



EPICENTRAL

A Newsletter from Epicenter Development Group
highlighting ideas that improve organizations

Welcome to Epicenter Development Group's newsletter, EPICentral. The purpose of this newsletter is to highlight fundamental ideas that have helped organizations develop and maintain great manufacturing and service operations. We hope that you find our EPICentral newsletter helpful, and we would welcome your comments on its content.

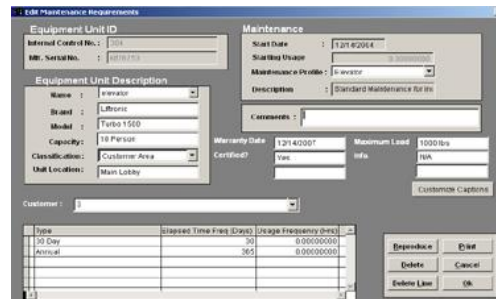
Getting the Most Out of Your Equipment Through TPM

Total Productive Manufacturing, often referred to as TPM, is a teamwork approach for solving equipment and workplace-related problems. It's an important concept since its adoption can dramatically improve your company's production capacity and flexibility to meet changing market needs. In a nutshell, TPM is about getting the most out of your available resources and making sure that they are always available for use.

A helpful way to look at resource capacity is in terms of OEE or Overall Equipment Effectiveness. OEE represents the capacity of production equipment as compared to its theoretical potential, and it is calculated by using the following formula:

$$(availability\ rate) \times (performance\ rate) \times (quality\ rate)$$

If, for example, an assembly machine is available 80% of the time, only runs at 85% of its designed speed and produces 95% quality, the OEE would be 64.6%. Although each loss may appear reasonable by itself, the overall production loss can be huge. The goal of TPM programs is to systematically identify and eliminate all potential losses while creating an environment for continuous improvement.



There are several software packages available for assisting in the equipment maintenance portion of TPM.

Implementation Steps

The Steps for Implementing TPM can be outlined as follows:

1. **Measure your current performance and analyze production losses.**
2. **Develop an improvement plan to eliminate the major losses identified:**
 - o *Equipment based losses* - maintenance and technical
 - o *Management losses* - coordination, business process ineffectiveness
 - o *Process losses* - scrap, yield, rework, process capability
 - o Improvement activities could include:
 - Autonomous operator maintenance programs
 - Equipment improvement activities
 - Quality maintenance

- Maintenance prevention systems development
 - Education and training
3. **Review losses periodically and address in priority order.**
 4. **Standardize best-practice operations** by involving operators in daily maintenance activities.
 5. **Review and improve planned preventive maintenance.**
 6. **Strive for continuous improvement.**

Implementation Considerations

- One important part of TPM implementation is to identify the dollar impact of every TPM loss that is identified. It's difficult to justify TPM programs without a complete understanding of the potential savings.
- Commitment from management is key to success of any TPM program.
- TPM is a people-orientated approach. For this reason, training and team building is a necessary part of any TPM implementation effort.
- The focus of TPM activities should be on bottleneck or constraining operations (see [TOC article](#) in December 2012 newsletter).
- TPM requires an attention to detail and root-cause analysis of problems. Consider training on problem-solving techniques as part of the program design.

| Typical OEE Losses |
|---|
| <u>Availability Losses</u> <ul style="list-style-type: none"> • Failure from breakdown • Setup and adjustment time |
| <u>Performance Losses</u> <ul style="list-style-type: none"> • Operating equipment at reduced speeds • Idling and minor stoppages • Operator skill |
| <u>Quality Losses</u> <ul style="list-style-type: none"> • Process/products defects • Reduced yield |

Next Steps

If you would like more information on this topic or other similar types of tools, please contact Bill Proctor with your request at wproctor@epicentergroup.com or 216-702-0952. You can also find previous issues of EPICentral at [Newsletters](#).

Mr. Proctor also speaks on a variety of problem-solving and system design topics that can help companies significantly increase the success and profitability of their businesses. If you are interested in having Bill speak at one of your upcoming meetings/events or would like more information on any of the speaking topics, please visit [Speaker Services](#) or you can email sales@epicentergroup.com.

Epicenter Development Group is a unique consulting firm that seamlessly integrates the disciplines of Systems Engineering and Organizational Analysis & Development to create practical design solutions to your toughest challenges. It is on the cutting edge of problem-solving solutions and the creator of a unique process called GreenRoom Engineering. This process adds greater value and cost savings for clients as compared to traditional engineering methods.

William Proctor, Epicenter's founder and president, has provided services around the country to more than 100 companies

Epicenter News

Epicenter is excited to be working with Eramet Marietta in Ohio.



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consisting of a variety of organizations; and Epicenter continues to grow as a resource for firms of all sizes.

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