

Automated Pouring Lowers Cost, Lifts Output

The Dotson Company foundry has had ups and downs over its 130-year history. Now among the leading gray and ductile-iron foundries in the Midwest, it was established as a blacksmith operation more than a century ago. First known for its Little Giant trip hammers used by machine shops and other manufacturers, its product line has varied widely over the decades.

In the midst of a broad manufacturing decline of the 1980s, Dotson Co. scaled back, eliminating its trademark trip hammers, closing its machine shop and aluminum and brass foundries. Under president Dennis Dotson, the company recreated itself as an iron foundry, investing in new melting and molding equipment. Though the strategy created some new difficulties, it eventually helped to increase productivity and profitability.

The strategy has been maintained, and one of the more recent projects involved an expansion of a pouring line with an automated Econo-Pour system from Roberts Sinto Corp. (www.robertssinto.com).

"One of our goals at The Dotson Co. is to convert laborers into machine operators," said Eric Nelson, a metallurgist and one of the first operators of the plant's new Econo-Pour system. "In other words, you are not expected to do a very physically-challenging job, but rather to use your mind to improve the production of your equipment."

More specifically, Econo-Pour has improved the productivity of Dotson Co.'s metal-pouring operation. "We have three hot-metal pouring lines: two manual lines and the Econo-Pour automated line," explained Nelson. "Right now, we have to average our shop improvement with the two manual systems. When we have all three lines fully automated with the Econo-Pour system, we will have over a 5% shop-yield improvement."

Operators were able to make the jump from "physical" to "mental" with ease. "I understood the controls pretty well in about two days," said Nelson. "The 'teach system' is very easy to learn." That system makes it possible for an operator to step in and run the system. Using the control dials to control the pour manually, an operator can store this information so that the system will continue to control operating procedures in the same manner. "It is a very efficient way of programming your original metal requirements," said Nelson.

Because it's so easy to operate, Dotson Co. has found that employees favor the Econo-Pour control system. "It

allows a much better view of the processing system, such as speed, cooling time, and other factors that allow us to monitor all of the on-going procedures," said Jed Falgren, v.p.-manufacturing.

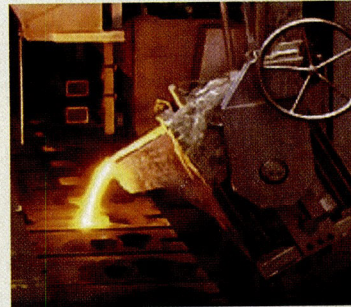
Working in combination with the FBO flaskless molding machines (also supplied by Roberts Sinto), Econo-Pour helps Dotson Co. speed changeovers over the range of its castings, from a few pounds up to 50 lb.

Falgren explains, "once we have a pattern change on the FBO IIIS, which normally only takes three or four minutes, the molds move through the new mold-accumulator handling system to the Econo-Pour. The Econo-Pour system recognizes the new mold and asks the operator to confirm the new mold. The operator merely presses a button to confirm the new mold and within seconds the Econo-Pour is pouring metal to the exact rate required by the new casting. This system allows us to process a new job from first mold to full automation in just a few minutes. This is done by the shop floor operators," said Falgren.

The Econo-Pour system includes load cells and a vision monitor that accurately controls pouring weight and automated features that help improve productivity.

The Dotson Co. reports that its installation of the Econo-Pour system on the two lines, along with the rest of the Roberts Sinto equipment, has improved shop-yield dramatically. "This is primarily resulting from the reduced overpours that happen during manual pouring," explains Dennis Dotson. "This is a full 4%, so depending on how it is calculated, it could be said that it is a 33% reduction in waste.

"We are always looking for ways to reduce costs and improve productivity," continues Dotson. "In our pouring line we were looking for a way to ensure consistency in pouring hot metal from our first to last mold. Roberts Sinto's Econo-Pour automated pouring system provides us with that consistency."



The Econo-Pour system is "a very efficient way of programming your original metal requirements," according to metallurgist Eric Nelson with The Dotson Co.