



Unit conversion factors

English edition · Markus Stein, Laundry Specialist

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Length conversion factors

Metric length units

original unit	*	factor	=	new unit	original unit	*	factor	=	new unit
Metric units									
m	*	0.001	=	km (kilometre)	km	*	1000	=	m
m	*	0.01	=	hm (hectometre)	hm	*	100	=	m
m	*	0.1	=	dam (decametre)	dam	*	10	=	m
m	*	10	=	dm (decimetre)	dm	*	0.1	=	m
m	*	100	=	cm (centimetre)	cm	*	0.01	=	m
m	*	1000	=	mm (millimetre)	mm	*	0.001	=	m
m	*	1000000	=	µm (micrometre)	µm	*	0.000001	=	m
m	*	1 × 10^(9)	=	nm (nanometre)	nm	*	1 × 10^(-9)	=	m
m	*	1 × 10^(10)	=	Å (angstrom)	Å	*	1 × 10^(-10)	=	m
m	*	1 × 10^(12)	=	pm (picometre)	pm	*	1 × 10^(-12)	=	m
m	*	1 × 10^(15)	=	fm (femtometre)	fm	*	1 × 10^(-15)	=	m
m	*	1 × 10^(18)	=	am (attometre)	am	*	1 × 10^(-18)	=	m



Length conversion factors (continued)

Length units

m	*	$1 \times 10^{(-21)}$	=	zm (zeptometre)	zm	*	$1 \times 10^{(-21)}$	=	m	
British/US units										
m	*	39.3700787	=	in (inch - 1" - inch)	in	*	0.0254	=	m	
m	*	3.2808399	=	ft (foot - 1')	ft	*	0.3048	=	m	
m	*	1.0936133	=	yd (yard)	yd	*	0.9144	=	m	
m	*	0.000621371	=	mi (statute mile)	mi	*	1609.344	=	m	
m	*	0.004971	=	furlong	furlong	*	201.168	=	m	
m	*	39370.079	=	mil	mil	*	0.0000254	=	m	
m	*	39370.079	=	thou	thou	*	0.0000254	=	m	
m	*	2846.03518	=	pp (Printer Point)	pp	*	0.000351366	=	m	
m	*	4.9709695	=	li (link)	li	*	0.201168	=	m	
m	*	0.1988	=	rod = 5.5 yd	rod	*	5.0292	=	m	
m	*	0.497	=	chain	chain	*	2.0117	=	m	
m	*	0.00495	=	furlong	furlong	*	201.17	=	m	
Nautical units										
m	*	0.000539954	=	nautical mile	nautical mile	*	1852.01	=	m	
m	*	0.5468066	=	fathom	fathom	*	1.8288	=	m	
m	*	0.5468066	=	fm (fathom)	fm	*	1.8288	=	m	
Astronomical units										
m	*	$0.006684587 \times 10^{(-9)}$	=	AU	AU	*	$149.597870691 \times 10^{(9)}$	=	m	
m	*	$3.240779 \times 10^{(-17)}$	=	pc (Parsec)	pc	*	$3.085677857 \times 10^{(16)}$	=	m	



Length conversion factors (continued)

Length units

m	*	$1.0570008 \times 10^{(-16)}$	=	ly (light-year)	ly	*	$9.460730473 \times 10^{(15)}$	=	m
m	*	$3.335642 \times 10^{(-9)}$	=	light-second	light-second	*	299792363.8	=	m
Japanese units									
m	*	33000	=	Mo	Mo	*	0.0003030	=	m
m	*	3300	=	Rin	Rin	*	0.0003030	=	m
m	*	330	=	Bu	Bu	*	0.003030	=	m
m	*	33	=	Sun	Sun	*	0.03030	=	m
m	*	3.3	=	Shaku	Shaku	*	0.303030	=	m
m	*	0.55	=	Ken	Ken	*	1.818181	=	m
m	*	0.33	=	Jo	Jo	*	3.030303	=	m
m	*	0.009166	=	Cho	Cho	*	109.090909	=	m
Other units									
m	*	0.000408163	=	Leuga kel tisch	Leuga	*	2450	=	m
m	*	390.9304	=	Linie Fein - mechanik	Linie	*	0.002558	=	m
m	*	2666.66666	=	dp (Didot point)	dp	*	0.000375	=	m
m	*	0.1988388	=	R (metric rod)	R	*	5.0	=	m
m	*	0.00025463	=	Ri	Ri	*	3927.2727	=	m
m	*	0.00093738	=	Werst Russian	Werst	*	1066.8	=	m
m	*	0.67613	=	Passus ancient Rome	Passus	*	1.479	=	m



