



## CLASSIFIED LIST OF UNITS

To convert from

to

Multiply by

### ACCELERATION

ft/s <sup>2</sup>	metre per second squared (m/s <sup>2</sup> )	3.048 000*E-01
free fall, standard (g)	metre per second squared (m/s <sup>2</sup> )	9.806 650*E+00
gal	metre per second squared (m/s <sup>2</sup> )	1.000 000*E-02
in/s <sup>2</sup>	metre per second squared (m/s <sup>2</sup> )	2.540 000*E-02

### ANGLE

degree (angle)	radian (rad)	1.745 329 E-02
minute (angle)	radian (rad)	2.908 882 E-04
second (angle)	radian (rad)	4.848 137 E-06

### AREA

acre <sup>14</sup>	square metre (m <sup>2</sup> )	4.046 873 E+03
are	square metre (m <sup>2</sup> )	1.000 000*E+02
bar	square metre (m <sup>2</sup> )	1.000 000*E-28
circular mil	square metre (m <sup>2</sup> )	5.067 075 E-10
darcy <sup>17</sup>	square metre (m <sup>2</sup> )	9.869 233 E-13
ft <sup>2</sup>	square metre (m <sup>2</sup> )	9.290 304*E-02
hectare	square metre (m <sup>2</sup> )	1.000 000*E+04
in <sup>2</sup>	square metre (m <sup>2</sup> )	6.451 600*E-04
mi <sup>2</sup> (international)	square metre (m <sup>2</sup> )	2.589 988 E+06
mi <sup>2</sup> (U.S. statute) <sup>14</sup>	square metre (m <sup>2</sup> )	2.589 998 E+06
yd <sup>2</sup>	square metre (m <sup>2</sup> )	8.361 274 E-01

### BENDING MOMENT OR TORQUE (see 3.4.4)

dyne·cm	newton metre (N·m)	1.000 000*E-07
kgf·m	newton metre (N·m)	9.806 650*E+00
ozf·in	newton metre (N·m)	7.061 552 E-03
lbf·in	newton metre (N·m)	1.129 848 E-01
lbf·ft	newton metre (N·m)	1.355 818 E+00

### BENDING MOMENT OR TORQUE PER UNIT LENGTH

lbf·ft/in	newton metre per metre (N·m/m)	5.337 866 E+01
lbf·in/in	newton metre per metre (N·m/m)	4.448 222 E+00

### CAPACITY (See VOLUME)

### DENSITY (See MASS PER UNIT VOLUME)

### ELECTRICITY AND MAGNETISM<sup>25</sup>

abampere	ampere (A)	1.000 000*E+01
abcoulomb	coulomb (C)	1.000 000*E+01
abfarad	farad (F)	1.000 000*E+09
abhenry	henry (H)	1.000 000*E-09
abmho	siemens (S)	1.000 000*E+09
abohm	ohm ( $\Omega$ )	1.000 000*E+09
abvolt	volt (V)	1.000 000*E-09
ampere hour	coulomb (C)	3.600 000*E+03
EMU of capacitance	farad (F)	1.000 000*E+03
EMU of current	ampere (A)	1.000 000*E+09
EMU of electric potential	volt (V)	1.000 000*E+01

<sup>25</sup> ESU means electrostatic cgs unit. EMU means electromagnetic cgs unit.



