Definition of terms

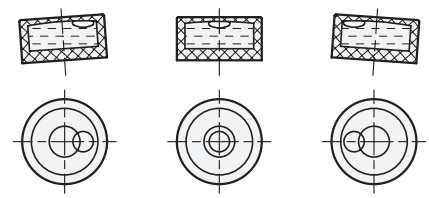
A spirit level is a hollow body filled with a fluid and a gas bubble which is used to check the horizontal position of an object.

Types of spirit levels

Spirit levels are available as bull's eye, screw-on or cross spirit levels.
The bubble in a bull's eye spirit level simultaneously indicates the direction and the angle of inclination in the horizontal plane.
Screw-on spirit levels only indicate the angle of inclination along the spirit level axis, with no indication of the overall inclination or its direction with respect to the horizontal plane.
Cross spirit levels contain two horizontal spirit levels situated at a 90° angle to each other. This allows them to simultaneously indicate the direction and angle of inclination, with separate indication of the X and Y components.

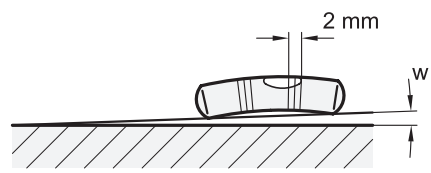
The function

It is easy to explain how a bull's eye spirit level works. The hollow body containing the fluid and the gas bubble has a defined radius on its top side, causing the gas bubble to always float to the highest point due to its buoyancy.
The transparent upper section normally bears markings or a circle centered on the middle position. If the gas bubble is centered precisely inside the marking, the object to be checked (or the reference surface of the spirit level) is in the horizontal position.



Sensitivity

The sensitivity of spirit levels is given as angle of inclination, e.g. 30 angular minutes or 0,5 degrees. This is the angle of inclination by which the spirit level must be tilted to make the bubble move by 2 mm. A spirit level with a sensitivity of 6 angular minutes therefore has a higher sensitivity than a spirit level with a sensitivity of 30 angular minutes.



Angle of inclination and difference in altitude

Sensitivity is sometimes also given in millimeter per meter, i.e. as difference in altitude per unit of length.
See also the reference table opposite.

Difference in altitude	Angle w	
in millimeter per meter	in angular minutes	Degree, decimal
0,3	1	0,0167
0,9	3	0,0500
1,7	6	0,1000
2,9	10	0,1667
5,8	20	0,3333
8,7	30	0,5000
11,6	40	0,6667
14,5	50	0,8333
17,5	60	1,0000

UV Resistance

If spirit levels are subjected to UV radiation, such as sunlight or daylight, for prolonged periods, the green transparent filling can fade, making the spirit levels harder to read.