

CONTAINERISED BULK HANDLING

The environmental benefits



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M H C 0 5

Current Bulk Handling Logistics



Current Bulk Handling Logistics

Huge volumes of airborne dust can be generated when bulk cargo materials are handled multiple times during the current logistics cycle...

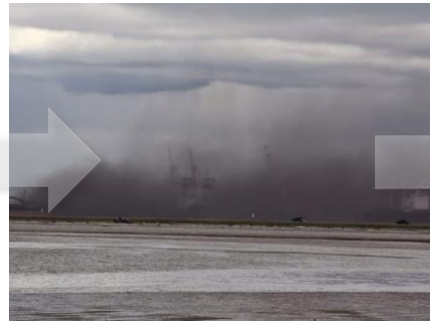
TRANSFER POINTS



OPEN WAGONS



STOCKPILES



SHIP LOADING



Current Bulk Handling Logistics

...but can it be sustained over time?



Dust is generated at any point in the logistics cycle

When energy is added to the material

Resulting in pollution and loss of valuable commodity

Commodity



Energy



Dust



Pollution



Loss of commodity

Current Bulk Handling Logistics

...and the exposure to harmful airborne pollutants

Workers involved in day-to-day handling of certain types of bulk are exposing themselves to harmful airborne pollutants.

Over time, this can lead to serious respiratory problems that can result in lung diseases such as:



**Silo-Filler's
disease**



**Black Lung
disease**



**Farmer's Lung
disease**

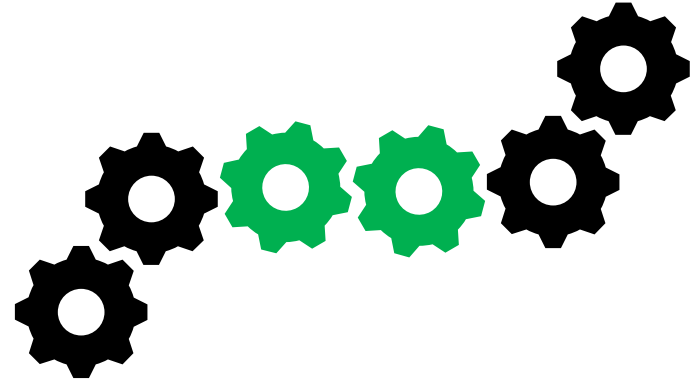


**Manganese Dust
Neurotoxin**

Current Bulk Handling Logistics

Is there a solution?

Companies are now looking at different solutions to help **reduce levels of contamination...**

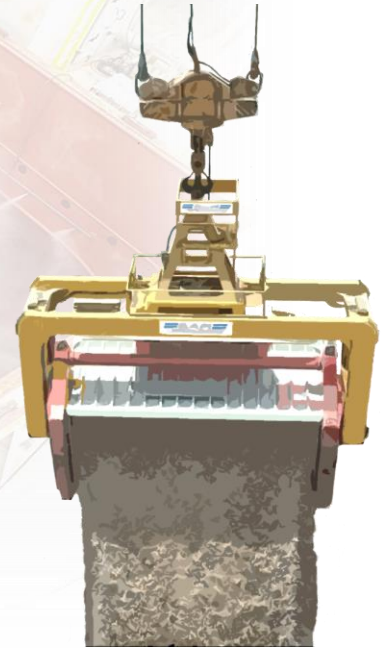


...these solutions also need to be cost effective and **easy to integrate** into current bulk handling logistics.

THE SOLUTION - Containerised Bulk Handling

One solution that meets all criteria is:

CBH (Containerised Bulk Handling)



Containerised Bulk Handling

How does it work?

Using a **4-stage** process, bulk is handled with minimal transfer points...

...resulting in **reduced commodity loss and contamination** compared to conventional bulk handling processes.



