

# Individual Well Test and Control System Increases Production and Reduces Lift Cost

## RESULTS

- Provides accurate, representative and reliable well tests, with better reservoir management and allocation factors
- Reduces installation and maintenance costs significantly, compared to traditional test separators
- Proven technology in many diverse applications
- Provides real-time well control, with pump off control and gas lift optimization
- Allows for full-time well surveillance, enabling faster response to problems



## APPLICATION

Micro Motion® recently released a revolutionary new well test and control system that can help oil and gas operators increase production and reduce lift costs. This system uses the patented GLCC® technology developed by the University of Tulsa in a joint industry project with major oil companies and equipment manufacturers. The GLCC concept itself is not new, since there are approximately 350 GLCCs successfully applied worldwide, but Micro Motion's adaptation of this technology to an Individual Well Test (IWT) system is fairly unique.

Typical applications of an IWT application include long-term performance testing of single wells. One company in California has over 100 units in this application. Other applications involve short-term testing following well completion or work-over.

## CHALLENGE

Operators have discovered that certain stimulation and completion techniques create more production than others, and these differences are measurable with IWT. They are then able to narrow in on these successful techniques to increase production. By the same method, operators are able to fine-tune their EOR strategies by closer monitoring of the production response to injection procedures.

## SOLUTION

The principal advantage of this IWT system is its low installed cost. Because of its small footprint, low volume, and light weight, it can be moved to most any location by flatbed truck and set up on an unimproved location in a matter of minutes.

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*Coriolis technology is the key to this new measurement and control system.*



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Compared to conventional test separators requiring expensive manifolds, concrete pads, and large footprints, the IWT has a tremendous advantage.

For offshore applications, the small footprint and light weight will translate to huge savings in platform size and buoyancy cost. Using conventional, oil-field-proven components, it's easy to operate and maintain, and it also requires very low operating expenses compared to traditional separators.

In addition, there's a lower lift cost by wiser usage of expensive injection media like steam, CO<sub>2</sub>, and natural gas. Also, by continuous monitoring of a well's performance, operators can respond quickly to well emergencies like injection channeling and breakthrough, pumping equipment failure, and lost production.

Furthermore, IWTs can be used to control a well. One of the most valued features is pump-off control for beam pumping units. Using a patented technique, the IWT can detect pumped-off conditions without the use of load cells and position indicators.

**Table 1. Parameters for Specifying an IWT**

Parameter	Units	Minimum	Nominal	Maximum
Liquid flow rate				
Gas flow rate				
Water cut				
Pressure				
Temperature				
Oil density/gravity				
Water density				

<sup>o</sup>GLCC, Gas-Liquid Cylindrical Cyclone, The University of Tulsa, 1994.

Optimum Idle Time can be determined using maximum fluid production rather than maximum run time, thus maximizing production and minimizing electrical cost. IWTs can also be used for real-time gas lift optimization.

Gas injection can be controlled according to real-time well performance instead of month-old production reports. For electric submersible and progressive cavity pumping units, IWTs can measure excessive gas production and/or low liquid flow, and shut the unit down before burnout can occur. The IWT software also has safety shut down features that will shut a well in based on high/low pressure, leak detection, H<sub>2</sub>S-combustible gas detection, etc. Although the Micro Motion IWT systems have fairly wide turndown in operation, they are sized for specific applications. To find out more about our IWT systems, send us the parameters in Table 1 and the additional important information in Table 2.

The IWT system from Micro Motion represents the latest in well testing technology. Using traditional, oil-field-proven components, it is simple to operate and easy to maintain and it can increase your production and lower your lift costs.

**Table 2. Other Important Information for Specifying an IWT**

Information	Your data
ANSI rating required	
Piping connection required	
Well lift method	
H <sub>2</sub> S, CO <sub>2</sub> , sand, high chlorides?	
Tight emulsions?	
Slug ratio	

