

Lean Manufacturing

How to Effectively Utilize OEE in Your Industrial Metal-Cutting Organization

Brought To You by Lenox Metal Cutting Blog | Dec 29, 2017

As part of the push toward continuous improvement, more and more industrial metal-cutting companies are measuring overall equipment effectiveness (OEE). This is definitely a good trend, as measurement is the first step in making quantifiable change. However, some companies have jumped on the OEE bandwagon without being fully informed, which can cause a lot of misunderstanding and misuse of this important metric.

Knowing what OEE is—and what it isn't—is the only way to make sure you are using it effectively. The following is a quick primer.

What is OEE? According to leanproduction.com, OEE is a best practices metric that measures the percentage of production time that is truly productive. It takes into account all six types of loss, resulting in a measure of productive manufacturing time.

In simple terms, OEE can be described as the ratio of fully productive time to planned production time. According to leanproduction.com, it can be measured in one of two ways:

(Good Pieces x Ideal Cycle Time) / Planned Production Time

or

Availability x Performance x Quality

(You can find a more detailed description of the calculation [here](#), as well as a sample calculation.)

A plant with an OEE score of 100 percent has achieved perfect production—high quality parts as fast as possible, with zero down time. While that's ideal, it's not quite possible in the real world. According to oee.com, studies show that the average OEE rate among manufacturing plants is 60 percent, which leaves substantial room for improvement. Most experts agree that an OEE rate of 85 percent or better is considered "world class," and many companies use that number as a long-term goal for their operations.

Managers can use OEE as both a benchmark and baseline. Specifically, leanproduction.com says it can be used to "compare the performance of a given production asset to industry standards, to similar in-house assets, or to results for different shifts working on the same asset." It can also be used as a baseline "to track progress over time in eliminating waste from a given production asset."

How to Use—and not Use—OEE

It's important to note that OEE is not necessarily a useful metric for every manufacturing operation. "Measuring OEE only makes sense if you are trying to meet a certain demand on a daily basis," explains Paul Bryant, senior OPEX manager, LENOX Tools. "If you have a problem with yield, then I would definitely suggest OEE."

"If you have a problem with inconsistent production output and/or downtime on a piece of

manufacturing equipment, OEE is a great way to measure and identify how to where to improve your operations,” Bryant continues. However, for smaller metal-cutting operations that are more custom and low volume, Bryant says OEE probably isn’t worth measuring.

Bryant also says that a lot of shops use OEE incorrectly. Specifically, he says there are two common ways metal-cutting operations misuse the metric:

1. **Too Focused on the Benchmark.** “Everyone knows that world-class OEE is 85%, but too many people get hung up on that number and how their shop compares to it. When I look at OEE, the number doesn’t mean much to me. I look at three components—availability, performance, and quality—and then break them apart and look for opportunities. That is the true essence of OEE: To find opportunities that help keep your machine and production system optimal.”
2. **Too Focused on the Operator.** “Another misuse is that people use OEE to measure the operator. OEE is used to measure equipment. If you run into an issue with the metric, look at the machine first. There are so many variables, don’t always assume it is the operator. Once you’ve evaluated the machine, look at the material and then the operator last.”

An article from *IndustryWeek (IW)* adds that OEE should be used as an improvement measure, not a **Key Performance Indicator (KPI)**. It also states that it is best used on a single piece of equipment or synchronized line.

Finally, if your shop is ready to start measuring OEE but doesn’t know where to start, enlist the help of some key suppliers. As stated in the eBook, *Five Performance-Boosting Best Practices for Your Industrial Metal-Cutting Company*, many companies don’t possess all of the knowledge, resources, or infrastructure necessary to do in-depth measurement. This is where a willing supply partner can help. In today’s competitive market, there are plenty of equipment and tooling suppliers that are willing to share their knowledge and experience as a free, value-added service.

A Helpful Tool

There is no question that OEE can be misused and misunderstood, but as the *IW* article reiterates, it is not a “bad metric.” When calculated and applied correctly, OEE can be a very useful tool to help industrial metal-cutting companies quantify and uncover new improvement opportunities.

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