Overall Equipment Effectiveness (OEE)

Overall equipment effectiveness from availability, performance and quality, computed from planned time, downtime, ideal cycle time and good and total counts.

Method: OEE = Availability × Performance × Quality (Nakajima, TPM)

Input parameters

Unit system: SI

Parameter	Value	Unit
Planned production time	480.00	min
Downtime (stops)	50.000	min
Ideal cycle time per part	6.0000	s
Total parts made	4,200.0	
Good parts	4,080.0	

Calculated results

Parameter	Value	Unit
Availability	89.583	%
Performance	97.674	%
Quality	97.143	%
OEE = A × P × Q	85.000	%

Notes for this case

- OEE equals good parts × ideal cycle time / planned time.

Formula and method

$$A = \frac{t_p - t_d}{t_p}, \quad P = \frac{t_c N}{t_p - t_d}, \quad Q = \frac{N_g}{N}, \quad OEE = APQ$$

Variables

t_p	Planned production time	s
t_d	Downtime (stops)	s
t_c	Ideal cycle time per part	s
N	Total parts made	-
N_g	Good parts	-
A	Availability	-
P	Performance	-
Q	Quality	-
OEE	OEE = A × P × Q	-

Method and standards

TPM definition.

Assumptions and limits

- One machine or line.

References

- OEE = Availability × Performance × Quality (Nakajima, TPM)

Report details

Report reference	FCC-5587-HYCC (the same inputs always give the same reference)
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Calculator	Overall Equipment Effectiveness (OEE)
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Software release	FireCAD Calc, release of 17 November 2026
Release checks	2 reference cases of this calculator, computed independently, are checked on every release

Results are for engineering estimation. Verify critical designs against the referenced standards and your own data.

This calculator online

https://calc.firecad.com/mechanical/manufacturing/oee

Open this case on calc.firecad.com →

Reopens the calculator with the inputs of this report.