



## SERVICE & SUPPORT

# Bruker HelioSmart Portfolio for Your NMR Lab

A Flexible Portfolio of Solutions for Helium, Preserving this Non-renewable Resource.

*Innovation with Integrity*

At Bruker, we prioritize sustainable practices in all aspects of lab operations, including the handling of cooling liquids.

Helium is a scarce, non-renewable resource. In order to protect this resource in a socially responsible way and make lab operations more sustainable, we have developed three new helium sustainable solutions. These solutions enable you to reduce your demand for helium when operating and maintaining your NMR spectrometers.

The HelioSmart Solutions cater to varying helium consumption levels, local conditions, and personal preferences, allowing you to choose the most suitable option for your needs. Benefit from our NMR expertise in precise site planning and installation planning for secure magnet connectivity and safe lab operation. Our services ensure artifact free results and the opportunity to combine the Helium solution maintenance within the regular LabScope Maintenance Agreements.

### Expert Support by Bruker

- Comprehensive consulting for safe and economic offering for your budget and lab needs
- Validated solutions for magnet safety and artifact free operation
- Access to superconducting magnets and cryogenics technology expertise
- Installation by Bruker certified service specialists
- Turn-key Helium solutions fully integrated with NMR lab environment

At Bruker, our personalized and flexible helium solutions cater to your lab requirements. Our experts will work with you to determine the best solution based on factors such as evaporated helium volume, access to liquefaction facilities, alternative uses of helium gas, and energy and helium costs. Whether you need to collect and re-liquify helium on-site, off-site, or reuse it as a gas, we have the expertise to help you. Additionally, our services comprise regular maintenance for economic, safe, and carefree operation to ensure our customers can focus on their research without worrying about helium management.

## HelioSmart Portfolio

### HelioSmart Recovery

This solution is a very compact, easy-to-site helium collection unit. It collects the helium boil-off from NMR magnets and stores the gas in high-pressure cylinders. Particularly suitable for customers who have access to local or regional helium reliquefaction facilities where the recovered high-pressure helium gas can be utilized.

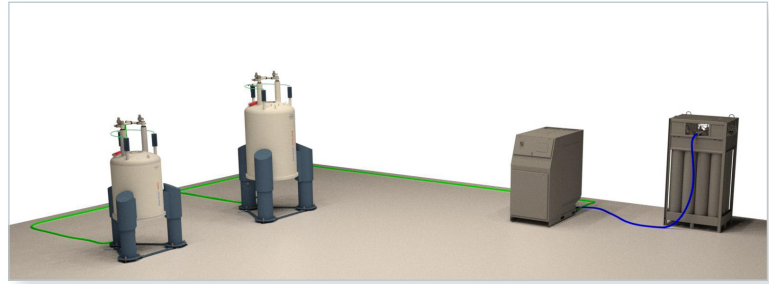


Figure 1 HelioSmart Recovery

### HelioSmart RecoveryPlus

This solution with a big balloon is ideal for customers who have the ability to liquefy helium, either in their own labs or with the help of external collaborators. It can collect the boil-off of many NMR magnets in parallel, including helium transfer losses.

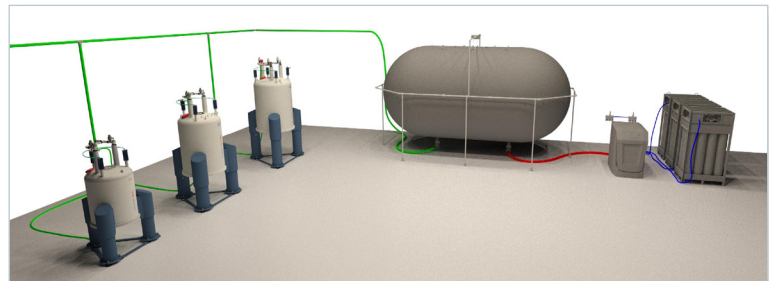


Figure 2 HelioSmart RecoveryPlus

### HelioSmart Liquefaction

This solution with a big balloon plus a purifier and liquefier allows for a full high-pressure recycling loop. The collected helium gas is reliquefied and can be reused, making it an ideal solution for customers who want to be as independent from liquid helium supply as possible.

