

Cycle Time Tracker

How-to guide: what the workbook does, how to use it and what every number means.

mfgcalcs.com



Cycle Time Tracker

Log timed cycles station by station and see each station's average, spread and loading against takt, the bottleneck, and the output it allows per shift.

For: Industrial and manufacturing engineers, line supervisors and continuous-improvement leads running time studies on assembly and machining lines.

Version 1.0.0 · updated 15 October 2026

Quick start

1. On Setup, type the shift length, breaks, planned downtime and demand per shift (takt time calculates), then replace the example stations and their standard cycles.
2. On Observation Log, add one row per timed cycle: date, station, operator and the cycle in seconds.
3. Mark an abnormal cycle (dropped part, waiting, tool fault) Exclude = Yes and say why in Notes; it stays on the log but is not counted.
4. Read the Check column: anything other than OK names the problem in words.
5. Open the Dashboard: the bottleneck, each station against takt, and a run chart. Use the date filters to compare one study with another.

What is in the workbook

Start Here	Read this first: what the workbook does and how to use it.
Setup	Takt time from your shift and demand, the loading thresholds and the station list.
Observation Log	One row per timed cycle: date, station, operator and seconds. Abnormal cycles stay on the log, marked Exclude.
Dashboard	The bottleneck, every station against takt, and a run chart of one station, for the dates you choose.
Method	How every number is calculated, with assumptions, limits and sources.
Verify	Self-check: the workbook's formulas recomputed on fixed inputs against an independent reference.

What each number means

Quantity	How it is calculated	Units
Net available time	Shift length - breaks and meetings - planned downtime (Setup).	min per shift
Takt time	Net available time x 60 / customer demand per shift.	s per unit
Vs standard	Cycle - the station's standard cycle from Setup (positive = slower than standard).	s
Loading	Cycle (or a station's average cycle) / takt time.	% of takt

Quantity	How it is calculated	Units
Pace vs takt and Status	Under capacity below the Near-capacity threshold, Near capacity from it up to the Over-capacity threshold, Over capacity above it (Setup). Excluded cycles read Excluded.	-
Counted cycle	A cycle not marked Exclude and inside the Dashboard date filters; its View date is filled in. Every Dashboard figure uses counted cycles only.	-
Cycles timed (n)	COUNTIFS of counted cycles at the station.	cycles
Average	SUMIFS of counted cycles at the station / n.	s
Slowest	The largest counted cycle at the station: SUMPRODUCT(MAX((station = key) x counted x cycle)).	s
Std dev	Sample standard deviation of the counted cycles: $\text{SQRT}((\text{sum of squares} - n \times \text{average}^2) / (n - 1))$; blank below two cycles.	s
Cycles over takt	Counted cycles slower than takt / n.	%
Capacity per shift	Net available time x 60 / the station's average cycle. For the line, the bottleneck's.	units
Bottleneck	The station with the highest average cycle in view.	-
Surplus over demand	Line capacity per shift - demand (negative = short).	units per shift
Overtime to meet demand	MAX(0, demand x bottleneck average / 60 - net available time).	min per shift
Run chart	Chart no. numbers the counted cycles of the chosen station in log order (COUNTIFS over the rows above); the chart shows the last 20 with the station average and takt.	s

Assumptions, limitations, sources and the self-check (the Verify sheet, which recomputes the workbook's formulas on fixed test inputs) are in the workbook. The last page shows the Dashboard with the example data for Kestrel Controls, a fictional business.

Free from MFG Calcs - keep this credit when you share it.

Engineering estimates for planning and improvement work. Verify the results against your own process, data and standards before you rely on them.

Cycle Time Tracker

The bottleneck, every station against takt, and a run chart of one station, for the dates you choose.

mfgcalcs.com

Run chart station

From

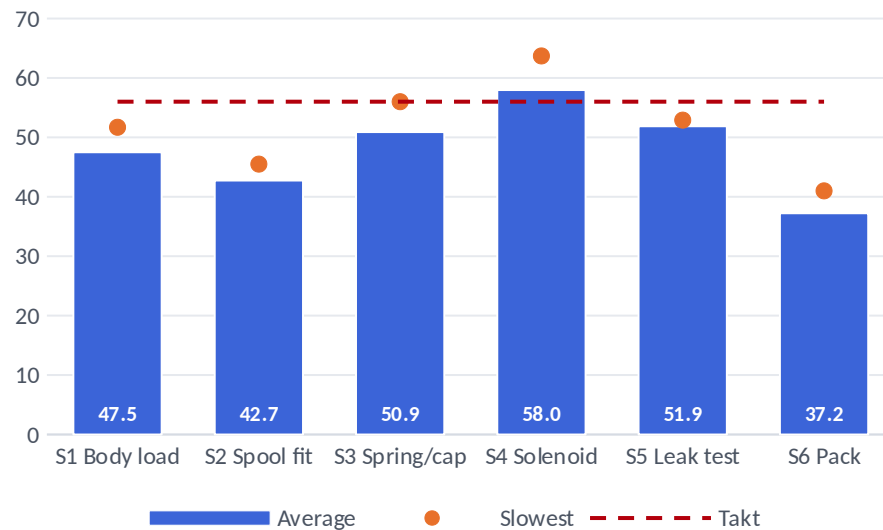
To

Showing 117 counted cycles; 3 abnormal cycles excluded. Leave the filters blank to include everything; dates are inclusive.

TAKT TIME (s)	BOTTLENECK STATION	BOTTLENECK AVERAGE CYCLE (s)	LINE CAPACITY PER SHIFT (units)
56.0	S4 Solenoid	58.0	435
Net available time x 60 / demand	Slowest average cycle in view	Takt 56.0	Demand 450
		Over capacity	Below target

Run chart station: S4 Solenoid (the bottleneck; pick another above)

Average and slowest cycle by station



Run chart: last 20 counted cycles

