

Item	Description	Quantity	Accommodates
432034	CoolRack M6, gray	8	6 x 1.5ml or 2.0ml microfuge tubes
432035	CoolRack M6, green	8	6 x 1.5ml or 2.0ml microfuge tubes
432036	CoolRack M6, orange	8	6 x 1.5ml or 2.0ml microfuge tubes
432037	CoolRack M15, gray	4	15 x 1.5ml or 2.0ml microfuge tubes
432038	CoolRack M15, green	4	15 x 1.5ml or 2.0ml microfuge tubes
432039	CoolRack M15, orange	4	15 x 1.5ml or 2.0ml microfuge tubes
432040	CoolRack XT M24	2	24 x 1.5ml or 2.0ml microfuge tubes
432041	CoolRack M30, gray	2	30 x 1.5ml or 2.0ml microfuge tubes
432042	CoolRack M30, green	2	30 x 1.5ml or 2.0ml microfuge tubes
432043	CoolRack M30, orange	2	30 x 1.5ml or 2.0ml microfuge tubes
432046	CoolRack M30-PF 500µl	2	30 x 0.5ml conical microfuge tubes
432047	CoolRack M15-PF	4	15 x 1.5ml conical microfuge tubes
432048	CoolRack M30-PF	2	30 x 1.5ml conical microfuge tubes
432049	CoolRack CF15	4	15 x cryovials or FACS tubes
432050	CoolRack XT CFT24	2	24 x cryovials or FACS tubes
432051	CoolRack CF45	1	45 x cryovials or FACS tubes
432052	CoolRack CFT30	2	30 x cryovials w/ locking wells, or FACS tubes
432053	CoolRack XT PCR96	2	1 x 96-well PCR plate
432054	CoolRack XT M-PCR	2	6 x 1.5ml microfuge tubes and 6 PCR strip wells
432055	CoolRack XT PCR384	2	1 x 384-well PCR plate
432056	CoolRack 96x0.5ml	2	96 x 0.5ml 2D barcode tubes
432057	CoolRack 96x1ml	2	96 x 1.0-1.4ml 2D barcode tubes
432058	CoolRack SV2	2	12 x 5ml standard serum vials

* Requires CoolBox 2XT Extension Collar (Item no. 432087, 432088, 432089 or 432090) for lid closure.

** Lid closure not possible even with addition of extension collar.

Item	Description	Quantity	Accommodates
432059	CoolRack SV10	2	12 x 10ml standard serum vials
432060	CoolRack XT 5ml	2	12 x 5.0ml microfuge tubes
432061*	CoolRack 15ml	2	9 x 15ml centrifuge tubes
432062*	CoolRack 50ml	2	4 x 50ml centrifuge tubes
432063**	CoolRack 250ml-PF	2	1 x Corning 250ml centrifuge tube (#430776)
432064*	CoolRack 250ml-B	2	1 x Corning 250ml Easy Grip Storage Bottle (#430281)
432065*	CoolRack VS13	2	9 x 13x75mm Vacutainer tubes
432066*	CoolRack V16	2	9 x 16x100mm Vacutainer tubes
432067*	CoolRack V13	2	9 x 13x100mm Vacutainer tubes
432068*	CoolRack L	2	12 x 15ml centrifuge tubes, insulated, lightweight
432069*	CoolRack LV	2	12 x 13mm or 16mm Vacutainer tubes, insulated, lightweight
432070	CoolSink XT 96F	2	1 x 6-, 12-, 24-, 48-, 96-well flat-bottom plate
432071	CoolSink XT 96U	2	1 x 96-well u-bottom plate
432072	CoolSink LX55	2	1 x 55ml reagent reservoir

CoolBox™ 2XT cooling and freezing cores

432081	XT cooling core	2	
432082	XT freezing core	2	

CoolBox™ 2XT extension collars

432087	Extension collar, for CoolBox 2XT, purple	1	
432088	Extension collar, for CoolBox 2XT, green	1	
432089	Extension collar, for CoolBox 2XT, orange	1	
432090	Extension collar, for CoolBox 2XT, pink	1	

Overview of CoolBox™ 2XT System

CoolBox 2XT is designed for maintaining sample temperatures below 4°C on the bench top without the use of wet ice or electricity. Patent-pending dual-phase conductive XT Cooling Core or XT Freezing Core provides the cooling source when a thermo-conductive CoolRack® or CoolSink® tube or plate module is placed on top. The core and sample module in combination ensure uniform well-to-well temperature throughout the cooling period regardless of sample position. For a list of CoolRack and CoolSink modules that are compatible with the CoolBox 2XT System, see back page.

