

UNITS OF MEASUREMENT: HOW TO USE THEM CORRECTLY

In the **hotel and catering world**, the use of units of measurement and their abbreviations is very common. The problem is that **this language is often used incorrectly**, and the error is compounded when it is, moreover, accompanied by prefixes to indicate multiples or submultiples. A common example of this is the abbreviation of the term “kilowatts”, written as “Kw.” (upper case K and lower case w, with a full stop at the end), when according to the rules it should be just the opposite: “kW” (lower case k and upper case W, and without a full stop).

The legal system of units of measure applicable in Spain is the International System of Units (SI) adopted by the General Conference on Weights and Measures (CGPM) and applicable throughout the European Union.

At Fagor Industrial we would like to share with you some **basic rules for the correct use of the symbols for the units of measure**:

The symbols for the units of measurement are written in lower case except when they are derived from a proper noun, in which case the first letter is written in upper case. As an exception to the rule, the use of the letter L in upper case or l in lower case as symbols for litre is permitted to prevent confusion between the number 1 (one) and the letter l.

The symbols for the units of measurement are mathematical entities and not abbreviations, and therefore they are not followed by a full stop, unless at the end of a sentence, nor are they used in plural, nor are symbols for units mixed with the names of units in the same expression, as names are not mathematical expressions. Consequently, the symbols «kg.», «Kg.», «gr.», «grs.» and any other variant are not valid symbols.

Basic SI units (International System of Units)

| NAME | SYMBOL | BASIC MAGNITUDE |
|----------|------------|---------------------------|
| ampere | A | electric current |
| candela | cd | luminous intensity |
| kelvin | K | thermodynamic temperature |
| kilogram | kg | mass |
| metre | m | length |
| mole | mol | amount of substance |
| second | s | time |

Coherent derived SI units expressed in terms of base units

| NAME | SYMBOL | DERIVED MAGNITUDE |
|--------------------------|------------------------|-------------------|
| square metre | m² | surface area |
| cubic metre | m³ | volume |
| metre per second | m/s | velocity |
| metre per second squared | m/s² | acceleration |

Most frequent coherent derived SI units with special names and symbols

| NAME | SYMBOL | DERIVED MAGNITUDE |
|----------------|---------------|--|
| coulomb | C | amount of electricity, electric charge |
| farad | F | capacitance |
| degree Celsius | °C (1) | Celsius temperature |
| hertz | Hz | frequency |
| joule | J | energy, work, amount of heat |
| lumen | lm | luminous flux |
| lux | lx | luminance |
| newton | N | force |
| ohm | Ω | electric resistance |
| pascal | Pa | pressure, stress |
| radian | rad | plane angle |
| siemens | S | electric conductance |
| tesla | T | magnetic flux density |
| watt | W | power (2), radiant flux |
| volt | V | electric potential difference, electromotive force |
| weber | Wb | magnetic flux |

(1) A space is always used between the figure and the symbol «°». Example: «25 °C» and not «25°C» or «25° C».

(2) Special names for units of power: the name «volt-ampere», symbol «VA», to express the apparent power of alternating electric current; and the name «var», symbol «var», to express the reactive electric power. The name «var» is not included in the rulings of the General Conference on Weights and Measures.

Non-SI units accepted for use with the SI

The following table lists units that do not belong to the SI, the use of which is accepted, given that they are widely used in everyday life and each one has an exact definition in SI units.

| NAME | SYMBOL | MAGNITUDE |
|---------|-----------------|-------------|
| day | d | time |
| hour | h | time |
| Minute | min | time |
| degree | ° | plane angle |
| minute | ' | plane angle |
| second | " | plane angle |
| hectare | ha | area |
| litre | L, l (1) | volume |
| tonne | t | mass |

(1) The use of the letter L in upper case or l in lower case as symbols for litre is permitted to prevent confusion between the number 1 (one) and the letter l.

Some non-SI units exclusively applicable to specific sectors

| NAME | SYMBOL | MAGNITUDE |
|-----------------------|-------------|---------------------------------|
| ångström | Å | length |
| barn | a | area (esp. farming and estates) |
| bar | bar | pressure |
| decibel | dB | logarithmic ratio quantities |
| millimetre of mercury | mmHg | pressure |
| nautical mile | M | distance |
| neper | Np | logarithmic ratio quantities |
| knot | kn | velocity |

Multiples and submultiples

The symbols for prefixes are written in Roman characters (upright), as are the symbols of the units, irrespective of the type of font used in the adjacent text, and they are prepended to the unit symbols, without leaving a space between the prefix symbol and the unit symbol.

With the exception of «da» (deca), «h» (hecto) and «k» (kilo), all multiple prefix symbols are written in upper case and all the submultiple prefix symbols are written in lower case. All the names of the prefixes are written in lower case, except at the start of a sentence.

| SI PREFIX SYMBOLS FOR MULTIPLES | | |
|---------------------------------|--------------|--------|
| FACTOR | NAME | SYMBOL |
| 10^1 | deca | da |
| 10^2 | hecto | h |
| 10^3 | kilo | k |
| 10^6 | mega | M |
| 10^9 | giga | G |
| 10^{12} | tera | T |
| 10^{15} | peta | P |
| 10^{18} | exa | E |
| 10^{21} | zetta | Z |
| 10^{24} | yotta | Y |

| SI PREFIX SYMBOLS FOR SUBMULTIPLES | | |
|------------------------------------|--------------|--------|
| FACTOR | NAME | SYMBOL |
| 10^{-1} | deci | d |
| 10^{-2} | centi | c |
| 10^{-3} | mili | m |
| 10^{-6} | micro | μ |
| 10^{-9} | nano | n |
| 10^{-12} | pico | p |
| 10^{-15} | femto | f |
| 10^{-18} | atto | a |
| 10^{-21} | zepto | z |
| 10^{-24} | yocto | y |



F A G O R I N D U S T R I A L

Fagor Industrial S. Coop.
Bº Sancholopetegui, 22
Aptdo. 17
20560 Oñati (ESPAÑA)
Tel.: +34 943 71 80 30
Fax: +34 943 71 81 81
info@fagorindustrial.com

www.fagorindustrial.com
[twitter/fagorindustrial](https://twitter.com/fagorindustrial)
<http://www.fagorindustrial.com/blog/>

ONNERA GROUP

