

## **SMARTER HOW?**

Konecranes waste-to-energy equipment and services are SMARTER WHERE IT MATTERS. We back up this claim with our long history in the lifting business coupled with extensive knowledge of modern crane technology and the waste-to-energy industry. We have the skills and resources to provide an excellent product and a localized maintenance contract that help make your cranes a sound, safe investment. Our customers know us as a partner with a clear vision that helps them succeed.

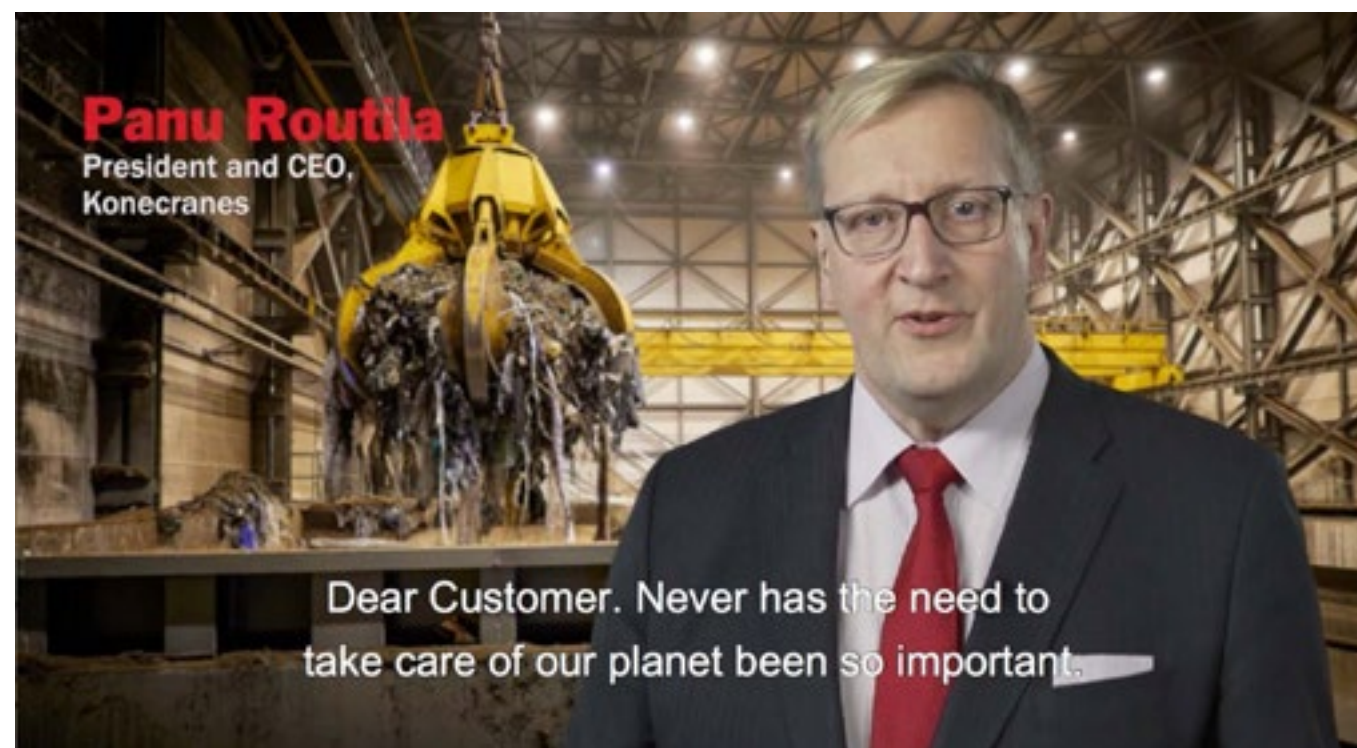
The reason for our long-term success is that we deliver all of the above, with the lowest possible cost of ownership.

**Smarter where? On your bottom line.**

[konecranes.com](http://konecranes.com)

# **SMARTER WHERE IT MATTERS**

**IN THE WASTE-TO-ENERGY  
AND BIOMASS INDUSTRIES**



**WATCH THE GREETINGS FROM PANU ROUTILA, KONECRANES PRESIDENT AND CEO**

# SMARTER WHERE IT MATTERS


A guide to a world recognized brand of equipment in waste-to-energy



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SMARTER WHERE IT MATTERS IN THE WASTE-TO-ENERGY INDUSTRY

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Springfield, Ohio

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Hyvinkää, Finland

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# NOT JUST LIFTING THINGS, BUT ENTIRE BUSINESSES



Konecranes is an industry-leading group of lifting businesses with offices and factories around the globe. Our most important goal is targeted at improving the performance of our customers' businesses.



## LIFTING AROUND THE GLOBE

We believe that corporate responsibility is an essential part of sustainable growth. We respect our personnel, the environment, and the societies in which we operate. Continuous improvement directs everything we do. Our commitment can be seen in our values, policies, and Code of Conduct.

From the moment we start the design process, we always consider usability, eco-efficiency and safety as guiding principles across the full product life cycle of every crane. Operational efficiency, including minimizing the use of energy, raw materials and chemicals, is essential to Konecranes.

[Learn more about corporate responsibility in industrial cranes](#)

# THE STRENGTH OF EXPERIENCE

When you choose Konecranes, you acquire a trusted source of global experience and knowledge combined with local know-how to empower your lifting operations and increase your safety and productivity. Konecranes began manufacturing overhead cranes in the 1930s and has since acquired other companies with experience dating back to 1884.

Get connected

# OUR OFFERING FOR THE WASTE-TO-ENERGY AND BIOMASS INDUSTRIES

By choosing Konecranes, you can apply our extensive knowledge to improve your productivity and lift not only your waste, but your entire business.

### IN-HOUSE ANALYSIS AND ENGINEERING

Our own expertise and experience are available to you. We do not outsource our core competencies. Many of our engineers have extensive experience in waste and biomass handling processes, so they understand the demands of waste handling and the importance of reliable lifting technology.

### USING THE LATEST TECHNOLOGY

Konecranes is known worldwide for creating and promoting modern lifting technology. Smart Features such as Load Control, Sway Control, Target Positioning and Protected Areas help to speed load movement, improve handling and reduce potential operator error. Our energy-saving technology uses regenerative network braking to reduce energy consumption and the environmental impact of the cranes.

### KEEPING YOUR CRANE RUNNING

We are happy to train your people to operate and take care of your crane. We can provide you with specialized maintenance services for the life of your lifting equipment. Proper and timely maintenance is an investment in your business, not a cost.

Our goal is to keep your processes running safely and efficiently for decades to come.

WE KNOW WASTE-TO-ENERGY AND BIOMASS PROCESSES

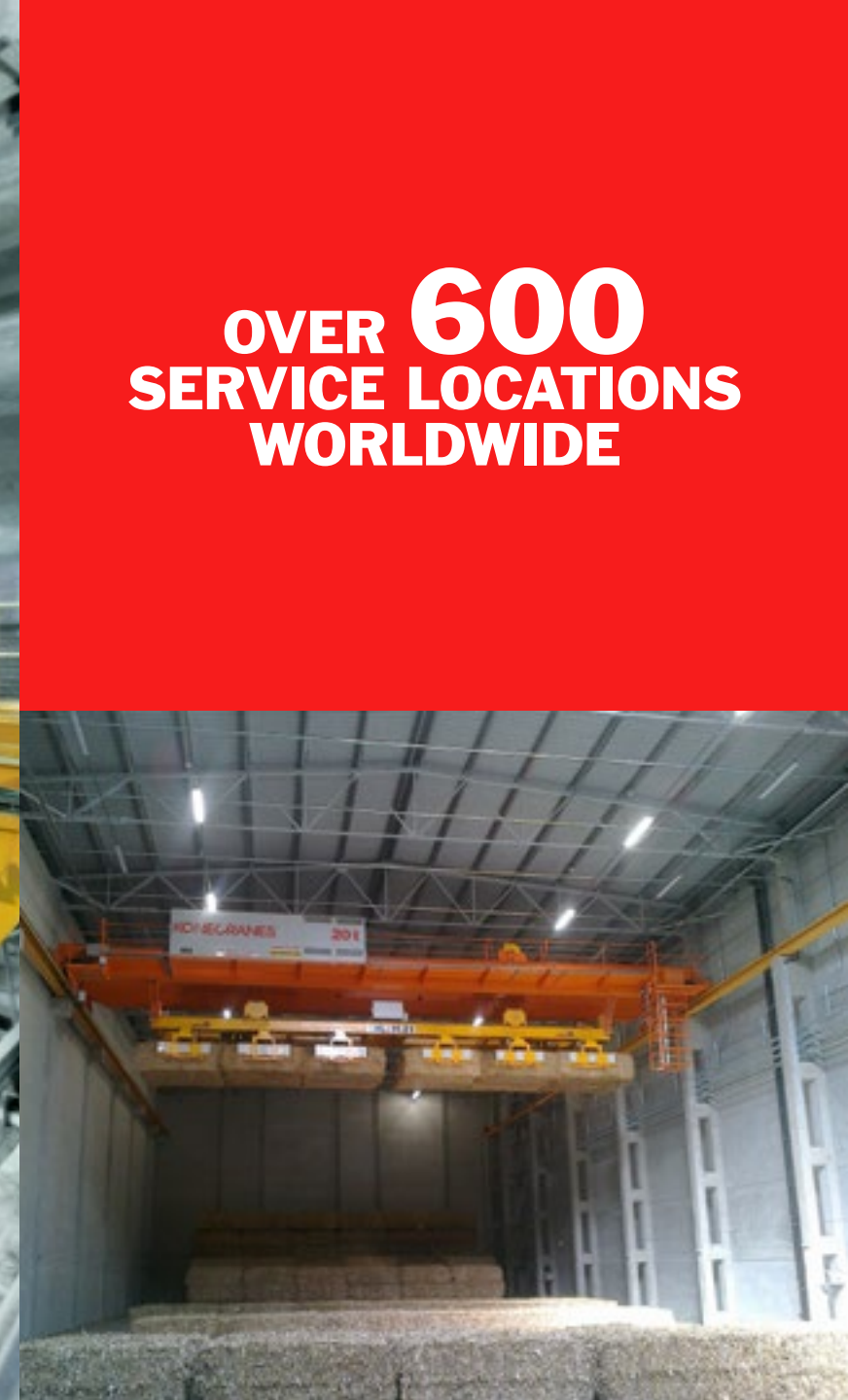
OVER 50 YEARS EXPERIENCE IN WASTE HANDLING

OVER 500 WASTE-TO-ENERGY CRANE INSTALLATIONS

THE RESOURCES TO DELIVER, INSTALL AND MAINTAIN CRANES ON EVERY CONTINENT

OVER 600 SERVICE LOCATIONS WORLDWIDE

ACTIVE IN ALMOST 50 COUNTRIES



# SAFETY FIRST, LAST AND EVERYWHERE

At Konecranes there is no job so important and no service so urgent that we cannot take the time to perform our work safely and correctly.

## SAFETY IN THE WASTE-TO-ENERGY PLANT

Harsh and dusty environments, high demands in waste handling and 24/7 processes create high requirements for safety in truck traffic, crane operations and protection of the control room. In every work environment and every process, safety must be built into the design, operation and maintenance of cranes.

## SAFETY IN DESIGN

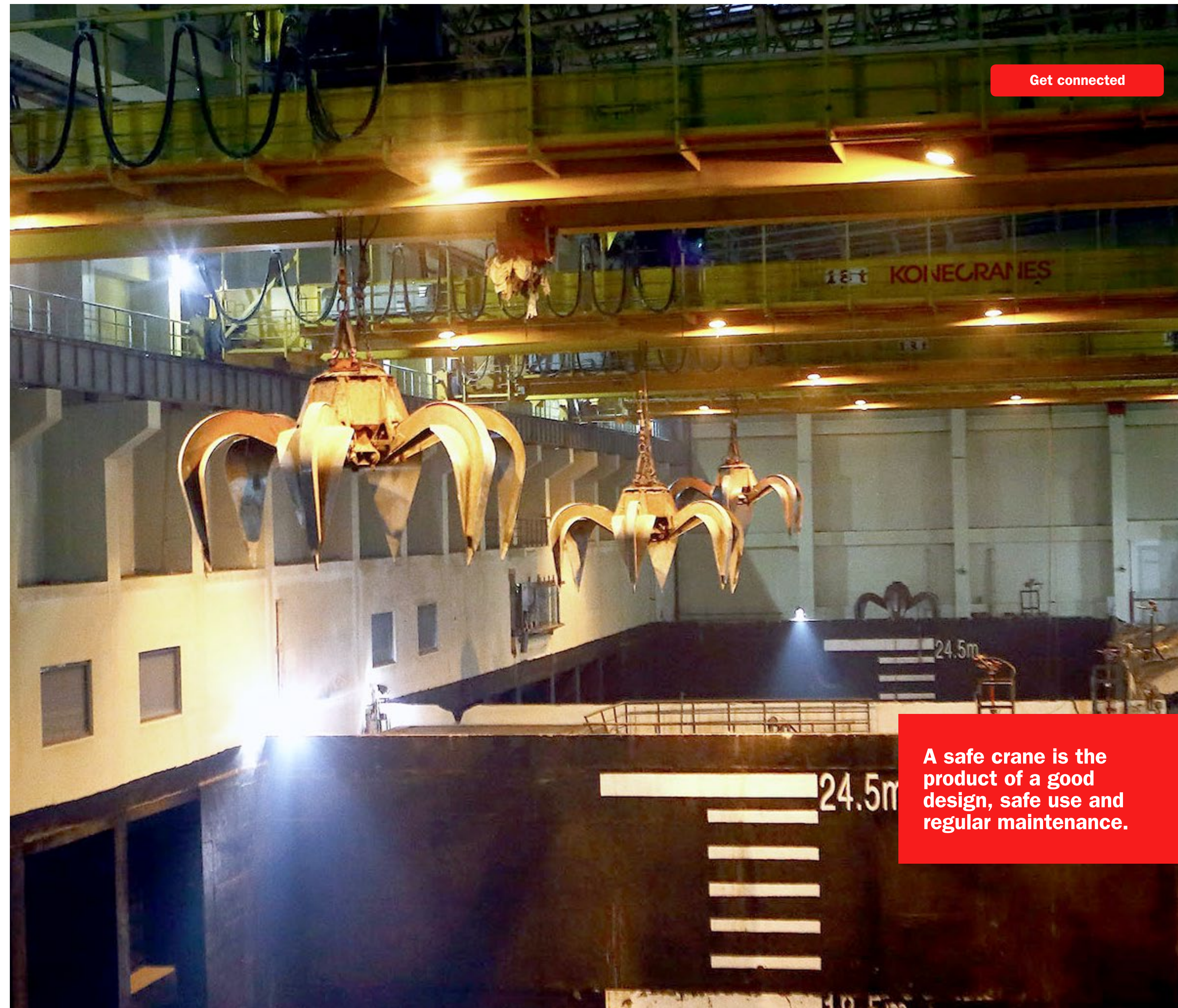
Konecranes has the experience to understand what works. We implement safety measures in every step of the crane design process, from considering environmental risks to minimizing problems resulting from user error. And, you can be sure that our products are designed with local and international safety standards in mind.

## SAFETY IN OPERATION

Take advantage of our expert training, so that your operators work safely and with confidence. Features such as Overload Protection, Sway Control, Target Positioning and Protected Areas can make valuable contributions to safety when used correctly.

## SAFETY IN MAINTENANCE

The better a crane is maintained, the safer it will be. We prefer to take care of your cranes across their entire working lives and will recommend a Konecranes service contract as an investment in the continuous safe and productive use of your cranes.



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A safe crane is the product of a good design, safe use and regular maintenance.

# INDUSTRY AND PROCESS KNOW- HOW FOR A CLEAN ENVIRONMENT



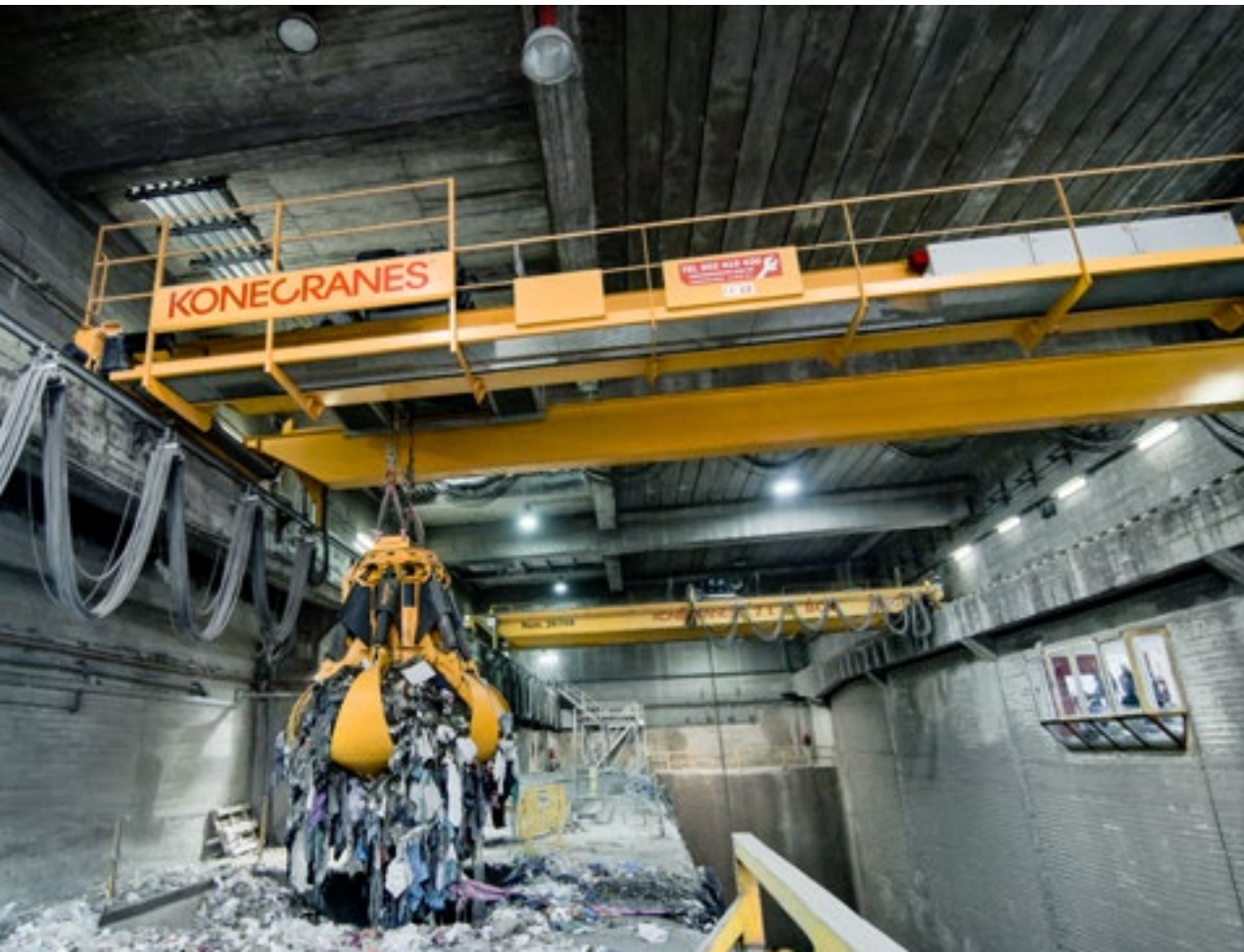




**Konecranes helps handle millions of tons of waste every day.**

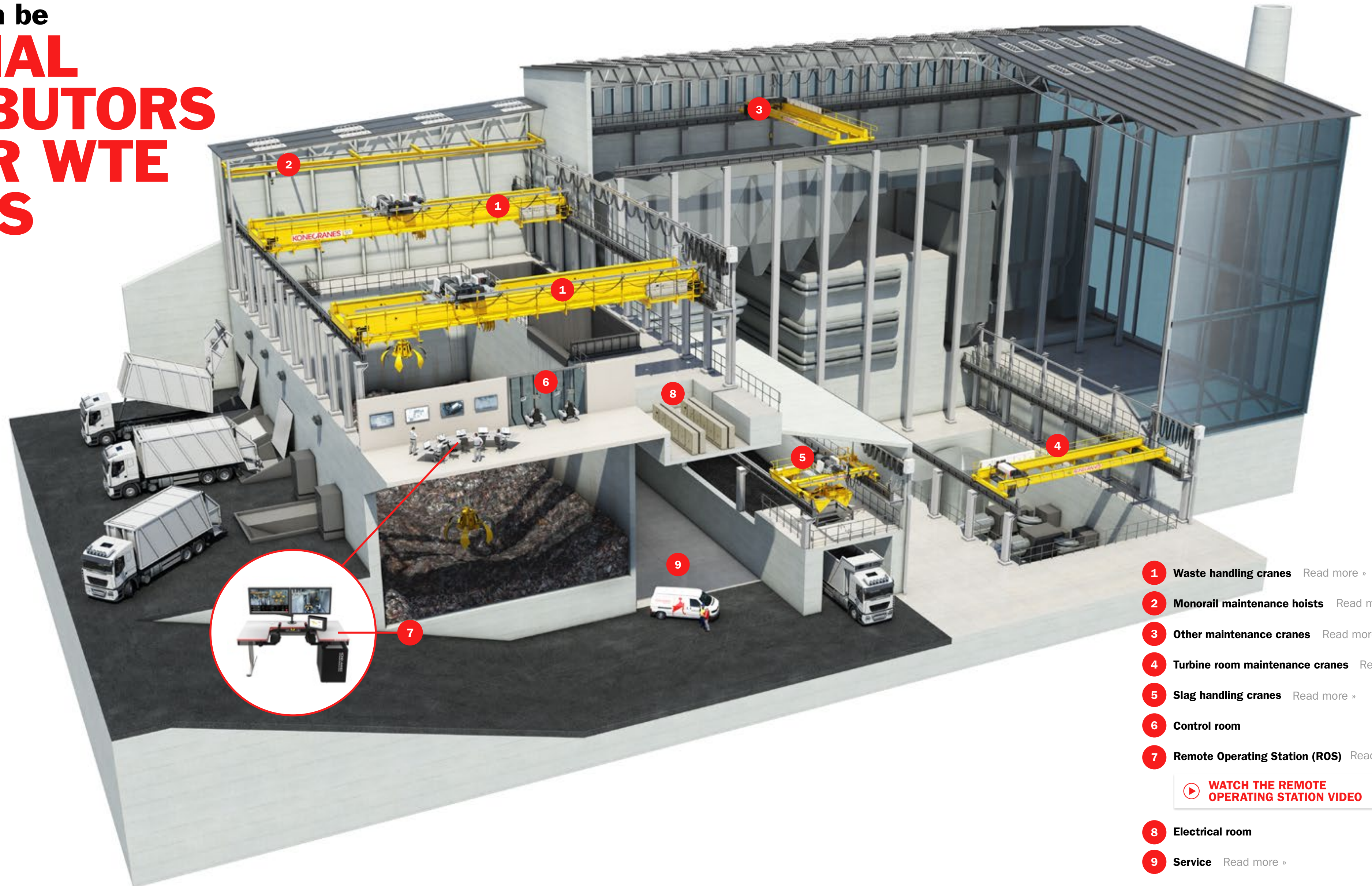


**We add value at every step – from homogenization to feeding the burners.**



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Our cranes, people and expertise can be **ESSENTIAL CONTRIBUTORS TO YOUR WTE PROCESS**



