

KONECRANES' WORLD

KCI KONECRANES BUSINESS MAGAZINE • SUMMER 2001



focusing on

Maintenance Services

Making the regulatory pill easier to swallow page 3

KCI KONEPORTS – Worldwide name for all port crane services page 20

Investing – in maintenance, training and technology

As we began gathering stories for this Maintenance Services issue of Konecranes World, I felt it was important to restate our commitment to the idea of crane maintenance as an investment. As maintenance professionals, it is our responsibility to ensure that our customers' investment in crane maintenance and enhanced technology generates a measurable return—by increasing uptime, maintainability, safety and ultimately, profits.

The articles in this issue will show how this guiding philosophy has impacted the operations and processes of companies all over the world, including U. S. companies Exelon Corporation/PECO Energy and California Edison and Siemens Westinghouse in the power sector, Ford Motor Company and Metaldyne in the automotive arena, Sweden's Tekniska Verken in waste-to-energy, Structural Metals Inc. in the U.S., Australia's Southern Steel, and Rautaruukki Steel in Finland.



As the world's leading provider of maintenance services for overhead cranes, we are never content to rest on our laurels. Increasingly, we are becoming specialists instead of generalists, with detailed knowledge of the industries we serve. We understand what downtime means—to the steel, automotive, paper, power and port industries, and to many others.

As a result, we are investing too, in our employees and in our customers. Our people are rigorously trained to understand our customer's processes, not just their cranes. We must be ready to demonstrate how the right equipment purchase can improve a customer's bottom line, and how to make the most of equipment they already own through effective maintenance, modernization and retrofitting. This makes us increasingly desirable partners as technology in every industry continues to advance.

Advancing technology is a top priority for our own company as well. With groundbreaking new developments such as the CXT Hoist and the upcoming release of the Omniman II maintenance software network, our customers can build more cost-effective facilities, and access a whole world of crane maintenance data and resources that will help them fine-tune their own operations and profitability.

With this issue of Konecranes World, we hope to foster a cross-pollination of ideas and possibilities for all of the KCI Konecranes' family of customers, in every industry, worldwide.

Tom Sothard
President
Maintenance Services

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at a glance...

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MAKING THE REGULATORY PILL EASIER TO SWALLOW:

Crane Pro Services' Value-Added Approach to Required Crane Inspections.



A total of 120 cranes at Metaldyne's Royal Oak facility are covered by the crane maintenance agreement with Crane Pro Services in force since 1995.

Today's managers accept, sometimes reluctantly, the mandate of required crane inspections. In the United States, OSHA's requirement for inspection documentation and the threat of liability issues are usually what motivates a customer to pick up the phone and call a crane maintenance professional. However, by focusing on real, measurable customer benefits that derive from its inspection program, Crane Pro Services has consistently grown its business to become the North American leader in overhead crane maintenance services.

According to Crane Pro Services' President Dale Smith, one of the cornerstones of Crane Pro Services' business philosophy involves viewing maintenance not as a cost, but as an investment.

"When we use the word investment,

we generate the expectation of a return," says Smith. "It is our job as maintenance professionals to convince the customer that this is a worthwhile investment—giving him solid reasons to invest—not spend—his company's money. We need to then be able to demonstrate, through our tools and methods, a return on his investment. We must show him that the money dedicated to the project is not just a cost. As service providers, we understand that if we are perceived as a cost we are expendable. But no customer is willing to let go of an investment that is netting a good return."

The customer sees inspection reports which provide tangible evidence of performance along with an agenda for new work. Much of the work called for in the report will generate positive results for the customer—reduction of liability, increases in safety, the cash value of reduced downtime, and measurable improvements in performance due to upgraded components, all of which can be documented. One reason Crane Pro has been so successful is that results have been made tangible.

Crane Pro has a technological edge in its maintenance management software.

Crane Pro also has a technological edge in its MAINMAN II-TNG maintenance management software. MAINMAN II-TNG is a classic value-added marketing tool because it organizes required inspection data (the reason the customer called in the first place) into a technically impressive yet easy-to-read format. It enables the customer to explore predictive maintenance options with the benefit

of Crane Pro's database of similar cranes, which will eventually reflect information from all Konecranes customers worldwide. Currently in the U. S., maintenance supervisors can monitor trends at their own facility and compare with information from other facilities using similar equipment involved in the same process. Because the program captures and tracks data on the condition of hundreds of different crane components, the program gives managers a wealth of information to prioritize and plan repairs.

Preventive and even predictive maintenance programs, while valuable, are really just sophisticated guessing games where equipment is changed out before it has the opportunity to fail. But this

approach often wastes substantial wear life of various equipment parts. Crane Pro advocates a different approach—Reliability-Based Maintenance Management, or RBBM. This next-level approach to maintenance is possible when the maintenance team can access a database of similar cranes engaged in similar work, and make a highly educated judgement on when to change parts or equipment. Waste— or unused wear life— is greatly reduced. Fully utilizing data generated by inspections is an "investment" scenario where Crane Pro excels.

Inspections have become a win/win proposition for both the Crane Pro organization and its customers. And although crane inspection is often the gateway through which Crane Pro gains more work, it can also be the genesis of very real benefits for customer organizations in a wide variety of industries.

METALDYNE

Usually inspections open the door to other types of repair and maintenance work. At Metaldyne's facility in Royal Oak, Michigan, the reverse was true. Metaldyne is another Tier 1 supplier to the automotive industry, specializing in stamped, formed and cold-headed parts. Metaldyne had several inconvenient breakdown experiences with two bridge drives in 1995. Aware of Crane Pro Services because of earlier sales calls, Metaldyne contacted Crane Pro to do the repair. Rick Colombo and Mike Patriitto of the Detroit, Michigan office located the drives needed and expedited them to the customer's site the next day. Impressed with Crane Pro's fast response and quality work, Metaldyne's Royal Oak facility issued the first inspection contract to Crane Pro Services in 1995.

During the first two years at the Royal Oak Plant, Crane Pro handled breakdown calls at a rate of three to five per day, along with repairs called for by inspections. The plant spent about \$300,000 the first year bringing its cranes back into first-class working order.

Since then, most of the money spent or "invested" at Royal Oak has been for inspection/PM services, repairs, and upgrades or new equipment. 10 Konecranes Remox radio control systems have been installed, and most significantly, breakdown calls at Royal Oak have been reduced from three to five per day to three or four per week, an improvement of 84 - 87 percent in a six-day work week. In 2000, the Royal Oak Plant scheduled monthly inspections on 46 units, and quarterly inspections on 86 units.

FORD MOTOR COMPANY AND VISTEON CORPORATION

Crane Pro's rapidly expanding relationship with Ford Motor Company and Visteon Corporation is one of the best examples of how inspections with MAINMAN II-TNG have been a win/win situation for both companies.

According to Mark Shubel, KCI Konecranes national accounts manager and primary liaison for Ford Motor Company, Crane Pro Services had been providing inspection and maintenance services, parts and new equipment to Ford for many years as a "Preferred" supplier when a new Ford company policy was implemented. The company shortened its list of suppliers for crane equipment and maintenance from multiple vendors to just three primary Ford "Tier 1" suppliers in North America.

Ford's "Tier 1" policy effectively streamlines its bidding and acceptance process for individual jobs at its more than 80 different locations, and helps the company achieve consistency and uniform quality in products and services provided by vendors.

"For the last few years we had been working closely as a Preferred supplier

through one of Ford's existing Tier 1 suppliers at several of the facilities, work that individual Ford managers were very happy with," said Shubel. "But we had no access to corporate engineering, safety or purchasing to discuss the many benefits to Ford of a corporate, plant-wide inspection program.

Crane Pro's MAINMAN II-TNG inspection program had the ability to provide both Ford and Visteon with a framework for plant-wide consistency in inspection procedures, data collection, report generation and analysis, all key features of the software package.

"We knew that we had exactly what Ford needed in this area but we were unable to approach it on any level other than a plant-by-plant basis because we were not in a position to do so," Shubel continued.

According to Shubel, a strong relationship with several plants already using MAINMAN II-TNG helped pave the way for Crane Pro's inclusion in the Tier 1 review. In this process, a joint commission from both Ford and Visteon sent out supplier questionnaires and conducted interviews with the nine largest suppliers of

crane and hoist products and services in North America. From this supplier base they selected only three to become Tier 1 suppliers-- this time including KCI Konecranes/Crane Pro Services.

As stated in its marketing theme "Quality is Job One," Ford has always been intensely focused on the safety, reliability and maintainability of its equipment. Crane Pro's proprietary MAINMAN II-TNG program was tailor-made to help enhance these functions— its detailed reporting and trend forecasting clearly could help Ford achieve company-wide consistency and reliability for its cranes.

