

Product Overview

Credo Cube® shippers consist of durable components that meet ISTA 3A transit criteria thereby delivering accurate, long-lasting temperature control allowing for high quality use and look with enhanced operational efficiency.

Innovative TIC® System (Thermal Isolation Chamber) panels with integrated 4°C phase-change material surround the payload, providing greater temperature performance and overall payload protection.

Modular design provides efficiency in storage 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 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.

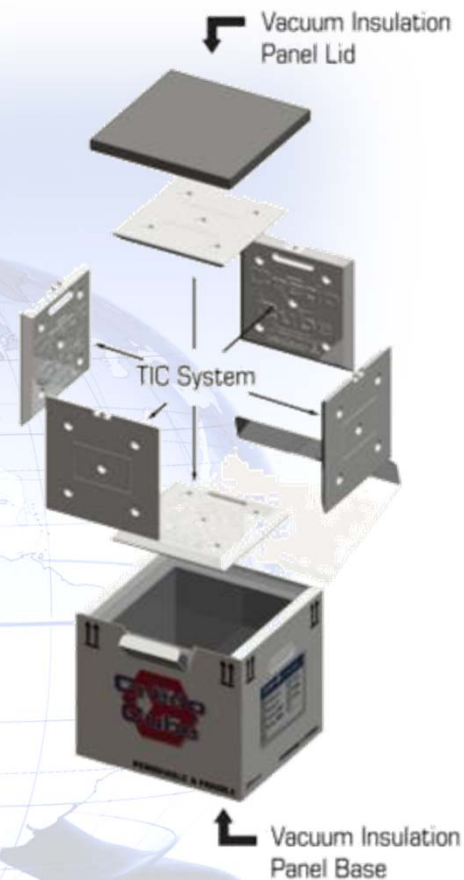


Contact Information:

Pelican BioThermal
3020 Niagara Lane N • Plymouth, MN 55447
(877) 537.9800 • www.pelicanbiothermal.com

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Standard Product Configuration



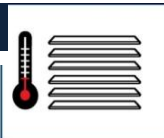
Ensuring Consistent Performance

- ✓ 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.
- ✓ After loading, avoid unnecessary opening of container.
- ✓ Ensure both TIC lid and VIP lids are secure before sealing for transport.

USING YOUR CREDO THERMAL PACKAGING SOLUTION (Standard)

2

1



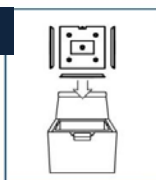
-18°C – 24 hrs

Precondition the TIC® System

- Remove TIC® (Thermal Isolation Chamber) System by pulling open the tab on the front of the corrugate box (or open latches if hard case outer) and removing the insulator lid in order to remove the 6 panels from the insulator base.

- Place the TIC® system in a -18°C freezer, or below for a minimum of 24 hours. Ensure that the TICs lay flat. Freeze times may vary depending on amount of units being frozen and equipment specifications. To ensure TIC was fully frozen, shake panel to verify no liquid can be heard.

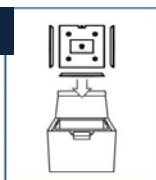
2



Pack Out Preparation

- After freezing, be certain to carefully perform one of the Pack Out Options explained in Pages 5-7.

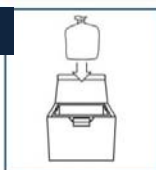
3



Assemble TIC base

- Insert a TIC panel into the insulator base (inner insulator in nested configuration) 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.

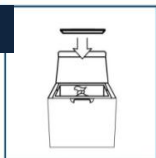
4



Load Payload

- Ensure payload (product to be shipped) is preconditioned at 5°C (+/- 3°C) before loading into the five (5) TIC panel assembly listed above. Do not over pack.
- Add non-insulating filler to fill empty payload space to prevent contents from shifting during transit.
- Place the final TIC panel over the payload area, ensuring the panel lies flat and level without forcing onto the TIC side walls.