Length / area conversion factors

Length units (continued)

m	*	0.03244	=	Plethron ancient Greece	Plethron	*	30.83	=	m
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Area units

original unit	*	factor	=	new unit	original unit	*	factor	=	new unit
Metric units									
m ²	*	0.000001	=	km ²	km ²	*	1000000	=	m ²
m ²	*	0.0001	=	ha (hectare)	ha	*	10000	=	m ²
m ²	*	0.01	=	a (Ar)	a	*	100	=	m ²
m ²	*	1.0	=	ca (Centiare)	ca	*	1.0	=	m ²
m ²	*	100	=	dm ²	dm ²	*	0.01	=	m ²
m ²	*	10000	=	cm ²	cm ²	*	0.0001	=	m ²
m ²	*	1000000	=	mm ²	mm ²	*	0.000001	=	m ²
m ²	*	1 × 10 ^{^(28)}	=	b (Barn)	b (Barn)	*	1 × 10 ^{^(-28)}	=	m ²
US and British units									
m ²	*	1550.003	=	in ²	in ²	*	0.00064516	=	m ²
m ²	*	10.76391	=	ft ²	ft ²	*	0.092903044	=	m ²
m ²	*	1.19599	=	yd ²	yd ²	*	0.836127392	=	m ²
m ²	*	3.861022 × 10 ^{^(-7)}	=	mi ²	mi ²	*	2589987.832	=	m ²
m ²	*	1.97352711 × 10 ^{^(9)}	=	circular mil	circular mil	*	5.06707 × 10 ^{^(-10)}	=	m ²
m ²	*	0.000247106	=	ac (Acre)	ac	*	4046.854481	=	m ²
m ²	*	0.000988422	=	ro (Rood)	ro	*	1011.71362	=	m ²



Area / volume conversion factors

Area units (continued)

Japanese units									
m ²	*	0.3024999	=	Tsubo	Tsubo	*	3.305786217	=	m ²
m ²	*	100.8333	=	Cho	Cho	*	0.009917359	=	m ²
m ²	*	1008.333	=	Tann	Tann	*	0.000991736	=	m ²
m ²	*	10083.33	=	Se	Se	*	0.000099174	=	m ²
Other units									
m ²	*	0.001	=	dunam Metric	dunam Metric	*	1000	=	m ²
m ²	*	0.001	=	stremma Greece	stremma	*	1000	=	m ²
m ²	*	0.000625	=	Rai Thailand	Rai	*	1600	=	m ²

Volume units

original unit	*	factor	=	new unit	original unit	*	factor	=	new unit
Metric units									
m ³	*	1 × 10 [^] (-9)	=	km ³	km ³	*	1000000000	=	m ³
m ³	*	10	=	hl	hl	*	0.1	=	m ³
m ³	*	100	=	Dekaliter	Dekaliter	*	0.01	=	m ³
m ³	*	1000	=	dm ³	dm ³	*	0.001	=	m ³
m ³	*	1000	=	litre	litre	*	0.001	=	m ³
m ³	*	10000	=	dl	dl	*	0.0001	=	m ³
m ³	*	1000000	=	cm ³	cm ³	*	0.000001	=	m ³
m ³	*	1000000000	=	mm ³	mm ³	*	1 × 10 [^] (-9)	=	m ³
British units for liquids and solids									
m ³	*	27.4961	=	bu (bushel)	bu	*	0.036368794	=	m ³



Volume conversion factors (continued)

Volume units

m³	*	219.9688	=	gal (gallon)	gal	*	0.004546099	=	m³
m³	*	1759.751	=	pt (pint)	pt	*	0.000568262	=	m³
m³	*	35195.01	=	fl oz (fluid ounce)	oz	*	0.000028413	=	m³
m³	*	6.110602	=	bl (barrel für beer, wine)	bl	*	0.163649997	=	m³
m³	*	6.284835	=	bbl (barrel crude oil)	bbl imp	*	0.15911315	=	m³
m³	*	109.9844	=	pk (Peck)	pk	*	0.009092199	=	m³
m³	*	879.8751	=	qt (Quart)	qt	*	0.001136525	=	m³
US units for liquids									
m³	*	1.307951	=	yd³ (yard)	yd³	*	0.764554635	=	m³
m³	*	35.31468	=	ft³	ft³	*	0.028316836	=	m³
m³	*	61023.76	=	in³	in³	*	0.000016387	=	m³
m³	*	33814.02	=	fl oz (fluid ounce)	oz	*	0.000029574	=	m³
m³	*	264.1722	=	gal (gallon)	gal	*	0.00378541	=	m³
m³	*	2113.376	=	pt (pint)	pt	*	0.000473177	=	m³
m³	*	6.289813	=	bbl (barrel crude oil)	bbl	*	0.158987239	=	m³
m³	*	8.386447	=	bl (barrel beer, wine)	bl	*	0.119240	=	m³
US units for solids									
m³	*	28.37759	=	bu (bushel)	bu	*	0.035239074	=	m³
m³	*	1816.166	=	pt (pint)	pt	*	0.00055061	=	m³



