

# Humidity measurement technology

## Absolute humidity, g/m<sup>3</sup>

Absolute humidity indicates how many grammes of water are in a cubic metre of air or gas.

## Relative humidity, %RH

Relative humidity is a % figure indicating how many percent of the maximum amount of water vapour is currently in the air. The maximum possible amount depends mainly on the temperature. Relative humidity always refers to a temperature.

## Psychrometer wet-bulb temperature, °C

Evaporation causes cooling. The temperature in a thermometer drops if enclosed in a damp cloth on account of the cold due to evaporation. Evaporation depends on the surrounding relative humidity and air velocity. A second thermometer, stored in a dry place, can measure the difference in temperature.  
Unit: [°C, °F]

## Testo humidity sensor

Testo has succeeded in increasing the range of applications for capacitive sensors with the humidity sensor which it developed:

## Degree of humidity X

The degree of humidity X is defined as the mass ratio of water to air (dry gas). Unit: [g/kg]

## Dew point, td

The dew point is a temperature value given in °C. As the temperature sinks, the ability of the air or gases to bind water is reduced. The dew point is the temperature at which the water is condensed.

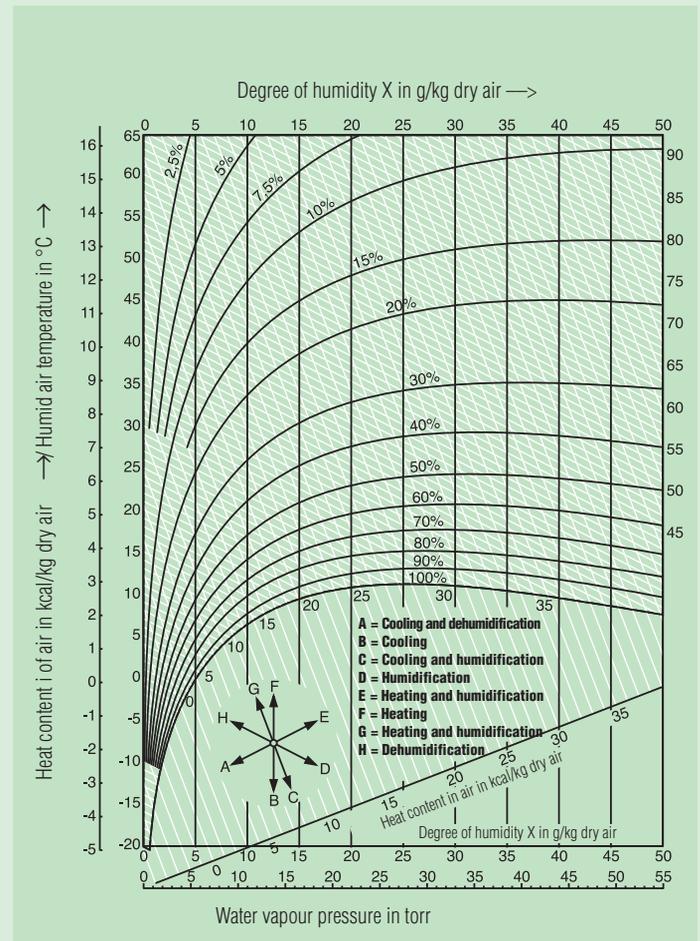
## Partial pressure in water vapour, pas

Level of overall pressure in a room which can be determined by the water vapour. Unit: [mbar, hPa]

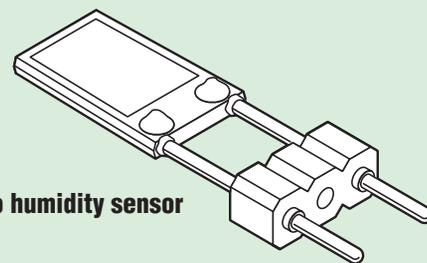
## Enthalpy, heat content, i

The heat content is the heat energy which the moist air has saved. The energy is set to 0 at 0°C. Enthalpy is important for calculating cooling and heating capacity. Differential measurements e.g. in front of and behind heat exchangers are of particular interest.

## Mollier diagram



All of the parameters from the Mollier diagram are automatically shown by testo 650.



Testo humidity sensor

- Application temperatures to +180 °C
- Dew point measurement from -50 to +100 °C
- Long-term measurement under extreme conditions

- Highly accurate in the high humidity range (>95%RH)
- Precision
- Long-term stability
- Temperature resistance
- Robustness

The outstanding characteristics of the Testo humidity sensor are as follows: