

# Application News

## Turbine Flowmeter Measures Argon Gas During Steel Manufacturing

**Industry:** Industrial

**Service:** Flow Rate/Total

**Fluid:** Argon Gas

### Overview

The manufacture of steel products involves a number of complex operations, including melting, casting, heating, and hot and cold rolling. Demands for improved product quality have led steel manufacturers to try to better understand all phases of their production process. Enhanced measurement and control techniques are one of the many areas where these efforts have been directed.

### Situation

Argon is commonly employed as a blowing gas to avoid the formation of nitrates within steel manufacturing. It also helps steel plants ensure an oxygen-free environment. During the production of stainless steel and other high-alloy grades, the argon-oxygen decarburization (AOD) process is used to dilute injected oxygen with argon. This lowers the partial pressure of oxygen and carbon monoxide so that the oxygen prefers to combine with carbon and oxidizes only a small amount of alloy.



Thermal mass flowmeters are commonly used to measure argon during steel production. However, these meters require frequent recalibrations in order to maintain optimal performance. Thermal mass flowmeters are also less accurate than precision flow instruments such as turbine meters.

### Solution

A large steel manufacturing plant in the Midwestern U.S. was seeking a highly accurate, cost-effective solution for measuring argon flow as part of its production operation. The plant previously employed thermal mass flowmeters for monitoring argon, but the meters had become unreliable and replacements were not readily available.

After considering alternative flow measurement technologies, the steel manufacturer decided to install Flow Technology's FT Series turbine flowmeter. This meter utilizes a proven measurement technique to provide exceptionally accurate and reliable digital outputs. It is an ideal solution when high accuracy, compact size and fast response are needed.

### System Description

For the argon measurement application, Flow Technology paired two FT Series turbine flowmeters with its advanced LinearLink™ flowmeter linearizer. These linearizing electronics use the calibration data across the entire range to improve the accuracy of the system. It also allows for an analog output so the customer can monitor the rate of the argon. As part of the system configuration, an economical Universal Display indicates digital readings of flow rate and total.

### Technical Information

Flowmeter: FT2-8NEXABGEA-5

Electronics: LN-5-C-MABC

Fluids: Argon Gas



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