On-Site Calibration: Micro Motion® Flowmeter Saves $176,000 per Year

RESULTS

- Provided a standardized and flexible method of calibrating a variety of meters within the plant and externally
- Reduced uncertainty in calibration measurements
- Generated electronic calibration sheets and maintenance history

APPLICATION

Arancia Corn Products, S.A. de C.V., a subsidiary of Corn Products International, is a company that has been in the market for more than 70 years. It is currently a leader in the production of refined corn products in Mexico. In order to remain a leader in the market, Arancia utilized Micro Motion® flowmeters to guarantee high product quality in more than 25 countries.

CHALLENGE

The San Juan del Rio plant in Queretaro, Mexico, has over 10,000 field instruments of different brands and technologies and at least 80% are devices utilized on critical measurements. As a result, periodic maintenance and calibration are required for proper device operation.

Aware of the need to calibrate critical instruments to prevent transfer problems and assure product quality, Arancia considered two possible options. The first alternative was to outsource scheduled services from a certified calibration organization. The second option, internally referred to as the "Banco de Aforo" (calibration stand), was to design an internal calibration facility that utilized a certified flowmeter as a calibration standard.

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Photo by: Guantemoc Ruiz Silva, Instrumentation and Control in Chief at Arancia Com Products, S.A., de C.V. San Juan del Rio Plant, Qro.

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SOLUTION

The company decided to implement the "Banco de Aforo" plan. The first step was to design a flexible piping configuration to be used to calibrate the various sizes of meters used at Arancia. The pipeline met the installation requirements for any type of flowmeter, allowing for mass or volume calibrations using a standard meter traceable to and certified by the CENAM (National Metrology Center).

Arancia decided to install a Micro Motion flowmeter as the standard reference meter. The Micro Motion flowmeter was selected for its wide rangeability, which allows assessing instruments with diameters ranging from 1/2 to 6 inches. The installed flowmeter was certified by an independent flow calibration laboratory with traceability to CENAM's standards.

The "Banco de Aforo" is used to calibrate magnetic, vortex, turbine, propeller, and mass flowmeters, drastically reducing uncertainty in measurements. The new process generated a $176,000 cost reduction in critical instrument calibration for Arancia in the first year of operation. While planning, design, construction, validation, and startup of the "Banco de Aforo" took approximately 6 months, a 100% return on investment was generated within the first twelve months of operation.

The "Banco de Aforo" is able to provide instrument calibration within the plant, to instruments in other plants of the same group, or as a service to external parties. The new calibration process of the "Banco de Aforo" is integrated and controlled using a DeltaV control system. This creates the added benefit to Arancia of generating and retaining calibration sheets and maintenance records for each instrument processed through the facility.