

How to Improve Your Business's Profitability by Implementing a Manufacturing OEE Program

Why Introduce an OEE Program

If you believe that your manufacturing operations could benefit from increased equipment availability, better performance, and improved product yield, please consider integrating an *Overall Equipment Effectiveness (OEE)* program into your production facility. OEE provides a measurement that indicates how effectively a production operation is, when compared to its full potential.



The OEE metric facilitates the evaluation of the effectiveness of the particular manufacturing operation being utilized. OEE indicates the amount of production time that is genuinely productive, during the periods that the equipment is scheduled to operate. One of the benefits of an OEE program in manufacturing is that it combines the operation of equipment, maintenance of the equipment, and the managing of equipment resources.

Calculating the OEE Metric

OEE is a top level metric that provides a measurement of the overall utilization of a particular manufacturing process and the associated equipment. In turn, it allows quantification of the gap between your current OEE and the ideal OEE. The OEE is

calculated from a simple mathematical formula equal to the product of the percent of time the equipment is available to produce product (*Availability*), the percent of actual product output compared to the ideal output (*Performance*), and the percent product yield (*Quality*).

$$\text{OEE} = (\text{Availability}) \times (\text{Performance}) \times (\text{Quality})$$

Availability takes into account equipment failure (unplanned stops) and equipment setup and adjustments (planned stops). If, however, the equipment is not scheduled to run for a particular time period, then that time period should not be counted as available time.

Performance quantifies how well a manufacturing process performs relative to the capacity it was designed for, during the periods when it is scheduled to run.

Quality takes into account manufactured parts that do not meet quality standards, including parts that need rework. OEE Quality is similar to first pass yield, in that it defines good parts as parts that successfully pass through the manufacturing process the first time without needing any rework.

The OEE Process Steps

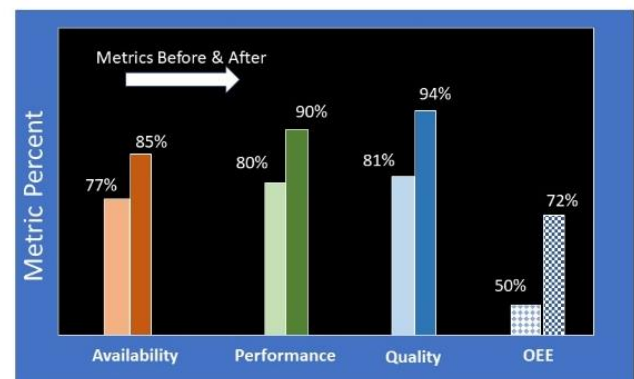
The very first stage in introducing OEE is to ensure that you have a stable OEE number. This needs to be done to make certain that you currently have a stable process in place, i.e., one that does not vary significantly in equipment availability, throughput, or product yield.

Once an asset's effectiveness is stable and not impacted by some variability, you can calculate an OEE, and then proceed with the second stage of OEE improvement which is the optimization stage. This can be carried out to begin to identify and remove the chronic losses that are experienced in your production process to benefit the manufacturing line's operation.

A very important aspect of a smooth running highly profitable and high quality manufacturing production line is to calculate each OEE metric for one single manufacturing equipment process, and not a combination of several processes and equipment. Otherwise, the calculated OEE will be muddled because several different operations would essentially be combined, hindering the focus necessary to find the root cause of any issues.

Therefore, focus needs to be on the operation of one piece of equipment from the beginning to the end, by collecting data, making calculations, assessing gaps, determining the root cause of the issue, and then planning and implementing corrective actions.

After improvements are established for a particular process, recalculate the OEE and see if it has improved as a result of the changes. If successful, formally implement the modifications. Then move on to another piece of equipment with the goal of improving that equipment's OEE metric.



In Conclusion

A properly implemented OEE program in your manufacturing facility can assist in improving the company's ability to increase profitability and manufacturing throughput by operating in the most efficient and cost effective manner possible.

Want to learn more about the specifics on how to successfully implement OEE in your manufacturing operations? Please contact me at apucino.emc@gmail.com. Also visit our company Website, www.essentialMFGconcepts.com.