

**INDUSTRIAL CRANES**

NUCLEAR CRANES

PORT CRANES

HEAVY-DUTY LIFT TRUCKS

SERVICE

MACHINE TOOL SERVICE

**WAREHOUSE MANAGEMENT**

**KONECRANES®**

Lifting Businesses™

# Automatic Storage and Retrieval System **COMPLETE AND ECO-EFFICIENT SOLUTION FOR PAPER WAREHOUSES**



## Konecranes Automatic Storage and Retrieval System Solution

# STREAMLINE YOUR STORAGE HANDLING

**Konecranes Automatic Storage and Retrieval System is a complete solution for paper warehouse management and handling. In addition to automatic cranes, paper roll handling tools and software, it comes with worldwide service support.**

### Efficient use of space and time

The Konecranes solution provides high return on investment through savings in housing costs. Compacted roll storage with maximized vertical and horizontal efficiency enables full use of the storage area.

Faster handling capacity along with effective warehouse management increases productivity by enabling the swift meeting of orders. The reliable storage inventory on-line makes sure no data is lost.

### Flexible solution that lasts

The software has an easy-to-use operator interface. The interfaces for systems like conveyors and information systems work with all systems regardless of who the equipment supplier is.

The Automatic Storage and Retrieval System is an eco-efficient solution: it saves energy through modern control technology, like the braking system that feeds the energy generated when braking back into the power grid.

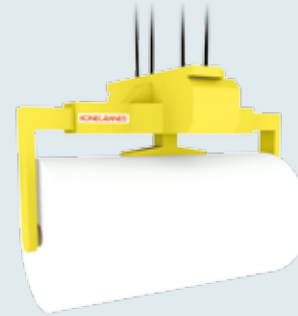
It has been designed for a long working life, which means it will last far into the future.

### We are leading the way

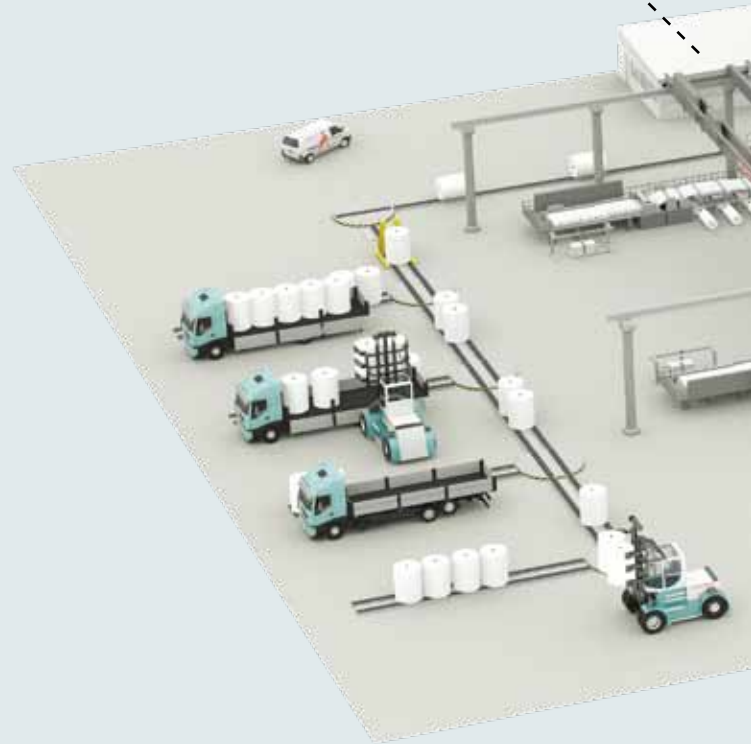
Konecranes has the longest experience in this field. We are the pioneer – the first on mentioned continents to supply this solution.

Our safety standard is high, which is visible in all our operations. We offer the same safety standard throughout the world, and we always fulfill or exceed national requirements and laws.

Providing turnkey deliveries with production start-ups on time is our driving force. Our global network and local presence around the world ensures that we are able to respond quickly to your service needs.



**Roll tong** for horizontal roll handling to feed sheet cutters and corrugating machines for printing machines.



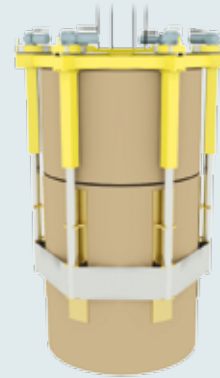
## NOT JUST LIFTING THINGS, BUT ENTIRE BUSINESSES

Konecranes is an industry-leading group of lifting businesses that offers a complete range of advanced lifting solutions to many different industries worldwide. We are committed to providing you with specialized lifting equipment and services that increase the value and effectiveness of your business.

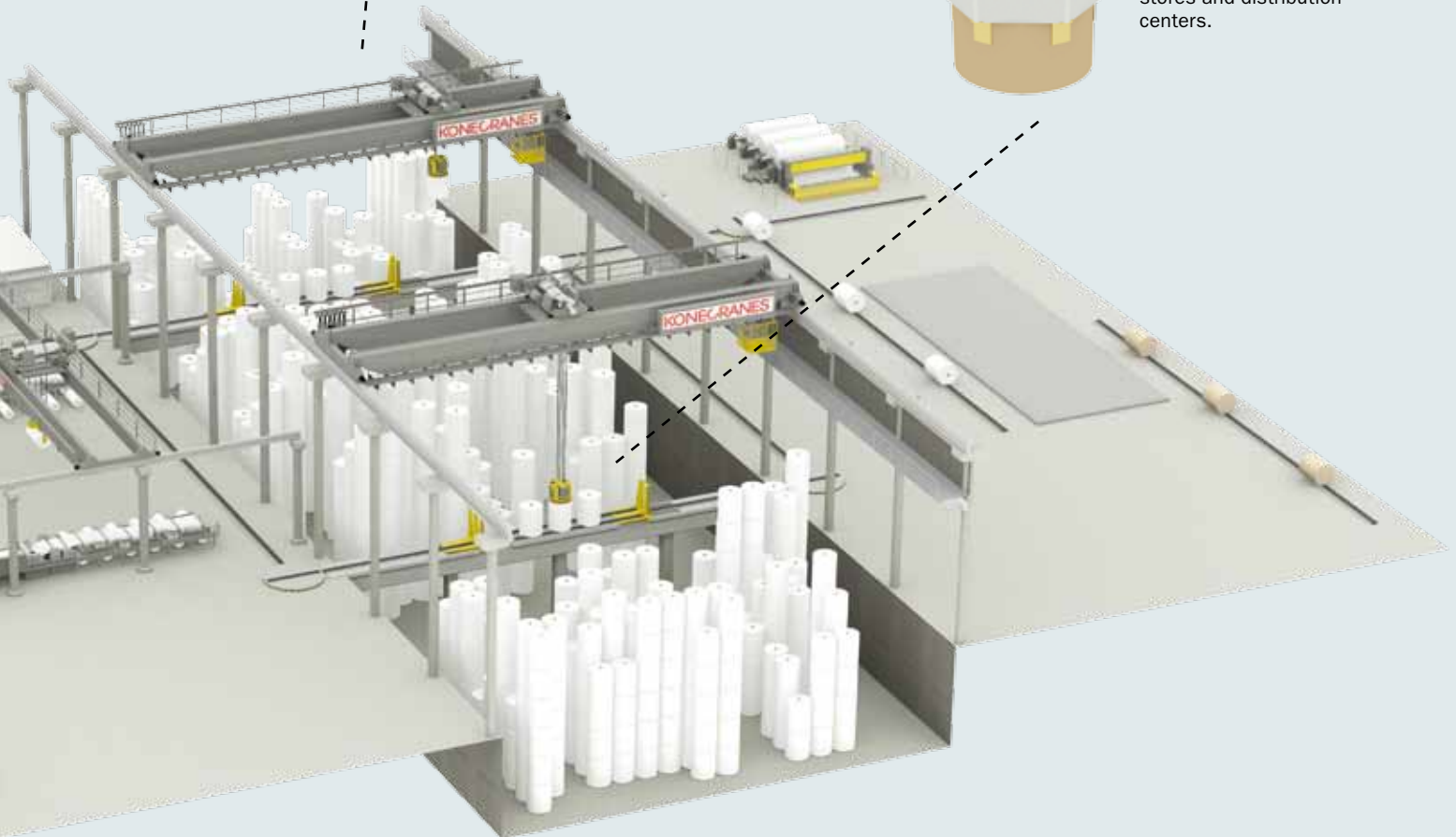
When you choose Konecranes, you acquire a unique source of global experience and knowledge combined with local know-how to empower your lifting solution.



