

## Product Overview

Credo Cube® containers consist of highly durable patented components providing thermal performance that meets ISTA 3A transit criteria, thereby delivering accurate, long-lasting, temperature control with extended reusability and enhanced operational efficiency.

Innovative Thermal Isolation Chamber (TIC® System) panels with integrated -20°C phase-change material surround the payload, providing greater thermal performance and overall payload protection.

Modular design provides greater efficiency in freezer storage space needed and simplicity in preconditioning and pack-out.

**Nested product configuration is available for longer duration requirements (see Page 3).**

## Credo Cube® Benefits at a Glance:

- ❖ Easy quick assembly and a single simple pack-out for all seasons.
- ❖ Reusable patented technology that is recyclable reducing environmental impact.
- ❖ Enhanced performance and proven payload protection eliminates temperature excursions.
- ❖ Reduces overall distribution costs.
- ❖ Longevity of components = lowest cost per use.

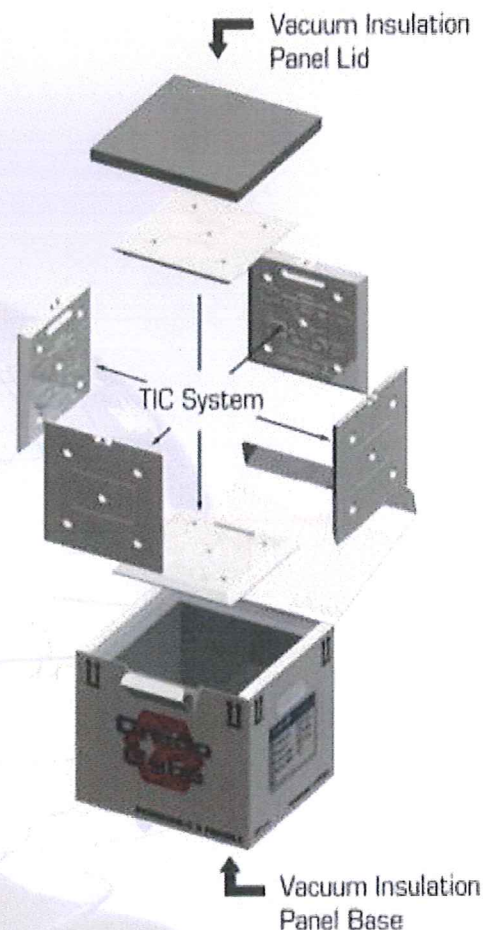
**Reduce payload risk.**  
**Reduce distribution costs.**  
**Reduce environmental impact.**



## Contact Information:

Minnesota Thermal Science  
 3020 Niagara Lane N • Plymouth, MN 55447  
 (877) 537.9800 • [www.mnthermalscience.com](http://www.mnthermalscience.com)

## Standard Product Configuration



## Ensuring Consistent Performance

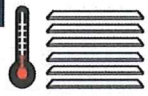
- ✓ Always precondition TIC System before use according to instructions provided in this User Guide beginning on page 2.
- ✓ Ensure all components are clean and free from damage.
- ✓ Follow assembly instructions printed on inside lid of box outer and included on Page 2 & 3 of this guide.
- ✓ After packing payload, avoid unnecessary opening of container.
- ✓ Ensure both TIC lid and VIP lid components are secure before sealing for transport.



# USING YOUR CREDO THERMAL PACKAGING SOLUTION (Standard)

2

1

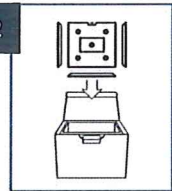


-65°C – 24 hrs

## Condition the TIC® System

- Pull open the tab on the front of the corrugate box (or open latches if applicable) and remove the insulator lid in order to expose the TIC® panels. Remove the TIC® System (6 panels) from the insulator base.
- Place the TIC® system in a -65°C freezer, or below for a minimum of 24 hours. Ensure that the TICs are laid flat. Freeze time may vary depending on the amount of units being frozen and equipment specifications. The TIC system may be conditioned in a freezer as warm as -25°C but the conditioning time must be increased. To ensure TIC is fully frozen, shake panel to assure no liquid can be heard.

