

APPLICATION BULLETIN

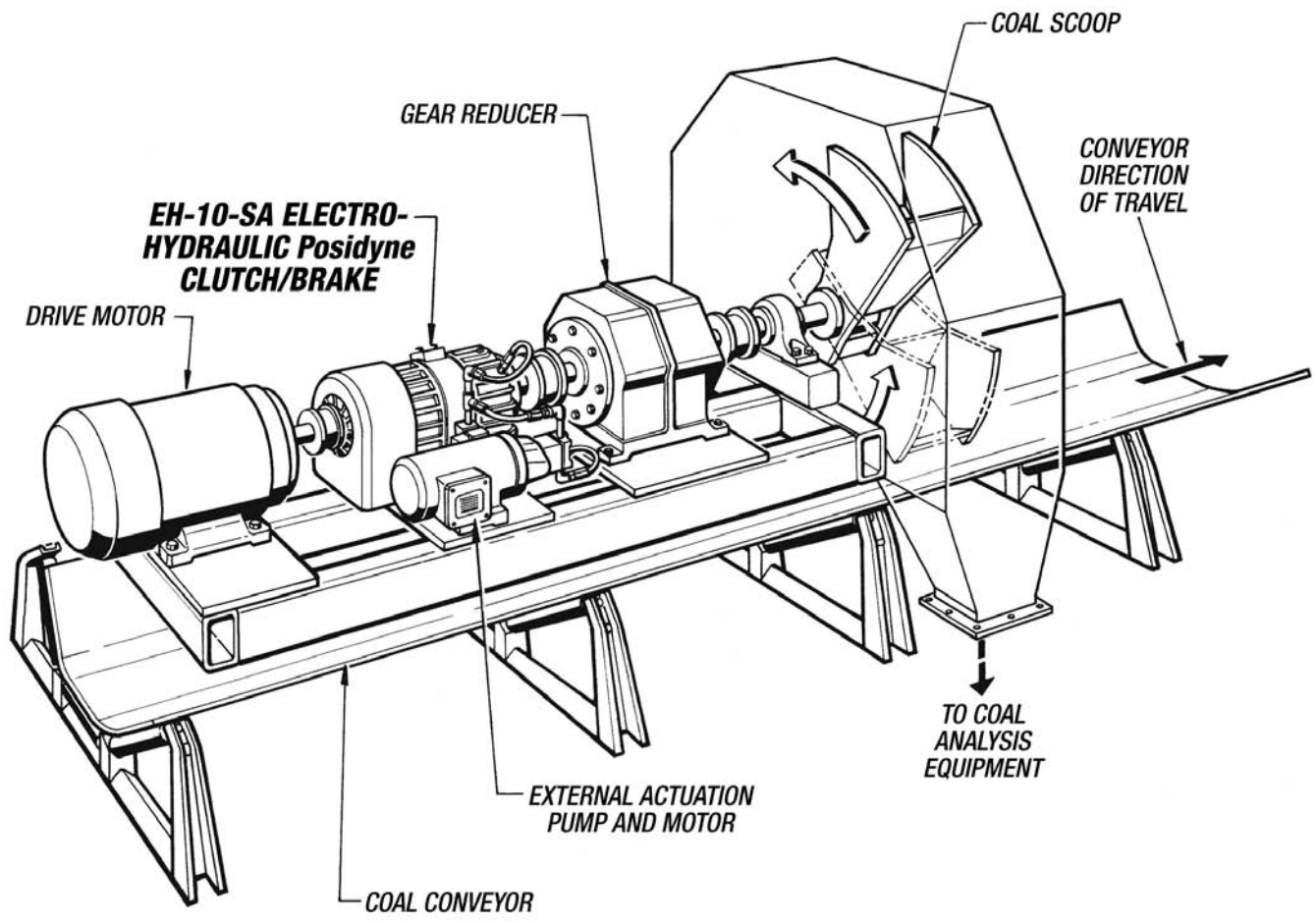


APPLICATION: Rotary Coal Sampler

INDUSTRY: Coal, Utilities (Power Plants)

PRODUCT: Electro-Hydraulic *Posidyne* Clutch/Brake

ROTARY COAL SAMPLER



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WHERE THEY ARE USED: Rotary Samplers are used mainly in the coal industry to acquire samples of coal from a continuously moving conveyor belt. They are often located at rail or barge loading facilities. Samples are used to check or guarantee product analysis. Air is usually not available at these locations, so electrically actuated units are required.

HOW THEY WORK: The sampler is a large round scoop which rotates one revolution per cycle perpendicular to the coal flow. It cuts a swath through the coal and throws a sample into a chute. The coal sample is taken via the chute to the analysis equipment. The high inertia scoop must be accelerated to full speed within 90 degrees rotation to insure it will have enough power to cut through the coal as it travels along the conveyor belt. The scoop must be stopped within approximately 30 degrees rotation after it has passed through the coal.

The cycle rate can vary from one every few minutes to three cycles per minute. The sample scoop rotation speed is determined by the conveyor belt speed. On high-speed narrow belts, the scoop rotation speed gets very high, requiring quick actuation, and short accel/decel times.

PROBLEMS SOLVED:

1. Compressed air was not available; therefore an electric actuation system was developed for the **Posidyne** Clutch/Brake and implemented with great success.
2. The high-speed actuation system brought the sampler scoop up to speed within the required 90 degrees rotation. It was also able to stop the wheel quickly after leaving the coal so that full power could be applied all the way through the coal stream. This eliminates any chance of stalling while the scoop is still in the coal stream.
3. This is a continuous process with limited time for loading. The long-term reliability of the **Posidyne** Clutch/Brake without requiring adjustment allows continuous loading without expensive downtime.

IMPORTANT FEATURES:

- The low inertia multiple disc design of the **Posidyne** Clutch/ Brake allows for quick acceleration and deceleration.
- **Oil Shear** technology and advanced friction materials provide consistent, accurate starts and stops of the high inertia sample scoop.
- Totally enclosed, sealed design eliminates problems associated with dust, dirt, water, or other contaminants.
- Electric actuation system provides quick engagements and simple regulation of torque and accel/decel rates.



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