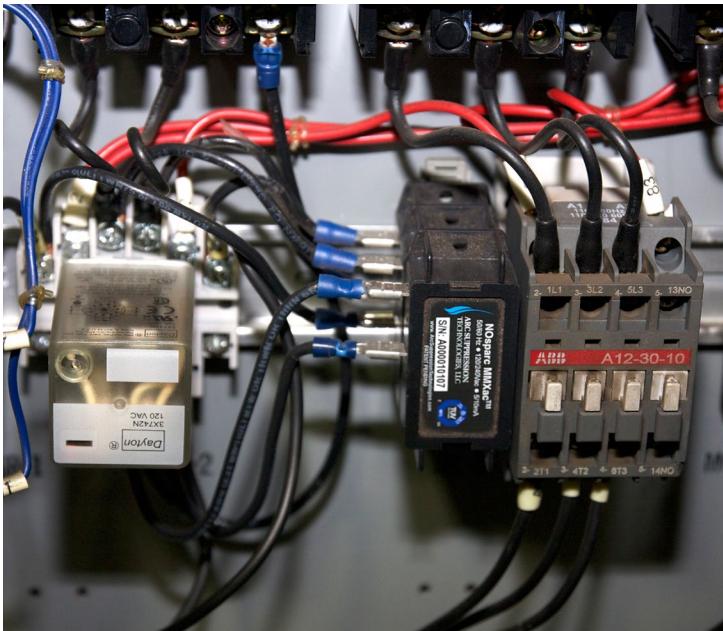


CASE STUDY

ARC SUPPRESSION TECHNOLOGIES



Performance Plastics LLC Amery, Wisconsin

SECTOR

Injection Molding Manufacturing

PROBLEM

Failed \$200 power contactors on the heating barrels of their injection-molding machines were causing extensive downtime and driving up the cost of consumable replacement parts.

SOLUTION

Install a NOsparc® arc suppressor (MMXAC) and low-cost ice cube relay to get superior longevity and achieve a 95% reduction in downtime during contactor replacement.

A NOVEL NOSPARC® SOLUTION FOR INJECTION MOLDING MACHINES

Performance Plastics LLC, based in Amery, Wisconsin, is a customer service-focused company specializing in the design and manufacturing of injection-molded plastic parts for dozens of industries, including outdoor sports, telecommunications, and recreational vehicles. Founded in 2006, Performance Plastics operates 12 injection-molding machines, which heat raw plastic and inject it into molds to form the final product.

Since 2011, Performance Plastics has manufactured the product cases for Arc Suppression Technologies NOsparc® arc suppressors. This relationship evolved to a new level several years ago when John Entenza, the company's co-owner, conceived of a simple yet extremely novel solution to the problem of failed power contactors in his injection molding operations.

"My role at the company is to purchase and maintain all of our production machinery and tools," says Entenza. "Ever since we started this business I have wrestled with the high cost of continually replacing the failed 3-phase power contactors that operate the heaters on our injection-molding barrels. These heaters are critical to our manufacturing process, and we never really turn them off. When we've finished using a specific machine for production, we bank the heat at 250 degrees, so our heaters run 24/7, 365 days a year. Of course, this means that the four 3-phase industrial contactors that switch each of these heaters are also continually operating — and bad things happen when the contactors fail, the heater stops working, and the temperature of the plastic falls."

THE HIGH COST OF FAILED \$200 CONTACTORS

Entenza's main problem was that the heavy-duty contactors were failing at unpredictable times, largely because of the damaging effects of arcing between the contact points. Replacing these failed consumable components were not only costly, but also halted production.

"The more we use a machine, the more cycles it goes through and the quicker the contact points fail," says Entenza. "Because we have typically used larger, more robust contactors, they were costing us more than \$200 each. In addition, the process of cutting the power, shutting down the injection molder, replacing the failed contactor, and re-starting the machine takes at least a couple of hours. This is very disruptive to our production runs. I have known for some time that NOsparc® arc suppressors might be the solution to this problem, because you only had to look at the ugly contact points two months after you installed a new contactor to see that arcing damage was being done each time they opened and 1

closed. But my thinking eventually went beyond simply installing NOsparc arc suppressors on these big contactors; I had this idea that NOsparc products might also enable me to use a much less expensive contactor. So I began to formulate a plan."

A REVOLUTIONARY APPROACH

For his next contactor replacement, Entenza purchased an inexpensive 3-contact ice cube relay, and three MMXAC NOsparc arc suppressors. Although this ice cube relay held the same voltage and amperage ratings, it was unheard of to think that it could withstand the industrial use that Entenza had in mind. Even with NOsparc arc suppressors, Entenza wondered if it could even last a week.

"My goal was to create a system that would enable me to get the longevity of the \$200 heavy-duty contactor from a \$20 ice cube relay. I pulled out a failed heavy-duty contactor from one of my heaters, and installed a socket that I purchased with the ice cube relay. I then connected the three NOsparc arc suppressors to the socket, thinking that I might have to frequently swap out the ice cube relays and this would make that process easier."

"I knew from the beginning that an ice cube relay alone would not be a viable solution, but with the NOsparc arc suppressors installed I ran that \$20 contactor for two years. And best of all, when the ice cube ultimately failed – because of failure in the actuator, not the contact points – it took me just 5 minutes to replace. I just pulled the old one out and popped in a new ice cube relay. Not only are we getting a longer lifespan on the relay at 1/10th the cost, but we also have no downtime. It's been remarkable."

TECHNICAL NOTE FOR MRO PROFESSIONALS

Maintenance and repair personnel should maintain the highest standards in caring for the equipment in their charge. While the application in this case study illustrates that an under-rated relay protected by NOsparc arc suppression could fill the role of an industrial contactor, we do not recommend this method. The contactors that you select to protect with NOsparc arc suppression should be the same contactors you would select if you were not using NOsparc arc suppression. You should always use contactors whose ratings and specifications match the requirements of the application. In addition, each NOsparc installation should conform to National Electric Code (NEC) safety standards, as well as to locally applicable codes.

NOSPARC arc suppression is a game-changing technology that will extend the lives of your contactors by 10x or more, reducing downtime, and saving your manufacturing operations a great deal of money in the costs of contactors. Please [contact us today to discuss how NOsparc arc suppressors can benefit your specific operation at 612-928-5269.](#)

About NOsparc® Arc Suppressors

NOsparc® arc suppressors from Arc Suppression Technologies extend the operating life of power contactors and other automated switches by at least 10X, producing enormous cost savings in replacement contactors and motors, scheduled maintenance, and unscheduled downtime. Robust NOsparc products eliminate 99.9% of contact arcing energy at its source, and have immediate uses in thousands of commercial and industrial applications. Never before has there been an off-the-shelf solution to contact arcing that operates across a broad range of AC and DC power applications.
Patented and UL Certified.

"Arc Suppression Technologies has figured out how to eliminate contact arcing damage, and our unique approach suggests that manufacturers of contactors might want to think about redesigning their products to include integrated NOsparc arc suppression. I know that I could have simply installed NOsparc arc suppressors on my heavy duty contactors and got a 10x extension on their lifespan, but now I also know that these same arc suppressors could one day transform the power contactor industry and enable less expensive contactors to outperform the heavy duty contactors of today."