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A publication for the seagoing container transport temperature control industry.

Fall 2008

AFAM+: Green Before its Time

Thermo King's Advanced Fresh Air Management System (AFAM+) was green before the industry – and the world – really grasped its importance. When it was launched nearly six years ago, words like organic, carbon footprint, and power savings were not the household terms that they are today.

While availability and shelf quality remain near the top of most retailers' priority lists, they are forced to consider many more factors – some of which are based on consumer demand and some that are economic in nature. The globalisation of the distribution chain in combination with the availability of atmosphere control technology for the sea transportation industry partly addressed the availability issue. As a result, many supermarkets around the world now offer a wide range of seasonal fruits and vegetables year round and regularly introduce new varieties. The quality and shelf life of the products also improved as technology was able to control product ripening, enabling longer transit times. As a result, avocados tasted like avocados and bananas like bananas, no matter where they came from.

But as environmental and health-related concerns gained awareness, and fuel costs soared, there were new issues to address. And now, the environmental implications of fresh cargo transport and distribution chains are leading concerns for retailers.

"The term 'organic' is considered by many as the epitome of health and quality in food," said Pietro SONZA REORDA, product manager, Thermo King Global Marine Solutions. "It is fast transforming the food industry as consumers increasingly demand to know not only where

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THERMO KING

World Leader in Transport Temperature Control



As fresh as the day it was picked.



AFAM+

ADVANCED FRESH AIR MANAGEMENT

From the moment your cargo sets sail, to when it's collected from the shipyard, AFAM+ is at work. This new technology constantly monitors and maintains the correct CO₂ level throughout the container - allowing fruit and vegetables to preserve their taste, texture, colour and appearance. Just like the day they were harvested.

So even after two weeks on the shelf, your product is still in peak condition and ready to enjoy.

MAGNUM® Proves Itself in Harsh, Russian Winter

FESCO Transport Group orders 250 units



There are not many, if any, environments harsher than Russia's winters. It's not uncommon to experience -35 degree C temperatures, and the blowing winds create wind chill temperatures that simply cannot be imagined by most. But even in these extreme temperatures, Thermo King's MAGNUM® container refrigeration unit performs like no other reefer on the market.

FESCO Transport Group, the number one shipping line in Russia, was looking for a reefer unit that could withstand the extreme environmental conditions of trans-Russian rail routes. Utilizing eight MAGNUM units, Dalreftrans, a reefer intermodal operating company of FESCO's Transport group, conducted a 12-month trial during 2007. Hauling all types of commodities – from frozen to chilled – FESCO's Dalreftrans put the MAGNUM reefers to the ultimate test.



"No doubt, traveling from the West to the East of Russia during the coldest months of the year can be challenging on equipment and people," said Sergey Proskuryakov, FESCO's Dalreftrans deputy general director logistic. "We chose MAGNUM for the job because we had heard about its performance records, its capabilities, and its quality construction. Needless to say, the MAGNUM did not disappoint us."

Following the successful trial, FESCO ordered 250 MAGNUM units in early 2008, all of which are now in service throughout the Trans-Siberian or BAM Railway in Russia.

Most reputed for its industry-leading -35 degree C cooling capability, the MAGNUM impressed FESCO most with its fresh product performance. "When traveling through such extreme cold temperatures, it wouldn't take long for a fresh-chilled product load to be lost if the unit malfunctioned," said Proskuryakov. "The MAGNUM was built to endure – from its paint, to its scroll compressor technology, to its overall construction.

"Plus, we benefit from faster pull-down, less energy consumption, and a reduced carbon footprint. These are factors that will help us compete, grow and excel as a shipping company."

FESCO, also known as the Far Eastern Shipping Company, has been doing all of those things for more than 125 years. The company's goal has always been to provide customers with the fastest transit times and most knowledgeable customer service team in the trade, all backed by high quality operations and the best and most modern equipment available today.

Its container fleet includes 20-foot and 40-foot dry, 20-foot and 40-foot high cube refrigerated, and 20-foot and 40-foot flat racks and open tops, as well as out-of-gauge roll-on/roll-off and break bulk cargoes.

Due to the diverse climates FESCO's Dalreftrans refrigerated container fleet endures, reefers are equipped with a two-tiered alarms system, which ensures no interruption in the temperature during transit, according to the Dalreftrans website (www.dalreftrans.ru). The MAGNUM provides maximum cooling capacity across all temperature ranges, adjustable fresh air exchange and electric defrosting and heating.

"We are proud to offer the most technologically-advanced equipment – like MAGNUM – to our customers, and we monitor all aspects of our shipments to ensure a top-quality product is delivered," concluded Proskuryakov.

For more information about FESCO or its subsidiaries, visit www.fesco.ru and www.dalreftrans.ru.

STX Pan Ocean Chooses MAGNUM®

Thermo King is pleased to welcome STX Pan Ocean to its fast-growing MAGNUM® container reefer family. The Seoul, Korea-based shipping company was started 42 years ago as a bulk carrier and is today one of the leading shipping companies in the world. It became a member of STX Business Group as a subsidiary of STX Shipbuilding Com., Ltd. in 2004.

“We are very satisfied with the MAGNUM unit and are continuously marketing its quality performance and availability through STX Pan Ocean container services to our sales department and customers alike.”

STX Pan Ocean developed its solid service reputation in tanker operation, dry bulk and car and truck carrier services, and expanded into container service offerings beginning in 1973 between Korea and Japan. Today, the company has a 31-route container service scope that features Far East Asia, including China, Korea and Japan; Southeast Asia, including Thailand, Indonesia, Singapore, and Vietnam; India Sub-Continent, including India, Pakistan, and Sri Lanka; and the Middle East. In 2008, STX Pan Ocean’s Container Division began a new service between Korea and Australia, and has plans to expand to Europe in the near future – all further strengthening its position as a ‘global carrier.’

To assist with its growth and success plans in the container market, STX Pan Ocean has chosen Thermo King’s MAGNUM unit, ordering a quantity of 100 in April 2008 with delivery completed by mid-May. The

company currently operates 18 ships for its container service, 4 owned and 14 chartered. This is the first time STX Pan Ocean will offer MAGNUM reefers to its customers.

“We had heard about the advantages and benefits of the MAGNUM from other shipping lines that were already operating the unit,” said Jung-Ah Park, assistant general manager, Operations & Logistics Team, Container Business Division, STX Pan Ocean. “The savings in bunker costs by economic bunker consumptions is most attractive to us.”

All MAGNUM-cooled containers are operating successfully and STX Pan Ocean is preparing the advanced equipment for the requirement of future customers.

“We are very satisfied with the MAGNUM unit and are continuously marketing its quality performance and availability through STX Pan Ocean container services to our sales department and customers alike,” said Park.

“We are excited to team up with STX Pan Ocean and be a part of their worldwide expansion efforts,” said Dennis Trusler, director, Thermo King container sales, Asia Pacific. “We believe the MAGNUM unit will be a key factor in the company’s cargo carrying flexibility – from the deep frozen variety for which MAGNUM first earned its reputation, to the fresh categories due to the reefer’s fast pull-down capabilities.

“But equally important in today’s shipping world is, of course, energy consumption, power savings, and a decreased carbon footprint. No other container on the market performs like MAGNUM in any of these areas.”

More information on STX Pan Ocean can be found on the company web site at www.stxpanocean.com.



A New Generation

SG-3000 Series of gensets operate with new standards

In the world of container gensets, advanced technology, lower fuel consumption, decreased emissions, reliability, and serviceability have not only become common topics; they have become expected features. The competitive container shipping industry demands it. Rising fuel prices, environmental mandates, increased competition, and concerns about food safety are pushing the product development envelope like never before.

A power source for container reefers, gensets are vital to the preservation of container temperatures and perishable loads. Until diesel fuel prices skyrocketed and carbon footprint became a household term, little more needed to be known about gensets. But the world is changing ... and so has genset technology.

Thermo King's SG-3000 Series of gensets, introduced in 2007, can reduce fuel consumption by nearly 20 percent when compared to previous genset models. This translates into over \$1,500 fuel savings per year, per genset, when calculating an average 2,000 hour year operation base. That equates to approximately 400 gallons of diesel and 4,000 kgs of carbon dioxide (CO₂). When multiplied by an entire container fleet of gensets, the savings in fuel and environmental emission impact are astounding.

Advanced engine, hardware and software technologies have allowed improvements in genset performance while ensuring reliability and cargo safety. The SG-3000 features today's most sophisticated microprocessor controller offering fuel sensors that constantly monitor and log fuel consumption, and trigger operator alarms if fuel tank levels need attention. This assists with cost management, reduces thefts, and ensures maximum cargo security and temperature integrity.

