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Gating Systems for Casting

Summary

Gating and risering systems are important for the final quality of the casting achieved. To this extent, there are a number of elements that are present in the path of the molten metal.

- Pouring basin, sprue, sprue-base well, runner and runner extension serve the purpose of allowing clean molten metal to enter the mould cavity.
 - Parting gate is the most widely used gate while the top and bottom gates are sometimes used for specific applications that favour them.
 - Fluid mechanics laws together with empirical relations are applied to design the optimum gating system.
 - It is important to make sure that slag entering the gating system be removed completely before the metal enters the mould cavity.
 - Risers compensate for the volumetric shrinkage taking place during the solidification of the molten metal inside the mould cavity.
 - Caine's method provides a simple procedure to size the risers in sandcastings, while the modulus method is more elaborate and provides a better design.
 - Sometimes chills may need to be added to reduce porosity at isolated sections that are not fed by risers.
 - To reduce the size of risers, feeding aids such as riser sleeves are often used.
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