Flow Solutions for Refining

Leverage Emerson's breadth of precision flow technologies and services to improve safety, production and reliability in your refinery.
Leveraging Modern Flow Technologies to Solve Today’s Challenges

Changes in the crude supply chain, product demand and increasing regulations are challenging the refining industry. In this highly competitive market, refiners are looking at improving uptime, flexibility and safety in order to claim a competitive position in the market. Embracing digital transformation, refiners are realizing that reliable measurement data is foundational to getting the most out of optimization software and the digital tools they are investing in.

Emerson’s flow solutions can help refiners achieve higher quality data while solving operational challenges tied to safety, efficiency, reliability and optimization. For decades, industry-leading Emerson flow products from Micro Motion, Rosemount, and Daniel have delivered unparalleled performance, reliability and measurement confidence in critical refinery applications.

Improving efficiency, reliability and safety of operations can be as simple as leveraging all the advantages of modern flow technologies.

In the U.S. market alone, refiners lose about $3 billion each year due to quality giveaway, there are many cost savings and high ROI opportunities to be gained from the right modernization strategy.

Operators performing below the Top Quartile will often see 2-to-14 percent more downtime, according to a recent Solomon reliability and maintenance study.

Industry poor performers can spend two to four times more on maintenance costs than Top Quartile performers.
Accurate Mass Balance Calculations Add Up to a More Efficient and Profitable Plant

The ability to accurately measure and quantify the inflow and outflow streams in a refinery is the crux of optimizing operational performance and efficiency. Any losses or measurement errors of mass balance streams in the process ultimately affects the overall profitability and performance of a plant. Calculating mass balances is a required task in refining operations in terms of closing financial books and optimizing performance, and while many operators view these actions as a tactical need, the practice of gathering and evaluating data at both a process unit level and plantwide level drives much more of a meaningful return. The data quality achieved from having an accurate balance can provide reliable insights on what is truly going in a process unit, where true losses are occurring, and a better view of material management and turns a very arduous task into a motivator for process optimization.

Mass Balance Consulting Studies
Emerson’s experts can help you reduce losses and financial risk by improving mass balances used for hydrocarbon accounting and loss control or process unit optimization with our comprehensive mass balance consulting studies. Our team of experts can help identify and quantify sources of errors in mass balances as well as provide guidance on how to improve existing measurement points. During these in-depth unit mass balance studies, our experts conduct a field survey to examine the installation, technology selection, maintenance of custody transfer or process unit charge and yield flow measurement points. A detailed report will be generated on the critical flow measurement points, highlighting sources of errors while also offering recommendations for remediation.

Refinery Mass Balance Benchmarks

<table>
<thead>
<tr>
<th>MASS LOSS %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Poor ±1.5-2.5</td>
</tr>
<tr>
<td>Average ±0.7-1.5</td>
</tr>
<tr>
<td>Good ±0.5</td>
</tr>
<tr>
<td>PaceSetter ±0.2</td>
</tr>
</tbody>
</table>

Visit www.Emerson.com/massbalance to learn more.
Emerson Flow Solutions Enables Optimization Across Your Refinery

### Crude Distillation
Meet target charge rates and improve flexibility and efficiency of the crude unit  ➤ p5

### Coker
Improve the mass balance of Coker, extend heater uptime, and extend decoking cycles  ➤ p7

### Hydroprocessing
Meet target rates, clean fuel requirements, and extend catalyst life  ➤ p9 & p11

### Fluidized Catalytic Cracking
Meet target charge rates and product yields to satisfy market demand change  ➤ p13

### Refiner

- Natural Gas
- Steam Reformer
- Pressure Swing Adsorption
- Refinery Hydrogen
- Atmospheric Crude Distillation

### Coker

- Gas Plant
- Amine Unit
- Sulfur Recovery
- LPG Butanes
- Isomerization
- Catalytic Reformer
- Alkylation
- Hydrocracker
- Distillate Blending
- Residual Blending

