



Case Study: Enhancing Energy Efficiency in Plastic Closure Manufacturing through Advanced Flow Measurement

Overview

A leading manufacturer of plastic closures (bottle caps) in India, facing intense market competition, sought to enhance operational efficiency by monitoring and optimizing energy consumption. The management team decided to implement the Leomi Insertion Thermal Mass Flowmeter for compressed air monitoring, a crucial component in their production process. This initiative was aligned with their objective to refine key performance indicators (KPIs) and reduce the per-piece cost of closures.

Challenge

In the highly competitive plastic closures market, controlling production costs is critical. The client aimed to gain a precise understanding of the energy and power consumption of their compressors to directly influence the cost efficiency of their production line. Prior solutions they have thought of such as the Orifice Or Vortex flowmeter found unviable due to higher pressure drop incurs permanent energy loss year-on-year and lower turndown ratio unable to detect leakages and high manpower cost & higher time of installation.

Solution

The installation of the Leomi Insertion Thermal Mass Flowmeter addressed these challenges by providing high sensitivity monitoring (better than 100:1) of compressed air usage. Also have NO pressure drop and easy installation and dis-assembly from pipeline. This flowmeter was seamlessly integrated into the existing SCADA system, enabling real-time measurements of the SCF/KWH and SCFM/KWH ratios. These metrics are crucial for assessing compressor efficiency and guiding management in strategic decision-making regarding energy use and operational adjustments.

Results

The implementation of the Leomi Flowmeter led to several significant improvements:

- Enhanced Compressor Efficiency:** By monitoring the SCF/KWH ratio, the company could identify efficiency losses and optimize compressor use, focusing on running a single compressor rather than alternating with a standby unit, thereby achieving substantial cost savings.
- Leakage Identification:** The high sensitivity of the flowmeter enabled the detection of air leakages, which had previously gone unnoticed with the Orifice or Vortex flowmeter.
- Reduced Energy Loss:** Unlike the Orifice or Vortex flowmeter, the Leomi model minimized pressure drop energy losses, saving an additional 1%-2% in costs.
- Cost-Effective Installation:** The adjustable installation feature of the Leomi Flowmeter reduced inventory needs and installation costs compared to traditional flowmeters.

WHY LEOMI

An ISO 9001:2015 company, Startup India recognized German technical collaboration Engineered in India India's First In-house fully automatic wind tunnel calibration system Product quality proven for more than 20 years installed worldwide.

