# LITRE METER SHIPS LOW FLOW METERS FOR VALEMON

UK flowmeter specialist Litre Meter (www.litremeter.com) has shipped two highly customised flow meters via its Korean distributor for use on the Valemon gas and condensate field recently brought online in the North Sea by Statoil.

One is a large V125 positive displacement flowmeter, the other a small LF05 VFF meter. The order was placed for each meter to be built to a degree of customisation that could not be matched by other suppliers working on the topside element of the project, which was constructed in South Korea. The order required meters to cover two completely different pressure and flow ratings.

The V125 meter was designed to measure the discharge of monoethylene glycol (MEG) at the wellhead pump while the LF05 was designed to monitor the flow of sodium hypochlorite.

The V125 was constructed from Duplex, pressure rated to 758bar, with a PVD coated SS nitronic rotor. The LF05 was constructed from titanium with a titanium rotor with ½" ANSI 150 RF connection. The accuracy of the meters was improved to +/- 0.5 per cent.

As standard, the VFF V125 rotary piston flow meters are pressure rated from 40bar to 1035bar and constructed from 316 stainless steel. The meters are temperature rated between -40 and +150 degrees C and can be used with fluids in a range of viscosities from 0.8 to 2,000 centistokes or greater. The normal flow range of the V125 is 0-6,000 l/h.

Under conditions of low temperature and high pressure, gas hydrates can solidify as crystals which may block the pipeline and valves, impeding the transfer of the oil and gas. This can result in a shutdown and the risk of explosion or unintended release of hydrocarbons into the environment.

MEG is injected at high pressure where there is a risk of hydrates (dew) forming then freezing at low temperature. Litre Meter VFF positive displacement flowmeters measure the correct amount of MEG needed to prevent hydrate formation.

The process, known as bullheading, forcibly pumps MEG into the bore hole to act as an ‘antifreeze' to lower the freezing point of gas hydrate. This protects the wells' sub-surface valves from hydrates forming under high pressure and low temperatures during long shutdowns.

With the same pressure and temperature ratings as the V125, the LF05 is designed for low flows at high pressures and can accurately measure flow ranges from as low as 0.008 litres/hour to 30 litres/hour (0.05 to 190 US gallons per day).

The low flow capability of the meter has been improved by coating the pressure balance chamber and titanium rotor with physical vapour deposition (PVD) designed to lower the friction properties of the meter to provide extended flow ability. The additional hardness provided by the PVD coating also improves wear resistance.

The LF05 measures the flow of sodium hypochlorite; an aggressive chemical used for water treatment, hence the titanium construction. The chemical is used to prevent the organic fouling of equipment that comes into contact with water.

Litre Meter CEO Charles Wemyss said: "Subsea repairs and the associated loss of production are high cost, so protecting deepwater well bores from hydrate formation, plugging and organic fouling is a major flow assurance concern in offshore operations.

"Hydrate prevention strategies provide protection during normal operation, start-up and shutdown.

"Litre Meter's VFF flowmeter is ideally suited for use in the oil and gas industry and in particular for low flow / high pressure applications.

"Years of experience in chemical injection applications onshore and offshore have confirmed the instrument's capability to reliably measure fluids under extreme conditions of both temperature and pressure."

Notes

1. Litre Meter, based near Buckingham, UK, was established in 1975 and specialises in the custom design and manufacture of instruments for measuring and controlling fluids.
2. The company has particular expertise with offshore and sub-sea flow measurement and has supplied flowmeters for these applications throughout the world. The company's VFF flowmeter was developed specifically for the petrochemical industry.
3. Litre Meter also pioneered the development of the Pelton wheel flowmeter, an accurate and versatile technology that has since been used across many industries to measure a variety of low viscosity materials at both low and high flow rates.
4. The company is also UK distributor for other flowmeter technology including Euromag Electromagnetic, Sierra Thermal, TRICOR Coriolis and Vortex Mass gas flow meters.

5. Litre Meter is part of the Tasi Group of companies which includes AW Lake, KEM and TRICOR.

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