

Liquid Nitrogen the refrigerant of the future

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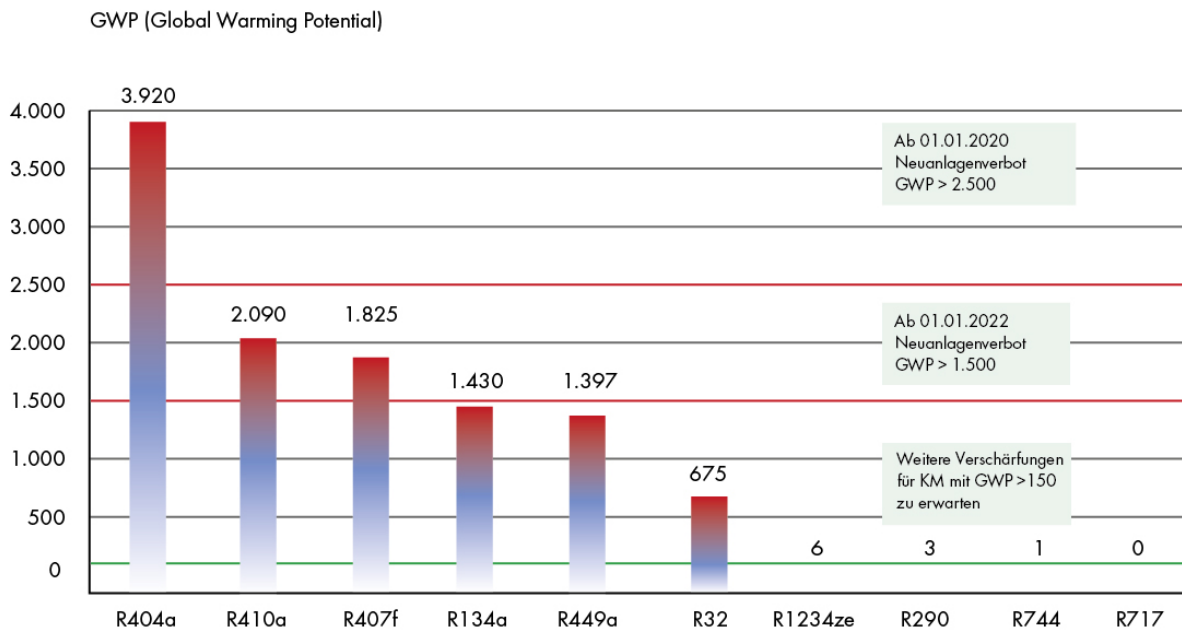


Automated warehousing



or custom-made Systems

The choice of the right refrigerant is the defining theme in the refrigeration and air conditioning industry, given the new „F-Gas Regulation “. The possibilities of Liquid Nitrogen instead of classic refrigerants seems to be widely unfamiliar, despite it being very effective and environmentally friendly. Harnessing this sheer power is the challenge, the effectiveness the reward.



We at the NNC are working on solutions, for save and efficient cooling in a variety of applications like Storage-systems (manual/automated), rooms like Walk-in Freezers – no matter the size – without the use of standard compressor based cooling systems. So far, this has involved organic and pharmaceutical products that must be stored in the temperature range between +4 and -160 °C. The solution is obvious, very simple and is systematically developed by us and led to series production.

