CHESTERTON CONNECT™ SYSTEM

SIMPLIFIED PRESSURE, VIBRATION, AND TEMPERATURE
EQUIPMENT MONITORING SYSTEM

CHESTERTON®
Global Solutions, Local Service.

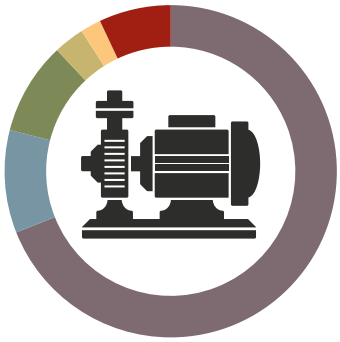
For Early Detection and Reliable Automated Equipment Monitoring

24/7 Equipment Monitoring Solutions Increase Uptime

Industries depend on pumping systems for day-to-day operation. Increased demand to improve operational effectiveness and ***"do more with less"*** challenges the reliability factor of pumps and other rotating equipment.

Downtime in pumping systems generates significant additional costs due to losses in production, capacity, direct labor, and inventory. The sealing components in the stuffing box are widely identified as the main cause of pump downtime.

Causes of Pump Downtime



69%	Seals
10%	Bearing
9%	Static Joints
3%	Hydraulic
2%	Coupling
7%	Other

According to *Pump and Systems Magazine* and the FSA Mechanical Seal Technical Committee.

Mechanical Seals Require an Adequate Fluid Film Between the Seal Faces to Operate

The most common cause of short seal life is variations in the seal's operating environment caused by changes in suction and discharge pressure. These changes can result in a breakdown of the fluid film, which is critical for the seal to operate correctly.

Real-time remote monitoring of pressure and temperature in the seal chamber can help identify potentially damaging pressure variations within the pump allowing you to be proactive and increase your pump's reliability and operating life.

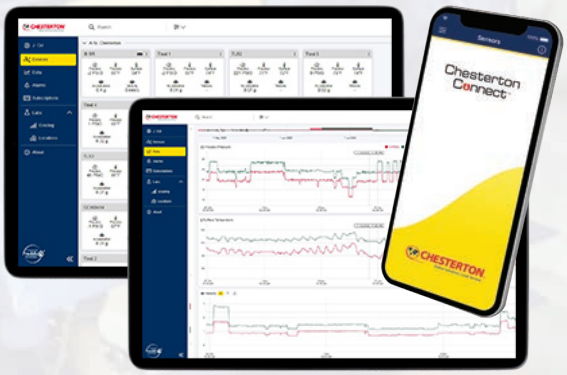
Correlating Pump Vibration and Surface Temperature with Process Pressure and Process Temperature Improves Anomaly Identification

Bearing housing vibration and surface temperature measurements are the most common methods of monitoring the condition of pumps and other rotating equipment. Vibration in pumps, though, can be the result of many variables beyond the bearings and should be viewed collectively.

Example Diagnostics				
Discharge Valve Closed	✔		✔	✔
Pump Start or Stop	✔		✔	
Suction Clogged	✔	✔		✔
Wet Parts Worn Out	✔	✔		

See the Data That Matters - Right at Your Fingertips

The Chesterton Connect™ system is a simplified cloud-based equipment monitoring solution that provides 24/7 visibility of an equipment's condition in all four areas: process pressure, process temperature, vibration, and surface temperature allowing you to correlate and identify anomalies early to make operational improvements that increase reliability, and minimize unplanned downtime. The Chesterton Connect monitoring system is geared towards pumps and sealing systems but can be used to monitor vibration on other rotating equipment such as motors and gearboxes.



Monitor, Analyze, and Compare Equipment Health from Wherever You Are

Simplify Condition Monitoring

From the convenience of any computer connected to the internet, the complete Chesterton Connect system facilitates remote equipment monitoring by providing email/app alert notifications, automated equipment reports, and historical data graphs.

Increase Reliability

Identify problems early before they lead to downtime and disruptions. The Chesterton Connect system gathers near real-time measurements from equipment monitored by Chesterton Connect devices.

Improve Decisions

Improve throughput with actionable insights. The automatically collected data is displayed on the powerful Chesterton Connect Cloud dashboard, facilitating continuous correlation between measurements and the ability to simultaneously compare multiple pieces of equipment, helping improve decisions based on data.

Expand Confidently

The system is engineered for quick installation and setup. This facilitates scalability for 24/7 remote condition monitoring. The plug-and-play design helps provide a seamless and secure integration between the Chesterton Connect sensors and the Chesterton Connect Cloud.

Increase Safety

Your plant personnel are your most valuable assets. The complete Chesterton Connect system facilitates equipment monitoring in hard-to-reach and hazardous areas helping increase plant and worker safety.