Volume / mass conversion factors

Volume units (continued)

m³	*	113.5104	=	pk (Peck)	pk	*	0.008809765	=	m³
m³	*	227.0208	=	gal (gallon)	gal	*	0.0044048	=	m³
Japanese units									
m³	*	5.543548	=	Koku	xx	*	0.180389887	=	m³
m³	*	55.43548	=	To	To	*	0.018038989	=	m³
m³	*	554.3548	=	Sho	Sho	*	0.001803899	=	m³
m³	*	5543.548	=	Go	Go	*	0.00018039	=	m³

Mass units

original unit	*	factor	=	new unit	original unit	*	factor	=	new unit
Metric units									
kg	*	0.001	=	t (tonne)	t	*	1000	=	kg
kg	*	10	=	hg (Hekto - gramm)	hg	*	0.1	=	kg
kg	*	1000	=	gr	gr	*	0.001	=	kg
kg	*	1000000	=	mg	mg	*	0.000001	=	kg
kg	*	0.10197	=	kg*s²/m	kg*s²/m	*	9.80665	=	kg
US and British units									
kg	*	2.204623	=	lb (pound)	lb	*	0.45359237	=	kg
kg	*	0.06852	=	slug	slug	*	14.5939	=	kg
kg	*	564.3834	=	dr (dram)	dr	*	0.0017718	=	kg
kg	*	15432.36073	=	gr (grain)	gr	*	0.0000647989	=	kg
kg	*	35.27396	=	oz (ounce)	oz	*	0.0283495	=	kg
kg	*	0.0196841	=	cwt	cwt	*	50.8023727	=	kg



Mass / force conversion factors

Mass units (continued)

kg	*	0.0220462	=	sh cwt	sh cwt	*	45.3592704	=	kg
kg	*	0.0009842	=	ton UK	ton	*	1016.0469373	=	kg
kg	*	0.0011023	=	sh ton	sh ton	*	907.1849959	=	kg
kg	*	0.1574729	=	Stone	Stone	*	6.350299	=	kg
kg	*	35.27394	=	ounce	ounce	*	0.031103	=	kg
kg	*	26.79796	=	Ku ping	Ku ping	*	0.0373163	=	kg
Troy - British and US mass units for precious metals and gemstones									
kg	*	2.6792289	=	Pound	Pound	*	0.3732417	=	kg
kg	*	32.1507474	=	ounce	ounce	*	0.0311035	=	kg
kg	*	4877.561	=	Carat	Carat	*	0.000205	=	kg
kg	*	15432.358	=	Grain	Grain	*	0.0000648	=	kg
kg	*	308616.4	=	Mite	Mite	*	0.0000032	=	kg
kg	*	7406796	=	Doite	Doite	*	$1.3501114 \times 10^{(-7)}$	=	kg

Force units

original unit	*	factor	=	new unit	original unit	*	factor	=	new unit
Metric units									
N	*	0.001	=	kN	kN	*	1000	=	N
N	*	0.000001	=	MN	MN	*	1000000	=	N
N	*	1.0	=	kg*m/s ²	kg*m/s ²	*	1.0	=	N
N	*	100000	=	dyn (dyne)	dyn	*	0.00001	=	N
N	*	1.0	=	J/m	J/m	*	1.0	=	N
N	*	1.0	=	Pa/m ²	Pa/m ²	*	1.0	=	N



Force / pressure conversion factors

Force units (continued)

