

MANUFACTURING METRICS · INDEPENDENT RESEARCH

Manufacturing KPI Cheat Sheet 2026

The 10 KPIs that run a plant —
formulas, benchmarks and pitfalls

Dataset verified Q2 2026 · Published August 2026 · manufacturing-metrics.org

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The 10 KPIs that run a plant

KPI	Formula	Benchmark
OEE (Overall Equipment Effectiveness)	Availability x Performance x Quality	World-class 85% (discrete) / 90%+ (process); typical 55-65%
Availability	Run time / Planned production time	Target 90%+
Performance	(Ideal cycle x Count) / Run time	Target 95%
Quality / First Pass Yield	Good units (no rework) / Total units	Target 99% / FPY 95%+
MTBF	Operating time / Number of failures	Higher is better; trend beats absolute
MTTR	Repair time / Number of failures	Lower is better
Downtime cost	Downtime hours x contribution margin per hour	\$50k-260k/hr across industries
Cycle / Takt time	Actual cycle vs takt (demand rhythm)	Cycle <= takt
On-Time Delivery (OTD)	Orders on time / Total orders	95%+ typical target
Throughput	Units per line per hour	Sector-specific

Sources: ISO 22400, NF E 60-182, published sector studies. Full dataset: manufacturing-metrics.org/en/

Pitfalls (what the averages hide)

OEE (Overall Equipment Effectiveness)

Formula: Availability x Performance x Quality · **Benchmark:** World-class 85% (discrete) / 90%+ (process); typical 55-65%

Pitfall: Manual logs overstate by 10-20 pts - measure automatically.

Availability

Formula: Run time / Planned production time · **Benchmark:** Target 90%+

Pitfall: Count changeover overruns; they hide here.

Performance

Formula: (Ideal cycle x Count) / Run time · **Benchmark:** Target 95%

Pitfall: Micro-stops are the invisible killer.

Quality / First Pass Yield

Formula: Good units (no rework) / Total units · **Benchmark:** Target 99% / FPY 95%+

Pitfall: FPY is honest; scrap-rate alone is not.

MTBF

Formula: Operating time / Number of failures · **Benchmark:** Higher is better; trend beats absolute

Pitfall: Track per critical asset, not plant average.

MTTR

Formula: Repair time / Number of failures · **Benchmark:** Lower is better

Pitfall: Availability ~ MTBF / (MTBF + MTTR).

Downtime cost

Formula: Downtime hours x contribution margin per hour · **Benchmark:** \$50k-260k/hr across industries

Pitfall: The number that makes losses board-relevant.

Cycle / Takt time

Formula: Actual cycle vs takt (demand rhythm) · **Benchmark:** Cycle ≤ takt

Pitfall: Rate creep goes unnoticed without live data.

On-Time Delivery (OTD)

Formula: Orders on time / Total orders · **Benchmark:** 95%+ typical target

Pitfall: Late orders trace back to unplanned stops.

Throughput

Formula: Units per line per hour · **Benchmark:** Sector-specific

Pitfall: Compare vs rated capacity of the constraint.