Monitor Hard-to-Reach Areas

- Multiple options for easy installation in outdoor environments
- Up to 600ft Bluetooth® performance range

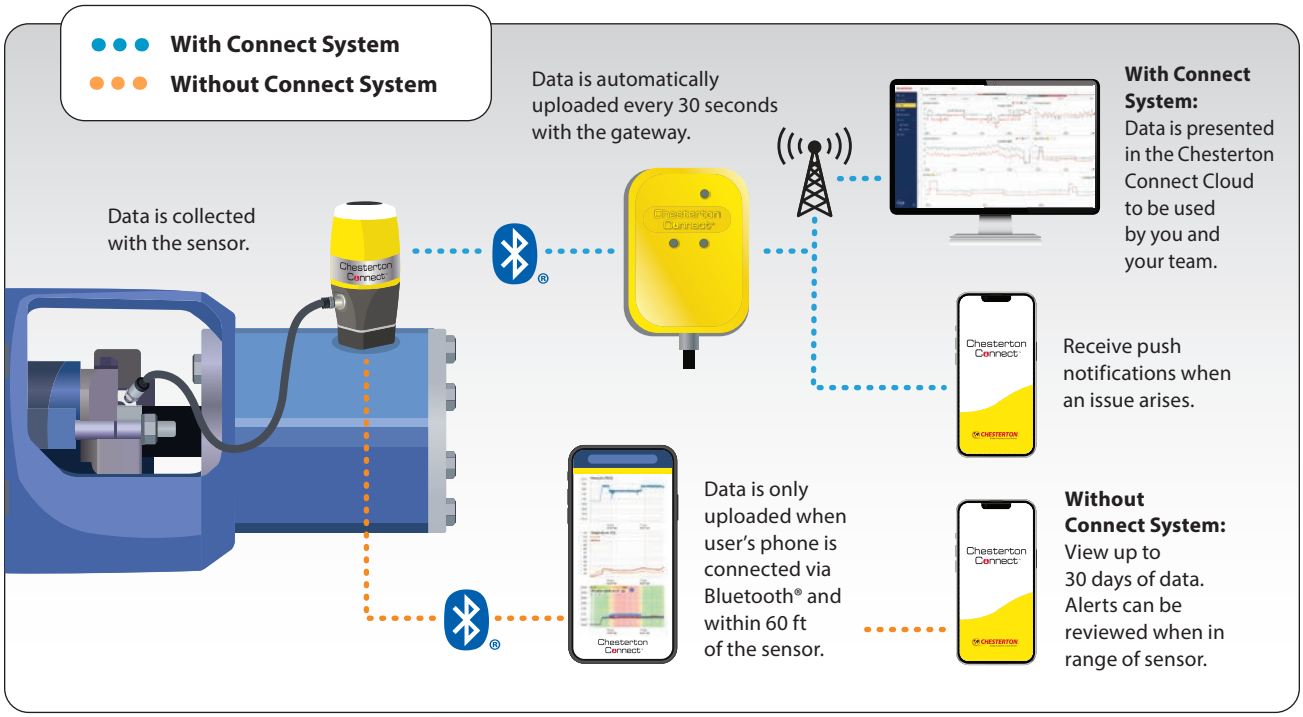
Easy Setup and Installation

- Plug-and-play design
- Automatically connects to nearest cellular network
- Eliminate complex wiring diagrams or configuration requirements
- Set up using the Chesterton Connect mobile app

Expand Confidently

- 24/7 remote condition monitoring
- Seamless integration with the Chesterton Connect Cloud

Chesterton Connect System Facilitates 24/7 Remote Condition Monitoring of Pumps and Rotating Equipment



The Chesterton Connect System

The Chesterton Connect system is comprised of rugged, industrial grade sensors, gateways, and an easy-to-use cloud dashboard. The Chesterton Connect sensors and gateway automatically collect and transfer the equipment operating conditions in near real-time to the Chesterton Connect Cloud dashboard, simplifying remote monitoring of equipment to help improve operations.

Chesterton Connect makes it easy to safely monitor:

- **Process temperature**
- **Process pressure**
- **3-Axis vibration (Acceleration Peak and Velocity RMS)**
- **Surface temperature**

Identify Anomalies Before Disruptions in Productivity or Downtime

The Chesterton Connect system targets equipment performance optimization, which helps to prioritize which equipment needs immediate attention. The Chesterton Connect system features near real-time email/app notifications when equipment conditions change, as well as user-defined automated equipment reports. These features allow users to identify anomalies before these lead to downtime and disruptions, thus improving operations and increasing productivity.

Support in Hazardous Environments

Chesterton Connect system hardware versions are available for hazardous areas. Ask about our hazardous-certified sensor and gateway.

