

Building Foundations for the Future in **Cement**



Global cement production is consistently pushing through the 2 billion tonne barrier with analysts predicting future, annual, global production to rise over the next 5 to 10 years. This current trend is coupled with ever-increasing demand for the commodity, with many commentators believing that growth will continue at a rate of 8% year-on-year for the foreseeable future.

As a result, many of the world's leading producers are investing in expanding current operations or building new production facilities that will enable them to cope with the increasing demand for cement.

More critically, the growing demand for cement is placing escalating pressure on the environment, with carbon emissions and pollutant levels at significant highs. The industry is tackling this important issue through the implementation of stringent legislation and environmentally focused initiatives, which have been established to help reduce emission levels and bring control back to the environment.

Cement operators are eager to identify technologies and solutions that can help police and control emissions, reduce maintenance and system ownership costs, reduce the cost of production per tonne and reduce wear on systems and their respective components.

Clyde Materials Handling has developed a series of sustainable pneumatic conveying and injection solutions, which have the ability to transport an array of materials used in the manufacture of cement in an energy efficient and economically beneficial way.

Transforming Processes

Clyde Materials Handling is an established customer-driven solutions provider, which utilises its knowledge, expertise and

technologies to transform the production processes of its customers who operate within the cement industry.

Clyde Materials Handling has helped their global cement customer base transform the way in which they operate their processes, which has enabled them to generate sustainable economic benefits and maintain their positions as leaders in their market.

Traditionally, the cement industry has purchased mechanical technologies and applications to support the movement and transportation of raw materials used in their production processes. This type of technology has been associated with the cement industry for many years, with operators not wanting to seek alternative solutions due to the fear of failure, despite the fact that it requires a great deal of power and significant maintenance to operate effectively.

The current needs of the market are forcing the industry to alter its way of thinking and it is now more focused on implementing technologies that requires less energy, less maintenance and can help power productivity.

Clyde Materials Handling's pneumatic conveying solutions are viewed as a viable alternative to mechanical technologies and have been able to transport various materials in an unrestricted, controlled and continuous manner at low velocity, consuming low volumes of compressed air.

In addition, Clyde's pneumatic injection solutions have been used to inject an array of materials such as coal, pulverised fly ash and other waste derived alternative fuels into the heart of cement production processes. It is vitally important to the performance of a process that a consistent and smooth feed of material is accomplished so that superior levels of production can be attained.

Cement producers are striving to accomplish high material injection rates and exemplary injection accuracy – Clyde is unique in its ability to provide injection rates of over 150tph and an injection accuracy of $\pm 1\%$.



All of Clyde Materials Handling's conveying and injection solutions are enhanced through the use of the Clyde Dome Valve, widely regarded as the best material handling valve in the world. The Clyde Dome Valve has the ability to cut through static or moving columns of material through the use of its innovative inflatable seal mechanism, ensuring that a consistent pressure tight seal is created when the valve is in the closed position, but in the open position, it provides an unrestricted full bore opening for the best product flow possible. All this allows the Clyde Dome Valve to operate at cycling rates and operational duties far in excess of competitors units.

Clyde has developed pneumatic conveying and injection solutions that have the ability to:

- Convey cement, limestone, pulverised fly ash and raw meal – materials used in cement manufacture over short, medium and long distances
- Replace screw pump systems with low energy pneumatic solutions
- Convey ESP, filter, clinker and kiln bypass dusts
- Implement ship loading, truck/train loading and unloading systems
- Inject pulverised fly ash into a cement kiln
- Inject sodium bicarbonate, developed to help remove chloride emissions
- Inject pulverised coal into a cement kiln

These solutions absorb a minimal amount of power, cause low wear on system components and pipelines, therefore, reducing maintenance costs and increasing system availability, reliability and production.

No Limits. Infinite Possibilities

By placing the customer at the heart of their business, Clyde Materials Handling has developed a global, extensive and diverse set of references who have become lifetime customers. They continually seek Clyde's guidance in areas of process improvement and material handling.

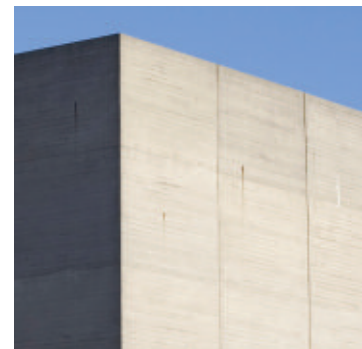
Clyde Materials Handling takes pride in the return on investment it has generated for its customers, which include:

- Significant increases in productivity
- Environmental sustainability
- High system availability, reliability and performance
- Low operating costs and maintenance
- Greater process control and stability
- Cost savings through process efficiencies
- Flexibility to integrate with existing and emerging technologies

More specifically, Clyde Materials Handling has generated the following, typical returns for organisations who operate in the cement market:

- Reduction of power consumption by 1KW per tonne, per hour
- Significant reduction in maintenance costs – tens of thousands saved per annum
- 75% reduction on the total cost of ownership
- 200% improvement in system reliability
- Reduction in air usage

Clyde Materials Handling is driven by an energy and passion which enables them to make the impossible happen – there are no limits to their capabilities. Together, with their customers, the possibilities are infinite.



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