### Hydroprocessing

- Atmospheric Crude Distillation
- Heavy Naphtha Hydrotreater
- Diesel Hydrotreater
- Gas Oil Hydrotreater
- Fluid Catalytic Cracker
- Hydrocracker
- Vacuum Distillation

### Offsites and Blending
Blend products on-spec and minimize fiscal risk and losses by assuring custody transfer measurements  ➤ p21

### Reformers
Meet target charge rates and targeted catalyst activity while optimizing net Hydrogen production  ➤ p15

### Alkylation
Reduce acid usage while improving alkylation product quality and safety with online monitoring of acid strength  ➤ p17

### Hydrogen Production
Cost effectively and efficiently meet growing Hydrogen demand by improving control of Steam Methane Reforming  ➤ p19
Crude Distillation Solutions

Having accurate measurements of charge and yield rates around the Crude unit is essential because these measurements set the basis of charge rates for downstream units. As refiners process different crude types and increase bottom of the barrel processing, flexibility in operating the crude unit becomes more important since changes in operating conditions or crude properties impact the accuracy of traditional volumetric flow meters, affecting the mass balance. Leveraging precision flow technologies that are not impacted by changing process conditions or fluid properties can provide more reliable data for process optimization and planning and ensure the availability of the unit by providing more reliable measurement points feeding into critical equipment like fired heaters while improving safety.

What’s your opportunity?

• Meeting target charge rates and product yields to satisfy market demand changes.
• Improving energy efficiency, availability, and operational safety of fired heaters while reducing emissions
• Reducing chemical injection costs by accurate dosing and control of chemicals
### Featured Crude Unit and Vacuum Distillation Solutions

<table>
<thead>
<tr>
<th>Chemical Injection</th>
<th>Charge and Yield Mass Balance Points</th>
<th>High Temperature Measurements</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="chemical_injection.png" alt="Image" /></td>
<td><img src="charge_and_yield_mass.png" alt="Image" /></td>
<td><img src="high_temperature_measurements.png" alt="Image" /></td>
</tr>
<tr>
<td>Measuring at low flow rates especially after pulsating injection pumps is difficult. Micro Motion ELITE CMF010M Coriolis Flow Meters improve the control of demulsifying agents and corrosion inhibitors with more accurate measurement.</td>
<td>Changing process conditions and fluid properties limit the accuracy of volumetric meters. Micro Motion ELITE Coriolis Flow Meters are unaffected by these changes as they directly measure mass. Meter accuracy can also be verified with Smart Meter Verification diagnostics.</td>
<td>Measuring streams accurately at high temperatures especially for viscous fluids like vacuum resids can be extremely challenging. Micro Motion High Temperature Coriolis Flow Meters are possible options to meet these high temperature requirements.</td>
</tr>
</tbody>
</table>

### Combustion Control of Fired Heaters

- Fuel gas composition changes as process conditions change. Controlling the combustion on a mass-basis with Micro Motion ELITE Coriolis Flow Meters compared to pressure or volumetric methods has proven to respond better to changes in gas composition thereby providing more stabilized control.

### Steam Measurement

- Advantages such as accuracy, lack of impulse lines, online replaceable sensors isolated from the process, and minimal leak points make Rosemount 8800 Vortex Meters well suited for steam measurement and other general utility or process flows.

### Fired Heater Pass Feed Measurements

- Ensuring reliable flow measurement of heater passes is critical for heater safety and reliability. Rosemount 8800 Dual or Quad Vortex Meters provide robustness, redundancy and compactness in ensuring reliable measurements.

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Visit our [Flow Measurement webpage](#) to learn more.
**Coker Solutions**

The Coker is a challenging unit to operate due to the processing of bottom of the barrel feedstocks and the handling of coke product. The Coker is also one of the most difficult units to mass balance. Having reliable and accurate measurements across the charge and yield streams is important, since it is difficult to measure the coke production accurately. Leveraging modern flow technologies can improve the accuracy and reliability of these high temperature flow measurements by reducing maintenance and eliminating impulse lines prone to plugging due to coke fines.

