

International heat units

	°C - Celsius	°K - Kelvin	°F - Fahrenheit	°R - Réaumur
°C - Celsius	1	°K - 273,16	0,555 x (°F - 32)	1,25 x °R
°K - Kelvin	°C + 273,16	1	0.555 x (°F + 459,68)	1,25 x (°R + 218,53)
°F - Fahrenheit	1,8 x °C + 32	1,8 x °K - 459,68	1	2,25 x °R + 32
°R - Réaumur	0,8 x °C	0,8 x K - 218,53	0,444 x (°F - 32)	1

Lenght units

	Angstrom A	micron µm	millimeter mm	centimeter cm	meter m	kilometer km	inch in	foot ft	yard yd	mile mi	nautical mile
A	1	10 ⁴	10 ⁻⁷	10 ⁻⁸	10 ⁻¹⁰	10 ⁻¹³	3,937x10 ⁻⁹	3,28x10 ⁻¹⁰	1,0936x 10 ⁻¹⁰	6,21x10 ⁻¹⁴	0,54x10 ⁻¹³
µm	10 ⁴	1	0,001	10 ⁻⁴	10 ⁻⁶	10 ⁻⁹	3,937x10 ⁻⁵	3,28x10 ⁻⁶	1,0936x10 ⁻⁶	6,21x10 ⁻¹⁰	0,54x10 ⁻⁹
mm	10 ⁷	1000	1	0,1	0,001	10 ⁻⁶	0,03937	3,28x10 ⁻³	1,0936x10 ⁻³	6,21x10 ⁻⁷	0,54x10 ⁻⁶
cm	10 ⁸	10 ⁴	10	1	0,01	10 ⁻⁵	0,3937	0,032808	1,0936x10 ⁻²	6,21x10 ⁻⁶	0,54x10 ⁻⁵
m	10 ¹⁰	10 ⁶	1000	100	1	0,001	39,37	3,2808	1,0936	6,21x10 ⁻⁴	0,54x10 ⁻⁴
km	10 ¹³	10 ⁹	10 ⁶	10 ⁵	1000	1	39370	3280,8	1093,6	0,621	0,54
in	2,54x10 ⁸	2,54x10 ⁴	25,4	2,54	0,0254	2,54x10 ⁵	1	0,0833	0,0278	1,577x10 ⁻⁵	1,37x10 ⁻⁵
ft	3,048x10 ⁹	3,048x10 ⁵	304,8	30,48	0,3048	0,0003048	12	1	0,333	1,89x10 ⁻⁴	1,65x10 ⁻⁴
yd	0,9144x10 ¹⁰	0,9144x10 ⁶	914,4	91,44	0,9144	0,9144x10 ⁻³	36	3	1	5,68x10 ⁻⁴	4,94x10 ⁻⁴
mi	1,609x10 ¹³	1,609x10 ⁹	1,609x10 ⁶	160934	1609,34	1,60934	63359,8	5279,9	1759,98	1	0,87
nautical mile	1,852x10 ¹³	1,852x10 ⁹	1,852x10 ⁶	1,852x10 ⁵	1852	1,852	72913,24	6076,04	2025,35	1,15	1

Surface conversion units

	cm ²	dm ²	m ²	ha hectare	sq in square feet	sq ft square feet	sq yd square yards	a are	ac acre
cm ²	1	0,01	10 ⁻⁴	10 ⁻⁸	0,155	0,0011	1,196x10 ⁻⁴	10 ⁻⁶	2,471x10 ⁻⁸
dm ²	100	1	0,01	10 ⁻⁶	15,5	0,11	0,01196	10 ⁻⁴	2,47x10 ⁻⁶
m ²	10 ⁴	100	1	10 ⁻⁴	1550,4	10,764	1,196	10 ⁻²	2,47x10 ⁻⁴
ha	10 ⁸	10 ⁶	10 ⁴	1	1,55x10 ⁷	1,076x10 ⁵	11960	100	2,47
sq in	6,45	0,0645	6,45x10 ⁻⁴	6,45x10 ⁸	1	6,943x10 ⁻³	7,71x10 ⁻⁴	6,45x10 ⁻⁶	1,593x10 ⁻⁷
sq ft	929	9,29	0,0929	0,929x10 ⁻⁵	144	1	0,1111	9,29x10 ⁻⁴	0,229x10 ⁻⁴
sq yd	8361	83,61	0,8361	8,361x10 ⁻⁵	1297	9	1	0,836x10 ⁻²	2,065x10 ⁻⁴
a	10 ⁵	10 ⁴	100	10 ⁻²	155x10 ⁵	1,076x10 ³	1,196x10 ²	1	0,0247
ac	4,0468x10 ⁷	404685	4046,85	0,404	6,277x10 ⁶	43668	4842,6	40,468	1

