Lake Shore CRYOTRONICS

environment by JANIS

Cryogen-free

Cryogenic cold trap cryostats <5 K to 500 K

Lake Shore offers cryogenic cold traps that use mechanical coolers. These traps are primarily used in the adsorption of noble gases, including helium, neon, argon, krypton, and xenon. Cold traps aid in the extraction of such gases from geological materials collected from volcanic hot springs to gain insight into the Earth's planetary evolution. They are also used to study polar ice core samples for climate research.

Key features

- <8 K to 500 K (custom designs to <5 K)
- Cryogen-free

Featured components

- Choice of cryocooler to match performance and cooling requirements
- Integrated control heater and calibrated control sensor
- Choice of configurations: charcoal, stainless steel, or exchange gas. Charcoal are best for trapping He, Ne, and Ar. Stainless steel (nude) traps are best for trapping Kr and Xe. Exchange gas traps are best for analyzing polar ice samples.

Specifications

		CCS-TRAP	CCS-TRAP-S	CCS-TRAP-CORE
Minimum temperature options[1]	204N	<8 K	<8 K	<9 K
	204	<10 K	<10 K	<11 K
Maximum temperature		450 K	500 K	300 K
Typical temperature stability[2]		±50 mK		
Cold head location		Bottom		
Cooldown time		1 h to 1.5 h		
Optical		×		
Height (approximate)		96.5 cm (38 in)	96.5 cm (38 in)	88.9 to 94.0 cm (35 to 37 in)
Weight, not including flexlines or compressor (approximate)		19.1 kg (42 lb)		
Recommended maintenance		13,000 h		

Lake Shore has designed and built cryogenic cold traps for geosciences for more than two decades and has a worldwide installed customer base. We have three cold trap variants targeting different applications. CCS-TRAP is optimized for trapping lighter noble gases, including helium, neon and argon. CCS-TRAP-S is optimized for heavier gases — krypton and xenon. And CCS-TRAP-CORE cools user specimen tubes with polar ice core samples.

Custom designs can include double cold traps with independent temperature control and either one or two cold heads, flow-through designs and water traps. While these cold traps are primarily designed for the trapping and separation of noble gases, they may also be suitable for other gases. Contact us for more information.

[1]Temperatures to <5 K possible; contact us

[2]Measured with temperature controller

Facility requirements

		Recommended		Water-cooled				Air-cooled			
CCS-	Cold head	Compressor maintenance interval	Cold head maintenance interval	60 Hz power requirements	50 Hz power requirements	Cooling water requirements	Compressor size	60 Hz power requirements	50 Hz power requirements	Cooling air requirements	Compressor size
TRAP TRAP-S TRAP -CORE	-204 -204N	30,000 h	13,000 h	208 to 230 VAC, 1-phase, 2.6 kW	200, 220 to 240 VAC, 1-phase, 2.25 to 2.4 kW	1.9 to 3.8 L/min at 4 to 27 °C	444 mm × 453 mm × 617 mm high; 73 kg	208 to 230 VAC, 1-phase, 2.6 kW	200, 220 to 240 VAC, 1-phase, 2.25 to 2.4 kW	17.6 m³/min (60 Hz) or 14.7 m³/min (50 Hz)	444 mm × 453 mm × 876 mm high; 103 kg

Complete your setup

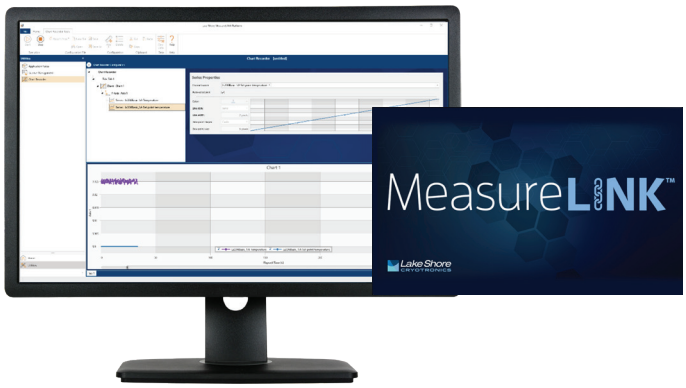
Temperature control

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.

Custom CCS-TRAP

Configure your cryostat

1. Select cryostat

CCS-TRAP	Noble gas trapping with charcoal trap
CCS-TRAP-S	Noble gas trapping with stainless steel (nude) trap
CCS-TRAP-CORE	Ice core trapping
CUSTOM	Consult

2. Select cryostat configurations

Cold head

204N	<8 K (CCS-TRAP/CCS-TRAP-S); <9 K (CCS-TRAP-CORE)
204	<10 K (CCS-TRAP/CCS-TRAP-S); <11 K (CCS-TRAP-CORE)

Compressor type

CONSULT	Substitute air-cooled compressor in place of standard water-cooled

3. Select pump (optional)

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

TS-85-D	Turbopumping station

4. Select optional setup configurations

Measurement instrumentation

Cryostats come standard with one temperature controller.

336	Model 336 temperature controller
335	Model 335 temperature controller

5. 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

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