

Australian container terminal introduces containerised bulk to improve profitability

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DP World Adelaide was the sole container terminal in Adelaide back in 2008. With little prospects of growth, the terminal implemented an innovative program of dust free containerised bulk handling, a success story that is now being emulated across the globe.



RAM's Revolver® spreader

To expand its business the terminal needed to look outside traditional container growth and tap into the burgeoning mining industry in Southern Australia. Working with the port authority, DP World approached IMX Resources, who were unable to access the market with limited bulk loading facilities. DP World proposed a system that would use containers to transport the ore from the mine directly to the hatch of the shipping vessel.

In order to load bulk in a container terminal a new type of spreader had to be developed. DP World approached RAM Spreaders to build a tipping spreader, which RAM named the "Revolver®". The Revolver® allows product to be containerised at the pit only to be exposed at the bottom of the ship's hatch.

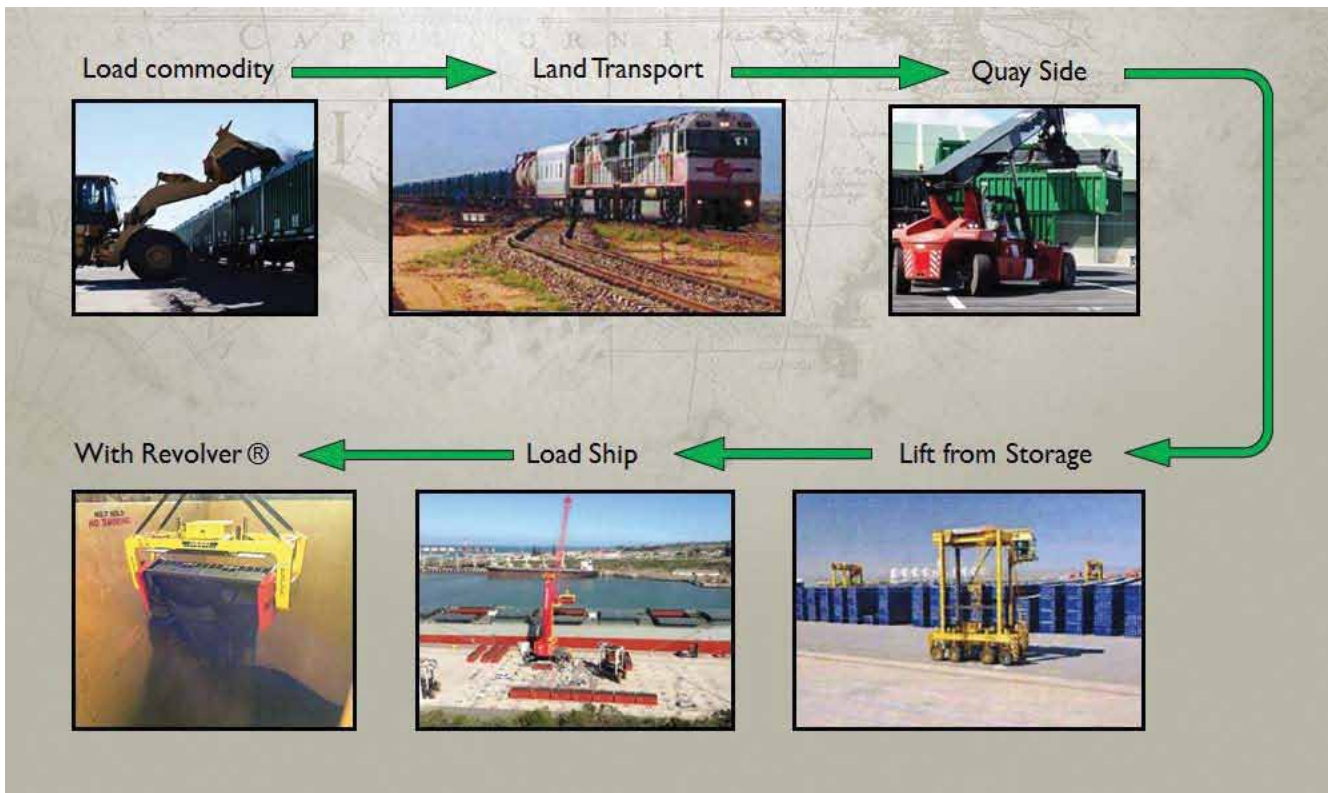
The new process was developed with direct focus on the environment. Bulk containers are handled in exactly the same way as traditional containers using existing port equipment; the only difference can be seen at the quay. Instead