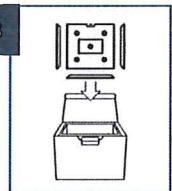
2



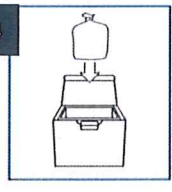
## Assemble TIC base

- Insert a TIC panel into the insulator base with the Credo Cube® logo embossment facing up.
- Add 4 TIC panels to form the side walls with the Credo Cube® logo embossment facing inward.

3



4



## Load Payload

- Ensure payload (product being insulated) is preconditioned at -18°C or colder before loading into the five (5) TIC panel assembly listed above. Do not over pack.
- Add non-insulating filler to occupy empty payload space to prevent contents from shifting during transit.
- Place the final TIC panel over the payload area, making sure the panel lies flat and level without forcing down on the TIC side walls.

5



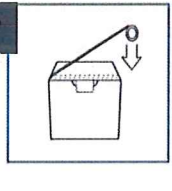
6



## Insert Insulator Lid

- Place the insulator lid over the TIC system ensuring it rests flat and level without force.

7

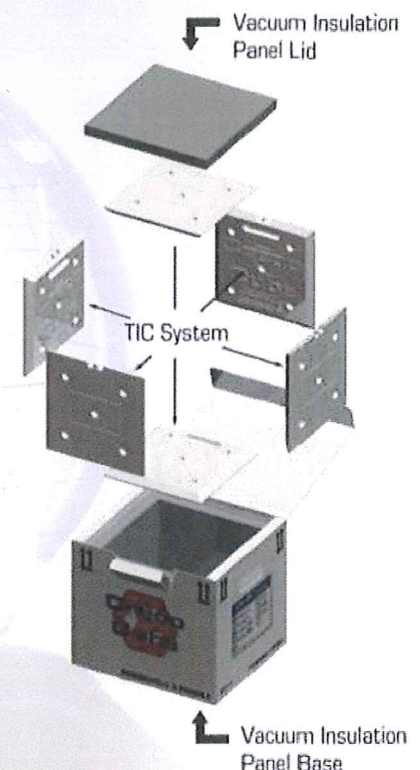


## Close and secure outer container

- Close and secure outer box (corrugated or plastic) with packing tape where indicated.



- **For Hard Case Outers Only:** Secure latches and use security loop with tamper-proof tie or tag to ensure container is not opened during shipment.

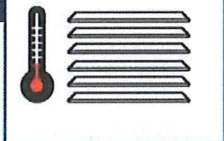




# USING YOUR CREDO® THERMAL PACKAGING SOLUTION – (2" VIP - Nested Configuration)

3

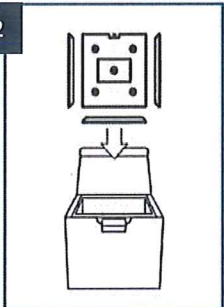
1



## Precondition the TIC® System

- Pull open the tab on the front of the corrugate box (or open latches if applicable) and remove the outer insulator lid in order to expose the inner insulator assembly.
- After removing the outer insulator lid, remove the four white corner retention blocks along with the inner insulation lid to expose the 6 TIC® panels in the inner insulator base. Remove the TIC® System (6 panels) from the inner insulator base.
- Place the TIC® system in a -65°C freezer, or below for a minimum of 24 hours. Make sure that the TICs are laid flat. Freeze times may vary depending on the quantity of units being frozen and equipment specifications. The TIC system may be conditioned in a freezer as warm as -25°C but the conditioning time will need to be increased. To ensure TIC is fully frozen, shake panel to ensure no liquid can be heard.

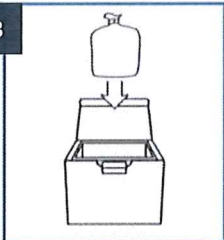
2



## Assemble TIC base

- Insert a TIC panel into the inner insulator base in nested configuration with the Credo Cube® embossed logo facing up.
- Add 4 TIC panels to form the side walls with the Credo Cube® embossed logo facing inward.