To convert from

to

Multiply by

EMU of inductance .....	henry (H) .....	1.000 000*E-09
EMU of resistance .....	ohm ( $\Omega$ ) .....	1.000 000*E-09
ESU of capacitance .....	farad (F) .....	1.112 650 E-12
ESU of current .....	ampere (A) .....	3.335 6 E-10
ESU of electric potential .....	volt (V) .....	2.997 9 E+02
ESU of inductance .....	henry (H) .....	8.987 554 E+11
ESU of resistance .....	ohm ( $\Omega$ ) .....	8.987 554 E+11
faraday (based on carbon-12) .....	coulomb (C) .....	9.648 70 E+04
faraday (chemical) .....	coulomb (C) .....	9.649 57 E+04
faraday (physical) .....	coulomb (C) .....	9.652 19 E+04
gamma .....	tesla (T) .....	1.000 000*E-09
gauss .....	tesla (T) .....	1.000 000*E-04
gilbert .....	ampere (A) .....	7.957 747 E-01
maxwell .....	weber (Wb) .....	1.000 000*E-08
mho .....	siemens (S) .....	1.000 000*E+00
oersted .....	ampere per metre (A/m) .....	7.957 747 E+01
ohm centimetre .....	ohm metre ( $\Omega \cdot m$ ) .....	1.000 000*E-02
ohm circular-mil per foot .....	ohm metre ( $\Omega \cdot m$ ) .....	1.662 426 E-09
statampere .....	ampere (A) .....	3.335 640 E-10
statcoulomb .....	coulomb (C) .....	3.335 640 E-10
statfarad .....	farad (F) .....	1.112 650 E-12
stathenry .....	henry (H) .....	8.987 554 E+11
statmho .....	siemens (S) .....	1.112 650 E-12
stathom .....	ohm ( $\Omega$ ) .....	8.987 554 E+11
statvolt .....	volt (V) .....	2.997 925 E+02
unit pole .....	weber (Wb) .....	1.256 637 E-07

#### ENERGY (Includes WORK)

British thermal unit (International Table) <sup>15</sup> .....	joule (J) .....	1.055 056 E+03
British thermal unit (mean) .....	joule (J) .....	1.055 87 E+03
British thermal unit (thermochemical) .....	joule (J) .....	1.054 350 E+03
British thermal unit (39°F) .....	joule (J) .....	1.059 67 E+03
British thermal unit (59°F) .....	joule (J) .....	1.054 80 E+03
British thermal unit (60°F) .....	joule (J) .....	1.054 68 E+03
calorie (International Table) .....	joule (J) .....	4.186 800*E+00
calorie (mean) .....	joule (J) .....	4.190 02 E+00
calorie (thermochemical) .....	joule (J) .....	4.184 000*E+00
calorie (15°C) .....	joule (J) .....	4.185 80 E+00
calorie (20°C) .....	joule (J) .....	4.181 90 E+00
calorie (kilogram, International Table) .....	joule (J) .....	4.186 800*E+03
calorie (kilogram, mean) .....	joule (J) .....	4.190 02 E+03
calorie (kilogram, thermochemical) .....	joule (J) .....	4.184 000*E+03
electronvolt .....	joule (J) .....	1.602 19 E-19
erg .....	joule (J) .....	1.000 000*E-07
ft·lbf .....	joule (J) .....	1.355 818 E+00
ft-poundal .....	joule (J) .....	4.214 011 E-02
kilocalorie (International Table) .....	joule (J) .....	4.186 800*E+03
kilocalorie (mean) .....	joule (J) .....	4.190 02 E+03
kilocalorie (thermochemical) .....	joule (J) .....	4.184 000*E+03
kW·h .....	joule (J) .....	3.600 000*E+06
therm .....	joule (J) .....	1.055 056 E+08
ton (nuclear equivalent of TNT) .....	joule (J) .....	4.184 E+09 <sup>24</sup>
W·h .....	joule (J) .....	3.600 000*E+03
W·s .....	joule (J) .....	1.000 000*E+00

#### ENERGY PER UNIT AREA TIME

Btu (thermochemical)/(ft <sup>2</sup> ·s) .....	watt per square metre (W/m <sup>2</sup> ) .....	1.134 893 E+04
Btu (thermochemical)/(ft <sup>2</sup> ·min) .....	watt per square metre (W/m <sup>2</sup> ) .....	1.891 489 E+02
Btu (thermochemical)/(ft <sup>2</sup> ·h) .....	watt per square metre (W/m <sup>2</sup> ) .....	3.152 481 E+00



To convert from

Btu (thermochemical)/(in <sup>2</sup> ·s)	
cal (thermochemical)/(cm <sup>2</sup> ·min)	
erg/(cm <sup>2</sup> ·s)	
W/cm <sup>2</sup>	
W/in <sup>2</sup>	

to

watt per square metre (W/m <sup>2</sup> )	
watt per square metre (W/m <sup>2</sup> )	
watt per square metre (W/m <sup>2</sup> )	
watt per square metre (W/m <sup>2</sup> )	
watt per square metre (W/m <sup>2</sup> )	