- 1 **Waste handling cranes** [Read more »](#)
- 2 **Monorail maintenance hoists** [Read more »](#)
- 3 **Other maintenance cranes** [Read more »](#)
- 4 **Turbine room maintenance cranes** [Read more »](#)
- 5 **Slag handling cranes** [Read more »](#)
- 6 **Control room**
- 7 **Remote Operating Station (ROS)** [Read more »](#)
- 8 **Electrical room**
- 9 **Service** [Read more »](#)

[▶ WATCH THE REMOTE OPERATING STATION VIDEO](#)

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# WASTE PROCESSING FACILITY



- 1 Municipal Solid Waste (MSW) handling crane
- 2 Refuse-Derived Fuel (RDF) handling crane
- 3 Control room
- 4 Remote Operating Station (ROS) [Read more »](#)
- 5 Electrical room
- 6 Service [Read more »](#)

[WATCH THE REMOTE OPERATING STATION VIDEO](#)

KONECRANES® 12T

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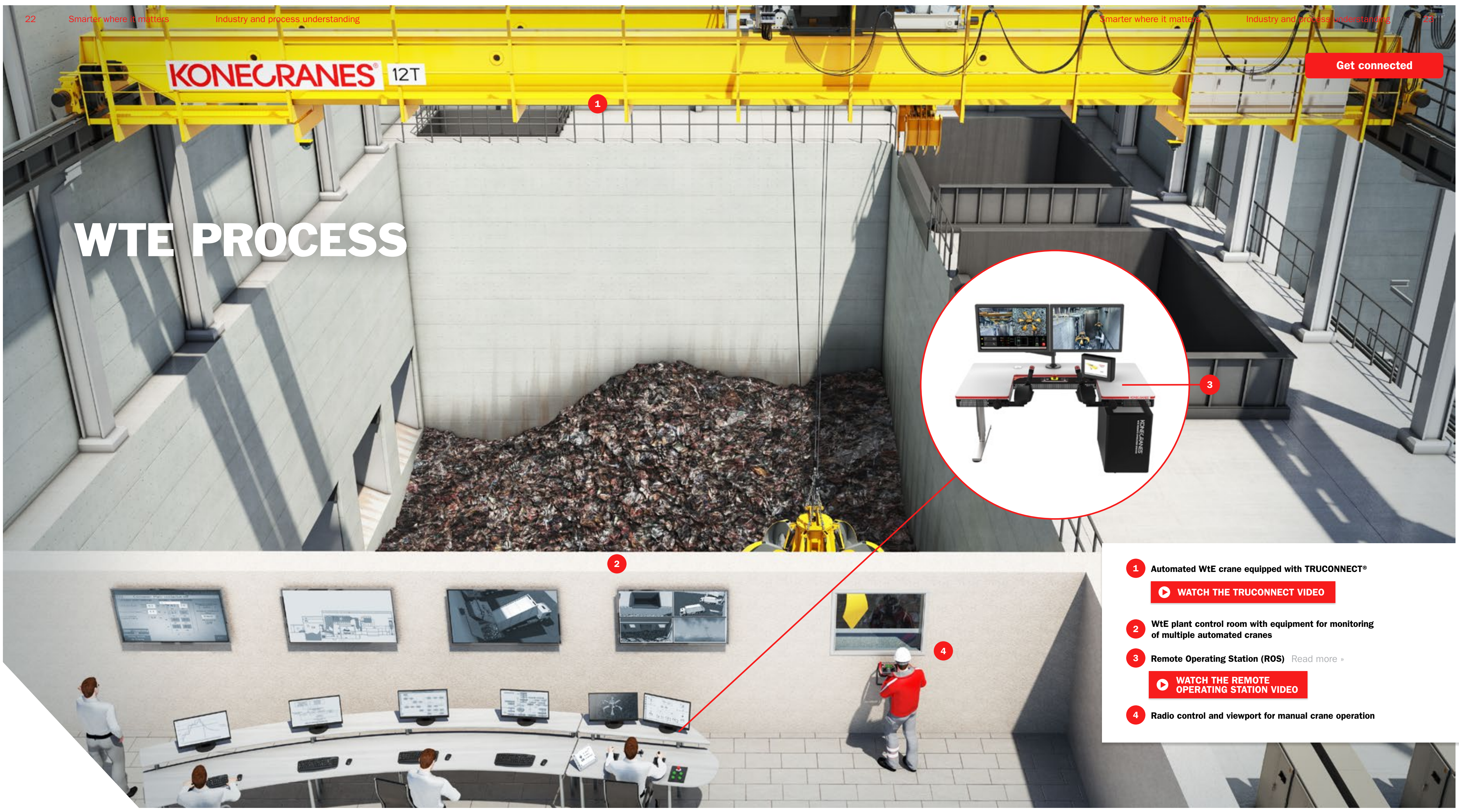
# WTE PROCESS



2

4

- 1 Automated WtE crane equipped with TRUCONNECT®  
[▶ WATCH THE TRUCONNECT VIDEO](#)
- 2 WtE plant control room with equipment for monitoring of multiple automated cranes
- 3 Remote Operating Station (ROS) [Read more »](#)  
[▶ WATCH THE REMOTE OPERATING STATION VIDEO](#)
- 4 Radio control and viewport for manual crane operation



# REMOTE OPERATING STATION AND MAIN USER INTERFACE

The twenty-first century alternative to the traditional cabin on a crane is remote operation. A multifunctional electronic desk, camera-based visuals and ergonomic controls support both effective work and a pleasant user experience.

A Remote Operating Station features the same controls as an operator's cabin. The ROS uses monitors showing real-time camera views, along with crane and process related information. It means the cranes can be driven from a distant control room away from the crane operating area and without a direct line of sight to the crane.

Fitted with the latest Konecranes technology, the Remote Operating Station provides a safe, fully-functional and comfortable working environment. User-friendliness increases process flow and productivity.



Design is protected by Konecranes.



### BENEFITS

- An ROS removes the need for an operator chair and pulpit.
- When manual mode is required for maintenance or troubleshooting, cranes can be operated from the area that is most suitable.
- Improved operator safety and working conditions. The location of the control room can be based on the needs of the plant instead of the needs of the crane.
- Cameras allow a line of sight to locations where it is not normally easy to see the crane or its load.

### COMPONENTS

- Operator's remote desk**
- Fully adjustable controls with arm rests**
  - Control commands to the crane
- Operator's touch panel**
  - Control commands to the crane, for example target positioning
- Monitors**
- Main control unit**
  - Between the PLC and ROS (PLC or remote IO) of the crane
- Camera system**
  - Fibre/Ethernet switch (communication unit between cameras and camera screen)
  - PC with video management software



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### OPERATION MODES

In waste-to-energy facilities that operate 24 hours a day with two to three shifts, running in full automation for even one of those shifts may generate enough savings to significantly improve other areas of the plant.

- ### BENEFITS
- Reduces operator fatigue
  - Can contribute to decreased risk of crane failure
  - Improved safety for equipment and personnel
  - Increased throughput
  - More reliable and predictable process
  - Full automation reduces operating costs

### MUI – MAIN USER INTERFACE

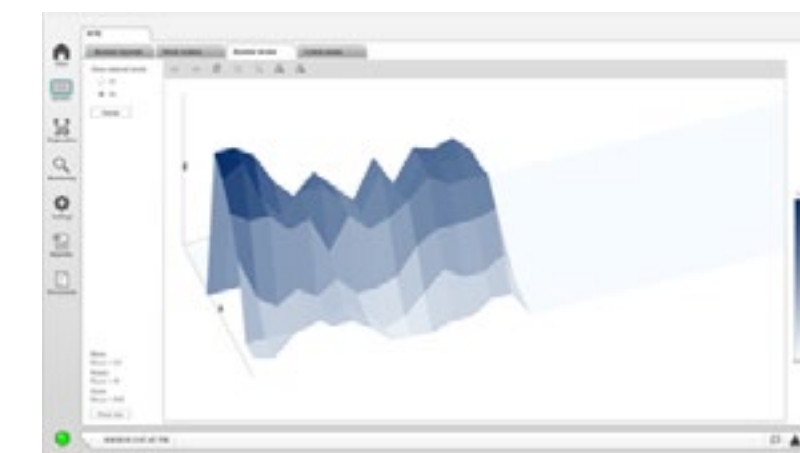
- The Main User Interface, or MUI, is a new standard for programming waste-to-energy automation
- The MUI features a computer and 23-inch LED panel screen, keyboard and mouse
- Fully integrated with the PLC system of the crane
- Isolated from outside networks
- The operator can schedule and program a week-long agenda that includes up to 20 different work routines in full automation
- Monday through Sunday agenda can be repeated indefinitely without accessing the crane - except to take it out of automation for scheduled inspections and maintenance

- ### BENEFITS
- The MUI monitors crane operations, including usage statistics, error messages and equipment condition.
  - The system also generates summary reports to help managers optimize maintenance and alert them if more operator training is needed.



### MAIN USER INTERFACE (MUI)

In fully-automated operation it means that cranes are driven automatically based on the settings created on the Main User Interface (MUI). It provides controls and information to support manual crane operation and offers monitoring and troubleshooting tools.



### MUI – BUNKER LEVELS

The material levels of the bunker are displayed in the bunker layout. The height information is available numerically in meters [m] / feet [ft] and percents [%]. In addition, MUI shows the current state of the bunker: volume [m<sup>3</sup>] and fill rate [%]. The operator can select 2D- and 3D-views to show bunker material levels in MUI.

## Barcelona, Spain

# TERSA, ENERGY RECOVERY PLANT

Tersa specializes in the management, treatment and sorting of municipal solid waste in the Metropolitan Area of Barcelona. A public limited company that has been operating since 1983, it serves a local population of about 3.2 million people. Some of the key values of the company are environmental responsibility, service to society and innovation.

### INCREASING PRODUCTION CAPACITY AND ENERGY EFFICIENCY

In 2006, Tersa started a project for the renewal of its WtE facilities. There was a need to increase production capacity, treat plant fuel with a higher calorific value, and increase the energy efficiency of the existing plant. New waste handling cranes would be an essential part of this project, because the existing ones were 35 years old.

The new cranes had to allow flexible operation in manual, semi-automatic or fully automatic modes. They needed a continuous weighing function, in order to provide a nonstop measure of the waste being handled. To aid combustion, the cranes had to be able to mix the waste. Crane operators needed better ergonomics to improve their performance and overall plant safety. Lastly, the cranes had to be robust enough to operate three shifts a day for 350 days a year.

### NEW CRANES WITH AUTOMATION AND A MODERN INTERFACE

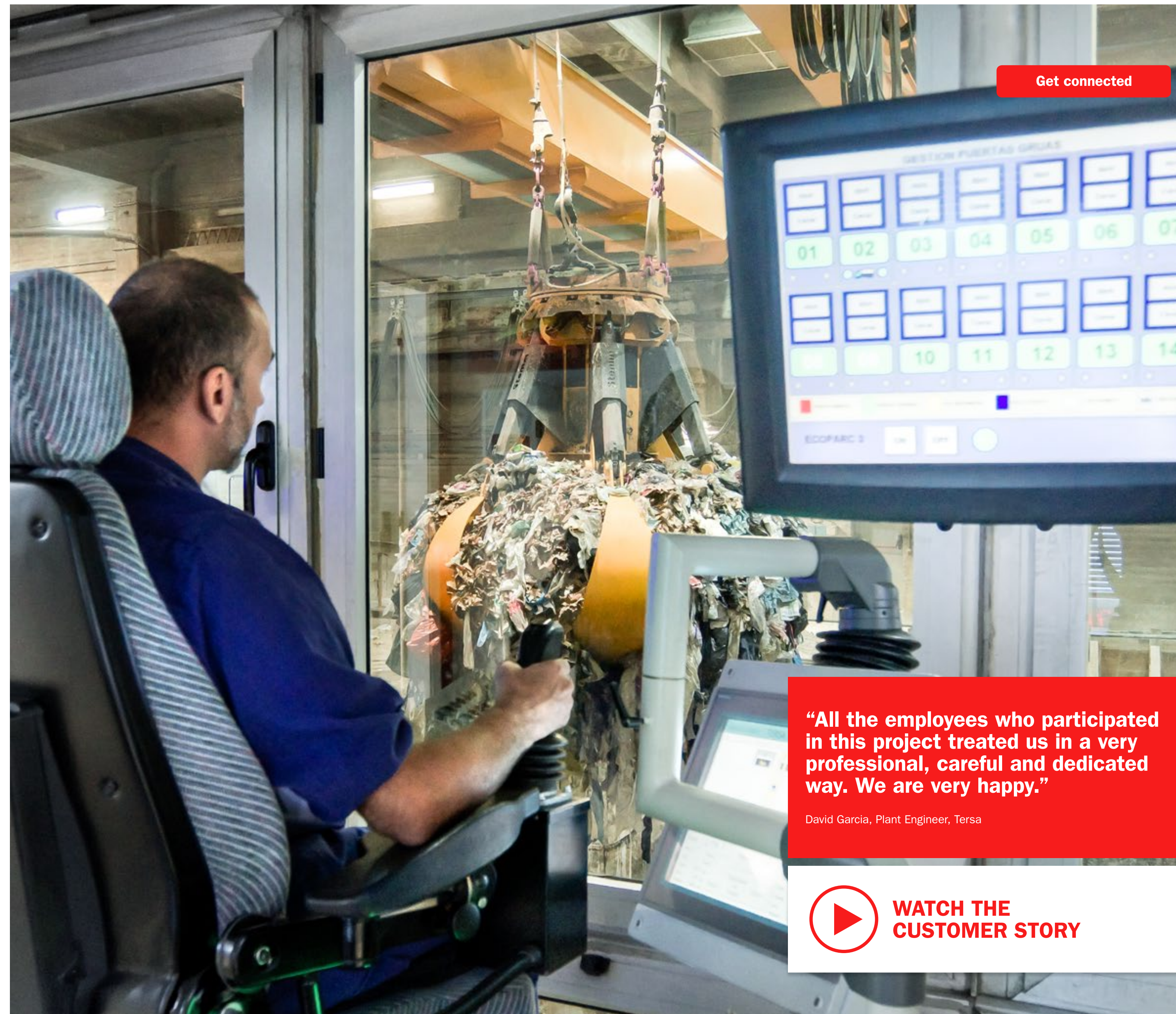
After careful consideration, Tersa felt the best option was two automatic WtE cranes from Konecranes, equipped with the latest technology, including a range of features tailored to meet the specialized needs of any waste-to-energy plant. Konecranes fulfilled every detail of the customer's requirements: large-capacity grabs, all three modes of operation, continuous weighing and the ability to mix waste as necessary.

Crane automation and special control equipment installed along with it meant a new operator cabin with ergonomic seats, touch screens, keypads and displays. From this close but physically separate location, both cranes could be easily controlled by the Tersa operators, and safety was improved as the sealed area protected the operators from dust and moving machinery.

### ADDING THE CARE PREVENTIVE MAINTENANCE PROGRAM

After installation, Tersa took on the Konecranes CARE Preventive Maintenance Program, which for this site includes 24/7 service, weekly greasing, a review of the crane every two months, and monthly and quarterly reviews of the grabs. These regular reviews can help minimize unscheduled downtime, while supplementing our year-round, around-the-clock technical support.

Tersa bought two strong, technically advanced cranes that will provide them with the efficient handling needed for Barcelona's local waste many years into the future.



**“All the employees who participated in this project treated us in a very professional, careful and dedicated way. We are very happy.”**

David Garcia, Plant Engineer, Tersa



**WATCH THE CUSTOMER STORY**

## Quebec, Canada

# REPLACING WTE CRANES IN AN OPERATING FACILITY

When the city of Quebec, Canada built its WtE plant in 1974, the facility was designed to incinerate Quebec's municipal garbage at the rate of 280,000 tons per year and generate a \$10 million annual income by selling steam to a nearby pulp and paper plant.

But by 2006, Quebec's two aging cranes were costing the city more than \$400,000 per year to maintain. Designed before modern technologies such as load sway prevention were available, the cranes were difficult to operate and hard to keep running. Critical components such as wire ropes were wearing out every two weeks, structural failure was rampant and downtime was escalating. And when the cranes were down for repair, the facility was unable to receive, mix or burn waste. Management's biggest concern was how to replace the cranes without interrupting production.

Konecranes has demonstrated its ability to replace or modernize cranes in operating WtE plants without affecting throughput. As the City of Quebec has discovered, the right cranes from the right supplier can actually pay for themselves over time.

### DOING MORE WITH MODERN WTE CRANES

Konecranes turnkey solution involved modernizing, automating and rewiring the entire facility and redesigning it for maximum efficiency. Quebec's new fully automated, CMAA Class "F" AC-powered cranes do far more than their older counterparts. They manage waste reception, feeding, recasting and mixing to make it burn well, while hydraulic grabs compress the garbage to hold more. DynAPilot anti-sway technology reduces wear and tear on the facility by preventing collisions of the grab with the pit walls. These new 10-tonne cranes with 2.5 tonne auxiliary hoists can operate manually, in semi-automated mode or in full automation.

Originally the facility had parking for only one of its cranes. A major element of the redesign was the addition of a maintenance bay for the second crane. The new bay enabled one crane to be parked out of the way and replaced while the other continued to operate.

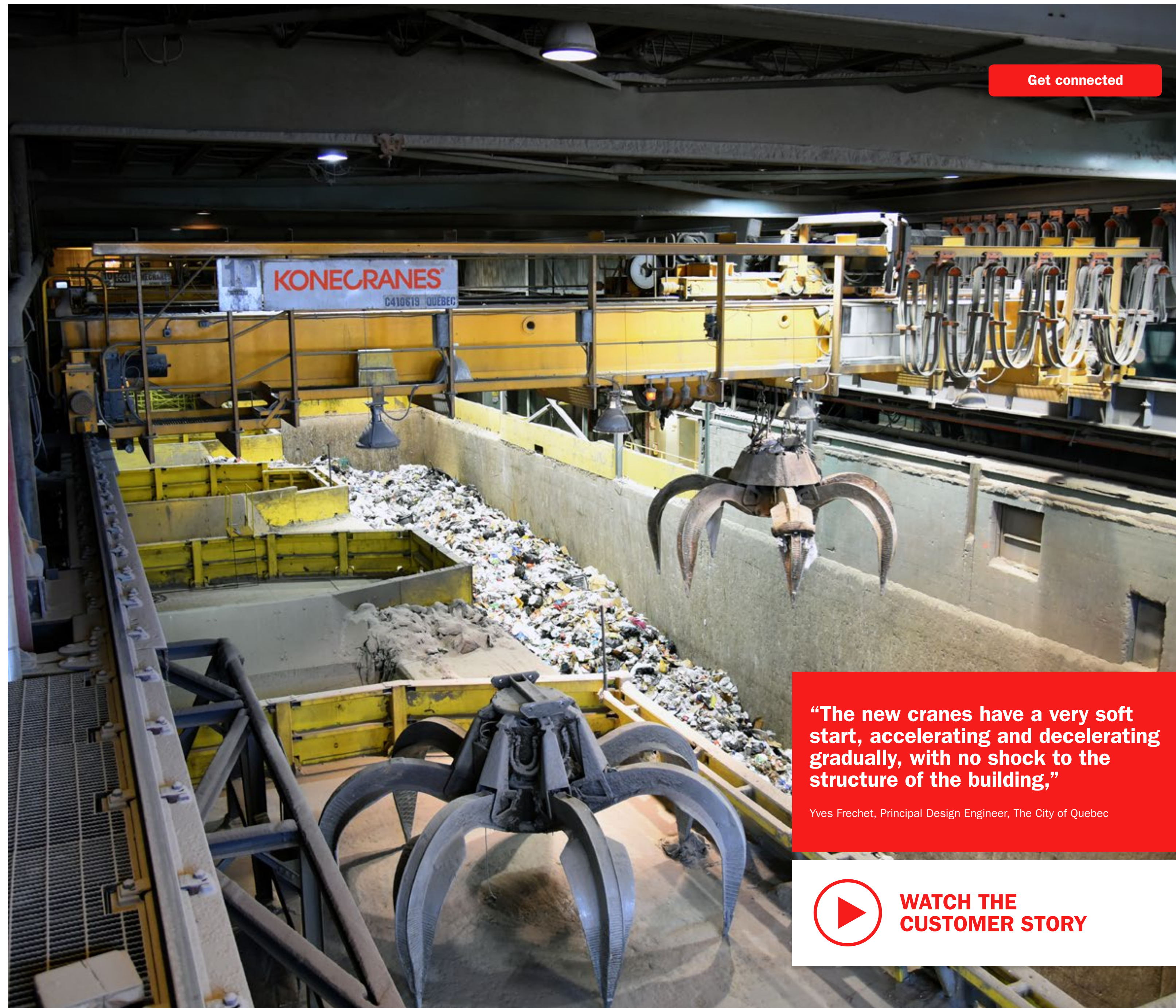
Another important goal was to better protect people and infrastructure while improving throughput. Konecranes "Protected Areas" technology creates no-go areas, as well as predetermined destinations for loads of waste. For the City of Quebec, the operator's cabin, water stations and access stairways are off-limits for the crane's grapple. Even better, loads of garbage destined for the hopper end up inside the hopper, not next to it.

### CRANES THAT PAY FOR THEMSELVES

After installing its new equipment from Konecranes, crane-related maintenance costs fell 80 percent from the \$400,000 the facility spent on its original cranes in their last year of service. Since then, the improvement in crane maintenance cost has continued at this level. In addition, automating the cranes has enabled management to lower electrical consumption and move two skilled employees to other areas of the plant.

Today, the City of Quebec's WtE facility is reaping the benefits of more efficient automated technology and a safer workplace. Operational costs have dropped so much that, less than a decade after their installation, the cranes have already paid for themselves. The best news: the financial windfall generated by lower maintenance, electrical and personnel costs should continue to accrue for years on the city's bottom line.

[READ THE WHOLE STORY >](#)



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**“The new cranes have a very soft start, accelerating and decelerating gradually, with no shock to the structure of the building,”**

Yves Frechet, Principal Design Engineer, The City of Quebec



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Klaipeda, Lithuania

## FORTUM, COMBINED HEAT AND POWER PLANT

Founded in 1998, Fortum is a Finnish energy company running power plants throughout the Nordic and Baltic countries, Poland and Russia. Besides generating electricity and heat, it also provides a variety of other energy-related services and products. With operations that include hydroelectric and waste-to-energy, the company has a focus on sustainable solutions.

### MEETING THE DEMANDS OF CONTINUOUS ENERGY PRODUCTION

Klaipeda, the third largest city in Lithuania, has one of the few ice-free ports in northern Europe, making it key to transport and trade in the region. Around 150,000 people live there, and it is close to popular seaside resorts. The city chose Fortum to build a new power plant to help manage waste and provide energy. A combined heat and power (CHP) facility would process CO<sub>2</sub>-neutral biomass mixed with municipal and industrial waste for fuel.

The plant needed cranes to shift the trucked-in waste from its vast storage bunker into the adjoining incinerator. Key to the operation of the plant, the cranes had to work around the clock, seven days a week. If they stopped for any significant amount of time, fuel wouldn't get to the boiler, shutting down the turbines that produced the plant's output of essential heat and electricity.

### AUTOMATED CRANES WITH REMOTE MONITORING CAPABILITIES

Konecranes was involved in the construction of the power plant from the early planning stages – two grab cranes working together were enough to cover the whole area of the enormous waste bunker. The crane controls were fully automated and equipped with remote monitoring technology that provides visibility to crane usage and operating data.

### REDUCING WASTE AND EMISSIONS

Inaugurated by the Lithuanian and Finnish presidents in 2013, the plant produces about 140 GWh of electricity for the Lithuanian grid and 400 GWh of heat – 40 percent of the district heating for Klaipeda – per year. Using so much waste for fuel has helped in regional waste management. It has significantly reduced landfill, and CO<sub>2</sub> emissions have dropped by 96,000 tons annually.

**Klaudijus Zilinskas**, Fortum's Operations Manager, has been very pleased with the fast and efficient service support from Konecranes. With remote monitoring, Konecranes technicians rarely need to visit Fortum Klaipeda except for scheduled service calls and preventive maintenance. The two Konecranes automatic grab cranes have proven their ability to handle their grueling, non-stop work schedule in the huge waste bunker.



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**“The capacity and usability of the grab cranes are instrumental to the reliability and profitability of the entire plant.”**

Petri Härmä, Head of Large Projects, Fortum



**WATCH THE  
CUSTOMER STORY**



## Beijing, China

# BEIJING SHOUGANG BIOMASS ENERGY

The Shougang Group started operations in 1919, and is still operating today. It is one of China's largest steel companies. With its long experience in building and engineering, it is often involved in construction. Its subsidiary, Beijing Shougang Biomass Energy Technology, develops related environmental projects.

### SUPPLYING ELECTRICITY IN ONE OF THE WORLD'S BIGGEST CITIES

Beijing, China's most populous city, has enormous waste management needs. To help deal with this, an eco-friendly waste-to-energy power plant was planned which would take care of 3,000 tons of household garbage per day, or one-sixth of the daily domestic waste generated in the city. In addition, the plant would generate 420 million KWh of electricity per year, supplying power to more than 60,000 homes.

To produce all that electricity, trucks come in to dump solid waste directly into one of two separate waste bunkers, each with two incinerator lines. Cranes are needed to move the waste into hoppers so that it can be burned. Between hopper loadings, the cranes clean waste in the dumping area and mix waste together in the waste bunker to make it burn more easily.

### NEW CRANES WITH SPECIAL FEATURES

Konecranes agreed to supply four automated 18-ton Class F waste-handling grab cranes, with two cranes for each bunker. Usually only one crane runs in each bunker, while the other two cranes wait on standby, but all four can work together at peak times. In a busy, 24-hour facility, double cranes also help the plant continue to operate even when one or more cranes is down.

The cranes are controlled from a pulpit overlooking the waste bunkers. When receiving trucks, they operate in manual or semi-automatic mode, but during non-receiving hours, the cranes are fully automatic. In addition, two of the cranes have an auxiliary hoist and small grapple hook to remove any large unburnable items and help with cleaning.

Special Konecranes features help crane operators stay safe, including DynAPilot Sway Control, Protected Areas and limit switches, all of which protect the user in the pulpit and keep the surrounding equipment and building free of damage. In addition, Konecranes DynaReg network braking removes the need for external braking resistors and creates electricity, reducing crane consumption by 30 percent.

### A BIG OPERATION GETTING BIG RESULTS

All four cranes are fitted with a special Konecranes weighing system to minimize air contamination, measure the loading condition of the cranes and maximize the efficiency of the burning process. Weighing also provides a simple method of record-keeping, as it shows the amount of waste being fed through the system.

The Beijing LuJiaShan WTE plant became fully operational in 2013, and is one of the largest plants in operation.

Get connected

**“Our cranes were delivered on time and with good quality, and we are very satisfied with Konecranes.”**



Riihimäki, Finland

## EKOKEM, WASTE-TO-ENERGY POWER PLANT

Established in 1979, Ekokem was the first Finnish company specializing in the treatment of hazardous waste. Since then, the Ekokem Group has expanded to become the leading provider of comprehensive environmental management services in Finland. Its modern business includes waste recovery, energy production, and the remediation of contaminated soil and groundwater. Operations are geared toward environmental protection and the safety of customers.

### INCREASING HEAT AND POWER OUTPUT

One of Ekokem's goals is to increase its production of heat and electricity derived from waste. In 2007, Ekokem opened its first waste-to-energy plant, producing local district heating and electricity for the national grid. Providing a vital service for the community, Ekokem had to ensure that heat and power production went uninterrupted. Safety and reliability were essential.

### FULLY AUTOMATED CRANE FUNCTIONALITY

A fully automatic grab crane was ideal here. With each scoop, the crane dumps five tons of waste into a filling hopper. Between lifts, the crane sometimes mixes the waste by moving it from side to side. This helps it burn better, increasing efficiency. To keep the process moving, the hopper needs to be fed with new fuel at least twice an hour. Fully automated, the crane can run continuously through days, nights and across weekends, with very little human supervision. If the waste mass includes miscellaneous materials, the crane can also be operated manually.

The new grab crane uses the latest technology to improve automation, control and hydraulics. The electronic DynAPilot Sway Control provides more accurate handling. Information about crane operations comes through the Crane Management System (CMS) in a visual format, giving valuable data for maintenance and development. Safety is maximized through Sway Control and a special feature that stops the crane if anyone goes near it.

### SAFER, CLEANER ENERGY

Throughout its years of operation, the Ekokem waste-to-energy plant has developed a reputation as one of Europe's cleanest and safest thermal recovery plants for source-separated municipal waste. The facility continues to grow as modern waste processing needs grow.

Ekokem and Konecranes have been working together for over 30 years. What started as a service agreement for cranes and lifts has blossomed into a much broader business relationship, including cutting-edge lifting equipment from Konecranes that helps Ekokem manage waste more effectively and preserve our environment.



Get connected

**“Intelligent automation has revolutionized waste treatment and incineration technology.”**

Petri Onikki, Technical Director, Ekokem

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# WE FEED THE BIOMASS PROCESS



1 Biomass handling cranes [Read more »](#)

2 Automation [Read more »](#)

3 Service [Read more »](#)



# AUTOMATION IMPROVES COST EFFICIENCY

## CXT®BIOMASS CRANE BENEFITS

- More efficient operations with full automation
- Increased safety with Smart Features
- Compact design for efficient space use
- Less noise and emissions
- Hoisting inverter with Extended Speed Range (ESR) provides smooth and fast operation and reduced cycle times

## 1 FULLY AUTOMATIC MOVEMENTS

**CXT BIOMASS CRANE** is a fully automated, completely operator-free system. The crane takes care of the fuel material management all by itself.

### AUTOMATIC CYCLES

**The receiving cycle** is used for moving biomass from the dumping area to the storage area. Trucks usually unload during standard working times. The crane picks up biomass from the dumping area and drops it into the storage area or directly into the hopper. The crane clears the dumping area until the dumping bunker is empty.

**The feeding cycle** is used to feed the hopper. This process is the highest-priority operation in the plant, running continuously, 7 days a week. The pickup area can be the storage bunker or the dumping area.

## 2 SLACK ROPE PREVENTION / TILTING LIMIT SWITCH

This prevents the grab from tilting and hoist ropes from slacking. These features are designed to prevent the grab from falling out of control and stops the lowering of the grab when digging into material.


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Beinheim, France

## SCALDIS, BIOMASS POWER GENERATION PLANT

For two decades, Scaldis has offered innovative solutions and customized industrial architecture to the energy sector in France. The company is well-recognized as a planner of reliable, long-lasting systems with a high level of integration and cutting-edge design. In 2008, it turned its hand to bioenergy, and has since become a leader in this field.

### INCREASING BOILER BIOMASS INPUT

A client company in Beinheim told Scaldis that it wanted to diversify its steam production, which was traditionally based on gas, and start with a new biomass boiler. To feed the boiler, they needed a crane with sufficient capacity. The crane had to be able to enter easily into the building, despite narrow passages and headroom. Finally, as the plant had the space for only one crane, it had to be able to tolerate continuous operation 24/7.

### OPTIMIZING THE CRANE-WORKSPACE RELATIONSHIP

After consulting closely with the Scaldis technical team, Konecranes felt the best solution was the new-concept CXT Biomass crane. By choosing the speeds available in the range, they sized the unit as needed.

The CXT, a tried and tested biomass model, is particularly good in this case because of its compact dimensions, so it fits nicely into the limited space available. Equipped with a 5000-liter hydraulic skip, the girder-type crane has a lifting capacity of 7.5 tons and a reach of 22 meters. The grapple can power the boiler feed hopper with 25 to 35 tons of chips and crushed wood per hour.

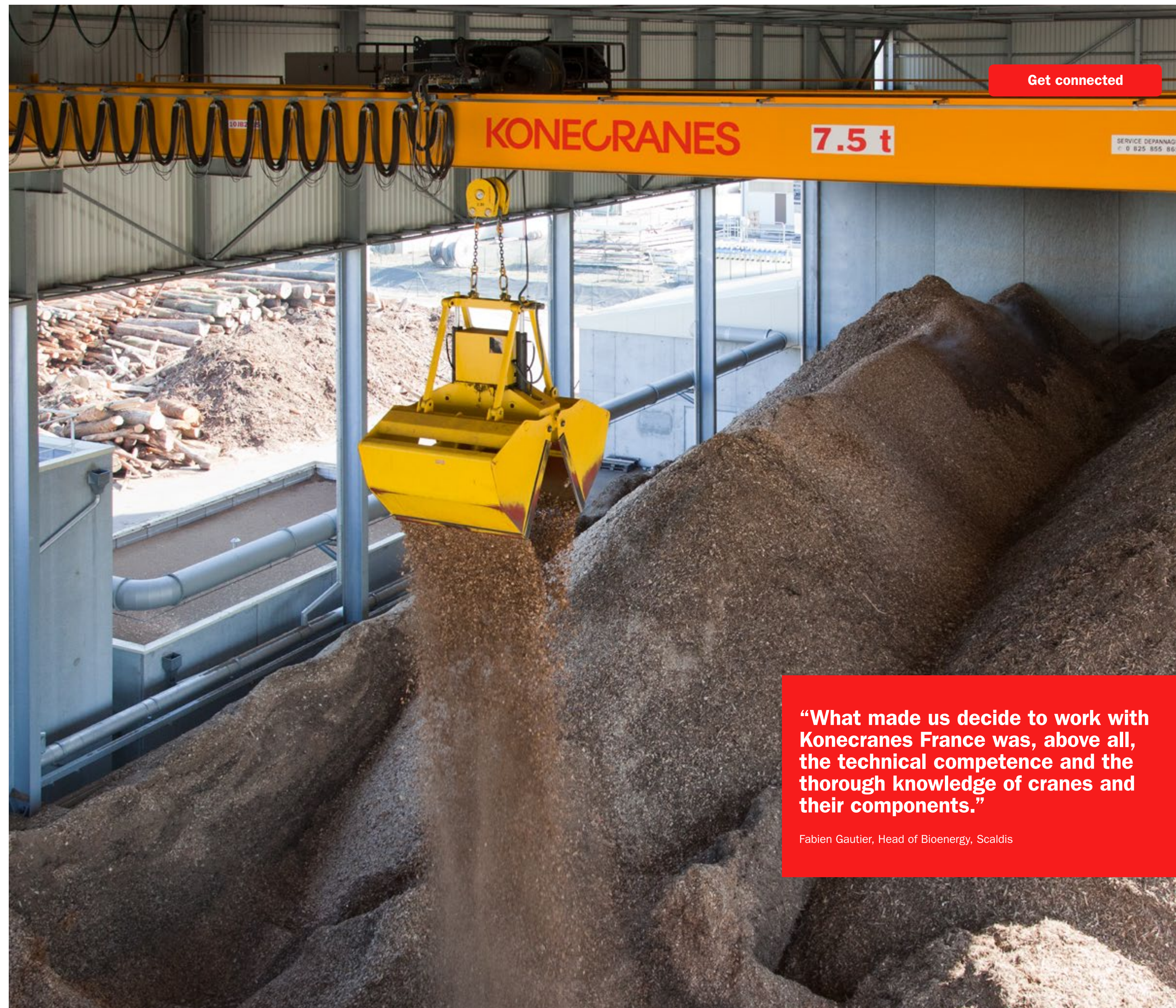
### CONTINUING THE KONECRANES COLLABORATION

Installation ran on schedule, the new boiler started on time, and the client company is pleased with both Scaldis and Konecranes. The crane automatically and continuously feeds wood and wood chips into the biomass boiler, as it was designed to do.

Scaldis is very satisfied with the expertise and professionalism of Konecranes.

“The Beinheim project also allowed us to assess the availability and responsiveness of Konecranes France, especially in the commissioning phases,” said Fabien Gautier, Head of Bioenergy in Scaldis. The company has asked Konecranes to continue their collaboration on other contracts with the same project management team.

Whatever space is available, and whatever lifting capacity is required, the CXT range of cranes are a good fit for biomass and waste handling.



**“What made us decide to work with Konecranes France was, above all, the technical competence and the thorough knowledge of cranes and their components.”**

Fabien Gautier, Head of Bioenergy, Scaldis

Mölnådal, Sweden

## MÖLNDALS ENERGI, POWER AND HEATING PLANT

Mölnådal Energi began as a district heating provider for the borough of Mölnådal, near Gothenburg in southwest Sweden. Today it supplies electricity, heating and energy services. With 95,000 private customers and 3,000 companies to serve, it is an important part of the region.

### AIMING FOR A FULLY AUTOMATED OPERATION

When Mölnådal Energi wanted to build a new power and heating plant to open in 2010, the three most important factors were user-friendliness, safety and eco-efficiency.

“We wanted to have a completely automated installation,” said **Jan Brännström**, Project Manager. “An unbroken chain from the scales to handling in the tipping hall, and from transport to the boiler.” It was absolutely essential that when a person or equipment (such as a waste delivery vehicle) was on the driveway, the overhead crane could not go there. An additional risk factor was dust residue from waste processing that might explode without careful handling.

Lastly, integration with other systems in the plant meant that overall production functions could be optimized.

### ESTABLISHING LOAD VEHICLE IDENTIFICATION

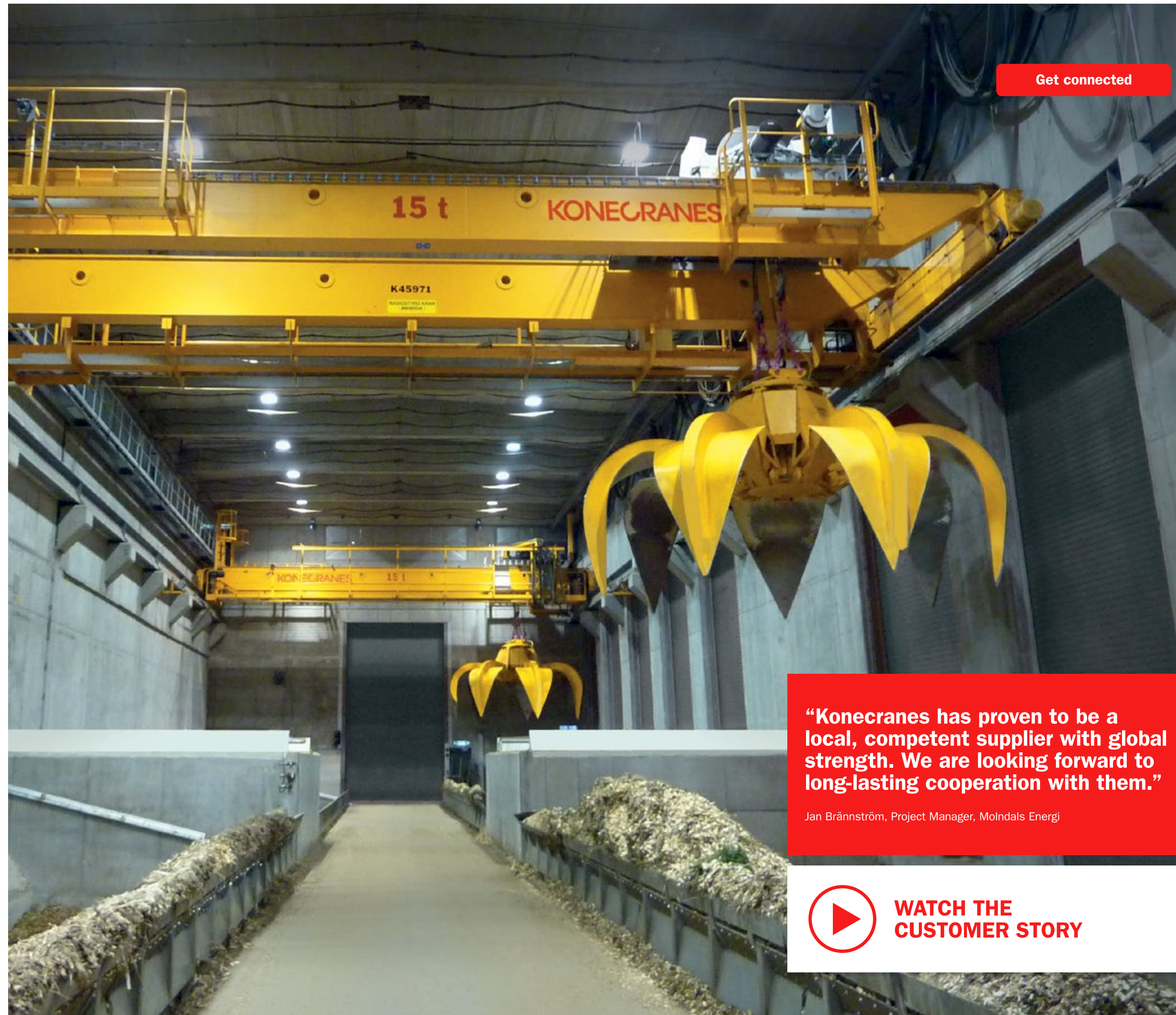
External safety is maintained with automatic gate control. Each truck delivering waste to the plant carries a transponder that informs the system about the type of vehicle approaching. Konecranes fully-automated fuel cranes are aware of the location of each truck. If a truck is nearby, the grabs stay away in a safe position.

