



*ST-CR - Single and Multi-Temperature  
Cryogenics temperature management:  
clean, silent, powerful and reliable*



Multi-Temperature Model

- Ideal for distribution services
- Rapid temperature recovery
- Super-quiet
- Easy operation



Slim Line Evaporators

# Thermo King presents CryoTech systems

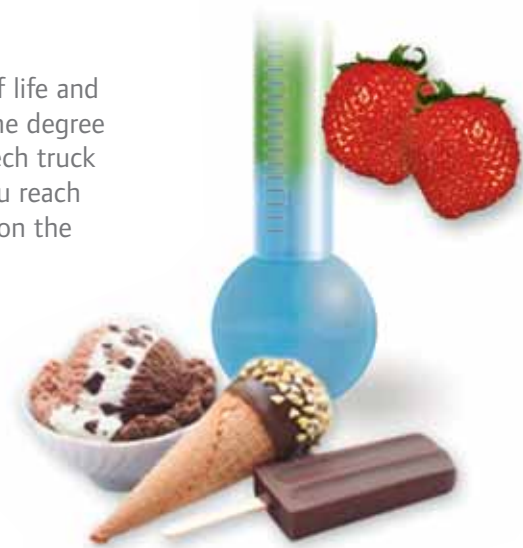
Thermo King has over 65 years experience in designing and building innovative transport temperature control systems.

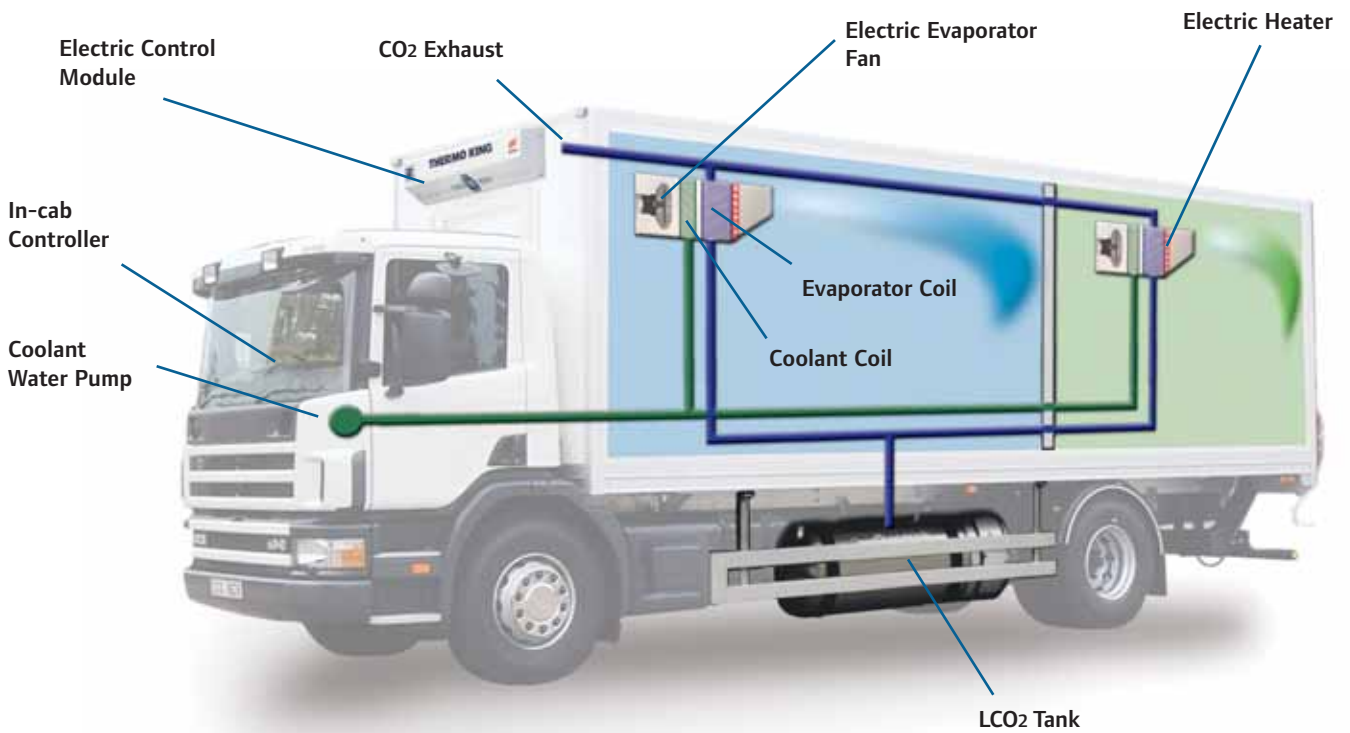
We are proud to present Cryogenics technology as an environmentally responsible and economically practical solution to today's and tomorrow's challenges in temperature controlled distribution.



