

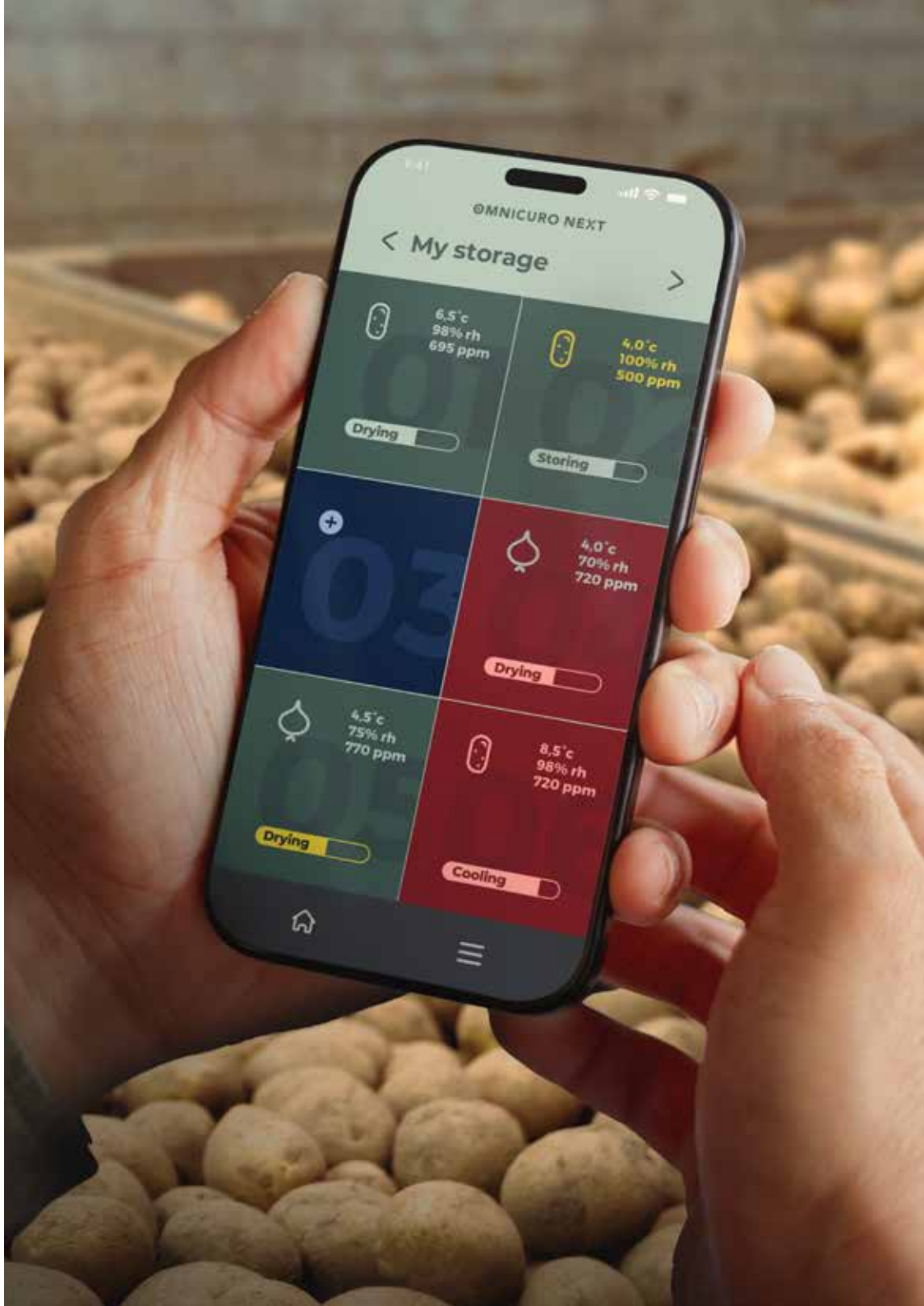
COOL YOUR PRODUCT SUSTAINABLY WITH OMNIVENT

- Keep your product in optimal condition for a long time
- Save energy when cooling
- Cool eco-friendly with natural refrigerants

OMNIVENT

Cool **your product in the right conditions** with confidence

In an Omnivent storage, your crops are continuously monitored and stored in optimal conditions for a long time. Regardless of the outside weather conditions, everything inside remains under control. And you always know the current conditions of your product. You determine the moment of unloading. The result? Maximum preservation of quality with minimal weight loss. A permanent stream of costs and returns.





Here’s how we calculate **the proper cooling capacity for your storage**

You want to keep the quality of your product as good as possible, while at the same time run a sustainable and energy-efficient operation. To determine the right capacity for your storage, it is important to answer 3 questions.

① What cooling capacity does your product need?

It’s important to precisely identify when, and for how long, you want to store your product, how fast the temperature needs to go down and under which conditions you want to store the product for a certain period of time. To do this, we make a cold load calculation. Depending on the product to be stored, the capacities are between 60 - 140 Watt cooling capacity per tonne of stored product.