All systems have been carefully designed for the common monitoring system, logistically coordinated to prevent collisions and maintain reliability. This is especially important in such an exposed, potentially dangerous environment.

### AUTOMATION CAN REDUCE RISK AND IMPROVE RELIABILITY

The most important priority in this plant was safety due to a risk of collision or explosion. When Konecranes automatic overhead cranes were fully integrated with other plant systems, the entire waste management process became more safe, reliable and efficient.

Mölnådal Energi was particularly impressed with the fully coordinated integration in the Konecranes solution. “I see a great amount of potential in this system,” said **Leif Viklund**, Fuel Manager. “We can obtain the ideal mix in our boiler and optimize both electricity and heating production.”



Get connected

“Konecranes has proven to be a local, competent supplier with global strength. We are looking forward to long-lasting cooperation with them.”

Jan Brännström, Project Manager, Mölnådal Energi



WATCH THE  
CUSTOMER STORY

Whistler, British Columbia, Canada

## RESORT MUNICIPALITY OF WHISTLER, REGIONAL COMPOSTING FACILITY

The Resort Municipality of Whistler is a community of 14,000 permanent residents in western Canada, which annually welcomes around 2 million guests for winter and summer sports. Located near Vancouver, it hosted some of the events of the 2010 Winter Olympics. The Whistler 2020 vision for environmental sustainability has a reputation for being one of the most aggressive in North America.

### OVERCOMING ENVIRONMENTAL AND SAFETY COMPLICATIONS

Whistler has specific problems in waste management due to terrain limitations and a plentiful bear population that rules out a landfill. Sending garbage away is expensive, so the municipality committed to a new \$14 million regional composting facility.

A previous composting project had highlighted some issues to resolve in this new plant. Unpleasant odors had disturbed local residents and guests. Front-end loaders burned fossil fuels and left fumes and exhaust inside the building. This equipment also tracked biosolid residue all over the site, creating a very dirty environment.

The production obstacles called for an overhead crane for biosolids handling. It had to have the best possible reliability, with proven technology and fast, efficient service in case something went wrong.

### THIS CALLS FOR A STRONG AND VERSATILE BUCKET CRANE

Konecranes recommended a five metric tonne electric bucket crane. Its 18-meter operating span with a 2.5 cubic meter hydraulic grab was suitable for such a small-scale facility, allowing an efficient use of floor space and easy access to all stored materials.

The crane included a number of special features, including radio control, DynAPilot Sway Control, and the ability to weigh each load. It was also set up for future automation, although Whistler wanted a human operator to run the process. This gave them flexibility to tweak the mixture according to temperature changes and pick out unwanted items to preserve quality control in the compost. Konecranes Service took care of the crane with quarterly inspections focused on preventive maintenance.

### SINGULAR PERFORMANCE AND DURABILITY

Since the regional composting facility opened in 2008, Whistler has seen a good return on its investment in the plant and the crane. As part of the key equipment in the plant, the bucket crane has shown the long-term reliability for which Konecranes equipment is known.

“Without the crane functioning, the plant does not function,” said **Ron Sander**, Whistler Environmental Operations Manager. “Without the plant functioning, our ability to deal with biosolids locally comes to a complete halt.”

The electric overhead crane has also eliminated diesel fumes from buildings and confined areas, allowing doors to be kept closed to contain odors and dust.



Get connected

“We are in agreement that it has been probably the most pleasant surprise of the entire project – just how well that crane has worked.”

Ron Sander, Whistler Environmental Operations Manager

## Kaunas, Lithuania

# NEW HEAT, BIOMASS POWER PLANT

Since 2001, New Heat has been financing and running energy projects from initial idea to full implementation. These projects include biofuel- and natural gas-based boiler houses, combined heat and power plants, landfill biogas collection systems, and biogas power plants. The company produces and supplies biofuel and the equipment to process it across Lithuanian and European markets.

### REDUCING RESOURCE COST AND USE

In 2013, New Heat was under contract to build a new biomass power plant for Lorizon Energy, a renewable energy producer, in Kaunas. Equipped with a 10MW boiler house and using three different types of biomass to produce heat, the plant was designed to be operated 24/7 by only one person.

The biomass hall has three tipping bunkers (one for each fuel type), a storage area and a double hopper for mixing fuel types. Dust and humidity are especially prevalent. Operating continuously, the crane is a key part of the process. A fully automated crane can help reduce potential staffing costs and eliminate the need for front loaders that produce too much exhaust.

### CXT CRANE AUTOMATION

The fully-automated Konecranes CXT® biomass crane fulfills New Heat's requirements exactly. It is a double-girder crane with a lifting capacity of four tons, using a dual scoop with a 2.5 cubic meter hydraulic grab equipped with Smart Features like Sway Control and Slack Rope Detection. Standardized and scalable, the CXT crane is designed to use the space under it as efficiently as possible. This makes it ideal for biomass plants, where space is often limited.

The CXT biomass crane is equipped with TRUCONNECT Remote Service, allowing crane performance to be monitored remotely. This allows for a reduction in downtime in situations in which operation of the crane can be fine-tuned without having to visit the site.

### FAST INSTALLATION AND RELIABLE PERFORMANCE

Time was a key factor in this project, so Konecranes arranged quick delivery and installation. **Jonas Pugzlys**, Project Manager for New Heat, considered the one-week installation period to be particularly fast.

The crane has proven to be very suitable for handling the volume of biomass processed daily. Monitored remotely, maintenance is defined according to actual use. The CXT is a strong and reliable crane, with proven and popular technology that, under normal operation, does not require a lot of service calls.

[Get connected](#)

**“It was very nice to work with Konecranes people, as they are professionals, and in the future, I will be happy to work with them again!”**

Jonas Pugzlys, Project Manager, New Heat



**WATCH THE CUSTOMER STORY**



# AT YOUR SERVICE

**Regular inspections and preventive maintenance are essential to keep a crane running efficiently and extend its operating lifetime.**



## Konecranes Service

# OUR APPROACH TO MAINTENANCE

We provide specialized maintenance services and spare parts for all types and makes of industrial cranes and hoists—from a single piece of equipment to entire operations. Our objective is to improve the safety and productivity of our customers' operations.

Konecranes Lifecycle Care is a systematic, consistent, comprehensive and professional approach to maintenance, supported by world-class tools and processes.

Highest lifecycle value results from maximizing the productivity of uptime in addition to minimizing the cost of downtime. We believe merely keeping your cranes running is not sufficient. We must also help you achieve the highest productivity during every shift. We aim to deliver measurable improvements in safety and productivity that can be reported and reviewed, demonstrating a return on investment to you.

Our crane experts apply a systematic Risk and Recommendation Method of evaluation and a consultative planning and review process to drive continuous improvement in safety and productivity.

### SERVICE PROGRAMS TO FIT YOUR NEEDS

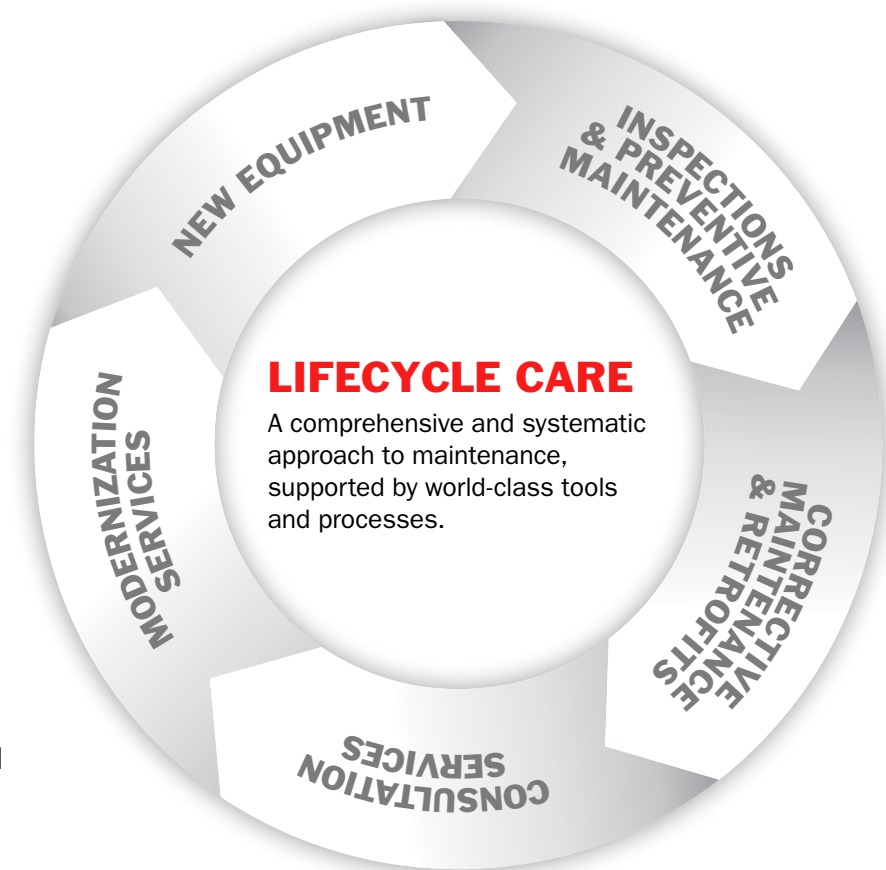
The foundation of Lifecycle Care is our **CARE Preventive Maintenance Program**. It has been designed to improve your equipment safety and productivity through the systematic application of preventive maintenance inspections, routine maintenance, our proprietary Risk and Recommendation Method, and remote-monitoring technology. When combined with corrective maintenance, retrofits and consultation services, lifecycle value is maximized.

**The COMMITMENT Maintenance Program** offers broad-scope maintenance outsourcing.

**The COMPLETE Maintenance and Operations Program** is designed to accommodate customers who would like to completely outsource their maintenance and the operation of their equipment.

**The CONDITION Inspection Program** is designed to help you comply with local statutory requirements and support your in-house maintenance.

**CONTACT** is our most basic on-demand service, typically for emergency repairs, spare parts, breakdown response and other ad hoc needs.



Get connected

We provide spare parts for all crane makes and models, not just Konecranes equipment.



WATCH THE LIFECYCLE CARE VIDEO



Get connected

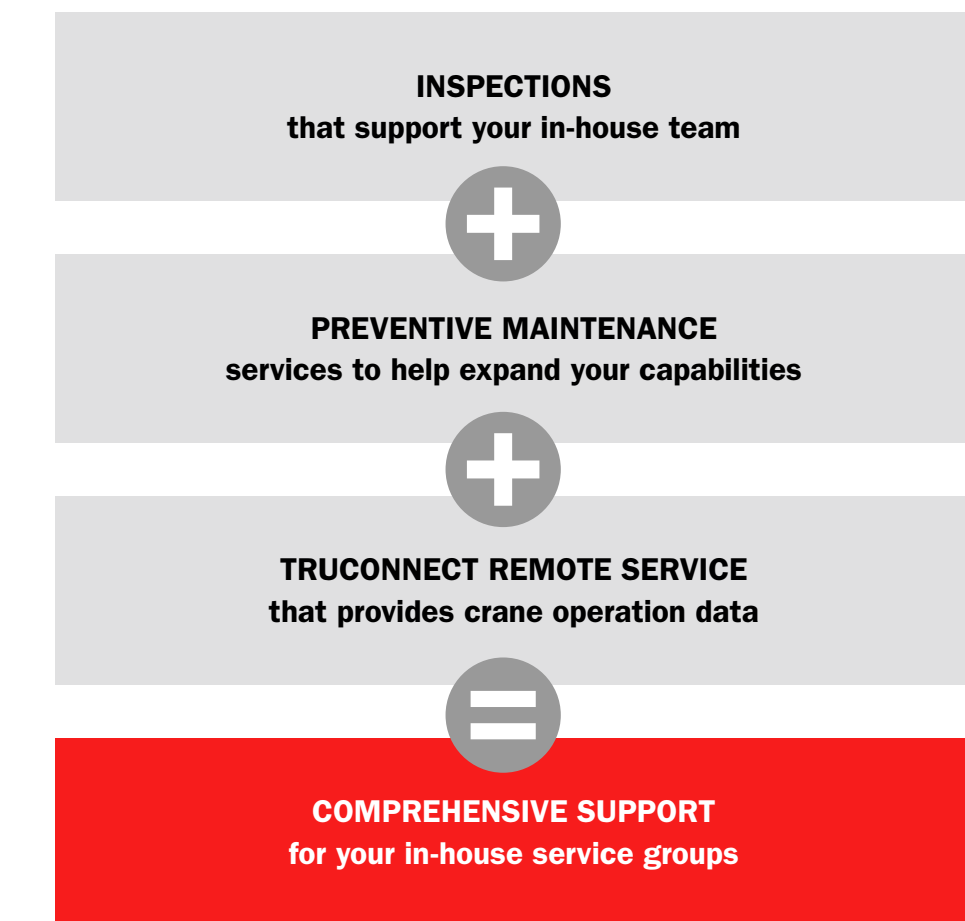
We can provide services that support and expand the capabilities of your in-house service teams.

## SUPPORTING YOUR MAINTENANCE TEAMS

If you already have a dedicated preventive maintenance team at your facility, the Konecranes **CONDITION** Inspection Program can help fill any gaps in or add value to your inspection and maintenance procedures. We can offer expert inspections to support the work of your in-house team. And if you encounter preventive maintenance issues that cannot be resolved using your internal resources alone, we can provide the expertise and technology you need to address them safely and efficiently.

Konecranes TRUCONNECT Remote Monitoring provides asset usage and operating information that can be used to assess crane condition and help you develop new operator training goals.

### THE CONDITION INSPECTION PROGRAM



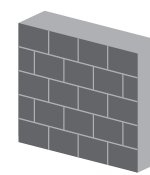
Get connected



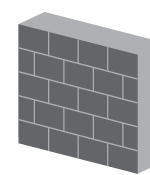
Easy-to-interpret reports are available on yourKONECRANES.com



yourKONECRANES



Konecranes Remote Data Center



Diagnostic unit



Crane

# PLAN FUTURE ACTIONS WITH BETTER INFORMATION

**TRUCONNECT® is a suite of remote service products and applications to support maintenance operations and drive improvements in safety and productivity. It is an important building block in delivering Lifecycle Care in Real Time.**

### IMPROVED SAFETY AND OPTIMIZED CRANE MAINTENANCE

TRUCONNECT Remote Monitoring uses sensors to collect data – such as running time, motor starts, work cycles and emergency stops. Brake and inverter monitoring is also available. This data and other crane usage information is visible on the yourKONECRANES.com customer portal.

Remote Monitoring provides asset usage and operating information that is used to assess crane condition. Notification of hoist overloads, emergency stops and over-temperature occurrences are sent through text or email alerts, allowing for prompt response.

Remote Monitoring also gives you an estimation of the remaining design working period (DWP) of selected components, such as hoist brakes and structures.

### GLOBAL NETWORK OF CRANE KNOW-HOW

TRUCONNECT Remote Support provides 24/7 access to a global network of crane experts and specialists, offering problem solving and troubleshooting to help reduce unplanned downtime. In controlled circumstances, two-way communication with the machines and their operators can be established in order to expedite corrective action.

Get connected

Extend the service life of your crane.

## EXTEND THE LIFE OF YOUR CRANE WITH A MODERNIZATION

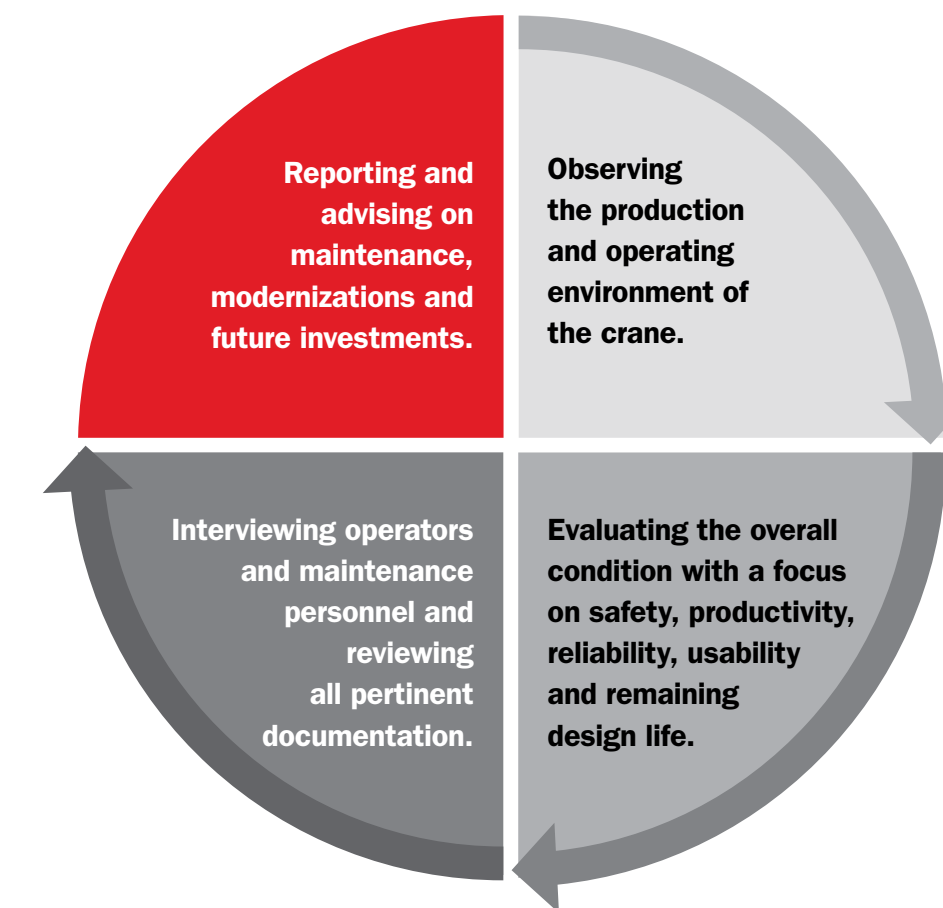
**Modernizations can provide an opportunity to add up-to-date technology or prolong the economic service life of your crane. Typical modernization can include the replacement of hoists, trolleys and controls to achieve increased capacity, speed, duty and load control.**

With the right modernization, you can extend the lifetime of your crane and benefit from the latest technology updates. A modernization will help you comply with current safety regulations and may reduce the risk of downtime, injuries or damage to facilities, materials or products. Modernization can also improve the entire process and reduce operation costs.

With basic upgrades you can improve safety, reliability and performance. However, if your needs for crane modernization extend beyond this, it may be possible to rebuild your old crane to meet the demands of today's high-technology standards, typically at a substantially lower cost than for a new crane.

If you are unsure about the potential for a modernization on your crane, our Crane Reliability Study (CRS) can help give you an idea of crane condition and operative age. This study can provide you with an estimate of remaining crane service life and recommended actions for future use.

### THE CRANE RELIABILITY STUDY (CRS) PROCESS





# THE CRANES

Choosing the right lifting equipment for your waste or biomass plant starts with an understanding of your operational requirements today, and how they are likely to change in the future. As your business grows, we work closely with you to meet your growing needs. Whether you are handling waste or biomass, Konecranes makes the lifting equipment for the task.