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**What’s your opportunity?**

- Meeting charge rates and production targets, and improving the mass balance of the Coker
- Improving energy efficiency, availability, and operational safety of fired heaters while reducing emissions
- Extending heater uptime with reliable online spalling operations for decoking
## Featured Coker Solutions

<table>
<thead>
<tr>
<th>Chemical Injection</th>
<th>Charge and Yield Mass Balance Points</th>
<th>Water Measurement in Coke Cutting</th>
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<tbody>
<tr>
<td><img src="image1" alt="Chemical Injection" /></td>
<td><img src="image2" alt="Charge and Yield Mass Balance Points" /></td>
<td><img src="image3" alt="Water Measurement in Coke Cutting" /></td>
</tr>
<tr>
<td>Measuring at low flow rates especially after pulsating injection pumps is difficult. <a href="#">Micro Motion ELITE CMF010M Coriolis Flow Meters</a> improve the control of anti-foam injection with more accurate measurement.</td>
<td>Changing process conditions and fluid properties limit the accuracy of volumetric meters. <a href="#">Micro Motion ELITE Coriolis Flow Meters</a> are unaffected by these changes as they directly measure mass. Meter accuracy can also be verified with Smart Meter Verification diagnostics.</td>
<td>Measuring sour water accurately can be easily done with magnetic flow meters. <a href="#">Rosemount 8750W Magnetic Flow Meters</a> are obstruction-less and equipped with online diagnostics for verifying measurement accuracy.</td>
</tr>
</tbody>
</table>

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<thead>
<tr>
<th>Combustion Control of Fired Heaters</th>
<th>Steam Measurement and Online Spalling</th>
<th>Fired Heater Pass Feed Measurements</th>
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<tbody>
<tr>
<td><img src="image4" alt="Combustion Control of Fired Heaters" /></td>
<td><img src="image5" alt="Steam Measurement and Online Spalling" /></td>
<td><img src="image6" alt="Fired Heater Pass Feed Measurements" /></td>
</tr>
<tr>
<td>Fuel gas composition is changing as process conditions change. Controlling the combustion on a mass-basis with <a href="#">Micro Motion ELITE Coriolis Flow Meters</a> compared to pressure or volumetric control is proven to respond better to changes in composition providing more stabilized control.</td>
<td>Advantages such as accuracy, lack of impulse lines, and minimal leak points make <a href="#">Rosemount 8800 Vortex Meters</a> well suited for measuring steam for general purposes or for steam measurement at wide flow ranges such as online spalling operations.</td>
<td>Ensuring reliable flow measurement of heater passes is critical for heater safety and reliability. <a href="#">Rosemount 8800 Dual or Quad Vortex Meters</a> provide robustness, redundancy and compactness in ensuring reliable measurements.</td>
</tr>
</tbody>
</table>

Visit our Flow Measurement webpage to learn more.
Hydrotreater Solutions

As refineries increase hydrotreatment capacity to produce low sulfur fuels complying with clean fuel regulations or process more sour crudes, maximizing and monitoring the use of hydrogen across the refinery is increasingly important. Emerson’s flow measurement solutions can provide accurate, reliable, online measurements for important process control variables, such as hydrogen purity and flow measurement of feed and product streams.

What’s your opportunity?

• Meet clean fuels requirements while increasing catalyst life through optimized process conditions in the hydrotreater
• Improve energy efficiency, availability, and operational safety of fired heaters while reducing emissions
Hydrogen purity control is important for tracking and optimizing the partial pressure of hydrogen in order to remove sulfur and other objectionable elements. Monitoring and controlling the hydrogen purity can also be important to extend catalyst life by minimizing coking of the catalyst. The Micro Motion SGM Specific Gravity Meter provides a fast response, inferred measurement of gas purity enabling real-time control eliminating lags from lab sampling methods.

