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**Carrier Transicold Reveals World's First CO₂-Based
Container Refrigeration Design**

HAMBURG, Germany, Nov. 29, 2011 – Carrier Transicold debuted the world's first container refrigeration system to use the natural refrigerant CO₂ today at the Intermodal Europe Show, exactly one year after the company announced it had developed and begun testing the technology. Incorporating breakthrough technologies, the new NaturaLINE™ design has been engineered to deliver efficiencies equal to Carrier Transicold's best-in-class performer, the PrimeLINE® unit. Carrier Transicold helps improve global transport and shipping temperature control with a complete line of equipment for refrigerated trucks, trailers and containers, and is a part of UTC Climate, Controls & Security Systems, a unit of United Technologies Corp. (NYSE: UTX).

“Advancing Carrier's natural leadership in environmental technologies for the marine container refrigeration market, the NaturaLINE design provides the global shipping industry with the most environmentally sound alternative for refrigerated transport,” said David Appel, president, Carrier Transicold. “NaturaLINE stands apart as the *only* one to offer a natural refrigerant-based solution.”

By using CO₂ as a natural refrigerant, the NaturaLINE design improves upon the PrimeLINE unit's ability to reduce carbon dioxide emissions 28 percent compared to previous units. Carrier Transicold's PrimeLINE and now the NaturaLINE unit significantly reduce on-board power generation requirements, helping shipping lines save fuel used in generation of electricity. This, in turn, helps hold down operating costs and reduce emissions related to power generation.

“NaturaLINE demonstrates how technological innovation can reduce the impact on climate change, continuing Carrier's long-standing commitment to providing sustainable solutions,” Appel said.

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“Addressing the special thermodynamic properties of CO₂ necessitated the development of an innovative refrigerant management system, including a new purpose-built, multi-stage compressor with variable-speed drive, a ‘gas cooler’ with a wrap-around design and a flash tank,” said Mike Griffin, new product development program manager, Carrier Transicold. “The patented reciprocating multi-stage compressor maximizes capacity and minimizes power consumption.”

NaturaLINE uses two stages of compression, which improves the overall efficiency of the unit. Its unique cylinder unloading capability allows the compressor to save energy in light-load conditions.

The variable-speed drive that controls the compressor is a first for a Carrier container refrigeration unit. The custom-designed drive electronically adjusts the compressor’s speed to provide the precise amount of cooling capacity to meet demand, saving considerable energy compared to conventional units.

NaturaLINE technology replaces the condenser assembly found in conventional refrigeration units with a new heat exchanger called the gas cooler. The gas cooler coil wraps around the fan, maximizing heat-transfer surface area for greater efficiency in a design that is both compact and lightweight.

“The gas cooler makes the overall refrigeration system more versatile in responding to the thermodynamic properties of CO₂, providing gas cooling after each compression stage for better efficiency,” said Griffin.

The flash tank, an entirely new component in a container refrigeration system, is designed to manage the flow and phase change of the refrigerant after leaving the gas cooler. For efficient cooling performance, the patented Carrier design enables final separation of CO₂ from its gas phase to the liquid state before entering the evaporator.

While introducing many industry firsts, the NaturaLINE design remains consistent with Carrier Transicold’s other leading units. The basic frame, the evaporator and evaporator fans, and the controller and control box are virtually identical to existing Carrier Transicold models. The easy-to-use control interface works the same as on other container refrigeration units. Also, serviceability will be similar to existing Carrier Transicold products, and will be supported by a new comprehensive training program.

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For more information on the NaturaLINE system design, visit www.carrier.com/naturaline.

About Carrier Transicold

Carrier Transicold helps improve transport and shipping temperature control with a complete line of equipment and services for refrigerated transport and cold chain visibility. For more than 40 years, Carrier Transicold has been an industry leader, providing customers around the world with the most advanced, energy efficient and environmentally sound container refrigeration systems and generator sets, direct-drive and diesel truck units and trailer refrigeration systems. Carrier Transicold is a part of UTC Climate, Controls & Security Systems, a unit of United Technologies Corp., a leading provider to the aerospace and building systems industries worldwide. Visit www.transicold.carrier.com for more information.

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*Carrier Transicold's new NaturaLINE™ CO₂ container refrigeration system design.
(Editors: Reference photo above corresponds with Carrier_NaturaLINE_unit.jpg)*