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Crane Upgrades a way to extend bort cranes life

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Any Crane, Any Job, Anywhere

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Kalmar – Making your every move count.

Kalmar is part of Cargotec

Cargotec is listed on the stock exchange with sales totaling EUR 3.729 million in 2015 and employs approximately 11.000 people.

Approximately 5.300 people are employed in Kalmar Service Centers in more than 100 countries world wide

Kalmar is market leader in container handling equipment, port automation and services with sales in 2015 of EUR 1.678 million





One in four container movements around the globe is handled by a Kalmar solution.





Kalmar provides the market's widest product portfolio

Automation & Projects Division



Mobile Equipment Division

Services Division





Kalmar OneTerminal - the first integrated solution for automated terminals

60



Crane Upgrades















What are crane upgrades?

- Crane Upgrades are sizeable projects that enhance the use existing of cranes
- They are performed on large cranes capable of lifting containers or other heavy loads in yards or ship loading/unloading operations
- Typical products include STS cranes, RTG cranes, ASC cranes and straddle carriers
- Upgrades aim to improve either crane productivity, safety, physical dimensioning or physical operating location
- Our projects are based on over 80 years of experience and our key resources include engineering, project management and/or site management





Why upgrade?

Increasing container volumes	Challenge: increasing wear and tear for cranes Solution: inspections, repair and refurbishment
Increasing terminal competition	Challenge: increasing demands on crane performance Solution: consultancy and inspections, upgrades, modernisation and relocation
Increasing vessel sizes	Challenge: technically competitive cranes become physically too small Solution: consultancy and inspections, upgrades
Increasing need for sustainability	Challenge: being receptive to green values, with acceptable ROI Solution: upgrades and modernisation



Examples of crane upgrades projects



Hong Kong Structural visual

inspection of four non-Kalmar STS cranes



Port Klang, Malaysia Refurbishment of 14 non-Kalmar straddle carriers



Yilport, Turkey Electrification of 18 non-Kalmar RTGs

- Installation and commissioning of pneumatic actuated automatic drive-in units
- Conductor bar system

Marseille, France

Upgrade of three non-Kalmar STS cranes

- Gantry upgrade
- SPMT relocation
- Electrical modifications



Rotterdam, the Netherlands Upgrade of 12 non-Kalmar STS cranes

- 8-metre height increase
- 4-metre boom extension
- Stacker platform
- Lifetime extension



Buenos Aires, Argentina

Boom extension and relocation of two non-Kalmar STS cranes

 6-metre boom extension



Examples of crane upgrades projects



TCB Barcelona -2014/15

Heightening 6 meters 3 ZPMC STS Cranes

- Total Control of the Project
- Execution the whole works on site - Safety is our priority



Port Said PSCCH -Egypt – 15

Boom Repair on a Noell STS Crane

- Complete Engineering Works
- Provide right Technical Solution
- Execution and Control of the Works
- Testing Protocol

In execution

Securing crane after vessel collision

- Complete Engineering Works: Survey and securing proposal
- Solution
- Manufacturing Control
- Execution and Control of the Works



Paceco Valencia15

Heightening 7 meters 2 Paceco STS Cranes

- Subcontractor of OEM (Paceco)
- Skidding the cranes and execution the whole works on site - Safety is our priority



MSCTV Valencia -In execution

6 STS Crane Heightening and 8 STS Boom extension Works

- Manufacturing Control
- Relocate the cranes: Skidding and SPMT
- Crane Heightening and Boom Extension Works
- Testing Protocol
- Certification of the Cranes



Port Said SCCT -



- Provide right Technical



Abidjan – **Ivory Coast15**

Repair Kalmar STS Crane after accident

- Complete Engineering Works: Survey and repair proposal
- Provide right Technical Solution
- Manufacturing Control
- Execution and Control of the Works
- Testing Protocol



Heightening and boom extension, MSCTV Valencia

Heightening with 10 meters of 6 STS cranes and 6 meter boom extension of 8 STS cranes



- Manufacturing Control
- Relocation of the cranes: skidding and SPMT
 Crane heightening and boom extension works
 Testing Protocol

Kalmar designed a scaffolding to install to the boom working area to avoid lowering the complete boom structure to the ground

First crane handed over to MSCTV





A wide range of upgrade services for all brands of equipment.

- Consultancy and inspection
- Repair and refurbishment
- Relocation
- Upgrade and modernization

Installation and commissioning of non-Kalmar new products



Consultancy and inspection

Damage survey

- Equipment modification study
- Lifetime analysis and inspection
- Lifetime extension plans
- Planning for crane upgrade project





Repair and refurbishment





Relocation





Relocation – within a terminal





Relocation – transport by sea





Upgrade and modernisation

- Crane heightening and boom extension
- Modernisation of main components (control system, electric motors and cabin etc.)
- Safety additions (stacker platform, boom anti-collision and cameras etc.)
- Environmental and energy saving options (electrification of RTGs and fuel saving engine controllers etc.)
- Automation and operator assisting features (spreader soft landing etc.)





Upgrade and modernisation – growing ship sizes and volumes are met in most terminals





Upgrade and modernisation – STS-crane heightening and boom extension



Upgrade and modernisation – RTG-crane heightening

Upgrade and modernisation – budget and time indications

Budget indication (K€ / crane)

STS boom extension	250 – 1,000	
STS crane heightening	750 – 1,250	
RTG heightening	75 – 200	
Time from order to delivery (months)		
STS boom extension	6 – 12	
STS crane heightening	6 – 12	
RTG heightening	2 – 4	
Crane out of operation (weeks)		
STS boom extension	6 – 10	
STS crane heightening	6 – 10	
RTG heightening	2-4	

Upgrade and modernisation – two basic ways to electrify RTG cranes

Upgrade and modernisation – a rapid return on investment

Savings

Diesel Electric RTG (3,000 hours per year)	Electrified RTG (3,000 hours per year)	
18.0 litres/hour	40 kW/hour	
1.25 €/litre	0.05 €/kWh	
54,000 litre/year	120,000 kWh/year	
67,500 €/year	6,000 €/year	
Approximate savings per RTG per year: € 60,000 = US\$ 75,000		

ROI expectation: 2 - 4 years (depending on the scope and fuel price)

Variables: Total container block length; conductor bar structure or cable length / Local price level for labor and hardware structures / Single or double sided connection (conductor bar) / Filtering of electric power / RTG voltage transformation / various other minor technical challenges.

Any job

Five regional business centres that cover the world

SALMAR

Why upgrade?

- Maximise the use of your current assets
- Handle bigger vessels and larger volumes
- Optimise crane performance
- Meet your sustainability targets
- Improve safety

Why choose Kalmar?

- A trusted partner with a solid track record and service mindset
- Global reach
- Any crane, any job, anywhere.

Video Crane services projects

CRANE UPGRADES

Thank you!

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Making your every move count.