

Cast Iron Pipe Manufacturer Eliminates Rework and Saves US\$40,000 per Month with New Spray System



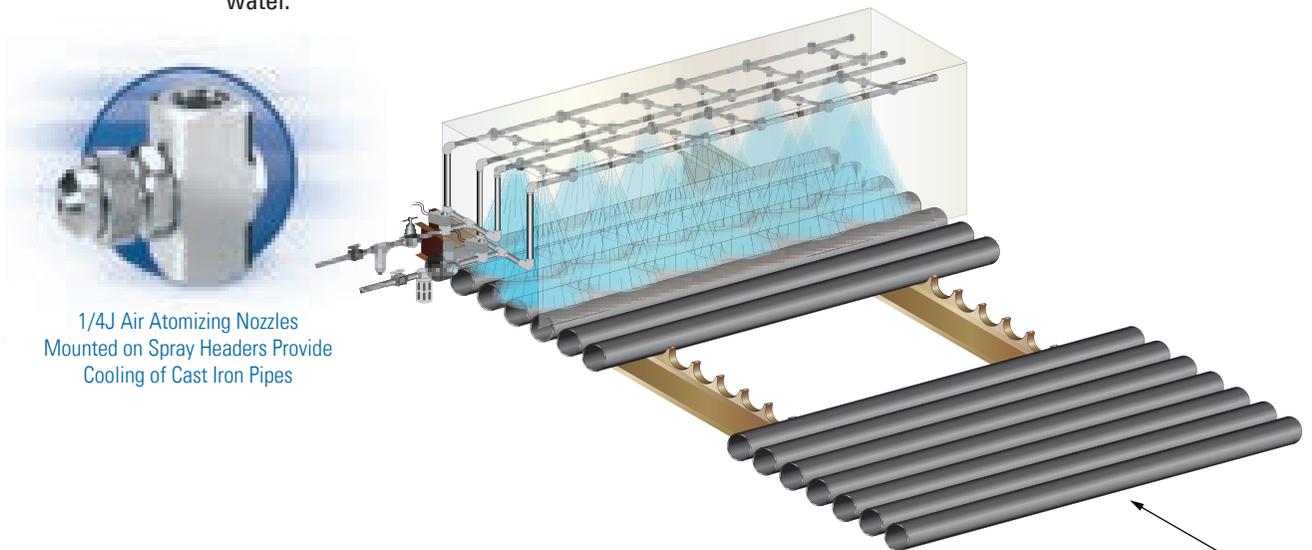
Problem:

A high-production foundry which manufactures cast iron products from recycled materials, needed to efficiently cool cast iron soil pipe from 350° to 100°F (177°C to 38°C) after dipping the pipe in hot asphalt. The asphalt coating, which acts as a corrosion inhibitor and fills in the porosity of the pipe, was chosen as a solvent-free coating but caused surface imperfections as it cooled on the pipe surface. Though the asphalt was an acceptable “green” alternative to previously used coatings, the surface flaws were unacceptable to customers and resulted in a significant number of returned products.

Cooling by immersion in a water bath was tried first but caused blistering of the asphalt coating. Ambient air cooling gave a better finish but took much longer and required manual rotation of the large pipes to prevent bumps from forming where drips of asphalt cooled and hardened on the surface of the pipe. Both solutions resulted in excessive manual labor and overtime expense.

Solution:

Spraying Systems Co.’s solution was a simple cooling station comprised of two rows of six 1/4J air atomizing nozzles mounted 30” (762 mm) above the pipe to provide even coverage of the 4’ x 10’ (1.2m x 3m) area. Based on the specific heat of the cast iron and the pipe mass, a heat balance calculation provided the theoretical water flow and nozzle quantity required to complete the cooling in the desired time. Air atomizing nozzles are used because they provide nearly 100% evaporation, maximize cooling and resist plugging even when used with recycled water.



1/4J Air Atomizing Nozzles
Mounted on Spray Headers Provide
Cooling of Cast Iron Pipes





Cast Iron Pipe Manufacturer Eliminates Rework and Saves US\$40,000 per Month with New Spray System – Continued

Results:

The cooling system has dramatically improved the foundry's production, eliminating US\$40,000 in monthly rework and overtime expense. This savings resulted in a payback of less than two weeks. In addition, the cooling system advances one of the company's green initiatives.

A CLOSER LOOK AT THE SYSTEM



J Series air atomizing nozzles are available in many sizes and configurations. Inlet connections range from 1/8 to 1" with flow rates ranging from 0.55 to 906 gph at 40 psi (2.08 to 343 l/hr at 2.8 bar). Users can choose pressure- or siphon-fed spray set-ups and a round, wide-angle round, 360° circular, flat spray or deflected flat spray pattern.



A variety of Spraying Systems Co.'s accessories are part of the installation including t-style strainers, regulators, gauges, solenoid valves, air filters and more.



Spraying Systems Co.®
Experts in Spray Technology

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