



## Star Cool has become a household brand

Over the past year Star Cool has changed position from being a niche producer to a market leader and a key player in the reefer business.



By Per Holm Knudsen,  
Vice President, Star Cool

Over the past years, Star Cool has seen the interest in our products and services grow rapidly, which is a clear indication that customers and other stakeholders trust our work.

Star Cool has become a household brand and a key player in the business – a shift caused by a lot of different factors: increased market share, strong interest from our customers, and a steady growth in the order intake. In other words, our service, customer trust, quality, and reliability have lifted Star Cool up to a unique position in the market.

Recently, Hanjin Shipping, one of the world's leading shipping carriers, became a new Star Cool customer. The order did not only confirm that Star Cool has the muscle and experience to compete with the biggest players in the reefer business. Hanjin's purchase also reflects the fact that Star Cool is no longer a small, inexperienced player in the reefer industry. Our company is a trusted provider and partner with a proven track record.

Even though Star Cool has now moved to the maturity stage, we will not shed the focus of being a newcomer to the business. This means that Star Cool will still be humble and tremendously dedicated to take things even further.

Henry Ford once said: "If I had asked people what they wanted, they would have said faster horses." Within an industry, there will always be companies and individuals, who are more innovative, open-minded, and efficient than others. These organizations become role models and often also market leaders.



### Hanjin Shipping teams up with Star Cool

Hanjin, which previously met its reefer requirements through leasing options, has now returned to direct purchase, placing a sizeable order with MCI.

Hanjin Shipping, one of the world's leading shipping carriers with over 60 services worldwide, has recently placed an order for 500 Star Cool Integrated reefer containers.

Hanjin had conducted a series of trials with Star Cool units, both on board its vessels and in its depots.

The trials resulted in Hanjin's acknowledgement of the outstanding performance, reliability, and low energy consumption of the Star Cool products. Hanjin has realised that Star Cool Integrated is a perfect match with the company's efforts to employ the best technologies to care for its customers' cargoes and the environment. At the same time, Hanjin will benefit from the additional operational cost savings offered by the integrated design through reduced weight and better insulation.

Hanjin also appreciates Star Cool's continuing expansion of its global support services, particularly the recent employment of Mr. H. K. Kim who is based in Seoul. Star Cool News will follow this story in a future issue.



# Dole combines cost improvement and environmental focus

Last year, Star Cool delivered reefers to the world's largest fresh fruit and vegetable producer, Dole. It is a company with a strong focus on energy efficiency and environmental issues, says Dole's Director of Equipment Operations, Benjamin C. Mathews, in a interview with Star Cool News.



▲ Benjamin C. Mathews,  
Director of Equipment Operations, Dole

*- How would you describe Dole's focus on energy efficiency and other environmental issues?*

"At Dole Fresh Fruit International, we recognized early on that cost improvement opportunities and environmental improvement opportunities are not mutually exclusive. Improved energy efficiency remains an excellent opportunity for both environmental improvement and cost improvement."

*- Can you give some examples of how you act responsibly?*

"In vessel operations, we have optimized vessel rotations to allow our vessels to slow down and thereby reduce fuel consumption and carbon emissions. In refrigerated container fleet management, we have continually introduced the most energy efficient containers available in the industry since 2005 and removed older, less energy efficient units from our fleet. By May 2010, we will also have eliminated HCFC refrigeration systems from our shipping container fleet.



In refrigerated container fleet maintenance, we have focused on reduced refrigerant consumption, and we are down about 60 percent since 2005 with a substantial carbon footprint reduction as a result. We also switched to milder, fully biodegradable soaps for washing the exteriors of our containers. These are just a few examples in our fresh fruit shipping operations. Many more can be found in our agricultural and food processing practices around the world. "

*- Why has energy efficiency become more and more important for Dole?*

"Energy consumption is an important cost component for our vertically integrated fresh fruit supply chain, and energy consumption is a significant component of our fresh fruit supply chain's carbon footprint. By improving energy efficiency, we are able to achieve cost reduction and carbon footprint reductions simultaneously."

*- Is Dole using Carbon footprint or similar measurements to map out the impact of the operation?*

"Yes, we are making a carbon footprint calculation for our fresh fruit shipping operations, and similar calculations are performed for our land-based operations, including our farms."





- What is important for Dole when looking for the right reefer?

"We consider a number of criteria when looking to acquire new equipment. Temperature control, reliability in service, after sale support, maintenance cost, energy efficiency, and weight are some of the factors we evaluate."

- What other features would Dole like to have in a reefer container?

"As we continue to introduce new reefer containers into our fleet, we are looking at additional improvements to the design and manufacturing processes, including the environmental impacts of the container manufacturing process. Two very interesting environmental improvements in the near future would be the introduction of "greener" foam blowing agents and waterborne protective coatings."

- How has the introduction of the Star Cool unit been?

"It has gone quite well overall."

