

## The only listed company in China's predictive maintenance field

**Ronds** is a high-tech enterprise which provides equipment predictive maintenance products and services. We have been focusing on predictive maintenance for nearly 20 years and possess strong professional capabilities. We serve industrial enterprises in **40+ countries and regions** around the world and assist in their digital transformation.

**20+**

Years experience in Predictive maintenance field

**2000+**

Customers worldwide

**NO.1**

Market share in China Predictive maintenance

**620000+**

Sensors installed

**150000+**

Machines connected to RONS platform

**20000+**

Closed loop cases

**300+**

Algorithm models

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# Equipment Predictive Maintenance Solutions for Mining Industry



# RONDS

— MAKE INDUSTRY BETTER —

# Intelligent Condition Monitoring

# Solution for Mining Industry

## Covering Different Sectors of Mining Industry

Precious Metals

Ferrous Metals

Non Ferrous Metals

Coal

Oil & Gas

Industrial Minerals

Stone mining & Quarrying

Sand & Gravel

## Suitable for Different Mining Processes

Surface Mining

Underground Mining

Placer Mining

Solution(in-situ) Mining

Our solutions are suitable for different rotating equipment in various processing stages including mining, crushing, grinding, washing, and mining processing.

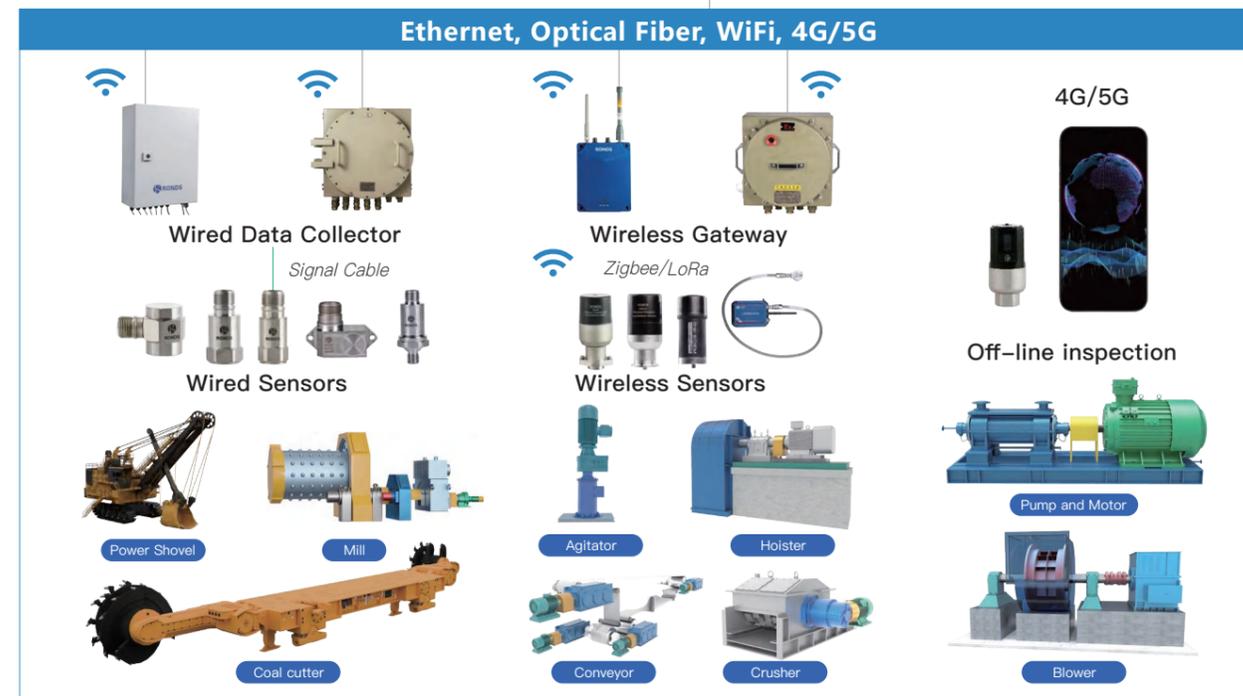
The main rotating equipment involved in various processes includes drills, excavators, mining trucks, belt conveyors, feeders, crushers, vibrating screens, hoists, various mills, magnetic separators, thickeners, dryers, washing machines, pumps, and fans.



# Ronds Solutions

To address the varying explosion-proof requirements, operational conditions, and equipment structures for different processing stages, we provide tailored solutions:

- Explosion-proof products: With ATEX, IECEx certification.
- Wired monitoring: Suitable for intermittent operation, ultra-low-speed operation, and variable conditions and speeds in rotary equipment, such as excavator lifting components, rotary parts, and push mechanisms.
- Wireless monitoring: Suitable for stable equipment, such as crushers, conveyors, hoists, rod mills, and vibrating screens.



