SEPARATOR OPTIMIZATION TO IMPROVE SHALE OIL AND GAS PRODUCTION

REDUCE HEALTH, SAFETY, AND ENVIRONMENTAL RISKS, MAXIMIZE PRODUCTION, AND SPEND LESS TIME IN THE FIELD

ONE PRODUCER, USING AN EMERSON SOLUTION, REDUCED MAINTENANCE FROM EVERY THREE WEEKS TO ZERO FAILURES IN SIX MONTHS, SAVING $10,000 USD ANNUALLY ON EACH LEVEL LOOP.
**SEPARATOR OPTIMIZATION**

Emerson is an established and respected company in process control. Highly reliable Fisher products help you control, monitor, and regulate your process with certainty to help solve your toughest challenges:

<table>
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<th>What if you could...</th>
<th>Realize in-the-field improvements...</th>
<th>With Emerson solutions and services...</th>
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</table>
| Reduce health, safety, and environmental risks? | • Achieve safer operations  
• Comply with environmental regulations by reducing emissions  
• Maintain good relationships with adjacent, populated areas | ✓ Low or no gas consumption  
✓ Live-loaded valve packing for low emissions  
✓ Predictive diagnostics  
✓ US Quad “O”- compliant solutions  
✓ Failure mode upon loss of power and/or signal |
| Maximize production to meet targets? | • Reduce disruptions to production  
• Maintain correct level and flow control in the separator  
• Be confident in the longevity of equipment even under the harshest field conditions  
• Volumetrically quantify liquids with precision | ✓ Durable designs, even in rugged service, proven by decades of oil and gas success  
✓ Software for optimizing level loops  
✓ Easy installation and maintenance  
✓ Cost-effective designs with field-selectable functions  
✓ Accurate level, pressure, and backpressure control |
| Spend less time in the field checking and maintaining separators? | • Improve personnel safety  
• Minimize equipment failures  
• Utilize custom engineered solutions suited to your unique process needs  
• Control and diagnose problems remotely | ✓ Remote monitoring and configuration with remote operations controllers  
✓ Dependable, field-proven technology designed for oil and gas applications  
✓ Easy installation and application versatility  
✓ Rugged, durable products  
✓ Local sales office expertise and field support for your individual shale oil and gas field  
✓ Online product installation and configuration videos |

Strengthen your confidence that your shale oil and gas production forecast will yield the results you expect—and more—with Emerson as the backbone of your separator or heater treater solutions. Leveraging reliable control using Fisher valves and instruments, you can mitigate environmental concerns, improve production, and reduce maintenance across your wellsite. Read on to learn more.

If you need an expanded Emerson solution beyond valves and instruments, we have more technologies available to regulate, measure, analyze, operate, and manage your process. Solutions are easily customizable to your needs and can be seamlessly integrated into your existing field structure. Visit [http://www.emerson.com/en-us/industries/automation/oil-gas/onshore-oil-gas](http://www.emerson.com/en-us/industries/automation/oil-gas/onshore-oil-gas) to see the full Emerson portfolio.
PROVEN CONVENTIONAL AND INNOVATIVE SOLUTIONS TO HELP YOUR UNCONVENTIONAL FIELD CHALLENGES

THERE ARE MANY CHALLENGES IN REACHING THESE UNCONVENTIONAL RESOURCES INCLUDING ADVANCED TECHNOLOGY, HIGH COSTS, AND ENVIRONMENTAL CONCERNS —Source Reuters

Why change now?

Fisher products are installed in all major shale plays in the world.

Upto 30% higher net present value can be achieved by improving availability, well production, reservoir performance, unit technical costs, and safety performance. —Source McKinsey on Oil & Gas

OVER 80 YEARS FISHER PRODUCTS HAVE SERVED THE OIL AND GAS PRODUCTION INDUSTRY

1930 1950 1970 1990

100% original investment

OVER 500,000 FISHER VALVES AND INSTRUMENTS SOLD INTO OIL AND GAS

32.9% Market share for Emerson’s control valves in oil and gas —Source ARC Advisory Group

450% of producers’ initial automation investment is re-spent over the life of the well due to reworks and ongoing maintenance. —Source ARC Advisory Group

Pneumatic Solution
Lowest emissions
Time-tested Fisher products

Pneumatic/Electric Solution
Lower emissions
Time-tested Fisher products

Electric Solution
Lowest emissions
Increased worker safety
Innovative electric Fisher products
Enhanced field production insight

Whatever your needs and wherever you are, Emerson can be your trusted advisor. With strong and knowledgeable representation, Emerson stands ready with resources and capabilities to help you improve shale oil and gas production. Maintenance services are available when and where you need them to get the most out of your investment in Emerson solutions. The Emerson worldwide network of service personnel makes for an ideal partnership over the life of your production facility.

To learn more about solutions for oil and gas, visit:
https://www.emerson.com/en-us/contact-us
HOW ARE Fisher VALVES AND INSTRUMENTS USED ON SEPARATORS?

Complete Automation Solutions from One Partner

Pneumatic Solutions
Time-tested for simplicity and reliability, Fisher pneumatic devices offer quick performance and durability, potentially eliminating the necessity of a local power source.

- **PNEUMATIC BACKPRESSURE CONTROL VALVE OR LIQUID DUMP VALVE**
  - Provides backpressure control for stable operating conditions
  - Ideal for throttling of gritty or sticky gases or liquids
  - Live-loaded packing system to minimize gas loss
  - Tungsten carbide trim option for erosive applications such as those found in shale oil and gas production

Pneumatic/Electric Solutions
Get the fast performance advantage of pneumatic technologies plus visibility from a field control system, using Fisher pneumatic/electric products. This solution offers visibility into how much oil or gas is being produced and shows the status of the separator.

- **ELECTRIC BACKPRESSURE CONTROL VALVE OR LIQUID DUMP VALVE**
  - Controls backpressure outflow with low power, electrically actuated valve and flexible control signal interface
  - Low power consumption
  - Remote monitoring and configuration
  - Failure mode upon loss of signal

D4 and D3 easy-Drive™ Valves
Electric Solutions

Gain needed visibility to the health of your separator while remaining compliant with evolving environmental regulations, using Fisher electric solutions. Without a doubt, these solutions, will simplify your environmental compliance workload, provide new insight into your processes, and allow your personnel to focus on optimization over reactive maintenance.
Emerson solutions deliver what you need to maximize production, spend less time in the field, reduce risk, and help reduce safety concerns.

To learn more, visit Fisher.com.