## Fresh Fruit Since 1851



Founded in Hawaii in 1851, Dole Food Company, Inc., with 2007 revenues of \$6.9 billion, is the world's largest producer and marketer of high-quality fresh fruit and fresh vegetables.

Dole markets a growing line of packaged and frozen foods, and the company is a produce industry leader in nutrition education and research. Dole does business in more than 90 countries and employs, on average, 36,000 full-time regular employees and 23,000 full-time seasonal or temporary employees worldwide.



# It is only fresh air

Fresh air ventilation in refrigerated containers is one element of cargo environment that can have a major influence on successful cargo outturn. However, it is also the most misunderstood area of chilled cargo care.

Fresh fruit, vegetables, and flowers are all alive and respiring, performing a metabolic conversion of internal sugars and starches with oxygen from the air, releasing heat, carbon dioxide, and water vapour. A reduction in oxygen and/or an increase in carbon dioxide can have detrimental effects on produce, so it is necessary to have a process to allow the internal atmosphere of the container to remain the same as the air outside.

It may at first appear a simple matter of 'opening a window'. However, there are also undesirable effects of allowing unregulated fresh air exchange. Any fresh air entering the refrigerated space of a container will bring with it ambient heat and humidity which needs to be removed or conditioned, and this can result in increased evaporator coil frosting, uneven temperature distribution, changes in relative humidity, longer pull-down times for cargo, and greater energy consumption.

Due to these negative effects of fresh air ventilation, it is necessary to have a system which regulates the amount of air exchange, rather than just using a 'wide open window'.

The traditional method for doing this is to have an adjustable fresh air vent (FAV) able to cater for different produce, requiring different amounts of air exchange.

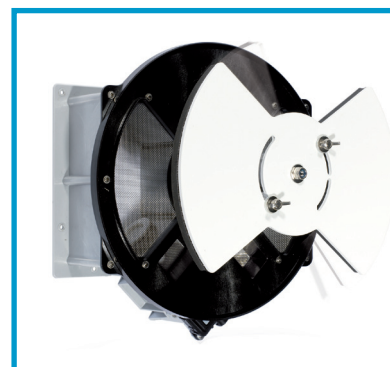
There are many factors that influence the actual air exchange when the reefer is loaded and plugged in. Correct FAV is subject to operator variations, power supply, static pressure, fan motor speed, as well as the energy saving software programs (Quest, DTMS, economy mode) in use today that will influence the evaporator fan motor speed, hence affecting the fresh air exchange.

To add to the complexity of selecting the correct FAV opening, the cargo itself can vary greatly in terms of respiration rates depending on cultivar, stage of maturity, seasonal differences, temperature, and handling.

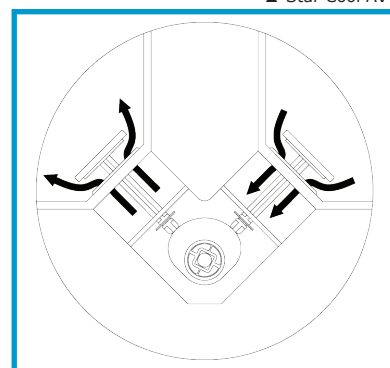
So how is a shipper to select the correct FAV opening given the huge number of variables? Logic dictates that the only accurate method to ensure that the internal atmosphere is similar to the external, without excessive air exchange, is to control the air exchange based on the actual gas levels (the percentage of O<sub>2</sub> or CO<sub>2</sub>).

Star Cool's automatic ventilation system (AV+) has the ability to accurately control the inside atmosphere by regulating the air exchange based on the input of a CO<sub>2</sub> sensor and a maximum set CO<sub>2</sub> level via the main controller.

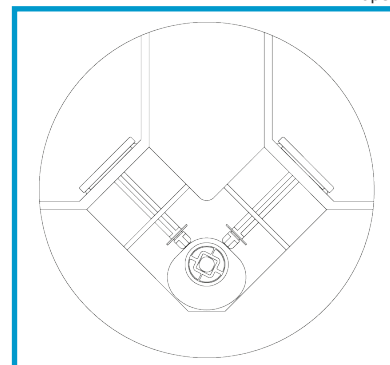
There are also additional benefits to the system with respect to possibilities of modifying the atmosphere to increase post harvest life for specific commodities. However, the ability to utilize a common universal setting, regardless of variations in cargo and conditions, remains a major advantage to cargo quality and energy efficiency.



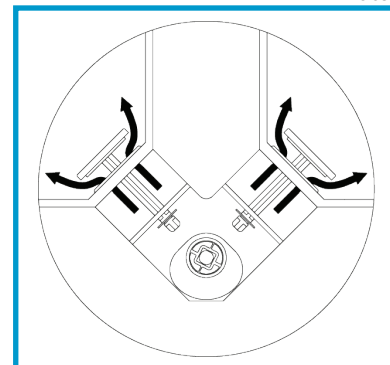
▲ Star Cool AV+



▲ AV+ open



▲ AV+ close



▲ Vacuum Safety Valve Open

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