Capacity units

	cm ³	dm ³	m ³	l liter	cu in cubic inches	cu ft cubic feet	cu yd cubic yards	gal (liquid) US gallon	gal (liquid) UK gallon	bbl (dry) US barrel
cm ³	1	10 ⁻³	10 ⁻⁶	10 ⁻³	0,061	3,531x10 ⁻⁵	1,308x10 ⁻⁵	2,642x10 ⁻⁴	2,2x10 ⁻⁴	8,648x10 ⁻⁶
dm ³	10 ³	1	10 ⁻³	1	61,013	0,0353	0,00131	0,264	0,22	8,648x10 ⁻³
m ³	10 ⁶	10 ³	1	10 ³	61013	35,31	1,31	264,2	220	8,648
l	10 ³	1	10 ⁻³	1	61,013	0,0353	0,00131	0,264	0,22	8,648x10 ⁻³
cu in	16,39	0,01639	1,639x10 ⁻⁵	0,01639	1	5,787x10 ⁻⁴	2,147x10 ⁻⁵	0,0043	0,0036	1,417x10 ⁻⁴
cu ft	28320	28,32	0,02832	28,32	1728	1	0,037	7,482	6,23	0,245
cu yd	7,646x10 ⁵	764,6	0,7646	764,6	46576,6	27	1	202	168,212	6,6
gal US	3785,4	3,7854	3,7854x10 ⁻³	3,7854	232,56	0,134	4,95x10 ⁻³	1	0,8326	0,033
gal UK	4546,1	4,5461	4,5461x10 ⁻³	4,5461	277,78	0,16	5,94x10 ⁻³	1,201	1	0,039
bbl US	115628	115,628	0,11562	115,628	7054,81	4,082	0,1515	30,548	25,438	1

Mass units

	g gram	kg kilogram	t ton	gr grain	oz ounces	lb pounds
g	1	0.001	10 ⁻⁶	15.432	0.035	0.0022
kg	1000	1	0.001	15432	35.27	2.205
t	10 ⁶	1000	1	1.15432x10 ⁷	35273	2204.6
gr	0.0648	0.648x10 ⁻⁴	0.648x10 ⁻⁷	1	0.00228	1.428x10 ⁻⁴
oz	28.35	0.02835	0.2835x10 ⁻⁴	437.5	1	0.0625
lb	453.6	0.4536	0.4536x10 ⁻³	7000	16	1

Specific mass units

	g/ml	kg/m³	lb/ft³ (pcf) pound per cubic feet	lb/in³ (pci) pound per cubic inch
g/ml	1	1000	62.5	0.0361
kg/m³	0.001	1	0.0624	3.61x10 ⁻⁵
lb/ft³ (pcf)	0.016	16.018	1	5.78x10 ⁻⁴
lb/in³ (pci)	27.7	27700	1730	1

Force units

	N newton	kgf	dina	lb pound
N	1	0.102	10 ⁵	0.225
kgf	9.80665	1	9.80665x10 ⁵	2.203
dina	10 ⁻⁵	1.02*10 ⁻⁶	1	2.248x10 ⁻⁶
lb	4.448222	0.454	444822.2	1

