

Kardex Remstar creates controlled ambient conditions

Climate change in storage systems

Companies want to speed up their intralogistic processes and increase their productivity. To achieve this, they need suitable plants that match their products and the requirements made the different industries. Kardex Remstar as a technical leader of intralogistic solutions does not only continually optimise its products but also develops industry-specific system solutions. For special applications and different industries Kardex Remstar offers four different ambient solutions: storage at defined temperatures, clean-room, dry-room and fire protection.

Kardex Remstar special solutions are focussed in particular on the following industries: semiconductor, pharmaceutical, medicine, optics, automotive, aircraft construction and food. "These branches need special ambient conditions for the storage of their products", says Manfred Schleicher, managing director for Central Europe at Kardex Remstar. "Thanks to decades of experience – more than 144,000 systems by Kardex Remstar have been installed all over the world – we know the processes and we know what our customers need – and we can develop the solutions that exactly match our customers' requirements."

Storage at constant temperatures

More and more stored goods are vulnerable to temperature changes. This applies to a very vast range of products, from frozen food articles to pharmaceutical products, all of which require storage at constant temperatures. For these applications Kardex Remstar offers the Shuttle XP storage lift and the Megamat RS vertical carousel, both devices come with an integrated air conditioning system, the available temperatures range from - 25 to + 60 degrees Celsius. The most frequently requested solutions are + 60 (for process technology), + 20 (warehouse temperature), + 5 (refrigerator) and - 25 degrees ad Celsius (deep freezer). There is also a Megamat RS model that was designed in particular for the storage of blood reserves at - 30 degrees. Two sealed off airlock doors, one in front of and a second door behind the access opening, guarantee constant temperatures inside the storage lift. These doors reduce the exchange of air during storage and retrieval processes to a minimum. Since this air-conditioning solution - as well as all other products on offer by Kardex Remstar - features

high-density storage, the area that needs cooling down or heating up is minimal, and this has very positive effects on the operating costs.

Cleanroom solutions for a particle-free environment

Manufacturers of semi-conductors, hospitals or pharmaceutical companies – they all need storage and retrieval systems that can guarantee cleanroom conditions. Whether it's about sterile instruments for the operating room or particle-free components for semi-conductor production, cleanrooms by Kardex Remstar offer ambient conditions in compliance with ISO 14644 Standards, covering cleanroom classes 5 to 8 (or US-classes 100 to 100,000). To keep the amount of particles in the air as low as possible, Kardex Remstar puts a large emphasis on further developing their storage systems. Their storage lift Shuttle XP, for example, is now equipped with roller-based trays instead of slider-driven trays. The advantage of roller trays is that produce much less abrasion as a result of which fewer particles can escape into the air. In both systems, the storage lift and the vertical carousel, controlled air streams ensure that cleanroom conditions are maintained inside the machines. For this purpose, air ducts were put into the side panels of the unit, allowing clean air from one side to stream into the unit and be drained off at the other side. Clean laminar air streams then spread evenly throughout the entire height of the storage system.

Dry solution saves resources and costs

With a particular focus on the semi-conductor industry, Kardex Remstar further developed its dynamic storage and retrieval systems into dry room applications with an ambient relative humidity of below 5 percent. In addition to a sealing system and an airlock in the access opening, a special dehumidification device inside the storage lift and the vertical carousel ensures that all moisture is removed from the unit. During this so-called adsorption drying, humid air is suctioned in and the moisture then absorbed by a honeycomb-shaped fibreglass material. The desiccated air then returns into the storage system while the moisture in the adsorption rotor is discharged as regeneration air. Technically speaking, the solution is reduced to achieve maximum efficiency. The control regulates the energy consumption. Energy supply stops as soon as the moisture in the air falls below the limit value of 5 per cent and the air in the storage system has reached optimal dryness. In comparison with conventional nitrogen flooding systems, dry room storage systems offered by Kardex Remstar save up to 95 percent of a company's operating costs. The solution has been designed to comply with international JEDEC Standards (=Joint Electron Devices Engineering Council) and is therefore optimally suited to meet the specific requirements of the semiconductor industry.

Extinguishing system without negative side effects

Effective fire prevention pays off. In an emergency, it is not only the fire that causes considerable damage. Extinguishing a fire with conventional sprinkler or gaseous fire suppression systems can cause disproportionately high damage. And more and more frequently, insurance providers demand additional fire prevention measures in addition to the legal fire precaution regulations. Non-compliance with these regulations will result in additional payments or, in the worst case, loss of your business licence. Kardex Remstar has therefore developed a solution that will extinguish a fire in the shortest possible time whilst protecting the stored goods. The inert gases that are used with this system are natural, residue-free gases that react with very few other substances and quickly reduce the oxygen concentration in the air. A positive side effect of these gases is their ability to extinguish a fire without producing residues which are likely to damage the stored goods. The novelty about the Kardex Remstar solution is special nozzles that are distributed over the entire height of the Shuttle at a distance of only 5 centimetres. Through these nozzles, gas is injected directly into the storage units at a low pressure of only 1 to 2 bar. Due to the many injection points, the gases spread very fast, the oxygen concentration quickly falls to less than 8.8 percent and the fire is extinguished within only one or two minutes. With this technology, there is no damage to any of the stored components. The innovative extinguishing system is further supported by a sophisticated alarm system. Plastic pipes inside the machine continuously suck in and analyse the air to detect any traces of smoke particles. As soon as the particle concentration exceeds a defined limit value the alarm system is activated.

Flexible standard concepts

All applications for special ambient conditions have been designed as standard concepts that can be easily adjusted to meet individual and unique customer requirements. "Flexible Standards are the best means to fight against the ongoing pressure of prices and competition. They help avoid lengthy development times and create space for technical creativity", explains Manfred Schleicher. "And this allows us to develop not only innovative and unique solutions for our customers but also offer the best possible price/performance ratio."

About Kardex Remstar

Kardex Remstar develops, produces and sells dynamic storage and retrieval systems. The company is a leading global supplier of storage lifts, vertical carousels, order picking software and life-cycle services. Kardex Remstar has installed more than 140,000 dynamic storage solutions for well-known companies in business sectors all over the world. Applications in a wide range of customer segments include the automotive, electronics, engineering, chemical and pharmaceutical industry, warehousing and distribution, the health sector and many more. Kardex Remstar has two production facilities in Germany and maintains local branches, representations and service organisations in over 30 countries across the globe. In 2011, more than 1,300 employees generated a turnover of 200 million Euros with an operating profit (EBIT) of von 10.5 million Euros. Further information is available at: www.kardex-remstar.com

Kardex Remstar is a division of the Kardex Group and currently employs more than 2,000 people. Other corporate divisions of the Kardex Group are Kardex Stow with static storage systems and Kardex Mlog who produce and sell integrated materials handling systems and high-bay warehouse systems. These divisions operate as independent companies. The KARDEX AG is listed on the SIX Swiss Exchange in Switzerland. Further information at: www.kardex.com

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