Chiller services

Vibration Analysis

Alignment & Balance Service

Root Cause Failure Analysis

Lithium Bromide Analysis

Oil Analysis

Refrigerant Analysis

Water Treatment

Motor Current/Electrical Analysis

Eddy Current Tube Analysis

Vibration Alarming Application

The results:

· Fewer time-based preventive maintenance services

· Fewer unplanned overhauls and more uptime

· Longer equipment life

· Reduced energy costs because your chiller will operate at optimal efficiency levels

· Lower operational costs and lower cost of ownership

Technology meets service

Johnson Controls offers the industry's most extensive array of predictive services and technologies for chillers. We take a predictive approach to maintenance in order to get an accurate assessment of the condition of your chiller. This allows us to determine the actual efficiency compared to the designed efficiency. Then we use industry-leading technology to gather data and provide service-based recommendations around your desired outcomes.

Results

Regardless of the brand of chiller, Johnson Controls will develop a maintenance strategy that fits both your reliability and financial goals. Our predictive technologies not only provide the basis for delivering desired outcomes, but also allow you to schedule and budget for major repairs and overhauls. Each service plan combines preventive tasks along with predictive technologies that aid in troubleshooting equipment and operational problems.

Johnson Controls

PREDICTIVE CHILLER REPORT

- Background discussion
- Explanation of diagnostic tests for each machine analyzed
- Equipment analyzed
- Numerical results
- Trend results
- Vibration measurement locations schematic

Johnson Controls
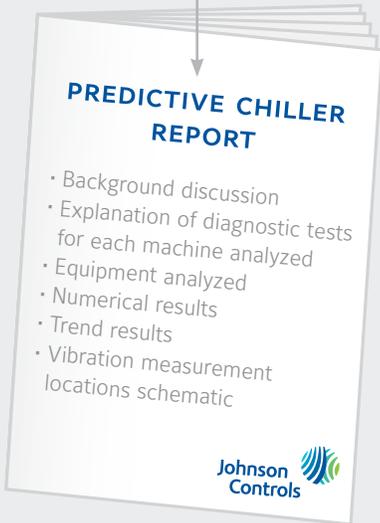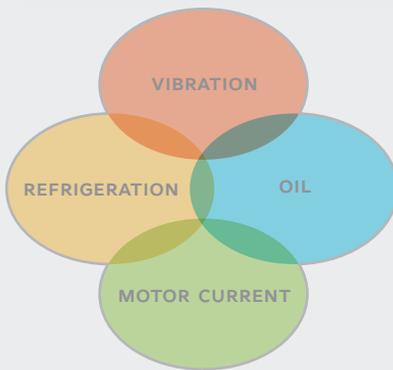
Our reports are designed specifically for chillers. This means our comments and recommendations are based on years of experience on how to maintain chillers and how the operation of a machine can affect predictive data. We single out, measure and trend the most important and meaningful parameters needed to make decisions on the unique operating condition of chillers.

Maximum reliability and minimal operating costs

Each of our services are designed to minimize operating costs without compromising performance and comfort. These services will help to optimize chiller performance, and extend equipment life. Our team of predictive engineers and chiller technicians combine the technologies listed below to make concise repair recommendations and provide complete and accurate assessments of your cooling system's condition.

Vibration Analysis

Johnson Controls maintains the world's largest database of vibration signatures based on more than 50,000 chiller analyses. Data from your chiller is uploaded to the Johnson Controls predictive diagnostics team for analysis. It is then compared with vibration standards which have been statistically derived from 20 years of compiled data using patented formulas. No one can match Johnson Controls level of expertise in this area.

Oil Analysis

Not all oil analysis is created equal. Our expert predictive technicians bring Johnson Controls to the highest level of understanding on what test to use and how best to use this information. Years worth of data has been stored and used to statistically derive acceptable limits. By examining the oil, we can determine what part of the chiller is experiencing the most significant and harmful wear. We can also determine if there is a breakdown in the oil or if contaminants are affecting chiller operation.

Refrigerant Analysis

Our program relies on a qualified refrigerant-testing laboratory, which uses Air Conditioning and Refrigeration Institute (ARI) standards as well as our own statistically generated standards to accurately and completely asses the condition of your refrigerant. Acidity, moisture, oxides and percent oil are monitored to ensure your chiller is operating as it was designed.

Motor Current/Electrical Analysis

We collect a spectrum of the power supply to the motor, then analyze it to detect shorted, cracked or broken rotor bars, high resistance joints and damaged or broken end rings.

Eddy Current Tube Analysis

This is a cost-effective, non-destructive method for determining the condition of condenser and evaporator tubes. It determines the remaining wall thickness of tubes and can detect possible pitting, cracks and bulges that can result in tube leaks.

Water Treatment Service

Scale, corrosion, biological growth and sludge all increase energy consumption while decreasing equipment life. We can develop a water treatment system that includes analyzing water samples, visual inspections and discharging contaminated water to ensure new water is added to the systems to keep it running at peak efficiency.

Alignment & Balance Service

Our technicians use laser alignment equipment to correct misalignment and imbalance problems. They then use vibration analysis to confirm success. This is the fastest, most efficient means to correct alignment issues and validates successful repairs. Johnson Controls can perform dynamic balancing of your chiller utilizing the latest in technology to ensure asset reliability and longer runtime.

Root Cause Failure Analysis

We take microscopic studies of the failed part and determine the cause of the wear or failure. This can lead to process changes, lubrication changes or design changes, which improve future machine reliability.

Lithium Bromide Analysis

The lithium bromide charge in absorption chillers should be analyzed on a regular basis to maintain the proper performance characteristics and for increased corrosion protection.

Vibration Alarming Application

We provide 24/7 monitoring of chillers, pumps, fans and other rotating equipment, either through your Metasys® building management system or via remote monitoring services. We draw from our extensive database of chiller vibration signatures to determine the best points to monitor and what amplitude limits to be applied.

Enterprise-wide service consistency

Local Johnson Controls chiller technicians apply predictive analysis consistently across your entire portfolio of chillers. As a result, you can identify anomalies and take corrective action efficiently and in a timely manner.

Johnson
Controls