The benefits from this new relationship are mutual. KCI Konecranes/Crane Pro Services has earned a position as a key primary supplier of overhead cranes, hoists and maintenance services to all Ford and Visteon plants in North America. And for Ford Motor Company, Crane Pro's ability to track and archive information about each crane and implement reliability-based maintenance programs based on inspection data is helping Ford to enhance the reliability and maintainability of their equipment. Bottom line, this is one more element in Ford's quest for overall product quality.

Bottom line, this is one more element in Ford's quest for overall product quality.

Added Approach to Required Crane Inspections.

Metaldyne has also expanded its relationship with Crane Pro Services to include site contracts at its Troy, Farmington and Tech Fraser plants, totaling 134 units for quarterly, monthly and some bi-weekly inspections. The company has also invested in substantial amounts of new equipment manufactured by KCI Konecranes.

According to Dale Smith, the inspection function and annual opportunity analysis process also provides Crane Pro with the ability to manage its own business and customer relationships.

"Sometimes, what we find is that the concept isn't working-- that there is no return," says Smith. "We go into each relationship with the expectation that we will make money for the customer. When that doesn't happen, we need to step in and explain that it's not working and develop a plan to correct it. This is far better than waiting to be let go because we're simply a cost."



Bob Wiseman, sales, Rick Colombo, Service Manager and John Pilchota, Inspector, from KCI Konecranes' North American service organisation, Crane Pro Services, discussing action items at Metaldyne's Royal Oak facility, USA.

SOUTHERN CALIFORNIA EDISON COMPANY SAN ONOFRE NUCLEAR GENERATING STATION

According to Mike Mitchell, Crane Pro's district manager in Santa Fe Springs, CA, a prime example of this approach occurred at the San Onofre Nuclear Generating Station, operated by Southern California Edison. "The station hired an independent consultant to help them determine how many crane inspection and maintenance people it would take to keep the cranes operational and in compliance," said Mitchell. "The goal in the nuclear power industry is 100 percent reliability, as cranes are an integral part of dealing with any routine or emergency repairs to the power generators. The stakes were high for crane failure-- danger to employees and the surrounding area, enormous downtime cost, and fines for non-compliance."

Based on the plant's previous experience with in-house personnel and the number of cranes at the facility, the consultant recommended that San Onofre hire three crane inspector/technicians to be on-site full-time.

Crane Pro won the site contract based on its expertise and its ability to provide teams of seven to 10 supplemental

technicians at once for critical plant shutdown periods. During the opportunity analysis process, which is Crane Pro's "report card" to the customer, it soon became obvious that three trained and qualified technicians were excessive. The customer learned that just one properly trained individual could manage the work with an effective inspection/maintenance program.

Because of their accurate and honest analysis, Crane Pro lost work for two full-time technicians at the project. But after five years, the maximum service contract length allowed under Nuclear Regulatory Commission guidelines, Edison again awarded the crane maintenance contract to Crane Pro. For this customer, repairs have decreased, reliability has increased, and they now budget for only one crane inspector/technician onsite instead of three.

The unifying concept behind these case histories is that information generated by crane inspection has gone far beyond mandatory compliance issues, and has become vitally important to cus-

tomers. At Ford Motor Company, inspection data organized by Mainman II-TNG helps track and ensure company-wide crane reliability at 80 facilities, and contributes to overall manufacturing safety, efficiency and quality. At Metaldyne, inspections have helped them eliminate costly breakdowns, and redirect their

It's not good enough to be the best. We have to be better.

investment into improving and replacing their equipment. At Southern California Edison's San Onofre Nuclear Generating Station, the customer was able to safely convert three jobs into one, and partner with a company who could provide an unlimited backup team of qualified technicians for special projects.

According to Dale Smith, inspections are the backbone of Crane Pro's leadership. And, he still sees ample room for growth and improvement. "Sometimes it's disconcerting for customers when we point out areas where we, and they, can be doing a better job," says Smith. "But in terms of maintaining our credibility, this is a key philosophy. It's not good enough to be the best. We have to be better. It's amazing how far we still have to go."

WHEN 99 PERCENT IS A LOW SCORE:

AUSTRALIA'S SOUTHERN STEEL IS HOOKED ON QUALITY

Southern Steel Group Pty Ltd installed the latest Konecranes CXT single-girder crane at its Headquarters in Milperra, Sydney, where the company has high tonnages of bar, plate, structural and tubular products coming in or going out.

"The steel distribution business has got to be one of the toughest materials handling applications for a crane. The quality, cost-efficiency and comprehensive nature of Konecranes' product, coupled with their total service backup for this tough environment, has persuaded us that their equipment and their comprehensive maintenance programmes are the best way to go," said Site Manager Mark Steedman.

Reflecting Southern Steel's need for optimum reliability, safety and cost-efficiency, Mr Steedman has negotiated comprehensive maintenance agreements with Konecranes covering a total of seven cranes of different types on the Milperra site, which is the hub of the company's national operations. Cranes covered by these agreements include Southern Steel's original Konecranes UN models, installed when the plant was set up nearly 13 years ago, as well as the later Konecranes XL models, a Demag EKKE and an ABUS ELK model.

"Konecranes' ability to provide comprehensive service across the full range of makes and models of cranes – not just their own types – is invaluable to us. No matter what make or model of crane you



Australia's largest privately owned distributor of steel products achieved a materials handling landmark recently when it commissioned its third generation crane from KCI Konecranes after earlier models achieved service availabilities exceeding 99 percent.

are using, the one thing you can't afford is downtime and our comprehensive arrangement with Konecranes helps us avoid disruption to distribution and customer service."

"Even on our oldest cranes, which have been in service for more than 10 years, the comprehensive service cover has been giving us typical average monthly service availabilities of between 98 and 99.9 percent. Our first crane from Konecranes, a UN, 2X5-tonne double girder, installed 12 years ago to handle plate and RHS, is averaging 98.906 percent availability since we introduced the Konecranes comprehensive agreement in August 1999."

Using its experience with more than 188,000 cranes under maintenance agreements worldwide, Konecranes' comprehensive maintenance agreements are

based on the premise that optimising crane maintenance costs means spending the right amount – neither too much nor too little – to protect ongoing production and to minimise downtime. Konecranes' programmes are designed to go beyond preventive and predictive maintenance, to a top-tier solution of reliability-based maintenance management. While old-style strategies have focused solely on reducing cost – at worst fixing things only when they break – Konecranes believes optimised maintenance must be able to demonstrate a measurable return on maintenance dollars, in calculations that treat

maintenance as an investment rather than a cost. This measurability, or return on investment, was the basis of the proposal it put to Southern Steel.

"The proposal was right in line with our own philosophy, because reliability, cost-efficiency and quality of outcome are vital to us in a very competitive marketplace," says Mr Steedman. "In everything we do, we aim to achieve optimum quality right through the process."

"This concern with quality extends right through to the way we originally specify our cranes to ensure the best ongoing performance. There's no point in saving 10 per cent on the initial price if it's only going to do part of the job and last half the distance," said Mr Steedman, who has more than a decade's experience in specifying and maintaining high usage cranes, for optimum whole-of-life-

cycle economy and performance.

For example, Southern Steel's cranes are specified with twice the typical deflection values in the girders (1-1000, rather than 1-500). They are also ordered with frequency drives, high speeds and radio control (for operator safety and operational flexibility).



"Building in quality and practicality always gives you benefits. We started fitting Kone "Dynac"™ frequency inverters back in 1988, for example, and we have never had to change the crane's brake shoes since then, because all the braking is done electrically. The brake shoes are only ever used to hold the load - and that's great from a service viewpoint."

Exacting specifications were built into the new Konecranes CXT 2X3.2 tonne crane commissioned in March to service the outfeed of the main processing lines. These complement the innovative standard features of the CXT, which include a high performance motor with 60 percent ED to give extra power and flexibility in continuous service, as well as for temporary peak usage. The crane's machinery rating of M5 gives greater flexibility to accommodate future changes and to provide a longer lifetime. Inverter speed control is standard in crane and trolley traveling, enhancing control of the load. Innovative mechanical design, with a large rope drum diameter and short drum length, permits operators to position the load exactly where they want it. The hook moves horizontally only 8mm during a one-metre lift.

"We talk with our crane operators all the time and listen to their needs. We find that when the operators are using something they like, then the machinery is well treated. If people didn't like something,

they wouldn't look after it. Listening to operators pays you back not only in getting the job done better, safer and faster, but also the equipment lasts longer," said Mr. Steedman.

"By purchasing the right equipment in the first place, then having it provided with optimum service throughout its lifespan, we ensure our ongoing aim of quality right through the process," said Mr. Steedman, who decided to adopt Konecranes' comprehensive service agreements after thorough analysis of the workplace and financial benefits.

