Mass Unit Converter (kg, tonne, pound, ounce, ton)

Convert a mass between kilograms, grams, milligrams, tonnes, pounds, ounces, grains and US short and UK long tons.

Method: Unit definitions per NIST SP 811 and the SI Brochure (exact where defined)

Input parameters

Unit system: SI

Parameter	Value	Unit
Mass (choose its unit)	1.0000	kg

Calculated results

Parameter	Value	Unit
kilogram	1.0000	kg
gram	1,000.0	g
milligram	1,000,000	mg
tonne	0.001000	t
pound	2.2046	lb
ounce	35.274	oz
grain	15,432	gr
short ton (US, 2000 lb)	0.001102	sh ton
long ton (UK, 2240 lb)	9.8421e-04	lg ton

Notes for this case

- The pound is exactly 0.453 592 37 kg.

Formula and method

$$x_{\text{unit}} = \frac{x_{SI}}{f_{\text{unit}}}$$

Variables

x	Mass (choose its unit)	kg

Method and standards

Each unit's factor to the SI unit is held once in the unit registry.

Assumptions and limits

- Exact factors where the definition is exact.

References

- Unit definitions per NIST SP 811 and the SI Brochure (exact where defined)

Report details

Report reference	FCC-T7QG-SJ32 (the same inputs always give the same reference)
Generated	17 November 2026, 19:47 UTC
Calculator	Mass Unit Converter (kg, tonne, pound, ounce, ton)
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/mass-unit-converter

Open this case on calc.firecad.com →

Reopens the calculator with the inputs of this report.