PRESS RELEASE

engineering a better life

Making better use of the potential in refrigeration technology

Defrost on Demand: defrost cycle triggered by actual need

Mulfingen, November 3, 2026

Trade Press

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Fixed defrost intervals in refrigeration systems often trigger a defrost cycle even when there is hardly any icing, driving up energy consumption and operating costs. With "Defrost on Demand," ebm-papst has developed a technology for need-based defrosting based on operating data from EC fans. At Chillventa, the company reached out to potential pilot users and development partners.

Laboratory results and initial field tests confirm the potential

Defrost on Demand has so far been tested under laboratory conditions and in a deep-freeze application. The approach uses operating data from the EC fan to assess the icing condition of the evaporator and trigger defrost cycles only when necessary. The fan thus serves not only to move air but also as a sensor.

Significant potential energy savings

Studies conducted to date in a deep-freeze application at −18 °C demonstrate the potential of on-demand defrosting. Compared to time-controlled defrosting, energy consumption was reduced from 7.8 to 3.4 kWh per week. Instead of a fixed defrost cycle every seven hours, only three to six defrost cycles per week were required, depending on the icing condition. This results in a potential savings of more than 49 percent. Further pilot projects are planned for the future to confirm the results under different operating conditions.

Possible integration approaches are currently being tested

To implement Defrost on Demand, ebm-papst is currently investigating various integration approaches. One of these is based on an EVCO cooling unit controller that manages the entire refrigeration cycle and can integrate the functions required for on-demand defrosting.

At the same time, the company is examining how the NEXAIRA Gateway can be used as a digital platform to evaluate operating data and provide additional monitoring and analysis functions. Both approaches are currently undergoing further development and are being validated through pilot projects.

Demand-based defrosting as a development focus

Defrost on Demand is designed to reduce unnecessary defrost cycles, thereby lowering energy consumption, operating costs, and CO_2e emissions. At the same time, the analysis of operating data provides additional information about the system's condition. The insights gained are currently being developed further in collaboration with pilot users.

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Image 1: With “Defrost on Demand,” ebm-papst has developed a technology for need-based defrosting based on operating data from EC fans. At Chillventa, the company reached out to potential pilot users and development partners.

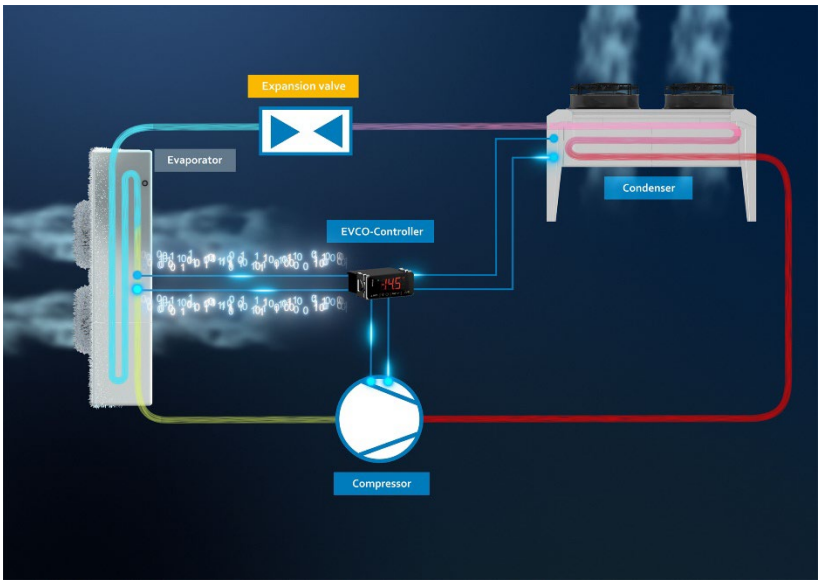


Image 2: The EVCO controller manages the entire refrigeration cycle and directly integrates Defrost on Demand.

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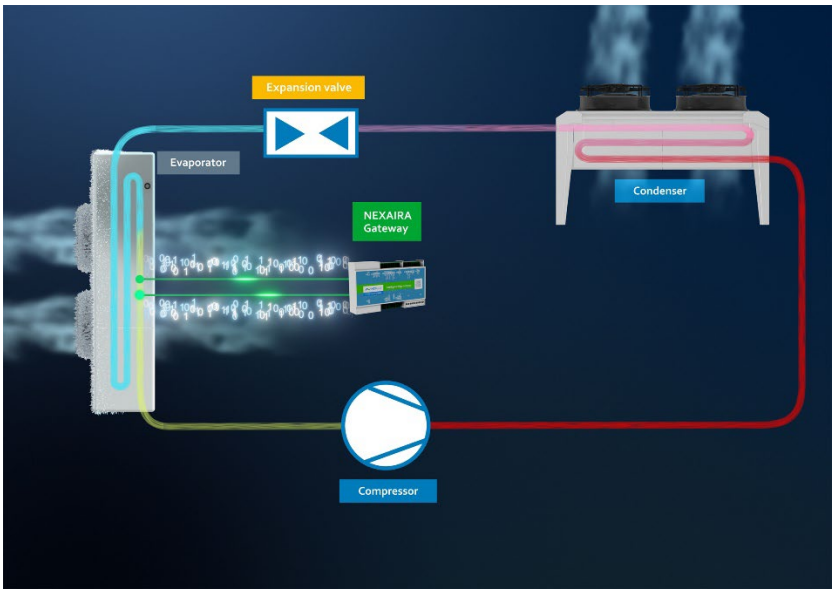


Image 3: Alternatively, the cloud-based NEXAIRA Gateway from ebm-papst continuously monitors and analyzes the fan's operating data.

Images	ebm-papst
Characters	approx. 2,400, with headlines and sub headlines
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Link	**www.ebmpapst.com**

About ebm-papst

The ebm-papst Group is a leading global provider of innovative ventilation solutions for air, refrigeration and climate technology, headquartered in Mulfingen, Germany. The company develops and manufactures components for HVAC and cooling applications, combining advanced fan and blower technology with electronics, controls and software & service. For more than 60 years, ebm-papst has set technological standards in aerodynamics, motor technology, electronics and digitalization.

With its energy-efficient and intelligently connected solutions, ebm-papst supports the reduction of CO_2 emissions, digitalization and the development of future-ready infrastructure worldwide. Its technologies are used in a wide range of applications, including data centers, building and heating technology, industrial applications, cleanrooms, cold chains and renewable energy.

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