

1.7 Units of measure

In the international system (SI) the physical and technical units are validated as follows :

Unit of length	:	Meter	(symbol m)
Unit of mass	:	Kilogram	(symbol Kg)
Unit of time	:	Second	(symbol s)
Unit of electrical current	:	Ampère	(symbol A)
Unit of temperature	:	Kelvin	(symbol K)
Unit of luminosity	:	Candle	(symbol cd)

Pressure

Old measuring units :

Kilopond per cm ²	Kp/cm ²
Meter of water column	mH ₂ O
Millimeter of mercury column	mmHg
Metric Atmosphere	at
Atmosphere	atm

They were replaced in the SI from Pascal.

One Pascal corresponds to the pressure of 1 Newton, which is acting on the area of 1 m².

$$1 \text{ Pascal} = 1 \text{ N/m}^2$$

Unit Pa is a very low value and for standard industrial applications, the Bar (symbol bar) is used.

$$1 \text{ bar} = 0.1 \text{ MegaPascal (symbol Mpa} = 1.000.000 \text{ Pa)}$$

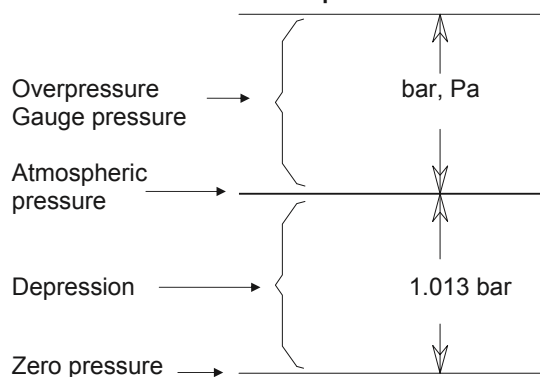
The conversion from the old unit of measure to the new one (SI) is the following :

$$1 \text{ Kp/cm}^2 = 0.981 \text{ bar}$$

$$1 \text{ bar} = 1.02 \text{ Kp/cm}^2$$

The conversion in the SI unit is also possible where the metric system is not yet used.

$$\begin{aligned} \text{Conversion : } 1 \text{ bar} &= 14.50 \text{ psi} \\ 1 \text{ psi} &= 0.07 \text{ bar} = 7.000 \text{ Pa} \end{aligned}$$



Pressure values, except specific references, are referred to the atmospheric pressure