

Micro Motion® Coriolis Meters Improve Asphalt Loading

BENEFITS

- Saved \$500,000 by eliminating PD meter repair / replacement costs and asphalt overfill clean up costs
- Reduced truck loading time by 50% and improved loading throughput by 4 trucks per hour
- Enhanced overall customer service by reducing wait time for truck loading



APPLICATION

A global oil refiner manufactures asphalt for the road construction industry that is then loaded onto trucks, rail and barges for transport to the construction plant site, using volumetric-based positive displacement (PD) meters. Hot liquid asphalt can be difficult to measure accurately, and it requires robust equipment to handle temperatures up to 450 °F. In addition, asphalt is a challenging product to manage as it requires precise handling procedures to ensure safe loading, unloading and transportation.

www.micromotion.com

CHALLENGE

The existing PD meters used to measure and load the asphalt were inherently problematic because the moving, mechanical parts can wear over time. The PD meters required intermechanical replacement on a regular basis, which caused downtime to the operation and high maintenance cost. The total repair cost for all PD meters was \$200,000 per year.

In addition, the PD meters did not offer sufficient measurement precision to enable the accurate filling of trucks. A PD meter's accuracy is affected by changes in the fluid properties. In the case of asphalt, the viscosity changes due to the temperature and the product quality, thereby reducing the accuracy of the PD meter. The company spent \$300,000 per year because of overfilling of trucks. This cost represents the time it took to unload the overfilled truck plus the cost of cleaning spills resulting from the overfilling. Overfilling trucks with asphalt can also be a safety and environmental hazard.



For more information:
www.EmersonProcess.com/solutions/oilgas
www.micromotion.com



SOLUTION

Micro Motion® Coriolis meters deliver high measurement accuracy and robust performance in even the most challenging of applications, such as asphalt. The asphalt producer installed sixteen 4" (10.2 cm) Micro Motion ELITE® Coriolis meters designed for continuous operation at temperatures up to 450 °F. The meters were fitted with aluminum heat jackets to maintain the process temperature while preventing the asphalt from solidifying within the sensor tubes. A Micro Motion 2700 transmitter was used to provide a standard pulse output into the existing loading control system.

Micro Motion Coriolis meters have proven to be an ideal measurement solution for this application because of the range of benefits offered:

- No moving parts result in no maintenance or repair cost
- High level, custody transfer measurement accuracy resulted in no overfilled trucks
- Real-time, continuous flow, density and volume measurement from a single device provides additional information to improve the blending operation
- Direct mass measurement with a wide turndown



Asphalt loading with Micro Motion CMF400 meter installed



CMF400 enclosed in an insulated heat jacket