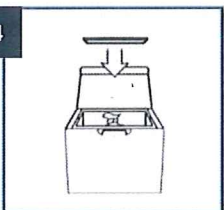
3



## Load Payload

- Ensure payload (product to be insulated) is preconditioned at -18°C or colder before loading into the 5 TIC panel assembly listed above. Do not over pack.
- Add non-insulating filler to occupy empty payload space to prevent contents from shifting during transit.

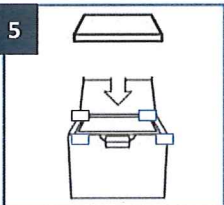
4



## Insert TIC Lid

- Place the final TIC panel over the payload area, making sure the panel lies flat and level without forcing down on the TIC side walls.

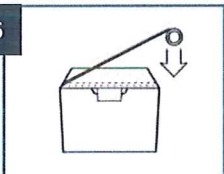
5



## Insert Insulator Lids

- Install the four white corner blocks making sure they do not protrude above the outer insulator base assembly.
- Place the outer insulator lid on top of the four white corner blocks making sure it rests flat and level with the outer insulator base without forcing.

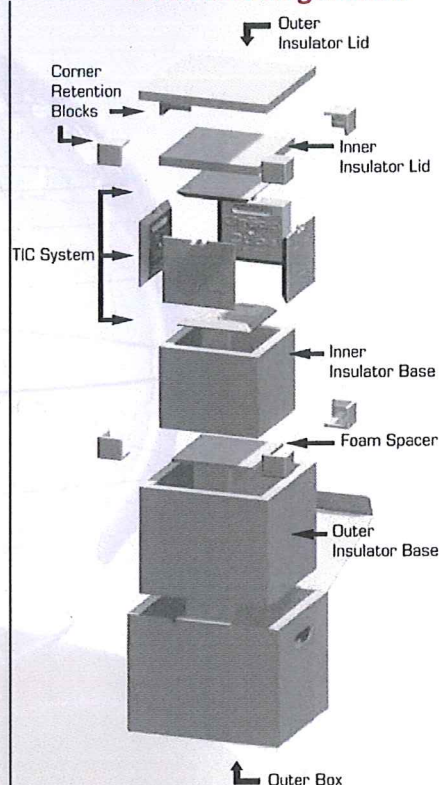
6



## Close and secure outer container

- Close and secure outer box (corrugated or plastic) with packing tape where indicated.
- **For Hard Case Outers Only:** Secure latches and use security loop with tamper-proof tie or tag to ensure container is not opened during shipment.

## Nested Configuration





### How to Clean Credo Components

- TIC® System (6 panels): The TIC panels can be cleaned using warm water and soap or alcohol. Sanitization can be performed using isopropyl alcohol and water mixture (typically 70/30 alcohol to water mix) or other plastic-safe disinfectants.
- Insulator lid and base: Insulator lid and base can be cleaned using a damp towel with soap or a rag with isopropyl alcohol.
- Plastic corrugated outer box: Plastic outer box can be cleaned using a damp towel with a non-abrasive soap or a rag with isopropyl alcohol.
- **DO NOT:**
  1. Autoclave any of the components.
  2. Use any organic solvents such as acetone or methyl ethyl ketone (MEK) on any of the components.
  3. Expose any of the TIC components or insulator to extreme heat (+75° C or above).
  4. Use any abrasive cleaners on any of the components.
- Please contact Minnesota Thermal Science for verification if your preferred method is not listed

### How to Perform a Thermal and/or Transit Qualification

Minnesota Thermal Science offers thermal and transit qualification services per industry standards via our thermal laboratory procedures. If you choose not to utilize our services, we offer NIST traceable PC-based temperature data loggers that fit inside the container and provide accurate, continuous time and temperature data in excel format. We recommend that you reference and follow ISTA procedure 5B, ISTA procedure 7D or 7E, which are ASTM D3103 compliant to guide you through your thermal testing process and also reference and follow ISTA procedure series 1, 2 or 3, or ASTM D4169 to guide you through your transit testing. Many of our units are already transit tested to ISTA procedure 3A. The applicable certification can be found on the bottom of the box.

