

R.T. Patterson Company, Inc.

Engineers and Consultants

CLIENT

General Motors Powertrain
Bedford, IN

PROJECT

High Integrity Die Cast Machines with Robotic Cells
in Die Cast South

PROJECT SCOPE

General Motors was developing technology buying equipment and to produce High Integrity Die Castings for high stress chassis components on the new mid-engine Corvette. RTP provided robotic cell layout, equipment design, technical review of offshore Die Cast Machine and die cast cell OEM, installation scope of requirements-drawings and construction engineering assistance. Additionally, RTP provided design for 11 pieces of equipment used in the cell or for quick tool changes.

RTP SCOPE OF WORK

RTP provided the following engineering services:

- Assist in the development of the Scope of Work for OEMs.
- Develop multiple concepts for Robotic Die Cast Cell arrangements.
- Prepare detailed specifications and Scope of Requirements for OEMs and install contractor.
- Develop design drawings for:
 - HIDC specific Robotic Die Cast Cell process layout at floor and basement level.
 - Mechanical, Piping and Electrical utilities installation of equipment in the Die Cast Building.
 - Specialized Thermal Control Unit process piping to overcome Chlorine Stress Cracking.
 - Additional safety guarding, platforms and handrails for die cast machine and die cast cell.
 - Fresh air ductwork and diffusers for operators.



RTP SCOPE OF WORK - Continued

- Provide review and analysis for PE certification of offshore designed gravity safety pin, two fall arrest systems and three process cranes.
- Quick Tool change procedures and equipment for Trim Press dies, Part marker tooling and lube spray head change and 12-unit shelf to store marker tools.
- System for heat transfer oil containment and disposal.
- Redesign OEM inspection table for ergonomic reach.
- Develop new hybrid process layout and robotic die cast cell to convert Block Die Cast cell to HIDC with HIDC furnace and launder under tight deadlines.
- Pack out chute, scrap chute and roll-in scrap carts.
- Demolition and conversion package for Mechanical, Piping and Electrical for hybrid cell.
- Concepts for Furnace and launder system specificat and work with furnace OEM to design equipment to fit a tight floor space.
- Troubleshoot issues with Die Cast Machine hose carriers and provide solution details.
- Redesign Quench Tank pump system and DCM cooling system from metric to US standards.
- Provide On-site OEM review in Italy (2 weeks total).
- Provide on-site construction assistance engineering during installation and online drawing database.

