

Emerson pneumatic solution cuts aluminum refiner's air consumption by 50%

RESULTS

- Created customized pneumatic solution with unique sensing technology
- Extended cylinder service life
- Reduced process downtime
- Maximized crust-breaker productivity
- Reduced compressed air consumption by 50%



APPLICATION

Aluminum refining

CHALLENGE

A global aluminum company experienced a problem in its alumina powder refining process. The pneumatic cylinders controlling its crust breaker and dozer equipment were beginning to fail in as little as one year after installation, plus required repair every two years. These components operated in a challenging environment characterized by high temperature and vibration, abrasive dust, strong magnetic forces, and fluorinated gases. A search was launched to find high-quality pneumatic cylinders that would cut maintenance and production costs, reduce compressed air consumption, and improve productivity.

SOLUTION

Working with an industrial engineering partner, Emerson developed a customized solution for the aluminum refiner that included valves and an air-saving circuit installed directly on the pneumatic cylinder. Unique sensing technology built into the solution extended the service life of the cylinders to seven years and reduced downtime. To maximize productivity, the cylinders had to retract as soon as the crust-breaker tool reached the molten metal. The Emerson solution's sensors achieved this requirement, plus locked the tool in place when retracted, preventing unnecessary air consumption. Overall, compressed air use declined by 50% and maintenance costs were significantly reduced. The customer is pleased with the solution's performance and is considering the purchase of additional units for its other smelters.

Emerson developed a customized solution for the aluminum refiner that included ASCO™ valves and an air-saving circuit on the pneumatic cylinder. Compressed air declined by 50% and maintenance costs were reduced.

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