Pressure units

	Pa=N/m² Pascal	MPa	kPa	Bar	mmH₂O	at kgf/cm ²	atm 760 Torr	Torr mmHG	psi pounds/ sq. inch	pounds/ sq. foot	in H₂O	ft H₂O	in HG
Pa	1	10 ⁻⁶	10 ⁻³	10 ⁻⁵	0.102	1.02x10 ⁻⁵	0.99x10 ⁻⁵	0.75x10 ⁻²	1.45x10 ⁻⁴	0.0209	4.015x10 ⁻³	3.344x10 ⁻⁴	2.95x10 ⁻⁴
MPa	10 ⁶	1	10 ³	10	101971	10.19	9.87	7500	145.03	2.09x10 ⁴	4.015x10 ³	3.344x10 ²	295
kPa	10 ³	10 ⁻³	1	10 ⁻²	101.97	0.01	9.8x10 ⁻³	7.5	145.03x10 ⁻³	2.088x10 ⁴	4.015	0.3344	0.295
Bar	10 ⁵	10 ⁻¹	10 ²	1	1.02x10 ⁻⁴	1.02	0.99	750	14.5	2088.55	401.28	33.44	29.59
mmH₂O	9.81	9.81x10 ⁻⁶	9.81x10 ⁻³	9.81x10 ⁻⁵	1	10 ⁻⁴	9.68x10 ⁻⁵	7.36x10 ⁻²	1.422x10 ⁻⁴	0.0205	0.03937	3.281x10 ⁻³	0.0029
at	9.81x10 ⁴	9.81x10 ⁻²	98.1	0.981	10 ⁴	1	0.97	735.5	14.22	2048.34	393.7	32.79	29.04
atm	1.01x10 ⁵	1.01x10 ⁻¹	101.325	1.01325	1.033x10 ⁴	1.033	1	760	14.699	2116.85	406.67	33.9	30
Torr mmHG	1.33x10 ²	1.33x10 ⁻⁴	0.13334	1.33x10 ⁻³	13.6	1.36x10 ⁻³	1.32x10 ⁻³	1	0.01934	2.786	0.535	0.0446	0.0395
psi	6895	6.895x10 ⁻³	6.8947	0.06895	7030	0.0703	0.06803	51.71	1	144	27.67	2.306	2.041
pound/sq.ft	47.8802	4.788x10 ⁻⁵	4.788x10 ⁻²	4.788x10 ⁻⁴	48.819	4.882x10 ⁻⁴	4.724x10 ⁻⁴	0.359	0.00694	1	0.192	0.016	0.0142
in H₂O	249.08	2.491x10 ⁻⁵	2.491x10 ⁻²	0.00249	25.40	0.00254	0.00246	1.869	0.0361	5.208	1	0.8333	0.07366
ft H₂O	2990	2.988x10 ⁻³	0.29888	0.0299	304.8	0.0305	0.0295	22.43	0.4336	62.5	12	1	0.8839
in HG	3386.37	3.386x10 ⁻³	3.386	0.03386	345.32	0.03453	0.03342	25.4	0.49	70.726	13.59	1.131	1

Work, energy, torque units

	Joule J (Watts x s)	kWh kilowattora	Nm	erg	Kgf x m	kcal	HPH	lb in pound inch	lb ft pound foot	BTU
J	1	0.2778x10 ⁻⁶	1	10 ⁷	0.102	0.2388x10 ⁻³	0.378x10 ⁻⁶	8.85	0.737	9.48x10 ⁻⁴
kWh	3.6x10 ⁶	1	3.6x10 ⁶	3.6x10 ¹³	0.367x10 ⁶	860	1.36	3.18x10 ⁷	2.65x10 ⁶	3413
Nm	1	0.2778x10 ⁻⁶	1	10 ⁷	0.102	0.2388x10 ⁻⁶	0.378x10 ⁻⁶	8.85	0.737	9.48x10 ⁻⁴
erg	10 ⁻⁷	0.2778x10 ⁻¹³	10 ⁻⁷	1	0.102x10 ⁻⁷	0.239x10 ⁻¹⁰	0.378x10 ⁻¹³	8.85x10 ⁻⁷	7.37x10 ⁻⁸	9.47x10 ⁻¹¹
Kgf	9.81	2.724x10 ⁻⁶	9.81	9.81x10 ⁷	1	2.342x10 ⁻³	3.704x10 ⁻⁶	86.956	7.246	0.0093
kcal	4186.8	1.163x10 ⁻³	4186.8	4.187x10 ¹⁰	427	1	1.581x10 ⁻³	37058.45	3088.2	3.967
HPH	2.65x10 ⁶	0.7355	2.65x10 ⁶	2.65x10 ¹³	0.27x10 ⁶	632	1	2.34x10 ⁷	1.95x10 ⁶	2507.45
lb in	0.113	3.14x10 ⁻⁸	0.113	1.13x10 ⁶	0.0115	2.7x10 ⁻⁵	4.27x10 ⁻⁸	1	0.0833	1.07x10 ⁻⁴
lb ft	1.356	3.77x10 ⁻⁷	1.356	1.356x10 ⁷	0.138	3.24x10 ⁻⁴	5.13x10 ⁻⁷	12	1	0.0013
BTU	1055.056	2.93x10 ⁻⁴	1055.56	1.05556x10 ¹⁰	107.667	0.252	3.99x10 ⁻⁴	9337.25	777.91	1