② In which temperatures will cooling take place?

We determine the maximum outside temperature, and the minimum cell temperature. This data is used to determine the condensation temperature and evaporation temperature of your installation. The condensation temperature is often 10 °C above the maximum outdoor temperature and the evaporation temperature 7 °C below the minimum cell temperature. This information is necessary to determine the effective capacity of your cooling system.

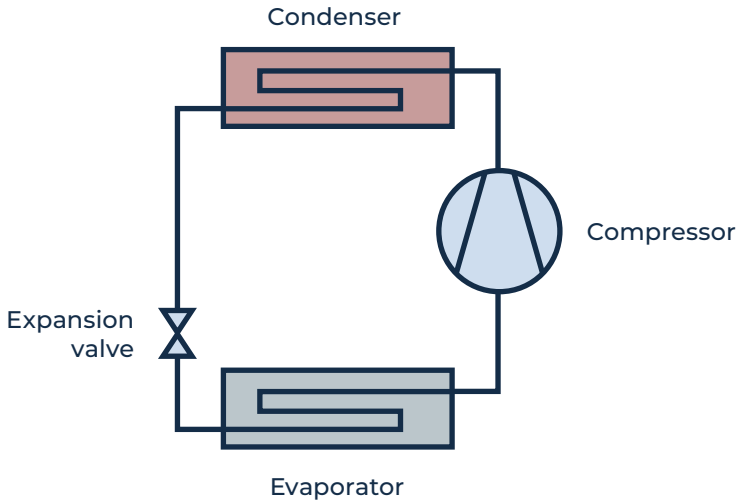
③ Should your storage cells be cooled at the same time, and when?

Together, we draw up a cooling calendar. It’s important to establish the number of cells you will be cooling simultaneously. In a situation with 3 cells of 100kW cooling capacity, if you’re only going to use 2 cells at most simultaneously, then the simultaneity is 2/3, or 67%. The compressors and condenser setup outside then only need to supply 200kW of cold.



Simple and energy efficient cooling with a **direct cooling system**

- A relatively low investment
- A low energy use, because evaporation directly in the store is efficient
- Little maintenance costs, because a DX system is relatively simple and low-maintenance

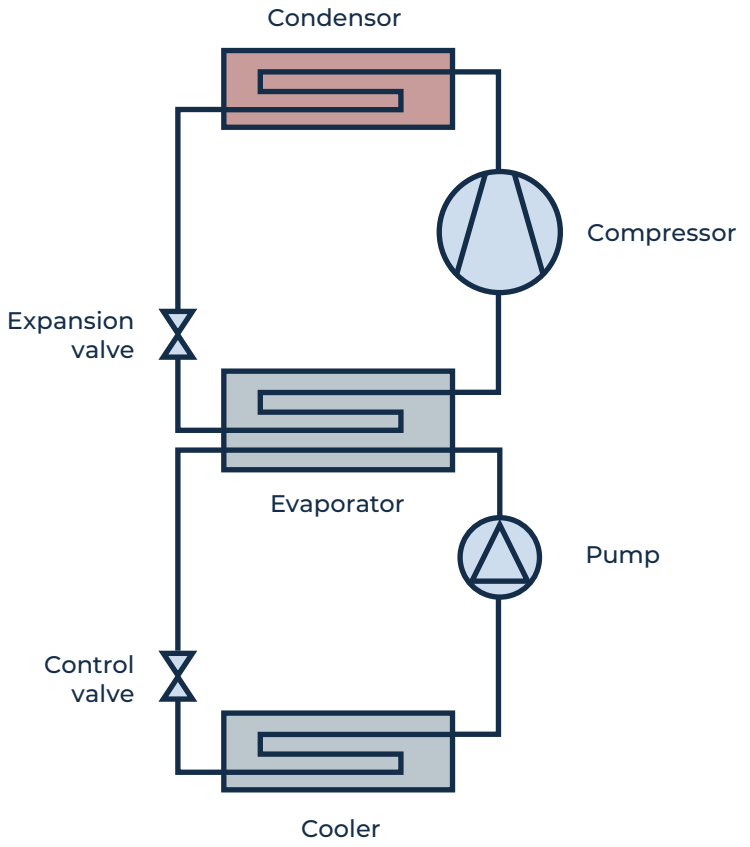


A DX (Direct Expansion) cooling system is relatively simple, and has therefore been used in practice for many years. The refrigerant evaporates directly in evaporators in the store, cooling down the air.

