

# Unitechnik implements an automated refrigerated warehouse in Dubai

*The Dubai Logistics City is one of the most ambitious economic projects of the booming emirate on the Persian Gulf. Up to twelve million tonnes of cargo must be moved under the extreme conditions of heat and desert sand every year. As a logistics service provider, Integrated National Logistics Ltd. (INL) is in charge of storing, picking and shipping consumer goods and food products for the Middle East. The service provider has awarded a contract for the automation of a pallet high-bay warehouse with 40,000 storage units and the provision of technical services to Unitechnik Cieplik & Poppek AG, Wiehl/ Germany.*

Covering an area of 140 km<sup>2</sup> and in close proximity to Al Maktoum International Airport in Dubai – the largest city of the United Arab Emirates and the capital of the Emirate of Dubai – the new Dubai World Central district is currently under construction. To reinforce the importance of the emirate as a leading logistics hub for the Middle East, 25 km<sup>2</sup> are provided for the Dubai Logistics City alone. With a temperature range of -28 to +25°C, the warehouse operated by INL service provider covers a wide range of goods and is particularly suitable for the storage and distribution of frozen and chilled foods. INL is working in Dubai for a number of renowned manufacturers and has created one of the largest temperature-controlled warehouses in the United Arab Emirates with an investment of 70 million U.S. dollars.

## Intralogistics with system

The 22 m high warehouse (**image 01**) is divided into two symmetrical blocks with automated high-bay pallet racking systems, pre-zones (**image 02**) and seven lanes each, with a block used as “ambient area”. Here, storage temperatures range from 18 to 25°C, significantly below the desert state outside temperatures that in summer can reach up to 50°C and in winter 36°C. The second block is designed as a refrigerated warehouse, where every lane can cool down individually to temperatures reaching -28°C. The individual cold zones are clearly separated by cooling and partition walls. Thus, storage temperature can be tailored to the requirements of the goods even in hot Dubai. Due to this flexibility, the warehouse itself meets the increased demands of food



manufacturers for a reliable, temperature-controlled supply chain. When loading and unloading trucks, the entry of desert sand and heat into the warehouse is minimized by fast-moving gates. To achieve a high level of cleanliness, special cleaning vehicles remove the dust that blows into the warehouse during the opening and closing of the gates several times a day. A sluice before every lane also ensures compliance with globally valid hygiene standards.

## Concept details

Between the two high-bay warehouses there is a picking area powered by a pallet conveyor system. Each of the 14 lanes is assigned to its own storage and retrieval system, so that the arranged goods can be removed quickly and efficiently. As a general contractor for turnkey logistics solutions, Unitechnik Cieplik & Poppek AG has manufactured the complete conveyor and control system of the plant. In addition,





01



02



03

**01** Stacking and retrieval conveyor system for pallets

**02** Pre-zone "ambient area" and deep-freeze warehouse

**03** Forklift truck during transfer to the pallet conveyor system

the storage and retrieval equipment used are included in the delivery of the system integrator. In conjunction with an ERP system of the customer, the modular design of the Uniware warehouse management system ensures transparency. On more than 40,000 storage units, the software manages all stored goods, accurately monitoring the data of each client. The software controls inter alia that the incoming goods are assigned to the proper cooling zone, and hence to their allocated destination. At the same time, the software automates the sorting process according to important factors such as the shelf life of the goods.

When conceiving the warehouse, Unitechnik engineers have paid special attention to the design of the sluices. Because the real challenge was less posed by the external factors heat and sand but much more by the tremendous humidity of the hot air outside. To prevent condensation in the plant, the air in the warehouse is constantly dehumidified. The humidity extracted is

collected in a tank. Every day, several thousands of litres of water are obtained in this process. "The sluices are tailored to these conditions so that humidity is discharged and the lanes do not freeze," explains Michael Huhn, sales director at Unitechnik.

For loading and unloading, incoming trucks are immediately assigned to one of the 31 gates leading into the suitably cooled area. In this way, the operator can keep air and dust entry as low as possible. Employees in the warehouse either pre-pack individual cartons on pallets and store them away, or carry already packed pallets by lift truck to their destination (**image 03**). To automate the high-bay warehouse that houses these pallets, INL has deliberately opted for a concept solution by Unitechnik. "Thanks to Unitechnik technical expertise, we use solutions that have proven to be successful in Europe for many years. As we want to think about daily business and permanently reduce storage costs, we benefit from the company's engineering

expertise," explains Adil Alsmadi, Project Manager of the INL logistics service provider. In addition, it was important that the partner had already gained experience with system integration in the United Arab Emirates in previous projects. Globally active company Unitechnik has been present in Dubai since 2004. Jointly with ICM, an airport engineering subsidiary, the automation company has already implemented a cargo terminal in the Logistics City.

In addition to extensive project management, Unitechnik is also responsible for the complete mechanical and technical service in the warehouse in Dubai. Moreover, all spare parts are stored within the reach of the customer warehouse. "For Ground Support in Dubai, two technicians are ready and available for us 24 hours a day. Added to this is the IT support from Germany," emphasizes Alsmadi.

[www.unitechnik.com](http://www.unitechnik.com)



## About Unitechnik

Unitechnik Cieplik & Poppek AG, based in Wiehl, Germany, has been one of the leading providers of industrial automation and computer science for four decades. In its second generation, the family company designs and implements custom systems for in-house logistics and production. Thereby, Unitechnik has a leading position worldwide as a system integrator and turnkey solutions supplier. Professional project management and a competent supervision of the installed systems are the foundation for long-term business relationships and safeguard the value of each customer's investment. At facilities in Germany, Dubai, China, Switzerland and Australia, the Group employs approximately 300 engineers, technicians and skilled workers. Unitechnik's references include well-known companies such as Qantas, Australia; Turck, Germany; Integrated National Logistics, Dubai; Ethiopian Airlines.