Power units

	Watt W (W=J/s)	erg/s	kgf x m/s	kCal/s	HP
W	1	10 ⁻⁷	0.102	0.239x10 ⁻³	1.36x10 ⁻³
erg/s	10 ⁻⁷	1	0.102x10 ⁻⁷	0.239x10 ⁻¹⁰	1.36x10 ⁻¹⁰
kgf x m/s	9.81	9.81x10 ⁷	1	2.342x10 ⁻³	13.33x10 ⁻³
kCal/s	4186.8	4.187x10 ¹⁰	427	1	5.69
HP	735.5	7.355x10 ⁹	75	0.18	1

Rate of flow units

	l/s	l/min	m ³ /s	m ³ /h	ft ³ /h	ft ³ /min	UK gal/min	US gal/min
l/s	1	60	10 ⁻³	3.6	127.08	21.118	13.2	15.84
l/min	0.01667	1	1.667x10 ⁻⁵	0.06	2.118	0.0353	0.22	0.264
m³/s	1000	0.06	1	3600	127116	2118.6	13200	15852
m³/h	0.2778	16.67	2.778x10 ⁻⁴	1	35.31	0.5885	3.667	4.403
ft³/h	0.00787	0.472	7.867x10 ⁻⁶	0.0283	1	0.01667	0.1038	0.1247
ft³/min	0.472	28.329	4.72x10 ⁻⁴	1.6992	60	1	6.230	7.482
UK gal/min	0.0757	4.545	7.557x10 ⁻⁵	0.2727	9.634	0.161	1	1.201
US gal/min	0.063	3.778	6.309x10 ⁻⁵	0.227	8.019	0.134	0.833	1

Velocity units

	foot/s	foot/min	mi/h	m/s	m/min	km/h	node (intern.) kt
foot/s	1	60	0.6804	0.3048	12.288	1.09738	1.5925
foot/min	0.01667	1	0.0113	0.005	0.3048	0.0183	0.0099
mi/h	1.467	88	1	0.447	26.82	1.6093	0.8688
m/s	3.281	196.85	2.237	1	60	3.6	1.944
m/min	0.0546	3.281	0.03728	0.01667	1	0.06	0.0324
km/h	0.9113	54.675	0.6214	0.2778	16.667	1	0.54
node (int.) kt	1.6877	101.259	1.151	0.5144	30.864	1.8518	1

Normal and tangential tension units

	N/mm ²	N/cm ²	Pascal N/m ²	dina/cm ²	kgf/mm ²	kgf/cm ²	kgf/m ²
N/mm ²	1	100	10 ⁶	10 ⁷	0.102	10.2	10.2x10 ⁴
N/cm ²	0.01	1	10 ⁴	10 ⁵	0.102x10 ⁻²	0.102	0.102x10 ⁴
Pascal N/m ²	10 ⁻⁶	10 ⁻⁴	1	10	0.102x10 ⁻⁶	0.102x10 ⁻⁴	0.102
dina/cm ²	10 ⁻⁷	10 ⁻⁵	0.1	1	0.102x10 ⁻⁷	0.102x10 ⁻⁵	0.0102
kgf/mm ²	9.81	981	9.81x10 ⁶	9.81x10 ⁷	1	100	10 ⁶
kgf/cm ²	9.81x10 ⁻²	9.81	9.81x10 ⁴	9.81x10 ⁵	0.01	1	10 ⁴
kgf/m ²	9.81x10 ⁻⁶	9.81x10 ⁻⁴	9.81	98.1	10 ⁻⁶	10 ⁻⁴	1

Dynamic viscosity units (η)

	1 Pascal second = Pa x s (Decapoise daP)	Poise P = $\frac{\text{dina} \times \text{s}}{\text{cm}^2}$	kgf x s / m ²
Decapoise daP	1	10	0.102
Poise P	10-1	1	0.0102
kgf x s / m ²	9.81	98.1	1