Machining Time: Turning, Drilling, Milling

Cutting time for turning or drilling from length, feed, spindle speed and passes, or for milling from length, approach and table feed.

Method: t = (L + L_a)/(f N) per pass; milling t = (L + L_a)/v_f

Input parameters

Unit system: SI

Parameter	Value	Unit
Operation	Turning or drilling (feed per revolution)	
Length of cut	200.00	mm
Approach and overrun	5.0000	mm
Feed per revolution	0.25000	mm
Spindle speed	1,146.0	rpm
Number of passes	2.0000	
Table feed (milling)	1,819.0	mm/min

Calculated results

Parameter	Value	Unit
Machining time	1.4311	min

Notes for this case

- Cutting time only; add loading, tool changes and inspection for the cycle time.

Formula and method

$$t = \frac{L + L_a}{f N} n_p, \quad t = \frac{L + L_a}{v_f} n_p$$

Variables

$\mathrm{operation}$	Operation	-
L	Length of cut	m
L_a	Approach and overrun	m
f	Feed per revolution	m
N	Spindle speed	1/s
n_p	Number of passes	-
v_f	Table feed (milling)	m/s
t_m	Machining time	s

Method and standards

Kinematics.

Assumptions and limits

- Constant feed. The number of passes applies to milling as well as turning; only the inputs of the chosen operation are checked.

References

- t = (L + L_a)/(f N) per pass; milling t = (L + L_a)/v_f

Report details

Report reference	FCC-YKE1-6YGP (the same inputs always give the same reference)
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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/mechanical/manufacturing/machining-time

Open this case on calc.firecad.com →

Reopens the calculator with the inputs of this report.