US and British units									
N	*	101.971621298	=	p (pond)	p	*	0.00980665	=	N
N	*	0.101971621	=	kp	kp	*	9.80665	=	N
N	*	7.233013851	=	pdl (poundal)	pdl	*	0.138254954	=	N
N	*	0.000224809	=	kip	kip	*	4448.221615	=	N
N	*	0.000101972	=	tnf (ton force)	tnf	*	9806.65	=	N
N	*	0.224808943	=	lbf (pound force)	lbf	*	4.448221615	=	N
N	*	3.59694309	=	ozf (ounce force)	ozf	*	0.278013851	=	N
N	*	0.101971621	=	kgf	kgf	*	9.80665	=	N
Other units									
N	*	0.001	=	sn (Sthene)	sn	*	1000	=	N

Pressure units

original unit	*	factor	=	new unit	original unit	*	factor	=	new unit
Metric units									
Pa	*	0.000001	=	MPa	MPa	*	1000000	=	Pa
Pa	*	0.00001	=	bar	bar	*	100000	=	Pa
Pa	*	0.001	=	kPa	kPa	*	1000	=	Pa
Pa	*	0.01	=	hPa	hPa	*	100	=	Pa
Pa	*	0.01	=	mbar	mbar	*	100	=	Pa
Pa	*	1.0	=	N/m ²	N/m ²	*	1.0	=	Pa



Pressure conversion factors (continued)

Pressure units

Pa	*	1.0	=	kg/(s ² m)	kg/(m*s ²)	*	1.0	=	Pa
Pa	*	10	=	Ba (Barye)	Ba	*	0.1	=	Pa
Pa	*	10	=	dyn/cm ²	dyn/cm ²	*	0.1	=	Pa
Pa	*	0.001	=	pz (Pièze)	pz	*	1000	=	Pa
N/mm ²	*	10	=	bar	bar	*	0.1	=	N/mm ²
MPa	*	1	=	N/mm ²	N/mm ²	*	1	=	MPa
US and British units									
Pa	*	$1.450377 \times 10^{(-7)}$	=	kip/in ² - ksi	kip/in ² - ksi	*	$6.894759087 \times 10^{(6)}$	=	Pa
Pa	*	0.000145037738	=	lbf/in ² - psi	lbf/in ² - psi	*	6894.757293168	=	Pa
Pa	*	0.02088543	=	psf	psf	*	47.880268685	=	Pa
Pa	*	0.1019716	=	kp/m ²	kp/m ²	*	9.80665	=	Pa
Pa	*	0.67197	=	pdl/ft ²	pdl/ft ²	*	1.48816	=	Pa
Pa	*	0.004666	=	pdl/in ²	pdl/in ²	*	214.29	=	Pa
Pa	*	0.02088	=	lbf/ft ²	lbf/ft ²	*	47.88030	=	Pa
Pa	*	$0.64754 \times 10^{(-7)}$	=	tonf/in ²	tonf/in ²	*	$1.54443 \times 10^{(7)}$	=	Pa
Pa	*	$0.9323835 \times 10^{(5)}$	=	tonf/ft ²	tonf/ft ²	*	$1.07252 \times 10^{(5)}$	=	Pa
Atmosphere									
Pa	*	0.00009869	=	atm (physical)	atm	*	101324.9966	=	Pa
Pa	*	0.00010197	=	at (technical)	at	*	98066.52048	=	Pa
Pa	*	0.00001	=	atü (gauge pressure)	atü	*	100000	=	Pa
Mercury column									



Pressure / volume flow conversion factors

Pressure units (continued)

Pa	*	0.0075006	=	mmHG	mmHG	*	133.3219921	=	Pa
Pa	*	0.0002953	=	inHG	inHG	*	3386.378698	=	Pa
Pa	*	0.0075006	=	torr	torr	*	133.3219921	=	Pa
Water column									
Pa	*	0.000101974	=	mH O 2	mH O 2	*	9806.382778	=	Pa
Pa	*	0.10197	=	mmH O 2	mmH O 2	*	9.8067	=	Pa
Pa	*	0.0040146	=	inH O 2	inH O 2	*	249.0820083	=	Pa
Pa	*	0.000334552219	=	ftH O 2	ftH O 2	*	2989.07	=	Pa

