

Technoimpianti optimizes custody transfer calibrations of LNG tankers with Emerson's Micro Motion Coriolis technology

RESULTS

- Calibration time reduced by 50%
- Calibration costs reduced by 50%
- Calibration bench size reduced down to 30%
- Total cost of ownership reduced by 25%
- Improvement of overall efficiency by 50%

APPLICATION

Portable bench test for custody transfer metric verification.

CUSTOMER

Technoimpianti APM, an Italian OEM located in Medolago (Bergamo), provides design, construction and service of industrial vehicles such as tankers and semi-trailers for compressed, liquified and cryogenic gases.

CHALLENGE

MID compliance is currently a compulsory requirement in Europe for all applications involving transportation of cryogenic gases. Periodic checks are also required for the specific installations of the meters onboard LNG tankers, as a requirement for meter accuracy verification.

MID-compliant truck owners in general are required to have calibrations performed by external companies, which in the past has meant dealing with long calibration times and high costs. In cases where the fuel easily gasifies, it can mean significant safety concerns. The use of solutions based on traditional volume sampling is dangerous, and cannot be easily used when the fluid to be checked is cryogenic, especially when very complex installations are involved that are not easy to certify.

Technoimpianti was looking for a solution to propose to their customers that had to meet the following criteria: be easy of use, be safe, be flexible and adaptable to different fluids, be easy to certify within MID regulation, and be compliant with ISO17025 standard.



“Micro Motion highest accuracy mass flowmeters allowed us to use Coriolis master meters for volumetric custody transfer meter checks, resulting in a cost cut of 50% and further economical advantages by elimination of external devices.”

Marco Amantia
Technoimpianti APM Owner



Technoimpianti calibration bench, used to test flowmeters installed onboard of trucks

SOLUTION

Thanks to an effective collaboration with Emerson, Technoimpianti developed a portable test bench based on Emerson's Micro Motion Coriolis series CMF200, compliant with ISO 17025 regulation, that has been used for a first run of validations of installed meters.

Since cryogenic gases are liquified under low temperature and high pressure, Emerson flow experts proposed Coriolis mass flow measurement. The use of Emerson's Micro Motion Coriolis technology as master meter allows Technoimpianti to use the test bench on any gases, regardless of temperature and pressure, this allows for more flexible testing options even under extreme conditions than former solutions that were based on traditional calibration technologies that include weighing systems and samples.

Coriolis technology resulted in more repeatable results than any formerly used technology, and thanks to Smart Meter Verification there is absolutely no need to periodically check the master meter. Simply cleaning with water is sufficient to decontaminate the meter, that can be used for virtually any type of fluid.

Based on the achieved results, which are really promising: calibration time of each meter is reduced by 50%, and as a result operating costs are also down by 50%. The size of the calibration bench is 3 times more compact than previous technology, since there is no need for external sampling or for external weighing bridges. The total cost of ownership of the bench, with the smaller footprint and the reduced tube lengths of tubes that is allowed by Coriolis technology (no need for straight runs) is reduced by about 25%.

Considering all operating and capital costs, Technoimpianti improved the overall efficiency of calibration activities by around 50%, resulting in improved flexibility to serve more customers with different needs.

Last, but not least, the replacement with Coriolis technology resulted in higher safety, and in an increased trust by technicians who can be now confident in test results using the test bench. Measurements are accurate, reliable and, above all, repeatable to a degree that was not possible with former solutions unless the check was repeated several times. Using the test bench resulted in a further reduction of time wasted by customers during the periodic calibration activities.

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“The cooperation with Emerson has been really effective, they have understood and satisfied all our needs.”

Marco Amantia
Technoimpianti APM Owner