Software updates are now flash-loadable, saving money in chip replacements and installations, and the controllers support technological enhancements such as telematics capabilities. Satellite connections allow performance data to be downloaded through a customer's web server – managing equipment and loads has never been easier.

The SG-3000 series is built for improved serviceability. "In today's competitive industry, equipment needs to be running to stay profitable. We built the SG-3000 gensets with easy access to components so that problems can be diagnosed faster," said Pietro SONZA REORDA, product manager, Thermo King Global Marine Solutions.

"We believe that the features and performance of the SG-3000 Series are setting a new standard in genset technology," concluded SONZA REORDA, "a standard required for profitability and environmental stewardship."

SG-3000 Series Generator Sets

One step ahead in genset technology

- Efficiency
- Reliability
- Flexibility
- Easy to operate



SG-3000 gensets save Hapag-Lloyd 5,000,000 kgs/year CO₂

Thermo King's remarkable new SG-3000 Series Generator Sets with EcoPower technology have been offering customers extensive fuel savings and reducing carbon dioxide (CO₂) emissions significantly since March 2007. Ever conscious of its environmental responsibilities and recognizing that real environmental progress is only possible through hardware advancements, Hapag-Lloyd has ordered more than 1,000 of these innovative gensets with EcoPower.

Both the SG-3000 electronic controller and the EcoPower option are unique in the container genset market. "Utilising nothing more than the electrical signal on the power line, these clever gensets can recognise what type of reefer is on the power line, and what mode it is running in, irrespective of the brand of reefer," said Dermott Crombie, vice president, Global Marine Solutions. "Armed with this information, the genset can make informed decisions about the amount of power necessary to operate the reefer, adjusting the genset accordingly. At no point is the cargo care compromised."

The results have been stunning for customers like Hapag-Lloyd. Traditional Thermo King gensets reduced fuel consumption by at least 10 percent when compared to its nearest competitor. With EcoPower, those savings more than double, decreasing the CO₂ output considerably.

"Assuming 2,500 hours/year of operation, the savings are equivalent to more than 500 free hours operation, or around 500 gallons diesel. With fuel touching \$4/US gallon, this is a straight saving of \$2,000/annually. That saving is EVERY year, for the life of the genset. So the accountants are happy," explained Crombie.

"But Hapag-Lloyd's underlying motive for the SG-3000 Series Gensets was environmental. In this regard, the savings are equally impressive. 500 gallons of diesel = 5,000 kgs of CO₂ annually. So this environmentally-conscious company is saving 5,000,000 kgs of CO₂ per year with the 1,000 gensets they purchased," continued Crombie. "They are making a big difference in the world just by choosing the right equipment."

According to Christoph Zwanzleitner, senior director, container services, Hapag-Lloyd, "Thermo King's SG-3000 gensets with EcoPower fit well with our corporate environmental agendas. We are implementing changes and supporting numerous efforts to better the environment and ensure its health for the future."

Hapag-Lloyd is one of the top five shipping companies in the world. The Hamburg, Germany-based company is present in more than 130 countries and operates about 320 sales offices. Hapag-Lloyd sets industry standards in terms of customer orientation, service and productivity. The company deploys 133 container ships featuring around 499,000 TEU in capacity across five regions worldwide: North Europe, South Europe, North America, Latin America and Asia. More information can be found at www.hapag-lloyd.com.



More information on Thermo King's SG-3000 Genset Series can be found at www.thermoking.com, or by contacting your local Thermo King dealer.

Green Before its Time

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their food comes from, but also how it is produced, transported, and preserved, as well as what the environmental impact is during the entire process.

"The marketplace is increasingly interested in buying food produced and brought to it sustainably."

In such a competitive market as the transport and retail industry, differentiation is seen by most as key for protecting margin erosion and winning the price wars. With legislators worldwide seriously investigating sea transport's impact on climate change, questions are raised on how fair trade activities, harvesting and the transporting of fresh cargo will be further regulated.

"These concerns and issues, coupled with high fuel costs, are all linked in determining a new landscape for the fresh cargo chain, and marine transportation technology has a big role to play," said SONZA REORDA. "Technologies making use of natural mechanisms embedded in cargo will be able to answer these new demands and survive industry changes in an environment where words like 'emissions,' 'chemicals', and 'gas injection' make people more nervous every day."

