

# Case Study

FROM HIGH TEMPS TO HIGH  
QUALITY: A TIRE MANUFACTURER'S  
SUCCESS STORY  
AUTOMOTIVE INDUSTRY

## RAPID COOLING SOLUTION

High temperatures in many industrial manufacturing processes can lead to poor product quality and reduced output due to process slowdowns. Whether you're producing high-performance rubber tires or weather-resistant shingles, BETE offers effective, efficient cooling systems that preserve material integrity, lower operating costs, and keep production moving.

### ► PROBLEM: HIGH TEMPERATURES AFFECTING RUBBER QUALITY

At a leading tire manufacturing facility, elevated temperatures in freshly extruded rubber were compromising product quality and throughput. In peak ambient conditions, rubber compounds processed at temperatures up to 380° F (193° C) retained excessive heat after exiting the forming conveyor. This was causing:

- Quality inconsistency for varying line speeds
- Potential for material deformation and variability
- Forced process slowdowns to maintain cooling consistency

The customer sought a targeted spray cooling system to provide effective, controllable heat reduction – from 380° F (193° C) down to 215° F (102° C) – without oversaturating the rubber, which could lead to water runoff, and increased risk of worker injury.

### ► SOLUTION: BETE PROCESS COOLING SYSTEM

BETE engineered a spray cooling system that integrates two custom spray headers with Electric HydroPulse® (EHPI) automatic spray nozzles featuring BJ tips, paired with the FlexFlow® spray controller, to deliver precise, automated cooling. A live on-site demonstration validated the system's ability to rapidly reduce material temperatures before the next stage of processing, ensuring the preservation of the rubber's quality even in high-temperature ambient conditions.

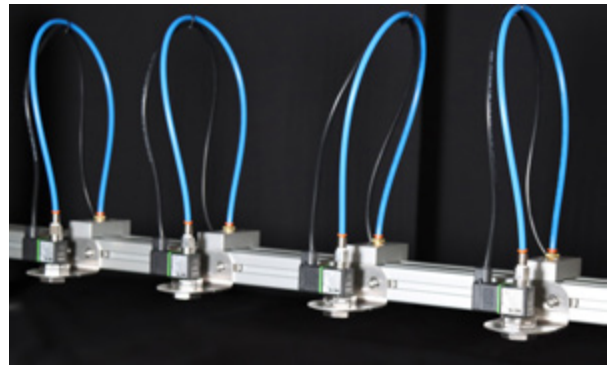




Utilizing plant-supplied water pressure and eliminating the need for compressed air atomization, the system delivers operational simplicity and a potential cost savings of over \$8,000 per year. The EHPI enables targeted, fine droplet spray patterns ideal for heat transfer efficiency, while the FlexFlow system provides closed-loop temperature-based feedback control for precision tuning under dynamic conditions.

# Results

The new spray system effectively reduces the process temperature over 100 degrees without oversaturation, leading to more consistent product quality and safer working conditions. As a result of the positive outcome, the customer has ordered additional systems for production lines at their other facilities.



## BENEFITS OF BETE'S COOLING SYSTEMS:

- Reduce or eliminate the need for compressed air, lowering operating costs
- Provide droplet atomization tailored to your application for rapid heat transfer
- Deliver consistent, repeatable results with advanced yet intuitive controls and automation
- Integrate easily to minimize disruption to existing process lines



## WHY CHOOSE BETE AS YOUR SPRAY TECHNOLOGY PARTNER?

- ISO 9001:2015 Certified
- The ability to solve unique and complex process challenges
- Trusted spray nozzle design and manufacturing with consistent quality assurance

With over 75 years of experience designing and manufacturing spray nozzles and spraying systems, BETE is a trusted provider of spray technology.

50 Greenfield Street,  
Greenfield, MA 01301 USA

800-235-0049  
413-772-0846

www.BETE.com  
sales@BETE.com