



OEM IMPROVES TRANSFORMER OIL FILLING ACCURACY AND FATIGUE TEST RELIABILITY WITH CORIOLIS MEASUREMENT

Customer

Asya Trafo is a leading transformer test equipment manufacturer focused on high-performance power transformers and advanced testing for reliability.

Application

Transformer oil filling under vacuum and mechanical fatigue testing by simulating thermal expansion and contraction cycles using precise oil mass control.

Challenge

Asya Trafo faced several operational and measurement challenges with its existing system based on gear flowmeters:

- Frequent filter replacements before nearly every test cycle
- High maintenance effort and downtime
- $\pm 2\text{--}2.5\%$ accuracy impacting oil fill precision
- Temperature-driven volumetric inconsistencies
- Air entrainment causing unstable readings
- Inconsistent fatigue test results

These issues increased downtime, maintenance effort, and reduced confidence in testing reliability.

Results

- Achieved up to 5x improvement in measurement accuracy
- Enabled up to 2,000 repeatable fatigue test cycles without temperature influence
- Eliminated frequent filter replacements, reducing maintenance interventions
- Improved test consistency through real-time entrained air detection

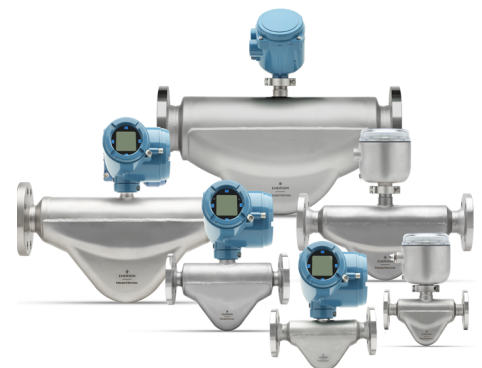


Image 1. Micro Motion™ G-Series Ultracompact Coriolis Flow and Density Meters

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Solution

Asya Trafo upgraded its system by implementing Micro Motion G-Series Coriolis Mass Flow & Density Meters, enabling direct and highly accurate mass measurement of transformer oil.

The solution provides:

- High-accuracy mass measurement (improved from $\sim\pm 2\%$ to up to $\pm 0.25\%$)
- No moving parts, significantly reducing maintenance and downtime
- Maintains measurement accuracy regardless of temperature changes, eliminating compensation calculations
- Detects entrained air instantly, ensuring stable and repeatable test cycles
- Flexible installation, enabling deployment in compact test systems
- Smart Meter Verification diagnostics for continuous monitoring

A more accurate and reliable testing process

Coriolis technology enables precise oil mass measurement independent of temperature variations, ensuring accurate control of the oil inventory throughout transformer testing. This supports reliable simulation of transformer thermal behavior during repeated fatigue test cycles (up to 2,000 cycles), improving both product quality and testing confidence.

Reduced maintenance and improved efficiency

By eliminating mechanical components and particle-sensitive elements, the new system minimizes service interventions and significantly reduces downtime. Operators benefit from real-time diagnostics and faster troubleshooting, improving overall operational efficiency.

Business Impact

Improved transformer quality assurance while reducing maintenance costs, downtime, and test variability.

Why Coriolis Outperformed Gear Flowmeters:

- Direct mass measurement independent of temperature
- No moving parts—eliminates particle-related failures
- Detects air / two-phase flow in real time
- No straight pipe requirements for flexible installation

For more information, visit
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