

SEPARATOR OPTIMIZATION TO IMPROVE SHALE OIL AND GAS PRODUCTION

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.

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



FISHER™


EMERSON™

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:

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> to see the full Emerson portfolio.

REDUCE HEALTH, SAFETY, AND ENVIRONMENTAL RISKS, MAXIMIZE PRODUCTION,



AND SPEND LESS TIME IN THE FIELD

What if you could...

Reduce health, safety, and environmental risks?

Maximize production to meet targets?

Spend less time in the field checking and maintaining separators?

Realize in-the-field improvements...

- Achieve safer operations
- Comply with environmental regulations by reducing emissions
- Maintain good relationships with adjacent, populated areas

- 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

- Improve personnel safety
- Minimize equipment failures
- Utilize custom engineered solutions suited to your unique process needs
- Control and diagnose problems remotely

With Emerson solutions and services...

- ✓ 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

- ✓ 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

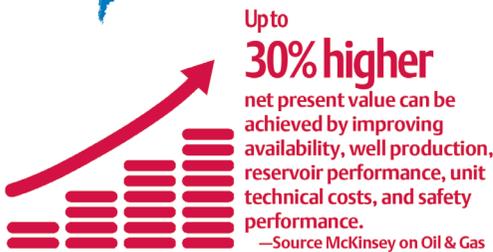
- ✓ Remote monitoring and configuration with remote operations controllers
- ✓ Dependable, field-proven technology designed for oil and gas applications
- ✓ Easy installation and application versatility
- ✓ Rugged, durable products
- ✓ Local sales office expertise and field support for your individual shale oil and gas field
- ✓ Online product installation and configuration videos

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



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



Why change now?

