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 (LN_2) 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 LN_2 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 LN_2

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 LN_2 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 LN_2 injection volume for precise temperature control and accelerated freezing
- Preventative maintenance indicator for LN_2 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?

VIALS*

Will you freeze in canes or racks?

- Cane → Cane holder
- Racks → Rack holder

How many vials at once?

<380	<800	<1,185	>1,200
CryoMed 17 L freezer	CryoMed 34 L freezer	CryoMed 48 L freezer	Custom configuration

BAGS**

Will you freeze in presses or cassettes?

- Cassettes → **How many cassettes?** CryoMed 17 L freezer = 10; CryoMed 34 L and 48 L freezers = 20 → Cassette rack
- Presses

How many bags at once?

N/A	20	20	<8	<16	<24
CryoMed 17 L freezer	CryoMed 34 L freezer	CryoMed 48 L freezer	CryoMed 17 L freezer	CryoMed 34 L freezer	CryoMed 48 L freezer

STRAWS

How many straws?

<160	<320	<480
CryoMed 17 L freezer	CryoMed 34 L freezer	CryoMed 48 L freezer

* 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.)			43.3 x 21.7 x 24.3 (109.9 x 55.1 x 61)	13 x 12 x 13 (33 x 30.5 x 33)	174 lbs. (78.9 kg)		**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.)			49.3 x 21.7 x 24.3 (125.2 x 55.1 x 61)	19 x 12 x 13 (48.3 x 30.5 x 33)	191 lbs. (86.6 kg)		**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		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.)			43.3 x 21.7 x 24.3 (109.9 x 55.1 x 61)	13 x 12 x 13 (33 x 30.5 x 33)	175 lbs. (79.3 kg)		**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.)			49.3 x 21.7 x 24.3 (125.2 x 55.1 x 61)	19 x 12 x 13 (48.3 x 30.5 x 33)	192 lbs. (87 kg)		**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.)			43.3 x 21.7 x 24.3 (109.9 x 55.1 x 61)	13 x 12 x 13 (33 x 30.5 x 33)	174 lbs. (78.9 kg)		**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.)			49.3 x 21.7 x 24.3 (125.2 x 55.1 x 61)	19 x 12 x 13 (48.3 x 30.5 x 33)	191 lbs. (86.6 kg)		**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		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.)			43.3 x 21.7 x 24.3 (109.9 x 55.1 x 61)	13 x 12 x 13 (33 x 30.5 x 33)	175 lbs. (79.3 kg)		**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.)			49.3 x 21.7 x 24.3 (125.2 x 55.1 x 61)	19 x 12 x 13 (48.3 x 30.5 x 33)	192 lbs. (87 kg)		**TSCM48EA**
220 V/50 Hz	CEE 7/7								**TSCM48EV**
100 V/60 Hz	NEMA 5-15P								**TSCM48EL**

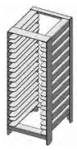
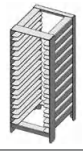
** FDA listed Class II medical device, 510K exempt.

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
								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 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** Bag press for 250 mL bag (Fenwal™ 4R5461 or OriGen CryoSure™ 250)	5.9 x 9 (15 x 22.9)	Presses per chamber	4	8	12	4*	8*
		Bags per rack	2	2	2	2	2
		Total # - bags per chamber	8	16	24	8*	16*
 **4000316** Bag press for 200 mL bag (Gambro™ DF- 200 or CryoMacs™ 50 and 250)	8 x 8.5 (20.3 x 21.6)	Presses per chamber	N/A	4	8	N/A	4*
		Bags per rack	N/A	2	2	N/A	2*
		Total # - bags per chamber	N/A	8	16	N/A	8*
 **4000317** Bag press for Delmed™ 2030-2	8.8 x 12 (22.4 x 30.5)	Presses per chamber	N/A	4	8	N/A	4*
		Bags per rack	N/A	4	4	N/A	4*
		Total # - bags per chamber	N/A	16	32	N/A	16*
 **4000318** Bag press for 250 mL bag (Fenwal 4R5461 or OriGen CryoSure 250)	9 x 12 (22.9 x 30.5)	Presses per chamber	N/A	4	8	N/A	4*
		Bags per rack	N/A	4	4	N/A	4*
		Total # - bags per chamber	N/A	16	32	N/A	16*
 **4000320** Bag press for 200 mL bag (Gambro DF-200 or equivalent)	9 x 12 (22.9 x 30.5)	Presses per chamber	N/A	4	8	N/A	4*
		Bags per rack	N/A	4	4	N/A	4*
		Total # - bags per chamber	N/A	16	32	N/A	16*
 **4000321** Bag press for 700 mL bag (Gambro DF-700 or equivalent)	8 x 12 (20.3 x 30.5)	Presses per chamber	N/A	4	8	N/A	4*
		Bags per rack	N/A	2	2	N/A	2*
		Total # - bags per chamber	N/A	8	16	N/A	8*
 **4000555** Bag press for 500 mL bag (Fenwal 4R5462 or CryoMacs™ 500 and 750	6 x 10.3 (15.2 x 26.2)	Presses per chamber	4	8	12	4*	8*
		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
 4000393 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 **1950831** (Pall MEDSEPTM 25 mL, OriGen CS 25, or equivalent)	Swing arm canister for 25 mL bag	3.6 x 3.9 x 0.4 (9.14 x 9.4 x 1)
4000610 (Fenwal 4R9951, OriGen CS 50 or equivalent)	Swing arm canister for 50 mL bag	3.7 x 6.3 x 0.5 (9.4 x 16 x 1.3)
4000356 (Gambro DF-200 or CryoMACS 50 and 250)	Swing arm canister for 200 mL bag	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)	Swing arm canister for 700 mL bag	6.5 x 12.1 x 0.8 (16.5 x 30.7 x 2)
 4000333 **4000335** (Fenwal 4R5461, OriGen CS 25 or CryoMACS 50 and 250)	Sliding canister for 250 mL bag	5.5 x 7.6 x 0.4 (14 x 19.3 x 1)
4000336 (Fenwal 4R5462, OriGen CS 500 or equivalent)	Sliding canister for 500 mL bag	5.6 x 9.2 x 0.4 (14.2 x 23.4 x 1)
4000332 (Gambro DF-200 or equivalent)	Sliding canister for 200 mL bag	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)	Sliding canister for 700 mL bag	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

LN_2 cryo storage selector guide

VAPOR OR LIQUID PHASE STORAGE?

VAPOR PHASE

Low LN_2 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*

≥6,000

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**

≤6,000

Cane or box storage?

Box

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

Cane or straw

≤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**

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**

* 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 LN_2 transfer hose

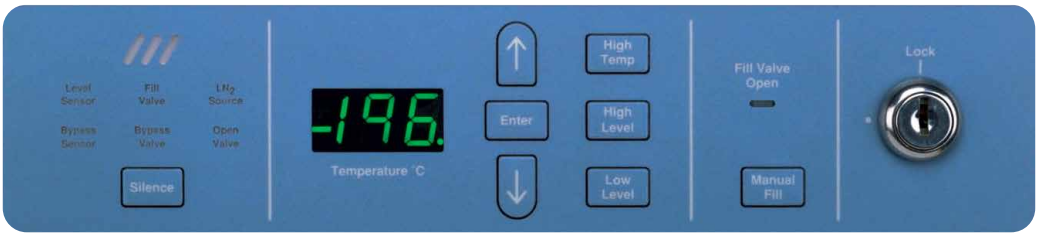
For maximum product security, CryoPlus systems incorporate three different solutions

- 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 LN_2 source alarms.

CryoPlus system information panel



Information center
Alarm center

Control center
Temperature alarm level setpoints

LN_2 fill notification and manual override

Security section
Lock and unlock of control functions

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					

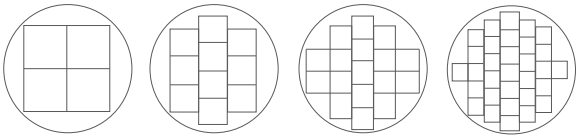
1 Using arrowhead racks no. 4000044.

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
	**4000044**	28.1 x 7.8 x 7.5 (71.4 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	13
			Vials per box	81
			Vials per vessel	6,318
	**4000112**	26 x 7.8 x 7.5 (66 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	12
			Vials per box	81
			Vials per vessel	5,832
	**4000113**	26 x 7.8 x 7.5 (66 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	12
			Vials per box	81
			Vials per vessel	5,832
	**4000104**	25.4 x 7.8 x 7.5 (64.5x 19.8 x 19.1)	Racks per vessel	6
	Rack includes cardboard boxes and cardboard dividers for 4 mL vials		Boxes per rack	8
			Vials per box	81
			Vials per vessel	3,888
	**4000105**	25.4 x 7.8 x 7.5 (64.5x 19.8 x 19.1)	Racks per vessel	6
	Rack includes stainless steel boxes and cardboard dividers for 4 mL vials		Boxes per rack	8
			Vials per box	81
			Vials per vessel	3,888
	**4000043**	26.5 x 7.8 x 7.5 (67.3 x 19.8 x 19)	Racks per vessel	6
	Rack includes cardboard boxes and cardboard dividers for 5 mL vials		Boxes per rack	7
			Vials per box	81
			Vials per vessel	3,402

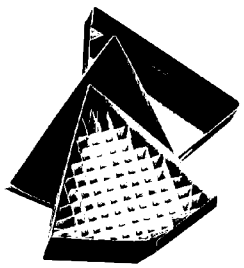
Arrowhead racks for vapor phase storage

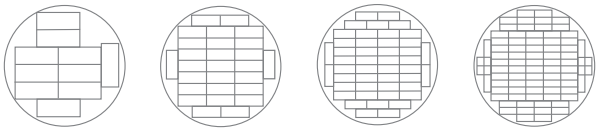
Cat. No. and description		Dimensions H x W x D in. (cm)	Storage	CryoPlus 1 system
	**4000110**	23.8 x 7.8 x 7.5 (60.5 x 19.8 x 19.1)	Racks per vessel	6
	Rack includes cardboard boxes and cardboard dividers for 1.5/2 mL vials		Boxes per rack	11
			Vials per box	81
			Vials per vessel	5,346
	**4000111**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

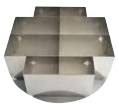
Frames and canisters for vapor phase storage

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

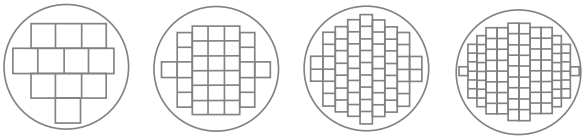
	Description of riser and frames for intended use	CryoPlus 1 system	CryoPlus 2 system	CryoPlus 3 system	CryoPlus 4 system
	3.5 in. riser for use with 4000371 and 4000372 frames	4000060	4000060	4000063	4000066
	4 in. riser for use with 4000660 frames	4000056	4000062	4000065	4000068

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)

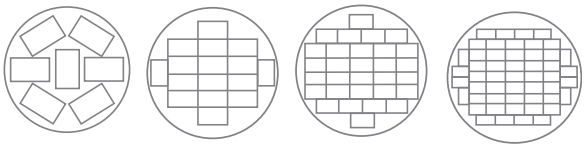


Mini square racks for liquid phase storage

	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	1950709
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)

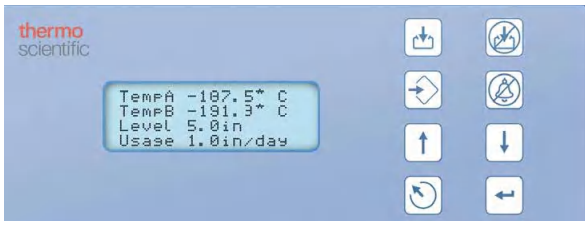
260049	Certification of compliance (unit specific)
260045	Temperature mapping
260043	Certificate of conformance

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 LN_2 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

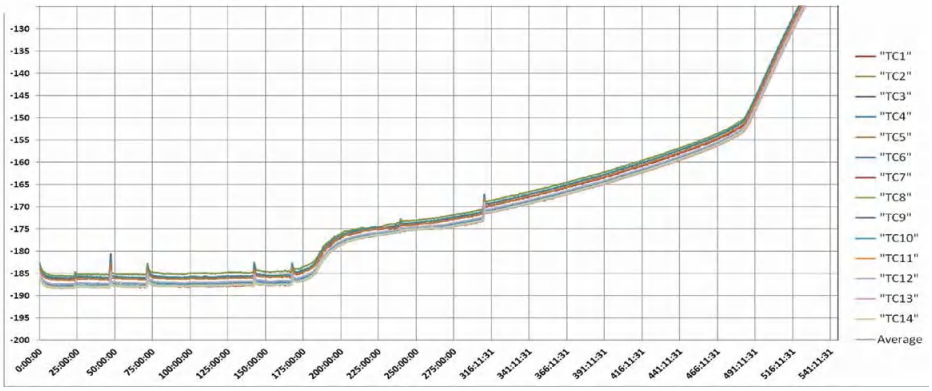


Figure 1. No LN_2 resupply test result (Cat. No. CE8140). The insulative properties of the CE8140 are demonstrated through a no LN_2 re-supply test. The CE8140 is filled with LN_2 to the high fill setpoint, and the LN_2 is removed. The temperature is then monitored using 16 sensors, measuring how long it takes to reach two benchmark temperatures: –185ºC and –135ºC. As shown in the figure, the CE8140 was able to keep the average internal temperature below –185ºC for seven days. The tank was also able to keep the temperature below –135ºC for 21 days.

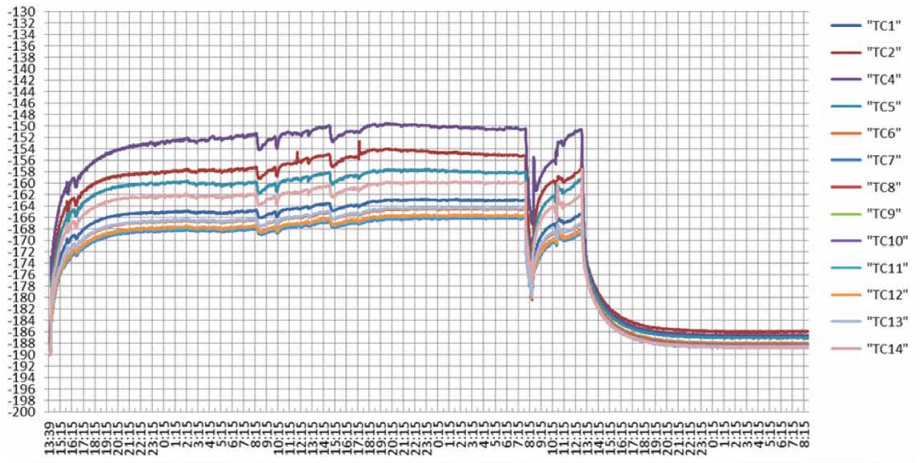


Figure 2. Lid open test result (Cat. No. CE8140). The lid open test is a measure of the ability of a unit to maintain temperature under an extreme lid opening event, as well as the ability to recover once the lid is re-applied. As the data shows, the CE8140 was able to maintain average temperatures for all probes at or below –150ºC 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 –185ºC.

