

Using default SI units Units.xml

**Length Units Validation:**

a:= 1 <i>ft</i>	b:= 1 <i>m</i>	
a= 0.3048 <i>m</i>	b= 1 <i>m</i>	<- unconverted
a= 0.000189 <i>mi</i>	b= 0.000621 <i>mi</i>	
a= 0.000305 <i>km</i>	b= 0.001 <i>km</i>	
a= 0.3048 <i>m</i>	b= 1 <i>m</i>	
a= 3.048 <i>dm</i>	b= 10 <i>dm</i>	
a= 30.48 <i>cm</i>	b= 100 <i>cm</i>	
a= 304.8 <i>mm</i>	b= 1000 <i>mm</i>	
a= 3.048·10 <sup>5</sup> <i>μm</i>	b= 1·10 <sup>6</sup> <i>μm</i>	
a= 3.048·10 <sup>8</sup> <i>nm</i>	b= 1·10 <sup>9</sup> <i>nm</i>	
a= 3.048·10 <sup>11</sup> <i>pm</i>	b= 1·10 <sup>12</sup> <i>pm</i>	
a= 3.048·10 <sup>9</sup> <i>Angstrom</i>	b= 1·10 <sup>10</sup> <i>Angstrom</i>	
a= 5.759885·10 <sup>9</sup> <i>bohr</i>	b= 1.889726·10 <sup>10</sup> <i>bohr</i>	
a= 0.001515 <i>furlong</i>	b= 0.004971 <i>furlong</i>	
a= 12 <i>in</i>	b= 39.370079 <i>in</i>	
a= 0.333333 <i>yd</i>	b= 1.093613 <i>yd</i>	
a= 0.179104 <i>Smoot</i>	b= 0.587613 <i>Smoot</i>	

**Area Units Validation:**

a:= 1 <i>ft</i> <sup>2</sup>	b:= 1 <i>m</i> <sup>2</sup>
a= 0.092903 <i>m</i> <sup>2</sup>	b= 1 <i>m</i> <sup>2</sup>
a= 0.092903 <i>m</i> <sup>2</sup>	b= 1 <i>m</i> <sup>2</sup>
a= 2.295684·10 <sup>-5</sup> <i>acre</i>	b= 0.000247 <i>acre</i>

a =  $9.290304 \cdot 10^{-6}$  *hectare*      b = 0.0001 *hectare*

**Volume Units Validation:**

a := 1 *ft*<sup>3</sup>      b := 1 *m*<sup>3</sup>

a = 0.028317 *m*<sup>3</sup>      b = 1 *m*<sup>3</sup>      <- unconverted

a = 28.316847 *L*      b = 1000 *L*

a = 28316.846592 *mL*      b =  $1 \cdot 10^6$  *mL*

a = 7.480519 *gal*      b = 264.17204 *gal*

**Mass Units Validation:**

a := 1 *lb*      b := 1 *kg*

a = 0.453592 *kg*      b = 1 *kg*      <- unconverted

a = 0.453592 *kg*      b = 1 *kg*

a = 0.000454 *Mg*      b = 0.001 *Mg*

a = 0.000454 *t*      b = 0.001 *t*

a = 0.0005 *ton*      b = 0.001102 *ton*

a = 453.59237 *gm*      b = 1000 *gm*

a =  $4.535924 \cdot 10^5$  *mg*      b =  $1 \cdot 10^6$  *mg*

a =  $4.535924 \cdot 10^8$  *µg*      b =  $1 \cdot 10^9$  *µg*

a = 16 *oz*      b = 35.273962 *oz*

a = 0.031081 *slug*      b = 0.068522 *slug*

**Force Unit Validation:**

a := 1 *lbf*      b := 1 *N*

a = 4.448222 *N*      b = 1 *N*      <- unconverted

a = 4.448222 *N*      b = 1 *N*

a =  $4.448222 \cdot 10^{-12}$  *TN*      b =  $1 \cdot 10^{-12}$  *TN*

$$a = 4.448222 \cdot 10^{-9} \text{ GN} \quad b = 1 \cdot 10^{-9} \text{ GN}$$

$$a = 4.448222 \cdot 10^{-6} \text{ MN} \quad b = 1 \cdot 10^{-6} \text{ MN}$$

$$a = 0.004448 \text{ kN} \quad b = 0.001 \text{ kN}$$

$$a = 4448.221615 \text{ mN} \quad b = 1000 \text{ mN}$$

$$a = 4.448222 \cdot 10^6 \text{ } \mu\text{N} \quad b = 1 \cdot 10^6 \text{ } \mu\text{N}$$