Because of the low molecular weight and the varying purity and flow rate of streams, hydrogen is difficult to measure using traditional volumetric technologies. Micro Motion ELITE Coriolis Flow Meters are one of the few technologies that can accurately measure hydrogen gas.

Fuel gas composition changes as process conditions change or upsets occur. Controlling the combustion on a mass-basis with Micro Motion ELITE Coriolis Flow Meters compared to traditional pressure or volumetric control methods has proven to respond better to changes in gas composition providing more stabilized control of heaters.

Advantages such as accuracy, lack of impulse lines, minimal leak points make Rosemount 8800 Vortex Meters a robust technology for measuring a wide range of general utility and process streams. The accuracy of vortex meters are also largely unaffected by changes in density of the process fluid unlike traditional differential pressure flow meters.
Hydrocracker Solutions

As the hydrocracker is typically among the highest margin units at the refinery, optimizing its performance is critical to the refineries’ profitability. This makes the mass balance of this unit of paramount importance in order to meet target production rates and optimize product yields. Also, hydrocrackers are the largest consumers of hydrogen in the refinery and contribute up to 80% of the unit’s operating costs. Emerson’s flow measurement solutions can provide accurate, reliable, online measurements for the hydrogen balance, affecting product yields and catalyst life.

What’s your opportunity?

• Meeting charge rates and production targets to satisfy market demand changes
• Increase catalyst life and unit throughput with sufficient, but not excessive, hydrogen to reduce coking on the catalyst
• Improving energy efficiency, availability and operational safety of fired heaters while reducing emissions
**Featured Hydrocracker Solutions**

### Mass and Hydrogen Balance Points

Changing process conditions and fluid properties limit the accuracy of volumetric meters. Micro Motion ELITE Coriolis Flow Meters are unaffected by these changes as they directly measure mass. Meter accuracy can also be verified with Smart Meter Verification diagnostics.

### Fired Heater Pass Feed Measurements

Ensuring sufficient flows into heater passes is critical for heater safety and reliability. Rosemount 8800 Dual or Quad Vortex Meters provide robustness, redundancy and compactness in ensuring reliable measurements.

### Sour Water Measurement

Measuring sour water accurately can be easily done with magnetic flow meters. Rosemount 8750W Magnetic Meters are obstruction-less and equipped with online diagnostics for verifying measurement accuracy.

### Combustion Control of Fired Heaters

Fuel gas composition changes as process conditions change. Controlling the combustion on a mass-basis with Micro Motion ELITE Coriolis Flow Meters compared to pressure or volumetric methods has proven to respond better to changes in gas composition providing more stabilized control.

### Hydrogen Purity Measurements

Hydrogen purity control is important for improving yields and extending catalyst life. The Micro Motion SGM Specific Gravity Meter provides a fast response, inferred measurement of gas purity enabling real-time control of Hydrogen usage.

### General Process Flow Measurements

Advantages such as accuracy, lack of impulse lines, minimal leak points make Rosemount 8800 Vortex Meters a robust technology for measuring a wide range of general utility and process flows.

Visit our Flow Measurement webpage to learn more.
Fluidized Catalytic Cracking Solutions

Given the operational flexibility of the Fluidized Catalytic Cracking Unit (FCC), having accurate and reliable flow measurements to feed into optimization models is critical to evaluate and manipulate operating parameters for improved profitability. The accuracy of volumetric technologies are impacted by changing fluid compositions and process conditions, which are common in the FCC. In addition, the abrasiveness and varying composition of slurry oil bottoms limits the type of flow meters that can be used to accurately measure these streams. However, Coriolis meters are robust enough to handle these measurement challenges, providing accurate mass balance data.

What’s your opportunity?

