



REDRAVEN™



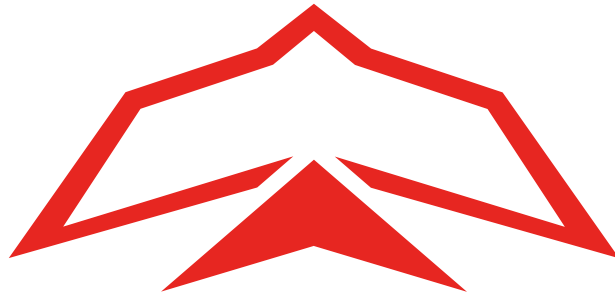
Predict.  
Act.  
Protect.

# REDRAVEN IoT SOLUTIONS

## Commercial Playbook

[Get started](#)





# REDRAVEN™

## Predict. Act. Protect.

### Why RedRaven?

In mythology, the raven represents prophecy and insight, a messenger collecting and bringing wisdom, knowledge and clarity — equipped with knowledge to guard and protect — and the power to see beyond. With plumage of Flowserve's trademark color, RedRaven is the symbol of Flowserve's suite of industrial Internet of Things (IoT) products, software and services.

Deriving its power from Flowserve's engineering expertise in fluid motion and control, its advances in analytics, diagnostic and predictive capabilities, and the limitless connections and speed of the IoT, RedRaven is a transformative technology. With RedRaven, you'll have clear insights to improve your plant's efficiency, productivity and reliability.

WATCH INTRODUCTION VIDEO

CONTINUE



# REDRAVEN IoT SOLUTIONS COMMERCIAL PLAYBOOK

**Everything RedRaven,  
all in one place**

The RedRaven Commercial Playbook summarizes all Flowserve collateral related to RedRaven. It is designed to provide easy access to all collateral that have been developed as part of the RedRaven launch.

**REDRAVEN COLLATERAL MENU**



# REDRAVEN COLLATERAL MENU

Brochures, white papers, and other materials that explain RedRaven products and services



VIDEOS

SUCCESS STORIES

DATA SHEETS

INDUSTRY INSIGHTS

BROCHURES

EDITORIAL COVERAGE

FLYERS

CUSTOMER PRESENTATIONS

WHITE PAPERS

INFOGRAPHICS





# VIDEOS

## Visual representation of RedRaven solutions

### Access links

[LOLA TECHNOLOGY ANIMATION](#)

[REDRAVEN TEASER VIDEO](#)

[REDRAVEN OVERVIEW VIDEO](#)

[REDRAVEN VALVE SOLUTIONS VIDEO](#)

[REDRAVEN SEAL SOLUTIONS VIDEO](#)

[REDRAVEN INSIGHT PORTAL DEMO VIDEO](#)





# DATA SHEETS

## Technical specifications sheets, each containing a detailed technical description of RedRaven components

### Access links

#### Condition Monitoring

[NODE ER LoRaWAN WIRELESS SENSOR](#)

#### Predictive Analytics

[DETECT SENSOR](#)  
[DATA TRANSFER BOX](#)





# BROCHURES

Show a high-level overview for individual solutions or an entire portfolio of monitoring solutions

## Access links

RedRaven IoT Overview

[English](#)

[French](#)

[German](#)

[Italian](#)

[Japanese](#)

[Korean](#)

[Spanish](#)

RedRaven Valve Brochure

[English](#)

[French](#)

[German](#)

[Italian](#)

[Spanish](#)

RedRaven Seal Brochure

[English](#)

RedRaven Data Security and Privacy

[English](#)





# FLYERS

## Show a high-level overview for individual solutions or an entire portfolio of monitoring solutions

### Access links

#### LoRaWAN Monitoring System

- [English](#)
- [French](#)
- [German](#)
- [Italian](#)
- [Spanish](#)

#### Predictive Analytics

- [English](#)
- [French](#)
- [German](#)
- [Italian](#)
- [Japanese](#)
- [Korean](#)
- [Spanish](#)

#### Flowserve Monitoring Center

- [English](#)
- [French](#)
- [German](#)
- [Italian](#)
- [Japanese](#)
- [Korean](#)
- [Portuguese](#)
- [Spanish](#)

#### Cloud Power

- [English](#)







# WHITE PAPERS

Thought leadership, technical write-ups on IoT solutions and related topics; useful in understanding IoT-related applications, solving problems, or making decisions

## Access links

[THREE STEPS TO UNLOCKING THE BENEFITS OF MONITORING ROTATING EQUIPMENT](#)

[EVOLVING INSTRUMENTATION AND MONITORING MAKE IIoT MORE VIABLE](#)

[GAINING VISIBILITY INTO ASSET PERFORMANCE](#)

[WHAT IIoT AND PREDICTIVE ANALYTICS MEAN FOR THE FLUID MOTION INDUSTRY](#)





# SUCCESS STORIES

## Case studies showing how Flowserve solved a critical customer challenge using RedRaven technology and services

### Access links

[REDRAVEN RESOLVES MISSION-CRITICAL WATER SUPPLY CHALLENGES](#)

[REDRAVEN DIAGNOSTICS ENABLE STREAMLINED POWER SUPPLY IN THE UK](#)

[REDRAVEN CONDITION MONITORING SOLUTION SAVES REFINERY FROM \\$40 MILLION PRODUCTION LOSS](#)

[REDRAVEN PREDICTIVE MAINTENANCE SAVES UK UTILITY PROVIDER TIME AND MONEY](#)

**RedRaven Resolves Mission-critical Water Supply Challenges**

**Challenge**  
A municipal water supplier was facing substantial revenue loss and expensive daily failure to supply fines, as outages resulted in regional potable water shortages.

