Rotational Speed Converter (rpm, rad/s, Hz)

Convert a rotational speed between revolutions per minute, revolutions per second (Hz), radians per second and degrees per second.

Method: ω = 2πN (N in revolutions per second)

Input parameters

Unit system: SI

Parameter	Value	Unit
Rotational speed (choose its unit)	3,000.0	rpm

Calculated results

Parameter	Value	Unit
Revolutions per minute	3,000.0	rpm
Revolutions per second	50.000	Hz
Angular velocity	314.16	rad/s
Degrees per second	18,000	

Formula and method

$$\omega = 2\pi N, \quad f = N$$

Variables

N	Rotational speed (choose its unit)	1/s
f	Revolutions per second	1/s
ω	Angular velocity (rad/s)	-
$\dot{\theta}$	Degrees per second	-

Method and standards

Definitions.

Assumptions and limits

- Steady rotation.

References

- ω = 2πN (N in revolutions per second)

Report details

Report reference	FCC-DDWP-V27W (the same inputs always give the same reference)
Generated	17 November 2026, 19:54 UTC
Calculator	Rotational Speed Converter (rpm, rad/s, Hz)
Method last reviewed	12 November 2026
Software release	FireCAD Calc, release of 17 November 2026
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/general/unit-conversions/rotational-speed-converter

Open this case on calc.firecad.com →

Reopens the calculator with the inputs of this report.