environment by JANIS

Lake Shore CRYOTRONICS
a **DwyerOmega** brand

SuperTran-VP Cryostats

STVP-100 Series sample in vapor cryostats <2 K to 420 K

STVP-100 series cryostats are liquid-helium (or liquid-nitrogen) cooled with the sample located in flowing vapor. Ideal for experiments with samples that are difficult to thermally anchor, such as liquid or powder samples. They feature a top-loading sample chamber for rapid sample exchange. Samples can be connected with cryogenic-service wiring (single-conductor, twisted-pair, or coaxial cables) for electrical measurements. The STVP Series uses a high-efficiency transfer line to deliver LHe (or LN_2) to the sample chamber for cooling. Temperatures below 4.2 K are achieved by reducing the venting helium gas pressure using a mechanical vacuum pump.

STVP-100

STVP Series 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

- Rapid sample change <10 min
- 15 min cooldown to 5 K
- Sample in flowing vapor for uniform sample cooling
- Easy sample access with top-loading sample chamber
- Dual-loop heater configuration for temperature control

Featured components

- Built-in heater to for variable temperature control
- Optimized for two-loop temperature control
- High-efficiency, flexible LHe/LN_2 transfer line

STVP-100 Series variants

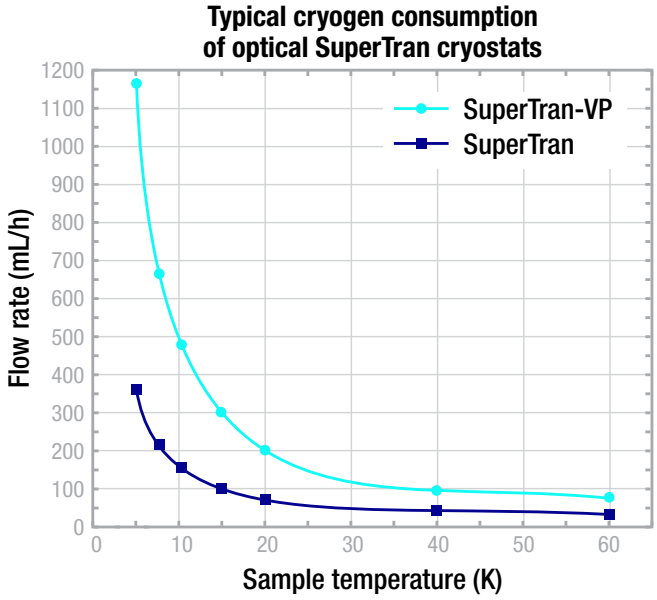
- **STVP-100** optical, maximum temperature = 325 K
- **STVP-100-TH** non-optical, maximum temperature = 420 K

Specifications

	STVP-100	STVP-100-TH
Temperature range	<2 K to 325 K (LHe); 65 K to 325 K (LN_2)	<2 K to 420 K (LHe); 65 K to 420 K (LN_2)
Typical temperature stability[1]	±50 mK	
Orientation[2]	Vertical for operation <4.5 K	
Cooldown time (LHe to 5 K)	15 min	
Cryogen consumption (LHe room temp to 4.2 K)	0.5 L	
Cryogen consumption (LHe at 5 K)	1.3 L/h	
Height (approximate)	~762 mm (~30 in)	
Inner space (at sample region)	38.1 mm (1.5 in)	
Sample mount diameter	31 mm (1.25 in)	
Window block	82.6 mm (3.25 in) square	—
Weight (excluding transfer line, approximate)	7 kg (15.4 lb)	7 kg (15.4 lb)
Shipping weight (cryostat + line, approximate)	61 kg (135 lb)	61 kg (135 lb)
Shipping dimensions (cryostat + line, approximate)	1905 × 990.6 × 431.8 mm (75 × 39 × 17 in)	

[1] Measured with temperature controller

[2] Cryogen consumption may be higher during non-vertical operation



Complete your setup

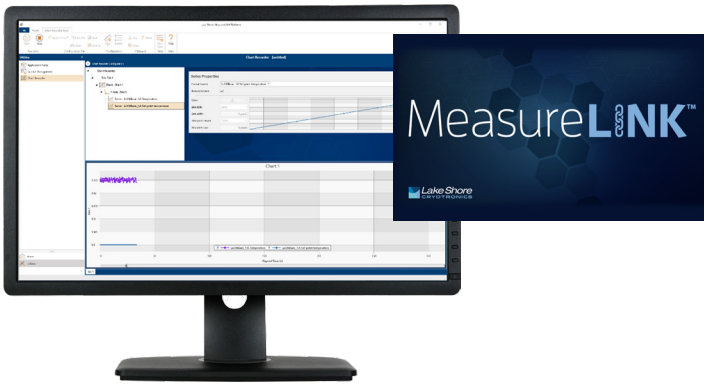
Temperature control

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.

Source + measure + lock-in

Optional add-on

The Lake Shore M81-SSM provides highly synchronized DC, 100 kHz AC, and mixed DC + AC sourcing and measuring—including both voltage and current lock-in measurement capabilities—for low-temperature material research performed in your cryostat. It supports up to three remote-mountable source and three measure modules per a single M81-SSM-6 instrument and, owing to its modularity, allows signal and source amplifiers to be located as close as possible to the sample being characterized. This minimizes the signal wiring to the sample, reduces noise, and increases measurement sensitivity.

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

STVP-100	Optical, <2 K to 325 K, calibrated temperature sensor
STVP-100-TH	Non-optical, <2 K to 420 K, calibrated temperature sensor
CUSTOM	Custom configurations are available to fit your experiment needs—contact Sales for details

2. Select cryostat configurations

Sample holders

SH-OPTICAL-1.25-STD	Optical
SH-BLANK-1.25-STD	Blank
SH-RESISTIVITY-1.25-STD	Resistivity
CONSULT	DIP
CONSULT	LCC

Windows

See our cryostat window selection guide for additional information.

WR-STD-FS	Fused silica
WR-UV-FS	UV-grade fused silica
WR-STD-SAPH	Sapphire
WR-STD-ZNSE	ZnSe

Isothermal sample zone

CONSULT	Copper sample chamber

Sample positioning

CONSULT	Standard sample positioner with calibrated silicon diode
CONSULT	Precision sample positioner with (manual) linear translation stage and graduated (manual) rotation

Cooled radiation shield windows

CONSULT	Fused silica windows for enhanced operation below 4 K (STVP-100 only)

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.

10RVP	General-purpose mechanical pumping station
10DDP	General-purpose mechanical pumping station with LN_2 cold trap and isolation valve
TS-85-D	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

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

Measurement instrumentation

Cryostats come standard with one temperature controller.

M81-SSM electronic synchronous source measure system

Contact us for cables and adapters for M81-SSM/cryostat integration.

M81-SSM-X	M81-SSM instrument with X = 2, 4, or 6 channels; half the channels are dedicated to sourcing and the other to measurement; see modules below
VM-10	AC/DC voltage measure module + lock-in
BCS-10	AC/DC balanced current source module
CM-10	AC/DC current measure module + lock-in
VS-10	AC/DC voltage source module

6. Select optional control software

ML-MCS	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 two installed temperature sensors. Other sensors are available—contact us.

CX-1050-CU-HT-1.4M	Cernox® magnetic field independent, calibrated
CF-100	LHe storage Dewar
LN-50	LN_2 storage Dewar configured for use with SuperTran cryostats

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