

## Equipment for Pressure Measurements

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## Pressure control in the system is performed by installing a series of pressure meters on the pipeline. By monitoring the pressure, it can be assessed in what section of the pipeline the defect is located. Sudden pressure drop is a direct indicator that the flow has increased and it usually represents a defect.

Water Utilities which have a hydraulic model of their system can, at each node point, among other things, check the pressure value in conditions when the pipeline is defect-free. In that manner, by performing theoretical and real pressure analysis, an idea of water system efficiency is created.

Law on outflow through the openings can be presented as follows:

$$q = c \times \sqrt{2p}$$

in which case:

- $q$  ♦ outflow through the opening,
- $c$  ♦ loss coefficient, and
- $p$  ♦ pressure value at the opening.

Devices for pressure measurements are called Manometers. Manometer operates on the principle that the pressure from the pipeline is transmitted through the pressure gauge tube and elevates the gauge liquid.

If we have a measurement system comprising of transducer or electric component which can continuously measure and record metered pressure value, than such a device is called pressure probe. Transducer component of the probe translates a physical pressure value into analog voltage which is received on a data logger from where the data transfer into the PC can be performed. Transfer into the PC can only be done with the assistance of the right cable (mostly with RS 232 connection) or remote radio transmission.



The simplest pressure probe is a so-called ♦pressure meter with circular chart or as the majority of users wrongly call it a ♦tachograph♦ because the chart it uses is very similar to the charts for widely used device called ♦tachograph♦ which records car or truck speed (tacho ♦ speed?!).



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The device consists of a connection which is installed on the tap. Instead on the data logger, recordings are made on a circular chart which is previously inserted into the device which actually represents a clock mechanism. The chart is calibrated at 24h and during its insertion into the mechanism, and the needle is placed on the point which represent the time when the measurement started.