"The financial benefits of the Konecranes proposal were a major attraction to myself and then to our Managing Director Mr Peter Smaller. The proposal had to stack up financially to succeed, as well as meeting our quality criteria. Peter will negotiate very hard indeed, but he doesn't scrimp when it comes to ensuring quality right through a process, because that's how we deliver our product.

"We have always had a high emphasis on the OHS aspects and durability of our equipment, but it was the cost-efficiency offered by Konecranes that finally persuaded us to outsource the maintenance to them.

"At an operational level it is so easy to have them coming in to do the job the way you'd do it yourself if you had the time - and if I am not here for some reason, the company doesn't have to worry, they know the Konecranes people are coming in regularly."

In addition to regular bi-monthly routine services and at-call service expertise, the Konecranes programme includes computer-tracked maintenance based on international knowledge of particular types of cranes, both Konecranes as well as other types. The programme invests more maintenance earlier in a crane's life to prevent problems and far greater costs arising later. Benefits are financially modeled for individual clients and comprehensive service agreements are based on these financial measuring sticks.

"The financial arrangement between Konecranes and Southern Steel means

that it is in Konecranes' financial interest to have maximum uptime and maximum reliability, so we both share the major focus on making this arrangement work financially as well as logistically. Operational availability, of course, is extremely important to us, and cranes are a key element in minimising downtime. So when Konecranes is confident to give us undertakings and back it up with money, it's very attractive.

"A strong aspect of their service is their knowledge of all cranes, not just the ones they build. In addition to the strength of their service, Konecranes performs strongly in winning orders for new cranes and this is based not only on the build quality, but also for being highly cost-competitive. We are always looking for the best value in crane purchases, inclusive of an ongoing backup and provision of service."

"Philosophically and in a very real practical sense, we share their idea that it is better to spend money on maintenance at times when it's most effective as a financial investment. With cranes costing hundreds of thousands of dollars, and our livelihood literally hanging from their hooks, we didn't need any persuading of that. We know some organisations would prefer to skimp on maintenance when the cranes are fairly new, or even run them through to breakdown, but it's going to cost them a lot more money in the long run.

"We prefer to ensure that the maintenance is done properly but transfer the ongoing responsibility to Konecranes. It's up to them to decide the best way to maintain the cranes, because the results of their work come back to them further down the line. Another big plus is that all the routine work is done outside production hours, so we are not getting in each other's way. And if we do need to call someone out for a problem, the response time is always good."

Konecranes has more than 100 specialists in commissioning and maintenance at 24 locations throughout Australia and New Zealand.

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Railway Museum Contract is a first for Lloyd's Konecranes



Robert Ormston, Head of Estates at the National Railway Museum, and supervising officer responsible for all the work carried out by Lloyds Konecranes, commented, "Accessibility is a top priority for us. Keeping the Inclinator

Top visitor attraction, the National Railway Museum in York has signed a five year service contract with the South Yorkshire branch of Lloyds Konecranes, part of KCI Konecranes Group.

Following a competitive tender, Lloyds Konecranes was awarded the contract to maintain the Museum's range of working equipment including hoists, winches and cranes. The contract also covers two key components in The Works, the Museum's new £4m wing – the Inclinator and a drawbridge.

The Inclinator, installed just a year ago, carries visitors to the first floor entrance of The Works, and into The Workshop gallery, where the public can experience the sights, sounds and smells of an authentic workshop and witness the traditional skills of railway restoration.

Lloyds Konecranes' experienced engineers, trained in a wide variety of different manufacturers' equipment, carry out routine monthly maintenance before the Museum opens its doors to the public. Information is then recorded on the company's sophisticated crane maintenance software, which monitors performance and calculates the actions required on any single piece of equipment.

in good working order means that we can provide access to The Works for visitors who cannot use stairs. Lloyds Konecranes' personnel have a responsible attitude, the engineers are extremely diligent and ensure our facilities are well maintained, safe and operational for our visitors and staff."

Lloyds Konecranes will also advise NRM of any changes to legislation concerning the safe use and maintenance of lifting equipment and the effect this is likely to have on their business.

Alan Burgess, maintenance services manager at Lloyds Konecranes, said: "We specialise in maintenance service contracts of the highest standards, and we pride ourselves on our ability to bespoke those contracts to meet customers' specific needs. We welcome this opportunity to work in a new type of environment with different challenges to those posed by our traditional industry sectors."

The NRM contract is the first in the heritage and leisure sector for Lloyds Konecranes, which currently works with companies in the steel, automotive and utilities sectors.

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Modernization a go

A NEW, MODERNIZED CRA

Crane life span is dependent on a number of factors, such as crane type, use, servicing and possible production changes. Although investing in a new crane is usually a wise decision, modernizing the existing crane may prove even more sensible. The leader in the crane manufacturing business, Konecranes is also a pioneer and expert in crane modernization.

Modernizing the old crane is often a good alternative not only because it entails lower costs, but also due to production-related factors. Sometimes the mounting of a new crane could be difficult and take too much production time, thus increasing investments. As modernization experts, we can often perform the necessary measures effectively without downtime, says Timo Parkkari, General Manager of modernizations.

- Modernization calls for

careful preliminary planning. This involves examining closely how the factory or production plant operates. It is only then that the required changes can be done. Finally, we plan the modernisation work stage by stage so as to ensure that the actual work can be completed in minimum time.

The need for modernization can result



Good alternative: CRANE AT LOW COST AND WITHOUT DOWNTIME



from a variety of reasons, most of all the ageing of the equipment. Cranes are just like aeroplanes, for they withstand a certain number of service hours. Although reliable, regular service keeps them in good shape, they have a certain life span after which investing in a new crane will be inevitable. When done properly, modernization will help extend this life span.

After modernization, all functional parts of the crane are as good as new so its capacity may be even greater than before. The crane can also be fully automated if need be.

Modernization not dependent on crane model

As an expert and pioneer in modernization, Konecranes is capable of modernizing cranes of highly different type and age. Technology is developing all the time so the machinery and motors used today are smaller and more powerful than before. This means that they can be fitted quite well into old machines.

- We do not specialise in any given crane model so we can modernize practically all crane types. After all many of the original manufacturers no longer exist on the market. If this is the case, customers can turn to us to find out the opportunities that modernization offers as an alternative to investing in a brand new crane, says Timo Parkkari.

- We have also modernized cranes built before the Second World War so age or model really does not matter. We can provide the engineering expertise required for rendering old cranes to good functional order if only this is financially profitable.

Knowing the customer is essential

Whether building and planning a new crane or modernizing the existing one, the key to successful investments is to know the customer's needs well enough. Unfortunately we often hear about problems caused by the crane supplier delivering a product that only meets some of the customer's needs or addresses these poorly.

- This is often the question of the customer not being aware of what he wants in the first place. It is absolutely important

therefore that the supplier should be well familiar with the customer's needs and the purpose for which the crane will be used in production. A careful basic approach of this kind is also required in modernization, for even it calls for a sound knowledge of the plant's or factory's operation. It is only then that we can fully utilise our crane expertise to offer the customer an application that meets his needs best or even exceeds his expectations. According to Timo Parkkari, long-term customer relations and servicing agreements give rise to fruitful partnerships exactly in questions of this type.

- If the customer has concluded a servicing agreement with us, we will monitor the condition and functioning of his crane constantly so concrete needs can be identified and possible modernization needs anticipated in good time.

Two-level modernization

Parkkari states that as a concept, modernization is available at two levels.

- Field modernization is usually a ready-made package solution that our field servicing staff implements at a short notice to replace an old or obsolete component or machinery to meet today's reliability requirements and functional standards. They also ensure that spare parts will be available in future.

Engineered Modernization in turn is an investment that calls for careful planning. This type of modernization is required in cases where the crane is inevitably ageing and its operation costs are therefore rising, or when it no longer meets the requirements set. Modernization requires 30-70% smaller investments than does the purchase of an entirely new crane, depending on situation and the scope of the modernization work.

KONECRANES' STRENGTHS

- sound product development
- world's leading component manufacturer
- modularity allows component change
- winches lighter than those of competitors
- long planning expertise
- over 40 years of expertise in modernization work
- good project management capabilities
- effective turn-key principle

INCINERATION PLANT modernizes cranes in three stages

The large-scale incineration plant of Tekniska Verken in Linköping, Sweden has three incinerators fed using three cranes. Because the incineration volumes and automation needs had increased, something had to be done to raise the cranes' performance. Instead of investing in new cranes, it was decided to modernize the existing cranes in three stages.



Sven-Erik Lindén, Plant Manager and Sales Engineer Sven Holmer, Konecranes AB.

replaced with ones that fitted into the existing gear system. All electrical equipment was replaced with new technology, based on AC inverter system. Both the cabling on the crane and the cables for power supply were renewed.

