



THERMAL FLOW METERS PROVIDE ADVANTAGES FOR THESE APPLICATIONS:

- Air
- Combustion Air
- Compressed Air
- Cooling Air
- Dryer Air
- Leak Detection
- Purge Air
- Seal Air
- Wastewater Aeration
- Ventilation



Figure 1: Thermal mass flow meters excel in air flow measurement for compressed air, blowers, combustions air, cooling air, dryer air and wastewater aeration.

THERMAL FLOW METERS HELP WITH ACCURATELY MEASURING AIR FLOW

Accurately measuring air flow for improved systems monitoring.

Fitting your systems with accurate air flow meters is an effective first step in controlling energy costs. As the price of power continues to rise, many plant managers are using sensor data collected by air flow meters to assist in improving control of compressors, blowers and other air systems. With a mass air flow meter system, costly air and gas leaks can be identified on a system-wide scale. This is

especially important when considering that leaks are frequently a significant source of lost energy, sometimes wasting up to 30% of output in standard cubic feet or liters per minute of airflow. Recovering this lost energy allows end users to shut off additional compressors which results in motors being completely shut off and can eliminate improper cycling of compressors.

Compressed air system leaks can also cause a drop in system pressure, force equipment to cycle more frequently, and lead to additional maintenance requirements and downtime. Anywhere from 7 to 10 times more costly than electrical energy, compressor systems require optimal efficiency and air flow control. Repairing leaks is critical to reducing plant operating and maintenance costs.

Thermal flowmeters use a high-accuracy sensor to provide an excellent method for evaluating compressor efficiency and locating these serious gas leaks. Air injection used in combustion processes reduces instability caused by pressure oscillations and helps to reduce NOx emissions. Air injection methods can change the flame structure and reduce heat-release fluctuations in combustors thereby improving performance. Measuring the air flow of injection to keep flow at a stable flowrate is essential to the process.

In certain industrial applications, air-cooled heat exchanger systems are becoming more common than water cooling systems, especially in areas where water may be scarce. Air cooling can be less complex and more cost effective than water cooling systems. To diagnose problems or to conduct system performance assessments, data on air flow within the system must be collected.

In manufacturing products that require spray coatings or drying cycles for granulated products, the consistency of product size or appearance can be affected by the drying system performance. Bed dryers and drum dryers are typical systems used and they require high accuracy and repeatability for consistent control of the drying process. Motor cages at pump stations require air purging to prevent the accumulation of vapors.

Thermal flowmeters can monitor air flow to detect interruptions that can cause damage to the system. Air monitoring applications benefit from thermal flowmeters with accurate and repeatable measurement of mass flow rate, fast response, and low-flow sensitivity. For more information, contact K&I Instruments to receive a solution that best fits your application.