# SAFETY THAT SAVES YOU MONEY

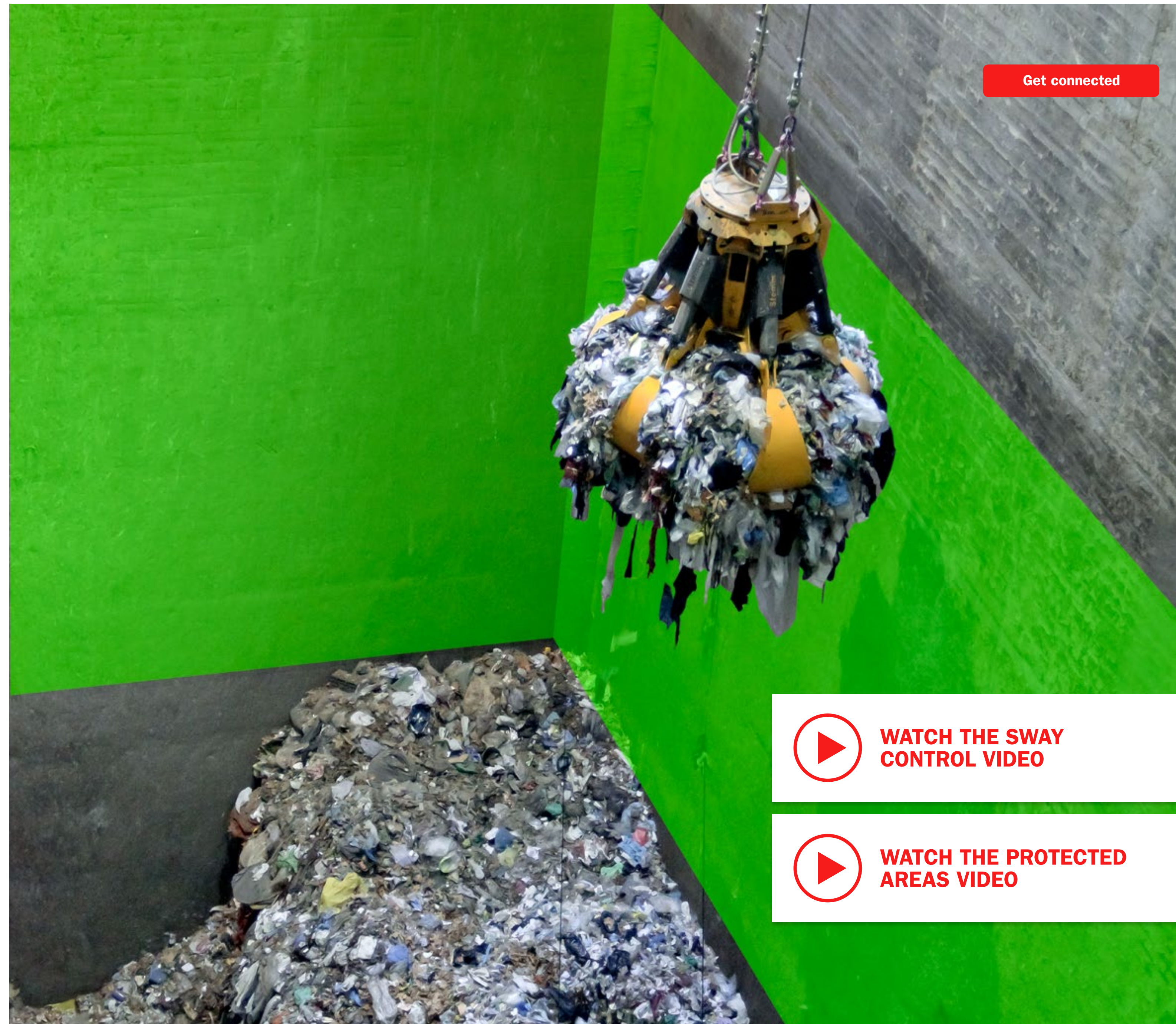
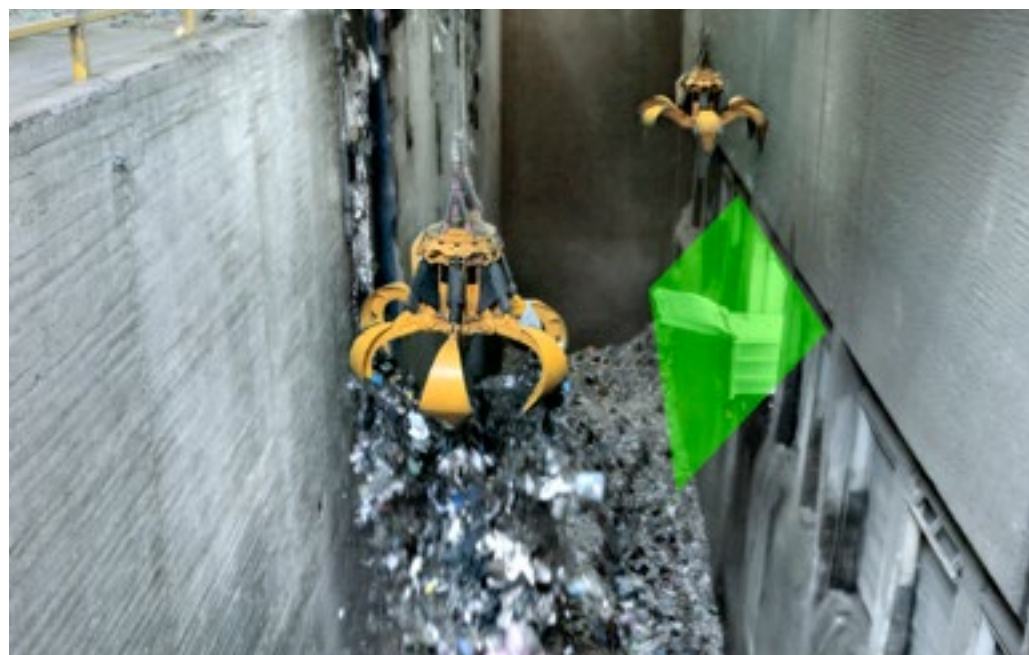
**We build safety, reliability and ease of maintenance into all of our cranes.**

We understand the harsh environment of the waste-to-energy and biomass plants, so we engineer our lifting and control equipment to endure humidity, dust and temperature variations. Konecranes lifting equipment can withstand tough operating conditions in corrosive, or otherwise hazardous environments. Key components, electronics and other sensitive parts of the crane are protected.

Crane operators need to be protected from the dangers of the working environment. With noise reduction, safe operation modes and ergonomic controls, we want to make the operator feel safe and comfortable in the control room. Smart Features make operating the crane more precise, minimizing errors and allowing total concentration on the task at hand.

The safety of your people is paramount. Konecranes Smart Features, such as Overload Protection, Sway Control, Load Positioning, Collision Avoidance and Protected Areas combine to make the crane safer to use and operate.

Our cranes are made for easy maintenance. The key systems of the crane are located at points of easy access. The crane operator can view the crane diagnostics in the control room. The Crane Monitoring System can be linked remotely to Konecranes, so you know the operating status of your cranes on demand.



Get connected

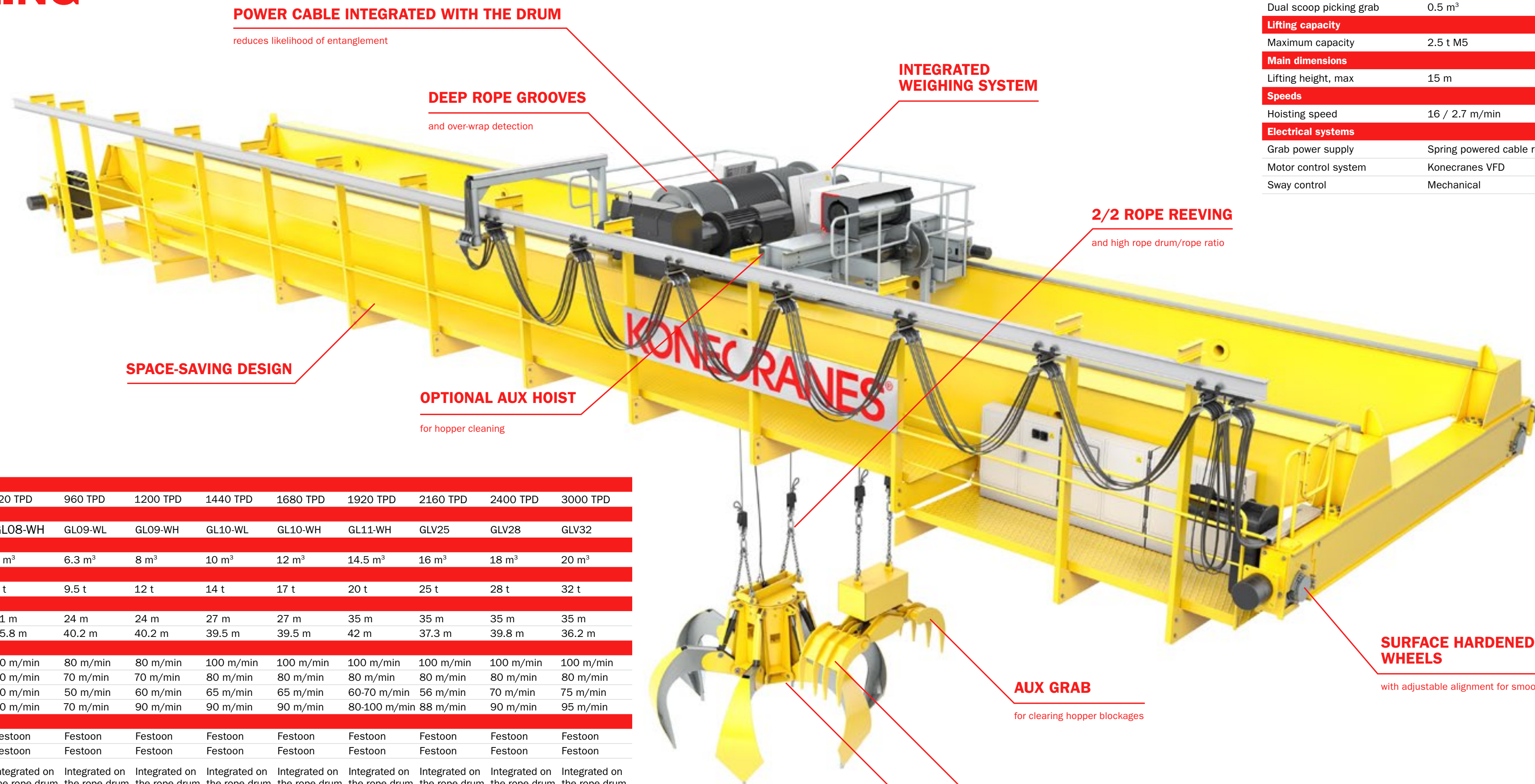


**WATCH THE SWAY CONTROL VIDEO**



**WATCH THE PROTECTED AREAS VIDEO**

# WASTE HANDLING CRANES



| Technical data  |                             |                             |                             |                             |                             |                             |                             |                             |                             |                             |                             |                             |                             |
|---|-----------------------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|
| Plant nominal capacity  | 290 TPD                     | 480 TPD                     | 580 TPD                     | 720 TPD                     | 960 TPD                     | 1200 TPD                    | 1440 TPD                    | 1680 TPD                    | 1920 TPD                    | 2160 TPD                    | 2400 TPD                    | 3000 TPD                    |                             |
| Trolley   |                             |                             |                             |                             |                             |                             |                             |                             |                             |                             |                             |                             |                             |
| Purpose build open winch                                      | GL07-WL                     | GL07-WH                     | GL08-WL                     | GL08-WH                     | GL09-WL                     | GL09-WH                     | GL10-WL                     | GL10-WH                     | GL11-WH                     | GLV25                       | GLV28                       | GLV32                       |                             |
| Lifting devices   |                             |                             |                             |                             |                             |                             |                             |                             |                             |                             |                             |                             |                             |
| Orange peel grab  | 2.5 m³                      | 3.2 m³                      | 4 m³                        | 5 m³                        | 6.3 m³                      | 8 m³                        | 10 m³                       | 12 m³                       | 14.5 m³                     | 16 m³                       | 18 m³                       | 20 m³                       |                             |
| Lifting capacity  |                             |                             |                             |                             |                             |                             |                             |                             |                             |                             |                             |                             |                             |
| Maximum capacity  | 4 t                         | 5.4 t                       | 6 t                         | 8 t                         | 9.5 t                       | 12 t                        | 14 t                        | 17 t                        | 20 t                        | 25 t                        | 28 t                        | 32 t                        |                             |
| Main dimensions   |                             |                             |                             |                             |                             |                             |                             |                             |                             |                             |                             |                             |                             |
| Span, typical   | 18 m                        | 18 m                        | 21 m                        | 21 m                        | 24 m                        | 24 m                        | 27 m                        | 27 m                        | 35 m                        | 35 m                        | 35 m                        | 35 m                        |                             |
| Lifting height, max   | 29.3 m                      | 29.3 m                      | 35.8 m                      | 35.8 m                      | 40.2 m                      | 40.2 m                      | 39.5 m                      | 39.5 m                      | 42 m                        | 37.3 m                      | 39.8 m                      | 36.2 m                      |                             |
| Speeds  |                             |                             |                             |                             |                             |                             |                             |                             |                             |                             |                             |                             |                             |
| Bridge travel speeds  | 60 m/min                    | 60 m/min                    | 60 m/min                    | 60 m/min                    | 80 m/min                    | 80 m/min                    | 100 m/min                   | 100 m/min                   | 100 m/min                   | 100 m/min                   | 100 m/min                   | 100 m/min                   |                             |
| Trolley traversing speeds                                     | 60 m/min                    | 60 m/min                    | 60 m/min                    | 60 m/min                    | 70 m/min                    | 70 m/min                    | 80 m/min                    | 80 m/min                    | 80 m/min                    | 80 m/min                    | 80 m/min                    | 80 m/min                    |                             |
| Hoisting speed with nominal load                              | 30 m/min                    | 42 m/min                    | 42 m/min                    | 60 m/min                    | 50 m/min                    | 60 m/min                    | 65 m/min                    | 65 m/min                    | 60-70 m/min                 | 56 m/min                    | 70 m/min                    | 75 m/min                    |                             |
| Lowering speed ESR  | 40 m/min                    | 58 m/min                    | 58 m/min                    | 90 m/min                    | 70 m/min                    | 90 m/min                    | 90 m/min                    | 90 m/min                    | 80-100 m/min                | 88 m/min                    | 90 m/min                    | 95 m/min                    |                             |
| Electrical systems  |                             |                             |                             |                             |                             |                             |                             |                             |                             |                             |                             |                             |                             |
| Bridge power supply   | Festoon                     | Festoon                     | Festoon                     | Festoon                     | Festoon                     | Festoon                     | Festoon                     | Festoon                     | Festoon                     | Festoon                     | Festoon                     | Festoon                     | Festoon                     |
| Trolley power supply  | Festoon                     | Festoon                     | Festoon                     | Festoon                     | Festoon                     | Festoon                     | Festoon                     | Festoon                     | Festoon                     | Festoon                     | Festoon                     | Festoon                     | Festoon                     |
| Grab power supply   | Integrated on the rope drum | Integrated on the rope drum | Integrated on the rope drum | Integrated on the rope drum | Integrated on the rope drum | Integrated on the rope drum | Integrated on the rope drum | Integrated on the rope drum | Integrated on the rope drum | Integrated on the rope drum | Integrated on the rope drum | Integrated on the rope drum | Integrated on the rope drum |
| Motor control system  | Konecranes VFD              | Konecranes VFD              | Konecranes VFD              | Konecranes VFD              | Konecranes VFD              | Konecranes VFD              | Konecranes VFD              | Konecranes VFD              | Konecranes VFD              | Konecranes VFD              | Konecranes VFD              | Konecranes VFD              | Konecranes VFD              |
| Sway control  | Standard                    | Standard                    | Standard                    | Standard                    | Standard                    | Standard                    | Standard                    | Standard                    | Standard                    | Standard                    | Standard                    | Standard                    | Standard                    |
| Electrical braking  | Regenerative                | Regenerative                | Regenerative                | Regenerative                | Regenerative                | Regenerative                | Regenerative                | Regenerative                | Regenerative                | Regenerative                | Regenerative                | Regenerative                | Regenerative                |
| Control   |                             |                             |                             |                             |                             |                             |                             |                             |                             |                             |                             |                             |                             |
| Manual / Semi-automated                                       | Chair                       | Chair                       | Chair                       | Chair                       | Chair                       | Chair                       | Chair                       | Chair                       | Chair                       | Chair                       | Chair                       | Chair                       | Chair                       |
| Automated: Feeding / Unmanned                                 | HMI-panel                   | HMI-panel                   | HMI-panel                   | HMI-panel                   | HMI-panel                   | HMI-panel                   | HMI-panel                   | HMI-panel                   | HMI-panel                   | HMI-panel                   | HMI-panel                   | HMI-panel                   | HMI-panel                   |
| Remote Operation Station (ROS)                                | Optional                    | Optional                    | Optional                    | Optional                    | Optional                    | Optional                    | Optional                    | Optional                    | Optional                    | Optional                    | Optional                    | Optional                    | Optional                    |
| Back-up / Service   | Radio                       | Radio                       | Radio                       | Radio                       | Radio                       | Radio                       | Radio                       | Radio                       | Radio                       | Radio                       | Radio                       | Radio                       | Radio                       |
| Monitoring  |                             |                             |                             |                             |                             |                             |                             |                             |                             |                             |                             |                             |                             |
| Event history recorder in Programmable Logic Controller (PLC) | Standard                    | Standard                    | Standard                    | Standard                    | Standard                    | Standard                    | Standard                    | Standard                    | Standard                    | Standard                    | Standard                    | Standard                    | Standard                    |
| Main User Interface (MUI)                                     | Standard                    | Standard                    | Standard                    | Standard                    | Standard                    | Standard                    | Standard                    | Standard                    | Standard                    | Standard                    | Standard                    | Standard                    | Standard                    |

| Technical data                    |                           |                          |
|-----------------------------------|---------------------------|--------------------------|
| CXT auxiliary hoist, trailer type | CXT5012                   | CXT5012                  |
| Lifting devices                   |                           |                          |
| Dual scoop picking grab           | 0.5 m³                    | 0.5 m³                   |
| Lifting capacity                  |                           |                          |
| Maximum capacity                  | 2.5 t M5                  | 2.5 t M5                 |
| Main dimensions                   |                           |                          |
| Lifting height, max               | 15 m                      | 45 m                     |
| Speeds                            |                           |                          |
| Hoisting speed                    | 16 / 2.7 m/min            | 16 / 2.7 m/min           |
| Electrical systems                |                           |                          |
| Grab power supply                 | Spring powered cable reel | Motor powered cable reel |
| Motor control system              | Konecranes VFD            | Konecranes VFD           |
| Sway control                      | Mechanical                | Mechanical               |

