

INDUSTRIAL CRANES  
NUCLEAR CRANES  
PORT CRANES  
HEAVY-DUTY LIFT TRUCKS  
**SERVICE**  
MACHINE TOOL SERVICE

**CRANE MODERNIZATIONS**

**KONECRANES**<sup>®</sup>  
Lifting Businesses<sup>™</sup>

**INDUSTRIAL CRANE MODERNIZATION**

# **THE SMART WAY TO EXTEND OVERHEAD CRANE SERVICE LIFE**



# MAKE YESTERDAY'S CRANE WORK HARD FOR YOU TODAY AND TOMORROW

## MODERNIZATIONS CAN PROVIDE A COMPLETE TRANSFORMATION OF YOUR EXISTING CRANE AS AN ALTERNATIVE TO REPLACING IT.

As businesses evolve and grow, the technology they depend on must adapt to support new and increased demands or be replaced with new equipment altogether.

Depending on your crane application, you may need to increase your crane's speed and lifting capacity, enhance ergonomics and operator comfort, apply new safety features and positioning capabilities, or simply replace high-maintenance, obsolete components with newer technology. Or, perhaps you need to modify or relocate your crane to support an entirely new application or location.

Whatever your need, a modernization may be your best option when it comes to achieving the benefits of new technology, without the cost of purchasing a new crane.

Konecranes professionals are skilled and experienced in modernizations, large and small. With complete customization options available, Konecranes can help turn your aging overhead crane into a specialized tool designed to meet your exact production needs.



### Common modernizations:

Replacement of hoists, controls, trolleys and operator cabins to achieve increased capacity, speed, duty, ergonomics and/or load control.

### GETTING STARTED

Konecranes will work with you to provide a detailed analysis of your crane in relationship to its application. We'll evaluate the structural integrity of the crane and the condition of all mechanical and electrical components. We'll also study load and duty requirements and maintenance records. After analyzing all these factors against the required performance needs, we will identify the most appropriate system upgrade and corresponding modernization plan.

### REBUILDING PRODUCTIVITY

Regaining top performance could mean nothing more than installing a more efficient motor and self-adjusting brake. Perhaps a new remote control system is necessary. Or, a back-up limit switch for added safety. Many modernization options are available, but we'll recommend only those you need. You'll end up with a fully integrated system that is perfectly tailored to meet the needs of your operation.

### GET THE ADVANTAGES OF A NEW CRANE WHILE SAVING MONEY

If your needs for crane modernization extend beyond basic upgrades to improve safety, reliability and performance, we can virtually rebuild your old crane to meet your new demands and today's high technology standards, all at a fraction of the cost of a new crane.

### GET THE GREATEST LIFECYCLE VALUE OF YOUR CRANE WITH CONTINUED SUPPORT FROM KONECRANES

You can depend on Konecranes well beyond installation. Upon completion of your modernization, we'll provide complete parts and maintenance manuals. Upon request, our network of expert technicians can also provide comprehensive maintenance and repair services designed to achieve optimal safety and productivity with minimal downtime.



## MODERNIZATION: A SMART INVESTMENT

When the purchase of new lifting equipment becomes too costly, crane modernization services by Konecranes can bring state-of-the-art crane technology and performance within reach.

# TRUST THE MODERNIZATIONS LEADER

Konecranes is a leading provider of overhead crane modernizations with over 100 years of experience. As the world's largest manufacturer of process cranes, with the most extensive overhead crane service network in the world, Konecranes has the scale, expertise, technology and resources to repair any make or model of overhead crane.

Color Code	Type of Modernization
●	Improve performance
●	Increase reliability and reduce maintenance
●	Increase safety and ergonomics
●	Change of application
●	Increase reliability while reducing maintenance and improving performance
●	Increase safety, ergonomics and reliability while reducing maintenance
●	Improve performance and change of application

## ELECTRICAL UPGRADES

### 1. MOTORS

- DC and AC long-life motors are designed and built for hard reversing and plugging service. Many options are available including AC squirrel cage motor, external blower motor and DC mill motor.



### 2. CONTROL SYSTEM UPGRADE

- If your overhead crane uses an antiquated control system, upgrade to a more advanced control system, such as a variable frequency drive. Where severe applications demand it, we offer air conditioned E-house with variable frequency controls, static stepless and DC controls.

### 3. BRIDGE DRIVES

- Drives can be upgraded with heavy duty foot mounted gearboxes (on crane).
- Shaft mounted motor reducers can also be applied to eliminate cross shaft maintenance and alignment issues.

