LOCTITE®

A Guide to Predictive and Preventative Maintenance

In any industrial setting, whether it's manufacturing, processing, mining, or food production, maintenance is a vital part of the process.

Proper maintenance helps fend off one of the biggest problems your business faces: downtime. When parts fail, important machinery breaks down. The right maintenance strategy helps mitigate against downtime, aiming to avoid catastrophic failures that can lead to a line stop or production losses.

Getting it wrong can be very costly. A survey of 450 businesses in the US and Europe found 82% of companies have suffered at least two unplanned outages over the last three years1. This unscheduled downtime can cost businesses hundreds of thousands of dollars for every hour they're not operating.

Some of these costs can include:

- Lost productivity caused by downtime
- Cost of replacing equipment
- Labor costs to get back up and running

Getting it right is all about trying to mitigate against those periods of unplanned downtime. Maintenance and repair, when done well, prevents these failures before they happen, so you can control downtime and carry out repairs at a time that works best for you.

Below, we take a look at the two most effective approaches to maintenance: predictive and preventative. Find out more about the key differences between, and benefits, of the two compared to reactive maintenance.

Difference Between Preventative and Predictive Maintenance

Predictive and preventative maintenance are about eliminating breakdowns before they happen. Both favor early intervention, rather than reacting to something after the fact.

Each approach can be beneficial to your operations. But they do differ. Understanding the difference between preventative and predictive maintenance can help you implement the most effective maintenance plan.

WHAT IS PREVENTATIVE MAINTENANCE?

Preventative maintenance assumes and accepts that installed parts do, and will, fail over time. The core principle of a preventative approach is stopping those failures from having as catastrophic an impact as they otherwise might.

A preventative approach hinges on regularity. Informed by previous learnings, it centers around utilizing the expected lifespan of components to your advantage. To make sure you replace and maintain perishable parts before they wear out, weaken and fail, resulting in a breakdown, it means changing them at regular intervals. This minimizes the risk of breakdowns and helps ensure you achieve your expected mean time between failures (MTBF).

Rather than scrambling to fix equipment that fails unexpectedly at the most inconvenient time, preventative maintenance means you can schedule routine replacements. This minimizes the impact of related downtime, such as arranging repairs outside regular working hours.

WHAT IS PREDICTIVE MAINTENANCE?

Predictive maintenance takes prevention one step further. It's essentially part of the same process, but with a more flexible and adaptable approach. Unlike preventative maintenance, predictive maintenance digs down into the detail. It works on the premise that if you can predict an event, you can stop it from happening at all.

Rather than scheduling regular repairs, predictive maintenance is all about data. It leverages the power of data to look at previous breakdowns and component failure, as well as using real-time data such as vibration analysis, to keep tabs on the condition of your machinery.

This allows you to spot trends and understand when a component is most likely to fail. Based on this information, you can change your behaviors to suit, making repairs and replacing parts at optimal times before they break down to keep operations moving with minimal disruption.

The Benefits of Predictive Maintenance Vs. Preventative Maintenance

Both preventative and predictive maintenance offer many advantages over traditional reactive methods of repair. They each focus on extending the time that exists between breakdowns, reducing unplanned downtime, and accepting that certain failures just don't need to happen.

BENEFITS OF PREVENTATIVE MAINTENANCE

Choosing preventative maintenance offers various benefits over a predictive outlook, such as being:

- **Easier to plan –** Because maintenance is always done at the same time, you know when machinery will be down.
- **Cheaper to implement –** Without the need for extensive data analytics, preventative approaches can be cheaper.
- **Less complex –** Scheduling requires less immediate expertise compared to predictive maintenance.

Benefits of Predictive Maintenance

Predictive maintenance offers many benefits over a preventative approach, including:

- **Making more impactful repairs –** Unlike with a preventative approach, you're not replacing parts just because the schedule dictates. That means you remove the risk of replacing things that are still working well, which could lead to wastage.
- **Reducing overall downtime –** Although predictive maintenance doesn't allow you to schedule downtime in the same way, it doesn't require the same level of equipment shutdown. Therefore, you can be more dynamic, maintaining and getting things back to full capacity in shorter periods.
- **Lowering overall cost –** Because parts can run closer to failure than preventative maintenance often allows, the long-term cost of predictive maintenance can be lower.

Preventative and Predictive Maintenance Solutions

Whether your plant operates a predictive or preventative maintenance approach, maintenance is all about extending the time between breakdowns. While these will always be a fact of industrial operations, minimizing their impact by reducing their frequency can save you millions of dollars.

Right products and knowledge go a long way to help you save unplanned downtime and cos