

thermo scientific



Thermo Scientific cryopreservation storage equipment

Indefinite sample storage. Infinite possibilities.

ThermoFisher
SCIENTIFIC



**Dependable,
secure
sample protection**

Thermo Scientific™ solutions for cryopreservation sample preparation and storage offer scientists outstanding temperature performance, low operating costs, and integrated control features.

Extended hold times—Unlike mechanical systems, our liquid nitrogen (LN₂) storage solutions are designed to offer consistent temperatures, even when electricity is lost. Samples remain protected much longer during power outages than with alternative technologies. With cryo storage tanks, the need to obtain backup storage and relocate samples is dramatically reduced.

Low power consumption—Because most of our cryogenic storage products rely on liquid nitrogen, they consume less power than a standard light bulb, providing significant energy savings.

Zero greenhouse gases—Because LN₂ storage depends on the cooling power of naturally sourced nitrogen gas, there are no halogenated hydrocarbon refrigerants used and no greenhouse gas concerns.



Sample preparation

Controlled-rate freezers prepare your samples prior to cryogenic storage, ensuring maximum viability.



Sample storage auto-fill LN₂

Storage systems provide the ideal combination of quick sample access, liquid nitrogen storage reliability, microprocessor auto-fill technology, and storage capacity from 6,318 to 39,000 1.2–2.0 mL vials. Large-capacity, high-efficiency storage solutions offer outstanding sample protection and storage capacities up to 93,000 1.2–2.0 mL vials.













Sample storage manual-fill LN₂ dewars

Thermo Scientific™ BioCane™, Thermo Scientific™ Locator™, and Thermo Scientific™ Locator™ Plus systems offer cost-effective storage flexibility and excellent portability with capacities from 180 to 6,000 1.2–2.0 mL vials.

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Dependable sample preparation

CryoMed Controlled-Rate Freezer

Meet your application needs with complete, one-piece Thermo Scientific™ CryoMed™ Controlled-Rate Freezers.

User-friendly operation with enhanced data traceability

- Intuitive touchscreen display allows for easy setup, operation, and review of a freezing run
- Six preset freezing profiles and space for up to 14 user-defined, custom freeze profiles
- Integrated touchscreen UI logs usage and events to support 21 CFR Part 11 requirements
- User security: three levels of user accessibility
- USB data export of .pdf file run logs supports 21 CFR Part 11
- “Run last” feature allows the same profile to be run consecutively with the touch of a button
- PC interface software provides remote operation capabilities, run review, and custom profile creation

Real-time run monitoring for sample protection

- Chamber and sample temperatures are monitored by Type T thermocouples, eliminating lag time and providing real-time responsiveness
- Standard alarms alert users of thermocouple failures, heater malfunction, high/low temperature limits, temperature tracking, power failure, and completion of run
- Remote alarm contacts
- Optional thermal printer

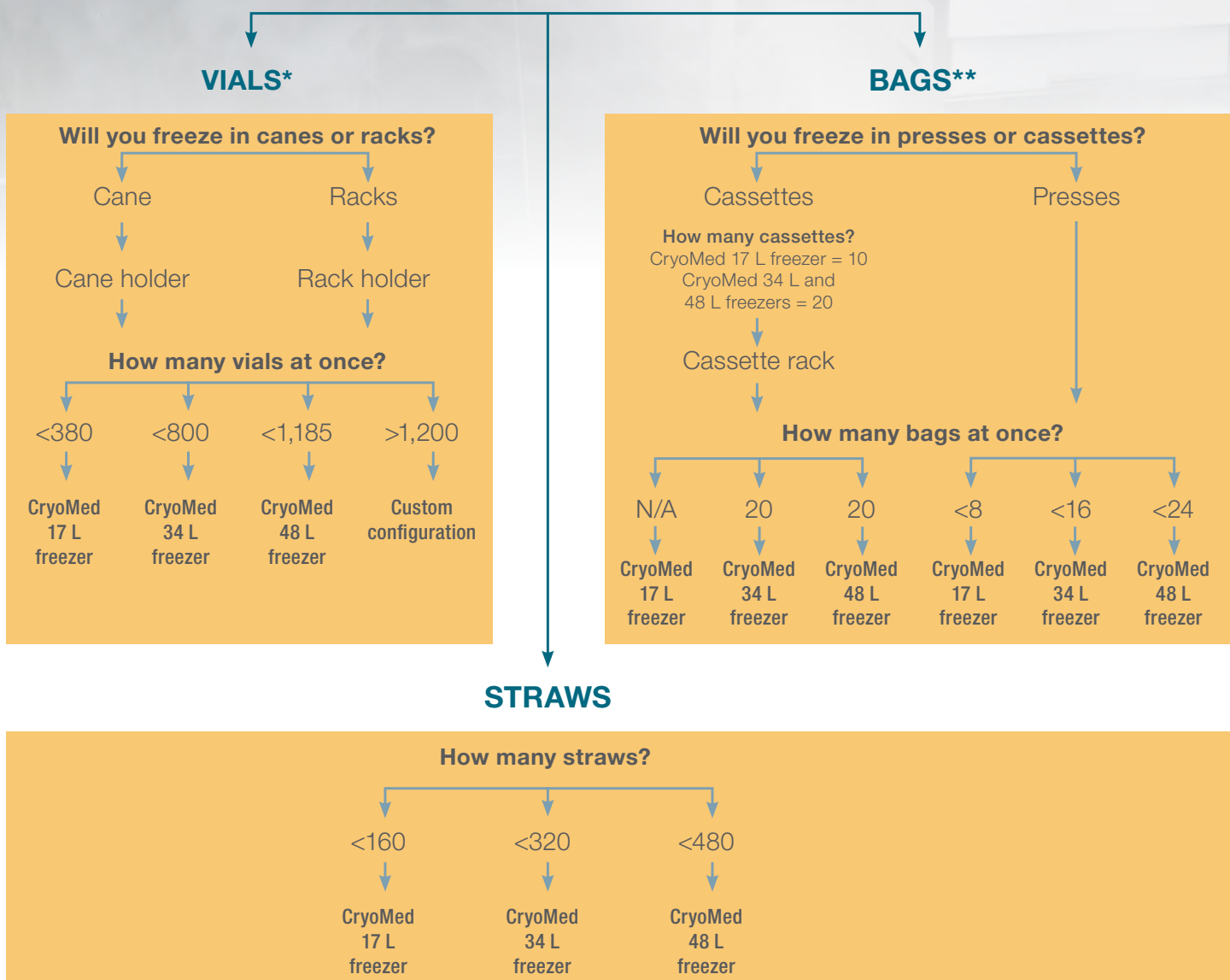
Reliable temperature performance for high-throughput usage

- Dual solenoid valves are designed to balance LN₂ injection volume for precise temperature control and accelerated freezing
- Preventative maintenance indicator for LN₂ solenoid replacement limits downtime
- Consistent temperature control and uniformity achieved via an air-handling system and liquid nitrogen injection ring
- Environmentally friendly insulating foam
- Type 304 stainless steel with exterior powder-coat finish
- Compatible with VHP cleaning techniques

Warranty varies by region. Check with your local representative for more information.



What is your method of sample preparation?



* Assumes 1.2/2.0 mL vials.

** Assumes 250 mL bag.

CryoMed Controlled-Rate Freezers (general purpose)

Electrical	Plug type	Chamber volume	Printer/ No printer	Temp. range	Exterior dimensions W x H x D in. (cm)	Interior dimensions W x H x D in. (cm)	Product weight lbs (kg)	LN ₂ and utility connection	Cat. No.
120 V/60 Hz	NEMA 5-15P	17 L (0.6 cu. ft.)	No thermal printer	+50°C to -180°C	37.3 x 21.7 x 24.3 (94.7 x 55.1 x 61)	7 x 12 x 13 (17.8 x 30.5 x 33)	154 lbs. (69.8 kg)	All models require 22 psi (1.5 bar) low pressure supply tank and are supplied with one 6-foot braided stainless steel hose with .5" x 45 degree flare connectors on each end	TSCM17XA
220-230 V/ 50-60Hz	CEE 7/7								TSCM17XV
100 V/ 50-60 Hz	NEMA 5-15P								TSCM17XL
120 V/60 Hz	NEMA 5-15P	34 L (1.2 cu. ft.)			TSCM34XA				
220-230 V/ 50-60 Hz	CEE 7/7				TSCM34XV				
100 V/ 50-60 Hz	NEMA 5-15P				TSCM34XL				
120 V/60 Hz	NEMA 5-15P	48.1 L (1.7 cu. ft.)			TSCM48XA				
220-230 V/ 50-60 Hz	CEE 7/7				TSCM48XV				
100 V/ 50-60 Hz	NEMA 5-15P				TSCM48XL				
120 V/60 Hz	NEMA 5-15P	17 L (0.6 cu. ft.)	Built-in thermal printer	+50°C to -180°C	37.3 x 21.7 x 24.3 (94.7 x 55.1 x 61)	7 x 12 x 13 (17.8 x 30.5 x 33)	155 lbs. (70.3 kg)	TSCM17PA	
220-230 V/ 50-60 Hz	CEE 7/7							TSCM17PV	
100 V/ 50-60 Hz	NEMA 5-15P							TSCM17PL	
120 V/60 Hz	NEMA 5-15P				34 L (1.2 cu. ft.)	TSCM34PA			
220-230 V/ 50-60 Hz	CEE 7/7					TSCM34PV			
100 V/ 50-60 Hz	NEMA 5-15P					TSCM34PL			
120 V/60 Hz	NEMA 5-15P				48.1 L (1.7 cu. ft.)	TSCM48PA			
220-230 V/ 50-60 Hz	CEE 7/7					TSCM48PV			
100 V/ 50-60 Hz	NEMA 5-15P					TSCM48PL			

CryoMed Controlled-Rate Freezers (medical device)**

Electrical	Plug type	Chamber volume	Printer/ No printer	Temp. range	Exterior dimensions W x H x D in. (cm)	Interior dimensions W x H x D in. (cm)	Product weight lbs (kg)	LN ₂ and utility connection	Cat. No.
120 V/60 Hz	NEMA 5-15P	17 L (0.6 cu. ft.)	No thermal printer	+50°C to -180°C	37.3 x 21.7 x 24.3 (94.7 x 55.1 x 61)	7 x 12 x 13 (17.8 x 30.5 x 33)	154 lbs. (69.8 kg)	All models require 22 psi (1.5 bar) low pressure supply tank and are supplied with one 6-foot braided stainless steel hose with .5" x 45 degree flare connectors on each end	TSCM17MA
220-230 V/ 50-60 Hz	CEE 7/7								TSCM17MV
100 V/ 50-60 Hz	NEMA 5-15P								TSCM17ML
120 V/60 Hz	NEMA 5-15P	34 L (1.2 cu. ft.)			TSCM34MA				
220 V/50 Hz	CEE 7/7				TSCM34MV				
100 V/60 Hz	NEMA 5-15P				TSCM34ML				
120 V/60 Hz	NEMA 5-15P	48.1 L (1.7 cu. ft.)			TSCM48MA				
220 V/50 Hz	CEE 7/7				TSCM48MV				
100 V/60 Hz	NEMA 5-15P				TSCM48ML				
120 V/60 Hz	NEMA 5-15P	17 L (0.6 cu. ft.)	Built-in thermal printer	+50°C to -180°C	37.3 x 21.7 x 24.3 (94.7 x 55.1 x 61)	7 x 12 x 13 (17.8 x 30.5 x 33)	155 lbs. (70.3 kg)	TSCM17EA	
220 V/50 Hz	CEE 7/7							TSCM17EV	
100 V/60 Hz	NEMA 5-15P							TSCM17EL	
120 V/60 Hz	NEMA 5-15P				34 L (1.2 cu. ft.)	TSCM34EA			
220 V/50 Hz	CEE 7/7					TSCM34EV			
100 V/60 Hz	NEMA 5-15P					TSCM34EL			
120 V/60 Hz	NEMA 5-15P				48.1 L (1.7 cu. ft.)	TSCM48EA			
220 V/50 Hz	CEE 7/7					TSCM48EV			
100 V/60 Hz	NEMA 5-15P					TSCM48EL			

** FDA listed Class II medical device, 510K exempt.

CryoMed freezing racks and holders

Cat. No. and description		Dimensions H x W x D in. (cm)	Storage	CryoMed freezer 17 L	CryoMed freezer 34 L	CryoMed freezer 48 L	CryoMed freezer for IVF 17 L	CryoMed freezer for IVF 34 L
	4000294	11.3 x 3 x 5.25 (28.7 x 7.6 x 13.3)	Racks per chamber	4	8	12	4*	8*
	Straw rack for .25/.5 mL straws— holds 40 straws		Straws per rack	40	40	40	40	40
	Total # straws per chamber		160	320	480	160*	320*	
	4000303	11 x 12 x 12 (28 x 30.5 x 30.5)	Racks per chamber	N/A	1	1 large and 1 small	N/A	1*
	Cane freezing rack—large		Canes per rack	N/A	162	162 and 77	N/A	162*
	Vials (2 mL) per cane		N/A	5	5	N/A	5*	
	Total # vials per chamber		N/A	810	1,195	N/A	810*	
	4000700	11 x 6 x 12 (28 x 15.2 x 30.5)	Racks per chamber	1	N/A	1 large and 1 small	1*	N/A
	Cane freezing rack—small		Canes per rack	77	N/A	162 and 77	77*	N/A
	Vials (2 mL) per cane		5	N/A	5	5*	N/A	
	Total # vials per chamber		385	N/A	1,195	385*	N/A	
	4000701	1.1 x 6 x 12 (2.8 x 15.2 x 30.5)	Racks per chamber	5	N/A	5 large and 5 small	5*	N/A
	1.2/2 mL freezing rack—small (order qty 5 each when ordering with 4000702 rack holder)		Vials per rack	76	N/A	161 and 76	76*	N/A
	Total # vials per chamber		380	N/A	1,185	380*	N/A	
	4000702	9.8 x 6.2 x 12.4 (24.9 x 15.7 x 31.5)	Rack holders per chamber	1	N/A	1 large and 1 small	1*	N/A
	Small rack holder for 4000701 racks		Racks per rack holder	5	N/A	5 and 5	5*	N/A
	Total # racks per chamber		5	N/A	10	5*	N/A	
	4000703	1.1 x 12 x 12 (2.8 x 30.5 x 30.5)	Racks per chamber	N/A	5	5 large and 5 small	N/A	5*
	1.2/2 mL freezing rack—large (order qty 5 each when ordering with 4000704 rack holder)		Vials per rack	N/A	161	161 and 76	N/A	161*
	Total # vials per chamber		N/A	805	1,185	N/A	805*	


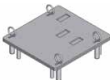
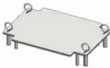




* These accessories can only be used when top loading cane, vial, and straw holders are not in use.

CryoMed freezing racks and holders

Cat. No. and description		Dimensions H x W x D in. (cm)	Storage	CryoMed freezer 17 L	CryoMed freezer 34 L	CryoMed freezer 48 L	CryoMed freezer for IVF 17 L	CryoMed freezer for IVF 34 L
	4000704	9.8 x 12.2 x 12.4 (24.9 x 31 x 31.5)	Rack holders per chamber	N/A	1	1 large and 1 small	N/A	1*
	Large rack holder for 4000703 racks		Racks per rack holder	N/A	5	5 and 5	N/A	5*
	Total # racks per chamber		N/A	5	10	N/A	5*	
	4000705	2.6 x 6 x 12 (6.6 x 15.2 x 30.5)	Racks per chamber	3	N/A	3 large and 3 small	3*	N/A
	4 or 5 mL freezing rack—small (order qty 3 each when ordering with 4000706 rack holder)		Vials per rack	76	N/A	161 and 76	76*	N/A
	Total # vials per chamber		228	N/A	711	228*	N/A	
	4000706	8.1 x 6.2 x 12.4 (20.6 x 15.7 x 31.5)	Rack holders per chamber	1	N/A	1 large and 1 small	1*	N/A
	Small rack holder for 4000705 racks		Racks per rack holder	3	N/A	3 and 3	3*	N/A
	Total # racks per chamber		3	N/A	6	3*	N/A	
	4000707	8.1 x 12.2 x 12.4 (20.6 x 31 x 31.5)	Racks per chamber	N/A	3	3 large and 3 small	N/A	3*
	4 or 5 mL freezing rack—large (order qty 3 each when ordering with 4000708 rack holder)		Vials per rack	N/A	161	161 and 76	N/A	161*
	Total # vials per chamber		N/A	483	711	N/A	483*	
	4000708	8.1 x 12.2 x 12.4 (20.6 x 31 x 31.5)	Rack holders per chamber	N/A	1	1 large and 1 small	N/A	1*
	Large rack holder for 4000707 racks		Racks per rack holder	N/A	3	3 and 3	N/A	3*
	Total # racks per chamber		N/A	3	6	N/A	3*	
	4000310	10.5 x 6.2 x 12.6 (26.7 x 15.7 x 32)	Rack holders per chamber	1	2	3	1*	2*
	Two level skin rack; holds skin packets measuring 5 x 7 in.		Skin packets per rack	48	48	48	48	48
	Total # skin packets per chamber		48	96	144	48*	96*	
	4000312	5.2 x 6.2 x 12.6 (13.2 x 15.7 x 32)	Rack holders per chamber	2	4	6	2*	4*
	One level skin rack; holds skin packets measuring 5 x 7 in.		Skin packets per rack	24	24	24	24	24
	Total # skin packets per chamber		48	96	144	48*	96*	
	4000340	11 x 4 x 5 (28 x 10.2 x 12.7)	Rack holders per chamber	3	6	9	3*	6*
	Cord blood freezing rack for 50 mL canisters (4000610)		Canisters per rack	10	10	10	10	10
	Total # canisters per chamber		30	60	90	30*	60*	
	4000340	11 x 4 x 5 (28 x 10.2 x 12.7)	Rack holders per chamber	3	6	9	3*	6*
	Cord blood freezing rack for 25 mL canisters (1950831)		Canisters per rack	10	10	10	10	10
	Total # canisters per chamber		30	60	90	30*	60*	
	185089	11.6 x 5.5 to 7.5 x 8.2 (29.5 x 14 to 19 x 20.8)	Rack holders per chamber	N/A	2	2	N/A	2*
	Adjustable freezing rack for canisters		Canisters per rack	N/A	10	10	N/A	10*
	Total # canisters per chamber		N/A	20	20	N/A	20*	


* These accessories can only be used when top loading cane, vial, and straw holders are not in use.

CryoMed freezing presses

Cat. No. and description		Dimensions H x W x D in. (cm)	Storage	CryoMed freezer 17 L	CryoMed freezer 34 L	CryoMed freezer 48 L	CryoMed freezer for IVF 17 L	CryoMed freezer for IVF 34 L
	4000314	5.9 x 9 (15 x 22.9)	Presses per chamber	4	8	12	4*	8*
	Bag press for 250 mL bag (Fenwal™ 4R5461 or OriGen CryoSure™ 250)		Bags per rack	2	2	2	2	2
			Total # - bags per chamber	8	16	24	8*	16*
	4000316	8 x 8.5 (20.3 x 21.6)	Presses per chamber	N/A	4	8	N/A	4*
	Bag press for 200 mL bag (Gambro™ DF- 200 or CryoMacs™ 50 and 250)		Bags per rack	N/A	2	2	N/A	2*
			Total # - bags per chamber	N/A	8	16	N/A	8*
	4000317	8.8 x 12 (22.4 x 30.5)	Presses per chamber	N/A	4	8	N/A	4*
	Bag press for Delmed™ 2030-2		Bags per rack	N/A	4	4	N/A	4*
			Total # - bags per chamber	N/A	16	32	N/A	16*
	4000318	9 x 12 (22.9 x 30.5)	Presses per chamber	N/A	4	8	N/A	4*
	Bag press for 250 mL bag (Fenwal 4R5461 or OriGen CryoSure 250)		Bags per rack	N/A	4	4	N/A	4*
			Total # - bags per chamber	N/A	16	32	N/A	16*
	4000320	9 x 12 (22.9 x 30.5)	Presses per chamber	N/A	4	8	N/A	4*
	Bag press for 200 mL bag (Gambro DF-200 or equivalent)		Bags per rack	N/A	4	4	N/A	4*
			Total # - bags per chamber	N/A	16	32	N/A	16*
	4000321	8 x 12 (20.3 x 30.5)	Presses per chamber	N/A	4	8	N/A	4*
	Bag press for 700 mL bag (Gambro DF-700 or equivalent)		Bags per rack	N/A	2	2	N/A	2*
			Total # - bags per chamber	N/A	8	16	N/A	8*
	4000555	6 x 10.3 (15.2 x 26.2)	Presses per chamber	4	8	12	4*	8*
	Bag press for 500 mL bag (Fenwal 4R5462 or CryoMacs™ 500 and 750)		Bags per rack	2	2	2	2	2
			Total # - bags per chamber	8	16	24	4*	16*

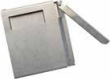

* These accessories can only be used when top loading cane, vial, and straw holders are not in use.

CryoMed sample sensors*

Cat. No. and description		CryoMed freezer 17 L	CryoMed freezer 34 L	CryoMed freezer 48 L
	Thermocouple sensor for 1.2/2 mL vials		4000385	
	Thermocouple sensor for 4/5 mL vials		4000386	
	Thermocouple sensor ribbon type for bags		4000393	
	Thermocouple sensor .02 sheath for straws		4000384	

* NOTE: Front load CryoMed sensor includes a 2 mL sample sensor (Cat. No. 4000385). The IVF chamber includes a vial sensor (Cat. No. 4000403) and a straw sensor (Cat. No. 4000402).

CryoMed canisters for freezing racks

Cat. No. and description		Dimensions H x W x D in. (cm)
	1950831 (Pall MEDSEPTM 25 mL, OriGen CS 25, or equivalent)	3.6 x 3.9 x 0.4 (9.14 x 9.4 x 1)
	4000610 (Fenwal 4R9951, OriGen CS 50 or equivalent)	3.7 x 6.3 x 0.5 (9.4 x 16 x 1.3)
	4000356 (Gambro DF-200 or CryoMACS 50 and 250)	6.4 x 7.8 x 0.8 (16.3 x 19.1 x 2)
	4000357 (Gambro DF-700, OriGen CS 1000 or CryoMACS 750 and 1000)	6.5 x 12.1 x 0.8 (16.5 x 30.7 x 2)
	4000335 (Fenwal 4R5461, OriGen CS 25 or CryoMACS 50 and 250)	5.5 x 7.6 x 0.4 (14 x 19.3 x 1)
	4000336 (Fenwal 4R5462, OriGen CS 500 or equivalent)	5.6 x 9.2 x 0.4 (14.2 x 23.4 x 1)
	4000332 (Gambro DF-200 or equivalent)	6.4 x 7.8 x 0.8 (16.3 x 19.1 x 2)
	4000333 (Gambro DF-700, OriGen CS 1000 or CryoMACS 750 and 1000)	6.5 x 11.8 x 0.8 (16.5 x 30 x 2)

Printer paper

Cat. No. and description	
4000566	Thermal printer paper (5 rolls per pack)

Quality services available (Must be ordered with equipment)

260049	Certification of Compliance (Unit Specific)
260045	Temperature Mapping
260043	Certificate of Conformance

LN₂ cryo storage selector guide

VAPOR OR LIQUID PHASE STORAGE?

VAPOR PHASE

Low LN₂ consumption
Vial storage 20–94k



19,500 vials / 500 BB	CryoExtra 20 system
40,600 vials / 1,020 BB	CryoExtra 40 system
80,600 vials / 1,860 BB	CryoExtra 80 system
93,000 vials / 1,860 BB	CryoExtra 94 system

Full sample access



5,346 vials / 112 BB	CryoPlus 1 system
11,000 vials / 256 BB	CryoPlus 2 system
18,700 vials / 448 BB	CryoPlus 3 system
31,900 vials / 696 BB	CryoPlus 4 system

LIQUID PHASE

Cryovials*



Blood bags**

6,318 / 112 BB	CryoPlus 1 system
13,000 / 256 BB	CryoPlus 2 system
22,100 / 448 BB	CryoPlus 3 system
37,700 / 696 BB	CryoPlus 4 system

Cane or box storage?



4–6k	Locator 6+ system
2–4k	Locator 4+ system
≤2k (100 cell box)	Locator Jr+ system
≤2k (25 cell box)	Locator 8+ system



≤2k vials/ 3,360 straws	BioCane 73 system
≤1.5k vials/ 2,500	BioCane 47 system
≤700vials/ 1,200 straws	BioCane 34 system
≤120 vials/ 300 straws	BioCane 20 system

* Based on 2.0 mL vial.

** Based on 250 mL blood bag.

Reliable long-term storage solution

CryoPlus sample storage systems

Thermo Scientific™ CryoPlus™ systems provide the perfect combination of liquid nitrogen storage reliability and microprocessor technology. Storage capacities of up to 39,000 2.0 mL vials (8,450 to 65,910 Thermo Scientific™ Nunc™ Cryobank™ vials) make the most of your laboratory storage space.



Storage system features

- Top-mounted control panel allows easy access to the unit's microprocessor controller for programming
- All lids incorporate proprietary foamed-in-place, high-density urethane insulation with dedicated vent; two independent, flexible gaskets reduce the migration of moisture into the chamber and reduce icing
- 24 tricolor LEDs continuously display actual liquid nitrogen level and high-level/low-level setpoints
- Remote alarm contacts for in-house remote alarms or connection to a Thermo Scientific™ Sensaphone™ Telephone Dialing System
- Counterbalanced UL 61010 third edition–compliant lid with 100% clearance allows each entry into the storage area for retrieval of samples, while minimizing sample exposure time and maintaining a safe work environment
- Heavy-duty casters are provided standard
- Incorporates a temperature sleeve as a standard feature, which provides colder temperatures at the top and more efficient operation in vapor phase
- Storage tanks are vacuum-insulated, with stainless steel interior
- Exterior cabinet is constructed of 18-gauge, cold roll steel with powder-coat paint for durability and a high-quality uniform finish; salt spray tests exceed 1,000 hours per ASTM Standard 117B-85
- All models come standard with LN₂ transfer hose

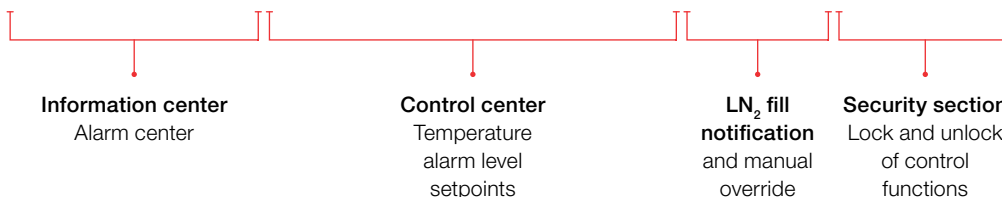
For maximum product security, CryoPlus systems incorporate three different solutions

- A convenient front-mounted cabinet key lock for sample security
- A keyed lock on the microprocessor for temperature and alarm setpoint security
- A rear-mounted, recessed power switch to prevent accidental power shut-off

A complete sample storage offering for vapor or liquid phase

- Square and vertical racks for vial storage
- Frames and canisters for bag storage
- Specialty racks for cane storage
- Gas bypass assembly delivers warm nitrogen to atmosphere until the control probe reaches set temperature. The bypass valve closes and the fill valve is energized, preventing the storage area from being subjected to warm nitrogen gas. This is also required if the CryoPlus unit is connected to a manifold system to prevent LN₂ source alarms.

CryoPlus system information panel



CryoPlus sample storage systems

Model	Cat. No.	LN ₂ capacity (liters)	Vial capacity 1.2–2.0 mL (CryoBank)	Electrical	Plug type	Inner tank diameter in. (cm)	Exterior dimensions H x W x D in. (cm)	Shipping weight	Regulatory listings	LN ₂ and utility connection
CryoPlus 1 system	7400	90	6,318 ¹ (8,450 ^{2,3})	115v/60 Hz	NEMA 5-15P	16 (40.6)	41 x 21.5 x 26 (104.1 x 54.6 x 66)	260 lbs/ 117.9kg	CFDA, cULus and CE	All models require 22 psi low pressure supply tank and are supplied with (1) 0.5 in. 45° flare stainless steel flexible transfer hose
	7401			208-230v/50 Hz	CEE 7/7					
CryoPlus 2 system	7402	200	13,500 ² (22,815 ^{2,3})	115v/60 Hz	NEMA 5-15P	24 (61)	41 x 28.5 x 34 (104.1 x 72.4 x 86.4)	480 lbs/ 217.7 kg		
	7403			208-230v/50 Hz	CEE 7/7					
CryoPlus 3 system	7404	340	23,000 ² (38,870 ^{2,3})	115v/60 Hz	NEMA 5-15P	31 (78.7)	41 x 34.5 x 41.5 (104.1 x 87.6 x 105.4)	550 lbs/ 249 kg		
	7405			208-230v/50 Hz	CEE 7/7					
CryoPlus 4 system	7406	552	39,000 ² (65,910 ^{2,3})	115v/60 Hz	NEMA 5-15P	39.5 (110.3)	47 x 43.5 x 50 (119.4 x 110.5 x 127)	1070 lbs/ 484.3 kg		
	7407			208-230v/50 Hz	CEE 7/7					

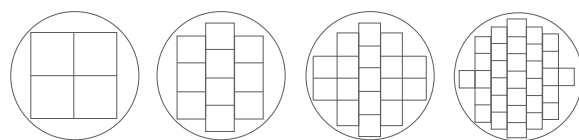
1 Using arrowhead racks no. 4000044.

2 Using vertical racks no. 4000012 and dense storage tube boxes.







3 Using Thermo Scientific™ Nunc™ Cryobank™ dense storage boxes (196-cell) and 1 mL Cryobank tubes.

Thermo Scientific™ CryoPlus™ vapor phase starter kits

Model	Cat. No.	LN ₂ capacity (liters)	Electrical	Description
CryoPlus 1 Vapor Phase Starter Kit	7400RAKHGBR	90	120V 50/60Hz	Package includes CryoPlus 1 (model 7400) and a hot gas bypass option, 4 storage rack (rack 4000001), and a 3.5" riser, UL
	7401RAKHGBR		230V 50/60Hz	Package includes CryoPlus 1 (model 7401) and a hot gas bypass option, 4 storage rack (rack 4000001), and a 3.5" riser, CE
CryoPlus 2 Vapor Phase Starter Kit	7402RAKHGBR	200	120V 50/60Hz	Package includes CryoPlus 2 (model 7402) and a hot gas bypass option, 10 storage rack (rack 4000001), and a 3.5" riser, UL
	7403RAKHGBR		230V 50/60Hz	Package includes CryoPlus 2 (model 7403) and a hot gas bypass option, 10 storage rack (rack 4000001), and a 3.5" riser, CE
CryoPlus 3 Vapor Phase Starter Kit	7404RAKHGBR	340	120V 50/60Hz	Package includes CryoPlus 3 (model 7404) and a hot gas bypass option, 17 storage rack (rack 4000001), and a 3.5" riser, UL
	7405RAKHGBR		230V 50/60Hz	Package includes CryoPlus 3 (model 7405) and a hot gas bypass option, 17 storage rack (rack 4000001), and a 3.5" riser, CE
CryoPlus 4 Vapor Phase Starter Kit	7406RAKHGBR	552	120V 50/60Hz	Package includes CryoPlus 4 (model 7406) and a hot gas bypass option, 29 storage rack (rack 4000001), and a 3.5" riser, UL
	7407RAKHGBR		230V 50/60Hz	Package includes CryoPlus 4 (model 7407) and a hot gas bypass option, 29 storage rack (rack 4000001), and a 3.5" riser, CE










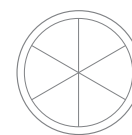
CryoPlus rack selection guide

Cat. No. and description		Dimensions H x W x D in. (cm)	Storage	CryoPlus 1 system	CryoPlus 2 system	CryoPlus 3 system	CryoPlus 4 system
Square racks for liquid phase storage							
	4000006*	27.4 x 5.5 x 5.63 (69.6 x 14 x 14.3)	Racks per vessel	4	10	17	29
	Rack includes cardboard boxes and cardboard dividers for 1.5/2 mL vials		Boxes per rack	13	13	13	13
	Vials per box		100	100	100	100	
	Vials per vessel		5,200	13,000	22,100	37,700	
	4000007	27.4 x 5.5 x 5.63 (69.6 x 14 x 14.3)	Racks per vessel	4	10	17	29
	Rack includes stainless steel boxes and cardboard dividers for 1.5/2 mL vials		Boxes per rack	13	13	13	13
	Vials per box		100	100	100	100	
	Vials per vessel		5,200	13,000	22,100	37,700	
	4000042	26 x 5.5 x 5.63 (66 x 14 x 14.3)	Racks per vessel	4	10	17	29
	Rack includes cardboard boxes and cardboard dividers for 1.5/2 mL vials		Boxes per rack	12	12	12	12
	Vials per box		100	100	100	100	
	Vials per vessel		4,800	12,000	20,400	34,800	
	4000008	25.4 x 5.5 x 5.63 (64.5 x 14 x 14.3)	Racks per vessel	4	10	17	29
	Rack includes cardboard boxes and cardboard dividers for 4 mL vials		Boxes per rack	8	8	8	8
	Vials per box		100	100	100	100	
	Vials per vessel		3,200	8,000	13,600	23,200	
	4000009	25.4 x 5.5 x 5.63 (64.5 x 14 x 14.3)	Racks per vessel	4	10	17	29
	Rack includes stainless steel boxes and cardboard dividers for 4 mL vials		Boxes per rack	8	8	8	8
	Vials per box		100	100	100	100	
	Vials per vessel		3,200	8,000	13,600	23,200	
	4000010	26.6 x 5.5 x 5.63 (67.6 x 14 x 14.3)	Racks per vessel	4	10	17	29
	Rack includes cardboard boxes and cardboard dividers for 5 mL vials		Boxes per rack	7	7	7	7
	Vials per box		100	100	100	100	
	Vials per vessel		2,800	7,000	11,900	20,300	







* Rack no. 4000006 will not accommodate polycarbonate boxes; use rack no. 4000042 instead.

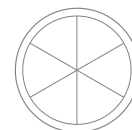
CryoPlus rack selection

Cat. No. and description		Dimensions H x W x D in. (cm)	Storage	CryoPlus 1 system	CryoPlus 2 system	CryoPlus 3 system	CryoPlus 4 system
Square racks for vapor phase storage							
	4000001	23.9 x 5.5 x 5.63 (60.7 x 14 x 14.3)	Racks per vessel	4	10	17	29
	Rack includes cardboard boxes and cardboard dividers for 1.5/2 mL vials		Boxes per rack	11	11	11	11
			Vials per box	100	100	100	100
			Vials per vessel	4,400	11,000	18,700	31,900
	4000002	23.9 x 5.5 x 5.63 (60.7 x 14 x 14.3)	Racks per vessel	4	10	17	29
	Rack includes stainless steel boxes for 1.5/2 mL vials		Boxes per rack	11	11	11	11
			Vials per box	100	100	100	100
			Vials per vessel	4,400	11,000	18,700	31,900
	4000003	22.3 x 5.5 x 5.63 (56.6 x 14 x 14.3)	Racks per vessel	4	10	17	29
	Rack includes cardboard boxes and cardboard dividers for 4 mL vials		Boxes per rack	7	7	7	7
			Vials per box	100	100	100	100
			Vials per vessel	2,800	7,000	11,900	20,300
	4000004	22.3 x 5.5 x 5.63 (56.6 x 14 x 14.3)	Racks per vessel	4	10	17	29
	Rack includes stainless steel boxes and cardboard dividers for 4 mL vials		Boxes per rack	7	7	7	7
			Vials per box	100	100	100	100
			Vials per vessel	2,800	7,000	11,900	20,300
	4000005	22.8 x 5.5 x 5.63 (57.9 x 14 x 14.3)	Racks per vessel	4	10	17	29
	Rack includes cardboard boxes and cardboard dividers for 5 mL vials		Boxes per rack	6	6	6	6
			Vials per box	100	100	100	100
			Vials per vessel	2,400	6,000	10,200	17,400
Specialty racks							
	4000379	23.9 x 5.5 x 5.63 (60.7 x 14 x 14.3)	Racks per vessel	4	10	17	29
	SUC-1 rack for cane storage (includes canisters #4000176)		Canisters per rack	8	8	8	8
			Canes per canister	25	25	25	25
			Canes per vessel	800	2,000	3,400	5,800
Platform risers required for racks in vapor phase storage							
	3.5" riser for use with 4000001, 4000002, and 4000379 racks			4000060	4000060	4000063	4000066
	4" riser for use with 4000005 racks			4000056	4000062	4000065	4000068
	5" riser for use with 4000003 and 4000004 racks			4000061	4000061	4000064	4000067






Arrowhead racks for liquid phase storage


Cat. No. and description	Dimensions H x W x D in. (cm)	Storage	CryoPlus 1 system
 <p data-bbox="266 352 971 394">4000044</p> <p data-bbox="266 453 971 495">Rack includes cardboard boxes and cardboard dividers for 1.5/2 mL vials</p>	28.1 x 7.8 x 7.5 (71.4 x 19.8 x 19.1)	Racks per vessel	6
		Boxes per rack	13
		Vials per box	81
		Vials per vessel	6,318
 <p data-bbox="266 552 971 594">4000112</p> <p data-bbox="266 653 971 695">Rack includes cardboard boxes and cardboard dividers for 1.5/2 mL vials</p>	26 x 7.8 x 7.5 (66 x 19.8 x 19.1)	Racks per vessel	6
		Boxes per rack	12
		Vials per box	81
		Vials per vessel	5,832
 <p data-bbox="266 751 971 793">4000113</p> <p data-bbox="266 852 971 894">Rack includes stainless steel boxes and cardboard dividers for 1.5/2 mL vials</p>	26 x 7.8 x 7.5 (66 x 19.8 x 19.1)	Racks per vessel	6
		Boxes per rack	12
		Vials per box	81
		Vials per vessel	5,832
 <p data-bbox="266 942 971 984">4000104</p> <p data-bbox="266 1043 971 1085">Rack includes cardboard boxes and cardboard dividers for 4 mL vials</p>	25.4 x 7.8 x 7.5 (64.5x 19.8 x 19.1)	Racks per vessel	6
		Boxes per rack	8
		Vials per box	81
		Vials per vessel	3,888
 <p data-bbox="266 1142 971 1184">4000105</p> <p data-bbox="266 1243 971 1285">Rack includes stainless steel boxes and cardboard dividers for 4 mL vials</p>	25.4 x 7.8 x 7.5 (64.5x 19.8 x 19.1)	Racks per vessel	6
		Boxes per rack	8
		Vials per box	81
		Vials per vessel	3,888
 <p data-bbox="266 1341 971 1383">4000043</p> <p data-bbox="266 1442 971 1484">Rack includes cardboard boxes and cardboard dividers for 5 mL vials</p>	26.5 x 7.8 x 7.5 (67.3 x 19.8 x 19)	Racks per vessel	6
		Boxes per rack	7
		Vials per box	81
		Vials per vessel	3,402




Arrowhead racks for vapor phase storage

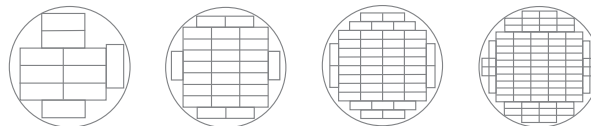
Cat. No. and description		Dimensions H x W x D in. (cm)	Storage	CryoPlus 1 system
	4000110	23.8 x 7.8 x 7.5 (60.5 x 19.8 x 19.1)	Racks per vessel	6
	Rack includes cardboard boxes and cardboard dividers for 1.5/2 mL vials		Boxes per rack	11
			Vials per box	81
			Vials per vessel	5,346
	4000111	23.8 x 7.8 x 7.5 (60.5 x 19.8 x 19.1)	Racks per vessel	6
	Rack includes stainless steel boxes and cardboard dividers for 1.5/2 mL vials		Boxes per rack	11
			Vials per box	81
			Vials per vessel	5,346
	4000108	21.6 x 7.8 x 7.5 (54.9 x 19.8 x 19.1)	Racks per vessel	6
	Rack includes cardboard boxes and cardboard dividers for 2 mL vials		Boxes per rack	10
			Vials per box	81
			Vials per vessel	4,860

Platform risers required for racks in vapor phase storage


	Description of riser and racks for intended use	CryoPlus 1 system
	3.5 in. riser for use with 4000110 and 4000111 racks	4000060
	5 in. riser for use with 4000108 racks	4000061


Arrowhead boxes and dividers for vapor phase storage


	Cat. No.	Description
	Boxes	
	4000193	Arrowhead cardboard box (with drain hole) includes 81-cell divider for use with 1.5/2 mL vials
	4000194	Arrowhead stainless steel box (with drain hole) does not include 81-cell divider for use with 1.5/2 mL vials
	4000195	Arrowhead cardboard box (with drain hole) includes 81-cell divider for use with 4/5 mL vials
	4000196	Arrowhead stainless steel box (with drain hole) does not include 81-cell divider for use with 4 mL vials
	Cell dividers	
4000181	81-cell divider for use with all arrowhead boxes	




Vertical racks for liquid phase storage

Cat. No. and description	Dimensions H x W x D in. (cm)	Storage	CryoPlus 1 system	CryoPlus 2 system	CryoPlus 3 system	CryoPlus 4 system	
Vertical rack for liquid phase storage							
	4000012	27.6 x 2.3 x 5.7 (70.1 x 5.8 x 14.5)	Racks per vessel	10	27	46	78
	Rack includes cardboard boxes and cardboard dividers for 1.5/2 mL vials		Boxes per rack	5	5	5	5
	Vials per box		100	100	100	100	
	Vials per vessel		5,000	13,500	23,000	39,000	

Vertical rack for vapor phase storage							
	4000011	22.2 x 2.3 x 5.7 (56.4 x 5.8 x 14.5)	Racks per vessel	10	27	46	78
	Rack includes cardboard boxes and cardboard dividers for 1.5/2 mL vials		Boxes per rack	4	4	4	4
	Vials per box		100	100	100	100	
	Vials per vessel		4,000	10,800	18,400	31,200	

Platform risers required for racks in vapor phase storage							
Description of riser and racks for intended use							
	5 in. riser for use with 4000011 racks			4000061	4000061	4000064	4000067

Boxes and dividers







Cat. No.	Description
 4000014	Cardboard box with 100-cell divider for use with 1.5/2 mL vials (does have drain hole)
820010	Polycarbonate box with 100-cell divider for use with 1.5/2 mL vials with internal threaded caps (does have drain hole)
820011	Polycarbonate box with 81-cell divider for use with 1.5/2 mL vials (does have drain hole)

Lid locking pins





Cat. No.	Description
1890632	Factory-installed lid-locking pins (allows customers to securely lock the lid in the open position as a secondary user-safety feature)*
1890633	Certified technician (field-installed) lid-locking pins (allows customers to securely lock the lid in the open position as a secondary user-safety feature)

* Lid-locking pins are not available as factory-installed items when a CryoPlus vapor-phase starter SKU is ordered.


Frames and canisters for liquid phase storage

Cat. No. and description		Dimensions H x W x D in. (cm)	Storage	CryoPlus 1 system	CryoPlus 2 system	CryoPlus 3 system	CryoPlus 4 system
	4000670	27.4 x 0.6 x 4.6 (69.6 x 1.5 x 11.7)	Frames per vessel	28	72	124	204
	Frame for 4000610 canister		Canisters per frame	7	7	7	7
			Canisters per vessel	196	504	868	1,428
	1900585	27.4 x 0.6 x 3.8 (69.6 x 1.5 x 9.7)	Frames per vessel	34	100	184	314
	Frame for 1950831 canister		Canisters per frame	7	7	7	7
			Canisters per vessel	238	700	1,288	2,198
	4000371	23.7 x 0.6 x 6.5 (60.2 x 1.5 x 16.5)	Frames per vessel	28	68	108	186
	Frame for 4000335 canister		Canisters per frame	4	4	4	4
			Canisters per vessel	112	272	432	744
	4000372	23.8 x 0.7 x 8.2 (60.5 x 1.8 x 20.8)	Frames per vessel	22	50	90	154
	Frame for 4000336 canister		Canisters per frame	4	4	4	4
			Canisters per vessel	88	200	360	616
	4000368	26.4 x 0.9 x 6.1 (67.1 x 2.3 x 15.5)	Frames per vessel	19	46	72	126
	Frame for 4000332 and 4000356 canisters		Canisters per frame	4	4	4	4
			Canisters per vessel	76	184	288	504
	4000369	26.4 x 1 x 10 (67.1 x 2.5 x 25.4)	Frames per vessel	10	28	48	84
	Frame for 4000333 and 4000357 canisters		Canisters per frame	4	4	4	4
			Canisters per vessel	40	112	192	336


Frames and canisters for vapor phase storage

Cat. No. and description		Dimensions H x W x D in. (cm)	Storage	CryoPlus 1 system	CryoPlus 2 system	CryoPlus 3 system	CryoPlus 4 system
	4000660	23.5 x 0.6 x 4.6 (59.7 x 1.5 x 11.7)	Frames per vessel	28	72	124	204
	Frame for 4000610 canister		Canisters per frame	6	6	6	6
			Canisters per vessel	168	432	744	1,224
	1900584	23.5 x 0.6 x 3.8 (59.7 x 1.5 x 9.7)	Frames per vessel	34	100	184	314
	Frame for 1950831 canister		Canisters per frame	6	6	6	6
			Canisters per vessel	204	600	1,104	1,884
	4000371	23.7 x 0.6 x 6.5 (60.2 x 1.5 x 16.5)	Frames per vessel	28	68	108	186
	Frame for 4000335 canister		Canisters per frame	4	4	4	4
			Canisters per vessel	112	272	432	744
	4000372	23.8 x 0.7 x 8.2 (60.5 x 1.8 x 20.8)	Frames per vessel	22	50	90	154
	Frame for 4000336 canister		Canisters per frame	4	4	4	4
			Canisters per vessel	88	200	360	616

Platform risers required for frames in vapor phase storage

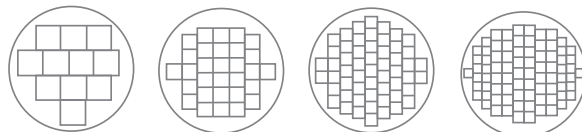
	Description of riser and frames for intended use	CryoPlus 1 system	CryoPlus 2 system	CryoPlus 3 system	CryoPlus 4 system
	3.5 in. riser for use with 4000371 and 4000372 frames	4000060	4000060	4000063	4000066
	4 in. riser for use with 4000660 frames	4000056	4000062	4000065	4000068

Platform dividers


	Description of platform divider and frames for intended use	CryoPlus 1 system	CryoPlus 2 system	CryoPlus 3 system	CryoPlus 4 system
	Platform divider for use with 4000660 and 4000670 25 mL frames: 1900584 and 1900585	4000616	4000624	4000631	4000639
	Platform divider for use with 4000371 frames	N/A	4000075	4000050	4000053
	Platform divider for use with 4000372 frames	N/A	4000076	4000051	4000054
	Platform divider for use with 4000368 frames	N/A	N/A	4000047	4000052
	Platform divider for use with 4000369 frames	N/A	N/A	4000048	N/A

Canisters


	Cat. No. and description	Dimensions H x W x D in. (cm)
	1950831 Swing arm canister for 25 mL bag (OriGen CS 25 or equivalent)	3.6 x 3.915 x .375 (9.14 x 9.94 x 0.95)
	4000610 Swing arm canister for 50 mL bag (Fenwal 4R9951 or OriGen CS 50)	3.7 x 6.3 x 0.5 (9.4 x 16 x 1.3)
	4000335 Sliding canister for 250 mL bag (Fenwal 4R5461 or OriGen CS 250, CryoMACS 50 and 250)	5.5 x 7.6 x 0.4 (14 x 19.3 x 1)
	4000336 Sliding canister for 500 mL bag (Fenwal 4R5462 or OriGen CS 500)	5.6 x 9.2 x 0.4 (14.2 x 23.4 x 1)
	4000332 Sliding canister for 200 mL bag (Gambro DF-200 or equivalent)	6.4 x 7.8 x 0.8 (16.3 x 19.1 x 2)
	4000356 Swing arm canister for 200 mL bag (Gambro DF-200 or CryoMACS 250)	6.4 x 7.8 x 0.8 (16.3 x 19.1 x 2)
	4000333 Sliding canister for 700 mL bag (Gambro DF-700 or CryoMACS 500 and 750 and OriGen CS 750 and CS 1000)	6.5 x 11.8 x 0.8 (16.5 x 30 x 2)
	4000357 Swing arm canister for 700 mL bag (Gambro DF-700 or CryoMACS 500 and 750 and OriGen CS 750 and CS 1000)	6.5 x 12.1 x 0.8 (16.5 x 30.7 x 2)

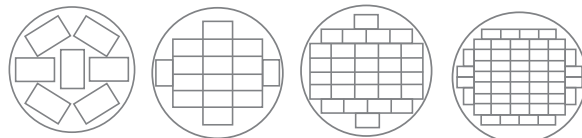


Mini square racks for liquid phase storage

Cat. No. and description		Dimensions H x W x D in. (cm)	Storage	CryoPlus 1 system	CryoPlus 2 system	CryoPlus 3 system	CryoPlus 4 system
	4000260	26.2 x 3.3 x 3.4 (66.5 x 8.4 x 8.6)	Racks per vessel	11	30	55	92
	Rack includes cardboard boxes and cardboard dividers for 1.5/2 mL vials		Boxes per rack	12	12	12	12
	Vials per box		25	25	25	25	
	Vials per vessel		3,300	9,000	16,500	27,600	

Mini boxes for liquid phase storage

	Cat. No.	Description	
	Boxes	189470	Mini cardboard box - 2.75 in. x 2.75 in. x 2 in. for use with 25-cell divider for use with 1.5/2 mL vials
	Cell dividers	189387	25-cell divider for use in the 189470 box



Racks for Thermo Scientific™ Matrix™ 2D tubes

Cat. No. and description		Dimensions H x W x D in. (cm)	Storage	CryoPlus 1 system	CryoPlus 2 system	CryoPlus 3 system	CryoPlus 4 system
Liquid phase							
	1950836	27 x 5.313 x 3.65 (68.6 x 13.5 x 9.3)	Racks per vessel	7	16	30	51
	Rack for Matrix 2D plates measuring 1.082 in. to 1.394 in. tall		Plates per rack	18	18	18	18
	Plates per vessel		126	288	900	918	
	1950839	27.15 x 5.313 x 3.65 (69 x 13.5 x 9.3)	Racks Per vessel	7	16	30	51
	Rack for Matrix 2D plates measuring 1.55 in. to 2.15 in. tall		Plates per rack	12	12	12	12
	Plates per vessel		84	192	360	612	
	1950840	27.5 x 5.313 x 3.65 (69.9 x 13.5 x 9.3)	Racks per vessel	7	16	30	51
	Rack for Matrix 2D plates measuring 2.3 in. tall		Plates per rack	11	11	11	11
	Plates per vessel		77	176	330	561	
	1950841	27.5 x 5.313 x 3.65 (69.9 x 13.5 x 9.3)	Racks per vessel	7	16	30	51
	Rack for Matrix 2D plates measuring 3.78 in. tall		Plates per rack	7	7	7	7
	Plates per vessel		49	112	210	357	
Vapor phase							
	1950832	22.5 x 5.313 x 3.65 (57.2 x 13.5 x 9.3)	Racks per vessel	7	16	30	51
	Rack for Matrix 2D plates measuring 1.082 in. to 1.394 in. tall		Plates per rack	15	15	15	15
	Plates per vessel		105	240	450	765	
	1950833	22.6 x 5.313 x 3.65 (57.4 x 13.5 x 9.3)	Racks per vessel	7	16	30	51
	Rack for Matrix 2D plates measuring 1.55 in. to 2.15 in. tall		Plates per rack	10	10	10	10
	Plates per vessel		70	160	300	510	
	1950834	22.5 x 5.313 x 3.65 (57.2 x 13.5 x 9.3)	Racks per vessel	7	16	30	51
	Rack for Matrix 2D plates measuring 2.3 in. tall		Plates per rack	9	9	9	9
	Plates per vessel		63	144	270	459	
	1950835	19.65 x 5.313 x 3.65 (49.9 x 13.5 x 9.3)	Racks per vessel	7	16	30	51
	Rack for Matrix 2D plates measuring 3.78 in. tall		Plates per rack	5	5	5	5
	Plates per vessel		35	80	150	255	

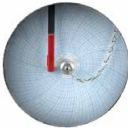



Platform risers required for racks in vapor phase storage

Description of riser and racks for intended use	CryoPlus 1 system	CryoPlus 2 system	CryoPlus 3 system	CryoPlus 4 system
5 in. riser for use with 1950832, 1950833, 1950834, and 1950835 racks	4000061	4000061	4000064	4000067

Boxes and dividers

Cat. No.	Description
Boxes	
4000014	Cardboard box with 100-cell divider for use with 1.5/2 mL vials (does have drain hole)
4000015	Cardboard box with 100-cell divider for use with 4/5 mL vials (does have drain hole)
820010	Polycarbonate box with 100-cell divider for use with 1.5/2 mL vials with internal threaded caps (does have drain hole)
820011	Polycarbonate box with 81-cell divider for use with 1.5/2 mL vials (does have drain hole)
4000238	Stainless steel box for 1.5/2 mL vials (does not include 100-cell divider)
4000239	Stainless steel box for 4 mL vials (does not include 100-cell divider)
Cell dividers	
4000013	100-cell divider for use in the 4000014, 4000015, 4000238, and 4000239 boxes

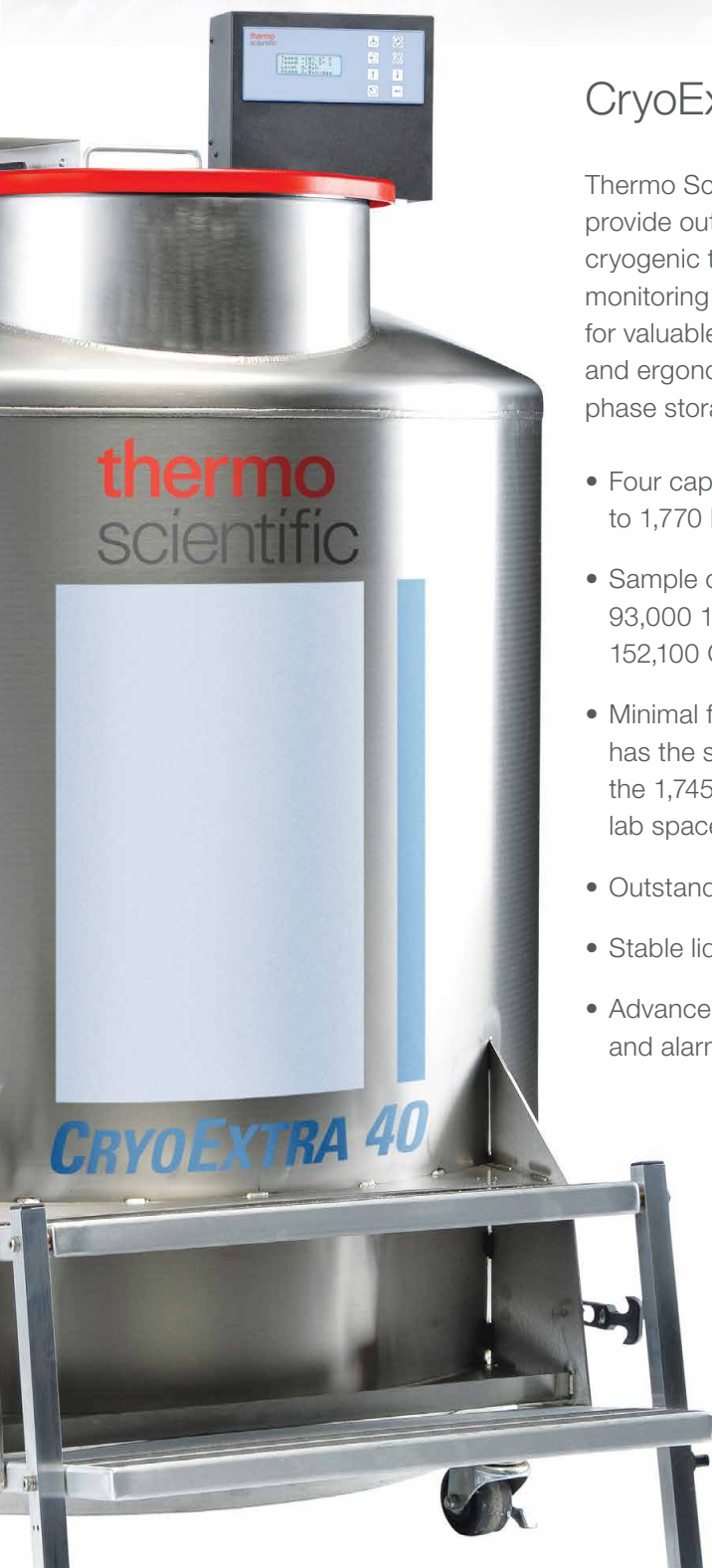
Other accessories for CryoPlus systems

Cat. No. and description	CryoPlus 1 system	CryoPlus 2 system	CryoPlus 3 system	CryoPlus 4 system	
Recorder kit					
	Factory installed 120 volt, 50/60 Hz with 6 in. diameter circular chart, 7-day temperature recorder, pen and chart drive (Specify top, left and right side mount; right side is default if not specified)		201175		
	Factory installed 220 volt, 50/60 Hz with 6 in. diameter circular chart, 7-day temperature recorder, pen and chart drive (Specify top, left and right side mount; right side is default if not specified)		201280		
	Replacement felt tip pen		245231		
	Replacement circular chart paper		197064		
Hot gas bypass valve assembly					
	Factory installed 120 volt, 50/60 Hz		195021		
	Field installed (QI) 120 volt, 50/60 Hz		195700		
	Factory installed 220 volt, 50/60 Hz		195023		
	Field installed (QI) 220 volt, 50/60 Hz		195701		
Thermal temperature sleeve (27" tall for improved temperature uniformity)					
	Factory installed		Standard, factory-installed option		
		Customer installed/retrofit	1950706	1950707	1950708
Thermal data printed					
	120V, 60 Hz Printer with cable assembly and RS-232 connector kit		4000565		
	220V, 50 Hz Printer with cable assembly and RS-232 connector kit		4000665		
	Thermal printer paper (5 rolls/package)		4000566		
RJ-11 Remote Alarm Cable Kit					
	Used to connect remote alarm to equipment		400142		

Quality services available (must be ordered with equipment)

260049	Certification of compliance (unit specific)
260045	Temperature mapping
260043	Certificate of conformance

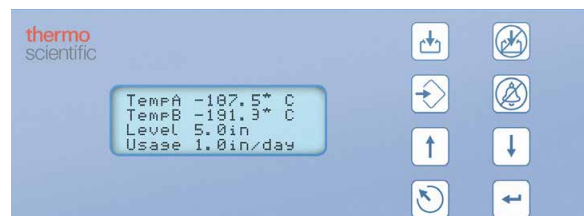
High-efficiency storage



CryoExtra cryogenic storage

Thermo Scientific™ CryoExtra™ 8100 series high-efficiency storage solutions provide outstanding sample protection for scientific research, with uniform cryogenic temperatures throughout the vessel. Automated temperature monitoring and microprocessor-based LN₂ level control provide peace of mind for valuable samples. Ease of use is enabled with built-in steps, flat workspace, and ergonomic lids. All vessels can accommodate both vapor- and liquid-phase storage.

- Four capacities from 463 L to 1,770 L
- Sample capacity from 19,500 up to 93,000 1.2–2.0 mL vials (30,420 to 152,100 Cryobank vials)
- Minimal footprint—1,770 L model has the same exterior footprint as the 1,745 L unit, saving valuable lab space
- Outstanding temperature uniformity
- Stable lid opening temperature
- Advanced temperature monitor and alarms
- Automated fill and level monitoring
- Hot gas bypass keeps warm nitrogen gas from impacting samples during a fill cycle
- User-comfort features and convenient, built-in workspace
- Lockable lid for sample protection
- Designed for global use with 100-240V and 50/60 Hz power supplies; local power cords and plug sets available



Microprocessor-based controller

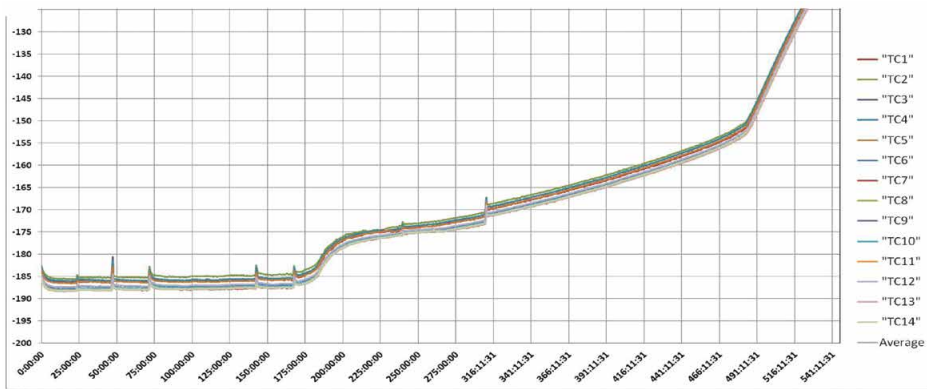


Figure 1. No LN₂ resupply test result (Cat. No. CE8140). The insulative properties of the CE8140 are demonstrated through a no LN₂ re-supply test. The CE8140 is filled with LN₂ to the high fill setpoint, and the LN₂ is removed. The temperature is then monitored using 16 sensors, measuring how long it takes to reach two benchmark temperatures: -185°C and -135°C. As shown in the figure, the CE8140 was able to keep the average internal temperature below -185°C for seven days. The tank was also able to keep the temperature below -135°C for 21 days.

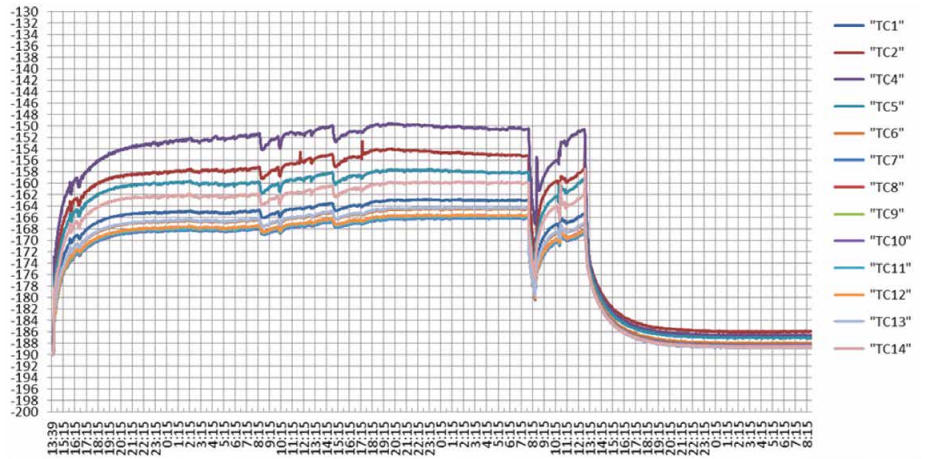


Figure 2. Lid open test result (Cat. No. CE8140). The lid open test is a measure of the ability of a unit to maintain temperature under an extreme lid opening event, as well as the ability to recover once the lid is re-applied. As the data shows, the CE8140 was able to maintain average temperatures for all probes at or below -150°C over the 48 hour course of the test. Once the lid was re-applied, it took four hours for the CE8140 to reach an average temperature of -185°C.

Maximum capacity

Designed to maximize sample capacity with minimum footprint, the CryoExtra system accepts both vertical and horizontal racks. These cryogenic racking solutions are designed for the vessel's storage configuration, further maximizing capacity. Our 93,000 sample-capacity model has the same footprint as our 80,600 sample-capacity model, saving valuable floor space.

Uniform temperatures

Minimal top-to-bottom temperature variation is achieved due to the vacuum-insulated stainless steel vessel.

Stable lid open temperature

Innovative lid and neck design enables stable temperature even during lid openings, conserving liquid nitrogen and maintaining temperature.

Advanced temperature monitoring controller

A microprocessor controller monitors temperature using thermocouples accurate to +/- 1°C. Other features include user-adjustable alarm setpoint with full alarm mute options, built-in remote alarm contacts, and easy-to-read level indicator.

Automated fill and level monitoring

Four thermistors monitor both the fill and control LN₂ levels to help ensure proper levels. Self-diagnostics help ensure reliable sensor functioning. Monitor features include current temperature display, high-temperature alarm, LN₂ level and alarms, sensor fail alarm, and filling status.

Hot gas bypass

This feature keeps samples safe from warm nitrogen gas during a fill cycle, improving sample security.

Convenient work space

A stainless platform near the vessel opening provides a flat surface for ergonomic rack placement and speeding sample recovery. All units feature integral, folding steps, and interior trap door for sub-carousel access.



Interior trap door

CryoExtra systems

Selection guide

	CryoExtra 20 system	CryoExtra 40 system	CryoExtra 80 system	CryoExtra 94 system
LN ₂ capacity (capacity under turntable)	463 liters (55 liters)	797 liters (133 liters)	1,745 liters (318 liters)	1,770 liters (296 liters)
Maximum system capacity				
Vial capacity (1.2–2 mL)	19,500	40,600	80,600	93,000
Blood bag capacity (frames) 25 mL	1,528 (191)	2,632 (376)	5,376 (768)	6,144 (768)
Blood bag capacity (frames) 50 mL, Fenwal 4R9951	896 (112)	1,533 (219)	3,080 (440)	3,520 (440)
Blood bag capacity (frames) 250 mL, Fenwal 4R9953	480 (96)	900 (188)	1,860 (372)	1,860 (372)
Blood bag capacity (frames) 500 mL, Fenwal 4R9955	340 (68)	660 (132)	1,410 (282)	1,410 (282)
Blood bag capacity (frames) 500 mL, Gambro DF-200	320 (64)	468 (117)	960 (240)	1,200 (240)
Blood bag capacity (frames) 700 mL, Gambro DF-700	180 (36)	280 (70)	568 (142)	710 (142)
Rack configuration requirements for maximum capacity (combination of square and mini racks)				
Square 2 in. boxes	Holds 100 2 mL vials	Holds 100 2 mL vials	Holds 100 2 mL vials	Holds 100 2 mL vials
Racks for 100 cell boxes	12 (1950683)	26 (1950866)	60 (1950696)	60 (1950683)
Racks for 25 cell boxes	4 (1950686)	12 (1950871)	8 (1950685)	8 (1950686)
Stages per rack	15	14	13	15

Specifications (non-medical device)*

Model*	Cat. No.	Vial capacity 1.2–2.0 mL (Cryobank)	Electrical	Plug type	Usable interior height in. (cm)	Exterior dimensions H x W x D in. (cm)	Neck diameter in. (mm)	Inner diameter in. (mm)	Weight (full)	Regulatory listings	LN ₂ and utility connection
CryoExtra 20 system	CE8120	19,500 (30,420 ¹)	100–230V 50/60 Hz	NEMA 5-15	34.5 (87.7)	65 x 32 x 32 (165.1 x 81.3 x 81.3)	12.5 (317)	28.2 (731)	1,340 lbs/ 608 kg	cULus and CE	All models require 22 psi (1.5 bar) low pressure supply tank and are supplied with (1) 0.5 in. 45° flare stainless steel flexible transfer hose
CryoExtra 40 system	CE8140	40,600 (61,516 ¹)		NEMA 5-15	30.8 (78.2)	63.25 x 42 x 42 (160.7 x 106.6 x 106.6)	17.5 (445)	38.7 (983)	2,140 lbs/ 971 kg		
CryoExtra 80 system	CE8180	80,600 (131,820 ¹)		NEMA 5-15	29.2 (74.2)	68.19 x 60 x 60 (173.3 x 152.4 x 152.4)	25 (635)	54.75 (1391)	4,830 lbs/ 2191 kg		
CryoExtra 94 system	CE8194	93,000 (152,100 ¹)		NEMA 5-15	34.2 (86.9)	73.19 x 60 x 60 (185.9 x 152.4 x 152.4)	25 (635)	54.75 (1391)	4,875 lbs/ 2211 kg		

* Using Nunc dense storage boxes (196-cell) and 1 mL Cryobank tubes.









CryoExtra Cryogenic Storage (general purpose with battery back-up system)*

Model*	Cat. No.	Vial capacity 1.2–2.0 mL (Cryobank)	Electrical	Plug type	Usable interior height in. (cm)	Exterior dimensions H x W x D in. (cm)	Neck diameter in. (mm)	Inner diameter in. (mm)	Weight (full)	Regulatory listings	LN ₂ and utility connection
CryoExtra 20 BB	CE8120BB	19,500 (30,420 ¹)	100–230V 50/60 Hz	CEE 7/7	34.5 (87.7)	65 x 32 x 32 (165.1 x 81.3 x 81.3)	12.5 (317)	28.2 (731)	1,340 lbs/ 608 kg	cULus and CE	All models require 22 psi (1.5 bar) low pressure supply tank and are supplied with (1) 0.5 in. 45° flare stainless steel flexible transfer hose
CryoExtra 40 BB	CE8140BB	40,600 (61,516 ¹)			30.8 (78.2)	63.25 x 42 x 42 (160.7 x 106.6 x 106.6)	17.5 (445)	38.7 (983)	2,140 lbs/ 971 kg		
CryoExtra 80 BB	CE8180BB	80,600 (131,820 ¹)			29.2 (74.2)	68.19 x 60 x 60 (173.3 x 152.4 x 152.4)	25 (635)	54.75 (1391)	4,830 lbs/ 2191 kg		
CryoExtra 94 BB	CE8194BB	93,000 (152,100 ¹)			34.2 (86.9)	73.19 x 60 x 60 (185.9 x 152.4 x 152.4)	25 (635)	54.75 (1391)	4,875 lbs/ 2211 kg		

* General purpose models with built-in battery back-up system are regional offerings only available to customers in the EU EMEA region and China.

¹ Using Nunc Dense storage boxes (196-cell) and 1 mL CryoBank tubes.

CryoExtra rack selection



Cat. No. and description	Dimensions H x W x D in. (cm)	Storage	CryoExtra 20 system	CryoExtra 40 system	CryoExtra 80 system	CryoExtra 94 system	
Square racks							
	1950683 Rack includes cardboard boxes and dividers for 1.5/2 mL vials	32.5 x 5.5 x 5.63 (82.6 x 14 x 14.3)	Racks per vessel	12	N/A	N/A	60
			Boxes per rack	15	N/A	N/A	15
			Vials per box	100	N/A	N/A	100
			Vials per vessel	18,000	N/A	N/A	90,000
	1950696 Rack includes cardboard boxes and cardboard dividers for 1.5/2 mL vials	28.4 x 5.5 x 5.63 (72.1 x 14 x 14.3)	Racks per vessel	12	26	60	60
			Boxes per rack	13	13	13	13
			Vials per box	100	100	100	100
			Vials per vessel	15,600	33,800	78,000	78,000
	4000007 Rack includes stainless steel boxes and cardboard dividers for 1.5/2 mL vials	27.4 x 5.5 x 5.63 (69.6 x 14 x 14.3)	Racks Per vessel	12	26	60	60
			Boxes per rack	13	13	13	13
			Vials per box	13	13	13	13
			Vials per vessel	15,600	33,800	78,000	78,000
	1950866 Rack includes cardboard boxes and cardboard dividers for 1.5/2 mL vials	30.6 x 5.5 x 5.63 (77.7 x 14 x 14.3)	Racks per vessel	12	26	N/A	60
			Boxes per rack	14	14	N/A	14
			Vials per box	100	100	N/A	100
			Vials per vessel	16,800	36,400	N/A	84,000
	4000008 Rack includes cardboard boxes and cardboard dividers for 4 mL vials	25.4 x 5.5 x 5.63 (64.5 x 14 x 14.3)	Racks per vessel	12	26	60	60
			Boxes per rack	8	8	8	8
			Vials per box	100	100	100	100
			Vials per vessel	9,600	20,800	48,000	48,000
	4000009 Rack includes stainless steel boxes and cardboard dividers for 4 mL vials	25.4 x 5.5 x 5.63 (64.5 x 14 x 14.3)	Racks per vessel	12	26	60	60
			Boxes per rack	8	8	8	8
			Vials per box	100	100	100	100
			Vials per vessel	9,600	20,800	48,000	48,000
	4000010 Rack includes cardboard boxes and cardboard dividers for 5 mL vials	26.6 x 5.5 x 5.63 (67.6 x 14 x 14.3)	Racks per vessel	12	26	60	60
			Boxes per rack	7	7	7	7
			Vials per box	100	100	100	100
			Vials per vessel	8,400	18,200	42,000	42,000
Specialty racks							
	4000379* SUC-1 rack for cane storage (includes canisters #4000176)	23.9 x 5.5 x 5.63 (60.7 x 14 x 16)	Racks per vessel	12	26	60	60
			Canisters per rack	8	8	8	8
			Canes per canister	25	25	25	25
			Canes per vessel	2,400	5,200	12,000	12,000

* Each canister will hold 25 canes without Thermo Scientific™ Nalgene™ CryoSleeve™ vial holders or 16 canes with CryoSleeve vial holders.

Boxes and dividers

Cat. No.	Description
Boxes	
4000014	Cardboard box with 100-cell divider for use with 1.5/2 mL vials (does have drain hole)
4000015	Cardboard box with 100-cell divider for use with 4/5 mL vials (does have drain hole)
820010	Polycarbonate box with 100-cell divider for use with 1.5/2 mL vials with internal threaded caps (does have drain hole)
820011	Polycarbonate box with 81-cell divider for use with 1.5/2 mL vials (does have drain hole)
820013	Polycarbonate box with 81-cell divider for use with 4 mL vials (does have drain hole)
4000238	Stainless steel box for 1.5/2 mL vials (does not include 100-cell divider)
4000239	Stainless steel box for 4 mL vials (does not include 100-cell divider)
Cell dividers	
4000013	100-cell divider for use in the 4000014, 4000015, 4000238, and 4000239 boxes


CryoExtra rack selection

Cat. No. and description	Dimensions H x W x D in. (cm)	Storage	CryoExtra 20 system	CryoExtra 40 system	CryoExtra 80 system	CryoExtra 94 system	
Vertical racks							
	4000012	27.6 x 2.3 x 5.7 (70.1 x 5.8 x 14.5)	Racks per vessel	36	70	156	156
	Rack includes cardboard boxes and cardboard dividers for 1.5/2 mL vials		Boxes per rack	5	5	5	5
			Vials per box	100	100	100	100
			Vials per vessel	18,000	35,000	78,000	78,000
	1950694	32.8 x 2.3 x 5.7 (83.3 x 5.8 x 14.5)	Racks per vessel	36	N/A	N/A	156
	Rack includes cardboard boxes and cardboard dividers for 1.5/2 mL vials		Boxes per rack	6	N/A	N/A	6
			Vials per box	100	N/A	N/A	100
			Vials per vessel	19,500	N/A	N/A	93,000


CryoExtra rack selection

Cat. No. and description		Dimensions H x W x D in. (cm)	Storage	CryoExtra 20 system	CryoExtra 40 system	CryoExtra 80 system	CryoExtra 94 system
Frames and canisters							
	1900585	27 x 0.7 x 3.4 (68.6 x 1.8 x 8.6)	Frames per vessel	191	376	768	768
	Frame for 1950831 canister		Canisters per frame	7	7	7	7
			Canisters per vessel	1,337	2,632	5,376	5,376
	1950873	30.8 x 0.7 x 3.4 (78.2 x 1.8 x 8.6)	Frames per vessel	191	N/A	N/A	768
	Frame for 1950831 canister		Canisters per frame	8	N/A	N/A	8
			Canisters per vessel	1,528	N/A	N/A	6,144
	4000670	27.4 x 0.6 x 4.6 (69.6 x 1.5 x 11.7)	Frames per vessel	112	219	440	440
	Frame for 4000610 canister		Canisters per frame	7	7	7	7
			Canisters per vessel	784	1,533	3,080	3,080
	1950687	31.2 x 0.6 x 3.8 (79.2 x 1.5 x 9.7)	Frames per vessel	112	N/A	N/A	440
	Frame for 4000610 canister		Canisters per frame	8	N/A	N/A	8
			Canisters per vessel	896	N/A	N/A	3,520
	1950688	29.6 x 0.7 x 6.5 (75.2 x 1.8 x 16.5)	Frames per vessel	96	180	372	372
	Frame for 4000335 canister		Canisters per frame	5	5	5	5
			Canisters per vessel	480	900	1,860	1,860
	1950689	29.6 x 0.7 x 8.2 (75.2 x 1.8 x 20.8)	Frames per vessel	68	132	282	282
	Frame for 4000336 canister		Canisters per frame	5	5	5	5
			Canisters per vessel	340	660	1,410	1,410
	4000368	26.4 x .9 x 6.1 (67.1 x 2.3 x 15.5)	Frames per vessel	64	117	240	240
	Frame for 4000332 and 4000356 canisters		Canisters per frame	4	4	4	4
			Canisters per vessel	256	468	960	960
	1950692	29.6 x 0.9 x 6.5 (75.2 x 2.3 x 16.5)	Frames per vessel	64	N/A	N/A	240
	Frame for 4000332 and 4000356 canisters		Canisters per frame	5	N/A	N/A	5
			Canisters per vessel	320	N/A	N/A	1,200
	4000369	26.4 x 1 x 10 (67.1 x 2.5 x 25.4)	Frames per vessel	36	70	142	142
	Frame for 4000333 and 4000357 canisters		Canisters per frame	4	4	4	4
			Canisters per vessel	144	280	568	568
	1950693	32.9 x 1 x 10 (83.6 x 2.5 x 25.4)	Frames per vessel	36	N/A	N/A	142
	Frame for 4000333 and 4000357 canisters		Canisters per frame	5	N/A	N/A	5
			Canisters per vessel	180	N/A	N/A	710
Canisters for above frames							
	1950831	3.6 x 3.915 x 0.375 (9.14 x 9.94 x 0.95)		Swing arm canister for 25 mL bag (OriGen CS 25, or equivalent)			
	4000610	3.7 x 6.3 x 0.5 (9.4 x 16 x 1.3)		Swing arm canister for 50 mL bag (Fenwal 4R9951, or OriGen CS 50, or equivalent)			
	4000335	5.5 x 7.6 x 0.4 (14 x 19.3 x 1)		Sliding canister for 250 mL bag (Fenwal 4R5461, OriGen CS 250, CryoMACS 50 and 250, or equivalent)			
	4000336	5.6 x 9.2 x 0.4 (14.2 x 23.4 x 1)		Sliding canister for 500 mL bag (Fenwal 4R5462, OriGen CS 500, or equivalent)			
	4000332	6.4 x 7.8 x 0.8 (16.3 x 19.1 x 2)		Sliding canister for 200 mL bag (Gambro DF-200 or equivalent)			
	4000356	6.4 x 7.8 x 0.8 (16.3 x 19.1 x 2)		Swing arm canister for 200 mL bag (Gambro DF-200, CryoMACS 250, or equivalent)			
	4000333	6.5 x 11.8 x 0.8 (16.5 x 30 x 2)		Sliding canister for 700 mL bag (Gambro DF-700, CryoMACS 500 and 750, and OriGen CS 750, and CS 1000, or equivalent)			
	4000357	6.5 x 12.1 x 0.8 (16.5 x 30.7 x 2)		Swing arm canister for 700 mL bag (Gambro DF-700, CryoMACS 500 and 750, and OriGen CS 750, and CS 1000, or equivalent)			

CryoExtra rack selection

Cat. No. and description	Dimensions H x W x D in. (cm)	Storage	CryoExtra 20 system	CryoExtra 40 system	CryoExtra 80 system	CryoExtra 94 system
Mini square racks for liquid phase storage						
 1950685	1950685	28.5 x 3.2 x 3.3 (72.4 x 8.1 x 8.4)	Racks per vessel	4	12	8
	Rack includes cardboard boxes and cardboard dividers for 1.5/2 mL vials		Boxes per rack	13	13	13
			Vials per box	25	25	25
			Vials per vessel	1,300	3,900	2,600
1950871	Rack includes cardboard boxes and cardboard dividers for 1.5/2 mL vials	30.7 x 3.2 x 3.3 (78 x 8.1 x 8.4)	Racks per vessel	4	12	N/A
			Boxes per rack	14	14	N/A
			Vials per box	25	25	N/A
			Vials per vessel	1,400	4,200	N/A
1950686	Rack includes cardboard boxes and cardboard dividers for 1.5/2 mL vials	32.9 x 3.2 x 3.3 (83.6 x 8.1 x 8.4)	Racks per vessel	4	N/A	N/A
			Boxes per rack	15	N/A	N/A
			Vials per box	25	N/A	N/A
			Vials per vessel	1,500	N/A	N/A

Boxes and dividers

Cat. No. and description	
	Boxes
	189470 Mini cardboard box—2.75 x 2.75 x 2 in. for use with 25-cell divider for use with 1.5/2 mL vials
	Cell dividers
189387 25-cell divider for use in the 189470 box	









Additional accessories

Cat No. and description	
20820733	2-tier step for the CryoExtra 20

Optional battery back-up

Cat. No. and description	
CE8100BB	Optional battery back-up for non-MDD units (MDD units include battery back-up)

CryoExtra rack selection

Cat. No. and description		Dimensions H x W x D in. (cm)	Storage	CryoExtra 20 system	CryoExtra 40 system	CryoExtra 80 system	CryoExtra 94 system
Racks for Matrix 2D plates							
	1950836	27 x 5.313 x 3.65 (68.6 x 13.5 x 9.3)	Racks per vessel	20	40	96	96
	Rack for Matrix 2D plates Height: 1.082 to 1.394 in.		Plates per rack	18	18	18	18
			Plates per vessel	360	720	1,728	1,728
	1950839	27.15 x 5.313 x 3.65 (69 x 13.5 x 9.3)	Racks per vessel	20	40	96	96
	Rack for Matrix 2D plates Height: 1.55 to 2.15 in.		Plates per rack	12	12	12	12
			Plates per vessel	240	480	1,152	1,152
	1950840	27.5 x 5.313 x 3.65 (70 x 13.5 x 9.3)	Racks per vessel	20	40	96	96
	Rack for Matrix 2D plates Height: 2.3 in.		Plates per rack	11	11	11	11
			Plates per vessel	220	440	1,056	1,056
	1950841	27.5 x 5.313 x 3.65 (70 x 13.5 x 9.3)	Racks per vessel	20	40	96	96
	Rack for Matrix 2D plates Height: 3.78 in.		Plates per rack	7	7	7	7
			Plates per vessel	140	280	672	672
	1950842	33 x 5.313 x 3.65 (83.8 x 13.5 x 9.3)	Racks per vessel	20	N/A	N/A	96
	Rack for Matrix 2D plates Height: 1.022 to 1.4 in.		Plates per rack	22	N/A	N/A	22
			Plates per vessel	440	N/A	N/A	2,112
	1950843	31.7 x 5.313 x 3.65 (80.5 x 13.5 x 9.3)	Racks per vessel	20	N/A	N/A	96
	Rack for Matrix 2D plates Height: 1.55 to 2.15 in.		Plates per rack	14	N/A	N/A	14
			Plates per vessel	280	N/A	N/A	1,344
	1950844	32.5 x 5.313 x 3.65 (82.5 x 13.5 x 9.3)	Racks per vessel	20	N/A	N/A	96
	Rack for Matrix 2D plates Height: 2.3 in.		Plates per rack	13	N/A	N/A	13
			Plates per vessel	260	N/A	N/A	1,248
	1950845	31.4 x 5.313 x 3.65 (79.7 x 13.5 x 9.3)	Racks per vessel	20	N/A	N/A	96
	Rack for Matrix 2D plates Height: 3.78 in.		Plates per rack	8	N/A	N/A	8
			Plates per vessel	160	N/A	N/A	768

Cost-effective storage



BioCane canister and cane systems

Thermo Scientific™ BioCane™ storage systems provide a cost-effective way to store biological samples in canes. Available in four sizes, the system can safely hold samples for extended periods of time without replenishing LN₂.

