



CASE STUDY: CAPITAL COST SAVINGS

SIGNIFICANT CAPITAL COST SAVINGS



THE PROBLEM

Sand casting processes are complex. Many cores and molds come together in precise quantities to form a complete core package. However, some cores are created quickly and easily, while others are formed with much more difficulty. When designing any core package, the quantity of core making stations, tooling sets and robotic core handling machines are allocated as determined by strict throughput requirements. When one link in the chain is weak, the entire process suffers. Excessive core scrap or cycle times will

quickly cripple productivity and profitability. Alternately productivity can be maintained at the cost of extra core making machines, tooling and robots - all capital costs!



THE SOLUTION

Arena-flow is the foundry engineering software package used to simulate the filling and curing of sand cores and molds. While one thinks of Arena-flow as primarily used for cores, the influence of proper sand core engineering technology utilization often has far greater scope. Engineers can now systematically eliminate the worst core making problem from a sand casting line, each time increasing productivity and reducing capital requirements.



THE COST-SAVINGS

One Arena-flow customer, who specializes in casting aluminum engine blocks and heads using cold-box cores in green sand or precision sand molds, was struggling with an engine head core that was taking significantly longer to cure than the cycle time allowed. In fact, the area shown at left was taking three times longer to cure, than the rest of the core. Of course productivity was maintained, at the cost of an extra core machine, tooling and the staff to keep it all running. The problem was analyzed using Arena-flow, and once the issue was understood, various venting changes were optimized using the software. The simulated configuration with the fastest curing time was implemented, resulting in a curing time which fit within the allotted cycle time.



YOUR FOUNDRY APPLICATION

Are you reactive or pro-active when it comes to aggressively making and achieving productivity targets? Are excessive hardware requirements eroding your bottom line? You know what core is limiting your overall productivity.