Measuring Principles Temperature

Bimetallic Dial Thermometer

The measuring element consists of two metal tapes welded together. The tapes having different coefficients of thermal expansion. The coiled measuring element is fixed at the end of the stem; the other side being connected to the pointer axle. The bimetal stretches or bends itself in case of change in temperature, causing the coiled element into a turning movement. This movement is proportional to the change in temperature and is indicated on a dial. Bimetal dial thermometers are used for temperatures from -50 Deg.c up to + 500 Deg.c. Accuracy is +/- 1.6% of full scale deflection.

Gas-filled Dial Thermometers

The measuring principle is based on the volumetric temperature expansion of the gas filling in the measuring element. The measuring element is firmly connected by a capillary tube with a measuring spring. The spring transfers the expansion of the gas filling by a movement on a dial. Gas-filled dial thermometers are used for temperatures from -80 Deg.c. to + 600 Deg.c. Accuracy is +/- 1% of full scale deflection. Gas-filled dial thermometers can be supplied with an extension line between measuring element and measuring spring of up to 100 m length.

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