Multiply by

1.634 246 E+06
6.973 333 E+02
1.000 000*E-03
1.000 000*E+04
1.550 003 E+03

### FLOW (See MASS PER UNIT TIME or VOLUME PER UNIT TIME) FORCE

dyne	
kilogram-force	
kilopond	
kip (1000 lbf)	
ounce-force	
pound-force (lbf) <sup>23</sup>	
lbf/lb (thrust/weight [mass] ratio)	
poundal	
ton-force (2000 lbf)	

newton (N)	
newton per kilogram (N/kg)	
newton (N)	
newton (N)	

1.000 000*E-05
9.806 650*E+00
9.806 650*E+00
4.448 222 E+03
2.780 139 E-01
4.448 222 E+00
9.806 650 E+00
1.382 550 E-01
8.896 444 E+03

### FORCE PER UNIT AREA (See PRESSURE)

#### FORCE PER UNIT LENGTH

lbf/ft	
lbf/in	

newton per metre (N/m)	
newton per metre (N/m)	

1.459 390 E+01
1.751 268 E+02

#### HEAT

Btu (International Table)·ft/(h·ft <sup>2</sup> ·°F) (k, thermal conductivity)	
Btu (thermochemical)·ft/(h·ft <sup>2</sup> ·°F) (k, thermal conductivity)	
Btu (International Table)·in/(h·ft <sup>2</sup> ·°F) (k, thermal conductivity)	
Btu (thermochemical)·in(h·ft <sup>2</sup> ·°F) (k, thermal conductivity)	
Btu (International Table)·in/(s·ft <sup>2</sup> ·°F) (k, thermal conductivity)	
Btu (thermochemical)·in/(s·ft <sup>2</sup> ·°F) (k, thermal conductivity)	
Btu (International Table)/ft <sup>2</sup>	
Btu (thermochemical)/ft <sup>2</sup>	
Btu (International Table)/(h·ft <sup>2</sup> ·°F) (C, thermal conductance) <sup>16</sup>	
Btu (thermochemical)/(h·ft <sup>2</sup> ·°F) (C, thermal conductance) <sup>16</sup>	
Btu (International Table)/(s·ft <sup>2</sup> ·°F)	
Btu (thermochemical)/(s·ft <sup>2</sup> ·°F)	
Btu (International Table)/lb	
Btu (thermochemical)/lb	
Btu (International Table)/(lb·°F) (c, heat capacity)	
Btu (thermochemical)/(lb·°F) (c, heat capacity)	
Btu (International Table)/ft <sup>3</sup>	
Btu (thermochemical)/ft <sup>3</sup>	
cal (thermochemical)/(cm·s·°C)	
cal (thermochemical)/cm <sup>2</sup>	
cal (thermochemical)/(cm <sup>2</sup> ·min)	
cal (thermochemical)/(cm <sup>2</sup> ·s)	

watt per metre kelvin [(W/(m·K))	

1.730 735 E+00
1.729 577 E+00
1.442 279 E-01
1.441 314 E-01
5.192 204 E+02

watt per metre kelvin [(W/(m·K))	
joule per square metre (J/m <sup>2</sup> )	
joule per square metre (J/m <sup>2</sup> )	
watt per square metre kelvin [(W/(m <sup>2</sup> ·K))	
watt per square metre kelvin [(W/(m <sup>2</sup> ·K))	

5.188 732 E+02
1.135 653 E+04
1.134 893 E+04
5.678 263 E+00
5.674 466 E+00

watt per square metre kelvin [(W/(m <sup>2</sup> ·K))	
watt per square metre kelvin [(W/(m <sup>2</sup> ·K))	
watt per square metre kelvin [(W/(m <sup>2</sup> ·K))	
watt per square metre kelvin [(W/(m <sup>2</sup> ·K))	
watt per square metre kelvin [(W/(m <sup>2</sup> ·K))	