## Advantages

- 01 Harsh environment endurance
- 02 High impact resistance
- 03 Suitable for low speed and heavy load machines
- 04 Fit for scattered machines
- 05 Strong data collection capability
- 06 Algorithm throughout the whole system
- 07 24/7 remote diagnosis service available

# Predictive Maintenance System



- Visualization
- User Friendly
- Smart
- Customized
- Flexible & Compatible
- Collaborative

## Ronds Predictive Maintenance System:

Ronds software enables 24/7 real-time monitoring of industrial equipment by utilizing status data. This is achieved through the integration of cutting-edge technologies such as big data, cloud computing, and AI. The system is capable of accurately predicting machinery faults and providing detailed diagnostic conclusions. Furthermore, it offers a comprehensive equipment operation and maintenance process, which facilitates a closed-loop PDCA cycle.



## Ronds Predictive Maintenance APP:

Ronds mobile application provides functions similar to those of the PC system, enabling users to access real-time equipment status information from anywhere and any time.

# Ronds Remote Diagnosis Services



- 24/7 Expert monitoring
- Expert consulting
- Evaluation after onsite maintenance
- Monthly health report
- Diagnostic skill training
- Diagnosis center system consulting

# Ronds Typical Solutions for Different Mining Equipment

## Solution for Power Shovel

Feature of Rotating Components: Intermittent and ultra-low-speed operation  
 Feature of Lifting Components: Variable speed and conditions, low-speed operation  
 Feature of Push Components: Variable speed and conditions, low-speed operation  
 Other Auxiliary Components: Generators, fans

Monitorable Faults: Bearing faults, gear faults, coupling faults, foundation bolt loosening, etc.



## Solution for Conveyor

Feature of Main Transmission Components: Stable speed, low or ultra-low speed

Monitorable Faults: Common motor faults, gearbox faults, drum bearing faults, coupling faults, foundation bolt loosening, etc.



## Solution for Vibrating Screen

Feature of Vibrating Screen: High speed, stable operation, and high impact

Monitorable Faults: Common motor bearing faults, exciter bearing faults, wear and contact issues, coupling faults, screen body bolt and beam imbalances, foundation or support faults, etc.



# Application Values



### Safe Production

- Continuously monitor equipment status, provide early warnings, and eliminate safety hazards caused by equipment failures



### Cost Reduction

- Reduce total equipment maintenance costs by 5-10%
- Save 20%-50% of planned maintenance time
- Scientific maintenance and optimization of spare parts inventory



### Quality and Efficiency Improvement

- Keep track of equipment health to avoid unplanned downtime
- Improve equipment running time by 10-20% to increase production capacity



### Enhanced Work Experience

- Leverage a rich professional knowledge base
- Utilize intelligent tools and methods to reduce workload



### Accelerate Digital Transformation

- Achieve digitalization, visualization, and intelligent management of equipment status with new intelligent maintenance models, supporting the digital transformation of the industry

# Case: Predict bearing failure 70+ days in advance for a coal mining client

Based on accurate understanding of equipment status, achieve lifecycle management of equipment

## Equipment

Main shaft belt drive 11 #  
unloading roller



Bearing outer  
raceway



Ronds' diagnosis



### 01 Enhance equipment reliability

Detecting bearing wear at early stage, the clients can eliminate the defect to enhance equipment reliability.