Volume flow units

original unit	*	factor	=	new unit	original unit	*	factor	=	new unit
m³/s	*	127132.6	=	ft³/h	ft³/h	*	$7.8658 \times 10^4(-6)$	=	m³/s
m³/s	*	35.314	=	ft³/s	ft³/s	*	0.028317	=	m³/s
m³/s	*	951019.388	=	US gal/h	US gal/h	*	$1.0515 \times 10^4(-6)$	=	m³/s
m³/s	*	791891.03	=	Uk gal/h	Uk gal/h	*	$1.2628 \times 10^4(-6)$	=	m³/s
m³/s	*	6.28981	=	barl (oil)/s	barl (oil)/s	*	0.158987	=	m³/s
m³/s	*	35195.0775	=	ounce (UK)/s	ounce (UK)/s	*	0.000028413	=	m³/s
m³/s	*	1.3079506	=	yard³/s	yard³/s	*	0.7645548	=	m³/s
m³/s	*	61023.744	=	inch³/s	inch³/s	*	0.000016387	=	m³/s
dm³/min	*	1.0	=	l (litre)	l	*	1.0	=	dm³/min
dm³/min	*	0.035315	=	cu ft/min	cu ft/min	*	28.3168	=	dm³/min
dm³/min	*	0.219969	=	Imp gal/min	Imp gal/min	*	4.54609	=	dm³/min
dm³/min	*	0.26417	=	gal/min	gal/min	*	3.78544	=	dm³/min



Volume flow / second moments of area and mass

Volume flow units (continued)

dm ³ /min	*	0.00629	=	bbl/h	bbl/h	*	158.988	=	dm ³ /min
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Second moment of area

original unit	*	factor	=	new unit	original unit	*	factor	=	new unit
4 cm	*	0.024025	=	4 in	4 in	*	41.6231	=	4 cm
4 cm	*	0.000001158	=	4 ft	4 ft	*	863097	=	4 cm

Mass moment of inertia

original unit	*	factor	=	new unit	original unit	*	factor	=	new unit
Metric units									
kg m ²	*	100	=	kg dm ²	kg dm ²	*	0.01	=	kg m ²
kg m ²	*	10000	=	kg cm ²	kg cm ²	*	0.0001	=	kg m ²
kg m ²	*	0.102	=	kpms ²	kpms ²	*	9.80665	=	kg m ²
kg m ²	*	1.02	=	kpdms ²	kpdms ²	*	0.980665	=	kg m ²
kg m ²	*	10.2	=	kpcms ²	kpcms ²	*	0.0980665	=	kg m ²
US and British units									
kg m ²	*	23.73036	=	lb ft ²	lb ft ²	*	0.04214011009	=	kg m ²
kg m ²	*	3417.167851	=	lb in ²	lb in ²	*	0.000292639653	=	kg m ²
kg m ²	*	54674.75049	=	oz in ²	oz in ²	*	0.0000182899783	=	kg m ²
kg m ²	*	0.737561	=	slug ft ²	slug ft ²	*	1.35582	=	kg m ²



Section modulus / speed / acceleration

Section modulus

original unit	*	factor	=	new unit	original unit	*	factor	=	new unit
cm³	*	0.06102	=	in³	in³	*	16.3871	=	cm³
cm³	*	0.000035314	=	ft³	ft³	*	28316.8	=	cm³

Speed

original unit	*	factor	=	new unit	original unit	*	factor	=	new unit
Metric units									
m/s	*	3.6	=	km/h	km/h	*	0.27778	=	m/s
m/s	*	0.001	=	km/s	km/s	*	1000	=	m/s
m/s	*	0.000621371	=	mi/s	mi/s	*	1609.34398	=	m/s
US and British units									
m/s	*	2.236936	=	mi/h	mi/h	*	0.44704	=	m/s
m/s	*	3.28084	=	ft/s	ft/s	*	0.30480	=	m/s
m/s	*	196.850	=	ft/min	ft/min	*	0.00508	=	m/s
m/s	*	39.370	=	in/s	in/s	*	0.0254	=	m/s
m/s	*	3937.007874016	=	yd/h	yd/h	*	0.000254	=	m/s
Other units									
m/s	*	1.943844	=	kn (nautical knot)	kn	*	0.51444	=	m/s

Acceleration

original unit	*	factor	=	new unit	original unit	*	factor	=	new unit
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Acceleration / work and energy

Acceleration (continued)

Metric units									
m/s ²	*	1000	=	mm/s ²	mm/s ²	*	0.001	=	m/s ²
m/s ²	*	100	=	cm/s ²	cm/s ²	*	0.01	=	m/s ²
m/s ²	*	0.001	=	km/s ²	km/s ²	*	1000	=	m/s ²
US and British units									
m/s ²	*	0.000621371	=	mi/s ²	mi/s ²	*	1609.344	=	m/s ²
m/s ²	*	1.093613298	=	yd/s ²	yd/s ²	*	0.9144	=	m/s ²
m/s ²	*	3.280839895	=	ft/s ²	ft/s ²	*	0.3048	=	m/s ²
m/s ²	*	39.37007874	=	in/s ²	in/s ²	*	0.0254	=	m/s ²
Other units									
m/s ²	*	100	=	Gal - Galileo	Gal	*	0.01	=	m/s ²
m/s ²	*	0.101971621	=	g - Erd be - schleuni gung	g	*	9.80665	=	m/s ²