2.044 175 E+04
2.042 808 E+04
2.326 000*E+03
2.324 444 E+03
4.186 800*E+03

joule per kilogram kelvin [(J/(kg·K))	
joule per kilogram (J/kg)	
joule per kilogram (J/kg)	
joule per kilogram kelvin [(J/(kg·K))	
joule per kilogram kelvin [(J/(kg·K))	

4.186 800*E+03
4.184 000*E+03
3.725 895 E+04
3.723 402 E+04
4.184 000*E+02

joule per cubic metre (J/m <sup>3</sup> )	
joule per cubic metre (J/m <sup>3</sup> )	
watt per metre kelvin [(W/(m·K))	
joule per square metre (J/m <sup>2</sup> )	
watt per square metre (W/m <sup>2</sup> )	

4.184 000*E+04
6.973 333 E+02
4.184 000*E+04
4.184 000*E+04
4.184 000*E+04



To convert from	to	Multiply by
cal (International Table)/g	joule per kilogram (J/kg)	4.186 800*E+03
cal (thermochemical)/g	joule per kilogram (J/kg)	4.184 000*E+03
cal (International Table)/(g·°C)	joule per kilogram kelvin [(J/kg·K)]	4.186 800*E+03
cal (thermochemical)/(g·°C)	joule per kilogram kelvin [(J/(kg·K))]	4.184 000*E+03
cal (thermochemical)/min	watt (W)	6.973 333 E-02
cal (thermochemical)/s	watt (W)	4.184 000*E+00
clo	kelvin square metre per watt (K·m <sup>2</sup> /W)	2.003 712 E-01
°F·h·ft <sup>2</sup> /Btu (International Table) (R, thermal resistance) <sup>18</sup>	kelvin square metre per watt (K·m <sup>2</sup> /W)	1.761 102 E-01
°F·h·ft <sup>2</sup> /Btu (thermochemical) (R, thermal resistance) <sup>18</sup>	kelvin square metre per watt (K·m <sup>2</sup> /W)	1.762 280 E-01
°F·h·ft <sup>2</sup> /(Btu (International Table)·in) (thermal resistivity)	kelvin metre per watt (K·m/W)	6.933 471 E+00
°F·h·ft <sup>2</sup> /(Btu (thermochemical)·in) (thermal resistivity)	kelvin metre per watt (K·m/W)	6.938 113 E+00
ft <sup>2</sup> /h (thermal diffusivity)	square metre per second (m <sup>2</sup> /s)	2.580 640*E-05
 LENGTH		
angstrom	metre (m)	1.000 000*E-10
astronomical unit	metre (m)	1.495 979 E+11
chain <sup>14</sup>	metre (m)	2.011 684 E+01
fathom <sup>14</sup>	metre (m)	1.828 804 E+00
fermi (femtometre)	metre (m)	1.000 000*E-15
foot	metre (m)	3.048 000*E-01
foot (U.S. survey) <sup>14</sup>	metre (m)	3.048 006 E-01
inch	metre (m)	2.540 000*E-02
light year	metre (m)	9.460 55 E+15
microinch	metre (m)	2.540 000*E-08
micron	metre (m)	1.000 000*E-06
mil	metre (m)	2.540 000*E-05
mile (international nautical)	metre (m)	1.852 000*E+03
mile (U.S. nautical)	metre (m)	1.852 000*E+03
mile (international)	metre (m)	1.609 344*E+03
mile (U.S. statute) <sup>14</sup>	metre (m)	1.609 347 E+03
parsec	metre (m)	3.085 678 E+16
pica (printer's)	metre (m)	4.217 518 E-03
point (printer's)	metre (m)	3.514 598*E-04
rod <sup>14</sup>	metre (m)	5.029 210 E+00
yard	metre (m)	9.144 000*E-01
 LIGHT		
cd/in <sup>2</sup>	candela per square metre (cd/m <sup>2</sup> )	1.550 003 E+03
footcandle	lux (lx)	1.076 391 E+01
footlambert	candela per square metre (cd/m <sup>2</sup> )	3.426 259 E+00
lambert	candela per square metre (cd/m <sup>2</sup> )	3.183 099 E+03
 MASS		
carat (metric)	kilogram (kg)	2.000 000*E-04
grain	kilogram (kg)	6.479 891*E-05
gram	kilogram (kg)	1.000 000*E-03
hundredweight (long)	kilogram (kg)	5.080 235 E+01
hundredweight (short)	kilogram (kg)	4.535 924 E+01
kgf·s <sup>2</sup> /m (mass)	kilogram (kg)	9.806 650*E+00
ounce (avoirdupois)	kilogram (kg)	2.834 952 E-02
ounce (troy or apothecary)	kilogram (kg)	3.110 348 E-02
pennyweight	kilogram (kg)	1.555 174 E-03
pound (lb avoirdupois) <sup>22</sup>	kilogram (kg)	4.535 924 E-01
pound (troy or apothecary)	kilogram (kg)	3.732 417 E-01



