

September
2019

RAM
SPREADERS

Newsletter

OSMAG
GROUP COMPANY

Keeping you up to date with the latest news

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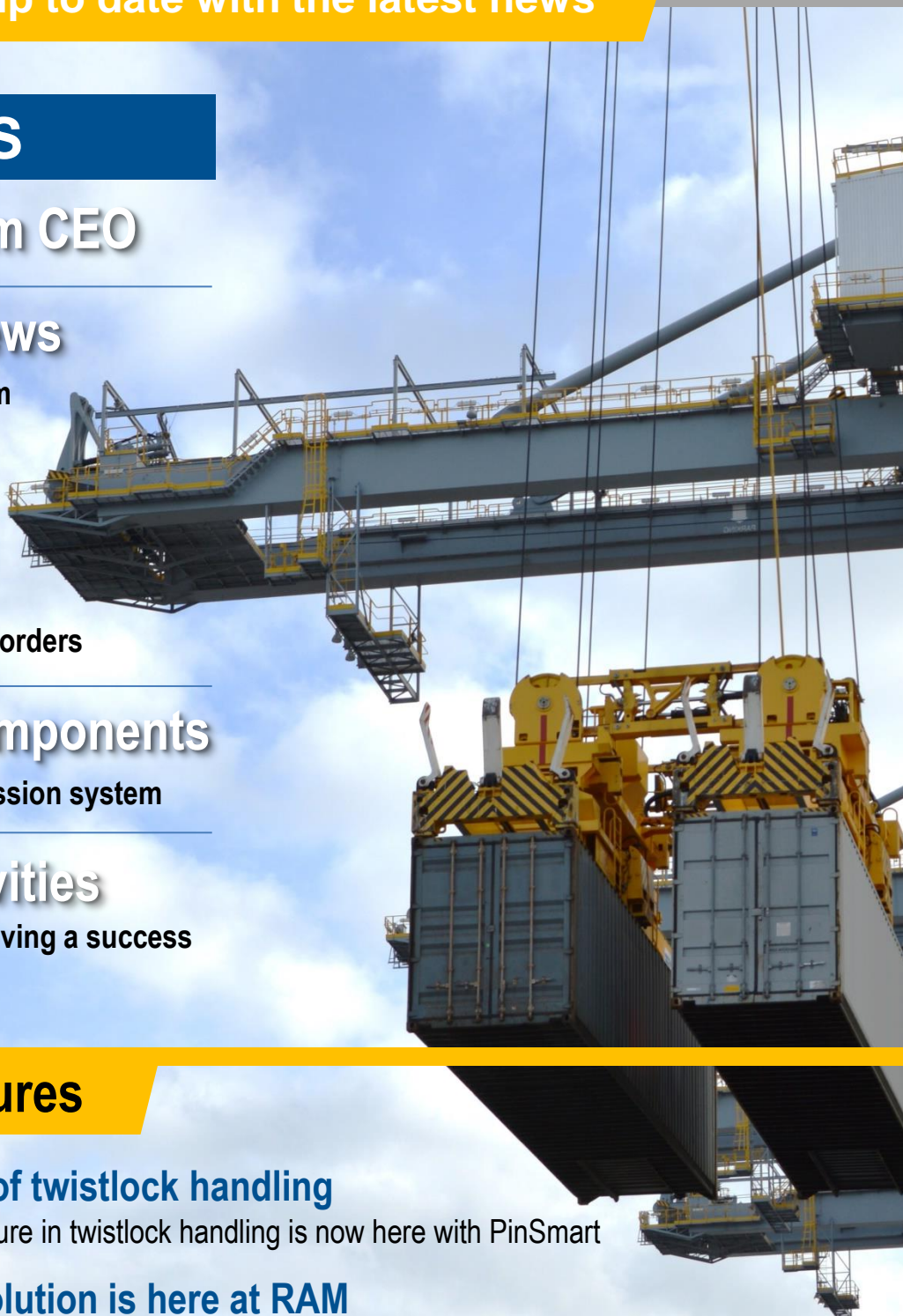
Special Features

The automation of twistlock handling

RAM's vision of the future in twistlock handling is now here with PinSmart

Pipe handling solution is here at RAM

Pipe handling at its very best with RAM's Pipe Handling Spreader





Message

By **Philip Lee**,
Chief Executive Officer

Dear Friends & Colleagues

Since our last newsletter, it has been a busy time at RAM. Our team has been working on a number of new product innovations which we will share with you in this newsletter.

