

# ABB Ability™ Condition Monitoring for shaftlines

## On-site condition monitoring for rotating machines



ABB Ability™ Condition Monitoring for shaftlines is an advanced on-site condition monitoring service that enhances the reliability of the entire shaftline, including motor, gearbox and driven load. It detects electrical and mechanical issues affecting the rotor, bearings, gearbox and other critical components, which account for a significant share of total failures.

ABB Ability™ Condition Monitoring for shaftlines is an on-site condition monitoring service that provides early and accurate defect detection, allowing for proactive maintenance planning and minimizing unexpected downtime.

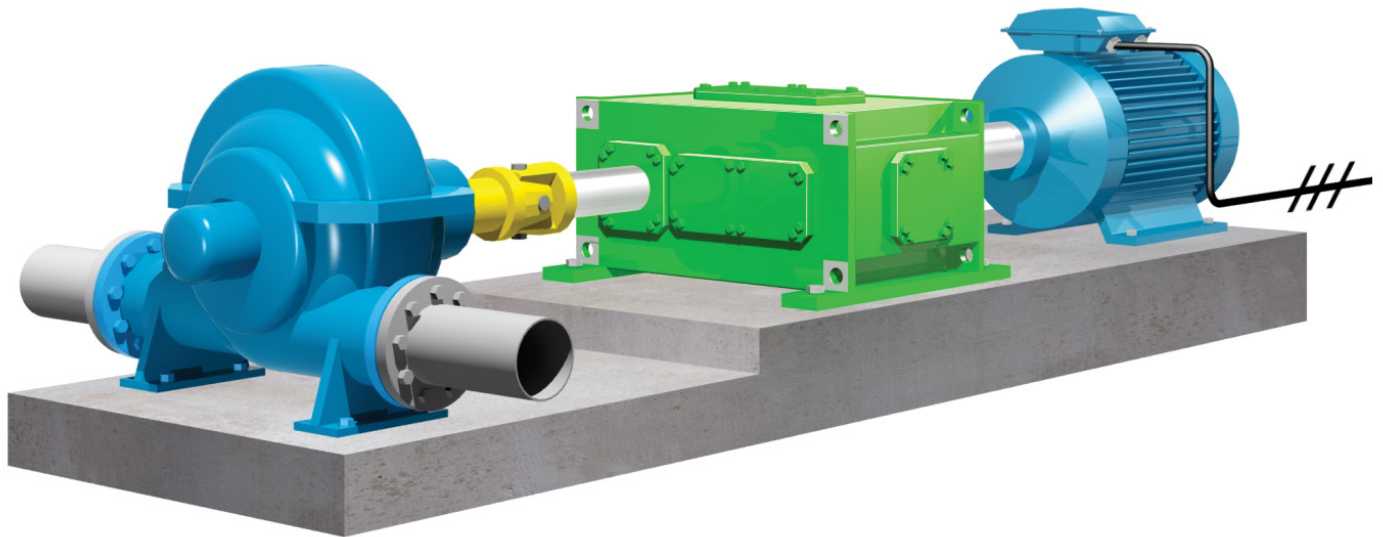
### Process

An ABB service engineer collects electrical and vibration measurements across the entire shaftline while the system operates under normal conditions.

The collected data is analyzed, and a detailed report is provided to the customer. The report interprets test results, identifies defects, assesses their severity and outlines possible root causes. Each component within the shaftline is evaluated individually to ensure a comprehensive health assessment.

### Key benefits

- **Comprehensive condition monitoring**  
Covers the entire shaftline, including the motor, gearbox and driven load
- **Early fault detection**  
Enables timely maintenance planning by providing advanced warnings of developing issues
- **Longer lifetime of equipment**  
Advanced maintenance planning supports longer equipment lifetimes



### Component-specific analysis

#### Motor

ABB Ability™ Condition Monitoring for shaftlines analyzes electrical data (current and voltage), vibration and torque to assess defect severity in key motor components:

- Rotor
- Bearings
- Installation
- Power quality

The analysis also considers motor design and construction to calculate fault criticality for specific motor types.

#### Gearbox

This service offers automated gearbox fault detection using a Physics of Failure approach combined with advanced signal processing. Early defect identification is achieved with improved accuracy in detecting defect type and severity.

ABB Ability™ Condition Monitoring for shaftlines supports analysis for:

- Parallel shafts (up to 4 shafts)
- Epicyclic gearboxes
- Worm gearboxes

Advanced algorithms enable time-synchronous averaging of vibration signals without requiring a speed-related trigger. Detected faults include:

- Gear wear and distributed faults
- Localized gear tooth faults (pitting, cracking)
- Torsional forces from the load side

#### Driven load

ABB Ability™ Condition Monitoring for shaftlines is also used to analyze driven equipment such as pumps, fans and compressors. The analysis is not impacted by changes in the load or other system conditions. Common faults detected include:

- Flow turbulence
- Bearing issues
- Other mechanical problems

By combining vibration analysis, shaft speed measurements and electrical signal monitoring, ABB Ability™ Condition Monitoring for shaftlines provides a holistic assessment of the motor, gearbox and driven load, ensuring optimal system performance and reliability.

For more information please visit:

[new.abb.com/service/motion/data-and-advisory-services](https://new.abb.com/service/motion/data-and-advisory-services)

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