



COMMERCIAL HVAC COMPONENT REDESIGN – THERMOSET REPLACES DIE-CAST ALUMINUM

OPTIMIZED TO MEET THE MOST
DEMANDING EV REQUIREMENTS

DELIVERING THROUGH INGENUITY AND EXPERTISE

- Carrier challenged Mar-Bal to redesign an existing large-scale die-cast aluminum commercial HVAC component.
- Goal was to create cost savings and production efficiencies by replacing aluminum component.
- Due to required 1000T+ press capacity needed to accommodate large part size, Mar-Bal purchased and rebuilt a press custom to this project since one did not exist.
- This process ultimately delivered an industry first, the largest ever injection molded part in the industry.



CARRIER - COMMERCIAL HVAC COMPONENT REDESIGN REPLACES DIE-CAST ALUMINUM CREATING THE LARGEST KNOWN THERMOSET INJECTION MOLDED PART

Problem:

- Carrier sought to develop a first of its kind thermoset solution to replace a large complex injected aluminum part, with a part/material redesign solution to reduce total overall cost and complexity.
- Challenge was to meet customer specifications while developing the largest known thermoset injection molded part.

How Solved:

- First ever large-scale solution required a 1000T+ Press Capacity for large part size (capacity of this scale didn't exist).
- Mar-Bal purchased and re-built a dedicated press and work cell to support the large-scale production requirements.
- Automation was also developed for de-molding, gate removal, & de-flash.

Benefit:

- Collaboration effort successfully developed a material solution (UL 723), mold design, (split cavity), and automation cell.
- Single source solution meets all targets and customer requirements.
- Cost savings that met the customers cost targets and economic profile (ROI).
- Confidence to development additional projects including next iteration of the Casing (Bellmouth), replacing a (2) piece TP design.

