Hidex **Q-ARE 100**

Automated Radionuclide Extraction System

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LabLogic
EXPERIENCE & EXPERTISE

Hidex **Q-ARE 100**

A quick, automated radionuclide extraction system

The Hidex Q-ARE is the most advanced automatic extraction chromatography system dedicated to radionuclide separation function. Quick and easy-to-use the system is intuitive and completely hassle-free.

Automatic

- Fully automated column conditioning, sample loading, washing and elution steps.
- Single and tandem chromatography separation.
- + Up to 8 samples simultaneous processing.
- + Up to 5 elution fractions collection from one sample.

Compact

- Safety orientated compact design with acrylic doors provides a high level of protection within a small footprint.
- User safe fume hood free design to avoid exposure to strong acids and samples.

Convenient

- Compatible with various sizes of pre-packed and self-packed columns.

Sample Zone

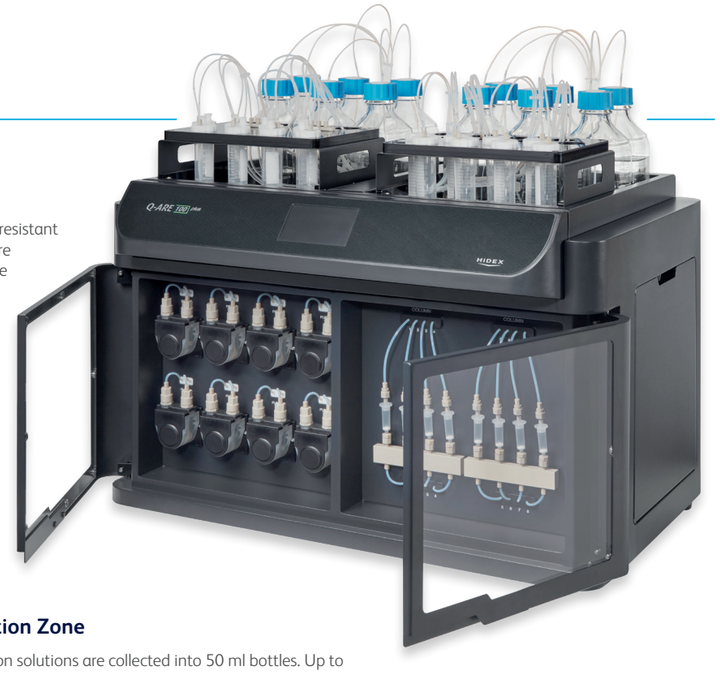
Samples are loaded into disposable 50 ml bottles on top of the instrument. Maximum of 8 samples can be processed in one run.

Reagent Zones

Reagents zone have capacity of 12 one litre bottles. Six reagent bottles are connected to the columns 1-4 (left) and 4-8 (right). This enables run of two different EXC protocols.

Acid resistant and user safe fume hood free design

The pumps, valves, tubing and fittings are made of acid resistant materials such as PEEK and PTFE. Pumps and columns are protected with acrylic doors. All the Q-ARE bottle caps are compatible with inlet check valve to avoid acid fumes and enable fume hood free operation.



Elution Zone

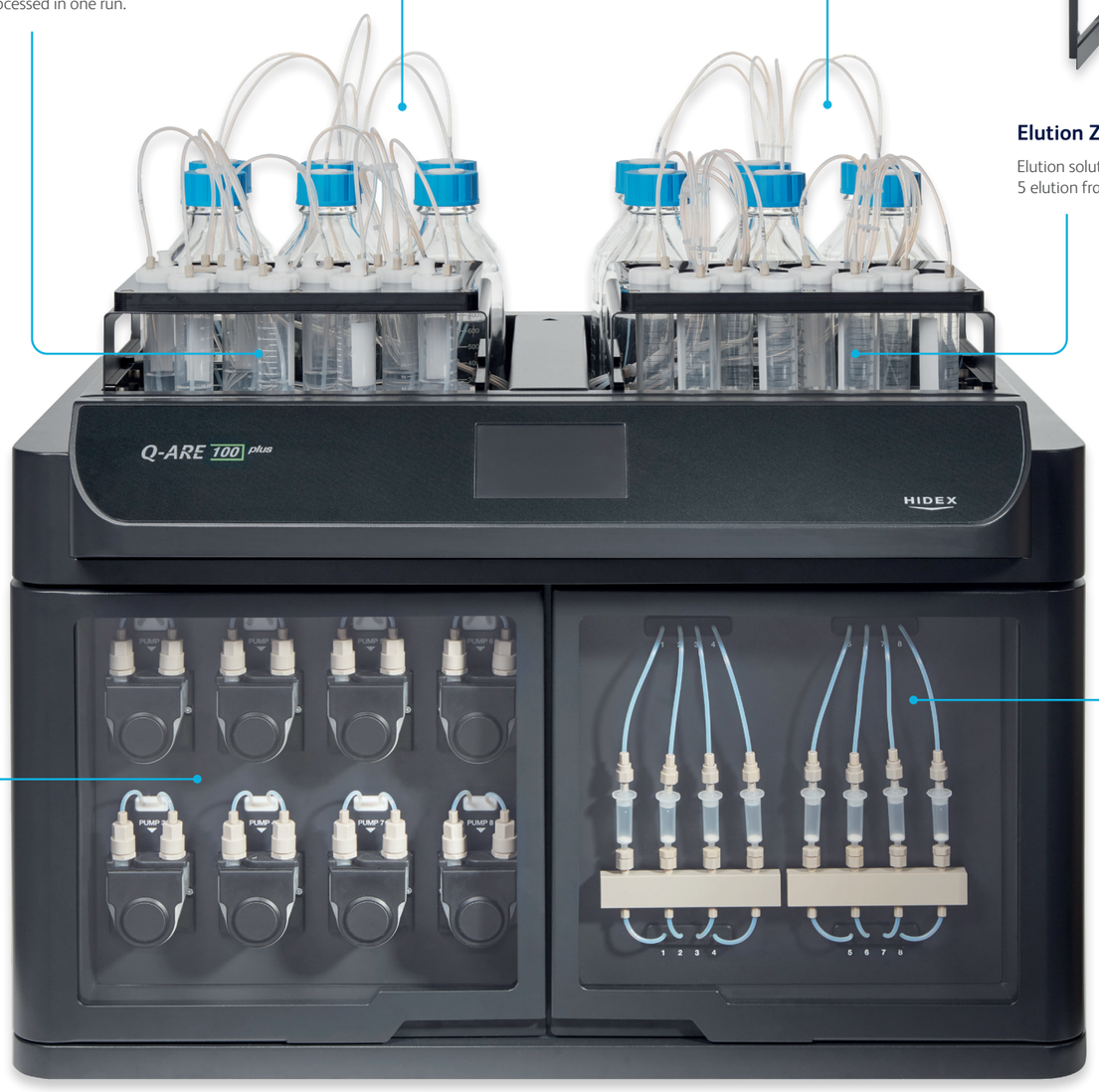
Elution solutions are collected into 50 ml bottles. Up to 5 elution fractions can be collected from one sample.

Columns

The system is compatible with various size of extraction chromatography columns. The columns are easily attached to the fittings containing acid-proof ring gasket.

Pumps

Each sample line has individual peristaltic pump for optimal flow and volume control. The tubing material is resistant to strong acids that are commonly used in EXC.



Hidex **Q-ARE 100plus**

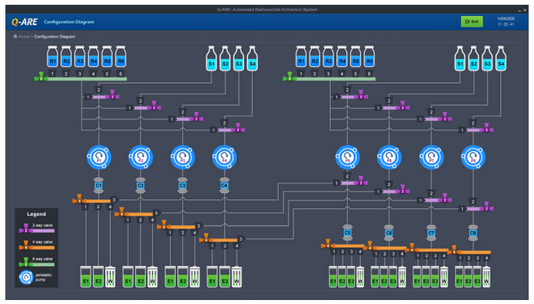
Hidex **Q-ARE 50**

EXC for four samples parallel processing

The Q-ARE 50 is a cost-effective alternative for the Q-ARE 100plus. The system is based on same high-quality components and it has capacity for four samples simultaneous processing. The two reagent zones holds up to 12 reagent bottles. In tandem mode the capacity is two samples. The physical size is same as Q-ARE 100plus.

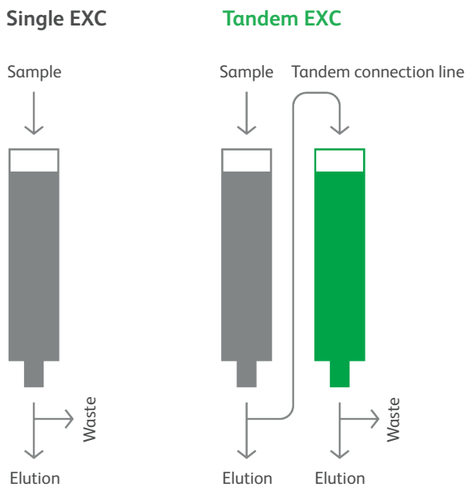
Automated EXC for 8 samples simultaneous processing

The Q-ARE 100 comprises of a simultaneous co-operation of 8 pumps and samples lines, 12 reagent lines and 50 valves for automated extraction chromatography. The system has capacity for a maximum of 20 elution fractions collection for separated bottles. Each pump is individually calibrated for highly accurate flow and volume dispensing.