## Load Protection: Fresh or Frozen

Small variations in temperature can dramatically affect shelf life and appearance of sensitive products. A sustained change of one degree can reduce shelf life of lettuce by one day. With the CryoTech truck system's rapid fresh and frozen pull-down and recovery, you reach optimum set points quicker and sustain them longer, even on the most demanding distribution runs.



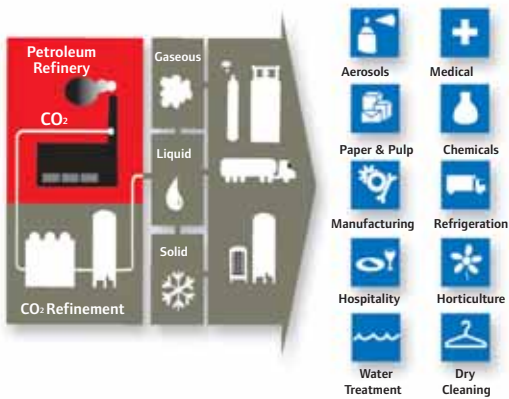


## How does it work?

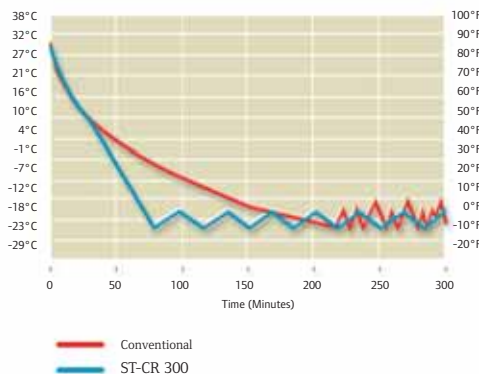
Full CryoTech systems move liquid CO<sub>2</sub> from the refillable vehicle tank through a sealed evaporator coil inside the cargo space, thus cooling the coil. Temperature controlled air is circulated over the coil and through the cargo space. Finally, having extracted all the useful energy, CO<sub>2</sub> vapor exhausts to the atmosphere (not into the cargo space). Heat, for defrost of the evaporator coil and temperature control, is generated by vehicle engine coolant or electric heaters (standby operation).

Zone Configurations		
Application Setup	Remote Evaporators (ST-CR) Zone 1	Zone 2
	100, 200 or 300	na
	100, 200 or 300	100, 200 or 300
	100, 200 or 300	100, 200 or 300