Home Port Singapore

Our company's headquarters have been based in Singapore since 1992. The Port facilities are not far from our offices. For a long time, the Port of Singapore has ranked among the world's largest ports, and we at RAM have been very proud to be a part of the Port's growth.

The partnership between RAM and the Port of Singapore has helped to bring about a creative approach to container handling.

For many years the RAM team has focused on the support and growth of our relationship with the PSA, and we are very proud to have received another order this month for the newest PSA container terminal.

The Tuas Terminal will be one of the most advanced terminals in the world, and the SISU team has been working on several new container handling products that will feature technologies incorporated into our spreader's.

New Products

RAM are pleased to launch two new products, one for pipe handling and the other, for automated twistlock handling, the RAM PinSmart II machine.

These new products have been developed in collaboration with our industry partners. RAM has worked closely with ports around the world to solve problems, inspired by the attention on a new era of safety for dock workers.

Confidence Raised

As part of the RAM-SMAG Group's manufacturing capabilities, RAM's innovative solutions have raised confidence in our products for marine terminals around the world. More than 1,500 attachments are produced per year from our facilities in China, India and Germany.

We hope you enjoy reading the following newsletter and look forward to you incorporating RAM's newest technology in your cargo handling operations: *Philip Lee*



Innovations boosting customer business

Transnet Port Terminals

Repeat order helps Transnet Port Terminals commit to its sustainability agenda and reduce dust.

Following the introduction of Containerized Bulk Handling at Port Elizabeth Container Terminal (PECT) in South Africa, Transnet Port Terminals (TPT) placed a repeat order with RAM spreaders for four additional RAM Revolver's for bulk handling.

TPT handles large volumes of bulk exports annually at the Port Elizabeth Container Terminal using existing RAM Revolver equipment and the Containerized Bulk Handling process. The terminal recently invested in a repeat order for four new RAM Revolver® units, to help increase productivity and throughput for their customer base.

Local Community-Supporting Local School

RAM Spreaders and Transnet are both socially aware companies, who as a result of the project, are helping to support the local community by employing local technical staff & provide training programs as well as subsidizing teachers & funding for a local school.



APM Terminals Poti-Georgia

Delivery of RAM Revolver® spreader boosts business for APM.

The APM Terminals Poti facility, located at one of the major seaports in Georgia on the eastern Black Sea coast, recently took delivery of a new RAM Revolver® for operation with their Mobile Harbour Cranes.

The Revolver is a significant part of the containerized bulk handling system recently adopted by the Port. The Port's growth is a result of activity from several local dry bulk customers.

The use of RAM Revolver® and a Containerized Bulk Handling system, allows the Port to handle bulk materials with a simple spreader change easily.

Growing Business and Reducing Material Loss

Local companies importing, blending and exporting locally mined copper concentrate through the Port of Poti are APM Terminals' main customers.

The system gives APM Terminals flexibility to handle all commodities with existing equipment using CBH; while the client benefits from a clean, green, zero product loss system.



RAM Spreaders Cameron Hay presenting ceremonial bottle to Rex Gundle, Port of Poti Chief Operating Officer

Key Facts of Containerized Bulk Handling

Clever Use of Capital

Both Ports have been able to grow their business using the flexibility of existing assets and the containerized bulk operation. Capital costs of the Containerized Bulk Handling system are a fraction of the cost of new bulk loaders. The system is very flexible, utilizing a container-based operation.

