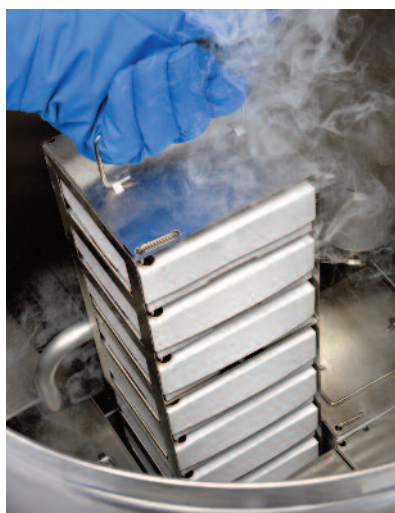# Thermo Scientific CryoExtra
High-Efficiency Cryogenic Storage

Ultimate sample storage, optimum capacities

New, 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 ensured with built-in steps, flat workspace, and ergonomic lids. All vessels are designed to accommodate both vapor and liquid phase storage.

- Four capacities from 463 liters to 1770 liters
- Sample capacity from 19,500 up to 93,000 1.2 – 2.0 mL vials
- Minimal footprint – 1770 liter model has the same exterior footprint as the 1745 liter unit, saving valuable lab space
- Real-time level monitoring

- Outstanding temperature uniformity
- Stable lid opening temperature
- Advanced temperature monitor and alarms
- Automated fill and level monitoring
- De-fog switch 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
- Compatible with Thermo Scientific™ Smart-Vue™ wireless monitoring
- Designed for global use with 100-240V and 50/60Hz power supplies; local power cords and plug sets are available

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Sample protection features and benefits

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, futher 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.

Hot Gas Bypass

Keeps samples safe from warm nitrogen gas during a fill cycle, improving sample security.

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 set point with full alarm mute options; built-in remote alarm contacts and easy to read level indicator.

Regulatory Approvals

CryoExtra vessels are CE marked and compliant with CE and UL regulations.

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.

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.
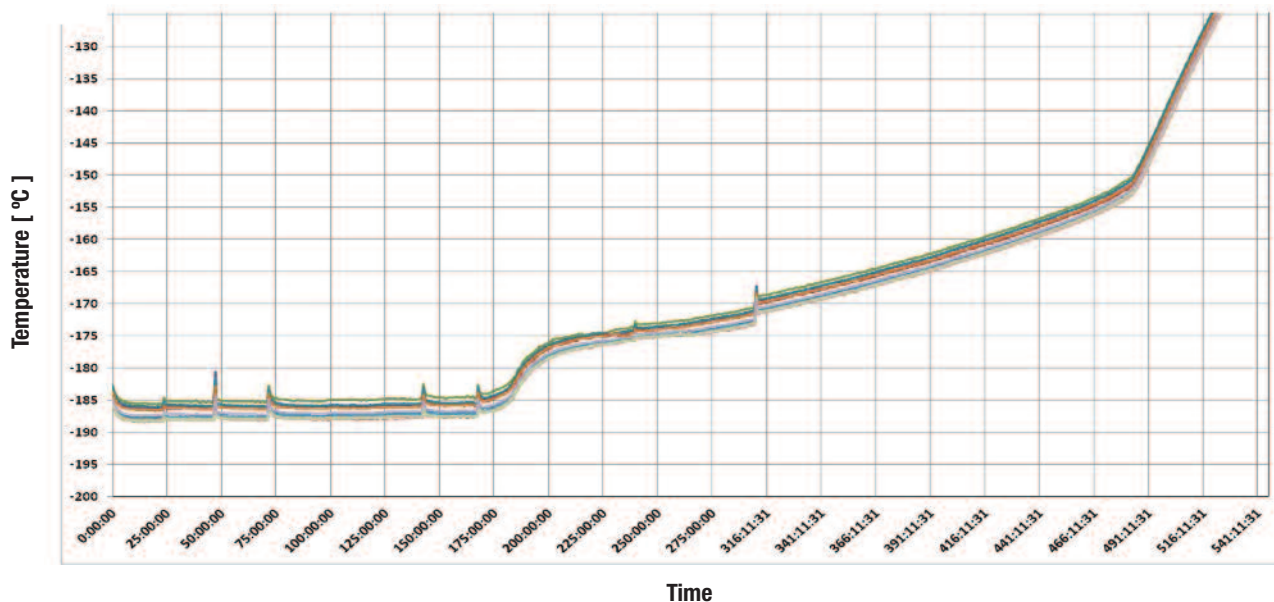

