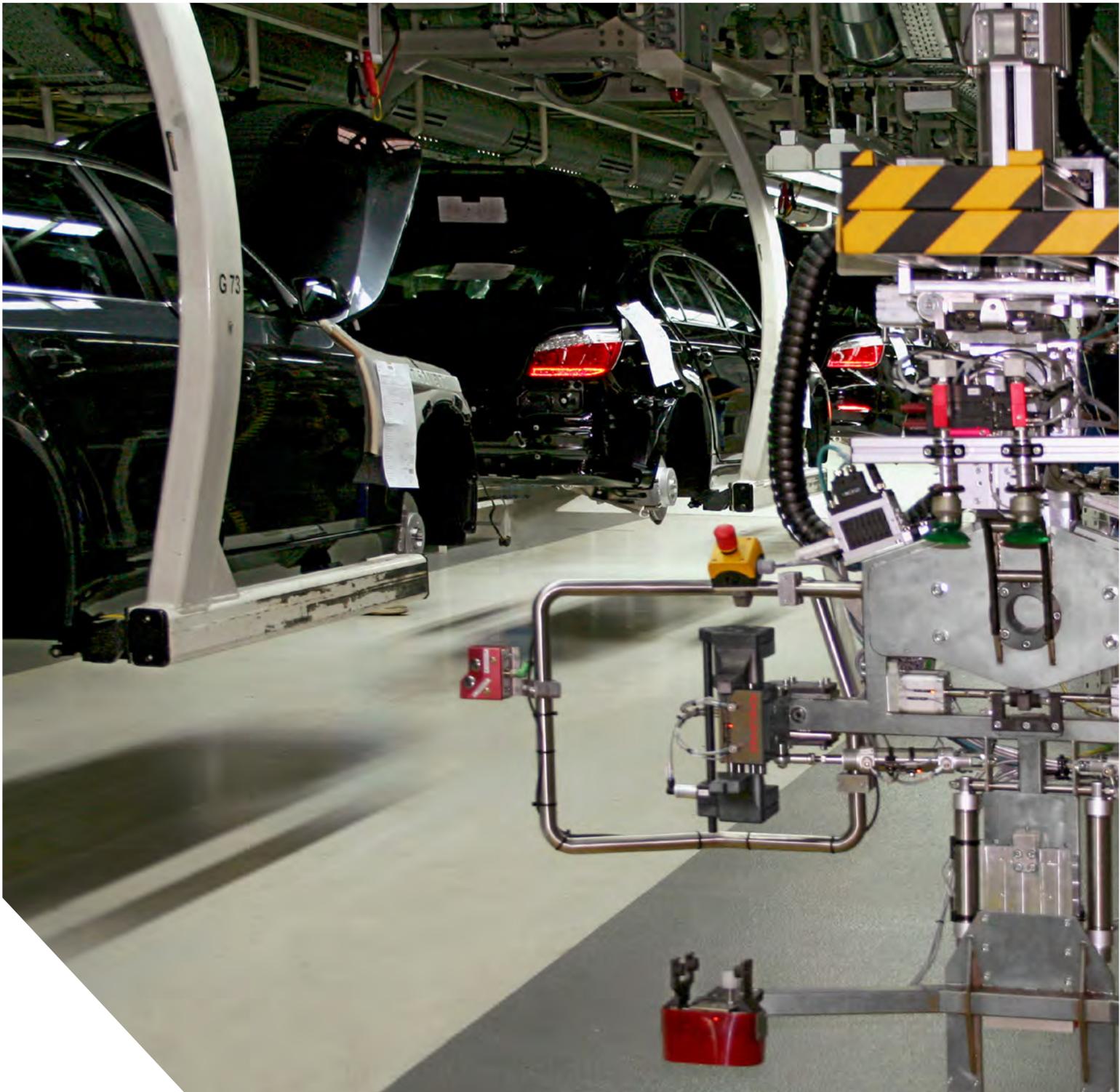


INDUSTRIAL CRANES
NUCLEAR CRANES
PORT CRANES
HEAVY-DUTY LIFT TRUCKS
SERVICE
MACHINE TOOL SERVICE

AUTOMOTIVE INDUSTRY

KONECRANES®
Lifting Businesses™

EQUIPMENT AND SERVICE FOR THE AUTOMOTIVE INDUSTRY



WE KNOW THE AUTOMOTIVE INDUSTRY

Konecranes helps major automobile manufacturers around the world stay on track with their demanding production schedules. From the many years of experience supporting the industry, we know that automakers can't afford production delays. That's why the auto industry has come to rely on our experience and the dependability of our cranes – engineered to safely and efficiently manage heavy loads in short cycles.