Work and energy

original unit	*	factor	=	new unit	original unit	*	factor	=	new unit
Metric units									
J	*	0.000001	=	MJ	MJ	*	1000000	=	J
J	*	0.001	=	kJ	kJ	*	1000	=	J
J	*	1.0	=	Ws	Ws	*	1.0	=	J
J	*	0.00027778	=	Wh	Wh	*	3600	=	J
J	*	$2.7777 \times 10^{(-7)}$	=	kWh	kWh	*	3600000	=	J
J	*	10000000	=	Erg	Erg	*	$1.0 \times 10^{(-7)}$	=	J



Work and energy conversion factors (continued)

Work and energy

J	*	1.0	=	kg·m ² /s ²	kg·m ² /s ²	*	1.0	=	J	
J	*	1.0	=	Nm	Nm	*	1.0	=	J	
J	*	1.0	=	VAs	VAs	*	1.0	=	J	
British and US units										
J	*	0.000947817	=	btu	btu	*	1055.055875	=	J	
J	*	0.7375822	=	ft lbf	ft lbf	*	1.355781091	=	J	
J	*	23.73036046	=	ft pdl	ft pdl	*	0.042140110	=	J	
J	*	8.850745793	=	in lbf	in lbf	*	0.112984829	=	J	
Other units										
J	*	0.000238846	=	kcal	kcal	*	4186.799941	=	J	
J	*	0.2388459	=	cal	cal	*	4.186799941	=	J	
J	*	0.00000037767	=	PSh	PSh	*	2647796	=	J	
J	*	0.10197	=	kpm	kpm	*	9.80665	=	J	
J	*	6.241506×10^{18}	=	eV (electron volt)	eV	*	1.60217×10^{-19}	=	J	
J	*	2.388459×10^{-7}	=	th (Thermie)	th	*	4186799.941	=	J	
J	*	9.4781×10^{-9}	=	thm (Therm)	thm	*	1.0551×10^8	=	J	
J	*	9.478134×10^{-19}	=	Quad	Quad	*	$1.055059994 \times 10^{18}$	=	J	
J	*	0.000000034	=	kg SKE (coal equivalent)	kg SKE	*	29.3076×10^9	=	J	
J	*	0.000000024	=	kg OE (oil equivalent)	kg OE	*	41868000	=	J	
J	*	$2.293710449 \times 10^{17}$	=	Eh (Hartree energy)	Eh	*	$4.3597482 \times 10^{-18}$	=	J	
J	*	0.0098689	=	l atm (physical)	l atm	*	101.3278	=	J	



Work and energy / power conversion factors

Work and energy (continued)

				litre-atmosphere					
J	*	0.0098689	=	l at (technical) litre-atmosphere	l at	*	98.067	=	J

Power

original unit	*	factor	=	new unit	original unit	*	factor	=	new unit
Metric units									
W	*	0.001	=	kW	kW	*	1000	=	W
W	*	$1.0000 \times 10^{(-6)}$	=	MW	MW	*	$1.0 \times 10^{(6)}$	=	W
W	*	$1.0 \times 10^{(-9)}$	=	GW	GW	*	$1.0 \times 10^{(9)}$	=	W
W	*	1.0	=	J/s	J/s	*	1.0	=	W
W	*	1.0	=	kg*m²/s³	kg*m²/s³	*	1.0	=	W
W	*	1.0	=	Nm/s	Nm/S	*	1.0	=	W
W	*	0.10197	=	kpm/s	kpm/s	*	9.80665	=	W
W	*	1.0	=	VA (elektr.)	VA	*	1.0	=	W
Horsepower									
W	*	0.0013596216	=	PS	PS	*	735.49875	=	W
W	*	0.001341022	=	hp	hp	*	745.7	=	W
W	*	0.001340483	=	ehp (Elec trical horse power)	ehp	*	746.00	=	W
W	*	0.000101942	=	bhp (Boiler horse power)	bhp	*	9809.5	=	W
W	*	0.00134	=	bhp (Break horse power)	bhp	*	745.7	=	W



