

# R.T. Patterson Company, Inc.

## Engineers and Consultants

### CLIENT

General Motors Powertrain  
Bedford, IN

### PROJECT

CSS-SGE 10-Speed Die Cast Machines with  
Robotic Cells in Die Cast South

### PROJECT SCOPE

General Motors was buying equipment to produce aluminum SGE and CSS engine block castings and 10 speed transmission case castings. 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 redesign for several underperforming sub systems and safety enhancements.

### 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:
  - Develop Robotic Die Cast Cell process layout at floor and basement level for CSS and SGE engine blocks and 10L1000 transmission cases.



### RTP SCOPE OF WORK - Continued

- Mechanical, Piping, ductwork and Electrical utilities installation of equipment on two floor levels in the Die Cast South Building (6 Die Cast machines with robotic die cast cells).
- Tool change crane for quench tank and overflow detection with PE certified under-the-hook tool.
- Develop additional safety guarding, platforms and handrails for die cast machine and die cast cell.
- Provide review and analysis for PE certification of offshore designed gravity safety pin, two fall arrest systems and three process cranes.
- Special high throw diffusers for operator fresh air.
- Analyze of 50 ton die loading path in and between die cast machines and cells.
- Redesign Quench Tank pump system and DCM cooling system from metric to US standards.
- Above floor and below floor scrap chutes for DCM, Saw and knock off.
- Provide On-site OEM review in Italy (4 weeks total).
- Provide on-site construction assistance engineering during installation and online drawing database.

