



Overview

Clyde Materials Handling (CMH) has used its technology, expertise and domain knowledge to power pioneering solutions globally across the copper industry.

CMH is recognised as the leading global provider of pneumatic conveying and injection solutions and is ideally positioned in the marketplace to manage the movement of an abrasive material like copper concentrate.

Copper has been referred to as 'red gold' due to its use within many modern-day applications such as telecommunication, utility and transport infrastructures.

As a result of this dependence on copper, its demand is by far outstripping supply, with the cost of copper recently reaching a fifteen-year high.

Therefore, an astounding opportunity exists for copper producers to ensure that their operations are functioning at optimum capacity, producing exemplary levels of metal, in an effort to maximise on current market conditions

Clyde Built Solutions

CMH's 'Clyde Built' solutions are known for their quality, durability, reliability and exceptional performance. These traits are of great importance due to the abrasive nature of copper concentrate and the exertions this, and other substances such as silica, reverts, matte, metallurgical dust and carbon, can place on the systems supporting its use.

The smelting process lies at the heart of the copper producers operation – to perform optimally, a consistent, reliable and controllable feed of copper concentrate needs to be generated in order to achieve consistent high production levels of metal and enable the smelter and the other downstream processes to operate at a steady optimum rate.

CMH has developed a unique copper concentrate handling and injection system that can significantly enhance the output from a copper smelting process. This solution can be utilised on a bath or flash smelter, blast or flash furnace, flash converter, Noranda converter, Codelco CT converter, Pearce Smith Converter, and other secondary processes for conveying or injecting dusts, additives, coal and other carbons, fuels or fluxes.

Clyde's solutions have the ability to transport copper concentrate, or any other substances associated with smelting process, in an unrestricted, controlled and continuous manner at low velocity, consuming low volumes of compressed air. The result is the creation of a solution that absorbs a minimal amount of power, causes less wear on system components and pipelines, and therefore, reduces maintenance costs and increases system availability, reliability and production.

Clyde solutions have the ability to evenly and accurately inject the material into the smelters using specially designed distribution mechanisms. This process is complemented by a unique lance design, which is able to effectively disperse the material within the liquid metal bath of the smelter, furnace or converter.

The solution is further enhanced through the use of Clyde's Dome Valve, widely regarded as the best material handling valve in the world. The 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 characteristics possible.

The Clyde Dome Valve is recognised as a low maintenance, long life solution that can last at least 1 million cycles between maintenance inspections.

CMH's 'Clyde Built' solutions have a proven track record in generating rapid returns within the copper industry and has added the following benefits to its clients:

- > Increased system availability – Clyde solutions have provided 15 days more production per annum
- > Greater accurate concentrate feed rate control $\pm 5\%$ to $\pm 1\%$
- > Stabilisation of process control
- > Reduced carryover of dust to acid plant and gas cleaning plant
- > Reduced local turbulence and refractory wear
- > Decreased dust production potential

This results in the production of a system that:

- Increases copper output due to even and accurate copper distribution and smelter utilisation – Clyde has helped achieve a 30% increase in output through the use of its technology
- Which, in turn, results in increased productivity and profit
- Reduces material waste and dust release as the process is completely enclosed, helping to reduce downtime
- Environmentally sound – able to prevent exposure to high-risk substances such as arsenic dust and silica
- Reduction in maintenance – 'Clyde Built' systems use low velocity conveying with little wear and tear on parts, ensuring a high level of system availability and performance
- Is flexible to integrate with existing smelter infrastructure, complementing not replacing previous investments
- Offers excellent process control
- Effectively disperses material within the liquid bath by utilising a uniquely designed lance – the Clyde built lance has a greater life expectancy of standard lances, which is able to increase system availability, reliability and performance

Clients

CMH has over three decades of experience in deploying innovative solutions that have addressed and resolved a vast array of business problems within the copper and other non-ferrous industries.

Clyde's expertise and outstanding track record enables them to continue to deliver value to their successful and prominent customer base.