After the reforms, the crane is capable of feeding material to the incinerators 24 hours a day fully automatically.



Modern AC inverter system, DynAC and DynAHoist.

now be operated semi-automatically. Loads are picked up manually after which the operator simply chooses the incinerator in which to feed the material. A new radio system was utilized for this purpose.

The same improvements were also made to crane A. Therefore all three cranes now have a PLC system capable of positioning, collecting data on material passing through the feeder and activating alarms which are sent to a renewed control room system.

Objective reached

The modernization work enabled the incineration plant to reach its aims. Done in summer time, the work only required minimum downtime, thanks to careful preparations. The PLC system enables the cranes to be operated manually from different locations, which translates into excellent crane handling and greater flexibility in production says Mr Sven-Erik Lindén Plant Manager, Tekniska Verken.

After subjecting the three incinerator cranes to a thorough technical inspection, modernization experts from Konecranes AB in Sweden determined that the most profitable solution for Tekniska Verken would be to modernize their cranes. The modernization work was carried out in three stages in the years 1997, 1999 and 2000.

The first stage in 1997 involved modernizing crane C. The modernization was carried out with a new double frame trolley for accurate weighing with a lifting capacity of 6.3 tons, lifting speed 38 m/min. and lifting height 20 m. Longtravelmotors were

The next stage in 1999

The second modernization stage was implemented a couple of years after the first stage. It involved modernizing crane B, which is slightly smaller than crane C. Crane B was provided with a new hoisting trolley, based on SM-technology and new longtravelmotors were mounted to the existing gear system. In addition, all cables were replaced and an AC inverter system was introduced.

Thanks to the reforms, crane B can



EOT double girder crane with one trolley application and hydraulic grab.

Cranes play an important role in operation

Rautaruukki modernized its cranes

Cranes play a crucial role in Rautaruukki's plant in Hämeenlinna. The ability of the company to cope with the ever-increasing production volumes was restricted by the capacities and technical properties of its cranes. A cost-effective solution was found to the problem: Konecranes modernized the existing cranes in Spring, 2001.

There are altogether 120 hoists or gantry cranes in Rautaruukki Steel's plant in Hämeenlinna, of which 16 gantry cranes are used directly in the production process. They play a decisive role in the plant's operation, for each steel coil requires 10 crane-handling stages before it is loaded into a truck. The plant's throughput capacity has been increasing constantly during the years so the demands placed on crane performance have also risen decisively from what the cranes were originally designed for. This year the plant's annual capacity is expected to amount to some 1.25 million tons.

- One of the major reasons why we decided to modernize our cranes was the fact that coils are heavier today. Their maximum weights have gone from 20 tons to as much as 26 tons in quite a short period of time. Together with the six-ton claw weight, the 30-ton maximum weight limit set for cranes proved insufficient, production manager Seppo Pirinen says.

In addition to increasing crane capacity, warehouse management system Vaho will be adopted in Hämeenlinna as part of the same modernization project, which requires modernizing the crane technology and automating it further.

Modernization the least expensive alternative

Konecranes had also manufactured the cranes that Rautaruukki has been using in its Hämeenlinna plant ever since its foundation in the 1970's. The cranes had been serviced regularly and also updated technically so modernization still seemed the most rational alternative.

- Modernization was by far the most cost-effective alternative that also allowed for implementing the technical changes necessary to bring the crane properties to the level required by our production,

Seppo Pirinen says.

- In addition to lifting capacity, the cranes' technical properties were improved to match Rautaruukki's changing requirements. Warehouse management programs, precise targeting, and location systems all require the use of more sophisticated technological solutions that we were now able to fit into our existing cranes.

According to Seppo Pirinen, crane cabins were preserved despite the automation process, and they were rendered more user-friendly. In this, Konecrane's designers worked in close cooperation with the crane operators.

Modernization work during shutdown

Seppo Pirinen says that the modernisation work was completed when the manufacturing line was out of operation for other reasons. Konecranes had prepared the measures well so the work did not cause any extra production downtime.

- All in all the service has been extremely fluent. Konecrane's technicians worked 24 hours a day if need be so as to ensure that the timetables set would also hold good, Seppo Pirinen says.

Mr. Pirinen states that the cooperation between Rautaruukki and Konecranes has been fruitful. Their mutual servicing agreement and long-term collaboration have shaped a partnership through which Konecranes is well familiar with Rautaruukki's special needs.



- They have seen in practise what we expect of cranes and what our production is like. As experts in their own field, they have thus been able to provide us with exactly the right solutions, Mr. Pirinen says.

Most of the products exported

Rautaruukki's plant in Hämeenlinna employs more than 1000 persons some 800 of whom work in the modernized section. The unit specialises in steel strip manufacture that involves the pickling of steel coils, reducing their thickness to 0.4-3 mm, and galvanization, painting, cold-rolling, cutting and packing.

According to Mr. Pirinen, exports make up some 75% of the total production that amounts to over 1 million tons a year.

- Most of the articles manufactured are galvanized sheet steels.

Modernizing the cranes and improving the degree of automation also enhance the overall quality of handling products. New modern claws and the improved handling accuracy reduce coil handling damage and thus enhance the quality of production, production manager Seppo Pirinen states.

ENGINEERED SUCCESS: Konecranes Engineered Services Maximizes Crane Resources

The prevailing business climate often requires companies to do more with less. That can mean resurrecting aging cranes and retrofitting them for the demands of today's modern processes, or even relocating huge cranes across the country. Konecranes Engineered Services supplies new engineered trolleys, control house retrofits, new ergonomic operator cabs and a full line of specialty lifting devices for all types of cranes. According to Doug Maclam, vice president of marketing for Konecranes America, the company also does a substantial amount of work in an area of business so challenging that few competitors remain.

"We deal with the really difficult material handling problems—situations where budget, available space, production schedules or some other element makes ordering a new crane impractical," said Maclam. "And, because of our reputation for cutting-edge crane technology and automation, we're increasingly being asked to tackle material handling tasks that have never been done before."

Doubling crane capacity

Konecranes' Engineered Services specializes in material handling solutions that improve production economics. Two separate crane modernizations over several years nearly doubled the capacity of a critical hot-metal ladle crane owned by Structural Metals Inc. (SMI) in Seguin, Texas. The company is now reworking a second, scrap-handling crane for a 20 percent capacity increase that directly affects mill productivity.

Steel production at this "mini-mill" is achieved by melting scrap and a continuous casting process. Built in 1981, SMI's ladle crane is a critical part of their process— it is the only crane available to transfer molten steel from the electric arc furnace to the continuous caster. The initial modernization included structural and mechanical modification of both the crane bridge and the trolley, and increased capacity from 130 to 180 tons. A subsequent modernization further increased the crane's capacity from 180

to 230 tons. For the final increase to 230 tons, the bridge required further modification, but the trolley had to be replaced. The new trolley utilized Konecranes' unique two-point hoist drum mount which protects gear alignment, and precision Konecranes gearboxes with carburized, ground-form gearing. The upgrade was

designed to maximize utilization of the crane's existing electrical and mechanical components and spares.

Upgrading this crane enabled SMI to increase size of each "heat" of steel in the furnace from 100 to 120 tons— a 20% increase in heat size.

This new 230-ton trolley was built by Konecranes Engineered Services for Structural Metals Inc. of Seguin, Texas, boosting capacity from 180 to 230 tons, and increasing productivity 20 percent for a critical ladle crane. It included Konecranes' patented two-point hoist drum mount which protects gear alignment and precision gearboxes with carburized, ground-form gearing.



Re-engineered, Relocated, Re-rated

Konecranes' Engineered Services also rebuilds equipment to meet production demands that change, or exceed original design standards. One of the largest overhead cranes in the U. S. was originally used by Siemens Westinghouse Power Corporation to manufacture nuclear power plant components in Tampa, Florida. When that facility closed, Konecranes re-engineered and relocated the 700-ton bridge crane from Tampa to the Siemens Westinghouse Turbine Generator Plant in Charlotte, North Carolina.

The challenge was determining how to break the crane down into the largest possible components (the girder span was 90') and then convey them to Charlotte. There were also time constraints, as a new building for the crane was under construction and the crane had to be installed before the last section of roof could go on.

The original design had required the two 350-ton trolleys to be spaced on 50-ft centers minimum to avoid overloading of girders and end carriages. Konecranes

was asked to modify the crane to achieve a 350-ton rating on one trolley located anywhere or 600 tons with 300 tons on each trolley, trolleys touching. This required a major engineering effort to prove out viability of the changes, re-rating the crane for the new conditions and using a new 600-ton lifting beam, also designed by Konecranes.

Damaged trolley components and lead-based paint were removed. The lift of the 350-ton hoists was increased by 11 feet, requiring modification of the four huge drums, and the operator's cab was replaced by radio controls.

