

Gore Nitrogen Finds Cost-Effective Measurement Solution with Coriolis Flowmeter

The Promass I 300 provides accurate flow readings for non-Newtonian fluids

GN₂

Gore Nitrogen

Gore Nitrogen maintains a quality reputation in the industrial, pipeline and oil field service industries. Since its inception in 2001, Gore Nitrogen has experienced a steady growth. Located in, and primarily serving the mid-continental area, Gore Nitrogen has positioned itself for continued growth in the future. As a member of SafeLand USA, ISNetworld and PEC Premier, safety is a vital part of every operation and on the top of each employee's mind.



Brandon Bensch, IT Director,
Gore Nitrogen



Gore Nitrogen headquarters in Seiling, Oklahoma

Summary Serving the mid-continental region of the US, Gore Nitrogen specializes in hydraulic fracturing, acidizing and nitrogen services. They take pride in providing oil and gas customers with high-quality and cost-effective solutions, along with a high level of transparency, allowing customers to power cities and keep homes warm.

Gore Nitrogen provides repeatable and accurate viscosity measurements when creating frac fluids. But this is a challenge since they handle non-Newtonian fluids with viscosities that fluctuate with changing pressure

and temperature. This makes their readings and instrumentation incredibly important to maintain optimal safety and quality. If they don't adjust to the current viscosity before pumping fluid and frac gel down the wellbore, it could cause product damage.

To compensate for viscosity fluctuations and to maintain high quality products, they used a manual measuring process. Although this worked, it did require constant attention from personnel – which was costly and timely. So Brandon Bensch, Gore Nitrogen's IT Director,



Proline Promass I 300 Coriolis flowmeter combines in-line viscosity and flow measurement with a compact, easily accessible transmitter



RIA 46 Field meter with control unit

reached out to Endress+Hauser for a different solution. Endress+Hauser recommended the Promass I 300 Coriolis flowmeter and worked with the team to get the new technology implemented and running smoothly.

Challenge Before Bensch made the switch to the Promass I, operators were taking manual samples every 10 minutes and running multiple tests to gauge the viscosity measurement. This required constant use of manpower, but the tests were necessary to maintain exact product quality for their customers. Since the products were non-Newtonian fluids with fluctuating viscosities, they couldn't just set the levels. They instead had to make timely corrections to adjust for variations, otherwise quality and safety issues could occur.

Our Solution Gore Nitrogen ran gel trial tests to determine a proper correction for the fluctuating viscosity and reached out to Endress+Hauser for their assistance. Endress+Hauser's Flow Product Business Manager, Mason Flannery, analyzed the results and recommended the Proline Promass I 300 Coriolis flowmeter in conjunction with the RIA46 field indicator.

Non-Newtonian fluids often present a challenge for accurate measurement and repeatability due to changing

process conditions. However, the Coriolis measuring principle operates independently of physical fluid properties such as viscosity or density.

Using the gel trial tests with the Promass I, Gore Nitrogen was able to get a repeatable measurement. The Promass I also made it possible to display the measured value in units and scales familiar to their operators. These and other features reduced any potential challenges that could occur when adopting a new technology.

Benefits at a glance:

- Saves time and overall cost
- Reduces batch time
- Eliminates need to pull physical and manual samples
- Gathers data and measurements in real-time
- Reduces human error through process automation
- Multivariable flowmeter – provides multiple measurements out of a single device
- Environmentally conscious – reduces risk of spills or leakage
- Utilizes the RIA46 to indicate readings in a familiar format

“The Promass I 300 has been an extreme blessing and benefit for us. Our customers love seeing the real-time data of the gel measurements and appreciate that next level of transparency.”

– Brandon Bensch, Gore Nitrogen



Promass I 300 flow valve installation in a Gore Nitrogen quality control unit

Results The Gore Nitrogen team has seen great results from the Promass I 300 Coriolis flowmeter. The new setup eliminates the need for manual testing and frees up their resources, saving manpower and time. Since the Promass I is built to withstand fluctuating conditions, they no longer have to manually pull samples every ten minutes or run constant tests for measurement readings. Instead, they make the corrections automatically via the control system, providing improved control, accuracy and overall quality for each job.

Since the Promass I 300 provides multivariable measurements including flow, density, temperature and viscosity, Bensch was pleased to be able to gather all the data from a single device. This eliminated the need for multiple transmitters and enhanced the overall usefulness of each measurement. Finally, one of the benefits Bensch and the Gore Nitrogen team appreciated the most was the ability to provide their customers with greater value.

Gore Nitrogen was able to reduce the overall manpower for each job, free up the technicians so they could focus

on other improvements, pull live readings and real-time data from the digital technology and reduce overall costs. Bensch was excited to share how these improvements provided a greater level of transparency and cost savings for their customers.

“The more automatic the process is, the better. With the web server built in, we can now see everything remotely. At any given time, we can log in and check settings and see how the system is reading. That provides big savings on technicians in the field, greater transparency for the customer, and allows for additional observations to prevent issues like leaks and spills,” says Bensch.

Components

- Promass I 300 Coriolis flowmeter
- RIA46 field indicator

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