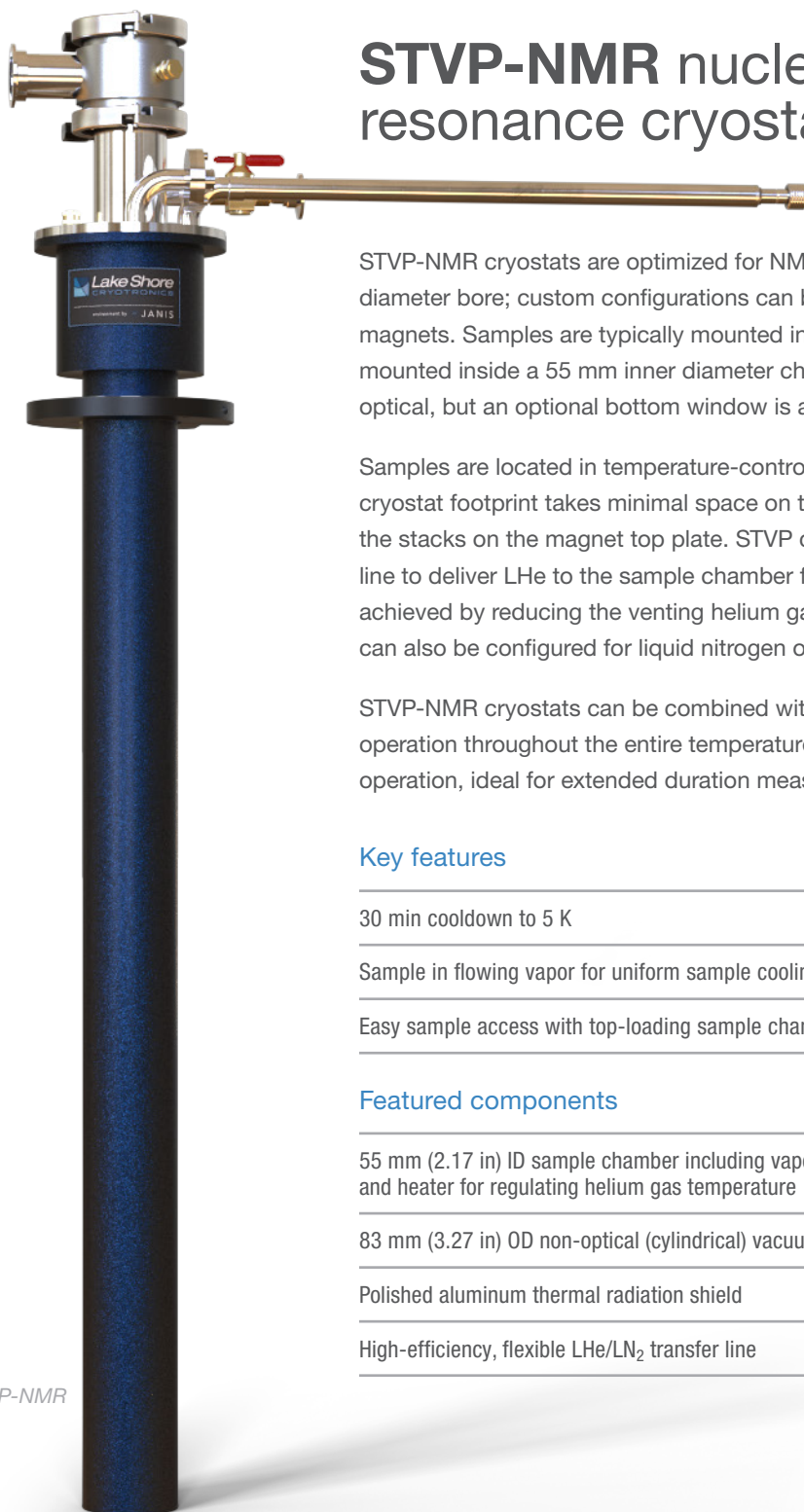


## *SuperTran-VP Cryostats*

# STVP-NMR nuclear magnetic resonance cryostats <2 K to 325 K



STVP-NMR cryostats are optimized for NMR magnets with an 89 mm (3.5 in) diameter bore; custom configurations can be fabricated for larger or smaller magnets. Samples are typically mounted in a user-supplied NMR insert, and mounted inside a 55 mm inner diameter chamber. These cryostats are typically non-optical, but an optional bottom window is available upon request.