- All models include stainless steel canisters
- Canister handles are color-coded for easy canister identification
- Durable aluminum construction and vacuum insulation
- Narrow-mouth design minimizes LN₂ evaporation
- Lockable lid and optional low-level alarm enhance sample security
- Available accessories
 - Roller base
 - Canes
 - Low-level alarm
 - CryoSleeve holders

BioCane storage systems

	BioCane 20 system	BioCane 34 system	BioCane 47 system	BioCane 73 system
Cat. No.	CK509X2	CK509X3	CK509X4	CK509X6
LN ₂ capacity (liters)	20.5	34.8	47.4	73
Canisters per unit	6	6	6	8
Canister dimensions: in. (cm)	11 x 1.5 Dia. (27.9 x 3.8)	11 x 2.8 Dia. (27.9 x 7.1)	11 x 4 Dia. (27.9 x 10.2)	11 x 4 Dia. (27.9 x 10.2)
Canes per canister	5	20	42	42
Total vial capacity (6/cane)	180	720	1512	2016
Total straw capacity (10/cane)	300	1200	2520	3360
Static evaporation rate ¹ (liters/day)	.1	.18	.4	.6
Neck diameter: in. (cm)	2 (5.1)	3.5 (8.8)	5 (12.7)	6 (15.2)
Exterior dimensions Diameter x height: in. (cm)	14.5 x 25.7 (36.8 x 65.3)	18.2 x 26.6 (47.2 x 67.6)	20 x 26.5 (50.8 x 67.3)	22 x 27.3 (55.9 x 69.3)
Shipping weight	29 lbs. / 13.2 kg	41 lbs. / 18.6 kg	47 lbs. / 21.4 kg	95 lbs./ 43.2 kg
Regulatory listings	CE	CE	CE	CE

¹ Static evaporation rates based on new vessel, no heat load, and no lid openings. Rates may vary due to ambient conditions and usage.



BioCane system accessories

	BioCane 20 system	BioCane 34 system	BioCane 47 system	BioCane 73 system
Vials, 1 mL, case of 500	AY509X32	AY509X32	AY509X32	AY509X32
Cryogenic vials(E), case/500, 1.2 mL, 13.5 mm O.K., 38.1 mm H	AY509X13	AY509X13	AY509X13	AY509X13
Vials, 1.5 mL, case of 500	AY509X33	AY509X33	AY509X33	AY509X33
Cryogenic vials(E), case/500, 2.0 mL, 13.5 mm O.K., 48.3 mm H	AY509X12	AY509X12	AY509X12	AY509X12
Low-level alarm	8130	8130	8130	8130
Wheeled accessory cart (5 in. high)	AY509X9	AY509X9	AY509X9	AY509X1
Square rack option interchangeable with canisters (includes 5 cardboard boxes, each box with 25 cell dividers*)	N/A	N/A	195555	N/A
One cryo cane, 1.2 mL—6 ampule	4000211	4000211	4000211	4000211
CryoSleeve (100 per case, length 273 mm / 10.75 in.)	4000218	4000218	4000218	4000218

Quick, efficient sample retrieval

Locator Plus rack and box systems

Thermo Scientific™ Locator™ Plus indexed storage systems provide cost-effective sample storage and offer efficient sample retrieval. All models are available with an ultrasonic level monitor.

- Outstanding temperature uniformity: samples are stored below -180°C even when less than 2 in. (5 cm) of liquid nitrogen remains in the vessel
- Ultrasonic level monitor safeguards irreplaceable samples—optional monitor provides continuous LED readout of liquid nitrogen level; activates visual and audible alarms when level falls below safe range
- Advanced vacuum insulation minimizes liquid nitrogen evaporation and reduces operating costs
- Lockable lid enhances sample security
- Includes stainless steel racks designed for use with 2 in. (5 cm) Thermo Scientific™ Nalgene™ cryogenic boxes (larger racks available for 5.0 mL ampoules in Locator Jr. Plus, Locator 4 Plus, and Locator 6 Plus systems)
- Available accessories
 - Roller base
 - Polycarbonate boxes
 - Cryogenic vials
 - Cryo logbook
 - Thermo Scientific™ CryoClaw™ ampoule remover
 - Low-level alarm





Locator Plus storage systems

Cat. No.	Ultrasonic level monitor	LN ₂ capacity (liters)	Rack per unit	Box capacity per rack	2 mL vials per box	2 mL vial capacity (full unit)	Static evaporation rate ¹ (L/day)	Neck diameter in. (cm)	Exterior dimensions diameter x height in. (cm)	Shipping weight	Regulatory listings
Locator Jr. Plus											
CY50925-70	n/a	71	4	5	100	2,000	.85	8.5 (21.5)	22 x 26.9 (55.8 x 68.3)	91 lbs. / 41.4 kg	CE
CY509106	standard										cCSAus and CE
CY509106CN (China only)											cCSAus and CE
Locator 4 Plus											
CY50935-70	n/a	121	4	10	100	4,000	.99	8.5 (21.5)	22 x 37.5 (55.8 x 95.3)	118 lbs. / 53.5 kg	CE
CY509108	standard										cCSAus and CE
CY509108CN (China only)											cCSAus and CE
Locator 6 Plus											
CY50985-70	n/a	184	6	10	100	6,000	.99	8.5 (21.5)	26 x 37.5 (66 x 95.3)	160 lbs. / 72.6 kg	CE
CY509109	standard										cCSAus and CE
CY509109CN (China only)											cCSAus and CE
Locator 8 Plus											
CY50945-70	n/a	121	8	10	25	2,000	.60	6 (15.2)	22 x 37.5 (55.8 x 95.3)	115 lbs. / 52.2 kg	CE
CY509111	standard										cCSAus and CE
CY509111CN (China only)											cCSAus and CE

¹ Static evaporation rates based on new vessel, no heat load, and no lid openings. Rates may vary due to ambient conditions and usage.

Locator Plus accessories

	Locator Jr. Plus	Locator 4 Plus	Locator 6 Plus	Locator 8 Plus
5.0 mL vial rack, does not include boxes	HR509X19A-70	HR509X20A-70	HR509X32A-70	N/A
Boxes, 2 in. height: 1.0 and 1.5 mL Nalgene vials, 100 vial per box, case of 10	CS509X24	CS509X24	CS509X24	N/A
Boxes, 2 in. height: 2 mL Nalgene vials, 25 vial per box, case of 80	N/A	N/A	N/A	CS509X3
Boxes, 2 in. height: 2 mL Nalgene vials, 81 vial per box, case of 40	CS509X4	CS509X4	CS509X4	N/A
Boxes, 2 in. height: 2 mL Nalgene vials, 81 vial per box, case of 20	CS509X5	CS509X5	CS509X5	N/A
Boxes, 4 in. height: 5 mL Nalgene vials, 81 vial per box, each	CS509X10	CS509X10	CS509X10	N/A
Vials, 1 mL, case of 500	AY509X32	AY509X32	AY509X32	AY509X32
Cryogenic vials (E), case/500, 1.2 mL, 13.5 mm O.K., 38.1 mm H	AY509X13	AY509X13	AY509X13	AY509X13
Vials, 1.5 mL, case of 500	AY509X33	AY509X33	AY509X33	AY509X33
Cryogenic vials (E), case/500, 2.0 mL, 13.5 mm O.K., 48.3 mm H	AY509X12	AY509X12	AY509X12	AY509X12
Low-level alarm	8130	8130	8130	8130
Wheeled accessory cart (5 in. high)	AY509X1	AY509X1	AY509X1-70	AY509X1
Customer-installed level monitor 100-240V	CN509X16-70	CN509X17-70	CN509X15	CN509X7-70
Log book	1950338	1950338	1950338	1950338
CryoClaw ampoule remover	AY509X18	AY509X18	AY509X18	AY509X18
Replacement suction cups (2) for CryoClaw ampoule remover	AY509X19	AY509X19	AY509X19	AY509X19



Simplified storage and retrieval

Locator rack and box systems

Thermo Scientific™ Locator™ indexed storage systems provide cost-effective sample storage and allow for efficient sample retrieval. All models are available with an ultrasonic level monitor.

- Outstanding temperature uniformity: samples are stored below -180°C even when less than 2 in. (5 cm) of liquid nitrogen remains in the vessel
- Ultrasonic level monitor safeguards irreplaceable samples
 - Optional monitor provides continuous LED readout of liquid nitrogen level; activates visual and audible alarms when level falls below safe range
- Lockable lid enhances sample security
- Includes stainless steel racks designed for use with 2 in. (5 cm) Nalgene cryogenic boxes (larger racks available for 5.0 mL ampoules in Locator Jr. and Locator 4 systems)
- Available accessories
 - Roller base
 - Polycarbonate boxes
 - Cryogenic vials
 - Cryo logbook
 - CryoClaw ampoule remover
 - Low-level alarm

thermo
scientific



Locator storage systems

Cat. No	Level monitor	LN ₂ capacity (liters)	Rack per unit	Box capacity per rack	2 mL vials per box	2 mL vial capacity (full unit)	Static evaporation rate ¹ (L/day)	Neck diameter in. (cm)	Exterior dimensions diameter x height in. (cm)	Shipping weight	Regulatory listings
Locator Jr.											
CY50925	n/a	60	4	4	100	1600	.85	8.5 (21.5)	22 x 24.5 (55.8 x 62.2)	90 lbs. / 40.8 kg	CE
CY509105	standard										cCSAus and CE
CY509105CN (China only)											
Locator 4											
CY50935	n/a	111	4	9	100	3600	.99	8.5 (21.5)	22 x 35.5 (55.8 x 90.2)	115 lbs. / 52.2 kg	CE
CY509107	standard										cCSAus and CE
CY509107CN (China only)											
Locator 8											
CY50945	n/a	111	8	9	25	1800	.60	6 (15.2)	22 x 35.5 (55.8 x 90.2)	117 lbs. / 53.1 kg	CE
CY509110	standard										cCSAus and CE
CY509110CN (China only)											

¹ Static evaporation rates based on new vessel, no heat load, and no lid openings. Rates may vary due to ambient conditions and usage.

Locator system accessories

	Locator Jr. system	Locator 4 system	Locator 8 system
5.0 mL vial rack, does not include boxes	HR509X19A	HR509X20A	N/A
Boxes, 2 in. height: 1.0 and 1.5 mL Nalgene vials, 100 vial per box, case of 10	CS509X24	CS509X24	N/A
Boxes, 2 in. height: 2 mL Nalgene vials, 25 vial per box, case of 80	N/A	N/A	CS509X3
Boxes, 2 in. height: 2 mL Nalgene vials, 81 vial per box, case of 40	CS509X4	CS509X4	N/A
Boxes, 2 in. height: 2 mL Nalgene vials, 81 vial per box, case of 20	CS509X5	CS509X5	N/A
Boxes, 4 in. height: 5 mL Nalgene vials, 81 vial per box, each	CS509X10	CS509X10	N/A
Vials, 1 mL, case of 500	AY509X32	AY509X32	AY509X32
Cryogenic vials, case/500, 1.2 mL, 13.5 mm, 38.1 mm H	AY509X13	AY509X13	AY509X13
Vials, 1.5 mL, case of 500	AY509X33	AY509X33	AY509X33
Cryogenic vials, case/500, 2.0 mL, 13.5 mm, 48.3 mm H	AY509X12	AY509X12	AY509X12
Low-level alarm	8130	8130	8130
Wheeled accessory cart (5 in. high)	AY509X1	AY509X1	AY509X1
Customer installed level monitor 100-240V	CN509X16	CN509X17	CN509X7
Log book	1950338	1950338	1950338
CryoClaw ampoule remover	AY509X18	AY509X18	AY509X18
Replacement suction cups (2) for CryoClaw ampoule remover	AY509X19	AY509X19	AY509X19

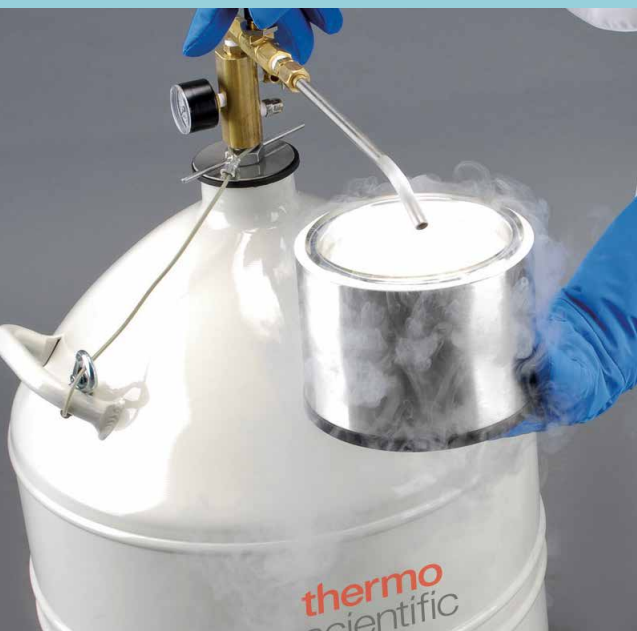
Convenient LN₂ transfer

Liquid nitrogen transfer vessels

Designed for storing and dispensing small amounts of liquid nitrogen, Thermo Scientific™ Thermo series vessels include four models with capacities from 5 to 32 L.

