

The 4th Annual Parts Convention, sponsored by Concepcion-Carrier Air Conditioning Company, was held last February 27, 2007 at the Bellevue Hotel, Alabang. Around 150 participants from greater Manila and provincial area attended the one-day activity.



Mr. _____ of Uniform Refrigeration receives the 2006 Outstanding Sales Performance Award - Category AS presented by Mr. Marlon Capulong, Totaline Sales Engineer.

This years Totaline-Parts convention is highlighted with various presentations such as Totaline Dealers Performance Ranking, 2007 Goals and Category Targets, Incentive Programs, 2007 Plans and Programs, New Product Lines and 2007 Category Assignments. Top-selling dealers from different regions were also given recognition for their outstanding sales performance for the year 2006.



One of the Incentive Trip Awardee is given to Lochie represented by Mr. Lorenzo Lim.

2006 Outstanding Sales Performance Awardees for **Category AS** is given to *Uniform Refrigeration and Magic Aire; Grand Airconditioning and Karnani, Inc.* for **Category A**; *MPS Refrigeration, Standard Refrigeration, Totaline Air Systems, Welkin Enterprises, REEM-COOL, BRHL Trading and Conceptrade Industries* for **Category B**; and *MCCD Engineering Services* for **Category C**. Incentive Trip Awardees were given to *MCCD Engineering, Welkin Enterprises, MPS Refrigeration, Standard Refrigeration, Totaline Air Systems, BRHL Trading, R E E M - C O O L , Conceptrade Industries, Grand Airconditioning, Karnani, Inc., Magic Aire, Uniform Refrigeration and Lochie.*



Totaline-Parts Convention held

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2006 Totaline Dealer of the Year Awardees

- Category AS**
Tropical Aire Marketing
Dealer of the Year for 3 consecutive years
Hall of Fame
- Category A**
Airpac Systems Control
Iloilo
- Category B**
Anvil Metalshop Corporation
Alabang
- Category C**
SKU Air Conditioning
San Fernando

product feature

MICROCHANNEL TECHNOLOGY MORE EFFICIENT, COMPACT, AND CORROSION RESISTANT TECHNOLOGY FOR AIR COOLED CHILLER APPLICATIONS

INTRODUCTION

The race for higher energy efficiency & greater equipment reliability is a challenge not new to the HVAC industry. This challenge is even more difficult to meet when the goal is to maintain equipment size whilst limiting potential cost impact. Previous engineering solutions designed to satisfy these requirements typically have included such changes as higher efficiency compressors or having a larger coil to boost thermal performance. However, each of these solutions tends to increase equipment size, cost or both.

An alternative solution that is becoming popular in air conditioning applications, both residential and commercial, is microchannel heat exchanger (MCHX) technology for condenser coils. This heat exchanger technology has been widely used in the automotive industry for many years on millions of automobiles with substantial success.

MICROCHANNEL HEAT EXCHANGERS

Today, millions of cars use microchannel technology for radiators, air conditioning condensers and oil cooler coils. The utilization of microchannel heat exchangers was initiated in the automotive industry in the late 1980s. Phaseout of CFC's forced the change from R-12 to the chlorine-free R-134a. With this change came challenges similar to those faced by the air conditioning industry in achieving the same end result: comfort cooling with a different refrigerant. Refrigerants R-134a and R-12 are two distinctly different refrigerants, each with unique benefits and heat transfer characteristics. When R-134a was used in conventional copper tube/aluminum fin automotive condensers, there was a significant decrease in capacity vs. R-12.

Since cars could not fit the larger coil sizes associated with the switch to R-134a, they required better heat transfer capacity to allow for a smaller heat exchanger that would be more compact and not add weight or size to the vehicle. The industry turned to microchannel heat exchanger technology that takes advantage of established heat transfer principles through the use of multiple small-channels in parallel to maximize heat transfer surface contact. More efficient heat transfer results in the ability to maintain or even reduce the required heat transfer surface. In addition, refrigerant charge can be reduced, ultimately resulting in an even more environmentally sound solution when combined with the transition to R-134a.

The automotive industry was able to realize significant benefits related to the structural integrity of the

coil design. Rigid microchannel coil construction is better able to withstand oil, salt, material spills, sand, ash, and other chemical road treatments in all types of hot, humid & coastal locations.

Standard Coil

The standard round tube plate fin (RTPF) condenser coil has copper tubes mechanically bonded to aluminum fins with performance enhancements. High thermal efficiency is achieved through direct metallic contact between the tube and fin. Fin enhancements are utilized to improve the fin's airside heat transfer capabilities. Standard coil generally provides excellent performance and long life for non-corrosive environments. Application of this coil in corrosive marine, urban or industrial environments is not recommended unless properly protected with pre-coatings or post-coatings due to the likelihood of visible deterioration and poor long-term performance as a result of corrosion.

