

Evolution of Air Conditioning

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STAR BUSINESS REPORT

As the mercury's rise will presumably show no sign of letting up at least until mid-June in Bangladesh, many will be resorting to air conditioning units to beat the sweltering heat.

There are alternatives to cooling off which were practiced in the good old days, such as taking a dip in a water body, relishing an ice lolly or simply sitting in the cool shade under a gigantic banyan tree's thick canopy.

Still, it is hard to beat this 21st century's climate controlled rooms. The rise of HVAC (heating, ventilation and air conditioning) systems have fundamentally changed the way people go about their everyday lives.

It all started off around 1850 with the designing of a simple machine that creates ice using a compressor powered by horse, water, wind or steam. It would take another 50 year or so for the first air conditioner (AC) to be invented.

Initially they were large and expensive and primarily used for commercial purposes. The technology slowly became affordable through increased use in public places such as department stores.

The first residential unit was developed around 1950 and its use slowly became widespread through improvements, such as the development of central air conditioning systems which are able to cool whole houses.

Energy price hikes in the 1970s shifted the focus on achieving energy efficiency while ensuring effective cooling. Hence variable speed compressors and improved insulation methods were developed.

From the 1990s, ozone-depleting chlorofluorocarbons started to be phased out and be replaced by new refrigerants to make air conditioners more environment friendly and achieve better performance and efficiency.

Over the past decade or so, manufacturers came up with non-vapour compression technologies, smart thermostats and home automation systems allowing remote control and optimized energy use, zoned cooling through ductless mini-split systems and apparatus for air purification and ventilation.



PHOTO: STAR

And products making use of such advanced technologies are being offered right here in Bangladesh by household appliance makers. Take the case of Walton Group.

The local electronics giant offers variable refrigerant flow, which is an air-conditioning configuration with one outdoor condensing unit and multiple indoor units. Its air conditioners can be run on offline voice commands in Bangla and English alongside smartphones, calculate electricity bills and release ions to reduce airborne particles. They also have an automatic cleaning feature.

"Walton has already brought ACs with 5.5 star energy rating, which is one of the most energy efficient ACs in the world. We are using eco-friendly R-32 and R-410 refrigerant on our ACs for which they are most environment friendly," said Engineer Ariful Islam, head of Walton AC's Research & Innovation.

"We have a strong Research & Innovation team with highly efficient engineers and giving highest priority to make ACs most energy efficient and environment friendly. Customers will get more and more technologies, energy efficient and environment friendly ACs in future," he said.

An assortment of air filters is provided in Elite Hitech Industries Ltd's "Elite" and "Midea" air conditioners.

Depending on the type, they may include an antibacterial filter, "anti fungus" HEPA (high efficiency particulate air) filter, carbon fibre filter, "Vitamin C" filter, HAF (high air flow) electrostatically charged filter, nano filter and bio filter.

One Midea AC comes with a DC inverter compressor, which are much more economical and safer than ACs with a constant output of compressor, said Moztaba Nadim, brand manager at Elite Hitech Industries Ltd.

The DC inverter units convert

incoming AC current to DC and produces current of desired frequency to control the speed of the compressor motor so as to continuously regulate the temperature.

The company conducts little marketing and focuses on performance with the latest psychrometric laboratory for R&D, added Nadim.

Singer Bangladesh Limited also offers a "4 in 1 filter" in its air conditioners, saying it ensures micro-particle filtration for a cleaner air flow. They are also said to be able to detect the zone where the user is to direct a four-way air flow (up, down, right and left).

Singer Green Inverter AC has eco-friendly R32 gas which saves up to 60 per cent electricity compared to normal AC, said Chandana Samarasinghe, marketing director at Singer Bangladesh Ltd.

If there is no gas in the compressor, an E9 signal will appear on the AC

display and the AC will not run until the gas is refilled, he said. Moreover, its state-of-the-art technology keeps the AC running amidst voltage fluctuations and even at only 150 volts, he added.

The temperature can be conveniently maintained through an "I-Feel" mode by Electro Mart Ltd's GREE air conditioners.

A temperature sense technology adopted by the remote controller can intelligently detect the temperature around the user and automatically send the information to the unit every 10 minutes to conduct adjustments accordingly.

The ACs also have a "Self Diagnosis" option. Once abnormal operation or part failure occurs, the unit shuts off automatically to protect the system while displaying protection or error code for fast service.

Thanks to technological upgrades and their low power consumption, the ACs with inverters account for 65 per cent of Electro Mart's AC sales whereas it was the opposite just three years ago, said Nurul Afsar, deputy managing director of Electro Mart Limited.

He believes in the future non-inverter ACs would be forced out of the market as demand for those was going down continuously.

Apart from Samsung, Panasonic, Hisense and Toshin ACs, Rangs eMART recently launched LG ACs with "Dual Inverter Technology", saying they are 70 per cent more energy efficient and offer 40 per cent faster cooling than conventional ACs.

Rangs eMART is focused on technologically superior ACs, which put power efficiency and product innovation above everything else, said Raihan Ahmed, category head, Rangs eMART.

A new range of energy-efficient and IoT-based AC models from well-known manufacturers will be released soon, he added.

Air conditioning technology is likely to continue to evolve to be more effective and affordable, with a focus on more sustainable refrigerants alongside energy efficiency and integration of renewable energy sources such as solar power.

Local production propelling the AC market in Bangladesh

FROM PAGE J1

In addition to non-inverter ACs, the market is also seeing an increase in demand for inverter units, which are more energy-efficient and environmentally friendly.

According to Statista, a market assessment firm, the AC market in Bangladesh is anticipated to grow in coming years on account of rising urbanisation and an increase in per capita income due to Vision 2021 and 2041.

Moreover, acceptance of air conditioning systems as a utility product rather than a luxury item is also augmenting the market's growth.

Further, an increase in sales of power-efficient air conditioning systems, along with rising adoption of superior technology, is anticipated to proliferate the double-digit growth of the local market.

However, the Covid-19 pandemic hampered the overall economic growth of Bangladesh, restraining the growth of the AC market as well.

According to 6Wresearch, a Delhi-based one-stop market intelligence and advisory centre, Bangladesh's AC market size will grow by around 16 per cent annually until 2026.

The AC market is projected to grow at a healthy rate in the coming period as the economy is returning to normalcy.

Nurul Afsar, deputy managing director of Electro Mart Limited, which manufactures and retails GREE ACs, said the market has been increasing by 10 to 12 per cent annually during the last 10 years.

This is because prices came within the reach of middle-class people due to growing local production.

Besides, the government has given exemption of value added tax (VAT) on imports of raw materials for refrigerators and ACs.

With this backdrop, international brands like Samsung and LG invested in local assembly and manufacturing to catch the growing market.

According to him, local and international brands have invested around Tk 3,000 crore to set up manufacturing plants over the last 10 years, creating around 100,000

opportunities for direct and indirect employment.

ACs of GREE, also known as the "World Brand", are among the most popular due to their unique features, affordable prices and after-sales service. Also, GREE's compressors are well known in the domestic market for longevity, he claimed.

"If customers are looking for an energy-efficient AC, then GREE can be a great choice," he said, adding that the country's growing middle economy is constantly increasing the demand for budget home appliances.

GREE ACs are available in the market in the price range of Tk 36,000 to Tk 100,000.

Saidur Rahman Khan, head of marketing at Rangs eMart, which retails ACs of Panasonic, Samsung, LG and Hisense brands, said higher middle-class to premium-class customers are their targeted group.

The AC market is projected to grow at a healthy rate in the coming period as the economy is returning to normalcy.

Bangladesh has changed in the past decade, with the demand for ACs having increased in line with the growing purchasing power of the general people. Besides, the tropical weather of the country is also propelling sales, he added.

Tanvir Rahman, chief business officer of Walton Air Conditioner, said the demand for ACs is growing very fast in Bangladesh.

Previously, it was a luxury product for upper-class people, but gradually, it is getting popular among all classes due to the country's hot weather, 100 per cent electrification, swelling purchasing power, affordable prices and quick services for the product.

Referring to their market study, he said they expect sales growth of around 20 per cent year-on-year in 2023.

Walton, one of the largest AC manufacturers in Bangladesh, has a yearly production capacity of

200,000 units. The company has 49 models of inverter and non-inverter residential ACs available in the market, along with 19 models of cassette and ceiling-type commercial ACs, as well as various capacities of VRPs and chillers.

Walton has a strong research and innovation team with highly efficient engineers and gives the highest priority to making highly energy-efficient and environmentally friendly ACs, he added.

According to Rahman, around 40 per cent of the demand for ACs comes from Dhaka alone.

Moztaba Nadim, brand manager of Elite AC, said the demand for window-type units had been replaced by split ACs.

"Along with more time and increased income, people are changing their lifestyles and expect more comfort," he added.

Elite locally manufactures and retails Media ACs, which is an international brand.

Nadim then said they import basic parts of the product and assemble them in Bangladesh, which helps bring down prices.

Fahima Pervin, head of products at Singer Bangladesh Limited, said ACs are no longer considered a luxury product as they are now a necessity.

"Due to the unbearable heatwave, we are seeing an unexpected spike in AC sales. With the increased demand, we expect around 20 per cent growth in the market," she added.

Regarding the higher demand for ACs, Pervin said changing weather, growth in the middle-class and upper-middle class segments, and changing lifestyles are fuelling the local AC market.

According to her, Singer has introduced a new range of inverter series with eco-friendly R32 gas. The product is very efficient with fast cooling with its four-in-one filter and zone follow features.

She also said they ran a free AC cleaning service campaign before summer started this year.

"During the peak season, Singer ensured 99 per cent on-time installation," Pervin added.

Comfoort... for You, your Wallet and Nature

with R32 gas
GREEN INVERTER-AC
brings you closer to nature

60% up to Energy Efficient
4-in-1 Filter Ensures Clean Air

Fast Cooling Gives Instant Chills
Zone Follow Follows You throughout the Room

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