**Vacuum lifters** for handling all coated and uncoated paper and board grades with excellent safety margins.



**Mechanical roll grippers** for handling multiple, wrapped rolls in shipping stores and distribution centers.



## FULL-SCOPE SOLUTION MAKES YOUR LIFE EASIER

- Warehouse management system with proven and tested technology.
- Our project management is always a seamless part of the turn-key solution.
- Konecranes lifting equipment excels in performance, reliability and safety.
- Our cranes, utilize advanced technology, save energy and are easy to operate.
- Optimized crane design provides reduced building construction costs.
- Intelligent monitoring with preventive maintenance maximizes productivity and minimizes downtime.



**Case Appleton Papers, USA****OPTIMIZE SPACE  
AND REDUCE COSTS  
WITH AUTOMATION****MORE WORK DONE WITH EXISTING  
FACILITIES AND MANPOWER****Expanding without more building space**

When Appleton Papers wanted to expand its flagship Locks Mill, they needed a solution that would make the most of the available real estate at the Combined Locks location. Since the mill is bordered on all four sides by a river and a county highway, geography forced Appleton's planning group to examine every possible option to accommodate further growth.

**The winning combination of price, delivery,  
experience and service**

The Konecranes automated vacuum roll storage allows rolls to be stacked close together and up to 40-ft high. Moreover, no space is required for aisles, thus available storage space increases significantly.

Choosing Konecranes' solution was based on a combination of price, delivery, and Konecranes' experience. Service support was also important – Konecranes was able to provide local service and training.

**Less damage and the better tracking of rolls**

Although the system was initially chosen to maximize the utilization of available space, Appleton has discovered other benefits. Since the system is automated and expandable, it offers the opportunity to do more work with the same number of employees. Thus, the capital and overhead cost of forklifts and their maintenance is eliminated.

A benefit that can be clearly seen on the mill's bottom line is the ability to minimize roll damage. Rolls are less likely to be deformed and damaged when handled by a vacuum lifter instead of a clamp. Lost or stale paper is no longer an issue, since the storage management software continually tracks the location of each roll.



Century Sunshine, China



**“ To store the amount of product we were going to need, we would have ended up easily tripling our building space with any other type of storage. The additional building space alone would have cost the same as the crane. The added value features were automation – fewer employees shuffling rolls around manually, and more accurate roll tracking. ”**