**Solution**  
Mazur Electromechanical Co. (MEMCO), an engineering consulting company, recommended Flowserve's RedRaven predictive analytics. This solution resulted in reduced costs, streamlined maintenance protocols, and increased operational resilience for the water supplier.

**Un sustainably high costs of doing business**  
A public water provider in the Middle East was relying on conventional site-based monitoring with vibration alarms from predetermined trip values. Without any root cause analysis or indicators, maintenance teams had to respond to alarms by visiting stations, often dismantling pumps for manual diagnosis. This was excessively time consuming and costly, because these facilities were so spread out across the region, furthermore, it increased risk of pump outages. The pipeline was faced with substantial revenue loss and expensive daily failure to supply fines, as outages resulted in potable water shortages to the region.

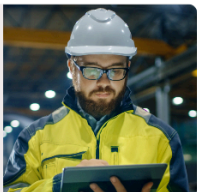
**The importance of data security**  
Before agreeing to kick off a pilot program the water pipeline cited data security as a key concern. It could not risk compromising access to its data or mission-critical operations. RedRaven sends pump data on a parallel path from local pump station IT systems to the secure cloud. This means the data is independent, does not interface or connect to the water utility's local IT systems. As they understood the system did not introduce new IT security risks, the water operator decided to move forward with the pilot program.

**Empowering & preventing unexpected downtime**  
The utilities business is energy to local industrial manufacturing plants, supply, and any disruption and expensive fine protocols include cost levels. Too often, such condition and perform that SSE consider Red platform, enabling the motor equipment are RedRaven's wireless capabilities," said Guy Instrumentation Engineer for SSE. "After they explained how the system securely transmits performance data and the various service levels with experienced technical data trend reviews, we decided to deploy a trial demo kit."

**Some years later, the refinery upgraded to Flowserve's newly launched RedRaven IoT platform, and the system detected a temperature spike that reached above 100°C (212°F) in the same pump. The system alerted both the refinery and marketplace deleveratic, uninterrupted power supply.**

**Timely alert**  
A petroleum refinery Asia installed a large hydrocracking unit had some major di- appreciate data it downloaded the di- process measuring receive timely alert experience a profit would be at risk of production losses.) Though RedRaven to help the refinery versions of the app uses today, including:  

- Equipment based monitoring sensors
- Intelligent pumping algorithms that predict equipment performance
- Customized online portal for fast and easy access to performance data






# INDUSTRY INSIGHTS

## RedRaven, in the context of industries and specific applications

### Access links

[PSA VALVES APPLICATION INSIGHTS](#)

[CSP VALVES APPLICATION INSIGHTS](#)

[WATER INDUSTRY INSIGHTS](#)

[DESALINATION SEALS INDUSTRY INSIGHTS](#)

[POWER STEAM CYCLE SEALS INDUSTRY INSIGHTS](#)



