LATEST ON PORT AUTOMATION
AGENDA

• Konecranes container handling
• Update on yard crane market
• Automation in container terminal
• Automation investments globally
• Konecranes ASC developments
• Why to choose Konecranes
• Remote services and automation
• Summary
YARD CRANE MARKET BY REGION

SOURCES: PEMA first annual global survey of yard container crane deliveries, Konecranes reference list
GLOBAL YARD CRANE MARKET

SOURCES: PEMA first annual global survey of yard container crane deliveries, Konecranes reference list
AUTOMATION IN CONTAINER TERMINALS

- Yard Cranes
  - No drivers in the crane
  - Remote operation for exception handling
- Horizontal Transportation
  - AGVs
  - Straddle Carriers
- Data Flow
  - Equipment, rail, gate
AUTOMATION IMPROVES COST EFFICIENCY IN CONTAINER HANDLING AS VOLUMES GROW

TEU = Twenty-foot equivalent unit
AUTOMATIC STACKING CRANES
RELIABLE OPERATION, BETTER PREDICTABILITY

Konecranes Automatic Stacking Cranes,
APM Terminals, Virginia, USA

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5.9.2012 Latest on port automation
PORT AUTOMATION IS A MEGATREND

- Container ports and terminals with larger container stacks enables more cost effective and safer operation
- Automation enables further efficiency improvements:
  - Higher storage efficiency
  - Faster material throughput
  - Improved predictability
  - Higher eco-efficiency
  - Lower emissions (including noise)
PORT AUTOMATION INVESTMENTS GLOBALLY

- Pilot projects
- Deliveries 1993-2010
- Deliveries after 2010
- Konecranes deliveries
  - Several new projects identified and ongoing
KONECRANES’ ASC DEVELOPMENTS

First automated project delivered on time

In-house TOS interface

Embedded TOS

2005

2007

2009

2011

2013

APM TERMINALS

Virginia, 30 ASC

TERCAT

Barcelona, 36 ASC

Abu Dhabi, 30 ASC + TOS

Sydney and Brisbane, 12 ASC

New Jersey, 20 ASC
AUTOMATIC STACKING CRANES
APM TERMINALS, PORTSMOUTH, VIRGINIA

- 30 x ASCs
- Semi-automated terminal
- First ASC project delivered in time (2007)
ONGOING ASC DELIVERIES
TERCAT, BARCELONA

• 36 x ASCs with in-house TOS interface
• Semi-automated terminal
• First batch delivered 6/2012
ONGOING ASC DELIVERIES
ADPC, ABU DHABI, UAE

- 30 x ASCs with complete TOS included
- Semi-automated terminal
- Delivered 7/2012
- World record delivery time (19 months)
WHY KONECRANES?
TRUE SUPPLIER RESPONSIBILITY THROUGHOUT THE LIFETIME
ACTIVE LOAD CONTROL
INTEGRATED SWAY PREVENTION AND FINE POSITIONING

Example: moving to the right

Horizontal fine positioning without moving the trolley or gantry
TRUCONNECT®
REMOTE SERVICES
FOR PORT CRANES

- Real-time support fits perfectly to unmanned operation
- Delivers effectively Konecranes’ ”Core of Lifting” knowledge to customer
- Supports ”True supplier responsibility” approach
PORT AUTOMATION SUMMARY

• Port automation is a megatrend
• Improves safety, productivity, space utilization and predictability
• Reduces emissions through better eco-efficiency
• Automation projects match well to Konecranes’ approach:
  • True project responsibility
  • Smarter and field proven technology
  • Reliable delivery concept
  • Remote services
NOT JUST LIFTING THINGS, BUT ENTIRE BUSINESSES