Compare the Benefits

GET FULL-SYSTEM CONNECTIVITY WITH THE CLOUD

Get early detection of equipment and process instabilities with the Chesterton Connect system

- Get real-time performance notifications, alerts, and automated reports
- View overall performance and compare data for multiple pieces of equipment
- Explore variances and trends or compare against published standards
- Add notes for to-do items to make data actionable

Sensors Only		Full System
✔	Set up sensors	✔
✔	View multiple sensors	✔
✔	Live mode	✔
✔	Stores 30 days of data	✔
✘	3 years data storage	✔
✘	Automated data uploads	✔
✘	Real-time performance notifications	✔
✘	View and upload data reports from anywhere	✔

HARDWARE TECHNICAL SPECIFICATIONS

Chesterton Connect™ Sensor Operating Parameters

Pressure sensor limit	-1 bar g – 68 bar g (-14.7 psig – 1000 psig)
Temperature limit (body)	-20°C – 85°C (-4°F – 185°F)
Temperature limit (sensor)	-20°C – 125°C (-4°F – 257°F)
Vibration sensor	3-axis accelerometer ±16g
Battery	3.6V lithium thionyl chloride battery (replaceable)
Fitting	1/4" NPT 17-4 PH connection
Mount	Magnetic mounting base (additional options sold separately)
Certifications	FCC, IC, RoHS, IP66, NSF61, ACS, CE

Hazardous Areas Option

Certifications

ATEX/IECEx	Ⓔx II 1 G Ex ia IIB T4 Ga Ⓔx II 1 D Ex ia IIIB T_{200} 166°C Da
Zone	Class I Zone 0 AEx ia IIB T4 Ga Zone 20 AEx ia IIIB T166°C Da
Division	Class I Div 1 Groups C D T4 Class II Div 1 Groups F G T4
Rated Temp	-20°C ≤ Ta ≤ +85°C

Part numbers: Standard Sensor 403700, Intrinsically Safe Sensor 403699

Chesterton Connect™ Gauge Operating Parameters

Pressure	-1 bar g to 68 bar g (-14.7 psig – 1000 psig)
Temperature	-20°C – 85°C (-4°F – 185°F) with the CR2050 battery
Power	Battery CR2050 (replaceable)
Fitting	1/4" NPT
Material	17-4PH and polycarbonate enclosure
Certifications	IP66/IP67, FCC, CE, RoHS
Pressure Accuracy	±0.25%
Temperature Output Accuracy	±3°C
Wireless	Bluetooth® 4.0

Part number: 418217

Chesterton Connect™ Gateway Operating Parameters

Temperature	Operating range -40°C – 80°C (-40°F – 176°F)
Power	Input DC 5V 2A; Power supply 120 – 240VAC
Wireless	Bluetooth® 5.0 Single-mode; Category LTE M wireless cellular network
Enclosure Rating	IP66 (Power adapter is not IP66 rated)
Sensor Range	Up to 182 m (600 ft)
Sensor Support	Up to 50 Chesterton Connect devices

Hazardous Areas Option

Certifications

Ⓔx II	3 (3) G Ex ec [ic Gc] nR IIC T6 Gc 3 D Ex ec ic tc IIIC T85°C Dc
cMETus	Class I, Div 2, Groups A - D Class II, Div 2, Groups F - G
cMETus	Class I, Zone 2 AEx ec ic nR IIC T6 Gc Class II, Zone 22 AEx ec ic tc IIIC T85°C Dc -40°C <= Tamb <= 60°C

Part numbers: Standard Gateway 415198, Explosion Proof Gateway 414494

Chesterton Connect System in Action

SEE HOW THE CHESTERTON CONNECT SYSTEM HAS MADE REAL-LIFE IMPACTS

Help Prevent Costly Seal and Pump Failures

Challenge

A paper mill installed two split seals onto their pumps. The pumps' availability was critical to the mill's production, so they needed to guarantee equipment reliability.

Solution

The mill installed Chesterton Connect sensors and a Chesterton Connect gateway to provide live monitoring and send alarms to the necessary employees who could intervene to correct damaging situations such as loss of pressure and abnormal bearing vibrations.

Results

The Chesterton Connect system delivered several alarm notifications identifying problems with the flush water supply which alerted the specialist to identify the problem (low pressure).

The customer saved approximately $79,000 on a failed seal replacement as well as associated labor and production loss by taking remedial action to prevent the interruption of the flush water supply.

Determine Cause of Costly Seal Failures

Challenge

An OEM installed several seals on wastewater pumps. The pumps continuously failed over several months and resulted in downtime costs. The OEM needed a product that helped them identify the causes of the failures so they could do a better job of preventing them.

Solution

The OEM installed Chesterton Connect sensors at the seals' flush port to monitor the seal chamber conditions.

Results

Data from Chesterton Connect sensors was recorded and confirmed that there was low pressure in the seal chamber (despite a manual gauge showing adequate pressure).

Chesterton Connect sensors solved the problem, saving the customer approximately $150,000 and helping to prevent future failures on all of the other pumps on the same application.

Global Solutions, Local Service

Since its founding in 1884, the A.W. Chesterton Company has successfully met the critical needs of its diverse customer base. Today, as always, customers count on Chesterton solutions to increase equipment reliability, optimize energy consumption, and provide local technical support and service wherever they are in the world.

Chesterton's global capabilities include:

- Servicing plants in over 113 countries
- Global manufacturing operations
- More than 500 Service Centers and Sales Offices worldwide
- Over 1200 trained local Service Specialists and Technicians

Visit our website at chesterton.com

KEEPING THE PLANET CLEAN
CHESTERTON

Chesterton ISO certificates available on chesterton.com/corporate/iso

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Brochure – English
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