- Meeting target charge rates and product yields to satisfy market demand changes
- Improve reliability and accuracy of difficult, but important measurement points such as slurry oil
### Charge and Yield Mass Balance Points

Changing process conditions and fluid properties limit the accuracy of volumetric meters. Micro Motion ELITE Coriolis Flow Meters are unaffected by these changes as they directly measure mass. Meter accuracy can be verified with Smart Meter Verification diagnostics easing regulatory reporting and calibration requirements.

### Slurry Oil Measurement

The abrasiveness of catalyst fines in slurry oil can cause plugging or wear on most meters. With proper meter sizing and online diagnostics like Smart Meter Verification for evaluating meter health, Micro Motion ELITE Coriolis Flow Meters can be a robust solution for providing accurate direct mass measurement of slurry oil bottoms.

### Slurry Oil Viscosity Measurement

At some refineries, controlling the viscosity of slurry oil recycle by adding light and heavy gas oil to slurry oil bottoms is done to ease pumping and prevent coke formation. Using the Micro Motion Fork Viscosity Meter can provide real time viscosity measurement of slurry oil bottoms and optimize the usage of heavy and light gas oil for viscosity control.

### Utility Flows

Advantages such as accuracy, lack of impulse lines, minimal leak points make Rosemount 8800 Vortex Meters a robust technology for measuring a wide range of general utility and process flows. However, low pressure gas applications at large line sizes like flue gas and air are best measured by differential pressure devices like a Rosemount Annubar.
Reformer Solutions

The Reformer has become increasingly important for refiners to optimize not only does the unit produces reformate, a high octane value gasoline blending component, but also a net producer of Hydrogen. Hydrogen has become more valuable as refineries are processing heavier and more sour crudes as well as increasing hydrosprocessing to meet clean fuel requirements. In addition, as petrochemical demand rises, the aromatics produced in the reformer are increasingly being used as feedstocks for petrochemicals. Lastly, since the reaction in the reformer is endothermic, improving energy efficiency by stabilizing control of the fired heaters with Coriolis meters can be extremely beneficial.

What’s your opportunity?
• Meet target charge rates to satisfy demand requirements
• Meet targeted catalyst activity and throughput with accurate chloride injection
• Improve energy efficiency, availability and operational safety of fired heaters while reducing emissions
# Featured Reformer Solutions

## Mass Balance Points

Changing process conditions and fluid properties limit the accuracy of volumetric meters. Micro Motion ELITE Coriolis Flow Meters are unaffected by these changes as they directly measure mass. Meter accuracy can also be verified with Smart Meter Verification diagnostics.

## Hydrogen

Because of the low molecular weight and the varying purity and flow rate of streams, hydrogen is difficult to measure using traditional volumetric technologies. Micro Motion ELITE Coriolis Flow Meters are one of the few technologies that can accurately measure hydrogen gas.

## Chloride Injection

Measuring at low flow rates especially after pulsating injection pumps is difficult. Micro Motion ELITE CMF010M Coriolis Flow Meters improve the accuracy of the chloride injection, making it easier to reach targeted catalyst activity levels.

## Combustion Control of Fired Heaters

Fuel gas composition changes as process conditions change. Controlling the combustion on a mass-basis with Micro Motion ELITE Coriolis Flow Meters compared to pressure or volumetric methods has proven to respond better to changes in gas composition thereby providing more stabilized control.

## Hydrogen Purity Measurements

Hydrogen purity control is important for improving yields and extending catalyst life. The Micro Motion SGM Specific Gravity Meter provides a fast response, inferred measurement of gas purity enabling real-time control of the hydrogen to hydrocarbon ratio.

## Steam

Advantages such as accuracy, lack of impulse lines, minimal leak points make Rosemount 8800 Vortex Meters a robust technology for measuring a wide range of general utility and process flows.

