CASE STORY

Oilon and SWEP on the cutting edge of industrial process decarbonization in Brazil

With a shared goal for driving sustainability in multiple applications, SWEP and Oilon take on the task of creating efficient, environmentally friendly solutions for industrial processes.

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Climate change is one of the biggest crises that humanity is facing and the necessity for sustainable solutions in all sectors has become increasingly important. Driven by global government direction and regulations, energy production is shifting from fossil fuels to more sustainable green fuels and electricity-based sources.

This shift challenges the energy sector to develop innovative, reliable and efficient solutions. Climate change is a challenge that requires action on many fronts, including the decarbonization of agricultural processes, the transport sector, and the production and storage of renewable energy. In addition, bringing efficiency into heating and cooling processes, and the decarbonization of industrial processes are all key issues for society to tackle to solve the climate change crisis.

This scenario is no different in the Brazilian industrial market, where according to energy research company EPE (Empresa de Pesquisa Energética), 817,000,000 toe (tons of oil equivalent) in energy was consumed during 2020. This corresponds to 9,501,710 GW of electricity. Brazilian industrial activity accounts for about 50% of the country's total energy consumption and approximately 1/5 of the GDP (Gross Domestic Product). Out of this total amount of energy consumption, about 38% comes from fossil fuels or their derivatives and accounts for more than 120,000 tons of CO_2 emissions being released into the atmosphere.

Oilon seeks to play a significant role in the shift to clean energy. Their purpose is to provide thermal energy technology that drives sustainable development by reducing emissions directly and measurably. One of their solutions to support the decarbonization of industrial processes is to use industrial heat pumps.

Oilon manufactures and supplies efficient,high-quality heat pumps which allow for up to 100% decarbonization of industrial heating processes. In addition to their

Oilon heat pump

dedication for providing efficient and sustainable solutions for the industrial market, Oilon is also present in the service, food, pharmaceutical, commerce, dairy and energy markets.

A heat pump is a piece of equipment that potentiates waste heat from the process through the use of a compressor coupled with a refrigeration circuit. In industrial processes, waste often ends up dissipating heat into the atmosphere in large quantities. This is because these sources usually have milder temperatures (below 140°F/40°C), and a direct heat exchange is not enough to allow this heat to be reused in the process. The purpose of the Oilon ChillHeat heat pump, however, is to take advantage of the heat dissipated in the atmosphere to eliminate the consumption of fossil fuels by conventional equipment for the same production of this heat. In this way, and with state-of-the-art technology, Oilon ChillHeat heat pumps can produce hot water up to around 250°F/120°C, a temperature that could already replace most industrial processes carried out with industrial combustion.

However, some would argue that it doesn't make sense to reduce the carbon footprint if the numbers behind it do not add up. This is not an issue for the Oilon ChillHeat product line. The COP (coefficient of performance) is crucial to ensure that thermal generation through electricity is satisfactory for thermal production through the Oilon heat pump in a way that is more sustainable and cheaper to operate. Therefore, a critical part of the development process is always the pursuit of the best COP in heat generation.

The use of SWEP BPHEs (Brazed Plate Heat Exchangers) aligns with Oilon's goal of pursuing efficiency and sustainability. Using the XL-series BPHE range, like the SWEP 500 and 65 models for large heat loads, improves the evaporation and condensation functions, as well as other auxiliary processes in heat pumps such as subcooling, superheating, etc.

SWEP's 500 has been designed to work extremely efficiently as a high-capacity condenser in various systems, such as modular chillers and industrial heat pumps. SWEP's

SWEP 65 **SWEP 500**

65 is the perfect choice for high-capacity applications where the most robust plate heat exchanger is required. By offering different plate combinations, it offers a solution for the most demanding industrial and heating applications.

Benefits of the SWEP XL range include enhanced space optimization and improvement of equipment operating conditions, resulting in an increase in COP compared to the use of conventional heat exchangers, such as shell-tube heat exchangers.

Oilon ChillHeat heat pumps equipped with SWEP BPHEs generate high added value for the Brazilian industry. Not only in terms of decarbonization, but also making the heat process more efficient, thus being a solution of high added value in the face of the environmental crisis the world is experiencing today.

Oilon products have already helped the pharmaceutical, automotive, and food industries to reduce and, in some cases, even eliminate the consumption of fossil fuels, making their process an important part of the solution for the global climate crisis.

In 2021 alone, Oilon ChillHeat solutions helped to produce almost 3.5 gigawatt hours of thermal power in 10 projects in South America, which could represent a consumption of around 400,000 cubic meters of Natural Gas and 695 tons of CO_2 emissions into the atmosphere. To give you an idea of the efficiency, a popular property that uses natural gas to heat showers uses between 20 and 40 m³ of Natural Gas per month. Using this as a baseline, the savings could equate to the gas consumption of up to 20,000 apartments.

Waste heat in the form of hot vapor, water, oil or air is a result of almost any production cycle, but it does not have to go to waste. With SWEP BPHEs, this waste heat can be recovered and reused for other purposes, contributing to the reduction of carbon emissions and cost for both producers and end users. They make efficient use of energy, material, and space in HVAC/R and industrial applications. SWEP offers extensive expertise, the widest product range on the market, and a modular concept that lets us customize optimized solutions for almost any need.

SWEP is one of the world's leading suppliers of Brazed Plate Heat Exchangers (BPHEs). World-leading within the field of heat transfer, SWEP constantly advances the front line in order to supply the latest technology to the market. SWEP's goal is to offer its customers excellent performance, economy and service. SWEP was established in 1983 by small group of pioneers in thermal engineering who were among the first to commercialize the BPHE technology. SWEP is close to its customers, with representation in more than 50 countries and its own dedicated sales force in more than 20 countries. Production units in Sweden, Switzerland, USA, Malaysia, Slovakia and China make it possible to serve customers all over the world. The company is part of the global Dover Corporation.

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