To convert from

to

Multiply by

slug .....	kilogram (kg) .....	1.459 390 E+01
ton (assay) .....	kilogram (kg) .....	2.916 667 E-02
ton (long, 2240 lb) .....	kilogram (kg) .....	1.016 047 E+03
ton (metric) .....	kilogram (kg) .....	1.000 000*E+03
ton (short, 2000 lb) .....	kilogram (kg) .....	9.071 847 E+02
tonne .....	kilogram (kg) .....	1.000 000*E+03

## MASS PER UNIT AREA

oz/ft <sup>2</sup> .....	kilogram per square metre (kg/m <sup>2</sup> ) .....	3.051 517 E-01
oz/yd <sup>2</sup> .....	kilogram per square metre (kg/m <sup>2</sup> ) .....	3.390 575 E-02
lb/ft <sup>2</sup> .....	kilogram per square metre (kg/m <sup>2</sup> ) .....	4.882 428 E+00

## MASS PER UNIT CAPACITY (See MASS PER UNIT VOLUME)

## MASS PER UNIT LENGTH

denier .....	kilogram per metre (kg/m) .....	1.111 111 E-07
lb/ft .....	kilogram per metre (kg/m) .....	1.488 164 E+00
lb/in .....	kilogram per metre (kg/m) .....	1.785 797 E+01
tex .....	kilogram per metre (kg/m) .....	1.000 000*E-06

## MASS PER UNIT TIME (Includes FLOW)

perm (0°C) .....	kilogram per pascal second square metre [kg/(Pa·s·m <sup>2</sup> )] .....	5.721 35 E-11
perm (23°C) .....	kilogram per pascal second square metre [kg/(Pa·s·m <sup>2</sup> )] .....	5.745 25 E-11
perm·in (0°C) .....	kilogram per pascal second metre [kg/(Pa·s·m)] .....	1.453 22 E-12
perm·in (23°C) .....	kilogram per pascal second metre [kg/(Pa·s·m)] .....	1.459 29 E-12
lb/h .....	kilogram per second (kg/s) .....	1.259 979 E-04
lb/min .....	kilogram per second (kg/s) .....	7.559 873 E-03
lb/s .....	kilogram per second (kg/s) .....	4.535 924 E-01
lb/(hp·h) (SFC, specific fuel consumption) .....	kilogram per joule (kg/J) .....	1.689 659 E-07
ton (short)/h .....	kilogram per second (kg/s) .....	2.519 958 E-01

