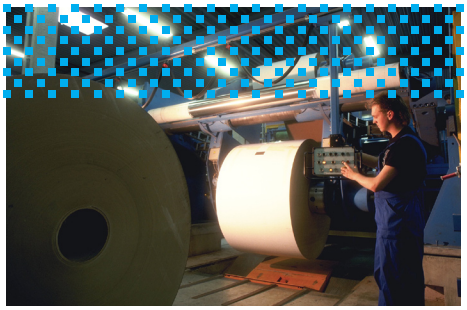
Level | Pressure | Flow | Temperature | Liquid Analysis | Registration | Systems Components | Services | Solutions

Hydrostatic Level Measurement in Paper Mill

Cerabar S PMC71 Ceraphire™ ceramic pressure transmitters handle physical abuse in knot drainer/separators.

Typical paper plant

PMC71 with extended barrel flange



Large paper rolls

Ceramic pressure transmitters withstand physical abuse much better than metal diaphragms and can be replaced easily if damaged.

Customer profile

The world's leading producer of coated fine paper and chemical cellulose

Application description

Measuring level in a knot drainer/separator used in paper production
Process material: Black liquor containing wood knots, rocks, and sand
Temperature: 170°F
Controlled Level: 18"
Level Range: 0" to 60"

Application Challenges

The customer previously used a competitor's metal diaphragm pressure transmitter to measure level in their knot drainer/separator. During the draining and separating process, small wood knots, rocks and sand make their way through the screen from the inner chamber into the outer chamber where the pressure transmitters is located. Over the course of time, these solid particles damage the metal diaphragm. The lifespan of a metal diaphragm pressure transmitter in this application ranges from only a few weeks to a few months.

Solution

The customer replaced the competitor's metal diaphragm pressure transmitter with the PMC71 ceramic diaphragm pressure transmitter, with an extended barrel flange.

Instrument description

The Cerabar S PMC71 with Ceraphire ceramic diaphragm technology provides highly accurate and stable pressure measurements in difficult gage or absolute pressure applications. The dry (no fill fluid) ceramic sensor accurately measures deep vacuums at elevated temperatures without damage to the diaphragm. The Ceraphire ceramic material used in the sensor is 99.9% pure aluminum oxide (Al2O3) for best-in-class chemical compatibility. The physical durability of the ceramic sensor makes it ideal for abrasive slurries or applications requiring frequent cleaning of buildup on the diaphragm. With a wide variety of process connections and materials to choose from, the Cerabar S PMC71 can be customized for almost any application.

Results

The PMC71 ceramic pressure transmitter has a longer lifespan in this application than the previous metal diaphragm transmitters. Not only is the Ceraphire ceramic impervious to the corrosiveness of the black liquor but it also withstands the physical abuse from the entrained solid particles much better than a metal diaphragm. There are several benefits to the customer:

1. Cost savings from replacing ceramic sensors instead of entire pressure transmitters. Due to the modular design of the PMC71 pressure transmitter, the ceramic sensing element may be replaced by itself if the ceramic sensor is permanently damaged from physical forces. The flange, housing and electronics may all be re-used.
2. Cost savings from no longer replacing metal diaphragm transmitters frequently.
3. Reduced process downtime since the ceramic sensor pressure transmitters last longer than the metal diaphragm pressure transmitters in the application without failing.

For more information, contact
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