

FOX APPLICATION GUIDE

Thermal Flow Meters in Aluminum Plant Applications

TYPICAL APPLICATIONS INCLUDE:

- Nitrogen Annealing
- Turbo Air Cooling
- Utility Applications
- Cooling Air
- Dryer Air
- Compressed Air Injection
- Leak Detection
- Purge Air or Nitrogen
- Smelting Natural Gas Flow
- Casting Natural Gas Flow

Improving systems monitoring in Aluminum Plant Applications

Aluminium plants require precision gas flow measurement instruments to improve their cost-per-pound of product. Worldwide aluminium prices and automotive industry demands are driving the requirement for improved flow measurement solutions.

Fox Thermal mass flow meters can be used in the following applications:

Nitrogen Annealing

Nitrogen is generally supplied by an on-site gas plant. Mass flow measurement is used to allocate costs and identify “wasters”, such as leaks in the line or a purge left on to a non-operating annealing oven. Nitrogen is also used as a carrier for the fluxing process and to purge piping systems.

Turbo Air Cooling

In continuous casting operations, the aluminium ingot is cooled via compressed air and water. Mass flow measurement of compressed air injection rate improves the air-to-water ratio and hence, the cooling efficiency. Fox flow meters are ideal for this application.

Utility Applications

Fox Mass Flow meters can be used for internal billing of natural gas to their smelting, casting, annealing, and milling operations. Piping constraints make the Fox In-Line Flowmeter a great choice because the built-in flow conditioner eliminates the need for long, straight pipe runs before the meter.

Cooling Air

Airflow for process cooling equipment used in aluminum plants is key to controlling or maintaining the right temperature level to ensure product quality. Thermal mass flow meters by Fox Thermal offer an accurate airflow measurement solution.



Rolled sheet metal in a manufacturing facility.



Rolled sheets of metal in a manufacturing plant.

Dryer Air

Recycling plants must adequately dry aluminum chips before feeding them into the melting system. Without accurate readings of airflow to the blowers, the recycling process may be compromised and inferior aluminum product is produced.

Compressed Air Injection (CAI)

Compressed Air Injection (CAI) can be used as part of the process to treat contaminated smelter waste in aluminum plants. This waste is considered hazardous by environmental organizations. CAI systems must operate with the highest precision in order to inject air flow at appropriate levels to remove the toxic elements adequately.

Leak Detection

Leaks not only cause process inefficiencies, but they can lead to wear and tear in process equipment. In addition, there may be costs associated with wasted resources or even safety risks if fuel lines to heating equipment.

Purge Air or Nitrogen

As a safety measure, purge systems ensure that process equipment are free of contaminants or potentially flammable materials before use. This critical safety feature is required in hazardous areas. Fox Thermal has a full product line of agency approved thermal mass flow meters that operate safely, accurately, and reliably in hazardous areas.

Smelting or Casting Natural Gas and Combustion Airflow

Combustion optimization is key to any smelting or casting process. Fuel costs can be volatile and efficiently-tuned equipment will allow operators to mitigate costs.



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