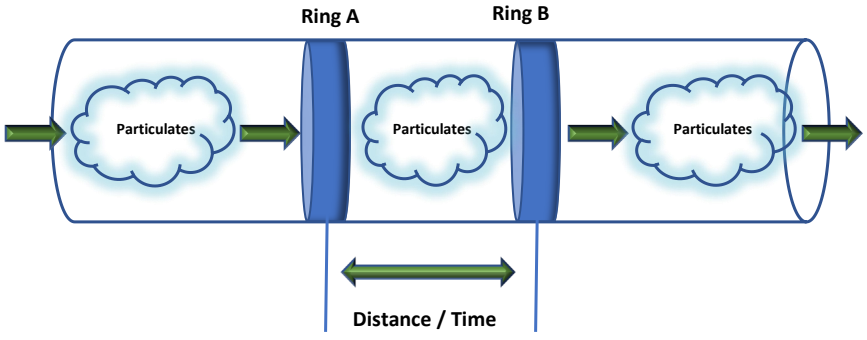
Dry Solid Particle Velocity Monitor

In dust collection systems and in conveying of dry particulate material there is a need to maintain a specific minimum or maximum velocity to insure proper operation. Many industrial processes would benefit from a reliable velocity reading, however, monitoring actual velocity has always been somewhat of an art form rather than a technical accuracy. To meet this need, Auburn Systems designed and developed the industry's first dry particulate velocity sensor using our patented triboelectric technology.

Most commonly, pipe line air velocity is calculated based on perceived or measured flow, actual or estimated pressure along the route, and then operated accordingly. However, when pipes or ducts are dust laden or even have small amounts of dust in the process, traditional air flow velocity sensors cannot monitor in those conditions.

Using two probes, either intrusive, or non-intrusive, we use a cross correlation technique to sense the triboelectric signature from the particulate as it passes by each of our probes. Flush-mounted ring sensor arrays provide for non-intrusive measurement and a variety of connection designs allows for easy insertion into standard pneumatic conveying lines. The result is a very accurate particle velocity.

Velocity by Cross Correlation Technique



To control velocity, *measure velocity*!

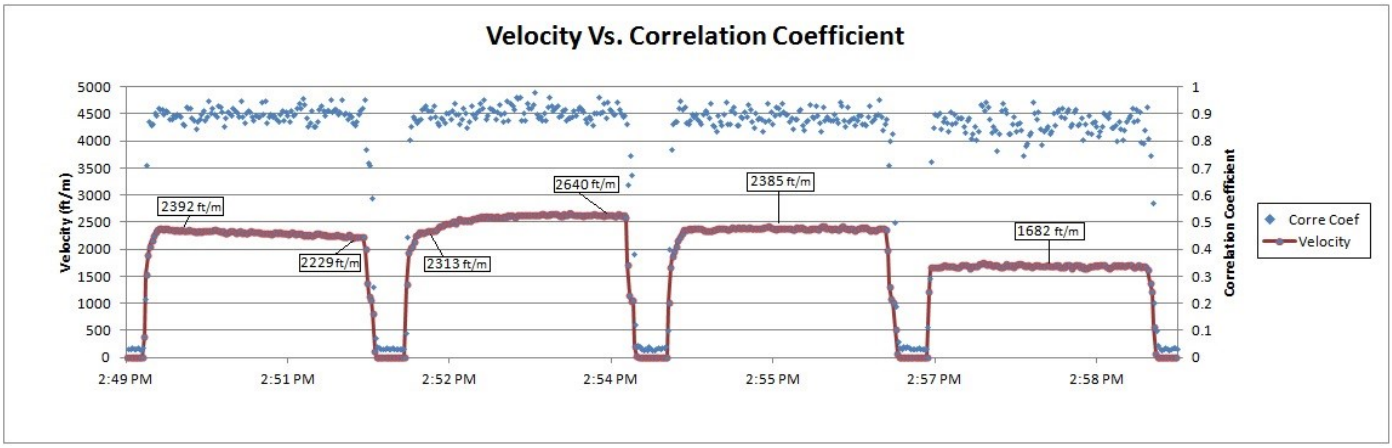
Auburn System's TRIBO.*hs* 5000

Application benefits include:

- Helps to identify actual optimum velocity in practice
- Improves productivity, reduces downtime
- Improves product quality, reduces scrap
- Holds operating energy cost to optimum levels

TRIBO.*hs* 5000™

TRIBO.*hs* Model 5000 outputs include analog and digital options to monitor flow and alarm conditions. Connected back to the air supply it can control the actual particle velocity within the specified range.



ELECTRONICS SPECIFICATIONS	
Electronic Enclosure	Cast aluminum, electrostatically applied powder coating, NEMA 4X/7/9 with ¾" NPT female conduit hubs
Power	10—32 VDC standard
Power Consumption	6 Watts maximum load
Operating Temperature	-4° - +158° F (-20° - +70° C)
Humidity Range	0 - 95% relative; non-condensing
Dynamic Range	1 pA - 5,000,000 pA - standard
Device Variables:	Velocity (m/s), Correlation Coefficient (0.1—1.0), pico amp signal (pA), etc.
Output	4 channel isolated 4-20mA outputs, HART RS485 interface with MODBUS RTU support
SENSOR SPECIFICATIONS	
Sensor Probe	Dual Isolated Probe Design
Insulation	Material based on design specifications (I.e., Delrin, -20° - +180°F (-29° - +82°C); High Performance PFA, -40° - +450°F (-40° - +232°C); etc.)
Probe Configuration	Multiple configurations, including non-intrusive ring sensor design
Wiring Connections	Dual low-noise coaxial cable connections
Pipe/Duct Connections	In-line, quick release, flanged, and other options available

Auburn manufactures a complete line of electrostatic/triboelectric bag leak detectors, emission monitors, flow/no flow detectors and solids flow monitors to effectively measure particulate emissions and dry solids flow from a wide variety of industrial processes.

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