POWER GENERATION
COAL PULVERIZER PRIMARY AIR

The Kurz K-Bar 2000B Multi-Point Insertion Mass Flow Meter system provides accurate, repeat-able & reliable measure-ments of primary air used to properly dry and convey the pulverized coal to the burners

KURZ INSTRUMENTS INC.™

complex technology
MADE SIMPLE

Power Generation: Coal Pulverizer Primary Air Measurement & Control

Benefits of the Kurz Solution

- *Easy Installation*
- *Extremely Low Maintenance even Under Harsh Conditions*
- *Rugged and Accurate Dual Sting Sensors*
- *High Repeatability*
- *Accurate and Reliable readings in Low Velocity High Turndown Situations*
- *Process Temperatures up to 500°C*

Power Generation Combustion Air Measurements

The need for accurate, repeatable & reliable combustion air measurements in power generation plants is critical to efficient operation and safety throughout the entire facility and processes. Coal-fired power plant applications pose a number of challenges to obtaining these critical flow measurements including large ducts, limited metering runs, poor velocity and temperature profiles, high vibration, temperatures up to 750° F and dirty "Fly Ash" laden air.

Customer Application and Performance Issues

A Midwest Coal Fired Power Plant operated a 175 MW Wall-Fired Boiler and used Pitot Tube/Dp technology to measure & control the Primary Air into the Bowl Mill Pulverizer.

This traditional measurement technology resulted in:

- Unreliable and non-repeatable Dp/Air Flow measurements
- Very Low/Unstable Dp measurement (.03" WC) at low fire conditions
- Regular Maintenance/Cleaning of the Pitot Tubes
- Pinching off of the Mill Classifiers to meet desired coal fineness
- Mill "Puffs" which started out as non-destructive and got worse resulting in $1,000,000 damage to the Burners

The Kurz Solution

In this application, the key to developing a stable, reliable and maintenance-free measurement system was achieved with the installation of a Kurz K-Bar 2000B Multi-Point Insertion Mass Flow Measurement System on the Hot and Cold Primary Air Ducts.

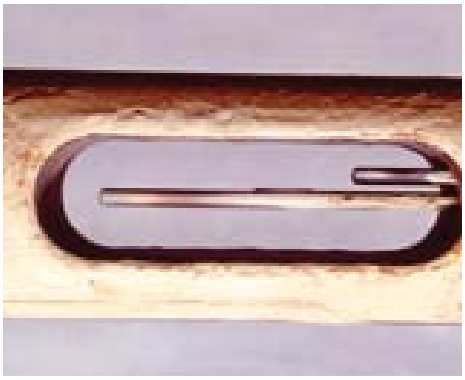
The Hot Air Ducts had (3) Multi-Point K-Bar 2000B Probes and the Cold Air Duct had (2) K-Bar 2000B Velocity Probes installed. The (9) Velocity Sensors in the Hot Air Duct and (6) Velocity Sensors in the Cold Air Duct were equally spaced to provide an average velocity across the flow area.

Performance Results with the Kurz Solution

As a result of the Kurz K-Bar 2000B Multi-Point Velocity Sensor System, the plant was able to:

- Achieve a Reliable & Repeatable flow measurement system.
- Improve measurement Turndown, Accuracy and confidence in the air flow measurements
- Eliminate maintenance time needed to clean the Pitot Tubes/Dp impulse lines.
- Lower the Primary Air Flow and Increase the opening of the Classifiers for better pulverized coal fineness control
- Eliminate the risk of "Mill Puffs" by running at proper Fuel/Air Ratios

This photo shows the typical fly ash buildup on the downstream side of the K-Bar 2000B Sensor Support Tube.



This photo shows the Velocity Sensor Window and Sensor Element remains clean and free of ash buildup. Thereby, Sensor/ System performance is maintained and downtime for maintenance is virtually eliminated.

Kurz Velocity Sensor Technology

The Kurz K-Bar 2000B contains Fast Dual Metal Clad™ mass flow sensors that use reference grade platinum RTD's with 0.25% repeatability. This coupled with the extremely high signal-to-noise ratio of the constant temperature electronic circuitry produces the most repeatable flow signal available in the industry. Our rugged and reliable FD "Dual Sting" flow sensor has repeatedly proven to work with little maintenance in "very dirty and hot" Combustion Air and Stack flow applications. And unlike many other devices will not plug or jam and can operate in low velocity high turndown applications while providing stable, reliable and repeatable velocity/flow measurements.

About Kurz Instruments

Kurz Instruments has maintained a reputation for designing and manufacturing Thermal Mass Flow Transmitters for industrial air and gas flow applications. Our engineers, product development specialists and management staff have developed products to operate in the harshest of environments. For more than 30 years, our entire team has provided solutions to our customers most demanding and difficult applications.

Kurz products are used in a wide variety of industrial applications including combustion air, aeration air flow and digester gas, nuclear power plants, pump protection, flare stack monitoring and compressed air, to name only a few.

Kurz headquarters is located in Monterey, California, and in addition, Kurz offers advanced services through Kurz Technical Services based in Tennessee.

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