

FLOW SOLUTIONS GUIDE

PROVING & CALIBRATION FOR LIQUID HYDROCARBONS

MEASUREMENT AND MEASUREMENT-RELATED OPERATIONS HAVE BEEN ESTIMATED TO ACCOUNT FOR BETWEEN 3% AND 6% OF THE GDP OF INDUSTRIAL COUNTRIES. THE RISKS AND COSTS OF ERRONEOUS MEASUREMENT ARE IN MOST CASES MUCH HIGHER THAN THE COST OF CALIBRATION.

CALIBRATION WORLD

COMPLIANCE TO
REGULATIONS
CONTRACTUAL
ACCURACY AND
RELIABILITY
LIFECYCLE
ASSURANCE



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Ensuring accurate measurement performance – over time – is one of the greatest challenges facing fiscal measurement applications. Because meter performance can be affected by many factors, measurement systems must be regularly verified against a traceable reference to prove compliance to accuracy and repeatability requirements.

Emerson's Flow Technologies, Systems & Services expertly address critical operations and production processes to help

**ACHIEVE
COMPLIANCE
REDUCE
COSTS
IMPROVE
RELIABILITY**



**REDUCE
FISCAL RISK**

What if you could...	Realize in-the-field improvements...	With Emerson Flow Technologies, Systems and Services...
Utilize the best proving solutions to meet your specific needs	<ul style="list-style-type: none"> • Maximize proving accuracy • Optimize total ownership cost with cost-effective solutions • Improve repeatability • Minimize initial investment cost 	<ul style="list-style-type: none"> ✓ Wide and complete range of solutions to meet all possible applications and solve different challenges such as: <ul style="list-style-type: none"> • Very high accuracy requirements • Limited space available • Necessity of high mobility and on time availability • Various meter sizes and large volumes to be calibrated • Short payback time and low initial investment • Extreme conditions, such as LNG
Consistently comply to proving standards and regulation requirements	<ul style="list-style-type: none"> • Ensure an effective and efficient validation process • Ensure ongoing compliance to local regulations for proving systems • Avoid internal/external audits and reduce adjustments for incorrect measurement 	<ul style="list-style-type: none"> ✓ Engineering, design, and optimization of proving systems ✓ Proving systems, flow labs, and calibration services following global industry standards and regulations ✓ Worldwide system and network metrology service and support for all oil and gas applications ✓ Effective solutions to ensure the ongoing accuracy of your metering system
Ensure proving system lifecycle sustainability and reliability	<ul style="list-style-type: none"> • Optimize maintenance and operations procedures and reduce cost • Improve operations insight • Guarantee remote accessibility to all data 	<ul style="list-style-type: none"> ✓ Lifecycle services and maintenance programs ✓ Worldwide metrology service and support ✓ Industry-leading instrumentation for all operating parameters ✓ Advanced meter diagnostics for early insight into the health of the system ✓ Flexible and scalable flow computers, RTU platforms with configurable software applications

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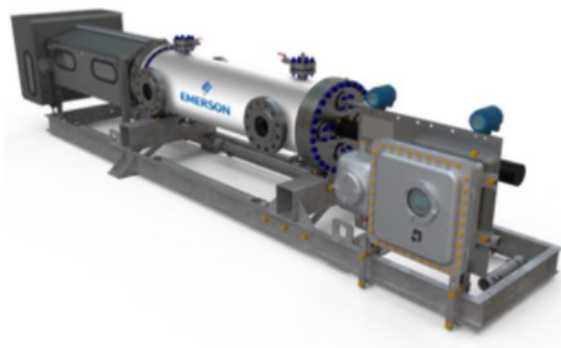
TURNKEY SOLUTIONS

PIPE PROVERS & COMPACT PROVING

Bi- and uni-directional ball provers and compact provers provide tailored solutions for every installation need

MASTER METERS SYSTEMS

Complete systems for Master Meters solutions



MASTER METERS

TURBINE METER

Master metering solutions to cost-effectively improve proving repeatability and operational uncertainty with varying operating conditions

MICRO MOTION CORIOLIS METER

VALVES & INSTRUMENTATION

MICRO MOTION DENSITY METERS

High performance measurement for better insight and correction to reference conditions

ROSEMOUNT PRESSURE & TEMPERATURE

BACKPRESSURE CONTROL VALVES

Effective back pressure control, in compliance with industry standards, and improved throughput for stable and repeatable proving, and for the efficient and accurate measurement of fluid movements

FISHER BACK PRESSURE REGULATORS & CONTROL VALVES

CONTROL & DATA MANAGEMENT

Emerson Control Systems

Efficiently and effectively monitor and manage all processes and measurement data across asset geographical locations

REMOTE AUTOMATION SOLUTIONS

RTUs, SCADA Systems

FLOW LIFECYCLE SERVICES

FLOW LABS

Accredited and certified flow labs for national and internationally traceable calibration services

ENGINEERING

Fiscally optimized system designs and operational processes

LIFECYCLE SERVICES

System consultation, design, installation, start-up, training, maintenance, and audit services



**PARTNER WITH
EMERSON'S FLOW SOLUTIONS
TO OPTIMIZE
YOUR PROVING &
CALIBRATION SYSTEM**

CUSTODY TRANSFER IS CRITICAL AT A REFINERY IN INDIA AS **FLOW MEASUREMENT ERRORS OF ONLY 0.2% COULD COST THE REFINERY UPWARDS OF \$50 MILLION PER YEAR.**

A LARGE SOUTH AMERICAN E&P COMPANY UTILIZED EMERSON'S TECHNOLOGY AND SYSTEMS TO PURCHASE A LACT UNIT COMPLETE WITH A COMPACT PROVER, **DECREASING INSTALLATION AND MAINTENANCE COSTS.**

**Emerson's Flow solutions
deliver what you need**

FLOW TECHNOLOGIES

Using the best fit-for-purpose flow technology, leveraging field-proven best practices, and utilizing device diagnostics and analytics ensures early insight and enhances the performance of critical process units.

FLOW SYSTEMS

Utilizing best-in-class technology, proven system design processes and practices, and global project support enhances measurement system operational effectiveness and capital efficiency.

FLOW SERVICES

Applying consulting, commissioning, and maintenance services assures long-term asset sustainability and fiscal assurance.



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