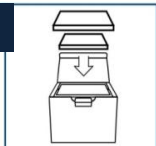
5



Insert Insulator Lid(s)

- Place the insulator lid over the TIC system making sure it rests flat and level without forcing.

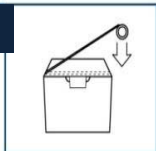
6



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.

7

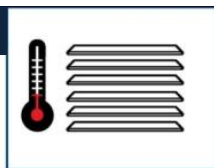


NOTE: In the unlikely event that the container may be exposed to extreme cold conditions (50% or more of the transit time), precondition as follows: Place the TIC® System in a refrigerator between 4° and 8°C for 4 to 12 hours. Verify that the PCM is liquid by shaking. Refer to www.pelicanbiothermal.com for additional instructions.

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

3

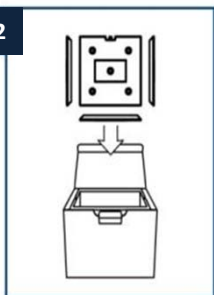
1



Precondition the TIC® System

- Remove TIC® (Thermal Isolation Chamber) System by pulling open the tab on the front of the corrugate box (or open latches if hard case outer) and removing the insulator lid and remove the 6 panels from the insulator base.
- After removing the outer insulator lid, remove the four white corner retention blocks along with the inner insulation lid to expose the 6 panels in the inner insulator base.
- Place the TIC° system in a -18°C freezer (or colder) for a minimum of 24 hours, until frozen hard. Ensure TIC components lay flat. Freeze times may vary depending on amount of units being frozen and equipment specifications. To ensure TIC was fully frozen, shake panel to verify no liquid can be heard.

2



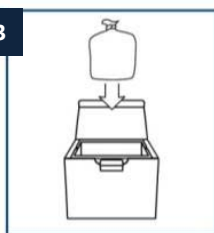
Pack Out Preparation

- After freezing, be certain to carefully perform one of the Pack Out Options explained in Pages 5-7.

Assemble TIC base

- Insert a TIC panel into the insulator base (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.

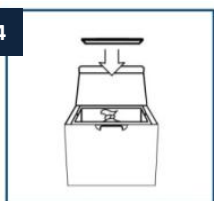
3



Load Payload

- Ensure payload (product to be shipped) is preconditioned at 5° C (±3°C) before loading into the 5 TIC panel assembly listed above. Do not over pack.
- Add non-insulating filler to fill empty payload space to prevent contents from shifting during transit.

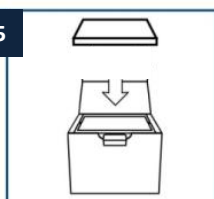
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Insert TIC Lid

- Place the final TIC panel over the payload area, ensuring the panel lies flat and level without forcing onto TIC side walls.

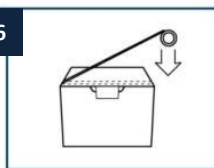
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Insert Insulator Lid(s)

- Place the insulator lid over the TIC° system making sure it rests flat and level without forcing.
- Place the inner insulator lid over the TIC° system making sure it rests flat and level without forcing. Install the four white corner blocks ensuring the cube logo is facing upwards. Ensure that all four blocks do not protrude above the outer insulator base assembly. Place the outer insulator lid onto the outer insulator base making sure it rests flat and level without forcing.

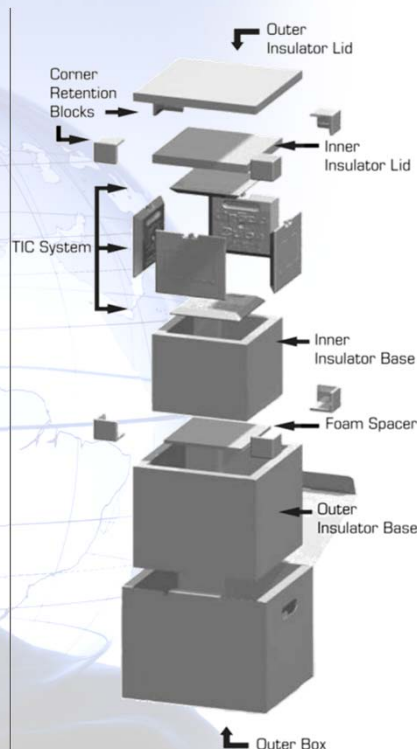
6



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.