"We relied on Konecranes to supply their expertise to accomplish this project successfully," said a Siemens Westinghouse Power representative. "We were able to save money by modernizing and moving a crane we already owned. There's no doubt that the crane was the number-one component required to complete the building on time, and it went up right on schedule-- on the day agreed to three months before."

ENGINEERED SERVICES

KCI Konecranes' Engineered Services sees the trend toward industrial modernization and the updating of older cranes as a substantial opportunity. The core value-added element KCI Konecranes offers customers is twofold. For owners of Browning, Kranco, Landel, Orley Meyer, Euclid and Provincial cranes, original drawings for these cranes are part of the KCI Konecranes archives. The ability to reference original drawings can reduce costs and speed completion of crane modernization and renewal jobs by weeks or even months.

And, Konecranes' Engineered Services can call on the combined resources of all of the companies KCI Konecranes has acquired over the last 10 years. Literally hundreds of years of engineering know-how can be applied to enhance any crane's productivity.

A 700-ton bridge crane owned by Siemens Westinghouse Power Inc. was renovated by Konecranes Engineered Services, and then relocated from Tampa to The Siemens Westinghouse Turbine Generator Plant in Charlotte by rail.



CXT cranes at Rolls Royce's plant in Scotland.



CXT WIRE ROPE HOISTS – ALREADY MORE THAN 2001 SUCCESS STORIES

In spring 2000 the new innovative CXT wire rope hoist range was introduced to the markets. The new product design with the most significant and impressive list of operating benefits became an immediate success. High performance, strength and reliability, easy load handling and space saving design characterises the CXT – now available up to 10 ton lifting capacity.

Unique product design

The innovative mechanical design of the CXT hoists uses a rope drum large in diameter but short in length. The result is a hoist range with space saving design in a class of its own. CXT dimensions result not only in better use of the factory floor area and height but gives flexibility in factory layout and material flow planning.

In the case of new buildings, the resulting savings in initial construction costs, combined with reduced heating, air-con-

ditioning and other maintenance costs have often been significant.

Easy and effective load handling is enhanced by CXT's integrated motor and inverter control. KCI Konecranes became the first to offer inverter controls as a standard feature throughout the capacity range served by CXT. Obviously the operator has smooth and better control of the load increasing the productivity. Easy load control with less load swing adds safety. High performance motors have extra pow-

er in reserve for exceptional performance requirements. Adding the multiple lifetime of the lifting ropes, the CXT hoist offers unique advantages also in modernizing and replacing existing equipment.

CXT range with integrated modern electronics

Since the beginning of the launch, new CXT models and features have been continuously added. To serve the wide variety of our customers' application require-

ments, the CXT range now includes low headroom, double girder and normal headroom trolley models as well as fixed and machinery hoists up to 10 ton capacity.

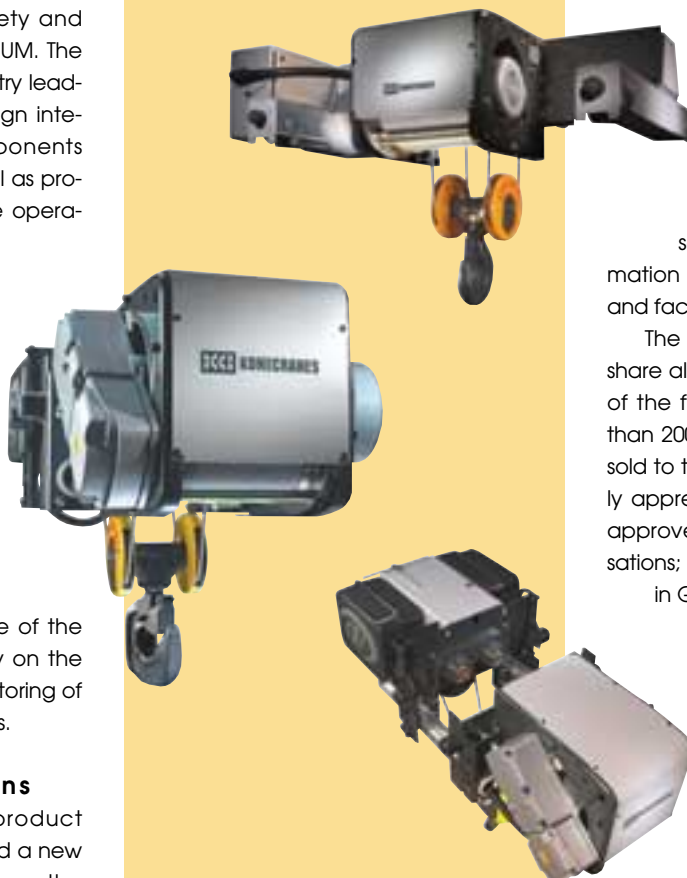
Starting this spring CXT also includes a new unique system for hoist safety and performance control called PREMIUM. The PREMIUM system is based on industry leading electronics and software design integrated with the CXT hoist components benefiting both crane users as well as professional preventive maintenance operations.

Some of the features include: advanced overload protection and thermal protection of hoisting motors improve safety and protect equipment, load monitoring, calculation of Safe Working Period (FEM 9.755) and versatile performance monitoring counters like, operating hours, number of starts, hoisting cycles, average load, remaining life time of the hoisting brake. Also digital display on the pendant is available for easy monitoring of the performance and safety values.

Tools for optimal solutions

At the same time as the CXT product launch, KCI Konecranes introduced a new interactive crane design service on the

PERFORMANCE WITH DIMENSIONS



Internet. This service allows customers to design CXT cranes tailored to their own specific requirements in just few seconds. The customers can then send the information to the nearest KCI Konecranes location though the Internet.

This "Make Your Crane" service allows customers to save time and speed up the purchasing process. Resorting to the service early in the planning stage allows the customers to save in costs, as the detailed information supplied allows for optimal crane and factory specifications.

The CXT technology is gaining market share all over the world. Since introduction of the first model range last spring more than 2000 CXT wire rope hoists have been sold to the USA, Europe and Asia. It is highly appreciated by our customers and it is approved by all major inspection organizations; CSA in Canada, UL in the USA, GS in Germany and many others.

The development work for additional CXT models and capacities continues at full speed. The target is to cover 80% of our customers' Industrial crane and wire rope hoist needs with CXT technology by the end of this year.



Interactive display for easy monitoring of performance.



Keeping the Lights On:

Crane Pro Services helps power companies retool, g

With weekly rolling blackouts in California receiving nonstop media attention, power plants everywhere have been put on notice that improving operating efficiency may mean the difference between light and dark for their customers. Overhead cranes play a vital role in the process of overhauling or replacing turbine generators, which allow power companies to create more electricity from existing facilities.

At Exelon Corporation's Limerick plant outside Philadelphia, PA, Crane Pro Services showed Exelon how effective crane management could speed up a major turbine overhaul, saving enough downtime cost to more than pay for the special new crane that accelerated the process. Crane Pro also helped develop a remarkable plan to assemble and install the crane within the building, making no penetrations or alterations to building structure. This allowed the new crane to be installed while preparations continued for the generator outage.

In 2000, a merger between PECO Energy and Commonwealth Edison created Exelon Corporation, a new name in power generation with 11 nuclear power plants in its fleet. For nearly a decade and a half, Crane Pro's inspector-technicians have performed meticulous monthly inspections of each item on several large turbine hall and reactor enclosure cranes and nearly 100 smaller cranes and hoists at Exelon's Limerick facility. The stakes are high, as unscheduled downtime can cost a million dollars per day.

Exelon's Mark Adams, maintenance technician at Limerick, says Crane Pro Services is a valuable part of their team. "Things have gone so well for so long that the program goes virtually unnoticed by normal plant personnel," Adams says. "The number of corrective maintenance items found by inspection these days is very small, because we stay on top of it. By employing qualified service technicians to

inspect and maintain the cranes, our people can concentrate on maintaining other plant equipment. Our outages go smoothly, with no crane issues."

Inspections and maintenance are key to protect critical path

During an outage period, critical path activity is defined as any action that affects the progress of getting the unit back online and generating electricity. During a normal maintenance shutdown at Limerick, one hour of scheduled downtime typically costs several hundred thousand dollars. This figure includes the total impact of all the people and resources lined up to accomplish critical path activity during the outage-- typically a four-fold

Critical path activity is defined as any action that affects the progress of getting the unit back online and generating electricity.

increase in the workforce, drawing from other Exelon plants, contractors and union labor. The financial impact of lost power generation is added only when the shutdown cannot be completed within the time scheduled. Turbine crane downtime could potentially contribute \$30,000 per hour to this figure, because if one of these cranes fails, it impacts all crews with a domino effect.

