



**5-STEP GUIDE
FOR SELECTING THE
RIGHT CRANES FOR
STEEL WAREHOUSING**

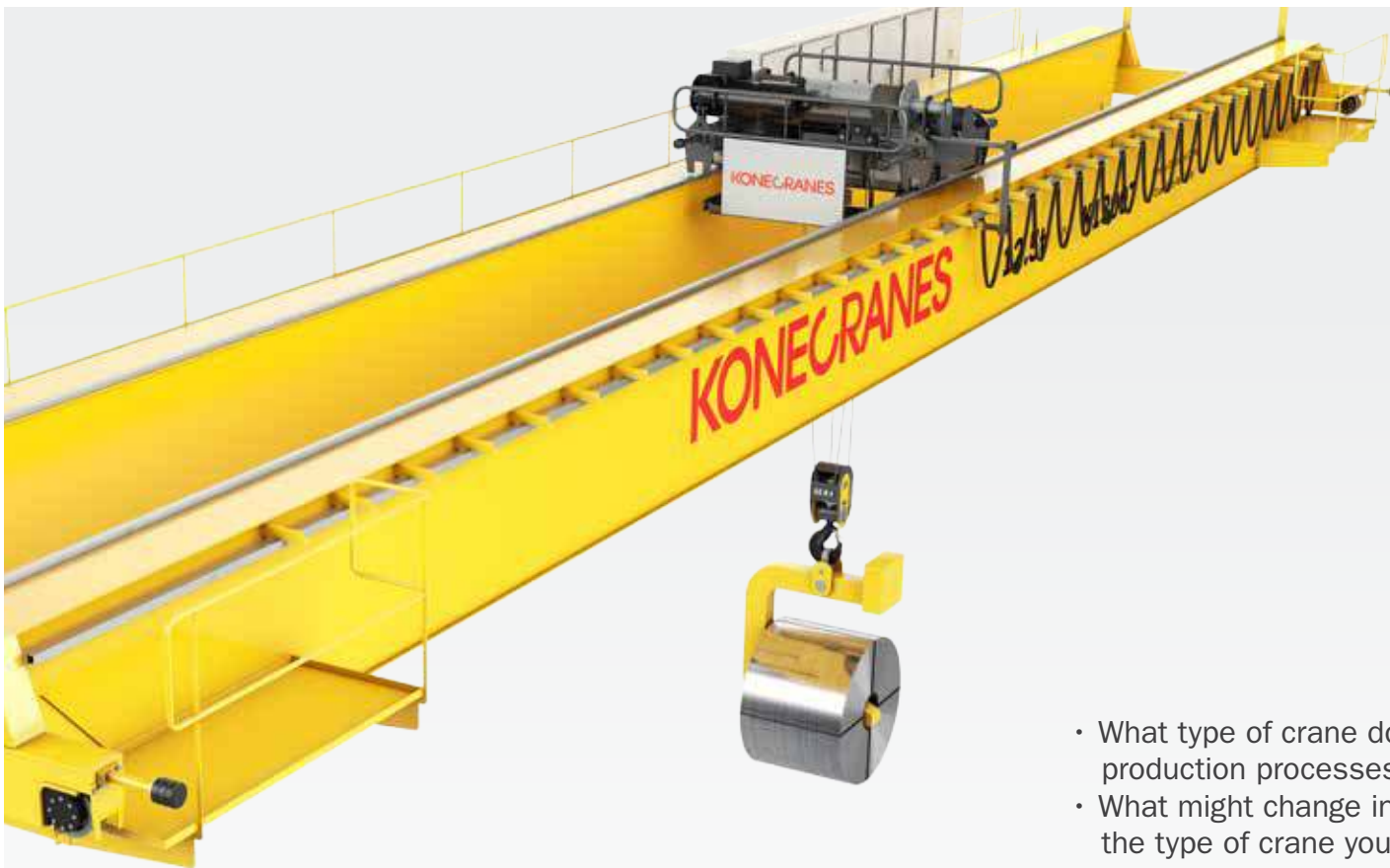
A large yellow crane is shown in a steel warehouse, lifting a massive roll of white material. The crane's structure is complex, with various beams and supports. The roll of material is the central focus, held by the crane's mechanism. The background shows the dark interior of a large industrial building with steel beams.

LIFTING EQUIPMENT FOR RELIABLE AND EFFICIENT STEEL WAREHOUSING

Lifting technology is critical throughout the entire steel production process. Steel warehousing relies on a variety of lifting equipment, from gantry and bridge cranes to wall console and jib cranes. These cranes must withstand the pressure of moving thousands of pounds of product, whether it's 2-inch-thick structural tubing, 90-foot-long plates, or 80-ton coils. From front to back, the operation requires safety, reliability and efficiency.

This white paper, based on 80 years of experience with manufacturing and servicing lifting equipment, presents five elements to consider in the crane selection process. Follow this step-by-step guide to help you determine the best lifting equipment for your steel warehousing facility:

1. Assess your lifting needs.
2. Determine your duty classification.
3. Explore your technology options.
4. Decide on hook attachments.
5. Look beyond the crane.



ASSESS YOUR LIFTING NEEDS

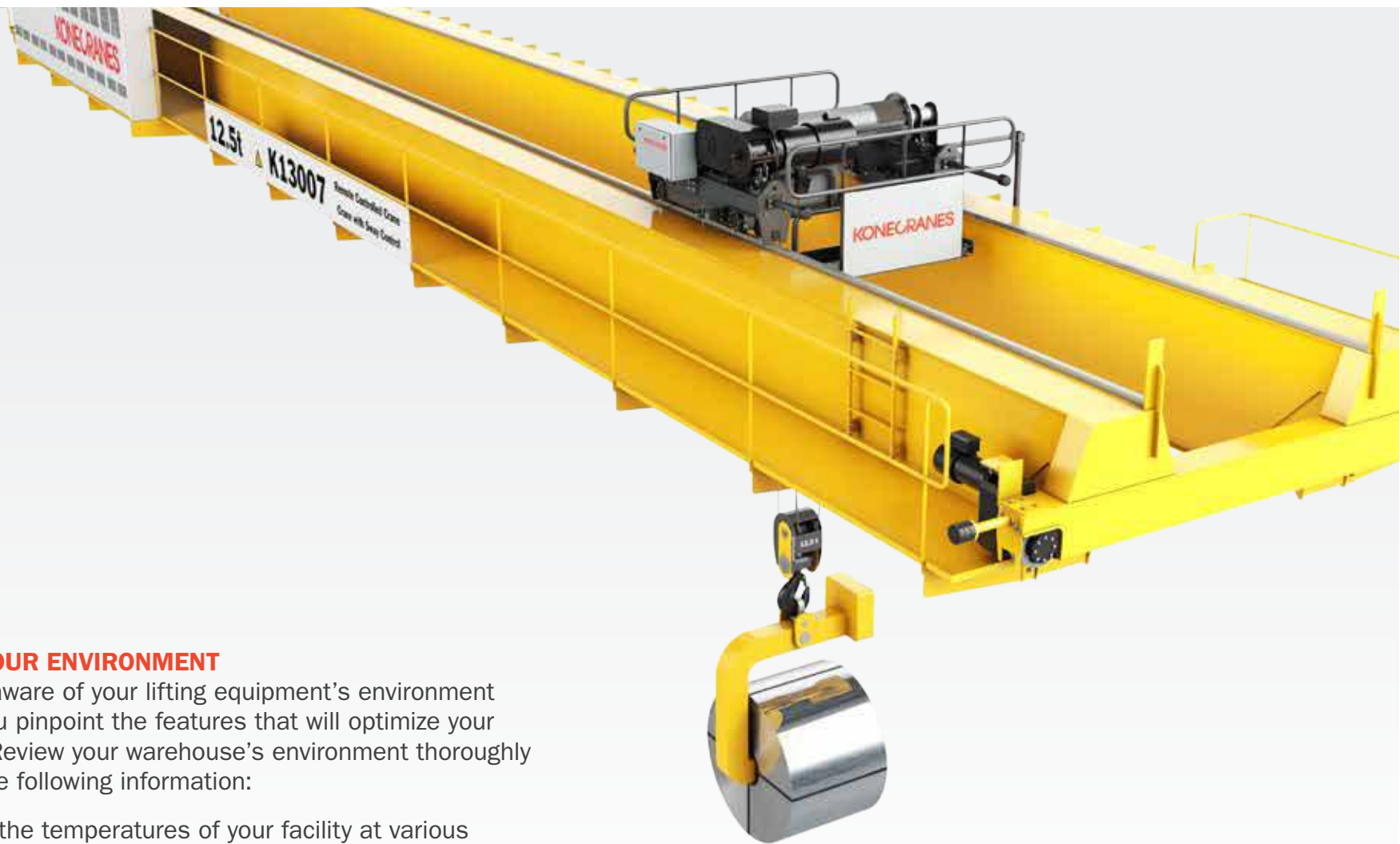
As you look at your options for lifting equipment in your facility, you may already have an idea of what you want. But are you sure it's the best product for the job? The first step in researching cranes is to study what your needs are today, as well as what your business might look like years from now. To do this, consider these key questions:

- What type of crane do you need for your current production processes?
- What might change in your operation that could impact the type of crane you need in the future?

EXAMINE YOUR OPERATIONS

To uncover the answers to these questions, study what goes on at every step of your operation. Start by examining your process. Knowing your process inside and out helps determine the crane components that will see the most use. Analyze your daily operation and track the following data:

- During your process, which parts of the crane move more—bridge, trolley or hoist?
- How much weight will be lifted?
- How high will the material be lifted?
- How far will the material travel and for how long?
- How many times per hour will the crane perform these tasks?



LOOK AT YOUR ENVIRONMENT

Being fully aware of your lifting equipment's environment can help you pinpoint the features that will optimize your operation. Review your warehouse's environment thoroughly and note the following information:

- What are the temperatures of your facility at various times of the year?
- What are your building dimensions?
- Where and how will the crane be operated?
- Does your crane require protective elements such as dust-proof protection, or explosion-proof technology?
- What are your desired speed requirements?

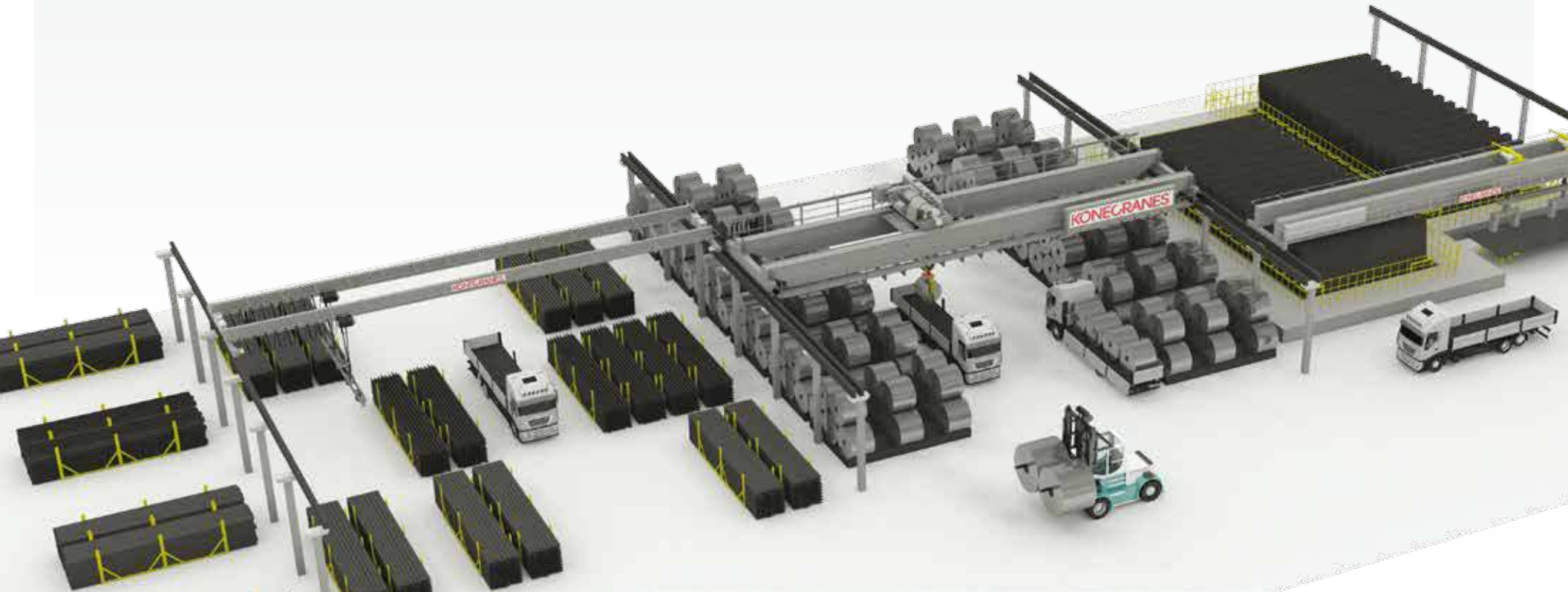
Evaluating your process and environment will help you target the equipment that is the best fit for your facility. You don't want more or less of a crane than you need.

EVALUATING YOUR PROCESS AND ENVIRONMENT WILL HELP YOU TARGET THE EQUIPMENT THAT IS THE BEST FIT FOR YOUR FACILITY

DETERMINE YOUR DUTY CLASSIFICATION

All overhead cranes are classified according to the intensity of the load and the number of cycles the equipment completes in a given period of time. A crane's classification will range from infrequent service to continuous severe service. Determining your duty classification is essential when selecting lifting equipment so you get a product that will meet the needs specific to your facility.

Use the data you collected on the previous page to determine your class based on the classification systems of the Crane Manufacturer Association of America (CMAA), International Organization for Standardization (ISO), European Federation Standard (FEM), or Hoist Manufacturers Institute (HMI).



EXPLORE YOUR TECHNOLOGY OPTIONS

A variety of technological advancements can be added to your warehousing cranes to increase safety and productivity.

SMART FEATURES

Smart Features are Konecranes-designed add-ons that work together or individually to improve safety, cycle time and load positioning.

They add intelligence to your crane with purpose-built software and hardware. These features assist the operator in controlling the crane by performing certain

repetitive actions or compensating for misalignment and erratic movements.

Smart Features improve precision and accuracy when handling a load and can reduce the risk of impact with personnel or equipment. Additionally, smooth operation generally slows wear and tear on the steel structure and crane components.

The following Smart Features are especially useful in steel warehousing:



SWAY CONTROL

This feature limits load swing by controlling bridge and trolley acceleration and deceleration.



TARGET POSITIONING

In predictable and repetitive work cycles, Target Positioning will bring the load from a home position to a defined target position in a single push of a button.



SNAG PREVENTION

The Snag Prevention feature continuously monitors rope angle and automatically stops crane movement if a hook, sling or load accidentally gets caught on something.



HOOK CENTERING

If the hook is off-center by even a small amount when the load starts to lift, this feature will detect the resulting side pull and automatically move the trolley and bridge, positioning the hook directly over the load.



