

# State-of-the-Art Lube Oil Blending with Micro Motion® Coriolis Flowmeters

## RESULTS

- Met product specifications with fewer post-production adjustments
- Reduced maintenance requirements
- Increased throughput with continuous blending
- Eliminated holding tanks to verify product quality



## APPLICATION

A major U.S. Gulf Coast refinery has a large lube oil blending facility where a multitude of products are produced. These products include synthetic and conventional motor oils, gear oils, cutting oils and greases.

## CHALLENGE

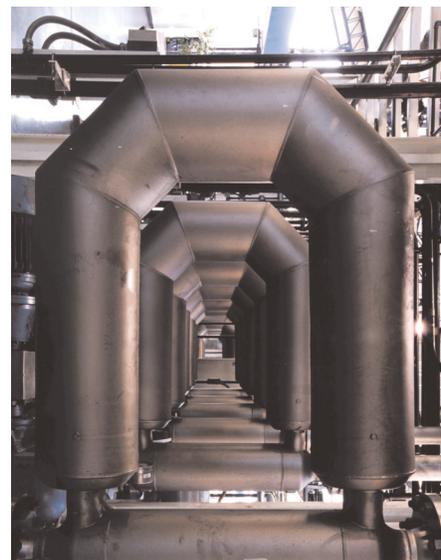
The refinery relied on positive displacement (PD) meters and batch blending for its manufacturing process. The inaccuracy of the PD meters in measuring the various lube oil and additive streams regularly resulted in tank blends that required extensive post-production adjustments to meet product specifications.

In addition, maintenance problems with the PD meters resulted in excessive downtime. The refiner was also dissatisfied with the long production times inherent in batch blending, in which feed streams were sent to product tanks in sequence rather than simultaneously.

## SOLUTION

Micro Motion® and Fisher® valves, both divisions of Emerson Process Management, cooperated in a renovation of the blending plant to provide continuous blending of certain lube oil products. Three continuous blending production lines were integrated into a computer-based master scheduler that manages the blending schedule plus storage tank inventories, additive purchasing, truck and tank car product loading, and packaging.

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*With Micro Motion meters, product runs that formerly took days, now take only hours.*



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The continuous blending lines are directly controlled by a PROVOX Distributed Control System (DCS). The schematic below illustrates a continuous blending line with detail of a single component feed.

Installation of continuous blending has greatly increased production at the blending plant. Product runs that formerly took days now take only hours.

The Micro Motion Coriolis flowmeters provide highly accurate measurements. The blend recipes can be closely followed so product meets specifications without the need for post-production adjustment.

The refinery now sends its rail-transported lube oil products directly to tank cars from the continuous blending lines. Intermediate product tankage for quality control analysis, found to be unnecessary, has been eliminated.

Micro Motion flowmeters operate essentially trouble-free, helping to reduce the blending area's manpower requirements.

The ease of use and accuracy of the flowmeters in the continuous blending production lines convinced the refiner to replace the PD meters in its batch blending lines.

Because of increased production rates attained since the new production lines were installed, the refiner has been able to consolidate at one site blending operations that were previously run at a number of plants around the country. Significant savings have been realized as a result of merging production from multiple facilities to a single location.

