

Industry: Minerals Processing

- Cyclone Feed Line

CiDRA[®]

Minerals Processing

Application Note

SONARtrac[®] SOLUTIONS

Abrasive wear and ore variability in the cyclone feed line cause signal instability and eventual failure of magnetic flowmeters. SONARtrac flowmeters do not suffer these effects, enabling improved cyclone control and throughput with a lower total cost of ownership.

Benefits

- SONARtrac flowmeters provide accurate, repeatable flow measurement in high solids-content slurries providing more accurate mass flow, improved cyclone control, and higher throughput
- Non-invasive design eliminates abrasive wear
- Works with lined pipes
- Entrained air measurement provides density correction and true mass flow
- Eliminate potential shutdown costs related to magmeter replacement
- Quick installation without process shutdown

Process

SONARtrac flowmeters clamp onto existing cyclone feed lines, eliminate the variability of magmeters, thus improve cyclone control and maximize throughput. Non-invasive design eliminates maintenance and magmeter replacement costs, resulting in much lower total cost of ownership.

Cyclone feed lines are one of the most valuable, challenging, and costly flow measurements in a mineral concentrator plant. Cyclone manufacturers recommend that for good performance, the feed slurry delivered to the cyclone should be as steady as possible with regard to volumetric flow rate and slurry density. Correct measurement of this volumetric flow is necessary to optimize particle classification in cyclones and maximize cyclone overflow throughput. Maximizing cyclone throughput and corresponding concentrator plant output without the addition of costly capital equipment is extremely important given today's high metals prices.



Challenge

Until now, magmeters have been the only option for measuring flow on high-solids-content cyclone feed lines. However the coarse and abrasive particle content of the cyclone feed slurry causes rapid wear of the electrodes and flow tubes of these conventional magmeters. This causes a gradual degradation of the flowmeter performance which inhibits the operator's ability to optimize cyclone performance and maximize throughput. Eventually, magmeter measurement failure and/or leaks occur, requiring costly meter replacement at regular intervals.

SONARtrac Solution

Now there is a better option. Concentrator plant operators have been replacing traditional magmeters with the SONARtrac Flow Measurement System. SONARtrac meters clamp onto the existing piping and are not affected by abrasive wear or variable ore characteristics. This results in a flow measurement that is more repeatable and accurate, allowing the customer to make more efficient use of the automatic control system to optimize cyclone classification performance thus maximizing throughput. The unique on-line measurement of entrained air adds additional accuracy to mass flow measurements. When replacement of the pipe is required due to abrasive wear of the pipe/liner, the easy removal and reinstallation of the SONARtrac meter means maintenance time and costs are greatly reduced, and the need to purchase and stock an expensive replacement magmeter is eliminated.

SONARtrac[®] Technology

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