**AUX GRAB**  
for clearing hopper blockages

**VERSATILE SENSORS**  
for full automation

**OPTIONAL**  
centralized lubrication system

**SURFACE HARDENED WHEELS**  
with adjustable alignment for smooth travel



# SLAG HANDLING CRANES

## POWER CABLE INTEGRATED WITH THE DRUM

reduces likelihood of entanglement

## DEEP ROPE GROOVES

and over-wrap detection

## INTEGRATED WEIGHING SYSTEM

## SPACE-SAVING DESIGN

## SLIP RINGS

for feeding power to the grab

## 2/2 ROPE REEVING

and high rope drum/rope ratio

## SURFACE HARDENED WHEELS

with adjustable alignment for smooth travel

## VERSATILE SENSORS

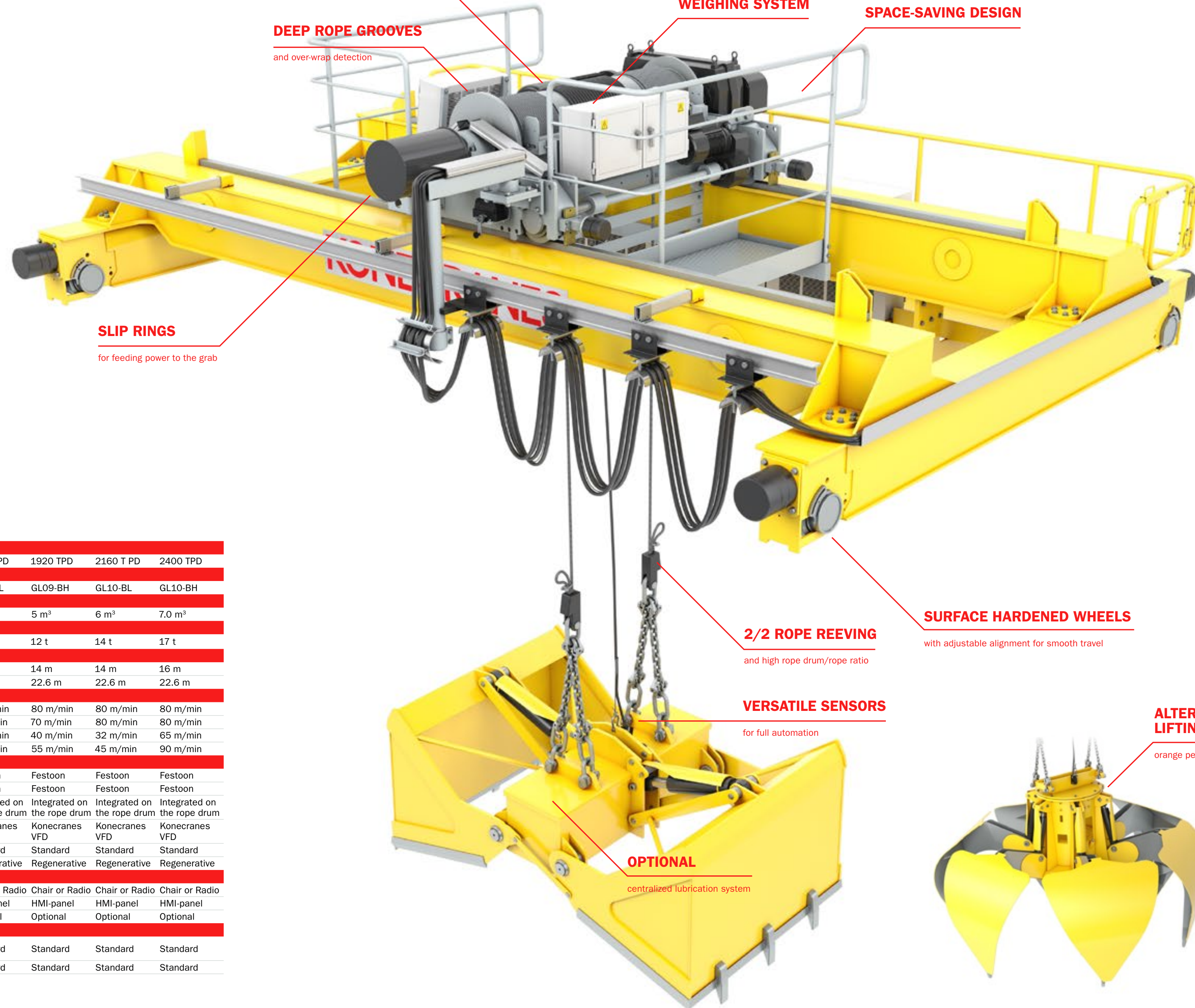
for full automation

## ALTERNATIVE LIFTING DEVICES

orange peel grab for ferrous handling

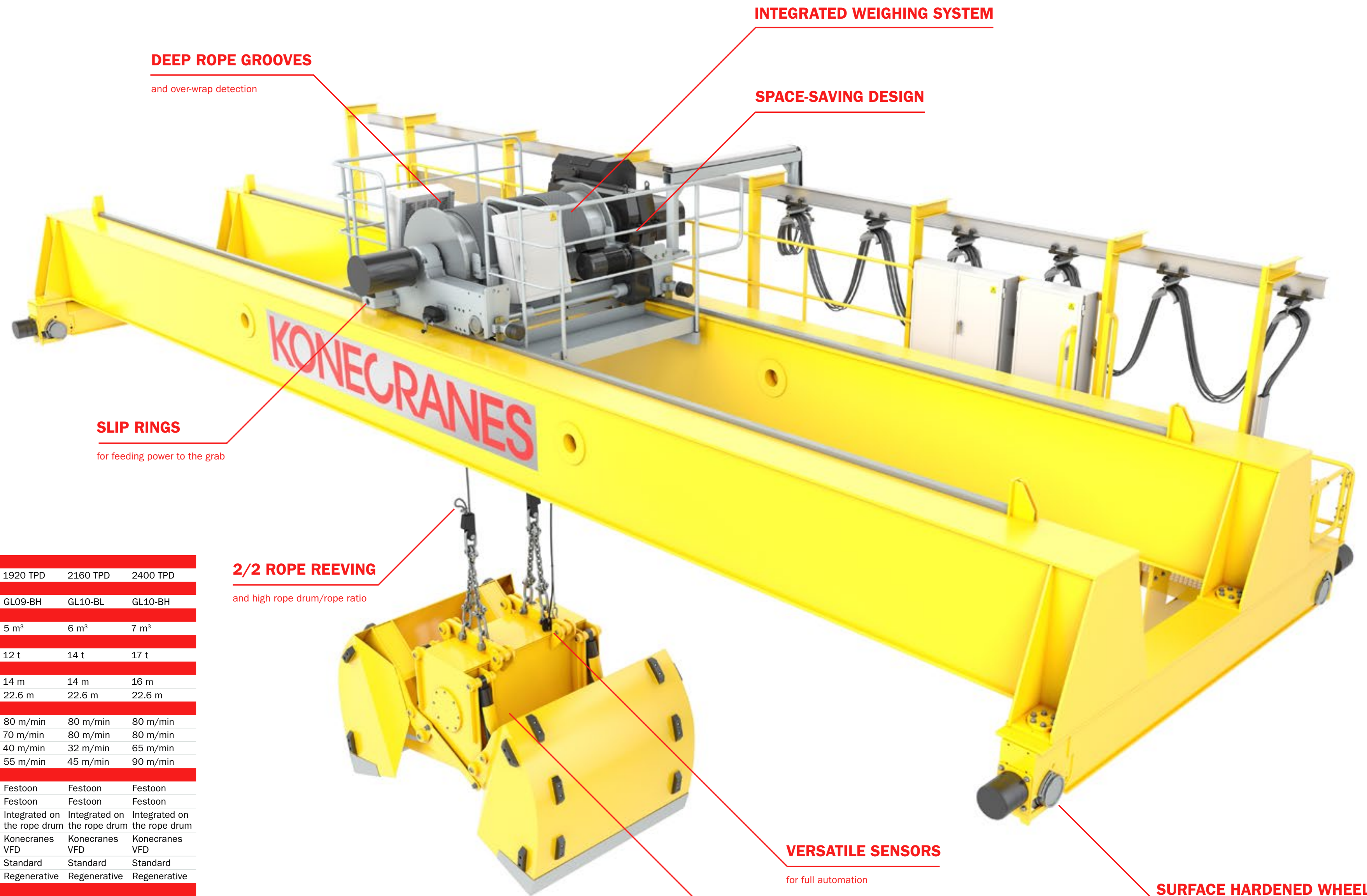
## OPTIONAL

centralized lubrication system



| Technical data  |                             |                             |                             |                             |                             |                             |                             |                             |
|---|-----------------------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|
| Plant nominal capacity  | 720 TPD                     | 960 TPD                     | 1200 TPD                    | 1440 TPD                    | 1680 TPD                    | 1920 TPD                    | 2160 T PD                   | 2400 TPD                    |
| Trolley   |                             |                             |                             |                             |                             |                             |                             |                             |
| Purpose build open winch                                      | GL07-BL                     | GL07-BH                     | GL08-BL                     | GL08-BH                     | GL09-BL                     | GL09-BH                     | GL10-BL                     | GL10-BH                     |
| Lifting devices   |                             |                             |                             |                             |                             |                             |                             |                             |
| Dual scoop grab   | 1.6 m³                      | 2.0 m³                      | 2.5 m³                      | 3.2 m³                      | 4 m³                        | 5 m³                        | 6 m³                        | 7.0 m³                      |
| Lifting capacity  |                             |                             |                             |                             |                             |                             |                             |                             |
| Maximum capacity  | 4 t                         | 5.4 t                       | 6.3 t                       | 8 t                         | 9.5 t                       | 12 t                        | 14 t                        | 17 t                        |
| Main dimensions   |                             |                             |                             |                             |                             |                             |                             |                             |
| Span, typical   | 10 m                        | 10 m                        | 10 m                        | 12 m                        | 12 m                        | 14 m                        | 14 m                        | 16 m                        |
| Lifting height, max   | 22.3 m                      | 22.3 m                      | 22.6 m                      | 22.6 m                      | 22.6 m                      | 22.6 m                      | 22.6 m                      | 22.6 m                      |
| Speeds  |                             |                             |                             |                             |                             |                             |                             |                             |
| Bridge travel speeds  | 60 m/min                    | 60 m/min                    | 60 m/min                    | 80 m/min                    | 80 m/min                    | 80 m/min                    | 80 m/min                    | 80 m/min                    |
| Trolley traversing speeds                                     | 60 m/min                    | 60 m/min                    | 60 m/min                    | 60 m/min                    | 70 m/min                    | 70 m/min                    | 80 m/min                    | 80 m/min                    |
| Hoisting speed with nominal load                              | 30 m/min                    | 42 m/min                    | 40 m/min                    | 32 m/min                    | 50 m/min                    | 40 m/min                    | 32 m/min                    | 65 m/min                    |
| Lowering speed ESR  | 40 m/min                    | 58 m/min                    | 50 m/min                    | 40 m/min                    | 70 m/min                    | 55 m/min                    | 45 m/min                    | 90 m/min                    |
| Electrical systems  |                             |                             |                             |                             |                             |                             |                             |                             |
| Bridge power supply   | Festoon                     | Festoon                     | Festoon                     | Festoon                     | Festoon                     | Festoon                     | Festoon                     | Festoon                     |
| Trolley power supply  | Festoon                     | Festoon                     | Festoon                     | Festoon                     | Festoon                     | Festoon                     | Festoon                     | Festoon                     |
| Grab power supply   | Integrated on the rope drum | Integrated on the rope drum | Integrated on the rope drum | Integrated on the rope drum | Integrated on the rope drum | Integrated on the rope drum | Integrated on the rope drum | Integrated on the rope drum |
| Motor control system  | Konecranes VFD              | Konecranes VFD              | Konecranes VFD              | Konecranes VFD              | Konecranes VFD              | Konecranes VFD              | Konecranes VFD              | Konecranes VFD              |
| Sway control  | Standard                    | Standard                    | Standard                    | Standard                    | Standard                    | Standard                    | Standard                    | Standard                    |
| Electrical braking  | Regenerative                | Regenerative                | Regenerative                | Regenerative                | Regenerative                | Regenerative                | Regenerative                | Regenerative                |
| Control   |                             |                             |                             |                             |                             |                             |                             |                             |
| Manual / Semi-automated                                       | Chair or Radio              | Chair or Radio              | Chair or Radio              | Chair or Radio              | Chair or Radio              | Chair or Radio              | Chair or Radio              | Chair or Radio              |
| Automated: Feeding / Unmanned                                 | HMI-panel                   | HMI-panel                   | HMI-panel                   | HMI-panel                   | HMI-panel                   | HMI-panel                   | HMI-panel                   | HMI-panel                   |
| Remote Operation Station (ROS)                                | Optional                    | Optional                    | Optional                    | Optional                    | Optional                    | Optional                    | Optional                    | Optional                    |
| Monitoring  |                             |                             |                             |                             |                             |                             |                             |                             |
| Event history recorder in Programmable Logic Controller (PLC) | Standard                    | Standard                    | Standard                    | Standard                    | Standard                    | Standard                    | Standard                    | Standard                    |
| Main User Interface (MUI)                                     | Standard                    | Standard                    | Standard                    | Standard                    | Standard                    | Standard                    | Standard                    | Standard                    |

# SLUDGE HANDLING CRANES



| Technical data  |                             |                             |                             |                             |                             |                             |                             |                             |
|---|-----------------------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|
| Plant nominal capacity  | 720 TPD                     | 960 TPD                     | 1200 TPD                    | 1440 TPD                    | 1680 TPD                    | 1920 TPD                    | 2160 TPD                    | 2400 TPD                    |
| Trolley   |                             |                             |                             |                             |                             |                             |                             |                             |
| Purpose build open winch                                      | GL07-BL                     | GL07-BH                     | GL08-BL                     | GL08-BH                     | GL09-BL                     | GL09-BH                     | GL10-BL                     | GL10-BH                     |
| Lifting devices   |                             |                             |                             |                             |                             |                             |                             |                             |
| Dual scoop grab   | 1.6 m <sup>3</sup>          | 2.0 m <sup>3</sup>          | 2.5 m <sup>3</sup>          | 3.2 m <sup>3</sup>          | 4 m <sup>3</sup>            | 5 m <sup>3</sup>            | 6 m <sup>3</sup>            | 7 m <sup>3</sup>            |
| Lifting capacity  |                             |                             |                             |                             |                             |                             |                             |                             |
| Maximum capacity  | 4 t                         | 5.4 t                       | 6.3 t                       | 8 t                         | 9.5 t                       | 12 t                        | 14 t                        | 17 t                        |
| Main dimensions   |                             |                             |                             |                             |                             |                             |                             |                             |
| Span, typical   | 10 m                        | 10 m                        | 10 m                        | 12 m                        | 12 m                        | 14 m                        | 14 m                        | 16 m                        |
| Lifting height, max   | 22.3 m                      | 22.3 m                      | 22.6 m                      | 22.6 m                      | 22.6 m                      | 22.6 m                      | 22.6 m                      | 22.6 m                      |
| Speeds  |                             |                             |                             |                             |                             |                             |                             |                             |
| Bridge travel speed   | 60 m/min                    | 60 m/min                    | 60 m/min                    | 80 m/min                    | 80 m/min                    | 80 m/min                    | 80 m/min                    | 80 m/min                    |
| Trolley traversing speed                                      | 60 m/min                    | 60 m/min                    | 60 m/min                    | 60 m/min                    | 70 m/min                    | 70 m/min                    | 80 m/min                    | 80 m/min                    |
| Hoisting speed with nominal load                              | 30 m/min                    | 42 m/min                    | 40 m/min                    | 32 m/min                    | 50 m/min                    | 40 m/min                    | 32 m/min                    | 65 m/min                    |
| Lowering speed ESR  | 40 m/min                    | 58 m/min                    | 50 m/min                    | 40 m/min                    | 70 m/min                    | 55 m/min                    | 45 m/min                    | 90 m/min                    |
| Electrical systems  |                             |                             |                             |                             |                             |                             |                             |                             |
| Bridge power supply   | Festoon                     | Festoon                     | Festoon                     | Festoon                     | Festoon                     | Festoon                     | Festoon                     | Festoon                     |
| Trolley power supply  | Festoon                     | Festoon                     | Festoon                     | Festoon                     | Festoon                     | Festoon                     | Festoon                     | Festoon                     |
| Grab power supply   | Integrated on the rope drum | Integrated on the rope drum | Integrated on the rope drum | Integrated on the rope drum | Integrated on the rope drum | Integrated on the rope drum | Integrated on the rope drum | Integrated on the rope drum |
| Motor control system  | Konecranes VFD              | Konecranes VFD              | Konecranes VFD              | Konecranes VFD              | Konecranes VFD              | Konecranes VFD              | Konecranes VFD              | Konecranes VFD              |
| Sway control  | Standard                    | Standard                    | Standard                    | Standard                    | Standard                    | Standard                    | Standard                    | Standard                    |
| Electrical braking  | Regenerative                | Regenerative                | Regenerative                | Regenerative                | Regenerative                | Regenerative                | Regenerative                | Regenerative                |
| Control   |                             |                             |                             |                             |                             |                             |                             |                             |
| Manual / Semi-automated                                       | Chair or Radio              | Chair or Radio              | Chair or Radio              | Chair or Radio              | Chair or Radio              | Chair or Radio              | Chair or Radio              | Chair or Radio              |
| Automated: Feeding / Unmanned                                 | HMI-panel                   | HMI-panel                   | HMI-panel                   | HMI-panel                   | HMI-panel                   | HMI-panel                   | HMI-panel                   | HMI-panel                   |
| Remote Operation Station (ROS)                                | Optional                    | Optional                    | Optional                    | Optional                    | Optional                    | Optional                    | Optional                    | Optional                    |
| Monitoring  |                             |                             |                             |                             |                             |                             |                             |                             |
| Event history recorder in Programmable Logic Controller (PLC) | Standard                    | Standard                    | Standard                    | Standard                    | Standard                    | Standard                    | Standard                    | Standard                    |
| Main User Interface (MUI)                                     | Standard                    | Standard                    | Standard                    | Standard                    | Standard                    | Standard                    | Standard                    | Standard                    |

## 2/2 ROPE REEVING

and high rope drum/rope ratio

## INTEGRATED WEIGHING SYSTEM

## SPACE-SAVING DESIGN

## DEEP ROPE GROOVES

and over-wrap detection

## SLIP RINGS

for feeding power to the grab

## VERSATILE SENSORS

for full automation

## SURFACE HARDENED WHEELS

with adjustable alignment for smooth travel

## OPTIONAL

centralized lubrication system

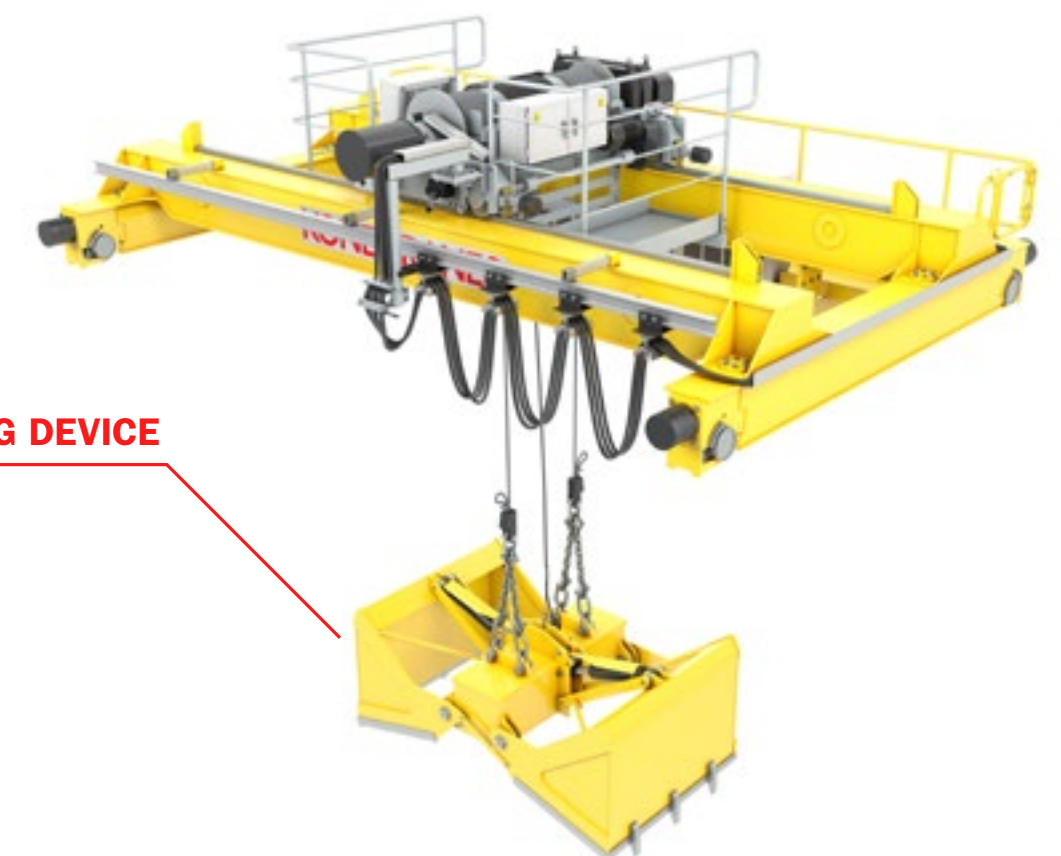
**POWER CABLE INTEGRATED WITH THE DRUM**

reduces likelihood of entanglement

# HEAVY DUTY BIOMASS CRANES



| Technical data  |                             |                             |                             |                             |                             |                             |                             |                             |
|---|-----------------------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|
| Plant nominal capacity  | 360 m³/d                    | 528 m³/d                    | 735 m³/d                    | 1020 m³/d                   | 1224 m³/d                   | 1440 m³/d                   | 1680 m³/d                   | 2400 m³/d                   |
| Trolley   |                             |                             |                             |                             |                             |                             |                             |                             |
| Purpose build open winch                                      | GL07-BL                     | GL07-BH                     | GL08-BL                     | GL08-BH                     | GL09-BL                     | GL09-BH                     | GL10-BL                     | GL10-BH                     |
| Lifting devices   |                             |                             |                             |                             |                             |                             |                             |                             |
| Orange peel grab  | 2.5 m³                      | 3.2 m³                      | 5 m³                        | 6.3 m³                      | 8 m³                        | 10 m³                       | 12 m³                       | 14.5 m³                     |
| Lifting capacity  |                             |                             |                             |                             |                             |                             |                             |                             |
| Maximum capacity  | 4.5 t                       | 5.4 t                       | 6.3 t                       | 8 t                         | 9.5 t                       | 12 t                        | 14 t                        | 17 t                        |
| Main dimensions   |                             |                             |                             |                             |                             |                             |                             |                             |
| Span, typical   | 18 m                        | 22 m                        | 22 m                        | 24 m                        | 24 m                        | 24 m                        | 24 m                        | 24 m                        |
| Lifting height, max   | 22.3 m                      | 22.3 m                      | 22.6 m                      | 22.6 m                      | 22.6 m                      | 22.6 m                      | 22.6 m                      | 22.6 m                      |
| Speeds  |                             |                             |                             |                             |                             |                             |                             |                             |
| Bridge travel speed   | 60 m/min                    | 60 m/min                    | 60 m/min                    | 80 m/min                    | 80 m/min                    | 80 m/min                    | 80 m/min                    | 100 m/min                   |
| Trolley traversing speed                                      | 60 m/min                    | 60 m/min                    | 60 m/min                    | 60 m/min                    | 70 m/min                    | 70 m/min                    | 80 m/min                    | 80 m/min                    |
| Hoisting speed with nominal load                              | 30 m/min                    | 42 m/min                    | 40 m/min                    | 32 m/min                    | 50 m/min                    | 40 m/min                    | 32 m/min                    | 65 m/min                    |
| Lowering speed ESR  | 40 m/min                    | 58 m/min                    | 50 m/min                    | 40 m/min                    | 70 m/min                    | 55 m/min                    | 45 m/min                    | 90 m/min                    |
| Electrical systems  |                             |                             |                             |                             |                             |                             |                             |                             |
| Bridge power supply   | Festoon                     | Festoon                     | Festoon                     | Festoon                     | Festoon                     | Festoon                     | Festoon                     | Festoon                     |
| Trolley power supply  | Festoon                     | Festoon                     | Festoon                     | Festoon                     | Festoon                     | Festoon                     | Festoon                     | Festoon                     |
| Grab power supply   | Integrated on the rope drum | Integrated on the rope drum | Integrated on the rope drum | Integrated on the rope drum | Integrated on the rope drum | Integrated on the rope drum | Integrated on the rope drum | Integrated on the rope drum |
| Motor control system  | Konecranes VFD              | Konecranes VFD              | Konecranes VFD              | Konecranes VFD              | Konecranes VFD              | Konecranes VFD              | Konecranes VFD              | Konecranes VFD              |
| Sway control  | Standard                    | Standard                    | Standard                    | Standard                    | Standard                    | Standard                    | Standard                    | Standard                    |
| Electrical braking  | Regenerative                | Regenerative                | Regenerative                | Regenerative                | Regenerative                | Regenerative                | Regenerative                | Regenerative                |
| Control   |                             |                             |                             |                             |                             |                             |                             |                             |
| Manual / Semi-automated                                       | Radio                       | Radio                       | Radio                       | Radio                       | Radio                       | Radio                       | Radio                       | Radio                       |
| Automated: Feeding / Unmanned                                 | HMI-panel                   | HMI-panel                   | HMI-panel                   | HMI-panel                   | HMI-panel                   | HMI-panel                   | HMI-panel                   | HMI-panel                   |
| Remote Operation Station (ROS)                                | Optional                    | Optional                    | Optional                    | Optional                    | Optional                    | Optional                    | Optional                    | Optional                    |
| Monitoring  |                             |                             |                             |                             |                             |                             |                             |                             |
| Event history recorder in Programmable Logic Controller (PLC) | Standard                    | Standard                    | Standard                    | Standard                    | Standard                    | Standard                    | Standard                    | Standard                    |
| Main User Interface (MUI)                                     | Standard                    | Standard                    | Standard                    | Standard                    | Standard                    | Standard                    | Standard                    | Standard                    |