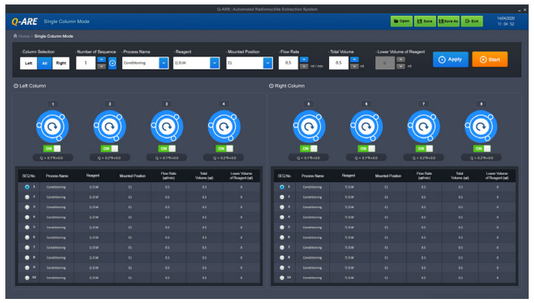
Automated tandem chromatography

The Q-ARE has single and tandem chromatography modes. Tandem chromatography mode allows sample and reagents to flow consecutively through two columns. Elution is performed from the two columns into different elution bottles automatically without manual steps. From one sample up to 5 elution fractions can be collected and a total of 4 samples can be processed in parallel in the tandem mode. All the radionuclide extraction applications based on Triskem and Eichrom columns and resins can be automated with the Q-ARE.



User friendly intuitive software

The Q-ARE is operated using an external PC. The EXC protocol typically consists of four different steps: 1) conditioning, 2) sample loading, 3) washing and 4) elution. The protocols with reagent, flow and volume control are easy to create using pre-filled dropdown menus. Two different protocols for 4 + 4 samples can be run simultaneously using reagent lines 1-6 for the columns and pumps 1-4 and reagents lines 7-12 for the columns 5-8.



Extraction Chromatography

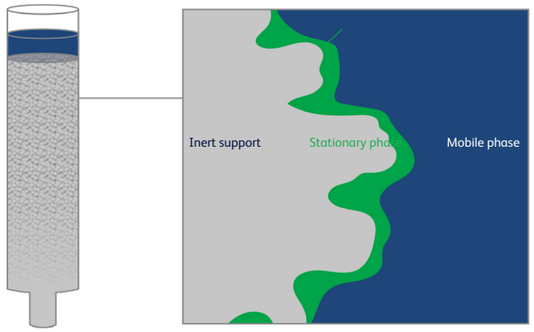
Extraction chromatography (EXC) is a separation technique that is ideal for extraction of radionuclides from a wide variety of samples. It is a continuous multi-step process performed in a resin packed column. The EXC utilises the selectivity of liquid-liquid extraction in an easy-to-use column chromatography format.

The extraction chromatography system consists of three different components:

1. Bead-based inert support material
2. Stationary phase
3. Mobile phase

The stationary phase contains single or several liquid extractant compounds that are impregnated onto the support material and used for uptake of the target nuclides.

The extractants are organic molecules, for example, crown ether type structures that selectively binds the target radionuclide. The binding is based on non-covalent interactions and therefore, the bound radionuclides can be eluted by changing the liquid mobile phase conditions such as acidity. In general, the mobile phase is usually an acid solution and different type of acids are used to achieve optimal selectivity.



Extraction chromatography resin structure. The stationary phase contains liquid extractant compound specific to the target radionuclide.

Specifications	Q-ARE 100plus	Q-ARE 50
Dimensions	780 (W) x 590 (H) x 550 (D) mm	780 (W) x 590 (H) x 550 (D) mm
Weight	60 kg	55 kg
Power	100 - 240 / 50 - 60 V / Hz	100 - 240 / 50 - 60 V / Hz
Pumps (No.)	8	4
Sample Capacity (Columns)	8 (4 in tandem)	4 (2 in tandem)
Elution Fractions Collection (No.)	20	20
Reagent Bottles	12	12
Compatible Column Size	1 - 20 ml	1 - 20 ml
Sample Bottle Size	50, 10*	50, 10*
Elution Bottle Size	50, 20*, 10*	50, 20*, 10*
Pumping Volume Accuracy	≥ 95	≥ 95
Flow Rate	0.5 - 5	0.5 - 5
Valves	Body PEEK, Diaphragm PTFE	Body PEEK, Diaphragm PTFE
Tube/Fitting Material	PTFE/PEEK/ETFE	PTFE/PEEK/ETFE
Media Temperature	50 (short time 90)	50 (short time 90)

Please refer to the Technical Specification Sheet for further information. *Optional bottle cap for 10 ml bottles and 20 ml LSC bottle.

Service and Support

Users of our systems can benefit from our comprehensive, fully inclusive service and support.

We can give reassurance that if things go wrong or you need expert advice, help is only an e-mail or phone call away.

Validation Services

Our Validation Service enables you to implement and get maximum value from your investments as soon as possible.

We work as a partner with your Quality Manager, System Manager and users to provide a tailored Validation Plan, suited to your needs. Our Validation Specialists have years of experience in GLP system validation, detailed knowledge of our systems, together with other industry standard systems to help you meet company and regulatory requirements.

Training

LabLogic can provide a variety of training courses and workshops to help you get the most out of your instrument and software.

All training is performed by our expert Product and Support Specialists who have many years experience in the development and use of the instruments and software.

Certificates can be provided to complement your internal GLP training records.

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