Visit our Flow Measurement webpage to learn more.
Alkylation Solutions

At the core of product quality, safety and reliability of a Sulfuric Acid Alkylation Unit is controlling the sulfuric acid strength within the reaction section. Using Coriolis meters can not only provide acid flow measurement, but also acid density and temperature measurements, which can be correlated to acid strength. Continuous acid strength measurements improves control of acid strength in real time, eliminates lags in lab testing, and reduces acid consumption while preventing acid runaway. At the same time online monitoring of the acid/hydrocarbon ratio in the contactors (reactors) can help improve the quality of the alkylate.

What’s your opportunity?

- Improve the mass balance, meet charge rate and production targets
- Ensure unit availability, avoid acid runaway, and minimize acid consumption costs with reliable acid concentration and flow
- Improve alkylate quality with monitoring of Acid/Hydrocarbon ratio in the Contactor with Coriolis meters
Featured Alkylation Solutions

Charge and Yield Mass Balance Points

The use of Rosemount 8800 Vortex Meters on the feed and product streams can increase the accuracy of the flow measurement and reduce maintenance costs at the same time. Meter accuracy can be verified with Smart Meter Verification diagnostics for Micro Motion ELITE Coriolis Flow Meters easing regulatory reporting and calibration requirements.

Acid Flows and Strength

Reducing acid usage while maintaining a safe acid strength can be done in real time with Micro Motion ELITE Coriolis Flow Meters. The online density and temperature measurements can be correlated to acid strength providing a continuous acid concentration and measuring fresh, interstage, and spent acid strength at wide turndowns.

Acid/Hydrocarbon Ratio

Improving product quality by monitoring the acid/hydrocarbon ratio to ensure an acid-continuous emulsion in the reactor. If monitored, the emulsion is often monitored with a ratio glass, but it is difficult to obtain reliable measurement. Micro Motion ELITE Coriolis Flow Meters provide an online density measurement which is correlated to the ratio and can be used to ensure the proper ratio is maintained.

Acid Flow Measurement

Depending on the turndown and pressure drop requirements, measuring fresh, interstage, and spent acid accurately can be done with Rosemount Magnetic Meters. Additional instrumentation or lab sampling will be required in order to measure acid strength.

Visit our Flow Measurement webpage to learn more.
Hydrogen Production Solutions

The demand for hydrogen has increased as refineries process heavier and higher sulfur crude slates and produce cleaner fuels complying to low sulfur fuel regulations. The composition of the hydrocarbon feed gas into the Steam Methane Reforming (SMR) unit can vary, especially if refinery fuel gas or a combination of refinery fuel gas and natural gas are used as feedstocks. Because the mass of the gas is more proportional to carbon content than the volume of the gas, controlling the steam to carbon ratio with Coriolis meters on the feed provides more consistency in the steam to carbon ratio resulting in increased efficiency. Accurate measurement of the hydrogen produced is also important and challenging.

What’s your opportunity?

- Improve safety, catalyst life and energy costs by tightening the control of the steam to carbon ratio for the SMR unit
- Improve energy efficiency, availability and operational safety of fired heaters while reducing emissions
- Accurately monitor and track hydrogen production
## Featured Hydrogen Production Solutions

<table>
<thead>
<tr>
<th>Hydrocarbon Feed Gas</th>
<th>Steam</th>
<th>Boiler Feed Water</th>
</tr>
</thead>
<tbody>
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<td><img src="image1" alt="Hydrocarbon Feed Gas" /></td>
<td><img src="image2" alt="Steam" /></td>
<td><img src="image3" alt="Boiler Feed Water" /></td>
</tr>
</tbody>
</table>

Fuel or natural gas feedstock to the SMR can vary in composition which impacts the control of the steam to carbon ratio. The mass of gas is proportional to carbon content so using Micro Motion ELITE Coriolis Flow Meters to measure the mass of the gas instead of the volume enables tighter control of the steam to carbon ratio and improved efficiency.

