This paper presents a software tool for automating the design of cooling systems for injection moulding and a validation of its performance. Cooling system designs were automatically generated by the proposed software tool and by applying a best practice tool engineering design approach. The two different design methods (i.e. automatic and manual) were applied to the mould design of two thin-walled products, namely a rectangular flat box and a cylindrical container with a flat base. Injection moulding process simulations based on the finite element method were performed to assess the quality of the moulded parts. Results indicate the tool is capable of generating feasible cooling solutions. Recommendations are provided for improving the performance of the tool.