$$a = 4.448222 \cdot 10^5 \text{ dyn} \quad b = 1 \cdot 10^5 \text{ dyn}$$

$$a = 0.453592 \text{ kgf} \quad b = 0.101972 \text{ kgf}$$

$$a = 0.000454 \text{ tonnef} \quad b = 0.000102 \text{ tonnef}$$

$$a = 0.0005 \text{ tonf} \quad b = 0.000112 \text{ tonf}$$

$$a = 0.001 \text{ kip} \quad b = 0.000225 \text{ kip}$$

#### Pressure Units Validation:

$$a := 1 \text{ psf} \quad b := 1 \text{ Pa}$$

$$a = 47.880259 \text{ Pa} \quad b = 1 \text{ Pa} \quad \leftarrow \text{unconverted}$$

$$a = 47.880259 \text{ Pa} \quad b = 1 \text{ Pa}$$

$$a = 4.788026 \cdot 10^{-8} \text{ GPa} \quad b = 1 \cdot 10^{-9} \text{ GPa}$$

$$a = 4.788026 \cdot 10^{-5} \text{ MPa} \quad b = 1 \cdot 10^{-6} \text{ MPa}$$

$$a = 0.04788 \text{ kPa} \quad b = 0.001 \text{ kPa}$$

$$a = 0.000473 \text{ atm} \quad b = 9.869233 \cdot 10^{-6} \text{ atm}$$

$$a = 0.000479 \text{ bar} \quad b = 1 \cdot 10^{-5} \text{ bar}$$

$$a = 0.359131 \text{ torr} \quad b = 0.007501 \text{ torr}$$

$$a = 0.006944 \text{ psi} \quad b = 0.000145 \text{ psi}$$

$$a = 6.944444 \cdot 10^{-6} \text{ ksi} \quad b = 1.450377 \cdot 10^{-7} \text{ ksi}$$

$$a = 0.001 \text{ ksf} \quad b = 2.088543 \cdot 10^{-5} \text{ ksf}$$

#### Energy Units Validation:

a:= 1 *BTU*b:= 1 *J*a= 1055.055853 *J*b= 1 *J*

&lt;- unconverted

a= 1055.055853 *J*b= 1 *J*a= 1.055056 · 10<sup>-9</sup> *TJ*b= 1 · 10<sup>-12</sup> *TJ*a= 1.055056 · 10<sup>-6</sup> *GJ*b= 1 · 10<sup>-9</sup> *GJ*a= 0.001055 *MJ*b= 1 · 10<sup>-6</sup> *MJ*a= 1.055056 *kJ*b= 0.001 *kJ*a= 1.055056 · 10<sup>6</sup> *mJ*b= 1000 *mJ*a= 251.995761 *cal*b= 0.238846 *cal*a= 0.251996 *kcal*b= 0.000239 *kcal*a= 1.055056 · 10<sup>10</sup> *erg*b= 1 · 10<sup>7</sup> *erg***Power Units Validation:**a:= 1 *hp*b:= 1 *W*a= 745.699872 *W*b= 1 *W*

&lt;- unconverted

a= 745.699872 *W*b= 1 *W*a= 7.456999 · 10<sup>-7</sup> *GW*b= 1 · 10<sup>-9</sup> *GW*a= 0.000746 *MW*b= 1 · 10<sup>-6</sup> *MW*a= 0.7457 *kW*b= 0.001 *kW*a= 7.456999 · 10<sup>5</sup> *mW*b= 1000 *mW*a= 7.456999 · 10<sup>8</sup> *μW*b= 1 · 10<sup>6</sup> *μW*a= 7.456999 · 10<sup>11</sup> *nW*b= 1 · 10<sup>9</sup> *nW*a= 7.456999 · 10<sup>14</sup> *pW*b= 1 · 10<sup>12</sup> *pW*

## Velocity Units Validation:

$$a := 1 \frac{ft}{sec}$$

$$b := 1 \text{ kph}$$

$$a = 0.3048 \frac{m}{s}$$

$$b = 0.277778 \frac{m}{s} \quad \leftarrow \text{ unconverted}$$

$$a = 0.592484 \text{ knot}$$

$$b = 0.539957 \text{ knot}$$

$$a = 1.09728 \text{ kph}$$

$$b = 1 \text{ kph}$$

$$a = 0.681818 \text{ mph}$$

$$b = 0.621371 \text{ mph}$$

## Constants Validation:

$$c = 2.997925 \cdot 10^8 \frac{m}{s}$$

$$g = 9.80665 \frac{m}{s^2}$$