

News, Products, Technology

Natural gas as a clean fuel for the future



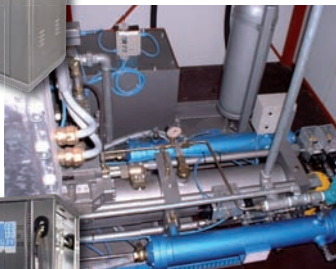
Natural Gas is the cleanest fossil fuel we know. The emissions of carbon dioxide are 30% lower than those of oil and almost 45% below the emissions from coal.

Natural gas also has more favorable market value, making it a very interesting energy source for the transportation sector and industrial and home usage.

For vehicles, the means of transporting this fuel can be a challenge. In liquid form, it can be compressed 600 times at cryogenic temperatures, but in pressure tanks it can be compressed 300 times at ambient temperatures.

In these states, it really becomes interesting as a fuel for vehicles. Liquefied natural gas (LNG) is ideal for trucks, as once loaded it needs to stay cooled and consumed as fast as possible to avoid gasification. Trucks are ideal as they drive long distances in a relatively short period of time. Compressed natural gas (CNG) is ideal for private road transport and in public transport, such as taxis and buses. Those vehicles drive comparably fewer kilometers and CNG can be held compressed in tanks for longer periods without any effort or danger. It is possible e.g. to have your car parked at Heathrow airport with half a tank load of CNG whilst enjoying a 2-week holiday on Majorca. Whereas with LNG usage, the natural gas first needs scrubbing, with CNG the process is more straightforward. Low pressure natural gas goes into a compressor where it gets compressed to pressures between 300 and 400 bar. It is stored in pressure tanks that are connected to CNG-dispensers.

When a car or motorcycle pulls up, the hose gets connected and the dispensing starts. This can either be directly provided from storage or it can be compressed at site; typically the fuel comes directly from storage for efficiency purposes. CNG is measured in mass, not volume. The use of coriolis flow meters is ideal for this measurement. They measure the mass of both liquids and gases. When measuring CNG, the typical accuracy is within 0.5% and this means the meter gives an accurate reading within plus or minus 0.5% of the total batch. CNG, as the name indicates, is compressed and typically, pressure and temperature can affect the flow accuracy. Temperature can affect the flow accuracy as it can make the flow tubes less stiff, which influences the torsion of the tubes and with that the accuracy of flow



News, Products, Technology

reading. Pressure on the flow tubes caused by the carried substance, CNG in this case, may influence the Coriolis Effect. A good CNG meter, like the Micro Motion CNG050 is especially designed to work efficiently under challenging conditions. Coriolis measurement is ideal as it is very sensitive to small and fast flow influences when measured correctly. The design of the flow meter is a vital part of this. It also affects how accurate the measurement is at different flow rates (this is called turndown).

The higher the turndown, the more accurate the measurement is over the flow range, from very high to very low. In this way the transaction can be measured fairly. Micro Motion, a business unit of Emerson Process Management, pays a lot of attention to making the CNG050 especially applicable to the unique circumstances of CNG dispensing. It can handle low and high flow capacities (for different vehicle sizes) accurately under challenging temperature and pressure conditions, it can measure down to the lowest flow range, allowing fair trading.

For private fleet filling (industrial installation), an EC Type Examination Certificate is required for flow meter and transmitter under MID incl installation (Measuring Instruments Directive). For public dispensing, local regulations apply. OIML R-139 is typically adopted by local governments. Micro Motion has both the EC Type Examination Certificate and OIML-approvals for its CNG-customers. Moreover, Micro Motion is the only supplier that is allowed to calibrate their CNG flow meters on water under MID / OIML. Micro Motion CNG050 meters are of high quality and can even be used in master meter systems and in provers, allowing multi-product owners to conduct their own field proving and calibration efficiently and cost-effectively. The Dutch notified Body under MID, NMI, has issued a statement that the Micro motion CNG050 meter can also be used as master meter. A steadily growing installed base, which currently accounts for over 75,000 installations and numerous field provers and master meters, proves that Emerson's Micro Motion is the a company to talk to when you have or build CNG dispensers.



For more information, please contact Arjan van Ginkel, Business Development Manager, at: Arjan-van.Ginkel@Emerson.com or ask your local Emerson Process Management sales or service engineer.



NGV
communications group

info@ngvgroup.com / www.ngvjournals.com

2012 NGV Highlights

PLEASE KEEP THESE IMPORTANT DATES IN MIND FOR YOUR BUSINESS:

Deadline: September 7th



Extraordinary distribution at:

HHP SUMMIT 2012
"Natural Gas for High Performance Applications" September 26 - 28
Houston, TX

1st NGVA Europe International LNG Workshop

www.ngvjournals.com
info@ngvjournals.com



September 19 - 21, 2012



1st NGVA Europe International LNG Workshop

LNG - Dual Fuel - LNG for vehicles
Hertzsprung, Amsterdam, The Netherlands

www.LNG4Trucks&Ships.com
info@LNG4Trucks&Ships.com



November 6-10, 2012



13th Biennial NGV Global Conference and Exhibition
Natural Gas for Vehicles,
managing water and energy
Cantos Banquet, Profissi A, Mexico City

www.ngv2012.com
info@ngv2012.com

