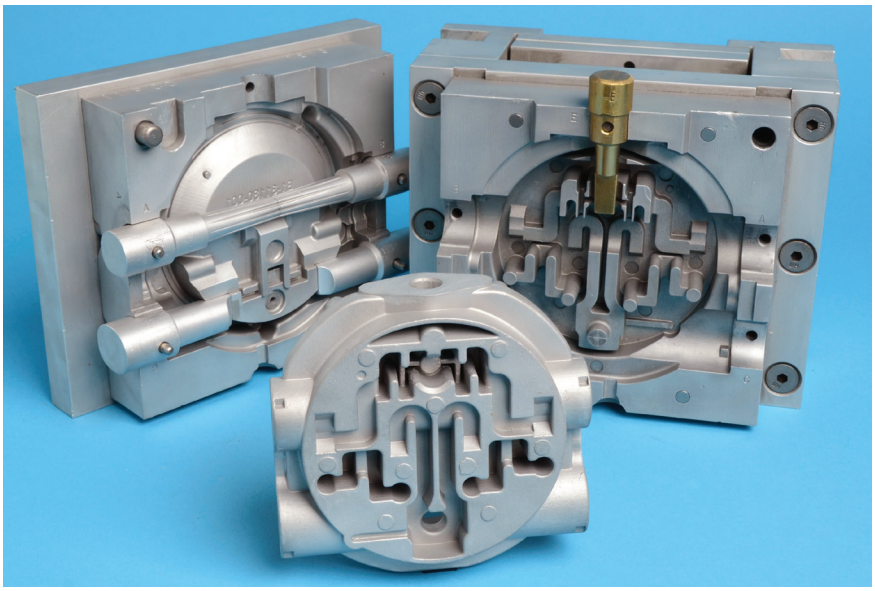
Time Crunch for Complex Component Results in Investment Cast Tooling



A time crunch for a complex investment casting application prompted Aristo Cast, Inc. to take a creative approach and create the tooling itself as an investment casting.

The original part and tooling won the Industrial Award in the Investment Casting Institute's recent Casting Contest.

The component itself– the main valve body for a two-stage converter for LP-gas engines– was challenging enough. This converter delivers superior performance and excellent pressure output consistency throughout service, allowing three options for vapor outlet pressure. This part is not only unique in design but it's also a very complex casting. Besides incorporating many cast-in features on the finished part, machining operations were also eliminated. This offered huge cost savings to the customer.

After the prototype run, this part was proven to be a good design and was then moved to production.

Paul Leonard, Aristo-Cast, noted that when they received the order for this particular component, they also received purchase orders for several of the other mating parts, and the customer was looking to compress timing as much as possible.

"After evaluating all of the tools we needed to complete within the same time frame, we decided to reverse engineer the part and to create a solid model file of the tool design, and to use the in-house 3D Systems, thermo jet machines to create wax patterns of the tool and all of the core pins that would be required," Leonard said.

"We had previously been conducting testing on creating wax injection cavities using one of our in-house wax printers, so we already had accumulated enough information to accurately determine the correct shrink factor to use in printing the patterns."

"After casting, the tool halves and core pins were moved to our in-house tool shop for tool completion," he continued. "With only minor benching, the tool was assembled and ready to produce wax patterns. By combining our prototype and tool-building capabilities, we successfully delivered quality castings to the customer, compressing the delivery by several weeks and saving them valuable time and money .