### 4. FESTOON SYSTEM OR ENERGY CHAINS

- Festoon systems increase safety by replacing wear-prone open conductors and collectors. Energy Chain is an alternative option that protects the power and control cables from mechanical wear and reduces the risk of external damage.

### 5. RADIO CONTROL

- Floor operated controls allow the operator ease of mobility and a good view of the load in the hook. These controls can be equipped with real time load data.



### 6. LIMIT SWITCHES

- Provide hoist secondary limit switches protection by preventing the bottom block from damaging the drum. Bridge and trolley travel limit switch protection. Collision avoidance systems, zone control and automation.

## MECHANICAL UPGRADES

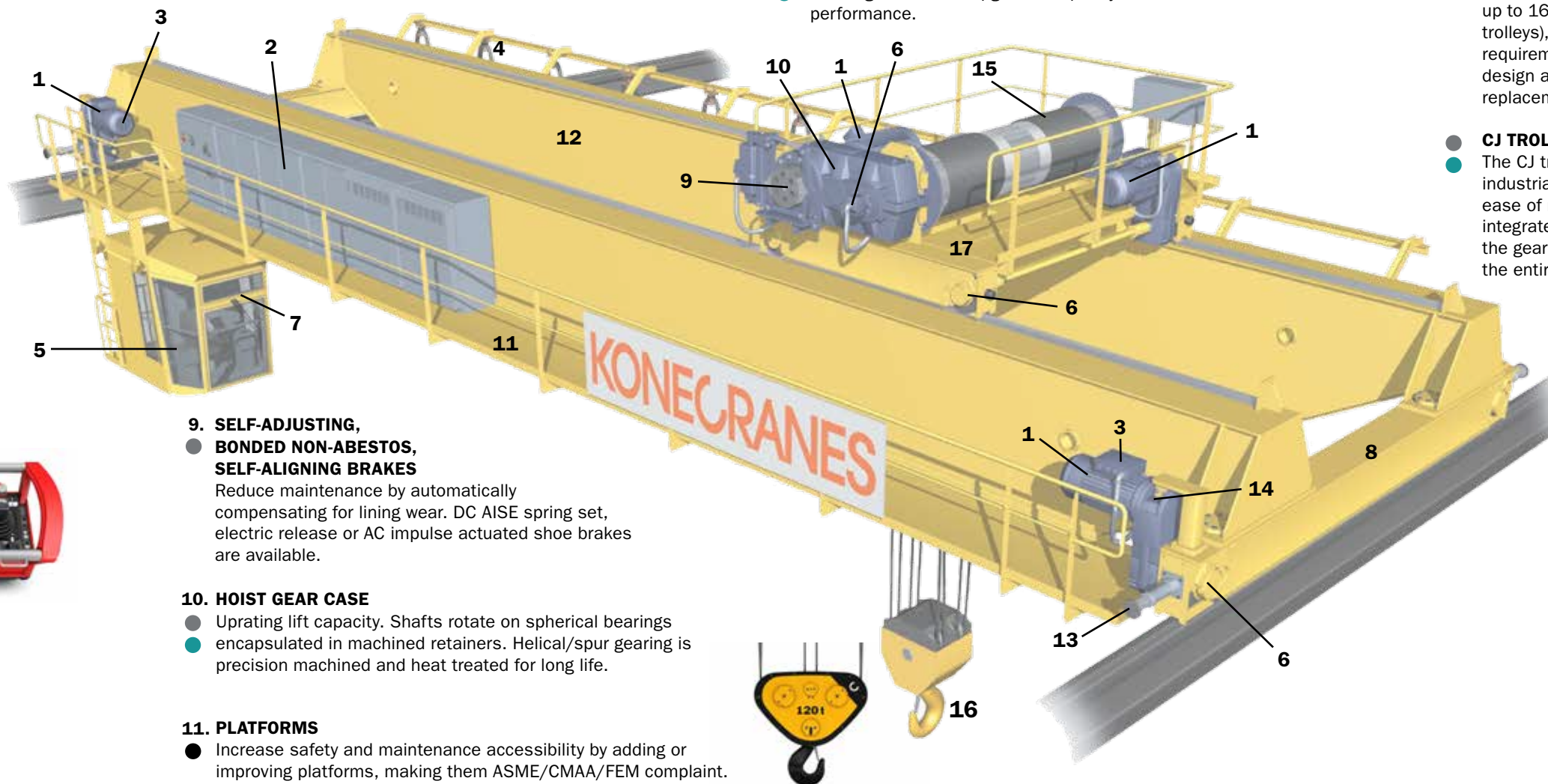
### 7. ERGONOMIC CAB AND ARM CHAIR

- An open cab (on crane) or enclosed insulated, air conditioned cab help provide maximum visibility. A deluxe console chair offers optimum comfort to the operator.