Containerised Bulk Handling

1



Fill & Seal container

- Existing equipment used
- Self locking lid system
- No loss of commodity
- No clean up
- No contamination

2



Transport container
by Rail or Road

- Sealed containers – No dust!
- No contamination
- No loss of commodity
- Existing infrastructure used

3



Store containers
at port or facility

- Fast & effective loading
- No stockpile – No dust
- No contamination of commodity
- Store multiple types of commodity in same area with no cross contamination

4



Unload using
Rotating Spreader

- For all types of crane
- Loads of up to 1,000TPH *
- SWL up to 45T *
- Twistlock & grippers secure container during rotation

What equipment is needed for CBH

Containers Sealed Open-Top



Transport Road / Rail / Both



Rotating Spreader RAM Revolver



CBH is available for all types of crane

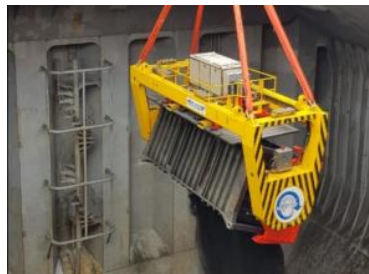
MHC



STS



SHIP



BRIDGE



REACH STACKER



FOR ALL TYPES OF CRANE

DUST FREE EXPORT LOADING

CBH
4 stage
process

Fill container at the mine or facility
Seal with lid
Transport
Load at final destination



RAM
SPREADERS

AND ALSO FOR IMPORT

The CBH IMPORT

Port to Shed

RAM
SPREADERS



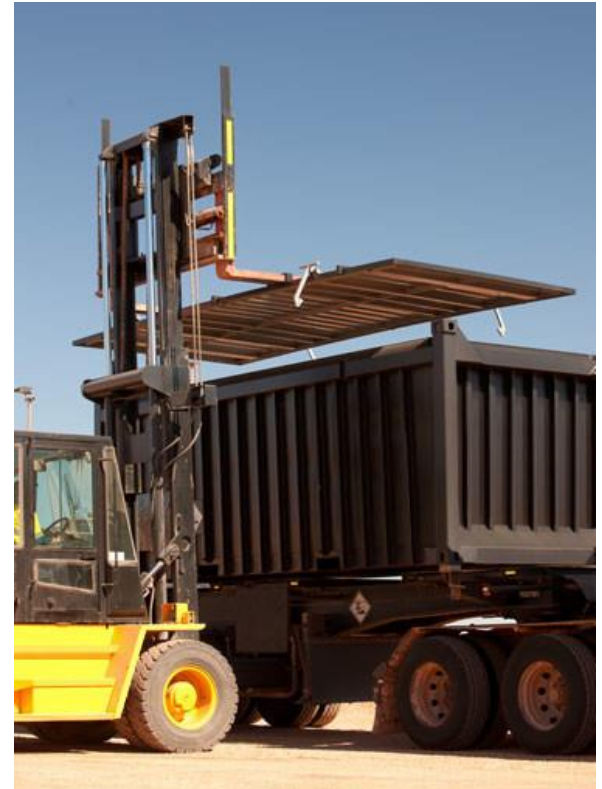
- Grab-to-Hopper system loads commodity into open-top containers on trucks

Environmental Benefits

CBH protects the commodity and environment from contamination by containerizing the bulk.

This is achieved by using sealed open-top containers, which have three functions:

- Mode of Transport
- Storage
- Unloading



Environmental Benefits

By sealing the open-top container, **the commodity only sees the light of day immediately before unloading**, with RAM Revolver removing the lid automatically.



Environmental Benefits

Add further protection

By adding a misting system to the operation, dust plumes are contained within the ship's hold during the unloading process.



Containerised Bulk Handling

Over 10 years in service

The RAM CBH system has been in operation for over a decade with the first RAM Revolver still in operation today.