Clean & Green!

With both Port's located close to residential areas, schools, towns and cities, dust is a sensitive issue.

The Containerized Bulk Handling system, combined with a hatch misting system, results in the **greenest bulk** loading system in the world, with zero fugitive dust emissions. This green method of loading is achieved by:

1. The Revolver adds very little energy to the bulk material as it tips at the very bottom of the hatch during a controlled 360-degree rotation, thus producing less dust
2. A hatch mounted dust suppression system, which stops any small amounts of dust from rising.

Spreader Components Explained

RAM ShockAbsorb™

Expanding Spreader Lifespan

RAM Spreaders designs and manufactures Ship to Shore Spreaders with a number of objectives in mind: Two of these objectives are longevity to ensure that the spreader is built to last and reliability, to achieve minimal downtime during operations.

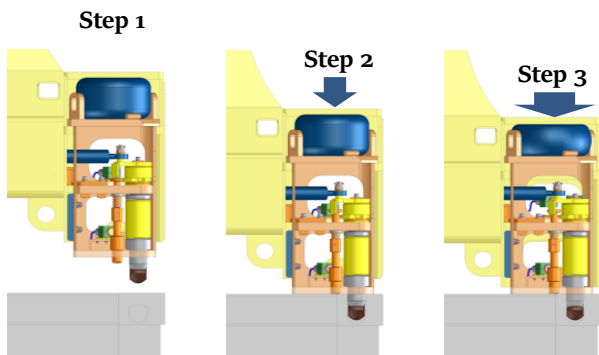
To achieve these, RAM designed the 'ShockAbsorb' system, a lightweight, maintenance-free high energy absorption device that instantly absorbs the enormous impact forces and vibration encountered when landing the spreader on top of a container.

Fast landing to meet operational targets can result in significant impacts when approaching onto containers. Repeat impacts of this nature may cause damage to the structure of the spreader and its components over time.

The 'ShockAbsorb' system significantly mitigates the potential damage caused to the equipment due to impact forces; in turn, reducing spreader downtime and extending component life.

RAM Spreaders was the first spreader manufacturer to introduce a spreader shock absorption system, which won the Seatrade Award for Innovation. 'ShockAbsorb' was originally a joint development project between PSA Corporation, The Economic Development Board, The National University of Singapore and RAM Spreaders.

The below illustration indicates areas where the absorber mitigates most of the energy force and impacts from landing the spreader.



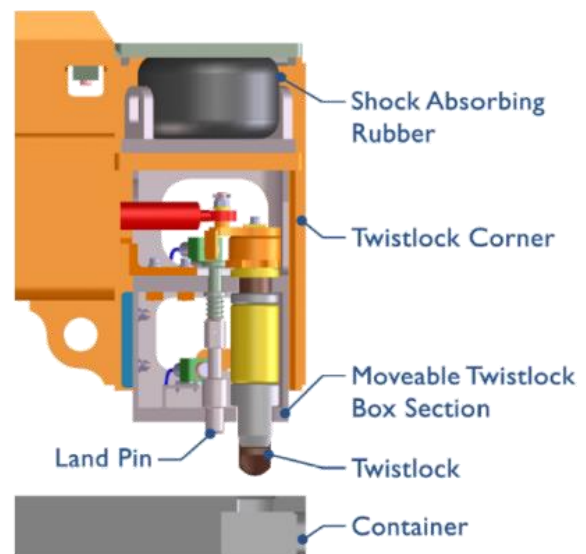
The absorber requires no short term replacement and is designed to last between 3 to 5 years subject to usage and the severity of impacts it encounters. 'ShockAbsorb' enhances the reliability and performance of the spreader.

'ShockAbsorb' is a more straightforward and more robust system than systems of hydraulic or gas filled strut nature. The system has been designed to work with RAM's standard twistlock assembly.

Noise Pollution

As new container terminals are developed and existing ones expand, bigger and faster cranes deployed to accommodate larger vessels, which can have a negative impact on noise pollution.

