

Cleveland Cascades systems lower dust emissions

Ever-increasing global consumption of commodities such as alumina, potash, iron ore and grain has brought well-documented challenges to the bulk handling industry and port operators the world over. As shipping volumes have grown, so have the demands on the industry to provide increasingly efficient bulk handling systems. Increased efficiency often means increased throughputs, which, for many dry bulk materials can increase dust emissions, leading to environmental pollution and putting operator safety at risk.

This efficiency vs. safety dilemma that faces the bulk handling industry is well known to Cleveland Cascades Limited. Based in the United Kingdom, the company has provided over 500 loading chutes the world over since 1992. The first of these chutes was in fact borne out of dust emission issues relating to the loading of potash in Middlesbrough, England.

“The Cleveland Cascade Chute originated from an in-house project development at a bulk handling facility in the early 1990s,” says Chairman Ian Barnard. “The facility faced pressure from port operators and surrounding businesses relating to the safe and efficient loading of potash. At the time we looked at the existing market for loading chutes but were unable to find a system to meet our requirements, so we put our heads together and designed our own system — which resulted in the Cascade chute being created.” Cleveland Cascades Ltd was formed as a private company specializing solely in the design and production of cascade- and conventional-style loading chutes and the company has continued to develop and improve the loading chutes manufactured.



Case Study 1: Potash – ThyssenKrupp, Germany

The Cleveland Cascades cascade system was developed with the safe handling of potash in mind. This close-up shows the unique cascading of the material throughout the length of the chute, which minimizes the build-up of corrosive dust particles.



Case Study 2: Alumina – Voest Alpine, Australia. *In terms of dust emission control, alumina is one of the most problematic materials to handle. With particle sizes of less than 75µm, airborne dust can be a risk to both operator health and the wider environment. Note that the entire Cleveland Cascade chute is clearly visible in the confined space of the ship's hold, and dust is minimized, despite loading rates of up to 1,500tph.*

The Cleveland Cascades cascade system allows a controlled yet efficient transfer of material from conveyor to ship, silo or stockpile. The material is supported the full length of the chute by means of an arrangement of oppositely inclined cones. The material is loaded at a low velocity, yet high volume and this means products can be transferred with minimized generation of dust emissions and also minimized degradation and segregation of product.

Such is the low environmental impact of the cascade chute that Cleveland Cascades is the only loading chute manufacturer in the world that can guarantee the lowest dust emission levels for specific loading applications. The company also manufactures traditional freefall chutes, which are fitted with high specification dust extraction units to keep dust emissions to a minimum.

Safety does not compromise efficiency however, as the Cascade

System can accommodate high loading rates of problematic materials, yet still keep dust emissions to a minimum. Cleveland Cascades can manufacture its range of loading chutes to accommodate materials loading at rates from 50 to 6,000 cubic metres per hour.

Recent installations include shiploading projects in Brazil handling alumina and potash, silo/storage loading applications in Eastern Europe handling fertilizers, as well as shiploader projects in Australia handling coal and coke products.

“We have supplied projects to many of the world’s leading corporations, including Rio Tinto, ThyssenKrupp and BHP. Each project we deliver brings new challenges in terms of project specification, environmental issues; material handled performance criteria and increasingly dust emission. Our approach is for our commercial, design and engineering teams to work closely with our customer counterparts from project inception right through to project commissioning. We are able to draw on our previous experience but we are constantly bringing in new ideas and incorporating those of our customers”.

For Cleveland Cascades Ltd, dust emission control is increasingly important. The company offers a dust performance guarantee as part of its ISO9000 accreditation and continues to work with its customers in providing innovative loading systems to the bulk handling industry.



Case Study 3: Grain - Nibulon, Ukraine. Loading mobility is often an issue facing port operators. This photograph shows one of eleven chutes for mobile shiploaders supplied by Cleveland Cascades for grain handling facilities in Ukraine. The lightweight nature of the freefall chute facilitates movement along the full length of the quay. Dust emissions are minimized by high specification extraction units at the base of the chute. This removes the need for heavier dust extraction units on the quayside and reduces material wastage as the dusty material is re-circulated and loaded onto the pile.

Cleveland Cascades Ltd

Setting the industry standard for loading solutions



World Leader in the design & manufacture of bespoke retractable loading chutes for the handling of dry bulk materials.

- Based in the UK, Cleveland Cascades Ltd has a dedicated team of experts in the design, assembly and commissioning of loading chutes and materials handling equipment.
- With a growing range of bespoke solutions for the handling of difficult dry bulk materials, our product range includes the unique 'cascade' concept, dust-controlled conveyor transfer points and dust-controlled hoppers.
- With over 500 reference installations operating worldwide, with applications in ship, silo, road, rail & tanker loading, the company's key to success is its proven ability to provide a well-engineered solution with professional and committed support.
- Winners of prestigious Queens Awards for Environmental Achievement, Export Achievement, and Enterprise in International Trades.



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