Welding Cost per Metre (Labour, Consumables, Power, Gas)

Cost of welding per metre from weld metal per metre, deposition rate, operating factor, labour rate, consumable price, gas and power.

Method: Weld cost model: arc time = deposit/deposition rate; labour = arc time/operating factor × rate (AWS and TWI cost approach)

Input parameters

Unit system: SI

Parameter	Value	Unit
Weld metal per metre	0.29000	kg/m
Deposition rate	1.8000	kg/h
Operating factor (arc time / paid time)	30.000	%
Labour and overhead per hour	600.00	
Deposition efficiency	60.000	%
Consumable price per kg	250.00	
Shielding gas cost per arc hour	0	
Power drawn while welding	6.0000	kW
Electricity price per kWh	8.0000	

Calculated results

Parameter	Value	Unit
Arc time per metre	9.6667	min
Labour per metre	322.22	
Consumables per metre	120.83	
Gas and power per metre	7.7333	
Total per metre	450.79	

Notes for this case

- Labour usually dominates manual welding; raising the operating factor or deposition rate saves the most.

Formula and method

$$t_a = \frac{m'}{\dot{m}_d}, \quad C = \frac{t_a}{f_o} c_L + \frac{m'}{\eta_d} c_e + t_a (c_g + P c_p)$$

Variables

m'	Weld metal per metre	kg/m
$\dot{m}_d$	Deposition rate	kg/s
f_o	Operating factor (arc time / paid time)	-
c_L	Labour and overhead per hour	-
η_d	Deposition efficiency	-
c_e	Consumable price per kg	-
c_g	Shielding gas cost per arc hour	-
P	Power drawn while welding	W
c_p	Electricity price per kWh	-
t_a	Arc time per metre	s
C_L	Labour per metre	-

C_e	Consumables per metre	-
C_o	Gas and power per metre	-
C	Total per metre	-

Method and standards

Cost model.

Assumptions and limits

- Average shop conditions.

References

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Report details

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Release checks	2 reference cases of this calculator, computed independently, are checked on every release

Results are for engineering estimation. Verify critical designs against the referenced standards and your own data.

This calculator online

https://calc.firecad.com/materials/welding/welding-cost-per-metre

Open this case on calc.firecad.com →

Reopens the calculator with the inputs of this report.