AFAM+ manages O₂ and CO₂ levels in a container to slow product metabolism while providing temperature management. Supplemented with the unmatched MAGNUM® container refrigeration unit's temperature control accuracy, AFAM+ manages the changes in O₂ and CO₂ levels when fruits and vegetables respire to achieve the optimum combination without additional dehydration. The MAGNUM controller can also be programmed to delay the fresh air vent opening, hence allowing the container's interior temperature to reach proper set point before the container is ventilated and reducing pull-down time. "Basically, because AFAM+ manages the atmosphere so well, less heat needs to be removed from the box by the unit," explained SONZA REORDA. "That means faster pull-down and less power used, which translates into fuel and cost savings, as well as a reduced carbon footprint."

"AFAM+ was created with forward-thinking ... it offers shippers a choice when shipping perishables and extends cargo shelf life with its natural environmental management. It's an organic way to ship organic produce! Plus it is less expensive to ship – and operate – than air transport, and most importantly, is environmentally-compatible. It was green before its time, and now it's a major answer to the shipping industry's challenges."

Today, more than 11,000 AFAM+ systems are in service worldwide making it the most widely installed modified or controlled atmosphere system in the industry.

For more information on AFAM+, contact your local dealer or visit www.thermoking.com.



Intermodal2008

The Intermodal Conference 2008 promises to be the best ever. Join us at our booth in Hamburg, Germany, December 2-4 to see first-hand Thermo King's latest environmentally-considerate product launch ... the next generation in container refrigeration efficiency.

Thermo King prides itself in developing the most technically-advanced, energy-efficient and earth-friendly products on the market. From our patented AFAM+ (Advanced Fresh Air Management) systems, to our industry-leading SG-3000 genset product line that was introduced in 2007, to our revolutionary MAGNUM® container reefer launched in 2002 ... Thermo King continues to raise the bar in performance and environmental accountability.

And we're doing it again. You'll have to visit us to learn more. Oh, and just for stopping by, and keeping with our theme of course, we'll give you a special gift – something that uses naturally-pure, free energy (i.e., no batteries required).

Intermodal is the world's leading container event ... a 'can't miss' in our industry. The two-day conference will comprise of sessions on New Global Challenges, Intermodal Rail Development, Intermodal Short Sea and Barge and Container Operations. Plus on the third day there will be a free session covering Bulk Liquid Transport and Logistics. Go to www.intermodal-events.com to learn more.

Maruba Grows its MAGNUM® Fleet by 500

Buenos Aires-based shipping line Maruba added another 500 Thermo King MAGNUM® container reefers to its fleet earlier this year, all of which are in service for shipments from Argentina's East Coast to Europe and the Far East. The units were picked up from Capital Intermodal, a new, Germany-based leasing company.

Maruba first added MAGNUM units in the fall of 2007. "They were very happy with the equipment, particularly with the lower fuel consumption on their first 300 units," said Gino Ansaldo, Thermo King sales & service manager, South America. "We've enjoyed a great working relationship with Maruba and are excited to continue helping them as they grow their business."

Maruba's aggressive refrigerated fleet expansion will help support growing export markets. "Because the MAGNUM units require less power than competitive models, more reefers can be onboard each vessel to better accommodate the demands," explained Ansaldo. "

To keep the fleet running and maintained, Maruba depends on Thermo King's expansive dealer network, which provides quality, dependable service. In addition, local dealership personnel and Thermo King corporate staff provide training courses for sales, logistics and operational personnel so

that the MAGNUM units are run optimally and correctly throughout their expansive temperature range – from -35 degree C to fresh setpoints.

It was Thermo King service that first impressed Maruba. The company has received service support from the local Thermo King dealer on 30 previously acquired generator sets since 2005. It was the customer service, coupled with the lower fuel consumption of the Thermo King genset, that initiated discussions about the MAGNUM unit and its capabilities.

"They were very happy with the equipment, particularly with the lower fuel consumption on their first 300 units."

"Efficient fuel consumption, fast pull-down, reliability, best-in-class temperature setpoints, and responsive customer service are all desired – and needed – throughout today's Cold Chain industry," said Fernando Taquino, equipment & reefer control manager, Maruba. "Thermo King provides all of these benefits. We appreciate it, and so do our customers."



With an objective of increasing the scope of its services while offering a response consistent with timing and dynamics of foreign trade processes worldwide, Maruba is present in four continents and operates a fleet of container ships, bulk carriers, multipurpose, tugboats, and barges. The company provides all types of service including frozen and chilled cargo from both coasts of South America to Asia, Europe, the United States, the Mediterranean and related areas.

More information can be found at www.maruba.com.ar

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