



# STORM®

*Specialists in Combustion and Power*



## Airflow Management and Measurement

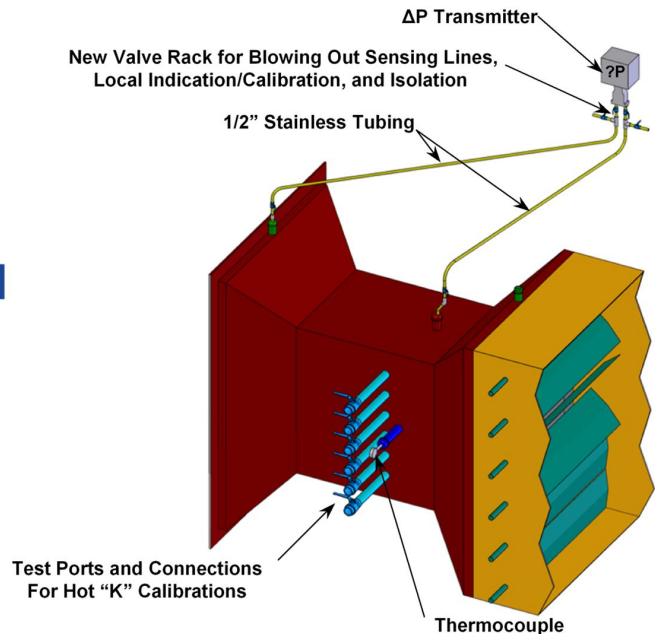
*WHAT IS THE PREFERRED WAY TO MEASURE AIRFLOW?*

### MEASUREMENT IMPORTANCE

In most cases, the primary, secondary, and over fire air (OFA) is either relative or assumed and not accurately measured and controlled across the entire load range. Sometimes the flow is either in a percentage and/or not even temperature corrected if it has an indication at all. In our example, we have proven over and over that a venturi and/or flow nozzle is the best method for the desired accuracy and repeatability in airflow measurement. Un-recovered pressure drop is the only draw back to these devices; however with proper location and design the majority of the pressure drop can be recovered if adequate space is available. We have found that the accuracy and controllability of a unit is much more important than saving a couple of inches of water pressure drop. However, in most cases, this was only a slightly greater opening on the control dampers and there is no downfall.

With inaccurate indication and control of the Primary, Secondary or OFA airflow, it can easily cause a unit to have poor fuel and air mixing distributions, high NO<sub>x</sub> and LOI, high furnace exit gas temperatures, slagging, poor fuel fineness & balance, excessive re-heat & super-heat sprayflows, etc...

We have seen and tested numerous types of Hot Wire Anemometers, low differential pressure type devices with flow straighteners, and various other averaging Pitot tube arrays. Based on our testing of these components, we have found significant errors from normal operating conditions. This type of device is generally calibrated in a laboratory and not real operating conditions. In addition, they operate on very low differential pressures, and minimal noise can impact indication significantly. Field testing on these devices has found significant indication errors under operating conditions. In addition, these probes and/or straightening devices are more likely to plug with the lower differential & velocities and change over time.



Let STORM® help design and provide your plant with accurate and reliable airflow measurement devices for any location and Real Operating Conditions.

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