Temperature Range	Cooling Source	Duration* (Open Lid)	Duration* (Closed Lid)
0.5° to 4°C	XT Cooling Core	Over 10 hours	Over 16 hours
-20° to 0°C	XT Freezing Core	Over 5 hours	Over 8 hours
-78°C	200 mL Dry Ice	Over 4 hours	Over 5 hours

*All tests were performed using a CoolRack® XT M24 loaded with 24 2.0 mL microcentrifuge tubes filled with 1.5 mL water. Actual performance may vary depending upon CoolRack module employed, sample load, initial sample temperature, ambient temperature, air currents, and other conditions.

Quick Start

- Remove two XT Cooling Cores from -20°C freezer and place on bench.
- When temperature strip on XT Cooling Core registers 1°C, place CoolRack® or CoolSink® sample modules in the CoolBox™ 2XT base and place collar on top.
- Load samples in CoolRack or CoolSink modules.

⚠ CAUTION:

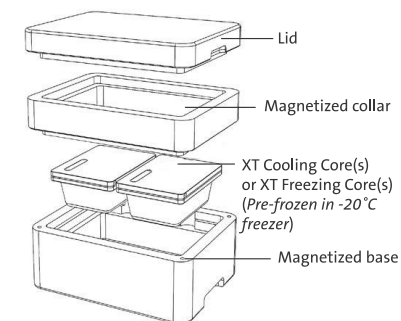
- Lift CoolBox 2XT from the bottom using the handholds on the sides.
- Always use two hands when carrying or lifting CoolBox 2XT.
- Avoid touching the top metal surface of the XT Cooling Core and XT Freezing Core when removing from freezer.

IMPORTANT: To ensure optimal use, please refer to the detailed instructions that follow.

Assembly of CoolBox™ 2XT

The CoolBox 2XT system consists of a closed-cell, cross-linked polyethylene foam base, collar, lid and two reusable XT Cooling Cores, and is meant to be used in conjunction with CoolRack® or CoolSink® tube or plate modules. When placed on top of the XT Cooling or Freezing Core, the modules rapidly equilibrate to the temperature of the XT Core. To obtain the maximum cooling duration, we recommend using the collar whenever possible.

- Remove frozen XT Cooling Cores from the freezer and place on benchtop for approximately 10-15 minutes. When the temperature indicator displays 1°C, Cores are ready to use. *Note: Frost will form on the core exterior upon removal from the freezer; when the frost liquifies, the core is at proper temperature.*
- Place two frozen XT Cooling Cores into base.
- Fit magnetized collar onto base, seating it securely.
- Place CoolRack® or CoolSink® modules of choice onto XT Cooling Cores.
- Load samples.
- Place lid on CoolBox 2XT when not processing samples to maximize cooling duration.



Using XT Cooling Core

Temperature Range	Cooling Source	Duration (Open Lid)	Duration (Closed Lid)
0.5° to 4°C	XT Cooling Core	Over 10 hours	Over 16 hours

Maintaining samples at 0.5° to 4°C

Freeze XT Cooling Core in a -20°C freezer for at least 12 hours. XT Cooling Core should be stored in -20°C freezer when not in use so it is ready when needed. *Note: Freezing XT Cooling Core for less than the specified time will result in decreased cooling duration.*

When using room temperature CoolRack® or CoolSink® modules

- Remove two XT Cooling Cores from the freezer and place into base.
- Fit magnetized collar onto base, seating it securely.
- Place CoolRack® or CoolSink® modules directly onto cores and allow to equilibrate to 4°C (approximately 10-15 minutes).
- Load samples.
- Place lid on CoolBox 2XT when not processing samples to maximize cooling duration.

When using pre-chilled (1°C or less) CoolRack® or CoolSink® modules

- Remove XT Cooling Cores from the freezer and place on benchtop for approximately 10 minutes. When the temperature indicator displays 1°C, XT Cooling Core is ready to use.