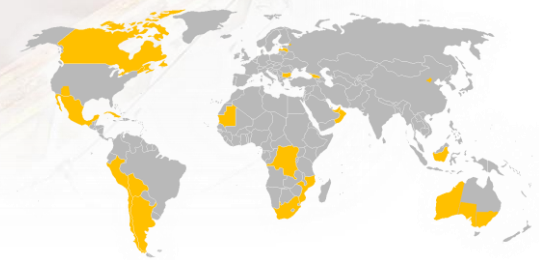
Award-Winning

It has also received 2 industry awards for **Environmental Protection** and **Innovation** from its ability to reduce the amount of pollution and its flexibility to integrate into current bulk handling logistics.



Global Presence

Over 50 projects in operation worldwide used by ports, terminals and handling facilities on **all types of crane**, handling **all types of dry bulk commodities** from coal to biomass.



CASE STUDIES

Case Study



COMPANY: Transnet Port Elizabeth

COMMODITY: Manganese

CRANE: Ship to Shore

Case Study



Case Study



CONTAINER & CBH BULK HANDLING TERMINAL



Case Study



CONTAINER & CBH BULK HANDLING TERMINAL

VEHICLE EXPORT TERMINAL



Case Study

CBH has been in operation since 2014 at Port Elizabeth Container Terminal.

Handling an increasing large volume of bulk, in 2019 Transnet Port Terminals (TPT) placed a repeat order for a further 4 units of RAM CBH.



Dust Free Loading in Port Elizabeth

Delivery of 4 Revolver® spreaders helps Transnet Port Terminals commit to its sustainability agenda and reduce dust.

April 2019



Summary

Following the introduction of Containerised Bulk Handling at Port Elizabeth Container Terminal (PECT) in South Africa, Transnet Port Terminals (TPT) placed a repeat order with RAM spreaders of 4 units of the RAM Revolver® bulk handling spreader.



TPT handles large volumes of bulk exports annually at its Port Elizabeth Container Terminal and recently employed containerised bulk handling. The terminal invested in 4 units of RAM Revolver®, to help them service their base of customers better.



Flexible Approach & Clever Use of Capital

Containerised Bulk Handling (CBH) allows for easy handling of bulk materials with a simple spreader change on the cranes. The cost of the CBH system is a fraction of the cost of new bulk loaders.

Speaking at the handing over ceremony of the Revolver's, RAM Spreaders Cameron Hay commented *"Since the first order of Revolvers In PE more than 5 years ago the CBH system has grown significantly. These new revolvers will allow TPT to ensure environmental compliance"*

www.ramspreaders.com

A Route to Market for Miners

Mining companies are now able to find a new route to market using CBH for exporting bulk through standard container terminals, which until now has only been possible with heavy investment and an expensive infrastructure.



Clean & Green!

PECT is located near to the main town of Port Elizabeth and like all cities dust is a sensitive issue.

The Containerised Bulk Handling system, using a hatch misting system is the greenest loading system in the world with zero fugitive dust emissions. It achieves this through a 2 pronged method:

1. The Revolver® adds very little energy to the bulk material as it tips at the very bottom of the hatch.
2. A hatch based dust suppression system mounted on the hatch, which stops any small amount of dust from rising up.

Local Community—Supporting Local School

RAM Spreaders & Transnet Port Terminals are both socially aware companies, who as a result of the bulk handling project, are helping to support the local community by employing a number of local technical staff and provide training programs to help further their skills in this new technology.

The local Green Apple Pre-school close to the Port Elizabeth Container Terminal is also benefiting from the new project, with RAM & TPT helping to subsidise teachers and provide funding to help the school add three new classrooms. This will allow more children in the area to receive a decent foundation education and in turn help the local area continue to prosper.