### How to Inspect and Replace Vacuum Insulation Panels (VIPs)

The VIPs (Vacuum Insulation Panels) in Credo® containers are extremely effective as long as they hold an internal vacuum. Inspect VIP lid and VIP base surfaces to ensure they are sealed tightly. An indicator of a compromised panel is a loss of rigidity and loosened exterior skin. A loose skin or non-rigid panel indicates vacuum loss and the VIP component should be returned for recycling (refer to page 6 for additional instructions). Avoid removing VIP base unless outer corrugated box or VIP is damaged and needs replacement. The VIP lid and base should be replaced before the expiration date which is printed on each panel.

### In-Transit Freezer Hold

In the event of an unexpected or planned delay during transit, the shippers can be placed in a freezer environment (between -15° and -25°C or colder). By freezing the shippers you have essentially “stopped the clock” and the shipping container can be held for extended time in that state while maintaining the payload’s operating temperature. This will preserve your payload should you experience a customs or other form of delivery delay.

**Call 1-877-537-9800 for replacement components.**



**Infrared Thermometer (IR gun)**

MTS offers an Infrared temperature thermometer for an accurate, quick, and easy reading of the temperature of the TIC system and your product. The IR gun can display in Celsius or Fahrenheit and has a response time of less than one second. It has an accuracy of  $\pm 1^{\circ}\text{C}$  and a temperature resolution of  $0.1^{\circ}\text{C}$ . The IR gun also comes equip with a laser for accurate aiming. The IR gun is calibrated to NIST standards and the manufacture offers a three point calibration certificate for an additional charge.

**Procedure:**

The Infrared Temperature Thermometer is easy to use. Simply hold the gun about six inches away from your target, squeeze the trigger while aiming the laser dot where you want to read the temperature. When you release the trigger the temperature will display for an additional four seconds. MTS recommends taking TIC temperature readings from the side of the center standoff.





## End of Life Component Recycling Program

Minnesota Thermal Science proudly offers a convenient, complimentary recycling service for all Credo® thermal packaging components. Components are specifically designed for reuse and recycle, reducing overall environmental waste. After extended reuse, components will reach the end of their useful life and can be recycled at any of the locations below. Take the next step...

**REDUCE, REUSE and RECYCLE.**



### Directions:

Please separate TIC panels from the VIP insulators and the outer containers. Outer containers can be sent with the VIP assemblies to the VIP Recycling Centers. Outers can also be recycled in-house. Securely palletize the load and clearly mark on every pallet the recycling center header and address as listed below.

### COMPONENT DROP OFF LOCATIONS:

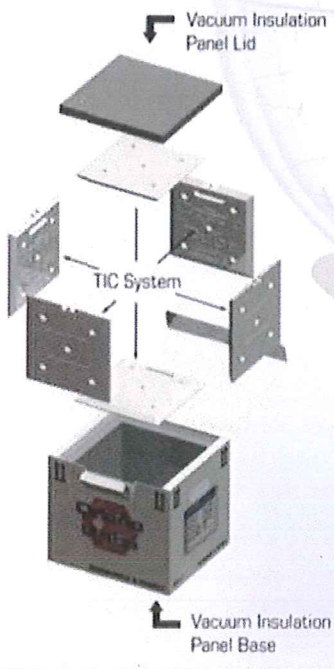
#### VIP RECYCLING DROP OFF CENTER

Minnesota Thermal Science  
3721 Spirit Drive SE  
Albuquerque, NM 87106

#### INTERNATIONAL VIP RECYCLING DROP OFF CENTER

Minnesota Thermal Science  
The factory, Rectory Lane  
Brimfield, Shropshire SY8 4NX United Kingdom

**\*NOTE:** Client is responsible for freight.



For more information visit  
[www.mnthermalscience.com](http://www.mnthermalscience.com)  
or call **877.537.9800**