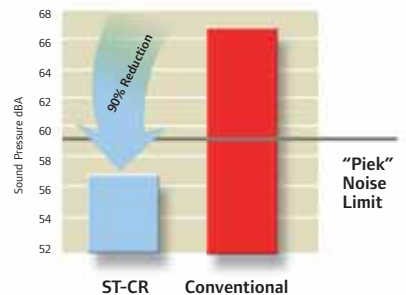
## Second Use Fuel



## ST-CR Pull-Down/Temp Control



## Sound Level Comparison



# ST-CR Single and Multi Temperature

## Advantages of Cryogenic Systems:

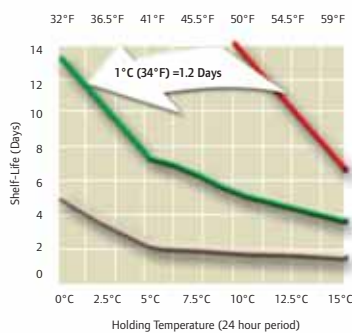
Features	Commercial Benefits	Environmental Benefits
Effectively silent	Compliance with noise and truck engine idling regulations	Driver comfort, reduced noise pollution
Zero diesel emissions	Compliance with current and future regulations	A cleaner environment
No fluorinated refrigerant	Compliance with current and future regulations	No ozone depletion future regulations
Fewer moving parts	High reliability, long life, low maintenance costs	No lubricants to dispose of
Rapid pull-down	Increased vehicle usage	
Rapid temperature recovery	Better temperature control and increased product shelf life	Reduced waste from spoilage
Innovative technology	Life costs compare favorably with conventional technology  Environmentally responsible corporate identity	No cumulative global warming effect  Powered by recycled fuel

No Diesel Emissions

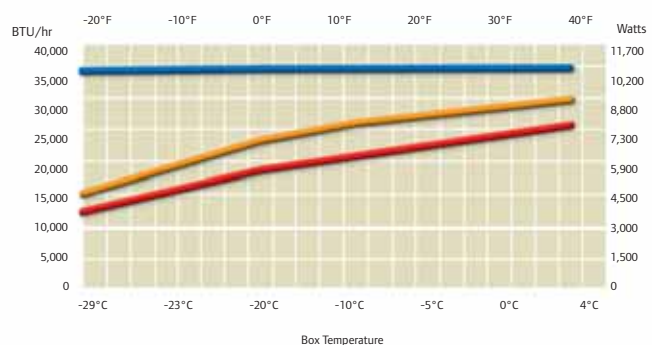


3 Year Warranty

### Shelf-Life



### Cooling Capacity Comparison



Unit	Ambient Temperature
ST-CR 300	-30°C to +50°C (-20°F to +120°F)
Conventional	30°C (86°F)
Conventional	39°C (100°F)

# ST-CR Specification

## System Performance

### ST-CR Single Temperature Refrigeration Capacity:

System net capacity at any\* ambient temperature

Return Air To Evaporator	0°C (32°F)	-20°C (-4°F)	-29°C (-20°F)
Watts (BTU/hr) up to			
Cooling Capacity	10,000 (34,000)	10,000 (34,000)	10,000 (34,000)
Heating Capacity	4,500 (15,350)	4,500 (15,350)	4,500 (15,350)
Airflow Volume: @ 0 Pa static pressure	2500 m <sup>3</sup> /hr (1470 cfm)	2500 m <sup>3</sup> /hr (1470 cfm)	2500 m <sup>3</sup> /hr (1470 cfm)

### ST-CR Multi-Temperature Refrigeration Capacity:

System net capacity at any\* ambient temperature

Return Air To Evaporator	0°C (32°F)	-20°C (-4°F)	-29°C (-20°F)
Watts (BTU/hr) up to			
Cooling Capacity	20,000 (68,000)	20,000 (68,000)	20,000 (68,000)
Heating Capacity	9,000 (30,700)	9,000 (30,700)	9,000 (30,700)
Airflow Volume: @ 0 Pa static pressure	5000 m <sup>3</sup> /hr (2940 cfm)	5000 m <sup>3</sup> /hr (2940 cfm)	5000 m <sup>3</sup> /hr (2940 cfm)

### Electric Standby:

AC Voltage/Phase/Cycles (system voltage)	400 / 3 / 50 (24 VDC)
	230 / 3 / 50 (24 VDC)
	230 / 3 / 60 (12 VDC)

