Thermo Scientific Cryopreservation Storage Equipment

indefinite sample storage
infinite possibilities

Thermo SCIENTIFIC

Thermo Scientific Cryopreservation Equipment

Our cryopreservation sample preparation and storage solutions offer scientists outstanding temperature performance, low operating costs and integrated control features.

Extended Hold Times – Unlike mechanical systems, Thermo Scientific LN_2 storage solutions are designed to offer consistent temperatures even when electricity is lost. Samples remain protected much longer during power outages than alternative technologies. With cryo storage tanks, the need to locate backup storage and relocate samples is dramatically reduced.

Low Power Consumption – Because most Thermo Scientific 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.

dependable, secure
sample protection

Sample Preparation

Controlled-rate freezers prepare your samples prior to cryogenic storage, ensuring maximum viability. Available in standard and IVF format.

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 38,500 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

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

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dependable sample preparation

Thermo Scientific CryoMed Controlled-Rate Freezers

Our CryoMed freezers feature an integrated control system (consisting of freezing chamber, microprocessor control and printer – all in one bench top unit), allowing multiple freezing profiles to be tailored to specific protocols. Freezer functionality is enhanced by a MS Windows®-based controlled-rate freezing interface software (included) that connects to your PC and external printer.

Easy Programming and Monitoring

- The CryoMed controlled rate freezer can be operated directly from the unit's built-in microprocessor or remotely through the PC interface

- Includes a Java®-based PC software (as a standard feature) compatible with current Windows operating systems

- Backlit LCD provides at-a-glance operational status

- Allows at-a-glance from a distance to view sample and chamber tracking

- Chamber and sample temperatures and operation status are simultaneously displayed on a backlit LCD

- Chamber and sample temperatures are monitored by Type T thermocouples, which eliminate lag time and provide "real time" responsiveness

- Standard alarms enable open thermocouple, heater malfunction, high/low temp limit, temperature tracking, power failure, and completion of run

- Four-digit access code for added security

- Six standard preset profiles and ten user defined profiles for customer-created profiles are standard

LN$_2$ Freezing System Components

- Dual solenoid valves increase LN$_2$ injection volume for precise temperature control and accelerated freezing

- Specifically designed air handling system and patented liquid nitrogen injection ring work in tandem for precise temperature control and uniformity

- Over-temperature protection for heating provides a safe working environment

- IVF chambers are compliant with human sample standards and provide convenient top access for manual seeding of samples

Construction

- Type 304 stainless steel with exterior powder-coat finish for excellent durability

- Foamed in-place polyurethane insulation and Teflon® heat break minimizes cabinet condensation

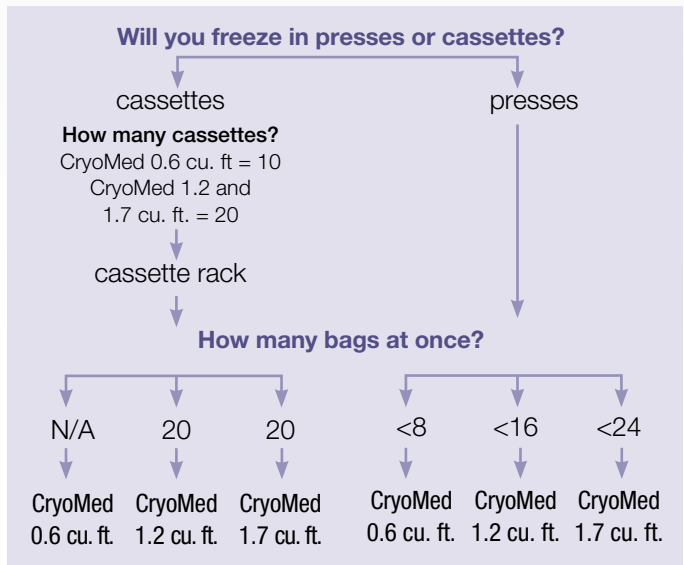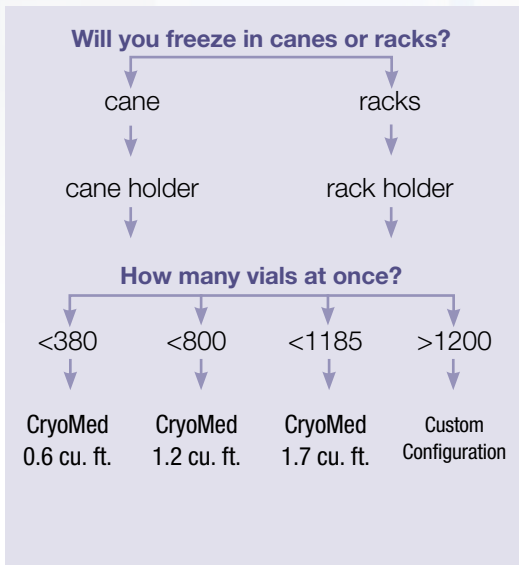- Bulb-style gaskets ensure tight door seal
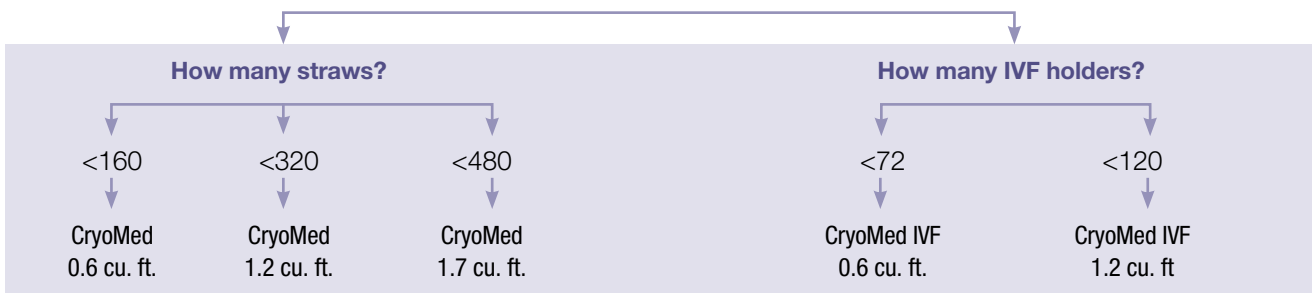
What is your method of sample preparation?

VIALS*   **STRAWS**   **BAGS****

Will you freeze in canes or racks?

cane   racks

cane holder   rack holder

How many vials at once?

<380	<800	<1185	>1200
CryoMed 0.6 cu. ft.	CryoMed 1.2 cu. ft.	CryoMed 1.7 cu. ft.	Custom Configuration

Will you freeze in presses or cassettes?

cassettes   presses

How many cassettes?
CryoMed 0.6 cu. ft = 10
CryoMed 1.2 and
1.7 cu. ft. = 20

cassette rack

How many bags at once?

N/A	20	20	<8	<16	<24
CryoMed 0.6 cu. ft.	CryoMed 1.2 cu. ft.	CryoMed 1.7 cu. ft.	CryoMed 0.6 cu. ft.	CryoMed 1.2 cu. ft.	CryoMed 1.7 cu. ft.

Will you freeze in straw racks or in IVF holders?

How many straws?

<160	<320	<480
CryoMed 0.6 cu. ft.	CryoMed 1.2 cu. ft.	CryoMed 1.7 cu. ft.

How many IVF holders?

