

**Appendix D - Conversion tables**
**D-1 Prefixes and their symbols**

|                      |                           |
|----------------------|---------------------------|
| da = deca = $10^1$   | d = deci = $10^{-1}$      |
| h = hecto = $10^2$   | c = centi = $10^{-2}$     |
| k = kilo = $10^3$    | m = milli = $10^{-3}$     |
| M = mega = $10^6$    | $\mu$ = micro = $10^{-6}$ |
| G = giga = $10^9$    | n = nano = $10^{-9}$      |
| T = tera = $10^{12}$ | p = pico = $10^{-12}$     |
| P = peta = $10^{15}$ | f = femto = $10^{-15}$    |
| E = exa = $10^{18}$  | a = atto = $10^{-18}$     |

**D-2 Basic variables and units in the international unit system (SI-units)**

| Basic variables           | Basic variables | Basic unit | Basic unit |
|---------------------------|-----------------|------------|------------|
| Name                      | Formal symbol   | Name       | Unit       |
| Length                    | l               | Metre      | m          |
| Mass                      | m               | Kilogram   | kg         |
| Time                      | t               | Second     | s          |
| Electrical current        | I               | Ampère     | A          |
| Thermodynamic temperature | T               | Kelvin     | K          |
| Amount of substance       | n               | Mole       | mol        |

**D-3 Units of length**

|                 | m         | $\mu\text{m}$ | mm        | cm        | dm        | km        |
|-----------------|-----------|---------------|-----------|-----------|-----------|-----------|
| 1 m             | 1         | $10^6$        | $10^3$    | $10^2$    | 10        | $10^{-3}$ |
| 1 $\mu\text{m}$ | $10^{-6}$ | 1             | $10^{-3}$ | $10^{-4}$ | $10^{-5}$ | $10^{-9}$ |
| 1 mm            | $10^{-3}$ | $10^3$        | 1         | $10^{-1}$ | $10^{-2}$ | $10^{-6}$ |
| 1 cm            | $10^{-2}$ | $10^4$        | 10        | 1         | $10^{-1}$ | $10^{-5}$ |
| 1 dm            | $10^{-1}$ | $10^5$        | $10^2$    | 10        | 1         | $10^{-4}$ |
| 1 km            | $10^3$    | $10^9$        | $10^6$    | $10^5$    | $10^4$    | 1         |

**D-4 Units of area**

|                   | $\text{m}^2$ | $\mu\text{m}^2$ | $\text{mm}^2$ | $\text{cm}^2$ | $\text{dm}^2$ | $\text{km}^2$ |
|-------------------|--------------|-----------------|---------------|---------------|---------------|---------------|
| 1 $\text{m}^2$    | 1            | $10^{12}$       | $10^6$        | $10^4$        | $10^2$        | $10^{-6}$     |
| 1 $\mu\text{m}^2$ | $10^{-12}$   | 1               | $10^{-6}$     | $10^{-8}$     | $10^{-10}$    | $10^{-18}$    |
| 1 $\text{mm}^2$   | $10^{-6}$    | $10^6$          | 1             | $10^{-2}$     | $10^{-4}$     | $10^{-12}$    |
| 1 $\text{cm}^2$   | $10^{-4}$    | $10^8$          | $10^2$        | 1             | $10^{-2}$     | $10^{-10}$    |
| 1 $\text{dm}^2$   | $10^{-2}$    | $10^{10}$       | $10^4$        | $10^2$        | 1             | $10^{-8}$     |
| 1 $\text{km}^2$   | $10^6$       | $10^{18}$       | $10^{12}$     | $10^{10}$     | $10^8$        | 1             |

**D-5 Units of volume**

|                 | $\text{m}^3$ | $\text{mm}^3$ | $\text{cm}^3$ | $\text{dm}^3 = 1 \text{ l} = 1 \text{ Litre}$ | $\text{km}^3$ |
|-----------------|--------------|---------------|---------------|---|---------------|
| 1 $\text{m}^3$  | 1            | $10^9$        | $10^6$        | $10^3$  | $10^{-9}$     |
| 1 $\text{mm}^3$ | $10^{-9}$    | 1             | $10^{-3}$     | $10^{-6}$                                     | $10^{-18}$    |
| 1 $\text{cm}^3$ | $10^{-6}$    | $10^3$        | 1             | $10^{-3}$                                     | $10^{-15}$    |
| 1 $\text{dm}^3$ | $10^{-3}$    | $10^6$        | $10^3$        | 1   | $10^{-12}$    |
| 1 $\text{km}^3$ | $10^9$       | $10^{18}$     | $10^{15}$     | $10^{12}$                                     | 1             |