WE HAVE THE TECHNOLOGY TO HELP YOU IMPROVE OPERATION SAFETY AND PRODUCTIVITY

Our space-saving crane design and regenerative braking feature can help you save space and reduce total energy consumption.

Smart Features are Konecranes-designed add-ons that work together or individually to improve safety, cycle time and load positioning. They add intelligence to your crane with purpose-built software and hardware. These features assist the operator in controlling the crane by performing certain repetitive actions or compensating for misalignment and erratic movements.

In order to deliver Lifecycle Care in Real Time, we use the Industrial Internet, connecting data, machines and people. We bring together usage and maintenance data and combine it with our knowledge and experience, providing insights that allow our customers to optimize their maintenance operations and activities.

SUPPORTING YOUR ENTIRE PROCESS

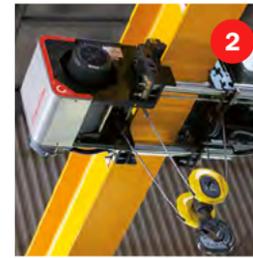
We offer inspections and preventive maintenance, as well as modernization and consultation services that can help you increase reliability, reduce downtime and extend equipment service life.

EXPERTISE THAT MAKES A DIFFERENCE

By working closely with customers, Konecranes has developed a body of experience in automotive industry processes and material handling applications. By applying our expertise, advanced technology and service offerings, we can make a difference in the safety and productivity of your operation.



Jib cranes
Konecranes jib cranes are easy to install and use, adapting easily to many work environments, providing a versatile, cost-effective tool for use in a variety of automotive lifting operations.



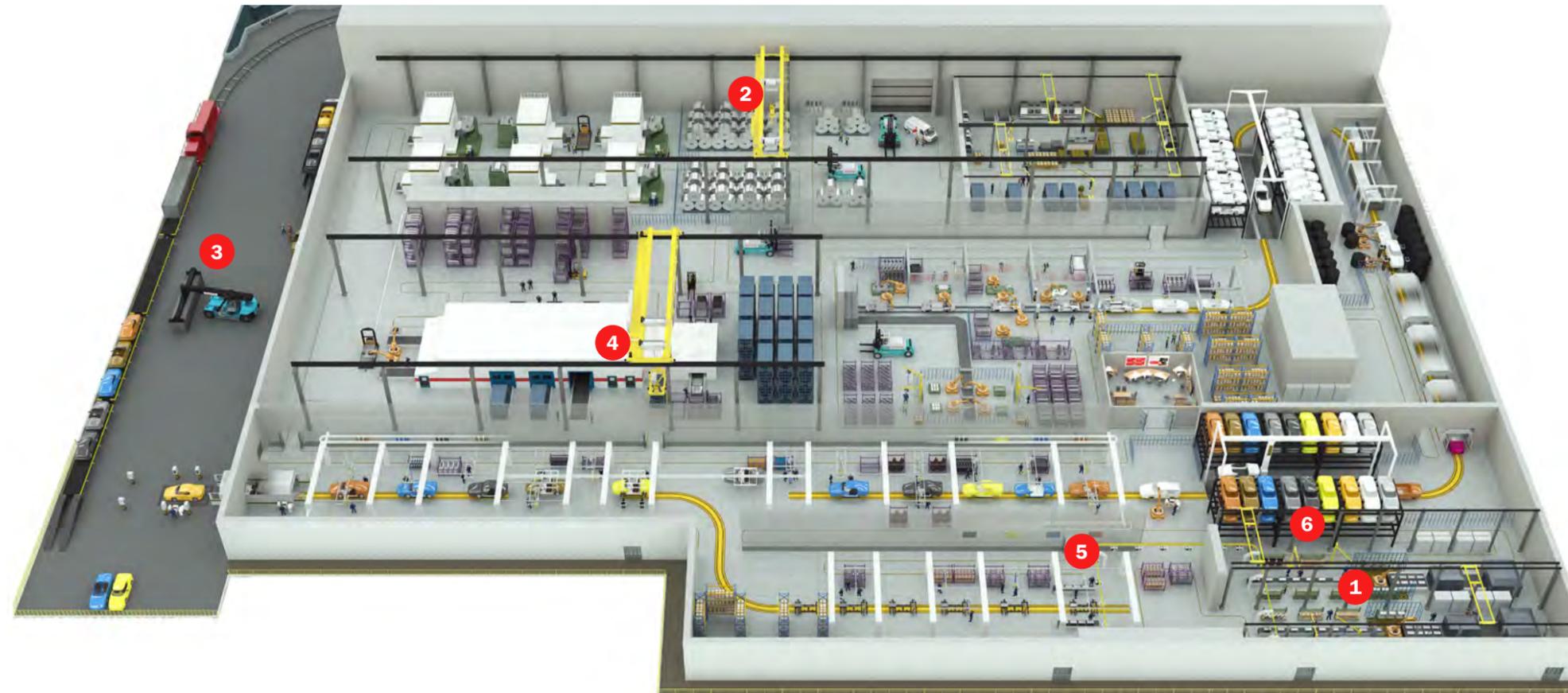
EOT cranes
CXT® cranes can be equipped with Smart Features to improve usability and performance. The UNITON crane can be built and configured to perform a variety of essential operations, from production to component assembly.