Samples are located in temperature-controlled flowing helium vapor. The small cryostat footprint takes minimal space on the NMR magnet, easily fitting between the stacks on the magnet top plate. STVP cryostats use a high-efficiency transfer line to deliver LHe to the sample chamber for cooling. Temperatures below 4.2 K are achieved by reducing the venting helium gas pressure using a vacuum pump. They can also be configured for liquid nitrogen operation.

STVP-NMR cryostats can be combined with Infinite Helium for cryogen-free operation throughout the entire temperature range. This enables unattended cryostat operation, ideal for extended duration measurements.

### Key features

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30 min cooldown to 5 K

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Sample in flowing vapor for uniform sample cooling

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Easy sample access with top-loading sample chamber

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### Featured components

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55 mm (2.17 in) ID sample chamber including vaporizer (heat exchanger) with control thermometer and heater for regulating helium gas temperature

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83 mm (3.27 in) OD non-optical (cylindrical) vacuum shroud to fit within many NMR magnets

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Polished aluminum thermal radiation shield

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High-efficiency, flexible LHe/LN<sub>2</sub> transfer line

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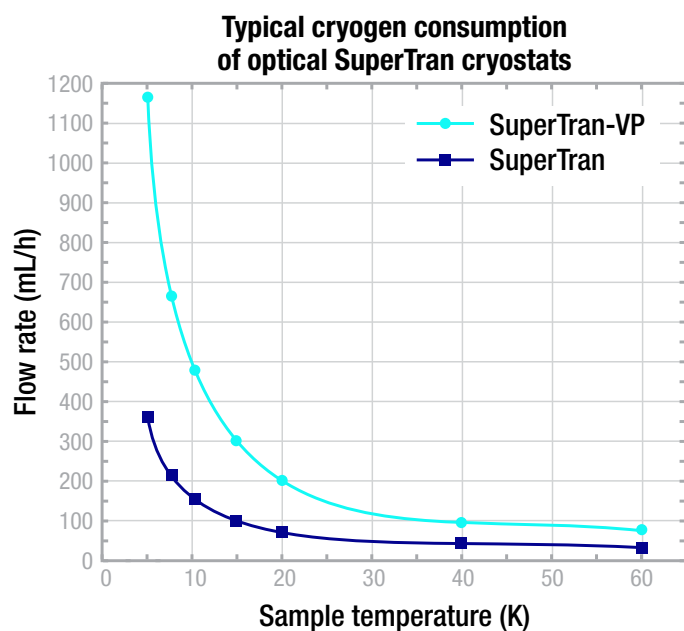
STVP-NMR

# Specifications

| STVP-NMR                                           |                                                            |
|----------------------------------------------------|------------------------------------------------------------|
| Temperature range                                  | <2 K (1.5 K in single-shot mode) to 325 K (420 K optional) |
| Typical temperature stability <sup>1</sup>         | ±50 mK                                                     |
| Orientation <sup>2</sup>                           | Vertical for operation <4.5 K                              |
| Cooldown time (LHe to 5 K)                         | 30 min                                                     |
| Cryogen consumption (LHe room temp to 4.2 K)       | 0.5 L                                                      |
| Cryogen consumption (LHe at 5 K)                   | 1.4 L/h                                                    |
| Height (approximate)                               | Customer-specified to fit magnet                           |
| Inner space (at sample region)                     | 55 mm (2.16 in)                                            |
| Weight (excluding transfer line, approximate)      | 7 kg (15.4 lb)                                             |
| Shipping weight (cryostat + line, approximate)     | 79 kg (174 lb)                                             |
| Shipping dimensions (cryostat + line, approximate) | 1905 × 990.6 × 431.8 mm (75 × 39 × 17 in)                  |