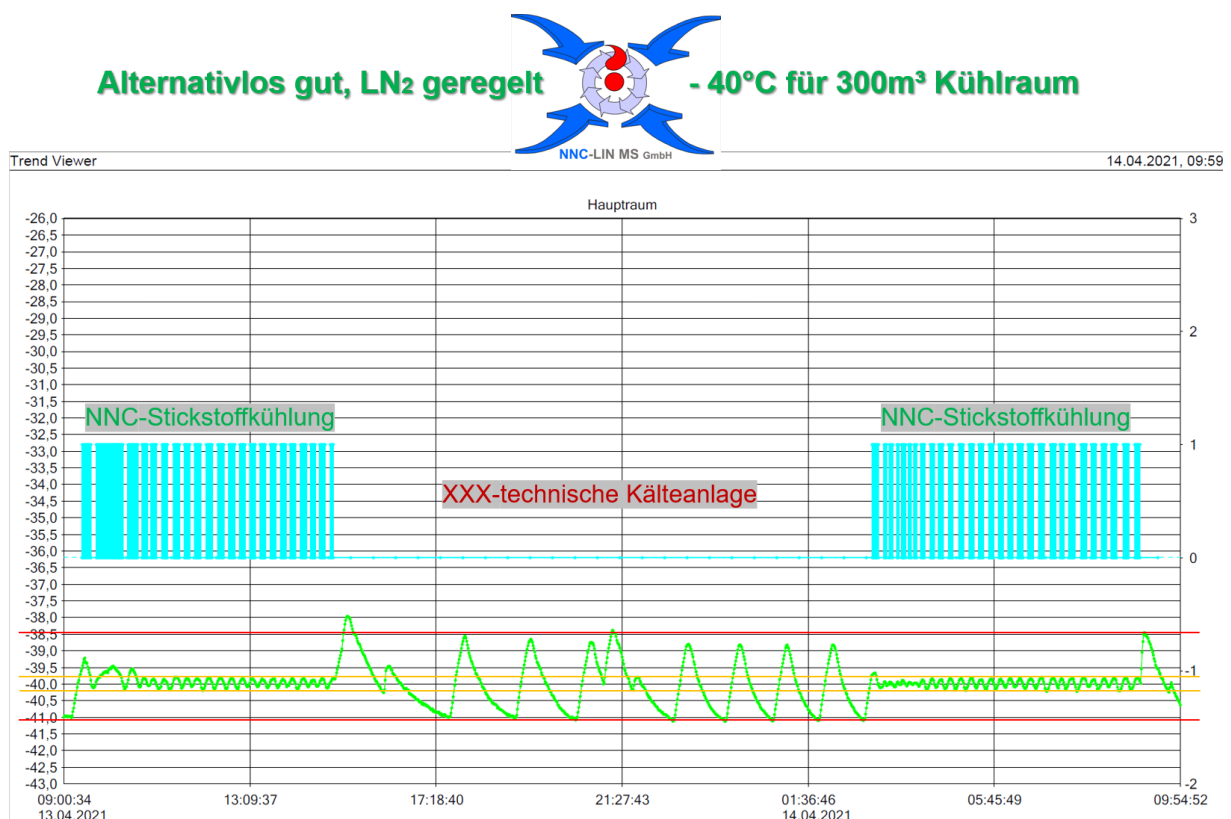
It should be noted that the handling of LN₂ (liquid nitrogen) must be separated from the subjective opinion that it is not controllable. As with all refrigerants, there are clear guidelines that must be followed to achieve the highest degree of effectiveness and to ensure safe handling. After all, about 78% of the air we breathe is nitrogen.

To put it very simply, you only need a few components:

- An LN₂ supply tank
- A suitable supply line to reduce static consumption
- Controllable valves
- Heat exchanger
- A suitable "exhaust" for further use or evacuation outdoors
- An efficient, as well as individual control system in order to achieve precise temperature control
- The know-how of 25 years is not a disadvantage

The comparison shows how effectively LN₂ works:

Adjustment for 300m³ to +/- 0.5°C in the entire room, at each point. Without fans, aggregates, or other technical effort.



It should not be overlooked that the pure use of LN₂ in simple processes such as cooling is often attacked because the costs of production are high and require a lot of electrical energy. We counter that today a large part of renewable energy is not used because it cannot be stored. Here is the medium for storage, LN₂.

Far more important, however, is that in today's systems only a comparison in the stated electrical consumption is used. It is not taken into account that with the cooling energy generated by the refrigerators Compressor, heat energy is generated and released into the room where it has to be eliminated through air conditioning.

In addition, LN2 can do much more in the understanding of the NNC Group. The concepts and application examples of the NNC show that the benefits of the cascade offer further enormous savings. Whether further device cooling, cold water generation, server room cooling or air conditioning support.

Another argument that speaks very well for itself lies in the much lower investment costs and the extremely low maintenance costs. In addition to the significant saving of space (no floor space needed for drives, compressors, fans, and other technical equipment), a striking argument.

Since LN2 consumes itself in the process of the cooling capacity, one could assume that it is not sustainable. This is wrong: sustainability lies in the fact that it cannot cause any environmental damage, unlike other media used such as refrigerants.

The systems, rooms and large-scale plants developed and installed by NNC so far run without interruptions nationwide in universities, production areas, the pharmaceutical industry and other areas of application.

NNC's systems help to reduce space and investment, significantly increase safety, and reduce running costs to the necessary level. Without question the requirements of the future will see this as a benchmark.

We at NNC work with all major players in the gas industry, and don't give preference to anyone. It is important to us to help the customer with the right expertise to secure and improve processes and to contribute to the preservation of nature, and if it is only by demonstrating the possibilities.

We at NNC-LIN MS GmbH are always available for questions.

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