



quay container crane Accidents

-

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in。









Top 10 = 71% of costs 12% 10% 9% 8% 7% 7% 5% 5% 5% 3% Vard Crane Single Person Incident What Crane Rain hood Straddle UNAN Vehicle LIR Truck Shipin port Thet

Container Terminals claims costs

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Quay cranes

claims costs







2% 5% 20% 6% 8% 10% 19% 15% 15%

Boom to ship collision

Other Collision

Stack Collision

Weight, twistlock, cell guide issue

Crane collapses

Other Spreader, Hoist Issues

Twin Twenty Issue

Other

Wind cranes

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Boom collision



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Boom collision



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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 <u>www.sick.com</u>

Note: Trip wire systems provide collision detection <u>not</u> collision protection.

















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



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Boom collapse



- **SI** Prevention:
 - structural inspections annually
- using qualified structural engineers



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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





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Spreader / twistlock / weight / cell guide issues



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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:

- Lasstec www.conductix.com/en/product.../lasstec-container-weighing-system
- Bromma <u>www.bromma.com</u>
- 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



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Prevention:

- Cranes secured before the storm arrives
- Storm pins and tie-downs on all cranes regardless of location

Crane blown overforecast wind

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Crane blown along the wharf – sudden windstorm



Prevention:

All gantry brakes working 100% at all times



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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















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