

# Use Of Rheonik Products In Hydrogen Processes

## Investment in sustainable success and future-proof growth

Anthropogenic climate change is one of the greatest challenges of our time. To counteract the rise in greenhouse gases, measures to reduce CO<sub>2</sub> emissions are essential. One way is to switch to renewable energy or to use energy-efficient, climate-neutral technologies and energy sources - such as hydrogen.

## Hydrogen & Renewable Energy

More and more of our energy comes from renewable clean energy sources like solar, hydro and geothermal. As technology to harness this energy has evolved, larger scale plants taking advantage of these natural resources have been created and with them, the need for performance and efficiency measurements. Rheonik Coriolis mass flow meters play a major role in ensuring energy from renewable energy sources remains part of our day-to-day energy makeup.

## Hydrogen Filling Stations

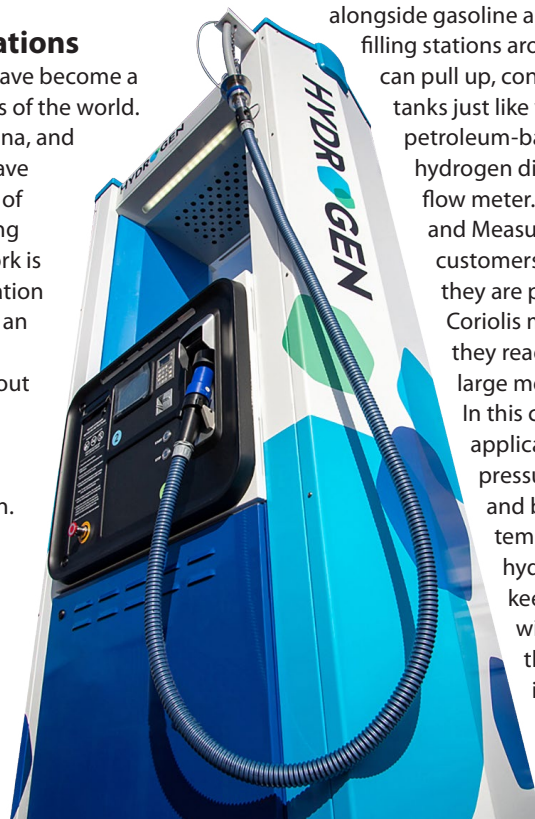
Hydrogen fuelled vehicles have become a common sight in many areas of the world. America, Canada, Japan, China, and many European countries have established a basic network of hydrogen stations supporting fuel cell cars and that network is expanding. The implementation of clean fuel technologies is an increasing priority for many countries amid concerns about global warming.

Rheonik is a pioneer in the hydrogen fuel cell revolution. From the very outset, Rheonik has worked with all the major hydrogen suppliers to produce accurate flow meters that can handle the extremely high pressures associated with hydrogen distribution and dispensing.



## Rheonik & Hydrogen

Hydrogen fuel dispensers have been installed alongside gasoline and diesel dispensers in many filling stations around the world. Fuel cell vehicles can pull up, connect a hose, and fill up their tanks just like vehicles using traditional petroleum-based fuels. The heart of a hydrogen dispenser is the point-of-sale flow meter. Meters must be Weights and Measures approved to ensure end customers receive the amount of hydrogen they are paying for. Sold in mass (kg), Coriolis meters are ideal for the service as they read primarily in mass and have a large measurement turndown capability. In this challenging measurement application, cars are refuelled with pressures of up to 700 bar and trucks and buses with up to 350 bar at a temperature of -40°C. Cooling the hydrogen to -40°C is necessary to keep refuelling times short. A car with a tank capacity of 5kg can thus be completely refuelled in about 3 minutes. At higher hydrogen temperatures, the excessive heating of the vehicle tank would result in a



### Registered Address

ABLE Instruments & Controls Ltd  
Cutbush Park, Danehill, Lower Earley,  
Reading, Berkshire, RG6 4UT. UK.

### Phone

+44 (0)118 9311188

### Email

info@able.co.uk

### Web

able.co.uk

### E-commerce

247able.com



# RHEONIK.

Despite the challenging conditions, the accuracy and reliability of Rheonik's Coriolis flowmeters has resulted in them being approved according to OIML R139 and MI002/OIML R137.

reduction of the refuelling speed and thus an extension of the refuelling times. During refuelling, the RHM flow sensor is subject to high pressure and temperature gradients. The required measuring accuracy according to the harmonised standard OIML R139 is an important requirement for the fuelling system. Despite the challenging conditions, the accuracy and reliability of Rheonik's Coriolis flowmeters has resulted in them being approved according to OIML R139 and MI002/OIML R137. In addition, the RHE flow transmitters enable a secure transmission of the measured values directly to the billing system as well as to the control system of the petrol station.

The performance of Rheonik Coriolis flowmeters in hydrogen applications is underpinned and guaranteed by the many years of experience gained since the first installation in 1999 – the meters are endorsed repeatedly by our customers through their wide and varied use of our measuring systems. Most hydrogen dispenser systems around the world are fitted with Rheonik flow meters.

For an illustrated application guide to the use of Rheonik products in hydrogen and carbon processes, [click here](#).

For more information, please contact ABLE Instruments on +44 (0)118 9311188 or by email: [info@able.co.uk](mailto:info@able.co.uk)

#### Rheonik Flow Meters for:

- Point of Sale Dispensing
- Tube Trailer Distribution Metering
- Fork Truck/Industrial Vehicle Fuelling

#### Rheonik Coriolis features:

- Pressure ratings up to 1400 bar
- Sizes available for filling automobiles, Industrial vehicle, trucks
- Hydrogen compatible wetted materials
- Custody transfer lockable

#### Why Rheonik Coriolis Flow Meters are the smart choice for hydrogen gas flow metering:

- Small footprint
- Extremely high pressure rated
- High temperature ratings
- Intrinsically safe sensor suitable for zone 0
- Custody transfer accuracy
- No secondary containment required
- Industry standard high-pressure connections
- Minimal maintenance - no moving parts
- Wide measurement turndown capability
- Useable in hazardous areas
- Supplied with built-in detailed diagnostic capabilities
- Certified according to MID MI-002, OIML R 137-1&2:2012
- Certified according to CS OIML R139



#### Registered Address

ABLE Instruments & Controls Ltd  
Cutbush Park, Danehill, Lower Earley,  
Reading, Berkshire, RG6 4UT. UK.

#### Phone

+44 (0)118 9311188

#### Email

[info@able.co.uk](mailto:info@able.co.uk)

#### Web

[able.co.uk](http://able.co.uk)

#### E-commerce

[247able.com](http://247able.com)

