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Optimal cooling system design for injection molding process

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During these last ten years, IPC resources have been mainly focused on mold thermal control design optimization especially in regard with conformal cooling technology. The global objective is to provide robust and efficient mold design that enables to combine these two following antagonist performance criterion: cycle time reduction and product quality improvement. A numerical methodology, called MCOOL®, has been developed [1] in order to help plastic engineer to optimize their polymer processing mold cooling systems. The main outcome is to design thermal control system without any hypotheses about the number, the size, the location, the shape and the control temperature of cooling channels.
Based on MCOOL®, a numerical workflow has been carried out to design an injection mold for automotive application. The process of translation of industrial needs into material modelling workflow enables a better understanding of heat flow into the mold and the polymer. Benefit of modelling in business decision will be explained through numerical and experimental validation.

REFERENCES

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