Effect of molten metal pressure in the pouring basin on fins casting in the mould cavity

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Abstract
The need for thin-wall castings continues to grow as it is driven by the demand to improve performance and reduce production costs. Thin wall parts can be produced with good dimensional accuracy and controlled physical and microstructure properties. They present special challenges both in preventing misruns, cold shuts and other related casting defects. Experimental work has been carried out using water models to find the contribution of the liquid metal pressure in the pouring basin on the filling of fins in the mould cavity. The results show that the molten metal pressure in the pouring basin has a profound effect in the filling of horizontal fins in metal castings, and formulae for liquid flow through capillary tubes have been presented.

Keywords
Capillary channels,
Metal casting,
Viscosity,
Surface tension,
Mould activity,
Fins casting.