**WATCH SWAY
CONTROL IN ACTION**



**WATCH TARGET
POSITIONING IN ACTION**



**WATCH SNAG
PREVENTION IN ACTION**



**WATCH HOOK
CENTERING IN ACTION**

AUTOMATION

One by one, steel mill lifting applications are moving toward semi- or full automation. The benefits are undeniable. Operations can be carried out in a known time frame with fewer errors and less labor, and machinery experiences less wear and tear.

For coil handling, Sway Control, Target Positioning and End Positioning are key features. Combined with Compact Warehouse Management options, coils can be individually tracked and moved into and out of automated high bay storage areas prior to routing through color coating, chroming, slitting, annealing or galvanizing lines.

Automation works best in repeatable processes where human errors that penalize the process in terms of money or time can be eliminated. While automation setup requires trial and error for each individual facility and its processes, the long-term return on investment is enormous, with significant savings on maintenance and labor.





REMOTE MONITORING

In a steel storage facility, operators work quickly to find the right products for the right customers. Some facilities run around the clock, and all the cranes must work continuously. Remote Monitoring data can provide insights allowing you to optimize your maintenance operations and activities, helping to keep your products moving.

Konecranes TRUCONNECT® Remote Monitoring uses sensors to collect data, such as running time, motor starts, work cycles and emergency stops, providing visibility to crane usage. It also provides brake and inverter monitoring.

The data is transmitted to the Remote Data Center, where it is compiled and made available on the yourKONECRANES.com customer portal.

Safety alerts are delivered automatically by email or text message to notify designated contact personnel of selected safety risk events.

You also get an estimation of the remaining service life of selected components, such as hoist brakes and structures.

DECIDE ON HOOK ATTACHMENTS

Most overhead cranes can accommodate a number of lifting attachments. For optimal performance, hook attachments need to fit the crane correctly and should not exceed the capacity of the crane.

Imperfect attachment and load pairings can cause dangerous, not to mention expensive, errors. For example, when lifting round roll stock with a lifting attachment, an operator must select pads according to the diameter of the load. If the operator chooses the wrong diameter type pad, the load is far more likely to slip and fall, putting workers at risk and halting productivity.

Match your hook attachment to the load you're lifting. What do you need below the hook?

When lifting-related accidents occur, human error is usually to blame. At Konecranes, we offer training specifically designed for lifting attachment optimization and safety.



COIL MAGNET or COIL GRAB
TUBE HANDLING: C-hook or magnet spreader
PLATE HANDLING: Magnet beam or vacuum lifter
ROLL AND COIL HANDLING: Tong, magnet or C-hook

LOOK BEYOND THE CRANE

When considering lifting equipment for your steel facility, what's not on the crane matters too. An effective preventive maintenance and parts program can significantly address potential maintenance and safety issues before they become critical and threaten employee safety, productivity and revenue. It also can have a positive impact on the performance and reliability of the cranes.

To minimize downtime, ask these questions in relation to servicing your crane:

SERVICEABILITY How complicated is it to service the crane you're looking at? How long do component changes typically take?

SPARE PARTS How easy is it to procure and store spare parts for the equipment you choose?

INSPECTIONS Are inspections based on applicable regulations? Are inspectors and technicians trained, and where applicable, certified?

MAINTENANCE Is routine maintenance performed at regularly scheduled intervals? Is the maintenance plan customized to your operation? Are risk assessments made to document component conditions, assess risks and provide recommendations for improvement?

CONSULTATION Are service visits reviewed with you? Do you get a thorough annual review of all maintenance activities?

DOCUMENTATION Are your maintenance records, service history and other important maintenance information available online?


TRAINING What type of training can your operators receive? Will your employees have to travel for training, or is on-site training an option?





LEARN ABOUT THE KONECRANES OFFERING FOR THE STEEL INDUSTRY

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 almost 12,000 employees at 600 locations in nearly 50 countries we have the resources, technology and determination to deliver on the promise of Lifting Businesses™.

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