

## Controlled Environments within Kardex Remstar Storage Systems

Kardex Remstar has developed industry specific solutions including: temperature controlled units, clean room storage units and dry room storage units. Companies are always looking for opportunities to speed up intralogistics processes and increase productivity in these unique applications.

### **Storage at Constant Temperatures**

Many stored goods are vulnerable to temperature changes. This applies to a very vast range of products, from frozen food articles to hospital supplies to pharmaceutical products, all of which require storage at constant temperatures. For these applications, the Shuttle XP Vertical Lift Module (VLM) and the Megamat RS vertical carousel both come equipped with an integrated air conditioning system to protect stored goods. The available temperature range is from -25 to +65 degrees Celsius (-13 to +149 degrees Fahrenheit). A model of the Megamat RS vertical carousel was also designed in particular for the storage of blood reserves at -30 degrees Celsius (-22 degrees Fahrenheit).

Common applications are process technology (+60 degrees Celsius, +140 degrees Fahrenheit), warehouse temperature (+20 degrees Celsius, +68 degrees Fahrenheit), refrigerator (+5 degrees Celsius, +41 degrees Fahrenheit), and deep freezer (-25 degrees Celsius, -13 degrees Fahrenheit).

Two sealed off, airlock doors, one in front and a second door behind the access opening minimize external exposure to the internal environment of the system. These doors reduce the exchange of air during storage and retrieval processes. This temperature controlled environment can be contained within the unit, depending on the site constraints, requiring minimal floor space and cube, thus minimizing operating costs.

### **Clean Room Solutions for a Particle-Free Environment**

Most semi-conductor manufacturers, hospitals and pharmaceutical companies need storage and retrieval systems that can operate in clean room conditions. Whether it's for sterile instruments in the operating room or particle-free components for semi-conductor production, clean room solutions from Kardex Remstar offer conditions in compliance with ISO 14644 Standards, covering clean room classes 5 to 8 (or classes 100 to 100,000).

To keep the amount of particles in the air as low as possible, the Shuttle VLM, for example, is now equipped with roller-based trays instead of slider-driven trays. The advantage of roller trays is that they utilize rollers which do not produce dust. In both systems, the VLM and vertical carousel, controlled air streams ensure clean room conditions are maintained inside the machines.

### **Dry Solutions Save Resources and Costs**

With a particular focus on the semi-conductor industry, Kardex Remstar has further developed its dynamic storage and retrieval systems into dry room applications with a relative humidity at or below 5 percent. In addition to a sealing system and an airlock in the access opening, a special

dehumidification device is designed for use with the VLM and vertical carousel ensures humidity levels are maintained within the unit.

The solutions for special climate conditions have been designed as standard products that can be easily adjusted to meet individual and unique customer requirements. The solutions will ensure that stored goods are kept within the required parameters. With temperature control, clean room and dry room storage capabilities, dynamic solutions from Kardex Remstar have the capacity to control processes and increase productivity.

Kardex Remstar, LLC, a company of the Kardex Group is a leading provider of automated storage and retrieval systems for manufacturing, distribution, warehousing, offices and institutions. For information about our dynamic storage solutions, call 800-639-5805 or visit [www.KardexRemstar.com](http://www.KardexRemstar.com).