

DECEMBER 2007

Carrier  
TRANSICOLD

# ContainerLINE

**Where Ecologist Meets Economist:  
PrimeLINE™ Leads Trio of  
Energy-conserving Products**  
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## Talking about the environment isn't enough



Pick-up the newspaper, your favorite news magazine, or turn on the television. No matter where you are in the world, everyone is talking about the environment and the need for “green” solutions. Often the discussion pits environmental interests against business interests, as if it’s an “either-or” proposition.

At Carrier, we believe the ecologist and economist can work together – and should. By following the environmental path, businesses can actually arrive at a more profitable destination. Energy is a terrific example. It’s an expensive commodity that,

when conserved, can save businesses money while also reducing pollution related to power generation.

Three new products from Carrier demonstrate this commitment to conservation, and you’ll read about them in these pages. The PrimeLINE™ refrigeration unit, the eAutoFresh™ on-demand ventilation option and QUEST power-saving mode option each reduce power consumption and environmental impact while lowering operating costs. It’s fitting that these innovations are being brought to market as we celebrate the 25th anniversary of Carrier’s standard-setting ThinLINE refrigeration unit, which was every bit as groundbreaking when it was introduced.

I am delighted to share another bit of news that we at Carrier are extremely proud of and which also indicates we are on the right path for the future. At the recent 20th anniversary celebration of the United Nations’ Montreal Protocol, the U.S. Environmental Protection Agency honored Carrier with its coveted Best-of-the-Best Stratospheric Ozone Protection award in recognition of the company’s achievements in helping restore the Earth’s protective ozone layer.

In granting this award, the EPA noted that environmental-leading companies, such as Carrier, demonstrate that global environmental protection can go hand-in-hand with economic growth. We couldn’t agree more.

Scott A. Pallotta  
Director of Marketing

# ContainerLINE

## Where Ecologist Meets Economist:

In an age of growing concern about human impact on the environment, businesses everywhere are looking for products and processes that consume the fewest natural resources while also minimizing the “carbon footprint” of their operations.

In this spirit, Carrier introduces PrimeLINE™, a container refrigeration unit designed specifically to reduce environmental impact and lifecycle cost through its exceptional efficiency. The new model expands Carrier’s current container refrigeration family, which also includes the ThinLINE™ and EliteLINE™ models.

“More than ever, the market needs solutions that address energy efficiency, operating costs and environmental impact,” said Chiou Fun Sin, vice president, Global Container Refrigeration. “PrimeLINE is optimized to address these important issues.

“What distinguishes the PrimeLINE unit from all others is its unique combination of features, including design enhancements that simultaneously boost cooling capacity and efficiency.”

Energy is the single largest component of lifecycle cost. Based on today’s fuel prices, the PrimeLINE unit’s exceptional efficiency results in a lifecycle cost that is lower than all competitive units, some by as much as 30 percent.

### The Efficiency Factor

PrimeLINE is the most energy efficient container refrigeration unit on the planet. It has a coefficient of performance – the calculation of efficiency – is better than all competitive units.

That level of efficiency translates into significant operational savings. For a fleet using 1,000 PrimeLINE units operating 24 hours a day at various capacities – for fresh and frozen – on a 21-day voyage it makes five times a year, the energy consumption is dramatically lower than a leading competitor, according to Jim Taeckens, senior product manager.

“At today’s bunker fuel prices of about \$400 a ton, the savings in that scenario would be at least \$1 million over the life of the units, and the contrast will be even more stark as fuel prices increase.”

While more energy efficient, the PrimeLINE unit takes a “no compromises” approach to performance. It delivers best-in-class pulldown capacity – nearly 10 percent more than its nearest rival. It has the highest deep frozen capacity of any unit with R-134a. At ambient temperatures of 38°C (100°F) and box temperature of -29°C (-20°F), it offers cooling capacity of 4,400 watts (15,000 Btu/hr.).

### Easy on the Environment

While cost containment is certainly a benefit of efficiency, the PrimeLINE unit’s reduced power requirements

# It's Prime Time for PrimeLINE™

also mean conservation of precious fossil fuel. But that's only the start of PrimeLINE's positive environmental impact.

"If a ship burns less fuel in the generation of power for its refrigeration needs, that also means lower particulate and carbon dioxide (CO<sub>2</sub>) emissions," Taeckens said. Using the 1,000-reefer fleet model for illustration, Taeckens noted that lifetime CO<sub>2</sub> emissions would be reduced by more than 16 million kilograms compared to a leading competitor. For an exporter, the result is clearly a substantially smaller carbon footprint.

Finally, use of R-134a as a refrigerant, a standard throughout the Carrier container product line, is a cornerstone of Carrier's environmental legacy. Of all contemporary container unit refrigerants, R-134a has the lowest Global Warming Potential, which is an indicator of a refrigerant's impact as a greenhouse gas.

R-134a also has a higher reliability because it is used under lower operating pressures and has a lower leak rate than other refrigerants. It's also less expensive.