Crane Pro intends to maintain its long relationship with PECO, and now Exelon, by ensuring crane reliability through monthly inspections and preventive maintenance, plus yearly major maintenance.

This continuing approach has resulted in zero downtime during scheduled maintenance outages. Exelon's Mark Adams estimates current reliability for the turbine cranes stands at 99%.

Planning for a one-time maintenance event

As the millennium drew to a close, Exelon's management team began considering options to expedite a special 45-day turbine retrofit of the 15-year-old Limerick Unit One-- a one-time maintenance occurrence with a performance impact similar to changing out the engine in a car. Exelon planned to install new, more efficient turbines with greater generating capacity to achieve a 10 percent power increase-- from 95 percent capacity to 105 percent. In this process, 5 million pounds of turbine rotating and stationary components would be removed, and replaced with new equipment. Logistically and financially, the project was far more significant than the normal 19 to 22-day refueling outages performed on each of the two nuclear units every other year. Because nearly all of the work involved in the retrofit was crane-related, Crane Pro Services was deeply involved in the planning process.

The value of an idea

The Limerick nuclear plant had two 110-ton Whiting turbine hall cranes available, which would need to work in tandem for the majority of lifts to disassemble the old turbines. Then, the cranes would be used



generating more electricity for U. S. customers.



"We purposely choose to let contractors work on our cranes for reliability purposes. This is one function we recognize as a specialty, which we chose not to develop a team for. Normally all maintenance work done at our site is done by in-house people. We have very few vendors that support maintenance work during a refuel outage. Cranes are the only exception, because we recognize the importance of crane reliability. The expertise required to maximize crane performance and knowledge of the various types of cranes found at this facility is where a service organization such as Crane Pro can provide real value."

- Mark Adams, maintenance technician, Limerick Nuclear Station

individually to lift and lower the old components down the 23-line hatch. The planning group determined that crane limitations were the major impediment to shortening the estimated 50-day outage time. Exelon and Crane Pro began looking for a better way- specifically, how to maximize crane usage to cut total outage time. Operating within this climate of proactive thinking, Crane Pro's site technician Wayne Gregory suggested adding a third crane. Working as a team along with Exelon site personnel, Crane Pro's Jim Knisley and Mike Yoder concluded that adding a third crane to haul away the scrap while the two original cranes continued their work lifting the generator rotors, turbine spindles and the top and bottom halves of the turbine assembly could cut the total 45-day outage time significantly-- perhaps by as much as 7 days. At \$30,000 per hour, this idea represented a potential savings to the customer of \$720,000 per day, or slightly more than \$5 million USD for the total project, minus the \$650,000 cost of the crane. In addition, the new crane

would continue to benefit their operation for years to come. The bottom line: Exelon would receive what was essentially a free upgrade of their equipment, plus nearly \$4.5 million dollars in downtime cost savings.

Installing a third crane on the same runway that matched the first two in capacity and running speed created a spare that would remain in place for this, and future outages. If one of the original two cranes went down, Exelon would still have two large-capacity cranes capable of making heavy tandem lifts, allowing work to continue while the third crane was repaired.

The new crane's special-performance, Class D 30-ton auxiliary hoist was unique. With running speeds of 35 full-load feet per minute and 90 feet of vertical lift, this hoist could remove 30-ton sea vans full of scrap in record time, accounting for much of the seven-day time savings. The main hoists on the two original 110-ton cranes operated at only seven feet per minute, and their 15-ton auxiliary hoists did not have the

capacity needed to lift the 30-ton sea vans.

Exelon saw immediately that this approach had many advantages. Extra personnel engaged in other jobs would not be forced to wait for one of the two original heavy cranes to break free and make their lift. It eliminated the problem of manpower not supported by a crane, which also helped in shaving days from the outage schedule.

Creative installation approach saves time, space and building structure

Obviously, if installing the new crane created additional downtime, much of its cost-saving utility would be lost. Working with riggers from The Hake Group, Crane Pro helped devise a way to design, build and rig the crane that would not interfere with preparations for the outage. The crane was built in 12 component parts, which allowed individual components to be brought into the facility without cutting holes in the building structure.

Components for the new 110-ton, double girder, top-running turbine crane were lifted above the floor by The Hake Group and assembled on eight 380,000-pound hydraulic jacking towers, 65 feet in the air. Workers used the existing cranes to put the new crane together. The crane was completely assembled in two units, each of which had to be shorter than the span of the runway. When assembly of component sections were complete, the resulting two sections were lifted, the final connections made, and the entire unit was then set down on the rails.

After installation, the new crane's high-speed auxiliary hoist was used to remove scrap materials from the turbine teardowns. The crane removed 5 million pounds of steel in record time, flying at 35 feet per minute. The new crane also helped set a record for removal of the generator rotor, which was accomplished in hours instead of days. Three cranes working as a team not only provided a vital safety factor, they also increased speed and performance, more than meeting the expectations of site management. With knowledge gleaned from this retrofit, Exelon's site personnel were able to achieve even greater performance improvements and cost savings while overhauling Unit Two the following year. Total downtime cost savings during the overhaul of both units over two years is estimated at \$10 million USD, and Exelon expects the crane will continue to improve outage efficiency in the future.

Crane Pro Offers Nationwide Opportunity Analysis for the POWER INDUSTRY

Power industry specialist and national program coordinator Jim Knisley consults with power customers at no charge, evaluating their equipment and practices for opportunities to enhance crane performance and reduce critical path time. The idea is to replace repair activities with improvement opportunities, investing in making equipment perform better. "Crane Pro's nationwide network of service locations is in an ideal position to provide this service to power companies, which because of deregulation are increasingly banding together in large groups," says Knisley. "Crane Pro Services provides a consistent philosophy and a uniform approach on a national level."

Power industry customers who wish to schedule an appointment can call Jim Knisley at 800-686-5663 or page him at 888-509-6756.



Germany Goes for Quality

Germany is a highly industrialized country with several hundred thousands of industrial cranes in operation and one of the world's highest ratio of industrial cranes per capita. Nearly half of the market can be considered as open, meaning that this part of the market opts for outsourcing its crane maintenance to specialists. Today, Pro Kran Service (PKS), KCI Konecranes' German service organization covers the German market through 13 service branches and 170 professional service technicians.

Following KCI Konecranes' strategy PKS services cranes of all brands currently only 12% of the cranes in its contract base are KCI branded. Proven quality standards include the following items for the various PKS service companies:

- Certification to ISO EN 9001
- Certification to SCC
- General welding DIN Certification DIN 18 800-7, 15018, 4132
- Further DIN and accident prevention regulations

"Gütegemeinschaft Kranservice"

One year ago PKS founded together with 14 crane service companies the



"Gütegemeinschaft Kranservice" (crane service quality association). The objective of the association is to define comprehensive standards for crane service and to make the services more transparent for the customer. These standards define qualifications for staff members, equipment and tools and auxiliary equipment and the honouring of regulations, etc. The articles are protected by law in a RAL certificate. All member companies are regularly audited.

For the customer, the association guarantees that each member company meets high quality standards. For the company the advantage is that their services can be made more transparent in relation to price, which shows the difference between less quality-oriented competitors.



Remote Diagnostics Diagnostic Tools for Increased Availability

CAROL is a tool for the crane operator, serviceman and owner of the crane. It contains a wide range of assisting displays on crane status, information of faults and alarms, tools for troubleshooting and statistics on productivity and usage. All this information can be monitored and evaluated either directly on the crane or at any location with an internet access. When needed the data of the fault situation can be analyzed not only by our Support Center but also by our R&D department.

Basic package of Carol includes for example:

- Fault Diagnostics
- Alarms & Warnings
- Error Log Files
- Statistics of Crane Usage
- Number of starts, Running Hours
- Number of material/containers moved (per hour/shift/month)
- Data logging and tracking
- Show the PLC digital and analog I/O
- Maintenance Book

CAROL gives the operating and status reports needed for operation and maintenance of the crane by displaying and analyzing the status of the crane and guiding in service procedures. This enables optimal utilization of the crane to achieve high reliability, maintainability and availability. The crane management system includes diagnostics on two levels. The first level consists of PLC with display in the operator's cab. The second level consists of the PC in the electrical room with CAROL software and a printer.

For an even deeper analysis of data CART (Crane Analyzing and Recording Tool) can be utilized. CART can track at the millisecond level and register all electrical signals of the crane. CART is not for sale, but it is used for tracking of random errors or when data for more accurate finetuning is needed.

World Wide Support Based on Actual Data

Today's cranes are equipped with



advanced diagnostic systems to assist both the crane operator and the maintenance people. KCI Konecranes is also building the world's largest network for maintenance locations to ensure the best possible availability for its cranes.

