

# **Pryor**

Pryor Foundry, Inc.  
Pryor, Oklahoma

## **Smart Pump Case Study**

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**Introduction**

Pryor Foundry, Inc. has been in operation for 20 years. They specialize in medium to large ductile iron castings for industrial and commercial applications.

**General Foundry Information**

Product Line:	Back hoe arms, specifically for JI Case, and axle housings
Casting Metal Type:	<ul style="list-style-type: none"> <li>• Ductile Iron</li> </ul>
Melting Facilities:	Electric Induction Furnaces (3, 8, ton/hr melters and 4 holding furnaces)
Sand Facilities:	<ul style="list-style-type: none"> <li>• Core Processes                             <ul style="list-style-type: none"> <li>Phenolic Urethane No-Bake</li> <li>Isocure</li> <li>Shell</li> </ul> </li> <li>• Molding Processes                             <ul style="list-style-type: none"> <li>Green Sand</li> <li>Phenolic Urethane No-Bake</li> </ul> </li> </ul>
Cleaning Facilities:	<ul style="list-style-type: none"> <li>• Blast</li> <li>• Grinding Stations</li> <li>• Cleaning Booths</li> </ul>

## **Pryor Smart Pump**

### **Project Objective**

The main objective was to gain overall control of their No Bake sand mixing system and enable them to reduce binder consumption. They wanted to improve the quality of their castings by reducing the overall process tolerance. An additional need was to significantly reduce mechanical problems.

### **Original Problems**

- Continuous maintenance problems with existing chemical addition system
- Inaccurate and inconsistent chemical additions
- Addition of extra chemical to compensate for pumping fluctuations
- Resin and labor costs associated with daily calibrations of pumping system
- Scrap molds due to fluctuations in chemical delivery

### **Solution**

They installed the MT Systems Resin Control System on one continuous mixer. This was the first of possibly 3 or 4 stages. The system was designed to give them the ability to control chemical additions with the confidence of repeatability and reliability.

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## Smart Pump

### Results and Benefits

- Reduced average chemical levels by 17%
- Reduced maintenance downtime and maintenance expenditures
- Reduced mold scrap
- Reduced casting scrap
- Reduced binder cost per castings by lowering the resin percent
- Better shake out due to reduced resin levels
- Increased productivity by making the job right the first time
- Lower LOI's on reclaimed sand
- Improved process capabilities by over 50% as supported by SPC Data

### Monetary Savings/Pay Back

- Original projected time .7 years
- Actual pay back time .7 years
- Projected Annual Savings \$128,000
- Lower manufacturing costs
- Better competitive position in the market place