<72	<120
CryoMed IVF 0.6 cu. ft.	CryoMed IVF 1.2 cu. ft

*assumes 1.2/2.0 mL vials
**assumes 250 mL bag

› Thermo Scientific CryoMed Controlled Rate Freezers

Model No.	Electrical	Plug Type	Chamber Volume	Access Type	Temp. Range	Exterior Dimensions W x H x D in. (cm)	Interior Dimensions W x H x D in. (cm)	Shipping Weight	Regulatory Listings	LN$_2$ and Utility connection
7450	120v/60 Hz	NEMA 5-15P	0.6 cu. ft. / 17L	Front Loading	50° to -180°C	31.7 x 21.2 x 20.4 (80.5 x 53.8 x 51.8)	7 x 12 x 13 (17.8 x 30.5 x 33)	200 lbs. / 90.7 kg	cULus and CE	All models require 22 psi (1.5 bar) low pressure supply tank and are supplied with one 6' braided stainless steel hose, with .5" x 45 degree flare connectors on each end
7451	220v/50 Hz	CEE 7/7								
7472	100v/60 Hz	NEMA 5-15P								
7452	120v/60 Hz	NEMA 5-15P	1.2 cu. ft. / 34L			37.7 x 21.2 x 20.4 (95.8 x 53.8 x 51.8)	13 x 12 x 13 (33 x 30.5 x 33)	215 lbs. / 97.5 kg		
7453	220v/50 Hz	CEE 7/7								
7473	100v/60 Hz	NEMA 5-15P								
7454	120v/60 Hz	NEMA 5-15P	1.7 cu. ft. / 48.1L			43.7 x 21.2 x 20.4 (111 x 53.8 x 51.8)	19 x 12 x 13 (48.3 x 30.5 x 33)	235 lbs. / 106.6 kg		
7455	220v/50 Hz	CEE 7/7								
7474	100v/60 Hz	NEMA 5-15P								
7456	120v/60 Hz	NEMA 5-15P	0.6 cu. ft. / 17L	Front and Top Loading (IVF)		31.7 x 21.2 x 20.4 (80.5 x 57.2 x 51.8)	7 x 12 x 13 (17.8 x 30.5 x 33)	200 lbs. / 90.7 kg	510K, CFDA, cULus and CE	
7457	220v/50 Hz	CEE 7/7								
7475	100v/60 Hz	NEMA 5-15P								
7458	120v/60 Hz	NEMA 5-15P	1.2 cu. ft. / 34L			43.5 x 47 x 50 (95.8 x 57.2 x 51.8)	13 x 12 x 13 (33 x 30.5 x 33)	215 lbs. / 97.5 kg		
7459	220v/50 Hz	CEE 7/7								
7476	100v/60 Hz	NEMA 5-15P								

› CryoMed Freezing Racks and Holders

Model No. & Description	Dimensions H x W x D in. (cm)	Storage	CryoMed 0.6 cu. ft.	CryoMed 1.2 cu. ft.	CryoMed 1.7 cu. ft.	CryoMed - IVF 0.6 cu. ft.	CryoMed - IVF 1.2 cu. ft.
4000294 Straw rack for .25/.5 mL straws - holds 40 straws	11.3 x 3 x 5.25 (28.7 x 7.6 x 13.3)	Racks per chamber	4	8	12	4*	8*
		Straws per rack	40	40	40	40	40
		Total # straws per chamber	160	320	480	160*	320*
4000303 Cane freezing rack - large	11 x 12 x 12 (28 x 30.5 x 30.5)	Racks per chamber	N/A	1	1 large & 1 small	N/A	1*
		Canes per rack	N/A	162	162 & 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 Cane freezing rack - small	11 x 6 x 12 (28 x 15.2 x 30.5)	Racks per chamber	1	N/A	1 large & 1 small	1*	N/A
		Canes per rack	77	N/A	162 & 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 1.2/2 mL freezing rack - small	1.1 x 6 x 12 (2.8 x 15.2 x 30.5)	Racks per chamber	5	N/A	5 large & 5 small	5*	N/A
		Vials per rack	76	N/A	161 & 76	76*	N/A
		Total # vials per chamber	380	N/A	1,185	380*	N/A
4000702 Small rack holder for 4000701 racks	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 & 1 small	1*	N/A
		Racks per rack holder	5	N/A	5 & 5	5*	N/A N/A
		Total # racks per chamber	5	N/A	10	5*	N/A
4000703 1.2/2 mL freezing rack - large	1.1 x 12 x 12 (2.8 x 30.5 x 30.5)	Racks per chamber	N/A	5	5 large & 5 small	N/A	5*
		Vials per rack	N/A	161	161 & 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

Model No. & Description	Dimensions H x W x D in. (cm)	Storage	CryoMed 0.6 cu. ft.	CryoMed 1.2 cu. ft.	CryoMed 1.7 cu. ft.	CryoMed - IVF 0.6 cu. ft.	CryoMed - IVF 1.2 cu. ft.
4000704 Large rack holder for 4000703 racks	9.8 x 12.2 x 12.4 (24.9 x 31 x 31.5)	Rack holders per chamber	N/A	1	1 large & 1 small	N/A	1*
		Racks per rack holder	N/A	5	5 & 5	N/A	5*
		Total # racks per chamber	N/A	5	10	N/A	5*
4000705 4 or 5 mL freezing rack - small	2.6 x 6 x 12 (6.6 x 15.2 x 30.5)	Racks per chamber	3	N/A	3 large & 3 small	3*	N/A
		Vials per rack	76	N/A	161 & 76	76*	N/A
		Total # vials per chamber	228	N/A	711	228*	N/A
4000706 Small rack holder for 4000705 racks	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 & 1 small	1*	N/A
		Racks per rack holder	3	N/A	3 & 3	3*	N/A N/A
		Total # racks per chamber	3	N/A	6	3*	N/A
4000707 4 or 5 mL freezing rack - large	8.1 x 12.2 x 12.4 (20.6 x 31 x 31.5)	Racks per chamber	N/A	3	3 large & 3 small	N/A	3*
		Vials per rack	N/A	161	161 & 76	N/A	161*
		Total # vials per chamber	N/A	483	711	N/A	483*
4000708 Large rack holder for 4000707 racks	8.1 x 12.2 x 12.4 (20.6 x 31 x 31.5)	Rack holders per chamber	N/A	1	1 large & 1 small	N/A	1*
		Racks per rack holder	N/A	3	3 & 3	N/A	3*
		Total # racks per chamber	N/A	5	6	N/A	3*
4000310 Two level skin rack - holds skin packets measuring 5 x 7 in.	10.5 x 6.2 x 12.6 (26.7 x 15.7 x 32)	Rack holders per chamber	1	2	3	1*	2*
		Skin packets per rack	48	48	48	48	48
		Total # skin packets per chamber	48	96	144	48*	96*
4000312 One level skin rack - holds skin packets measuring 5 x 7 in.	5.2 x 6.2 x 12.6 (13.2 x 15.7 x 32)	Rack holders per chamber	2	4	6	2*	4*
		Skin packets per rack	24	24	24	24	24
		Total # skin packets per chamber	48	96	144	48*	96*
4000340 Cord blood freezing rack for 50 mL canisters (4000610)	11 x 4 x 5 (28 x 10.2 x 12.7)	Rack holders per chamber	3	6	9	3*	6*
		Canisters per rack	10	10	10	10	10
		Total # canisters per chamber	30	60	90	30*	60*
4000340 Cord blood freezing rack for 25 mL canisters (1950381)	11 x 4 x 5 (28 x 10.2 x 12.7)	Rack holders per chamber	3	6	9	3*	6*
		Canisters per rack	10	10	10	10	10
		Total # canisters per chamber	30	60	90	30*	60*
185089 Adjustable freezing rack for canisters	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*
		Canisters per rack	N/A	10	10	N/A	10*
		Total # canisters per chamber	N/A	20	20	N/A	20*

› CryoMed Freezing Presses

Model No. & Description	Dimensions H x W x D in. (cm)	Storage	CryoMed 0.6 cu. ft.	CryoMed 1.2 cu. ft.	CryoMed 1.7 cu. ft.	CryoMed - IVF 0.6 cu. ft.	CryoMed - IVF 1.2 cu. ft.
4000314 Bag press for 250 mL bag (Fenwal 4R5461 or equivalent)	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 equivalent)	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 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*
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 equivalent)	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	4	16	24	4*	16*

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

❯ CryoMed Holders and Plugs for Top Loading Chambers*

Model No. & Description		Storage	CryoMed 0.6 cu. ft.	CryoMed 1.2 cu. ft.	CryoMed 1.7 cu. ft.	CryoMed - IVF 0.6 cu. ft.	CryoMed - IVF 1.2 cu. ft.
	4000710	Holders per chamber	N/A	N/A	N/A	18	30
	.25/.5 mL straw holder	Straws per holder	N/A	N/A	N/A	4	4
		Total # - straws per chamber	N/A	N/A	N/A	72	120
	4000711	Holders per chamber	N/A	N/A	N/A	18	30
	1.2/2 mL vial holder	Vials per holder	N/A	N/A	N/A	1	1
		Total # - vials per chamber	N/A	N/A	N/A	18	30
	180254	Holders per chamber	N/A	N/A	N/A	18	30
	Cane holder	Canes per holder	N/A	N/A	N/A	1	1
		Total # - canes per chamber	N/A	N/A	N/A	18	30
	180255 Sleeve plug	Plugs per chamber	N/A	N/A	N/A	18	30

*IVF chamber includes 18 sleeve plugs for the small chamber and 30 sleeve plugs for the large chamber, and 1 each of the straw holder (#4000710), 2 mL vial holder (#4000711), and 1 cane holder (#4000714).