**ALTERNATIVE LIFTING DEVICE**

dual-scoop grab

# STANDARD DUTY BIOMASS HANDLING CRANES

## CONTROL PANELS

on the crane or in a remote room

## MOTORIZED CABLE REEL

for grab power feeding

## PURPOSE-BUILT STANDARD HOIST

for biomass handling

## 4/2 REEVING

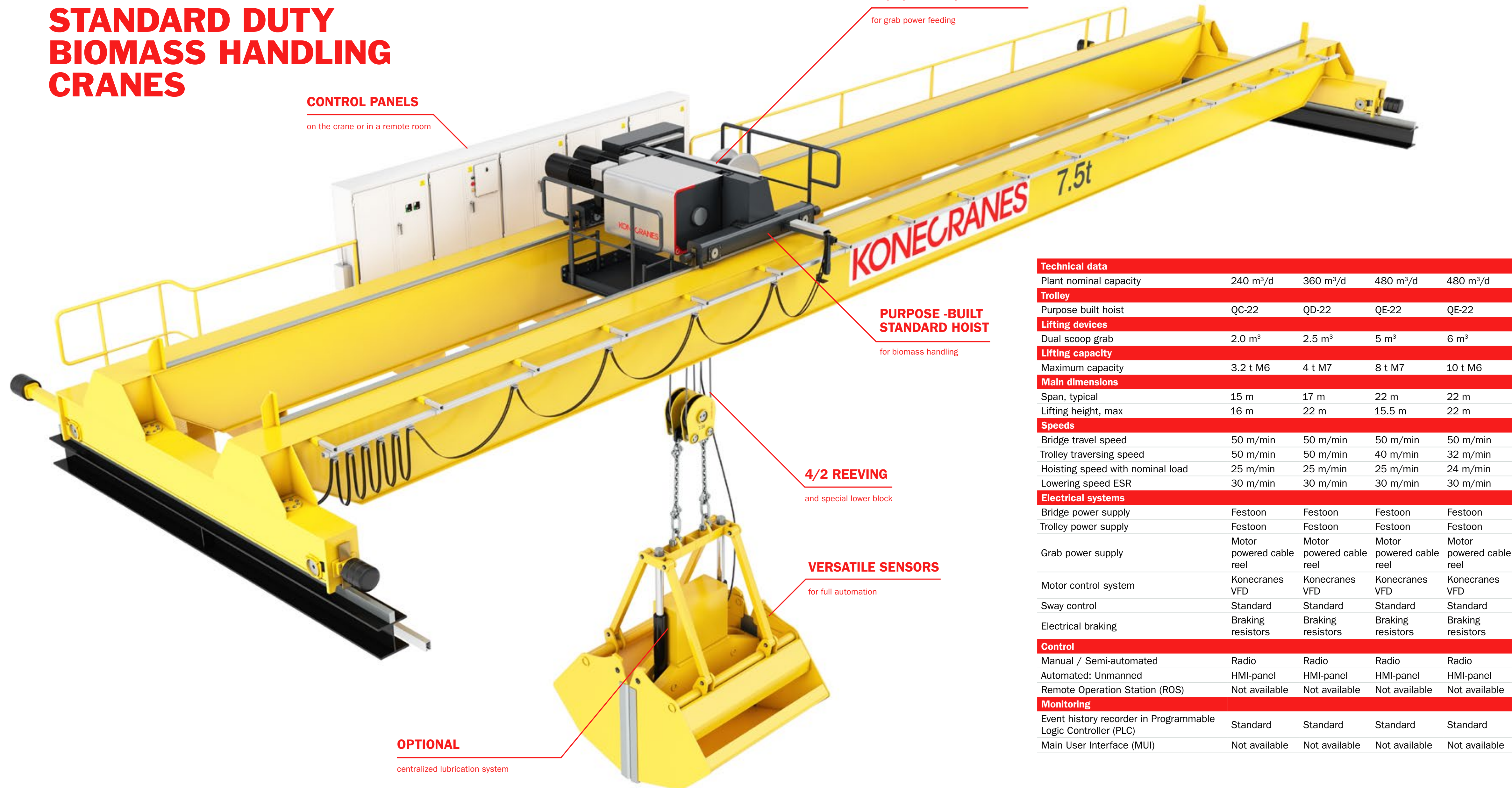
and special lower block

## VERSATILE SENSORS

for full automation

## OPTIONAL

centralized lubrication system



| Technical data  |                          |                          |                          |                          |
|---|--------------------------|--------------------------|--------------------------|--------------------------|
| Plant nominal capacity  | 240 m³/d                 | 360 m³/d                 | 480 m³/d                 | 480 m³/d                 |
| Trolley   |                          |                          |                          |                          |
| Purpose built hoist   | QC-22                    | QD-22                    | QE-22                    | QE-22                    |
| Lifting devices   |                          |                          |                          |                          |
| Dual scoop grab   | 2.0 m³                   | 2.5 m³                   | 5 m³                     | 6 m³                     |
| Lifting capacity  |                          |                          |                          |                          |
| Maximum capacity  | 3.2 t M6                 | 4 t M7                   | 8 t M7                   | 10 t M6                  |
| Main dimensions   |                          |                          |                          |                          |
| Span, typical   | 15 m                     | 17 m                     | 22 m                     | 22 m                     |
| Lifting height, max   | 16 m                     | 22 m                     | 15.5 m                   | 22 m                     |
| Speeds  |                          |                          |                          |                          |
| Bridge travel speed   | 50 m/min                 | 50 m/min                 | 50 m/min                 | 50 m/min                 |
| Trolley traversing speed                                      | 50 m/min                 | 50 m/min                 | 40 m/min                 | 32 m/min                 |
| Hoisting speed with nominal load                              | 25 m/min                 | 25 m/min                 | 25 m/min                 | 24 m/min                 |
| Lowering speed ESR  | 30 m/min                 | 30 m/min                 | 30 m/min                 | 30 m/min                 |
| Electrical systems  |                          |                          |                          |                          |
| Bridge power supply   | Festoon                  | Festoon                  | Festoon                  | Festoon                  |
| Trolley power supply  | Festoon                  | Festoon                  | Festoon                  | Festoon                  |
| Grab power supply   | Motor powered cable reel | Motor powered cable reel | Motor powered cable reel | Motor powered cable reel |
| Motor control system  | Konecranes VFD           | Konecranes VFD           | Konecranes VFD           | Konecranes VFD           |
| Sway control  | Standard                 | Standard                 | Standard                 | Standard                 |
| Electrical braking  | Braking resistors        | Braking resistors        | Braking resistors        | Braking resistors        |
| Control   |                          |                          |                          |                          |
| Manual / Semi-automated                                       | Radio                    | Radio                    | Radio                    | Radio                    |
| Automated: Unmanned   | HMI-panel                | HMI-panel                | HMI-panel                | HMI-panel                |
| Remote Operation Station (ROS)                                | Not available            | Not available            | Not available            | Not available            |
| Monitoring  |                          |                          |                          |                          |
| Event history recorder in Programmable Logic Controller (PLC) | Standard                 | Standard                 | Standard                 | Standard                 |
| Main User Interface (MUI)                                     | Not available            | Not available            | Not available            | Not available            |

# TURBINE ROOM MAINTENANCE CRANES

## Technical data

| Trolley type | Standard double girder hoist | Standard double girder hoist | Standard double girder hoist |
|--------------|------------------------------|------------------------------|------------------------------|
|--------------|------------------------------|------------------------------|------------------------------|

## Lifting capacity

|                  |      |      |      |
|------------------|------|------|------|
| Maximum capacity | 20 t | 30 t | 40 t |
|------------------|------|------|------|

## Main dimensions

|               |         |         |         |
|---------------|---------|---------|---------|
| Span, typical | 15-25 m | 15-25 m | 15-25 m |
|---------------|---------|---------|---------|

|                         |      |      |      |
|-------------------------|------|------|------|
| Lifting height, typical | 15 m | 15 m | 15 m |
|-------------------------|------|------|------|

## Speeds

|                              |          |          |          |
|------------------------------|----------|----------|----------|
| Bridge travel speed, typical | 40 m/min | 40 m/min | 40 m/min |
|------------------------------|----------|----------|----------|

|                                   |          |          |          |
|-----------------------------------|----------|----------|----------|
| Trolley traversing speed, typical | 20 m/min | 20 m/min | 20 m/min |
|-----------------------------------|----------|----------|----------|

|                         |                |                |                |
|-------------------------|----------------|----------------|----------------|
| Hoisting speed, typical | 4 / 0.67 m/min | 4 / 0.67 m/min | 4 / 0.67 m/min |
|-------------------------|----------------|----------------|----------------|

## Electrical systems

|                     |                |                |                |
|---------------------|----------------|----------------|----------------|
| Bridge power supply | Conductor rail | Conductor rail | Conductor rail |
|---------------------|----------------|----------------|----------------|

|                      |                         |                         |                         |
|----------------------|-------------------------|-------------------------|-------------------------|
| Trolley power supply | Festoon or Energy chain | Festoon or Energy chain | Festoon or Energy chain |
|----------------------|-------------------------|-------------------------|-------------------------|

|                      |                |                |                |
|----------------------|----------------|----------------|----------------|
| Motor control system | Konecranes VFD | Konecranes VFD | Konecranes VFD |
|----------------------|----------------|----------------|----------------|

|              |          |          |          |
|--------------|----------|----------|----------|
| Sway control | Optional | Optional | Optional |
|--------------|----------|----------|----------|

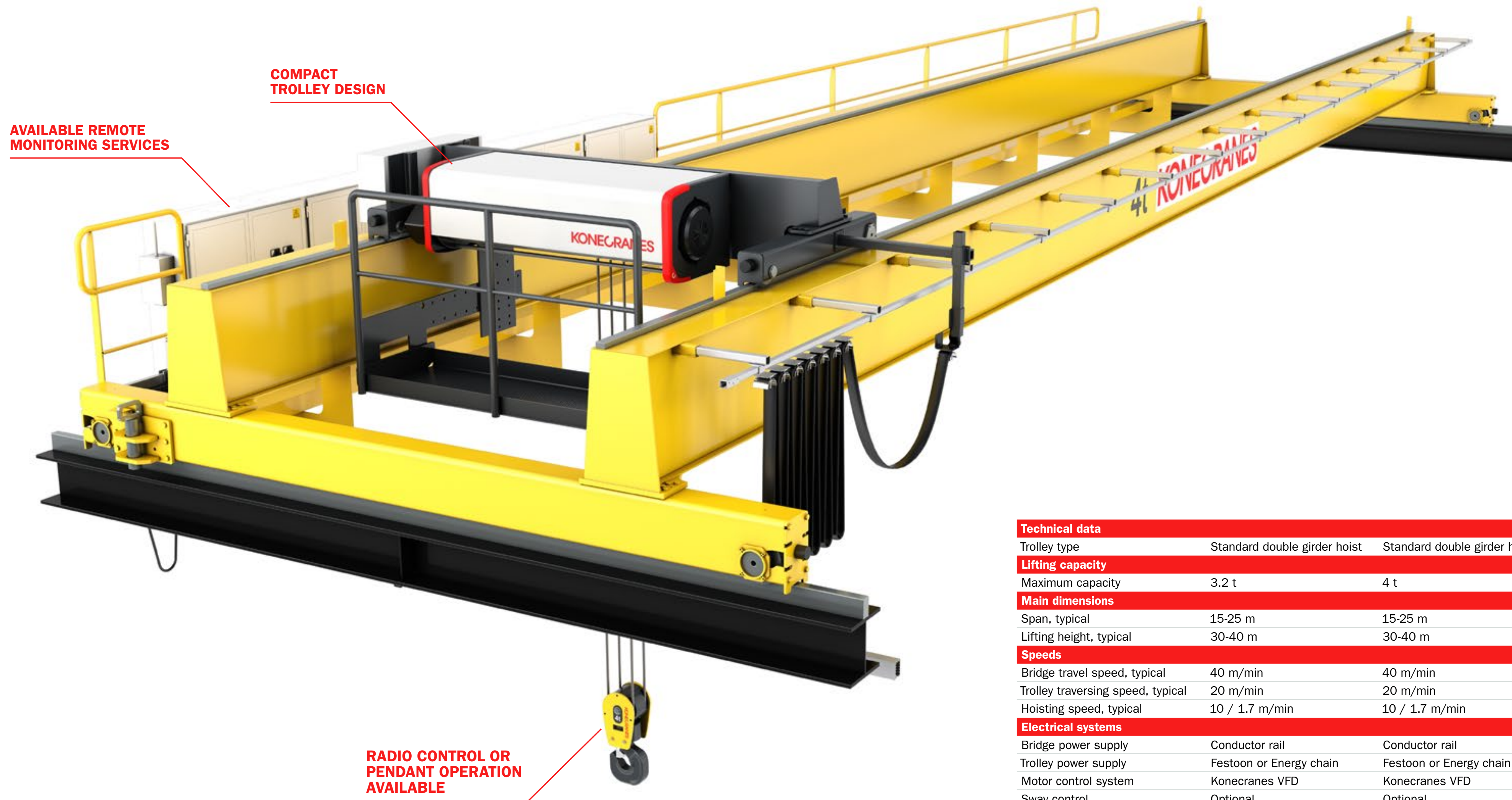
## Control

|        |                  |                  |                  |
|--------|------------------|------------------|------------------|
| Manual | Radio or Pendant | Radio or Pendant | Radio or Pendant |
|--------|------------------|------------------|------------------|

24.0 t

KONECRANES

# MAINTENANCE CRANES



| Technical data                    |                              |                              |                              |
|-----------------------------------|------------------------------|------------------------------|------------------------------|
| Trolley type                      | Standard double girder hoist | Standard double girder hoist | Standard double girder hoist |
| Lifting capacity                  |                              |                              |                              |
| Maximum capacity                  | 3.2 t                        | 4 t                          | 5                            |
| Main dimensions                   |                              |                              |                              |
| Span, typical                     | 15-25 m                      | 15-25 m                      | 15-25 m                      |
| Lifting height, typical           | 30-40 m                      | 30-40 m                      | 30-40 m                      |
| Speeds                            |                              |                              |                              |
| Bridge travel speed, typical      | 40 m/min                     | 40 m/min                     | 40 m/min                     |
| Trolley traversing speed, typical | 20 m/min                     | 20 m/min                     | 20 m/min                     |
| Hoisting speed, typical           | 10 / 1.7 m/min               | 10 / 1.7 m/min               | 10 / 1.7 m/min               |
| Electrical systems                |                              |                              |                              |
| Bridge power supply               | Conductor rail               | Conductor rail               | Conductor rail               |
| Trolley power supply              | Festoon or Energy chain      | Festoon or Energy chain      | Festoon or Energy chain      |
| Motor control system              | Konecranes VFD               | Konecranes VFD               | Konecranes VFD               |
| Sway control                      | Optional                     | Optional                     | Optional                     |
| Control                           |                              |                              |                              |
| Manual                            | Radio or Pendant             | Radio or Pendant             | Radio or Pendant             |

# GENERAL-PURPOSE AND MAINTENANCE CRANES

The Konecranes WtE industry offering includes standard cranes and hoists that are suited for the lifting work you need to do in your waste-to-energy plant. Our field-proven designs are constantly updated with the latest lifting technology to provide devices that are fitted for the various tasks of your plant.

These two pages show just a small selection of the general-purpose and maintenance cranes available from Konecranes. They have been chosen as a representative sample of those most often used by our customers in waste-to-energy. A large selection of optional features provides the flexibility to tailor these cranes to your specific applications. Duty classification, speed, and control methods are just a few of the many parameters that can be selected for your particular operation.

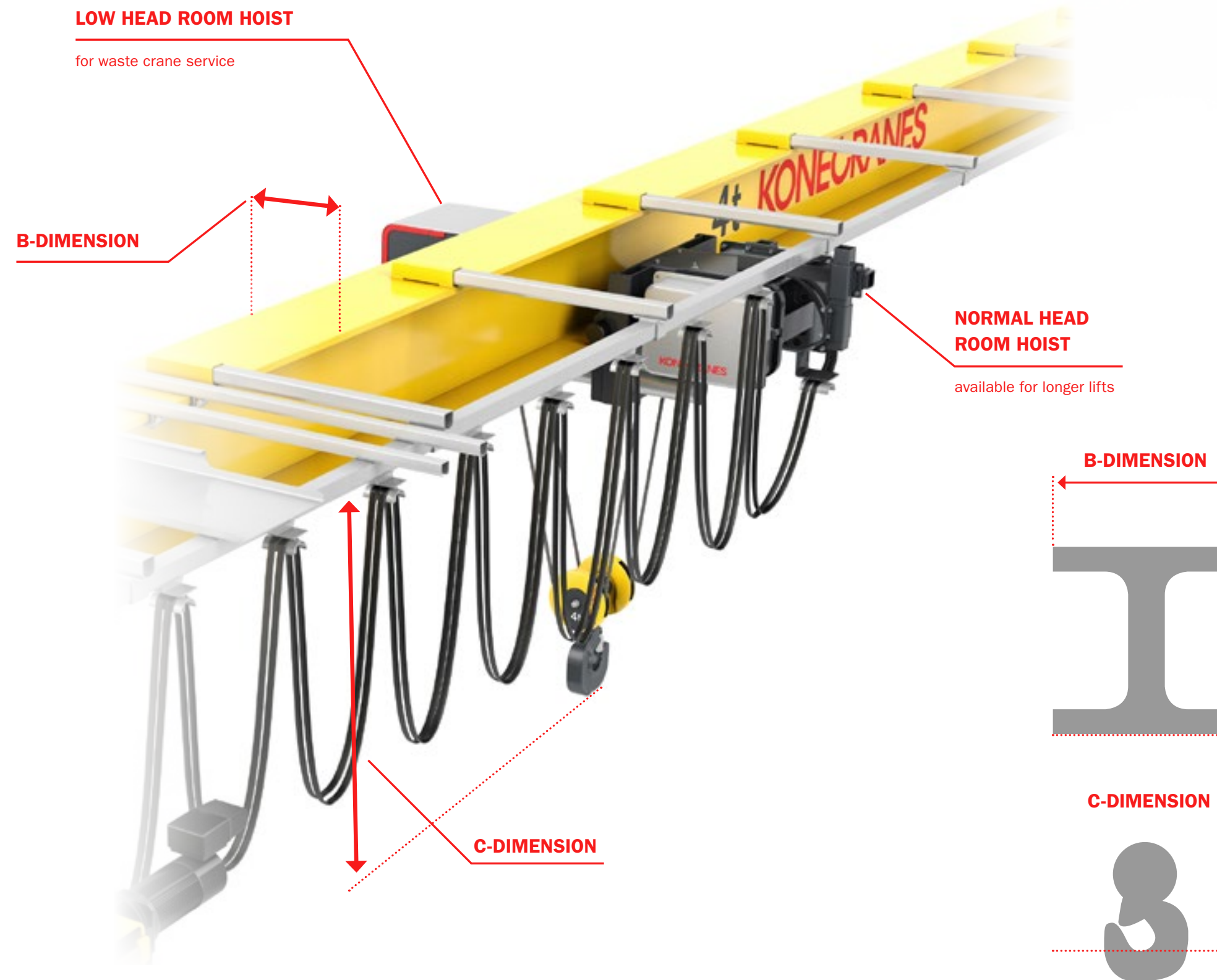


### JIB CRANES

Konecranes jib cranes are very easy to install, use, and even relocate in your work environment. Their standard capacity is up to 2 tons, so their application can adapt to your changing needs.



**TRUCONNECT Remote Monitoring** provides you with actual usage data that enables you to optimize maintenance activities. The data gives you the confidence to plan your actions and make informed decisions regarding maintenance investments and productivity.



### MONORAIL MAINTENANCE HOISTS

| Technical data                                 | Monorail hoist CXT4021             | Monorail hoist CXT4021             | Monorail hoist CXT5021             |
|--|------------------------------------|------------------------------------|------------------------------------|
| <b>Trolley type</b>                            | Monorail hoist CXT4021             | Monorail hoist CXT4021             | Monorail hoist CXT5021             |
| <b>Lifting capacity</b>                        |                                    |                                    |                                    |
| Maximum capacity                               | 2.5 t                              | 3.2 t                              | 5 t                                |
| <b>Main dimensions</b>                         |                                    |                                    |                                    |
| Lifting height, max for low headroom           | 24 m                               | 24 m                               | 32 m                               |
| C-dimension: distance from beam flange to hook | C=465 mm                           | C=465 mm                           | C=570 mm                           |
| B-dimension: beam flange width, typical        | B=300 mm                           | B=300 mm                           | B=400 mm                           |
| Lifting height, max for normal headroom        | 30 m                               | 30 m                               | 40 m                               |
| C-dimension: distance from beam to hook        | C=835 mm                           | C=835 mm                           | C=1056 mm                          |
| B-dimension: beam flange width, typical        | B=300 mm                           | B=300 mm                           | B=400 mm                           |
| <b>Speeds</b>                                  |                                    |                                    |                                    |
| Trolley traversing speeds, typical             | 20 / 5 m/min                       | 20 / 5 m/min                       | 20 / 5 m/min                       |
| Hoisting speed, typical                        | 10 / 1.7 m/min                     | 8 / 1.3 m/min                      | 10 / 1.7 m/min                     |
| <b>Electrical systems</b>                      |                                    |                                    |                                    |
| Trolley power supply                           | Enclosed conductor rail or Festoon | Enclosed conductor rail or Festoon | Enclosed conductor rail or Festoon |
| Motor control system                           | Konecranes VFD                     | Konecranes VFD                     | Konecranes VFD                     |
| <b>Control</b>                                 |                                    |                                    |                                    |
| Manual   | Radio                              | Radio                              | Radio                              |



### CHAIN HOISTS

Konecranes CLX chain hoists are flexible and durable in industrial applications. With variable speeds and a lifting capacity ranging from 60 kg to 5,000 kg, they are extremely versatile and long-lasting.

