White Paper - dispensing quality measurement

The flowplus^{16} is an inline fluid sensor for monitoring the pressure of adhesive, coating or other material being dispensed or dosed. By understanding changes in pressure of material flow, consistency or other quality issues (like blockages or air inclusions) can be identified in order to produce consistent dosing results and dispensing quality.

In this White Paper *The flowplus^{16} Pressure Sensor – Physical Principles and Function*, our sales partner ViscoTec explain how the sensor works by using a piezoresistive principle to accurately measure the fluid pressure.

The White Paper can be downloaded from our Technical Resources page.

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flowplus16 by ViscoTec

WHITEPAPER

The flowplus[16] Pressure Sensor

Physical Principles and Function

Sensors (from the Latin "Sensire") are devices by means of which it is possible to detect physical or chemical properties of materials. As human beings, we are not able to perceive these properties accurately (e.g. pressure), without technical assistance, and therefore only estimate them. For this reason, measuring devices in the form of sensors, transform these properties into readable quantities which can be processed further.

Pressure sensors are measuring devices for recording pressure as a physical quantity. Such sensors can be found in various aspects of life, e.g. in microphones, height measuring devices, motors or as a trigger switch for airbags. Due to its unique geometry, the flowplus[16] pressure sensor is specially designed for the detection of pressure in dosing technology. The flowplus[16] pressure gauges are therefore the first element of a measuring chain that transforms the physical quantity of pressure (force per surface) into an electrical output as a measure of the pressure. The SI unit for pressure is Pascal (Pa). In addition to Pa, the bar (bar) is also approved in accordance with DIN 1301.

If the pressure is measured in liquids, it is found that the fluid cannot be compressed (or almost compressed) by mechanical stress. If, for example, a force is exerted on a liquid which is contained in a closed container, the volume of the liquid remains unchanged. However, a "counter-pressure" builds up inside the liquid, which compensates for the external force (see figure 1).

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