Precise Stroke Monitoring in Agitator Mills for Silicon Grinding

RVI70E Ex-Incremental Rotary Encoder Ensures Reliable Position and Speed Measurement

At a Glance

- Reliable monitoring of the lifting mechanism in an agitator mill
- Precise position and speed signals for controlling an induction motor
- Use in Zone 1 and 21 explosion-hazardous areas
- Robust, compact design for harsh ambient conditions and space-constrained installations
- International Ex certifications for worldwide use



The Application

The grinding of silicon plays a crucial role in the production of modern battery materials. In agitator mills, the raw material is ground to the required particle size under controlled process conditions. To ensure a stable grinding process, the mill's lifting mechanism must operate reliably, and the motion of the induction motor must be precisely monitored at all times. Since the system is operated in an explosion-hazardous area, all components used must not only provide high measurement accuracy but also meet the relevant safety requirements.

The Goal

A solution is needed for the reliable measurement of the position and rotational speed of the lifting mechanism that operates with consistent precision even under demanding ambient conditions. In addition to high operational reliability, the focus is on use in explosion-hazardous areas, high resistance to environmental influences, and seamless integration into space-constrained installations.



The Solution

The RVI70E Ex-incremental rotary encoder ensures accurate position and speed measurement, thereby contributing to the safe and stable operation of agitator mills. It reliably monitors the lifting mechanism and provides precise position and speed signals for controlling the induction motor.

Due to its certifications according to ATEX, IECEx, CCC, and KOSHA, the RVI70E is suitable for worldwide use in Zone 1 and 21 explosion-hazardous areas. In addition, the rotary encoder has approvals for Group II explosion-hazardous areas.

The Advantages

With a degree of protection IP66/IP67, a seawater-resistant housing, and an extended temperature range from –40 °C to +70 °C, the RVI70E can be used reliably even under harsh ambient conditions. Its compact housing design also allows for integration into machines with limited installation space.

Technical Features

- ATEX, IECEx, CCC, and KOSHA certified
- Approvals for Zone 1 and Zone 21
- Certified for explosion-hazardous areas (Group II)
- IP66/IP67 degree of protection
- Seawater-resistant housing
- Temperature range: –40 °C to +70 °C
- Housing diameter: 70 mm
- Solid shaft Ø 10 to 12 mm
- Clamp, servo, or Euro flange
- Max. rotational speed: 6,000 rpm
- Resolution up to 5,000 pulses
- Electrical interfaces: Push-pull and RS-422
- Radial or axial cable outlet



For more information, visit: **pepperl-fuchs.com/px-RVI70E**