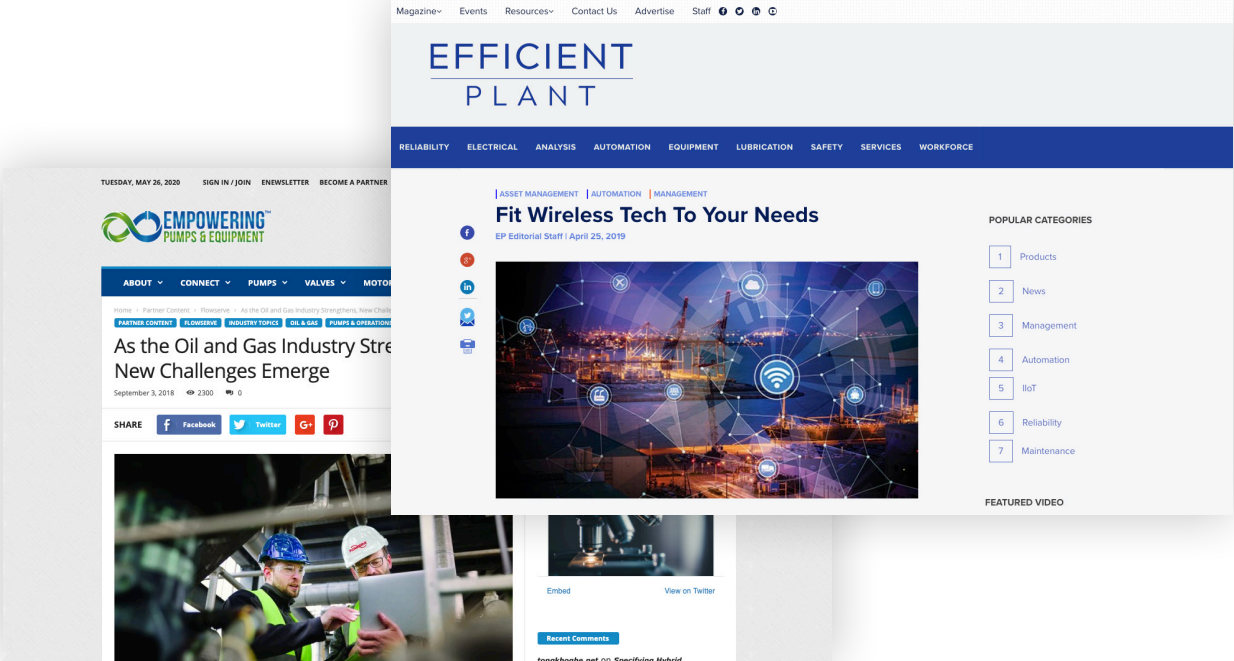


# EDITORIAL COVERAGE

## Thought leadership IoT articles published in editorials and publications

### Access links

- [FIT WIRELESS TECH TO YOUR NEEDS](#)
- [AS THE OIL AND GAS INDUSTRY STRENGTHENS, NEW CHALLENGES EMERGE](#)
- [3 STEPS TO BUILDING A COMPLETE ANALYTICS SOLUTION](#)
- [LONG RANGE NETWORKS CAN ENHANCE REMOTE MONITORING OF FLUID CONTROL EQUIPMENT](#)
- [UNLOCKING THE FULL BENEFITS OF IOT TECHNOLOGY](#)
- [REDRAVEN COLLECTS WISDOM, KNOWLEDGE & CLARITY](#)
- [OPERATING WITH DIGITAL PREDICTIVE TECHNOLOGY TO ADVANCE THE WATER INDUSTRY](#)





# CUSTOMER PRESENTATIONS

Detailed information on product offerings, value propositions and key insights

### Access link

[REDRAVEN PUMPS SOLUTIONS CUSTOMER PRESENTATION](#)

[REDRAVEN VALVES SOLUTIONS CUSTOMER PRESENTATION](#)

[REDRAVEN SEALS SOLUTIONS CUSTOMER PRESENTATION](#)





# INFOGRAPHICS

Key insights on individual solutions; these provide an overview of each monitoring solution

## Access links

[THE TWO SIDES OF PREDICTIVE ANALYTICS](#)

[EQUIPMENT HEALTH INSIGHT](#)

**The Two Sides of Predictive Analytics**

Predictive analytics can help companies identify equipment problems before they happen, keeping productivity high and maintenance costs low.

**Capability 1: Data Capture**  
+  
**Capability 2: Data Analysis**  
=  
**Complete view of equipment health**

**Data Capture**  
Capturing equipment performance data requires equipment sensors that collect and transmit operational data to a central hub.

- **Common types of data captured:** Vibration, temperature, pressure, flow rates, and other information critical to the operation. Sensors must often be installed in areas with potentially explosive atmospheres.
- **Full-spectrum or basic:** Some devices collect only basic (snapshot) information while others can deliver continuous, full-spectrum data.
- **Battery life:** The amount of data collected and the distance the device transmits this data determines the device's battery life.
- **Weather resistant:** Sensors must work in all environments, including extreme temperatures and weather conditions.
- **Uninterrupted signal:** Sensors must be independent of equipment, so if the equipment fails, there isn't a break in communication.
- **Safe and secure:** Sensors should meet the most rigorous data security standards to safeguard sensitive information.

**Data Analysis**  
Having all the data in the world won't mean much if you don't know what to do with it. Keep the following in mind when selecting an analytics partner:

- **Algorithms are proprietary:** Algorithms are based on proprietary models, methodologies and industry experience.
- **Deep expertise:** Work with partners who understand analytics and related equipment.
- **Diagnostic capabilities:** Analytics should diagnose failing equipment (without needing to open the panel) and tell you how to fix common problems.
- **Practical and actionable insights:** Your partner should create algorithms that provide specific and actionable insights, not a data dump of information.
- **What to collect:** Your partner should recommend what datasets to analyze to achieve your specific objectives.
- **Full-spectrum analysis:** Your partner should create algorithms that analyze full-spectrum data, so you get the most insights from your data.

**Equipment Health Insights**

**ASS MONITOR**  
See how you perform over 24 failures and

**WHAT IT DOES**  
Detects small equipment operating conditions, which early indicator of

**WHAT YOU GET**  
Receive a snapshot real-time trends irregularities

**ASSETS MONITORED**  
Balance-of-plant

**DATA COLLECTED**  
Overall vibration metal temperature

**OUTCOME**  
Software generates trend reports and alarms for review by plant operators, reliability engineers and maintenance personnel. >>> Sophisticated algorithms analyze the data. Flowserve and plant personnel work together to determine next steps and provide insights.

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Visit the Flowserve Knowledge Center for more information.

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