### Advantages
- **Hydrocarbon Feed Gas**
- Fuel gas composition changes as process conditions change. Controlling the combustion on a mass-basis with Micro Motion ELITE Coriolis Flow Meters compared to pressure or volumetric methods has proven to respond better to changes in gas composition thereby providing more stabilized control.

- **Steam**
- Advantages such as accuracy, lack of impulse lines, and minimal leak points make Rosemount 8800 Vortex Meters a robust technology for measuring a wide range of process flows and general utility flows like steam.

- **Boiler Feed Water**
- Measuring boiler feed water accurately can be easily done with magnetic flow meters. Rosemount 8750W Magnetic Meters are obstruction-less and equipped with online diagnostics for verifying measurement accuracy.

### Measurement Solutions

- **Hydrocarbon Feed Gas**
  - Because of the low molecular weight and the varying purity and flow rate of streams, hydrogen is difficult to measure using traditional volumetric technologies. Micro Motion ELITE Coriolis Flow Meters are one of the few technologies that can accurately measure hydrogen gas.

- **Steam**
  - Low pressure or large line size applications like air are best measured using differential pressure devices like a Rosemount Annubar Flow Meter.

- **Boiler Feed Water**
  - Visit our Flow Measurement webpage to learn more.

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Visit our Flow Measurement webpage to learn more.
Offsites and Blending Solutions

Whether you are blending crude or fuels or transferring ownership of materials between parties, high measurement accuracy is needed to ensure on-spec products, track and assure materials movements for refinery mass balances and loss control, and minimize fiscal risk from custody transfer billings and payments of materials. Emerson has a variety of flow solutions from single meters to fully engineered custody transfer systems equipped with flow computers, provers, flow conditioning elements, and instrumentation to provide accurate measurement for all applications.

What’s your opportunity?

• Producing on-spec products while reducing variability and improving blend flexibility
• Reducing hydrocarbon giveaway and HSE risks by automating tank dewatering operations
• Minimizing financial risk by assuring materials movements and payments with reliable custody transfer measurements
Featured Offsites and Blending Solutions

Product Blending

Ensuring on-spec blending for lube oil, asphalt, and fuels requires accurate measurement. Traditional mechanical meters used in blending require high maintenance and the accuracy degrades over time with mechanical wear. Micro Motion ELITE Coriolis Flow Meters offer flexibility and high accuracy in measuring multiple blend components in a single meter without recalibration and minimal to no maintenance.

Custody Transfer

Ensure best-possible custody measurement and reliability while assuring commercial and regulatory compliance with solutions ranging from a single meter to a fully engineered custody transfer system. Emerson can deliver end-to-end liquid or gas pipeline Emerson’s Engineered Custody Transfer Systems and provers from concept to commission.

Tank Dewatering

Manually removing water accumulated from hydrocarbon storage tanks can be challenging, resulting in mass balance inaccuracies and HSE concerns for sending hydrocarbon to water treatment plants. Automating dewatering operations by automatically detecting the interface change between water and hydrocarbon can be done with a Micro Motion ELITE Coriolis Flow Meter or Micro Motion Fork Density Meter, thereby minimizing valuable product losses.

Loading and Unloading Solutions

Achieve reliable, accurate and timely transfer operations over a wider range of products while preserving regulatory and safety compliance with Emerson’s Loading/Offloading Solutions, ranging from a single meter to a fully engineered system. Coriolis flow meters are often used in loading operations, especially for viscous applications like molten sulfur and liquid asphalt to dramatically reduce maintenance costs and eliminate plugging risks.

Visit our Integrated Metrology Systems webpage to learn more.
Improve reliability and accuracy of flow measurements to better optimize refinery production.

Emerson's flow measurement solutions delivers precision measurement with our breadth of best-in-class flow technology designed to handle your most critical applications. Contact us now for industry leading technologies, services and expertise that can improve the safety, reliability and efficiency of your operations. Visit Emerson.com/FlowMeasurement

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