❯ CryoMed Sample Sensors*

Model No. & Description	CryoMed 0.6 cu. ft.	CryoMed 1.2 cu. ft.	CryoMed 1.7 cu. ft.	CryoMed - IVF 0.6 cu. ft.	CryoMed - IVF 1.2 cu. ft.
Thermocouple sensor for 1.2/2 mL vials	4000385			4000385*	
Thermocouple sensor for 4/5 mL vials	4000386			4000386*	
Thermocouple sensor ribbon type for bags	4000393			4000393*	
Thermocouple sensor .02 sheath for straws	4000384			4000402	
Thermocouple sensor .062 sheath for vials	N/A			4000403	

4000393

*These accessories can only be used when top loading cane, vial, and straw holders are not in use.
NOTE: Front load CryoMed includes a 2 mL sample sensor (Model no. 4000385). The IVF chamber includes a vial sensor (Model no. 4000403) and a straw sensor (Model no. 4000402).

❯ CryoMed Canisters for Freezing Racks

Model No. & Description			Dimensions H x W x D in. (cm)
	1950831	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 equivalent)*	Swing arm canister for 200 mL bag	6.4 x 7.8 x 0.8 (16.3 x 19.1 x 2)
1950831	**4000357** *(Gambro DF-700, OriGen CS 1000 or equivalent)*	Swing arm canister for 700 mL bag	6.5 x 12.1 x 0.8 (16.5 x 30.7 x 2)
	4000335 *(Fenwal 4R5461, OriGen CS 25 or equivalent)*	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	**4000333** *(Gambro DF-700, OriGen CS 1000 or equivalent)*	Sliding canister for 700 mL bag	6.5 x 11.8 x 0.8 (16.5 x 30 x 2)

❯ Printer Paper

Model No. & Description	
4000566	Thermal printer paper (5 rolls per pack)

❯ Windows® 7-8 Compatible Software for Previous-Generation CryoMed

Model No. & Description:	
4000414	Upgrade kit consisting of PC software and an RS-232 to USB adapter cord compatible with Windows XP, 7, and 8.

reliable long-term storage solution

Thermo Scientific CryoPlus Sample Storage Systems

Thermo Scientific CryoPlus series provides the perfect combination of liquid nitrogen storage reliability and microprocessor technology. Storage capacities of up to 38,500 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 CryoPlus' microprocessor controller for programming

- All lids incorporate foamed-in-place, high density urethane insulation with dedicated vent (U.S. Patent 5,779,089). 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 Sensaphone® Telephone Dialing System

- Counterbalanced UL 61010 third addition 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 incorporates three different solutions

- A convenient front-mounted cabinet key lock for sample security

- A keyed lock on the microprocessor for temperature and alarm set-point security

- A rear-mounted recessed power switch to prevent accidental power shut off

A complete sample storage solution 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 by-pass assembly delivers warm nitrogen to atmosphere until the control probe reaches set temperature. The by-pass 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 is connected to a manifold system to prevent LN$_2$ source alarms.

CryoPlus Information Panel
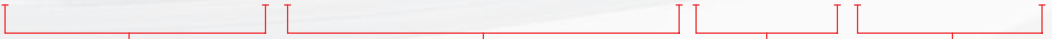
Information Center
alarm center

Control Center
temperature
alarm level
set-points

**LN$_2$ fill
Notification**
and manual
over-ride

Security Section
lock and unlock of
control functions

› Thermo Scientific CryoPlus Sample Storage Systems

Model	Model No.	LN$_2$ Capacity (liters)	Vial Capacity 1.2-2.0mL (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	7400	90	6,318[1] (8,450[2])	115v/60 Hz	NEMA 5-15P	16 (40.6)	21.5 x 41 x 26 (54.6 x 104.1 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	7402	200	13,500[2] (22,815[2])	115v/60 Hz	NEMA 5-15P	24 (61)	28.5 x 41 x 34 (72.4 x 104.1 x 86.4)	480 lbs/ 217.7 kg		
	7403			208-230v/50 Hz	CEE 7/7					
CryoPlus 3	7404	340	23,000[2] (38,870[2])	115v/60 Hz	NEMA 5-15P	31 (69.9)	34.5 x 41 x 41.5 (87.6 x 104.1 x 105.4)	550 lbs/ 249 kg		
	7405			208-230v/50 Hz	CEE 7/7					
CryoPlus 4	7406	552	39,000[2] (65,910[2])	115v/60 Hz	NEMA 5-15P	39.5 (69.9)	43.5 x 47 x 50 (110,5 x 119.4 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.
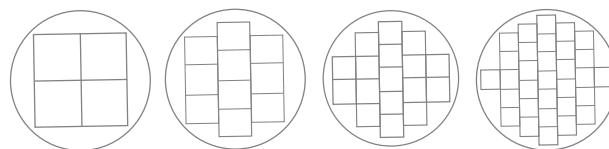
CryoPlus 1   CryoPlus 2   CryoPlus 3   CryoPlus 4

› CryoPlus Rack Selection Guide

Model No. & Description	Dimensions H x W x D in. (cm)	Storage				
Square Racks for Liquid Phase Storage						
4000006* Rack includes cardboard boxes and cardboard dividers for 1.5/2 mL vials	27.4 x 5.5 x 6.3 (69.6 x 14 x 16)	Racks per vessel	4	10	17	29
		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 Rack includes stainless steel boxes and cardboard dividers for 1.5/2 mL vials	27.4 x 5.5 x 6.3 (69.6 x 14 x 16)	Racks per vessel	4	10	17	29
		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 Rack includes cardboard boxes and cardboard dividers for 1.5/2 mL vials	26 x 5.5 x 6.3 (66 x 14 x 16)	Racks per vessel	4	10	17	29
		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 Rack includes cardboard boxes and cardboard dividers for 4 mL vials	25.4 x 5.5 x 6.3 (64.5 x 14 x 16)	Racks per vessel	4	10	17	29
		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 Rack includes stainless steel boxes and cardboard dividers for 4 mL vials	25.4 x 5.5 x 6.3 (64.5 x 14 x 16)	Racks per vessel	4	10	17	29
		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 Rack includes cardboard boxes and cardboard dividers for 5 mL vials	26.6 x 5.5 x 6.3 (67.6 x 14 x 16)	Racks per vessel	4	10	17	29
		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