**Refrigerant:** R-744 (Liquid Carbon Dioxide)

**Charge** Maximum 374 kg (825 lbs)

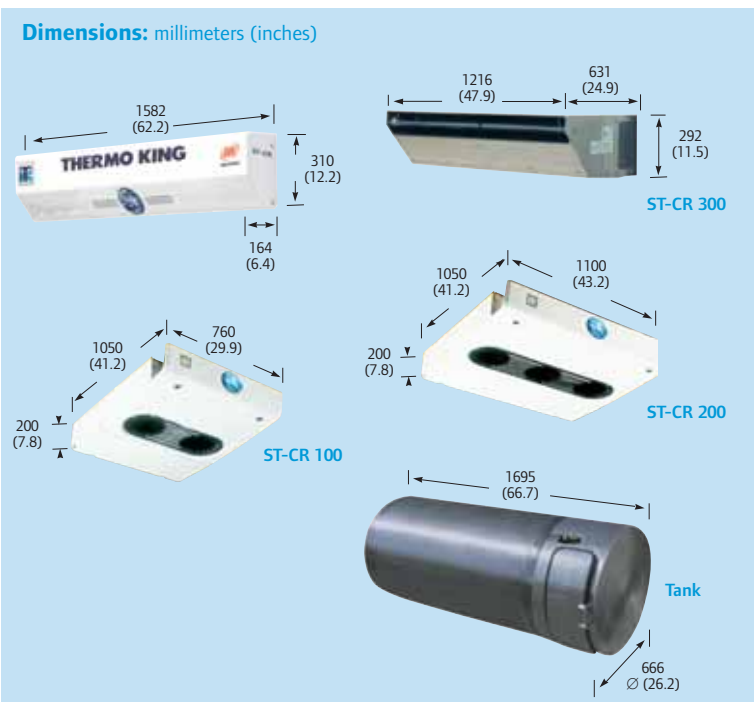
## Individual Evaporators

**Refrigeration Capacity:** (NB: Capacities of multiple evaporators are cumulative with cryogenic technology)

System net capacity at any\* ambient temperature

	ST-CR 100	ST-CR 200	ST-CR 300
Return Air To Evaporator	0°C (32°F) (86 to -20°F)	-20°C (-4°F) (86 to -20°F)	-29°C (-20°F) (86 to -20°F)
Watts (BTU/hr) up to			
Pull-down Cooling Capacity	4,200 (14,300)	6,300 (21,500)	10,000 (34,000)
Control Cooling Capacity	2,500 (8,500)	4,000 (13,650)	4,800 (16,400)
Heating Capacity	3,000 (10,240)	4,500 (15,350)	4,500 (15,350)
<b>Airflow:</b>			
Airflow Volume @ 0 Pa static pressure	1360 m <sup>3</sup> /hr (800 cfm)	2040 m <sup>3</sup> /hr (1200 cfm)	2500 m <sup>3</sup> /hr (1470 cfm)
Discharge Velocity (airthrow)	9.1 m/sec (29.8 ft/sec)	9.1 m/sec (29.8 ft/sec)	6.2 m/sec (20.2 ft/sec)

any\* = normal ambient temperatures from -30°C to +50°C (-20°F to +120°F)



## Weights (approximate)

### Electric Control Module

Single Temperature	35 kg	(78 lbs)
Multi-Temperature	49 kg	(107 lbs)

### Evaporator

ST-CR 100	38 kg	(83 lbs)
ST-CR 200	54 kg	(120 lbs)
ST-CR 300	45 kg	(100 lbs)

### Tank

Full	560 kg	(1235 lbs)
Empty	186 kg	(410 lbs)
Net CO <sub>2</sub>	374 kg	(825 lbs)

## Warranty Summary

Terms of the Thermo King Express Warranty are available on request. The unit and its components are warranted to be free from defects in material and workmanship from date in service according to the terms (in months) as specified in the Thermo King Express Warranty.

Manufacturer is not responsible and will not be held liable in contract or tort (including strict liability and negligence) for any special, indirect or consequential damages including but not limited to injury or damage caused to vehicles, contents or persons, by reason of the installation or use of any Thermo King product or its mechanical failure.

Specifications are subject to change without notice.



Providing equipment and services to manage controlled-temperature environments for food and other perishables, our Climate Control Technologies sector encompasses both transport and stationary refrigeration solutions. Our product brands include Thermo King®, a world leader in transport temperature control system and Hussmann®, a manufacturer of refrigeration and food merchandising equipment.

[www.thermoking.com](http://www.thermoking.com) [www.hussmann.com](http://www.hussmann.com) [www.ingersollrand.com](http://www.ingersollrand.com)

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