Power / torque conversion factors

Power (continued)

US and British units									
W	*	3.414425	=	BTU/h (British Thermal Unit per hour)	BTU/h	*	0.29288	=	W
W	*	0.056907	=	BTU/min (British Thermal Unit per minute)	BTU/min	*	17.573	=	W
W	*	0.00094845	=	BTU/s (British Thermal Unit per second)	BTU/s	*	1054.4	=	W
W	*	0.737562149	=	ft·lbf/s (Foot pound-force per second)	ft·lbf/s	*	1.35582	=	W
W	*	23.731	=	ft·pdl/s	ft·pdl/s	*	0.042139	=	W
W	*	0.000341	=	therm/h	therm/h	*	2930.8	=	W
Other units									
W	*	0.238845	=	cal/s	cal/s	*	4.1868	=	W
W	*	859.84524	=	cal/h	cal/h	*	0.001163	=	W
W	*	0.85984524	=	kcal/h	kcal/h	*	1.16299998	=	W

Torque

original unit	*	factor	=	new unit	original unit	*	factor	=	new unit
Metric units									
Nm	*	0.001	=	kNm	kNm	*	1000	=	Nm
Nm	*	0.000001	=	MNm	MNm	*	1000000	=	Nm



Torque (continued)

Nm	*	0.101972	=	kpm	kpm	*	9.80665	=	Nm
Nm	*	$10 \times 10^{(-7)}$	=	dyn cm	dyn cm	*	$10 \times 10^{(-7)}$	=	Nm
US and British units									
Nm	*	8.850746	=	lbf in (pound force inch)	lbf in	*	0.112985	=	Nm
Nm	*	0.737562	=	lbf ft (pound force feet)	lbf ft	*	1.355818	=	Nm
Nm	*	141.61193	=	ozf in (ounce force inch)	ozf in	*	0.007062	=	Nm
Nm	*	11.800994	=	ozf ft (ounce force feet)	ozf ft	*	0.084739	=	Nm
Nm	*	284.76432	=	pdl in (poundal inch)	pdl in	*	0.003512	=	Nm
Nm	*	23.73036	=	pdl ft (poundal feet)	pdl ft	*	0.04214	=	Nm

Temperature

original unit	*	factor	=	new unit	original unit	*	factor	=	new unit
°C	*	$^{\circ}\text{C} \times 1.8 + 32$	=	°F	°F	*	$(^{\circ}\text{F} - 32) \times 5/9$	=	°C
°C	*	$^{\circ}\text{C} + 273.15$	=	°K	°K	*	$^{\circ}\text{K} - 273.15$	=	°C
°C	*	$^{\circ}\text{C} \times 0.8$	=	°Ré (Réaumur)	°Ré	*	$^{\circ}\text{Ré} \times 1.25$	=	°C
°C	*	$^{\circ}\text{C} \times 1.8 + 491.67$	=	°Ra (Rankine)	°Ra	*	$^{\circ}\text{Ra} \times 5/9 - 273.15$	=	°C
°C	*	$^{\circ}\text{C} \times 21/40 + 7.5$	=	°Rø (Rømer)	°Rø	*	$(^{\circ}\text{Rø} - 7.5) \times 40/21$	=	°C



Thermal engineering conversion factors

Temperature (continued)

°C	*	$(100 - ^\circ\text{C}) \cdot 1.5$	=	°De (Delisle)	°De	*	$100 - ^\circ\text{De} \cdot 2/3$	=	°C
°C	*	$^\circ\text{C} \cdot 0.33$	=	°N (Newton)	°N	*	$^\circ\text{N} \cdot 100/33$	=	°C

Heat transfer coefficient

original unit	*	factor	=	new unit	original unit	*	factor	=	new unit
W / (m ² * K)	*	0.176110	=	BTU / (h * ft ² * °F)	BTU / (h * ft ² * °F)	*	5.678263	=	W / (m ² * K)
W / (m ² * K)	*	1.0	=	J / (s * m ² * K)	J / (s * m ² * K)	*	1.0	=	W / (m ² * K)
W / (m ² * K)	*	0.0000238845	=	cal / (s * cm ² * °C)	cal / (s * cm ² * °C)	*	41868	=	W / (m ² * K)
W / (m ² * K)	*	0.0798822	=	kcal / (h * ft ² * °C)	kcal / (h * ft ² * °C)	*	12.5184278	=	W / (m ² * K)
W / (m ² * K)	*	0.859845	=	kcal / (h * m ² * °C)	kcal / (h * m ² * °C)	*	1.163	=	W / (m ² * K)

