APPLICATION BRIEF

REAL-WORLD RETURNS REDEFINE PROCESS PERFORMANCE

BACKGROUND

Water has been used in industry as a medium of great convenience for mixing, transport, heat transfer and sanitation.

Over the last 25 years the cost of water has increased more rapidly than any other production input, and companies have had few tools to allow them to reduce or actively manage these costs within their businesses. Water and energy are being measured as the key constraints to robust economic growth into the future.

The accurate mixing of water to maintain process variables as near to optimum set point provides companies the opportunity to maximize profitability through reduced utility and energy consumption combined with increased process yield.

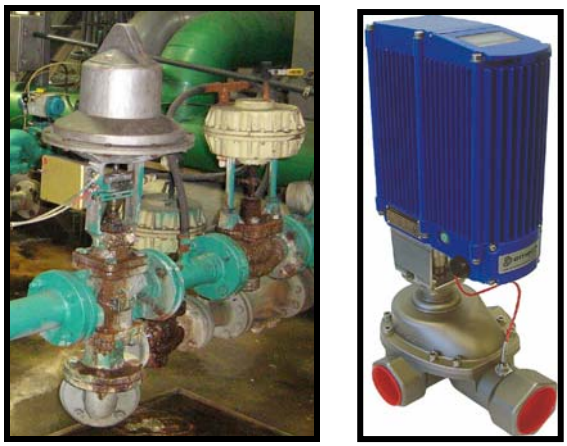
PROBLEM

Traditional tempered water mixing systems, either steam / water or water / water relied on a historically accepted six to ten pipe diameters of pipe length for the mixing to be completed, before sensing the performance of the mix. This allowed a generous volume of water to potentially become out of specification before it is detected as unacceptable operating conditions.
Process variances of 2 to 5 deg °F were typically accepted as best practice.

The sensing technology was often slow, generating additional time for the system to vary from its optimum set point.

The use of traditional pneumatic actuators to reposition valves and recover from variances from set point are high maintenance items, often requiring significant maintainer attention and expenditure, and rely on constant air quality and pressure, that consumes high quantities of energy to maintain.

To cope with such variances in critical control points customers would tune set points to be consistently > 5 deg °F above optimal process set points to ensure compliance, and provide a degree of head room for system variances.



Traditional Pneumatic and Emech Mixing Station

SOLUTION

The Emech F3 and F5 generation of integrated mixing solutions combines patented swirl mix design within the valve to ensure mixing is complete at the nose of the valve. When combined with a fast response temperature probe, we provide closed loop temperature control through the Emech G1 complete actuator and controller.

The Emech system presents a unique “Out of the Box” control solution ensuring that temperature accuracy of +/- 0.9 deg °F can be maintained even during unequal pressure differentials

Increased accuracy of mixing has provided customers with reduced energy and utility costs to maintain tighter process control, and the robust design and construction of the units has minimized maintenance intervention and expense compared with previous systems

Customers have experienced payback intervals measured in weeks and months as a result of the deployment of Emech technology, and have lead to the redefinition of what is acceptable in process performance.

Contact Emech directly or your local distribution representative for more information.

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