## Designed for Results

The efficiency of the PrimeLINE unit was made possible through numerous design enhancements.

Carrier's refrigeration experts in partnership with the Copeland team at Emerson Climate Technologies collaborated in the creation of an exclusive, energy-saving digital scroll compressor that is considered to be the first application of digital scroll technology with R-134a. The Copeland Digital Scroll compressor has an aluminized coating for outstanding corrosion resistance and is 4.5 kg (10 pounds) lighter than the scroll compressor used in Carrier's EliteLINE unit.

Additional platform enhancements include an efficiency-boosting redesign to the evaporator fan and stator, tapping technology from the United Technologies Research Center, a key resource of



*The new PrimeLINE unit can reduce operating costs and impact on the environment.*

Carrier's parent company. The blades have been optimized to exceptional levels of efficiency.

"The fans can be one of the biggest sources of energy consumption in a refrigeration unit," said Taeckens. "These design improvements account for a significant percent of the total energy savings."

*(Continued on page 4)*



Boosting the cooling capacity is a larger condenser coil, as well as other design enhancements that were made possible through computer modeling at Carrier's engineering center.

Building on Carrier's long-standing reputation for reliability and performance, the PrimeLINE unit raises the bar with its efficiency, economy and environmental responsiveness.

PrimeLINE is a container refrigeration unit whose time has come.



The PrimeLINE unit answers rising energy fuel costs with superior efficiency.

## A Container Refrigeration Line Big Enough for the World

With the introduction of the **PrimeLINE** unit, Carrier becomes the only company to offer three core container refrigeration units, plus two line extensions, resulting in the largest refrigeration offering of any container equipment provider. Each of the units uses environmentally sound R-134a. Here's the line-up for 2008:



**PrimeLINE** unit is the first and only container refrigeration unit designed for world-class performance when it comes to energy efficiency, capacity, lifecycle cost and the environment.



Carrier's original scroll compressor unit, the **EliteLINE** was introduced in 2001 and is today the world's leading scroll unit.



An extension of this product is the **StreamLINE™**, an ultra-thin unit designed specifically for 20-foot containers.



Now celebrating 25 years of service to the industry, the **ThinLINE** model uses Carrier's reciprocating compressor technology and remains the preferred choice of many fleets. The ThinLINE brand has seen a steady progression of refinements over the years, but one thing has remained constant: its track record of reliable service – the longest of any container refrigeration unit on the market. An extension of the ThinLINE brand is the **ThinLINE DT**, a convertible dual-temperature container refrigeration system.

Carrier is also the only container refrigeration provider that offers both a controlled-atmosphere system and on-demand ventilation system, respectively the EverFresh™ and eAutoFresh™ systems.

It's a full range of refrigeration solutions, designed to meet a world of needs.



# Triton Builds Legacy of Consistent Performance



Carrier counts itself fortunate to have many long-term customer relationships. Such is the case with Triton Container International, whose loyal relationship with Carrier spans a quarter century.

Founded in 1980, Triton Container is today one of the world's top container leasing companies. When the company entered the refrigerated side of the cargo business a few years later, its first container refrigeration systems were ThinLINE™ units. Since then, it has been almost exclusively Carrier for Triton—the company having recently received delivery of its 40,000th Carrier unit.

Its reputation built over decades, Triton offers its customers a consistent, reliable service with a vigilant commitment to quality in terms of the construction and maintenance of its fleet.

"They run the business for the long term," said Carrier's Stephen Elford, the Asia Region manager who services the Triton account. "The same management team has been in place for a long time and has tremendous expertise. They are very well respected in the industry. People trust them."

"We have always aimed to be a competitive supplier of quality equipment," said Mark Bennett, Triton's senior vice president for Procurement.

With 40 depots on six continents, Triton is a global enterprise, boasting a 1.4-million-TEU fleet. Unique among the largest industry players, Triton's growth has been steady and organic, rather than through acquisition. All of its cargo containers, including the 55,000 TEU that are reefers, are Triton's own.

"There's that consistent element we've had throughout our history," said Peter Church, Triton's director of Global Reefer Management. "We've never bought anyone else's fleet."

"Everyone knows what to expect when they come to Triton: a homogenous fleet of boxes that were bought, built and inspected by Triton," Church said.

Bennett added that Triton's quality control is far more stringent than average "judging by the reaction of some of the box manufacturers to our inspection processes."

*"We work very hard on cosmetic appearance. We know reefers are used for food products. We know that they are going to be more appealing to shippers if they look nice." – Mark Bennett, Triton senior vice president for Procurement.*

Triton's dry van containers, with their signature reddish-brown color and white TRITON name, are made from Cor-Ten steel that has undergone closely supervised shot blasting and coating processes to maximize corrosion resistance.

Inversely white with brown lettering are Triton's refrigerated containers, which are built with welded stainless steel, an application Triton pioneered. Quality construction minimizes long-term service and repair needs and also optimizes thermal efficiency to hold down energy costs.

