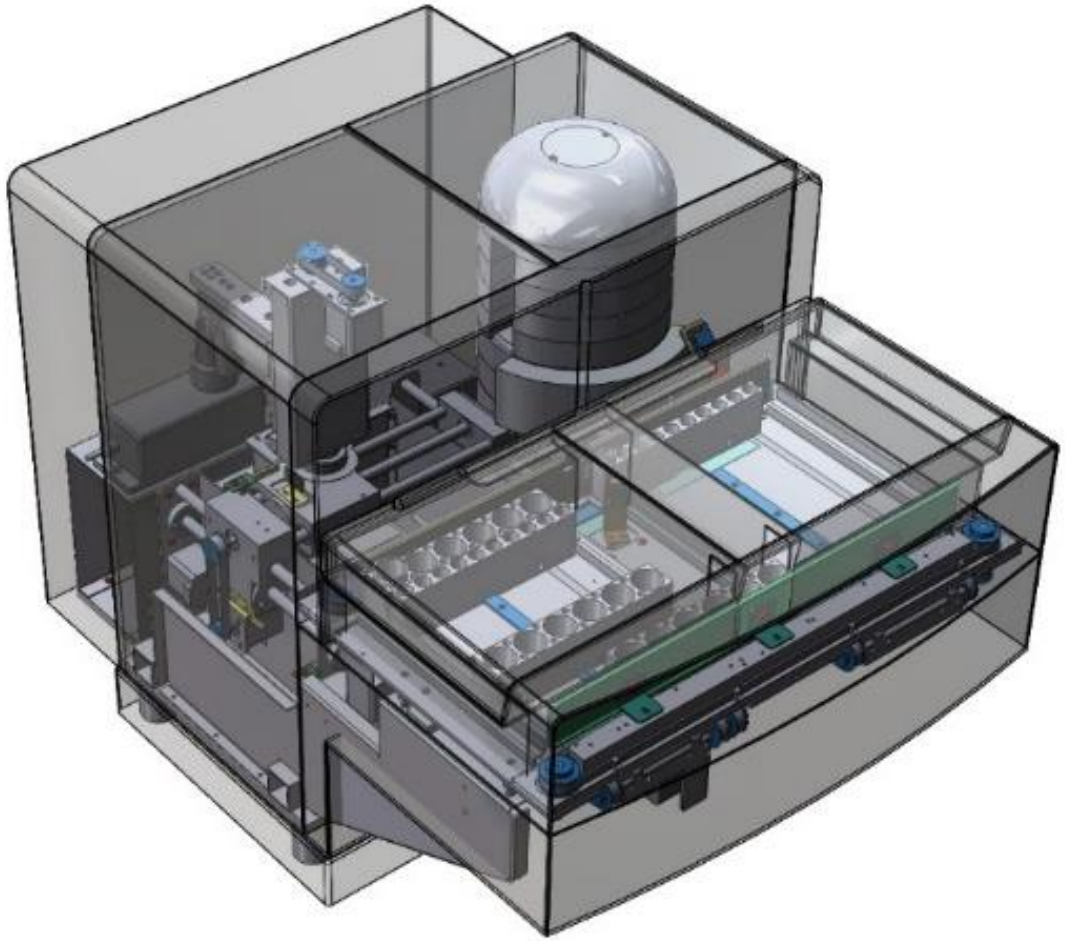
Example performance values

- Example data from Helsinki customer
- Background
  - 3,05 cps
  - Start - Channel: 100- @ Energy: 24,63 keV
  - Stop - Channel: 8 000- @ Energy: 1 947,13 keV
  - LVis software background macro, counting time 80000s.

More information

To be investigated with current customer base

- Performance limitations
  - Lead design
  - Sample size



Thank you!

Questions?

For more information please do not hesitate to contact us

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