### 8. END TRUCKS AND WHEEL ASSEMBLIES

- Anti-friction bearings help meet increased productivity demands.
- Konecranes high capacity end trucks are designed to lengthen wheel life and improve crane tracking.



### 9. SELF-ADJUSTING, BONDED NON-ABESTOS, SELF-ALIGNING BRAKES

- Reduce maintenance by automatically compensating for lining wear. DC AISE spring set, electric release or AC impulse actuated shoe brakes are available.

### 10. HOIST GEAR CASE

- Upgrading lift capacity. Shafts rotate on spherical bearings encapsulated in machined retainers. Helical/spur gearing is precision machined and heat treated for long life.

### 11. PLATFORMS

- Increase safety and maintenance accessibility by adding or improving platforms, making them ASME/CMAA/FEM compliant.

### 12. GIRDER MODIFICATIONS AND REINFORCEMENTS

- Konecranes can increase or decrease the length of the girder span, which may be required during building expansions or when fitting a used crane into an existing building. Additionally, we can provide structurally improved end ties and end trucks for severe applications to address fatigue and repair issues. Konecranes can also provide engineering studies for capacity increases and hot metal conversions for the entire crane.

### 13. BRIDGE BUMPERS

- Protect the crane and the building by installing a spring, hydraulic or rubber bridge bumper that meets OSHA, ASME and CMAA requirements.

### 14. BRIDGE BRAKES

- Brakes for cab/floor operation. Includes electric shoe, electric/hydraulic shoe, or DC spring set, electric release disc brake (OSHA, ASME or CMAA).

### 15. HOIST DRUMS

- Redesign drums for upgraded capacity and performance.

### 16. BOTTOM BLOCKS

- Konecranes offers bottom blocks in a wide variety of sizes and configurations, including rotating blocks or speciality designed blocks for severe duty applications. We also offer common wear items such as hooks, frames, pins, sheaves, bearings and safety latches.

## COMPLETE TROLLEY UPGRADE

### 17. SMT TROLLEY

- The SMARTON® trolley is built for heavy process industries and applications. The motor, gearbox and control unit are designed and manufactured in-house, which allows for excellent lifting performance and long life. The flange-mounted motors have integrated brakes, which support the proper alignment of the machinery.



### UNITON™ TROLLEY

- The UNITON trolley is available with multiple configurations and a wide range of hoisting speeds, load control features, and load and duty class options (CMAA Class A-F, up to FEM/ISO:M8). With a lifting capacity of up to 160 tons on a single trolley (320 tons with two trolleys), UNITON can be built to meet project-specific requirements in almost any application. Its modular design and construction make maintenance and part replacement easy.



### CJ TROLLEY

- The CJ trolley is designed for Class D or E use in industrial applications. Its greatest attribute is its ease of maintenance. The foot-mounted gear case is integrated into the trolley, which enables easy access to the gears, shafts and pinions without needing to remove the entire trolley.





## TECHNOLOGY FEATURES FOR A SAFER, SMARTER, MORE PRODUCTIVE WORKPLACE

Since your overhead crane was first built, safety regulations and production requirements have probably changed. Konecranes can update your crane to help you meet production demands. A modernization will also help you stay in compliance with current safety requirements and may reduce the risk of failure, helping you avoid costly downtime, injuries or damage to facilities, materials or products.

### SAVE ENERGY, ADD POWER

With regenerative braking, power is sent back to the power grid during every downward or decel motion, instead of being dissipated by resistors. With more energy returned to the grid, less energy needs to be produced—leading to increased cost-savings.

### SMART FEATURES

Konecranes' cranes are available with software-based Smart Features that improve safety and productivity from two perspectives, load control and positioning and area control. Smart Features include Sway Control, Extended Speed Range, Hook Centering, Snag Prevention, Assisted Load Turning, Follow Me, Shock Load Prevention, Slack Rope Prevention, Hoisting Synchronization, Inching, Microspeed, Target Positioning, End Positioning, Working Limits and Protected Areas. For example, we can add a GPS positioning system for collision avoidance with end stops, cranes or obstructions. You can upgrade your crane with Smart Features as your requirements change.

