



Total Productive Maintenance (TPM)



Extend Equipment Life and Productivity with TPM

TPM is a proactive method for predicting and preventing unplanned downtime and one of the critical building blocks of the Lean process. TPM is an easy-to-implement system that allows you to reduce or eliminate overtime shifts and increase productivity and profits — all while preventing unexpected and potentially catastrophic machine breakdowns.

Typical benefits of TPM include:

- Overall Equipment Effectiveness (capacity): **25-65% improvement**
- Quality defect: **25-50% improvement**
- Maintenance Expenditure: **10-50% improvement**
- Percent planned vs. unplanned maintenance: **10-60% increase in planned maintenance**

The TPM Process and Overall Equipment Effectiveness (OEE)

A TPM project typically uses a modified kaizen format and can span several weeks:

- Training: A team of people is selected, including machine operators, craft maintenance people, supervisors, and management. The process begins with a day of training, simulations and case studies, plus instruction on how to work in teams. The team also learns how to collect Overall Equipment Effectiveness (OEE) data, a simple but very powerful TPM tool.
- OEE is shop floor-collectable data that documents how long a machine is actually running, how long it's down, how many reworks are needed, and so on. OEE provides an easily applied and understandable way of measuring machine utilization. It also serves as a record over time of a machine's performance and can be used over and over again as a reference guide for future troubleshooting. The TPM team then decides which equipment to target first for improvement.
- OEE Data Collection: During the next three weeks, the first OEE data is collected. This is done by the machine operators themselves, on all shifts. This data serves as baseline data for the project and shows where the problems lie.
- OEE Data Analysis/Problem Prioritization: The team meets to analyze the OEE data and prioritize the problems it uncovers. The problems can be categorized according to the "six big losses" that reduce a machine's efficiency: breakdowns, setup and adjustment loss, idling and minor stoppages, reduced speed, defects and rework, and startup and yield loss. From there, the root causes of these problems can be targeted and corrected.
- TPM Implementation: Next the team works to restore the equipment to make it as reliable and productive as it is capable of being. Using the OEE data, high failure rate areas are identified and the necessary repairs performed. Then daily and periodic maintenance schedules are established.



TPM & 5S

A 5S factory organization and cleanup project is also part of the TPM process. Up to 75 percent of unplanned downtime on machines is caused by contamination or improper lubrication. By keeping the machines clean, contamination and leaks are easily identified and can be corrected immediately.

WHO WE ARE

As a private non-profit corporation, we focus fully on generating positive results for our clients.

Our team of manufacturing experts work side-by-side with hundreds of manufacturers each year, helping them develop and implement effective solutions that address their biggest challenges.

We closely monitor trends and best practices in manufacturing, and proactively develop solutions that meet the existing and emerging needs of manufacturers.

WMEP Manufacturing Solutions is part of the MEP National Network™, a public-private partnership that advances U.S. manufacturing. MEP Centers are located in all 50 states and draw on the talents of over 1,400 trusted advisors and experts.

WE HELP MANUFACTURING COMPANIES BECOME MORE PROFITABLE & VALUABLE

WHAT WE PROVIDE

WMEP Manufacturing Solutions recognizes that manufacturers face various challenges and we provide proven solutions to these challenges in the following areas:

- Operational Excellence
- Growth & Strategy
- Industry Certifications
- Human Capital
- Automation & Technology
- Sustainability

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