

Critical cooling upgrade for pharmaceutical company

Danfoss Optyma™ Plus safeguards £40 million of pharmaceutical stock in critical cooling upgrade

For a large pharmaceutical company, maintaining precise temperature control is not just a matter of efficiency, it's a business-critical requirement. At their production facility in North Wales, a 2500 m² storage area houses over £40 million worth of sensitive pharmaceutical stock, which must be kept within a strict temperature range of 2 °C to 8 °C. When their aging cooling system needed replacement, our partner ICE designed a robust and future-proof solution built around trusted Danfoss technology.



Challenge

Precision, compliance, and high stakes

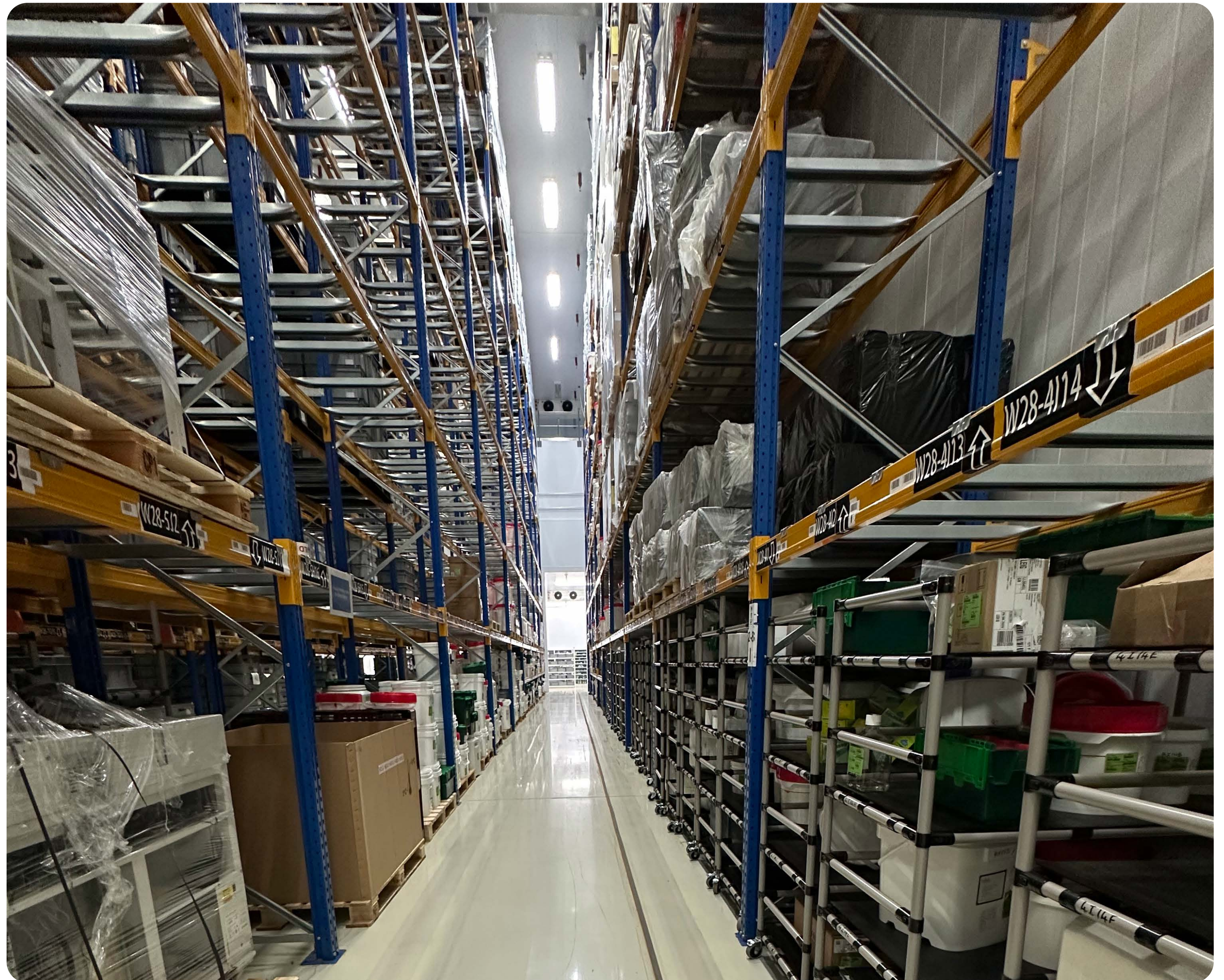
The client's existing system consisted of 15 dual discharge evaporators served by 2 glycol chillers operating on R-407C, which has a high 1774 GWP (Global Warming Potential), posing a risk for future regulatory compliance and incurring high running costs. The company needed a new system that utilised a lower GWP refrigerant and could guarantee the tight temperature tolerance.

Danfoss solution

Optyma™ Plus with A2L refrigerant

The solution, expertly designed by ICE, was 15 independent direct expansion refrigeration systems across 3 zones, 2 of which were centered on Danfoss Optyma™ Plus condensing units. At the heart of each of these units is a high-performance Danfoss scroll compressor, specified for its proven reliability and durability in critical applications. A suite of other Danfoss control components was also integrated to ensure precise system management and monitoring.

A key part of the future-proofing strategy was the transition to R-454C, an A2L refrigerant with an ultra-low GWP of just 148, representing a reduction of approximately 92% in refrigerant GWP. This choice ensures long-term compliance with F-Gas regulations, positioning the company well ahead of legislative phase-downs and protecting their investment for years to come. The selection of Optyma™ Plus units provided a foundation of trusted technology, engineered to perform flawlessly in demanding applications.



Execution & Results

The Optyma™ Plus condensing units were expertly installed by the ICE team and the facility remained operational throughout the works. The new installation has been a resounding success, delivering exceptional results across the board:

- **Uncompromising Reliability:** The new system provides the precise and stable temperature control required, safeguarding the client's £40 million inventory and providing complete peace of mind.
- **Significant Energy Savings:** The high efficiency of the Danfoss scroll compressors within the Optyma™ Plus units has led to a dramatic reduction in electricity consumption, delivering substantial and ongoing operational cost savings.
- **Long-Term Regulatory Compliance:** The successful transition to the ultra-low GWP refrigerant R-454C ensures the installation is a sustainable, long-term asset, safe from future regulatory pressures.



Further information on
A2L condensing units
available on
Danfoss' website:
danfoss.com



During the process of developing the proposal for a long-standing pharmaceutical client, there was a strong focus on low GWP refrigerants and improving environmental performance. We had initially considered CO₂ as an option, however due to the cost implications this was not the right fit for the client's budget. After meeting Danfoss and discussing alternative solutions at the Installer Show in Birmingham, we explored an A2L design instead. This allowed us to offer the client a lower GWP solution that achieved both the environmental objectives and the project budget requirements.” ”

— Nick Griffiths
Managing Director



Refrigeration/Air Conditioning
& Heat Recovery



Any information, including, but not limited to information on selection of product, its application or use, product design, weight, dimensions, capacity or any other technical data in product manuals, catalogues descriptions, advertisements, etc. and whether made available in writing, orally, electronically, online or via download, shall be considered informative, and is only binding if and to the extent, explicit reference is made in a quotation or order confirmation. Danfoss cannot accept any responsibility for possible errors in catalogues, brochures, videos and other material. Danfoss reserves the right to alter its products without notice. This also applies to products ordered but not delivered provided that such alterations can be made without changes to form, fit or function of the product. All trademarks in this material are property of Danfoss A/S or Danfoss group companies. Danfoss and the Danfoss logo are trademarks of Danfoss A/S. All rights reserved.