

DEFROST ON DEMAND

Reducing energy consumption & saving money



With the effects of climate change becoming ever clearer, the desire to reduce energy consumption is increasing around the world and legislation is changing. Energy prices have reached unprecedented levels. In other words, it is crucial for owners and operators of cold storage facilities to maximize their energy efficiency if they want to remain competitive.

ENERGY-HUNGRY COLD STORES

Cold storage facilities have high energy demands, but in many cases, they are much higher than they need to be. This is often due to inefficient management of the refrigeration systems, with defrost cycles scheduled on a timer resulting in frequent and unnecessary defrosts. This is costly on the energy budget, leading to significant, but avoidable, reductions of profit. Unnecessary defrost cycles can also result in reduced operational efficiency and poorer equipment performance.



WHY IS DEFROST NECESSARY?

Over time, ice builds up on the evaporator fins, blocking the airflow and lowering the efficiency of the system by insulating the coils, reducing their ability to transfer heat. An ice layer of just 1.5 to 2mm can reduce the heat transfer by 5-15% (with fin spacing of 7mm).

Defrosting eliminates the ice buildup, ensuring efficient heat transfer, maintaining the capacity of the system, and ensuring operational stability. Additionally, excessive ice formation on evaporators can cause water drips, creating slippery and hazardous floors with increased risk of workplace accidents.

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The solution is to defrost when necessary, and only when necessary. This can be done by installing the DEFROST HBDF, a sensor using advanced technology to accurately measure the thickness of the ice buildup in the evaporators.

The HBDF sensor's output signal (4 to 20 mA) increases until reaching a preset value, typically corresponding to 1.5 to 2 mm of frost thickness. This triggers a defrost cycle. It also signals when the cycle is complete, so it doesn't carry on longer than needed.

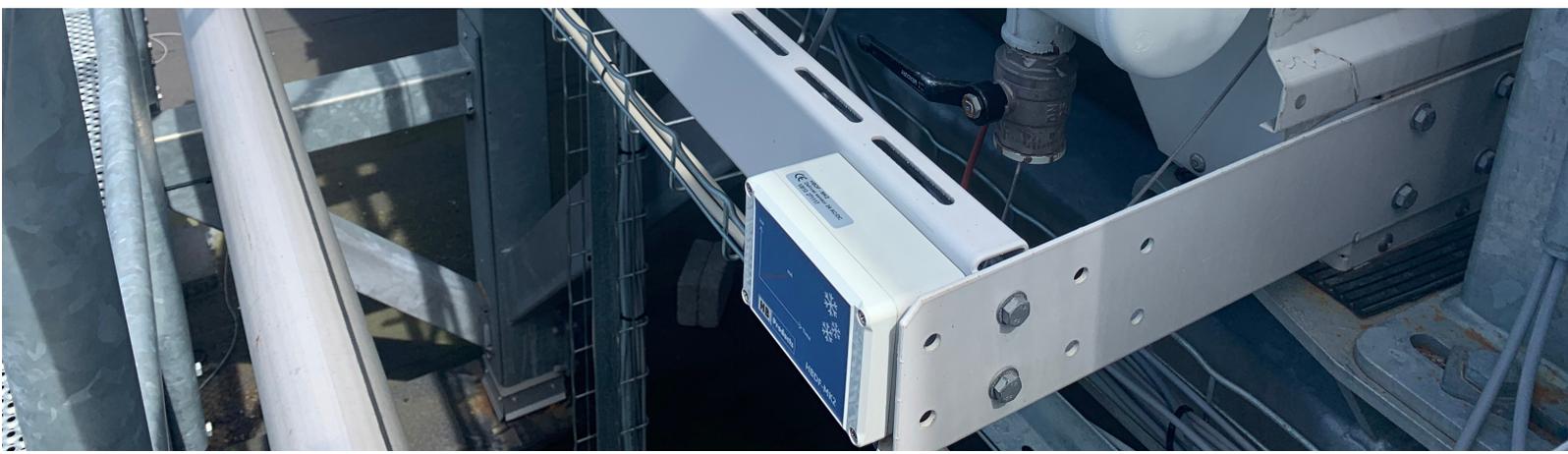
Unlike other defrost sensors, the DEFROST HBDF is mounted over a large area of the fins, ensuring an average measurement of frost accumulation across the entire evaporator.

This solution enables precise control over defrost cycles, allowing owners to freeze or cool larger quantities of products, thereby maximizing facility utilization and productivity.

Installing the HBDF also eliminates the need for unnecessary service calls and reduces associated costs. Facility owners can save time and reduce expenses by avoiding excessive defrost cycles, resulting in improved equipment performance and minimized maintenance requirements.



The Defrost MK-2 sensor was launched in 2017.



THE BOTTOM LINE

In cold stores, the HBDF sensor can reduce the number of defrost cycles by 50-70% on a yearly basis, when compared to a traditional timer-based approach. Such a significant reduction can lead to energy savings of up to 40%. This implies that owners and operators can see a return of their investment in the HBDF within a 30-day period.

Moreover, HB Products provides comprehensive guidance and support throughout the implementation process, making it painless and efficient.

The conclusion is that implementing the DEFROST HBDF leads to increased operational efficiency, significant cost savings, and a greener carbon footprint.



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We have reduced defrost cycles from 7 times per day to just 1, so this has definitely had a positive impact on electricity consumption.

-Morten Asferg, Chief Engineer Global Facility, Arla Foods
On the installation of the HBDF Defrost sensor.

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Use our free calculator to determine your savings based on your own data.

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If you have any questions, our technical team is here to help. You can contact them at info@hbproducts.dk



Bøgekildevej 21.
8361 Hasselager, Denmark
+ 45 87 47 62 00
www.hbproducts.dk
info@hbproducts.dk

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