Model No. & Description	Dimensions H x W x D in. (cm)	Storage	CryoPlus 1	CryoPlus 2	CryoPlus 3	CryoPlus 4
Square Racks for Vapor Phase Storage						
4000001 Rack includes cardboard boxes and cardboard dividers for 1.5/2 mL vials	23.9 x 5.5 x 6.3 (60.7 x 14 x 16)	Racks per vessel	4	10	17	29
		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 Rack includes stainless steel boxes for 1.5/2 mL vials	23.9 x 5.5 x 6.3 (60.7 x 14 x 16)	Racks per vessel	4	10	17	29
		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 Rack includes cardboard boxes and cardboard dividers for 4 mL vials	22.3 x 5.5 x 6.3 (56.6 x 14 x 16)	Racks per vessel	4	10	17	29
		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 Rack includes stainless steel boxes and cardboard dividers for 4 mL vials	22.3 x 5.5 x 6.3 (56.6 x 14 x 16)	Racks per vessel	4	10	17	29
		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 Rack includes cardboard boxes and cardboard dividers for 5 mL vials	22.8 x 5.5 x 6.3 (57.9 x 14 x 16)	Racks per vessel	4	10	17	29
		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 SUC-1 rack for cane storage (includes canisters #4000176)	23.9 x 5.5 x 6.3 (60.7 x 14 x 16)	Racks per vessel	4	10	17	29
		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**

* Each canister will hold 25 canes without cryo sleeves or 16 canes with cryosleeves
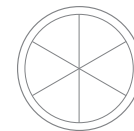
› Arrowhead Racks for Liquid Phase Storage

CryoPlus 1

Model No. & Description	Dimensions H x W x D in. (cm)	Storage	
4000044 Rack includes cardboard boxes and cardboard dividers for 1.5/2 mL vials	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
4000112 Rack includes cardboard boxes and cardboard dividers for 1.5/2 mL vials	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
4000113 Rack includes stainless steel boxes and cardboard dividers for 1.5/2 mL vials	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
4000104 Rack includes cardboard boxes and cardboard dividers for 4 mL vials	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
4000105 Rack includes stainless steel boxes and cardboard dividers for 4 mL vials	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
4000043 Rack includes cardboard boxes and cardboard dividers for 5 mL vials	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
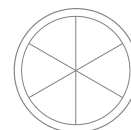
❯ Arrowhead Racks for Vapor Phase Storage

CryoPlus 1

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

Model 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
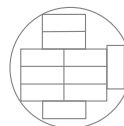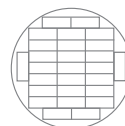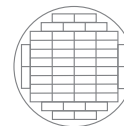
| CryoPlus 1 | CryoPlus 2 | CryoPlus 3 | CryoPlus 4 |

> ### Vertical Racks for Liquid Phase Storage

Model No. & Description	Dimensions H x W x D in. (cm)	Storage				
Vertical Rack for Liquid Phase Storage						
4000012 Rack includes cardboard boxes and cardboard dividers for 1.5/2 mL vials	27.6 x 2.3 x 5.7 (70.1 x 5.8 x 14.5)	Racks per vessel	10	27	46	78
		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 Rack includes cardboard boxes and cardboard dividers for 1.5/2 mL vials	22.2 x 2.3 x 5.7 (56.4 x 5.8 x 14.5)	Racks per vessel	10	27	46	78
		Boxes per rack	4	4	4	4
		Vials per box	100	100	100	100
		Vials per vessel	4,000	10,800	18	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

	Model 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)

❯ Frames and Canisters for Liquid Phase Storage
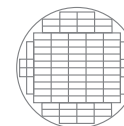
Model No. & Description	Dimensions H x W x D in. (cm)	Storage	CryoPlus 1	CryoPlus 2	CryoPlus 3	CryoPlus 4
4000670 Frame for 4000610 canister	27.4 x 0.6 x 4.6 (69.6 x 1.5 x 11.7)	Frames per vessel	34	90	154	256
		Canisters per frame	7	7	7	7
		Canisters per vessel	238	630	1,078	1,792
1900585 Frame for 1950831 canister	27.4 x 0.6 x 3.8 (69.6 x 1.5 x 9.7)	Frames per vessel	34	100	184	314
		Canisters per frame	7	7	7	7
		Canisters per vessel	238	700	1,288	2,198
4000371 Frame for 4000335 canister	23.7 x 0.6 x 6.5 (60.2 x 1.5 x 16.5)	Frames per vessel	28	64	112	174
		Canisters per frame	4	4	4	4
		Canisters per vessel	112	256	448	696
4000372 Frame for 4000336 canister	23.8 x 0.7 x 8.2 (60.5 x 1.8 x 20.8)	Frames per vessel	22	50	82	152
		Canisters per frame	4	4	4	4
		Canisters per vessel	88	200	328	608
4000368 Frame for 4000332 and 4000356 canisters	26.4 x 0.9 x 6.1 (67.1 x 2.3 x 15.5)	Frames per vessel	19	40	68	116
		Canisters per frame	4	4	4	4
		Canisters per vessel	76	160	272	464
4000369 Frame for 4000333 and 4000357 canisters	26.4 x 1 x 10 (67.1 x 2.5 x 25.4)	Frames per vessel	10	26	44	N/A
		Canisters per frame	4	4	4	N/A
		Canisters per vessel	40	104	176	N/A

❯ Frames and Canisters for Vapor Phase Storage

Model No. & Description	Dimensions H x W x D in. (cm)	Storage	CryoPlus 1	CryoPlus 2	CryoPlus 3	CryoPlus 4
4000660 Frame for 4000610 canister	23.5 x 0.6 x 4.6 (59.7 x 1.5 x 11.7)	Frames per vessel	34	90	154	256
		Canisters per frame	6	6	6	6
		Canisters per vessel	204	540	924	1,792
1900584 Frame for 1950831 canister	23.5 x 0.6 x 3.8 (59.7 x 1.5 x 9.7)	Frames per vessel	34	100	184	314
		Canisters per frame	6	6	6	6
		Canisters per vessel	204	600	1,104	1,884
4000371 Frame for 4000335 canister	23.7 x 0.6 x 6.5 (60.2 x 1.5 x 16.5)	Frames per vessel	28	64	112	174
		Canisters per frame	4	4	4	4
		Canisters per vessel	112	256	448	696
4000372 Frame for 4000336 canister	23.8 x 0.7 x 8.2 (60.5 x 1.8 x 20.8)	Frames per vessel	22	50	82	152
		Canisters per frame	4	4	4	4
		Canisters per vessel	88	200	328	608

> ### Platform Risers Required for Frames in Vapor Phase Storage

Description of riser and frames for intended use	CryoPlus 1	CryoPlus 2	CryoPlus 3	CryoPlus 4
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 for the above frames

Description of platform divider and frames for intended use	CryoPlus 1	CryoPlus 2	CryoPlus 3	CryoPlus 4
Platform divider for use with 4000660 and 4000670 frames	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	4000078	4000047	4000052
Platform divider for use with 4000369 frames	N/A	4000079	4000048	N/A

Canisters for the above frames

Model No. & Description	Dimensions H x W x D in. (cm)
1950831 Sliding canister for 25 mL bag	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 equivalent)	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 equivalent)	5.5 x 7.6 x 0.4 (14 x 19.3 x 1)
4000336 Sliding canister for 500 mL bag (Fenwal 4R5462 or equivalent)	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 equivalent)	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 equivalent)	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 equivalent)	6.5 x 12.1 x 0.8 (16.5 x 30.7 x 2)
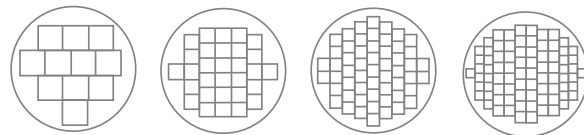
› Mini Square Racks for Liquid Phase Storage

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

› Mini Boxes for Liquid Phase Storage

	Model 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

LN$_2$ Cryo Storage Selector Guide

VAPOR OR LIQUID PHASE STORAGE?

VAPOR PHASE

Low LN$_2$ consumption Vial storage 20-94k SmartVue-ready -190°C under the lid

19,500 vials / 500 BB	**CryoExtra 20**
40,600 vials / 1,020 BB	**CryoExtra 40**
80,600 vials / 1,910 BB	**CryoExtra 80**
93,000 vials / 1,910 BB	**CryoExtra 94**

*Based on 2.0 mL vial
**Based on 250mL blood bag

Full sample access -150°C under the lid

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

LIQUID PHASE

Cryovials* **Blood Bags****

≥ 6000

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

≤ 6000

Cane or box storage?