The KCI Support Office for the crane electricians and the original developers of the core products can participate and help in the data analyzing process. Through modern maintenance tools these units can be part of the maintenance network and easily forward all necessary know-how to be used for troubleshooting. All related data can be sent either through modems or by Internet to any location in the world. Yesterday the specialist had to travel to the site – today assistance can travel at the speed of light. KCI Konecranes is a frontrunner in applying modern maintenance technology and takes the full advantages of today's technology – to stand by its company principles: Local Excellence = Global Strength. Even if know-how can be moved through space, the actual maintenance work and customer service still takes place at the customer site.



WORLDWIDE NAME FOR PORT CRANE SERVICES

THE CRANE SPECIALISTS FOR THE PORT SPECIALISTS



For transports of STS cranes the environmental circumstances like headroom under bridges are very important

KCI Konecranes has announced the formation of a new global division serving the port industry that will combine both existing and newly acquired port service operations. Known as KCI KONEPORTS, this division will build on Konecranes VLC's reputation as a world-class manufacturer of new harbour and shipyard cranes by adding a strong service support organisation.

With headquarters in Finland, KCI KONEPORTS is represented in all major markets. KCI Konecranes has a strong tradition within port service in Asia, the Baltic Basin and the North American East Coast. Today, KCI Konecranes has gained a strong representation also in Germany and in France through the recent acquisitions of the crane maintenance business of Noell Service und Maschinenteknik GmbH and the trade name and certain assets of French harbour crane maker Caillard. KCI KONEPORTS will continue to operate under the Caillard trade name in France and French-speaking countries including the African continent, and as Noell-Konecranes in Germany and the Benelux countries.

KCI KONEPORTS will service all makes and brands of port and harbour cranes. KCI KONEPORTS owns the original documentation and drawings for older cranes and equipment manufactured under many respected brand names, including Peiner, Noell, Caillard, Fives Cail Babcock, Asea, Munsters HMC, HMC Kraanbouw, Sanders and KONE. This data, along with the combined technical and engineering expertise of Konecranes personnel operating in 35 countries puts KCI KONEPORTS in an ideal position to inspect, maintain, modernise and relocate these and all other brands of cranes.

SERVICE THAT CREATES VALUE

KCI KONEPORTS continues the key maintenance strategy of KCI Konecranes, provid-

ing services that create real value. Using proven preventive and predictive maintenance programs, KCI KONEPORTS brings this expertise to the port industry, helping customers minimise costly downtime and maximise crane availability and equip-

Main services

- Inspections
- Preventative Maintenance
- Repairs
- Conversions
- Refurbishments
- Modernizations
- Spare Parts
- Moving
- Re-location
- Advice and Surveys
- Pre-owned Cranes



Upgrading two cranes by heightening the cranes by 6 meters



Repair/Replacement of the slewing bearing of a portal crane



For heavy lift transports KCI KONEPORTS has its own developed FLUIDTS system

ment life. Computerised inspection and reporting procedures linked to a world-wide database will help customers get the most from their equipment, providing accurate knowledge of crane performance and parts requirements. Training programs that have helped KCI Konecranes become the world's leader in crane maintenance have been tailored to the port industry, enabling KCI KONEPORTS personnel to meet the challenges presented by today's increasingly complex automated high-performance cranes.

For older cranes, KCI KONEPORTS offers well-tested solutions for crane renewal, modernisation and relocation.

As major harbours upgrade their equipment to meet customer demands for fast handling of ever-larger ships, old equipment increasingly finds new uses in smaller ports. As another value-added service, KCI KONEPORTS will help ports retool and recycle these resources. This includes access to a database of pre-owned cranes, which can be modified for new use according to a client's requirements. This market services the ports that do not find the justification for a new crane or when a short delivery time is required. Of course in these cases it is important to estimate the remaining lifetime of the selected crane to ensure that it will match the requirements of its intended use.

SPARES, WARRANTY SUPPORT AND NEW TECHNOLOGY

Using modern e-commerce systems, KCI

KONEPORTS offers rapid spare parts sourcing and a better way for customers to manage spare part needs. The full spares database of each customer crane is integrated into KCI KONEPORTS' e-commerce platform, ensuring selection and delivery of the right part with minimum effort needed from the purchasing engineer.

Konecranes VLC's crane division will work closely with KCI KONEPORTS to provide warranty service to its new equipment line of Ship-to-shore cranes, Rubber Tyred Gantry Cranes, Bulk Handling Cranes and Shipyard Cranes. Co-operation between the two divisions is resulting in numerous supervisory and commissioning projects, and has resulted in a 3 year maintenance contract performed by KCI KONEPORTS Asia for 12 newly delivered RTG units to Surabaya. Many other projects are in the works, especially in the USA where VLC has a high concentration of STS and RTG cranes.

KCI KONEPORTS is also helping to promote KCI's R&D achievements. Together with the Bulk Handling group of Konecranes VLC, KCI KONEPORTS is offering the new AGD grab unloader concept to various customers in Europe and Asia. By using KCI Konecranes' in-house developed unique AGD-design, the handling capacity of an old grab unloader can be increased without major structural changes. At the same time the unloader's often old control system will be upgraded securing thus the availability of spares for coming years.

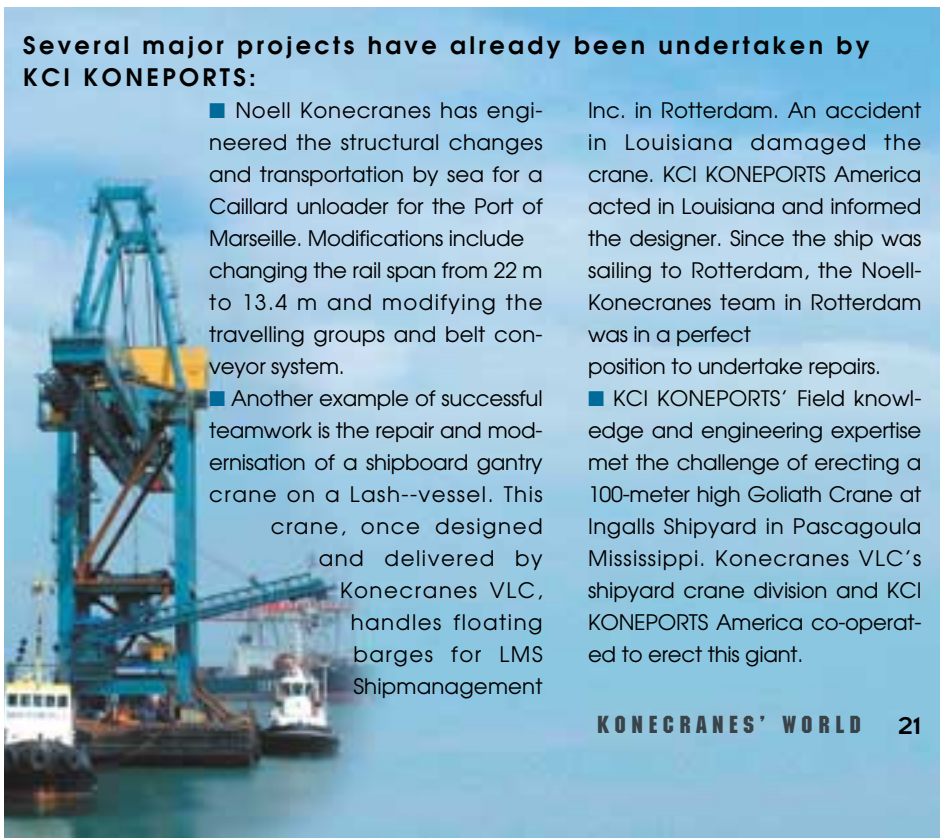
Several major projects have already been undertaken by KCI KONEPORTS:

- Noell Konecranes has engineered the structural changes and transportation by sea for a Caillard unloader for the Port of Marseille. Modifications include changing the rail span from 22 m to 13.4 m and modifying the travelling groups and belt conveyor system.

- Another example of successful teamwork is the repair and modernisation of a shipboard gantry crane on a Lash-vessel. This crane, once designed and delivered by Konecranes VLC, handles floating barges for LMS Shipmanagement

Inc. in Rotterdam. An accident in Louisiana damaged the crane. KCI KONEPORTS America acted in Louisiana and informed the designer. Since the ship was sailing to Rotterdam, the Noell-Konecranes team in Rotterdam was in a perfect position to undertake repairs.

- KCI KONEPORTS' Field knowledge and engineering expertise met the challenge of erecting a 100-meter high Goliath Crane at Ingalls Shipyard in Pascagoula Mississippi. Konecranes VLC's shipyard crane division and KCI KONEPORTS America co-operated to erect this giant.