Microprocessor controller

Interior trap door for sample retrieval
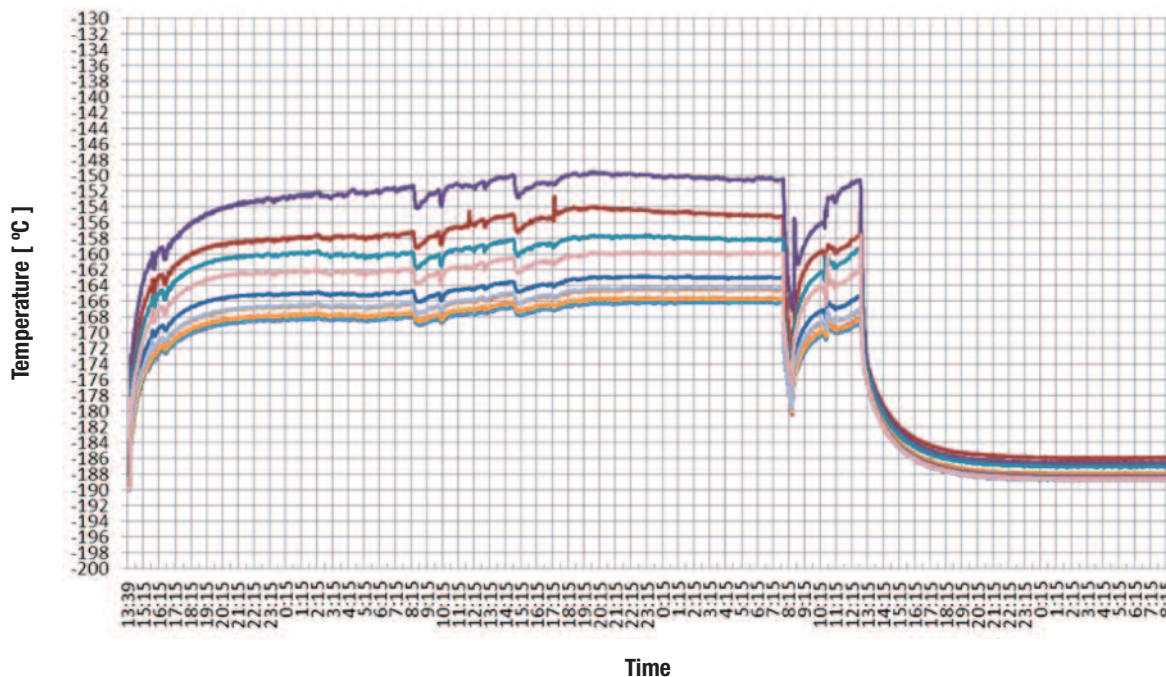

Built-in workspace

Outstanding performance

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: -185°C and -135°C. As shown in the figure, the CE8140 was able to keep the average internal temperature below -185°C for seven days. The tank was also able to keep the temperature below -135°C for 21 days.

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 -150°C over the 48 hour course of the test. Once the lid was re-applied, it took four hours for the CE8140 to reach an average temperature of -185°C.

Specifications

Model	CryoExtra 20	CryoExtra 40	CryoExtra 80	CryoExtra 94
Cat. No.	CE8120	CE8140	CE8180	CE8194
Vessel Dimensions				
Overall height (floor to table top)	57" (144.9 cm)	61.3" (155.6 cm)	61.3" (155.6 cm)	66.3" (168.3 cm)
Overall height with controller (auto fill)	65" (165.1 cm)	63.3" (160.8 cm)	68.2" (173.2 cm)	73.2" (185.9 cm)
Opening height (floor to top of neck opening)	55.3" (140.5 cm)	55.2" (140.2 cm)	58.8" (149.4 cm)	63.8" (162.1 cm)
Outer diameter	32" (81.3 cm)	42" (106.7 cm)	60" (152.4 cm)	60" (152.4 cm)
Neck diameter	12.5" (31.8 cm)	17.5" (44.5 cm)	25" (63.5 cm)	25" (63.5 cm)
Inner diameter	28.8" (73.2 cm)	38.75 (98.4 cm)	54.8" (139.2 cm)	54.8" (139.2 cm)
Usable height	34.5" (87.6 cm)	30.8" (78.2 cm)	29.2" (74.2 cm)	34.2" (86.9 cm)
Product Shipping Dimensions				
H x W x D inches (cm)	76 x 43 x 43 (193 x 109.2 x 109.2)	67 x 49 x 51 (170.2 x 124.5 x 129.5)	80 x 77 x 72 (203.2 x 195.6 x 182.9)	80 x 77 x 72 (203.2 x 195.6 x 182.9)
Product Weight				
Empty	515 lbs. (234 kg)	720 lbs. (327 kg)	1721 lbs. (781 kg)	1721 lbs. (781 kg)
Unit full liquid (maximum)	1340 lbs. (608 kg)	2140 lbs. (971 kg)	4830 lbs. (2192 kg)	4875 lbs. (2211 kg)
Shipping	765 lbs. (348 kg)	1032 lbs. (469 kg)	2365 lbs. (1075 kg)	2470 lbs. (1123 kg)
Installation information				
Utility connection (fill hose included)	1/2" 45° flare, 6 ft. (1.8 m) stainless steel flexible hose	1/2" 45° flare, 6ft (1.8m) stainless steel flexible hose	1/2" 45° flare, 6ft (1.8m) stainless steel flexible hose	1/2" 45° flare, 6ft (1.8m) stainless steel flexible hose
Electrical	100-230V, 50/60 Hz	100-230V, 50/60 Hz	100-230V, 50/60 Hz	100-230V, 50/60 Hz
LN$_2$ supply tank	Requires 22 psi low pressure supply tank	Requires 22 psi low pressure supply tank	Requires 22 psi low pressure supply tank	Requires 22 psi low pressure supply tank
International plug kit	120V U.S. cord and 230V China cord	120V U.S. cord and 230V China cord	120V U.S. cord and 230V China cord	120V U.S. cord and 230V China cord

