



# DAYTON-PHOENIX-GROUP: NOVEL MATERIAL AND MOLD SOLUTIONS

OPTIMIZED TO MEET THE MOST  
DEMANDING EV REQUIREMENTS

## NOVEL MATERIAL & MOLD SOLUTIONS

- DPG approached us for help solving problems with current Brake Resistor Grids degrading over time, potentially causing fires due to the extreme thermal environment.
- Mar-Bal used Six-Sigma/Op-ex tools to formulate to achieve 300C (572F) for 300 hours (<20%). Cross-functional teams created molding technology, process and 300C material.
- Throughout the process, Mar-Bal worked in collaboration with GE to ultimately solve customer's problem and exceed performance expectations.



# NOVEL MATERIAL & MOLD SOLUTIONS MITIGATE SAFETY & DURABILITY CONCERNS FOR RAIL TRANSPORTATION

## Problem:

- Safety, durability and possible liability issues called for higher performing Brake Resistor Grids. Degrading material and extreme thermal environment could potentially lead to wayside fires.

## How Solved:

- Leveraged Six-Sigma/Op-ex tools to formulate and achieve next generation material solution to achieve 300C(572F) for 300 hrs. (<20%).
- Cross-functional teams created unique and dedicated molding technology/process with optimized finish / deflashing methods.

## Benefit:

- R&D collaboration with GE and DPG resulted in a molecular engineered next generation material enabling the creation of Brake Resistor Grids with significantly greater durability and thermal capabilities, extending brake life and mitigating risk of potential liability for wayside fires.



RESISTOR GRID



RETAINING MECHANICAL  
PROPERTIES AT ELEVATED  
TEMPERATURES