"We're very focused on boxes that don't delaminate, that maintain the integrity of the structure," Bennett said. "The foam insulation remains bonded to the outer and inner lining over the life of the box."

Carrier refrigeration units play a key role in Triton's formula for reefer longevity.

"For our day-to-day operating fleet, it's been exclusively Carrier," Bennett said. "The quality aspect is something we still maintain a very strong interest in."

"The reciprocating compressor of Carrier has been the mainstay of our fleet," Bennett explained, adding that recently Triton broadened its fleet to include some EliteLINE units as well.

"Carrier's NT model has a strong market franchise," Bennett said. "It's changed over the years, but because of careful product line evolution, Carrier's enhanced models don't immediately make the earlier ones obsolete, and spare parts are often interchangeable so that fleets can be more effectively managed."

"That has enabled us to lease Carrier machines to a broad range of customers. When we get them back from the first lease, there are other customers who want to lease them."

It's not uncommon for a Triton unit to be leased five to ten times over its lifespan according to Bennett. Testament to that is a Triton container, which last summer was located at the company's San Francisco Bay depot near its corporate headquarters. First put into service in 1988 for a Brazilian shipper, the unit later saw service with seven other companies on leases ranging from as few as four months to as long as four and a half years. Well maintained throughout its nearly 20-year service life, the unit still has its fully functional original Carrier refrigeration unit.

"The box has evolved, and the machine of course has evolved as well, but from a distance they still look the same," Bennett said. "They've become more reliable, more sophisticated."

And their legacy of longevity, like Triton, is a constant.



*After 20 years of service, this ThinLINE unit still performs for Triton.*

# Save Energy with eAutoFresh™ On-Demand Ventilation

Another produce shipping enhancement sure to please both the ecologist and economist is the new eAutoFresh™ on-demand ventilation option. With on-demand ventilation for high-respiring, perishable cargoes, the eAutoFresh option provides an energy-saving alternative to the common practice of continuously venting refrigerated containers.

It can also potentially enhance product quality and increase shipping distances for certain commodities.

The traditional approach of manually opening fresh air vents during cargo loading is intended to prevent the build-up of quality-damaging levels of carbon dioxide (CO<sub>2</sub>) and ethylene during a voyage. But often vents are opened wider than necessary out of concern about harming cargo through too little ventilation. The consequence is energy spent unnecessarily on cooling, the key issue addressed by the eAutoFresh system.

## Closed Vents Conserve Power

With produce, CO<sub>2</sub> and ethylene are natural byproducts of respiration and can accumulate fairly rapidly in the confined space of a container. At low levels, most commodities are not at risk,

and in fact some CO<sub>2</sub> can be beneficial in terms of slowing ripening and preventing decay. But high levels of CO<sub>2</sub> can quickly pose a danger to perishable cargo.

“With eAutoFresh, fresh air is exchanged only when and for as long as required to vent the CO<sub>2</sub> and ethylene,” said Jim Taeckens, senior product manager. “Not only does eAutoFresh help maintain product quality in transit, but it also eliminates the energy-wasting practice of continuously cooling a container that is constantly drawing in warm, humid air through continuous ventilation.”

“In test applications over the past two years of development we’ve documented energy-savings greater than 5 percent, compared to manual ventilation,” Taeckens said. “The refrigeration system doesn’t have to work as hard, and faster pulldown is assured because ventilation is closed during initial cooling.”

## CO<sub>2</sub> Can be Good

For some specific commodities, increased levels of CO<sub>2</sub> or reduced levels of oxygen (O<sub>2</sub>) can actually be helpful to improve product quality or increase the length of a voyage a product can safely travel.

## CONTRASTING CAPABILITIES

<b>eAutoFresh On-Demand Ventilation</b>	<b>EverFresh Controlled-Atmosphere</b>
<p>The new on-demand ventilation option is limited to perishables where the optimal combined CO<sub>2</sub> and O<sub>2</sub> range is 21%.</p>	<p>Applications for Carrier’s industry-leading controlled-atmosphere solution include all eAutoFresh commodities, plus:</p>
<p>Asparagus Blackberry Blueberry Cantaloupe Cherry Durian Fig Grapefruit Lemon Lime Sweet Corn</p> <p><i>The eAutoFresh on-demand ventilation option may also be applied to Hass and Fuerte avocados if shipping durations are less than three weeks. Consult with your Carrier representative for details.</i></p>	<p>Apple Apricot Artichoke Avocado Banana Bean, snap Broccoli Cabbage Cherimoya Cranberry Grape Kaki/Persimmon Kiwifruit Lychee Mango Olive Papaya Peach Nectarine Pear Pineapple Plum Pomegranate Rambutan Raspberry Strawberry Sweetsop Tomato</p>

## QUEST Power-Saving Mode Option Saves Energy, Cuts Costs

Another new environmentally responsive solution from Carrier is the QUEST power-saving mode, a software-based control option capable of cutting energy requirements for refrigeration by up to 50 percent while reducing emissions related to power consumption.