Selection Guide

Application	CryoExtra 20	CryoExtra 40	CryoExtra 80	CryoExtra 94
LN2 capacity (capacity under platform)	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) 50mL, Fenwal 4R9951	1,056 (132)	1,876 (268)	3,381 (483)	3,864 (483)
Blood bag capacity (frames) 250mL, Fenwal 4R9953	500 (100)	1,020 (204)	1,910 (382)	1,910 (382)
Blood bag capacity (frames) 500mL, Fenwal 4R9955	410 (82)	791 (158)	1,520 (304)	1,520 (304)
Blood bag capacity (frames) 500mL, Gambro DF-200	340 (68)	552 (138)	1,060 (265)	1,325 (265)
Blood bag capacity (frames) 700mL, Gambro DF-700	220 (44)	320 (80)	656 (164)	820 (164)
Rack Configuration Requirements for Maximum Capacity (Rack Model Number)				
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

Inventory Systems

Cryo Vial Racks For Use With:	CryoExtra 20	CryoExtra 40	CryoExtra 80	CryoExtra 94
Vertical, 2mL, 5 cardboard boxes (100 cell divider)	4000012	4000012	4000012	4000012
Vertical, 2mL, 6 cardboard boxes (100 cell divider)	N/A	N/A	N/A	1950694
Mini, 2mL,13 cardboard boxes (25 cell divider)	1950685	1950685	1950685	1950685
Mini, 2mL,14 cardboard boxes (25 cell divider)	1950871	1950871	N/A	1950871
Mini, 2mL, 15 cardboard boxes (25-cell divider)	1950686	N/A	N/A	1950686
Square, 2mL, 13 cardboard boxes (100 cell divider)	1950696	1950696	1950696	1950696
Square, 2mL, 14 cardboard boxes (100 cell divider)	1950866	1950866	N/A	1950866
Square, 2mL, 15 cardboard boxes (100 cell divider)	1950683	N/A	N/A	1950683
Square, 2mL, 13 stainless steel boxes (100 cell divider)	4000007	4000007	4000007	4000007
Square, 4mL, 8 cardboard boxes (100 cell divider)	4000008	4000008	4000008	4000008
Square, 4mL, 8 stainless steel boxes (100 cell divider)	4000009	4000009	4000009	4000009
Square, 5mL, 7 cardboard boxes (100 cell divider)	4000010	4000010	4000010	4000010
SUC-1, 2, 4, 5mL vial and straw canes with 8 canisters	4000379	4000379	4000379	4000379
Cryo Vial Boxes For Use With:	**CryoExtra 20**	**CryoExtra 40**	**CryoExtra 80**	**CryoExtra 94**
Cardboard, 2mL (100 cell divider)	4000014	4000014	4000014	4000014
Cardboard, 4mL (with a 100 cell divider)	4000015	4000015	4000015	4000015
Cardboard, 5mL (with a 100 cell divider)	4000015	4000015	4000015	4000015
Polycarbonate, 2mL (100 cell divider)	820010	820010	820010	820010
Polycarbonate, 2mL (81 cell divider)	820011	820011	820011	820011
Polycarbonate, 4mL (81 cell divider)	820013	820013	820013	820013
Stainless steel, 2mL (does not include 100 cell divider)	4000238	4000238	4000238	4000238
Stainless steel, 4mL (does not include 100 cell divider)	4000239	4000239	4000239	4000239
Cell dividers for cardboard and stainless steel boxes (100 cell divider)	4000013	4000013	4000013	4000013
Mini cardboard boxes for 2 ml vials	189470	189470	189470	189470
Cell dividers for mini boxes (25-cell)	189387	189387	189387	189387
Thermo Scientific™ Matrix™ and Nunc™ Tube Racks For Use With:	**CryoExtra 20**	**CryoExtra 40**	**CryoExtra 80**	**CryoExtra 94**
Vertical rack for plates measuring 1.022 to 1.944" (2.6 to 5.1 cm) high *(see note 1)*	1950842	1950836	1950836	1950842
Vertical rack for plates measuring 1.55 to 2.15" (3.9 to 5.5 cm) high *(see note 2)*	1950843	1950839	1950839	1950843
Vertical rack for plates measuring 2.3" (5.8 cm) high *(see note 3)*	1950844	1950840	1950840	1950844
Vertical rack for plates measuring 3.78" (9.6 cm) high *(see note 4)*	1950845	1950841	1950841	1950845
