

Welding Cost Estimator

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

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Welding Cost Estimator

Estimate weld metal, arc time, filler, gas and welder labour from a weld list, and price a weldment for five batch quantities.

For: Fabrication estimators, welding engineers and owners of fabrication shops pricing welded assemblies.

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Quick start

1. On Setup, type your company name, currency, welder rate, costing defaults and your welding processes with deposition rate, efficiency, operating factor, filler and gas.
2. On Weld Estimate, set the dimension unit and groove geometry, then list each weld with its joint type, size, total length and process.
3. Enter fit-up, handling and cleaning minutes, inspection per weldment, fixture setup and fixture cost.
4. Type five batch quantities and read cost, price per weldment, margin and welder hours.
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, welder rate, costing defaults and welding process data.
Weld Estimate	The weldment, its weld list, other welder time, inspection and fixture, and cost and price for five batch sizes.
Dashboard	Price, cost and margin per weldment at the batch you pick, and where the welding cost 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.

What each number means

Quantity	How it is calculated	Units
Weld cross-section	Fillet: $\text{leg}^2 / 2$. Single-V butt: $t^2 \times \tan(\text{angle} / 2) + \text{root gap} \times t$. Then $\times (1 + \text{excess weld metal})$. Sizes in mm (in $\times 25.4$).	mm ²
Weld metal	Area $\times$ length (mm) $\times$ density / 1,000,000.	kg/weldment

Quantity	How it is calculated	Units
Process rates	Arc minutes per kg = 60 / deposition rate (lb/h x 0.45359237). Consumables per kg deposited = filler price per kg / efficiency + gas L/min x arc minutes per kg x gas price per L (m3 = 1000 L, ft3 = 28.316846592 L, ft3/h / 60 = per min).	min/kg, currency/kg
Arc and welder time	Arc time = weld metal x arc minutes per kg; welder time = arc time / operating factor.	min
Weld cost	Weld metal x consumables per kg + welder time / 60 x welder rate.	currency/weldment
Welder time, all work	Welder time on the welds + fit-up and tack + handling + cleaning.	min/weldment
Weldments to process	CEILING(batch / first-pass acceptance).	weldments
Variable lines	Filler and gas, welder cost and inspection per weldment, each x weldments to process / batch.	currency/weldment
Fixed lines	Fixture setup hours x welder rate / batch; fixture or jig cost / batch. Overhead = (welder time + setup per weldment) x overhead %.	currency/weldment
Price per weldment	CEILING(total cost / (1 - target margin), price step). Margin achieved = (price - cost) / price.	currency/weldment
Welder hours	Fixture setup hours + weldments to process x welder minutes per weldment / 60.	h

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 Ridgeline Steel Fabricators, 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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Price, cost and margin per weldment at the batch you pick, and where the welding cost goes.

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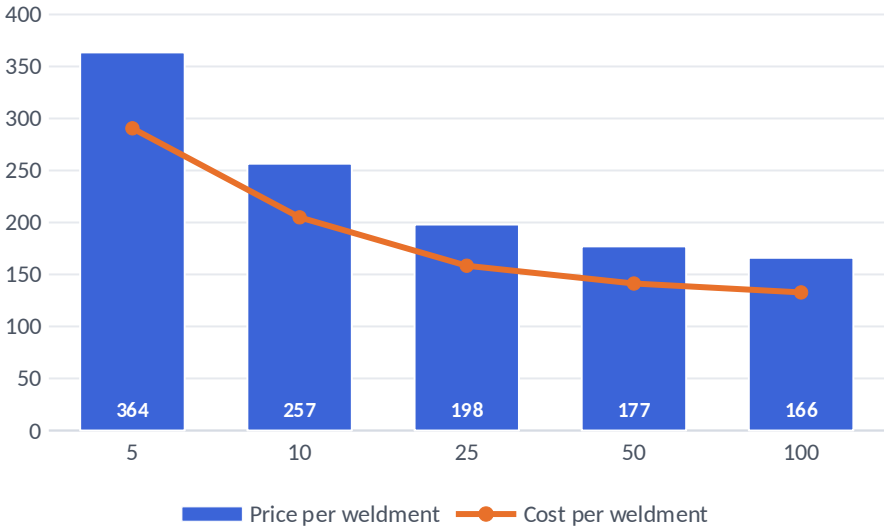
Batch shown

25

Showing a batch of 25 x OPM-BF-1120 for Okafor Packaging Machines (example). Pick another batch in the yellow cell.

PRICE PER WELDMENT (USD)	COST PER WELDMENT (USD)	MARGIN ACHIEVED	ARC TIME PER WELDMENT (MIN)
198.00	158.38	20.0%	17.9
Rounded up to your price step	All lines, before margin	Target 20.0% On target	Weld metal 1.13 kg, welder 111 min

Price and cost per weldment by batch



Where the cost per weldment goes