Thermal conductivity

original unit	*	factor	=	new unit	original unit	*	factor	=	new unit
W / (m * K)	*	0.577789	=	BTU / (h * ft * °C)	BTU / (h * ft * °C)	*	1.7307346	=	W / (m * K)
W / (m * K)	*	0.000238845	=	cal / (s * cm * °C)	cal / (s * cm * °C)	*	418.68	=	W / (m * K)
W / (m * K)	*	0.001	=	kW / (m * K)	kW / (m * K)	*	1000	=	W / (m * K)



Heat capacity / viscosity conversion factors

Heat capacity

original unit	*	factor	=	new unit	original unit	*	factor	=	new unit
J / (kg * K)	*	0.00027777	=	Wh / (kg * K)	Wh / (kg * K)	*	3600	=	J / (kg * K)
J / (kg * K)	*	0.0002388459	=	kcal / (kg * °C)	kcal / (kg * °C)	*	4186.8	=	J / (kg * K)
J / (kg * K)	*	0.1083387	=	cal / (lb * °C)	cal / (lb * °C)	*	9.230314	=	J / (kg * K)
J / (kg * K)	*	0.0002388459	=	BTU / (lb * °F)	BTU / (lb * °F)	*	4186.8	=	J / (kg * K)
J / (kg * K)	*	0.000429922	=	BTU / (lb * °C)	BTU / (lb * °C)	*	2326	=	J / (kg * K)
J / (kg * K)	*	0.0002388459	=	BTU / (lb * °R)	BTU / (lb * °R)	*	4186.8	=	J / (kg * K)

Dynamic viscosity

original unit	*	factor	=	new unit	original unit	*	factor	=	new unit
Pa*s	*	10	=	P (poise)	P (Poise)	*	0.1	=	Pa*s
Pa*s	*	1000	=	cP (centipoise)	cP	*	0.001	=	Pa*s
Pa*s	*	1.0	=	N*s/m²	N*s/m²	*	1.0	=	Pa*s
Pa*s	*	1.0	=	kg/(m*s)	kg/(m*s)	*	1.0	=	Pa*s
Pa*s	*	10	=	g/(cm*s)	g/(cm*s)	*	0.1	=	Pa*s
Pa*s	*	0.6719689497	=	lb/(ft*s)	lb/(ft*s)	*	1.4881639	=	Pa*s
Pa*s	*	2419.087568	=	lb/(ft*h)	lb/(ft*h)	*	0.000413379	=	Pa*s
Pa*s	*	0.0208854	=	lb*f*s/ft²	lb*f*s/ft²	*	47.880259	=	Pa*s
Pa*s	*	0.5801507 × 10 [^] (-5)	=	lb*f*h/ft²	lb*f*h/ft²	*	172369	=	Pa*s



Viscosity conversion factors (continued)

Dynamic viscosity (continued)

Pa*s	*	0.000145	=	lbf*s/in² (reyn)	lbf*s/in²	*	6894.7572932	=	Pa*s
Pa*s	*	0.0208854	=	slug/(ft*s)	slug/(ft*s)	*	47.880259	=	Pa*s
Pa*s	*	0.6719689497	=	pdl*s/ft²	pdl*s/ft²	*	1.488164	=	Pa*s
Pa*s	*	0.101971621298	=	kp*s/m²	kp*s/m²	*	9.80665	=	Pa*s

Kinematic viscosity

original unit	*	factor	=	new unit	original unit	*	factor	=	new unit
m²/s	*	10000	=	St (stokes)	St	*	0.0001	=	m²/s
m²/s	*	1000000	=	cSt (centistokes)	cSt	*	0.000001	=	m²/s
m²/s	*	10.76391	=	ft²/s	ft²/s	*	0.092903	=	m²/s
m²/s	*	38750.1	=	ft²/h	ft²/h	*	2.58064 × 10 ⁽⁻⁵⁾	=	m²/s
m²/s	*	1550.0031	=	in²/s	in²/s	*	0.00064516	=	m²/s
m²/s	*	5.58001E × 10 ⁽⁶⁾	=	in²/h	in²/h	*	1.79211 × 10 ⁽⁻⁷⁾	=	m²/s
cm²/s	*	1.0	=	St	St	*	1.0	=	cm²/s

Engler conversion formula

					v = Kinematic viscosity (m²/s) E = viscosity in degrees Engler (-)				
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