

JARN

Covering the **Global HVAC&R Market and Industry**

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When Will R290 RACs Be Available?

In the phase-out of R22 refrigerant in China, the room air conditioner (RAC) industry has chosen environmentally friendly R290 (propane) to replace R22. In recent months, JARN has reported that Chinese manufacturers are prepared to undertake batch production of R290 RACs, which has attracted a fair amount of industry attention.

Many readers are asking whether R290 RACs are available in the market. JARN carried out field research to answer this question.

The results of this research can be summed up with a no, at least for now. There are no R290 RACs at home appliance chain stores, RAC franchise stores, or supermarkets in the key cities visited in China, nor are there any advertisements promoting R290 RACs. Salespeople do not know what R290 RACs are. Moreover, replies from sales managers of



Second Coordination Meeting on Preparation of the HPMP Stage II in Beijing

some leading RAC manufacturers also indicate that they have no current plans to sell R290 RACs. Therefore, it is reasonable to assume that there is a long way to go before R290 RACs are available in the Chinese market.

After much effort for over six years, leading RAC manufacturers in China have retrofitted their production lines for R290, gaining technological experience in production along the way. In September 2012, Gree's first production line for R290 RACs passed inspection. Two months later, Guangdong Meizhi Compressor Company (GMCC) announced that the world's first production line for R290 RAC compressors had passed inspection. By the end of this June, Gree, Midea, and Haier, the top three RAC manufacturers in China on a

sales volume basis, all completed retrofits of production lines for R290 RACs.

However, challenges remain in the areas of product positioning, development, production, distribution, sales, installation, and maintenance. Apart from the three manufacturers already mentioned, other manufacturers are encountering difficulties

in retrofitting their production lines. Some manufacturers have finished their retrofits, but are reluctant to put their lines into operation. Downstream companies in distribution, sales, and storage are unfamiliar with R290 RACs, and service staff responsible for installation and maintenance of R290 RACs have not received adequate safety training.

Some experts have pointed out that commercialization of R290 RACs is a huge project, and manufacturing technology represents only one piece of it. In addition to distribution, sales, and storage, the relevant policies and standards have not been instituted and the installation and maintenance network is underdeveloped.

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Panasonic Targets Doubling CAC Sales



Mamoru Yoshida, President

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Carel Developed on Dual Trucks




Luigi Nalini, Group CEO

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Top Interview

Carel Developed on Dual Tracks – Electronics & Thermodynamics

This year, Carel China celebrated the tenth anniversary. At the China Refrigeration Expo in April, JARN interviewed Luigi Nalini, Group CEO of Carel Industries, to hear about Carel's global business strategy focusing on China.



Luigi Nalini, Group CEO
Carel Industries

JARN (J): Could you outline the background of Carel?

Luigi Nalini (N): Carel was born 42 years ago as a sub-supplier of electrical panels for an Italian company making close-control air conditioning units for computer rooms. At that time controls were mostly mechanical also in high tech units but we felt that electronic technology could allow much better performances and therefore decided to develop our know-how in solid state controls for the customer.

Since then, we have developed our activities always on dual tracks: electronics, which is still our core business, and at the same time with strong competency in thermodynamics.

J: Carel has operations around the world. What percentage of your business does China account for?

N: Yesterday, we celebrated the tenth anniversary of Carel China. We created Carel China not only to source low-cost equipment from China, but to be a main player in China. In the beginning, most of our production was devoted to the Carel network around the world, but progressively we worked to be a player in China. China is now becoming our hub serving China, Korea, Australia, and Southeast Asia including Thailand.

In addition, we also serve the other subsidiaries of Carel. We have six main factories in Italy(3), China, the United States, and Brazil. Our principle is to have the same machinery, production, quality control, and philosophy over all the factories. You should never be able to tell what factory a product comes from without looking at the label, because we strictly control the quality and production philosophy of the factories.

The Chinese plant exports approximately 60% of its total production.

You may be interested in these figures. Last year, we had consolidated turnover of €182 million (US\$ 202 million). We have now 1,094 employees all over the world. In China, we have 230 employees.