Cane or Straw

Box

4-6k	**Locator 6+**
2-4k	**Locator 4+**
≤ 2k (100 cell box)	**Locator Jr+**
≤ 2k (25 cell box)	**Locator 8+**
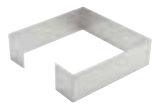
≤ 2k vials/ 3360 straws	**BioCane 73**
≤ 1.5k vials/ 2500	**BioCane 47**
≤ 700vials/ 1200 straws	**BioCane 34**
≤ 120 vials/ 300 straws	**BioCane 20**
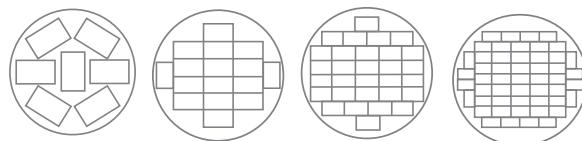
❯ Racks for Thermo Scientific™ Matrix 2D™ Tubes

Model No. & Description		Dimensions H x W x D in. (cm)	Storage	CryoPlus 1	CryoPlus 2	CryoPlus 3	CryoPlus 4
Liquid Phase							
	1950836 Rack for Matrix 2D plates measuring 1.082 in. to 1.394 in. tall	27 x 5.313 x 3.65 (68.6 x 13.5 x 9.3)	Racks per vessel	7	16	30	51
			Plates per rack	18	18	18	18
			Plates per vessel	126	288	900	918
	1950839 Rack for Matrix 2D plates measuring 1.55 in. to 2.15 in. tall	27.15 x 5.313 x 3.65 (69 x 13.5 x 9.3)	Racks Per vessel	7	16	30	51
			Plates per rack	12	12	12	12
			Plates per vessel	84	192	360	612
	1950840 Rack for Matrix 2D plates measuring 2.3 in. tall	27.5 x 5.313 x 3.65 (69.9 x 13.5 x 9.3)	Racks per vessel	7	16	30	51
			Plates per rack	11	11	11	11
			Plates per vessel	77	176	330	561
	1950841 Rack for Matrix 2D plates measuring 3.78 in. tall	27.5 x 5.313 x 3.65 (69.9 x 13.5 x 9.3)	Racks per vessel	7	16	30	51
			Plates per rack	7	7	7	7
			Plates per vessel	49	112	210	357
Vapor Phase							
	1950832 Rack for Matrix 2D plates measuring 1.082 in. to 1.394 in. tall	22.5 x 5.313 x 3.65 (57.2 x 13.5 x 9.3)	Racks per vessel	7	16	30	51
			Plates per rack	15	15	15	15
			Plates per vessel	105	240	450	765
	1950833 Rack for Matrix 2D plates measuring 1.55 in. to 2.15 in. tall	22.6 x 5.313 x 3.65 (57.4 x 13.5 x 9.3)	Racks per vessel	7	16	30	51
			Plates per rack	10	10	10	10
			Plates per vessel	70	160	300	510
	1950834 Rack for Matrix 2D plates measuring 2.3 in. tall	22.5 x 5.313 x 3.65 (57.2 x 13.5 x 9.3)	Racks per vessel	7	16	30	51
			Plates per rack	9	9	9	9
			Plates per vessel	63	144	270	459
	1950835 Rack for Matrix 2D plates measuring 3.78 in. tall	19.65 x 5.313 x 3.65 (49.9 x 13.5 x 9.3)	Racks per vessel	7	16	30	51
			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	CryoPlus 2	CryoPlus 3	CryoPlus 4
5 in. riser for use with 1950832, 1950833, 1950834, and 1950835 racks	**4000061**	**4000061**	**4000064**	**4000067**

❯ Boxes and Dividers

Model 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

		CryoPlus 1	CryoPlus 2	CryoPlus 3	CryoPlus 4
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 By-Pass 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					
	Factory installed	**1950720**	**1950721**	Standard	
	Customer installed/retrofit	**1950706**	**1950707**	**1950708**	**1950709**
Thermal Data Printer					
	120V, 60 Hz Printer with cable assembly and RS-232 connector kit	**4000565**			
	Thermal printer paper (5 rolls/package)	**4000566**			
RJ-11 Remote Alarm Cable Kit					
	Used to connect remote alarm to equipment	**400142**			

high-efficiency storage

Thermo Scientific CryoExtra Cryogenic Storage

Our new 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 ensured 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

- Push button de-fog for easy sample location
- 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 plugs sets available.
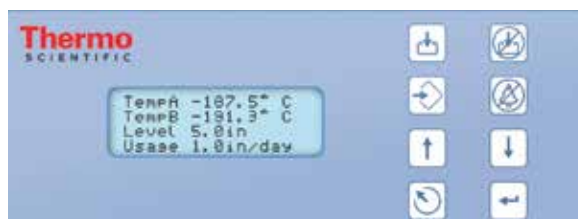
Microprocessor-based controller
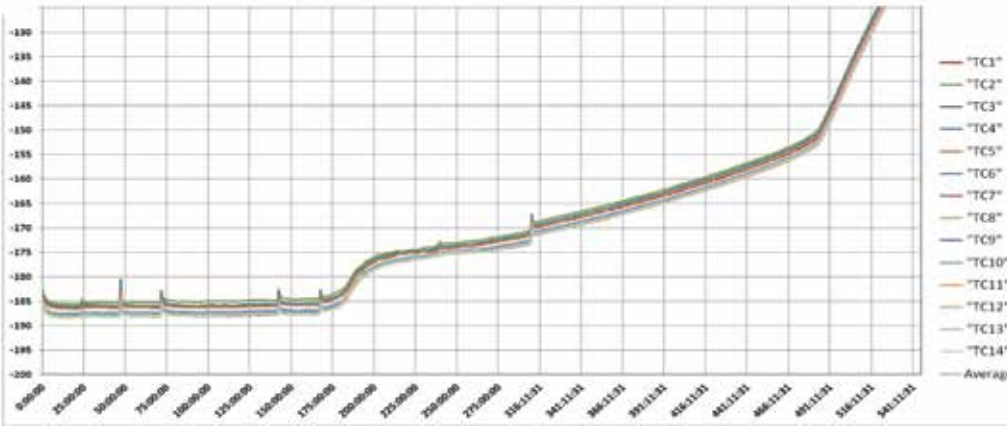
No LN$_2$ Re-Supply Test Result (Model CE8140)

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 set point and then, the LN$_2$ is removed. The temperature is then monitored using 16 sensors, monitoring 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.
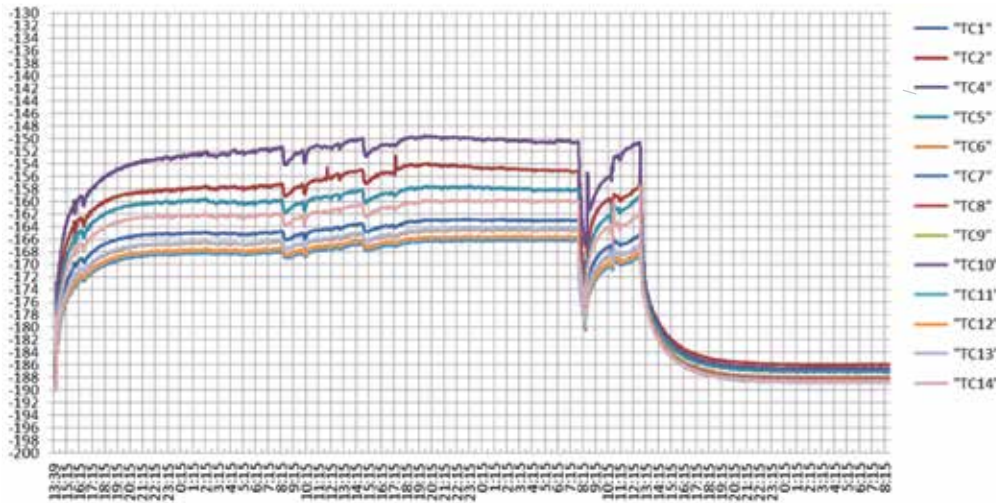
Lid Open Test Result (Model CE8140)

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, CryoExtra accepts both vertical and horizontal racks. Thermo Scientific 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 due to vacuum insulated stainless steel vessel.

