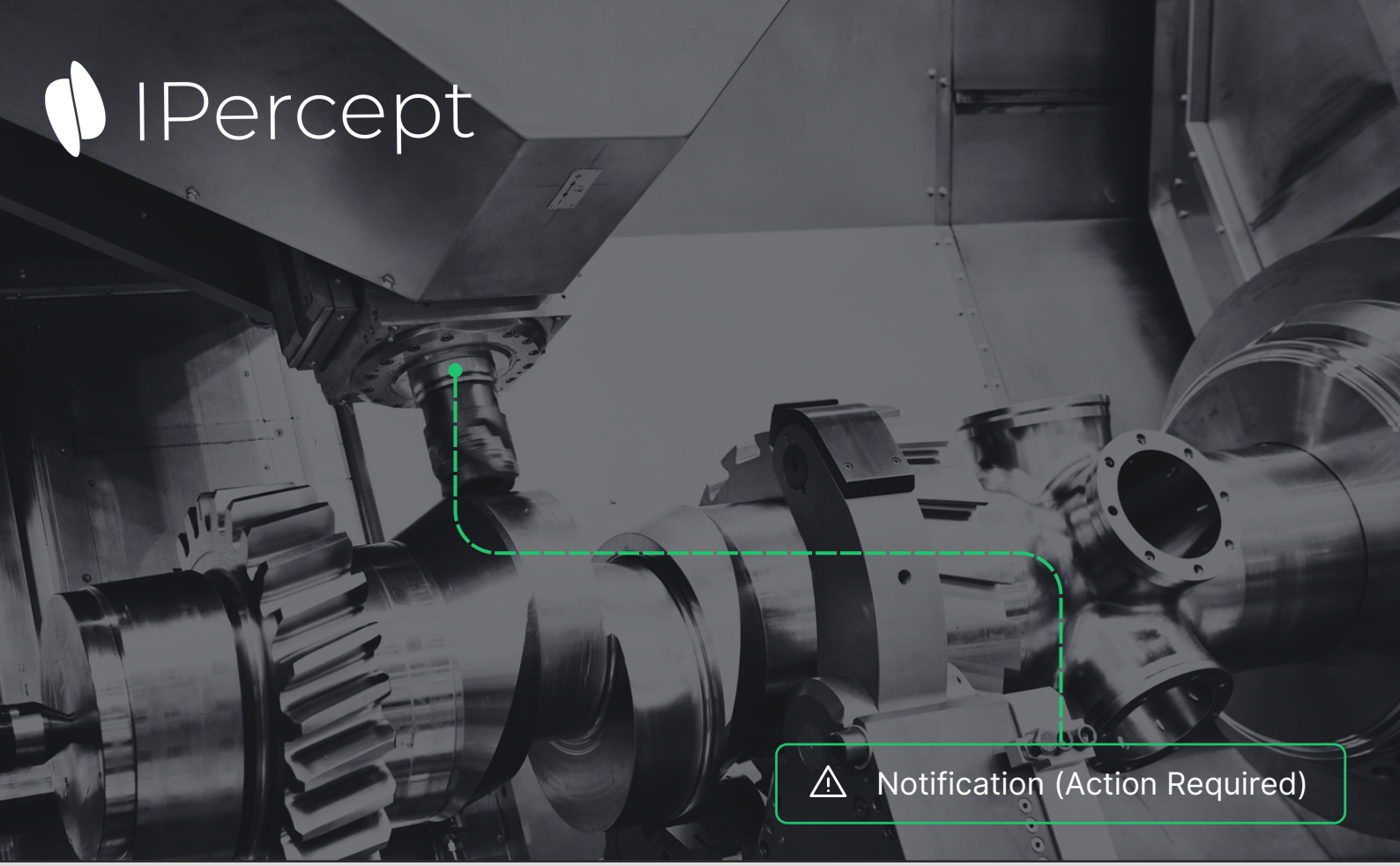
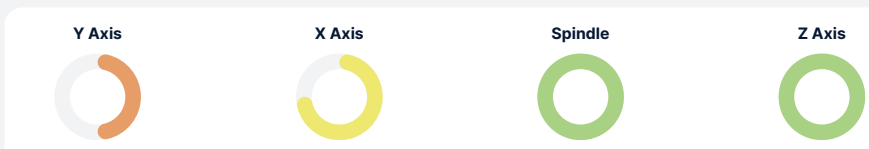
IPercept

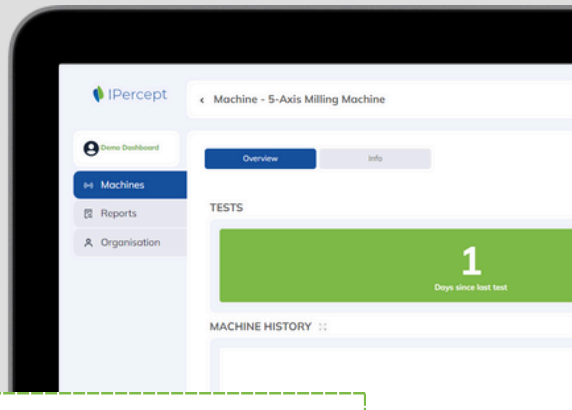


The Fitness Tracker of Industrial Machines

DEGRADATION STAGES



- Accelerated: RUL is estimated to be between 10% and 30% of the initial value.
- Observable: RUL is estimated to be between 30% and 60% of the initial value.
- Stable: RUL is estimated to be greater than 60% of the initial value.



