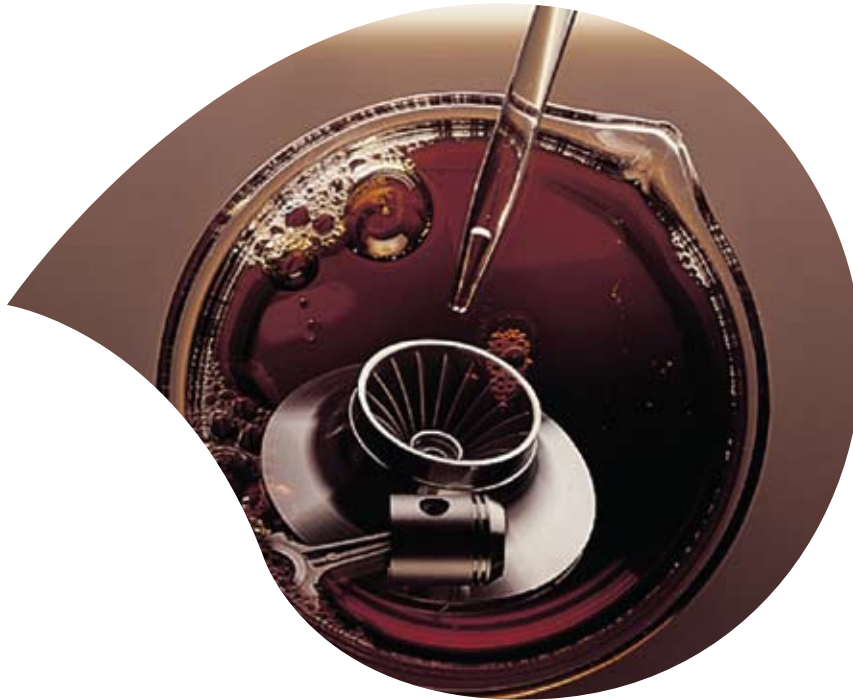


# Oil analysis



## Identifies:

- Lubricant Condition
- Internal Contamination
- Abnormal Wear
- Mechanical Condition

## Results:

- Earlier detection of problems
- Lower operating costs
- Increased reliability

## A diagnostic window to your chiller

Regularly scheduled analysis of your chiller's oil is a valuable aid in assessing internal mechanical condition. Laboratory analysis of chiller oil samples can identify potential problems so they can be remedied before they become disruptive headaches. Oil comes in contact with many important internal components and can therefore hold valuable information about a chiller's condition. The presence of harmful acids, corrosion causing water and abnormal metal wear particles can all be detected by chemical analysis. By comparing the results of the analysis against your chiller's historical operating data, our analysts can provide a reliable diagnosis with individualized recommendations for each system.

## Reduce downtime

Oil analysis, when used as part of a maintenance program, can prevent catastrophic chiller failure and eliminate the cost of unexpected shutdowns. Knowing the current operating condition of your machine allows you to schedule repairs at a time that works best for you.

## Minimize costly repairs

Because oil analysis can identify problems before you might otherwise be aware of them, conditions can be remedied before they become expensive to repair problems. Oil analysis helps to pinpoint the areas that should be checked so scheduled repairs can be accomplished quickly and cost effectively.

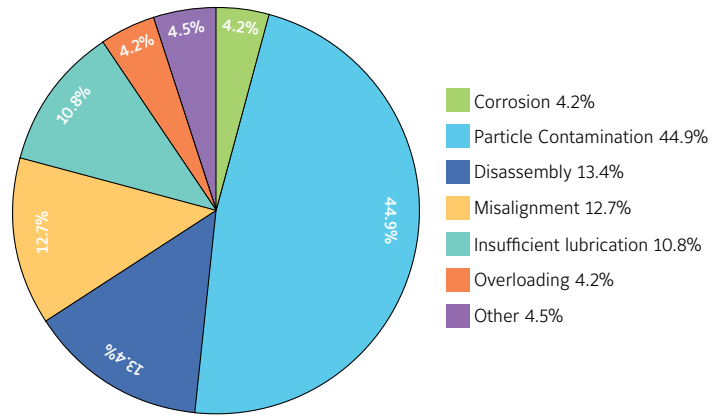
## Extend chiller life

By identifying and repairing abnormal machine conditions early, it is much easier and less expensive to keep your chiller in peak operating condition. If oil analysis is conducted on a scheduled basis, you are afforded more reliable chiller performance for years to come.

### Enterprise-wide service consistency

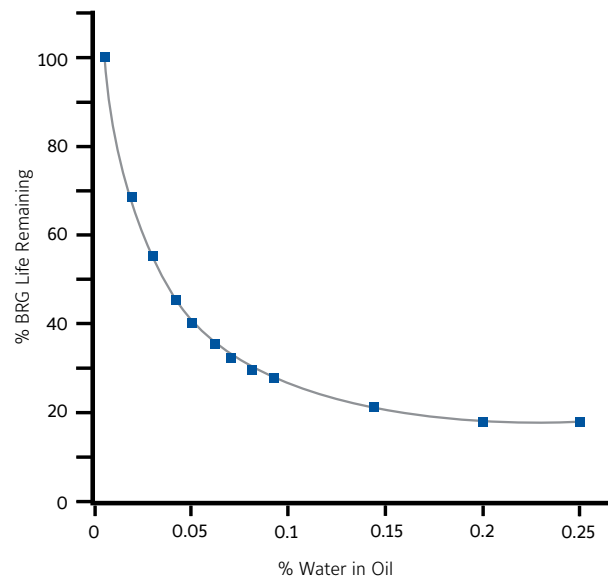
Johnson Controls has more than 150 service offices located across North America. As a result, we can deliver consistent service expertise and technologies to support your HVAC services needs, no matter where your facilities are located.

### CAUSES OF BEARING FAILURES



Lubrication issues account for over half of all bearing failures.

### WATER CONTAMINATION



Water breaks down the oil, decreasing important lubricating properties, resulting in a much shorter bearing life.