

SI Units

Basic 7 units

Quantity	Units	Abbreviation	Usual symbol of quantity
time	seconds	s	t
distance	metre	m	s
mass	kilogram	kg	m
temperature	Kelvin	K	T
electric current	Ampere	A	I
amount of material	mole	mol (6.02x10 ²³ units)	n
luminous intensity	candela	cd	I_v

Derived units

Quantity	Basic SI unit (mixed units)	Named unit	Abbreviation	Usual symbol of quantity (used in equations)
area	m ²			A
volume	m ³			V
density	kg m ⁻³			ρ (Rho)
frequency	s ⁻¹	Hertz	Hz	f
wavelength	m			λ (Lambda)
velocity	m s ⁻¹			v
acceleration	m s ⁻²			a
weight	kg m s ⁻²	Newton	N	F
force	kg m s ⁻²	Newton	N	F
pressure	kg m ⁻¹ s ⁻² (Nm ⁻²)	Pascal	Pa	P
energy	kg m ² s ⁻² (Nm or Pa m ³)	Joule	J	E
power	kg m ² s ⁻³ (J s ⁻¹)	Watt	W	P
electric charge	s A	Coulomb	C	q
electric potential	kg m ² s ⁻³ A ⁻¹	Volt	V	V
capacitance	kg ⁻¹ m ⁻² s ⁴ A ² (CV ⁻¹)	Farad	F	C
resistance, impedance	kg m ² s ⁻³ A ⁻² (VA ⁻¹)	Ohm	Ω (Omega)	R
conductance	kg ⁻¹ m ⁻² s ³ A ² (A V ⁻¹ or Ω ⁻¹)	Siemens	S	G
magnetic flux	kg m ² s ⁻² A ⁻¹ (Vs)	Weber	Wb	Φ_B (Phi)
magnetic flux density	kg s ⁻² A ⁻¹ (Wb m ⁻²)	Tesla	T	B

Prefixes

name	symbol	size	Size scientific notation
femto	f	0.000 000 000 000 001	10^{-15}
pico	p	0.000 000 000 001	10^{-12}
nano	n	0.000 000 001	10^{-9}
micro	μ (Mu)	0.000 001	10^{-6}
milli	m	0.001	10^{-3}
centi	c	0.01	10^{-2}
deci	d	0.1	10^{-1}
kilo	k	1000	10^3
mega	M	1 000 000 (million)	10^6
giga	G	1 000 000 000 (billion)	10^9
tera	T	1 000 000 000 000 (trillion)	10^{12}

Common conversions

$$1 \text{ cm}^2 = 0.0001 \text{ m}^2 = 10^{-4} \text{ m}^2$$

$$1 \text{ cm}^3 = 0.000 001 \text{ m}^3 = 10^{-6} \text{ m}^3$$

$$1 \text{ dm}^3 = 1000 \text{ cm}^3 = 0.001 \text{ m}^3 = 10^{-3} \text{ m}^3$$

$$1 \text{ g} = 0.001 \text{ kg} = 10^{-3} \text{ kg}$$

$$\text{g cm}^{-3} = 10^{-3} \text{ kg m}^{-3}$$

$$1 \text{ minute} = 60 \text{ s}$$

$$1 \text{ hour} = 3600 \text{ s}$$

$$1 \text{ atm} = 101325 \text{ Pa}$$

$$\text{K} = 273 + \text{temp in } ^\circ\text{C}$$