

Regular Nozzle Maintenance Improves Process Control and Protects Vital Equipment

Desuperheating or attemperating equipment play a critical role in providing efficient, high quality steam to a variety of applications in power and process production. Unfortunately, issues like improper nozzle spray are common and can lead to damage to downstream equipment, lost production and revenue, and expensive repairs.

Damage From Clogged Nozzles

Over time, nozzles can become clogged by debris, springs wear out, and magnetite or other particulate builds up or erodes critical spray surfaces. The results can be significant and may cause:

- Decreased capacity leading to underspray
- Distorted spray pattern leading to insufficient mixing and loss of efficiency
- Leaking spray nozzles and overspray leading to damage in piping or other components

Ignoring these warning signs can further lead to stretched tubes or tube failures, cracked elbows, thermal liner cracking, or cracked welds.

Emerson recognizes that all of these factors result in poor attemperator performance and can cause unintentional cycling of the process as it attempts to return the process to temperature setpoint.

Small Changes—Big Results

With a simple routine maintenance plan and by replacing your nozzles regularly, Emerson engineers can work with you to help reduce the potential risks of equipment failures while returning your desuperheating technologies to the levels of performance you once experienced.

What is a small, up-front investment may yield a sizeable return in a short period of time as you continue to recognize process steam efficiency improvements and reduced maintenance costs.



Case-in-point: The Fisher® AF nozzle was clogged by particulate and had to be replaced to ensure proper nozzle spray.

Emerson—A Trusted Provider

With over 130 years of experience in the power and process industries, Emerson is a leading desuperheating technology provider. We offer a complete line of spray nozzles designed to provide outstanding performance and innovative solutions for your tough steam conditioning applications.

Fisher® Nozzle Technology

Our application experts designed the Fisher AF nozzle with you in mind. It offers:

Enhanced Process Efficiency

- **Superior performance**—proper spring rate results in improved nozzle rangeability to operate over most process conditions.
- **Improved spray pattern**—annular spray pattern significantly decreases water droplet size over fixed orifice nozzles.

Enhanced Temperature Control

- **Optimum design**—water atomization ensures evenly distributed temperature profile at a minimum straight pipe length and temperature sensor length.
- **Accurate temperature control**—variable geometry spray nozzle creates an adequately formed conical-shaped spray pattern to achieve proper mixing and quick vaporization at all flowing conditions.



Severe Service



- **Proper nozzle selection**—matches pipe I.D. to fully fill the pipe without spraying on the pipe walls.

Ease of Maintenance

- **Easy installation and minimal maintenance**—Fisher AF nozzles are designed to be easily removed, maintained, or replaced without having to replace the entire unit.
- **Parts and Services**—Nozzles for Fisher steam conditioning equipment are often available through Fisher Quick Ship service and can be installed by your local Fisher service provider.

Realize Process Improvements

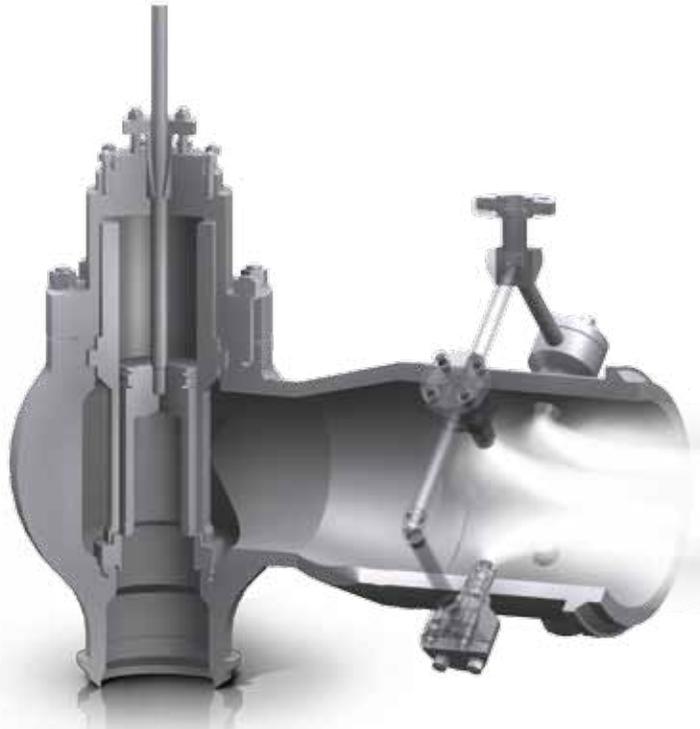
If you want more information on steam efficiency improvements and reduced equipment maintenance costs, contact the Emerson Process Management sales office in your area or visit www.EmersonProcess.com/Fisher.



Clean nozzle allows for proper nozzle spray and water atomization.



Clogged nozzle causing distorted spray pattern.



Fisher TBX control valve spray patterns achieve optimal mixing and quick vaporization at all flow conditions.

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

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

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

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



Scan the QR code to view the Fisher Steam Conditioning Technologies brochure.

© 2012 Fisher Controls International LLC. All rights reserved.

Fisher is a mark owned by one of the companies in the Emerson Process Management business unit of Emerson Electric Co. Emerson Process Management, Emerson, and the Emerson logo are trademarks and service marks of Emerson Electric Co. All other marks are the property of their respective owners.

The contents of this publication are presented for informational purposes only, and while every effort has been made to ensure their accuracy they are not to be construed as warranties or guarantees, express or implied, regarding the products or services described herein or their use or applicability. All sales are governed by our terms and conditions, which are available upon request. We reserve the right to modify or improve the designs or specifications of such products at any time without notice. Neither Emerson, Emerson Process Management, nor any of their affiliated entities assumes responsibility for the selection, use, or maintenance of any product. Responsibility for proper selection, use, and maintenance of any product remains solely with the purchaser and end user.

Emerson Process Management
 Marshalltown, Iowa 50158 USA
 Sorocaba, 18087 Brazil
 Chatham, Kent ME4 4QZ UK
 Dubai, United Arab Emirates
 Singapore 128461 Singapore
www.EmersonProcess.com/Fisher