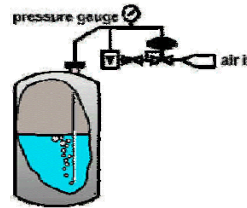


Air Bubbler Technology Overview

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Air Bubbler Theory

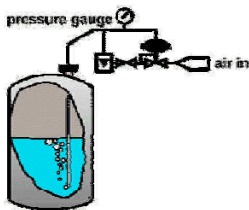


- ▼ A constant flow of pressurized air is applied to a tube.
- ▼ A pressure transducer monitors the air pressure in the tube

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Air Bubbler Theory

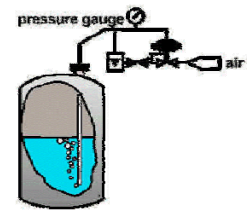


- ▼ The pressure in the tube is equal to the pressure at the bottom of the tank.
- ▼ The liquid level equals the pressure in the tube divided by the density of the liquid.

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Air Bubbler Theory



- ▼ As long as the material density remains constant, the pressure is proportional to the liquid level in the tank.

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Air Bubbler Advantages

- ▼ Not affected by foam or turbulence
- ▼ Can be used in small diameter pipes
- ▼ Easy to understand / old technology
- ▼ Large installed base

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Air Bubbler Disadvantages

- ▼ Contacting technology
- ▼ Bubbler line is subject to clogging
- ▼ Higher power consumption than Ultrasonic systems
- ▼ Requires periodic maintenance.
- ▼ Accuracy is dependent on a constant air supply

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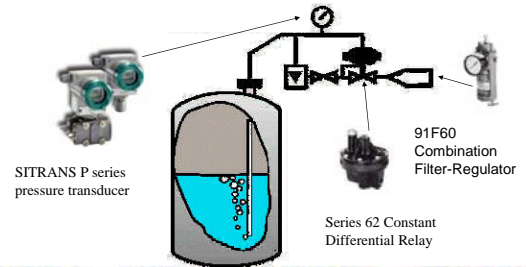
Common Applications

- ▼ Determine head thru a Flume or Weir
- ▼ Level in a Lift Station
- ▼ Tank level when foam is present
- ▼ Can be used with atmospheres other than air.

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The SIEMENS Solution



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91F60 Combination Filter-Regulator



- ▼ Provides constant flow of clean dry air.
- ▼ Range from 1 – 60 psig
- ▼ Not required if customer has existing regulator / filter

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Series 62 Constant-Differential Relay



- ▼ Provides constant volumetric rate of air flow
- ▼ Eliminates the effects of variations in the plant air supply
- ▼ 62VNA model includes Rotometer for air flow indication

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SITRANS P Pressure Transmitters



- ▼ Gage Pressure Transmitters used for vented or open top vessels
- ▼ Differential Pressure Transmitters used for pressurized or sealed vessels

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Pressure Transmitter Types

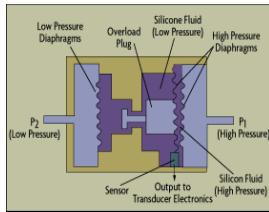


- ▼ Absolute Pressure references to full vacuum
- ▼ Gauge Pressure references to atmosphere
- ▼ Differential Pressure references to a second pressure input

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Pressure Transmitter Operation

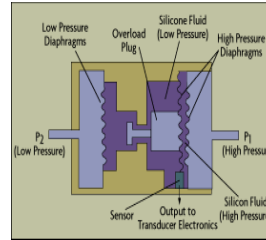


- ▼ Process pressure is applied to the high pressure diaphragm
- ▼ Reference pressure is applied to the low pressure diaphragm
- ▼ Pressure changes cause deflection in the diaphragms

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Pressure Transmitter Operation

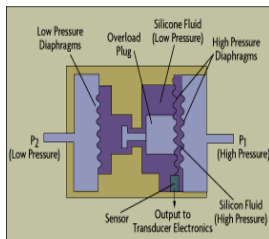


- ▼ The deflection of the high and low pressure diaphragms is transmitted thru Silicon Fluid to the Measuring Diaphragm Sensor.
- ▼ This deflection causes the Measuring Diaphragm Sensor to flex.

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Pressure Transmitter Operation



- ▼ The Measuring Diaphragm Sensor is a resistive bridge circuit.
- ▼ When the Measurement Diaphragm is flexed, resistance changes result in a voltage output change proportional to pressure.

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