

FLOW SOLUTIONS GUIDE

SEPARATOR OPTIMIZATION

“THE NEW SYSTEM GIVES ME DAILY DIAGNOSTICS INTO SEPARATOR OPERATIONS SO I CAN CATCH ISSUES BEFORE THEY BECOME PROBLEMS.”

PRODUCTION
PLANNING
MODELING
ALLOCATION
OPTIMIZATION
AVAILABILITY
HEALTH
SAFETY
ENVIRONMENT



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SEPARATOR OPTIMIZATION

It's essential for you to meet production plans but, to maximize production and yield, you need reliable and efficient separator operations to provide accurate and timely data. Uncertainty and lack of confidence in production data requires you to send employees to the field to validate measurements, which increases both health, safety and environment (HSE) risks, operating costs, and makes it difficult to keep up with the development schedule. With multiple technologies to choose from and limited resources, it's a challenge to effectively utilize the best technology to manage your field.

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

**REDUCE RISK,
INCREASE RELIABILITY
AND IMPROVE
OPERATIONAL
PERFORMANCE**



**MAXIMIZE
PRODUCTION &
YIELD**

What if you could...

Realize in-the-field improvements...

With Emerson Flow Technologies, Systems and Services...

Reduce uncertainty in your production management decisions?

- Minimize production allocation errors & data anomalies
- Improve separation efficiency & minimize well backpressure effects on production
- Respond quickly to production changes

- ✓ Advanced flow technology & software
- ✓ Implement proven best practices for sustained measurement performance
- ✓ Diagnostics to detect phase carryover/under
- ✓ Reliable pressure control
- ✓ Multiple platform options for net oil software

Spend less time in the field checking and maintaining separators?

- Minimize equipment failures
- Control and diagnose problems remotely
- Supplement scarce resources & expertise
- Improve troubleshooting effectiveness

- ✓ Field-proven, reliable technology designed for the oilfield
- ✓ Innovative well test manager software & remote separator diagnostics
- ✓ Flow Lifecycle Services improve performance and minimize reactive maintenance

Easily monitor and ensure health, safety, and environmental compliance?

- Reduce reactive and emergency maintenance events
- Reduce emissions and gas sent to tanks and flare
- Maintain good regulatory and community relations
- Improve response time to field problems

- ✓ Predictive diagnostics and remote insight into separator and component performance
- ✓ Pressure control and pressure relief event tracking
- ✓ Gas carry under detection
- ✓ Alarm management and reporting

Reach first production faster and at lower cost?

- Achieve faster installation and commissioning with reduced resources
- Reduce integration and sourcing complexity

- ✓ Application engineering expertise and best practices
- ✓ Field services, cost-effective diagnostics and preconfigured system applications
- ✓ Single-sourced technologies, fully-engineered packages and turnkey systems

SEPARATOR OPTIMIZATION

Emerson's Flow Technologies, Systems & Services Guide

PRESSURE RELEASE

FISHER RELIEF VALVE & POSITION MONITOR Protects separator from over pressurization and alarms / reports estimated gas volumes vented

SAND DETECTION

MICRO MOTION INSERTION DENSITY METER Detects separator sand build up which reduces retention time

CONTROL & DATA MANAGEMENT

REMOTE AUTOMATION SOLUTIONS Measures and controls the flow of hydrocarbons in the separator

Configurable systems and application software to manage separator, detect upsets and schedule well testing

