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## With minimal refrigerant charge, Alfa Laval CB24 is a condenser for increasing sustainable potential

**Alfa Laval continues the expansion of its brazed plate heat exchanger portfolio with the launch of Alfa Laval CB24. CB24 is the market's first dedicated condenser that has been specifically optimized to operate with R290, with engineering that enables an unprecedentedly low refrigerant charge combined with increased thermal efficiency. As a result, CB24 creates opportunities to improve sustainability for commercial refrigeration, ground source heat pumps (GSHP), satellite systems for tap water and more.**

"The transition to refrigerants with a lower climate impact is *the* major trend in heating and cooling right now," Fredrik Ekström, President for Business Unit Brazed & Fusion Bonded Heat Exchangers at Alfa Laval. "With a GWP [global warming potential] of just 3, propane has become an interesting option for many OEMs. Compare this to R407C, the dominant refrigerant in commercial refrigeration today, which has a GWP of more than 1700, and it's easy to understand why!"

However, use of propane, or R290, is not without practical and technical challenges. The safety considerations associated with the highly flammable alkane have resulted in legislation in some regions that restricts the allowable refrigeration charge for certain applications.

"The aim of CB24 has been to solve these challenges for some of the heating and cooling duties where the ability to use R290 will become increasingly critical," Fredrik Ekström continues. "We did this by adapting some of the unique innovations Alfa Laval has developed through our long experience in these applications. This has given us a dedicated condenser that successfully accommodates the refrigerant charge limitations of working with propane, without sacrificing thermal performance."

### **150g and below**

A key element to the success of CB24's development was Alfa Laval's FlexFlow™: a patented plate design technique that allows for channel asymmetry custom-tailored to fit the media in a question. FlexFlow makes it possible to increase turbulence and optimize pressure drop according to a particular application. CB24 can therefore provide highly efficient heat transfer while at the same time operating on a propane refrigerant charge that is lower than previously possible.

"This means, for example, that CB24 easily meets the strict regulations for some commercial refrigeration applications, which limit a propane charge to 500g," explains Fredrik Ekström. "But it goes further than that. CB24 can even fulfil the much more stringent requirements for GSHPs, which in Europe are limited to a ref charge of just 150g."

Another important feature for CB24 has been Alfa Laval's PressureSecure design, which optimizes the relationship between thermal, mechanical and material properties to support

pressure loads associated with R290. This produces an overall more robust heat exchanger, particularly around the port areas, which can be highly susceptible to pressure-related fatigue problems.

**Low GWP + high efficiency = maximum sustainability**

“With CB24, the ability to use propane with a reduced ref charge is only half the story,” Fredrik Ekström says. “The possibility to improve thermal efficiency will also create new opportunities for energy savings for many of our customers.”

One key example is in commercial refrigeration applications involving vertical shelves without a window. In such duties where previously up to three condenser units would be necessary, it will be possible to use just one CB24 condenser thanks to its highly efficient performance.

“The results are equally positive for geothermal applications,” Fredrik Ekström concludes. “We have already installed our first CB24 condensers in a GSHP system in Southern Europe. The customer has reported that both the low ref charge and the high efficiency of the system is far in front of everything else they are seeing on the market today.”

To learn more about Alfa Laval CB24 and Alfa Laval’s full range of solutions for heating and cooling duties, please visit: [www.alfalaval.com/heating-and-cooling-hub](http://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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