

**Physical units and conversion factors**

The compressed air industry uses a mix of metric and imperial to describe the performance characteristics of systems and equipment. However, ALL scientific standards units are METRIC.

Note that from 1<sup>st</sup> January 2010 EU directive 80/181/EEC will require that performance measures are only quoted in metric units without their imperial equivalents alongside.

For quick conversion of any unit to another, visit: [www.onlineconversion.com](http://www.onlineconversion.com)

	Quantity	Scientific standard unit	Examples
1	<b>Flow</b> (volume per unit time)	Litres per second	Litres per second (L/s or Ls <sup>-1</sup> ) Cubic metres per minute (m <sup>3</sup> /min, or m <sup>3</sup> min <sup>-1</sup> ) <b>IMPERIAL:</b> Cubic feet per minute (cfm)
2	<b>Pressure</b> (force per unit area)	Pascal (Pa)	1 Pascal = 1kg/m <sup>2</sup> or 1kgm <sup>-2</sup> 100,000Pa = 1bar <b>IMPERIAL:</b> Pounds per square inch (psi) lb/in <sup>2</sup> 1 atmosphere = 1.013 bar = 14.7psi
3	<b>Power</b> (joules per second)	Watt (W)	1W = 1 J/s or 1Js <sup>-1</sup> <b>IMPERIAL:</b> Horsepower (hp)
4	<b>Specific power</b> (power consumed per volume of air produced)		Generally expressed as kW/m <sup>3</sup> /min Or inversely L/s output per kW input
5	<b>Efficiency</b> (Useful work output / total energy input)	n/a	Efficiency is expressed as a percentage or ratio, and hence has no units

**SOME COMMON MULTIPLYING FACTORS**

Prefix name	Prefix symbol	Multiplying factor		
tera	<b>T</b>	10 <sup>12</sup>	=	1,000,000,000,000
giga	<b>G</b>	10 <sup>9</sup>	=	1,000,000,000
mega	<b>M</b>	10 <sup>6</sup>	=	1,000,000
kilo	<b>k</b>	10 <sup>3</sup>	=	1,000
deci	<b>d</b>	10 <sup>-1</sup>	=	0.1
centi	<b>c</b>	10 <sup>-2</sup>	=	0.01
milli	<b>m</b>	10 <sup>-3</sup>	=	0.001
micro	$\mu$	10 <sup>-6</sup>	=	0.000001
nano	<b>n</b>	10 <sup>-9</sup>	=	0.000000001