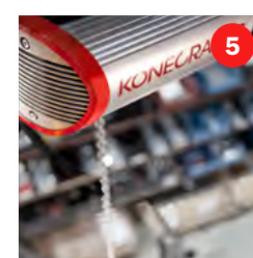
Lift trucks
Konecranes lift trucks and reach stackers handle steel plates, coils and stamping tools, as well as goods in containers, swap bodies and trailers.



UNITON
The latest advancement in our process crane offering, the UNITON overhead crane can be built and configured to perform a variety of essential automotive industry lifting operations, from production to component assembly.



Die handling cranes
We offer several types of cranes for die handling, including CXT, UNITON, SMARTON® and custom-built LV-type cranes such as Die Gripper Cranes.



Chain hoist cranes
With the CLX, you get low total cost of ownership through the latest available technology and structural design giving you the best in ergonomics, durability and reliability.



Workstation cranes
These lightweight, aluminum and steel crane systems are designed for workstation operations and production line lifting functions.

CRANE 03 Analyzing...



Developed to make crane operator's daily work easier and efficient.

SMART FEATURES FOR THE AUTOMOTIVE INDUSTRY

Our cranes can be equipped with Smart Features to help operators move loads more safely and quickly.

 **Sway Control** limits load swing to aid in handling and reduce risk of load collisions. And since a load doesn't sway during lift, travel and slowdown, you don't have to wait for a stopped load to stabilize before lowering it into place. This lets you move loads more safely, quickly and precisely.

 **Target Positioning** lets you lift a load, move it to one of several preset spots and place it, all using a single button. This can make repetitive lifting tasks safer, faster and easier.

 The **Protected Areas** feature lets you section off multiple three-dimensional spaces that you don't want a crane to enter, keeping designated areas safe and clear of crane activity. This can help you protect personnel areas, facility structures and equipment.

 **Hoisting Synchronization** helps a single operator move two or more hoists together without compromising safety, load control or speed, helping to improve efficiency in operations requiring multiple cranes or multiple hoists on a single crane.

 **Microspeed** turns large joystick movements into slow and exact load movements for more accurate and precise load handling.

 **Radio controls with smart technology**
The Human Interface to Machine (HIM) is an intelligent remote radio control system that is especially useful in die handling. Handling a die in a warehouse or at a bolster requires high accuracy, so Konecranes has developed a system to provide camera views that help the operator position a die gripper to the lifting pin of a die. Cameras can be mounted to a die gripper or to the trolley.

