

Corning® CoolBox® XT System

Instructions for Use

Overview of Corning® CoolBox™ XT System

The Corning CoolBox XT is designed for maintaining sample temperatures below 4°C on the bench top without the use of wet ice or electricity. The proprietary dual-phase conductive Corning XT Cooling Core or Corning XT Freezing Core provides the cooling source when a thermo-conductive Corning CoolRack® or Corning 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 XT, see back page.

Cooling Source	Temperature Range	Duration* (Open Lid)	Duration* (Closed Lid)
XT Cooling Core	0.5°C to 4°C	Over 10 hours	Over 16 hours
XT Freezing Core	-20°C to 0°C	Over 5 hours	Over 8 hours
200 mL Dry Ice	-78°C	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 the CoolRack module employed, sample load, initial sample temperature, ambient temperature, air currents, and other conditions.*

Quick Start

- ▶ Remove the XT Cooling Core from a -20°C freezer and place on the bench top.
- ▶ When temperature strip on the XT Cooling Core registers 1°C, place the CoolRack or CoolSink sample module in the CoolBox XT base and place the magnetized collar on top.
- ▶ Load samples in the CoolRack or CoolSink modules.

⚠ CAUTION:

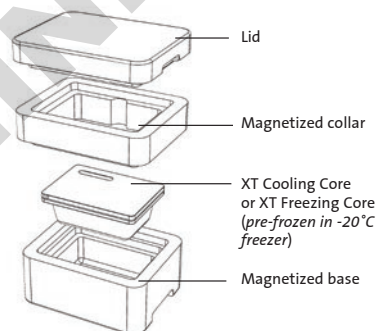
- ▶ *Lift the CoolBox XT from the bottom using the handholds on the sides.*
- ▶ *Always use two hands when carrying or lifting the CoolBox XT.*
- ▶ *Avoid touching the top metal surface of the XT Cooling Core and XT Freezing Core when removing from the freezer.*

IMPORTANT: To ensure optimal use, refer to the following detailed instructions.

Assembly of the CoolBox XT System

The CoolBox XT System consists of a closed-cell, cross-linked polyethylene foam base, magnetized collar, lid, and a reusable XT Cooling Core, and is meant to be used in conjunction with a CoolRack or CoolSink tube or plate module. 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.

1. Remove the frozen XT Cooling Core from the freezer and place on the bench top for approximately 10 to 15 minutes. When the temperature indicator displays 1°C, the Core is 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.
2. Place the XT Cooling Core into the base.
3. Fit the magnetized collar onto the base, seating it securely.
4. Place the CoolRack or CoolSink module onto the XT Cooling Core.
5. Load samples.
6. Place the lid on the CoolBox XT when not processing samples to maximize cooling duration.



Using a Corning® XT Cooling Core

Temperature Range	Cooling Source	Duration (Open Lid)	Duration (Closed Lid)
0.5°C to 4.0°C	XT Cooling Core	Over 10 hours	Over 16 hours

Maintaining samples at 0.5°C to 4°C

Freeze the Corning XT Cooling Core in a -20°C freezer for at least 12 hours. The XT Cooling Core should be stored in a -20°C freezer when not in use so it will be ready when needed. **(Do not freeze at -80°C.)**

Note: Freezing the XT Cooling Core for less than the specified time will result in decreased cooling duration.

When using a room temperature Corning CoolRack® or Corning CoolSink® module

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

When using a pre-chilled (1°C or less) CoolRack or CoolSink module

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

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

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

Using a Corning XT Freezing Core

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

Maintaining samples at -20°C to 0°C

Freeze the 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. The XT Freezing Core should be stored in a -20°C or -80°C freezer when not in use so it will be ready when needed.

Note: Freezing the XT Freezing Core for less than the specified time will result in decreased cooling duration.

When using a room temperature CoolRack or CoolSink module

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

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

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

Using Dry Ice as a 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 the Corning XT Cooling or Freezing Core from the CoolBox XT base.
- Fill the base, with approximately 200 mL of pulverized dry ice. **(Do not crush the ice in the CoolBox base.)**
- Fit magnetized collar onto the base, seating it securely.
- Place the CoolRack or CoolSink module directly onto the dry ice and allow the module to equilibrate to dry ice temperature -78°C (approximately 7 to 8 minutes).
- Load samples.
- If snap-freezing, freezing will occur in 7 to 10 minutes, depending upon the sample volume and type.

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

Care and Cleaning

The CoolBox XT housing is constructed from a cross-linked, closed-cell polyethylene foam. The material has excellent resistance to fluid absorption and abrasion. Do not crush the ice in the CoolBox XT base. Maximum temperature exposure is 60°C. Avoid prolonged exposure to ultraviolet (UV) light sources.

All components including housing, the XT Cooling Core, and optional XT Freezing Core are compatible with repeated and prolonged cryogenic 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. CoolRack and CoolSink sample modules may be autoclaved, or cleaned with alcohol.

Dimensions (L x W x H)

Interior (with the XT Cooling Core in base):
5.5 x 3.7 x 3.9 in. (14.0 x 9.4 x 9.9 cm)

Exterior:
7.8 x 6.3 x 5.9 in. (20.0 x 16.0 x 15.0 cm)

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.

Corning® CoolRack® and CorningCoolSink® Thermo-Conductive Sample Modules Compatible with CorningCoolBox™ XT

Corning CoolRack Modules

Cat. No.	Description	Qty	Accommodates	Cat. No.	Description	Qty	Accommodates
432034	CoolRack M6, gray	4	6 x 1.5 mL or 2.0 mL microcentrifuge tubes	432063**	CoolRack 250 mL-PF	1	1 x Corning 250 mL centrifuge tube (Cat. No. 430776)
432035	CoolRack M6, green	4	6 x 1.5 mL or 2.0 mL microcentrifuge tubes	432064*	CoolRack 250 mL-B	1	1 x Corning 250 mL Easy Grip Storage Bottle (Cat. No. 430281)
432036	CoolRack M6, orange	4	6 x 1.5 mL or 2.0 mL microcentrifuge tubes	432065*	CoolRack VS13	1	9 x 13 x 75 mm blood tubes
432037	CoolRack M15, gray	1	15 x 1.5 mL or 2.0 mL microcentrifuge tubes	432066*	CoolRack V16	1	9 x 16 x 100 mm blood tubes
432038	CoolRack M15, green	1	15 x 1.5 mL or 2.0 mL microcentrifuge tubes	432067*	CoolRack V13	1	9 x 13 x 100 mm blood tubes
432039	CoolRack M15, orange	1	15 x 1.5 mL or 2.0 mL microcentrifuge tubes	432068*	CoolRack L	1	12 x 15 mL centrifuge tubes, insulated, light weight
432040	CoolRack XT M24	1	24 x 1.5 mL or 2.0 mL microcentrifuge tubes	432069*	CoolRack LV	1	12 x 13 mm or 16 mm blood tubes, insulated, light weight
432047	CoolRack M15-PF	1	15 x 1.5 mL conical microcentrifuge tubes				
432049	CoolRack CF15	1	15 x cryogenic vials or FACS tubes				
432050	CoolRack XT CFT24	1	24 x cryogenic vials or FACS tubes				
432053	CoolRack XT PCR96	1	1 x 96-well PCR microplate				
432054	CoolRack XT M-PCR	1	6 x 1.5 mL microcentrifuge tubes and 6 PCR strip wells				
432055	CoolRack XT PCR384	1	1 x 384-well PCR microplate				
432056	CoolRack 96 x 0.5 mL	1	96 x 0.5 mL 2D bar code tubes				
432057	CoolRack 96 x 1 mL	1	96 x 1.0 to 1.4 mL 2D bar code tubes				
432058	CoolRack SV2	1	12 x 5 mL sample vials				
432059	CoolRack SV10	1	12 x 10 mL sample vials				
432060	Cool Rack XT 5 mL	1	12 x 5.0 mL microcentrifuge tubes				
432061*	CoolRack 15 mL	1	9 x 15 mL centrifuge tubes				
432062*	CoolRack 50 mL	1	4 x 50 mL centrifuge tubes				

Corning CoolSink Modules

432070	CoolSink XT 96F	1	1 x 6-, 12-, 24-, 48-, 96-well flat-bottom microplate
432071	CoolSink XT 96U	1	1 x 96-well U-bottom microplate

Corning CoolBox XT Cooling and Freezing Cores

432081	XT Cooling Core	1	—
432082	XT Freezing Core	1	—

Corning CoolBox™ XT Extension Collars

432083	Extension collar, for CoolBox XT, purple	1	—
432084	Extension collar, for CoolBox XT, green	1	—
432085	Extension collar, for CoolBox XT, orange	1	—
432086	Extension collar, for CoolBox XT, pink	1	—

*Requires CoolBox XT Extension Collar (Cat. No. 432083, 432084, 432085, or 432086) for lid closure.

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

Warranty/Disclaimer: Unless otherwise specified, all products are for research use only. Not intended for use in diagnostic or therapeutic procedures. Corning Life Sciences makes no claims regarding the performance of these products for clinical or diagnostic applications.

For additional product or technical information, visit www.corning.com/lifesciences or call 800.492.1110. Outside the United States, call +1.978.442.2200 or contact your local Corning sales office.

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