

edgeSV
NTEK SYSTEM

USE CASE

Agitators

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

OVERVIEW

Treatment-tank agitators and mixers run continuously or intermittently in submerged, corrosive conditions. SV500 uses Electrical Signature Analysis (ESA) on drive-motor voltage and current to screen for impeller fouling and gearbox or bearing degradation.

PROBLEM

Agitators in submerged, corrosive tanks can affect process performance when the drive degrades.

Key challenges:

- **Submerged, corrosive duty** — Tank agitators operate in harsh conditions, so condition changes and events need continuous recording.
- **Process performance loss** — Drive faults reduce process performance and should be managed alongside the maintenance schedule.

EXPECTED OUTCOMES

Read agitation load changes with process conditions and adjust maintenance timing.

Expected benefits:

- **Process stability** — Review load trends with process conditions to narrow causes of unstable treatment.
- **Maintenance timing** — Adjust timing based on change versus condition-specific baselines.
- **Data-based priorities** — Use condition grades and trends to send staff to the highest-risk units first.

TARGET EQUIPMENT

Submersible agitators | Chemical mixers | Drive motors | Gearboxes

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.