

R.T. Patterson Company, Inc.

Engineers and Consultants

CLIENT

General Motors Powertrain
Bedford, IN

PROJECT

Transmission Die Cast Machines with Robotic
Cells in Die Cast North

PROJECT SCOPE

General Motors was buying new die casting equipment to produce aluminum transmission housing and cases in Die Cast North for 18 cells. RTP provided concepts and final plant layout, concepts for robotic cell layout, equipment design, technical review of offshore 3500-ton capacity 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 and plant layouts for an older (1928) plant building with tight column spacing.
- 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 large group of advanced aluminum transmission cases and housings.
 - Mechanical, Piping, Ductwork and Electrical utilities installation on two plant levels for equipment on eighteen 3500Ton clamp capacity Die Cast Machines with robotic cells



RTP SCOPE OF WORK - Continued

- on two floor levels in the Die Cast North Buildings NM2 and NM3.
- Provide PE certification on OEM Shot Rod Changeout Crane.
- Develop additional safety guarding, platforms and handrails for die cast machine and die cast cell.
- Provide review and analysis for PE certification for davit arm attachment on Die Cast Machine.
- Develop equipment installation jig for precise location of robotic components in cell to reduce machine to machine variation and decrease install time.
- Analyze of 50 ton die loading path in and between die cast machines and cells.
- Engineering and specification of heavy duty hose carrier for Die Cast Machine moving platen to extend hose life.
- Above floor scrap chutes for overflow knock off on 3 different foundation styles.
- Elevated platform for lube robot service on top of machine
- Modify service platform to allow access to shot rod with overhead crane.
- Provide design concepts and review for Robotic Die Cast Cell. review Die Cast Machine vendor design for improvements and provide 6 weeks on-site OEM review at LK Machinery in Shenzhen, China.
- Provide on-site construction assistance engineering during installation for tight fitting layouts in small building for 2-year period.

