

**Industry:** Refining

**Application:** Alcohol Spray System

**Product Description:** 3/8" NT 1090 Nozzle Tube

**Situation:** An engineering firm contacted BETE with preliminary plans for an alcohol spray system. The customer was looking for a 360° flat fan spray, in a plane, near the end of a 2 ft (0.6 m) long, 3/8" pipe. The entire apparatus was required to have an outside diameter less than 1/2 in (1.3 cm).

### Technical Questions?

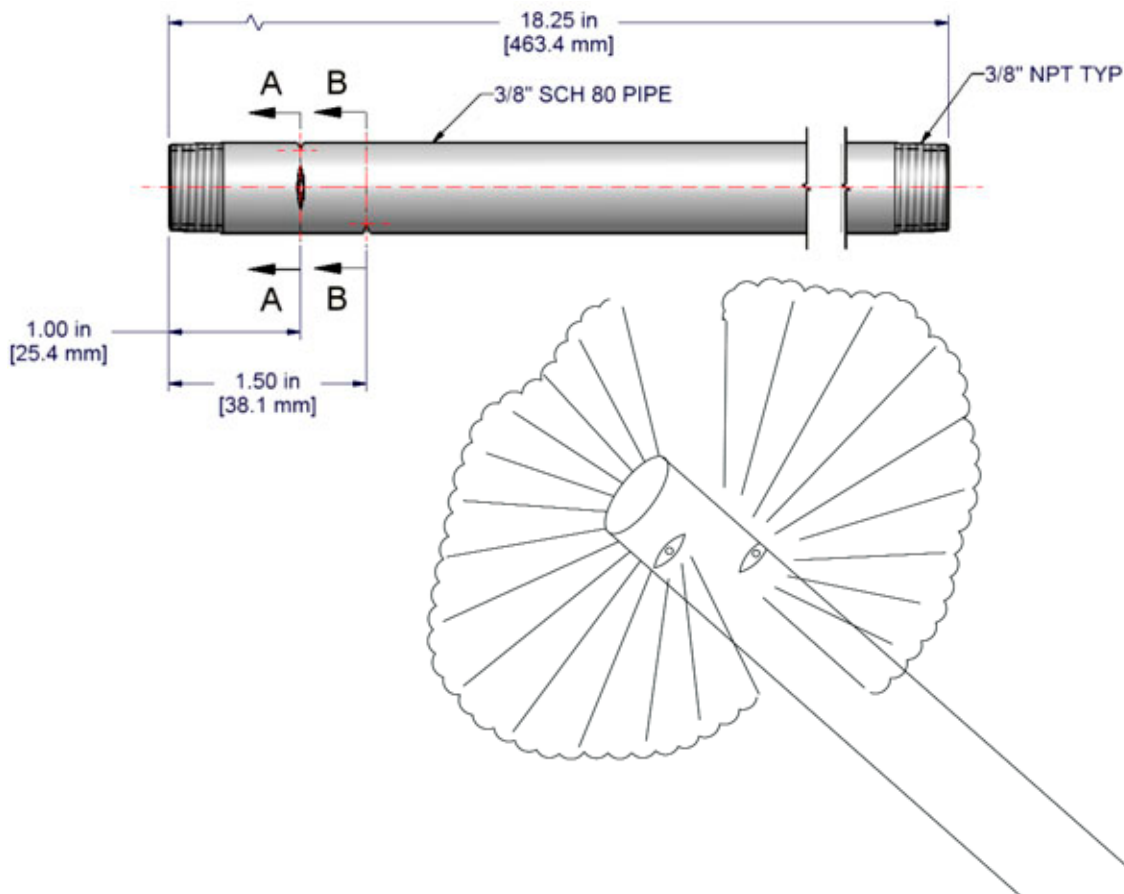
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App#070304

**BETE's solution:** After much discussion between the customer, BETE Applications Engineers, and BETE Design Engineers, a solution was found that met all criteria. The resulting nozzle was a special 3/8" NT 1090 Nozzle Tube. This nozzle utilized BETE's skilled machinists to create flat fan orifices in the wall of the pipe. In order to accomplish this task, a hole was required in the pipe opposite the orifice to give access to the back of the orifice for machining. The hole would be filled upon completion of the orifice. However this fabrication requirement did not allow for all 360° of spray to be in one plane. A compromise was found between the customer's original plans and BETE's fabrication requirements. The result used four orifices, two on a plane, each a 90° flat fan with a flow rate of 1 GPM at 40 psi (3.8 l/min at 2.8 bar). This arrangement created two planes of 180° flat fan spray that together created the 360° flat fan pattern desired.



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