### 02 Guarantee continuous production

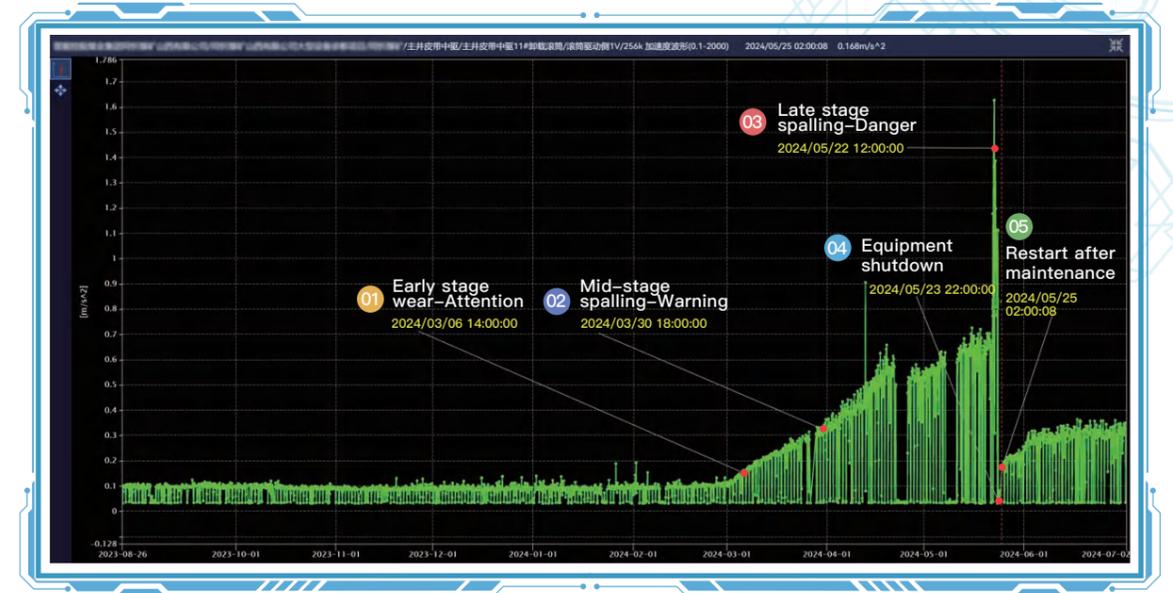
When the bearing has slight spalling, accurate equipment status identification can guarantee the continuous production.

### 03 Avoid safety accidents

When bearing spalling turns into late stage, the clients shall shutdown the equipment to avoid safety accidents.

### 04 Improve equipment management

After the maintenance is completed, re-evaluate the equipment status to improve the equipment management.



## Process of O&M

- 01.7/24 Monitoring Start Date: August 26, 2023.
- 02.Attention: March 6, 2024, at 14:00. Alarm Level 1. Ronds experts point out that the outer raceway of the roller drive end bearing is worn and has been continuously deteriorating recently.
- 03.Warning: March 30, 2024. Ronds experts point out that the outer raceway of the roller drive end bearing has been slightly spalling and damaged.
- 04.Danger: May 22, 2024, at 12:00. Alarm Level 3. Ronads experts pointed out significant spalling on the outer raceway of the roller drive end bearing and wear on the cage, recommending immediate maintenance actions.
- 05.Equipment Shutdown: May 23, 2024, at 22:00.The Client proactively stop the machine for maintenance.
- 06.On-Site Maintenance: May 24, 2024. On-site maintenance.
- 07.After Maintenance Evaluation: May 25, 2024, at 02:00. Equipment back to normal state.

## Maintenance feedback



# Application Case

## Cooperation Introduction



### Tangjiahui

- Equipment: **121**
- Total sensor installed: **781**
- Starting date: **August/2021**
- Successful cases: **53**



### Bojianghaizi

- Equipment: **24**
- Total sensor installed: **130**
- Starting date: **August/2021**
- Successful cases: **11**



### Selian

- Equipment: **62**
- Total sensor installed: **417**
- Starting date: **August/2021**
- Successful cases: **27**



### Guqiao

- Equipment: **91**
- Total sensor installed: **917**
- Starting date: **November/2022**
- Successful cases: **11**

### August, 2021

- 3 main companies installed Ronds system, a main hoist malfunction was discovered soon

### July, 2022

- Due to remarkable results, the three companies included more equipment into Ronds system. Selian passed the national smart mine acceptance with the help of the Ronds system

### November, 2022

- Ronds assisted Western Mining in developing new monitoring technologies for underground key equipment
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### August, 2023

- Signed a deepening cooperation agreement, and piloted oil monitoring and mobile coal mining equipment monitoring technology with Ronds

## Client Approval

Engr. Zhang, do you think using our system has reduced the workload and pressure on your 20 person maintenance teams, and has it reduced the number of emergency faults?

Of course. Your system can help us quickly identify where the problem is, what maintenance priorities are, and improve maintenance efficiency.



The fewer people there are, the more obvious the value of our system will be. Currently, your maintenance team has fewer people than the belt maintenance team, but the maintenance efficiency seems to be higher.



Yes, we have fewer people, so this system is good. Now, our maintenance is more targeted, and we only do maintenance when the system give us alarm.



# Clients

Products and Services Covering 40+ Countries

## Typical Clients in the Mining Industry

SIEERA GORDA    CENTINELA    VALE    CODELCO    BHP BILLITON    OCP  
 CHN ENERGY    CHINA COAL GROUP    WESTERN MINING    SD-GOLD

## Typical Clients in Other Industries

BASF    POSCO    YPF    MICHELIN    BUNGE    SP CHEMICALS    PTT  
 KPIC    INDORAMA    LG    TATA CHEMICALS    CHINA ENERGY    MAPLE LEAF  
 BAOWU    SINOPEC    CONCH    CNPC    CHINA RESOURCE    ANSTEEL