Appleton Papers  
John Cummings, Engineering superintendent



Oji Paper, Nantong, China



## THE INDUSTRY PIONEER THROUGHOUT THE WORLD

### First in the continents

- 2011 Stora Enso, Finland
- 2011 APP, Guangxi, China
- 2010 Nine Dragons, China
- 2009 APP, Hainan, China
- 2009 Century Sunshine Paper Mill, China
- 2008 Iggesund Paper, Sweden, modernization
- 2008 M-real, Äänekoski, Finland
- 2007 Stora Enso, modernization, Finland
- 2007 Garda modernization, Italy
- 2007 M-real, Zanders, Germany
- 2007 Papierfabriken Palm storage 6, Germany
- 2007 Wellpappe Palm, Germany
- 2006 Sea Dragon, Guangdong, China
- 2006 Nine Dragons, China
- 2006 Appleton Papers Inc, modernization Wisconsin, USA
- 2006 Klingele, modernization, Germany
- 2004 UPM Nordland Papier, Germany
- 2004 UPM Changshu, China
- 2003 SCA, Alabama (Tissue), USA
- 2001 Papierfabrik Palm, Germany
- 2000 Klingele Papierwerke, Germany
- 2000 Oji Paper, Fuji Mill, Japan
- 1998 Appleton Papers Inc, Wisconsin, USA
- 1997 Veitsiluoto Oy, Finland
- 1996 P T Pindo Deli Pulp, Indonesia
- 1996 UK Paper, Aberdeen, Scotland
- 1995 Indah Kiat, Serang Mill, Indonesia
- 1995 Hansol Paper, Korea
- 1994 Iggesund Paperboard, Sweden
- 1992 Cartiere del Garda, Italy
- 1991 Veitsiluoto Oy, Finland
- 1991 Cellulose des Ardennes, Belgium
- 1990 Nordland Papier GmbH, Germany
- 1990 Papierne Ruzomberok, Czechoslovakia
- 1987 Metsä-Serla, Finland



# STATE-OF-THE-ART TECHNOLOGY

## Warehouse Management

The system has all the functionality required to manage roll storage. Every level of operation, service and management has built-in tools and interfaces. Unique features can also be implemented into the system to fit customer needs.

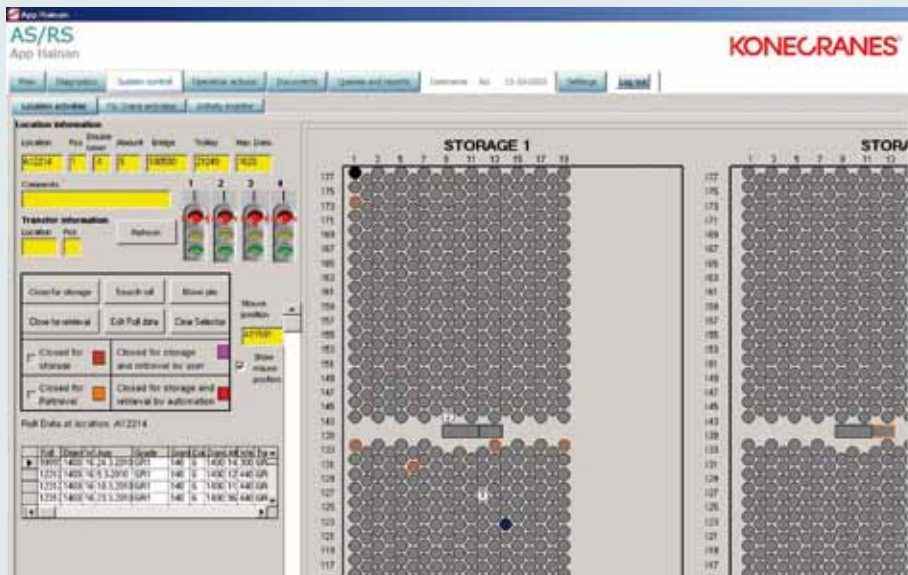
## Interfaces to other systems

In the same way that every plant has a unique layout, the IT infrastructure is also unique. Konecranes automatic storage can be linked to any major Manufacturing Execution System (MES). Tailoring data communication and data content in co-operation with all parties

to fit into the plant systems is a standard procedure. This is done in order to make all the systems work together for the same goal: maximizing plant production and quality.