QUEST stands for Quality and Energy efficiency in Storage and Transport and it is believed to be the first energy-saving solution for container refrigeration backed by research from leading specialists in post-harvest food quality, preservation and transport. QUEST power-saving mode was developed and tested by Carrier, Wageningen University and Research Centre in the Netherlands, and Maersk Line.

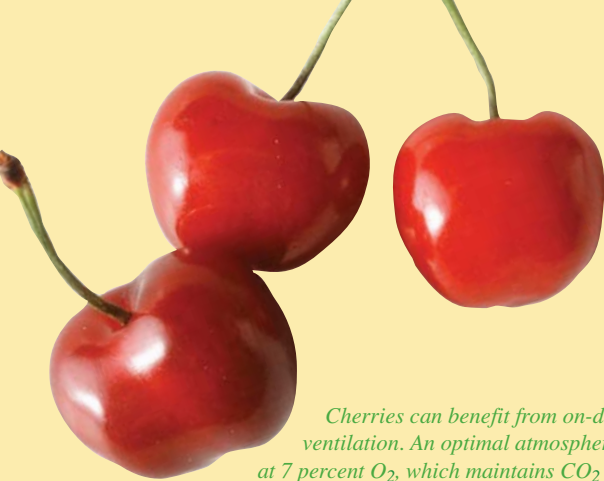
The first adopter of QUEST power-saving mode in the shipping industry, Maersk Line estimates that when fully implemented throughout its fleet, the option will annually reduce carbon dioxide emissions by 325,000 metric tons while significantly reducing its energy requirements.

Available for any Carrier refrigeration unit using ML2i or ML3 controls, QUEST power-saving mode saves power by intelligently cycling refrigeration on and off based on temperature limits designed for perishables.

“By reducing unit run time, QUEST power-saving mode lessens a shipping line’s energy usage, decreases emissions and results in a smaller carbon footprint for shipped commodities,” said Jim Taeckens, senior product manager. “It helps lines lower their operating costs while doing right by the environment.”

In sharp contrast to a conventional scenario, in which the refrigeration system puts effort into precisely controlling the supply air temperature, QUEST power-saving mode focuses on maintaining the actual produce temperature.

QUEST power-saving mode: Another solution from Carrier with appeal to both the ecologist and economist.



*Cherries can benefit from on-demand ventilation. An optimal atmosphere can be set at 7 percent O<sub>2</sub>, which maintains CO<sub>2</sub> at 14 percent (combined 21 percent). Low O<sub>2</sub> helps reduce respiration and maintain firmness, while elevated CO<sub>2</sub> suppresses development of decay.*

Through respiration, harvested fruits and vegetables generally produce a unit of CO<sub>2</sub> for every unit of O<sub>2</sub> consumed. To adjust the air inside the container, the eAutoFresh on-demand ventilation option uses natural atmosphere to displace the build-up of CO<sub>2</sub> until a setpoint is reached. With this ventilation approach, the combination of O<sub>2</sub> and CO<sub>2</sub> inside the container will always total approximately 21 percent. For commodities that benefit from a combined O<sub>2</sub> and CO<sub>2</sub> level less than 21 percent, which is the majority, Carrier offers the industry-leading EverFresh™ controlled-atmosphere system.

With eAutoFresh, users simply set either the O<sub>2</sub> or CO<sub>2</sub> level, and the system does the rest. When produce respiration consumes O<sub>2</sub>, causing CO<sub>2</sub> to rise, the system senses the change and activates ventilation maintaining the required level of O<sub>2</sub> and CO<sub>2</sub>.

### Simple and Flexible

A relatively simple assembly, the eAutoFresh on-demand ventilation option uses a CO<sub>2</sub> sensor, motorized vent and control software. It is an option available on new ThinLINE™, EliteLINE™ and PrimeLINE™ units, and it can be field installed on existing ML2i or ML3-equipped units. The hardware can also be swapped from one eAutoFresh-enabled unit to another, giving fleets a unique

level of flexibility. So for produce shippers looking to conserve energy and upgrade from manual container ventilation, the eAutoFresh on-demand ventilation option can help save energy, while maintaining product quality. And, best of all, it comes from the experts at Carrier.



*The eAutoFresh on-demand ventilation option, shown in front and rear views above can be moved between units saving in logistics costs.*

# Bullish Growth in the Global Beef Trade

Yankee pot roast. Sichuan water-boiled beef. A savory red wine beef stew.

If that isn't enough to whet your appetite, there are enough beef recipes to satisfy taste buds the world over – and that's a good thing, considering that the appetite for beef is growing.

Continuing a steady trend, beef production by major traders is forecast to climb to 54.8 million metric tons for the current year, according to the Foreign Agricultural Service of the United States Department of Agriculture (USDA). Global per capita consumption of beef continues to increase as meat demand rises in response to income growth.