NOTE: In the unlikely event that the container may be exposed to extreme cold conditions, precondition as follows: Place the TIC° System in a refrigerator between 4° and 8°C for 4 to 12 hours. Verify that the PCM is liquid by shaking.



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 mix alcohol to water) or other salt-based 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.
- Contact Pelican BioThermal for verification if your preferred method is not listed.

How to Perform a Thermal and/or Transit Qualification

Pelican BioThermal offers thermal and transit qualification services to industry standards via our thermal laboratory. We also offer a NIST traceable PC-based temperature data logger that fit inside the container and provides accurate, continuous time and temperature data in excel format. We utilize and follow ISTA procedure 5B, ISTA procedure 7D or 7E, which are ASTM D3103 compliant to guide you through your thermal testing process. We recommend 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 certification can be found on the bottom of the box.

How to Inspect and Replace Vacuum Insulation Panels (VIPs)

The Vacuum Insulation Panels (VIPs) in Credo® containers are extremely effective as long as they hold an interior vacuum. Inspect VIP lid and VIP base surfaces periodically. The indicator of a compromised panel is a loss of rigidity. A loose skin or non-rigid panel indicates vacuum loss and the product should be recycled (please refer to page 8 for procedural instruction). Avoid removing VIP base from outer corrugated box. The VIP lid and VIP base should be replaced before the expiration date printed on each panel.

In-Transit Refrigerated Hold

In the event of an unexpected or anticipated delay during transit time the shipper may be placed in a refrigerated environment. By refrigerating the shipper you have effectively “stopped the clock” and the shipping container can be held for an extended time while maintaining the payload between 2° and 8° C. This will preserve the payload should one experience a customs or other form of delivery delay.

Call 1-877-537-9800 for replacement components if needed.



OPTION 1: Freezer to Room Temperature (Small volume processing)

Guidelines

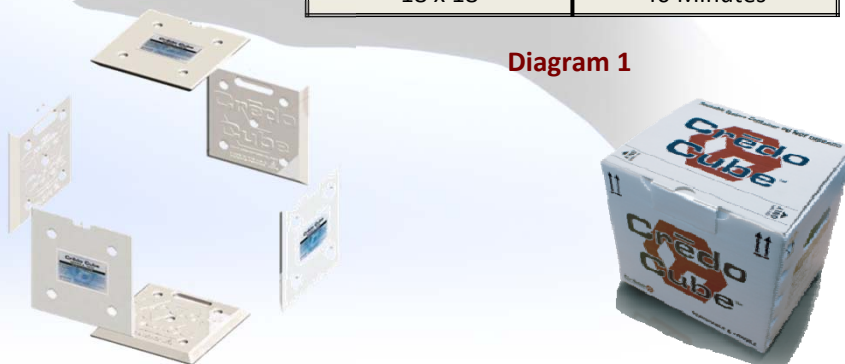
After pre-conditioning (step 1 – pages 2 & 3) is complete, the TICs are ready to receive pack out staging-time. The pack out staging-time is the length of time immediately following the TIC removal from the freezer to the time at room temperature wherein the PCM inside will rise to the appropriate operating temperature range.

Diagram 1 is a guideline for the amount of time the TIC® systems require to warm to the operating temperature. [An Infrared temperature thermometer can assist in ensuring the panels reach a safe pack out temperature].

