

Reliable Insertion-Style Desuperheaters Enhance Process Throughput and Protect Vital Equipment

Desuperheating or attemperating equipment plays a critical role in providing efficient, high quality steam to a variety of applications in the power and process industries.

While operating in these severe applications, desuperheating equipment is exposed to high thermal cycling and stress, high steam velocities, and flow-induced vibration. Improper maintenance or product selection can result in damage to downstream equipment, lost production and revenue, and expensive repairs.

Damage to Insertion-Style Desuperheaters

Cracked welds, thermal cycling, and fatigue due to excitation from vortex shedding and flow-induced vibration can lead to failures of insertion-style desuperheaters. Additionally, these type of failures can lead to:

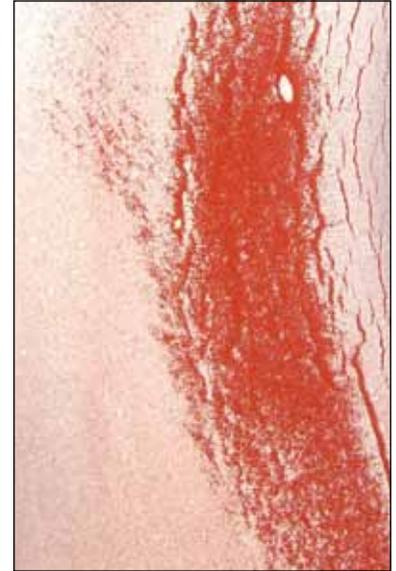
- Overshoot of the desired outlet temperature.
- Overspray of unvaporized spray water into downstream harps, causing damaging thermal transients.
- Defective spray pattern.
- Equipment malfunction or failure of downstream pressure components, stretched boiler tubes, thermal liner or steam pipe weld cracks.

Eventually, these factors not only impact the safety of your plant, they can also cause complete failure of the unit. This can lead to unexpected downtime and loss of revenue.

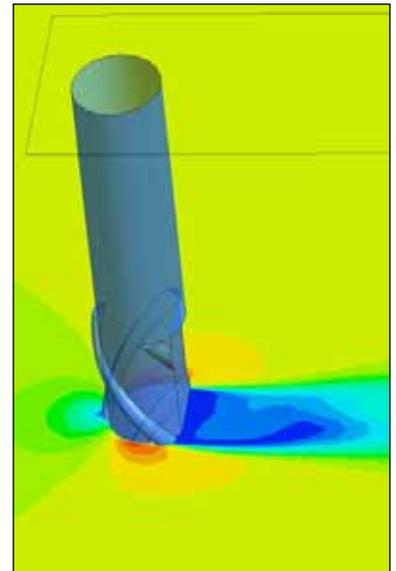
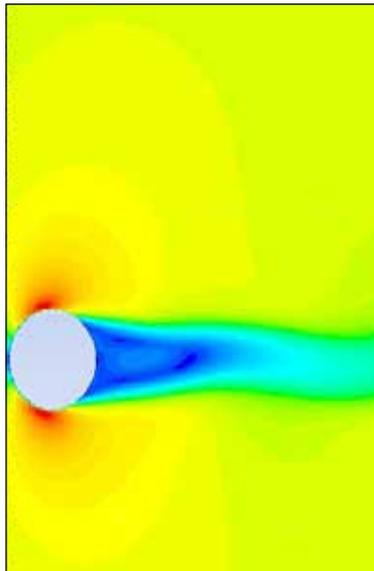
That's why Emerson engineers have improved the design of Fisher® DMA/AF-HTC insertion-style desuperheaters. This patent-pending design includes a vortex suppression apparatus that suppresses or significantly reduces vortex shedding. This alters vortex induced vibration and associated magnification of the steady drag. This means increasing the operating life of the desuperheater and minimizing the risks of equipment failure under normal use and care.



Cracked steam pipe weld resulting from damaged desuperheater overspray.



Cracking on inside wall of this pipe caused by water quenching.



3-D image using Computational Fluid Dynamics showing a non-sinusoidal velocity profile downstream of enhanced insertion style desuperheater. This enhanced design improves fatigue resistance in high velocity applications by disrupting coincident vortices formed by flow around the device.



Severe Service





Improve Your Bottom Line

If you want to help protect your downstream equipment and minimize downtime, contact the Emerson Process Management sales office in your area or visit www.EmersonProcess.com/Fisher.

Fisher Desuperheater Technology

Structurally designed for severe applications where the desuperheater is exposed to high thermal cycling and stress, high steam velocities, and flow induced vibration, the Fisher DMA/AF-HTC insertion-style desuperheater offers:

Improved Process Efficiency and Reliability

- **Superior performance**—works in conjunction with a separate spray water injection valve that eliminates potential damage to downstream equipment caused by leaking or defective nozzles or assemblies.
- **Extended service life**—uses a forged construction optimized to move weld joints away from high stress regions.
- **Reduced vibration related fatigue**—nozzle mount engineered to minimize the potential for excitation due to vortex shedding and flow induced vibration.
- **Optimum design**—the desuperheater design incorporates an integral thermal liner inside the desuperheater body pipe to minimize the potential for thermal shock when cool water is introduced.
- **Accurate temperature control**—Optimized spray pattern with optional AF nozzle technology allows for a wide operating range to achieve optimal mixing and quick vaporization at all flowing conditions.

Ease of Maintenance

- **Improved face-to-face availability**—can be located wherever is convenient in the pipeline.
- **Easy installation and minimal maintenance**—Fisher DMA/AF-HTC insertion-style desuperheaters are designed to be easily removed, maintained, or replaced.
- **Parts and Services**—DMA/AF-HTC insertion-style desuperheaters and nozzles for Fisher steam conditioning equipment are often available through Fisher Quick Ship service and can be installed by your local Fisher service provider.

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

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