In contrast, the aluminum microchannel coil design offers a greatly reduced galvanic potential between the tubes & fins. The automotive industry realizes the following benefits in switching to microchannel coils:

- Reduced weight that improved fuel economy
- Smaller components, which occupy less room under the hood
- More effective cooling
- Increased component life

As a result, it is estimated that microchannel technology is employed in roughly 75% of all vehicles manufactured and sold today.

Microchannel Coil

In contrast to standard condenser coils, microchannel



condenser coils are constructed utilizing an aluminum brazed fin construction. A microchannel coil is composed of three key components: the flat microchannel tube, the fins located between alternating layers of microchannel tubes, and two refrigerant manifolds. The manifolds, microchannel tubes, and fins are joined together into a single coil using a nitrogen-charged brazing furnace. Overall product quality and integrity are maximized since only one uniform braze in the furnace is required as compared to 200 or 300 manually brazed connections on traditional copper/aluminum coils. The refrigerant carrying tube is essentially flat, with its interior sectioned into a series of multiple, parallel flow, microchannels that contain the refrigerant.

In between the flat tube microchannels are fins that have been optimized to increase heat transfer. The flat tube microchannels are layered in parallel with the tubes connected between two refrigerant distribution manifolds. The coil is divided into two passes. One pass is used to de-superheat and condense discharge gas. The second and final pass is used to finish condensing and provide liquid subcooling.

The microchannel tubes in the heat exchanger have excellent heat transfer characteristics on the refrigerant side. On the airside, heat transfer is improved due to the enhanced surface area contact and the metallurgical bond between tube and fin. Fin design is optimized to enhance the fin heat transfer performance. The fin-to-tube bond reduces thermal resistance between the tube and fin, resulting in better heat conduction.

BENEFITS OF MICROCHANNEL TECHNOLOGY IN AIR-COOLED CHILLER APPLICATIONS

Microchannel technology will result in better coil and unit performance,

which allows for the utilization of an overall smaller coil size and/or increased efficiency.

In addition, the coil construction provides for increased levels of structural rigidity and better corrosion resistance. In summary the benefits associated with microchannel technology include:

Thermal Performance

Performance is significantly better than a standard 3-row, aluminum fin-copper tube coil.

Corrosion Protection

The rate of the corrosion of the aluminum fins in the microchannel coil is lower vs. standard copper tube, aluminum fin plate coil due to the material differences within the two designs.

Environmentally Sound Operation

The single-row coil design with smaller volume also contributes to lowering refrigerant volume by as much as 20 to 40%.

Structural Robustness

The construction of the coil inherently leads to a more durable coil that is less likely to be damaged. In addition, the single row coil design provides a significant weight reduction opportunity.

Serviceability

The coil is more easily cleaned and is capable of field repair.

MICROCHANNEL IN 30XA CHILLERS

Carrier 30XA Aquaforce Chillers are now fitted with microchannel air-cooled condensers, as a standard. This gives not only better corrosion protection but also better energy efficiency. Make Carrier 30XA Aquaforce chillers your choice for your ISO 14000 ready chiller plant.



project feature



Rice is the staple food for almost half of the world's population. And if you ask most Filipinos, it's one dish they can't live without.

At the International Rice Research Institute (IRRI) in Los Baños, Laguna, the study of rice breeding, cultivation, storage, preservation, and even its impact on the lives of the communities that grow rice is a prime concern.

IRRI is a non-profit research and training center established to reduce poverty and hunger, improve the health of rice farmers and consumers, and ensure environmental sustainability through collaborative research, partnerships and strengthening of national agricultural research and extension systems.



International Rice Research Institute

The 252-hectare IRRI campus sits inside the University of the Philippines at Los Baños (UPLB). It houses research facilities, laboratories, offices, greenhouses, Riceworld – the world's only museum devoted to rice, as well as the International Rice Gene Bank which holds over 90,000 samples of cultivated & wild species of rice.

Providing cooling for some of the research facilities, laboratories, offices, transgenic greenhouse, and even the phytotron was a challenge that Carrier gladly took.

The phytotron is a series of glasshouses that can simulate rice growing conditions anywhere rice is grown.

Temperature, humidity and even length of daylight can be controlled in these glasshouses to ensure the adaptability of the rice plants, wherever they are grown. The phytotron was a gift of the government of Australia to IRRI.

Transgenic greenhouses are used to cultivate genetically modified rice plants. Controlled and sealed environment in these greenhouses ensures that pollen from genetically modified plants is not accidentally released into the atmosphere, which may cause cross-pollination with established plant varieties.

