

# NeoCharge helps Sofrilog expand cold storage and freezing capacity without adding NH3 charge

## Background

Sofrilog specializes in logistics and refrigerated transport from its headquarters in Normandy, France and throughout Europe and Morocco. A family-run business, Sofrilog delivers tailor-made solutions to the cold storage and food processing industry.

Sofrilog wanted to expand the cold room and freezing capacity of an ammonia-based refrigeration system servicing a nearby brioche factory. Always willing to test innovative solutions and technology that can improve its systems, Sofrilog was looking for a way to expand the system, while keeping the ammonia charge below 1.5 tons<sup>1</sup>. Doing so would keep the cost of expanding capacity to a minimum.

<sup>1</sup> When the charge is above 1.5 tons, the authorization process for NH3 installations becomes more complex in France.



# Challenge

Sofrilog turned to Danfoss for a solution that would reduce and actively control the system charge, reducing recirculation to the lowest possible rate without impacting system performance. The company wanted to create a system that could reuse the saved ammonia to increase freezing capacity by adding a new tunnel and enlarging the cold room, all while keeping the total system charge below 1.5 tons.

Ammonia reuse for enhanced freezing:  
New tunnel & larger cold room under

**1.5-ton limit**



## Solution

The Danfoss and Sofrilog teams worked together to retrofit five air coolers and four freezing tunnels, changing them from an uncontrolled circulating rate to NeoCharge injection control. They upgraded the existing valve train with an ICM20B electronic valve and installed nine electric panels equipped with EKE450 controllers for each valve station.



## Results

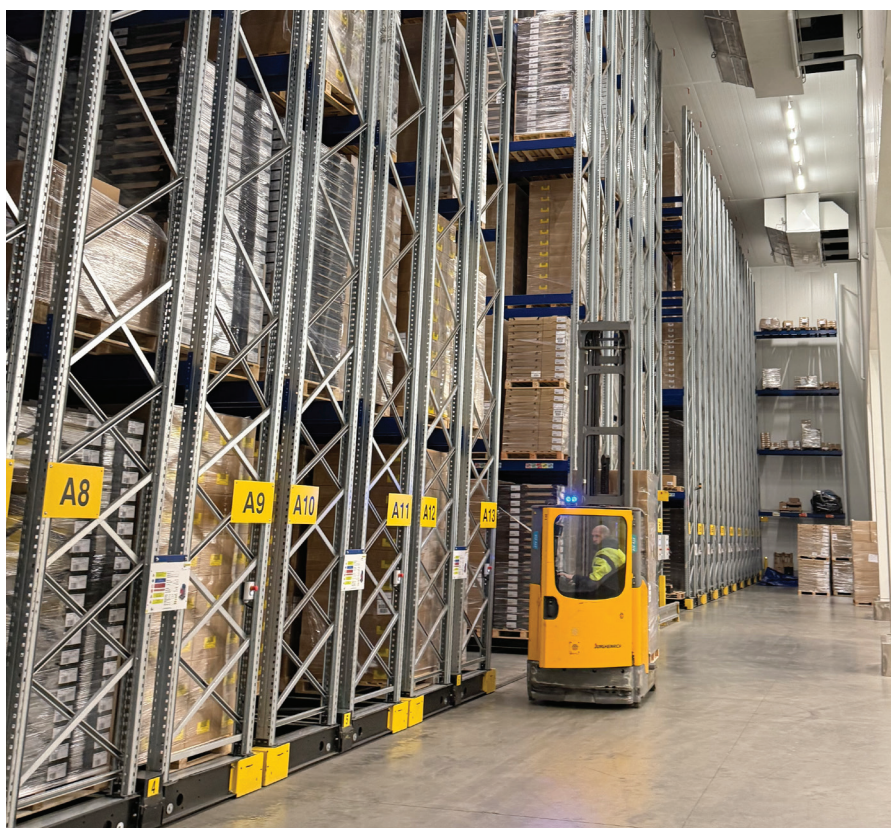
After implementing NeoCharge, the four freezers system now have a lower average charge consumption of 297 kg and the same cooling performance. With NeoCharge, Sofrilog can add an extra freezer with the same capacity to the system without adding any ammonia charge.

In the cold room, thanks to the fixed 1.5 circulation rate, Sofrilog can take any unused charge and use it to expand capacity. NeoCharge also ensures that each evaporator uses the exact amount of charge needed to expand

the system, while maintaining the same system conditions. The retrofitted system delivers an improved cooling performance because it continuously controls an optimal circulation rate, with approximately 1 °C lower air temperature leaving the air cooler. This means Sofrilog can cool the cold room to a lower temperature during the night, when the electricity price is lower, thus using less energy during the day, when electricity prices are higher.

"The NeoCharge sensor was easy to install on the existing evaporators and

it makes it easy for us to understand how each evaporator is performing," says Simon Caillaud, responsible for refrigeration installations at Sofrilog. "With the complete system retrofitted to NeoCharge, we can add a new freezer to our daily production and enlarge the cold room running over night. I think this is the most effective way to realize our production expansion plan while using the present charge."



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**Simon Caillaud**  
Responsible for refrigeration installations at Sofrilog

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