### AUTOMATION TECHNOLOGY

Automated features improve efficiency and precision while allowing crane operators to pay increased attention to the surrounding work environment, promoting safer and more productive operation. Konecranes has engineered application-specific, fully automated cranes, including coker cranes designed with traveling hoppers that deliver coke to rail cars as well as automated paper storage cranes that significantly increase storage capacity and available space.



### REMOTE MONITORING AND REPORTING

TRUCONNECT® Remote Monitoring provides you with usage data that enables you to optimize maintenance activities and give visibility to maintenance and application compliance. The data gives you confidence to plan your actions and make informed decisions regarding maintenance investments and productivity.

### SAFETY FIRST, LAST AND ALWAYS

When it comes to safety, we believe that any accident is one too many. Our commitment to safety starts with R&D and continues for the lifetime of your crane. A major focus of our R&D is on feasibility studies and the human interface. One of the best ways to improve safety is to make the equipment logical and straightforward to use.



## A SERVICE-MINDED TEAM

With the largest, most experienced service network in the industry, Konecranes experts are always nearby and ready to help. Our approach to service is simple—help your business achieve maximum lifecycle value for its cranes with minimum total cost of ownership. Through regular preventive maintenance and timely repairs, your cranes will be lifting your business for years to come.

### MAINTENANCE

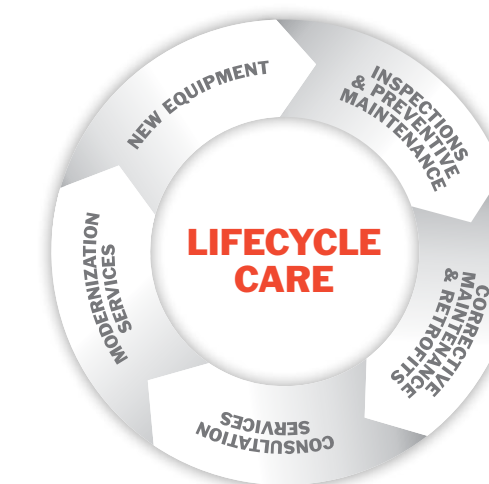
Maintenance done right is not an expense. It is an investment that pays a measurable return. We have more than 430,000 pieces of equipment under maintenance contracts and more than 80 years of experience behind us. If you would like to keep your crane working reliably with regular preventive maintenance, please get in touch.

### SPARE PARTS

With a global spare parts network and a parts organization that is the OEM for more than 40 brands of cranes and hoists, we offer quick delivery of spare parts for any crane, anywhere. If we don't have what you need and can't get it through our extensive supplier network, our engineers can quickly design parts to your exact specifications. And when an original equipment manufacturer goes out of business, we can manufacture original spare parts.

### TRAINING

At our respected Training Institute, we train crane operators and technicians from around the world. This training includes crane operator and safety training, emergency procedures, OSHA and ANSI regulations and other relevant information that operators need to promote a safe and productive work environment.



### LIFECYCLE CARE – OUR APPROACH TO MAINTENANCE

Lifecycle Care provides the highest lifecycle value for your lifting equipment—maximizing the productivity of uptime and minimizing the cost of downtime. Our crane experts apply a systematic Risk and Recommendation Method and a consultative, planning and review process to drive continuous improvement in safety and productivity.

- **Inspections and Preventive Maintenance** identify certain areas of risk and improvement opportunities and support compliance.
- **Corrective Maintenance and Retrofits** address specific safety and productivity issues and capitalize on improvement opportunities.
- **Consultation Services** guide decision-making, uncover critical issues and maximize your return on investment.
- **Modernizations** economically prolong the service life of your lifting equipment.
- **New Lifting Equipment** for new facilities or to replace old lifting equipment.



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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 12,000 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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## KONECRANES IS THE ORIGINAL EQUIPMENT MANUFACTURER OF OVER 40 BRANDS

No matter the type of crane, Konecranes has the expertise and parts available to keep your lifting equipment running at optimal performance.

## KONECRANES BRANDS



DWIGHT FOOTE™



KAVERIT  
CRANES & SERVICE



MORRIS  
MATERIAL HANDLING™

OEM of P&H® Crane & Hoist Parts

F.T. Crowe & Company™

CLEVELAND  
CRANES



overheadcrane



overhead  
crane



MOFFETT  
ENGINEERING INC.

CraneMann

MPH CRANE INC.

NORTHERN

PROVINCIAL  
CRANES

PHILADELPHIA TRAMRAIL COMPANY

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