Case Study




LOCATION: Poti - Georgia

COMMODITY: Copper Concentrate

CRANE: MHC

Case Study

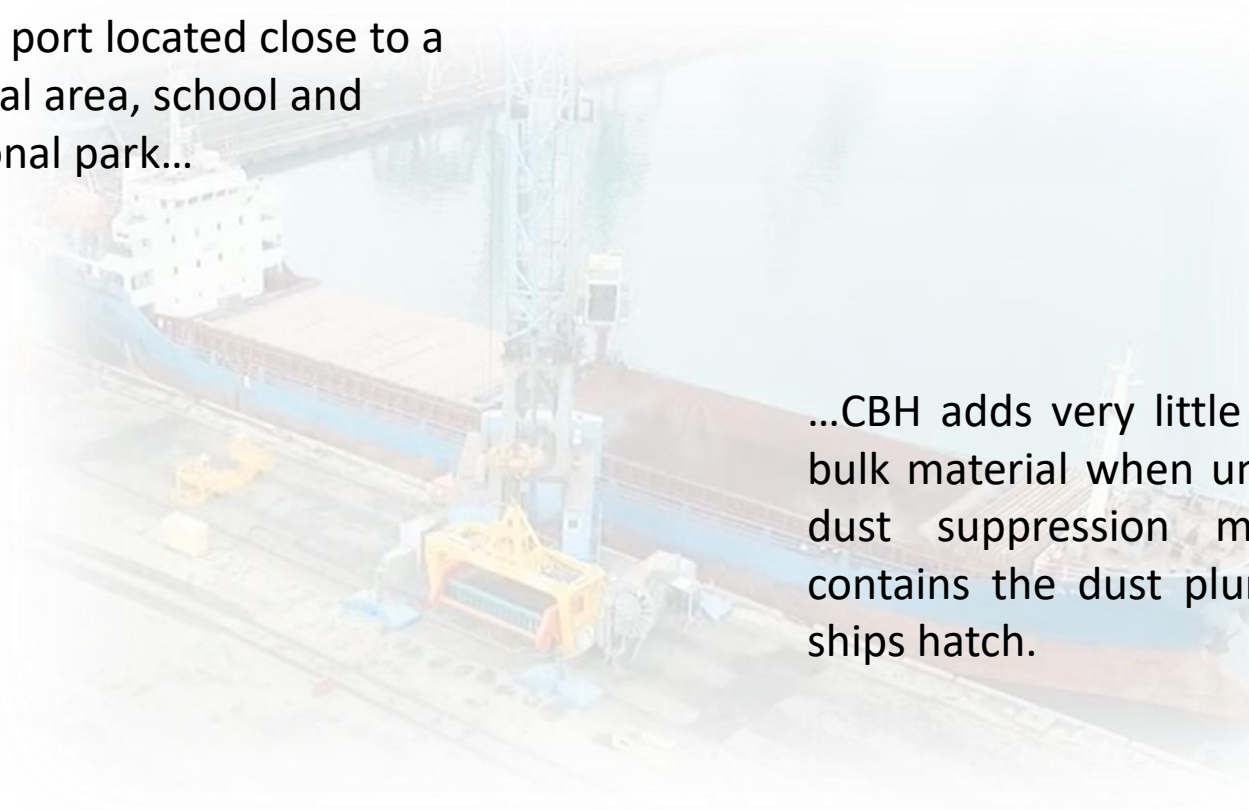
CBH introduced to support local dry bulk clients...

A large blue truck is shown at a port, with a yellow crane lifting a red and yellow spreader. The truck has the text "320002" and "2805" on its side. The background shows other cranes and a clear sky.

...with local companies importing, blending and exporting locally mined copper concentrate, it gives the port flexibility to handle all commodities with existing equipment using CBH.

Case Study

With the port located close to a residential area, school and recreational park...

An aerial view of a port terminal. A large blue and white cargo ship is docked at a pier. A large yellow and blue spreader is positioned on the pier, with its crane arm extended over the ship's deck. The background shows a body of water and a distant shoreline.

...CBH adds very little energy to the bulk material when unloaded, and a dust suppression misting system contains the dust plume within the ships hatch.

The many benefits of Containerised Bulk Handling

Containerizes the bulk
Low set up cost
Environmentally friendly
Award winning solution
No contamination



COST

