

edgeSV
NTEK SYSTEM

USE CASE

Sludge Pumps & Dewatering Equipment

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

OVERVIEW

Sludge equipment sees changing concentration and viscosity, leading to repeated clogging and overload. SV500 uses Electrical Signature Analysis (ESA) on drive-motor voltage and current to screen for clogging, added friction, and bearing or alignment issues.

PROBLEM

Sludge equipment is often clogged and heavily loaded, so wear accumulates.

Key challenges:

- **Clogging and heavy load** — Accumulated load and environment stress degrade motors, bearings and drives gradually; early changes may show in current and load patterns first.
- **Processing delays** — Failures lead to processing delays, so changes and events during operation need continuous recording.

EXPECTED OUTCOMES

Spot clogging and load trends early and schedule maintenance before processing slows.

Expected benefits:

- **Early clogging detection** — Inspect units with rising restarts and current swings before full blockage.
- **Fewer processing delays** — Watch dewatering load trends and schedule maintenance before throughput drops.
- **Data-based priorities** — Use condition grades and trends to send staff to the highest-risk units first.

TARGET EQUIPMENT

Sludge pumps | Dewatering drives | Screw conveyors | VFDs

SOLUTION

01 VFD Status Diagnostics

Analyzes VFD input/output voltage and current waveforms to assess rectifier diodes, DC-link capacitors, IGBTs, and the condition of the power supply and power quality.

02 Motor Status Diagnostics

Analyzes motor voltage and current signals without additional equipment-mounted sensors, screening mechanical faults (cavitation, bearings, vibration), electrical faults (stator, cable connections, heat), and load fluctuations.

03 Power Quality Diagnostics

Records and analyzes voltage, current, interruptions, sags, swells, harmonics, and trends to identify power quality abnormalities.

04 Edge AI Device

Performs diagnostic analysis and stores waveforms and results locally. The built-in web interface provides real-time measurements, equipment diagnostics, power quality, events, and reports.

Operational Impact of edgeSV

Continuous monitoring and early detection support availability, maintenance and energy efficiency.

20~40%	10~25%	5~15%	10~20%
Less unplanned downtime	Maintenance cost savings	Energy savings	Longer equipment life

Indicative ranges only; actual results depend on site conditions and corrective actions.