 **Snag prevention**
The Snag Prevention feature continuously monitors rope angle and automatically stops crane movement if a hook, sling or load accidentally gets caught on something. The feature decelerates trolley traversing movement and bridge traveling speed to slow speed mode when a predefined rope angle is reached, if the angle is even greater, the feature activates mechanical brakes.

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

TAKE CONTROL OF YOUR WAREHOUSE
Semi-automated lifting is a key factor helping automotive manufacturers establish and sustain quality and customer satisfaction. Since the basic task of a semi-automatic crane in a warehouse is to move items to and from storage, Konecranes Compact Warehouse Management (CWM) was created to eliminate the burden of remembering where storage items are located, how many pieces of each type are there, and keeping track of this data on paper.

When storage is controlled by CWM, an operator can quickly find an item in storage and instruct the semi-automated crane to go to its location without positioning the crane manually. When moving an item to storage, CWM streamlines the task by proposing a free location, or identifying an existing location with the same type of item to stack them all in one pile.

Working with Konecranes smart cranes; SMARTON, UNITON and CXT Smart, CWM delivers a simple and portable user interface for warehouse management and controlling crane operations that saves time, space and operator effort.





MATERIAL HANDLING FOR A WIDE RANGE OF NEEDS

DIE HANDLING CRANES

In press shops, dies are typically handled with slings on all four corners or with a special lifting device like a die gripper. Konecranes offers several types of cranes for die handling purposes, including CXT, SMARTON, UNITON and LV cranes with a Die Gripper.

Semi-automated die gripper cranes used in stamping plants are changing the landscape of automotive manufacturing. Modern dies with lifting pins at all four corners can be picked up from the die warehouse with a die gripper attachment and loaded onto bolsters on each side of the press. While ordinary cranes need an operator plus a two-man rigging crew to pick up a die, Konecranes die gripper crane allows the operator to do the job alone in semi-automation mode, using cameras mounted on the trolley or the gripper that live-stream a view of the operation to the display on the radio controller.

These new-generation die gripper cranes can change out die sets rapidly, facilitating just-in-time schedules to produce stamped parts as they are needed. Instead of changing a die set every three days, it is now feasible to change dies multiple times in a shift. While this evolution increases the duty cycle of the crane, our cranes are designed to safely and efficiently manage heavy loads and short cycles.

WORKSTATION LIFTING SYSTEMS FOR SMOOTH HANDLING OPERATIONS

When typical lifting equipment featuring simple hooks or slings is not sufficient to do the job, and robotics are too costly, our workstation lifting systems are a good choice. They can be ceiling-mounted or freestanding with single or double girder bridges, or monorails.

PNEUMATIC LIFTING DEVICES FOR YOUR ASSEMBLY LINE

Konecranes AirBalancer offers precision speed control and ergonomic loading handling, perfect for assembly operations. The AirBalancer is especially good for lifting fragile items with continuous three-dimensional movement and no jerky motions.

LIFT TRUCKS FOR EFFICIENCY IN THE YARD

Konecranes provides lift trucks optimized with features and attachments for automobile production processes. We provide fork lift trucks optimized for handling the steel coils and pre-cut steel plates that are used in stamping presses to make auto body parts. These lift trucks can also handle stamping tools, scrap metal and finished components.



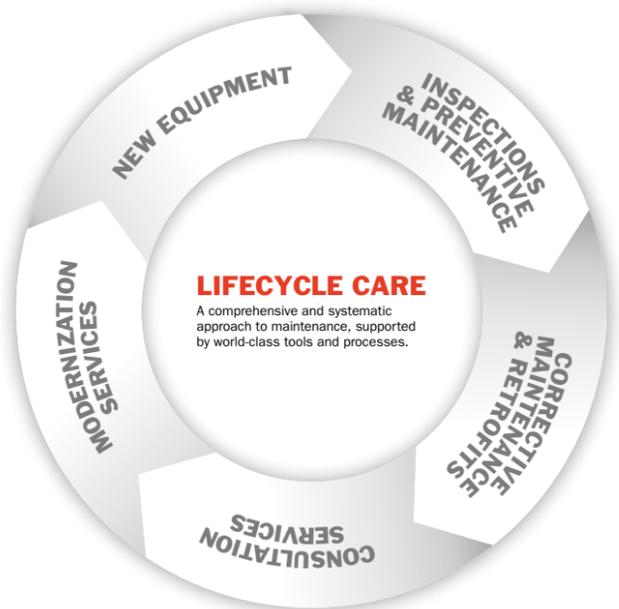
yourKONECRANES.com, OUR CLOUD-BASED CUSTOMER PORTAL
Customers with a maintenance agreement have access to yourKONECRANES.com. Usage data, maintenance data and asset details are linked, giving a transparent view of events and activities over any selected time interval. Aggregated data can be viewed, analyzed and shared quickly, for a single asset or an entire fleet. Insights can be drawn by observing anomalies, patterns and trends, helping users make informed maintenance decisions.

