**Optimization the multi gating system for the experimental investigation in flow parameters with effects of design in small scale industries**

I. Rajkumar1, N. Rajini2, S. Siva sankar3, K. Sainath reddy4, V.Vigneswaran5.

*1 Assistant Professor, Kalasalinagm Academy of Research and Education, Krishnankoil, Virudhunagar, Tamil Nadu.*

*2 Professor, Kalasalinagm Academy of Research and Education, Krishnankoil,*

*Virudhunagar, Tamil Nadu.*

*3,4,5 student, Kalasalinagm Academy of Research and Education, Krishnankoil,*

*Virudhunagar, TamilNadu.*

1Corresponding author email: [irajkumarilango@gmail.com](mailto:irajkumarilango@gmail.com)

**Abstract**

The casting is especially manufacturing process used for the production of many engineering components especially in the field transport industries. Industrial and research experience has shown that casting quality is significantly affected by the flow of molten metal through the gating system before entering the mold cavity. For achieving quality casting components, effective design of the gating system is standing front. The gating system comprises of one or more pouring basins, sprues, runner, location, sprue well, gate, shape, size, and casting of these elements. they are two different types of gating system the first name is End Sprue Parallel Connection (ESPC) and centre Sprue Parallel Connection (CSPC) through experimental investigations of the geometric model. The parameters like velocity, volume through gates (cm3), discharge through gates(cm3/sec) to analyse with the source of water medium. Since the results are obtained closing different gates at a different time. They are applicable for any metal which is having the similar to the kinematic viscosity of water. The experimental observation of water flows in a horizontal modular transparent multi-gate system developed in the lab and the total time required to optimize the gating system to design for a given casting.

**Keywords:**casting, water mould, density.