## MASS PER UNIT VOLUME (Includes DENSITY and MASS CAPACITY)

grain/gal (U.S. liquid) .....	kilogram per cubic metre (kg/m <sup>3</sup> ) .....	1.711 806 E-02
g/cm <sup>3</sup> .....	kilogram per cubic metre (kg/m <sup>3</sup> ) .....	1.000 000*E+03
oz (avoirdupois)/gal (U.K. liquid) .....	kilogram per cubic metre (kg/m <sup>3</sup> ) .....	6.236 021 E+00
oz (avoirdupois)/gal (U.S. liquid) .....	kilogram per cubic metre (kg/m <sup>3</sup> ) .....	7.489 152 E+00
oz (avoirdupois)/in <sup>3</sup> .....	kilogram per cubic metre (kg/m <sup>3</sup> ) .....	1.729 994 E+03
lb/ft <sup>3</sup> .....	kilogram per cubic metre (kg/m <sup>3</sup> ) .....	1.601 846 E+01
lb/in <sup>3</sup> .....	kilogram per cubic metre (kg/m <sup>3</sup> ) .....	2.767 990 E+04
lb/gal (U.K. liquid) .....	kilogram per cubic metre (kg/m <sup>3</sup> ) .....	9.977 633 E+01
lb/gal (U.S. liquid) .....	kilogram per cubic metre (kg/m <sup>3</sup> ) .....	1.198 264 E+02
lb/yd <sup>3</sup> .....	kilogram per cubic metre (kg/m <sup>3</sup> ) .....	5.932 764 E-01
slug/ft <sup>3</sup> .....	kilogram per cubic metre (kg/m <sup>3</sup> ) .....	5.153 788 E+02
ton (long)/yd <sup>3</sup> .....	kilogram per cubic metre (kg/m <sup>3</sup> ) .....	1.328 939 E+03
ton (short)/yd <sup>3</sup> .....	kilogram per cubic metre (kg/m <sup>3</sup> ) .....	1.186 553 E+03

## POWER

Btu (International Table)/h .....	watt (W) .....	2.930 711 E-01
Btu (International Table)/s .....	watt (W) .....	1.055 056 E+03



To convert from

to

Multiply by

Btu (thermochemical)/h . . . . .	watt (W) . . . . .	2.928 751 E-01
Btu (thermochemical)/min . . . . .	watt (W) . . . . .	1.757 250 E+01
Btu (thermochemical)/s . . . . .	watt (W) . . . . .	1.054 350 E+03
cal (thermochemical)/min . . . . .	watt (W) . . . . .	6.973 333 E-02
cal (thermochemical)/s . . . . .	watt (W) . . . . .	4.184 000*E+00
erg/s . . . . .	watt (W) . . . . .	1.000 000*E-07
ft·lbf/h . . . . .	watt (W) . . . . .	3.766 161 E-04
ft·lbf/min . . . . .	watt (W) . . . . .	2.259 697 E-02
ft·lbf/s . . . . .	watt (W) . . . . .	1.355 818 E+00
horsepower (550 ft·lbf/s) . . . . .	watt (W) . . . . .	7.456 999 E+02
horsepower (boiler) . . . . .	watt (W) . . . . .	9.809 50 E+03
horsepower (electric) . . . . .	watt (W) . . . . .	7.460 000*E+02
horsepower (metric) . . . . .	watt (W) . . . . .	7.354 99 E+02
horsepower (water) . . . . .	watt (W) . . . . .	7.460 43 E+02
horsepower (U.K.) . . . . .	watt (W) . . . . .	7.457 0 E+02
kilocalorie (thermochemical)/min . . . . .	watt (W) . . . . .	6.973 333 E+01
kilocalorie (thermochemical)/s . . . . .	watt (W) . . . . .	4.184 000*E+03
ton (refrigeration) . . . . .	watt (W) . . . . .	3.516 800 E+03

#### PRESSURE OR STRESS (FORCE PER UNIT AREA)

atmosphere (standard) . . . . .	pascal (Pa) . . . . .	1.013 250*E+05
atmosphere (technical = 1 kgf/cm <sup>2</sup> ) . . . . .	pascal (Pa) . . . . .	9.806 650*E+04
bar . . . . .	pascal (Pa) . . . . .	1.000 000*E+05
centimetre of mercury (0°C) . . . . .	pascal (Pa) . . . . .	1.333 22 E+03
centimetre of water (4°C) . . . . .	pascal (Pa) . . . . .	9.806 38 E+01
dyne/cm <sup>2</sup> . . . . .	pascal (Pa) . . . . .	1.000 000*E-01
foot of water (39.2°F) . . . . .	pascal (Pa) . . . . .	2.988 98 E+03
gf/cm <sup>2</sup> . . . . .	pascal (Pa) . . . . .	9.806 650*E+01
inch of mercury (32°F) . . . . .	pascal (Pa) . . . . .	3.386 38 E+03
inch of mercury (60°F) . . . . .	pascal (Pa) . . . . .	3.376 85 E+03
inch of water (39.2°F) . . . . .	pascal (Pa) . . . . .	2.490 82 E+02
inch of water (60°F) . . . . .	pascal (Pa) . . . . .	2.488 4 E+02
kgf/cm <sup>2</sup> . . . . .	pascal (Pa) . . . . .	9.806 650*E+04
kgf/m <sup>2</sup> . . . . .	pascal (Pa) . . . . .	9.806 650*E+00
kgf/mm <sup>2</sup> . . . . .	pascal (Pa) . . . . .	9.806 650*E+06
kip/in <sup>2</sup> (ksi) . . . . .	pascal (Pa) . . . . .	6.894 757 E+06
millibar . . . . .	pascal (Pa) . . . . .	1.000 000*E+02
millimetre of mercury (0°C) . . . . .	pascal (Pa) . . . . .	1.333 22 E+02
poundal/ft <sup>2</sup> . . . . .	pascal (Pa) . . . . .	1.488 164 E+00
lbf/ft <sup>2</sup> . . . . .	pascal (Pa) . . . . .	4.788 026 E+01
lbf/in <sup>2</sup> (psi) . . . . .	pascal (Pa) . . . . .	6.894 757 E+03
psi . . . . .	pascal (Pa) . . . . .	6.894 757 E+03
torr (mmHg, 0°C) . . . . .	pascal (Pa) . . . . .	1.333 22 E+02

#### SPEED (See VELOCITY)

#### STRESS (See PRESSURE)

#### TEMPERATURE

degree Celsius . . . . .	kelvin (K) . . . . .	$T_K = t^{\circ}\text{C} + 273.15$
degree Fahrenheit . . . . .	$t^{\circ}\text{C} = (t^{\circ}\text{F} - 32)/1.8$	
degree Fahrenheit . . . . .	kelvin (K) . . . . .	$T_K = (t^{\circ}\text{F} + 459.67)/1.8$
degree Rankine . . . . .	kelvin (K) . . . . .	$T_K = T^{\circ}\text{R}/1.8$
kelvin . . . . .	degree Celsius . . . . .	$t^{\circ}\text{C} = T_K - 273.15$

#### TIME

day . . . . .	second (s) . . . . .	8.640 000*E+04
day (sidereal) . . . . .	second (s) . . . . .	8.616 409 E+04
hour . . . . .	second (s) . . . . .	3.600 000*E+03



To convert from

to

Multiply by

hour (sidereal)	second (s)	3.590 170 E+03
minute	second (s)	6.000 000*E+01
minute (sidereal)	second (s)	5.983 617 E+01
second (sidereal)	second (s)	9.972 696 E-01
year (365 days)	second (s)	3.153 600*E+07
year (sidereal)	second (s)	3.155 815 E+07
year (tropical)	second (s)	3.155 693 E+07

## TORQUE (See BENDING MOMENT)

## VELOCITY (Includes SPEED)

ft/h	metre per second (m/s)	8.466 667 E-05
ft/min	metre per second (m/s)	5.080 000*E-03
ft/s	metre per second (m/s)	3.048 000*E-01
in/s	metre per second (m/s)	2.540 000*E-02
km/h	metre per second (m/s)	2.777 778 E-01
knot (international)	metre per second (m/s)	5.144 444 E-01
mi/h (international)	metre per second (m/s)	4.470 400*E-01
mi/min (international)	metre per second (m/s)	2.682 240*E+01
mi/s (international)	metre per second (m/s)	1.609 344*E+03
mi/h (international)	kilometre per hour (km/h) <sup>26</sup>	1.609 344*E+00

## VISCOSITY

centipoise	pascal second (Pa·s)	1.000 000*E-03
centistokes	square metre per second (m <sup>2</sup> /s)	1.000 000*E-06
ft <sup>2</sup> /s	square metre per second (m <sup>2</sup> /s)	9.290 304*E-02
poise	pascal second (Pa·s)	1.000 000*E-01
poundal·s/ft <sup>2</sup>	pascal second (Pa·s)	1.488 164 E+00
lb/(ft·h)	pascal second (Pa·s)	4.133 789 E-04
lb/(ft·s)	pascal second (Pa·s)	1.488 164 E+00
lbf·s/ft <sup>2</sup>	pascal second (Pa·s)	4.788 026 E+01
lbf·s/in <sup>2</sup>	pascal second (Pa·s)	6.894 757 E+03
rhe	1 per pascal second [(1/(Pa·s))]	1.000 000*E+01
slug/(ft·s)	pascal second (Pa·s)	4.788 026 E+01
stokes	square metre per second (m <sup>2</sup> /s)	1.000 000*E-04

## VOLUME (Includes CAPACITY)

acre-foot <sup>14</sup>	cubic metre (m <sup>3</sup> )	1.233 489 E+03
barrel (oil, 42 gal)	cubic metre (m <sup>3</sup> )	1.589 873 E-01
board foot	cubic metre (m <sup>3</sup> )	2.359 737 E-03
bushel (U.S.)	cubic metre (m <sup>3</sup> )	3.523 907 E-02
cup	cubic metre (m <sup>3</sup> )	2.365 882 E-04
fluid ounce (U.S.)	cubic metre (m <sup>3</sup> )	2.957 353 E-05
ft <sup>3</sup>	cubic metre (m <sup>3</sup> )	2.831 685 E-02
gallon (Canadian liquid)	cubic metre (m <sup>3</sup> )	4.546 090 E-03
gallon (U.K. liquid)	cubic metre (m <sup>3</sup> )	4.546 092 E-03
gallon (U.S. dry)	cubic metre (m <sup>3</sup> )	4.404 884 E-03
gallon (U.S. liquid)	cubic metre (m <sup>3</sup> )	3.785 412 E-03
gill (U.K.)	cubic metre (m <sup>3</sup> )	1.420 654 E-04
gill (U.S.)	cubic metre (m <sup>3</sup> )	1.182 941 E-04
in <sup>3</sup> [see footnote 20]	cubic metre (m <sup>3</sup> )	1.638 706 E-05
litre [see footnote 21]	cubic metre (m <sup>3</sup> )	1.000 000*E-03
ounce (U.K. fluid)	cubic metre (m <sup>3</sup> )	2.841 307 E-05
ounce (U.S. fluid)	cubic metre (m <sup>3</sup> )	2.957 353 E-05
peck (U.S.)	cubic metre (m <sup>3</sup> )	8.809 768 E-03
pint (U.S. dry)	cubic metre (m <sup>3</sup> )	5.506 105 E-04
pint (U.S. liquid)	cubic metre (m <sup>3</sup> )	4.731 765 E-04

<sup>26</sup> Although speedometers may read km/h, the SI unit is m/s.



To convert from

to

Multiply by

quart (U.S. dry) .....	cubic metre ( $m^3$ ) .....	1.101 221 E-03
quart (U.S. liquid) .....	cubic metre ( $m^3$ ) .....	9.463 529 E-04
stere .....	cubic metre ( $m^3$ ) .....	1.000 000*E+00
tablespoon .....	cubic metre ( $m^3$ ) .....	1.478 676 E-05
teaspoon .....	cubic metre ( $m^3$ ) .....	4.928 922 E-06
ton (register) .....	cubic metre ( $m^3$ ) .....	2.831 685 E+00
yd <sup>3</sup> .....	cubic metre ( $m^3$ ) .....	7.645 549 E-01

## VOLUME PER UNIT TIME (Includes FLOW)

ft <sup>3</sup> /min .....	cubic metre per second ( $m^3/s$ ) .....	4.719 474 E-04
ft <sup>3</sup> /s .....	cubic metre per second ( $m^3/s$ ) .....	2.831 685 E-02
gallon (U.S. liquid)/(hp·h)(SFC, specific fuel consumption) .....	cubic metre per joule ( $m^3/J$ ) .....	1.410 089 E-09
in <sup>3</sup> /min .....	cubic metre per second ( $m^3/s$ ) .....	2.731 177 E-07
yd <sup>3</sup> /min .....	cubic metre per second ( $m^3/s$ ) .....	1.274 258 E-02
gallon (U.S. liquid) per day .....	cubic metre per second ( $m^3/s$ ) .....	4.381 264 E-08
gallon (U.S. liquid) per minute .....	cubic metre per second ( $m^3/s$ ) .....	6.309 020 E-05

## WORK (See ENERGY)