



Last week in Series 2 of 5, we discussed our fabricated products for improved pulverizer performance. This week we discuss Airflow Management and Control in Series 3 of 5. Over the next few weeks STORM will continue this series. In case you missed last week's, or to get an outline of the information to come in the next couple weeks, below is a summary of each series:

[Series 1: Shop Services](#)

[Series 2: Pulverizer Performance Components](#)

[Series 3: Airflow Management and Control](#)

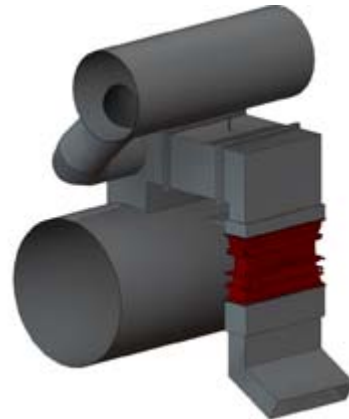
[Series 4: Troubleshooting Tools and Planning](#)

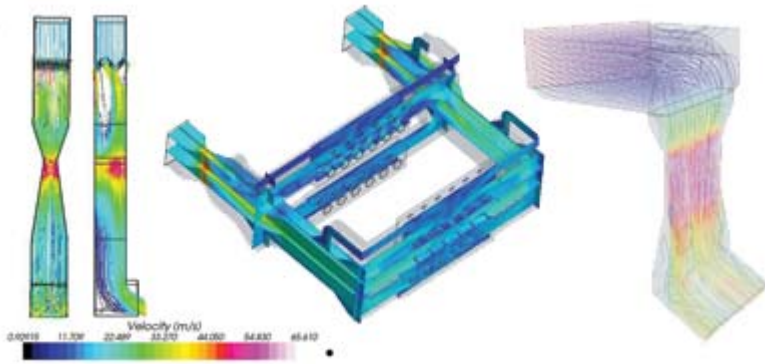
[Series 5: Post Outage Monitoring](#)

We have experience in design, fabrication and calibration of many different airflow measurement devices for all boiler types (pulverized coal, CFB, stoker, gas/oil, etc.). We frequently find that plants are unaware of poor airflow management and control. A good first step to good air management is metering and properly distributing the air. We have found that measurement of primary air is critical to boiler optimization and control of the primary air should be within $\pm 3\%$. Because many other optimization steps assume accurate measurement of primary air, air metering and control should be one of the first steps in the optimization of any boiler type.

Accurate measurement of the secondary and overfire airflow is equally important as the primary airflow measurement in achieving optimum combustion. Accurate secondary airflow measurement is needed to supply equal amounts of airflow to each burner compartment for proper staging and tuning of the unit to reduce slagging and optimize performance. Unequal distribution of the secondary airflow will cause high furnace exit gas temperatures and secondary combustion, which will cause overheating problems in the back-pass as well as poor unit performance.

Storm has designed, fabricated and tested many venturis for various applications in addition to performing testing on systems with various airflow measurement devices. While all airflow measurement devices seem to have some distinct advantages, Storm strongly favors a properly designed venturi, for utility and industrial applications. The major challenge in utility and industrial applications is a dust laden flow stream. Averaging pitot tubes or other types of low pressure measurement devices protrude into the flow stream, which in a clean environment is not an issue. However, in streams with even minimal dust loading this results in erosion. Pitot tubes also have the pressure taps/holes located within the gas stream which often plug, causing the differential pressure indication to drift over time providing inaccurate indication. Storm venturis utilize a skin tap upstream of the venturi (high pressure) and a skin tap within the venturi throat (low pressure) therefore there are no pressure measurement protrusions into the flow stream. Therefore erosion and pluggage are not likely to occur. The skin taps sized and oriented to minimize plugging, resulting in a differential pressure signal which does not drift over time. Storm venturis utilize a reliable differential pressure range resulting in a much smoother and accurate flow indication across the flow range with more indication resolution. Although the DP is slightly higher with a Storm venturi they are designed such that minimal non-recoverable pressure drop occurs. Each Storm airflow measurement device is custom designed and manufactured to obtain the best accuracy and reliability possible for the given location.





In addition, Fabricated Solutions is an ASME code fabricator accredited with “S”, “U” and “R” code stamps per applicable codes should plants have need for code work to be completed. The symbols below (S, U and R) provided by ASME and National Board are strictly for clarification of the stamps held by Fabricated Solutions, LLC in accordance with the ASME and National Board applicable rules.

FABRICATED
SOLUTIONS



Storm Technologies and Fabricated Solutions are:

- Customer Service Driven
- Results Oriented
- No one works harder to provide the best quality, services or products

Give Storm/Fabricated Solutions a chance to exceed your expectations!

**411 North Depot St. Albemarle, NC 28001
Phone: (704) 983-2040 Fax: (704) 982-9657**