

Solution Overview

Phononic Totes

Sustainable, scalable technology for frozen and chilled orders.

Phononic's patented solid-state cooling technology is fundamentally changing the reality of cold-chain in grocery. Unlike legacy compressor-based systems that use CFCs, hydrocarbons, and other toxic refrigerants, Phononic's technology uses only CO₂ and water to produce the same cooling power more reliably and with less energy.

For grocery omnichannel order fulfillment, these actively-cooled refrigerated and freezer totes offer unparalleled scalability, flexibility and ROI for a fully sustainable, end-to-end solution. For example, picking individual orders directly into temperature controlled totes saves space, labor and time as compared to existing processes and consistently decreases picking error.



Benefits

- **Scalable** – Add totes only as your order volume demands.
- **Lightweight & Portable** – Easily moved throughout store for all stages of order fulfillment.
- **Efficient** – Streamlined picking, staging and delivery means fewer touches, less need for additional labor, and the potential for additional order capacity.
- **Speed to Market** – Totes are seamless to integrate into existing picking and order fulfillment processes.
- **Enhanced Customer Satisfaction** – Ensure order freshness with constant temperature visibility, plus decrease order error and time to curb.
- **Sustainable** – Replaces mechanical refrigeration and eliminates dry ice and gel packs for delivery.

Features

- Lightweight and portable.
- Equipped with state-of-the-art IoT connectivity and monitoring.
- LCD display to show tote status and temperature.
- Ergonomic design to support manual picking and packing operations.
- Flexible lid design that opens from either long side and can be removed completely.
- Tote dock with smart contact module to enable safe and simple power connection.
- Modular solution to allow on-demand cooling for power savings.
- FDA food grade rated material for interior container.

Applications

- Order picking, staging and storage for curbside pickup and delivery.
- Chilled and frozen storage in fulfillment centers.
- Transport and delivery of grocery and other refrigerated & frozen products.

Superior Cold Chain Fulfillment

Even when not on power, Phononic's totes are able to keep products chilled and frozen for extended periods of time, ensuring cold chain custody is maintained throughout the grocery distribution, pickup and delivery process.



Requirement	Freezer	Refrigerator
Weight	21 lbs.	21 lbs.
External Dimensions [LxWxH]	600x400x320mm	600x400x320mm
Internal Height	233mm	272mm
Internal Dimensions [LxW], at Top	444x318mm	444x300mm
Internal Dimensions [LxW], at Bottom	435x310mm	435x291mm
Internal Volume	32L	35L
Key Internal Capacities	12" pizzas lay flat	Orange juice & milk can stand upright
Pull down time to set point temperature of 24°C [75.2°F], 55% RH	80 minutes [average, empty]	45 minutes [average, empty]
Input Voltage	48V DC	48V DC
Temperature Setpoint [Default]	-0.4 F	37.9 F
Temperature Stability	<0.9 F	<0.9 F
Steady-State Power, 24C Ambient	130W	40W

Freezer Tote

Interior at Top

L: 444mm
W: 318mm
H: 233mm

Interior at Bottom

L: 435mm
W: 310mm



Refrigerator Tote

Interior at Top

L: 444mm
W: 300mm
H: 272mm

Interior at Bottom

L: 435mm
W: 291mm

