

New approaches to container terminal safety

Stephan Stiehler, vice chairman of PEMA's Safety Committee, PEMA, Brussels, Belgium

The Port Equipment Manufacturers Association (PEMA) is to publish new industry recommendations on equipment protection and human safety in container yards. This follows the positive response to last year's *Recommended Minimum Safety Specifications for Quay Container Cranes*. The persistence of accidents – costly in terms of injury and loss of life, equipment damage and reduced productivity – remains a concern, despite a positive trend in improved port safety over recent years.

PEMA's decision to compile its initial publication regarding safety standards for quay cranes, published in June 2011 as a joint initiative with the TT Club and ICHCA International, was prompted by the results of the global analysis carried out by the TT Club that showed 34 percent of asset related insurance claims were directly related to quay container cranes.

While existing technologies significantly improve the safe performance of quay container cranes, and help address some of the most common causes of accidents and claims, many of these features are not currently included as standard when specifying new cranes. Such findings formed the basis for *Recommended Minimum Safety Specifications for Quay Container Cranes*, which is now available for download on the association's website.

The recommendations were warmly welcomed by the industry, and triggered significant feedback and discussion. PEMA was extremely encouraged by the response, which signalled a high level of concern in the industry over safety, and demonstrated that there was a need for such materials to help improve standards at ports.

A broader scope

The success of this first project led the association to acknowledge that the scope of its work needed to be broader to include yard equipment, not simply quay cranes. Furthermore, PEMA members decided to approach safety issues surrounding yard equipment from the perspective of human safety and equipment protection.

The association established special working groups to tackle the two areas. Marco Bernacchioni, sales manager at Advanced Microwave Engineering heads the human safety group, supported by Walter Schneider, TIM Logistics Automation at SICK, and Rainer Kapelski, managing director at KALP Technologies. Stephan Stiehler, strategic industry manager ports, Corporate Solution Center, Logistics Automation at SICK is chairing the equipment protection brief, supported by Oleg Ermolaev, president of Baltkran.

The results of the current initiatives will be made available in a document entitled *Recommended Minimum Safety Specifications for Yard Equipment*, which is scheduled for publication at this year's TOC Europe as a new joint initiative between PEMA, ICHCA International and TT Club.

The document is set to include safety recommendations for rubber tyred gantry cranes (RTGs), rail mounted gantry cranes (RMGs), automated stacking cranes (ASCs), straddle carriers, lift-trucks and reach stackers, automated guided vehicles (AGVs), terminal tractors and trailers.



Port of Rotterdam.

Credit: SICK AG

New ways to identify risks

Underpinning the new recommendations is a more structured appreciation of risk and its impact on safety. By analyzing the likelihood of events that cause damage to personnel or property, we can classify different types of risk.

Risks that may result in injury to personnel include health risks, safety risks and 'crosscutting' or organizational risk. Health risks are defined as those that involve exposure to chemical carcinogens and mutagens, or physical or biological agents, sources of air or noise emission, vibration, and ultrasonic radiation. Safety risks cover situations that may result from an accident caused by contact with a tool or a mobile structure.

Crosscutting or organizational risk includes risks that are dependent on so-called business dynamics: the working relationships, interpersonal and organizational models that exist in



RTG safety: pathway protection.

Credit: SICK AG

a workplace. The PEMA working groups are dividing the process of risk assessment into five phases:

1. Identify hazards and risks
2. Evaluate and assign a priority order
3. Decide on preventative action
4. Implementation
5. Monitoring and review

The document seeks to advise port and terminal operators on how to resolve and prevent those safety risks that specifically concern the dynamics within the workplace which pose an accident risk.

Prevention is the key

Serious accidents – causing injury to personnel and damage to equipment – can be more readily avoided with the implementation of effective data communication and advanced technologies that actively sense dangers, and identify and enable preventative measures before accidents happen. The fundamental innovation in thinking about safety that PEMA is seeking to support is to make continuous risk assessment, in real time, second nature to the port industry.

Standards and certification

The legal framework governing such systems has yet to catch up with technological advances made in recent years. This is an area that we hope to gradually improve in the months and years ahead. We hope to see the wider introduction of ‘active safety technologies’ in the port industry and the regulatory framework associated with it.

Ideally, we would like to see industry bodies supporting the trend towards active and detecting technologies through standards and certification that make such technologies standard in working environments considered high risk. PEMA’s hope is that its upcoming document could form a starting point for input to improve current legislation which, given the new technologies in use and their continued rapid development, is today inadequate.



STS safety: boom collision prevention.

Credit: Getty Images

ABOUT THE AUTHOR

Stephan Stiehler is vice chairman of PEMA’s Safety Committee, established to foster best practice and knowledge in port and terminal safety. Stephen is also strategic industry manager ports, Corporate Solution Center Logistics Automation at SICK AG, a global provider of sensors and sensor solutions for industrial applications.

ABOUT THE ORGANISATION

The **Port Equipment Manufacturers Association (PEMA)** provides a forum and public voice for the global port equipment and technology sectors, reflecting their critical role in enabling safe, secure, sustainable and productive ports and thereby supporting world maritime trade.

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For more information on this material:
Michael Scheepers
Email: michael.scheepers@pema.org

For further details about PEMA and its activities:
Rachael White, secretary-general, PEMA
Email: rachael.white@pema.org
Web: www.pema.org