While cattle can be found on all temperate continents, the beef producing industry is concentrated in just a few countries that provide the majority of the world supply. Currently, the leading beef producers are the United States, Brazil and China, followed by the collective countries of the European Union, Argentina, India, Australia and Mexico.

The International popularity of beef is nothing new. In fact, more than a century ago, a taste for beef helped to inspire the development of mechanical refrigeration systems for shipping meat and other foods. Ice-packed railcars transported meat from Chicago stockyards to the Eastern United States as early as the 1850s. But it was French engineers some twenty years later who invented shipboard refrigeration systems in their quest to bring beef from Argentina to the plates and palates of consumers in France.

Today, Argentina holds first place for the largest per capita consumption of beef, promoted in part by government policies supporting domestic consumption. Next are the United States, Uruguay, Brazil and Australia.

The world's top beef importer remains the United States, but the Russian Federation recently overtook Japan as the second largest importer of beef. Trailing Japan in imports are the European Union and Mexico.

In 2004, Brazil bested Australia as the world's leading exporter of beef, a choice position it sustains today. Brazil's beef exports are anticipated to top out at 2.24 million tons in 2007, accounting for about 30 percent of the world's exports of beef. Australia, however, still accounts for a meaty 20 percent of beef exports. Although not a large per capita consumer of beef, India is now the third largest exporter of beef, followed by New Zealand and the United States.

The figurative stampede of beef making its way around the globe has been interrupted in recent years over health and safety

issues, specifically related to bovine spongiform encephalitis (BSE), more commonly known as Mad Cow disease, and foot and mouth disease (FMD). These have led to red meat import restrictions and outright bans between countries.

In one of the most notable BSE cases, the discovery of a single case of BSE caused the export business of the world's largest producer of beef, the United States, to suffer severely. That episode closed more than 70 markets to the U.S. in 2004, resulting in an 83 percent plunge of U.S. beef exports.

To some degree, the United States' loss of certain markets was Brazil's gain, although Brazil had issues of its own with FMD cases that led to partial bans by its major trading partners,

Russia and the European Union. However, Brazil's beef exports have recovered, in part by increased sales to non-traditional markets, such as the Middle East.

According to the USDA, the absence of new outbreaks by major exporters and no significant changes in the import policies of major importers to eliminate or reduce disease-related trade restrictions has generated stability in the beef market today.

"In general, meat is inherently safer to eat when produced now than it has ever been in the last 40 years,"

according to Stephen James, director of the Food

Refrigeration and Process

Engineering Research Centre at the

University of Bristol in England.

A food engineer who specializes in the refrigeration of meat, James said "Hygienic processing, the use of more hygienic materials in processing plants, better animal husbandry, introduction of carcass washing and decontamination systems have reduced the overall levels of pathogens on all types of beef."

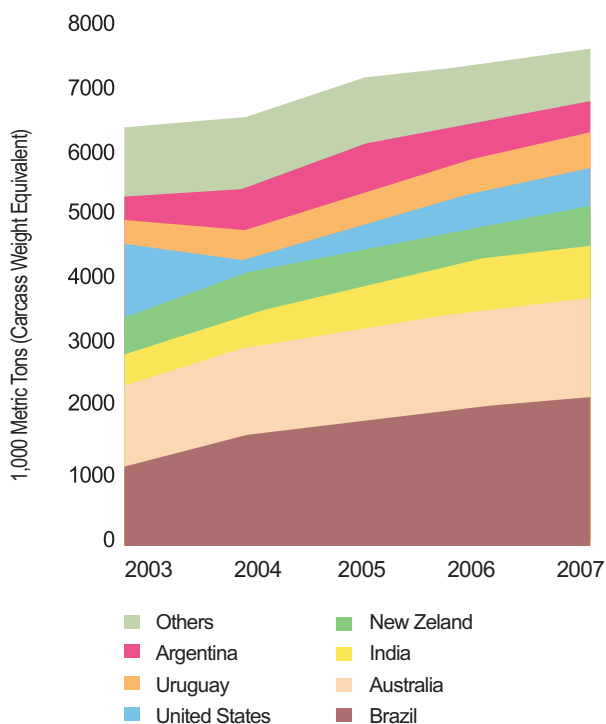
After the death of the animal, certain chemical changes take place in the muscle that lead to flavor and texture changes, James explained. "These changes are very desirable to ultimately produce tasty, tender meat."

The higher the temperature, the faster the development of desirable flavor and texture. However to thwart bacteria growth, temperatures for meat aging and processing must be kept below 7°C (42°F). "A long time – up to 42 days – at a refrigerated temperature of 0°C (32°F) will produce a high quality beef that is safe to eat," James noted. "Freezing is not detrimental to the eating quality of beef – it just stops all the changes. Flavor and texture must be developed either pre or post freezing, as they will not





## BEEF EXPORTS



develop during the time in frozen storage.”