SHARING THE KNOWLEDGE

-Training Service Technicians

Reijo Kamula, Training Manager for the U.S., began working in the Konecranes Electric's factory in Hyvinkaa, Finland in 1988. He became a full time trainer for Konecranes Finland in 1990 and in 1991, was asked to move to the United States to develop a KCI Konecranes / Crane Pro Services training center in the Springfield, Ohio headquarters. Since then, he and his training team have developed a state-of-the-art training facility and expansive curriculum that has helped make Crane Pro Services' technicians and inspectors the best in the U.S.

Humble Beginnings

In 1991, Crane Pro Services was a small but rapidly expanding service division of Konecranes USA. With a growing customer base and a limited supply of overhead crane technicians in the U.S., Tom Sothard, President of Worldwide Service Operations, realized that another recruiting solution had to be found. He developed the philosophy that if technician candidates could be found with basic motor control knowledge, positive attitudes and solid work ethics, they could be trained to have the electrical knowledge and mechanical skills needed to be overhead crane technicians. With that idea in place, the U.S. training center was born and I was asked to come to the U.S. to develop the center and expand the field training already in place.

When I arrived in the U.S. and began training, the operation was small and resources were sparse. We held basic classes in a small trailer outside the service shop and used the equipment in the service shop to apply skills learned in the classroom. I also traveled around to the different Crane Pro locations giving field training to new and current technicians and also to customers that asked to be trained on KCI product. As Crane Pro Services grew, so did the demands of the training center. We knew we had to develop new strategies and programs to train the rapidly growing number of new and current technicians.

Crane Pro "Boot Camp"

By 1993 we had developed a four week training program for newly hired technicians that had been employed at least 90 days. Commonly referred to as "boot



camp", the program consisted of crane electrics, crane mechanics, crane inspection, MainMan reporting, regulatory inspections, quoting, customer relations and XL hoist courses. The program was so successful it was later shortened to three weeks to allow for more sessions per year.

With the development of the new training program, more resources were needed to help instruct the courses. In 1995, Bob Claybaker, an industry veteran in engineering and instructing, joined the Konecranes U.S. training center as a contracted instructor. He has been a vital part of the success of the training center and his knowledge given to the "boot camp" program and to technicians in the field has been irreplaceable.

Growing, Developing, Expanding

With the "boot camp" program in place,

the training center was in high demand. There were hundreds of technicians a year needing to be trained, but the training center was still faced with limited space and resources. In 1997 the situation changed with the construction of a new Crane Pro Services headquarters in Springfield, Ohio. A training facility

was built in the new building allowing for additional classroom space and equipment simulators. The new facility also allowed for growth in the training program with the addition of more advanced training curriculums.

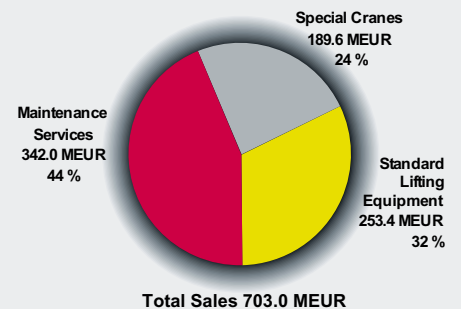
Pekka Kuisma joined the Konecranes U.S. training team in 1997 from Konecranes Finland as a technical support engineer and instructor. A 27 year veteran of Konecranes as a technician, drive specialist and instructor, Pekka was able to use his vast technical knowledge to develop a technician specialist training program. This program consists of four, 1 week modules giving advanced training in technical workings of Konecranes product.

By 2000, as the Konecranes products evolved and the need for technicians grew in staggering numbers, training time at the Konecranes U.S. training center was

Results 2000

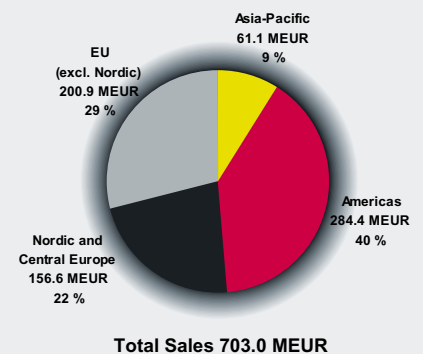
Sales by Business Area*

* Including internal sales

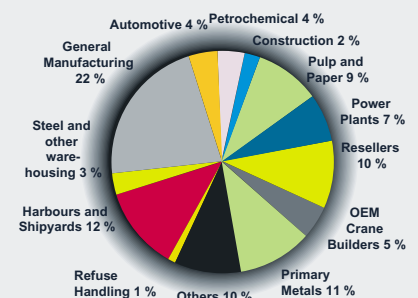


Sales* by Market

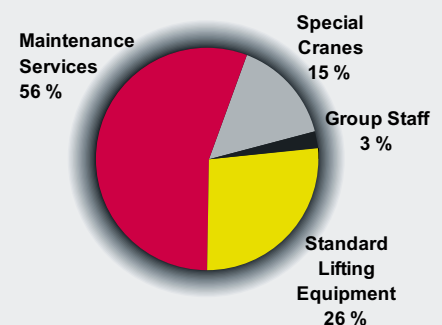
* Including internal sales



Sales by Industry



Personnel by Business Area



at capacity. "Boot camp" classes were taking up the majority of the training time, but high tech training and continuing education was still needed for veteran technicians and inspectors. Something had to be done to fulfill this need and in 2001 a new initiative was launched.

Training for the Present and for the Future

With Crane Pro locations opening up across the U.S. and over 400 technicians to train, the Konecranes U.S. training center struggled to meet the training demand. Earlier this year, a district level training initiative was launched to ease the strain. The initiative consisted of teaching the "boot camp" basics in the field at a district level. Well rounded, veteran technicians with a flair for instruction were asked to head up these district training centers. With the implementation of district level "boot camp" training, the Konecranes U.S. training center has had the opportunity to add additional advanced courses to the training schedule.

In addition to district level training for new technicians, the "New Employee Orientation Program" was put into place at the district level. This program is a five day orientation program for new technicians that includes instruction on crane safety, paper work management, business strategy, customer relations, crane inspec-

tion and basic hands-on hoist maintenance. The district training initiative is in its infancy but has shown promise as the future of new technician training.

By giving a technician advanced training in our product and our competitor's product, Crane Pro Services is able to add value to our customers' investment, thereby adding value to our business. Since the beginning of the training center, our focus has first been on the technician. We realize that the technicians were not hired for the trainer but that the trainer was hired for the technicians. To be a trainer you have to care for people and have a love for sharing knowledge. That is what training is about - sharing the knowl-



By Reijo Kamula, Training Manager, Konecranes USA

Training around the world

KCI Konecranes has training centres all over the world. Our local training centres provide development courses for service technicians including safety training, training in safe working practices and technical product training. The aim is to provide a minimum of one week of training per professional technician every year. Our development program for Senior Service Technicians, TechTrain runs in its sixth year. In year 2001 it will focus on new service technicians from Germany.

KCI Konecranes' trainers from around the world come together twice a year to discuss technical issues and receive infor-

mation on new products. The trainers represent the technicians in the field and relay the technicians' viewpoints and feedback they have received regarding Konecranes products and product applications. At the bi-annual meeting, the trainers also meet with the Research and Development team from KCI Konecranes Headquarters in Finland to discuss new product development and to correct and improve service manuals on newly released products. By working together and collaborating ideas, the bi-annual training meetings have helped to improve training operations and product development worldwide.

KCI KONECRANES GROUP – AT A GLANCE

Headquartered in Finland, KCI Konecranes is one of the leading crane companies in the world. We compete in all parts of the industrial and harbour crane market. In 2000, Group sales totalled EUR 703 million (USD 761.5 million), of which 92 % was derived from outside Finland. KCI Konecranes employs over 4.400 people in 34 countries throughout the world.

KCI Konecranes' activity is organised along three Business Areas: Maintenance Services, Standard Lifting Equipment and Special Cranes.

The importance to industry of proper maintenance of machinery and reduction of downtime has made Maintenance Services the single biggest Business Area of KCI Konecranes, with over 44% of Group sales. Maintenance Services cover all activities necessary for trouble-free crane operation, from initial commissioning to the end of the crane's economical life. These activities include inspections, preventive maintenance programmes, modernisations repairs and spare part services. KCI Konecranes provides maintenance services for all crane makes regardless of their original manufacturer.

In addition to the strength within service, KCI Konecranes performs strongly in winning orders for new cranes based on its high-performance technology. KCI Konecranes' Special Cranes are highly sophisticated cranes for a wide variety of process industries, harbours and shipyards. Lifting capacities range from 50 tons up to over 1000 tons. KCI Konecranes is world market leader in heavy-duty process cranes.

KCI Konecranes provides the most advanced Standard Lifting Equipment product range for lifting capacities of less than 50 tons. This product range includes industrial and explosion proof cranes, chain and wire rope hoists, workstation cranes and a variety of crane components.



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