

With a Custom Fisher™ Valve, Arauco Chemical Increases Methanol Production by 3%

RESULTS

- Improved reliability and safety of a critical process
- Improved syngas conversion to methanol by 1%
- Increased production, valued at \$500,000 USD per year
- Maintained steam control over previously inconsistent or unstable operation—without downtime



APPLICATION

Steam pressure regulation for a methanol unit's compressor

CUSTOMER

Arauco Argentina Chemical

CHALLENGE

The methanol production unit at Arauco Chemical's plant in Puerto San Martin, Santa Fe state, Argentina, had a competitor's NPS 4 globe valve regulating steam with a pressure drop from 45 bar to 2 bar and temperatures up to 590° Celsius (1000° Fahrenheit). The valve had been stuck in the closed position several times, and the operator had been leaving it 15 to 20% open—just to be sure.

During the reforming stage of production, methane and steam are converted to synthesis gas and excess heat is removed. The plant manager described the syngas compressor as "one of the unit's bottlenecks." Valve performance issues not only contributed to high noise levels and pipeline vibration, but also forced plant personnel to superheat more steam than they needed. This resulted in less power available to the turbine and compressor, impacting overall plant production.

Arauco needed a more reliable valve for failure state and performance under severe service conditions. Fisher valves came to mind. The Arauco team sent their process data to the nearest Emerson local business partner, Valsys.

SOLUTION

Based on the service conditions, Emerson engineers recommended a replacement Fisher valve—an ED sliding-stem, single-port, balanced-plug control valve with a 600RF (raised face) flange.

"In our experience, when it comes to reliability and the demands of high-pressure drops, Fisher valves are the best option."

Guillermo Rizzatti
Plant Manager

The replacement Fisher valve's body was stainless steel and an oversized stem (3/4 inch, S20910 SST) would prevent buckling amid the high temperatures and pressures.

After consulting with product and industry experts in Marshalltown, Valsys engineers also recommended custom trim (318 with stellite). A special cage – Whisper Trim™ III (D3) – would mitigate the noise levels within its operating range and reduce the risk and impact of vibration. C-seal trim made of high-hardness materials (N07718 nickel alloy) would withstand the high temperatures and meet ANSI V leakage class requirements for shutoff.

The assembly also included a size 130 585C linear piston, double-acting actuator that can produce up to 111,000 Newtons of force and provide accurate throttling. A Fisher 377D pressure-sensing trip valve added to the actuator will help ensure a pneumatic fail-closed action.

Finally, the sales team recommended a Fisher FIELDVUE™ DVC6200 digital valve controller with Advanced Diagnostics. When used with the plant's existing ValveLink™ software, the FIELDVUE instrument will monitor this critical valve's dynamic performance. Its on-board diagnostics enable operators to run periodic tests and generate online alerts about any process changes or needed repairs.

This replacement Fisher valve has been operating reliably, without any noise or vibration issues, for over a year.

RESOURCES



Brochure: FIELDVUE DVC6200 digital valve controllers

<http://www.documentation.emersonprocess.com/groups/public/documents/brochures/d351908x012.pdf>

 <http://www.Facebook.com/FisherValves>

 <http://www.YouTube.com/user/FisherControlValve>

 <http://www.Twitter.com/FisherValves>

 <http://www.Linkedin.com/groups/Fisher-3941826>

Emerson Process Management

Marshalltown, Iowa 50158 USA
Sorocaba, 18087 Brazil
Cernay, 68700 France
Dubai, United Arab Emirates
Singapore 128461 Singapore
www.Fisher.com

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“The proven reliability of Fisher valves with FIELDVUE instruments enabled us to avoid laminating live steam and helped increase steam temperature for the turbine.”

Guillermo Rizzatti
Plant Manager



On the back side of the valve is a FIELDVUE DVC6200 digital valve controller with online monitoring and Advanced Diagnostic capabilities.