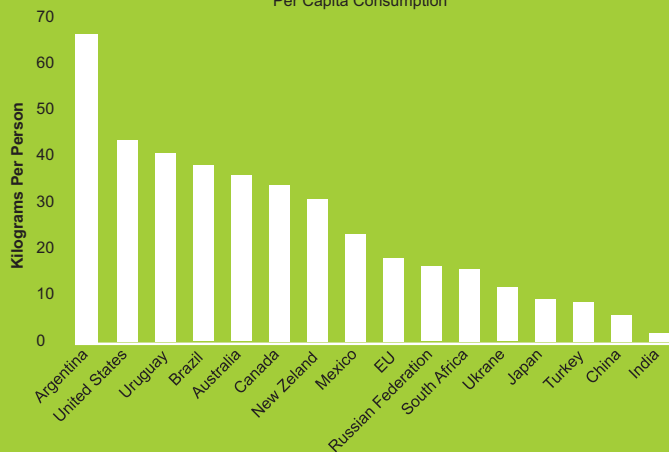
Most beef prepared for long distance shipping is in the form of wrapped boned-out primals or vacuum-packed cuts in cartons, stacked on pallets. At 0°C (32°F) beef can be shipped for up to 10 weeks, according to James – plenty of time for a shipment to travel all the way from Australia to the U.K. Most frozen beef is stored and transported at -18 to -20°C (-0.4 to -4°F), giving it a storage life of a few years. Unfrozen, but still refrigerated beef can retain a display life of up to two weeks after.

Whether you prefer your steak tartare from the Queensland outback or Nebraska corn-fed sizzling on the grill, it's possible today thanks to modern shipping and refrigeration.

The main requirement for shipping is that average temperature of the meat must be brought down to, or slightly below, the shipping temperature before it is loaded, according to James. “Shipping containers are not designed to cool beef, only to keep it cold.”

With temperature control so critical to the process, shipping containers provide an ideal solution for moving meat from packing house to loading dock, across the ocean via containership to the receiving port, and on to refrigerated distribution points before finally reaching the retailer. Refrigerated containers maintain continuous and consistent cold temperatures throughout transit, assuring that when the meat reaches the retailer, and ultimately the consumer, the quality is prime.

## WHO WANTS BEEF? Per Capita Consumption



## A “Mooving” Experience

- It is believed that the first meat freezing works were established at Darling Harbor in Sydney, Australia in 1861.
- The first entirely successful frozen meat shipment was that in the *S.S. Paraguay* from Argentina to France in 1877. The voyage took longer than planned, due to a collision, but the 5,500 mutton carcasses were ‘in tip-top condition’ when the ship arrived.
- The arrival of the *S.S. Strathleven* in London in 1880 with its cargo of 40 tons of frozen Australian beef and mutton helped ignite the meat trade, selling for up to three times its value in Australia. As stated in the Daily Telegraph at the time, “It has been tested by the ordinary method of cooking, and found to be in such good condition that neither by its appearance in the butchers’ shops, nor by any peculiarity of flavor when cooked for the table, could it be distinguished from freshly killed English meat.”
- By 1910, 602,750 tons of frozen meat were being exported from Australia, New Zealand and South America.
- Today, in the United States alone, there are about 800,000 beef producers, most of which are individual or family farms.

## Choice Cuts

- The domestication of cattle is believed to have begun about 8,000 years ago in Mesopotamia, the Indus River Valley and Africa.
- A cow grazes up to eight hours a day taking in about 45 kg (100 lbs.) of feed and the equivalent of a bathtub full of water.
- Hamburger meat from one steer would equal 720 quarter-pound hamburgers, enough for a family of four to eat hamburgers every day for six months.
- There are 1.5 billion head of cattle in the world and 900 cattle breeds.
- The global herd may be contributing to global warming. Methane, released from cows, primarily through burping, is 23 times more potent than carbon dioxide as a heat-trapping gas, and livestock are responsible for 18 percent of greenhouse gas emissions as measured in carbon dioxide equivalents.

# Make Container Security a High Priority

While no one is certain of the total cost of cargo theft, the economic impact in the U.S. alone has been estimated in the tens of billions of dollars annually, and the vulnerability of the supply chain to terrorism is one of the greatest concerns to global economic security.

To help prevent theft, security experts recommend restricting access to loading areas and vessels. Container yards should be secured with locks and monitored with electronic surveillance systems.

To further deter thieves, relatively simple “target hardening” methods are also recommended. This means not just locking containers, but sealing them in a way that will prevent any unauthorized opening from going undetected. In essence, a container becomes a jumbo-sized version of a tamper-evident package.

Responding to this need, Carrier Transicold now offers three container-locking devices through its worldwide network of service centers and parts depots: The Enforcer Adjustable Lock, and the Sealock and Keeper Sealock.

“Around the world, governments, industry and shipping lines are looking for security solutions,” said Shari O’Shea, marketing manager with Carrier Transicold’s Replacement Components Group. “With Carrier distribution sites in all the major ports, we’re able to respond to this emerging demand.”

**The Enforcer Adjustable Door Lock** is a reusable lock made of chrome-plated steel with a cast iron locking component. It fits around container keeper bars and can be adjusted in half-inch locking increments to provide a tight fit. The unique design conceals the shackle of its ABLOY® High Security Padlock, protecting it from physical attack. For added security assurance, it should be used in combination with a container-sealing device.

The **Sealock Model SU205** and **Keeper Sealock Model KSL316** are single-use devices designed to both lock and seal a container. They are compliant with the voluntary industry-government Customs-Trade Partnership Against Terrorism (C-TPAT) from the U.S. department of Homeland Security, and they exceed ISO/PAS 17712:2005 and ASTM “F”1157 standards. With either device, breaking the lock removes the unit’s seal, making a break-in easily detected.

The SU205 is the original, patented Sealock sealing and locking container security system. It consists of a steel J-bar and



bracket that attach to a container’s keeper bars, preventing doors from swinging open. A braided aircraft cable seal simultaneously seals the container and locks the security bar. The all-steel construction requires both a cable cutter and a powered angle grinder tool to remove. All three components share the same unique serial number to prevent counterfeiting.

Simpler in design than the SU205 but still very effective, the Keeper Sealock uses a single 5 mm (3/16-inch) steel braided aircraft cable that mounts in seconds without special tools. It simply wraps tightly around a container’s keeper bars in a figure-8 loop and then through the container’s locking hasp. Both ends of the cable thread through a steel seal that bears a unique serial number. Because it seals and locks with a double loop, the only way to remove the Keeper Sealock is with two cuts of a cable cutter.

With the Enforcer and Sealock devices, Carrier, a company known for its refrigeration expertise, now helps all shipping customers protect precious cargos by freezing out the thieves.

*The  
Enforcer*



*Sealock SU205*



*Keeper Sealock KSL316*



## Turn to the Expert

# Paul den Houdijker

## Managing Director - EMEA



Paul den Houdijker's experience in the transport refrigeration business may have begun on the landside, but he's taken to the ocean container business like the proverbial fish to water.

A little more than a year ago, den Houdijker was named managing director for Europe, Middle East and Africa (EMEA), running a business that currently accounts for about half of Carrier's Container Product sales. He is

based at EMEA's headquarters in Rotterdam, the Netherlands, not far from the village of Montfoort where he was born.

It was with a heating and air conditioning background that den Houdijker embarked on his transport refrigeration career in 1980, taking a sales position with Zephyr Transportkoeling. After four years, he moved, along with the Carrier products, to Dutch truck and trailer refrigeration distributor Vego Trans, which was purchased by Carrier Transicold two years later. For more than a decade, den Houdijker served as sales manager for Carrier's truck and trailer business in the Netherlands, helping to seat Carrier as the market leader there, an achievement he remains proud of as one of his biggest career accomplishments.

As Carrier's Netherlands business grew more than tenfold, den Houdijker was rewarded with a promotion in 1995 to general manager of Carrier Transicold – Netherlands. Five years later, he was again promoted and, this time, moved to Paris as market area director for Carrier Transicold EMEA, still supporting the ground-based refrigerated transportation business of Carrier's company-owned distribution network in Scandinavia, South Africa, Italy and Benelux (Belgium, the Netherlands and Luxembourg).

In joining the Container Products Group in 2006, he returned

to Rotterdam. And, as when he was in sales, den Houdijker's focus has turned outward, he said, focusing largely on customer service and support for the business. He came aboard at a time of escalating growth and exciting change within the container industry.

"The trend is an increased need for refrigerated containers due to the world trade situation," he said. "Consumers want to have all kind of fruits, meat and exotics available every day – fresh or frozen."

"Also the good economic situation in our area helps to increase trade from other parts of the world."

Industry consolidation and use of larger vessels have precipitated the need for shipping lines to increase their volume in serving trade lines over the world, according to den Houdijker.

"Vessels with more than 13,000 TEU are the new standard," he said. "Therefore, today's customers are larger and have more buying power than 30 years ago. They also have more choices."

Carrier's response, he explained, has been a sharpened focus on development of products and services that address specific customer needs, as opposed to creating products and then seeking a market for them.

"Nowadays we are investing in what the customer wants from us and working to foresee their needs. Also our 'total service' philosophy is different, because we not only produce a product, but we follow it with support and service during its entire lifetime."

Today's customers are also tuned into atmospheric concerns and energy conservation, and den Houdijker sees Carrier through its leadership as being able to move the industry toward better, environmentally sound products.

For himself, den Houdijker said his career with Carrier has helped him gain a broader, more strategic perspective than he had when working for a smaller, nationally oriented company.

He sees himself not as an individualist, but a team builder. "I have a good combination of technical product knowledge and commercial skills. I am open and direct and do not have a second agenda. I walk the talk."

