

Industry: Petroleum Processing

Application: Washing

Product Description: Half Pattern Plate Attachment

Situation: A BETE customer wanted to improve the cleaning of their heat exchanger tube sheet, but was concerned about wall impingement. They inquired if we offered a "half pattern" nozzle, or a nozzle in which the spray outline produced a full cone semi-circle. BETE does offer this in the form of a half pattern TF, however the customer did not want an external vane nozzle.

BETE's solution: BETE Application Engineers investigated several modifications to the internal geometry of existing full cone whirl-style nozzles with unsatisfactory results. The rotational path of the liquid before it exited the nozzle did not encourage a linear pattern line. To overcome this problem it was decided to modify the pattern just after it left the nozzle in the form of a deflector plate affixed to the nose of the nozzle. A proof of concept appliance was constructed out of cardboard and packing tape, and even with these materials worked well. The BETE tool room produced a metal prototype by fabricating sheet metal. Because orientation was critical, the appliance was designed to mount on the nozzle after the nozzle was installed on the supply piping to account for variations in tightening angle. This concept, along with a small deflection ramp on the plate, produced a semi-circular coverage pattern at any orientation desired.

Technical Questions?

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