Designed for efficiency

Automation can bring a significant increase in efficiency while helping reduce costs. Our Automated Storage and Retrieval System (ASRS) is specially designed for paper storage facilities and uses fully-automated cranes to help speed up work cycles, reduce roll damage and track inventory. The system utilizes vertical stacking so there's no need for forklifts or open aisles making it particularly suited for mills with limited space.

Mechanical roll gripper crane

EFFICIENT STORAGE
Move different paper grades and roll sizes, and utilize storage space more effectively.

IMPROVED PRODUCTIVITY
Gripper docking station prevents load sway for shorter cycle times.

INTELLIGENT SENSORS
Gripper sensors detect sway, obstacles, stack height and distance from the tops of paper rolls. Guiding slides protect rolls from accidental contact with gripping pads.

MULTI ROLL HANDLING
Lifts multiple rolls at once and holds roll even without power.

PRECISE FORCE ADJUSTMENT
Clamping force is adjusted to individual roll weight and distributed between pads. Load cells detect the force and adjust it precisely.

Vacuum lifter crane

ADAPTABLE
The lifter easily adapts to a wide variety of fine paper grades and roll sizes.

INTELLIGENT SENSORS
Centering pin integrating sensors detect paper roll cores and emergency stops. Additional sensors detect slack rope, and pickup for accurate positioning.

SOFT TOUCH
Gentle gripping helps prevent damage to paper rolls while purpose-built bottom seal rings ensure tight contact to more porous roll ends.

VACUUM DETECTION
The lifter calculates the needed vacuum and continuously monitors the vacuum level for a steady lift.

Konecranes Warehouse Management System

The Konecranes Warehouse Management System (WMS) is designed for managing an automatic paper roll warehouse operated by cranes with mechanical gripper or vacuum lifter devices for shipping and intermediate warehouses. The WMS consists of a basic module plus extension modules for material flow, yard management, shipping management and conversion management.

Warehouse Management System

- Achieve high throughput combined with high storage capacity.
- Reorganization of roll storage significantly reduces crane movements during peak times.
- Distribution of workload across all storage areas and cranes helps speed up truck loading.
- Crane operating data can be analyzed for further warehouse optimization.
- System allows order prioritization for the most efficient retrieval sequences which helps increase productivity.
- Intelligent roll classification prevents rolls from over-aging.
- Storage, retrieval and warehouse selection strategies provide better organization and help increase safety and productivity.

Material Flow Module

- Provides one system to control the material flow from the winder to the warehouse and shipping area.
- High throughput can be achieved with the coordination between the conveyor and crane warehouse.
- Helps optimize flow of rolls to both automatic and manual storages.
- Provides central interface between material handling technology and customer IT.

Shipping Management Module

- Saves time and increases efficiency of truck loading because rolls do not have to be manually sorted.
- Shipping lists are automatically generated and managed with status updates.

Yard Management Module

- Organizes and monitors the management of forklift and truck traffic.
- Supports the loading process for fast and economical handling in all process phases.
- Provides optimal utilization of the crane system depending on the loading bay status.

WMS planning

Visualization using a digital twin
Cutting-edge simulation technology replicates the entire warehouse system—focusing on emulating crane movements. It enables real-time visualization and analysis of material flow inside the storage, allowing for the optimization of storage and retrieval strategies.

Detailed view using simulation
Conceptual planning with simulation and cost analysis aids in the development of a system that meets future demands in terms of throughput, storage and handling capacity in the most cost-efficient way.

Control concepts

Full automation: The operator defines the settings and the crane functions without further human input.

Semi automation: The operator maintains manual control with various features assisting.

- Can reduce costs by optimizing available space with shorter travel paths.
- Minimizes the potential for human error and improves safety of equipment, loads and personnel.
- Gives you more reliable and predictable processes and a larger volume of throughput.
- Increases accuracy and efficiency of stacking and retrieving items.

Interested? Contact us