The RAM 'ShockAbsorb' system is designed to absorb up to 85% of every shock through the main structure, significantly minimizing environmental noise pollution.



“Did you know RAM ShockAbsorb™ is fitted as standard to all RAM Heavy Duty Twin Lift Spreaders.”

Internal Activities

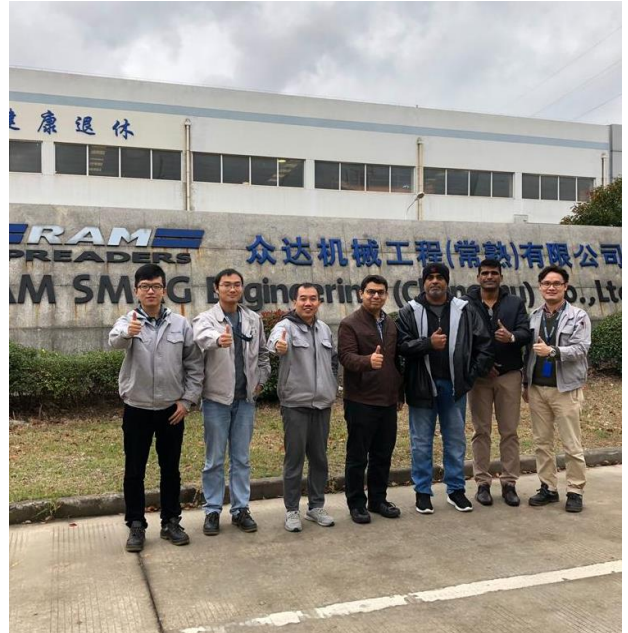
RAM Manufacturing Facility

Customer Visit

Earlier this year, several RAM customers attended our state of the art manufacturing facility in China.

Guests from Salalah, Gabon, Kenya Ports Authority, and Rotterdam Gateway received valuable training for their RAM spreader products following recent new orders.

Factory visits provide our customers with vital knowledge of spreader systems and components, routine maintenance and effective troubleshooting for their spreader products.



Internal Activities

RAM Manufacturing Facility

Component Endurance Testing

As part of design verification and component selection sustainability, critical components are tested 'in-house' by RAM to ascertain sustainability and reliability for the tough world of spreader operations.

Twistlock pins, for instance, are produced through a rigorous forging and controlled heat treatment process of every pin before they are certified safe to use. *You can read more about this topic in our last newsletter by [clicking here](#).*

Flipper actuators are also tested 'in-house' for verification of the component's durability. The performance verification of the actuator's includes checks and inspections on the speed of operation, gathering and holding torque and checks against leakage.

Endurance tests are conducted using specialized test benches, enabling the actuator to be operated continuously in outdoor conditions.

Below: Actuator endurance and leakage test



Below & right: Spreader undergoing load testing



Special Feature

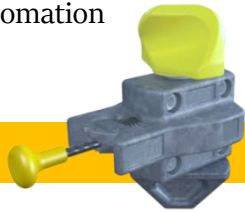
Twistlock Handling - The Last Major Port Challenge

The Drive for Automation

The top 100 ports in the world are now handling more than 700 million TEU's. Our industry has witnessed growth in automation and technology as we strive to improve terminal productivity.

One key area of port operations has been left behind in the drive for automation

TWISTLOCK HANDLING



In this article, we discuss the function of the twistlock cone, the hazards of manual handling of cones, and the systems being used to help improve the task.

Twistlock Cone Function and Types

Twistlock cones are designed to secure shipping containers together on the ship safely. They are fitted into containers corner castings at the Port during the loading process and removed at the Port of discharge.

Millions of twistlocks of various types and designs are in global circulation today. Each provides a unique way of locking. More new designs being developed and circulated continuously.