## Appendix D - Conversion tables

### D-6 Units of mass

|            | kg        | mg     | g         | dt        | t = Mg    |
|------------|-----------|--------|-----------|-----------|-----------|
| 1 kg       | 1         | $10^6$ | $10^3$    | $10^{-2}$ | $10^{-3}$ |
| 1 mg       | $10^{-6}$ | 1      | $10^{-3}$ | $10^{-8}$ | $10^{-9}$ |
| 1 g        | $10^{-3}$ | $10^3$ | 1         | $10^{-5}$ | $10^{-6}$ |
| 1 dt       | $10^2$    | $10^8$ | $10^5$    | 1         | $10^{-1}$ |
| 1 t = 1 Mg | $10^3$    | $10^9$ | $10^6$    | 10        | 1         |

### D-7 Units of time

|           | s                 | ns                   | $\mu$ s           | ms                | min                    |
|-----------|-------------------|----------------------|-------------------|-------------------|------------------------|
| 1 s       | 1                 | $10^9$               | $10^6$            | $10^3$            | $16,66 \cdot 10^{-3}$  |
| 1 ns      | $10^{-9}$         | 1                    | $10^{-3}$         | $10^{-6}$         | $16,66 \cdot 10^{-12}$ |
| 1 $\mu$ s | $10^{-6}$         | $10^3$               | 1                 | $10^{-3}$         | $16,66 \cdot 10^{-9}$  |
| 1 ms      | $10^{-3}$         | $10^6$               | $10^3$            | 1                 | $16,66 \cdot 10^{-6}$  |
| 1 min     | 60                | $60 \cdot 10^9$      | $60 \cdot 10^6$   | $60 \cdot 10^3$   | 1                      |
| 1 h       | 3600              | $3,6 \cdot 10^{12}$  | $3,6 \cdot 10^9$  | $3,6 \cdot 10^6$  | 60                     |
| 1 d       | $86,4 \cdot 10^3$ | $86,4 \cdot 10^{12}$ | $86,4 \cdot 10^9$ | $86,4 \cdot 10^6$ | 1440                   |

### D-8 Units of force (weight)

|      | N <sup>(1)</sup> | kN        | MN        | (kp)               |
|------|------------------|-----------|-----------|--------------------|
| 1 N  | 1                | $10^{-3}$ | $10^{-6}$ | 0,102              |
| 1 kN | $10^3$           | 1         | $10^{-3}$ | $0,102 \cdot 10^3$ |
| 1 MN | $10^6$           | $10^3$    | 1         | $0,102 \cdot 10^6$ |

<sup>(1)</sup> 1 N = 1 kg · m/s<sup>2</sup> = 1 Newton

### D-9 Units of pressure

|                               | Pa    | N/mm <sup>2</sup>     | bar                  | (1 kp/cm <sup>2</sup> ) | (Torr)           |
|-------------------------------|-------|-----------------------|----------------------|-------------------------|------------------|
| 1 Pa = 1 N/m <sup>2</sup>     | 1     | $10^{-6}$             | $10^{-5}$            | $1,02 \cdot 10^{-5}$    | 0,0075           |
| 1 N/mm <sup>2</sup>           | 106   | 1                     | 10                   | 10,2                    | $7,5 \cdot 10^3$ |
| 1 bar                         | 105   | 0,1                   | 1                    | 1,02                    | 750              |
| (1 kp/cm <sup>2</sup> = 1 at) | 98100 | $9,81 \cdot 10^{-2}$  | 0,981                | 1                       | 736              |
| (Torr) <sup>(2)</sup>         | 133   | $0,133 \cdot 10^{-3}$ | $1,33 \cdot 10^{-3}$ | $1,36 \cdot 10^{-3}$    | 1                |

<sup>(2)</sup> 1 Torr = 1 / 760 atm = 1,33322 mbar