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Theory of Constraints: Application to the Foundry Industry

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Abstract: *The Theory of Constraints (TOC) is a management approach that identifies and mitigates bottlenecks in production systems to maximize efficiency. In the foundry industry, constraints arise in melting, moulding, core making, pouring, cooling, and finishing processes, limiting throughput. This paper explores the application of TOC in foundries, emphasizing its five-step methodology to optimize production. By identifying, exploiting, and elevating constraints, foundries can enhance productivity, reduce lead times, and improve resource utilization. TOC also enables better quality control and cost reduction, leading to competitive advantages. Despite challenges such as resistance to change and initial investment costs, TOC fosters continuous improvement in manufacturing. Implementing TOC ensures higher efficiency, reduced waste, and sustainable operational growth in foundry processes.*

Keywords: Theory of Constraints, Foundry Industry, Bottlenecks, Productivity, Continuous Improvement, Metal Casting, Efficiency Optimization

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