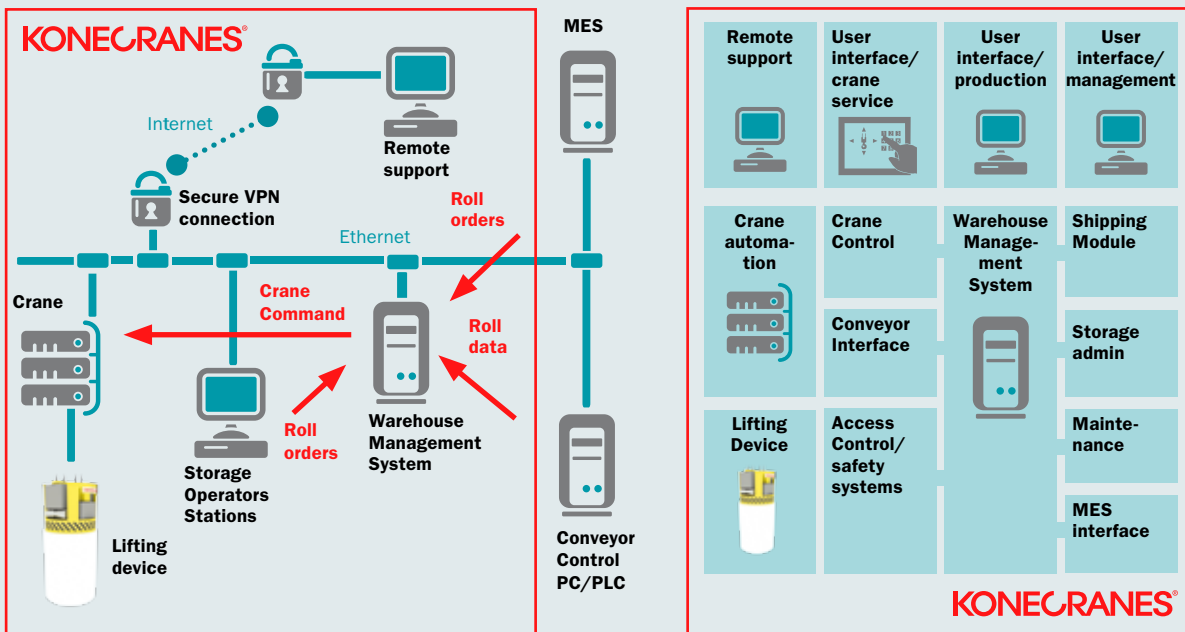
## Crane technology

Konecranes is the leading crane manufacturer in crane control technique. Mechanics, electrics and automation comes from one reliable source, Konecranes. All the elements form the best possible production machine for the application, and they utilize technology in the best possible way.



USER INTERFACE

## ASRS SYSTEM LAYOUT



## **KONECRANES SERVICE – ON A LEVEL SUITED TO YOU**

Our five service levels define the relationship and cooperation with you and they all aim at raising total life cycle value. From first CONTACT, to our professional evaluation of the CONDITION of your equipment, to preventive maintenance and consultation services for optimal CARE, Konecranes will tailor a program to lift your business.

When a mutual COMMITMENT to performance-based maintenance or COMPLETE material handling outsourcing is required, Konecranes has the experience and resources to help you meet your business objectives.

### **Care**

A selection of inspection and preventive maintenance services.

### **Commitment**

Full-scale maintenance operations with set common targets.

### **Complete**

Full responsibility of crane operations, with equipment, maintenance and personnel.

## **THE FUTURE OF MAINTENANCE IS HERE TODAY WITH TRUCONNECT® REMOTE SERVICES**

**TRUCONNECT®** Remote Monitoring and Reporting service monitors the real usage of your equipment through a remote connection. Using the available usage data we provide you with information that can help you increase the safety of your crane usage, optimize your maintenance spending, and plan and budget your crane fleet's modernization needs in advance.







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Konecranes is a world-leading group of Lifting Businesses™ offering lifting equipment and services that improve productivity in a wide variety of industries. The company is listed on NASDAQ OMX Helsinki Ltd (symbol: KCR1V). With over 11,500 employees at more than 600 locations in almost 50 countries we have the resources, technology and determination to deliver on the promise of Lifting Businesses™.

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