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

1930
1950
1970
1990

100% original investment

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

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

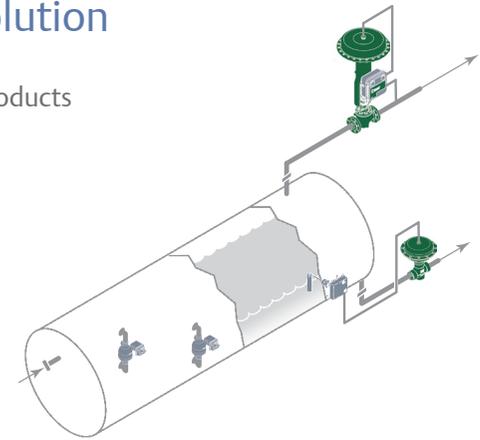
OVER **500,000** FISHER VALVES AND INSTRUMENTS SOLD INTO OIL AND GAS

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>

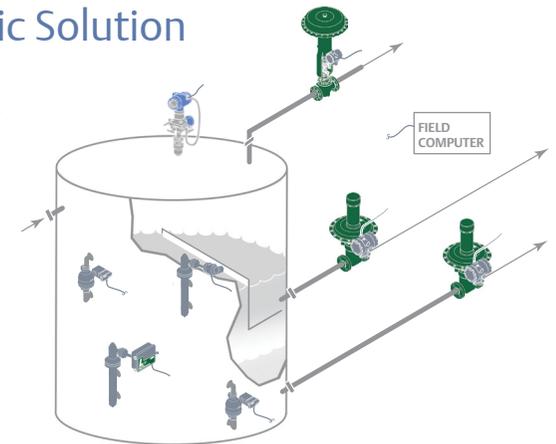
Pneumatic Solution

Low emissions
Time-tested Fisher products



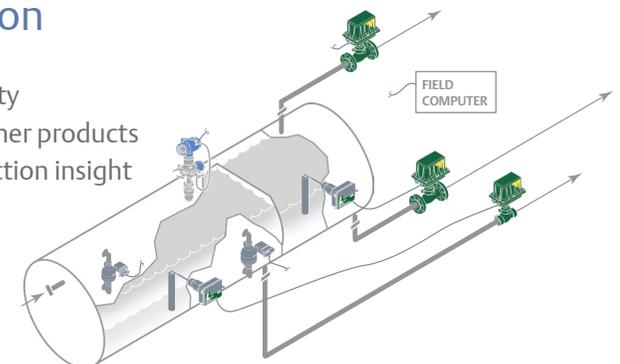
Pneumatic/Electric Solution

Lower emissions
Time-tested Fisher products



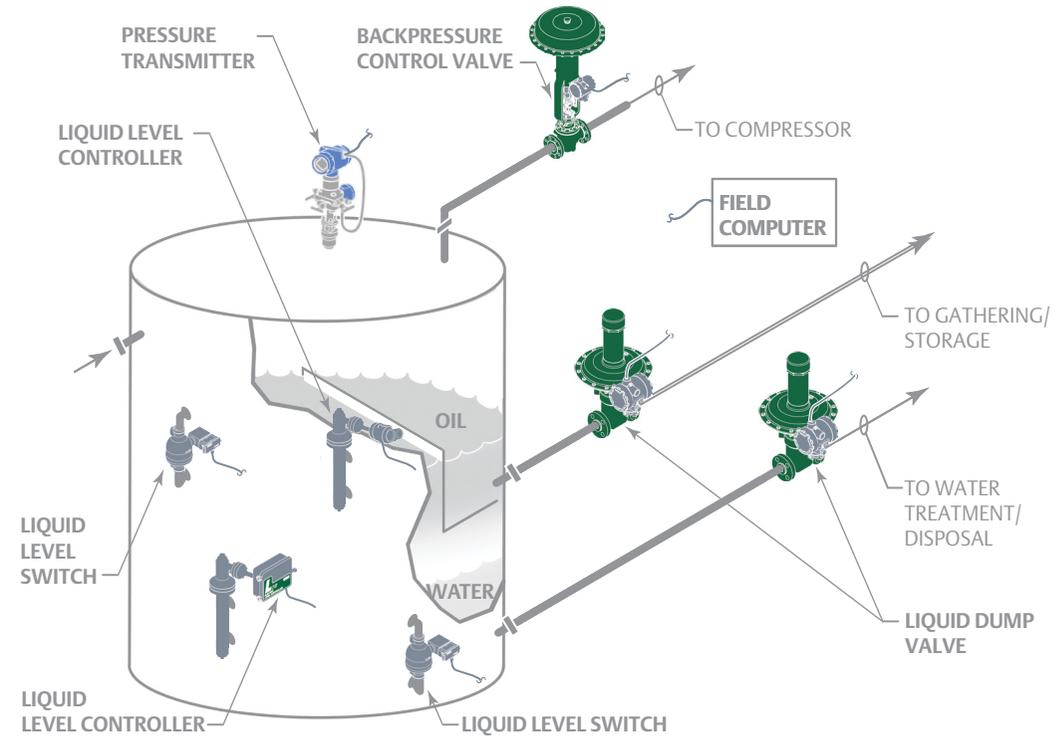
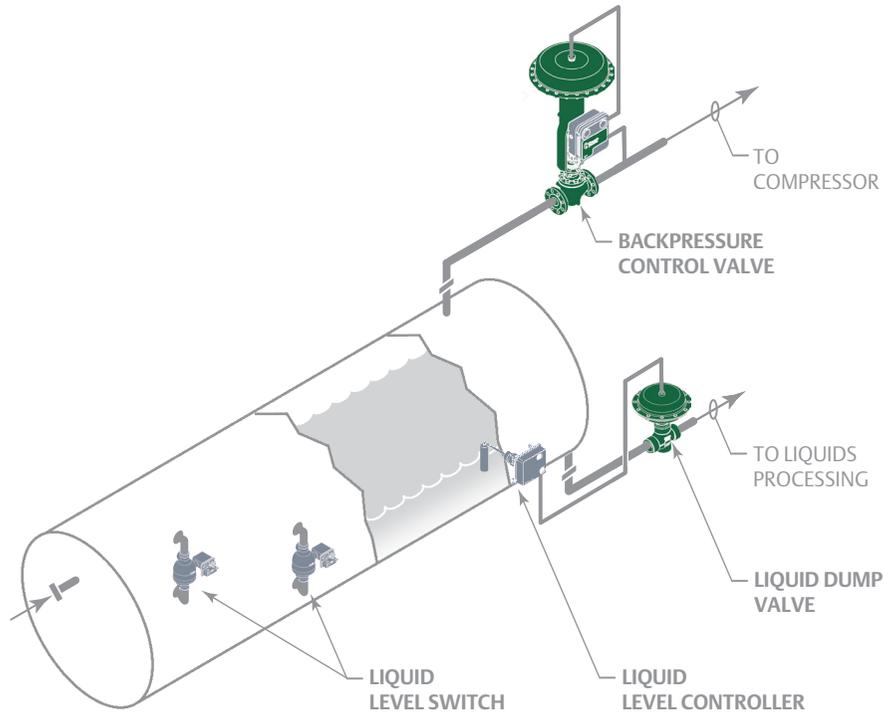
Electric Solution