# SERIES 20M CREDO SHIPPER SPECIFICATIONS MATRIX 7

Product Name	Temperature Range	Payload Dimensions (LxWxH)	Volumetric Capacity	Outer Dimensions (LxWxH)	Tare Weight	Performance X = Testing currently not available			
Description	°C	Millimeters	Liters	Millimeters	Kilo-grams	ISTA Summer No Load	ISTA Winter No Load	ISTA Summer With Load	ISTA Winter With Load
Series 20M 472	Sub -18°C	152.4 x 152.4 x 152.4	4	276.23 x 250.83 x 241.3	6.35	64.92	X	60.58	X
Series 20M 496	Sub -18°C	152.4 x 152.4 x 152.4	4	317.5 x 266.7 x 266.7	9.07	85.92	160+	94.42	120+
Series 20M 1296	Sub -18°C	228.6 x 228.6 x 228.6	12	381 x 330.2 x 342.9	11.79	89.00	X	91.75	X
Series 20M 1696	Sub -18°C	254 x 254 x 254	16	400.1 x 355.6 x 358.78	14.51	95.33	X	120.42	X
Series 20M 1696 DuraCUBE	Sub -18°C	254 x 254 x 254	16	444.5 x 444.5 x 409.6	15.33	X	X	X	X
Series 20M 2896	Sub -18°C	304.8 x 304.8 x 304.8	28	457.2 x 419.1 x 431.8	19.05	94.08	X	113.83	X
Series 20M 5696	Sub -18°C	381 x 381 x 381	56	533.4 x 495.3 x 501.65	24.85	122.83	X	X	X
Series 20M 9696	Sub -18°C	457.2 x 457.2 x 457.2	96	685.8 x 685.8 x 660.4	63.39	140	X	X	X

## Series 20M - 2" VIP (Nested Configuration)

Series 20M 12168	Sub -18°C	228.6 x 228.6 x 228.6	12	444.5 x 406.4 x 406.4	14.51	155.33	X	192.08	170+
Series 20M 16168	Sub -18°C	254 x 254 x 254	16	476.25 x 425.45 x 434.97	18.77	136.58	X	X	X
Series 20M 28168	Sub -18°C	304.8 x 304.8 x 304.8	28	533.4 x 495.3 x 501.65	26.58	183.67	X	220.33	168+
Series 20M 56168	Sub -18°C	381 x 381 x 381	56	685.8 x 685.8 x 660.4	47.60	168.08	X	X	X

Description	°F	Inches	Cubic Inches	Inches	Pounds	ISTA Summer No Load	ISTA Winter No Load	ISTA Summer With Load	ISTA Winter With Load
Series 20M 472	Sub - 0.4F	6 x 6 x 6	216	10.875 x 9.875 x 9.5	14.0	64.92	X	60.58	X
Series 20M 496	Sub - 0.4F	6 x 6 x 6	216	12.5 x 10.5 x 10.5	20.0	85.92	160+	94.42	120+
Series 20M 1296	Sub - 0.4F	9 x 9 x 9	729	15.0 x 13.0 x 13.5	26.0	89.00	X	91.75	X
Series 20M 1696	Sub - 0.4F	10 x 10 x 10	976	15.75 x 14.0 x 14.125	32.0	95.33	X	120.42	X
Series 20M 1696 DuraCUBE	Sub - 0.4F	10 x 10 x 10	976	17.5 x 17.5 x 16.125	33.8	X	X	X	X
Series 20M 2896	Sub - 0.4F	12 x 12 x 12	1728	18.0 x 16.5 x 17.0	42.0	94.08	X	113.83	X
Series 20M 5696	Sub - 0.4F	15 x 15 x 15	3375	21.0 x 19.5 x 19.75	54.8	122.83	X	X	X
Series 20M 9696	Sub - 0.4F	18 x 18 x 18	5858	27.0 x 27.0 x 26.0	139.75	140	X	X	X

## Series 20M - 2" VIP (Nested Configuration)

Series 20M 12168	Sub - 0.4F	9 x 9 x 9	729	17.5 x 16.0 x 16.0	32.0	155.33	X	192.08	170+
Series 20M 16168	Sub - 0.4F	10 x 10 x 10	976	18.5 x 16.75 x 17.125	41.4	136.58	X	X	X
Series 20M 28168	Sub - 0.4F	12 x 12 x 12	1728	21.0 x 19.5 x 19.75	58.6	183.67	X	220.33	168+
Series 20M 56168	Sub - 0.4F	15 x 15 x 15	3375	27.0 x 27.0 x 26.0	105.0	168.08	X	X	X

©Minnesota Thermal Science, LLC 2012

User Guide  
Reference Chart



For more information visit  
[www.mnthermalscience.com](http://www.mnthermalscience.com) or  
**call 877.537.9800**

