

## Reference Section

### Imperial to Metric and Metric to Imperial

[Key: 1 inch = 25.40 Millimetres, 1 Millimetres = 0.039 inches etc.]

| To Convert                  | Multiply by | To Convert            | Multiply by |
|-----------------------------|-------------|-----------------------|-------------|
| Inches to Centimetres       | 2.5400      | Cu Feet to Cu Meters  | 0.0283      |
| Centimetres to Inches       | 0.3937      | Cu Metres to Cu Feet  | 35.3100     |
| Feet to Metres              | 0.3048      | Cu Yards to Cu Metres | 0.7646      |
| Metres to Feet              | 3.2810      | Cu Metres to Cu Yards | 1.3080      |
| Yards to Metres             | 0.9144      | Cu Inches to Litres   | 0.0163      |
| Metres to Yards             | 1.0940      | Litres to Cu Inches   | 61.0300     |
| Miles to Kilometres         | 1.6090      | Gallons to Litres     | 4.5460      |
| Kilometres to Miles         | 0.6214      | Litres to Gallons     | 0.2200      |
| Sq Ins to Sq Centimetres    | 6.4520      | Pints to Litres       | 0.5680      |
| Sq Centimetres to Sq Ins    | 0.1550      | Litres to Pints       | 1.7610      |
| Sq Metres to Sq Feet        | 10.7600     | Grains to Grams       | 0.0648      |
| Sq Feet to Sq Metres        | 0.0929      | Grams to Grains       | 15.4300     |
| Sq Yards to Sq Metres       | 0.8361      | Ounces to Grams       | 28.3500     |
| Sq Metres to Sq Yards       | 1.1960      | Grams to Ounces       | 0.0353      |
| Sq Miles to Sq Kilometres   | 2.5900      | Pounds to Grams       | 453.6000    |
| Sq Kilometres to Sq Miles   | 0.3861      | Grams to Pounds       | 0.0022      |
| Acres to Hectares           | 0.4047      | Pounds to Kilograms   | 0.4536      |
| Hectares to Acres           | 2.4710      | Kilograms to Pounds   | 2.2050      |
| Cu Inches to Cu Centimetres | 16.3900     | Tons to Kilograms     | 1016.0000   |
| Cu Centimetres to Cu Inches | 0.0610      | Kilograms to Tons     | 0.0009      |

|                               |
|-------------------------------|
| 1N $\approx$ 100gf            |
| 1cN $\approx$ 1gf             |
| 10N $\approx$ 1kgf            |
| 4.5N $\approx$ 1lbf           |
| 1cN/dtex $\approx$ 1gf/denier |

|                      |  |
|----------------------|--|
| Newton               | 1N = 101.97gf                                  |
| Pounds - force       | 1N = 0.2248 lbf                                |
|                      | 1N = 3.5969 ozf                                |
| Kilogramme force     | 1 lbf = 4.448N                                 |
| Pound / square inch  | 1 lbf/in <sup>2</sup> = 6.895kN/m <sup>2</sup> |
| Bars                 | 1 lbf/in <sup>2</sup> = 0.06895bars            |
| Kilonewton/sq. meter | 1 bar = 14.504 lb/in <sup>2</sup>              |
| Grammes / denier     | 1g/den = 0.9g/decitex                          |
| Grammes / decitex    | 1g/den = 0.0883N/tex                           |
| Newtons / tex        | 1N/tex = 11.33g/den                            |

| Quantity      | Name of SI Unit             | Symbol        |
|---------------|-----------------------------|---------------|
| Length        | Metre                       | m             |
| Mass          | Kilogram                    | kg            |
| Time          | Second or Hour              | S/ h          |
| Force         | Newton                      | N             |
| Pressure      | Pascal                      | Pa            |
| Energy, Work  | Joule                       | J             |
| Power         | Watt                        | W             |
| <b>Prefix</b> | <b>Factor</b>               | <b>Symbol</b> |
| deca          | 101 times [times 10]        | da            |
| mega          | 106 times [times 1,000,000] | M             |

A bar is a unit of pressure in CGS units and is a pressure of 106 dynes per sq. cm. In practical terms it is equivalent to an 'atmosphere' or a pressure of 76cm of mercury.

| Units of Pressure            | bar              | Pa or N/m       | Mpa or N/m       |
|------------------------------|------------------|-----------------|------------------|
| 1bar = 1da N/cm <sup>2</sup> | 1                | 10 <sup>5</sup> | 0.1              |
| 1Pa = 1N/m <sup>2</sup>      | 10 <sup>-5</sup> | 1               | 10 <sup>-6</sup> |
| 10                           | 10               | 10 <sup>6</sup> | 1                |

| Units of Energy | J or Nm or Ws | DaJ or daNm | kWh                      |
|-----------------|---------------|-------------|--------------------------|
| 1J = 1Nm = 1Ws  | 1             | 0.1         | 0.278 x 10 <sup>-6</sup> |
| 1daJ = 1 daNm   | 10            | 1           | 2.78 x 10 <sup>-6</sup>  |
| 1 kWh           | 3.6 x 106     | 3.6 x 105   | 1                        |

| Units of Power      | Wor J/s or Nm/s | kW                   |
|---------------------|-----------------|----------------------|
| 1kW = 1J/s = 1 Nm/s | 1               | 1 x 10 <sup>-3</sup> |
| 1 kW                | 1000            | 1                    |

## Power

| To convert             | Multiply by |
|------------------------|-------------|
| Horsepower to Kilowatt | 0.736       |
| Kilowatt to Horsepower | 1.359       |