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



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

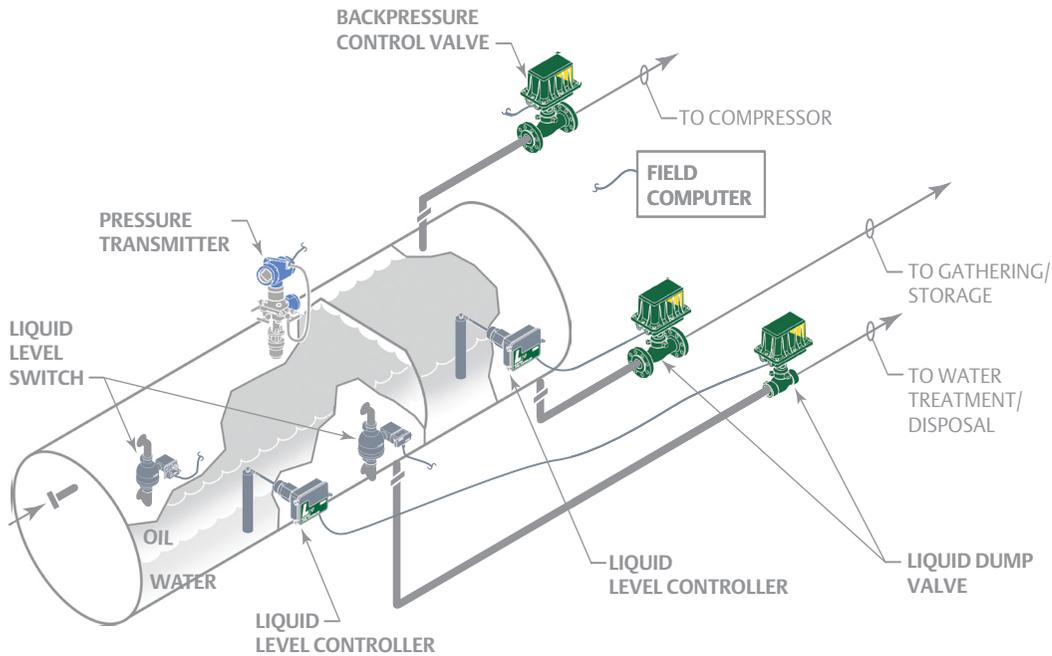
Get the fast performance advantage of pneumatic technologies plus visibility from a field control system, using Fisher pneumatic/electric products. This solution offers visibility into how much oil or gas is being produced and shows the status of the separator.



D4 and D3 easy-Drive™ Valves

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



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.



- ELECTRIC LEVEL CONTROLLER**
- + Zero bleed
 - + Simple zero and span tuning for fast and easy setup
 - + US Quad "O" compliant

L2e



2100/2100E

- PNEUMATIC OR ELECTRIC HI-LO LIQUID LEVEL SWITCH**
- + Switching from high level to low level is easy and can be done in the field without additional parts
 - + Installation and application versatility
 - + US Quad "O" compliant



C1

- PNEUMATIC PRESSURE CONTROLLER**
- + Low consumption increases gas to market
 - + High output and easy tuning
 - + US Quad "O" compliant
 - + Can be paired with Fisher easy-e™ control valves



L2sj

- PNEUMATIC LEVEL CONTROLLER**
- + Snap-acting or throttling control
 - + Dependable control performance
 - + US Quad "O" compliant



D2T

- PNEUMATIC LIQUID DUMP VALVE**
- + Field selectable flow rates
 - + Live-loaded packing system to minimize gas loss
 - + Alloy 6 trim option for erosive applications such as those found in shale oil and gas production



i2P-100

- ELECTRO-PNEUMATIC TRANSDUCER**
- + Designed and certified for natural gas supply and resists plugging
 - + Low consumption increases gas to market
 - + US Quad "O" compliant



4660

- PNEUMATIC HIGH-LOW PRESSURE PILOT**
- + Cost-effective design, one pilot provides high-low function or a single switch point
 - + US Quad "O" compliant

PARTNER WITH EMERSON
FOR SEPARATOR OPTIMIZATION
TO IMPROVE
SHALE OIL AND GAS PRODUCTION

BY REPLACING A PNEUMATIC WELLHEAD VALVE THAT WAS EXPERIENCING
PLUGGED AIR LINES, ONE OPERATOR INCREASED OIL AND GAS
PRODUCTION RATES BY \$10,500 USD ANNUALLY.

-  Fisher.com
-  Facebook.com/FisherValves
-  LinkedIn.com/groups/Fisher-3941826
-  Twitter.com/FisherValves

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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.



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