## Personnel Updates

### New Service Engineer Joins Customer/Product Support Team

Nadir Guenane has joined Carrier's Customer/Product Support Group as a service engineer. In this capacity, he will be responsible for providing technical support to Container Products Group customers around the world via the technical service hotline, 1-800-668-6283. He will also work with field service engineers and with the engineering, manufacturing, purchasing and parts organizations to identify and analyze equipment issues and needs.

Guenane has degrees in physics, mechanical engineering and computer science from various universities around the world, including the University of Algiers and Ecole Centrale Paris. Prior to his current position, he worked in Carrier Transicold's Vibration and Materials Group while completing his master's degree in Engineering Management at Syracuse University.



Nadir Guenane  
Carrier Transicold  
P.O. Box 4805 TR-20  
Syracuse, NY 13221 USA  
Tel: +1-315-432-7251  
Fax: +1-315-432-7698  
[nadir.guenane@carrier.utc.com](mailto:nadir.guenane@carrier.utc.com)

## Middle East Firms Take Honors for Market Response, Growth

“Seize the Day” could be the motto for the latest winner of the Recognition Award for Carrier’s Europe, Middle East and Africa (EMEA) region – Kuwait’s National Containers Company (NCC).

Refrigeration equipment service wasn’t even part of NCC’s core focus until about three years ago. But when the company entered the business, it took the region by a storm.

Established in 1996, NCC built a reputation for dry box repair and custom conversion of containers into site offices, storefronts and housing. In 2005, NCC became a Carrier Service Center responding to the business opportunity presented by the Iraq War. Kuwait was the nexus for reefer containers bringing food supplies for base camps, and containers were also being used by the military for refrigerated storage.

“A presence was needed for service support for warranty and parts,” explained Shaun Bretherton, regional service manager for EMEA. “Although this area previously was very low in activity for reefer equipment, NCC eventually decided to take the risk knowing it would be an investment with no guarantee of return.

“Without any reefer business at the start, they brought in and trained two technicians. They actively went out to all the shipping lines to promote NCC offerings and to educate customers about transport refrigeration.”

NCC’s business rapidly grew, resulting in staff expansion to meet the new demands. The company also increased its inventory to ensure customers would have immediate access to parts, rather than shipping them in from Europe. As a result, NCC became a major force as a Carrier Transcold parts supplier throughout the Middle East. Today, NCC is the largest reefer service company in the area.

Another aggressive growth story is Ardep Reefer Container

Technical Services, which EMEA also honored this year with a Recognition Award for Business Planning. Like NCC, this Turkish firm only recently joined the Carrier Service Center network, but its business has grown exceptionally fast due to aggressive strategic initiatives. Ardep now serves all the major ports in the Black Sea region, including Istanbul, Izmir, Mersin and Gemlik.

Congratulations, winners! Carpe Diem!



*A Recognition Award for Business Planning is presented to Friksos S. Rothman (center), reefer manager for Ardep Reefer Container Technical Services. Service engineer Julian Carbanaru (left), and Johan Van Der Kruk, Carrier’s global service director, presented the award.*



*At Carrier Transcold’s Service Center Meeting for Europe, Middle East and Africa, Khalifa Ahmad Al-Jassim (center), chairman and managing director of National Containers Company, this year’s winner of the Recognition Award, shakes hands with Johan Van Der Kruk, while service engineer Arnold Stout looks on.*

## Welcome Aboard!

Carrier offers the most comprehensive sales and service network in the industry, with more than 450 service center locations worldwide in all major and developing ports. The following service centers recently joined our ever-growing global base.

Jeddah – Saudi Arabia  
Al Marzouky Reefer Services  
Contact: Mr. T.N. Talib  
[marzouky@alireza.com](mailto:marzouky@alireza.com)  
+966 (2) 6472233

La Libertad – El Salvador  
El Salvador Container Services  
Contact: Mr. Charlie Sanabria  
[charlie\\_sanabria@yahoo.com](mailto:charlie_sanabria@yahoo.com)  
+503-2-319-3140

Tallinn – Estonia  
Foilpoint LLC  
Contact: Mr. Marko Trei  
[foilpoint@foilpoint.ee](mailto:foilpoint@foilpoint.ee)  
+372 (6) 997110

Wallingford – Pennsylvania, USA  
Tri-State Refrigerated Inc.  
Contact: Mr. Mike Condon  
[tristatereefer@comcast.net](mailto:tristatereefer@comcast.net)  
+1-610-522-9872

For more information about these and other Carrier container service centers, please visit [www.container.carrier.com](http://www.container.carrier.com).

## ContainerLINE

Please send your comments and story ideas to:

ContainerLINE  
Carrier Transcold  
Communications Department  
P.O. Box 4805  
Syracuse, New York 13221 U.S.A.

Editors: Anthony D’Angelo, Melanie Heaphy  
Telephone: +1-315-433-4750  
FAX: +1-315-432-7683  
[www.container.carrier.com](http://www.container.carrier.com)

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