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 LN_2 levels to help ensure proper levels. Self-diagnostics help ensure reliable sensor functioning. Monitor features include current temperature display, high-temperature alarm, LN_2 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 liameter 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 EEMEA 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	8
	Rack includes cardboard boxes and cardboard dividers for 1.5/2 mL vials		Boxes per rack	13	13	13	13
			Vials per box	25	25	25	25
			Vials per vessel	1,300	3,900	2,600	2,600
	1950871	30.7 x 3.2 x 3.3 (78 x 8.1 x 8.4)	Racks per vessel	4	12	N/A	8
	Rack includes cardboard boxes and cardboard dividers for 1.5/2 mL vials		Boxes per rack	14	14	N/A	14
			Vials per box	25	25	N/A	25
			Vials per vessel	1,400	4,200	N/A	2,800
	1950686	32.9 x 3.2 x 3.3 (83.6 x 8.1 x 8.4)	Racks per vessel	4	N/A	N/A	8
	Rack includes cardboard boxes and cardboard dividers for 1.5/2 mL vials		Boxes per rack	15	N/A	N/A	15
			Vials per box	25	N/A	N/A	25
			Vials per vessel	1,500	N/A	N/A	3,000

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** Rack for Matrix 2D plates Height: 1.082 to 1.394 in.	27 x 5.313 x 3.65 (68.6 x 13.5 x 9.3)	Racks per vessel	20	40	96	96
		Plates per rack	18	18	18	18
		Plates per vessel	360	720	1,728	1,728
 **1950839** Rack for Matrix 2D plates Height: 1.55 to 2.15 in.	27.15 x 5.313 x 3.65 (69 x 13.5 x 9.3)	Racks per vessel	20	40	96	96
		Plates per rack	12	12	12	12
		Plates per vessel	240	480	1,152	1,152
 **1950840** Rack for Matrix 2D plates Height: 2.3 in.	27.5 x 5.313 x 3.65 (70 x 13.5 x 9.3)	Racks per vessel	20	40	96	96
		Plates per rack	11	11	11	11
		Plates per vessel	220	440	1,056	1,056
 **1950841** Rack for Matrix 2D plates Height: 3.78 in.	27.5 x 5.313 x 3.65 (70 x 13.5 x 9.3)	Racks per vessel	20	40	96	96
		Plates per rack	7	7	7	7
		Plates per vessel	140	280	672	672
 **1950842** Rack for Matrix 2D plates Height: 1.022 to 1.4 in.	33 x 5.313 x 3.65 (83.8 x 13.5 x 9.3)	Racks per vessel	20	N/A	N/A	96
		Plates per rack	22	N/A	N/A	22
		Plates per vessel	440	N/A	N/A	2,112
 **1950843** Rack for Matrix 2D plates Height: 1.55 to 2.15 in.	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
		Plates per rack	14	N/A	N/A	14
		Plates per vessel	280	N/A	N/A	1,344
 **1950844** Rack for Matrix 2D plates Height: 2.3 in.	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
		Plates per rack	13	N/A	N/A	13
		Plates per vessel	260	N/A	N/A	1,248
 **1950845** Rack for Matrix 2D plates Height: 3.78 in.	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
		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 LN_2.

- 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 LN_2 evaporation
- Lockable lid and optional low-level alarm enhance sample security
- Available accessories
  - Roller base
  - Low-level alarm
  - Canes
  - 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. Pus, 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)											
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)											
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)											
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)											

[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 LN_2 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 LN_2 without pouring
- Available accessories
  - Withdrawal device
  - 12 mL dipper
  - Roller base

LN_2 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 LN_2 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 LN_2 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 x 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.

LN_2 supply tanks

All Thermo Scientific™ stainless steel LN_2 supply tanks are rated at 22 psi (1.5 bar).

LN_2 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.

LN_2 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 x76.2 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 LN_2 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 LN_2 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
LN_2 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
LN_2 tank switcher	
For use with CryoExtra or CryoPlus systems. CryoPlus system requires hot gas bypass in order to use tank switcher.	CE8100TS

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