

Case History: Engine block casting system (MEXICO)



Project Requirement: The customer had a yearly requirement of approximately 250,000 engine blocks. The blocks, with embedded cast iron sleeves, were for a V8 engine.

Our Solution: The solution proposed was for eight (8) pouring stations, each capable of producing 35,000 good blocks per year when operating over three shifts per day.

Scope of work: The Scope of Supply for each pouring station includes:

- core pack preparation devices (automated bottom core and top core pick-up stations);
- a coresetting robot to place the core pack into the mold;
- a pouring robot
- a robot to insert the liner sleeves and to unload the casting.

The coresetting and unloading robots have been equipped with dual grippers to sequentially carry out the operations required for putting together the core/liner sets and for unloading the casting.

The sequential steps in the cycle provide for

- the insertion of the bottom cores using the coresetting robot;
- using the unload robot to insert the sleeve liners;
- using the coresetting robot again to insert the top core;
- a dedicated robot is used for the pour itself;
- once the casting solidification process has been completed, the unload robot takes the casting from the mold and places it on the station where the external core butts are broken off and the pouring sprue and runners are removed.

The sleeve liners are preheated to approximately 500° C in a special electrically-heated recirculating hot air furnace before they are placed in the mold

The unload robot handles sleeve liner placement into and retrieval from the furnace in the space of time between two (2) sequential pours.