# CONTAINER CRANES

## REGENERATIVE POWER FEEDBACK

with components similar to those of the drive system

## OPERATOR ROOM WITH EXCELLENT VISIBILITY

## SAFE CRANE ACCESS

## SWAY CONTROL

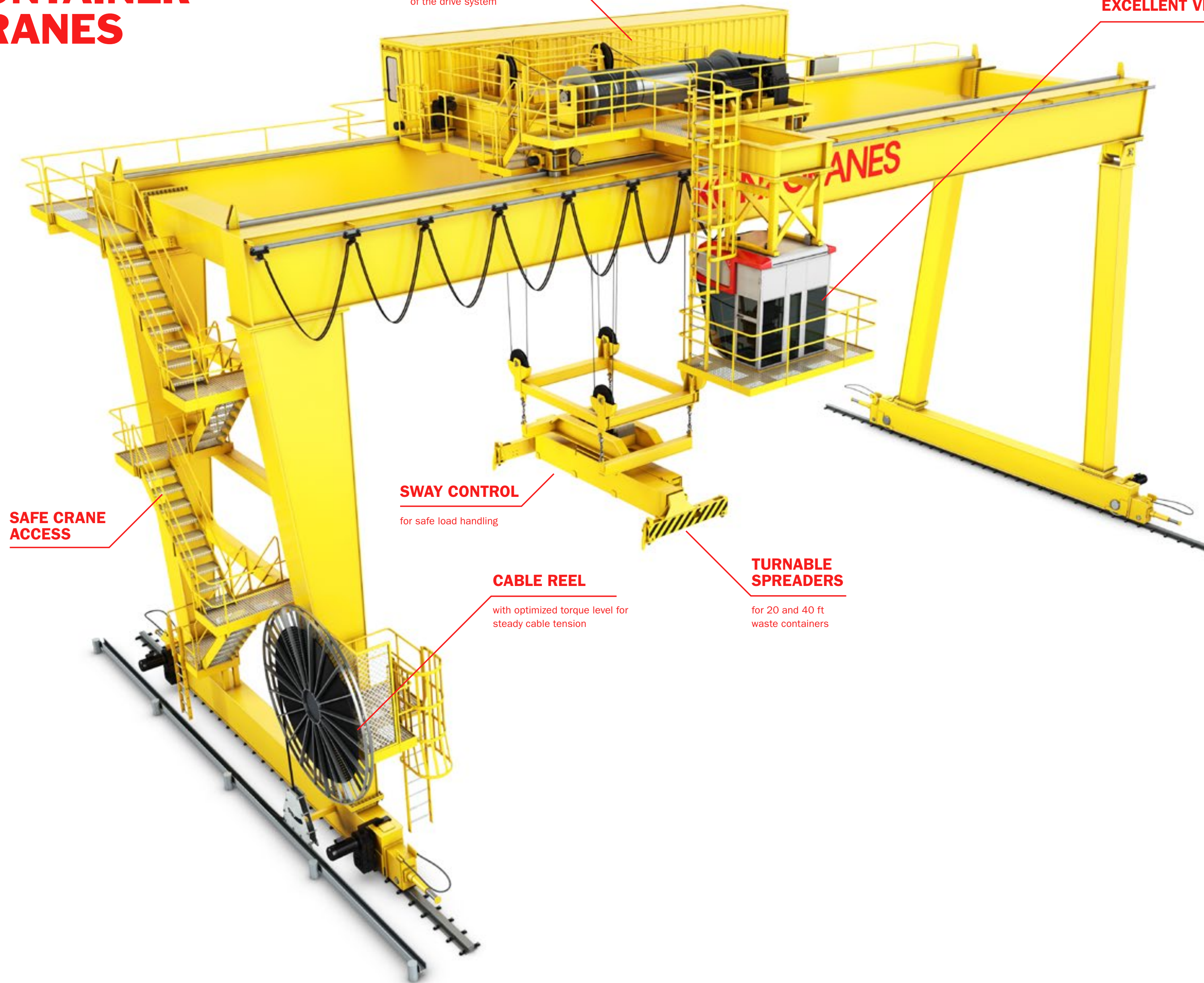
for safe load handling

## CABLE REEL

with optimized torque level for steady cable tension

## TURNABLE SPREADERS

for 20 and 40 ft waste containers



| Technical data  |  |  |  |
|---|--|--|--|
| Container handling at   | Port terminal                              | Railway terminal                           | Railway terminal                           |
| Trolley   |  |  |  |
| Trolley type  | Tailored open winch                        | Tailored open winch                        | Tailored open winch                        |
| Lifting devices   |  |  |  |
| Container spreader, typical                                   | 20ft                                       | 20ft                                       | 20ft / 40ft                                |
| Lifting capacity  |  |  |  |
| Crane capacity, typical                                       | 25 t                                       | 25 t                                       | 30 t                                       |
| Main dimensions   |  |  |  |
| Span, typical   | 10 m                                       | 25 m                                       | 25 m                                       |
| Cantilevers, on one or both sides                             | 8,5 m                                      |  |  |
| Maximum outreach  |  |  |  |
| Lifting height, typical                                       | 1 over 1                                   | 1 over 2                                   | 1 over 3                                   |
| Speeds  |  |  |  |
| Gantry travel speed   | 60 m/min                                   | 60 m/min                                   | 60 m/min                                   |
| Trolley traversing speed                                      | 60 m/min                                   | 60 m/min                                   | 40 m/min                                   |
| Hoisting speed with nominal load                              | 25 m/min                                   | 24 m/min                                   | 20 m/min                                   |
| Electrical systems  |  |  |  |
| Gantry power supply   | Motor powered cable reel or conductor rail | Motor powered cable reel or conductor rail | Motor powered cable reel or conductor rail |
| Trolley power supply  | Festoon or Energy chain                    | Festoon or Energy chain                    | Festoon or Energy chain                    |
| Spreader power supply   | Motor powered cable reel or basket         | Motor powered cable reel or basket         | Motor powered cable reel or basket         |
| Motor control system  | Konecranes VFD                             | Konecranes VFD                             | Konecranes VFD                             |
| Sway control  | Standard                                   | Standard                                   | Standard                                   |
| Electrical braking  | Regenerative                               | Regenerative                               | Regenerative                               |
| Control   |  |  |  |
| Manual / Semi-automated                                       | Cabin                                      | Cabin                                      | Cabin                                      |
| Monitoring  |  |  |  |
| Event history recorder in Programmable Logic Controller (PLC) | Standard                                   | Standard                                   | Standard                                   |
| Crane Monitoring System (CMS) / Main User Interface (MUI)     | Optional                                   | Optional                                   | Optional                                   |
| Warehouse Management System (WMS)                             | Optional                                   | Optional                                   | Optional                                   |



# STRAWBALE HANDLING CRANES

## GUIDE ROLLERS AND LASERS

for accurate positioning

## FIXED HOISTING MACHINERY

## MOTORIZED CABLE REEL

## WLAN COMMUNICATION

between conveyor and bale yoke

## MECHANICAL SWAY CONTROL

## SURFACE HARDENED WHEELS

with adjustable alignment for smooth travel

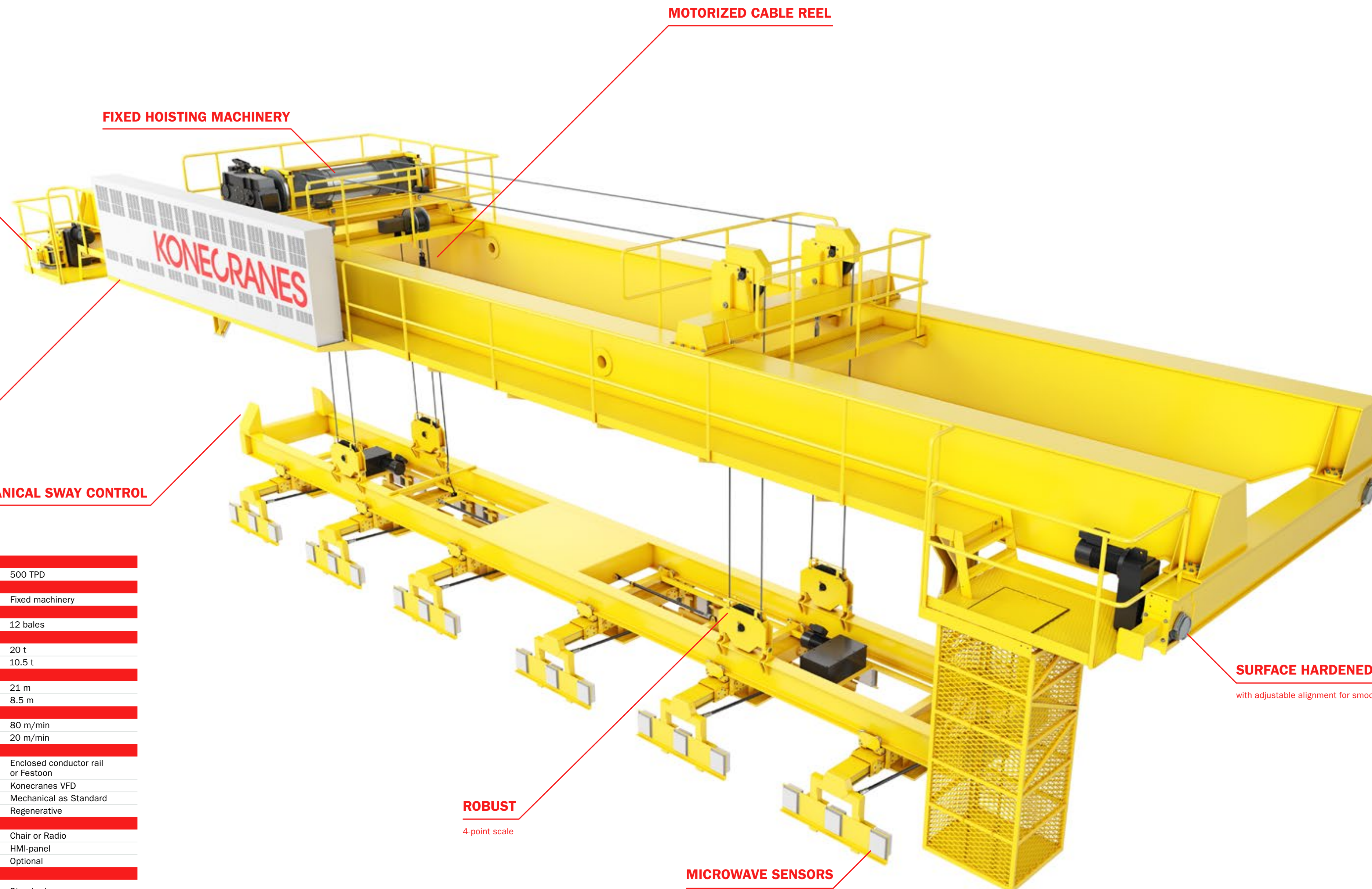
## ROBUST

4-point scale

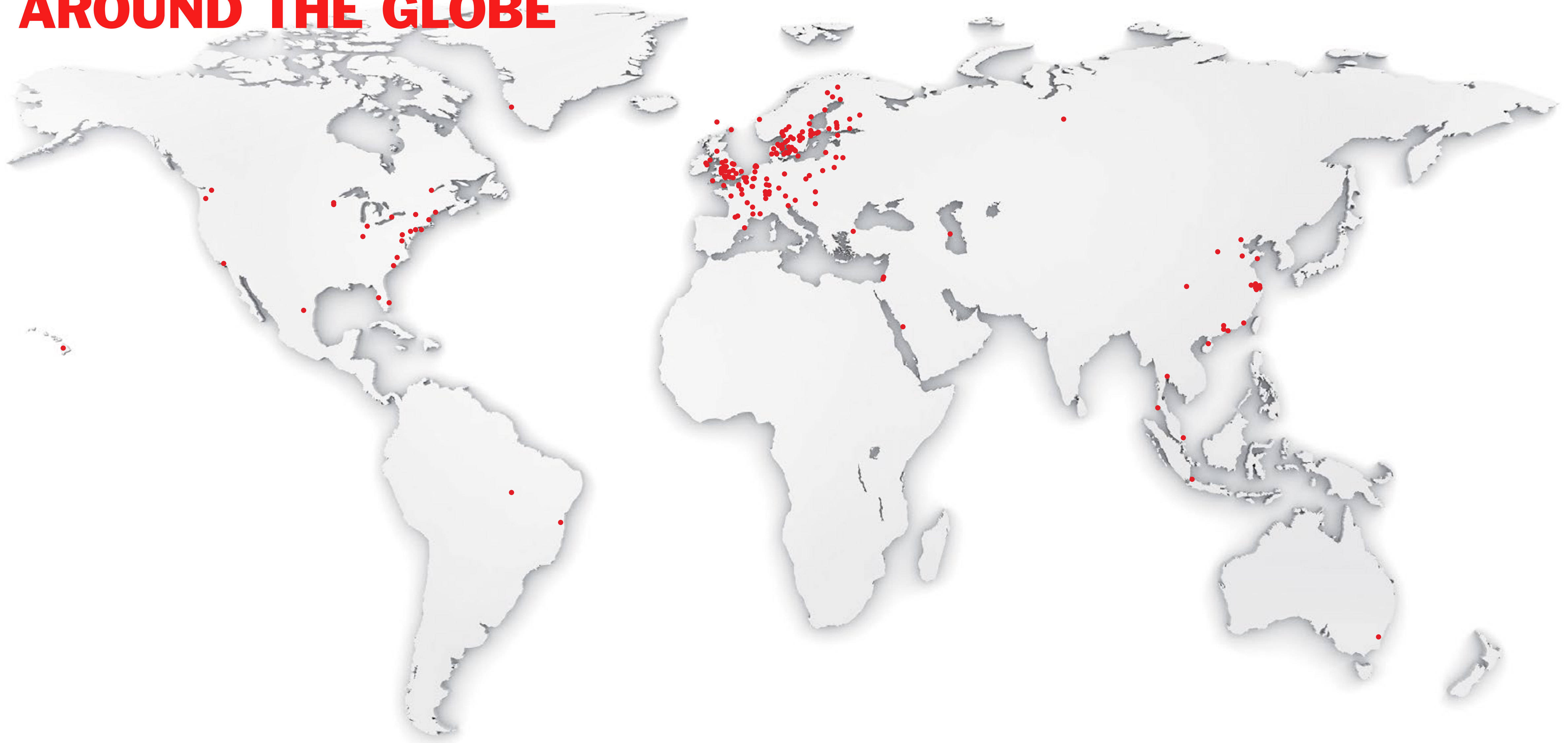
## MICROWAVE SENSORS

for moisture control

| Technical data  |                                    |                                    |
|---|------------------------------------|------------------------------------|
| Plant nominal capacity  | 400 TPD                            | 500 TPD                            |
| Trolley   |                                    |                                    |
| Tailored open winch   | Fixed machinery                    | Fixed machinery                    |
| Lifting devices   |                                    |                                    |
| Bale yoke   | 10 bales                           | 12 bales                           |
| Lifting capacity  |                                    |                                    |
| Crane capacity, typical                                       | 15 t                               | 20 t                               |
| Useful load, typical  | 7.5 t                              | 10.5 t                             |
| Main dimensions   |                                    |                                    |
| Span, typical   | 16m                                | 21 m                               |
| Lifting height, typical                                       | 8.5 m                              | 8.5 m                              |
| Speeds  |                                    |                                    |
| Bridge travel speed   | 80 m/min                           | 80 m/min                           |
| Hoisting speed with nominal load                              | 12 m/min                           | 20 m/min                           |
| Electrical systems  |                                    |                                    |
| Bridge power supply   | Enclosed conductor rail or Festoon | Enclosed conductor rail or Festoon |
| Motor control system  | Konecranes VFD                     | Konecranes VFD                     |
| Sway control  | Mechanical as Standard             | Mechanical as Standard             |
| Electrical braking  | Regenerative                       | Regenerative                       |
| Control   |                                    |                                    |
| Truck unloading: Manual / Semi-automated                      | Chair or Radio                     | Chair or Radio                     |
| Automated: Unmanned feeding                                   | HMI-panel                          | HMI-panel                          |
| Remote operation  | Optional                           | Optional                           |
| Monitoring  |                                    |                                    |
| Event history recorder in Programmable Logic Controller (PLC) | Standard                           | Standard                           |
| Crane Monitoring System (CMS) / Main User Interface (MUI)     | Optional                           | Optional                           |
| Warehouse Management System (WMS)                             | Optional                           | Optional                           |
| Bale moisture measurement                                     | Optional                           | Optional                           |



# SOME OF OUR DELIVERIES AROUND THE GLOBE



# WHY CHOOSE KONECRANES?

## TECHNOLOGY

We understand how lifting technology is critical throughout the waste-to-energy process. Our long years of experience and continuous investments in R&D drive our innovation.

## EXPERTISE

The Konecranes technical and service teams know waste-to-energy process constantly striving to help your lifting needs.

## PEOPLE

Our teams are strong because they are made of strong individuals; passionate, trained, motivated to serve customers and be the best in the business.

## SAFETY

At Konecranes no job is so important or service so urgent that we cannot take the time to do our work safely and correctly.

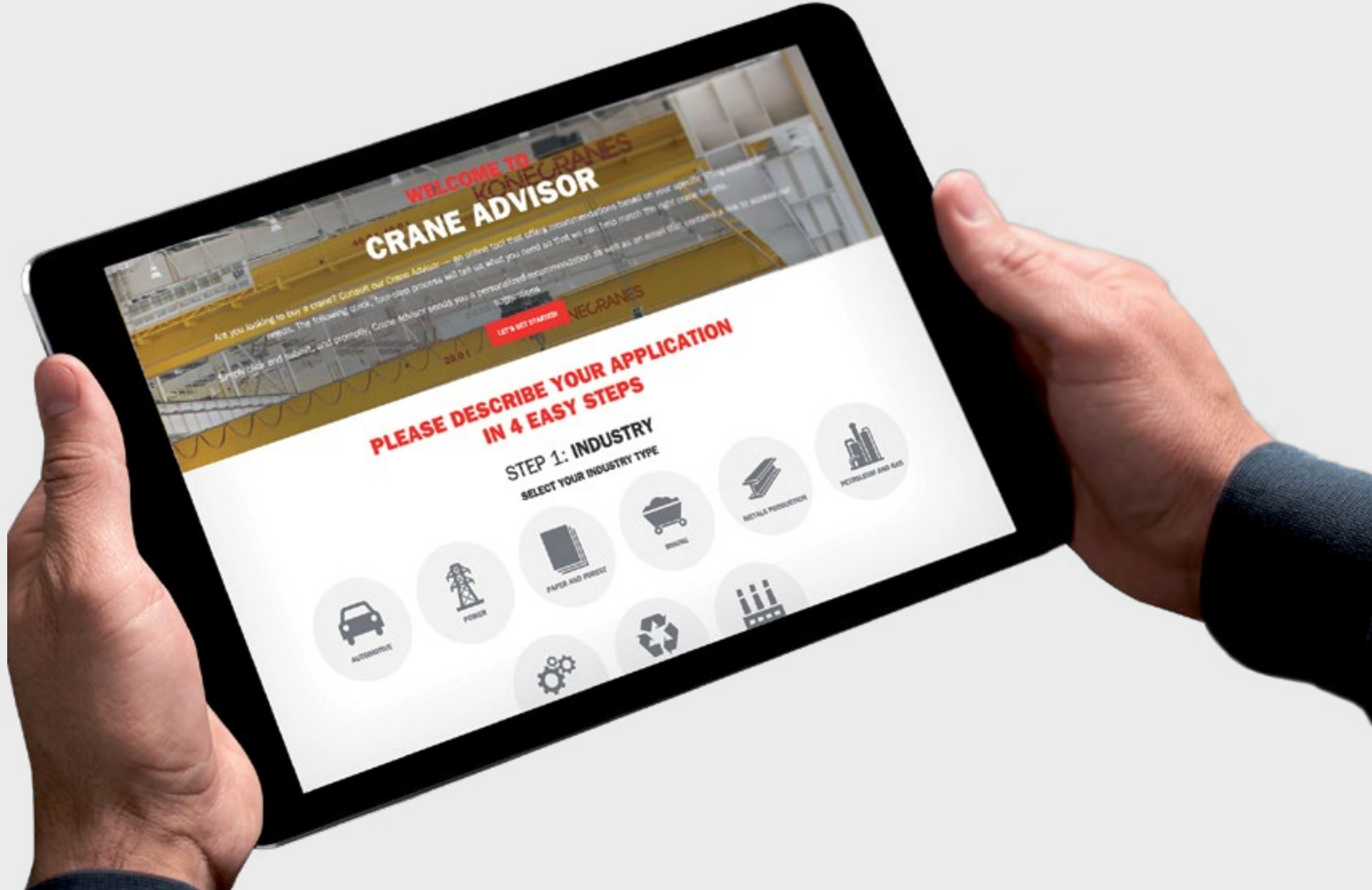
## LEARN MORE ABOUT OUR OTHER INDUSTRY OFFERINGS



# LOOKING TO BUY A CRANE? TRY OUR NEW CRANE ADVISOR

Consult our Crane Advisor, an online tool that offers recommendations based on your specific lifting-application needs. The quick, four-step process will tell us what you need so that we can help match the right crane for you. Simply click and submit, and promptly, Crane Advisor will provide you with a personalized online recommendation.

[VISIT CRANE ADVISOR](#)





## **SMARTER HOW?**

Konecranes waste-to-energy equipment and services are SMARTER WHERE IT MATTERS. We back up this claim with our long history in the lifting business coupled with extensive knowledge of modern crane technology and the waste-to-energy industry. We have the skills and resources to provide an excellent product and a localized maintenance contract that help make your cranes a sound, safe investment. Our customers know us as a partner with a clear vision that helps them succeed.

The reason for our long-term success is that we deliver all of the above, with the lowest possible cost of ownership.

**Smarter where? On your bottom line.**