



# Overall Equipment Effectiveness (OEE)

Technical Solutions, Together, For The Future.

## What is OEE?

Overall equipment effectiveness, also known as OEE, is a metric commonly used in industry to measure how well an operating line is running, making 1<sup>st</sup> grade product, compared to the theoretical productivity levels.

At a high level, it is a very easy calculation. As with other things though, the devil is in the details!

## Simple OEE Calculation:

$$OEE = \frac{\text{good pieces} \times \text{cycle time}}{\text{planned production time}} \quad (\text{good pieces} \times \text{cycle time} = \text{fully productive time})$$

The better way to look at it is to break OEE into Availability, Performance and Quality. When it is broken down into these components then it is possible to start looking at where the opportunities are to improve.

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

$$\text{Availability} = \frac{\text{operating time}}{\text{planned production time}} \quad \text{Performance} = \frac{\text{ideal cycle time} \times \text{total pieces}}{\text{planned production time}} \quad \text{Quality} = \frac{\text{good pieces}}{\text{total \# of pieces}}$$

## Where are the Opportunities?

### Availability

Operating Time

- Time the equipment is actually running – no downtime, no change over, no stoppages

Planned Production Time

- Total time in a day or shift minus break time, meeting time, planned downtime

Opportunity = reduce unplanned downtime, reduce time to do changeovers between lots, between products, between shifts

### Performance

Ideal Cycle Time X Total Pieces

- Time to produce 1 piece at the maximum production rate the equipment can manage X total pieces produced in the operating time

Planned Production Time

- Total time in a day or shift minus break time, meeting time, planned downtime

Opportunity = reduce instances where the operations does not run at the peak rate, simplify process

### Quality

Good Pieces

- Pieces that went through ALL steps of the process only once → no rework, no reprocessing, no returns, no rejects

Total Pieces

- Number of pieces produced in the operating time → including rework and rejects

Opportunity = reduce defects, simplify process, review raw material prior to starting process, good products the first time

***A strong future is built on collaboration, knowledge sharing, and mutual trust. Let's build that future together!***

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