Stable Lid Open Temperature

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

Advanced Temperature Monitoring Controller

Microprocessor controller monitors temperature using thermocouples accurate to +/- 1°C. Other features: 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 ensure proper levels. Self diagnostics ensure reliable sensor functioning. Monitor features: current temperature display, high temperature alarm, LN$_2$ level and alarms, sensor fail alarm and filling status.

Hot Gas Bypass

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

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Thermo Scientific CryoExtra

❯ Selection Guide

	CryoExtra 20	CryoExtra 40	CryoExtra 80	CryoExtra 94
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) 50 mL, Fenwal 4R9951	1,056 (132)	1,876 (268)	3,381 (483)	3,864 (483)
Blood bag capacity (frames) 250 mL, Fenwal 4R9953	500 (100)	1,020 (204)	1,910 (382)	1,910 (382)
Blood bag capacity (frames) 500 mL, Fenwal 4R9955	410 (82)	791 (158)	1,520 (304)	1,520 (304)
Blood bag capacity (frames) 500 mL, Gambro DF-200	340 (68)	552 (138)	1,060 (265)	1,325 (265)
Blood bag capacity (frames) 700 mL, Gambro DF-700	220 (44)	320 (80)	656 (164)	820 (164)
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*	Model 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	CE8120	19,500 (30,420)	100-230V 50/60 Hz	NEMA 5-15P	34.5 (87.7)	65 x 32 x 32 (165.1 x 81.3 x 81.3)	12.5 (317)	28.2 (731)	1340 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. 45º flare stainless steel flexible transfer hose
CryoExtra 40	CE8140	40,600 (61,516)		NEMA 5-15P	30.8 (78.2)	63.25 x 42 x 42 (160.7 x 106.6 x 106.6)	17.5 (445)	38.7 (983)	2140 lbs/ 971 kg		
CryoExtra 80	CE8180	80,600 (131,820)		NEMA 5-15P	29.2 (74.2)	68.19 x 60 x 60 (173.3 x 152.4 x 152.4)	25 (635)	54.75 (1391)	4830 lbs/ 2191 kg		
CryoExtra 94	CE8194	93,000 (152,100)		NEMA 5-15P	34.2 86.9)	73.19 x 60 x 60 (173.3 x 152.4 x 152.4)	25 (635)	54.75 (1391)	4875 lbs/ 2211 kg		

❯ Specifications (Medical Device)**

Model*	Model 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 MDD	CE8120M	19,500 (30,420)	100-230V 50/60 Hz	NEMA 5-15P	34.5 (87.7)	65 x 32 x 32 (165.1 x 81.3 x 81.3)	12.5 (317)	28.2 (731)	1340 lbs/ 608 kg	cULus, CE and MDDIIa	All models require 22 psi (1.5 bar) low pressure supply tank and are supplied with (1) 0.5 in. 45º flare stainless steel flexible transfer hose
CryoExtra 40 MDD	CE8140M	40,600 (61,516)		NEMA 5-15P	30.8 (78.2)	63.25 x 42 x 42 (160.7 x 106.6 x 106.6)	17.5 (445)	38.7 (983)	2140 lbs/ 971 kg		
CryoExtra 80 MDD	CE8180M	80,600 (131,820)		NEMA 5-15P	29.2 (74.2)	68.19 x 60 x 60 (173.3 x 152.4 x 152.4)	25 (635)	54.75 (1391)	4830 lbs/ 2191 kg		
CryoExtra 94 MDD	CE8194M	93,000 (152,100)		NEMA 5-15P	34.2 (86.9)	73.19 x 60 x 60 (173.3 x 152.4 x 152.4)	25 (635)	54.75 (1391)	4875 lbs/ 2211 kg		

*   Non MDD units are not available in EU.
** Class IIa medical device for diagnostic use; independent automated monitoring is recommended such as a chart recorder or electronic monitor. Not available in North America.

❯ CryoExtra Rack Selection

Model No. & Description		Dimensions H x W x D in. (cm)	Storage	CryoExtra 20	CryoExtra 40	CryoExtra 80	CryoExtra 94
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 6.3 (72.1 x 14 x 16)	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 6.3 (69.6 x 14 x 16)	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 6.3 (77.7 x 14 x 16)	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 6.3 (64.5 x 14 x 16)	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 6.3 (64.5 x 14 x 16)	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 6.3 (67.6 x 14 x 16)	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 6.3 (60.7 x 14 x 16)	Racks per vessel	12	26	26	60
			Canisters per rack	8	8	8	8
			Canes per canister	25	25	25	25
			Canes per vessel	2,400	5,200	5,200	12,000

* Each canister will hold 25 canes without cryo sleeves or 16 canes with cryosleeves

❯ Boxes and Dividers

Model 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

Model No. & Description		Dimensions H x W x D in. (cm)	Storage	CryoExtra 20	CryoExtra 40	CryoExtra 80	CryoExtra 94
Vertical Racks							
	4000012 Rack includes cardboard boxes and cardboard dividers for 1.5/2ml vials	27.6 x 2.3 x 5.7 (70.1 x 5.8 x 14.5)	Racks per vessel	36	70	156	156
			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 Rack includes cardboard boxes and cardboard dividers for 1.5/2ml vials	32.8 x 2.3 x 5.7 (83.3 x 5.8 x 14.5)	Racks per vessel	N/A	N/A	N/A	156
			Boxes per rack	N/A	N/A	N/A	6
			Vials per box	N/A	N/A	N/A	100
			Vials per vessel	N/A	N/A	N/A	93,600

› CryoExtra Rack Selection

Model No. & Description		Dimensions H x W x D in. (cm)	Storage	CryoExtra 20	CryoExtra 40	CryoExtra 80	CryoExtra 94
Frames and Canisters							
	1900585	27 x 0.7 x 3.4 (68.6 x 1.8 x 8.6)	Frames per vessel	184	364	690	690
	Frame for 1950831 canister		Canisters per frame	7	7	7	7
			Canisters per vessel	1,288	2,548	4,830	4,830
	1950873	30.8 x 0.7 x 3.4 (78.2 x 1.8 x 8.6)	Frames per vessel	184	N/A	N/A	690
	Frame for 1950831 canister		Canisters per frame	8	N/A	N/A	8
			Canisters per vessel	1,47	N/A	N/A	5,520
	4000670	27.4 x 0.6 x 4.6 (69.6 x 1.5 x 11.7)	Frames per vessel	128	241	490	490
	Frame for 4000610 canister		Canisters per frame	7	7	7	7
			Canisters per vessel	896	1,687	3,430	3,430
	1950687	31.2 x 0.6 x 3.8 (79.2 x 1.5 x 9.7)	Frames per vessel	128	N/A	N/A	490
	Frame for 4000610 canister		Canisters per frame	8	N/A	N/A	8
			Canisters per vessel	1,024	N/A	N/A	3,920
	1950688	29.6 x 0.7 x 6.5 (75.2 x 1.8 x 16.5)	Frames per vessel	100	268	382	382
	Frame for 4000335 canister		Canisters per frame	5	5	5	5
			Canisters per vessel	500	1,340	1,910	1,910
	1950689	29.6 x 0.7 x 8.2 (75.2 x 1.8 x 20.8)	Frames per vessel	82	158	304	304
	Frame for 4000336 canister		Canisters per frame	5	5	5	5
			Canisters per vessel	410	790	1,520	1,520
	4000368	26.4 x .9 x 6.1 (67.1 x 2.3 x 15.5)	Frames per vessel	68	138	265	265
	Frame for 4000332 and 4000356 canisters		Canisters per frame	4	4	4	4
			Canisters per vessel	272	552	1,060	1,060
	1950692	29.6 x 0.9 x 6.5 (75.2 x 2.3 x 16.5)	Frames per vessel	68	N/A	N/A	265
	Frame for 4000332 and 4000356 canisters		Canisters per frame	5	N/A	N/A	5
			Canisters per vessel	340	N/A	N/A	1,325
	4000369	26.4 x 1 x 10 (67.1 x 2.5 x 25.4)	Frames per vessel	44	80	164	164
	Frame for 4000333 and 4000357 canisters		Canisters per frame	4	4	4	4
			Canisters per vessel	176	320	656	656
	1950693	32.9 x 1 x 10 (83.6 x 2.5 x 25.4)	Frames per vessel	44	N/A	N/A	164
	Frame for 4000333 and 4000357 canisters		Canisters per frame	5	N/A	N/A	5
			Canisters per vessel	220	N/A	N/A	820
Canisters for Above Frames							
	1950831	3.6 x 3.915 x 0.375 (9.14 x 9.94 x 0.95)	Sliding canister for 25ml bag				
	4000610	3.7 x 6.3 x 0.5 (9.4 x 16 x 1.3)	Swing arm canister for 50ml bag (Fenwal 4R9951 or equivalent)				
	4000335	5.5 x 7.6 x 0.4 (14 x 19.3 x 1)	Sliding canister for 250ml bag (Fenwal 4R5461 or equivalent)				
	4000336	5.6 x 9.2 x 0.4 (14.2 x 23.4 x 1)	Sliding canister for 500ml bag (Fenwal 4R5462 or equivalent)				
	4000332	6.4 x 7.8 x 0.8 (16.3 x 19.1 x 2)	Sliding canister for 200ml 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 200ml bag (Gambro DF-200 or equivalent)				
	4000333	6.5 x 11.8 x 0.8 (16.5 x 30 x 2)	Sliding canister for 700ml bag (Gambro DF-700 or equivalent)				
	4000357	6.5 x 12.1 x 0.8 (16.5 x 30.7 x 2)	Swing arm canister for 700ml bag (Gambro DF-700 or equivalent)				