of a container spreader, the Revolver® is fitted to the crane which picks up the container from straddle and hoists it into the bottom of the ship's hatch. The Revolver® rotates the container and tips 35 tonnes of ore into the ship's hatch. During this process a misting system is employed above the hatch to capture dust emissions which are minimal.



Ray Lee, Managing Director of Portside Solutions and Director of DP World's Regional Operations during the project's implementation answers some questions and provides further insight.





The containerised bulk handling process at a glance

This was a new process did you have any hurdles to get it started?

“Yes we did, there was concern environmently that this would create pollution being so close to the city. Thankfully the Logistics Manager at the Port Authority, Daryl Gray and the then Terminal General Manager Andrew Towers, were very receptive to innovation. Working with them and the equipment suppliers, we were able to deliver a dust free solution with the RAM Revolver and misting system in place.”

Why is the process so clean?

“There are a few reasons. Firstly, the product is containerised from the mine, so there are no open stockpiles, while product loss during transportation is prevented utilising the patented Intermodal Solutions Group (ISG) automated lid lifting system. Secondly, the Revolver system inhibits the displacement of dust into the air, so airborne contamination is negligible compared to traditional bulk loader systems. Thirdly, the use of a misting system fitted to the hatch of the vessel captures any possible dust emissions.”

You say it is clean, were you able to measure this?

“Yes we did. There were a large number of studies done to show that dust from the process was zero at the perimeter of the

terminal. The EPA visited and signed off to say that the system of containerised bulk handling with a Revolver and misting system was best practice.”

Did DP World do this alone?

“No, we had a great deal of help from Daryl Gray from the port authority and from the equipment suppliers, particularly RAM. The key to the system is the Revolver spreader. RAM took a leap of faith to build these units on spec. DP World has now implemented the system in Africa (Mozambique) as well.”

How does the system productivity compare to traditional bulk loader?

“In this system the payload of ore per box is 35 tonnes. We were able to achieve 25-30 cycles per crane which averages out at approximately 1,000 tonnes per hour per crane. With two cranes that’s 2,000 tonnes per hour.”

What were the benefits to the miner IMX?

“They have a system with virtually no capex. The containers are leased, the other equipment including the Revolver and misting system were purchased by the port. All of the equipment is ISO standard and can be handled by existing cargo handling equipment. The efficiency of the Revolver system greatly increased IMX’s pit to port efficiency in terms of time and cost”

How did it benefit DP World?

“We handled up to 5,000 extra containers per month with minimal investment and largely sunken labour costs. The bulk handling solution provided the answer to underutilised vessel capacity at the quayside. This in turn had a positive impact on the profitability of the Adelaide terminal.”

Did you have any funny stories in getting the project going?

“Yes, there are many, but the best one was from the sailing squadron next door. They came to protest about the system at the terminal one day saying that they would not allow this to operate as it would mean red dust on their sailing boats. They had slack jaws when we told them that it had been running for six months with zero dust emissions.”

Is the containerised bulk handling system gaining traction in other places?

“Yes there are several projects in Australia, Africa and South America for prominent companies such as Exxaro and Transnet. I have been using my experience in my current role as Managing Director at Portside Solutions, working closely with Daryl Gray of Gray Bulk Concepts to replicate the Revolver solution in several other continents.”