**“ 2 billion twistlocks
handled every year by hand ”**



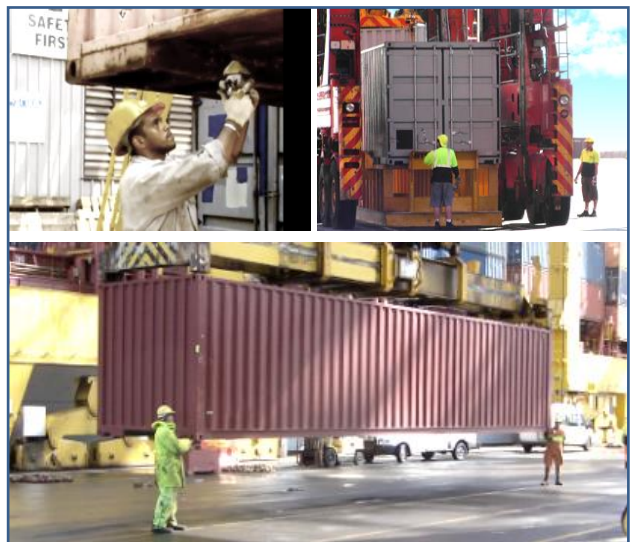
Taking the Strain

Due to the vast number of twistlock cone designs, it is necessary to deploy port workers to carry out this task.

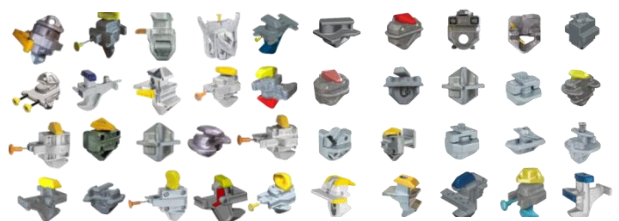
Manual handling of twistlock cones impose a strain on worker safety, productivity and operations management.

Twistlocks handling presents three main hazards:

- Suspended loads
- Interaction with horizontal transport
- Manual handling strains, sprains and falls



A selection of twistlock cone types in global circulation



Special Feature

Twistlock Handling - The Last Major Port Challenge

Systems to Improve the Process

Ports have for many years tried to improve the process of twistlock removal.

These include:

Movable Platform under the Crane

Used mainly in straddle terminals. The platform is an intermediate 'point-of-call', to drop the box without the crane having to wait, or have workers being near a suspended load.

Remote Pinning Stations

Designed to remove workers from the dangers of quayside traffic. Consisting of small hut type shelters, located away from the crane, where workers remain until the truck arrives, before taking the cones from the container.

Crane Platforms

A similar way to remove workers from quayside traffic, consisting of a crane based platform, where the container is positioned, and stevedores remove the cones from the container.

Partial Automation

For a decade many companies have attempted to partially automate the twistlock handling process.

These partially automated systems are similar to an inverted spreader, and despite working well, they have faced a number of man/machine interface issues, such as limited adoption in a conservative industry.

This type of system is seen in operation at the following link:

<https://vimeo.com/161193870>



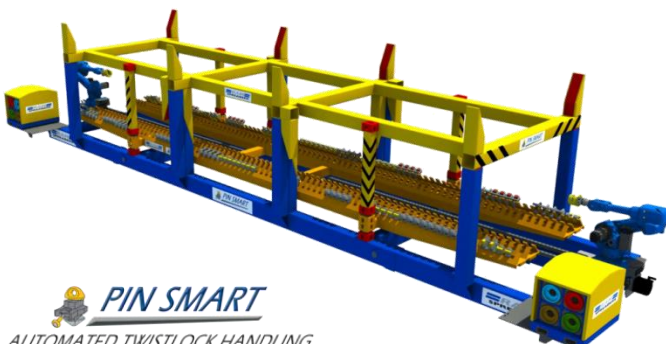
“ Mega automated ports plan to have automation of twistlock cone handling ”

The future of stevedoring

With significant growth in container volumes, there are a number of automated ports being announced under planning and development. These ports plan to have automation of twistlock cone handling. For it to succeed, the systems need to be capable of fully automating the process, including all the types of twistlock cones, while maintaining current productivity as a minimum standard.