❯ CryoExtra Rack Selection

Model No. & Description		Dimensions H x W x D in. (cm)	Storage	CryoExtra 20	CryoExtra 40	CryoExtra 80	CryoExtra 94
Mini Square Racks for Liquid Phase Storage							
1950685	**1950685** Rack includes cardboard boxes and cardboard dividers for 1.5/2 ml vials	28.5 x 3.2 x 3.3 (72.4 x 8.1 x 8.4)	Racks per vessel	4	12	8	8
			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 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	8
			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 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	8
			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

Model No. & 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

❯ CryoExtra Rack Selection

Model No. & Description	Dimensions H x W x D in. (cm)	Storage	CryoExtra 20	CryoExtra 40	CryoExtra 80	CryoExtra 94
Racks for Matrix 2D Racks –						
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	24	52	94	94
		Plates per rack	18	18	18	18
		Plates per vessel	432	936	1,692	1,692
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	24	52	94	94
		Plates per rack	12	12	12	12
		Plates per vessel	288	624	1	1
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	24	52	94	94
		Plates per rack	11	11	11	11
		Plates per vessel	308	572	1,034	1,034
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	24	52	94	94
		Plates per rack	7	7	7	7
		Plates per vessel	168	364	658	658
1950842 Rack for Matrix 2D plates Height: 1.022 to 1.994 in.	33 x 5.313 x 3.65 (83.8 x 13.5 x 9.3)	Racks per vessel	24	52	94	94
		Plates per rack	22	N/A	N/A	22
		Plates per vessel	528	N/A	N/A	2,068
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	24	52	94	94
		Plates per rack	14	N/A	N/A	14
		Plates per vessel	336	N/A	1316	612
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	24	52	94	94
		Plates per rack	13	N/A	N/A	13
		Plates per vessel	312	N/A	N/A	1,222
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	24	52	94	94
		Plates per rack	8	N/A	N/A	8
		Plates per vessel	192	N/A	N/A	752

cost-effective storage

Thermo Scientific 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
  - Cryo Sleeves

❯ Thermo Scientific BioCane Storage Systems

	BioCane 20	BioCane 34	BioCane 47	BioCane 73
Catalog No.	CK509X2	CK509X3	CK509X4	CK509X6
LN$_2$ capacity (liters)	20.5	34.8	47.4	73
Canisters per unit	6	6	6	8
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 holding time (days)	227	193	121	121
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

> Thermo Scientific BioCane Accessories

	BioCane 20	BioCane 34	BioCane 47	BioCane 73
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

Model 8130 is not CE marked

quick, efficient
sample retrieval

Thermo Scientific 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) Nalgene cryogenic boxes (larger racks available for 5.0 mL ampoules in Locator Jr. PLUS, Locator 4 PLUS, and Locator 6 Plus)

- Available accessories
  - Roller base
  - Polycarbonate boxes
  - Cryogenic vials
  - Cryo logbook
  - CryoClaw
  - Low level alarm

❯ Thermo Scientific Locator PLUS Storage Systems

Catalog No	Ultrasonic Level Monitor	LN₂ Capacity (liters)	Rack Per Unit	Box Capacity Per Rack	2 mL vials Per Box	2 mL Vial Capacity (full unit)	Static Holding Time (days)	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	2000	83	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	4000	122	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	6000	185	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	2000	201	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)											

❯ Thermo Scientific 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, 100 vial per box, case of 10	CS509X24	CS509X24	CS509X24	N/A
Boxes, 2 in. height: 2 mL Nalgene, 25 vial per box, case of 80	N/A	N/A	N/A	CS509X3
Boxes, 2 in. height: 2 mL Nalgene, 81 vial per box, case of 40	CS509X4	CS509X4	CS509X4	N/A
Boxes, 2 in. height: 2 mL Nalgene, 81 vial per box, case of 20	CS509X5	CS509X5	CS509X5	N/A
Boxes, 4 in. height: 5 mL Nalgene, 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
One cryo cane, 1.2 mL – 6 Ampule	4000211	4000211	4000211	4000211
Log book	1950338	1950338	1950338	1950338
CryoClaw	AY509X18	AY509X18	AY509X18	AY509X18
Replacement suction cups (2) for CryoClaw	AY509X19	AY509X19	AY509X19	AY509X19

Model 8130 is not CE marked

simplified storage and retrieval

Thermo Scientific 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)

- Available accessories
  - Roller base
  - Polycarbonate boxes
  - Cryogenic vials
  - Cryo logbook
  - CryoClaw
  - Low-level alarm

Thermo
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❯ Thermo Scientific Locator Storage Systems

Catalog No	Level Monitor	LN$_2$ Capacity (liters)	Rack Per Unit	Box Capacity Per Rack	2mL vials Per Box	2 mL Vial Capacity (full unit)	Static Holding Time (days)	Neck Diameter in. (cm)	Exterior Dimensions Diameter x Height in. (cm)	Shipping Weight	Regulatory Listings
Locator Jr											
CY50925	n/a										CE
CY509105	standard	60	4	4	100	1600	70	8.5 (21.5)	22 x 24.5 (55.8 x 62.2)	90 lbs. / 40.8 kg	cCSAus and CE
CY509105CN (China Only)											
Locator 4											
CY50935	n/a										CE
CY509107	standard	111	4	9	100	3600	112	8.5 (21.5)	22 x 35.5 (55.8 x 90.2)	115 lbs. / 52.2 kg	cCSAus and CE
CY509107CN (China Only)											
Locator 8											
CY50945	n/a										CE
CY509110	standard	111	8	9	25	1800	185	6 (15.2)	22 x 35.5 (55.8 x 90.2)	117 lbs. / 53.1 kg	cCSAus and CE
CY509110CN (China Only)											

❯ Thermo Scientific Locator Accessories

	Locator Jr.	Locator 4	Locator 8
5.0 mL vial Rack , does not include boxes	HR509X19A-70	HR509X20A-70	N/A
Boxes, 2 in. height: 1.0 and 1.5 mL Nalgene, 100 vial per box, case of 10	CS509X24	CS509X24	N/A
Boxes, 2 in. height: 2 mL Nalgene, 25 vial per box, case of 80	N/A	N/A	CS509X3
Boxes, 2 in. height: 2 mL Nalgene, 81 vial per box, case of 40	CS509X4	CS509X4	N/A
Boxes, 2 in. height: 2 mL Nalgene, 81 vial per box, case of 20	CS509X5	CS509X5	N/A
Boxes, 4 in. height: 5 mL Nalgene, 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	CN509X16-70	CN509X17-70	CN509X7-70
One cryo cane, 1.2 mL – 6 Ampule	4000211	4000211	4000211
Log book	1950338	1950338	1950338
CryoClaw	AY509X18	AY509X18	AY509X18
Replacement suction cups (2) for CryoClaw	AY509X19	AY509X19	AY509X19

Model 8130 is not CE marked

Thermo Scientific Liquid Nitrogen Transfer Vessels

Designed for storing and dispensing small amounts of liquid nitrogen, our Thermo Series includes 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 insures 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 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

convenient LN$_2$ transfer

› Thermo Scientific LN$_2$ Storage Vessels

	Thermo 5	Thermo 10	Thermo 20	Thermo 30
Model No.	TY509X1	TY509X2	TY509X3	TY509X4
LN$_2$ capacity (liters)	5	10	20	32
Static holding time (days)	33.3	55.6	111	145
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

› 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

Thermo Scientific Arctic Express Storage Systems

Our 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 Dual Shippers

safe sample shipping

❯ Thermo Scientific Arctic Express LN$_2$ Vapor Shipping Systems

Model	Arctic Express 5	Arctic Express 10	Arctic Express 20	Arctic Express IATA
Catalog 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
2mL 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
Regulatory listings	CE	CE	CE	CE and IATA

❯ Thermo Scientific Arctic Express LN$_2$ Vapor Shipping Systems

Model	Arctic Express Dual 10	Arctic Express Dual 20	Arctic Express Dual 28
Catalog 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
Static holding time (days)	42	125	50
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
Regulatory listings	CE	CE	CE

Thermo Scientific Thermo-Flask Benchtop Liquid Nitrogen Containers

Our Thermo-Flask liquid nitrogen containers feature inner vessels of borosilicate glass evacuated to 1x10^{-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 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 Scientific Benchtop Liquid Nitrogen Containers

Model 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

Model No.	Description
AY509X6	12 mL Dipper

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

Thermo Scientific LN$_2$ Supply Tanks

All of our stainless steel LN$_2$ supply tanks are rated at 22 psi (1.5 bar).

❯ Thermo Scientific LN$_2$ Supply Tanks

Catalog 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)

❯ Thermo Scientific LN$_2$ Supply Tanks Accessories

	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 x76.2cm)	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	5	LN$_2$ measuring stick	8	Cryo sleeve with optional cane	13	Sensaphone dialing system
2	Square box with hole	6	CryoClaw	9	Cryo markers	14	Low-level alarm with sensor
3	Rectangular cardboard box	7	Cryo gloves	10	T-valve assembly	15	Flexible metal hose
4	Polycarbonate boxes			11	Phase separator		
				12	Tongs		

Description	Model No.
Cryo Vials	
Each 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	4000198
2.0 mL, self-standing, round interior bottom, silicone washer, one case of 500	4000200
4.0 mL, self standing, round bottom, silicone washer, one case of 500	4000206
5.0 mL, round bottom, silicone washer, one case of 500	4000208
Cryo Vial Color Coding Caps	
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 polycarbonate box with 100-cell divider, includes a numerical grid system printed on the cover	820010
2.0 in. (5.1 cm) high polycarbonate box with 81-cell divider, includes a numerical grid system printed on the cover	820011
3.0 in. (5.1 cm) high polycarbonate box with 81-cell divider, includes a numerical grid system printed on the cover	820013
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 Cane, 5.0 mL – 2 ampoule	4000214
One aluminum cane for 9.2 mL and 10.0 mL goblets	4000216
Cryo Sleeve	
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
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 (Water Proof Cryo)	
Mid-Arm, 14.0 in. to 15.0 in. (35.6 cm to 38.1 cm)	

Description	Model No.
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® Telephone 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

*Not CE marked

wireless, tireless

with Thermo Scientific Smart-Vue wireless monitoring

Smart-Vue™ protects the quality of your samples 24/7 by continuously monitoring equipment conditions and will remotely notify you if conditions for sample integrity are compromised. In addition, Smart-Vue's data logging capabilities assist with compliance to FDA, GxP and other regulatory requirements.

- Wireless monitoring, alerting you remotely in the event of a power or mechanical failure
- Alert systems including real-time and visual alarms on the module
- Configurable data-logging, transmission cycles and upper/lower limits
- On-board single parameter module memory for up to 3,000 readings
- Automatic alarms for out-of-bounds conditions and technical problems
- Easy-to-read LCD display with the latest reading, alerts, signal strength and battery level
- Fully integrated with Smart-Vue client/server software suite
- 3.6V Lithium, replaceable battery (3,600 mA)
- Mounting kit with plastic holder, magnet, screws, cable ties, plastic cable holders and Velcro®
- Type: CE EN 300-220-1, FCC, EN12830, IC (Industry Canada), WPF (India), CMIT (China)

❯ Ordering Information

Model No.	SV201-100-LSB
SV201-100-LSB	Package for 915 MHz regions*
SV201-101-LSB	Package for 868 MHz regions*
SV201-102-LSB	Package for 867 MHz regions*
SV201-103-LSB	Package for 434 MHz regions*

*Smart-Vue for cryogenic storage includes wireless radio module system, external three-wire PT100 temperature probe; Range: -200ºC to +50ºC, calibrated at -196ºC, -80ºC and 0ºC. Package consists of module, external sensor, 3.6V lithium battery, mounting holder with Velcro, magnet and hardware, sensor mounting kit.

keep track of your samples
with Thermo Scientific Matrix and Nunc 2D storage tubes

When your workflow includes semi-automated and fully-automated platforms for high throughput, Thermo Scientific™ tubes allow robust storage and tracking of sample volumes ranging from 70 µL to 12 mL in 384-, 96-, 48- and 24-place arrays. We have storage formats available for temperatures down to VPLN, and multiple sealing options including ScrewTop caps and septa seals. Solid, one-piece construction means there are no labels to fall off and medical grade, class VI resin tubes are supplied free of RNAse, DNAse, endotoxins and cytotoxins and SAL down to 10^{-6}.

- **100% leak tested** to ensure tube integrity and sample security
- **Designed for automated systems** including liquid handling, decappers and other automated platforms
- **Rack base and tube design** prevents the tube from spinning in the rack when decapping whether single tube hand decapping or, multi channel automated decapping
- **Available in Latch Racks,** specially-designed, stackable racks with a microplate footprint

Thermo Scientific Nunc CryoBank tubes

- Nunc CryoBank storage tubes are ideal for users who need locking tubes that are not going to fall out during frequent movement and use without a rack lid. Trust Nunc storage tubes for ultra low temperature storage down to the vapor phase of liquid nitrogen.
- Screw Cap with integrated gasket ensures a tight seal every time and compatible with storage across a range of temperatures.
- ScrewTop can be resealed numerous times with no effect on sealing integrity and can be stored down to the vapor phase of liquid nitrogen
- Laser-etched 2D barcode on the base of every tube ensures secure sample tracking with the highest contrast code available for reading, even with some frost on the tubes

For more information, visit
www.thermoscientific.com/samplestorage

Configure your cryopreservation
sample preparation and storage solution online
Visit **coldstorageselector.thermoscientific.com**

CryoMed Controlled-Rate Freezers	CryoPlus Sample Storage System	CryoExtra Cryogenic Storage	Locator PLUS

Thermo Scientific

CryoPlus Sample Storage Systems

CryoMed Controlled-Rate Freezers

CryoExtra Cryogenic Storage

BioCane Canister and Cane Systems

Locator PLUS
Rack and Box Systems

Locator Rack and Box Systems

Liquid Nitrogen Transfer Vessels

Arctic Express Storage Systems

Thermo-Flask Benchtop Liquid Nitrogen Containers

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