

Q & A with Hannu Oja, director of Port Technology, Konecranes

Port Technology International discusses green technologies, automation, RTGs and other key issues affecting the container handling industry with Konecranes' port technology director Hannu Oja.



How are the challenges faced by container terminal operators today different?

There is a greater requirement to minimise vessel turnaround time at berth. This along with the constantly increasing number of container moves is forcing container terminals to maintain a constantly high level of productivity with better predictability. Furthermore, the berth time is squeezed still more by the pressure of fuel economics -- the need to reduce sailing speed while keeping to vessel route schedules. The performance of the entire logistical chain in the terminal is under scrutiny, not just the quay cranes. Meanwhile, environmental and safety concerns are becoming more important: output must grow but fewer resources can be used and safety must improve.

Systematic performance improvement is a must for every terminal operator to remain competitive. Does Konecranes offer advice to container terminals on areas of improvement?

A container terminal is an exceedingly complex operation and we at Konecranes would not presume to understand the core business of our customers better than they do. As a manufacturer of container handling equipment, however, our customers expect us to provide expert advice on how to get the best out of Konecranes equipment in the areas of availability and productivity above all. As part of this we provide monitoring, diagnostic and maintenance systems both on the equipment itself or remotely that can help to improve maintenance activities. I would make the claim that, thanks to our design philosophy which covers dedicated crane technology and our own core components, we provide a unique single source of knowledge to answer equipment-related questions in container handling.

Container terminals are searching for solutions to increase throughput capacity without expanding their physical footprint. What do Konecranes recommend in this instance?

Stacking operations are of course a very important parameter in throughput capacity. When the usable area for stacking operations in the yard is limited, one must try to increase stacking density. But there are other parameters that have a bearing: type of operation (export/import vs transshipment), share of empty containers and dwell time, among others, are important parameters when designing the yard layout and choosing equipment. Today we see yards with similar throughputs, performance and productivity, that are equipped very differently. When the space available for stacking operations is limited, RTG-based or RMG-based solutions come to the fore: both provide high-volume stacking and electrification as a power option.

When buying an RTG or RMG, it is easy to get caught up in the repeated mantra of low fuel or energy consumption per hour. However, there are those that feel that the real comparisons should be based on the cost in terms of fuel or energy per TEU moved. What is your stance on this? Why is this so?

This discussion is an example of mixed marketing messages. Unfortunately, the industry has not yet been able to provide a standard system of measurement for container crane performance, similar to that provided by the automotive industry or even for household appliances. PEMA has been driving an initiative, which we at Konecranes fully support, to provide a standardized system of measuring energy consumption per TEU, with weight and performance data, that would enable realistic comparison. I am sure the market will welcome this.

Can automation be introduced to one part of a container terminal's operations only, or must it be introduced across all areas of operation for it to work or be of benefit?

There is an old paradigm of industrial automation which says: "plan to automate everything, but realize only 20% of the plan -- you will get 80% of the benefit." There is a lot of truth in this, especially



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when we look at processes that are variable. A container terminal comprises so many processes with exceptions and variable human interactions that I prefer to build in planned buffers between critical areas, to make an allowance for flexibility. This is mainly a risk management issue in project delivery: we smooth out start-up by planning for buffer in sequencing, which gives us the flexibility needed to balance the areas and fine-tune things. An automated container terminal is a huge, complex interaction of processes.

It has recently been debated by some that the process of automation will not only extract better utilisation of equipment but more significantly extend the lifespan of these expensive assets. Do you see this being a valid statement?

Yes, definitely. Every fully-automated or semi-automated function that has been introduced has produced this effect. When the human factor is removed, automation carries out equipment movements in precisely the same ways, and can be tuned to be gentle to the equipment. Automation can also be implemented as driver-assistance, to cut down on unintentional movements that cause wear and tear and unnecessary energy consumption.

Equipment that helps to improve stacking density and productivity is key but performance criteria have evolved to include green/electric and environmentally friendly solutions. How well prepared are Konecranes in this regard and particularly for the future?

Environmental consciousness is becoming more important in our industry. The cost of energy is still often the primary driver. Knowing that natural resources are finite, we can see a day, within the lifetime of the equipment being bought today, when fuel prices could climb to a level now beyond our comprehension. Energy should be the main point around which the environmental discussion turns. But we should remind ourselves that the equipment should itself consume as little energy as possible per work action. Then, the energy used should be regenerative for re-use. Finally, the method of energy generation at source can be discussed. Sometimes we get mixed up between local emissions

and the generation of electrical energy in power plants, but the basic difference is related to the efficiency of the energy conversion process. Konecranes has a full complement of eco-efficient technologies in its product portfolio: diesel fuel saver, regenerative braking and energy storage (hybrid) systems.

Is it fair to suggest that on occasion, some terminals will adopt a certain degree of unproven technology in order to reach the necessary productivity? What's your opinion?

As a technology developer, I welcome any terminal that will be a pioneer in adopting new technology! This has happened in the past, and it needs to happen more for this industry to go to the next level -- never mind take a "quantum leap". Realistically, the risks are high due to the scale of the equipment investment. And the container handling business is driven by proven references, an entirely reasonable approach and sound business. But there is always somebody keen to pilot a promising new idea that can open up competitive advantages. I think we need new models to handle and share economic risks, adventurous new technology projects become feasible.

ABOUT THE COMPANY

Konecranes is a world-leading group of Lifting Businesses™, serving a broad range of customers, including manufacturing and process industries, shipyards, ports and terminals. Konecranes provides productivity - enhancing lifting solutions as well as services for lifting equipment and machine tools of all makes. In 2011, Group sales totaled EUR 1,896 million. The Group has 11,700 employees at 609 locations in 47 countries. Konecranes is listed on the NASDAQ OMX Helsinki.

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