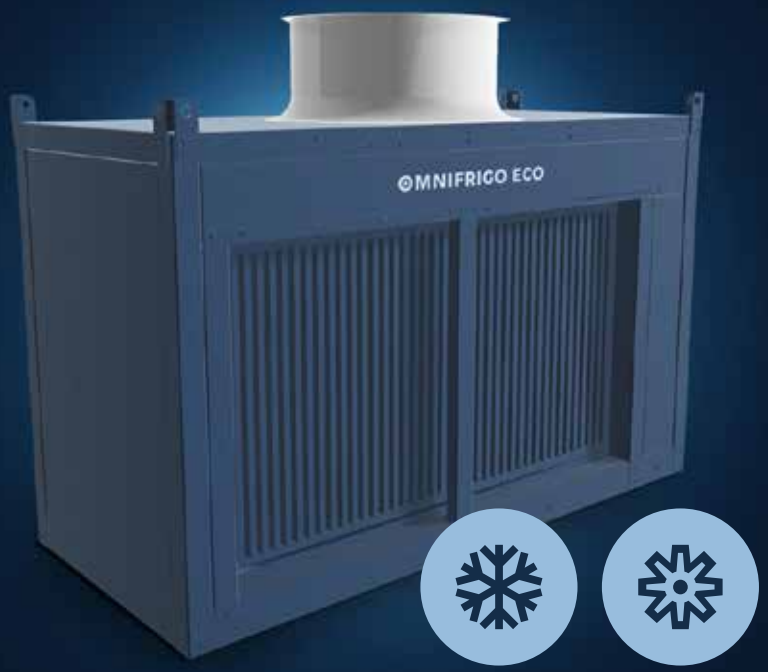


Flexible and safe cooling with an **indirect cooling system**

- You can easily control rooms with different temperatures individually
- You product dehydrates less, because the temperature of the coolers is easier to control
- Harmful refrigerant does not enter your storage rooms, so it does not pose a threat to your product (secondary refrigerant is harmless)



An indirect cooling system consists of 2 circuits. The first, small, circuit is filled with a refrigerant. In a heat exchange unit the refrigerant cools down a secondary refrigerant. In the second circuit, the secondary refrigerant flows to the coolers in the storage rooms. Because the temperature of the secondary refrigerant can be controlled, an indirect cooling system has great flexibility.



Plug & play cooling and ventilation with **OmniFrigo**

- Powerful cooling & ventilation combination
- Works with natural refrigerants
- Quick and economical installation

Many products require both cooling and ventilation for long term storage. You know what is great about the OmniFrigo? It can do both, in one plug & play unit. Look at it as a room ventilation system, fans, and a cooling system, all in one.

Compared to a complete cooling installation, the delivery and installation of OmniFrigo is easier and faster. For the inside unit, you mainly just need a hole in the wall of your storage room. The inside unit can be easily connected to the outside unit, without requiring a certified cooling engineer with specific knowledge or experience.

You might already have experience using the outside air to store your product. The OmniFrigo can optionally ventilate using outside air when conditions are favorable. This means you need less power to run your storage equipment.







Cool sustainably and environmentally friendly with **natural refrigerants**

Using natural refrigerants is a sustainable and environmentally friendly alternative to traditional synthetic refrigerants. In case of leakage, natural refrigerants have minimal or zero impact on the environment. Moreover, with natural refrigerants, your refrigeration system uses less energy, saving you money.

Propane, CO_2 and ammonia are the most commonly used natural refrigerants. Roughly speaking, propane is suitable for smaller cooling capacities of up to approx. 75kW, CO_2 up to approx. 300kW and ammonia for larger capacities.

Pay attention to the energy efficiency of these refrigerants. The efficiency of these refrigerants strongly depends on the type of crop, the outside temperature, the cell temperature and whether you will be cooling with a direct or indirect system. Our cooling specialists will be happy to advise you on the best refrigerant for your situation.





Dry independently of the outside air with **condense drying**

When drying your product with outside air, you depend on outside temperature and relative humidity (or, the dewpoint). In years with unfavorable weather conditions you will have insufficient natural drying capacity, resulting in rot, diseases and mould. Using heaters increases the drying capacity, but heaters consume a lot of gas, which is expensive and unsustainable.

Condens drying is a solution that enables you to dry independent of outside conditions. How it works? By cooling down the air in your store using the evaporators, moisture is extracted from the air. We then use the heat that is released in this process to warm up that same air again. As a result, the air can absorb moisture again, also known as drying. By extending your cooling system slightly, it is made suitable for condens drying.

Hybrid condens drying

Do you need a lot of drying capacity for your product? Then choose for hybrid condense drying using hatches. During the storage season, it is more often still warm outside. In that case, you can often dry just fine with outside air. Efficient and sustainable!



Reusing energy smartly with **heat recovery**

When you are cooling in one place, heat is released in another place. Usually this heat is dissipated to the outside air via the condenser. However, if you can use this heat somewhere else, that is a total waste! **An adaption of your cooling system enables you to store and reuse this valuable heat energy.**

For example to heat an office or a handling area. Heat recovery saves energy, which is a win for both the environment and your wallet!

'Thanks to modifying the cooling system, we can now save on cooling the potatoes as well as heating the house!'

Felix von Gilsa – Avena



STORAGE
MADE EASY

Would you like to cool your product in a sustainable and eco-friendly way? Feel free to contact us:

Morseweg 1
3899 BP Zeewolde
The Netherlands

+31 (0) 36 522 2177
info@omnivent.com
www.omnivent.com

OMNIVENT

80.000238 - 01