IMPORTANT: Failure to allow XT Cooling Cores to reach 1°C may result in undesired sample freezing.

- Place XT Cooling Cores into base.
- Fit magnetized collar onto base, seating it securely.
- Place the CoolRack or CoolSink modules of choice onto the core. No equilibration time is needed.
- Load samples.
- Place lid on CoolBox 2XT when not processing samples to maximize cooling duration.

Using XT Freezing Core

Temperature Range	Cooling Source	Freezer	Duration (Open Lid)	Duration (Closed Lid)
-20° to 0°C	XT Freezing Core	-20°C	Over 5 hours	Over 8 hours
-20° to 0°C	XT Freezing Core	-80°C	Over 8 hours	Over 12 hours

Maintaining samples at -20° to 0°C

Freeze XT Freezing Core in a -20°C freezer for at least 12 hours, or for a faster start, freeze in a -80°C freezer for at least 6 hours. Freezing in a -80°C freezer also prolongs cooling duration. XT Freezing Core should be stored in a -20°C or -80°C freezer when not in use so it is ready when needed. *Note: Freezing XT Freezing Core for less than the specified time will result in decreased cooling duration.*

When using room temperature CoolRack® or CoolSink® modules

- Remove XT Freezing Core from the freezer and place into base.
- Fit magnetized collar onto the base, seating it securely.
- Place the room temperature CoolRack or CoolSink modules of choice onto core and allow to equilibrate to 0°C (approximately 10 minutes).
- Load samples.
- Place lid on CoolBox 2XT when not processing samples to maximize cooling duration.

When using pre-chilled (1°C or less) CoolRack® or CoolSink® modules

- Remove XT Freezing Core from the freezer and place into base.
- Fit magnetized collar onto the base, seating it securely.
- Place the CoolRack or CoolSink modules of choice onto core.
- Load samples.
- Place lid on CoolBox 2XT when not processing samples to maximize cooling duration.

Using Dry Ice as cooling source

Temperature Range	Cooling Source	Duration (Open Lid)	Duration (Closed Lid)
-78°C	200 mL dry ice	Over 4 hours	Over 5 hours

Maintaining or snap-freezing samples at -78°C

- Remove XT Cooling or Freezing Cores from the CoolBox™ 2XT base.
- Fill the base with approximately 200 mL of pulverized dry ice.
- Fit magnetized collar onto the base, seating it securely.
- Place the CoolRack or CoolSink modules directly onto dry ice and allow modules to equilibrate to dry ice temperature -78°C (approximately 7-8 minutes).
- Load samples.
- If snap-freezing, freezing will occur in 7-10 minutes depending upon sample volume and type.

Note: The thermo-conductive design of CoolRack® and CoolSink® modules ensures uniform well-to-well temperature regardless of the consistency of the dry ice.

Care and Cleaning

The CoolBox™ 2XT housing is constructed from a cross-linked, closed-cell polyethylene foam. The material has excellent resistance to fluid absorption and abrasion. Do not use the CoolBox 2XT base for pulverizing dry ice. Maximum temperature exposure: 60°C. Avoid prolonged exposure to UV light sources.

All components including housing, XT Cooling Core and optional XT Freezing Core are compatible with repeated and prolonged ultra-low temperature exposure. All components can be cleaned with aqueous detergents, alcohol, 10% bleach, and acid/base viricide (such as Virkon S) solutions. Rinse with clear water after using cleaning solutions. Do not autoclave components of CoolBox™ 2XT system. CoolRack® and CoolSink® sample modules may be autoclaved, or cleaned with alcohol.

Dimensions (L x W x H)

Interior (with XT Cooling Core in base): 21.0 x 14.3 x 13.4 cm / 8.3 x 5.6 x 5.3 in
Exterior: 26.5 x 20.0 x 15.0 cm / 10.4 x 7.9 x 6.3 in

⚠ CAUTION: *The products described here are intended for the exclusive use by trained and experienced laboratory and medical personnel. Use of dry ice can be dangerous. Direct skin contact with dry ice or metal components that have been in contact with dry ice can cause freezing injury. Always use appropriate protective equipment for eyes and skin when handling dry ice and cold metal components.*

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