A cool way to help feed almost half the world



Carrier recently provided 2 x 30RAN AquaSnap chillers for an area of the Phytotron as well as 2 x 30XA Aquaforce chillers for the K.J. Lampe Building (transgenic greenhouse).

Refurbishment of the phytotron's cooling system in 2005 included the replacement of its old chillers with 2 x 30GXR air-cooled screw chillers.

Another 2 x 30GXR chillers were installed in (building with brick facade).

Independent air conditioning system using 40RM & 38HDS ducted splits also provide cooling for the Tissue Culture Lab.



Lock-Out Tag-Out

Management technique used to prevent hazardous energy to harm employees.

- Locks and/or other devices (chains, boxes ...) are used to keep switches, breakers, valves or other energy isolation mechanisms in the off/close position and to prevent any unauthorized operation of installations, machinery and equipment. Safety locks are padlocks for which only individual keys are provided. Duplicate or master keys shall not be available.
- Tags are written warnings placed on the energy isolation devices. Tag design shall be "danger" type. All tags must indicate the employee's name and the date.

Employee Training:

All technicians must be trained to perform efficient lock-out tag-out and refreshed at least every 1 year. The training must include a practical part (drills, on-site activities). It can be included in the technical training sessions.

Verification

Adherence to lock-out tag-out procedure must be verified during area self-inspections. Effectiveness of lock-out tag-out training must be verified during Management Audits.

Review:

This procedure will be reviewed annually and updated if necessary by Concepcion Carrier Air Conditioning Company oversight committee.




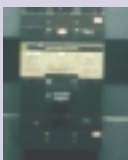
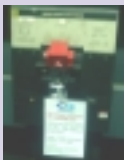




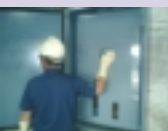
Concepcion-Carrier Air conditioning Company (CCAC) is committed to provide its employees a work place safe from recognized Occupational Health & Safety hazards and ensuring adequate protection of the natural environment.

One of Concepcion Carrier Air Conditioning Company's (CCAC) cardinal rules is Lock-out / Tag-out. This is a procedure to control hazardous energies such as electrical, mechanical, hydraulic and pneumatic by means of lock-out tag-out of LOTO.

The objective is to describe the process to de-energize equipment for the purposes of repair, maintenance, or installation and to prevent the unauthorized, unexpected start-up or operation of de-energized machinery or equipment.



PROCEDURE FOR LOCK-OUT TAG-OUT ELECTRICAL

<p>STEP 1</p>	 Test electrical gloves	 Check voltage detector is working	 Check if equipment is properly grounded
<p>STEP 2</p>	 Shut-OFF power	 Lockout/ Tagout	 Technician's name & contact number must be written on the tag.
<p>STEP 3</p>	 Test circuit testing device in a known energized test source.	 Electrical gloves worn while verifying absence of power.	 Must stand on electrical mat during verification.
<p>STEP 4</p>	 Switch ON power	Stand aside and head turned away when switching ON. Wear hardhat, safety glasses	

We want to hear from you!

Briefly describe your feedback by ticking the box of your choice. Kindly complete and fax this form at 809-9979.

How would you best describe this e-newsletter?

- Informative Somewhat boring Tedious

Which section in this e-newsletter do you find best and interesting?

- Cover feature Case Study Special events
 EH & S Corner Product / Project feature Trivia

What other topics do you want us to feature in our next e-newsletter?

Which Carrier product would you like to know more about?

- Window Room Air Conditioners
 What specific type: _____
- Package Equipment / Split Type Air Conditioners
 What specific type: _____
- Applied Commercial Equipment
 What specific type: _____

To know more about the product, would you like us to:

- Send product brochures via: Email Fax Hand-carried
 Send our Sales / Application Engineer to your office
 Conduct company / product presentation

Kindly indicate your complete contact details below and we'll get back to you soon. Thank you.

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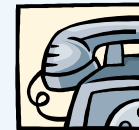
Did you know that...

everytime you take a ride on the LRT Line 2 from Santolan to Recto stations, you experience cooling comfort from Carrier?



... really cool!

We welcome clients' comments on this newsletter, including other aspects of Concepcion-Carrier Air Conditioning Co. products and services. If you wish to comment or to share your own experiences with us,



please contact the Editor-In-Chief at the Editorial Office. We look forward to hearing from you.

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• volume 3 number 1 •

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newsletter is the official quarterly paper of Concepcion-Carrier Air Conditioning Company with its corporate office at
 Km. 20 East Service Road, South Superhighway, Alabang, Muntinlupa City, Philippines 1700
 Telephone • 850-1367 / 809-1882
 Fax • 809-9979
 Website • www.carrier.com