How to reduce quay container crane Accidents

Laurence Jones
Director Global Risk Assessment – TT Club
Deputy Chairman – ICHCA International
Container Terminals claims costs

Top 10 = 71% of costs

- Wharf Crane: 12%
- Rain/flood: 10%
- Straddle: 9%
- Truck/vehicle: 8%
- Lift truck: 7%
- Ship in port: 7%
- Theft: 5%
- Fire: 5%
- Yard crane: 5%
- Single person incident: 3%
Quay cranes claims costs

- Boom to ship collision: 20%
- Other Collision: 19%
- Stack Collision: 15%
- Weight, twistlock, cell guide issue: 15%
- Crane collapses: 10%
- Other Spreader, Hoist Issues: 8%
- Twin Twenty Issue: 6%
- Other: 5%
- Wind cranes: 2%

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Boom collision
Boom collision
Boom collisions

20% of quay crane claims costs
Biggest single cause of quay crane claims cost

Prevention:
- Totally preventable with quay crane boom anti-collision sensors
- Laser sensors – www.sick.com

Note:
Trip wire systems provide collision detection
not collision protection.

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Other collisions:

19% of quay crane claim costs

Examples:
- Gantry collisions
- Hatch cover hits ship
- Hatch cover hits crane legs

Prevention:
- Anti-collision sensors for travel
- Crane to crane anti-collision sensors
- Crane driver training
Ship stack collisions

Prevention:
- stack profiling
Boom collapse

Prevention:
- structural inspections annually
- using qualified structural engineers
Other spreader, hoist issues:

Examples:
- Dropping container due to hoist or rope failure
- Slings broke
- Incorrect slinging procedure

Prevention:
- Training for riggers
- Good spreader and hoist system maintenance
- Sling maintenance
Prevention:
- Twistlock load sensing system
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- Twistlock load sensing system
Spreader, twistlock, container weight & eccentricity issues

15% of quay crane claim costs

- Many preventable with twistlock load sensing technology
- Measures weight & eccentricity of each container
- Many other safety features
- Can be installed on any twistlock, on any spreader and on any equipment

Suppliers:
- Bromma – www.bromma.com
- Strainstall – www.strainstall.com
Twistlock load sensing:

Detects & prevents:
- Lifting if not all twistlocks engaged
- Slack rope detection after landing without box

Measures and records:
- Each twistlock & total container weight
  - Safer handling of containers
  - Better ship planning to ensure trim and stability
- Load eccentricity in single & twin lift
  - Help prevent trucks overturning
  - Can side shift spreader before exiting ship cell guides
- Twistlock load cycles
  - Optimise twistlock replacement intervals
  - Spreader & crane life cycle management & overload tracking

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Twin twenty issue

Prevention:
- twin-twenty sensors to detect the gap between containers
Severe weather can happen anywhere today.
Crane blown over - forecast wind

Prevention:
- Cranes secured before the storm arrives
- Storm pins and tie-downs on all cranes regardless of location
Crane blown along the wharf – sudden windstorm

Prevention:
- All gantry brakes working 100% at all times
Summary loss prevention actions:

- Park quay cranes in centre of berth
- Ensure structural integrity of cranes – annual inspections
- Ensure all cranes are pinned and tied-down during storms
- Ensure all gantry brakes are always working 100%
- Install boom anti-collision sensors
- Install travel anti-collision sensors
- Install stack profiling system
- Install twistlock load sensing system
- Install twin-twenty detection system
- Consider automation and remote control
Summary loss prevention actions (cont’d):

- Learn from the experts

- TT Club, ICHCA and PEMA joint publication
  - “Recommended minimum safety features for quay cranes”
  - Available free from TT Club, ICHCA and PEMA websites
Thank you.

Laurence Jones
Director Global Risk Assessment
TT Club
laurence.jones@thomasmiller.com
www.ttclub.com