SERVICE TO FIT YOUR NEEDS

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

OUR APPROACH TO CRANE MAINTENANCE

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.



PREVENTIVE MAINTENANCE FOR IMPROVING SAFETY AND PRODUCTIVITY

An active preventive maintenance program is recommended for your lifting equipment. We can create a maintenance plan based on your equipment, operating environment, manufacturer recommendations and statutory requirements. The CARE Preventive Maintenance Program is our most popular service offering and includes preventive maintenance inspections and routine maintenance. If you need less, the CONDITION Inspection Program will help you comply with local statutory requirements and support your in-house maintenance.

GET INSIGHTS INTO MAINTENANCE OPERATIONS

TRUCONNECT Remote Monitoring provides you with crane usage and operating information that is accessible on demand in the yourKONECRANES.com customer portal. TRUCONNECT data includes safety-related issues, such as over-temperatures, attempted overloads and emergency stops. It also includes operating statistics, such as work cycles and running hours, and estimates of remaining Design Working Period of selected components such as the hoist and hoist brake. Safety alerts are delivered automatically by email or text to designated contact personnel.



RENAULT CAR CORPORATION

DOUAI AND SANDOUILLE, FRANCE

At facilities in Douai and Sandouville, Renault manufactures pressed parts for the bodies of the vehicles they assemble. In these two factories, a crane unloads coils of steel from trucks or wagons, and then picks up the coils again to supply the stamping presses. The cranes at both plants were aging, and they required a great deal of corrective maintenance.

Adding SMARTON® Cranes

For the Douai plant, Konecranes supplied a SMARTON 34 T, M8 classification crane with the Slack Rope Prevention feature and an operator cabin to minimize personnel hazards.

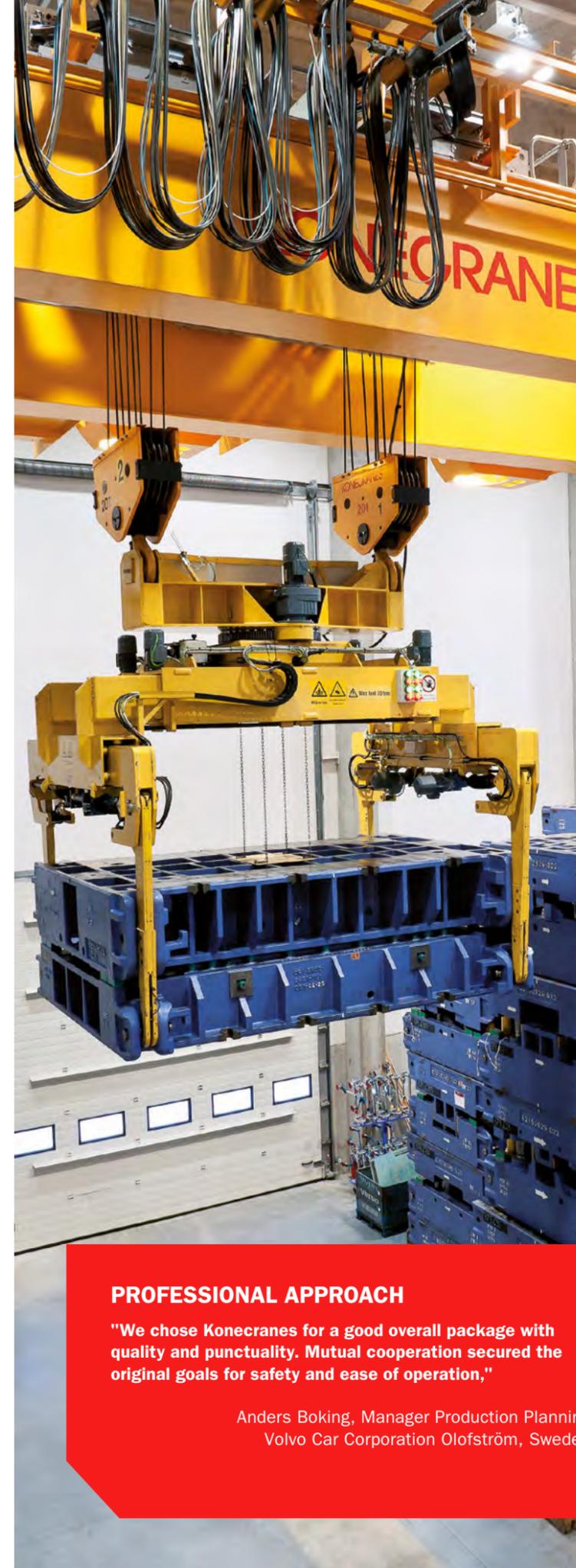
Because of the layout of the Sandouville plant, Renault wanted to prevent the crane from passing over certain areas for the safety of the personnel and to prevent damage to the machines. To improve output at the workshop, the project manager wanted a positioning feature to supply the machines more quickly.