<sup>1</sup> Measured with temperature controller

<sup>2</sup> Cryogen consumption may be higher during non-vertical operation



# Complete your setup

## Temperature control

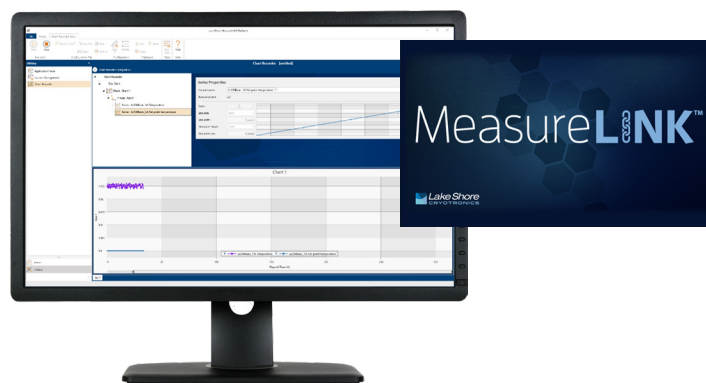
Included



Every cryostat includes a Lake Shore temperature controller and calibrated sensor.

## MeasureLINK control software

Optional add-on



MeasureLINK software enables a wide range of capabilities including charting and logging, system monitoring with a cryostat-specific process view, and controlling Lake Shore equipment as well as third-party instrumentation. No programming required—drag-and-drop to create temperature sweeps, access measurements, and see real-time internal cryostat temperatures in process view.

## Cryogen-free operation

Optional add-on



Cryostats can be combined with Infinite Helium for fully cryogen-free operation throughout the entire temperature range. This enables unattended cryostat operation, ideal for extended duration measurements.

# Configure your cryostat

## 1. Select cryostat variant

|                 |                                                                                              |
|-----------------|----------------------------------------------------------------------------------------------|
| <b>STVP-NMR</b> | Optical, <2 K to 325 K, calibrated Cernox®                                                   |
| <b>CUSTOM</b>   | Custom configurations are available to fit your experiment needs — contact Sales for details |

## 2. Select cryostat configurations

### Optional bottom window

See our cryostat window selection guide for additional information.

|                    |                       |
|--------------------|-----------------------|
| <b>WR-STD-FS</b>   | Fused silica          |
| <b>WR-UV-FS</b>    | UV-grade fused silica |
| <b>WR-STD-SAPH</b> | Sapphire              |
| <b>WR-STD-ZNSE</b> | ZnSe                  |

## 3. Select pump (optional)

Each cryostat requires a pump to operate. If you do not have an existing pump to use, select one of the pumps below.

|                |                                                                                               |
|----------------|-----------------------------------------------------------------------------------------------|
| <b>10RVP</b>   | General-purpose mechanical pumping station                                                    |
| <b>10DDP</b>   | General-purpose mechanical pumping station with LN <sub>2</sub> cold trap and isolation valve |
| <b>TS-85-D</b> | Turbopumping station                                                                          |

## 4. Select cryostat wiring

We offer a variety of both unwired and wired feedthroughs to complete your measurement setup. Please refer to the cryostat feedthroughs and wiring guide for more information.

## 5. Select optional setup configurations

### Cryogen-free operation

|                 |                                                                         |
|-----------------|-------------------------------------------------------------------------|
| <b>INFHE-20</b> | Infinite Helium recirculating cooler with base temperature down to <7 K |
| <b>INFHE-15</b> | Infinite Helium recirculating cooler with base temperature down to <8 K |
| <b>RGC4-10</b>  | RGC Series recirculating cooler with base temperature down to <10 K     |

### Measurement instrumentation

Cryostats come standard with one temperature controller.

## 6. Select optional control software

|               |                                                                                                                                                                                                                                                                                                                        |
|---------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>ML-MCS</b> | MeasureLINK-MCS software with scripting development license; includes lifetime activation for version purchased and full MeasureLINK capability on up to 5 computers with Lake Shore instrument drivers, chart recorder functionality, and drag-and-drop measurement sequences; some application packs sold separately |
|---------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

## 7. Select additional accessories

Cryostats come standard with one installed temperature sensor. Other sensors are available — contact us.

|                           |                                                                           |
|---------------------------|---------------------------------------------------------------------------|
| <b>CX-1050-CU-HT-1.4M</b> | Cernox® magnetic field independent, calibrated                            |
| <b>CF-100</b>             | LHe storage Dewar                                                         |
| <b>LN-50</b>              | LN <sub>2</sub> storage Dewar configured for use with SuperTran cryostats |

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