NOTE: Staging-times are based on a freezer temperature of -18°C and a room temperature of 22°C. Panels are not stacked during the staging-time. When you stage TICs the procedure requires ample air flow around all sides of the panels. These times are meant to serve as a guideline and may have to be adjusted based on your individual operating environment.

Staging-Time Reference Chart	
TIC Panel Size	Staging-Time Required
5 x 6	35 Minutes
6 x 6	25 Minutes
6.5 x 6.5	30 Minutes
6.5 x 11	30 Minutes
8.5 x 8.5	45 Minutes
9 x 9	35 Minutes
10 x 10	35 Minutes
12 x 12	35 Minutes
12 x 15	40 Minutes
15 x 15	40 Minutes
15 x 18	40 Minutes
18 x 18	40 Minutes

Diagram 1



¹ Pre-conditioning times will depend on many variables. The amount of TICs, the TIC orientation, freezer temperatures, freezer compressor strength, and air flow all affect the conditioning times.

OPTION 2: Freezer to Refrigerator (Large & Small Volume Processing)

This rotational TIC Pack out staging method utilizes controlled freezer and refrigerated temperatures to safely and efficiently condition the TIC® systems.



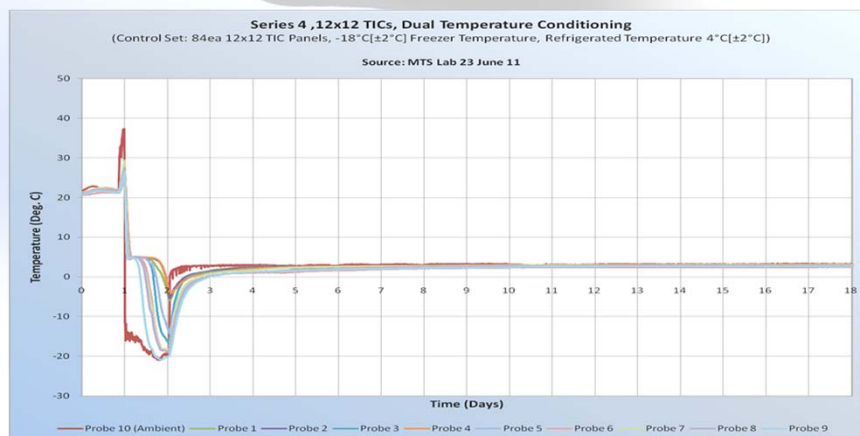
Guideline:

For larger volumes, the TIC® systems are preconditioned (frozen) according to step 1 on page 2 and 3. When you condition a large amount of TICs the procedure will require ample air flow around the panels to properly freeze the TICs. To facilitate this, Pelican BioThermal recommends using a shelving system or an open mesh bin with spacers positioned between every two rows of stacked TICs. The spacers should be a minimum of 1" thick and should be designed so that there is a sufficient amount of surrounding air flow.

After the bin is loaded, move it into a freezer set to -18°C or colder. Allow a minimum of 24 hours for freeze time. Once the TICs have been properly preconditioned, move the bin into a refrigerated environment ($4^{\circ}\text{C} \pm 2^{\circ}\text{C}$) for no less than 48 hours. After the 48 hours in the refrigerated environment the TICs have reached an operating temperature of 2°C and are ready to use.

The procedure for small volume rotational TIC pack out staging is the same as it is for large volume with a few exceptions. In small volume, the TICs can be stacked on top of each other up to 12 panels high. The preconditioning time and minimum refrigerator conditioning time will be different for small volumes. Depending on the TIC size and the performance of the freezer and refrigerator being used, small volume preconditioning times can be 12 to 24 hours and minimum refrigerator conditioning time can be 4 to 30 hours.

An infrared temperature thermometer can assist in ensuring the panels reach a safe pack out temperature. A benefit of the rotational TIC pack out staging method is that once the TICs are in the refrigerated environment they can safely be stored for up to two weeks as long as the average refrigerator temperature is less than 4.5°C (See Diagram 3 ->).



