

SMED Changeover Analysis

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

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SMED Changeover Analysis

Break a changeover into steps, separate internal from external work, plan the future method, see minutes and money saved, and log real changeovers against the target.

For: Process and continuous-improvement engineers, setters, production supervisors and plant managers running a SMED or quick-changeover project.

Version 1.0.0 · updated 15 October 2026

Quick start

1. On Setup, name the machine, type your currency label, crew labour rate, machine hour rate, changeovers per week, weeks per year and target changeover time.
2. Video or walk a real changeover. On Step Study, add one row per step with its category, who does it, current type (Internal or External) and minutes.
3. For each step choose an action and type the future type and minutes; the Check column flags steps that do not add up.
4. After the change, add every real changeover to the Changeover Log with its duration.
5. Open the Dashboard: before and after, the annual savings estimate, and whether real changeovers hold the target.

What is in the workbook

Start Here	Read this first: what the workbook does and how to use it.
Setup	The machine studied, rates and volumes for the savings estimate, the target, and the SMED lists.
Step Study	One row per changeover step: current type and minutes, the action, and the future type and minutes.
Changeover Log	One row per real changeover after the change: date, products, setter and machine-stopped minutes.
Dashboard	The changeover before and after, the time and money it frees, and whether real changeovers hold the target.
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
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Quantity	How it is calculated	Units
Internal and external minutes	Per step: the step's minutes in the Internal or the External column for its type, today and planned.	min
Stop time saved	Per step: internal minutes today - internal minutes planned.	min
Changeover today, planned	Sum of the internal minutes of all steps, today and planned.	min
Reduction	(Today - planned) / today.	%
Hours freed per year	(Today - planned) / 60 x changeovers per week x production weeks per year.	h/yr
Savings per year (estimate)	Hours freed x (crew labour rate + machine hour rate), in the Setup currency.	currency/yr
External work planned	Sum of the planned external minutes: work that must be done before the stop or after the restart.	min
By category	SUMIFS of the step columns by category; share of saving = the category's stop time saved / the total.	min, %
Log status	Duration against the target: On target at or under it, Near target up to 10% over, Above target beyond.	-
Average logged and on-target share	Average duration of all logged changeovers; share of them On target.	min, %

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 Brookfield Moulding, a fictional business.

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

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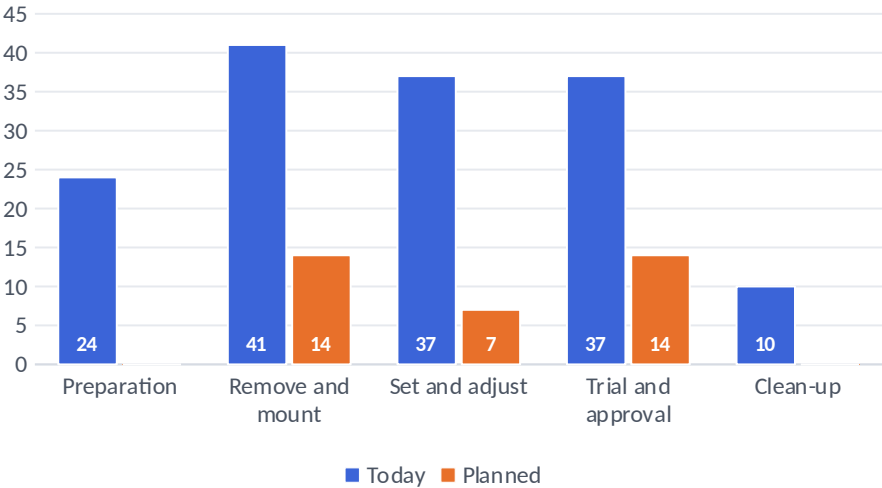
The changeover before and after, the time and money it frees, and whether real changeovers hold the target.

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Press 7, 250 t injection moulding machine (example): 16 steps studied, 20 changeovers logged since the change.

CHANGEOVER TODAY (MIN)	CHANGEOVER PLANNED (MIN)	REDUCTION	SAVINGS PER YEAR (USD, EST.)
149	35	77%	120,384
Internal minutes in the study	Target 30 Above target	Of machine-stopped time	Hours freed x (crew + machine rate)

Machine-stopped minutes by category



Last 12 changeovers (min)