We installed a SMARTON 34 T M8 crane with the Protected Areas feature at the Sandouville site. This uses telemetry lasers to restrict crane movement to assigned three-dimensional spaces, helping to prevent personnel safety risks and damage to the office access footbridge.

The operators at Sandouville make full use of the Target Positioning feature to position the coils above the machines and automatically return to the trucks to pick up more coils.

Modern Adaptability

Renault's new SMARTON cranes are well suited for the coil handling operations at Douai and Sandouville. And SMARTON is individually configured so it will be easy to add new Smart Features when needed.



VOLVO TRUCKS CORPORATION

UMEÅ, SWEDEN

VOLVO TRUCKS CORPORATION planned to increase its production capacity and invest in a completely new stamping plant. They needed a safe working environment and shorter load cycle times for changing dies in the stamping machine. As is common in the automotive industry, die changes had previously been done using chains to lift the dies, which meant slow cycle times and a risk of accident.

Knowledge and technology help Volvo improve safety and productivity. Volvo chose Konecranes due to their outstanding competence and knowledge in crane technology.

Working together to achieve the best result

A joint team of Volvo and Konecranes personnel was formed to make sure the functions of the crane were suitable for production needs and to work on the details of the crane and the lifting device interface.

Konecranes suggested a semi-automatic crane that was suitable for use with the Volvo Process team's specially designed lifting device. It can grip and release both small and heavy stamping tools in a fully automatic sequence.

The crane was designed with a lifting device hanging from two trolleys for basic stability. The crane also included a Siemens S7 PLC and Profibus absolute encoders for positioning to achieve the best accuracy for semi-automatic functions. Konecranes Sway Control was added to help avoid damage to dies, lifting equipment or the surrounding area.

The crane can be controlled with a Profibus radio controller, which makes manual and semi-automatic operation easier. Some operating areas were restricted to help protect the operator and equipment.

Shorter cycle times and a safer work environment

The semi-automatic functions have eased the workload and helped increase safety. Sway Control has made manual operations easier and helped increase the efficiency of semi-automatic functions. Load cycle times have also been reduced with PLC controlling and correct sensing.

PROFESSIONAL APPROACH

"We chose Konecranes for a good overall package with quality and punctuality. Mutual cooperation secured the original goals for safety and ease of operation,"

Anders Boking, Manager Production Planning,
Volvo Car Corporation Olofström, Sweden.



