

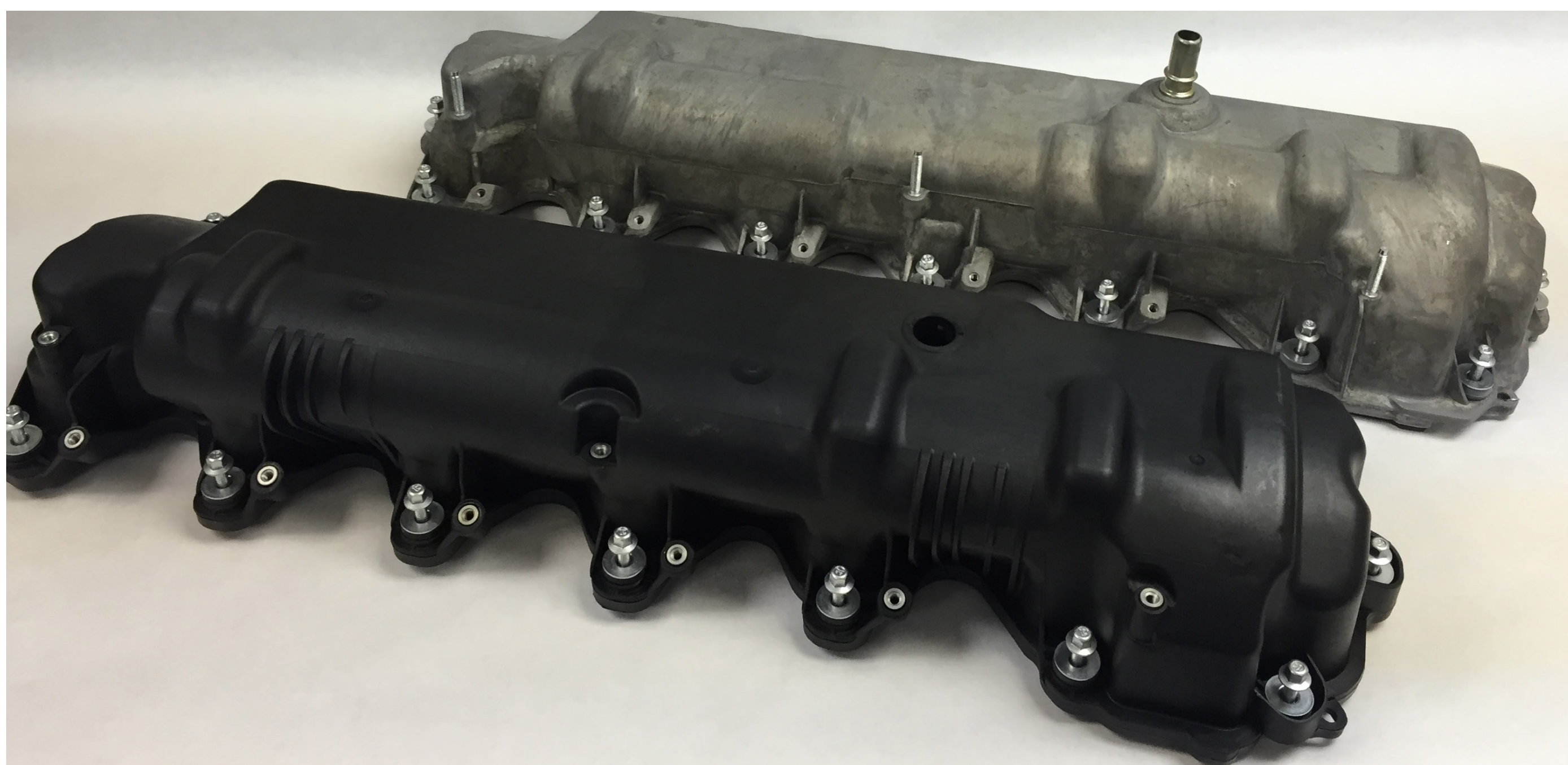


Dana Holding Corporation

Victor Reinz® Thermoplastic Cylinder Head Cover with MuCell®

By using MuCell® – a microcellular foam injection molding process that utilizes nitrogen injected in a super critical state to create microscopic gas cells within plastic structures – the company was able to successfully reduce component weight, while still maintaining durability and stability. The resulting foamed structure replaces what otherwise would need to be a solid plastic part, creating improved product design flexibility and decreased use of plastic material for overall weight reduction.

- The most significant factor in achieving weight savings comes from the MuCell process enabling the complex part to be manufactured with plastic.
- Based on the complexity of the part's geometry, tolerance requirements, and placement in the vehicle, converting the part from magnesium to plastic would have been increasingly challenging – if not impossible – and resulted in a lower weight savings, had the MuCell process not been part of the solution.
- Clearances and tolerances were extremely tight and required a combination of complex tooling and dimensional stability to achieve a functional part.
- In addition to the tight clearances, the head cover structure presents a unique challenge to designers in order to achieve the required stiffness with the different material.
- The MuCell process, combined with Dana's extensive analysis efforts, allowed for a plastic part design that reduced weight while also meeting the part's structural stiffness requirements.



Presented in collaboration with:

