Thermoforming Cost Estimator

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

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Estimate a thermoformed part's cost from sheet, nesting yield, cycle, electricity, trimming and tooling, and price five order quantities per 1,000 parts.

For: Thermoforming estimators, sales and plant managers, and buyers checking a vacuum formed or pressure formed part quote.

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Quick start

1. On Setup, type your company name, currency, labour and electricity rates, overhead, margin and price step, then your sheet materials and machines.
2. On Part Estimate, choose the sheet material and enter the sheet size, gauge, parts per sheet and each part's blank footprint.
3. Enter the heating, forming, cooling and load times, the metered line power, a sampled acceptance and the crew, then trimming, packaging, setup and the tool.
4. Type five order quantities and read cost and price per 1,000 parts, margin, and the sheets and kilograms to order.
5. On the Dashboard, pick a quantity to see the tiles, the two charts and where the cost goes.

What is in the workbook

Start Here	Read this first: what the workbook does and how to use it.
Setup	Your company, currency, costing defaults, sheet materials and machine rates.
Part Estimate	The part, sheet and nesting, cycle and electricity, trimming, setup and tool, and cost and price for five order quantities.
Dashboard	Price, cost and margin per 1,000 parts at the order quantity you pick, and where the cost of a part goes.
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.
About MFG Calcs	Everything MFG Calcs offers, free: calculators, templates, tariff tools, data and the Calkee AI helper.

What each number means

Quantity	How it is calculated	Units
Sheet area and weight	Area = length x width / 100; weight = length x width x gauge x density / 1,000,000 (mm and g/cm3 to kg).	cm2, kg

Quantity	How it is calculated	Units
Sheet area yield	Blank footprint per part x parts per sheet / sheet area; margin = yield - target yield.	%
Net material cost per sheet	Sheet weight x price - skeleton weight x share recovered x credit price; skeleton weight = sheet weight x (1 - yield).	currency
Complete cycle	Heating + forming + cooling + load and release; margin = planned limit - cycle; heating and cooling share = (heating + cooling) / cycle.	s
Output	Sheets per hour = 3,600 / cycle; gross parts = parts per sheet x sheets per hour; acceptance = accepted / inspected sample; good = gross x acceptance; attainment = good / rate needed.	parts/h
Electricity per sheet	Average metered kW x cycle / 3,600, at the electricity rate.	kWh, currency
Sheets to form	CEILING(order quantity / (parts per sheet x acceptance)).	sheets
Cost lines per accepted part	Net material, electricity and machine and crew (rate per hour / sheets per hour) per sheet x sheets / quantity; trim, finish and pack = seconds / 3,600 x labour rate; packaging per 1,000 / 1,000; (setup hours x machine and crew rate + start-up sheets x sheet cost + handling) / quantity; tool cost x share / tool life; overhead = (machine and crew + trim + setup) x overhead %.	currency/part
Price per 1,000	CEILING(cost per 1,000 / (1 - target margin), price step); margin achieved = (price - cost) / price.	currency/1,000
Sheets and kg to order	Sheets to form + start-up sheets; x sheet weight.	sheets, kg

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 Pellmoor Thermoformed Products, 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.

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Price, cost and margin per 1,000 parts at the order quantity you pick, and where the cost of a part goes.

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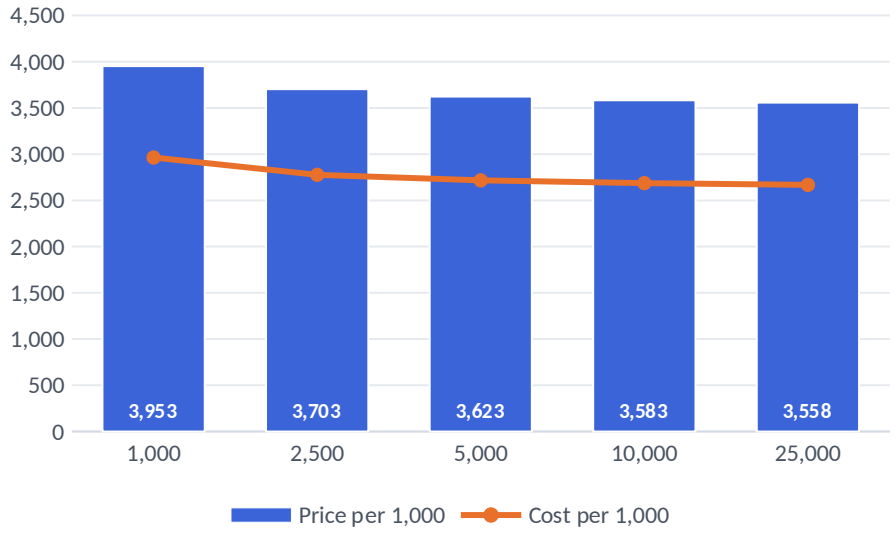
Order quantity shown 5,000

Showing 5,000 parts of TR-4410-BK from HIPS, black, 2.00 mm sheet, 4 per sheet. Pick another quantity in the yellow cell.

PRICE PER 1,000 (USD)	COST PER PART (USD)	MARGIN ACHIEVED	GOOD PARTS PER HOUR
3,623.00	**2.7169**	**25.0%**	**128.3**
That is 3.6230 USD per part	All lines, before margin	Target 25.0%	4 per sheet at 110.0 s, 98.0% accepted
		On target	

Price and cost per 1,000 by quantity



Where the cost per 1,000 goes