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SERVICE

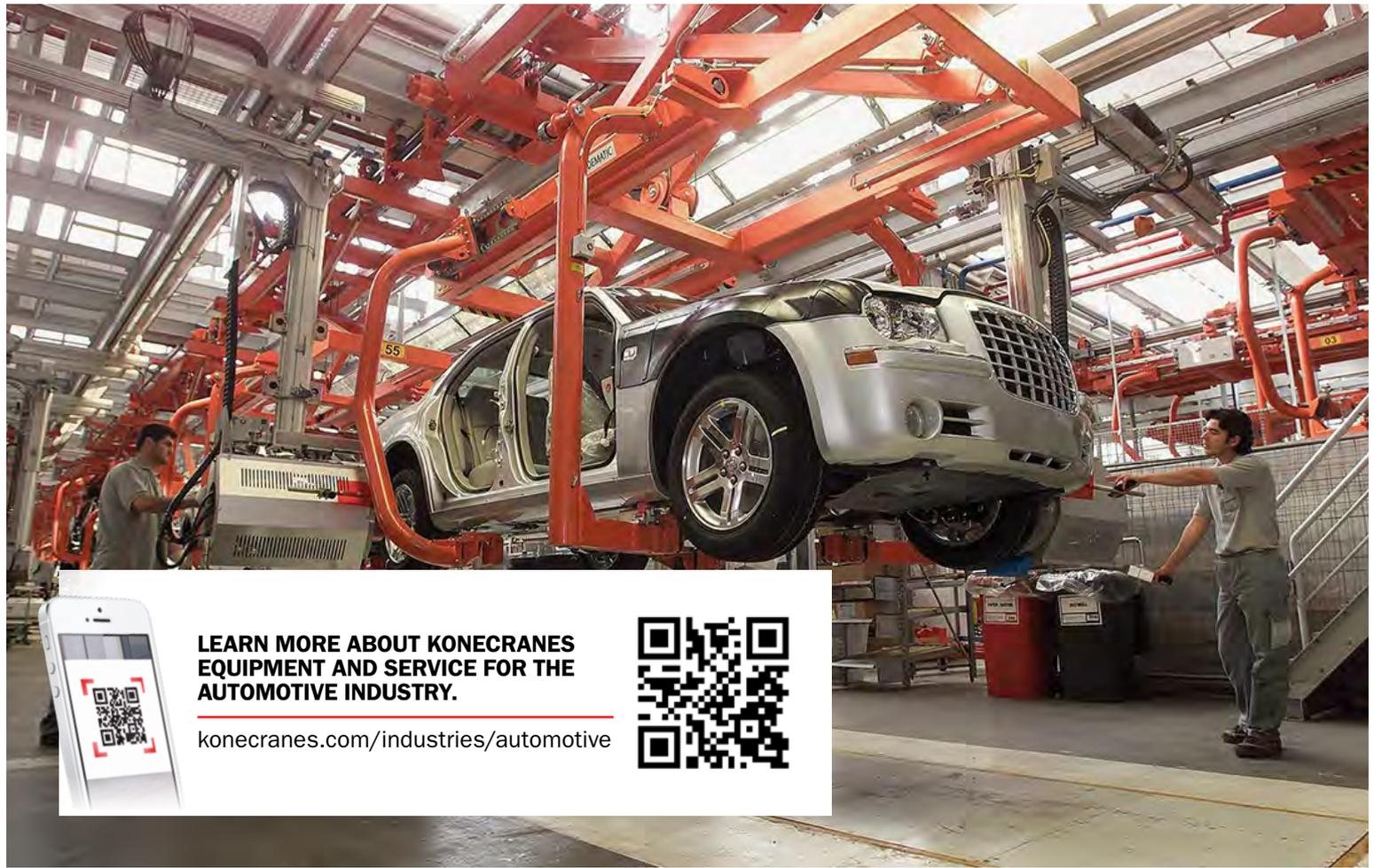


MACHINE TOOL SERVICE



Konecranes is a world-leading group of Lifting Businesses™ offering lifting equipment and services that improve productivity in a wide variety of industries. The company is listed on Nasdaq Helsinki Ltd (symbol: KCR1V). With approximately 12,000 employees at 600 locations in nearly 50 countries we have the resources, technology and determination to deliver on the promise of Lifting Businesses™.

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konecranes.com/industries/automotive