Frames For Use With:	**CryoExtra 20**	**CryoExtra 40**	**CryoExtra 80**	**CryoExtra 94**
50mL bag, Fenwal 4R9951, holds 8 cassettes	1950687	N/A	N/A	1950687
50mL bag, Fenwal 4R9951, holds 7 cassettes	4000670	4000670	4000670	4000670
250mL bag, Fenwal 4R5461, holds 5 cassettes	1950688	1950688	1950688	1950688
500mL bag, Fenwal 4R5462, holds 5 cassettes	1950689	1950689	1950689	1950689
500mL bag, Gambro DF-200, holds 4 cassettes	4000368	4000368	4000368	4000368
700mL bag, Gambro DF-700, holds 4 cassettes	4000369	4000369	4000369	4000369
500mL bag, Gabrow DF-200, holds 5 cassettes	1950692	N/A	N/A	1950692
700mL bag, Gabrow DF-700, holds 5 cassettes	1950693	N/A	N/A	1950693
Cassettes For Use With:	**CryoExtra 20**	**CryoExtra 40**	**CryoExtra 80**	**CryoExtra 94**
50mL bag, Fenwal 4R9951 swing arm canister	4000610	4000610	4000610	4000610
250mL bag, Fenwal 4R5461 sliding canister	4000335	4000335	4000335	4000335
500mL bag, Fenwal 4R5462 sliding canister	4000336	4000336	4000336	4000336
500mL bag, Gambro DF-200 sliding canister	4000332	4000332	4000332	4000332
500mL bag, Gambro DF-200 swing arm canister	4000356	4000356	4000356	4000356
700mL bag, Gambro DF-700 sliding canister	4000333	4000333	4000333	4000333
700mL bag, Gambro DF-700 swing arm canister	4000357	4000357	4000357	4000357

1   Matrix™ 200 µl ScrewTop universal tube (tube rack nos. 3747, 3748, 4988). 500 µl storage tubes (3734, 3735, 4898). 500 µl storage tubes with DuraSeal (3736, 3737, 4899). Nunc™ CryoBank™ 0.5 ml storage tubes (374086, 374087)

2   Matrix 0.75 ml storage tubes (3731, 3732, 4896). 0.75 ml storage tubes with DuraSeal (3729, 4896). 500 µl ScrewTop storage tubes (3743, 3744, 3745). 1.4 ml storage tubes (3791, 3792, 4890). 1.4 ml storage tubes with DuraSeal (3801, 4890). 1.4 ml storage tubes with human readable code (3711, 3112, 4890). CryoBank 1.0 ml storage tubes (374088, 374089). 2.0 ml in universal rack, internally threaded (374221, 374223). 1.8 ml in universal rack, externally threaded (374500, 374501).

3   Matrix 1.0 ml ScrewTop storage tubes (3740, 3741, 3742)

4   CryoBank 5.0 ml in universal rack, internally threaded (374220, 374222)

Wireless Monitoring

Thermo Scientific Smart-Vue

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.	Description*
SV201-100-LSB	Thermo Scientific Smart-Vue package for 915 MHz regions
SV201-101-LSB	Thermo Scientific Smart-Vue package for 868 MHz regions
SV201-102-LSB	Thermo Scientific Smart-Vue package for 867 MHz regions
SV201-103-LSB	Thermo Scientific Smart-Vue package for 434 MHz regions

* Smart-Vue for cryogenic storage include 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.

With CryoExtra's built-in access port, Smart-Vue is easy to install and set up

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France +33 2 2803 2180
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Germany international +49 6184 90 6000

India toll free 1800 22 8374
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Japan +81 45 453 9220
Netherlands +31 76 579 55 55
New Zealand +64 9 980 6700
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Russia +7 812 703 42 15
Spain/Portugal +34 93 223 09 18
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Countries not listed: +49 6184 90 6000

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