

We have more than 35 years of experience, developing direct current compressors and helping customers benefit from the opportunities of mobile refrigeration technology.

With a deep insight of the usage across various applications we have earned a position as market leader, working with OEM-customers.

# CASE STORY SOLAR ASSISTED COOLING

## TURNING SOLAR ENERGY INTO COOLING SOLUTIONS



**The need for smart, mobile and environmentally friendly solutions keep growing in the business of cooling and refrigeration. Declining prices on solar panels have in the last year only increased the demand. As one of the big pioneers in solar powered cooling technology, Secop is able to offer some of the most innovative and competitive compressor solutions.**

It is fair to say that Secop is a pioneer within solar powered compressors. It is more than 15 years ago that Secop first explored the challenges but also the many possibilities in the field. The idea was to engineer reliable and cost efficient compressor solutions for places and situations where you have no or unstable power supply.

By turning solar energy into intelligent cooling Secop tackled both social and commercial obstacles, including the need to think smarter and more environmental-friendly.

**THE WAY TO DEVELOP A VITAL STANDARD**  
On the back of research, several prototypes and in close cooperation with different partners, Secop launched their first BD compressor in 2001 to run directly on solar energy. It was, in fact, a solution that was built to meet specifications in regard to WHO's vaccine coolers.

It solved the vital problem of keeping a constant temperature of + 2° to + 8° Celsius in the cooler during storage and transportation, even at ambient temperatures of more than 43° Celsius. Furthermore, it easily exceeded the minimum hold-over-time of 3 days without adding energy and had an energy consumption of less than 0.70 kWh / 24 h.

The solution, which mainly runs on the environmentally friendly refrigerants R600a (isobutane) and R290 (propane), maintains to this day a standard to follow.

Solar portable applications for healthcare purposes – i.e. transportation of medicine, blood samples and other perishable goods – continue to be a core focus at Secop. The secret is simple: innovative technology and high usability. In other words: Fewer components and less fuzz equals minimizing failures, smaller costs and increased safety.

### A NEW EDGE IN COMMERCIAL REFRIGERATION

Sun-powered compressor applications have, naturally, equal commercial potential. In a world with mobility along with rapidly increasing environmentally friendly regulations, businesses struggle with the same logistic challenges: How can we better keep things cool under circumstances with no power supply?

Based on its experiences with vaccine coolers, Secop has over the last 10 years has done several projects with commercial customers to create cost efficient BD compressor solutions that go hand in hand with solar energy. Every step of the way the idea has been to create a new level of environmental-friendliness combined with a new level of competitiveness.

These partnerships have resulted in a number of solar driven products: i.e. ice cream freezers, chest coolers, bottle coolers and mobile refrigerators, bearing in mind more is yet to come. They provide a solution, especially given the fact that in many places cans, bottles and ice creams are still equipped with ice. Obviously, which is costly, messy and short lived.

Operating exclusively on solar energy, with no other electricity source required – and with the intelligent cooling capacity created by Secop compressors – it is now possible to load portable coolers and freezers the previous night and still serve chilled food and drinks during the whole next day. Some customers have registered up to 500% sales growth after introduction to the market.

What distinguishes Secop's BD compressor solar powered systems is, first of all, the wide voltage range (10-45 V DC), which makes it very suitable for solar panel powering. Then there is the exceptionally low starting current. It means batteries are not necessary if an ice bank is used for energy storage. Moreover, the use of variable speed technology ensures energy savings and the direct 12/24 V DC Power supply works globally. In short, you only need one compressor to cover the world.

### READY TO MAKE A DIFFERENCE

Prices on solar panels have decreased in recent years. In fact, prices are now down to 0,5-1\$ per Watt. As a positive consequence interest and demand for alternative, more environmental-friendly refrigeration solutions have grown.

"We appreciate the focus on sustainability and hope that it will encourage even more businesses to be apprehensive of using solar technology. I like to think that our compressors unique use of solar energy show that it is possible to make a real difference without sacrificing performance", adds John Svane Christensen, DC-powered Application Manager from Secop.

