

Rex Materials' TCS product consists of radiant heating elements that are embedded in high-temperature insulation.

# THEY CAN TAKE THE HEAT

## Latest products manage the transfer of heat

By Michael T. McCue

**WORKING WITH HEAT** is a tricky endeavor because, like water, heat always seeks equilibrium. It continuously moves from warmer areas to cooler ones until everything is the same temperature, and that presents a doubly thorny problem for plastics processors.

When heat escapes the area where it's needed, it wastes energy and increases costs. It also drives up temperatures on the shop floor, making the work environment uncomfortably hot.

Equipment manufacturers are continuously working to attack the problem from both angles: making the transfer of heat to the place it's needed more efficient, and keeping that heat from escaping to places where it isn't wanted.

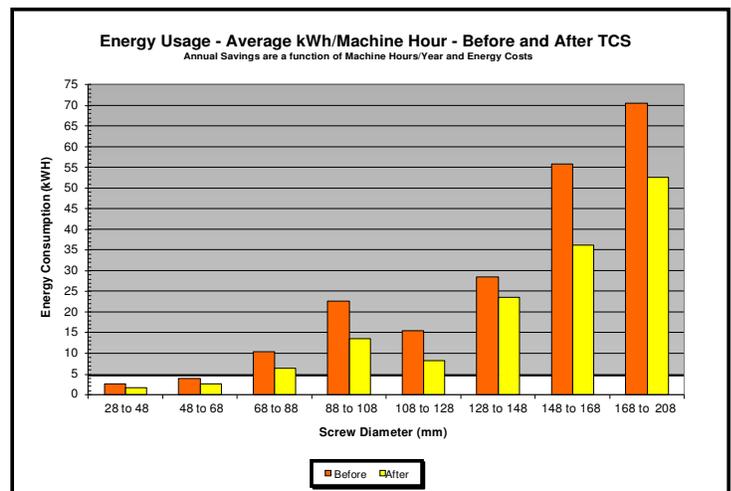
### REX MATERIALS

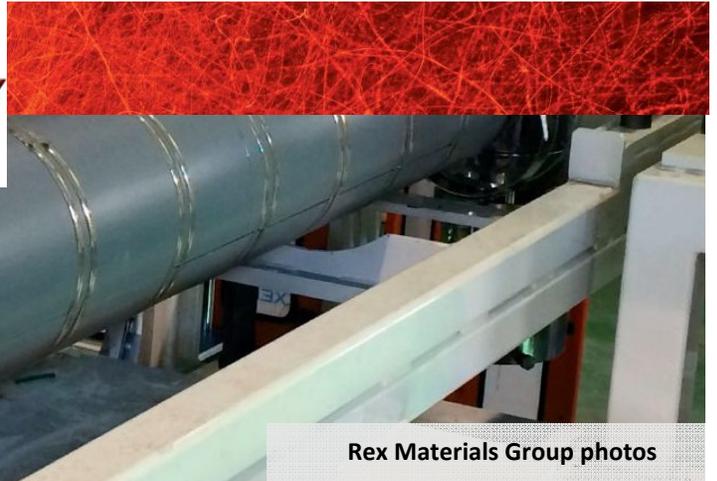
The Thermal Control Solution (TCS) from Rex Materials Group consists of radiant heating elements that are embedded in high-temperature insulation. Designed to replace traditional band heaters, TCS can reduce barrel-heating costs by 40 percent and pay for itself in as little as 12 to 24 months, depending on the amount of energy consumption and cost of electricity, the company said.

TCS, which can be used on injection molding, blow molding and extrusion machinery, was first introduced in 2006, but Rex has improved its design regularly and consistently. The company's most recent upgrade was replacing the product's Teflon covers with a two-part, high-temperature coating, which results in easier installation and greater durability.

The system also keeps the melt at a more consistent temperature than traditional band heaters, which cycle on and off. When the melt drops below the set temperature, band heaters turn on and provide heat

(continued on the next page)





Rex Materials Group photos

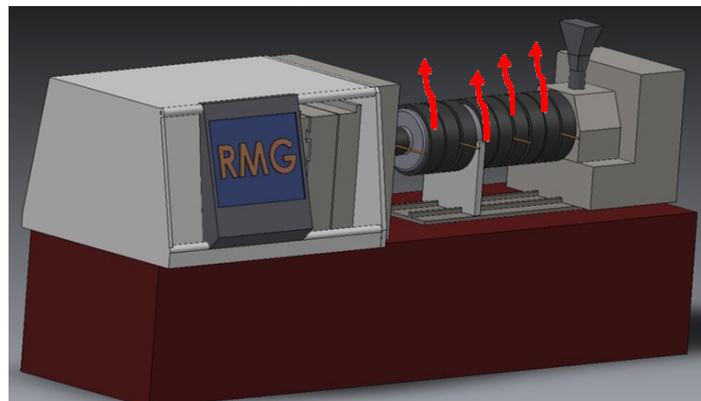
**Rex Materials' TCS product consists of radiant heating elements that are embedded in high-temperature insulation.**

until the temperature is regained — but even after shutting off, their residual heat pushes the temperature a little higher than the set point. The heaters turn back on when the melt cools, but by the time the heat kicks in, the melt temperature is slightly below the set point. TCS, on the other hand, keeps the temperature more consistent by using radiant heat transfer, which delivers heat via infrared radiation and greatly reduces the amount of heat that escapes.

An increasingly important selling point for TCS is its ability to provide a more comfortable work area. A major drawback of band heaters is that much of the heat they generate is lost to the surrounding environment rather than delivered directly to the melt.

“This causes two enormous problems for shop owners,” said Ken Van Nimwegen, global sales manager with Rex. “First, that overheated air is miserable for the people working in it, so the company is either going to suffer higher turnover or have to pay more to keep people working there.

“Second, the shop is going to pay a lot more for energy. The usual solution for a hot shop floor is putting big fans on the ceiling, but all that does is push the hot air down and circulate it around the shop floor. Equally bad, the fans blow heat off the tops of the band heaters, causing them to burn more energy to maintain the necessary temperature. It’s one of those circumstances where the ‘solution’ to a problem actually results in more and bigger problems,” he said.



Other benefits of the product include:

- The barrel reaches its operating temperature in less than half the time of a standard band heater, increasing the machine’s productivity.
- The TCS is cool to the touch, so it poses no risk of burns or other injuries to workers.
- There is little to no risk because the user doesn’t need to make any modifications to the machine or its controls.

Rex also offers an optional cooling feature that uses specially designed blowers — encased in a durable, protective, sound-absorbing housing — to reduce the duration of the cool-down period when material changes or maintenance are required.

They can direct the hot air out of a temperature controlled environment like a clean room, easing the load on the air conditioner and further reducing power consumption.

**Do you want to save on your energy costs?**

Contact Rex Materials Group by phone 517-223-6864 or email: [info@rexmaterials.com](mailto:info@rexmaterials.com)