Magnetism Conversion Chart

Tesla and gauss, A/m and oersted, webers and maxwells

For: Physics students, engineers, MRI and magnet specialists

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9 November 2026

EXACT DEFINITION	FORMULA	REVERSE	WORKED EXAMPLE
1 T = 10,000 G; 1 Oe = 1000/(4π) A/m; 1 Wb = 10^8 Mx	G = T × 10,000; A/m = Oe × 79.5775	T = G ÷ 10,000; Oe = A/m ÷ 79.5775	A 3 T MRI scanner = 30,000 G

Values use 4 significant figures. In air, B (gauss) and μ0·H (oersted) are numerically equal.

Magnetic flux density: tesla to gauss

Tesla (T)	Gauss (G)
1×10^{-5}	0.1
5×10^{-5}	0.5
1×10^{-4}	1
5×10^{-4}	5
0.001	10
0.005	50
0.01	100
0.05	500

Tesla (T)	Gauss (G)
0.1	1,000
0.5	5,000
1	10,000
1.5	15,000
3	30,000
7	70,000
11.7	117,000

Magnetic field strength: oersted to A/m

Oersted (Oe)	Amperes per metre (A/m)	Kiloamperes per metre (kA/m)
0.1	7.958	0.007958
0.5	39.79	0.03979
1	79.58	0.07958
5	397.9	0.3979
10	795.8	0.7958
50	3,979	3.979
100	7,958	7.958
500	39,790	39.79
1,000	79,580	79.58
5,000	397,900	397.9
10,000	795,800	795.8

Magnetic flux

From	To	Multiply by
Webers (Wb)	Maxwells (Mx)	1×10^{8}
Maxwells (Mx)	Webers (Wb)	1×10^{-8}

Typical magnetic flux densities

Source	Tesla	Gauss
Earth's magnetic field at the surface	25–65 μT	0.25–0.65 G
Fridge magnet	≈ 5 mT	≈ 50 G
Neodymium magnet (N52, remanence)	≈ 1.4 T	≈ 14,000 G

Source	Tesla	Gauss
Clinical MRI scanner	1.5–3 T	15,000–30,000 G

Sources and method

- **BIPM SI Brochure, 9th edition** — Definitions of the SI units, including the kelvin (www.bipm.org/en/publications/si-brochure)
- **NIST Special Publication 811** — Guide for the Use of the International System of Units (www.nist.gov/pml/special-publication-811)

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