

# IT'S NEVER BEEN DONE BEFORE

## Emerson Technology Enhances Food Preservation Around the World

Temperature and humidity control are critical for transporting perishable products, such as bananas, long distances. Dole, the world's largest producer of fresh fruits, uses refrigerated containers equipped with Emerson technology to precisely maintain temperature and humidity for bananas from harvest to your local store.

Thirty-seven billion pounds of bananas are shipped globally each year, making bananas the world's most popular produce. Bananas are consumed in every country on earth, but are grown in few by comparison, so they must travel thousands of miles before arriving in your local store.

Successfully transporting bananas is no easy task. As soon as they are harvested, they are placed into a refrigerated container while still in the field and brought to 58.0° Fahrenheit (14.4° Celsius). After that, they are hauled by truck to port, placed onto a seagoing vessel, transferred to a refrigerated warehouse at the receiving port, and then transported by refrigerated truck again to the store. If the temperature drops even a few degrees below the ideal temperature at any time during this process, the banana skin will develop dark spots and will not ripen properly. If the temperature rises a few degrees, premature ripening and shrinkage occurs.

***It's Never Been Done Before.*** Modern refrigerated seagoing containers equipped with Emerson's Copeland Digital Scroll compressor technology provide precise temperature and humidity control, maintaining temperatures to within +/- 0.5° F (+/- 0.3° C). This is particularly critical for perishable products – like fruits and vegetables – which travel in seagoing containers on vessels that encounter harsh weather conditions and require tight climate control to protect quality. In the food industry where profit margins are narrow, any product degradation due to poor temperature and humidity control during transport is a significant financial concern.

Dole, the world's largest producer and marketer of fresh fruits and fresh vegetables, switched almost exclusively to the use of refrigerated container systems equipped with Copeland Digital Scroll compressors in 2005. Dole relies on Emerson's technology to rapidly remove heat from the container. At the point of harvest in the field, the digital scroll compressor "pulls down" the temperature to the ideal level, and enables a 46 percent more energy efficient method for maintaining temperature control throughout the remainder of the bananas' journey.

Emerson estimates that use of its energy-efficient digital scroll compressors in refrigerated containers can enable the banana industry to save more than \$10 million in fuel costs and reduces shrink and spoilage by \$500 million annually. In addition, they allow the reduction of carbon emissions related to banana transportation by 15 percent.

Additional advantages of using Emerson's digital scroll compressor include:

- **Reaches ideal temperature 25 percent faster** than traditional compressors

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- Digital modulation provides **precision temperature control** and **lowest energy usage**
- **Best-in-class corrosion protection and reliability** in one of the most demanding environments
- **More lightweight** (95 lbs.), as compared to traditional compressors, which are 325 lbs.

Ten years ago, less than five percent of the refrigerated container users employed scroll compressors, but now more than half of the users employ scroll. Food shippers like Dole and many others have found out that Emerson's scroll compressor technology helps them better protect their valuable perishable products, save on energy costs and deliver environmental benefits.