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NTEK SYSTEM

USE CASE

Coal Pulverizers

SV500 by NTEK SYSTEM | ESA-Based Motor & VFD Predictive Maintenance

OVERVIEW

Pulverizers grind coal for the boiler and are core plant equipment. SV500 uses electrical signature analysis (ESA) on drive-motor current and load trends to screen for rising resistance in rollers, gearbox and bearings.

PROBLEM

A pulverizer drive-motor problem can lead to an output restriction.

Key challenges:

- **Can limit plant output** — Faults affect connected processes, so it is better to find changing intervals early and secure planned maintenance time.
- **Heavy load and dust** — Wear progresses gradually, and early changes often show in current and load patterns before noise or temperature.

EXPECTED OUTCOMES

Running trends help adjust outage scope and pick what to inspect first.

Expected benefits:

- **Lower output-limit risk** — Screens inspection targets before coal feed is restricted.
- **Shift to planned work** — Trends let inspection items be set ahead of outages.
- **Data-driven priorities** — Compares health grades on one basis to set inspection order.

TARGET EQUIPMENT

Pulverizer motors

Gearbox, roller drives

VFD, feeder loads

SOLUTION

SV500 compares motor current and power across periods with similar coal feed.

How SV500 diagnoses:

- **Motor load anomalies** — Compares current and power for similar feed rate, output and coal type. Load swings from coal properties are normal.
- **Rotor and stator anomalies** — Screens related components in the current spectrum at steady speed, helping time inspections of high-voltage motors rarely taken offline.
- **Bearing wear** — Tracks changes in rotation-frequency components at the same feed rate. If the trend persists, check lubrication and bearings.
- **Adaptive thresholds** — Machine learning learns each asset's normal condition and judges its status with load-dependent adaptive thresholds, rather than fixed limits.
- **Web dashboard and integration** — Check diagnostic status in real time on the device's built-in web dashboard without a site visit, and connect to higher-level systems such as BMS or SCADA over Modbus TCP/RTU. Additional interfaces such as MQTT depend on the project configuration.

SUMMARY

SV500 compares pulverizer motor current and power across similar feed conditions to screen inspection targets. Coal fineness and moisture, internal wear, and fire and dust safety need process measurement and internal inspection.

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