ROOT CAUSE ANALYSIS

Subsystems

- Spindle
- Linear Feed Drive ⚠
  - X- Axis
  - Y- Axis ⚠
  - Z- Axis

Failure Modes

- Motion Dependent ⚠
  - Defect in Ballscrew Nut ⚠
  - Defect in Carriages
  - Motor Fault
  - Drive-Side Bearing Fault
  - Free-Side Bearing Fault
  - Change in Lubrication Condition
  - Defect in Coupling
- Position Dependent
- Assembly Related

Explanation

Effects

Backlash, decreased accuracy, lower load capacity, potential quality defects, contamination.

Root Causes

Excessive load, axial misalignment, inadequate lubrication, surface and sub-surface cracks.

Actions / Recommendations

Enhance lubrication, improve sealing, avoid impact loads, review ballscrew size, improve assembly accuracy. If indicated by IPercept, consider replacing the component(s).

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Imagine if you could...

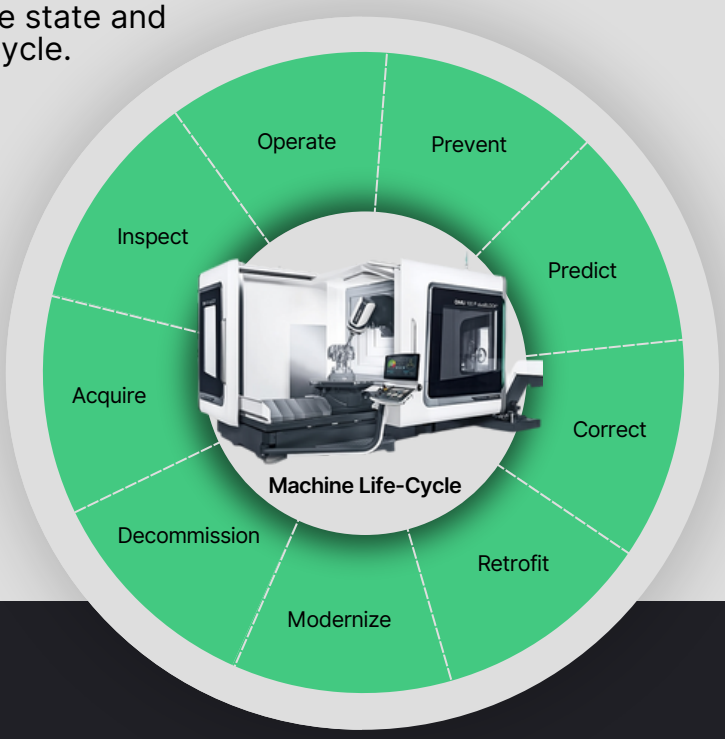
- Know the mechanical health of a complex machine without needing an on-site visit
- Be alerted well in advance that something is about to fail
- Know on component level what needs to be checked before starting a repair
- Improve maintenance so the lifetime of the machine can be extended
- Understand how a machine is being utilized

At IPercept, we are making this a reality.

Our service provides actionable insights into the true state and usage of your machines at every stage of their life cycle.

We enable

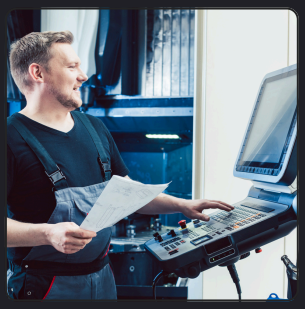
- Predictive and Prescriptive Maintenance
- Increased Machine Utilization and Efficiency
- Optimized Planned Downtime
- Minimized Unplanned Stops
- Reduced Quality Losses
- A More Sustainable Production



Insights in 4 simple steps

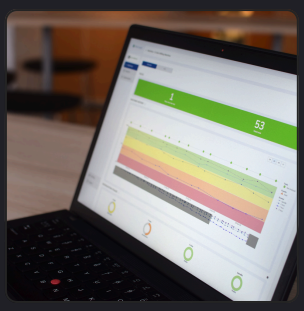
One

Install the IPercept Smart IIoT Device on any metalworking machine, old or new, with just a 24V supply.



Two

Run weekly tests that take about 5 minutes by executing a G-code.



Three

IPercept's algorithms automatically analyze the data and turn it into alerts and recommendations.

Four

Plan and prioritize production and maintenance by understanding the machine's true state.

Book your demo at www.ipercept.io

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