J: Could you briefly describe Carel's financial results in 2014?

N: We increased our turnover last year by about 8% than the previous year. We are opening a new factory, our seventh one in Croatia. This year,

we plan to increase turnover by 9%. So far, since the beginning of the year, our order backlog is 17% above last year's level. We are now growing very fast in the United States and South America. We are also growing in Southeast Asia. We are growing in Europe, but much less because the economic situation in Europe is not as good as in other parts of the world.

Another important figure is that we invest about 10% of our turnover in research and development (R&D) – 3% in production innovation and 7% in R&D of new products. We have almost 200 engineers devoted to R&D. This is our philosophy of how to grow and penetrate the market. We are extremely committed to energy saving and to exploiting all possible technology to help our customers get efficient units and to reduce the energy consumption of their units.



Carel HVAC&R laboratory

J: How is business in the Brazilian market? There have been reports that it is challenging lately.

N: It is not easy, but we are growing by 40% in Brazil. This is also because we have our own factory there. The duties in Brazil on imports are extremely high, so if you do not have a local manufacturing plant, it is very difficult to operate there. We decided some years ago to open our own production facility in order to be able to compete with the local manufacturers.

J: Inverters are a key part of your business.

N: We cooperate with Japanese manufacturers because we understand that we are the link between the compressor manufacturers and the final customers. Normally, the compressor manufacturer does not sell the inverter. The Western original equipment manufacturers (OEMs) need an inverter to drive the compressor. Our effort is to be the company giving the controls and the

inverter to make the final unit.

J: What shares of your business do refrigeration and air conditioning account for?

N: We have three basic business units. One is controls for air conditioning. This is 50% of our company. Then we have what we call climate, which is related to humidification – adiabatic cooling and air handling units. This is more or less 15%. And the rest – 35% – is related to controls for food refrigeration and retail supermarkets.

J: How do you see market growth in China this year?

N: It is growing, but not as fast as the last several years. We are still growing and gaining market share. On the other hand, we are still young in China, because we started from zero ten years ago. Now we are increasing our market penetration. The trend of technological improvement, which is now present in China, helps us. We always try to be in the higher edge of technology, and as soon as companies want to increase their technological level, we try to support them.

J: How many people do you have in your Chinese R&D center?

N: We established an R&D office when we entered in China ten years ago as a local branch of our main R&D office in Italy; today we have 45 people in China for R&D. Five of them are employed in our thermodynamic lab which has been created last year as a support to the electronics R&D.

The service we give to our customers also in China is to test the compressors and the physical test of the refrigeration circuits for their units. We can invite our customers to our lab and explain to them how to work with the compressor and with the control of the compressor to help them in using our controls.

J: China is the world's compressor production center. Is this why you set up an R&D center here?

N: Yes, you are right, but there is one particularity: often the big compressor manufacturers also manufacture inverters. But these big companies like to sell big numbers. They are in-

terested in large customers buying a hundred thousand pieces. But there are some small OEMs who each buy on the order of some thousand units, and they are not so interesting for big compressor manufacturers. But they need controls and inverters. So our target is the small and mid-size customer who needs technological help from us to develop their units. We will never be a supplier for example of Midea or Haier, which are very big and have their own internal technical offices that can manage everything. We are partners of smaller-size OEMs, which can appreciate our help in developing their units.

J: What do you think is behind your international success?

N: One of the secrets is that all of our people are very passionate. They like to work hard and apply their know-how. We have a high degree of education in our company with many university graduates.

J: How many offices do you have around the world?

N: We have 21 subsidiaries completely owned by us. Today we signed an agreement that gives us a majority of Carel Thailand, which previously was an independent company.

Our sales are increasing also in Italy, 11% above last year in terms of absolute value, however their percentage over the total turnover is decreasing to approximately 21%.

Our goal is to be global.

We are now happy to be riding the technological improvement requirements in the United States where this year, for example, our sales are increasing 13% compared with 2014. We have an office in Manheim, Pennsylvania, and regional offices in Atlanta, close to Washington D.C., California, and the state of New York.

J: Thank you very much for your time today.



Carel's plant at its headquarters