Making a better manifold in less time means a lot of help from robots at Edelbrock, supplier to the famed NASCAR racing cars.

Race to finish
Edelbrock is a name on the tip of every auto racing fan’s tongue. Widely recognized by NASCAR fans and car aficionados, Edelbrock delivers out-of-the-box products that are second to none. Founded in California in 1938 by Vic Edelbrock, Sr., the company has provided high performance, aftermarket automotive and motorcycle parts for nearly 67 years. What’s more, Edelbrock supplies the only intake manifold licensed officially by NASCAR.

To be the leader in automotive performance parts means the company must cast a multitude and a variety of parts to meet high consumer demand. At present, Edelbrock casts over 2,000 pieces per day in its San Jacinto, California location. The San Jacinto facility faces many highly labor intensive processes, with casting finishing as a frontrunner of these intense procedures. Manually deburring, grinding and chipping of one manifold casting is a main concern and a slow process taking up to 31 minutes to complete. In an effort to lower costs and increase productivity, Edelbrock made the decision to incorporate automation into their process to improve the output of this casting.

The company contacted Rimrock Corporation, of Columbus, Ohio, to provide a light machining system that would allow the flexibility to easily switch from part to part, while increasing productivity.

This automation process begins with an operator who loads parts onto an in-feed conveyor. The conveyor then transfers the parts to an ABB IRB-6400 robot. When a part is present at the robot pick-up location, a 2D vision system
is activated to determine part orientation and position. At this stage, the robot unloads the casting from the conveyor and manipulates it around the finishing tools. As the deburring process completes, the robot places the finished casting onto an exit conveyor and returns to the in-feed conveyor to pick up the next part.

The cell includes the IRB-6400 robot with end of arm tooling, a 2D vision system, in-feed conveyor, finishing tools and safety guarding. The first finishing tool has a solid carbide end, while the second tool is equipped with a two-flute insertable end mill. Both tools contain an 11 horse powered motor and operate at 24,000 repetitions per minute.

The automation cell has empowered Edelbrock with the ability to process parts at a cycle rate of 60.2 seconds, at which the company is currently running. At present, the system is running several types of manifold in the cell; however, with a simple EOAT fixture change, this system will be capable of running up to 12 different types of manifold castings.

Key benefits
- Cycle times have been reduced to 60.2 seconds
- Productivity has increased
- The system allows up to 12 different manifolds casting

FACTS
- Edelbrock, Founded 1938 and recognised as a driving force in the USD 29 billion specialty equipment industry. 4 production facilities in Torrance, California. Own state of the art foundry in San Jacitno, California.
- Rimrock Corporation, Ohio based supplier of automation equipment for High-Pressure Die Casting and Foundry Industries. Supplies a wide range of automation solutions, including ladles, sprayers, extractors and complete turnkey robotic solutions. Rimrock is a strategic partner of ABB Robotics and is North America’s only certified ABB parts and warranty provider.

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