- Designed to bring liquid nitrogen to other cryo vessels
- Lightweight aluminum design and small neck opening ensures ease of handling and low static evaporation rates
- Compact Thermo 5 and 10 dewars feature a convenient handle for pouring and for use in applications where only small quantities of liquid nitrogen are needed
- Thermo 10, 20, and 30 vessels can be fitted with an optional self-pressurized withdrawal device to easily dispense LN₂ without pouring
- Available accessories
 - Withdrawal device
 - 12 mL dipper
 - Roller base





LN₂ storage vessels

	Thermo 5	Thermo 10	Thermo 20	Thermo 30
Cat. No.	TY509X1	TY509X2	TY509X3	TY509X4
LN ₂ capacity (liters)	5	10	20	32
Static evaporation rates ¹ (liters per day)	.15	.18	.18	.22
Neck diameter: in. (cm)	2.2 (5.6)	2.2 (5.6)	2 (5.0)	2.5 (6.4)
Exterior dimensions: Diameter x height: in. (cm)	8.8 x 18.2 (22.4 x 46.2)	10.3 x 21.5 (26.2 x 54.6)	8.8 x 18.2 (36.8 x 62.7)	8.8 x 18.2 (43.2 x 61.2)
Shipping weight	12 lbs. / 5.5 kg	14 lbs. / 6.4 kg	24 lbs. / 10.9 kig	30 lbs. / 13.6 kg

¹ Static evaporation rates based on new vessel, no heat load, and no lid openings. Rates may vary due to ambient conditions and usage.

Accessories

Description	Thermo 5	Thermo 10	Thermo 20	Thermo 30
Withdrawal device	N/A	AY509X5	AY509X4	AY509X3
12 mL dipper	AY509X6	AY509X6	AY509X6	AY509X6
Wheeled accessory cart (5 in. high)	N/A	N/A	AY509X9	AY509X9

Safe sample shipping

Arctic Express storage systems

Thermo Scientific™ Arctic Express™ and Arctic Express™ Dual systems protect samples during shipment and storage. Featuring excellent flexibility and safety features, these systems can be used as dry shippers or laboratory cryo storage vessels.

Arctic Express IATA-shipper transport systems

- Worldwide shipment of precious samples with safety and security; approved for UN and IATA
- Two-week holding time preserves sample integrity
- Lockable cover with internal security compartment provides protection and sample isolation
- Aluminum container with handle holds internal security compartment

Arctic Express cryogenic shipping containers

- Innovative material absorbs liquid nitrogen to prevent spillage during shipment
- 14- and 21-day liquid nitrogen holding times allow specimens to be shipped safely
- Durable construction and sturdy base allow dry shipper to withstand rough handling
- Lockable lid prevents unauthorized entry
- Easily transported via most common carriers
- Lightweight aluminum design and convenient pail-style handle

Arctic Express Dual shipper storage systems

- When filled with liquid nitrogen, Arctic Express Dual shippers can be used as a canister and cane storage system indefinitely, with static holding times of up to 125 days
- Dual shippers hold six numbered, color-coded, stainless steel cans (included), which accommodate canes that hold ampoules
- Hard-shell shipping container comes standard for both Arctic Express and Arctic Express Dual shippers





Arctic Express LN₂ vapor shipping systems

Model	Arctic Express 5	Arctic Express 10	Arctic Express 20	Arctic Express IATA
Cat. No.	CY50915	CY50905	CY50910	CY50920
LN ₂ capacity (liters)	1.5	4.3	10	10
Canisters per unit	1	1	n/a	Internal security compartment
Canes per canister	3	8	161	n/a
2 mL vials per cane	3	6	6	n/a
2 mL vial capacity	9	48	966 (bulk - 6 vials per cane) or 500 vials using 5 - 2" boxes (100-cell)	400 vials using 4 - 2" boxes (100-cell)
Total straw capacity	15	120	1610	n/a
Static holding time (days)	8	21	14	14
Neck diameter: in. (cm)	1.4 (3.5)	2 (5.0)	8.5 (21.6)	8.5 (21.6)
Exterior dimensions: Diameter x height: in. (cm)	7.3 x 13.5 (18.5 x 34.3)	8.7 x 19.4 (22.1 x 49.3)	15 x 23 (38.1 x 58.4)	15 x 23 (38.1 x 58.4)
Shipping weight	24 lbs./10.9 kg	29 lbs./13.2 kg	52 lbs./23.6 kg	58 lbs. / 26.4 kg

Arctic Express LN₂ vapor shipping systems

Model	Arctic Express Dual 10	Arctic Express Dual 19	Arctic Express Dual 28
Cat. No.	CK50920	CK50921	CK50922
LN ₂ capacity (liters)	10	18.5	28
LN ₂ capacity-absorbed (liters)	3	3	8
Canisters per unit	6	6	6
Canes per canister	5	6	21
2 mL vial capacity (6/cane)	180	216	756
Total straw capacity (10/cane)	300	360	1260
Static holding time—shipper (days)	21	21	21
Neck diameter: in. (cm)	2 (5)	2.2 (5.6)	3.8 (9.7)
Exterior dimensions: Diameter x height: in. (cm)	10.2 x 21.6 (25.9 x 54.9)	14.5 x 25.7 (36.8 x 65.3)	18.2 x 22 (46.2 x 55.9)
Shipping weight	34 lbs. / 15.5 kg	46 lbs. / 20.9 kg	60 lbs. / 27.3 kg

Thermo-Flask benchtop liquid nitrogen containers

Thermo Scientific™ Thermo-Flask™ liquid nitrogen containers feature inner vessels of borosilicate glass evacuated to 1×10^{-5} mm Hg. Available in stainless steel, and featuring vented clamped lids, carrying handles, and rubber-cushioned bases.

- Durable, corrosion-resistant stainless steel exterior
- Shallow wide-mouth design ideal for applications requiring flash freezing*
- Convenient dish-shaped design perfect for benchtop use
- “Push-fit” insulated lid, vented to prevent pressure build-up

Thermo-Flask benchtop liquid nitrogen containers

Cat. No.	LN ₂ capacity (liters)	Inside neck diameter in. (cm)	Exterior dimensions diameter x height in. (cm)	Shipping weight
2129	1	5.1 (13)	6.3 x 4.5 (16 x 11.4)	8 lbs./3.6 kg
2130	1.9	6.1 (15.5)	7.3 x 5.4 (18.5 x 13.7)	10 lbs./4.5 kg
2122	1.01	3.4 (8.6)	4.6 x 9 (11.7 x 22.9)	6 lbs./2.7 kg
2123	2.01	4.2 (10.7)	5.6 x 10.6 (14.2 x 26.9)	8 lbs./3.6 kg
2124	4.51	5.9 (15)	7.2 x 13.8 (18.3 x 35.1)	10 lbs./4.5 kg

Accessory

Cat. No.	Description
AY509X6	12 mL Dipper



* The shallow wide-mouth flasks do not have lids. Only the flasks with handles have lids.



LN₂ supply tanks

All Thermo Scientific™ stainless steel LN₂ supply tanks are rated at 22 psi (1.5 bar).

LN₂ supply tanks

Cat. No.	LN ₂ capacity (liters)	Casters	Static evaporation rate (per day)	Exterior dimensions (diameter x height) in. (cm)	Shipping weight
8127	50	standard	4%	16 x 41 (40.6 x 104.1)	136 lbs. / 62 kg
8127CE*					
8120TF	180	n/a	2%	20 x 63.3 (50.8 x 161.3)	326 lbs. / 148 kg
8120CE*					
8121	230	standard	2%	26.0 x 54.8 (66 x 139.2)	425 lbs. / 193 kg
8121CE*					

Tank rating for all models: 22 psi (1.5 bar)

* Outside North America.

LN₂ supply tank accessories

Description	8127 / 8127CE	8120TF / 8120CE	8121 / 8121CE
Cylinder roller base for use with 8120/8120CE measures 22 x 3.5 x 30 in. (55.9 x 8.9 x 76.2 cm)	N/A	4000175	N/A — 8121/8121CE has built-in casters and fold-down handle
Cylinder hand truck with pneumatic wheels for use with 8120/8120CE	N/A	4000173	N/A — 8121/8121CE has built-in casters and fold-down handle
6 ft. flexible braided stainless steel transfer hose with 1/2", 45 degree flare fittings on each end			4000401
4 ft. flexible braided stainless steel transfer hose with 1/2", 45 degree flare fittings on each end			4000400
LN ₂ fill phase separator			4000571

Cryopreservation accessories



- 1 Cell dividers
- 2 Square box with hole
- 3 Rectangular cardboard box
- 4 Polycarbonate boxes
- 5 LN₂ measuring stick
- 6 CryoClaw ampoule remover
- 7 Cryo gloves
- 8 CryoSleeve holders with optional cane
- 9 Cryo markers
- 10 T-valve assembly
- 11 Phase separator
- 12 Tongs
- 13 Sensaphone dialing system
- 14 Low-level alarm with sensor
- 15 Flexible metal hose

Description	Cat. No.
Cryo vials	
Each Nalgene vial is constructed of sterile polypropylene with a white marking area and includes a screw cap	
1.2 mL, self-standing, conical interior bottom, silicone washer, one case of 500	AY509X13
2.0 mL, self-standing, round interior bottom, silicone washer, case of 500	AY509X12
5.0 mL, round bottom, silicone washer, one case of 500	4000208
Cryo vial color-coding caps	
Nalgene Rainbow (assortment of all colors), one case of 400	4000389
Cryo boxes	
Individual	
2.0 in. (5.1 cm) rectangular cardboard box, includes a 40-cell divider (for CryoPlus models)	4000189
2.0 in. (5.1 cm) square stainless steel box, does not include a 100-cell divider	4000238
2.0 in. (5.1 cm) square cardboard box, includes a 100-cell divider (for CryoPlus models)	4000014
2.75 in. (7.0 cm) square cardboard box, does not include a 25-cell divider (for CryoPlus models)	189470
3.0 in. (7.6 cm) square cardboard box, includes a 100-cell divider (for CryoPlus models)	4000015
2.0 in. (5.1 cm) high Nalgene polycarbonate box with 100-cell divider, includes a numerical grid system printed on the cover	820010
2.0 in. (5.1 cm) high Nalgene polycarbonate box with 81-cell divider, includes a numerical grid system printed on the cover	820011
3.0 in. (5.1 cm) high Nalgene polycarbonate box with 81-cell divider, includes a numerical grid system printed on the cover	820013
Pack of 12 multiple-colored 2" (5 cm) high fiberboard boxes. Dividers sold separately. No drain holes, for vapor-phase only.	1950878
Pack of 12 pink 2" (5 cm) high-fiberboard boxes. Dividers sold separately. No drain holes, for vapor-phase only.	1950879
Pack of 12 red 2" (5 cm) high-fiberboard boxes. Dividers sold separately. No drain holes, for vapor-phase only.	1950880
Pack of 12 yellow 2" (5 cm) high-fiberboard boxes. Dividers sold separately. No drain holes, for vapor-phase only.	1950881
Pack of 12 green 2" (5 cm) high-fiberboard boxes. Dividers sold separately. No drain holes, for vapor-phase only.	1950882
Pack of 12 blue 2" (5 cm) high-fiberboard boxes. Dividers sold separately. No drain holes, for vapor-phase only.	1950883
Pack of 12 black 2" (5 cm) high-fiberboard boxes. Dividers sold separately. No drain holes, for vapor-phase only.	1950884
Dividers	
Cardboard 100-cell divider	4000013
Cardboard 40-cell divider	4000174
Cardboard 25-cell divider	189387
Canes	
One cane, 1.2 mL—6 ampoule	4000211
One aluminum cane for storage of any 12.5 mm diameter cryo tubes	4000217
One aluminum cane for 9.2 mL and 10.0 mL goblets	4000216
CryoSleeve vial holders	
Polyvinyl sleeve, 0.6 in. (1.5 cm) interior diameter, 10.8 in. (27.4 cm) long, one case of 100	4000218
Tongs	
Transport vials from freezing racks to boxes	
Stainless steel cryo tongs	4000388

Description	Cat. No.
Claws	
Retrieve fallen object in the LN₂ vessels	
CryoClaw	AY509X18
Replacement suction cups for CryoClaw	AY509X19
Measuring stick	
LN ₂ Measuring Stick	180143
Gloves (waterproof cryo)	
Mid-arm, 14.0 in. to 15.0 in. (35.6 cm to 38.1 cm)	
Small	189441
Medium	189442
Large	189443
Elbow-length, 18.0 in. to 20.0 in. (45.7 cm to 50.8 cm)	
Medium	189445
Large	189446
Extra-Large	189447
Shoulder-length, 28.0 in. (71.1 cm)	
Medium	189448
Large	189449
Extra-Large	189450
Aprons	
Small, 36.0 in. W (91.4 cm)	189451
Medium, 42.0 in. W (106.7 cm)	189452
Large, 48.0 in. W (121.9 cm)	189453
Cryo marker pens	
Fine tip, fast-drying, non-smearing, permanent ink; recommended for all Cryogenic vials at -200C (-328F).	
Black, blue, green, and red, set of 4	4000221
Black, set of 4	4000222
LN₂ transfer hoses and phase separator	
4.0 ft. (1.2 m) flexible metal hose, 1/2 in., 45° flare, swivel ends	4000400
6.0 ft. (1.8 m) flexible metal hose, 1/2 in., 45° flare, swivel ends	4000401
Phase separator, 1.3 in. (3.3 cm) diameter x 3.0 in. (7.6 cm) long x 1/4 in. FPT	4000571
Low-level alarm	
Low-level alarm (90-240) with sensor for any standard-sized LN ₂ container, includes dry contacts for remote alarm	8130
Sensaphone dialing systems	
4 pre-programmed numbers, 120V 60 Hz	400047
4 pre-programmed numbers, 220V 50 Hz	400182
8 pre-programmed numbers, 120V 60 Hz	400134
8 pre-programmed numbers, 220V 50 Hz	400183
T-valve assembly	
T-valve assembly with fittings, used to connect two transfer hoses to a supply tank	4000290
LN₂ tank switcher	
For use with CryoExtra or CryoPlus systems. CryoPlus system requires hot gas bypass in order to use tank switcher.	CE8100TS

Configure your cryopreservation

Sample preparation and online storage solutions online





CryoMed Controlled-Rate Freezers



CryoPlus sample storage system



CryoExtra cryogenic storage



Locator Plus freezers

Our suite of cryopreservation solutions

CryoPlus sample storage systems

CryoMed Controlled-Rate Freezers

CryoExtra cryogenic storage

BioCane canister and cane systems

Locator Plus and Locator rack and box systems

Liquid nitrogen transfer vessels

Arctic Express storage systems

Thermo-Flask benchtop liquid nitrogen containers

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