Next Generation of the RAM Automated Twistlock Handling Machine

With a combined 50 years of experience in handling of twistlock cones, Cameron Hay, Project Manager for PinSmart and lifting specialist Mani Chellappa, have teamed up to 'close in' on the development of a definitive fully-automated twistlock handling machine.



 **PIN SMART**
AUTOMATED TWISTLOCK HANDLING



Demonstration Coming Soon!

The full-sized proto-type of PinSmart will be available for demonstrations at our Singapore facility from Q4 2019.

For more information please e-mail:

marketing@ramspreaders.com

Special Feature

Pipe Handling- Challenges & New Solutions

Safety & Efficiency is Crucial

In the majority of cases, pipes are handled manually with slings and chains by stevedores. This process is dangerous and slow.

As pipes come with a variety of external & internal diameters, lengths, and coatings, there are many challenges to overcome to automate the pipe handling process.

Conventional Load & Discharge

Pipe handling at ports is generally carried out conventionally with a combination of rudimentary fixed metal frames, slings, chains and hooks.

The same handling method applies when discharging pipes from a truck to yard, and then yard to ship, or vice versa.



Conventional pipe handling carries with its many operational and safety drawbacks:

- ❌ Only one or two large diameter pipes can be handled at once.
- ❌ Up to twelve workers in total are needed to handle pipes from a truck to frame handler and into the vessel's hold.
- ❌ An unstable long load in a ship's hatch can result in safety risks for employees.
- ❌ Pipe handling must be done as slowly as possible to reduce the safety risk to workers, trucks & vessels.



Quayside

Ships Hold

Special Feature

Pipe Handling- Challenges & New Solutions

The RAM Pipe Handling Spreader

Has been designed for use on Ship Cranes and MHC Cranes and capable of handling a variety of pipe diameters and lengths, thanks to its specially designed separating telescopic quad beam system.

With Open Arms

At the end of each adjustable hydraulically operated telescopic beam, end grippers with pipe protection plates provide safe and secure handling of a wide variety of pipes, during lifting operations.

Lights - Camera - Action

Optional features include the very latest innovative technology to provide the crane operator vital data and information during lifting and maneuvering operations. These include a height indication system, diagnostic display, camera monitoring system, LED lighting for low light operations and a gyroscope sensor detecting angular rate and velocity.

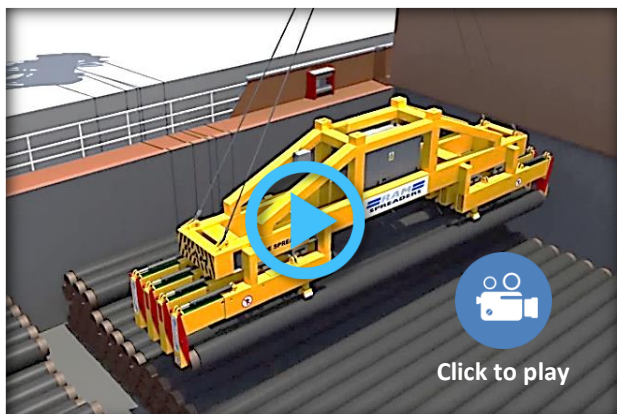
Power Up

The RAM Pipe Handling Spreader is powered from the crane's power supply, or as an option, it can be supplied with a self-contained diesel power unit. The controls for the spreader can be performed either by remote control or from the crane operators cabin.

Lifting Configurations



Video



Technical Specifications

Type: Pipe Handling Spreader

Application: MHC/Ship Crane/Offshore Crane

Power: Electro-Hydraulic

Control: Wireless Remote Control

SWL: 60 tonnes

Beam Type: 8 Detachable Telescopic Beams

Pipe Diameter: 4 x 14-18inch | 3 x 19-35inch | 2 x 36-60inch

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