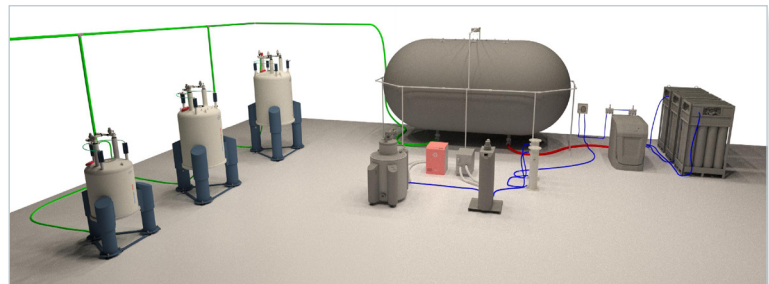


Figure 3 HelioSmart Liquefaction

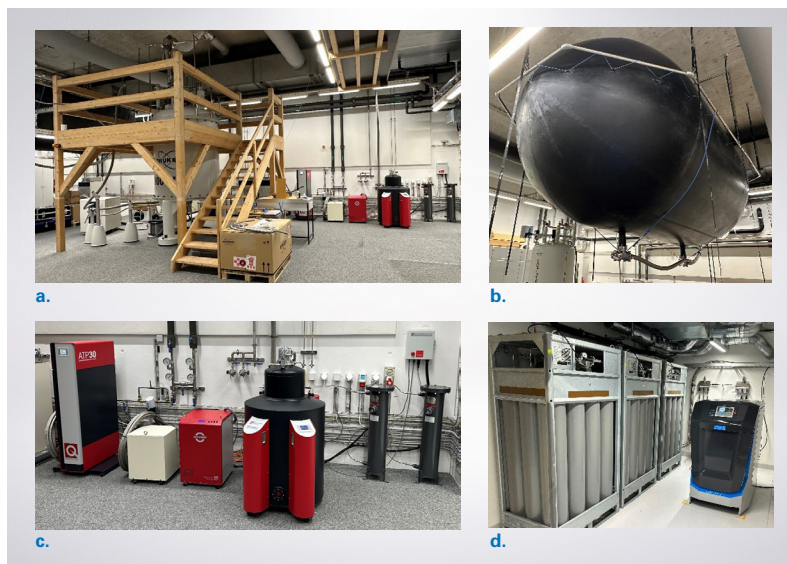


Figure 4

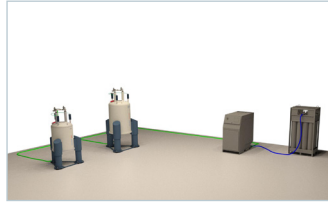
The Biozentrum of the University of Basel, HelioSmart Liquefaction Solution

- a. Lab overview
- b. Balloon
- c. Purifier and Liquefier
- d. High pressure storage racks and compressors

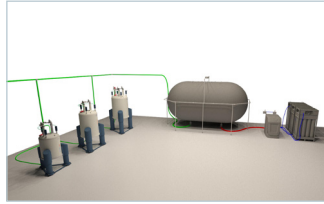
Images by courtesy of the Biozentrum of the University of Basel

# Overview

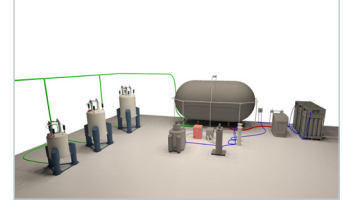
## HelioSmart Recovery



## New: HelioSmart RecoveryPlus



## New: HelioSmart Liquefaction



<b>Description</b>	Collects helium losses from NMR magnets during steady-state and compresses them into high-pressure gas cylinders	Helium losses from NMR magnets during steady-state and liquid helium refills are collected and compressed into high-pressure gas cylinders	Collected helium is purified and liquefied to be used again in a closed cycle.
<b>Elements</b>	<ul style="list-style-type: none"> <li>- Built in 0,4 m³ balloon</li> <li>- Small high-pressure compressor</li> </ul>	<ul style="list-style-type: none"> <li>- 30 m³ balloon</li> <li>- High-pressure compressor</li> </ul>	<ul style="list-style-type: none"> <li>- 30 m³ balloon</li> <li>- High-pressure compressor</li> <li>- Purifier</li> <li>- Liquefier</li> </ul>
<b>Max. annual liquid helium equivalent consumption per unit</b>	1,200 l	18,000 l	9,000 l
<b>Recovery collection lines</b>	Plastic houses	Plastic houses to the wall and up to 200 m non-magnetic braided corrugated flexlines	Plastic houses to the wall and up to 200 m non-magnetic braided corrugated flexlines
<b>Recovery rate</b>	80 %	At least 95 %	At least 95 %
<b>Full installation by Bruker experts</b>	✓	✓	✓
<b>Cylinder supply</b>	Optional by Bruker	Optional by Bruker	✓
<b>Local and remote monitoring system</b>	Locally on the unit	✓	✓
<b>Availability</b>	Currently available in the US and Europe	Currently only available on demand, customer specific	Currently only available on demand, customer specific

Bruker BioSpin is continually improving its products and reserves the right to change specifications without notice. Order No. T194849 © 03/2024 Bruker BioSpin.

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