DigiQuad™

Drive System for dual pinion sag mill

AMI Automation is a global leader in automation and control solutions. We specialize in designing, manufacturing, and implementing innovative technologies to enhance process efficiency across industries such as steel, mining, cement, pulp & paper, and power generation.

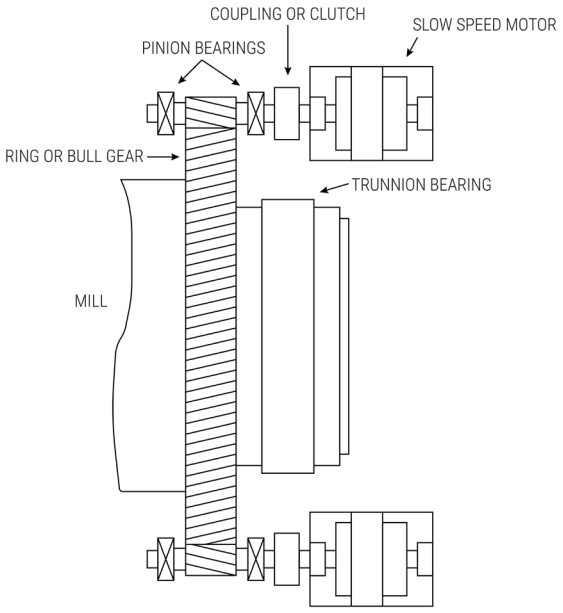
DigiQuad™

Modernizing fixed-speed mills driven by two low-speed synchronous motors with Q-axis winding field has never been easier. DigiQuad™ is an intelligent control solution that automatically maintains load sharing between motors in dual-pinion mill applications. Using advanced control algorithms, DigiQuad™ ensures smooth torque balance through a two-level approach: coarse balance achieved by pulsing pneumatic clutches, and fine control achieved by injecting current through the Q-axis fields. The result is optimized performance, reduced mechanical stress, and improved energy efficiency.

DigiQuad™ works seamlessly with DigiFEX®, allowing independent motor startup and synchronization before load balancing begins. This integration enables a fully customized and flexible control strategy tailored to each customer's system.

Key Features

- **Dynamic Compensation (Q-axis Current Control):** Generates a rapid magnetic "spring" effect to stabilize the rotor and correct cyclic load variations.
- **Static Alignment (Clutch Pulse Control):** Provides precise motor alignment to balance load under high-torque conditions.
- **Dual Compensation Strategy:** Combines fine and coarse control for continuous, automatic torque balancing.
- **Smart Tool & Citadel Software Suite:** Real-time signal monitoring, data analysis, and comparison tools for advanced diagnostics.
- **Customizable I/O Configuration:** Adaptable input and output interface tailored to plant requirements.
- **Comprehensive Upgrade Package:** Includes both Q-axis field rectifier hardware and control system modernization.
- **Remote Connectivity:** Allows AMI engineers to connect securely for system diagnostics and support.



DUAL PINION MILL MECHANICAL LAYOUT

DIGIQUAD™ CONTROL CABINET FRONT VIEW

Benefits

- **Maximized Equipment Life:** Reduces mechanical wear on gears, pinions, and clutches through smooth torque balance.
- **Optimized Energy Efficiency:** Achieves precise load distribution, minimizing wasted electrical power.
- **Enhanced Process Stability:** Ensures consistent mill performance under variable load conditions.
- **Reduced Maintenance and Downtime:** Prevents imbalance-related failures, extending service intervals.
- **Greater Operational Flexibility:** Works seamlessly with existing AMI systems for tailored, scalable automation solutions.
- **Improved Insight and Control:** Real-time monitoring enables proactive decision-making and predictive maintenance.

DigiQuad™ intelligently maintains precise load sharing between motors using advanced control algorithms. This intelligent management guarantees smoother operation, reduces mechanical stress, and improves overall energy performance. Choosing DigiQuad™ means investing in reliability, precision, and technological evolution, a smart control solution engineered to optimize your mill's performance.

AMI Automation

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