OPTION 3: Fully Assembled Pack Out Staging (Large volume processing without refrigeration capabilities)

Guideline:

The TIC® systems are preconditioned according to step 1 on page 1 and 2. After preconditioning is complete, the TICs are packaged into the insulator assembly. Add the insulator lid and close the shipper. Let the shipper sit out at room temperature (22°C [±2°C]) for the time indicated in **Diagram 5**. This will allow the shipper to reach a safe operating temperature of 2°C The shippers should be used shortly after the maximum times listed in **Diagram 5** to ensure maximum thermal performance.

[An infrared temperature thermometer can assist in ensuring the panels reach a safe pack out temperature].

Packout Conditioning Reference Chart

Shipper	Hours Required
4 liter	20-26
12 liter	24-30
16 liter	24-30
17 liter	24-30
28 liter	24-30
56 liter	40-48
96 liter	40-48

Diagram 5

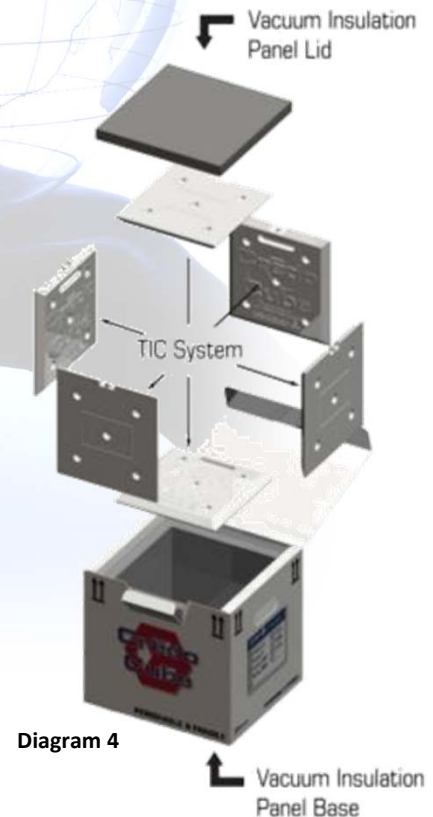


Diagram 4

To assist in the preparation and packaging of the Pelican BioThermal shippers we offer a conditioning accessory that works in conjunction with our four Pack Out Preparation option methods. This aide is an accessory designed to make conditioning easier and is not necessary for the proper operation of the shipping system.

Infrared Thermometer (IR gun)

Pelican BioThermal 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°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. Pelican BioThermal recommends flipping the TIC over (so the side that was down during freezing is up) and taking temperature readings from the side of the center standoff.



End of Life Component Recycling Program

Pelican BioThermal 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. Outers can also be recycled in-house. Securely palletize the load and clearly mark on every pallet the recycling center.

COMPONENT DROP OFF INSTRUCTION:

Contact the Account Sales Representative at Pelican BioThermal for a Return Authorization Material (RMA) request

Follow instructions provided by the Account Sales Representative and the RMA form

All component for recycling purposes will be sent to:

Pelican BioThermal
3020 Niagara Lane N
Plymouth, MN 55447

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



For more information visit
www.pelicanbiothermal.com
or **call 877.537.9800**



SERIES 4 CREDO SHIPPER SPECIFICATIONS MATRIX 10

Product Name	Temperature Range	Payload Dimensions (LxWxH)	Volumetric Capacity	Outer Dimensions (LxWxH)	Tare Weight	Performance (expressed as hours within the temperature range) X = No testing completed			
Description	°C	Millimeters	Liters	Millimeters	Kilo-grams	ISTA Summer No Load	ISTA Winter No Load	ISTA Summer With Load	ISTA Winter With Load
Series 4 3120	2°C - 8°C	129.5 x 129.5 x 129.5	3	317.5 x 266.7 x 266.7	5.8	93.97	161.17	X	X
Series 4 496	2°C - 8°C	149 x 149 x 149	4	317.5 x 266.7 x 273	5.0	65.25	146.03	X	X
Series 4 896	2°C - 8°C	281.9 x 165.1 x 165.1	8	444.5 x 288.9 x 292.1	7.5	76.86	146.08	X	X
Series 4 10120	2°C - 8°C	212.09 x 212.09 x 212.09	10	381 x 330.2 x 342.9	10.7	104.72	147.92	X	X
Series 4 1248	2°C - 8°C	226 x 226 x 226	12	431.8 x 387.4 x 412.8	9.3	43.17	144.00	47.58	168.00
Series 4 1296	2°C - 8°C	226 x 226 x 226	12	381 x 330.2 x 342.9	9.9	94.86	146.03	92.42	168.00
Series 4 1696	2°C - 8°C	254 x 254 x 254	16	400.1 x 355.6 x 358.78	11.7	84.67	145.33	84.50	116.25
Series 4 1696 DuraCUBE	2°C - 8°C	254 x 254 x 254	16	444.5 x 444.5 x 412.8	15.3	90.42	145.33	103.83	120.00
Series 4 1696 Pelican Case	2°C - 8°C	254 x 254 x 254	16	457.2 x 419.1 x 431.8	20.5	93.42	138.67	X	X
Series 4 2896	2°C - 8°C	304.8 x 304.8 x 304.8	28	457.2 x 419.1 x 431.8	16.0	103.22	146.03	101.67	144.00
Series 4 2896 Pelican Case	2°C - 8°C	304.8 x 304.8 x 304.8	28	533.4 x 533.4 x 489	24.4	106.33	178.83	X	X
Series 4 4296	2°C - 8°C	457.2 x 304.8 x 304.8	42	612.8 x 412.4 x 422.3	20.0	115.92	159.00	130.50	120.00
Series 4 5696	2°C - 8°C	381 x 381 x 381	56	533.4 x 495.3 x 501.65	24.9	111.75	117.00	X	X
Series 4 9696 Kraft	2°C - 8°C	457.2 x 457.2 x 457.2	96	762 x 654.1 x 711.2	38.1	102.92	X	X	X
Series 4 9696 Pelican Case	2°C - 8°C	457.2 x 457.2 x 457.2	96	685.8 x 685.8 x 660.4	47.7	126.00	146.67	X	X

Series 4 - 2" VIP (Nested Configuration)

Description	°C	Millimeters	Liters	Millimeters	Kilo-grams	ISTA Summer No Load	ISTA Winter No Load	ISTA Summer With Load	ISTA Winter With Load
Series 4 4120	2°C - 8°C	149 x 149 x 149	4	381 x 330.2 x 342.9	7.9	102.08	147.25	131.50	147.00
Series 4 12168	2°C - 8°C	226 x 226 x 226	12	444.5 x 406.4 x 406.4	14.4	163.50	170.00	158.75	171.00
Series 4 16168	2°C - 8°C	254 x 254 x 254	16	470 x 426 x 435	14.60	166.08	185.33	X	X
Series 4 28168	2°C - 8°C	304.8 x 304.8 x 304.8	28	533.4 x 495.3 x 501.65	22.8	162.17	171.00	159.67	168.00
Series 4 56168 Kraft	2°C - 8°C	381 x 381 x 381	56			X	X	X	X
Series 4 56168 Pelican Case	2°C - 8°C	381 x 381 x 381	56	685.8 x 685.8 x 660.4	47.6	186.75	235.00	X	X

Operating Room Containers

Series 4 824OR	2°C - 8°C	281.9 x 165.1 x 165.1	8	406.4 x 260.35 x 381	6.4	16.25	X	23.50	X
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Description	°F	Inches	Cubic Inches	Inches	Pounds	ISTA Summer No Load	ISTA Winter No Load	ISTA Summer With Load	ISTA Winter With Load
Series 4 3120	35°F - 46°F	5.1 x 5.1 x 5.1	133	12.5 x 10.5 x 10.75	12.7	93.97	161.17	X	X
Series 4 496	35°F - 46°F	5.9 x 5.9 x 5.9	205	12.5 x 10.5 x 10.75	11.0	65.25	146.03	X	X
Series 4 896	35°F - 46°F	11.1 x 6.5 x 6.5	469	17.5 x 11.375 x 11.5	16.6	76.86	146.08	X	X
Series 4 10120	35°F - 46°F	8.35 x 8.35 x 8.35	582.2	15.0 x 13.0 x 13.5	23.5	104.72	147.92	X	X
Series 4 1248	35°F - 46°F	8.9 x 8.9 x 8.9	705	17.0 x 15.25 x 16.25	20.6	43.17	144.00	47.58	168.00
Series 4 1296	35°F - 46°F	8.9 x 8.9 x 8.9	705	15.0 x 13.0 x 13.5	21.8	94.86	146.03	92.42	168.00
Series 4 1696	35°F - 46°F	10 x 10 x 10	1000	15.75 x 14.0 x 14.125	25.8	84.67	145.33	84.50	116.25
Series 4 1696 DuraCUBE	35°F - 46°F	10 x10 x 10	1000	17.5 x 17.5 x 16.25	33.8	90.42	145.33	103.83	120.00
Series 4 1696 Pelican Case	35°F - 46°F	10 x10 x 10	1000	21.0 x 21.0 x 19.25	45.2	93.42	138.67	X	X
Series 4 2896	35°F - 46°F	12 x 12 x 12	1728	18.0 x 16.5 x 17.0	35.2	103.22	146.03	101.67	144.00
Series 4 2896 Pelican Case	35°F - 46°F	12 x 12 x 12	1728	21.0 x 21.0 x 19.25	53.8	106.33	178.83	X	X
Series 4 4296	35°F - 46°F	18 x 12 x 12	2592	23.75x 16.5 x 17.0	44.2	115.92	159.00	130.50	120.00
Series 4 5696	35°F - 46°F	15 x 15 x 15	3375	21.0 x 19.5 x 19.75	54.8	111.75	117.00	X	X
Series 4 9696 Kraft	35°F - 46°F	18 x 18 x 18	5832	30.0 x 25.75 x 28.0	84.0	102.92	X	X	X
Series 4 9696 Pelican Case	35°F - 46°F	18 x 18 x 18	5832	27.0 x 27.0 x 26.0	105.2	126.00	146.67	X	X

Series 4 - 2" VIP (Nested Configuration)

Description	°F	Inches	Cubic Inches	Inches	Pounds	ISTA Summer No Load	ISTA Winter No Load	ISTA Summer With Load	ISTA Winter With Load
Series 4 4120	35°F - 46°F	5.9 x 5.9 x 5.9	205	15.0 x 13.0 x 13.5	17.4	102.08	147.25	131.50	147.00
Series 4 12168	35°F - 46°F	8.9 x 8.9 x 8.9	705	17.5 x 16.0 x 16.0	31.8	163.50	170.00	158.75	171.00
Series 4 16168	35°F - 46°F	10 x 10 x 10	1000	18.5 x 16.75 x 17.125	32.2	166.08	185.33	X	X
Series 4 28168	35°F - 46°F	12 x 12 x 12	1728	21.0 x 19.5 x 19.75	50.2	162.17	171.00	159.67	168.00
Series 4 56168 Kraft	35°F - 46°F	15 x 15 x 15	3375			X	X	X	X
Series 4 56168 Pelican Case	35°F - 46°F	15 x 15 x 15	3375	27.0 x 27.0 x 26.0	105.0	186.75	235.00	X	X

Operating Room Containers

Series 4 824OR	35°F - 46°F	11.1 x 6.5 x 6.5	469	16 x 10.25 x 15	14.0	16.25	X	23.50	X
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For more information visit
www.pelicanbiothermal.com
 or call **877.537.9800**