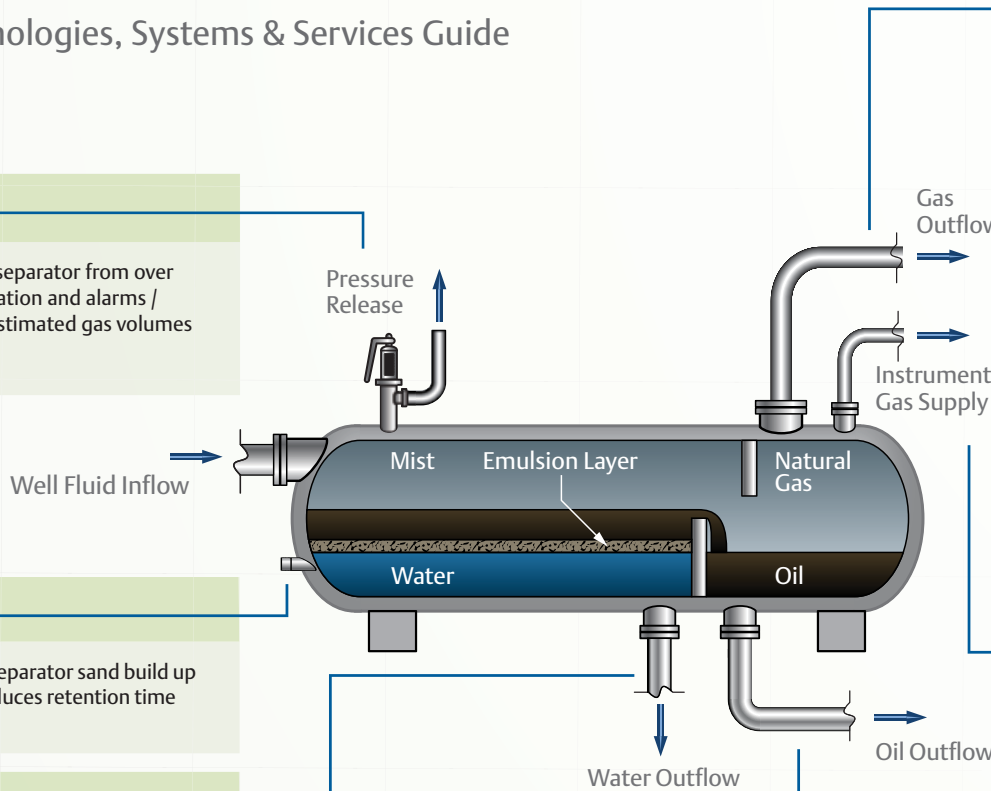
RTUs, Flow Computers, Software, Net Oil Computers

Comprehensive, multi-platform software for water cut and Net Oil / water production

SERVICE & SUPPORT

FLOW LIFECYCLE SERVICES Full scope of Lifecycle Services to support separator optimization

Technology selection & best practices, startup, repair, & troubleshooting services, calibration, training



GAS OUTFLOW

DANIEL ORIFICE METERS with MULTIVARIABLE SENSOR Wide flow range gas measurement and easy inspection with removable orifice plate
Lower installed cost DP, pressure and temperature for compensated flow

DANIEL ULTRASONIC METER Measures gas production with diagnostic insight to detect liquid carryover
Flow profile and speed of sound diagnostics

FISHER REGULATORS Maintains control of separator pressure with highly variable inflows

MICRO MOTION CORIOLIS METER Measures gas production with diagnostic insight to detect liquid carryover
Transient mist remediation

ROSEMOUNT VORTEX METER High turndown measurement of gas with non-wetted sensor and non-clog design

INSTRUMENT GAS SUPPLY

FISHER REGULATORS Maintains reliable and consistent instrument supply gas pressure

OIL OUTFLOW

DANIEL ULTRASONIC METER Measures oil production with diagnostic insight to detect gas phase carry-under
Flow profile and speed of sound diagnostics

MICRO MOTION CORIOLIS METER Measures oil production with diagnostic insight to detect gas carry-under and water carryover
Entrained gas volume remediation
Multiple platform Net Oil software for two phase separators

ROXAR WATERCUT METER Continuously and accurately measures water in oil content enabling determination of net oil
Real time identification of process upsets
Can utilize density measurement from density meter or Coriolis to automatically compensate for changing fluid density

WATER OUTFLOW

MICRO MOTION CORIOLIS METER Measures water with diagnostic insight to detect gas carry-under and oil in the water
Entrained gas volume remediation

ROSEMOUNT MAGNETIC METER Accurate water production measurement with no moving parts and Smart Meter Verification to ensure device performance

ROSEMOUNT VORTEX METER Measures water production with non wetted sensor & non clog design
Produced fluid diagnostic detects stuck dump valve

PARTNER WITH EMERSON'S FLOW SOLUTIONS TO OPTIMIZE YOUR SEPARATOR

AN OIL PRODUCER WITH HIGH SAND PRODUCTION **REDUCED ANNUAL MAINTENANCE COSTS BY \$100,000 PER YEAR** AND **IMPROVED MEASUREMENT ACCURACY TO $\pm 0.15\%$** WITH EMERSON'S FLOW TECHNOLOGIES.

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Eagle Ford Measurement Foreman on Emerson's instrumented 3-phase separator solution

A SOUTH AMERICAN OIL AND GAS COMPANY REPLACED ORIFICE PLATES WITH EMERSON'S FLOW MEASUREMENT TECHNOLOGY AND **MINIMIZED MEASUREMENT ERROR, TIGHTENED CONTROL, INCREASED PRODUCTION AND IMPROVED SAFETY.**

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 inherent device data 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 performance.



www.EmersonProcess.com/Flow

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