

## **Case History: Linear six (6) bench cylinder head casting system (MEXICO)**



### **Project Requirement:**

The customer had a yearly production requirement of 500,000 cylinder heads.

### **Our Solution:**

The proposed solution consisted of two (2) linear systems, each having six (6) casting benches and each capable of casting approximately 250,000 good cylinder heads per year when operating over three (3) shifts per day.

The benches are arranged in two (2) opposing rows, each row having three (3) casting benches served by mobile multi-axis robots either on ground-mounted or hanging runways.

### **Scope of work:**

More specifically, the pour and coresetting robots are ground-mounted on a single common runway, while the unloading robot runs on a ground-mounted runway beam.

The supply for each system includes core pack preparation using automated devices to weave the top core onto the base cores, and has been pre-engineered to work with a mix of two (2) different castings at the same time. For that purpose, the coresetting robot has been equipped with quick-change connectors and a double gripper.

A specific buffer, designed to hold up to an approximate five (5) minutes of production, is positioned at the carousel discharge station, and separates the casting area from the pre-finishing area.

The external core sections are removed by a hydraulically-operated device at the FIFO buffer outlet. The sprue and runners are subsequently held steady and removed by a robot following a cutting path with a cut-off disc.

This same robot, after picking up the castings from the external core breaking machine, passes the casting by a special viewing camera for an automated check of the casting itself. The operator sees the image on a video screen and can take any necessary real-time steps.

At the final unloading station, the castings are placed in special bins and carried to a compartmentalized cooling station where the casting bin is forced-air cooled by a special fan.

The castings, once cooled and still in their bins, are sent on for finishing operations.