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Alfa Laval creates more possibilities for transcritical CO₂ duties with the new AXP82 plate heat exchanger

Alfa Laval is bringing the proven high-pressure performance of its AXP product line to a new size of heat exchanger specially engineered for use with CO₂. The new Alfa Laval AXP82 will enable use of the same heat exchanger design for a wider kW range of transcritical duties than possible with previous models. Best of all, it combines a market-leading standard for low pressure drop and high design pressure with excellent fatigue performance to meet the unique demands of these applications.

The development of AXP82 has come as a response to the rapid growth of transcritical CO₂ systems for heating and cooling duties. Today carbon dioxide is used in an ever-growing number of applications and in larger systems than even just a short time ago.

“The market for CO₂ has grown quickly as more system builders and end-users are making the switch to natural refrigerants in response to changing environmental legislation,” explains Fredrik Ekström, President of the Business Unit for Brazed & Fusion Bonded Heat Exchangers at Alfa Laval. “In addition to commercial refrigeration, today we’re seeing customers in a growing number of industries making the switch to CO₂ – that includes air conditioning and industrial applications as well as marine customers.”

However, CO₂ can put extreme demands on traditional heat exchanger designs. “The ‘XP’ in AXP stands for extreme pressure, and that’s exactly what we have developed this range of heat exchangers to handle,” Ekström continues. “With the launch of AXP82, we will be able to ensure reliable thermal performance for systems of varying sizes, in a wider scope of demanding CO₂ applications.”

Balancing robust and efficient performance

In fact, the fatigue performance of AXP82 exceeds even the high standard of previous models. This is thanks to the addition of new innovations, such as an all-new channel plate design built with Alfa Laval’s unique PressureSecure technology. As a result, AXP82 offers an even higher degree of support for transcritical CO₂ pressure and temperature challenges.

“At the same time, we have engineered AXP82 to provide world-class heat transfer performance as well,” says Ekström. “The new model has a number of unique features that increase thermal efficiency with minimal pressure drop.”

An important element has been a renewed, larger port design on the heat exchanger. By optimizing the balance between port size and mechanical performance, Alfa Laval has been able to ensure low pressure drop combined with a high design pressure, while simultaneously achieving high fatigue resistance.

A compact and cost-efficient solution

In addition to the new channel plate and port designs, AXP82 is also the first heat exchanger model in the AXP range to feature a frameless construction. This reduces the weight of the design and ensures a more compact heat exchanger.

“For customers, the more compact design offers a number of very clear benefits,” Ekström adds. “In addition to a smaller footprint, the reduction of material in the construction improves sustainability in a cost-effective way.”

To learn more about Alfa Laval AXP82 and Alfa Laval’s full range of solutions for heating and cooling duties, please visit: www.alfalaval.com/heating-and-cooling-hub

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Editor’s notes

Alfa Laval is active in the areas of Energy, Marine, and Food & Water, offering its expertise, products, and service to a wide range of industries in some 100 countries. The company is committed to optimizing processes, creating responsible growth, and driving progress – always going the extra mile to support customers in achieving their business goals and sustainability targets.

Alfa Laval’s innovative technologies are dedicated to purifying, refining, and reusing materials, promoting more responsible use of natural resources. They contribute to improved energy efficiency and heat recovery, better water treatment, and reduced emissions. Thereby, Alfa Laval is not only accelerating success for its customers, but also for people and the planet. Making the world better, every day. It’s all about *Advancing better*™.

Alfa Laval has 17,500 employees. Annual sales in 2019 were SEK 46.5 billion (approx. EUR 4.4 billion). The company is listed on Nasdaq OMX.

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