Wilden® SafeGuard™
Remote Performance Monitoring and Alert System
Introducing Wilden® SafeGuard™ – the World’s First Remote Performance Monitoring and Alert System

Air-operated double-diaphragm (AODD) pumps are often considered critical to fluid-transfer operations and are widely installed throughout a plant. Unexpected failures can be devastating, costly, and could result in much larger issues for your operation. This means AODD pump reliant operations would benefit immensely from a real-time monitoring solution that provides the alerts they need to immediately respond to a pump failure and help optimize pump performance.

Introducing the new Wilden® SafeGuard™ – the industry’s first AODD Internet of Things (IoT) enabled remote performance monitoring and alert solution. A true game-changer in optimizing AODD pump performance, reliability, cost of operation and maintenance, the Wilden SafeGuard is an all-inclusive monitoring system that improves pump operations by monitoring and assessing your AODD pump’s operation and performance 24/7.

Common Industry Challenges with AODD Pump Failures

**Unexpected Pump Failure**
- Costly Downtime
- Lost Revenue
- Overtime
- Expedited Parts/Freight

**REAL-WORLD EXAMPLE**
A pump unexpectedly fails, maintenance is out of inventory and the pump is out of service longer than expected.

**WILDEN SAFEGUARD SOLUTION**
Wilden SafeGuard collects data of pump performance over time, including maintenance records, allowing the user to create robust preventative maintenance plans and anticipate need for replacement parts.

**Lost Revenue**
- Downtime
- Costly Batch Rework
- Product Recalls
- Limited Production

**REAL-WORLD EXAMPLE**
A pump unknowingly performing below expectations due to other system issues, but its not known until a process batch is complete and the final product is found to be outside of spec, requiring rework.

**WILDEN SAFEGUARD SOLUTION**
Wilden SafeGuard makes it easy for the user to set alerts for pumps operating outside of the "normal" operating conditions.

**Product Leakage**
- Safety Hazard
- Product Loss and Recalls
- Cleanup Costs
- Costly Batch Rework

**REAL WORLD EXAMPLE**
A pump in a remote area of the plant fails, emptying an entire tank of finished product on the floor without being noticed.

**WILDEN SAFEGUARD SOLUTION**
Real-time monitoring and leak alert for immediate response, limiting product loss and potential cleanup costs.

**Limited Operation Visibility**
- On-site 24/7
- Missed Opportunities for Process Improvement
- Inaccurate Preventative Maintenance Plan

**REAL-WORLD EXAMPLE**
A preventative maintenance plan exists for a plant to service pumps every 6 months, but some pumps have far more life and others still fail prematurely.

**WILDEN SAFEGUARD SOLUTION**
Wilden SafeGuard provides unprecedented information about diaphragm life, allowing preventative maintenance plans to be more accurate and more efficient at protecting your people, product and process.
Wilden SafeGuard Remote Performance Monitoring and Alert System

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<thead>
<tr>
<th>Value</th>
<th>Capability</th>
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<tr>
<td>24/7 Real-Time Monitoring</td>
<td>Performance Monitoring – Stroke Count for Batching and Preventative Maintenance Support</td>
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<td>Performance Analysis – Identifies and Alerts When Pump Operating Outside Set Normal Parameters</td>
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<td>Detect Diaphragm Leaks and Failures – Limit Product Loss and Safety Hazards</td>
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<tr>
<td>Leak Detection Retrofittable to Current Installations</td>
<td>Immediate Leak Detection and Alert</td>
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<tr>
<td>Unique, Patent-Pending, Leak-Detection System</td>
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<tr>
<td>Recognizes All Types of Leaks, No Matter How Small</td>
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<tr>
<td>Customizable Alerts</td>
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<td>Receive Alerts During Abnormal Operating Conditions</td>
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<td>Recognize Below/Above Normal Stroke Rate</td>
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<td>Leverage Stroke Count Alerts to Manage Preventative Maintenance Plans</td>
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<tr>
<td>Data Accessible Through Continuous Cloud Connectivity</td>
<td>Online Dashboard</td>
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<tr>
<td>Maintenance Record Keeping</td>
<td>Manageable Record Keeping for Pump Maintenance</td>
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<tr>
<td>Fleet Management View</td>
<td>Unprecedented Data Access</td>
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<td>Overall Pump Fleet View and Management</td>
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<tr>
<td>Battery Powered</td>
<td>1 Year Life</td>
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<td>Off the Shelf Easy Replacement</td>
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<td>Other Features</td>
<td>Plug-and-Play Design for Easy Set Up</td>
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<tr>
<td>Customizable Dashboard</td>
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<td>Signal Strength Monitoring</td>
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How It Works - Equipment

Wilden SafeGuard is designed to monitor Wilden AODD pumps’ health and performance. It is composed of a single battery-powered sensor (Edge Device) mounted directly onto the pump which communicates to a sensor reader (Gateway Node). The Gateway Node, which can connect up to 10 Edge Devices/Pumps, operates as an encryption router, securely transmitting the data from all pumps to the Cloud.

EDGE DEVICE
- Pump-Mounted Sensor and Data Transmitter
- Battery Powered
- Performance Monitoring - Stroke Rate and Total Stroke Count
- IP66 Certified

GATEWAY NODE
- Connect up to 10 Edge Devices/Pumps
- Encrypted Router Securely Connects to Cloud via Cellular Data
- Externally-Powered
- Up to 150 ft. Range to/from Edge Device
- FCC Certified

LEAK DETECTION SENSOR
- Detects Diaphragm Leaks
- Replaceable/Rebuildable
- Patent Pending
- Part of Tier 2 Package

PUMP DASHBOARD
- Notice an issue? Get the full details of a pump’s performance.

FLEET MANAGEMENT VIEW
- View the current state of your full fleet of AODD pumps that are equipped with Wilden SafeGuard

How the data (stroke count, stroke rate, leak detection) is collected into the Gateway Node and transferred to the Cloud (via cellular data service) to be analyzed. The data is displayed and summarized on Wilden’s SafeGuard Software service where you can view the status of your whole fleet of connected pumps down to the details of a single pump.

COLOR CODE INDICATORS
- Green: Active/On
- Blue: Within Range
- Orange: Warning
- Red: Alert/Fault

VIEW OPERATION HISTORY OVER TIME AND RESET COUNT AFTER FAILURE

REVIEW MAINTENANCE HISTORY

COMPLETELY CUSTOMIZABLE TO YOUR FACILITY NEEDS
- Customize Parameters
- Customize Pump Naming
- Customize Users
- Customize Email Alerts

SMS AND EMAIL ALERTS

Device 3304339 sent alert Stroke Count Warning at 3/7/2020 11:31:03 AM
Code to acknowledge alert: Z9R156

REAL-TIME 24/7 MONITORING

CONNECT UP TO 10 PUMPS

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   - CONNECT UP TO 10 PUMPS
## Wilden SafeGuard System Options

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<th>TIER 2 Advanced package combining pump performance monitoring and real-time leak detection</th>
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<tbody>
<tr>
<td>Edge Device</td>
<td>✓</td>
<td>✓</td>
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<td>Gateway Node</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Web UI and Phone App</td>
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**Feature**
- **TIER 1**: Basic package to monitor pump performance
- **TIER 2**: Advanced package combining pump performance monitoring and real-time leak detection

**Edge Device**
- Gateway Node
- Web UI and Phone App

**Performance Metrics**
- Stroke Count
- Stroke Rate
- Leak Detection
- 24/7 Real-Time Alerts
- Abnormal Operation Alert

**Pump Mounting Kit**
- End Cap
- End Cap and Junction Box

Wilden® System Options