



additive.COOLING

ADD COOLING TO ADDITIVE MANUFACTURING

additive.COOLING project addresses the difficulty in obtaining pieces by injection, resulting from inconsistencies in temperature control and inadequacy of the cooling system that increases the time of the injection cycles and the total cost of manufacturing. These systems are usually machined, making the thermal cycle inefficient. Therefore, the project intends to develop a new *HOT.COOLING* (dynamic heating and cooling) by gas flow rather than by the application of the usual refrigerants. This one is based on the hypothesis that the water vapour overheating will raise the mould's temperature near the melting point of the thermoplastic immediately prior to its injection. After the instantaneous heating, CO₂ flow is inserted for the immediate cooling of the piece. On the other hand, modeling the inserts with conformal channels and alveolar structures by additive manufacturing (*laser selective fusion*) and subtractive (*milling*), gives greater precision and smoothness of the surfaces and the overall optimization of the process.

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